ANL/ICES-TM-15

DEVELOPMENT OF AN IDENTIFICATION SYSTEM FOR POTENTIAL ICES PROJECTS

ARGONNE NATIONAL LABORATORY

ENERGY AND ENVIRONMENTAL SYSTEMS DIVISION

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Informal Report ANL/ICES-TM-15

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DEVELOPMENT OF AN IDENTIFICATION SYSTEM FOR POTENTIAL ICES PROJECTS

Prepared by
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for

Energy and Environmental Systems Division
Argonne National Laboratory

November 1978

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
5285 Port Royal Road
Springfield, Virginia 22161

TABLE OF CONTENTS

INTRODUCTION

The Energy and Environmental Systems Division of Argonne National Laboratory has undertaken or commissioned a number of studies of Integrated Community Energy Systems -- ICES. One such study, Formulation of Market Strategies for Integrated Community Energy Systems, prepared by Real Estate Research Corporation, provides an overview of methods for developing marketing strategies for ICES. One aim of that document was "to establish an information system for identifying areas, sub-areas, sites or projects with substantial growth or development activity, as potential candidates for the application of ICES."

This report summarizes RERC's effort to implement and test such an information system. The assignment consists of two relatively discrete tasks. First is an attempt to identify areas of the country which as a consequence of past and forecast growth trends would be likely to generate construction projects of a size sufficient to support an ICES. Second, to identify and describe specific projects now being planned which meet basic ICES threshold size criteria and represent, therefore, projects typical of those which would be participant in a widespread adoption of the ICES concept.

This study does not purport to stand as a formal analysis of the market for ICES applications nor does it attempt to rigorously measure the demand -- current or projected -- for Integrated Community Energy Systems. ICES is at present as much a concept as it is a "product" readily available to the construction and engineering/design industry. As a result, it is premature to assess "the market" for such a complex system. Indeed, the basic assumption underlying this report is that each land use sector presents a different ICES potential, and that meaningful studies of demand and potential market penetration must be cognizant of the peculiar factors which affect development activity within these sectors. This report provides a practical orientation to basic land use sectors -- residential, commercial, industrial, institutional, transportation -- and summarizes the type and scope of development activity represented in diverse geographic areas.

The specific objectives of this report can be summarized as follows:

(1) To identify and collect basic information on 150 large scale construction projects. The methods employed to locate these projects are described in the following chapter. The projects themselves -- their location, size, type, etc. -- are briefly summarized in Chapter 2.

(2) To identify areas of the country -- i.e. states and SMSA's -- which evidence general growth characteristics that would support ICES applications. An overview of growth patterns, based on increases in population and employment, is provided in Chapter 3.

(3) To identify regions, states and SMSA's which display higher than average energy costs. Areas of high cost or low expansion capacity may be especially amenable to ICES applications. Data on this issue are surveyed in Chapter 3.

(4) To identify regions, states and SMSA's which have experienced significant activity in identified land use sectors and subsectors. Chapters 4 through 8 detail recent development activity in the commercial, industrial, residential, institutional and transportation sectors. Mixed-use projects are included within the commercial sector.

In addition to the identification of ICES candidate projects and the identification of growth areas, this assignment provided an opportunity to establish contacts between Argonne National Laboratory and some of the relevant participants in the real estate marketplace. A natural outgrowth of the extensive telephone interviewing which accompanied the project identification effort was the indentification of key individuals who are interested in the ICES concept. Chapter 2 contains a brief overview of the reactions of the individuals and professional groups in the course of the assignment. These observations in no way constitute a systematic survey of developer opinion, but they do provide preliminary clues to which market segments are predisposed to an interest in energy conserving technology.

The organization and format of this document reflect RERC's understanding that Argonne National Laboratory's immediate interest is the compilation of sound and useable data. The 153 project forms completed during the assignment respond to one dimension of this data need: information on a wide variety of large scale construction activities. This report emphasizes the presentation rather than the interpretation of development data. The annotated bibliography outlines existing data sources so that the statistical material can be augmented and updated as necessary. Elaborate conceptual or statistical manipulations have been eschewed in favor of an approach which provides data arrays in a form convenient to further analysis by ANL.

1 METHODOLOGY

OVERVIEW

Two simultaneous approaches to data collection are employed to identify specific ICES candidate projects and to isolate areas of the country which, on the basis of past population, economic and construction trends are likely to continue to grow and to provide a context conducive to real estate development. As described below, the approach to project identification relies basically upon professional, technical and trade organizations and their publications for leads on the location and size of currently planned construction projects. The approach to the identification of growth areas, on the other hand, relies upon aggregate statistical indicators applied to states and SMSA's to screen areas of rapid or large scale growth.

Neither approach is without inherent weakness. Reliance upon the judgments and opinions of professional organizations and experts within each of the land use sectors does not provide a systematic and easily replicable methodology. Reliance upon aggregate statistics, which are proxies for direct indicators of construction projects, may shed light on past trends but provides modest insight into short term future construction prospects. However, it is felt that a blend of the two approaches serves to maximize the strengths of both while minimizing their individual biases. Thus, information gleaned from statistical screening has been applied to the effort to identify specific ICES candidates and technical market insight supplied by sector and sub-sector experts has led to modifications in the findings produced by the statistical analysis.

A number of operating conventions and assumptions, mutually agreed upon by RERC and ANL, have guided the project and area identification process. These assumptions serve to limit the scope of the work and to focus effort on the most meaningful ICES candidate projects. Four of these operating conventions are especially important, and can be outlined as follows:

- Five land use sectors are defined: industrial, institutional, commercial, residential and mixed-use. A sixth category -- transportation -- is included in the analysis, with the recognition that this sector holds limited promise for ICES applications. A quota of 30 projects was established for each of the five land use types, and the project identification process was established with these numerical goals in mind. Thus, equal weight is given to each sector in this preliminary study even though the actual distribution of construction activity is not evenly apportioned nationally or in any given geographic area.

- The real estate development process follows a generic, or prototypical chronology from initial project conception, through planning, construction and occupancy. In this assignment, emphasis has been placed on identifying projects which are in the planning stage; that is, projects which have been publicly announced but which have not yet begun construction It is in principle possible, albeit difficult, to identify projects before detailed engineering and architectural work has been done. It is relatively easy to identify projects which have commenced construction. Projects in the planning stage are important because they reflect current thinking about energy systems options and because they are possible candidates for ICES demonstrations.

- ICES is a complex concept, reflecting a wide spectrum of potential applications. For this assignment, arbitrary but realistic threshold criteria are employed to screen projects with ICES potential from those without such potential. Although it is recognized that project features other than size -- i.e. areal configuration -- impact ICES applicability, the following square footage definitions conveniently distinguish ICES candidates.

Land Use Type		Minimum Size
Office Buildings	-	200,000 sq. ft.
High-rise residential	-	300,000 sq. ft.
Low-rise residential	-	400,000 sq. ft.
Shopping center	-	200,000 sq. ft.
Other commercial	-	200,000 sq. ft.
Hospital	-	200,000 sq. ft.
Educational Institution	-	300,000 sq. ft.
Correctional Facility	-	300,000 sq. ft.

- In both the statistical screening and the project identification a short time horizon is assumed. In other words, rather than focusing on potential markets for ICES on a five year, ten year or even longer time span, emphasis is on isolating areas of the country which are now evidencing or are on the verge of witnessing large scale physical growth. Unfortunately, available aggregate statistical indicators are not especially useful for short term forecasting. At the same time, key parameters of construction outlooks -- such as interest rates -- are not normally forecast for periods longer than one year. As a result, projections by professional and trade organizations -- which are normally quite informal and not necessarily accurate -- are of great importance.

The following sections detail the approach taken to identify candidate projects and to assess likely growth areas of the country.

PROJECT IDENTIFICATION

To identify potential ICES candidates in each land use sector, four major approaches were followed. These are:

1) Contact with professional and trade organizations

2) Review of professional trade journals

3) Telephone inquiries to developers thought to be planning projects

4) Telephone calls to governmental officials who have to give approval for certain types of development projects.

Since it was determined that only projects in the planning stage would be of interest for this study, many projects further advanced along the development continuum which would be large enough for ICES were eliminated.

Following is a description of how projects were identified for each land use sector. These descriptions focus on the actual process followed by RERC within each construction area. An annotated bibliography accompanies this report. This bibliography contains the published sources which were useful to this study.

Commercial

Commercial projects proved to be the easiest to identify. The primary sources of information on new office projects are The National Real Estate Investor, and Buildings. These journals contain announcements of planned office building construction throughout the United States. Local newspapers in their real estate sections, and business journals, such as Crain's Chicago Business, are also useful sources for these announcements. Follow-up on these projects was made with the developer to obtain detailed information for the project forms. Professional associations did not prove useful for identifying specific office projects.

Shopping center developments were also easy to identify. Despite the fact that the trend is toward fewer and smaller centers, there is a considerable amount of new construction activity. Trade journals, such as Shopping Center World, provide information on particular projects being planned and the names of large shopping center developers. 1978 Shopping Center Leasing Opportunities, published by the International Council of Shopping Centers, lists many centers opening in the near future. These sources identified projects, and direct contact was then made with the developers to find out details on particular projects. In many instances, publicly-held companies sent copies of their annual reports which list all of their upcoming projects.

To identify hotel projects, two major information sources were used. The first is the American Hotel and Motel Association's monthly publication, Construction and Modernization Reports. Announcements of planned hotel and motel units are included, as well as convention centers which are part of hotel complexes. Once large scale projects were identified, the developers were contacted directly. The other source was the official announcement by the U.S. Department of Housing and Urban Development of its Urban Development Action Grant awards. Many of these grants are for projects which include large new hotels. Once these cities were identified, the city's planning or community development agency was contacted for detailed project information.

Mixed use projects usually include a commercial component and as such were generally identified in the manner described for offices, shopping centers and hotels. Many HUD Urban Development Action grants have been awarded for multi-use projects, and this proved to be a useful identification method.

Residential

Developers active in multi-family housing construction were identified in recent issues of Multi-Housing News, The National Real Estate Investor and Professional Builder. These journals also contain information on projects being planned. These developers were contacted to see if they had any projects in the planning stage which would be large enough for an ICES. It was difficult to locate developers planning apartment projects large enough for ICES (a minimum of 300 units in a high-rise and 400 units in a low-rise development).

Another approach successfully employed to identify several potential ICES candidates, was to call a city planner in those SMSAs experiencing rapid multi-family residential growth. These officials often know of large projects if special planning or zoning approvals are needed. Planners were cooperative, and if a potential ICES project existed, they provided names and phone numbers of appropriate developers to contact directly. Several residential projects identified are UDAG projects and were thus identified through the list of HUD grants.

Industrial

A number of different approaches were used to collect information on free-standing plants and industrial parks for the project information file. Recent issues of Industrial Development's "Million Dollar Plants" column, were the first lead for many of the free-standing plants. Projects which appeared to be of adequate size and in the early stages of the development process were contacted for further information. Suggestions of potentially appropriate planned industrial developments were also gained from RERC contacts

and the firm's general knowledge of the real estate field. The National Association of Industrial and Office Parks provided a partial list of major industrial developers, some of whom were contacted about projects they might have in the planning or early development stages. Unfortunately the incompleteness of this list precluded a more thorough screening of major industrial developers.

A final source for identifying projects was the HUD listing of UDAG recipients. A number of cities have plans to use these funds for in-city industrial park development.

Institutional

Hospitals

The American Hospital Association provided a list of all of the state Certificate-of-Need agencies and health review agencies where certificate-of-need has not yet been inacted. These agencies are required by federal law to review and approve all large scale capital expenditures proposed by health care institutions in their respective states.

RERC contacted the appropriate state official in states which had been identified through the statistical screening as having the highest levels of health care capital expenditures. Most state officials were cooperative in sending their monthly docket of project applications or explaining verbally which, if any, projects would be large enough to qualify as ICES candidates. From the dockets, it is easy to identify projects which could be possible ICES candidates. It should be noted that in a number of states (Indiana and Texas for example) one must pay for a subscription to the docket.

Once projects were identified, the hospital administrator responsible for facilities planning was contacted directly for detailed information. Most hospital officials were receptive to information requests, though in the majority of cases, the projects did not meet the threshold criterion for ICES.

Educational Facilities

Two approaches were employed to identify these projects. The first was to contact the higher education officer for the largest states to discuss any public construction in the state. These officials were helpful in determining whether any projects were planned, and if so, who to contact at the particular institution for detailed information. This was generally a person in the Facilities Planning or Physical Plant Administration office who could give details on the project. The state officials were not informed about private institutional construction within the state.

The second method used was to contact a number of professional associations which deal with these issues. The most helpful was the Council of Educational Facility Planners which provided RERC with a list of about 30 facility planners who were considered likely to be involved in projects with ICES potential. These individuals were contacted, and a number were found to be planning major projects. Many were involved in projects which were too small to be ICES candidates, but they were able to furnish names of schools with larger projects underway.

Government Buildings

For Federal projects, contact was made with the General Services Administration, Public Buildings Service. The Assistant Commissioner for Space Management provided RERC with a list of projects which have been approved by Congress but for which construction has not yet begun. From this list projects were identified which appeared to be large enough for ICES and then specific information was requested for these projects . Unfortunately, the information was received too late to be included in the 150 project forms. However, the GSA list is a useful device for future ICES candidate identification efforts.

To identify state projects, the state General Services departments were contacted. It was a trial and error exercise to locate the most appropriate official, because the offices and titles are different in each state. They include Department of Administration-Capital Construction, Department of Public Works, State Building Authority, Department of General Services-Bureau of Construction, General Administration-Engineering and Architecture, and Division of Facilities Planning and Construction. In addition to the many names, very often there is no central state authority responsible for capital projects. In these cases, each state agency handles the planning for its own new buildings.

Corrections

To obtain specific projects, the 50 states and Washington, D.C. were screened on the basis of a survey of state corrections construction plans conducted by Contact, Inc., an organization which publishes informational newsletters on corrections. Those states which indicated that construction projects were planned or that they were under court order to relieve overcrowding, were contacted. A list of state corrections officials was obtained from the Council of State Governments. Most officials were very helpful in giving us the information requested.

Military Facilities

The Department of Defense, Office of the Assistant Secretary for Public Affairs provided RERC with the Fiscal Year 1979 Military Construction Program. To obtain detailed information on particular projects contained in the construction program, the planning official or information officer at the military facility was contacted.

In several instances, the officials at the installation were unaware of the project. In those situations, information was obtained from the Office of the Navy in Washington, D.C. for a naval project and from the Deputy Assistant Secretary of Defense/Installations and Housing in Washington, D.C. for Army housing projects.

Transportation

To identify inter-city terminals, attention was focused on the states with the highest planned average annual capital expenditures for the 1972-1990 period. The top four states -- Missouri, Illinois, Pennsylvania, and New York -- represent over 80 percent of the total planned capital expenditures in this period. Calls were made to the appropriate officials in the state Departments of Transportation for referrals to the project managers or other knowledgable individuals for the specific planned projects. In those instances where a more specific contact was known, that individual was contacted directly.

The Federal Aviation Administration's Office of Airport Programs-Airport Planning Division was the source for those cities for which major airport work was either contemplated or underway. This office provided both the names of the existing airports and the individual in charge of these airports to contact for further information.

DEVELOPMENT ACTIVITY BY SECTOR

Each land use sector has been reviewed separately, so that the peculiarities of development in each sector could be analyzed. Although in some situations an area may be growing in all types of development, in other cases only one or two sectors are experiencing substantial growth. Since it is important that these areas be identified, each land use sector has been screened for growth. This is in addition to an overall screening for national growth trends.

The overviews of development in each land use sector incorporate information derived from a number of secondary sources. The basic sources include United States Census data; National Planning Association data; compilations of statistics on new construction for individual sectors as published by professional organizations; professional and trade journals; professional and trade organizations; appropriate governmental agencies; and interviews with developers and institutional facility planners.

The specific data used for screening states and SMSA's in each sector are described in the respective chapters of the report. In some cases a direct measure of development activity is unavailable, so a proxy had to be employed. Examples of indirect indicators are change in employment, change in population and change in the number of households for states and metropolitan areas. Although there is not an exact correlation, it is reasonable to assume that in a given location a large increase in industrial employment, for example, is accompanied by an increased level of construction of manufacturing facilities.

The population, employment, household, and per capita income estimates used in this report are drawn from data in the National Planning Association (NPA) 1977 Regional Economic Projection Series. The 1970 population and household data are based on the 1970 Census of Population and are adjusted from April to a July base. These figures are also adjusted for the undercount estimates of the Bureau of the Census. Population estimates for 1975 are from the Federal-State Cooperative Program for Population Estimates (P-26 Series), while household estimates are from Current Population Reports (P-25) of the Census Bureau.

Employment data are derived from two sources: Bureau of Economic Analysis, Department of Commerce Survey of Current Business provided the national industry job counts; Employment and Earnings, a publication of the Bureau of Labor Statistics, Department of Labor, provided State and SMSA non-agricultural wage and salary estimates. Additional data are derived from the Bureau of Census County Business Patterns, Department of Agriculture's Farm Labor and the Civil Service Commission's Annual Report of Federal Civillian Employment by Geographic Area. Income estimates are from the Bureau of Economic Analysis.

The projections for 1980 and 1985 are from NPA's Regional Economic Projection Series model. This is a "top-down" model where national forecasts are solved first and then state level projections are made. SMSA projections are then determined from the state forecasts. Population, employment and migration forecasts are first made from cohort analysis for population and an economic base multiplier analysis for employment. Migration is used to resolve the differences in labor market demand and employment forecasts.

The metropolitan area definitions used in this report are those of the 1975 Office of Management and Budget and are the same as Standard Metropolitan Statistical Areas except in New England. In New England, the metro areas are the New England County Metropolitan Areas. The per capita income data are expressed in constant 1972 dollars.

When metropolitan areas are compared to each other with respect to their growth statistics, the effect of size should be controlled. In order to minimize the effect of size on the analysis, the 272 metropolitan areas are separated into six groups according to their estimated 1975 population. The six groups are defined as follows:

	Metropolitan Areas with Population	Number of Metro Areas
Group 1	2,000,000 or more	15
Group 2	1,000,000 to 2,000,000	20
Group 3	500,000 to 1,000,000	37
Group 4	250,000 to 500,000	69
Group 5	150,000 to 250,000	57
Group 6	less than 150,000	74

By separating SMSAs in this manner, a more realistic view of growth is possible. A large SMSA such as Houston may have a large population and employment base in 1970. Even though it may grow by a large absolute number, its percentage increase would be small. A less populated SMSA such as Fort Collins, Colorado may experience a very large percentage increase, but absolute growth is small none the less. It is therefore necessary to examine both the absolute and relative change since some prime locations for the application of ICES may be large SMSAs with moderate levels of relative growth.

For clarity and convenience this chapter is divided into three parts. The first section provides a brief orientation to and capsule description of national level construction trends. The second section summarizes the 153 Information Forms completed during the course of the assignment. And the third section conveys tentative impressions concerning interest in ICES among developers of each land use sector.

NATIONAL CONSTRUCTION TRENDS

The data presented in the following chapters are not easily amenable to summarization. Indeed, the strategy of this report is to disaggregate data into sector-by-sector analyses in order to most appropriately deal with the peculiarities of the respective land uses. Therefore, overviews of each land use sector are contained in the following chapters of the report.

There is, however, utility in establishing the overall construction context in which individual sectors operate. As seen in Figure 2-1, the value of new construction put in place, a convenient measure of national activity, has increased dramatically since 1975. This trend is continuing through 1978, although the velocity has diminished, and is expected to persist into 1979.

Figure 2-2 breaks these data into market segments. The residential share -- 45% in 1972, 48% in 1977 -- is clearly the largest single component of the new construction industry. The other sectors, from left to right on the graph, comprise increasingly smaller shares of new construction. Several features of this display are noteworthy:

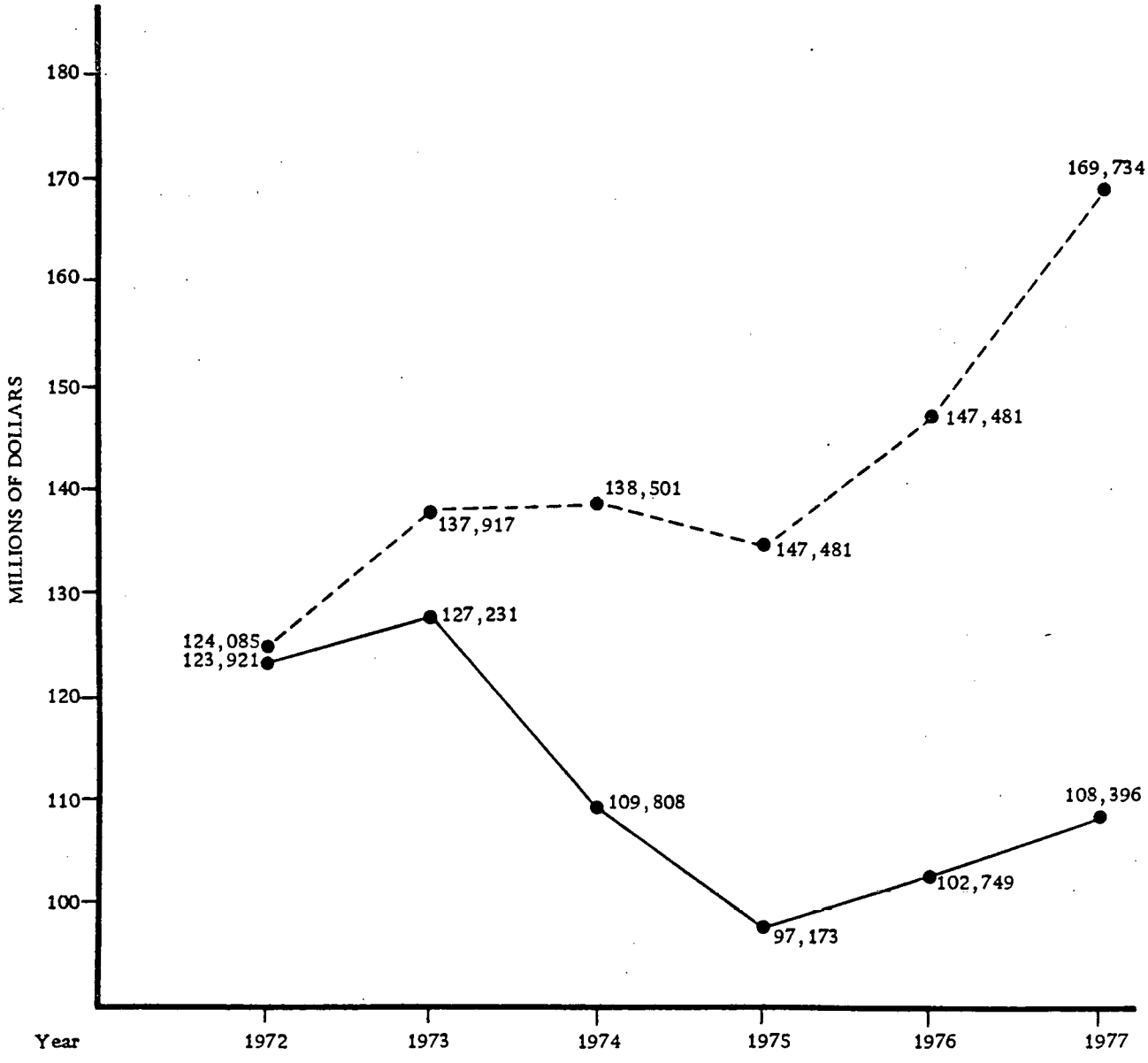
- The institutional and public construction sectors account for approximately 25% of the annual new development activity. Such structures are not directly subject to the market forces which constrain private sector development.

- Although residential construction is the single largest category, it consists of four quite distinct components: single family, multi-family, additions and alterations and public housing. Of importance to this study is the fact that the value of new multi-family construction represents a small and declining share of the larger residential sector. In 1972, multi-family construction comprised 38% of the residential share. In 1977, the proportion declined to 16%.

FIGURE 2-1

TOTAL NEW CONSTRUCTION PUT IN PLACE

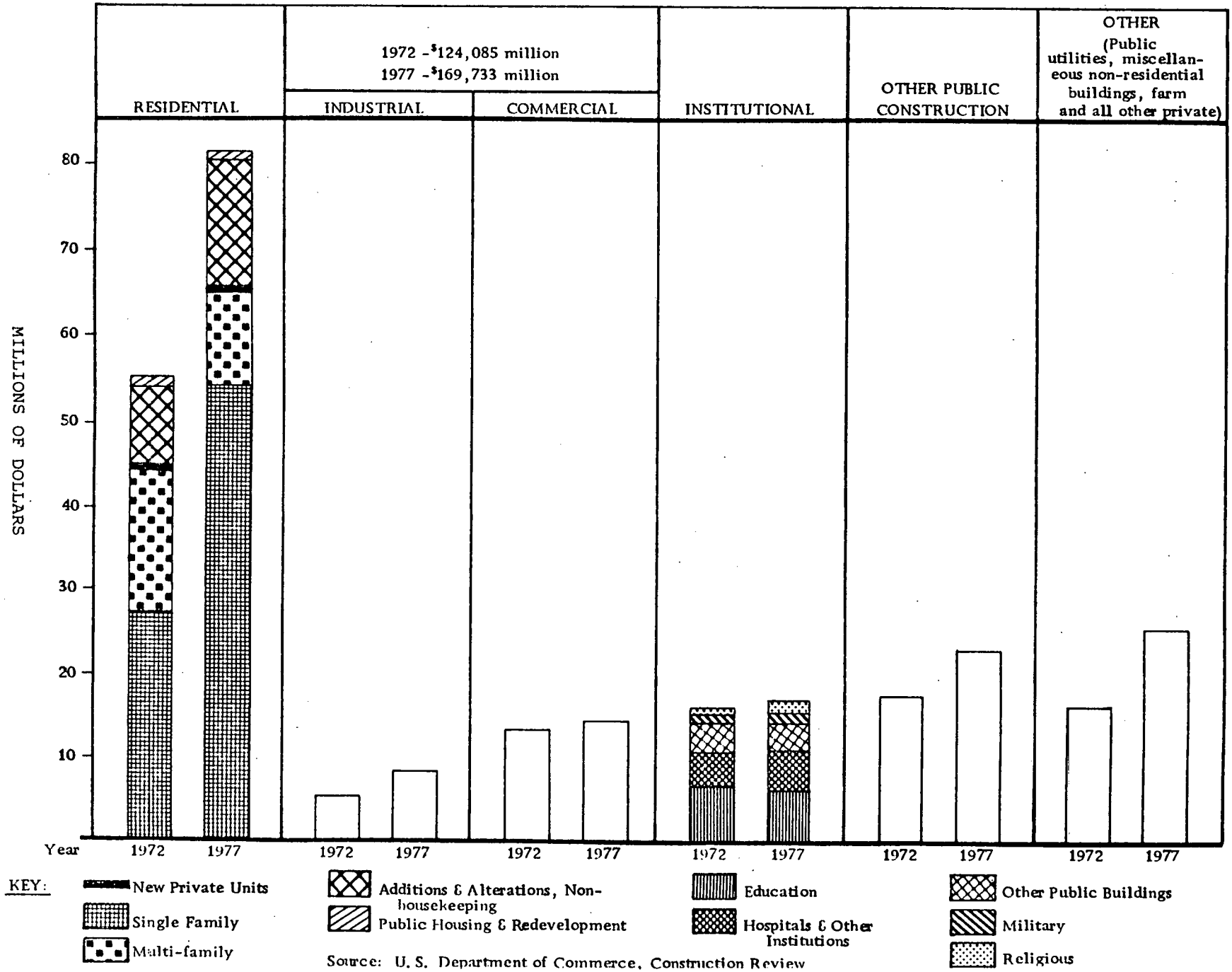
1972-1977



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

FIGURE 2-2

NEW CONSTRUCTION PUT IN PLACE IN THE UNITED STATES



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

- The industrial and commercial land use sectors represent relatively small portions of construction expenditures. Together, these two sectors account for 15% of the 1972 total and 14% of the 1977 expenditures.

- The allocation of new construction across sectors is remarkably stable. Although there are year-to-year fluctuations (not shown on the accompanying graphs), the relative shares attributable to each sector remain nearly constant.

Following are capsule descriptions of current trends characterizing the commercial, industrial, and residential land use sectors at the national level. These sketches are not intended as forecasts or projections; they merely describe what are thought to be basic features of the respective markets relevant to potential ICES application. The "non market" sectors -- institutional, public buildings and transportation -- are not summarized here. Table 2-1 contains short term projections of new construction activity for all sectors, prepared by the Bureau of Domestic Commerce of the Bureau of the Census, which relate market and non-market construction developments.

Table 2-1. NEW CONSTRUCTION PUT IN PLACE: TRENDS AND PROJECTIONS 1975-78
(In millions of current dollars)

Type of Construction	1976	1977	Percent Change 1976-77	1978	Percent Change 1977-78
Total new construction	147,841	168,250	14	184,500	10
Private construction	109,500	130,550	19	142,500	9
Residential construction	60,520	79,350	31	86,400	9
New housing units	47,277	65,500	39	71,500	9
Additions and alterations	12,308	12,750	4	13,500	6
Nonhousekeeping	935	1,100	18	1,400	27
Nonresidential buildings	26,091	27,550	6	31,100	13
Industrial	7,183	7,100	- 1	7,700	8
Commercial	12,756	14,050	10	16,700	19
Religious	956	1,100	15	1,200	9
Educational	660	700	6	700	0
Hospital and institutional	3,396	3,450	2	3,500	1
Miscellaneous buildings	1,140	1,150	1	1,300	13
Farm construction, nonresidential	2,502	2,600	4	2,650	2
Public Utilities	19,309	20,000	4	21,150	6
Telephone and telegraph	3,777	4,150	10	4,700	13
Electric light and power	10,340	11,350	10	12,500	10
Gas	1,726	2,100	22	2,300	10
Railroad	555	700	26	850	21
Petroleum pipelines	2,911	1,700	-42	800	-53
All other private	1,077	1,050	- 3	1,200	14
Public construction	37,981	37,700	- 1	42,000	11
Buildings	13,213	12,550	- 5	14,100	12
Housing and redevelopment	628	1,050	67	1,300	24
Industrial	971	1,050	8	1,100	5
Educational	6,265	5,500	-14	6,200	15
Hospital	1,777	1,750	- 2	1,800	3
Other public buildings	3,572	3,300	- 8	3,700	12
Highways and streets	9,754	9,600	- 2	10,750	12
Military facilities	1,508	1,600	6	1,700	6
Conservation and development	3,722	3,650	- 2	4,000	10
Other public construction	9,782	10,300	5	11,450	11
Sewer systems	5,286	5,400	2	6,100	13
Water supply facilities	1,595	1,800	13	1,950	8
Miscellaneous	2,901	3,100	7	3,400	10

Source: Adapted from Construction Review, January, 1978.

COMMERCIAL--RETAIL AND OFFICE--TRENDS

According to National Planning Association data, the retail-shopping center sector remains one of the fastest growth areas in the nation, at least until 1980. Although many changes in concept and form are taking place, new shopping center projects are going up and being planned across the United States which are definite ICES candidates.

Earlier trends for massive, regional and super-regional centers, on the periphery of large cities and within large metropolitan areas are undergoing change. Since the beginning of the decade these large markets have slowly become saturated causing a shift in construction toward mid-sized, growing cities and towns in the nation, particularly the Sunbelt. Smaller, community shopping centers are being built instead of regional facilities. In 1978 this shift has become the rule rather than the exception. However, the nation as a whole will be so well provided with shopping centers that redevelopment, renovation, and expansion of existing centers will emerge as the major activity in the shopping center sector. Regionally, the Sunbelt will continue to lead in retail space and employment growth.

The office space sector of the economy, despite difficult times in the earlier part of this decade, seems to be expanding in 1978 and promises to continue growing for at least two more years. Total office employment in the nation is projected to grow by 14.4% and 13.3% for 1975-80 and 1980-85 respectively. The economy will continue to be service oriented which will require additional space to accommodate its growth. Many of the numerous projects that are being planned in order to satisfy demand for office space promise to be potential ICES candidates.

The historical up-and-down activity of most office markets in the nation seems to be tied to national economic conditions. The present apparent boom in the office space market may very well be a levelling-off of the pent-up demand of the early 1970's. Now, the excess space which was on the market since the recession has been absorbed and much new construction is taking place to satisfy existing demand. There is even some fear that certain markets will become overbuilt.

Regionally, much growth in office space and employment has taken place in the Sunbelt region since 1970 although this growth is expected to continue, the large urban areas north of the Sunbelt are presently involved in office sector growth as well.

INDUSTRIAL TRENDS

The manufacturing sector of the United States economy is not a growth sector. This is illustrated by the data on manufacturing employment used in this study. Total manufacturing employment in the United States is projected by the National Planning Association to increase by only 1 percent from 1970 to 1985. This reflects a worldwide trend toward a growing service sector and a declining (at least in relative terms) primary or manufacturing sector. Such long range stability in the manufacturing sector indicates that new industrial construction, and thus potential ICES candidates in the industrial sector, are more likely to be in the form of new types of manufacturing or replacement facilities than in an overall growth of the sector.

Within this constraint, however, certain positive factors emerge. This long-range stability conceals a pattern of sharper short-range periods of decline and growth. From 1970-75 total manufacturing employment in the United States declined 6 percent. A 10 percent rebound is predicted for 1975-80. From 1980-85, the total manufacturing employment is expected to drop by 2 percent. This indicates that the 1975-80 period may be a period of substantial short-run growth which would support significant industrial construction. Recent trends in the real estate market echo this potentially positive note. 1978 has been a pivotal year in the market for industrial real estate across the United States. The excess space which has been on the market since the recession in the early 1970's has been almost completely absorbed. Construction is beginning, particularly in the non-speculative market, although speculative building is also occurring on a limited scale. Rental rates have risen substantially. Thus, in spite of a long-run conservative outlook for manufacturing growth, a cautious optimism for industrial construction is warranted in the short-run.

Growing employment in the industrial sector displays clear regional patterns. In the period from 1970 to 1975 all the states in the Northeast lost at least 1,000 manufacturing employees while all states in the Southwest gained 1,000 employees or more. Projected growth in SMSA's is also concentrated in the Southwest.

Industrial development is expected to continue past trends toward industrial parks from free-standing plant sites. A prime factor encouraging this trend is the increasing governmental regulation of industrial development. This regulation greatly increases the time and expertise necessary to develop industrial property. Many firms wish to avoid these difficulties and opt for an industrial park location.

Industrial parks are an increasingly diversified entity. Office and retail outlets are often included in planned parks which previously were aimed almost exclusively at manufacturing and warehouse functions. Parks vary greatly in size, ranging from less than 20 to over 20,000 acres.

The individual structures within parks are usually low-rise structures of one and possibly two or three stories. Low-rise buildings are also characteristic of the free-standing plant, many of which are multi-structured.

Although some movement to the city is occurring with both industrial parks and free-standing sites, the vast majority of development will continue to be in suburban areas. Also, there will be only limited amounts of rehabilitation and reuse of existing industrial facilities due to building and site constraints. The costs of remedying such problems as low ceilings, inadequate parking and docking space, inappropriate building layouts and the like often preclude new industrial uses.

MULTI-FAMILY RESIDENTIAL TRENDS

Traditionally, most residential construction has been dedicated to single-family styles. However, the early 1970's saw a multi-family boom which peaked in 1972 and drastically fell in 1975. Reasons for this decrease in multi-family construction include rising operating costs, higher rates of interest, and the existence, in many areas, of an overbuilt market. The most common multi-family development today is built in a low-rise style and consists of approximately 200 units, is located near the urban fringe, and the project is frequently built in distinct phases of development.

Most residential construction (including multi-family) is occurriing in the Southern and Western regions. The warm climate, employment opportunities and available, moderately-priced land in the Sunbelt have made it the fastest growing area in the nation, and these trends should continue for several years.

Many authorities believe that the unsubsidized multi-family sector is the weakest element of the residential market. As a result, projections of continued growth in residential construction should not be assumed to include the ICES-prone multi-family segment. Continued high interest rates (for interim and permanent loans) and continued high construction costs both mitigate against large rental projects. Rents in most areas have not risen fast enough to make such ventures financially feasible.

PROJECT IDENTIFICATION

One hundred fifty-three (153) project forms were completed as the principal object of this assignment. It must be pointed out that these projects do not comprise a statistical sample of all large scale development activity. Detailed project information was collected so that a quota of approximately 30 projects in each land use category would be identified. Therefore, this review is intended merely to summarize the 153 forms. These findings are not generalizable for all development projects being planned across the country.

The 153 projects can be broken down by land use as follows:

- Residential 29
- Mixed-Use 32
- Commercial 30
- Industrial 28
- Institutional 31
- Transportation 3

Thirty-five (35) states and Washington, DC are represented, with Texas, Illinois, California, New York, Pennsylvania, and New Jersey having the largest numbers of projects. It is not surprising that those states for which no projects were identified are the less populous jurisdictions and therefore those less likely to have a project which meets the ICES threshold criteria. This does not mean that no development is occurring in these states, but large scale development is probably not that prevalent. Also, emphasis was on identifying projects in the continental United States, so Hawaii was not covered. Other states for which no projects have been included are Arkansas, Delaware, Idaho, Iowa, Maine, Mississippi, Montana, New Hampshire, New Mexico, North Dakota, South Dakota, Utah, Vermont and Wyoming.

Within land use sectors, New Jersey, Illinois, Louisiana and Texas provide the most mixed-use projects. Illinois, New York and West Virginia have the most commercial projects; Texas, Georgia and Illinois lead in the number of industrial projects; Pennsylvania, California, Indiana and Tennessee have the most residential projects; and California, Ohio, New York and Pennsylvania account for the largest number of institutional projects. Pennsylvania and Ohio are notable in this last category because of the relatively large number of hospital projects being planned in comparison with most states which have relatively few.

It is noteworthy that 51 projects or 33% are mixed use in some respect. This can vary from a new community project which comprises all land use sectors, to a commercial-residential development, institutional-commercial, mixed use within commercial (such as hotel and office, or office and retail) to the unusual combination in Seattle of an art museum and retail complex. Those projects which are classified as mixed-use on the project forms have more than one major land use, with commercial-residential the most prevalent.

Contacts for 41 projects indicated that federal funds are being used or that they had applied for such funds. In many cases where applications for funds have been made, the project would be cancelled if federal funding is denied. HUD Solar Demonstration grants and DOE energy study grants have been received by six project developers.

Eighty-three, or 54% of the projects are multi-phased, indicating that developers often plan far in advance of the time construction is likely to begin. Phasing is common in all land use sectors, although mixed-use and residential developments are phased most often. Of the 83 projects, 35% are mixed use; 25% residential; 16% are institutional; 13% are industrial; and 11% are commercial.

In mixed use projects the different land uses are generally distinct phases of the total development. In residential projects, a builder will most frequently develop some of the units and then wait to see how well they are absorbed before additional sections are developed.

Institutional developments, especially hospitals and educational facilities often involve more than one structure. Colleges and universities may have plans for several new buildings or expansions to existing structures and when work on one is complete, development begins on the next. With hospitals, the projects usually involve renovating or expanding an existing facility, and constructing a new building in a subsequent phase of the project.

Phasing in industrial projects usually occurs in industrial park development as opposed to free standing industrial buildings. In industrial parks, the land is developed and buildings are constructed as tenants are identified. Therefore, a typical park's full development (depending on size and location) would occur over a number of years.

Commercial projects evidence the lowest incidence of phasing since they are often single office buildings, hotels or shopping centers. In some cases, developers will build shopping centers in phases, but they are more likely to be built at one time. Unless an office building is in an office park, in a complex of office buildings or part of a mixed-use development, it is unlikely that it would be developed in phases.

The 153 projects can be arranged according to their location in a central city, suburb or non-metropolitan area. Fifty-seven percent are located in central cities, 28% are in suburbs and 15% are in non-metropolitan areas. It must be said, however, that some of the central city projects may be in small cities, such as Columbus, Georgia and Elmira, NY. Other projects on the fringe of a city resemble those in suburban locations, though they are within the corporate limits of a larger city such as Houston or Tulsa, which is readily able to annex land adjacent to the city.

Those projects located in the central city tend to be hotels, single office buildings, most hospitals and educational institutions, some industrial and residential projects, and some shopping centers in the smaller SMSA's. Suburban projects are mainly residential, with some offices, shopping centers and industrial projects. Non-metropolitan area projects are primarily industrial and institutional (military and correctional facilities), with some shopping centers and new communities.

INTEREST IN ICES AMONG DEVELOPERS

In the course of identifying development projects and in ascertaining data sources a wide variety of professional organization spokespersons, government officials and local developers were interviewed. In conformity with RERC's agreement with ANL, RERC staff made no attempt to "sell" ICES to these groups. All inquiries of a technical nature and requests for further information were referred directly to ANL for appropriate response.

RERC staff have reached certain tentative impressions concerning the degree of interest in ICES displayed by various sectors. These conclusions are wholly subjective in nature and are not the result of systematic survey methods. The following table depicts the relative interest indicated by the different groups.

Table 2-2 INTEREST IN ICES AMONG DEVELOPERS

Land Use Sector	Degree of Interest			
	Strong	Moderate	Weak	None
Residential				X
Commercial				
Office			X	
Retail			X	
Hotel/Motel				X
Mixed Use		X		
Industrial			X	
Institutional				
Hospital			X	
University	X			
Correctional			X	
Military			X	
Other Government		X		
Transportation	X			

Source: RERC

It is among the developers associated with institutional projects, especially educational facilities planners, and with mixed-use commercial projects that a relatively strong interest in ICES is most frequently encountered. On the other hand, the residential, office space and retail sectors are characterized by an apparent lack of interest in ICES. In many cases, however, too few persons or groups were contacted to warrant the formation of even very tentative impressions.

Conversations with educational facility planners and plant administrators reveal a great deal of interest in the retrofit potential of ICES. Many institutions have a central plant for heating purposes and are already looking into energy alternatives such as cogeneration and solar. A number of institutions indicated that they have done or will be doing feasibility studies on energy alternatives as well. At the University of Texas, for example, a study was conducted on the feasibility of using cogeneration for a new 1 million square foot campus in San Antonio, but it was determined that it would not be economical. However, at the 9 million square foot Austin campus, a type of ICES is already in use producing steam and generating electricity. Studies will be made this year on the possibility of cogeneration for several campuses of the University of California system.

It is interesting that Sunbelt states such as California and Texas appear to be as concerned about energy matters as Northeastern and Midwestern states, even though they have not experienced energy shortages during the last two winters and they don't have energy costs which are as high as those in other areas.

This would indicate that energy saving alternatives such as ICES have great potential on college and university campuses nationwide, and that higher educational facilities may prove to be the best market for the application of the ICES concept.

There is only a weak interest among hospital administrators in the ICES concept. Part of the reason for this is that the renovation or expansion projects being planned can be implemented without any change or expansion to the capacity of the existing energy systems. Another reason is that there is concern among administrators that the very high front-end expense of an ICES would not be considered a reimburseable cost by the third party medical insurers such as Blue Cross/Blue Shield, Medicare and Medicaid. This potential institutional barrier should be examined if ICES is to be a practical energy alternative in hospitals.

Among the relatively limited number of individuals contacted about planned large-scale transportation projects, a large proportion gave indications of interest in the Integrated Community Energy System concept. In Orlando, Florida the new airport terminal complex which is in early construction phases is receiving total energy planning. In September, 1978 Planning Research Corporation Systems Services Company (PRC/SSc) was chosen by the terminal's consulting engineer, the Greiner Team, as the special energy systems design consultant for the terminal. Among PRC/SSc's duties will be to aid in the implementation of energy conservation demonstration projects. Under consideration are waste heat recovery, thermal and electric energy storage systems, people-mover energy recovery systems, and solar systems.

CHAPTER 2 APPENDIX

CONTENTS

PROJECT IDENTIFICATION

LAND USE TYPE:

IDENTIFICATION CODE:

Residential ____
Commercial ____
Industrial ____
(Is project located in an industrial park?
Yes ____ No ____)
Institutional ____
Mixed-Use ____

Name of Project:

Location:

Developer: (Name, Address, Phone)

Summary Description of Project:

PROJECT DESCRIPTION

PHYSICAL DESCRIPTION:

1. Total Number of Acres:
2. Number of Structures:
3. Land Budget (Acres or Square Feet by Land Use Type):

4. Density (Number of Stories, F.A.R., units/acre):

5. Total Square Footage:
6. Square Footage by Structure:

7. List Utilities: Name of Companies, and will they serve the project area?

8. Multi-Phase: Yes____ No ____

9. Are federal funds being used in construction? Yes ____No ____

10. Other

CONTACTS

RELEVANT CONTACTS (List Name, Address, Phone):

Consulting Engineer:

Local Government:

Financial Institution:

Other:

If project is located in an industrial or office park, name of park developer:

STATUS AND FOLLOW-UP

STATUS:

1. Initial File Date:
2. Updates:

3. Date Construction Initiated:
4. Date Project Complete:

Stage of Development

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

ICES Threshold Criteria Yes ____ No ____

ACTION: (by phase, if necessary)

1. Ineligible ____
2. *Eligible–Hold* ____
3. Eligible–Active ____
4. Eligible–Priority ____

3 NATIONAL GROWTH TRENDS

OVERVIEW

In this chapter population and overall employment growth are evaluated for the 50 states and 272 SMSA's in an effort to locate areas which have enjoyed rapid or large surges of growth and, on this basis may be expected to foster future construction activity. There are two key assumptions underlying this mode of analysis. First, that population and employment are sufficiently closely associated with construction activity to warrant employing these variables as indicators for construction. And, second, that areas of past growth are more likely than other areas to support future growth. In a strict sense, of course, neither of the assumptions is perfectly tenable. However, if their biases are recognized and properly weighted, they can be employed to provide valuable clues as to which areas of the country are likely to experience ICES-prone construction activity.

In this and succeeding chapters, both absolute and relative change indicators are employed. A small SMSA may, on the basis of a relatively small absolute change in population or employment, rank quite high on a list of SMSA's arrayed according to percentage change between two points in time. It is important to point out that for many real estate developments a certain base population, or market, is required to sustain an investment and that smaller jurisdictions are therefore excluded from consideration, their relative growth rates notwithstanding. This is particularly true of large shopping center complexes, or high-rise residential developments. It is also important to recognize on the other hand, that construction of population sensitive projects (i.e., public service facilities) typically lags population growth. Therefore, localities with demonstrated past population increases are likely to support these types of projects.

DEMOGRAPHIC ANALYSIS

An examination of population and employment trends for states and SMSA's is useful for identifying areas of past and projected growth. Although increases in population and employment are not directly indicative of construction activity, they are useful in pointing out locations which are prone to experience an increase in residential and commercial development.

The NPA data are used to analyze states and SMSA's for population and employment change. A composite indicator of 1970-75 and 1975-80 change in population and employment is employed to isolate individual states and SMSA's experiencing and expected to experience above average growth. Percent changes for the four categories have been added to derive this composite figure.

When states are analyzed by this method, fourteen emerge as "growth states." As can be seen in Table 3-1, all are in the South and West. When states with above average projected levels of growth for 1975-80 are included, Maryland is the only non-southern or western state.

Table 3-1 STATES WITH ABOVE UNITED STATES AVERAGE GROWTH 1970-1980

State	Rank	Composite Indicator	% Change in Population 1970-75	% Change in Population 1975-80	% Change in Employment 1975-80	% Change in Employment 1975-80
Arizona	1	92.8	23.7%	13.2%	29.8%	26.1%
Alaska	2	87.1	20.2	13.9	28.0	24.4
Florida	3	81.0	21.3	14.6	21.5	23.6
Colorado	4	76.6	14.4	10.1	26.1	26.0
Wyoming	5	67.5	12.8	10.2	21.8	22.7
Nevada	6	64.3	19.7	9.2	15.8	19.6
Utah	7	59.7	12.9	8.3	17.6	20.9
New Mexico	8	58.9	12.0	7.7	19.9	19.3
Idaho	9	53.4	13.3	5.7	18.2	16.2
Texas	10	52.2	8.9	8.7	13.6	21.0
Oregon	11	49.3	8.7	5.3	16.0	19.3
Virginia	12	49.0	6.9	6.3	13.9	21.9
South Carolina	13	45.8	8.4	5.6	15.0	16.8
Georgia	14	42.5	7.2	5.9	12.2	17.2
U.S. Average		37.1	6.3	5.2	10.1	15.5
STATES WITH ABOVE UNITED STATES AVERAGE GROWTH PROJECTED FOR 1975-80						
Tennessee				6.5		20.7
Maryland				7.2		17.1
Oklahoma				5.5		16.5

Source: National Planning Association

The SMSA analysis confirms these trends. Of the 15 SMSA's with the largest growth between 1970 and 1980, all are in the South and West. Florida contains the highest number of these SMSA's (7), with Colorado (3) and Arizona (2) following. Texas, Mississippi and Alaska each have one of the fastest growing SMSA's. A ranking of these SMSA's is shown in Table 3-2.

Table 3-2 15 SMSA'S WITH LARGEST GROWTH 1970 - 1980

1	Fort Myers, FL	8	Orlando, FL
2	Sarasota, FL	9	Greeley, CO
3	Fort Collins, CO	10	Anchorage, AK
4	Killeen, TX	11	Lakeland, FL
5	Daytona Beach, FL	12	Tucson, AZ
6	Pascagoula, MS	13	Phoenix, AZ
7	Ft. Lauderdale, FL	14	Tallahassee, FL
		15	Colorado Springs, CO

Of these SMSA's, only Phoenix is in one of the larger population size groups (Group 2), and only two SMSA's, Fort Lauderdale and Orlando are in Group 3. The majority of the highest growth SMSA's are less populated, indicating that the largest percentage increases are often in the smaller SMSA's which have a small base from which to grow.

It is also important to examine SMSA's within their population size groups for clues to where growth can be expected in the larger SMSA's. When Group 1 is examined, Texas cities again stand out as high growth areas. Of the four SMSA's in Group 1 with above average growth, Houston and Dallas are the top two, far ahead of Washington, D.C. and Minneapolis. Table 3-3 summarizes these findings.

Table 3-3 SMSA'S IN POPULATION GROUP 1 WITH ABOVE AVERAGE GROWTH 1970-80

SMSA	Rank	Composite Indicator	% Change in Population 1970-75	% Change in Population 1975-80	% Change in Employment 1970-75	% Change in Employment 1975-80
Houston, TX	1	81.8	14.5	16.1	28.2	23.0
Dallas, TX	2	57.1	6.9	13.7	15.4	21.1
Washington, D.C.	3	32.8	3.2	5.5	10.1	14.0
Minneapolis, MN	4	31.3	2.8	6.1	10.4	12.0
Average		22.0	1.4	3.6	5.3	11.7
SMSA WITH ABOVE AVERAGE GROWTH PROJECTED FOR 1975-80						
Baltimore, MD				3.9		13.0

Source: National Planning Association

Washington, D.C. and Minneapolis are two of the few Northern SMSA's experiencing population and employment growth although their level of change is considerably lower than that of their Sunbelt counterparts.

SMSA Group 2 exhibits similar trends with California, Arizona, Florida, and Colorado SMSA's showing above average growth. This is illustrated in Table 3-4.

Table 3-4

SMSA'S IN POPULATION GROUP 2
WITH ABOVE AVERAGE GROWTH 1970-80

State	Rank	Composite Indicator	% Change in Population 1970-75	% Change in Population 1975-80	% Change in Employment 1970-75	% Change in Employment 1975-80
Phoenix, AZ	1	105.7	24.2	18.5	34.8	28.2
Anaheim, CA	2	97.3	19.8	16.1	31.5	29.9
Tampa, FL	3	95.6	24.5	13.5	35.6	22.0
San Diego, CA	4	82.3	16.5	14.7	20.9	30.2
San Jose, CA	5	77.4	9.6	17.3	22.8	27.7
Denver, CO	6	77.0	12.6	14.5	27.9	22.0
Miami, FL	7	72.8	12.7	17.3	20.8	22.0
Average		48.3	7.5	8.7	14.4	17.7
SMSA'S WITH ABOVE AVERAGE GROWTH PROJECTED FOR 1975-80						
Portland, OR				10.3		18.0

Source: National Planning Association

The growth SMSA's in Group 3 are predominantly Southern SMSA's, with the top ranking locations in Florida--Fort Lauderdale and Orlando. When the SMSA's with above average projected growth for 1975-80 are examined, a few SMSA's in the Midwest and Middle Atlantic states are also included. This can be seen in Table 3-5.

Group 4 contains 16 SMSA's with above average growth. Again, the Southern and Western metropolitan areas are growing the most, although six Northern areas are expected to have above average growth between 1975 and 1980. These trends are summarized in Table 3-6.

Table 3-5

SMSA'S IN POPULATION GROUP 3
WITH ABOVE AVERAGE GROWTH 1970-80

State	Rank	Composite Indicator	% Change in Population 1970-75	% Change in Population 1975-80	% Change in Population 1970-75	% Change in Population 1975-80
Ft. Lauderdale, FL	1	119.7	38.2	16.1	38.0	27.4
Orlando, FL	2	116.8	28.5	16.7	44.0	27.6
Salt Lake City, UT	3	70.2	10.3	14.4	23.4	22.1
Jacksonville, FL	4	62.8	12.0	10.8	18.3	21.7
Greenville, SC	5	59.8	10.6	11.8	15.4	22.0
San Antonio, TX	6	56.0	9.5	10.3	13.6	22.6
Sacramento, CA	7	53.6	9.1	8.3	16.3	19.9
Oklahoma City, OK	8	48.4	7.4	9.8	14.2	17.0
Tulsa, OK	9	44.6	6.3	8.3	11.3	18.7
Richmond, VA	10	44.3	6.0	7.9	13.1	17.3
Nashville, TN	11	44.0	7.4	7.1	12.5	17.0
Average		36.3	5.6	5.8	9.4	15.5

SMSA'S WITH ABOVE AVERAGE GROWTH PROJECTED FOR 1975-80

Omaha, NE			9.4	19.8
Charlotte, NC			8.0	17.7
Greensboro, NC			8.8	16.6
Grand Rapids, MI			6.6	17.0
Memphis, TN			6.8	16.8
Birmingham, AL			7.3	15.8
Youngstown, OH			5.8	16.0
Rochester, NY			5.8	15.7

Table 3-6

SMSA'S IN POPULATION GROUP 4 WITH ABOVE AVERAGE GROWTH 1970-80

SMSA	Rank	Composite Indicator	% Change in Population 1970-75	% Change in Population 1975-80	% Change in Population 1970-75	% Change in Population 1975-80
Lakeland, FL	1	108.4	19.8	17.0	44.5	27.1
Tucson, AZ	2	107.4	24.1	17.7	36.2	29.4
Colorado Springs, CO	3	99.4	21.2	17.5	30.2	30.5
Austin, TX	4	93.7	21.6	17.0	26.7	28.4
Albuquerque, NM	5	87.8	15.6	16.3	28.2	27.7
W. Palm Beach, FL	6	86.2	31.1	9.5	26.0	19.6
El Paso, TX	7	81.2	14.8	17.4	19.4	29.6
Las Vegas, NV	8	75.3	20.5	10.7	22.5	21.6
Columbia, SC	9	74.7	14.5	12.0	25.2	23.0
Pensacola, FL	10	64.3	9.1	10.6	22.7	21.9
Oxnard, CA	11	62.3	15.3	9.8	15.7	21.5
Little Rock, AR	12	59.0	13.3	9.0	17.5	19.2
Jackson, MS	13	58.2	11.2	10.0	16.9	20.1
Salinas, CA	14	56.2	7.1	10.2	17.2	21.7
Fresno, CA	15	49.4	7.4	7.2	17.2	17.6
Johnson City, TN	16	43.3	6.4	7.3	11.6	18.0
Average		39.1	6.3	5.9	10.7	16.2

SMSA'S WITH ABOVE AVERAGE GROWTH PROJECTED FOR 1975-80

Ann Arbor, MI				15.8		27.4
Lorain, OH				11.2		22.6
Spokane, WA				10.9		21.8
Beaumont, TX				10.6		21.2
Newport News, VA				9.5		20.4
Santa Barbara, CA				9.4		20.4
Chattanooga, TN				8.5		18.7
Fort Wayne, IN				8.2		18.3
Long Branch, NJ				7.4		18.5
Tacoma, WA				6.5		18.1
Madison, WI				7.2		17.3
York, PA				7.1		17.0
Knoxville, TN				6.9		17.0

Source: National Planning Association

When the smaller population categories are examined, it can be seen that the top ranking SMSA's are growing at a faster pace relative to the more populated metropolitan areas. This is due to the fact that these SMSA's have a smaller population and employment base to start with, and a moderate absolute increase will produce a high percentage increase.

Southern and Western SMSA's are the most rapidly growing areas in these categories as well, but a number of Northern SMSA's are also projected to have higher than average growth. Tables 3-7 and 3-8 summarize these trends for Groups 5 and 6.

Table 3-7

SMSA'S IN POPULATION GROUP 5
WITH ABOVE AVERAGE GROWTH 1970-80

SMSA	Rank	Composite Indicator	% Change in Population 1970-75	% Change in Population 1975-80	% Change in Employment 1970-75	% Change in Employment 1975-80
Fort Myers, FL	1	162.3	46.7	20.9	62.9	31.8
Sarasota, FL	2	147.2	34.0	23.1	58.1	32.0
Killeen, TX	3	123.8	31.0	17.8	43.4	31.6
Daytona Beach, FL	4	122.4	23.0	17.2	54.5	27.7
Anchorage, AK	5	110.3	22.4	18.2	39.7	30.0
Santa Cruz, CA	6	98.7	21.8	20.1	24.0	32.8
Provo, UT	7	78.7	22.0	12.4	19.1	25.2
Santa Rosa, CA	8	77.6	19.3	12.8	21.0	24.5
Modesto, CA	9	69.7	14.5	13.6	16.7	24.9
Eugene, OR	10	67.1	11.4	13.2	18.1	24.4
St. Cloud, MN	11	66.1	11.6	12.7	18.1	23.7
Lincoln, NE	12	59.6	9.9	11.5	16.4	21.8
Lubbock, TX	13	55.2	9.1	9.9	15.4	20.8
Salem, OK	14	54.8	10.4	7.8	18.4	18.2
Average		46.6	8.4	7.5	12.8	17.9
SMSA'S WITH ABOVE AVERAGE PROJECTED GROWTH 1975-80						
Parkersburg, WV				16.0		27.2
Roanoke, VA				14.4		24.6
Waco, TX				14.0		24.6
Yakima, WA				18.4		30.0
Lima, OH				11.6		22.3
Green Bay, WI				11.5		22.0
Forth Smith, AR				10.3		21.5
Stamford, CT				10.6		20.4
Fayetteville, NC				9.6		20.6
Poughkeepsie, NY				8.9		21.5
Hamilton, OH				9.2		20.8
Battle Creek, MI				9.7		20.0
Amarillo, TX				9.4		19.7
Springfield, MO				8.9		19.6
Biloxi, MS				8.1		19.6
Topeka, KS				8.4		18.0
Steubenville, OH				7.8		18.0

Source: National Planning Association

Table 3-8

SMSA'S IN POPULATION GROUP 6
WITH ABOVE AVERAGE GROWTH 1970-80

SMSA	Rank	Composite Indicator	% Change in Population 1970-75	% Change in Population 1975-80	% Change in Population 1970-75	% Change in Population 1975-80
Ft. Collins, CO	1	139.1	33.5	19.7	53.4	32.5
Pascagoula, MS	2	120.3	19.6	20.1	50.6	30.0
Greeley, CO	3	111.1	19.8	17.4	44.6	29.3
Tallahassee, FL	4	101.4	26.3	15.0	34.0	26.1
Gainseville, FL	5	90.4	22.9	14.0	28.1	25.4
Boise, ID	6	82.6	21.3	11.3	28.6	21.4
Bloomington, IN	7	82.3	6.6	14.4	34.6	26.7
Richland, WA	8	81.8	9.3	22.5	15.5	34.5
Reno, NV	9	79.6	18.7	11.6	27.8	21.5
Clarksville, TN	10	79.1	20.6	10.1	26.1	22.3
Lafayette, LA	11	73.0	11.8	15.8	18.3	27.1
Tyler, TX	12	70.3	10.4	16.9	15.4	27.6
Tuscaloosa, AL	13	70.2	6.7	17.0	18.2	28.3
Bryan, TX	14	67.6	24.2	8.6	14.9	19.9
Billings, MT	15	62.0	10.9	10.3	20.0	20.8
Average		41.5	6.1	6.5	12.1	16.8
SMSA'S WITH ABOVE AVERAGE PROJECTED GROWTH 1975-80						
Longview, TX				19.4		29.5
Albany, GA				15.0		25.9
Nashua, NH				13.6		24.3
Alexandria, LA				12.8		24.2
Kenosha, WI				12.1		23.4
Sioux Falls, SD				13.0		22.7
San Angelo, TX				12.0		22.9
Eau Claire, WI				11.4		22.0
Lynchburg, VA				11.5		21.6
Monroe, LA				10.5		21.0
Dubuque, IA				11.0		20.5
Mansfield, OH				10.1		20.3
Laredo, TX				8.6		20.0
Abilene, TX				8.9		19.7
Wichita Falls, TX				8.8		19.6
Anniston, AL				8.7		19.3
Waterloo, IA				8.1		18.0
Midland, TX				8.2		17.8
Sioux City, IA				8.1		18.0
Manchester, NH				7.2		17.2
Lafayette, IN				6.7		17.1
Fargo, ND				6.7		17.0

Source: National Planning Association

Complete population and employment data for all states and SMSA's are presented at the end of this chapter.

ELECTRIC UTILITY COST ANALYSIS

In addition to screening states and SMSA's on the basis of past and projected population and employment growth, it is useful to screen metropolitan areas on the basis of electric utility rates. It is assumed that those areas which have very high utility bills would be more likely to consider alternative energy sources such as ICES than businesses in locations characterized by relatively low fuel costs. In sections of the country where energy supplies are readily available and inexpensive, there is less incentive to conserve fuel and possibly less inclination to experiment with a concept such as ICES.

A screening of electric utility bills produces a very different ranking than the ranking by demographic data shown earlier. In this case, it is not the Southern and Western states which stand out. Instead, and as would be expected, the New England and Middle Atlantic states are experiencing the highest electric utility bills.

For this screening, data from the Federal Power Commission (FPC)'s publication Typical Electric Bills 1976 are used. This is the most recent FPC study available on this topic. Though the actual numbers have very likely changed in the most recent years, the overall geographic trends are probably relatively stable.

The FPC reports on typical electric bills for different levels of usage for residential, commercial and manufacturing customers, Residential bills are reported for communities of 2,500 population or more, and commercial and manufacturing bills are reported for cities of 50,000 population or more. In a number of metropolitan areas, different sections of the SMSA are served by different utilities and in some cases one utility's rates are considerably higher than another. (New Orleans is a prime example of this.) Thus, for purposes of this analysis, the city or area listed as experiencing high rates is not necessarily the SMSA.

To determine overall trends, typical commercial electric bills for 1500 KWH of service are examined. Of the fifty cities/areas with the highest typical bills in 1976, the regional breakdown is shown in Table 3-9

Table 3-9 GEOGRAPHIC BREAKDOWN OF 50 CITIES/AREAS WITH WITH THE HIGHEST TYPICAL COMMERCIAL ELECTRIC BILLS, 1976

Region	Number of Cities/Areas
New England	14
Middle Atlantic	8
South Atlantic	12
West North Central	5
West South Central	3
East North Central	2
Alaska and Hawaii	2
East South Central	1
Mountain	1
Pacific	1
Puerto Rico	1

Source: Federal Power Commission, Typical Electric Bills, 1976.

Thirty-four of the 50 areas are along the Eastern seaboard indicating that East Coast residents are certainly incurring higher electric costs than consumers in the western part of the country. Of the 10 cities with the highest typical bills, seven are in New England and three are in the Middle Atlantic regions, confirming that the Northeast has been most affected by high utility bills. Table 3-10 illustrates where the highest electric utility bills are found, and the name of the utility company providing the source.

It could be agreed, on the basis of these data, that Northeastern states and SMSA's may be the most likely candidates for ICES even though few are experiencing rapid population and employment growth. An example of this can be found in New York City where a number of buildings are experimenting with or planning to implement cogeneration as an alternative to Consolidated Edison's very high electric rates.

In any event, it is important to reiterate that growth patterns in and of themselves are at best crude measures of locating areas with ICES potential. The brief consideration of present utility costs illustrates a different dimension and, indeed, yields quite a different array of candidate areas. The following chapters detail growth trends on a land use sector basis. These analyses attempt to focus on more proximate indicators of construction activity than population and overall employment and are suggestive of future growth areas.

Table 3-10. TYPICAL ELECTRIC UTILITY BILLS FOR THE 50 CITIES OF 50,000 POPULATION OR MORE WITH THE HIGHEST BILLS

(Based on rates for commercial users of 1,500 KWH, January 1, 1976)

Rank	City or Area	Rate	Company Name
1	Brattleboro, Rutland, VT	$162.24	Central Vermont Public Service Corporation
2	New York City and Westchester County, NY	$161.86	Consolidated Edison Company of New York
3	Northern New Jersey	$129.54	Public Service Electric and Gas Co.
4	Springfield, Pittsfield, MA	$125.73	Western Massachusetts Electric Co.
5	Boston, MA and suburbs	$121.25	Boston Edison Co.
6	Hartford, Stamford, CT	$119.03	Hartford Electric Co.
7	Nashua, Manchester, NH	$118.25	Public Service Company of New Hampshire
8	New Bedford, MA	$117.84	New Bedford Gas and Edison Light Co.
9	Reading, York, PA	$114.08	Metropolitan Edison Co.
10	Cambridge, MA	$113.12	Cambridge Electric Light
11	Philadelphia, PA	$112.95	Philadelphia Electric Co.
12	Honolulu, Hawaii	$109.79	Hawaiian Electric Co.
13	New Orleans, LA	$107.86	New Orleans Public Service, Inc.
14	Waterbury, Greenwich, Danbury, Meriden, New Britain, Norwalk, CT	$107.72	Connecticut Light & Power Co.
15	Chicago, IL and suburbs	$107.10	Commonwealth Edison Co.
16	Wilmington, DE	$106.52	Delaware Power & Light Co.
17	Pittsburgh, PA	$103.26	Duquesne Light Co.
18	Puerto Rico	$102.62	Puerto Rico Water Resources Authority
19	Dover, Delaware	$100.02	City of Dover
20	Fall River, MA	$100.00	Fall River Electric Company
21	Sioux City, Waterloo, IA	$ 97.61	Iowa Public Service Company
22	Savannah, GA	$ 97.48	Savannah Electric and Power Company
23	Gary, Hammond, IN	$ 96.06	Northern Indiana Public Service
24	Pawtucket, RI	$ 95.37	Blackstone Valley Electric Company
25	St. Louis, MO, East St. Louis, IL and suburbs	$ 95.27	Union Electric Co.
26	Tallahassee, FL	$ 93.43	City of Tallahassee
27	New Haven, CT	$ 93.38	United Illuminating Co.
28	Aberdeen, SD	$ 93.16	Northwestern Public Service Co.
29	Providence, Cranston, Warwick, RI	$ 92.66	Narragansett Electric Co.
30	St. Petersburg, Clearwater, FL	$ 92.52	Florida Power Corporation
31	Erie, Altoona, PA	$ 91.99	Pennsylvania Electric Co.
32	Worcester, Lawrence, MA	$ 91.81	Massachusetts Electric Company
33	Bismarck, ND	$ 91.73	Montana-Dakota Utilities
34	Concord, NH	$ 91.38	Concord Electric Co.
35	Tucson, AZ	$ 91.37	Tucson Gas & Electric Co.
36	Atlanta, Augusta, Columbus, Macon, GA	$ 90.40	Georgia Power Co.
37	Arlington, VA	$ 89.26	Potomac Electric Power Co.
38	Baltimore, MD and suburbs	$ 89.09	Baltimore Gas & Electric Co.
39	Jackson, MS	$ 88.65	Mississippi Power & Light Co.
40	Fairbanks, AK	$ 88.50	Fairbanks Municipal Utilities System
41	Rochester, NY	$ 88.48	Rochester Gas & Electric Corporation
42	Kansas City, MO and suburbs	$ 88.12	Kansas City Power and Light Co., Missouri Public Service Co.
43	Harrisburg, Bethlehem, Allentown, Lancaster, Scranton, Wilkes-Barre, PA	$ 87.52	Pennsylvania Power & Light Co.
44	Austin, TX	$ 86.93	Austin Electric Department
45	Gainesville, FL	$ 86.65	Gainesville-Alachua Company
46	Bethesda, Silver Spring, MD	$ 84.11	Potomac Electric Power Company
47	Newark, DE	$ 83.62	Council of Newark
48	Little Rock, Pine Bluff, AR	$ 83.47	Arkansas Power & Light Co.
49	Pensacola, FL	$ 83.36	Gulf Power Co.
50	Los Angeles County Area less Los Angeles City	$ 82.96	Southern California Edison Co.

Source: Federal Power Commission, Typical Electric Bills, 1976.

CHAPTER 3 APPENDIX

CONTENTS

APPENDIX 3-1

TOTAL POPULATION BY STATE
(Total Population in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Population 1975	Change 75-80	Change 70-75
FLORIDA	1	14.63	2	21.25	8286.262	1212.250	1452.699
ALASKA	2	13.88	3	20.20	365.602	50.762	61.430
ARIZONA	3	13.19	1	23.69	2213.864	292.049	424.051
WYOMING	4	10.20	8	12.76	375.961	36.339	42.592
COLORADO	5	10.07	5	14.44	2541.401	255 906	320.608
NEVADA	6	9.17	4	19.66	590.205	54.136	97.051
MISSISSIPPI	7	8.87	25	5.40	2343.550	207.925	120.157
TEXAS	8	8.71	13	8.86	12238.520	1065.395	996.367
NEW HAMPSHIRE	9	8.51	12	9.45	812.075	69.102	70.144
UTAH	10	8.32	7	12.88	1203.443	100.140	137.342
NEW MEXICO	11	7.66	10	11.95	1143.769	87.800	122.064
NORTH CAROLINA	12	7.62	19	6.84	5445.094	414.867	348.367
MARYLAND	13	7.16	29	4.63	4120.895	295.008	182.261
MAINE	14	7.07	20	6.09	1058.229	74.840	60.722
DELAWARE	15	6.75	26	5.26	579.061	39.078	28.912
TENNESSEE	16	6.46	21	6.01	4174.242	269.793	236.609
HAWAII	17	6.37	9	12.36	869.563	55.367	95.635
VIRGINIA	18	6.27	18	6.92	4984.734	312.500	322.770
GEORGIA	19	5.86	16	7.16	4934.812	289.008	330.441
IDAHO	20	5.69	6	13.26	812.873	46.256	95.140
VERMONT	21	5.63	24	5.67	472.070	26.571	25.312
SOUTH CAROLINA	22	5.58	15	8.43	2818.183	157.274	219.025
OKLAHOMA	23	5.46	23	5.77	2715.021	148.322	146.060
OREGON	24	5.27	14	8.73	2283.641	120.291	183.437
ALABAMA	25	5.21	28	4.79	3617.521	188.447	165.243
LOUISIANA	26	5.10	30	4.26	3806.111	194.111	155 451
NEBRASKA	27	4.83	32	3.73	1544.262	74.631	55.601
MICHIGAN	28	4.67	37	2.33	9105.395	424.898	207.023
ARKANSAS	29	4.66	11	9.48	2111.240	98.412	182.820
CALIFORNIA	30	4.44	22	5.66	21195.270	940.402	1177.535
KENTUCKY	31	4.43	27	4.87	3367.444	149.953	157 345
MINNESOTA	32	4.06	35	2.75	3920.635	159.222	104 991
WASHINGTON	33	4.02	31	4.22	3559.261	143:141	143.979
WISCONSIN	34	3.87	33	3.61	4588.355	177.667	159.770
WEST VIRGINIA	35	3.70	34	2.86	1798.713	66.615	50.076
INDIANA	36	3.35	38	2.09	5312.090	178.020	106.574
MISSOURI	37	3.17	43	1.75	4766.770	151.324	82.207
OHIO	38	2.98	46	0.60	10732.219	320.230	63.813
MONTANA	39	2.67	17	7.00	745.935	19.943	48.800
CONNECTICUT	40	2.57	40	1.96	3099.029	79.639	60.112
IOWA	41	2.37	45	1.02	2860.676	67.861	28.942
MASSACHUSETTS	42	1.66	41	1.95	5814.246	96.805	111.176
SOUTH DAKOTA	43	1.45	39	2.02	681.016	9.894	13.476
KANSAS	44	1.42	44	1.34	2280.455	32.485	30.065
NEW JERSEY	45	1.27	42	1.87	7329.062	92.855	134.352
PENNSYLVANIA	46	0.49	48	0.36	11857.164	57.828	42.863
NORTH DAKOTA	47	0.30	36	2.75	637.004	1.910	17.062
ILLINOIS	48	-0.10	47	0.59	11191.934	-11.609	65.371
NEW YORK	49	-0.56	49	-1.10	18060.523	-100.496	-200.375
RHODE ISLAND	50	-1.04	50	-2.12	931.525	-9.690	-20.106
DISTRICT OF COLUMBIA	51	-1.94	51	-5.99	710.834	-13.815	-45.296

APPENDIX 3-2

TOTAL EMPLOYMENT BY STATE
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
ARIZONA	1	26.14	1	29.76	846.813	221.851	194.692
COLORADO	2	26.04	3	26.09	1099.743	286.329	227.559
ALASKA	3	24.39	2	28.58	134.858	32.867	29.976
FLORIDA	4	23.64	5	21.50	3291.833	778.190	582.428
WYOMING	5	22.74	4	21.79	164.563	37.426	29.446
VIRGINIA	6	21.90	18	13.92	2061.936	451.559	251.971
TEXAS	7	21.04	19	13.63	5044.312	1061.254	605.199
UTAH	8	20.88	8	17.64	488.630	102.041	73.276
TENNESSEE	9	20.66	14	15.76	1829.322	378.283	249.021
NEVADA	10	19.63	13	15.83	276.492	54.275	37.783
NEW MEXICO	11	19.30	6	19.90	416.024	80.303	69.045
OREGON	12	19.27	11	16.01	977.672	188.444	134.917
CALIFORNIA	13	18.97	23	10.41	8895.016	1687.051	836.605
KANSAS	14	17.45	17	14.72	943.869	164.699	121.134
NEW HAMPSHIRE	15	17.41	26	9.69	329.848	57.440	29.127
GEORGIA	16	17.18	20	12.24	2092.571	359.513	228.131
NORTH CAROLINA	17	17.14	28	9.37	2354.117	403.606	201.703
MARYLAND	18	17.05	35	5.14	1627.475	277.466	79.581
SOUTH CAROLINA	19	16.79	16	15.00	1173.112	196.674	152.752
OKLAHOMA	20	16.47	24	10.21	1069.891	176.222	99.120
IDAHO	21	16.18	7	18.24	324.350	52.475	50.035
DISTRICT OF COLUMBIA	22	16.10	46	0.25	637.011	102.588	1.586
LOUISIANA	23	15.98	31	7.39	1379.556	220.468	94.881
NEBRASKA	24	15.51	25	10.02	687.031	106.536	62.554
MISSISSIPPI	25	15.28	27	9.49	878.660	134.302	76.162
KENTUCKY	26	15.18	21	11.86	1280.356	194.357	135.705
ARKANSAS	27	15.15	15	15.42	825.400	125.025	110.263
WEST VIRGINIA	28	15.00	37	4.92	628.853	94.322	29.497
DELAWARE	29	14.89	38	4.05	252.919	37.649	9.849
WISCONSIN	30	14.39	36	5.13	1940.845	279.313	94.709
IOWA	31	14.31	22	10.59	1242.173	177.725	116.926
ALABAMA	32	13.97	30	8.66	1352.019	186.915	107.713
MONTANA	33	13.55	12	15.99	299.503	40.576	41.269
SOUTH DAKOTA	34	13.39	10	16.20	285.636	38.233	39.620
MICHIGAN	35	13.34	45	1.74	3542.744	472.563	60.437
OHIO	36	13.18	47	0.39	4480.547	590.590	17.238
INDIANA	37	12.98	32	6.30	2225.173	288.894	131.887
WASHINGTON	38	12.98	34	5.33	1366.909	177.425	69.156
MINNESOTA	39	12.98	29	8.85	1720.088	223.277	139.620
NORTH DAKOTA	40	12.74	9	16.47	258.904	32.974	36.619
MAINE	41	12.56	33	5.85	411.555	51.671	22.746
HAWAII	42	11.44	44	2.42	367.222	42.013	8.689
MISSOURI	43	10.98	42	3.06	2046.772	225.036	60.866
NEW JERSEY	44	10.42	39	3.80	2982.875	310.863	109.273
VERMONT	45	9.99	40	3.34	185.082	18.483	5.990
CONNECTICUT	46	9.44	46	0.63	1340.762	126.560	8.416
RHODE ISLAND	47	9.34	43	2.49	387.770	36.204	9.407
PENNSYLVANIA	48	8.98	41	3.16	4889.191	439.191	149.676
ILLINOIS	49	7.93	49	-2.94	4731.383	375.293	-143.371
MASSACHUSETTS	50	5.01	51	-5.69	2496.415	125.090	-150.512
NEW YORK	51	3.98	50	-4.67	7605.176	302.859	-372.666

APPENDIX 3-3

TOTAL POPULATION - SMSA GROUP 1
(Total Population in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Population 1975	Change 75-80	Change 70-75
HOUSTON, TX	1	16.12	1	14.51	2297.267	370.298	291.172
DALLAS, TX	2	13.71	2	6.88	2552.881	350.102	164.360
MINNEAPOLIS, MN-WI	3	6.10	4	2.82	2027.262	123.673	55.609
WASHINGTON, DC-MD-VA	4	5.51	3	3.23	3014.208	166.054	94.324
LOS ANGELES, CA	5	4.10	12	-1.79	6938.605	284.434	-126.496
BALTIMORE, MD	6	3.91	5	2.78	2136.777	83.594	57.858
DETROIT, MI	7	3.09	10	-0.10	4440.555	137.191	-4.387
BOSTON, MA	8	2.85	7	0.29	2915.436	83.050	8.438
SAN FRANCISCO, CA	9	2.31	8	0.28	3127.190	72.192	8.830
NASSUA, NY	10	1.38	6	2.22	2619.082	36.264	56.852
CHICAGO, IL	11	1.19	9	-0.06	6979.574	83.359	-4.254
PITTSBURGH, PA	12	0.30	15	-3.83	2314.981	7.055	-92.262
ST. LOUIS, MO-IL	13	0.11	13	-1.88	2368.479	2.629	-45.282
PHILADELPHIA, PA-NJ	14	-2.37	11	-0.73	4796.273	-113.785	-35.258
NEW YORK, NY-NJ	15	-4.55	14	-3.66	9622.109	-437.523	-365.230

TOTAL POPULATION - SMSA GROUP 2
(Total Population in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Population 1975	Change 75-80	Change 70-75
PHOENIX, AZ	1	18.52	2	24.18	1217.891	225.531	237.140
SAN JOSE, CA	2	17.33	8	9.62	1172.817	203.230	102.939
MIAMI, FL	3	17.30	6	12.73	1439.877	249.124	162.646
ANAHEIM, CA	4	16.05	3	19.78	1710.100	274.412	282.397
SAN DIEGO, CA	5	14.65	4	16.51	1589.377	232.877	225.237
DENVER, CO	6	14.50	7	12.60	1404.472	203.695	157.141
TAMPA, FL	7	13.46	1	24.53	1367.021	184.028	269.314
PORTLAND, OR-WA	8	10.34	9	6.91	1081.569	111.844	69.938
RIVERSIDE, CA	9	8.22	10	6.74	1223.453	100.616	77.238
NEW ORLEANS, LA	10	8.17	12	4.25	1094.703	89.451	44.651
COLUMBUS, OH	11	7.64	11	5.66	1077.643	82.363	57.727
ATLANTA, GA	12	5.73	5	12.83	1807.555	103.624	205.506
KANSAS CITY, MO-KS	13	5.02	15	0.86	1286.947	64.605	10.927
INDIANAPOLIS, IN	14	4.11	13	3.07	1147.203	47.176	34.130
CINCINNATI, OH-KY-IN	15	4.01	16	-0.24	1384.550	55.466	-3.333
CLEVELAND, OH	16	3.73	20	-4.44	1974.110	73.604	-91.723
MILWAUKEE, WI	17	3.66	14	1.32	1425.760	52.243	18.627
NEWARK, NJ	18	1.64	19	-3.42	1993.729	32.687	-70.638
SEATTLE, WA	19	0.53	17	-1.14	1411.288	7.420	-16.324
BUFFALO, NY	20	-0.56	18	-1.92	1326.448	-7.432	-26.030

APPENDIX 3-3

TOTAL POPULATION - SMSA GROUP 3
(Total Population in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Population 1975	Change 75-80	Change 70-75
ORLANDO, FL	1	16.68	2	28.46	586.678	97.862	129.993
FORT LAUDERDALE, FL	2	16.12	1	38.24	863.901	139.253	238.983
SALT LAKE CITY, UT	3	14.41	6	10.34	783.762	112.931	73.428
GREENVILLE, SC	4	11.79	5	10.63	526.623	62.098	50.613
JACKSONVILLE, FL	5	10.83	3	12.00	701.120	75.902	75.106
SAN ANTONIO, TX	6	10.31	7	9.48	977.431	100.784	84.606
OKLAHOMA CITY, OK	7	9.81	10	7.35	753.098	73.858	51.570
OMAHA, NE-IA	8	9.54	16	5.20	572.678	54.628	28.302
GREENSBORO, NC	9	8.84	14	5.30	765.354	67.629	38.502
TULSA, OK	10	8.28	11	6.26	585.405	48.488	34.500
SACRAMENTO, CA	11	8.26	8	9.05	879.930	72.692	73.021
CHARLOTTE, NC	12	7.96	12	6.24	594.641	47.342	34.926
RICHMOND, VA	13	7.85	13	6.04	581.900	45.652	33.122
BIRMINGHAM, AL	14	7.29	20	3.12	793.183	57.843	23.992
NASHVILLE, TN	15	7.07	9	7.42	754.140	53.355	52.113
MEMPHIS, TN-AR-MS	16	6.83	18	4.61	873.775	59.713	38.526
GRAND RAPIDS, MI	17	6.63	17	4.79	567.327	37.604	25.925
HONOLULU, HI	18	6.39	4	11.09	705.777	45.074	70.444
ROCHESTER, NY	19	5.84	32	0.66	970.640	56.646	6.392
YOUNGSTOWN, OH	20	5.81	26	1.94	548.551	31.874	10.416
LOUISVILLE, KY-IN	21	5.08	22	2.46	891.436	45.263	21.438
WILMINGTON, DE-NJ-MD	22	4.55	21	3.08	517.154	23.547	15.430
FLINT, MI	23	4.35	27	1.85	519.507	22.601	9.439
TOLEDO, OH-MI	24	4.24	24	2.19	781.283	33.163	16.777
NEW BRUNSWICK, NJ	25	4.13	33	0.42	589.196	24.305	2.489
ALLENTOWN, PA-NJ	26	4.01	19	4.18	621.294	24.895	24.946
DAYTON, OH	27	3.42	36	-2.02	836.735	28.620	-17.294
AKRON, OH	28	2.45	35	-1.87	668.026	16.392	-12.731
SYRACUSE, NY	29	2.22	29	1.40	647.496	14.378	8.928
NORFOLK, VA-NC	30	1.92	15	5.28	773.338	14.823	38.819
ALBANY, NY	31	1.58	23	2.35	798.881	12.638	18.343
PROVIDENCE, RI-MA	32	0.59	34	-0.44	906.412	5.392	-3.976
HARTFORD, CT	33	0.54	30	1.31	731.287	3.938	9.473
NORTHEAST PENN, PA.	34	0.02	25	2.10	637.026	0.099	13.079
GARY, IN	35	-0.26	31	0.98	640.033	-1.658	6.213
SPRINGFIELD, MA-CT	36	-4.51	28	1.76	552.717	-24.945	9.569
JERSEY CITY, NJ	37	-6.99	37	-4.66	582.136	-40.686	-28.449

APPENDIX 3-3

TOTAL POPULATION - SMSA GROUP 4
(Total Population in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Population 1975	Change 75-80	Change 70-75
TUCSON, AZ	1	17.68	2	24.05	441.371	78.047	85.561
COLORADO SPRINGS, CO	2	17.49	4	21.15	291.867	51.055	50.954
EL PASO, TX	3	17.38	9	14.82	414.846	72.088	53.553
AUSTIN, TX	4	17.00	3	21.57	395.087	67.172	70.107
LAKELAND, FL	5	16.96	6	19.76	274.075	46.493	45.217
ALBUQUERQUE, NM	6	16.33	7	15.55	387.611	63.289	52.168
ANN ARBOR, MI	7	15.78	20	9.05	256.488	40.477	21.292
COLUMBIA, SC	8	12.01	10	14.48	371.406	44.594	46.990
LORAIN, OH	9	11.17	37	4.35	268.602	30.012	11.199
SPOKANE, WA	10	10.85	28	5.77	304.897	33.089	16.636
LAS VEGAS, NV	11	10.66	5	20.52	332.339	35.434	56.575
PENSACOLA, FL	12	10.59	19	9.11	267.191	28.289	22.313
BEAUMONT, TX	13	10.59	58	0.24	349.538	37.022	0.841
SALINAS, CA	14	10.24	22	7.07	266.071	27.244	17.580
JACKSON, MS	15	10.03	13	11.15	288.741	28.955	28.967
OXNARD, CA	16	9.80	8	15.26	438.069	42.939	57.991
WEST PALM BEACH, FL	17	9.51	1	31.10	460.820	43.811	109.319
NEWPORT NEWS, VA	18	9.51	31	5.44	352.122	33.500	18.158
SANTA BARBARA, CA	19	9.40	33	5.26	279.567	26.267	13.983
LITTLE ROCK, AR	20	8.95	11	13.31	367.503	32.878	43.176
CHATTANOOGA, TN-GA	21	8.49	29	5.56	393.237	33.384	20.730
FORT WAYNE, IN	22	8.21	43	3.17	374.404	30.751	11.519
LONG BRANCH, NJ	23	7.36	30	5.48	486.741	35.847	25.267
ERIE, PA	24	7.33	44	2.74	271.664	19.920	7.243
JOHNSON CITY, TN-VA	25	7.30	24	6.41	399.071	29.146	24.048
FRESNO, CA	26	7.24	21	7.35	445.447	32.267	30.512
MADISON, WI	27	7.19	25	6.34	309.902	22.292	18.483
YORK, PA	28	7.05	34	5.07	347.314	24.485	16.761
KNOXVILLE, TN	29	6.85	27	5.99	436.229	29.887	24.635
DES MOINES, IA	30	6.53	32	5.34	331.232	21.616	16.806
TACOMA, WA	31	6.48	65	-0.84	409.840	26.576	-3.480
MONTGOMERY, AL	32	6.28	14	10.52	250.106	15.719	23.815
LEXINGTON, KY	33	6.08	17	9.42	292.936	17.807	25.210
RALEIGH, NC	34	5.92	12	12.58	473.799	28.068	52.956
SHREVEPORT, LA	35	5.85	42	3.33	346.051	20.245	11.143
LANSING, MI	36	5.79	36	4.85	446.913	25.891	20.689
APPLETON, WI	37	5.67	45	2.62	285.144	16.169	7.272
HUNTINGTON, WV-KY-OH	38	5.61	56	0.60	289.676	16.248	1.722
BAKERSFIELD, CA	39	5.45	39	3.65	343.594	18.720	12.113
CHARLESTON, SC	40	5.22	15	10.42	372.549	19.441	35.170
CANTON, OH	41	5.09	41	3.42	408.261	20.775	13.508
STOCKTON, CA	42	5.01	47	2.47	299.340	14.990	7.229
BINGHAMTON, NY-PA	43	4.91	61	-0.20	303.073	14.870	-0.620
HARRISBURG, PA	44	4.56	40	3.58	426.289	19.455	14.748
LANCASTER, PA	45	4.24	26	6.28	341.254	14.458	20.153
BATON ROUGE, LA	46	3.54	18	9.22	411.934	14.602	34.780
DAVENPORT, IA-IL	47	3.32	50	1.48	369.061	12.245	5.399
PEORIA, IL	48	3.18	49	2.33	350.931	11.167	8.004
DULUTH, MN-WI	49	2.83	69	-2.53	259.497	7.344	-6.740
CORPUS CHRISTI, TX	50	2.63	38	3.82	297.283	7.816	10.936
VALLEJO, CA	51	2.22	16	10.11	277.566	6.158	25.475
ROCKFORD, IL	52	2.15	64	-0.77	270.637	5.816	-2.107
EVANSVILLE, IN-KY	53	1.22	55	0.61	287.500	3.494	1.739
NEW HAVEN, CT	54	0.91	52	1.30	420.044	3.820	5.402
LAWRENCE, MA-NH	55	0.81	53	1.04	262.049	2.116	2.695
HUNTSVILLE, AL	56	0.24	54	0.95	286.357	0.700	2.693
JOHNSTOWN, PA	57	-0.75	57	0.55	265.113	-1.991	1.451
READING, PA	58	-1.20	46	2.61	305.056	-3.646	7.764
TRENTON, NJ	59	-1.25	35	4.92	320.254	-3.999	15.015
WICHITA, KS	60	-1.26	66	-2.03	382.141	-4.803	-7.902
MOBILE, AL	61	-1.27	23	6.49	402.036	-5.088	24.505
AUGUSTA, GA-SC	62	-1.41	60	-0.03	276.794	-3.904	-0.075
CHARLESTON, WV	63	-1.85	62	-0.20	257.342	-4.770	-0.509
SOUTH BEND, IN	64	-2.25	63	-0.64	278.904	-6.289	-1.807
KALAMAZOO, MI	65	-2.90	48	2.43	265.112	-7.681	6.286
WORCESTER, MA	66	-4.22	51	1.34	378.185	-15.947	4.984
UTICA, NY	67	-4.43	67	-2.06	334.786	-14.818	-7.037
BRIDGEPORT, CT	68	-4.98	59	0.09	403.213	-20.099	0.365
PATERSON, NJ	69	-4.99	68	-2.32	452.010	-22.554	-10.759

APPENDIX 3-3

TOTAL POPULATION - SMSA GROUP 5
(Total Population in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Population 1975	Change 75-80	Change 70-75
SARASOTA, FL	1	23.13	2	34.04	162.835	37.662	41.350
FORT MYERS, FL	2	20.90	1	46.69	155.570	32.509	49.517
SANTA CRUZ, CA	3	20.12	8	21.81	151.550	30.489	27.130
YAKIMA, WA	4	18.42	27	5.81	153.715	28.309	8.440
ANCHORAGE, AK	5	18.19	6	22.42	154.651	28.130	28.323
KILLEEN, TX	6	17.79	3	31.00	210.591	37.457	49.840
DAYTONA BEACH, FL	7	17.17	5	22.99	210.129	36.079	39.274
PARKERSBURG, WV-OH	8	15.98	40	2.34	152.090	24.298	3.477
ROANOKE, VA	9	14.39	28	5.47	215.172	30.965	11.155
WACO, TX	10	14.00	26	5.81	156.798	21.957	8.608
MODESTO, CA	11	13.64	12	14.49	223.746	30.530	28.311
EUGENE, OR	12	13.20	15	11.39	241.173	31.841	24.659
SANTA ROSA, CA	13	12.76	11	19.29	245.591	31.326	39.718
ST. CLOUD, MN	14	12.68	14	11.61	150.743	19.109	15.683
PROVO, UT	15	12.41	7	21.97	169.382	21.018	30.509
LIMA, OH	16	11.56	45	0.45	211.547	24.448	0.948
LINCOLN, NE	17	11.54	18	9.88	185.465	21.404	16.673
GREEN BAY, WI	18	11.51	21	8.57	172.364	19.838	13.611
STAMFORD, CT	19	10.62	49	-0.20	206.513	21.930	-0.414
FORT SMITH, AR-OK	20	10.31	4	25.03	201.449	20.773	40.327
LUBBOCK, TX	21	9.85	20	9.13	196.770	19.389	16.464
BATTLE CREEK, MI	22	9.71	43	0.87	182.378	17.704	1.571
POUGHKEEPSIE, NY	23	9.62	29	5.30	234.679	22.577	11.813
AMARILLO, TX	24	9.36	31	4.77	152.110	14.240	6.923
HAMILTON, OH	25	9.23	24	7.64	244.153	22.529	17.331
SPRINGFIELD, MO	26	8.94	16	11.06	187.340	16.740	18.664
FAYETTEVILLE, NC	27	8.94	19	9.59	233.257	20.864	20.418
TOPEKA, KS	28	8.39	54	-1.28	178.661	14.982	-2.315
BILOXI, MS	29	8.07	23	7.74	173.539	14.011	12.468
SALEM, OR	30	7.84	17	10.40	207.118	16.240	19.514
STEUBENVILLE, OH-WV	31	7.80	52	-0.32	165.530	12.909	-0.534
WHEELING, WV-OH	32	6.10	51	-0.23	182.868	11.161	-0.419
RACINE, WI	33	6.01	39	2.62	175.732	10.555	4.484
MELBOURNE, FL	34	5.74	46	0.32	232.519	13.352	0.741
PORTLAND, ME	35	5.53	30	4.77	179.065	9.903	8.155
SPRINGFIELD, OH	36	4.81	53	-0.42	187.242	9.003	-0.799
SAGINAW, MI	37	4.78	38	2.84	226.625	10.825	6.260
GALVESTON, TX	38	4.45	25	6.87	182.090	8.110	11.705
TERRE HAUTE, IN	39	3.13	56	-2.66	171.044	5.353	-4.669
ASHEVILLE, NC	40	2.72	35	3.77	168.013	4.572	6.106
BROWNSVILLE, TX	41	2.39	10	20.02	169.421	4.055	28.258
CHAMPAIGN, IL	42	1.52	50	-0.22	163.524	2.486	-0.368
MCALLEN, TX	43	1.43	9	20.94	220.818	3.162	38.232
FALL RIVER, MA-RI	44	1.28	47	0.09	170.246	2.174	0.161
WATERBURY, CT	45	1.20	41	1.98	221.663	2.664	4.299
MACON, GA	46	0.82	34	3.83	236.156	1.940	8.702
LOWELL, MA-NH	47	0.78	48	-0.13	218.590	1.713	-0.280
NEW LONDON, CT-RI	48	0.44	37	2.93	249.353	1.095	7.091
LAKE CHARLES, LA	49	0.01	36	3.07	150.561	0.015	4.489
COLUMBUS, GA-AL	50	-0.21	57	-6.80	223.190	-0.475	-16.272
SAVANNAH, GA	51	-0.29	55	-2.51	203.332	-0.599	-5.240
CEDAR RAPIDS, IA	52	-0.35	42	1.53	166.226	-0.587	2.509
ATLANTIC CITY, NJ	53	-2.30	22	8.11	189.937	-4.369	14.250
SPRINGFIELD, IL	54	-3.44	33	4.63	179.431	-6.165	7.940
MUSKEGON, MI	55	-3.80	44	0.87	177.505	-6.739	1.529
NEW BEDFORD, MA	56	-6.38	32	4.74	169.320	-10.798	7.657
BROCKTON, MA	57	-9.16	13	12.40	169.584	-15.535	18.713

APPENDIX 3-3

TOTAL POPULATION - SMSA GROUP 6
(Total Population in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Population 1975	Change 75-80	Change 70-75
RICHLAND, WA	1	22.54	16	9.32	102.261	23.047	8.716
PASCAGOULA, MS	2	20.05	8	19.64	105.859	21.223	17.375
FORT COLLINS, CO	3	19.74	1	33.51	120.960	23.875	30.362
LONGVIEW, TX	4	19.40	38	3.70	125.608	24.364	4.480
GREELEY, CO	5	17.40	7	19.78	107.725	18.747	17.790
TUSCALOOSA, AL	6	17.01	22	6.65	124.202	21.125	7.747
TYLER, TX	7	16.87	15	10.43	107.552	18.140	10.162
LAFAYETTE, LA	8	15.83	12	11.81	125.391	19.848	13.248
TALLAHASSEE, FL	9	15.00	2	26.26	139.058	20.853	28.920
ALBANY, GA	10	14.97	39	3.61	100.438	15.034	3.503
BLOOMINGTON, IN	11	14.36	23	6.63	90.886	13.048	5.650
GAINESVILLE, FL	12	13.95	4	22.93	129.821	18.113	24.217
NASHUA, NH	13	13.56	21	8.00	93.448	12.676	6.924
SIOUX FALLS, SD	14	12.99	33	4.70	100.090	12.997	4.495
ALEXANDRIA, LA	15	12.81	45	2.82	136.003	17.420	3.726
KENOSHA, WI	16	12.10	37	4.04	123.062	14.895	4.776
SAN ANGELO, TX	17	12.01	34	4.70	74.820	8.984	3.358
RENO, NV	18	11.55	10	18.70	145.178	16.767	22.868
LYNCHBURG, VA	19	11.51	25	6.53	142.389	16.394	8.722
EAU CLAIRE, WI	20	11.36	29	5.85	122.109	13.875	6.747
BOISE CITY, ID	21	11.29	5	21.27	137.184	15.494	24.061
DUBUQUE, IA	22	11.00	40	3.31	93.905	10.332	3.012
MONROE, LA	23	10.45	20	8.59	125.820	13.145	9.950
BILLINGS, MT	24	10.32	14	10.93	97.368	10.047	9.591
CLARKSVILLE, TN-KY	25	10.08	6	20.61	143.999	14.516	24.602
MANSFIELD, OH	26	10.06	63	0.09	130.403	13.123	0.112
WILMINGTON, NC	27	9.70	9	19.52	128.543	12.469	20.991
ROCHESTER, MN	28	9.18	32	4.82	88.452	8.124	4.070
ABILENE, TX	29	8.85	36	4.54	128.445	11.366	5.580
WICHITA FALLS, TX	30	8.81	54	1.12	130.761	11.515	1.443
ANNISTON, AL	31	8.65	44	2.90	106.540	9.213	3.002
LAREDO, TX	32	8.63	24	6.60	78.125	6.746	4.838
BRYAN, TX	33	8.56	3	24.23	72.414	6.197	14.124
MIDLAND, TX	34	8.17	28	6.03	69.673	5.693	3.964
WATERLOO, IA	35	8.14	58	0.87	134.449	10.949	1.161
SIOUX CITY, IA-NE	36	8.10	41	3.14	120.210	9.738	3.657
MANCHESTER, NH	37	7.20	17	9.13	145.334	10.468	12.161
FARGO, ND-MN	38	6.70	26	6.16	128.209	8.590	7.435
LAFAYETTE, IN	39	6.67	47	2.76	112.874	7.533	3.037
SHERMAN, TX	40	6.10	74	-5.54	79.035	4.820	-4.633
BURLINGTON, NC	41	5.82	46	2.78	99.419	5.789	2.686
TEXARKANA, TX-AR	42	5.48	57	0.89	114.819	6.287	1.013
COLUMBIA, MO	43	5.03	19	8.64	88.293	4.441	7.024
LA CROSSE, WI	44	4.72	30	5.37	85.110	4.015	4.335
PETERSBURG, VA	45	4.01	72	-3.59	124.417	4.995	-4.628
PUEBLO, CO	46	3.71	31	5.36	125.400	4.653	6.378
JACKSON, MI	47	3.58	48	2.24	147.051	5.270	3.226
ANDERSON, IN	48	3.48	66	-0.58	138.039	4.804	-0.812
BRISTOL, CT	49	3.12	59	0.74	70.581	2.200	0.517
VINELAND, NJ	50	2.89	18	9.06	132.888	3.842	11.044
DANBURY, CT	51	2.86	62	0.18	116.039	3.314	0.214
LAWTON, OK	52	2.30	73	-5.20	102.948	2.366	-5.652
NEW BRITAIN, CT	53	1.77	61	0.36	146.306	2.588	0.525
DECATUR, IL	54	1.70	52	1.49	127.164	2.164	1.864
ALTOONA, PA	55	1.55	70	-1.76	133.420	2.063	-2.385
ELMIRA, NY	56	1.45	68	-1.73	100.100	1.452	-1.758
ST. JOSEPH, MO	57	0.81	60	0.57	99.707	0.810	0.564
WILLIAMSPORT, PA	58	0.53	55	1.10	114.912	0.610	1.246
ODESSA, TX	59	0.20	27	6.10	98.788	0.196	5.679
FAYETTEVILLE, AR	60	0.18	11	15.99	149.163	0.271	20.560
BLOOMINGTON, IL	61	-0.40	13	11.30	116.639	-0.461	11.845
OWENSBORO, KY	62	-0.68	50	1.72	81.198	-0.554	1.373
LEWISTON, ME	63	-0.79	42	3.02	75.116	-0.595	2.201
FLORENCE, AL	64	-0.82	35	4.58	123.686	-1.016	5.422
MERIDEN, CT	65	-0.92	49	1.75	57.133	-0.524	0.980
NORWALK, CT	66	-0.98	64	-0.25	127.393	-1.250	-0.321
GREAT FALLS, MT	67	-2.98	43	3.01	84.644	-2.526	2.473
PINE BLUFF, AR	68	-3.07	71	-1.78	83.849	-2.576	-1.521
BAY CITY, MI	69	-6.29	51	1.54	119.675	-7.530	1.817
PITTSFIELD, MA	70	-6.30	67	-0.65	96.431	-6.073	-0.628
MUNCIE, IN	71	-6.43	65	-0.30	129.215	-8.304	-0.389
GADSDEN, AL	72	-6.52	56	1.02	95.524	-6.224	0.965
FITCHBURG, MA	73	-6.69	53	1.25	98.703	-6.604	1.217
KANKAKEE, IL	74	-13.47	69	-1.75	95.733	-12.900	-1.706

APPENDIX 3-4

TOTAL EMPLOYMENT - SMSA GROUP 1
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
HOUSTON, TX	1	23.02	1	28.18	1178.230	271.227	259.021
DALLAS, TX	2	21.09	2	15.37	1267.455	267.339	168.837
NASSAU-SUFFOLK, NY	3	14.89	5	7.12	880.700	131.167	58.538
WASHINGTON, DC-MD-VA	4	14.00	4	10.05	1449.244	202.902	132.314
DETROIT, MI	5	12.99	8	5.21	1853.521	240.758	91.840
BALTIMORE, MD	6	12.99	9	4.82	952.854	123.809	43.799
MINNEAPOLIS, MN-WI	7	12.00	3	10.36	1021.015	122.523	95.858
LOS ANGELES, CA	8	11.00	6	6.67	3456.514	380.232	216.214
SAN FRANCISCO, CA	9	10.61	7	5.33	1499.537	159.125	75.920
PITTSBURGH, PA	10	9.99	12	0.47	945.427	94.493	4.433
ST. LOUIS, MO-IL	11	8.34	13	-0.25	1034.370	86.311	-2.593
CHICAGO, IL	12	8.08	10	0.69	3322.998	268.468	22.847
BOSTON, MA	13	7.23	14	-4.39	1549.236	112.003	-71.087
PHILADELPHIA, PA-NJ	14	7.05	11	0.60	1970.681	138.859	11.703
NEW YORK, NY-NJ	15	2.51	15	-10.77	4431.023	111.281	-534.965

TOTAL EMPLOYMENT - SMSA GROUP 2
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
SAN DIEGO, CA	1	30.23	6	20.92	546.388	165.188	94.547
ANAHEIM, CA	2	29.90	3	31.48	633.395	189.391	151.641
PHOENIX, AZ	3	28.18	2	34.82	522.799	147.319	135.023
SAN JOSE, CA	4	27.70	5	22.83	528.181	146.285	98.156
TAMPA, FL	5	22.03	1	35.58	536.456	118.183	140.795
MIAMI, FL	6	22.02	7	20.75	758.965	167.146	130.424
DENVER, CO	7	22.01	4	27.86	696.882	153.395	151.829
RIVERSIDE, CA	8	22.00	9	13.23	402.261	88.481	47.002
PORTLAND, OR-WA	9	18.00	8	15.55	500.978	90.182	67.420
NEW ORLEANS, LA	10	17.19	12	10.59	486.043	83.545	46.558
COLUMBUS, OH	11	15.15	11	11.29	521.834	79.073	52.921
ATLANTA, GA	12	14.51	10	11.85	835.927	121.268	88.566
INDIANAPOLIS, IN	13	12.88	15	7.39	501.789	64.627	34.519
CINCINNATI, OH-KY-IN	14	12.01	17	4.99	621.437	74.608	29.527
KANSAS CITY, MO-KS	15	12.00	16	6.43	624.321	74.919	37.692
MILWAUKEE, WI	16	9.99	14	7.41	693.340	69.239	47.832
CLEVELAND, OH	17	9.97	18	-0.12	983.058	98.049	-1.195
BUFFALO, NY	18	9.96	20	-3.36	527.939	52.578	-18.364
NEWARK, NJ	19	9.24	19	-1.16	922.975	85.241	-10.847
SEATTLE, WA	20	8.49	13	9.97	656.246	55.733	59.479

APPENDIX 3-4

TOTAL EMPLOYMENT - SMSA GROUP 3
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
ORLANDO, FL	1	27.57	1	44.01	241.139	66.483	73.690
FORT LAUDERDALE, FL	2	27.44	2	38.02	313.017	85.883	86.233
SAN ANTONIO, TX	3	22.58	10	13.57	362.199	81.769	43.279
SALT LAKE CITY, UT	4	22.08	3	23.44	357.347	78.896	67.851
GREENVILLE, SC	5	22.01	8	15.36	249.614	54.947	33.237
JACKSONVILLE, FL	6	21.65	4	18.28	281.962	61.043	43.583
SACRAMENTO, CA	7	19.92	5	16.30	353.785	70.488	49.584
OMAHA, NE-IA	8	19.75	13	11.98	248.740	49.123	26.609
TULSA, OK	9	18.73	14	11.34	238.453	44.671	24.280
CHARLOTTE, NC	10	17.72	19	6.33	291.071	51.588	17.332
RICHMOND, VA	11	17.31	11	13.12	299.921	51.909	34.787
OKLAHOMA CITY, OK	12	17.00	9	14.19	367.192	62.438	45.635
NASHVILLE, TN	13	17.00	12	12.50	338.271	57.506	37.575
GRAND RAPIDS, MI	14	16.97	26	4.40	218.541	37.081	9.220
HONOLULU, HI	15	16.84	16	10.55	291.047	49.004	27.778
MEMPHIS, TN-AR-MS	16	16.79	15	10.82	371.616	62.399	36.298
GREENSBORO, NC	17	16.57	18	8.93	374.976	62.117	30.746
YOUNGSTOWN, OH	18	16.01	23	5.21	218.195	34.923	10.797
BIRMINGHAM, AL	19	15.81	7	15.36	356.191	56.299	47.419
ROCHESTER, NY	20	15.72	22	5.50	425.870	66.953	22.199
FLINT, MI	21	15.24	20	6.33	169.310	25.805	10.077
NORFOLK, VA-NC	22	15.15	6	16.12	291.924	44.227	40.534
WILMINGTON, DE-NJ-MD	23	14.46	21	5.84	220.124	31.834	12.151
NEW BRUNSWICK, NJ	24	14.01	17	10.14	257.198	36.036	23.676
TOLEDO, OH-MI	25	14.01	24	5.17	317.935	44.534	15.616
ALLENTOWN, PA-NJ	26	13.78	25	5.11	263.677	36.336	12.813
LOUISVILLE, KY-IN	27	13.68	28	4.20	399.233	54.601	16.099
SYRACUSE, NY	28	13.33	31	1.03	244.733	32.613	2.497
DAYTON, OH	29	12.76	36	-3.02	371.030	47.325	-11.567
AKRON, OH	30	12.43	27	4.33	269.364	33.484	11.169
ALBANY, NY	31	10.00	29	1.92	336.045	33.596	6.337
GARY, IN	32	9.83	34	-1.20	230.891	22.690	-2.793
NORTHEAST PENN, PA	33	9.53	30	1.40	248.227	23.652	3.433
PROVIDENCE, RI-MA	34	8.77	33	0.59	392.568	34.422	2.316
HARTFORD, CT	35	5.94	32	0.75	380.553	22.623	2.829
SPRINGFIELD, MA-CT	36	4.74	35	-1.77	205.563	9.738	-3.696
JERSEY CITY, NJ	37	2.00	37	-6.43	247.672	4.951	-17.017

APPENDIX 3-4

TOTAL EMPLOYMENT - SMSA GROUP 4
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
COLORADO SPRINGS, CO	1	30.50	3	30.23	85.590	26.103	19.866
EL PASO, TX	2	29.56	11	19.37	136.887	40.461	22.210
TUCSON, AZ	3	29.42	2	36.19	160.055	47.089	42.529
AUSTIN, TX	4	28.44	5	26.65	175.311	49.855	36.884
ALBUQUERQUE, NM	5	27.73	4	28.23	152.356	42.251	33.541
ANN ARBOR, MI	6	27.42	46	5.52	114.173	31.311	5.974
LAKELAND, FL	7	27.13	1	44.50	126.413	34.301	38.927
COLUMBIA, SC	8	23.04	7	25.16	160.668	37.018	32.296
LORAIN, OH	9	22.62	53	4.53	88.195	19.951	3.822
PENSACOLA, FL	10	21.93	8	22.67	96.462	21.155	17.827
SPOKANE, WA	11	21.81	30	11.54	113.455	24.742	11.738
SALINAS, CA	12	21.72	13	17.23	96.419	20.946	14.173
LAS VEGAS, NV	13	21.59	9	22.46	133.258	28.775	24.443
OXNARD, CA	14	21.50	16	15.70	127.570	27.431	17.308
BEAUMONT, TX	15	21.15	34	10.33	141.551	29.944	13.255
NEWPORT NEWS, VA	16	20.38	10	19.63	142.622	29.063	23.398
SANTA BARBARA, CA	17	20.36	22	13.12	108.385	22.069	12.568
JACKSON, MS	18	20.10	15	16.92	130.382	26.212	18.870
WEST PALM BEACH, FL	19	19.63	6	25.96	175.304	34.420	36.125
LITTLE ROCK, AR	20	19.18	12	17.46	161.784	31.037	24.054
CHATTANOOGA, TN-GA	21	18.73	35	9.88	167.819	31.430	15.087
LONG BRANCH, NJ	22	18.52	18	14.73	150.039	27.793	19.269
FORT WAYNE, IN	23	18.30	45	5.92	162.752	29.784	9.096
TACOMA, WA	24	18.05	43	7.12	126.839	22.892	8.436
JOHNSON CITY, TN-VA	25	18.00	29	11.56	148.836	26.791	15.427
FRESNO, CA	26	17.63	14	17.16	177.749	31.335	26.039
ERIE, PA	27	17.43	48	5.50	111.450	19.431	5.812
MADISON, WI	28	17.31	33	10.35	146.091	25.292	13.699
KNOXVILLE, TN	29	17.00	17	14.74	187.144	31.815	24.047
YORK, PA	30	16.99	61	0.92	148.381	25.214	1.351
BINGHAMTON, NY-PA	31	16.88	56	3.50	118.580	20.021	4.005
LANSING, MI	32	16.62	50	5.41	165.756	27.544	8.514
HUNTINGTON, WV-KY-OH	33	16.38	62	0.07	97.666	16.002	0.066
MONTGOMERY, AL	34	16.04	26	12.36	105.950	16.997	11.654
DES MOINES, IA	35	16.00	32	11.04	159.315	25.491	15.836
CHARLESTON, SC	36	16.00	25	12.41	127.498	20.400	14.078
RALEIGH, NC	37	15.95	27	12.05	222.208	35.449	23.896
SHREVEPORT, LA	38	15.92	54	4.31	137.549	21.902	5.683
LEXINGTON, KY	39	15.82	20	13.70	140.906	22.290	16.978
BAKERSFIELD, CA	40	15.73	19	13.73	131.554	20.687	15.882
APPLETON, WI	41	15.51	36	9.50	117.699	18.258	10.208
CANTON, OH	42	15.40	59	2.28	153.610	23.650	3.427
STOCKTON, CA	43	15.00	21	13.21	121.691	18.251	14.196
HARRISBURG, PA	44	13.87	39	8.29	205.425	28.501	15.734
LANCASTER, PA	45	13.85	47	5.50	148.540	20.578	7.747
BATON ROUGE, LA	46	13.84	23	13.11	153.628	21.257	17.812
PEORIA, IL	47	13.10	63	-0.88	139.843	18.323	-1.235
VALLEJO, CA	48	13.08	28	11.96	87.491	11.448	9.347
DAVENPORT, IA-IL	49	12.73	51	5.11	161.655	20.576	7.857
CORPUS CHRISTI, TX	50	12.69	24	12.63	114.396	14.513	12.829
DULUTH, MN-WI	51	12.52	40	7.85	99.529	12.464	7.245
LAWRENCE, MA-NH	52	12.05	64	-1.26	95.062	11.454	-1.210
ROCKFORD, IL	53	11.89	66	-2.86	112.417	13.372	-3.311
EVANSVILLE, IN-KY	54	11.00	42	7.40	110.085	12.105	7.585
NEW HAVEN, CT	55	10.31	55	4.00	191.544	19.746	7.364
HUNTSVILLE, AL	56	9.84	37	8.82	118.069	11.613	9.570
JOHNSTOWN, PA	57	9.04	49	5.43	90.842	8.209	4.676
MOBILE, AL	58	8.65	44	6.33	136.458	11.802	8.118
AUGUSTA, GA-SC	59	8.27	38	8.78	115.334	9.540	9.312
WICHITA, KS	60	7.99	31	11.25	171.571	13.702	17.344
CHARLESTON, WV	61	7.78	57	2.44	98.895	7.690	2.352
READING, PA	62	7.76	60	1.89	136.050	10.564	2.530
TRENTON, NJ	63	7.73	41	7.45	154.032	11.900	10.680
WORCESTER, MA	64	7.55	67	-3.70	143.688	10.846	-5.521
SOUTH BEND, IN	65	7.37	52	4.96	106.652	7.859	5.036
KALAMAZOO, MI	66	6.93	58	2.29	98.780	6.849	2.211
UTICA, NY	67	6.29	69	-5.97	119.404	7.509	-7.585
PATERSON, NJ	68	4.40	68	-5.20	176.336	7.759	-9.663
BRIDGEPORT, CT	69	4.22	65	-2.78	158.550	6.689	-4.528

APPENDIX 3-4

TOTAL EMPLOYMENT - SMSA GROUP 5
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
SANTA CRUZ, CA	1	32.81	6	23.95	44.107	14.471	8.523
SARASOTA, FL	2	31.97	2	58.08	75.887	24.262	27.882
FORT MYERS, FL	3	31.81	1	62.88	57.494	18.287	22.196
KILLEEN, TX	4	31.56	4	43.37	52.557	16.587	15.898
ANCHORAGE, AK	5	30.03	5	39.70	64.566	19.386	18.348
YAKIMA, WA	6	29.97	8	20.47	53.899	16.155	9.159
DAYTONA BEACH, FL	7	27.65	3	54.52	82.191	22.722	29.001
PARKERSBURG, WV-OH	8	27.23	37	6.87	57.953	15.781	3.726
PROVO, UT	9	25.20	9	19.10	42.446	10.696	6.808
MODESTO, CA	10	24.91	13	16.65	80.675	20.099	11.514
ROANOKE, VA	11	24.60	23	11.64	104.138	25.621	10.862
WACO, TX	12	24.56	16	14.39	67.809	16.654	8.532
SANTA ROSA, CA	13	24.49	7	20.96	74.550	18.254	12.920
EUGENE, OR	14	24.38	11	18.12	95.313	23.235	14.618
ST. CLOUD, MN	15	23.65	12	18.09	53.567	12.668	8.206
LIMA, OH	16	22.30	49	3.42	79.664	17.766	2.633
GREEN BAY, WI	17	22.00	20	11.95	68.205	15.003	7.279
LINCOLN, NE	18	21.75	14	16.42	92.663	20.153	13.070
FAYETTEVILLE, NC	19	21.50	22	11.67	61.219	13.163	6.399
FORT SMITH, AR-OK	20	21.50	24	11.60	63.607	13.674	6.611
LUBBOCK, TX	21	20.78	15	15.43	79.741	16.572	10.657
HAMILTON, OH	22	20.76	40	6.03	78.390	16.277	4.457
POUGHKEEPSIE, NY	23	20.57	43	5.78	90.718	18.658	4.955
STAMFORD, CT	24	20.41	46	4.31	99.335	20.270	4.103
BATTLE CREEK, MI	25	20.00	42	5.92	76.206	15.240	4.262
AMARILLO, TX	26	19.66	26	10.65	64.715	12.720	6.228
SPRINGFIELD, MO	27	19.62	28	9.69	73.909	14.501	6.531
BILOXI, MS	28	19.59	34	8.23	55.036	10.780	4.187
SALEM, OR	29	18.22	10	18.35	79.052	14.406	12.255
TOPEKA, KS	30	18.00	19	13.04	84.434	15.198	9.738
STEUBENVILLE, OH-WV	31	18.00	31	9.29	66.196	11.918	5.627
RACINE, WI	32	16.38	35	7.58	64.112	10.500	4.519
WHEELING, WV-OH	33	16.12	33	8.25	72.360	11.667	5.514
MELBOURNE, FL	34	15.40	17	13.88	108.403	16.694	13.216
SPRINGFIELD, OH	35	15.21	36	7.11	67.586	10.278	4.484
SAGINAW, MI	36	15.01	27	10.41	84.965	12.757	8.012
PORTLAND, ME	37	14.73	32	8.59	89.369	13.166	7.066
GALVESTON, TX	38	14.18	21	11.90	78.827	11.181	8.380
TERRE HAUTE, IN	39	13.36	52	2.48	64.439	8.607	1.558
BROWNSVILLE, TX	40	13.09	18	13.06	46.891	6.140	5.416
ASHEVILLE, NC	41	12.38	45	5.37	68.876	8.528	3.513
MCALLEN, TX	42	12.32	25	11.19	57.409	7.071	5.779
CHAMPAIGN, IL	43	12.02	51	2.64	67.952	8.168	1.749
FALL RIVER, MA-RI	44	11.92	53	-1.37	53.774	6.409	-0.746
LOWELL, MA-NH	45	11.67	54	-1.85	58.070	6.777	-1.096
WATERBURY, CT	46	11.05	50	3.16	84.302	9.319	2.581
NEW LONDON, CT-RI	47	10.84	29	9.49	86.940	9.425	7.534
MACON, GA	48	10.17	39	6.38	103.810	10.554	6.225
LAKE CHARLES, LA	49	10.13	47	4.24	50.593	5.125	2.057
COLUMBUS, GA-AL	50	9.93	38	6.60	88.590	8.793	5.482
SAVANNAH, GA	51	9.05	41	5.99	87.840	7.950	4.965
CEDAR RAPIDS, IA	52	8.53	30	9.49	78.790	6.719	6.829
ATLANTIC CITY, NJ	53	6.80	44	5.65	72.862	4.952	3.898
MUSKEGON, MI	54	6.01	56	-4.12	57.122	3.432	-2.455
SPRINGFIELD, IL	55	5.16	48	4.09	80.890	4.173	3.180
NEW BEDFORD, MA	56	1.22	57	-5.13	60.753	0.739	-3.285
BROCKTON, MA	57	-0.17	55	-3.90	41.726	-0.072	-1.695

APPENDIX 3-4

TOTAL EMPLOYMENT - SMSA GROUP 6
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
RICHLAND, WA	1	34.47	17	15.54	38.486	13.267	5.175
FORT COLLINS, CO	2	32.51	1	53.42	39.055	12.697	13.598
PASCAGOULA, MS	3	30.00	2	50.55	56.428	16.929	18.948
LONGVIEW, TX	4	29.49	10	24.15	60.803	17.931	11.828
GREELEY, CO	5	29.31	3	44.56	38.652	11.327	11.915
TUSCALOOSA, AL	6	28.34	14	18.19	52.446	14.862	8.071
TYLER, TX	7	27.56	18	15.44	46.062	12.693	6.160
LAFAYETTE, LA	8	27.14	13	18.25	48.760	13.233	7.526
BLOOMINGTON, IN	9	26.68	4	34.59	33.890	9.043	8.709
TALLAHASSEE, FL	10	26.05	5	33.96	64.626	16.836	16.385
ALBANY, GA	11	25.94	29	11.58	43.747	11.347	4.540
GAINESVILLE, FL	12	25.37	7	28.11	53.785	13.645	11.801
NASHUA, NH	13	24.28	40	9.15	42.510	10.320	3.563
ALEXANDRIA, LA	14	24.23	19	15.15	43.597	10.564	5.737
KENOSHA, WI	15	23.36	49	7.74	41.523	9.699	2.983
SAN ANGELO, TX	16	22.91	23	14.32	29.353	6.724	3.677
SIOUX FALLS, SD	17	22.65	12	19.54	49.251	11.156	8.051
CLARKSVILLE, TN-KY	18	22.32	9	26.12	41.158	9.188	8.524
EAU CLAIRE, WI	19	22.00	34	11.16	48.013	10.562	4.822
LYNCHBURG, VA	20	21.59	53	6.65	66.586	14.374	4.149
RENO, NV	21	21.46	8	27.76	74.288	15.939	16.140
BOISE CITY, ID	22	21.37	6	28.64	62.737	13.409	13.969
MONROE, LA	23	21.01	35	10.98	50.010	10.509	4.949
BILLINGS, MT	24	20.78	11	20.00	41.109	8.543	6.851
DUBUQUE, IA	25	20.53	28	11.67	42.272	8.677	4.418
WILMINGTON, NC	26	20.40	27	11.98	49.298	10.057	5.275
MANSFIELD, OH	27	20.31	55	5.73	56.814	11.540	3.077
LAREDO, TX	28	20.00	44	8.90	22.738	4.548	1.859
BRYAN, TX	29	19.94	20	14.89	25.893	5.163	3.355
ABILENE, TX	30	19.71	30	11.53	46.022	9.070	4.758
WICHITA FALLS, TX	31	19.58	16	15.80	52.407	10.261	7.150
ANNISTON, AL	32	19.34	22	14.59	41.638	8.054	5.303
ROCHESTER, MN	33	19.23	51	7.00	38.544	7.413	2.522
WATERLOO, IA	34	18.00	33	11.25	61.543	11.077	6.221
SIOUX CITY, IA-NE	35	18.00	52	6.81	50.829	9.149	3.240
MIDLAND, TX	36	17.80	32	11.48	34.071	6.066	3.508
MANCHESTER, NH	37	17.16	41	9.11	64.736	11.106	5.407
LAFAYETTE, IN	38	17.14	45	8.53	51.441	8.816	4.044
FARGO, ND-MN	39	16.98	38	10.04	54.266	9.217	4.949
SHERMAN, TX	40	16.42	25	13.78	29.142	4.785	3.530
COLUMBIA, MO	41	15.36	15	16.72	40.909	6.285	5.860
BURLINGTON, NC	42	15.02	59	3.63	51.166	7.684	1.794
TEXARKANA, TX-AR	43	14.99	63	2.05	48.936	7.335	0.984
LA CROSSE, WI	44	14.53	47	8.29	35.740	5.194	2.735
PETERSBURG, VA	45	14.36	24	13.83	49.672	7.133	6.036
LAWTON, OK	46	14.26	43	8.95	27.111	3.865	2.228
PUEBLO, CO	47	13.90	21	14.65	46.857	6.511	5.986
JACKSON, MI	48	13.88	54	6.05	54.148	7.515	3.091
ANDERSON, IN	49	13.50	60	3.20	55.534	7.498	1.723
ELMIRA, NY	50	12.62	70	-0.83	41.479	5.235	-0.348
DANBURY, CT	51	12.56	57	4.17	48.142	6.047	1.926
BRISTOL, CT	52	12.47	66	1.21	33.189	4.137	0.396
VINELAND, NJ	53	12.44	58	3.96	56.371	7.011	2.147
NEW BRITAIN, CT	54	11.44	73	-2.13	61.991	7.094	-1.352
DECATUR, IL	55	11.17	72	-2.02	54.196	6.056	-1.115
ALTOONA, PA	56	10.99	69	0.51	53.598	5.890	0.271
ODESSA, TX	57	10.15	46	8.53	38.168	3.873	2.999
ST. JOSEPH, MO	58	9.97	56	4.58	40.625	4.052	1.779
WILLIAMSPORT, PA	59	9.66	50	7.73	50.459	4.875	3.619
BLOOMINGTON, IL	60	9.50	39	9.80	47.423	4.505	4.231
FLORENCE, AL	61	9.09	36	10.31	42.464	3.858	3.968
FAYETTEVILLE, AR	62	8.86	37	10.17	76.396	6.770	7.052
NORWALK, CT	63	8.51	64	1.70	54.822	4.668	0.919
MERIDEN, CT	64	8.40	62	2.80	23.300	1.957	0.635
OWENSBORO, KY	65	8.38	31	11.52	35.395	2.966	3.657
LEWISTON, ME	66	8.25	68	0.72	31.730	2.619	0.226
GREAT FALLS, MT	67	6.60	26	12.48	32.436	2.141	3.599
PINE BLUFF, AR	68	5.75	48	8.00	35.361	2.034	2.618
PITTSFIELD, MA	69	5.28	74	-3.36	36.825	1.946	-1.280
FITCHBURG, MA	70	4.03	71	-1.82	36.862	1.487	-0.685
BAY CITY, MI	71	3.65	67	0.87	33.468	1.223	0.288
MUNCIE, IN	72	2.88	65	1.53	51.550	1.484	0.778
GADSDEN, AL	73	2.66	61	2.94	34.084	0.907	0.974
KANKAKEE, IL	74	-4.79	42	9.10	34.029	-1.629	2.837

APPENDIX 3-5

TOTAL PER CAPITA INCOME BY STATE

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Per Capita Income 1975	Change 75-80	Change 70-75
VIRGINIA	1	23.16	18	13.69	4559.402	1055.770	548.933
KANSAS	2	22.41	15	13.81	4737.398	1061.734	574.667
COLORADO	3	21.43	22	13.15	4720.367	1011.473	548.742
GEORGIA	4	21.39	29	10.69	4016.070	859.043	387.739
TENNESSEE	5	21.38	11	15.23	3885.346	822.661	513.571
SOUTH CAROLINA	6	21.11	23	13.09	3652.571	771.019	422.736
LOUISIANA	7	20.46	10	15.60	3861.097	789.985	521.066
CALIFORNIA	8	20.11	40	7.14	5201.527	1046.076	346.586
MICHIGAN	9	20.10	37	8.80	4912.004	987.355	397.453
NORTH DAKOTA	10	19.91	2	35.94	4535.895	903.199	1199.299
MARYLAND	11	19.83	33	9.34	5092.430	1009.703	434.871
MISSOURI	12	19.43	42	6.48	4356.109	846.527	265.152
ARKANSAS	13	19.31	5	17.52	3663.220	707.206	546.134
FLORIDA	14	19.25	28	10.91	4489.750	864.434	441.510
TEXAS	15	19.19	14	14.30	4453.410	854.396	557.192
NORTH CAROLINA	16	19.16	27	11.53	3922.134	751.577	405.510
OKLAHOMA	17	18.99	20	13.31	4148.641	787.895	487.239
OHIO	18	18.82	44	6.09	4608.625	867.484	264.379
NEW JERSEY	19	18.70	48	4.48	5308.977	992.652	227.667
RHODE ISLAND	20	18.66	38	7.49	4597.926	858.184	320.414
SOUTH DAKOTA	21	18.56	9	15.73	3909.554	725.700	531.263
NEBRASKA	22	18.55	6	17.40	4807.457	891.785	712.592
NEW HAMPSHIRE	23	18.46	46	4.77	4233.543	781.352	192.688
NEW YORK	24	18.43	51	2.28	5212.133	960.666	115.969
DELAWARE	25	18.34	36	8.99	5338.727	979.320	440.215
ALABAMA	26	18.30	12	15.15	3669.110	671.421	482.766
OREGON	27	18.22	17	13.69	4572.797	833.340	550.797
ARIZONA	28	18.14	39	7.21	4253.555	771.445	285.944
WISCONSIN	29	18.06	35	9.24	4502.102	813.207	380.680
DISTRICT OF COLUMBIA	30	17.97	25	12.44	6172.383	1108.918	682.699
MASSACHUSETTS	31	17.96	50	3.09	4840.070	869.141	145.102
CONNECTICUT	32	17.73	49	3.59	5510.316	977.184	190.949
ILLINOIS	33	17.68	31	9.77	5348.941	945.730	476.176
MINNESOTA	34	17.53	30	10.27	4599.539	806.160	428.398
MISSISSIPPI	35	17.50	21	13.18	3208.249	561.528	373.630
HAWAII	36	17.26	45	4.85	5159.441	890.332	238.699
INDIANA	37	16.85	32	9.67	4471.371	753.430	394.191
KENTUCKY	38	16.82	13	14.78	3863.145	649.636	497.432
WEST VIRGINIA	39	16.59	4	17.67	3899.831	647.075	565.702
WASHINGTON	40	16.46	24	12.47	4925.559	810.660	546.199
PENNSYLVANIA	41	16.39	34	9.26	4690.379	768.793	397.416
IDAHO	42	16.20	8	15.78	4120.039	667.258	561.581
IOWA	43	15.65	3	18.93	4823.371	754.980	767.663
UTAH	44	15.23	26	11.88	3902.289	594.391	414.357
MONTANA	45	15.10	19	13.50	4299.488	649.016	511.276
MAINE	46	14.82	43	6.25	3791.148	561.809	223.157
WYOMING	47	14.15	7	16.71	4822.691	682.520	690.320
NEVADA	48	14.03	41	6.92	5273.184	739.668	341.121
VERMONT	49	12.99	47	4.59	3915.018	508.482	171.789
NEW MEXICO	50	11.30	16	13.70	3787.109	427.778	456.235
ALASKA	51	4.12	1	43.07	7179.738	295.621	2161.316

APPENDIX 3-6

PER CAPITA INCOME - SMSA GROUP 1

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Per Capita Income 1975	Change 75-80	Change 70-75
BALTIMORE, MD	1	22.41	8	8.49	4886.906	1095.184	382.254
NASSAU-SUFFOLK, NY	2	21.42	15	1.88	5940.324	1272.559	109.336
DETROIT, MI	3	20.64	6	9.71	5516.703	1138.852	488.434
NEW YORK, NY-NJ	4	18.47	14	3.12	5742.059	1060.340	173.777
BOSTON, MA	5	18.09	13	3.65	5192.277	939.141	182.891
PITTSBURGH, PA	6	18.02	4	11.25	4880.465	879.352	493.437
SAN FRANCISCO, CA	7	17.11	7	9.69	6198.648	1060.867	547.379
ST. LOUIS, MO-IL	8	16.65	11	7.31	4952.539	824.715	337.574
CHICAGO, IL	9	15.84	9	8.43	5803.148	918.949	451.219
DALLAS, TX	10	15.50	2	13.69	5169.867	801.398	622.434
PHILADELPHIA, PA-NJ	11	14.31	10	7.62	5067.633	724.949	358.762
MINNEAPOLIS, MN-WI	12	14.10	12	5.33	5144.414	725.523	260.391
HOUSTON, TX	13	13.71	1	14.13	5094.711	698.523	630.828
WASHINGTON, DC-MD-VA	14	13.17	3	13.53	6118.676	805.691	728.961
LOS ANGELES, CA	15	13.04	5	11.15	5623.262	733.266	564.086

PER CAPITA INCOME - SMSA GROUP 2
(Total Per Capita Income in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Per Capita Income 1975	Change 75-80	Change 70-75
BUFFALO, NY	1	23.04	18	4.02	4586.074	1056.445	177.199
SAN DIEGO, CA	2	22.72	19	-1.12	4640.172	1054.285	-52.516
RIVERSIDE, CA	3	21.60	12	7.59	4259.980	920.082	300.610
NEW ORLEANS, LA	4	20.80	3	12.47	4558.348	948.012	505.520
ATLANTA, GA	5	20.71	10	8.18	4877.785	1009.980	368.852
TAMPA, FL	6	19.69	6	11.35	4293.898	845.445	437.555
COLUMBUS, OH	7	18.07	17	5.50	4402.098	795.305	229.375
INDIANAPOLIS, IN	8	17.99	14	7.10	4885.223	879.012	323.742
NEWARK, NJ	9	17.06	11	8.00	6000.336	1023.590	444.254
DENVER, CO	10	16.48	2	13.67	5277.551	869.578	634.852
MIAMI, FL	11	15.57	1	13.97	5303.609	825.840	650.258
KANSAS CITY, MO-KS	12	15.49	7	10.12	5140.496	796.434	472.238
PHOENIX, AZ	13	15.41	16	5.76	4493.301	692.402	244.812
ANAHEIM, CA	14	14.05	20	-3.38	5113.391	718.500	-178.820
CLEVELAND, OH	15	14.04	9	8.35	5386.227	756.160	414.895
MILWAUKEE, WI	16	13.78	8	9.94	5305.992	731.086	479.801
CINCINNATI, OH-KY-IN	17	13.29	15	5.92	4706.164	625.410	263.023
SEATTLE, WA	18	12.88	5	11.43	5391.500	694.199	553.113
SAN JOSE, CA	19	12.53	13	7.36	5286.906	662.340	362.336
PORTLAND, OR-WA	20	12.09	4	11.85	5140.797	621.762	544.812

APPENDIX 3-6

PER CAPITA INCOME - SMSA GROUP 3

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Per Capita Income 1975	Change 75-80	Change 70-75
SAN ANTONIO, TX	1	24.41	4	15.78	4301.672	1050.176	586.373
ALBANY, NY	2	24.21	33	2.59	4682.719	1133.906	118.422
FORT LAUDERDALE, FL	3	24.12	37	0.87	5008.680	1208.145	43.359
JACKSONVILLE, FL	4	23.52	13	11.58	4220.195	992.676	437.966
SYRACUSE, NY	5	23.51	36	1.79	4282.105	1006.617	75.230
ROCHESTER, NY	6	23.04	35	1.92	4947.262	1139.902	92.984
NASHVILLE, TN	7	22.37	6	13.97	4362.484	975.918	534.580
JERSEY CITY, NJ	8	22.20	30	3.97	4920.949	1092.324	188.066
GREENSBORO, NC	9	21.40	16	10.13	4613.016	987.102	424.129
ORLANDO, FL	10	21.36	9	12.65	4386.105	937.090	492.478
FLINT, MI	11	21.32	10	12.02	4918.965	1048.777	527.934
GRAND RAPIDS, MI	12	21.13	28	4.90	4375.082	924.297	204.172
RICHMOND, VA	13	21.10	12	11.93	5294.160	1116.977	564.426
NORFOLK, VA-NC	14	20.89	7	13.71	4244.320	886.445	511.575
YOUNGSTOWN, OH	15	20.86	20	8.01	4595.164	958.555	340.867
GREENVILLE, SC	16	20.12	15	10.34	3920.432	788.896	367.234
CHARLOTTE, NC	17	19.61	14	11.07	4605.633	903.176	459.098
HONOLULU, HI	18	19.44	26	6.03	5418.352	1053.422	308.254
MEMPHIS, TN-AR-MS	19	19.08	2	18.63	4429.293	845.324	695.666
NORTHEAST PENN, PA	20	19.04	5	14.84	4230.383	805.387	546.809
DAYTON, OH	21	18.97	29	4.67	4853.437	920.793	216.484
WILMINGTON, DE-NJ-MD	22	18.87	24	7.44	5465.312	1031.484	378.410
SACRAMENTO, CA	23	18.56	18	8.34	4673.176	867.484	359.574
SPRINGFIELD, MA-CT	24	17.40	32	3.01	4375.742	761.469	127.855
TULSA, OK	25	17.35	34	2.47	4603.559	798.602	111.055
HARTFORD, CT	26	17.20	31	3.08	5316.281	914.305	158.980
NEW BRUNSWICK, NJ	27	17.03	21	7.99	5227.082	890.375	386.898
TOLEDO, OH-MI	28	16.69	22	7.87	4774.629	797.035	348.484
PROVIDENCE, RI-MA	29	16.54	19	8.08	4600.109	761.020	344.078
BIRMINGHAM, AL	30	16.50	1	20.71	4502.070	742.789	772.414
AKRON, OH	31	16.50	25	6.06	4787.203	789.934	273.617
GARY, IN	32	16.06	27	5.08	4439.781	713.113	214.672
ALLENTOWN, PA-NJ	33	14.64	23	7.59	4727.570	692.031	333.641
OKLAHOMA CITY, OK	34	14.32	3	16.25	4573.172	655.043	639.109
LOUISVILLE, KY-IN	35	12.96	17	9.98	4744.707	615.074	430.371
OMAHA, NE-IA	36	12.78	8	12.90	4974.402	635.887	568.527
SALT LAKE CITY, UT	37	11.24	11	11.98	4277.680	480.914	457.474

APPENDIX 3-6

PER CAPITA INCOME - SMSA GROUP 4

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Per Capita Income 1975	Change 75-80	Change 70-75
WORCESTER, MA	1	26.32	62	3.95	4480.160	1178.996	170.324
AUSTIN, TX	2	25.54	24	11.50	4136.922	1056.598	426.583
LANSING, MI	3	24.72	20	11.85	4673.117	1155.164	494.910
UTICA, NY	4	23.75	66	2.35	4023.603	955.741	92.280
MOBILE, AL	5	22.99	14	13.49	3584.201	824.158	426.073
ANN ARBOR, MI	6	22.90	48	6.68	5019.734	1149.566	314.512
HARRISBURG, PA	7	22.56	25	11.47	4869.637	1098.773	501.227
PATERSON, NJ	8	22.54	52	6.33	5129.816	1156.102	305.379
KALAMAZOO, MI	9	22.35	58	4.65	4384.523	979.949	194.992
YORK, PA	10	22.16	67	2.18	4391.539	972.965	93.855
READING, PA	11	22.09	36	8.91	4994.004	1103.230	408.625
BATON ROUGE, LA	12	21.99	51	6.43	3934.974	865.346	237.596
BRIDGEPORT, CT	13	21.96	57	4.78	6465.363	1419.973	295.219
MONTGOMERY, AL	14	21.92	5	16.52	4097.047	897.930	580.984
LANCASTER, PA	15	21.90	55	5.25	4550.207	996.312	226.797
SOUTH BEND, IN	16	21.68	27	11.06	4631.887	1004.320	461.180
LITTLE ROCK, AR	17	21.48	31	10.70	4339.715	932.340	419.621
OXNARD, CA	18	21.22	65	2.64	4344.387	921.984	111.602
LONG BRANCH, NJ	19	21.04	59	4.44	5215.340	1097.539	221.547
JACKSON, MS	20	21.03	34	9.79	4002.042	841.606	356.890
RALEIGH, NC	21	20.76	46	7.17	4349.035	903.070	290.804
CANTON, OH	22	20.66	68	1.55	4335.723	895.961	66.293
TRENTON, NJ	23	20.48	35	9.22	5083.512	1040.863	429.117
WEST PALM BEACH, FL	24	20.12	49	6.55	5314.605	1069.324	326.852
SHREVEPORT, LA	25	20.07	13	14.04	4095.818	821.838	504.303
PEORIA, IL	26	19.80	30	10.76	5117.148	1013.234	497.090
COLUMBIA, SC	27	19.76	32	10.46	4126.039	815.430	390.633
SPOKANE, WA	28	19.61	16	13.41	4557.816	893.883	538.918
MADISON, WI	29	19.61	54	5.32	4817.559	944.863	243.543
CHARLESTON, SC	30	19.36	53	5.44	3589.517	694.924	185.197
LAWRENCE, MA-NH	31	19.25	50	6.54	4758.430	915.965	292.145
ERIE, PA	32	19.16	42	8.32	4368.012	836.910	335.452
NEW HAVEN, CT	33	19.14	60	4.38	5105.520	977.324	214.039
WICHITA, KS	34	19.13	18	13.19	4761.180	911.012	554.687
COLORADO SPRINGS, CO	35	18.80	63	3.48	4187.469	787.051	140.940
TUCSON, AZ	36	18.43	45	8.16	4266.129	786.293	321.913
BINGHAMTON, NY-PA	37	18.27	69	0.55	4214.117	769.723	23.242
PENSACOLA, FL	38	18.06	47	7.09	3711.896	670.448	245.768
LEXINGTON, KY	39	17.78	44	8.22	4254.785	756.398	323.054
FRESNO, CA	40	17.71	10	14.93	4552.410	806.375	591.346
FORT WAYNE, IN	41	17.68	41	8.58	4684.828	828.309	370.293
VALLEJO, CA	42	17.63	61	4.03	4484.441	790.422	173.812
LORAIN, OH	43	17.54	56	5.12	4405.094	772.496	214.449
CHARLESTON, WV	44	17.39	19	12.35	4602.816	800.629	505.848
KNOXVILLE, TN	45	17.29	17	13.26	3903.289	674.992	457.085
JOHNSTOWN, PA	46	16.92	1	20.05	3989.712	675.007	666.289
TACOMA, WA	47	16.51	43	8.26	4708.934	777.387	359.187
CORPUS CHRISTI, TX	48	16.10	6	16.26	4042.407	650.898	565.397
NEWPORT NEWS, VA	49	16.07	23	11.56	4502.504	723.465	466.506
JOHNSON CITY, TN-VA	50	15.88	28	10.97	3656.421	580.485	361.413
ROCKFORD, IL	51	15.80	21	11.67	5113.957	808.102	534.379
CHATTANOOGA, TN-GA	52	15.58	7	16.22	4265.039	664.320	595.110
HUNTSVILLE, AL	53	15.08	22	11.58	4020.788	606.532	417.433
EL PASO, TX	54	15.05	29	10.87	3772.644	567.684	369.872
BEAUMONT, TX	55	15.04	2	17.68	4634.547	696.980	696.293
SALINAS, CA	56	15.04	39	8.63	5294.187	796.512	420.414
SANTA BARBARA, CA	57	14.91	26	11.22	5093.621	759.598	513.660
APPLETON, WI	58	14.59	40	8.60	4390.777	640.809	347.601
DES MOINES, IA	59	14.36	4	17.26	5375.871	772.094	791.145
BAKERSFIELD, CA	60	14.17	9	15.57	4571.074	647.633	615.850
EVANSVILLE, IN-KY	61	14.05	15	13.45	4440.238	623.891	526.507
DAVENPORT, IA-IL	62	13.76	12	14.46	5188.402	713.719	655.625
LAKELAND, FL	63	13.46	38	8.75	3924.583	528.104	315.878
STOCKTON, CA	64	13.43	3	17.61	4887.848	656.238	731.891
DULUTH, MN-WI	65	12.64	8	15.71	4325.902	546.586	587.253
HUNTINGTON, WV-KY-OH	66	12.57	33	10.09	3854.031	484.395	353.139
LAS VEGAS, NV	67	12.15	64	3.39	5103.781	620.211	167.180
ALBUQUERQUE, NM	68	11.87	11	14.52	4262.449	505.930	540.420
AUGUSTA, GA-SC	69	9.75	37	8.81	4093.644	398.950	331.351

APPENDIX 3-6

PER CAPITA INCOME - SMSA GROUP 5

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Per Capita Income 1975	Change 75-80	Change 70-75
BROCKTON, MA	1	29.74	57	-4.28	4142.496	1231.891	-185.094
GALVESTON, TX	2	28.47	24	11.26	4712.160	1341.449	477.039
BROWNSVILLE, TX	3	27.14	8	15.46	2897.468	786.445	387.962
SANTA ROSA, CA	4	24.13	48	3.64	4605.555	1111.398	161.625
ATLANTIC CITY, NJ	5	24.08	43	4.83	4407.359	1061.125	203.004
POUGHKEEPSIE, NY	6	24.00	54	-0.86	4555.520	1093.441	-39.570
NEW BEDFORD, MA	7	23.38	51	2.88	4016.847	938.950	112.396
FORT MYERS, FL	8	22.91	52	0.16	3854.135	882.935	6.156
SPRINGFIELD, MO	9	22.89	29	8.94	3859.840	883.551	316.620
MCALLEN, TX	10	22.66	23	11.40	2453.590	555.917	251.064
ROANOKE, VA	11	22.16	15	13.61	4602.293	1019.973	551.202
WATERBURY, CT	12	21.73	45	3.95	5131.285	1115.145	195.145
LINCOLN, NE	13	21.62	17	12.23	4949.859	1070.215	539.504
SPRINGFIELD, OH	14	21.19	33	8.05	4327.922	916.957	322.377
SPRINGFIELD, IL	15	20.93	35	7.78	5201.871	1088.508	375.457
ST. CLOUD, MN	16	20.89	40	6.31	3324.114	694.342	197.333
TOPEKA, KS	17	20.64	5	16.46	4997.285	1031.332	706.152
SARASOTA, FL	18	20.59	32	8.18	5475.344	1127.488	414.105
SAVANNAH, GA	19	20.27	26	10.09	4103.508	831.906	376.239
WACO, TX	20	20.25	7	16.10	4306.191	872.105	597.086
DAYTONA BEACH, FL	21	20.11	22	11.42	4107.398	825.840	420.929
CHAMPAIGN, IL	22	20.10	11	14.06	4258.062	855.977	524.778
MUSKEGON, MI	23	20.00	50	3.35	3875.227	774.964	125.586
SALEM, OR	24	19.95	4	16.47	4290.754	856.055	606.795
HAMILTON, OH	25	19.79	55	-2.67	3933.516	778.527	-108.067
SAGINAW, MI	26	19.50	10	14.98	4707.762	917.977	613.524
SANTA CRUZ, CA	27	19.47	49	3.38	4521.785	880.531	147.707
ASHEVILLE, NC	28	18.92	3	17.84	4051.034	766.657	613.412
KILLEEN, TX	29	18.82	56	-2.90	4016.388	755.796	-120.010
LUBBOCK, TX	30	18.81	14	13.63	4144.336	779.445	497.187
STAMFORD, CT	31	18.77	41	4.98	6725.637	1262.492	319.055
PORTLAND, ME	32	18.73	39	6.65	4379.000	820.035	273.020
MACON, GA	33	18.30	30	8.90	4098.863	750.297	334.994
FAYETTEVILLE, NC	34	18.29	53	0.09	3562.879	651.715	3.304
FALL RIVER, MA-RI	35	18.28	47	3.67	4069.490	743.772	144.016
LOWELL, MA-NH	36	18.07	44	4.66	5331.270	963.137	237.254
MODESTO, CA	37	17.95	34	7.98	4418.781	793.352	326.473
YAKIMA, WA	38	17.84	2	28.80	4547.520	811.504	1016.920
EUGENE, OR	39	17.78	13	13.82	3992.102	709.660	484.794
AMARILLO, TX	40	17.71	12	13.91	4837.289	856.871	590.742
BATTLE CREEK, MI	41	17.42	27	10.04	4501.336	784.211	410.641
LAKE CHARLES, LA	42	17.10	16	12.88	3985.202	681.544	454.817
RACINE, WI	43	16.96	21	11.65	4846.965	822.008	505.832
GREEN BAY, WI	44	16.18	31	8.21	4043.077	654.298	306.795
TERRE HAUTE, IN	45	16.09	20	11.72	4011.671	645.489	420.767
NEW LONDON, CT-RI	46	15.85	36	7.57	4613.980	731.426	324.555
PROVO, UT	47	15.63	37	7.42	2909.957	454.800	201.109
BILOXI, MS	48	13.80	42	4.87	3538.544	488.343	164.384
FORT SMITH, AR-OK	49	13.49	46	3.81	3061.600	413.146	112.412
ANCHORAGE, AK	50	12.16	1	37.88	7670.699	932.660	2107.539
PARKERSBURG, WV-OH	51	12.16	38	6.90	3923.801	477.140	253.348
LIMA, OH	52	11.48	28	9.05	4583.168	526.238	380.430
CEDAR RAPIDS, IA	53	11.24	6	16.34	5335.129	599.793	749.430
WHEELING, WV-OH	54	11.17	9	15.05	4400.492	491.590	575.559
STEUBENVILLE, OH-WV	55	8.59	25	10.75	4329.484	371.699	420.329
MELBOURNE, FL	56	5.01	19	11.99	4301.750	215.348	460.694
COLUMBUS, GA-AL	57	4.75	18	12.10	3988.630	189.503	430.508

APPENDIX 3-6

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Per Capita Income 1975	Change 75-80	Change 70-75
BRYAN, TX	1	31.57	49	8.79	3394.663	1071.755	274.318
TALLAHASSEE, FL	2	25.87	29	15.26	3798.947	982.881	502.983
BAY CITY, MI	3	24.82	42	10.39	4285.426	1063.840	403.470
COLUMBIA, MO	4	24.66	37	11.90	3675.422	906.363	390.961
ST. JOSEPH, MO	5	24.48	63	3.96	4211.672	1030.883	160.580
KENOSHA, WI	6	24.14	26	15.79	5154.449	1244.262	702.828
FITCHBURG, MA	7	24.10	64	3.94	4556.164	1098.090	172.809
PETERSBURG, VA	8	23.75	20	17.49	4308.238	1023.316	641.226
MANCHESTER, NH	9	23.67	72	1.50	4432.578	1049.281	65.656
JACKSON, MI	10	23.65	62	4.70	4669.613	1104.406	209.469
PITTSFIELD, MA	11	23.04	54	7.07	4688.324	1080.125	309.586
WILMINGTON, NC	12	22.94	60	4.92	3628.391	832.527	170.081
ELMIRA, NY	13	22.71	68	3.31	4110.883	933.512	131.794
CLARKSVILLE, TN-KY	14	22.69	35	12.27	4000.072	907.729	437.054
BURLINGTON, NC	15	22.53	38	11.26	4284.961	965.449	433.488
TYLER, TX	16	22.07	18	17.92	4499.551	993.121	683.947
LEWISTON, ME	17	21.97	71	1.84	3803.905	835.747	68.671
MONROE, LA	18	21.74	30	15.06	3577.475	777.904	468.260
GAINESVILLE, FL	19	21.62	14	19.21	3723.843	805.216	599.997
LAREDO, TX	20	21.42	33	13.73	2814.661	602.981	339.787
ALTOONA, PA	21	21.28	46	9.48	3771.699	802.645	326.676
LYNCHBURG, VA	22	21.25	47	9.06	4189.434	890.109	347.877
NEW BRITAIN, CT	23	20.83	67	3.31	5452.895	1135.664	174.945
SIOUX FALLS, SD	24	20.63	55	7.01	4217.367	869.871	276.314
BLOOMINGTON, IL	25	20.56	59	4.94	4350.020	894.344	204.781
MERIDEN, CT	26	20.30	65	3.83	5103.332	1035.922	188.207
FORT COLLINS, CO	27	20.16	69	2.69	3478.994	701.490	91.042
ALEXANDRIA, LA	28	20.11	16	18.82	3540.360	711.792	560.796
DECATUR, IL	29	19.60	45	9.58	4913.289	962.969	429.398
ANNISTON, AL	30	19.58	31	14.77	3903.400	764.256	502.196
RICHLAND, WA	31	19.36	5	22.24	5023.059	972.641	913.984
FAYETTEVILLE, AR	32	18.86	32	14.05	3676.147	693.384	452.821
PINE BLUFF, AR	33	17.97	2	25.07	4001.185	718.948	802.039
BRISTOL, CT	34	17.89	66	3.56	5432.934	972.035	186.766
BOISE CITY, ID	35	17.85	57	5.47	4441.945	793.105	230.234
WILLIAMSPORT, PA	36	17.81	41	10.42	4121.320	733.852	389.055
FLORENCE, AL	37	17.73	27	15.48	3576.021	633.893	479.388
NORWALK, CT	38	17.64	58	5.03	6735.172	1187.898	322.777
GADSDEN, AL	39	17.58	17	18.16	3719.968	653.844	571.610
BLOOMINGTON, IN	40	17.53	40	10.50	3451.359	604.864	328.088
DUBUQUE, IA	41	17.41	12	19.59	4706.707	819.437	771.001
ABILENE, TX	42	17.38	28	15.33	4294.887	746.594	570.958
ROCHESTER, MN	43	17.28	48	8.80	4780.031	826.227	386.809
LA CROSSE, WI	44	17.09	50	8.38	3949.126	675.081	305.207
LAFAYETTE, LA	45	17.06	13	19.22	3935.379	671.418	634.552
KANKAKEE, IL	46	17.05	22	16.83	4982.305	849.699	717.859
EAU CLAIRE, WI	47	16.99	56	5.51	3942.394	669.915	206.018
PUEBLO, CO	48	16.83	11	20.23	4206.664	707.918	707.832
ODESSA, TX	49	16.64	6	22.16	4304.988	716.141	780.847
TUSCALOOSA, AL	50	16.56	7	21.65	3677.060	608.948	654.407
WICHITA FALLS, TX	51	16.53	23	16.73	4790.277	791.691	686.535
GREAT FALLS, MT	52	16.38	43	10.35	4511.754	738.883	423.271
BILLINGS, MT	53	16.08	34	12.60	4544.902	730.711	508.735
MANSFIELD, OH	54	15.80	53	7.30	4509.078	712.637	306.719
OWENSBORO, KY	55	15.74	44	9.88	4070.469	640.863	365.861
MUNCIE, IN	56	15.73	52	7.66	4111.727	646.582	292.549
SAN ANGELO, TX	57	14.99	19	17.67	4362.000	653.949	654.890
VINELAND, NJ	58	14.89	70	2.00	4161.398	619.535	81.410
SHERMAN, TX	59	14.50	4	22.29	4429.133	642.414	807.394
LAWTON, OK	60	14.31	73	0.91	3805.962	544.765	34.342
RENO, NV	61	13.87	36	11.93	5970.660	828.070	636.195
ANDERSON, IN	62	13.82	9	21.08	4661.918	644.227	811.591
PASCAGOULA, MS	63	12.66	39	10.99	3502.589	443.453	346.734
ALBANY, GA	64	12.58	15	18.87	3818.208	480.503	606.058
LAFAYETTE, IN	65	12.52	51	8.29	4160.316	520.809	318.577
WATERLOO, IA	66	12.14	1	26.76	4996.914	606.609	1054.947
SIOUX CITY, IA-NE	67	12.06	10	20.85	4685.078	565.070	808.308
FARGO, ND-MN	68	11.87	21	17.10	4760.070	564.793	695.088
DANBURY, CT	69	11.80	61	4.92	6540.406	771.582	306.965
GREELEY, CO	70	11.06	24	16.29	3971.173	439.050	556.343
NASHUA, NH	71	10.52	74	0.89	4519.348	475.652	40.020
MIDLAND, TX	72	8.48	3	22.43	5526.980	468.426	1012.406
LONGVIEW, TX	73	8.15	8	21.13	4356.152	354.918	759.806
TEXARKANA, TX-AR	74	7.65	25	15.99	3896.504	298.230	537.145

4 COMMERCIAL DEVELOPMENT ACTIVITY

Three major commercial land use activity sectors are discribed in this chapter -- office, retail, and hotels/motels. Multi-use developments are usually composed of these three land use sectors in addition to residential land use. Since statistical information on multi-use developments as an entity is not available this chapter will focus on the three major commercial components.

The dominant commercial land uses have some similarities in their patterns of activity and in their future trends. Retail, office, and hotel/motel sector activity data reflect the renewed interest in the nation's major central business districts as places to work and visit. New developments are being planned in the larger urban areas of the Midwest, North and Northeast as well as in the growing, less developed areas of the South and Southwest. However, it appears that overall the Sunbelt region is the focus of commercial growth in the United States. Activity has gradually been shifting to smaller, less developed areas in the Sunbelt as well as other regions of the country.

Given the fact that all three commercial land use sectors mentioned are unique in many ways, this chapter is divided into separate sections for each sub-sector in which their past, present and future activity trends are described and analyzed.

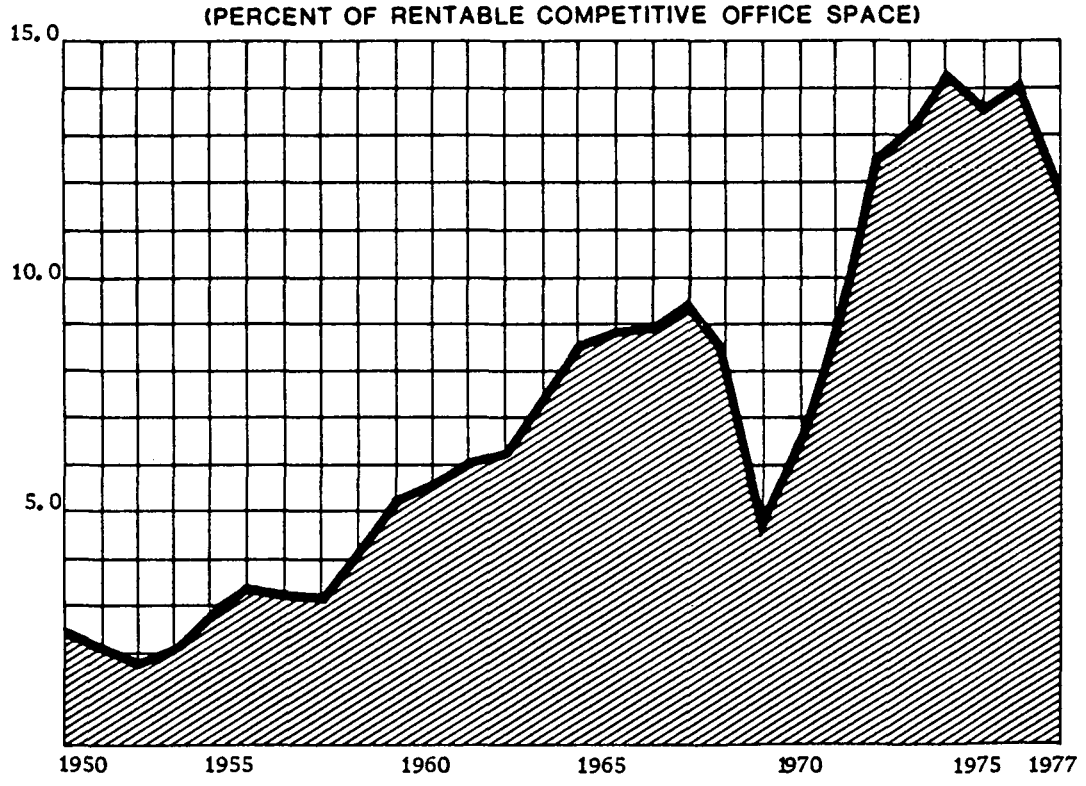
OVERVIEW OF RECENT OFFICE SPACE ACTIVITY

As the national economy increasingly shifted towards the service sector in the 1960s, the demand for office space increased dramatically. In 1969 (see Figure 4-1), available office space became limited and construction of large speculative buildings was initiated to meet the increased demand. However, by the time many of these new buildings were ready for occupancy, the 1973 oil embargo had become a major economic concern. Many investors and businessmen decided to defer expenditures and much of the newly constructed office space remained unfilled. The subsequent recession worsened the situation and further depressed occupancy rates in new as well as in older buildings. Many cities are only now successfully working out from under the market overhang created by these events.

FIGURE 4-1

U.S. NATIONAL AGGREGATE VACANCY RATES, 1950-1977

(PERCENT OF RENTABLE COMPETITIVE OFFICE SPACE)



Source: 1978 Downtown and Suburban Office Building Experience Exchange Report, Building Owners and Managers Association, May 1978.

Since 1977 there has been an increase in demand for office space in central business districts. As a result, vacancy rates have dropped, rental rates have risen and, in turn, new office space construction has been initiated across the United States as the buildings constructed in the early 1970s have slowly filled up. In most major cities a 90% occupancy rate is below average and rent levels have set new highs. Where vacancies are higher this usually is attributable to buildings still under construction and not yet occupied. Tenants appear willing to pay record prices for newly constructed buildings. Existing first-class buildings have raised their leases to almost the same levels.

Despite the accelerated pace of construction, most new projects will not be ready until 1980. In addition, a trend toward smaller, less opulent buildings that have a large percentage of their space preleased before construction is emerging. Thus it is likely that those areas experiencing a shortage will do so for at least two more years. It is believed that tight market conditions and delay will spur construction of office buildings in suburban areas to accommodate those tenants who cannot obtain space in the central business districts. In most large market areas there has been an increasing trend towards development of suburban office space. Typical locational characteristics of these multi-tenant office buildings are:

- Orientation and good access to the major arterial infrastructure.
- Orientation to a regional airport facility.
- Location within a middle to high income residential area with upside growth potential and property value stability. Office concentrations are also found in some inner-ring areas with socio-economic stability.
- Location in reasonable proximity to restaurants and good availability to shopping facilities.

Generally, successful suburban multi-tenant office space has conformed to one of two basic market modules:

- High- or medium-rise with a major tenant as an anchor. If the anchor has a well known name (similar to a prestige address in a downtown structure), this serves the twin functions of a positive marketing device and a guaranteed floor source of rental income.
- Low-rise office and an emerging category of office development which is similar to low-rise. This latter category can best be described as lower-cost interchangeable combination office/warehouse/distribution space, and is typically constructed in a planned park setting.

Therefore both suburban and downtown office space markets are expected to be very active in the few years ahead. What appears to be a boom could actually be described as a leveling off of the pent-up demand of the early and mid 1970s. However, since the service sector of the economy continues to grow at a constant pace, demand may contin

In summary, the average size of office projects has been sharply reduced to approximately 200,000 square feet as compared with those built in the late sixties and early seventies. Now, one out of ten new projects is over 500,000 square feet, whereas a much higher proportion of buildings were this large previously. The main reason for this change is the fact that it is difficult for developers to obtain financing for large, more speculative buildings. Lenders want more protection for their investments and are requiring that a large percent of a new building be preleased before construction is initiated. Those new projects that are over 500,000 square feet generally are for headquarters of corporations that will be occupying a large portion of the space.

The construction boom of the early 1970s took place equally in downtowns and in suburban areas, whereas much of current activity is taking place in central business districts. Regionally, though this decade has seen great growth in office space in the Sunbelt, demand for office space is evident and high all over the country.

An emerging factor that could affect the level of new office construction involves innovative office design and space utilization techniques that have been developed in recent years. Space is being utilized much more efficiently through the use of modular divisions that separate large areas of floor space into small, though private, individual work areas. This trend may have an effect on the growth rate of office space vis a vis the rate of growth in office employment.

A recent study by Tishman Realty Corporation reveals that energy consumption in commercial structures built in the post-war period (1946-1975) is higher on a per square foot per year basis than in pre World War II construction. As a result, with rising energy costs, office buildings erected after 1945 will become less competitive in the marketplace. This feature of the existing office stock has implications for ICES marketing. First, there may emerge a renewed interest in preserving older structures which are relatively energy efficient. And second, the post-war structures may need extensive equipment retrofit to make them competitive. In both cases, the potential for ICES in existing commercial space may be greater than anticipated.

STATISTICAL SCREENING AND ANALYSIS

Selection of Statistical Indicator

The Building Owners and Managers Association (BOMA) is the most complete and useful source of information available on the office building industry. Of the information provided in their semi-annual and annual reports on conditions in the office space market, data on the change in rentable square feet of competitive office space is the most directly relevant to this study.

Competitive office space is the net rentable area available to the open market. There is one main drawback to this indicator as a measure of growth. The information BOMA provides is entirely dependent on the number of respondent buildings in each city. Since the number of respondents varies from report to report, it is difficult to assess what exactly a percent change means. A substantial increase or decrease in the indicator may or may not express an increase or decrease in the number of respondent buildings. For example, the square footage of competitive office space may have remained the same or increased but if fewer buildings respond to the BOMA survey, it will appear as though a decrease took place. Finally, the data are provided only for major cities and suburban areas, not states or SMSA's, thereby limiting what can be said about these larger areas. Since BOMA members are typically major developers and managers, it was felt that these statistics are reliable enough to serve as an indicator of major trends in the office space sector.

A second indicator used is office employment, with figures provided by the National Planning Association (NPA) for the United States as a whole, states and all SMSA's. 1970 figures are taken from the Census, 1975 figures are NPA estimates, and 1980 and 1985 figures are NPA projections. Employment in the finance, insurance and real estate (FIRE) and services categories is assumed to be office prone employment. Despite the fact that an incremental increase in these employment categories does not translate directly into a specific increase in office space or vice versa, the two are highly correlated. Figures for total employment, absolute change, and percent change from 1970 - 1975, 1975 - 1980, and 1980 - 1985 are used to identify those states and SMSA's that have been active in the office building market.

Statistical Screening

1972 and 1977 data on rentable square feet of competitive office space for sixty-four major cities and suburban areas within seven regions--Middle Atlantic, North Central, Midwest Northern, Southern, Southwest, Pacific Northwest and Pacific Southwest -- are used to screen areas. The percent change in square feet of office space for each city, region, and for the United States as a whole between 1972 and 1977 is employed to identify the most active office markets.

The twenty cities with the largest percent increases are ranked below:

Table 4-1 GROWTH IN OFFICE CONSTRUCTION, 1972-1977 FOR SELECTED OFFICE MARKETS

CITY	% INCREASE	RANK
Houston, TX	1030	1
San Diego, CA	995	2
Hartford, CT	695	3
New York, NY	532	4
Wichita, KS	471	5
El Paso, TX	465	6
St. Petersburg, FL	413	7
Tulsa, OK	406	8
Topeka, KS	344	9
Denver, CO	287	10
Honolulu, HI	268	11
Lincoln, NE	258	12
Little Rock, AR	257	13
Charleston, WV	225	14
Atlanta (Suburban), GA	212	15
Oklahoma City, OK	191	16
Atlanta, GA	145	17
Milwaukee, WI	124	18
St. Louis, MO	117	19
Chicago (Suburban), IL	116	20

Source: Derived from Building Owners and Managers Association Annual Report 1972 and 1977

A more detailed chart, which includes data for all of the BOMA areas, is included in the Appendix.

Cities which are not in the top twenty but have percent increases higher than the U.S. average (67%) are: Philadelphia, Des Moines, and Nashville. The Middle Atlantic, Southern and Southwest regions have larger percent increases than the U.S. average, the Southwest containing the largest number of individual cities (6) within the top twenty. This finding supports the common notion that the seventies have witnessed a large growth in office space in the Sunbelt states. Large declines have occurred in several cities throughout the nation including Akron, Kansas City, Omaha, Jackson (Michigan), Miami, Shreveport, Colorado Springs, Midland, (Texas), Tacoma, and Los Angeles.

The NPA employment figures provide additional insight into areas of the nation which have the greatest past and future potential growth in office space. The employment data seem to point towards the Southern and Southwest regions as the areas of greatest growth. If the states' absolute change in office employment for 1970 - 1975, 1975 - 1980, and 1980 - 1985 are examined, it can be seen that the top twenty remain at the top during all three intervals, despite minor changes in rank. California, Florida and Texas are at the head throughout. Between 1970 - 1975, the Sunbelt states show the greatest growth. Maryland, Illinois and New York are expected to experience high levels of growth during the 1975 - 1980 and 1980 - 1985 periods whereas Oregon and South Carolina are expected to experience less office development.

Looking at percent change rather than absolute change provides a different perspective on those trends. Appendix 4-2 summarizes these changes.

In this case, the composition of the top twenty is different. In terms of absolute change the top twenty states are generally large, well populated states containing large cities. At the top of the percent change ranking are states such as Alaska, Montana, Wyoming, South and North Dakota, Idaho, Utah, Maine, Kansas, New Hampshire and Arkansas. These are states that are not as urbanized or populated but have large potential for growth. Not as many office space projects occur in these states but those that do produce a large, relative change in the indicators. Close to two-thirds of all states have higher percent change figures than the U.S. figure for all three time periods.

SMSA figures are divided into six categories according to population size as described in the Introduction to this report.

In Group 1, for all three time intervals, Houston and Dallas appear at the top of each ranking with Philadelphia, Chicago, Boston, and New York at the bottom. For 1970 - 1975, the first six SMSA's have percent changes greater than the national average but only the top three in the 1975 - 1980 and 1980 - 1985 intervals are higher than average. This indicates a greater weighing of the national figure by changes in smaller SMSA's in the next few years. This is confirmed if Group 1 figures are compared to Groups 2, 3, 4, 5 and 6. A greater proportion of the SMSA's in these groups have percent change figures that exceed the U.S. average. SMSA's such as Tampa, Denver, Atlanta, Orlando, El Paso, Anchorage, Fort Myers, Florida, Pascagoula, Mississippi and Gainesville, Florida have had or will have high percent change in their office employment. Appendix 4-3 gives a summary of office-prone employment for the six SMSA groups.

For ICES purposes, however, those states and SMSA's with large absolute increases and low or moderate percent increases are as important if not more so than those with large percent increases but low absolute increases in office employment.

It is still those large cities within those SMSA's in Groups 1 and 2 that appear to be experiencing an office construction boom at the present time. Chicago is one of the healthiest and most active of them all. Several projects are underway in Cincinnati, St. Louis and Seattle, where office space is tight and demand is increasing. Denver, San Francisco, New Orleans, and Houston are all experiencing a construction boom as well. Los Angeles, Dallas, Pittsburgh, Portland, and Detroit all have high occupancy rates and increased demand is likely to spur a new building surge in the near future.

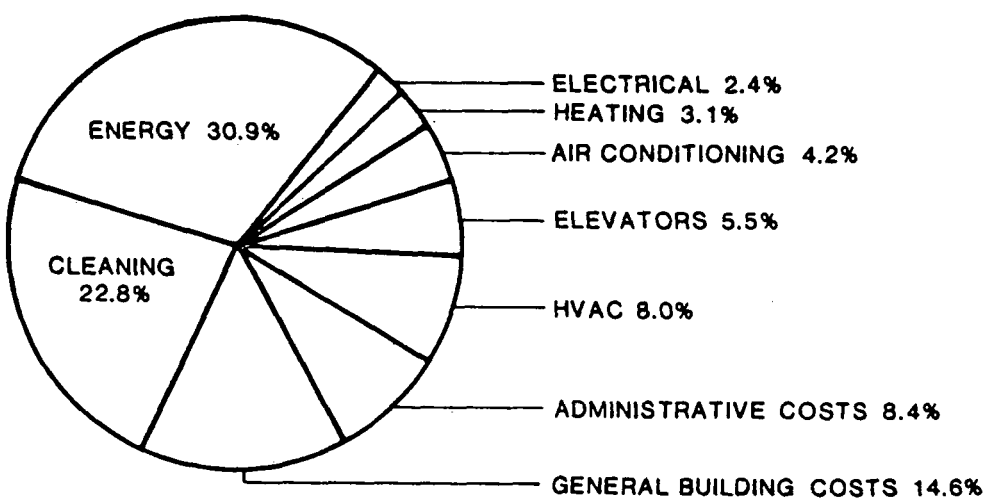
OBSERVATIONS

Energy and the Office Industry

A survey of operating indicators for the office building industry conducted by the Building Owners and Managers Association reveals that energy, real estate taxes, and cleaning constitute the three largest variable costs in today's office building industry. Cleaning and energy together constitute over 50% of total variable costs while energy costs have exceeded cleaning costs since 1973 (See Figure 4-2). Developers, managers, and professionals

FIGURE 4-2
BREAKDOWN OF INDIVIDUAL VARIABLE COSTS

PRIVATE SECTOR 1977



Source: 1978 Downtown and Suburban Office Building Experience Exchange Report, Building Owners and Managers Association, 1978

REAL ESTATE RESEARCH CORPORATION

in the office building industry are increasingly acknowledging the seriousness of the energy problem. It is evident from conversations with office developers and members of BOMA that energy conservation is and will be given high priority during the conception and design stage of a new building. Their interest in building more economical and profitable buildings is quite clear. However, the kinds of changes that are presently contemplated are largely electrical, mechanical, and architectural (See Exhibit 4-1) as opposed to an integrated system for total energy production and use. The ICES concept is generally perceived by them as too abstract and thus their reaction to it was neither positive or negative.

Exhibit 4-1

ENERGY CONSERVATION CHANGES BEING CONSIDERED FOR OFFICE BUILDINGS

Electrical

- Lower lighting levels, from one to two watts per square foot.
- Task lighting, from the ceiling, furniture or from service poles.
- Plug-in lighting fixture to encourage relocation and minimum quantity.
- More individual area switching.
- Mini-computer control systems of lighting and a/c motor systems.
- Presence detectors, lights on only when people are in the area.
- Switch timers, to ensure the energy goes off after the task is complete.
- Disappearance of exterior flood lighting.
- More dimming of lights, daylight sensors.
- No fire alarm bells where loud-speaker system exists.
- Peak load control devices.
- Trend back to individual metering to ensure accountability.
- Trend to all-electric building.

Mechanical

- Greater trend to heat pump.
- Use of storage tanks.
- Smaller machines, running longer.
- More accurate sizing of motor and fans.
- Central control systems, mini-computer operated.
- Greater use of heat from central systems.
- Greater latitude in temperature fluctuation.
- Use of design swings using building storage.
- Less fresh air other than for free cooling.
- Ventilation rates reduced to absolute minimum, use of carbon filter to control odor.
- More perimeter radiation systems and less dependence on systems requiring fans.

Architectural

- Building form tending toward the square rather than the rectangle to reduce amount of curtain wall per square foot of contained space.
- Building site orientation effected by taking advantage of the sun.
- Glass area, double glazing, triple glazing, smaller on the non-sun elevation and greater on the sunny side with eyebrows or similar shading concepts for the summer sun to capitalize on passive solar effect.
- Better insulated, vaporproof walls.

: Vern Tatham, "A Profile of Heating Costs in Office Buildings", The Canadian Architect.

OVERVIEW OF RETAIL (SHOPPING CENTER) DEVELOPMENT

Within the retail sector, those projects which because of their size are most likely to have potential for ICES application are shopping centers. Concentration is on shopping center development because over the last twenty years the majority of retail space development has been in the form of shopping centers in our nation's cities and suburbs. Table 4-2 shows the total number, square footage and annual sales of these centers in each state as of the beginning of 1978. The portion of total retail sales in the United States attributable to shopping centers is 37.7% and rising at an average yearly rate of 1.5%. However, this growth rate is slower than in previous years. Over twenty years after its initiation, a mature shopping center industry is undergoing some changes in direction as will be discussed later in this section.

Shopping centers can be divided into four categories. These are Neighborhood, Community, Regional, and Super-regional.

Neighborhood Shopping Center - usually containing between 30,000 and 75,000 square feet of gross leasable area (GLA) with a supermarket as the principal tenant. The remaining establishments are the neighborhood convenience goods type of store.

Community Shopping Center - usually includes one department store as well as a mix of convenience goods facilities. It often comprises a total of 150,000 to 300,000 square feet of GLA.

Regional Shopping Center - includes two or more major department stores, a full complement of other shoppers goods stores, and normally a full array of convenience goods facilities. The GLA of such a center may range from 400,000 to about 1 million square feet.

Super-Regional Shopping Center - this is basically a regional shopping center but with a GLA of over 1 million square feet and a greater number of major department stores.

Knowledgeable observers seem to agree that most locations which can support regional and super-regional centers are already well saturated. As a result, construction of large shopping centers will diminish because very few of the remaining markets require facilities of this size. However, a substantial amount of new development will continue to take place. Mid-sized non-metropolitan cities and towns where shopping centers have never existed or where population growth is taking place offer the greatest potential. Examples of such communities include Benton Harbor, Michigan; Elmira, New York; and Midland, Texas. Community shopping centers will probably represent the majority of shopping center growth for the rest of the decade.

Table 4-2. SHOPPING CENTERS BY STATE, JANUARY 1978

State	No. of Centers	Square Footage (GLA)*	Annual Sales
Alabama	343	40,460,000	$ 3,925,000,000
Alaska	36	3,160,000	325,000,000
Arizona	383	49,338,000	4,790,000,000
Arkansas	228	22,668,000	2,225,000,000
California	2,143	275,183,000	26,690,000,000
Colorado	300	38,417,000	3,380,000,000
Connecticut	368	40,789,000	4,405,000,000
Delaware	78	10,603,000	1,020,000,000
Florida	1,043	153,262,000	14,715,000,000
Georgia	609	67,467,000	6,610,000,000
Hawaii	78	8,797,000	975,000,000
Idaho	59	7,173,000	680,000,000
Illinois	658	109,264,000	11,365,000,000
Indiana	443	58,044,000	5,690,000,000
Iowa	129	21,669,000	2,130,000,000
Kansas	231	27,588,000	2,375,000,000
Kentucky	262	30,592,000	3,015,000,000
Louisiana	384	47,642,000	4,715,000,000
Maine	108	11,303,000	1,310,000,000
Maryland/D.C.	474	72,677,000	7,085,000,000
Massachusetts	556	63,670,000	7,065,000,000
Michigan	469	75,506,000	8,080,000,000
Minnesota	246	33,324,000	3,000,000,000
Mississippi	227	21,757,000	2,100,000,000
Missouri	440	56,529,000	5,765,000,000
Montana	62	6,029,000	520,000,000
Nebraska	93	11,896,000	1,100,000,000
Nevada	86	11,276,000	1,070,000,000
New Hampshire	84	9,662,000	1,090,000,000
New Jersey	461	78,498,000	8,125,000,000
New Mexico	137	12,753,000	1,065,000,000
New York	922	143,537,000	15,070,000,000
North Carolina	481	68,533,000	6,715,000,000
North Dakota	31	3,862,000	340,000,000
Ohio	759	127,311,000	12,990,000,000
Oklahoma	297	34,609,000	3,080,000,000
Oregon	194	21,468,000	2,095,000,000
Pennsylvania	776	121,804,000	12,395,000,000
Rhode Island	103	9,407,000	1,055,000,000
South Carolina	261	28,319,000	2,860,000,000
South Dakota	21	2,893,000	260,000,000
Tennessee	392	44,018,000	4,380,000,000
Texas	1,529	194,964,000	16,960,000,000
Utah	81	13,741,000	1,280,000,000
Vermont	55	4.896,000	550,000,000
Virginia	506	67,397,000	6,605,000,000
Washington	307	38,132,000	3,625,000,000
West Virginia	85	11,655,000	1,110,000,000
Wisconsin	295	39,362,000	4,035,000,000
Wyoming	27	1,762,000	155,000,000
	18,340	2,454,666,000	$241,965,000,000

*GLA = gross leasable area

REAL ESTATE RESEARCH CORPORATION

Source: Shopping Center World, 5/78

A 35% drop in new center openings and a 6% drop in new square footage is projected for 1978. An indication of what might lie ahead for the shopping center industry is shown in Table 4-3.

This slowdown in new ventures for shopping center developers--not only in terms of number of facilities but also in size--may be accompanied by a shift in their focus and activity. There will be more redevelopment, renovation, and expansion of existing centers as well as improvement of operations and management in those markets which are saturated. New development of shopping centers will take place in small to medium sized cities, and their square footage will reflect the size of the market they serve.

STATISTICAL SCREENING AND ANALYSIS

Selection of Statistical Indicator

The Census of Retail Trade (U.S. Department of Commerce, Bureau of the Census) is a primary source of data on retail establishments located within states, SMSA's, cities and central business districts. Information available on the total number of establishments with payroll is useful in identifying growth trends in retail trade establishments between the last two census years of 1967 and 1972. Establishments with payroll are used because while they comprise only 60% to 70% of all retail establishments, they account for 95% of retail income. The percent change in retail establishments with payroll between 1967 and 1972 is the relevant statistical indicator of growth in this sector.

A second indicator used is employment data provided by the National Planning Association (NPA). The 1970 data are taken from the Census, 1975 figures are NPA estimates, and 1980 and 1985 figures are NPA projections. It is reasonable to assume that an increase in retail employment is a direct result of an increase in the number of retail establishments or floor space expansions in existing retail establishments. Figures for total employment, absolute change, and percent change from 1970-1975, 1975-1980, and 1980-1985 are used to screen those states and SMSA's that have been, are, and will be active in retail space development.

Screening Retail Growth Areas

The 1967 and 1972 data on retail establishments obtained from the Census of Retail Trade provide useful basic trend information for this same period. From 1967 to 1972 the nation as a whole experienced considerable increases in the numbers of retail establishments. The national percent change (6%), however, seems low when compared to a large number of states and SMSA's. Increases at the state level vary widely from 1% to 52%, with

Table 4-3. TOTAL 1977 SHOPPING CENTER OPENINGS AND 1978 SHOPPING CENTER PROJECTIONS

State	1977 Centers Opened	1977 GLA* (sq. ft.)	1978 Centers to Open	1978 GLA* (sq. ft.)
Alabama	11	1,775,000	10	2,000,000
Alaska	6	565,000	2	100,000
Arizona	16	1,200,000	10	1,500,000
Arkansas	11	1,055,000	6	800,000
California	99	15,870,000	65	11,325,000
Colorado	17	3,085,000	10	2,000,000
Connecticut	9	825,000	6	600,000
Delaware	3	285,000	2	1,000,000
Florida	55	9,450,000	35	4,000,000
Georgia	22	3,055,000	12	2,000,000
Hawaii	3	150,000	2	100,000
Idaho	4	635,000	2	300,000
Illinois	30	5,675,000	15	3,500,000
Indiana	9	1,150,000	9	2,000,000
Iowa	9	1,390,000	4	600,000
Kansas	8	920,000	5	2,000,000
Kentucky	9	970,000	6	2,300,000
Louisiana	16	2,600,000	10	1,500,000
Maine	2	440,000	2	600,000
Maryland/D.C.	23	3,405,000	15	5,500,000
Massachusetts	12	1,055,000	10	2,000,000
Michigan	26	3,470,000	15	2,500,000
Minnesota	16	2,620,000	12	2,000,000
Mississippi	12	1,050,000	8	2,500,000
Missouri	24	2,305,000	12	1,500,000
Montana	1	25,000	2	500,000
Nebraska	4	330,000	4	1,000,000
Nevada	3	330,000	5	3,000,000
New Hampshire	4	1,060,000	4	600,000
New Jersey	30	5,770,000	24	3,800,000
New Mexico	6	470,000	4	200,000
New York	54	9,400,000	30	5,000,000
North Carolina	26	2,780,000	16	4,000,000
North Dakota	0	--	1	480,000
Ohio	22	2,700,000	18	4,500,000
Oklahoma	11	1,120,000	10	2,500,000
Oregon	11	1,350,000	6	2,000,000
Pennsylvania	46	6,440,000	20	5,000,000
Rhode Island	2	80,000	2	300,000
South Carolina	12	2,285,000	10	3,000,000
South Dakota	0	--	2	535,000
Tennessee	12	1,130,000	10	4,360,000
Texas	59	8,620,000	34	6,000,000
Utah	8	750,000	6	1,230,000
Vermont	5	1,150,000	3	650,000
Virginia	13	1,520,000	10	2,000,000
Washington	16	2,245,000	8	2,000,000
West Virginia	3	300,000	6	1,000,000
Wisconsin	14	2,465,000	6	1,200,000
Wyoming	3	270,000	4	1,100,000
TOTALS	817	117,590,000	530	110,180,000

*GLA = gross leasable area

Source: Shopping Center World, 1/78

most states falling between 5% and 15%. States which stand out as experiencing the largest percent increases in retail establishments are Alaska, Arizona, Florida, Hawaii, and Nevada. Less developed, less populated states tend to have higher increases than the well-populated states in the Midwest and Northwest.

SMSA's within states usually have a larger percent increase than the state as a whole, reflecting the known fact that retail development has been more active in metropolitan areas than in more rural areas of the nation. An average of the percent change in retail establishments for all SMSA's within each state is considerably higher than overall state figures. All states having average SMSA increases of over 25% are in the Sunbelt region. These are Arizona, Colorado, Florida, Georgia, Kentucky, Mississippi, Nevada, North Carolina, South Carolina, Tennessee, Utah, and Virginia.

On an individual SMSA basis, there are many SMSA's which experienced significant increases in retail establishments between 1967 and 1972. These SMSA's (See Table 4-4) are generally in the states previously mentioned and are a major factor in the high SMSA average for these states.

Table 4-4. CHANGE IN NUMBER OF RETAIL TRADE ESTABLISHMENTS, 1967-1972 FOR SELECTED SMSA'S

SMSA	% INCREASE
Greenville, SC	77.5
Lexington, KY -IN	68.0
Charlotte-Gastonia, NC	63.5
Huntsville, AL	60.1
Tallahassee, FL	56.4
Baton Rouge, LA	54.3
Kalamazoo-Portage, MI	50.5
Nashville-Davidson, TN	48.3
Austin, TX	47.3
New London-Norwich, CT-RI	46.6
Atlanta, GA	44.8
Fort Wayne, IN	44.7
Biloxi-Gulfport, MS	43.1
Fort Lauderdale-Hollywood, FL	43.0
Colorado Springs, CO	40.7
Charleston, SC	40.6

Source: U.S. Department of Commerce, Census of Retail Trade, 1967 and 1972.

The Census of Retail Trade data are insufficient, however, to identify particular states, SMSA's, or regions that have had considerable retail growth since 1972 and those that are expected to grow after 1978. In order to address these issues, NPA retail employment figures for the United States, individual states, and all SMSA's are used on the assumption that an increase or decrease in retail employment is directly related to a change in retail establishments.

Absolute employment change figures for 1970-1975, 1975-1980 and 1980-1985 for states indicate that many of the large, well populated states, including large Northeast and Midwest states, are among the top twenty. Texas, Florida, and California lead by 1985 along with several other Sunbelt states which had been active in the 1967-1972 period. When percent change is examined, the twenty most rapidly growing states are almost exclusively in the Sunbelt, with less developed states such as Alaska, Nevada, Wyoming, New Mexico, and Utah showing the largest relative growth in retail employment. Approximately 50% of the states are experiencing higher relative increases than the nation as a whole for all three intervals.

National retail employment data display wide variation among the 1970-1975, 1975-1980, and 1980-1985 intervals, at 8.0%, 22.4%, and 6.0%, respectively. These sharp differences are statistical documentation of the trends expressed in the overview. While the period between 1970 and 1975 has seen much growth in retail establishments and employment, the highest absolute growth has taken place in SMSA population Groups 1, 2, and 3 where growth had been taking place for many years. Therefore, percent change figures are low. From 1975 to 1980, however, large SMSA's are beginning to become saturated with shopping centers and growth is starting to take place in smaller SMSA's, surrounded by rural areas. This is reflected in the large percent change figures for SMSA's and the nation as a whole. After 1980, when large markets will be saturated, and medium and small markets will be satisfied with community shopping centers, developers may be turning to renovation and replacement activity.

In all of the six SMSA population groups, Sunbelt SMSA's lead in retail employment growth. Some of these SMSA's are Houston, Dallas, San Diego, Phoenix, Fort Lauderdale, Orlando, Greenville (S.C.), Las Vegas, Tucson and Albuquerque. In Group 2, the SMSA's experiencing the most growth from 1975 to 1980 are in California. This is confirmed by the numerous shopping centers known to be opening in California by 1980. Groups 4, 5, and 6 comprise SMSA's where growth in shopping centers and thus in retail employment is now occurring and is expected to occur over the near term.

Some of the active SMSA's here are Colorado Springs; Anchorage; Sarasota; Killeen, Texas; Lafayette, Louisiana; and Boise City, Idaho.

It is in the smaller areas that centers are being built or planned. Included are Ocala, FL; Rancho Mirage, CA; Fort Dodge, IA; Plantation, FL; Merrilville, IN; Florence, SC; Farmingville, NY; Charlottesville, VA; Cleveland, TN; Bountiful, UT; and Missoula, MT. For 1978, as seen in Table 4-3 earlier, while Sunbelt states seem to dominate in terms of centers to be opened, Northern and Midwestern states are still experiencing shopping center construction as developers find market gaps to fill.

Some additional insights into retail development activity can be obtained by looking at The Marketing Economics Guide for 1977-78 published by the Marketing Economics Institute. The top twenty SMSA's in this 1977 estimate for total disposable personal income are all within SMSA Groups 1 or 2. Obviously the larger the area, the larger the total personal income that can be spent. Rankings for total retail sales show almost an identical list of SMSA's. However, the picture changes when per household income and per household retail sales are examined. In the per household income data, despite the inclusion of Nassau-Suffolk, New York, Washington D.C., San Francisco, and San Jose, which are larger but very affluent SMSA's, the remaining SMSA's come almost entirely from population Groups 4, 5, and 6. This demonstrates that on a per capita basis these SMSA's contain more of those households with high incomes. This is further reflected in 1977 data on per household retail sales where almost without exception the 20 highest ranking SMSA's are in Groups 4, 5, and 6. These are the areas where construction of new retail space is most likely to take place given the strong retail market potential.

Finally, the areas of the nation where population growth is taking place and which are likely to attain SMSA status in the near future are good candidates for future retail growth as well. The attached list, developed by Sales and Marketing Management Survey of Buying Power for 1978, displays some of these potential SMSA's ranked by median household effective buying income. It may be noted that most of these communities are not in the Sunbelt but are located in the northern half of the country.

Table 4-5. POTENTIAL SMSA'S RANKED BY MEDIAN HOUSEHOLD EFFECTIVE BUYING INCOME, 1978

Rank	City
1	Bremerton, WA
2	Janesville-Beloit, WI
3	Danville, IL
4	Olympia, WA
5	Elkhart, IN
6	Michigan City-La Porte, IN
7	Marion, IN
8	Wausau, WI
9	Burlington, VT
10	Sheboygan, WI
11	Cheyenne, WY
12	Quincy, IL
13	Newburgh-Middletown, NY
14	Victoria, TX
15	Manitowac-Two Rivers, WI
16	Bismarck, ND
17	Missoula, MN
18	Newark, OH
19	Pocatello, ID
20	Bangor, ME
21	Benton Harbor-St. Joseph, MI
22	Iowa City, IA
23	Kannapolis-Concord-Salisbury, NC
24	Anderson, S.C.
25	Hagerstown, MD
26	Jackson, TN
27	Santa Fe, NM
28	Rapid City, SD
29	Jamestown, NY
30	Enid, OK
31	Danville, VA
32	Athens, GA
33	La Cruces, NM
34	Hattiesburg, MS
35	Meridian, MS
36	Joplin, MO

Source: Sales and Marketing Management Survey of Buying Power for 1978

OBSERVATIONS

Shopping center developers, especially the large, national firms such as Ernest Hahn and The Rouse Company, are complex institutions. As a result, it is sometimes difficult to identify a source of information in future development activity. Detailed responses from such companies about particular projects and reactions toward the ICES concept were very limited. In one case, a developer refused to provide any information because he was not about to cooperate with any of this "government boondoggle." Overall, the impression emerged that shopping center developers have not given much thought to integrated systems for energy conservation. As a result, their reaction to the ICES concept was neutral.

However, it is a known fact that there is a growing tendency on the part of shopping center owners to require tenants to share in maintenance and energy costs. Up to now they have not had problems because demand is good for shopping center space. Energy costs will keep rising, however, and developers who want to reduce their costs while keeping tenants happy and new ones coming will feel the need to introduce energy conserving concepts.

The following compilation of additional shopping centers being planned for construction serves as an example of the numerous shopping center projects for which further information can be obtained.

Selected Large Shopping Center Developments That Are Being Planned

Name	Location	Size (square feet)
Melvin Simon & Associates, Inc.		
Midland Mall	Midland, TX	1,000,000
Denton Mall	Denton, TX	1,000,000
Barton Creek Square	Barton Creek, TX	1,500,000
Forest Village Park	Forestville, MD	600,000
Towne West Square	Wichita, KS	1,000,000
Lynnhaven Mall	Virginia Beach, VA	1,000,000
New Towne Square	Toledo, OH	900,000
Forest Plaza	Fond du Lac, WI	200,000
Ernest W. Hahn, Inc.		
Plaza Pasadena	Pasadena, CA	600,000
Long Beach Plaza	Long Beach, CA	620,000
Clackamas Town Center	Portland, OR	1,100,000
Las Vegas Fashion Center	Las Vegas, NV	750,000
Ogden City Mall	Ogden, UT	752,000
Northeast Mall	Houston, TX	1,000,000
San Mateo Fashion Island	San Mateo, CA	800,000
Burbank Center	Burbank, CA	not known
Homart Development Co.		
New Park Mall	Newark, CA	1,100,000
Bannister Mall	Kansas City, MO	800,000
Spring Hill Mall	West Dundee, IL	1,200,000
The Edward J. DeBartolo Corporation		
Lakeland Square	Lakeland, FL	over 200,000
Bay Park Square	Green Bay, WI	over 200,000
Suffolk County	Long Island, NY	over 200,000
Seattle-Evergreen	Seattle, WA	over 200,000
The Florida Mall	Orland, FL	over 200,000
Coral Springs Mall	Coral Springs, FL	over 200,000
Stuart Mall	Stuart, FL	over 200,000
Great Hills	Austin, TX	over 200,000
Foxboro Mall	Foxboro, MA	over 200,000
Townpoint Mall	Suffolk, VA	over 200,000
Leonard L. Farber Co.		
Charlottesville Fashion Square	Charlottesville, VA	200,000
Sunrise Shopping Center	Fort Lauderdale, FL	360,000
Dayton-Hudson Properties		
Three projects which may have potential for ICES	Woodbury, MN LaCrosse, WI East Lansing, MI	

Source: Real Estate Research Corporation

OVERVIEW OF HOTEL/MOTEL ACTIVITY

The Hotel/Motel industry is optimistic that the depressed market conditions which existed during the period of the early 1970's have ended. According to the American Express Travel Market Yearbook, the domestic lodging industry recorded a $300 million increase in gross income between 1974 and 1975. The Society of Real Estate Appraisers' September 1977 Appraisal Briefs newsletter states that the motel/motor inn industry is on the threshold of a new phase of construction, expansion and upgrading. This forecast is the result of the 1977 annual financial survey conducted by the Hotel/Motor Inn Journal. Indications are that the industry has recovered from the losses of revenue in the early 1970's.

The January 1978 issue of Motel/Motor Inn Journal reports that results of a survey reveal that 71% of their respondents plan to upgrade their properties in 1978 (up 20% from 1977); 38% plan to make additions (same percentage as in 1977); and 20% plan to both upgrade and make additions (up from 5% from 1977). The American Hotel and Motel Association conducted a survey of 275 U.S. chains to forecast trends in the industry for 1977-1979. The forecast estimates the number of new hotel/motel rooms to be constructed during that period at: 1977 -- 69,621; 1978 -- 81,502; and 1979 -- 92,481. These figures reflect a 32.8% change from 1977 to 1979. Table 4-6 summarizes these trends.

Table 4-6 ESTIMATED HOTEL/MOTEL CONSTRUCTION
UNITED STATES
1977-1979

	1977	1978	1979
New rooms to be completed	69,621	81,502	92,481
Rooms to be eliminated	5,151	2,512	70
Rooms to be modernized:			
- Major renovation	57,098	54,203	52,014
- Minor renovation	110,379	113,751	105,302

Source: American Hotel and Motel Association, Construction and Modernization Forecast, 1977.

There are some important trends in the lodging industry today which are summarized here:

1. Increased air and highway travel have expanded the demand for overnight accommodations over wider areas. New motor hotels have been built to serve airports and interstate highways. Older hotels in downtown areas have declined and in many cases have gone out of business. There are, however, recent indications that the major hotel chains are once again interested in establishing units in the central business districts in many major cities. This is occurring in such cities as Chicago, Detroit, and St. Paul. In addition, these major chains are constructing facilities in or near new convention centers, built principally in downtown areas.

2. The "packaging" of the franchised motor hotel by the major chains brought flexibility and speed in establishing motels in new areas of market demand. The advertising and referral system of the chain, along with the use of credit cards, helped create a ready market for each new franchised motel.

The 25 largest hotel/motel chains in the United States are shown in Table 4-7 on the following page. As judged by number of rooms, the best indicator of overall size, Holiday Inn ranks first. This chain has more than 2½ times the number of rooms of Best Western, its nearest competitor.

Table 4-8 indicates the rising position of hotel/motel chain properties in the United States relative to the total hotel/motel industry.

Table 4-8 NUMBER OF HOTEL/MOTEL CHAIN PROPERTIES IN THE UNITED STATES

	1973	1974	1975	1976	1977	% Change 1973-77
Total U.S. Properties	37,469	37,372	37,664	37,810	37,410	- .15%
Total U.S. Chain Properties	5,482	6,322	8,667	9,302	10,912	+ 99.10%
Chain Properties as a Percent of Total	14.6%	16.9%	23.0%	24.6%	29.2%	+100.00%
Top 25 Chain Properties	4,256	4,996	7,237	7,102	8,570	+101.40%
Top 25 as a Percent of Total U.S. Chain Properties	77.6%	79.0%	83.5%	76.3%	78.5%	+ 1.20%

Source: American Hotel and Motel Association, Chain Lodging Analysis, 1977.

Table 4-7 25 LARGEST U.S. HOTEL/MOTEL CHAINS

	Number of Properties			Number of Rooms		
	1977	1976	% Change	1977	1976	% Change
Holiday Inns	1,523	1,534	- 0.7%	258,711	239,038	+ 8.20%
Best Western	1,435	1,261	+13.8%	92,770	92,793	- 0.02%
Ramada Inns	641	640	+ 0.2%	87,883	87,502	+ 0.4 %
Sheraton Hotels & Motor Inns	340	331	+ 2.7%	74,707	72,333	+ 3.3 %
Budget Motels	1,202	n/a	n/a	69,394	n/a	n/a %
Hilton Hotels	172	171	+ 0.6%	64,414	63,058	+ 2.2 %
Howard Johnson	519	521	- 0.4%	58,977	58,554	+ 0.7 %
Days Inns of America	250	243	+ 2.9%	39,739	38,848	+ 2.3 %
Quality Inns	273	295	- 7.5%	29,485	31,783	- 7.2 %
TraveLodge International	433	421	+ 2.9%	29,114	29,114	n/a
Friendship Inns International	750	753	- 0.4%	28,612	28,854	- 0.8 %
Timoa Inns	313	n/a	n/a	28,371	n/a	n/a
Hyatt Hotels	65	69	- 5.8%	27,911	27,489	+ 1.5 %
Motel 6	236	235	+ 0.4%	23,231	22,952	+ 1.2 %
Marriott Hotels	43	42	+ 2.4%	16,927	16,964	- 0.2 %
Rodeway Inns of America	136	151	- 9.9%	16,671	18,130	- 8.1 %
Western International Hotels	21	20	+ 5.0%	14,386	14,103	+ 2.0 %
Topeka Inn Management	74	75	- 1.3%	11,695	11,958	- 2.2 %
LaQuinta Motor Inns	69	65	+ 6.2%	8,636	7,146	+20.9 %
United Inns	36	36	n/a	8,428	8,218	+ 2.6 %
Downtowner/Rowntowner	64	60	+ 6.7%	8,333	7,727	+ 7.8 %
Motor Hotel Management	46	43	+ 7.0%	7,780	7,129	+ 9.1 %
Aircoa	29	20	+45.0%	7,597	4,551	+66.9 %
Americana Hotels	13	12	+ 8.3%	7,536	7,471	+ 0.9 %
Master Hosts Inns	75	97	-22.7%	7,502	11,190	-33.0 %

Source: American Hotel and Motel Association, Chain Lodging Analysis, 1977.

3. Increases in tourism and a growing demand for meeting and convention facilities on the part of corporations and professional, trade, and fraternal organizations have led to the establishment of new resort developments near major tourist attractions and vacation areas. This has caused shifts in the lodging market which were also made possible by the convenience of air and highway travel. The general demand for leisure activities, recreational vehicles, and vacation travel has been steadily increasing each year. Fear of inflation can temporarily slow this demand, but the higher rate of savings during an inflationary period usually results in higher spending for recreation at a later date.

A study conducted by the University of Colorado, entitled Travel Trends in the United States and Canada, determined that in 1976 the hotel/motel industry received 35.2% of its business from tourists, 30.4% from business and convention travelers, 17.7% from travelers visiting friends and relatives, and 16.7% from travelers visiting for other reasons. Thus, over one-third of the demand for commercial lodging is generated by tourism, an extremely volatile demand source. The amount of tourism is highly vulnerable to fluctuations in the business cycle. Business and convention travelers, the next largest demand source (again representing close to one-third of all person nights spent in commercial lodging), is a more stable segment. The regional breakdown of trip purpose is shown in Table 4-9.

Table 4-9 TRIP PURPOSE OF PERSON-NIGHTS* SPENT IN COMMERCIAL LODGING IN EACH REGION -- 1976

Region	Visit Friends & Relatives	Other Pleasure	Convention & Business	Other	Total
New England	19.9%	42.1%	24.0%	14.1%	100.0%
Eastern Gateway	11.0%	33.8%	39.5%	15.8%	100.0%
George Washington	17.2%	35.0%	35.4%	12.4%	100.0%
South	19.5%	36.9%	23.6%	20.0%	100.0%
Great Lakes Country	17.3%	26.1%	42.7%	13.9%	100.0%
Mountain West	17.0%	34.3%	32.6%	16.2%	100.0%
Frontier West	22.7%	32.4%	28.3%	16.6%	100.0%
Far West	14.4%	40.3%	29.1%	16.3%	100.0%
TOTAL	17.7%	35.2%	30.4%	16.7%	100.0%

* A person-night is defined as one person spending one night away from home on a trip of 200 miles or more round-trip.

Source: University of Colorado, Business Research Division, Travel Trends in the United States and Canada, 1978.

When the regional distribution of the demand for hotel/motel space is examined, the Sunbelt states stand out as the most popular travel destinations. Over 30 percent of person-nights spent in commercial lodging in 1976 were spent in the South, followed by the Far West with 17%. New England and Middle Atlantic states show the smallest demand, attracting only 4% and 6% respectively of person-nights spent in commercial lodging.[2]

STATISTICAL ANALYSIS

Selection of Statistical Indicator

The Hotel and Motel Association's monthly and annual Construction and Modernization Reports are the only sources of statistical data available on the industry's construction activity. Its weakness, for purposes of this study, is that its information is derived only from those who voluntarily wish to publish an announcement of their proposed projects. This data source does not, therefore, include all proposed hotel/motel units, but will give a good indication of where the large hotel projects are being built. Another data source is the previously mentioned Travel Trends in the United States and Canada, a study conducted by the University of Colorado. Tourism statistics from this study and proposed units listed in Construction and Modernization Reports will be used as the screening indicators to determine activity by state. There are no tourism statistics by SMSA.

Statistical Screening and Analysis

The University of Colorado study ranks states by the number of person-nights spent in commercial lodging facilities in 1976. The top ten states ranked in this category are California, Florida, North Carolina, Texas, Pennsylvania, Michigan, Georgia, Wisconsin, Washington, and Indiana. Table 4-10 displays the rankings for all of the states and Washington, D.C.

When states are analyzed according to the number of new hotel/motel units proposal in 1977, the ranking of the top states has a different composition. This can be attributed to the fact that those areas which attract the most tourists may already have an adequate supply of lodging facilities. In addition, new facilities are being constructed in a number of older cities to replace old hotels. This is happening now in Chicago, where a new Hilton Hotel is being planned to replace the existing Conrad Hilton Hotel.

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[2]University of Colorado, Business Research Division, Travel Trends in the United States and Canada, 1978.

Table 4-10 PERSON-NIGHTS BY STATE, 1976

State	Person-Nights (000)	Rank
Alabama	33,870	30
Alaska	5,167	51
Arizona	46,338	20
Arkansas	37,309	27
California	234,553	1
Colorado	67,486	14
Connecticut	14,604	46
Delaware	28,758	33
Dist. of Columbia	14,462	47
Florida	227,361	2
Georgia	76,563	7
Hawaii	28,215	35
Idaho	26,825	36
Illinois	71,471	10
Indiana	35,140	29
Iowa	26,245	38
Kansas	21,964	40
Kentucky	37,132	28
Louisiana	42,806	22
Maine	26,419	37
Maryland	40,156	23
Massachusetts	55,488	18
Michigan	83,290	6
Minnesota	71,240	11
Mississippi	32,184	31
Missouri	56,782	16
Montana	17,304	43
Nebraska	16,508	44
Nevada	38,972	26
New Hampshire	17,841	42
New Jersey	43,529	21
New Mexico	30,568	32
New York	123,659	3
North Carolina	58,418	15
North Dakota	16,194	45
Ohio	68,014	13
Oklahoma	18,990	25
Oregon	55,515	17
Pennsylvania	93,504	5
Rhode Island	7,010	50
South Carolina	48,976	19
South Dakota	18,495	41
Tennessee	70,346	12
Texas	115,088	4
Utah	28,616	34
Vermont	12,087	49
Virginia	75,935	9
Washington	39,535	24
West Virginia	24,279	39
Wisconsin	75,983	8
Wyoming	13,952	48
TOTAL	2,591,146	

Source: University of Colorado, Business Research Division, Travel Trends in the United States and Canada

Also important today is the fact that a number of Northern cities are receiving federal Urban Development Action Grants from the Department of Housing and Urban Development to assist in the construction of hotels for older central business districts. This means that cities such as Milwaukee, Kansas City, Kansas, Boston, Baltimore, New York City, and Wilkes-Barre, Pennsylvania will be experiencing an increase in hotel rooms over the next few years.

It should also be mentioned that hotel construction in a given locality can be stimulated by the construction of a convention center. Since conventions attract numerous out-of-town visitors to a city, lodging facilities to accommodate these people will have to be built in the vicinity of the convention center. The development of convention centers is discussed in greater detail in the chapter on Institutional Development.

When the actual number of proposed hotel/motel units are examined, it can be seen that over twice as many units were proposed nationally in 1974 (125,143) as in 1977 (57,849), and only 11 states are experiencing an increase in hotel construction. The most notable of these are New Jersey, Texas, Oregon and Iowa.

Since an examination of the number of proposed hotel/motel units for 1977 gives a good indication of what will be built, it is worth identifying those states and SMSA's with the highest number of proposed new hotel and motel units. As can be seen in Table 4-11 below, the most active states in this development category are New Jersey, Nevada, Texas, Florida, California, Washington, Hawaii, Missouri, Louisiana and New York.

Many of the top states are resort locations in the Sunbelt and/or active convention sites. The high degree of hotel construction in New Jersey is attributed to the recent state authorization of gambling in Atlantic City. Most of the major hotel chains are now planning to open a hotel there.

An examination of the 25 SMSA's which are expected to see the most hotel/motel construction closely parallels their respective states. This indicates that a high level of activity in a given state is the direct result of construction in 1 or 2 major SMSA's. The 10 top SMSA's -- Atlantic City, Las Vegas, Spokane, San Antonio, New Orleans, Miami, Reno, Dallas, Honolulu and New York City -- are all located in states which are in the top 10 ranking.

Table 4-11 HOTEL/MOTEL ACTIVITY BY STATES
1974 and 1977

	1977 Rank	# Units Proposed 1977	# Units Proposed 1974
New Jersey	1	7,367	1,145
Nevada	2	6,240	12,537
Texas	3	4,975	3,636
Florida	4	4,629	8,676
California	5	3,424	11,613
Washington	6	3,201	3,038
Hawaii	7	2,259	4,458
Missouri	8	2,156	4,398
Louisiana	9	2,034	4,525
New York	10	1,796	5,463
Oregon	11	1,469	811
Ohio	12	1,320	5,435
Pennsylvania	13	1,226	3,324
Minnesota	14	1,205	3,719
Iowa	15	1,181	886
Tennessee	16	1,014	3,840
Wisconsin	17	950	2,102
Alaska	18	941	1,105
Illinois	19	934	6,156
District of Columbia	20	897	1,526
Arizona	21	772	4,009
Massachusetts	22	750	2,213
South Carolina	23	704	2,162
Colorado	24	527	2,106
Connecticut	25	524	980
Georgia	26	452	2,614
Utah	27	446	960
West Virginia	28	422	1,005
Michigan	29	400	3,708
Idaho	30	311	242
Indiana	31	294	3,413
Montana	32	280	228
Arkansas	33	275	154
Oklahoma	34	270	1,144
Wyoming	35	267	710
Kentucky	36	256	866
New Hampshire	37	255	-0-
Kansas	38	254	741
Maryland	39	250	1,073
Virginia	40	246	1,831
South Dakota	41	206	190
Vermont	42	200	430
Alabama	43	120	1,946
Rhode Island	44	90	252
Mississippi	45	60	-0-
Delaware	46	-0-	250
Maine	47	-0-	80
Nebraska	48	-0-	487
New Mexico	49	-0-	1,237
North Carolina	50	-0-	1,673
North Dakota	51	-0-	46

Source: American Hotel and Motel Association Construction and Modernization Report 1974 and 1977.

Of the top 25 SMSA's, only seven will be seeing an increase in construction from the 1974 level -- Atlantic City, Spokane, San Antonio, Dallas, Eugene, Anchorage and Houston. The increased activity in the Texas cities is especially noteworthy in light of the general decline in the level of new construction elsewhere. The construction in Spokane and Eugene is evidence of increasing tourist interest in the Pacific Northwest.

Table 4-12 following summarizes the proposed hotel/motel construction activity for the 25 most active SMSA's.

Table 4-12 TOP 25 SMSA'S IN HOTEL/MOTEL ACTIVITY FOR 1977

	1977 Rank	# Units Proposed 1977	# Units Proposed 1974
Atlantic City, N.J.	1	5,628	-0-
Las Vegas, NV	2	4,588	7,832
Spokane, WA	3	2,387	438
San Antonio, TX	4	2,000	425
New Orleans, LA	5	1,930	3,309
Miami, FL	6	1,856	3,034
Reno, NV	7	1,652	3,276
Dallas, TX	8	1,391	648
Honolulu, HA	9	1,198	1,970
New York, NY	10	1,140	2,128
Eugene, OR	11	1,132	75
Kansas City, MO	12	1,015	2,310
Tampa, FL	13	970	1,760
Anchorage, AK	14	941	800
St. Louis, MO	15	915	1,177
District of Columbia	16	897	1,526
Houston, TX	17	840	531
Nashville, TN	18	774	1,814
Minneapolis, MN	19	735	3,058
Columbus, OH	20	730	837
Chicago, IL	21	700	4,478
San Francisco, CA	22	655	2,356
Los Angeles, CA	23	625	3,656
Phoenix, AZ	24	599	3,003
Cincinnati, OH	25	580	960

Source: American Hotel and Motel Association, Construction and Modernization Report, 1974 and 1977.

Summary

As can be seen from the data on proposed new hotel/motel units, there can be wide variations in development activity from one year to another. The state of the economy certainly affects the level of hotel construction. Other factors which can affect hotel/motel construction in a given locality are often difficult to foresee, such as the construction of a new convention center or the authorization of gambling in Atlantic City. The experience to date in Atlantic City demonstrates that gambling is certainly an effective mechanism for attracting tourists. It is conceivable that other states will follow New Jersey's action and permit gambling in a specified location. Florida has been considering this for some time.

In general, construction of hotels and motels is expected to continue in the future as the demand for transient lodging slowly increases. Much of this construction will continue to occur in the resort areas of the South and West which have been active in hotel/motel construction already.

CHAPTER 4 APPENDIX

CONTENTS

Appendix 4-1

RENTABLE SQUARE FEET OF COMPETITIVE OFFICE SPACE

City	1972 1/	1977 2/	Change 1972-1977 Number	Change 1972-1977 Percent
MIDDLE ATLANTIC				
Baltimore	3,810,340	5,093,027	1,282,687	34%
Hartford, CT	90,418	718,556	628,138	695%
New Haven, CT	234,250	284,614	50,364	22%
New York	8,073,518	51,010,739	42,937,221	532%
Philadelphia	15,222,990	27,205,201	11,982,211	79%
Pittsburgh	8,526,155	10,341,071	1,814,916	21%
Washington, D.C.	10,995,672	14,026,846	3,031,174	28%
NORTH CENTRAL				
Akron	743,719	369,743	- 373,976	-50%
Chicago	43,114,796	46,192,768	3,077,972	7%
Chicago Suburban	3,205,960	6,915,330	3,709,370	116%
Cleveland	5,699,473	6,953,017	1,253,544	22%
Columbus	727,400	517,917	- 209,483	-29%
Detroit	4,606,538	3,947,440	- 659,098	-14%
Peoria, IL	709,681	505,946	- 203,735	-29%
Youngstown, OH	42,097	37,254	- 4,843	-12%
MIDWEST NORTHERN				
Des Moines	633,441	1,252,538	619,097	98%
Duluth	360,623	370,069	9,446	3%
Kansas City	2,523,342	1,234,087	- 1,289,255	-51%
Lincoln, NE	113,578	406,214	292,636	258%
Milwaukee	3,209,553	7,195,985	3,986,432	124%
Minneapolis	4,573,283	5,956,342	1,383,059	30%
Omaha	1,324,670	684,583	- 640,087	-48%
St. Louis	4,000,000	8,688,900	4,688,900	117%
St. Paul	1,861,555	1,884,564	23,009	1%
Topeka, KS	47,091	208,898	161,807	344%
Wichita, KS	130,473	745,091	614,618	471%
SOUTHERN				
Atlanta	9,240,477	22,610,584	13,370,107	145%
Atlanta Suburban	3,949,817	12,335,166	8,385,349	212%
Charleston, WV	66,857	217,152	150,295	225%
Chattanooga, TN	156,091	153,859	- 2,232	- 1%
Jackson, MS	262,498	37,498	- 225,000	-86%
Knoxville, TN	46,436	34,000	- 12,436	-27%
Louisville, KY	316,890	516,517	199,627	63%
Miami, FL	1,049,135	337,632	- 711,503	-68%
Montgomery, AL	62,704	62,704	0	0%
Nashville, TN	108,717	185,425	76,708	71%
New Orleans	2,581,065	1,820,351	- 760,714	-29%
Orlando, FL	128,000	107,928	- 20,072	-16%
St. Petersburg, FL	50,719	260,000	209,281	413%
Savannah, GA	114,345	80,745	- 33,600	-29%
Shreveport, LA	315,891	163,486	- 152,405	-48%
Tampa	408,518	307,722	- 100,796	-25%
SOUTHWEST				
Colorado Springs	147,955	15,500	- 132,455	-90%
Dallas	21,876,219	26,522,277	4,646,058	21%
Denver	5,346,694	20,670,026	15,323,332	287%
El Paso	455,836	2,574,002	2,118,166	465%
Fort Worth	127,929	76,195	- 51,734	-40%
Houston	4,713,401	53,265,452	48,552,051	1,030%
Little Rock, AR	152,188	542,728	390,540	257%
Lubbock, TX	208,696	208,696	0	0%
Midland, TX	252,448	126,000	- 126,448	-50%
Oklahoma City	1,238,815	3,607,583	2,368,768	191%
San Antonio	603,957	927,599	323,642	54%
Tulsa	484,435	2,452,419	1,967,984	406%

RENTABLE SQUARE FEET OF COMPETITIVE OFFICE SPACE
(continued)

City	1972 [1/]	1977 [2/]	Change 1972-1977 Number	Change 1972-1977 Percent
PACIFIC NORTHWEST				
Portland	3,423,608	4,295,081	871,473	25%
Salt Lake City	913,199	755,861	- 157,338	-17%
Seattle	5,049,072	5,515,368	466,296	9%
Spokane	870,999	938,570	67,571	8%
Tacoma, WA	358,199	135,531	- 222,668	-62%
PACIFIC SOUTHWEST				
Honolulu	417,214	1,536,843	1,119,629	268%
Los Angeles	16,702,713	3,540,513	-13,162,200	-78%
Phoenix	1,268,013	1,065,341	- 202,672	-16%
San Diego	90,920	995,603	904,683	995%
San Francisco	16,462,995	23,771,601	7,308,606	44%
Middle Atlantic	60,420,973	109,412,827	48,991,854	81%
North Central	60,411,969	67,622,375	7,210,406	12%
Midwest Northern	18,777,609	29,563,025	10,785,416	57%
Southern	19,408,858	42,146,024	22,737,166	117%
Southwest	35,748,482	111,307,077	75,558,595	211%
Pacific Northwest	9,701,878	11,640,411	1,938,533	20%
Pacific Southwest	36,700,327	31,909,949	- 4,790,378	-13%
U.S. Total	241,170,096	403,601,688	162,431,592	67%

Notes: 1/ Data as of October 31, 1972.

2/ Data as of October 1, 1977.

Source: Building Owners and Managers Association Annual Report, 1972 and 1977.

APPENDIX 4-2

OFFICE EMPLOYMENT BY STATE
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
ALASKA	1	31.07	1	55.31	29.478	9.159	10.498
ARIZONA	2	27.77	2	40.57	218.538	60.696	63.066
COLORADO	3	26.91	3	37.96	293.726	79.044	80.826
WYOMING	4	25.54	7	30.50	34.634	8.845	8.094
UTAH	5	24.11	11	27.32	115.151	27.765	24.711
VIRGINIA	6	22.81	22	20.42	479.394	109.373	81.284
OREGON	7	21.35	6	30.92	242.735	51.827	57.335
TEXAS	8	21.33	21	20.75	1299.037	277.101	223.207
FLORIDA	9	21.08	5	32.02	986.884	208.074	239.354
TENNESSEE	10	20.79	15	24.80	414.199	86.108	82.309
NEW MEXICO	11	20.68	25	19.42	102.847	21.268	16.727
KANSAS	12	19.74	14	25.49	217.344	42.895	44.154
CALIFORNIA	13	18.99	24	20.05	2495.026	473.906	416.726
OKLAHOMA	14	18.34	29	16.51	244.464	44.831	34.644
MARYLAND	15	17.77	40	11.93	432.496	76.847	46.086
IDAHO	16	17.68	10	27.61	72.216	12.771	15.626
NEBRASKA	17	17.35	30	15.96	167.598	29.074	23.068
NORTH CAROLINA	18	17.32	19	22.15	494.498	85.649	89.678
NEW HAMPSHIRE	19	16.49	16	24.12	88.228	14.547	17.148
WISCONSIN	20	16.39	34	14.31	430.916	70.648	53.946
KENTUCKY	21	16.18	36	13.92	268.129	43.389	32.769
DELAWARE	22	16.12	26	19.00	61.073	9.846	9.753
IOWA	23	15.83	27	18.03	282.954	44.792	43.224
GEORGIA	24	15.81	18	22.72	503.550	79.596	93.240
WEST VIRGINIA	25	15.47	45	9.68	122.357	18.934	10.797
INDIANA	26	15.29	20	21.90	458.216	70.079	82.306
SOUTH CAROLINA	27	15.02	9	28.11	251.027	37.711	55.087
MICHIGAN	28	14.89	37	12.74	800.802	119.257	90.522
LOUISIANA	29	14.89	41	11.90	352.408	52.488	37.468
MONTANA	30	14.74	4	36.38	75.256	11.095	20.076
OHIO	31	14.62	46	9.36	1047.007	153.028	89.627
ARKANSAS	32	14.56	17	23.73	169.715	24.708	32.545
MINNESOTA	33	14.53	23	20.12	418.562	60.825	70.112
WASHINGTON	34	14.23	28	17.03	349.989	49.794	50.919
NORTH DAKOTA	35	13.71	13	26.06	59.536	8.165	12.306
SOUTH DAKOTA	36	13.59	8	28.90	70.793	9.620	15.873
MAINE	37	13.22	12	27.12	93.308	12.339	19.908
MISSOURI	38	12.52	42	11.55	492.625	61.692	51.005
DISTRICT OF COLUMBIA	39	12.43	48	3.49	212.371	26.408	7.171
MISSISSIPPI	40	12.13	44	9.99	186.831	22.664	16.971
ALABAMA	41	11.74	39	12.34	316.355	37.153	34.755
NEW JERSEY	42	11.14	32	15.10	734.242	81.763	96.302
HAWAII	43	10.00	47	7.71	107.361	10.731	7.681
NEVADA	44	9.86	43	11.52	121.942	12.024	12.592
PENNSYLVANIA	45	9.66	33	14.51	1200.709	115.978	152.139
RHODE ISLAND	46	9.55	31	15.70	100.940	9.635	13.700
CONNECTICUT	47	9.06	35	14.23	365.099	33.062	45.479
ILLINOIS	48	8.57	49	3.05	1168.117	100.115	34.587
VERMONT	49	7.80	38	12.57	50.859	3.966	5.679
MASSACHUSETTS	50	4.56	51	-0.09	744.109	33.941	-0.691
NEW YORK	51	3.96	50	1.11	2399.345	94.929	26.405

APPENDIX 4-3

OFFICE EMPLOYMENT - SMSA GROUP 1
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
HOUSTON, TX	1	20.36	1	33.99	339.084	69.042	86.017
DALLAS, TX	2	18.92	2	24.74	360.149	68.124	71.429
BALTIMORE, MD	3	15.07	9	10.88	256.778	38.695	25.195
SAN FRANCISCO, CA	4	12.62	7	14.50	468.815	59.163	59.365
DETROIT, MI	5	12.16	5	16.97	471.924	57.406	68.478
WASHINGTON, DC-MD-VA	6	11.38	6	15.46	452.031	51.460	60.521
MINNEAPOLIS, MN-WI	7	10.90	4	18.12	280.211	30.536	42.980
LOS ANGELES, CA	8	10.80	8	13.03	1022.196	110.359	117.840
PITTSBURGH, PA	9	8.88	12	6.21	250.604	22.255	14.645
NASSAU-SUFFOLK, NY	10	8.30	3	18.22	254.955	21.162	39.287
ST. LOUIS, MO-IL	11	7.80	10	8.38	280.631	21.898	21.701
CHICAGO, IL	12	6.90	13	5.84	910.000	62.829	50.223
PHILADELPHIA, PA-NJ	13	6.60	11	7.67	556.666	36.765	39.636
BOSTON, MA	14	5.99	14	-1.54	542.524	32.517	-8.484
NEW YORK, NY-NJ	15	4.14	15	-4.18	1680.048	69.562	-73.379

OFFICE EMPLOYMENT - SMSA GROUP 2
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
SAN DIEGO, CA	1	30.03	5	27.02	158.957	47.739	33.809
PHOENIX, AZ	2	29.02	3	41.34	141.702	41.116	41.446
ANAHEIM, CA	3	26.68	2	42.81	175.128	46.717	52.502
SAN JOSE, CA	4	26.56	8	24.22	142.939	37.971	27.871
RIVERSIDE, CA	5	24.68	16	15.93	103.174	25.459	14.178
DENVER, CO	6	21.55	4	33.33	198.783	42.836	49.697
TAMPA, FL	7	18.92	1	48.11	163.364	30.915	53.066
MIAMI, FL	8	17.96	7	25.49	266.736	47.904	54.181
PORTLAND, OR-WA	9	17.52	10	21.58	139.433	24.426	24.753
COLUMBUS, OH	10	14.05	9	22.99	152.384	21.408	28.481
NEW ORLEANS, LA	11	13.61	17	15.42	145.842	19.843	19.489
KANSAS CITY, MO-KS	12	13.31	14	18.31	157.068	20.899	24.306
INDIANAPOLIS, IN	13	12.24	13	18.97	123.490	15.118	19.690
CINCINNATI, OH-KY-IN	14	10.11	15	18.26	167.648	16.945	25.886
ATLANTA, GA	15	9.88	6	26.01	241.875	23.888	49.922
SEATTLE, WA	16	8.92	11	21.10	186.673	16.648	32.520
CLEVELAND, OH	17	8.39	18	10.93	264.460	22.188	26.049
NEWARK, NJ	18	8.02	20	5.19	259.218	20.782	12.799
MILWAUKEE, WI	19	7.51	12	20.21	184.206	13.841	30.971
BUFFALO, NY	20	4.57	19	7.86	128.261	5.868	9.344

APPENDIX 4-3

OFFICE EMPLOYMENT - SMSA GROUP 3
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
NEW BRUNSWICK, NJ	1	28.75	4	27.25	43.355	12.464	9.284
SALT LAKE CITY, UT	2	25.68	5	25.47	83.231	21.371	16.894
ORLANDO, FL	3	25.24	1	69.78	75.418	19.035	30.996
FORT LAUDERDALE, FL	4	24.15	2	51.24	103.527	24.997	35.077
FLINT, MI	5	23.92	17	18.99	30.703	7.344	4.901
YOUNGSTOWN, OH	6	22.24	28	15.07	43.022	9.569	5.634
SACRAMENTO, CA	7	22.23	11	21.50	80.779	17.955	14.293
JACKSONVILLE, FL	8	21.60	3	30.52	84.219	18.189	19.693
GRAND RAPIDS, MI	9	21.49	34	12.02	44.101	9.476	4.731
SAN ANTONIO, TX	10	20.62	23	16.45	100.178	20.656	14.148
ALLENTOWN, PA-NJ	11	20.48	20	17.37	49.909	10.220	7.388
GREENVILLE, SC	12	20.15	6	22.96	51.500	10.376	9.618
OMAHA, NE-IA	13	19.66	21	17.09	67.852	13.342	9.902
GARY, IN	14	19.15	32	13.23	37.630	7.208	4.398
RICHMOND, VA	15	18.86	14	20.38	80.052	15.099	13.551
OKLAHOMA CITY, OK	16	18.13	16	19.07	91.698	16.628	14.686
AKRON, OH	17	17.92	19	18.08	54.812	9.825	8.394
GREENSBORO, NC	18	16.67	15	20.08	76.632	12.777	12.813
WILMINGTON, DE-NJ-MD	19	16.58	12	21.10	50.804	8.422	8.852
TULSA, OK	20	15.61	18	18.24	60.628	9.466	9.354
NASHVILLE, TN	21	15.17	7	22.67	88.842	13.476	16.420
CHARLOTTE, NC	22	15.12	22	16.73	68.421	10.348	9.805
TOLEDO, OH-MI	23	14.59	27	15.61	78.837	11.499	10.647
HONOLULU, HI	24	14.01	9	21.87	81.344	11.393	14.598
MEMPHIS, TN-AR-MS	25	13.86	29	14.66	104.111	14.433	13.310
NORFOLK, VA-NC	26	12.40	10	21.84	74.388	9.225	13.336
DAYTON, OH	27	11.93	30	14.62	90.464	10.794	11.541
NORTHEAST PENN, PA	28	11.88	33	12.76	52.500	6.237	5.940
ROCHESTER, NY	29	9.80	26	15.77	100.253	9.820	13.657
BIRMINGHAM, AL	30	9.15	8	22.42	98.868	9.049	18.107
PROVIDENCE, RI-MA	31	8.87	24	16.16	101.490	9.002	14.118
JERSEY CITY, NJ	32	8.00	37	3.33	40.552	3.245	1.306
SYRACUSE, NY	33	7.74	35	7.87	58.868	4.556	4.297
LOUISVILLE, KY-IN	34	6.80	13	21.06	106.677	7.254	18.561
HARTFORD, CT	35	5.97	25	15.94	124.748	7.443	17.153
ALBANY, NY	36	3.15	31	14.30	85.401	2.693	10.684
SPRINGFIELD, MA-CT	37	2.11	36	5.65	50.185	1.060	2.685

APPENDIX 4-3

OFFICE EMPLOYMENT - SMSA GROUP 4
(TOTAL Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
ANN ARBOR, MI	1	52.09	64	7.47	16.263	8.472	1.131
EL PASO, TX	2	39.72	16	23.30	27.392	10.880	5.176
LORAIN, OH	3	32.77	43	15.32	16.461	5.395	2.187
TUCSON, AZ	4	31.17	4	31.56	40.024	12.475	9.602
COLORADO SPRINGS, CO	5	30.38	3	37.61	25.621	7.783	7.003
AUSTIN, TX	6	30.16	5	30.78	41.974	12.660	9.878
OXNARD, CA	7	28.46	11	24.68	27.168	7.731	5.378
YORK, PA	8	27.52	40	15.53	24.955	6.867	3.355
BEAUMONT, TX	9	27.13	55	12.80	29.819	8.090	3.383
SALINAS, CA	10	26.71	19	22.82	23.065	6.160	4.285
ALBUQUERQUE, NM	11	26.17	17	23.30	43.408	11.359	8.202
BAKERSFIELD, CA	12	24.66	31	18.05	27.344	6.744	4.181
JOHNSON CITY, TN-VA	13	23.57	32	17.87	28.179	6.643	4.273
APPLETON, WI	14	23.08	21	22.19	22.366	5.163	4.062
SANTA BARBARA, CA	15	22.88	22	21.25	34.678	7.936	6.078
LAKELAND, FL	16	22.85	1	76.42	31.898	7.288	13.817
NEWPORT NEWS, VA	17	22.76	13	23.77	31.033	7.063	5.959
ERIE, PA	18	22.66	28	18.98	22.250	5.042	3.550
LANSING, MI	19	22.25	53	13.09	31.443	6.995	3.639
SPOKANE, WA	20	21.39	27	19.02	34.110	7.297	5.452
FORT WAYNE, IN	21	21.25	34	17.54	32.202	6.844	4.806
STOCKTON, CA	22	21.20	12	23.98	26.381	5.593	5.103
FRESNO, CA	23	21.19	20	22.48	41.804	8.859	7.673
ROCKFORD, IL	24	20.61	69	4.78	19.538	4.026	0.892
LAWRENCE, MA-NH	25	20.48	63	7.54	15.964	3.270	1.119
PENSACOLA, FL	26	20.34	7	30.70	23.864	4.855	5.606
BINGHAMTON, NY-PA	27	19.87	54	12.90	20.613	4.096	2.355
DAVENPORT, IA-IL	28	19.53	51	13.26	30.545	5.964	3.576
MADISON, WI	29	19.29	15	23.47	32.183	6.207	6.117
KNOXVILLE, TN	30	19.24	8	29.69	40.046	7.704	9.168
WEST PALM BEACH, FL	31	19.07	2	40.89	60.137	11.470	17.453
COLUMBIA, SC	32	18.53	9	27.15	40.596	7.522	8.668
LONG BRANCH, NJ	33	18.19	6	30.76	42.987	7.819	10.112
CANTON, OH	34	17.54	44	15.25	32.938	5.777	4.358
CHATTANOOGA, TN-GA	35	17.13	37	16.48	36.608	6.270	5.179
LEXINGTON, KY	36	16.79	46	14.54	29.678	4.984	3.768
TACOMA, WA	37	16.72	41	15.45	33.872	5.664	4.534
LANCASTER, PA	38	16.69	33	17.65	30.099	5.023	4.515
PEORIA, IL	39	16.65	59	9.70	29.263	4.872	2.587
JOHNSTOWN, PA	40	16.14	60	9.48	17.519	2.827	1.517
VALLEJO, CA	41	15.90	18	22.86	20.120	3.199	3.744
LITTLE ROCK, AR	42	15.78	24	19.72	39.131	6.176	6.445
HARRISBURG, PA	43	15.72	25	19.42	44.744	7.035	7.276
DES MOINES, IA	44	15.71	39	15.70	46.709	7.336	6.339
DULUTH, MN-WI	45	15.39	38	16.37	22.509	3.465	3.167
HUNTINGTON, WV-KY-OH	46	14.79	65	7.17	19.390	2.868	1.298
READING, PA	47	13.26	49	14.30	26.125	3.465	3.269
KALAMAZOO, MI	48	13.10	52	13.17	18.083	2.369	2.105
CORPUS CHRISTI, TX	49	12.95	23	20.38	28.487	3.690	4.823
SHREVEPORT, LA	50	12.90	58	10.41	40.403	5.212	3.809
JACKSON, MS	51	12.04	35	17.45	40.411	4.867	6.003
RALEIGH, NC	52	11.75	30	18.37	69.939	8.218	10.855
CHARLESTON, SC	53	11.27	14	23.67	30.575	3.445	5.851
LAS VEGAS, NV	54	11.12	10	25.76	62.311	6.930	12.765
MONTGOMERY, AL	55	10.92	48	14.47	33.835	3.696	4.278
BATON ROUGE, LA	56	10.50	50	14.02	37.746	3.962	4.642
EVANSVILLE, IN-KY	57	8.89	29	18.47	24.262	2.156	3.782
NEW HAVEN, CT	58	7.52	47	14.49	53.084	3.993	6.719
TRENTON, NJ	59	6.46	45	15.16	42.265	2.729	5.565
WORCESTER, MA	60	5.63	68	4.89	34.871	1.965	1.626
WICHITA, KS	61	5.55	36	16.74	43.306	2.405	6.210
HUNTSVILLE, AL	62	5.38	66	7.00	29.077	1.564	1.902
BRIDGEPORT, CT	63	5.01	42	15.33	32.764	1.640	4.356
MOBILE, AL	64	4.08	57	12.09	38.421	1.567	4.143
PATERSON, NJ	65	3.63	62	7.98	39.857	1.448	2.944
CHARLESTON, WV	66	3.27	61	8.18	22.563	0.737	1.707
AUGUSTA, GA-SC	67	3.01	56	12.18	27.705	0.835	3.009
SOUTH BEND, IN	68	2.73	26	19.26	27.703	0.756	4.473
UTICA, NY	69	2.04	67	6.70	24.479	0.500	1.538

APPENDIX 4-3

OFFICE EMPLOYMENT - SMSA GROUP 5
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
ST. CLOUD, MN	1	33.85	6	43.98	10.431	3.531	3.186
MODESTO, CA	2	33.64	28	17.44	16.623	5.592	2.469
SANTA CRUZ, CA	3	33.56	7	39.11	12.096	4.060	3.401
STEUBENVILLE, OH-WV	4	31.81	37	14.63	9.891	3.146	1.262
KILLEEN, TX	5	30.05	2	73.72	16.451	4.944	6.981
GREEN BAY, WI	6	29.37	12	25.82	13.309	3.909	2.731
PROVO, UT	7	29.34	11	27.14	11.745	3.446	2.507
EUGENE, OR	8	29.06	10	27.88	21.827	6.344	4.759
YAKIMA, WA	9	28.34	8	32.53	13.362	3.787	3.280
SAGINAW, MI	10	28.30	49	9.78	14.669	4.152	1.307
ANCHORAGE, AK	11	28.19	5	59.34	18.179	5.125	6.770
LIMA, OH	12	27.10	32	15.36	16.316	4.422	2.172
SARASOTA, FL	13	27.01	3	66.39	25.193	6.805	10.052
FORT MYERS, FL	14	26.74	1	78.07	16.448	4.398	7.211
DAYTONA BEACH, FL	15	25.63	4	61.70	28.073	7.194	10.712
PARKERSBURG, WV-OH	16	25.12	17	21.04	12.817	3.219	2.228
SANTA ROSA, CA	17	25.00	9	28.18	19.861	4.966	4.366
HAMILTON, OH	18	24.89	27	17.44	16.667	4.148	2.475
ROANOKE, VA	19	24.13	18	20.94	25.307	6.106	4.381
WACO, TX	20	23.98	20	20.03	20.083	4.816	3.351
RACINE, WI	21	23.57	23	18.53	12.249	2.887	1.915
LINCOLN, NE	22	23.42	33	15.36	22.635	5.301	3.013
SALEM, OR	23	22.48	13	23.53	17.353	3.901	3.305
SPRINGFIELD, MO	24	22.01	26	17.65	16.765	3.690	2.515
BATTLE CREEK, MI	25	20.62	19	20.58	17.651	3.640	3.012
LUBBOCK, TX	26	20.44	40	13.63	20.320	4.153	2.438
AMARILLO, TX	27	20.35	29	17.33	17.098	3.479	2.526
TOPEKA, KS	28	19.81	14	22.10	20.698	4.101	3.746
FALL RIVER, MA-RI	29	19.07	57	3.84	9.364	1.786	0.346
SPRINGFIELD, OH	30	18.82	46	11.70	14.550	2.738	1.524
FAYETTEVILLE, NC	31	18.64	43	12.51	14.158	2.639	1.574
MCALLEN, TX	32	17.77	16	21.17	11.720	2.083	2.048
NEW LONDON, CT-RI	33	17.50	25	18.13	15.718	2.751	2.412
TERRE HAUTE, IN	34	17.44	22	18.59	12.440	2.169	1.950
FORT SMITH, AR-OK	35	16.81	36	14.90	13.709	2.304	1.778
BROWNSVILLE, TX	36	16.27	30	16.56	10.488	1.706	1.490
STAMFORD, CT	37	15.83	41	13.00	34.594	5.477	3.980
WATERBURY, CT	38	15.71	21	18.93	15.961	2.508	2.540
LOWELL, MA-NH	39	15.56	54	4.94	11.084	1.725	0.522
POUGHKEEPSIE, NY	40	15.42	45	11.93	19.752	3.046	2.106
CHAMPAIGN, IL	41	15.22	52	8.65	13.551	2.062	1.079
GALVESTON, TX	42	13.72	35	14.97	21.028	2.886	2.738
MELBOURNE, FL	43	13.68	55	4.42	35.344	4.836	1.497
WHEELING, WV-OH	44	12.69	44	11.97	16.768	2.128	1.793
PORTLAND, ME	45	11.76	15	21.61	25.381	2.985	4.511
CEDAR RAPIDS, IA	46	10.87	38	14.29	16.389	1.782	2.049
MUSKEGON, MI	47	9.89	47	10.15	10.982	1.086	1.012
BILOXI, MS	48	9.50	34	15.09	14.405	1.368	1.889
MACON, GA	49	7.49	24	18.38	29.217	2.189	4.537
LAKE CHARLES, LA	50	7.33	50	9.10	12.331	0.904	1.029
ASHEVILLE, NC	51	6.89	42	12.76	16.663	1.148	1.885
SAVANNAH, GA	52	6.74	31	15.50	25.050	1.688	3.362
SPRINGFIELD, IL	53	5.76	51	8.65	21.771	1.254	1.733
COLUMBUS, GA-AL	54	5.62	39	14.02	26.034	1.464	3.201
ATLANTIC CITY, NJ	55	5.15	48	9.80	21.712	1.118	1.937
NEW BEDFORD, MA	56	3.04	56	4.18	11.481	0.349	0.461
BROCKTON, MA	57	1.44	53	5.28	7.497	0.108	0.376

APPENDIX 4-3

OFFICE EMPLOYMENT - SMSA GROUP 6
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
PASCAGOULA, MS	1	61.20	21	22.42	6.126	3.749	1.122
GREELEY, CO	2	49.25	5	39.14	6.633	3.267	1.866
GAINESVILLE, FL	3	37.79	17	23.78	10.083	3.810	1.937
CLARKSVILLE, TN-KY	4	37.44	11	28.52	6.395	2.394	1.419
RICHLAND, WA	5	36.57	72	3.53	12.203	4.463	0.416
FORT COLLINS, CO	6	35.71	1	58.18	9.086	3.245	3.342
KENOSHA, WI	7	33.03	10	28.79	7.931	2.620	1.773
LONGVIEW, TX	8	32.14	2	53.21	15.004	4.822	5.211
TUSCALOOSA, AL	9	31.22	54	13.58	10.103	3.154	1.208
WATERLOO, IA	10	28.03	67	7.68	11.253	3.154	0.803
MANSFIELD, OH	11	27.91	49	16.09	10.938	3.053	1.516
TALLAHASSEE, FL	12	27.78	4	41.23	15.676	4.355	4.576
PETERSBURG, VA	13	26.39	52	14.00	8.370	2.209	1.028
LAFAYETTE, LA	14	26.14	58	11.34	12.626	3.301	1.286
TYLER, TX	15	25.94	23	21.97	12.751	3.307	2.297
SAN ANGELO, TX	16	25.27	38	18.20	8.061	2.037	1.241
NASHUA, NH	17	25.26	24	21.41	9.283	2.345	1.637
VINELAND, NJ	18	24.81	33	18.70	9.583	2.378	1.510
LYNCHBURG, VA	19	23.79	26	20.57	14.844	3.532	2.532
BLOOMINGTON, IN	20	23.68	3	42.45	7.533	1.784	2.245
WICHITA FALLS, TX	21	23.15	57	12.17	11.744	2.719	1.274
EAU CLAIRE, WI	22	22.77	36	18.50	10.917	2.486	1.704
JACKSON, MI	23	22.40	37	18.26	10.201	2.285	1.575
ABILENE, TX	24	21.73	69	7.37	11.879	2.581	0.815
BURLINGTON, NC	25	21.63	14	27.55	8.245	1.783	1.781
ROCHESTER, MN	26	21.53	32	19.49	14.578	3.139	2.378
ANDERSON, IN	27	21.53	50	16.06	9.155	1.971	1.267
ALBANY, GA	28	20.91	31	19.65	11.981	2.505	1.968
COLUMBIA, MO	29	20.89	34	18.70	9.071	1.895	1.429
LAREDO, TX	30	20.69	65	9.06	5.394	1.116	0.448
ALEXANDRIA, LA	31	20.52	16	24.46	14.866	3.051	2.922
BRYAN, TX	32	20.20	60	11.12	5.916	1.195	0.592
SIOUX FALLS, SD	33	19.93	13	27.56	14.208	2.832	3.070
DUBUQUE, IA	34	19.90	29	19.78	9.266	1.844	1.530
BILLINGS, MT	35	19.45	9	30.09	11.276	2.193	2.608
BOISE CITY, ID	36	19.41	7	31.38	16.168	3.139	3.862
PUEBLO, CO	37	18.24	19	22.71	10.187	1.858	1.885
MONROE, LA	38	18.15	61	10.86	14.285	2.593	1.399
ANNISTON, AL	39	18.02	18	23.35	8.557	1.542	1.620
MIDLAND, TX	40	17.81	62	10.13	9.209	1.640	0.847
SHERMAN, TX	41	16.67	47	16.62	7.107	1.185	1.013
LA CROSSE, WI	42	16.49	30	19.71	8.571	1.413	1.411
ST. JOSEPH, MO	43	16.42	56	13.16	8.394	1.378	0.976
WILMINGTON, NC	44	16.39	63	10.12	11.684	1.915	1.074
MANCHESTER, NH	45	16.11	22	22.19	16.237	2.616	2.949
LAWTON, OK	46	16.05	74	0.45	5.625	0.903	0.025
LAFAYETTE, IN	47	16.03	48	16.27	11.364	1.822	1.590
ODESSA, TX	48	16.00	42	17.83	7.593	1.215	1.149
TEXARKANA, TX-AR	49	15.95	51	15.41	10.203	1.627	1.362
SIOUX CITY, IA-NE	50	15.44	68	7.64	11.892	1.836	0.844
FARGO, ND-MN	51	15.37	59	11.15	14.452	2.222	1.450
BRISTOL, CT	52	14.12	41	17.86	8.844	1.249	1.340
BLOOMINGTON, IL	53	13.72	44	16.90	14.283	1.960	2.065
FAYETTEVILLE, AR	54	13.46	6	37.49	12.806	1.724	3.492
NEW BRITAIN, CT	55	13.31	35	18.59	12.504	1.664	1.960
DECATUR, IL	56	12.39	70	5.53	11.929	1.478	0.625
ALTOONA, PA	57	12.07	53	13.97	11.463	1.384	1.405
RENO, NV	58	10.83	12	28.43	28.007	3.032	6.199
DANBURY, CT	59	10.77	25	21.20	11.342	1.221	1.984
WILLIAMSPORT, PA	60	10.76	8	30.55	12.520	1.347	2.930
ELMIRA, NY	61	10.00	55	13.46	8.724	0.872	1.035
BAY CITY, MI	62	7.95	39	18.17	6.440	0.512	0.990
MERIDEN, CT	63	6.36	43	17.13	5.723	0.364	0.837
GREAT FALLS, MT	64	6.03	27	20.10	8.988	0.542	1.504
FLORENCE, AL	65	5.91	40	18.03	9.144	0.540	1.397
NORWALK, CT	66	5.82	45	16.88	14.301	0.832	2.065
LEWISTON, ME	67	5.81	15	24.87	7.345	0.427	1.463
OWENSBORO, KY	68	4.60	20	22.59	8.780	0.404	1.618
MUNCIE, IN	69	3.28	46	16.65	9.803	0.322	1.399
PITTSFIELD, MA	70	3.03	73	2.65	9.501	0.288	0.245
FITCHBURG, MA	71	2.34	71	5.38	8.168	0.191	0.417
PINE BLUFF, AR	72	-0.93	66	8.65	8.477	-0.079	0.675
GADSDEN, AL	73	-2.19	64	9.29	8.037	-0.176	0.683
KANKAKEE, IL	74	-7.39	28	19.96	8.178	-0.604	1.361

Appendix 4-4

TOTAL NUMBER OF RETAIL ESTABLISHMENTS WITH PAYROLL 1967 AND 1972

State and SMSA	1967	1972	Change 1967-1972 Absolute	Change 1967-1972 Percent	Average Percent Change for SMSA's in State
ALABAMA	18,655	20,836	2,181	12%	21%
Birmingham	3,771	4,318	547	15%	
Florence	-	747		-	
Gadsden	602	607	5	1%	
Huntsville	1,053	1,686	633	60%	
Mobile	2,060	2,264	204	10%	
Montgomery	1,167	1,420	253	22%	
Tuscaloosa	586	692	106	18%	
Anniston					
ALASKA	1,338	1,900	562	42%	-
Anchorage	-	768		-	
ARIZONA	9,933	12,471	2,538	26%	27%
Phoenix	4,969	6,310	1,341	27%	
Tucson	1,838	2,342	504	27%	
ARKANSAS	12,894	13,590	696	5%	11%
Fayetteville-Springdale	-	930		-	
Fort Smith, AR-OK	989	1,113	124	13%	
Little Rock-N. Little Rock	1,909	2,123	214	11%	
Pine Bluff	538	567	29	5%	
Texarkana, TX-Texarkana, AR	666	777	111	16%	
CALIFORNIA	111,779	122,986	11,207	10%	13%
Anaheim-Santa Ana-Garden Grove	6,897	8,273	1,376	20%	
Bakersfield	2,230	2,296	66	3%	
Fresno	2,789	2,952	163	6%	
Los Angeles-Long Beach	38,038	39,258	1,220	3%	
Modesto	-	1,428		-	
Oxnard-Simi Valley-Ventura	1,781	2,129	348	20%	
Riverside-San Bernardino-Ontario	6,448	7,207	759	12%	
Sacramento	4,523	5,212	689	15%	
Salinas-Seaside-Monterey	1,625	1,870	245	15%	
San Diego	6,630	7,812	1,182	18%	
San Francisco-Oakland	17,304	18,965	1,661	10%	
San Jose	4,805	6,041	1,236	26%	
Santa Barbara-Santa Maria-Lompoc	1,664	1,928	264	16%	
Santa Cruz	-	1,136		-	
Santa Rosa	-	1,636		-	
Stockton	1,827	2,004	177	10%	
Vallejo-Fairfield-Napa	1,423	1,603	180	13%	
COLORADO	13,288	15,798	2,510	19%	26%
Colorado Springs	1,121	1,577	456	41%	
Denver-Boulder	6,255	7,550	1,295	21%	
Pueblo	694	795	101	15%	
Ft. Collins					
Greeley					
CONNECTICUT	17,348	19,348	2,000	12%	23%
Bridgeport	2,123	2,365	242	11%	
Bristol	-	361		-	
Danbury	-	802		-	
Hartford	3,467	4,457	990	29%	
Meriden	330	379	49	15%	
New Britain	780	888	108	14%	
New Haven-West Haven	2,095	2,717	622	30%	
Norwalk	816	969	153	19%	
Stamford	1,347	1,478	131	10%	
Waterbury	1,168	1,307	139	12%	

Appendix 4-4

TOTAL NUMBER OF RETAIL ESTABLISHMENTS WITH PAYROLL
1967 AND 1972
(continued)

State and SMSA	1967	1972	Change 1967-1972 Absolute	Change 1967-1972 Percent	Average Percent Change for SMSA's in State
DELAWARE	3,181	3,665	484	15%	-
Wilmington, DE-NJ-MD	2,659	2,947	288	11%	
DISTRICT OF COLUMBIA	4,157	3,757	-400	-9%	
Washington, DC-MD-VA	10,483	12,489	2,006	19%	
FLORIDA	40,612	50,966	10,354	25%	34%
Daytona Beach	-	1,567		-	
Ft. Lauderdale-Hollywood	3,539	5,061	1,522	43%	
Ft. Myers	-	934		-	
Gainesville	-	769		-	
Jacksonville	3,046	4,127	1,081	35%	
Lakeland-Winter Haven	-	1,727		-	
Melbourne-Titusville-Cocoa	-	1,550		-	
Miami	7,390	9,083	1,693	23%	
Orlando	2,354	3,236	882	37%	
Pensacola	1,246	1,544	298	24%	
Sarasota	-	1,181		-	
Tallahassee	523	818	295	56%	
Tampa-St. Petersburg	5,718	7,557	1,839	32%	
W. Palm Beach-Boca Raton	2,468	3,022	554	22%	
GEORGIA	25,558	29,850	4,292	17%	26%
Albany	537	632	95	18%	
Atlanta	6,698	9,696	2,998	45%	
Augusta, GA-SC	1,255	1,544	289	23%	
Columbus, GA-AL	1,265	1,444	179	14%	
Macon	1,237	1,561	324	26%	
Savannah	1,110	1,409	299	27%	
HAWAII	3,537	4,491	954	27%	-
Honolulu	2,644	3,303	659	25%	
IDAHO	5,208	5,810	602	12%	-
Boise City	724	900	176	24%	
ILLINOIS	62,247	61,808	-439	-1%	1%
Chicago, IL-N.W. Indiana SCA	36,183	37,314	1,131	3%	
Bloomington-Normal	663	631	-32	-5%	
Champaign-Urbana-Rantoul	797	810	13	2%	
Chicago	33,135	34,257	1,122	3%	
Decatur	736	724	-12	-2%	
Kankakee-Peoria	2,063	2,088	25	1%	
Rockford	1,470	1,566	96	7%	
Springfield	1,063	1,066	3	0%	
INDIANA	30,627	30,959	332	1%	11%
Anderson	829	856	27	3%	
Evansville, IN-KY	1,455	1,782	327	22%	
Fort Wayne	1,408	2,038	630	45%	
Gary-Hammond-East Chicago	3,048	3,057	9	0%	
Indianapolis	5,488	5,995	507	9%	
Lafayette-West Lafayette	538	608	70	13%	
Muncie	743	819	76	10%	
South Bend	1,689	1,642	-47	-3%	
Terre Haute	1,149	1,082	-67	-5%	
Bloomington					

Appendix 4-4

TOTAL NUMBER OF RETAIL ESTABLISHMENTS WITH PAYROLL
1967 AND 1972
(continued)

State and SMSA	1967	1972	Change 1967-1972 Absolute	Change 1967-1972 Percent	Average Percent Change for SMSA's in State
IOWA	22,376	21,330	-1,046	-5%	6%
Cedar Rapids	875	953	78	9%	
Davenport-Rock Island-Moline, IA-IL	2,216	2,237	21	1%	
Des Moines	1,675	2,027	352	21%	
Dubuque	585	597	12	2%	
Sioux City, IA-NE	848	810	-38	-4%	
Waterloo-Cedar Falls	833	876	43	5%	
KANSAS	17,027	16,829	-198	-1%	17%
Topeka	945	1,232	287	30%	
Wichita	2,534	2,614	80	3%	
KENTUCKY	17,787	18,227	440	2%	38%
Lexington	976	1,639	663	68%	
Louisville, KY-IN	4,241	4,521	280	7%	
Owensboro	-	529	-	-	
Clarksville					
LOUISIANA	18,543	20,804	2,261	12%	24%
Alexandria	-	726		-	
Baton Rouge	1,339	2,066	727	54%	
Lafayette	651	772	121	19%	
Lake Charles	863	1,003	140	16%	
Monroe	714	853	139	19%	
New Orleans	4,763	5,301	538	11%	
Shreveport	1,643	2,097	454	27%	
MAINE	7,035	7,244	209	3%	14%
Lewiston-Auburn	514	492	-22	-4%	
Portland	930	1,229	299	32%	
MARYLAND	17,524	19,431	1,907	11%	-
Baltimore	10,096	10,352	256	3%	
MASSACHUSETTS	33,178	35,149	1,971	6%	12%
Boston	15,270	16,655	1,385	9%	
Brockton	1,033	955	-78	8%	
Fall River, MA-RI	883	976	93	11%	
Fitchburg-Leominster	596	619	23	4%	
Lawrence-Haverhill, MA-NH	1,417	1,580	163	12%	
Lowell, MA-NH	911	1,007	96	11%	
New Bedford	973	1,119	146	15%	
Pittsfield	534	686	152	28%	
Springfield-Chicopee-Holyoke, MA-CT	3,055	3,320	265	9%	
Worcester	1,957	2,218	261	13%	
MICHIGAN	46,921	49,111	2,190	5%	15%
Ann Arbor	1,057	1,187	130	12%	
Battle Creek	-	1,075	-	-	
Bay City	708	707	-1	0%	
Detroit	19,296	21,078	1,782	9%	
Flint	2,454	2,733	279	11%	
Grand Rapids	2,791	3,041	250	9%	
Jackson	766	847	81	11%	
Kalamazoo-Portage	960	1,445	485	51%	
Lansing-East Lansing	1,859	2,356	497	27%	
Muskegon-Muskegon Heights	848	966	118	14%	
Saginaw	1,111	1,184	73	7%	

TOTAL NUMBER OF RETAIL ESTABLISHMENTS WITH PAYROLL
1967 AND 1972
(continued)

State and SMSA	1967	1972	Change 1967-1972 Absolute	Change 1967-1972 Percent	Average Percent Change for SMSA's in State
MINNESOTA	23,286	24,281	995	4%	17%
Duluth-Superior, MN-WI	1,778	1,879	101	6%	
Minneapolis-St. Paul, MN-WI	7,883	10,002	2,119	27%	
Rochester	-	572	-	-	
St. Cloud	-	861	-	-	
MISSISSIPPI	12,494	14,293	1,799	14%	31%
Biloxi-Gulfport	836	1,196	360	43%	
Jackson	1,417	1,669	252	18%	
Pascagoula					
MISSOURI	29,862	30,334	472	2%	8%
Columbia	-	538	-		
Kansas City, MO-KS	6,434	7,043	609	9%	
St. Joseph	643	636	-7	-1%	
St. Louis, MO-IL	12,363	12,898	535	4%	
Springfield	1,075	1,294	219	20%	
MONTANA	5,778	6,100	322	6%	10%
Billings	633	679	46	7%	
Great Falls	507	573	66	13%	
NEBRASKA	11,833	11,436	-397	-3%	13%
Lincoln	896	1,013	117	13%	
Omaha, NE-IA	2,757	3,092	335	12%	
NEVADA	3,036	3,957	921	31%	35%
Las Vegas	1,415	1,911	496	35%	
Reno	779	1,041	262	34%	
NEW HAMPSHIRE	5,092	5,576	484	15%	-
Manchester	714	894	180	25%	
Nashua	-	555	-	-	
NEW JERSEY	41,015	39,893	-1,122	-2%	-16%
Atlantic City	1,661	1,544	-117	-7%	
Jersey City	3,738	3,191	-547	-15%	
Long Branch-Asbury Park	-	2,850	-	-	
New Brunswick-Perth Amboy-Sayreville	-	2,745	-	-	
Newark	10,635	10,826	191	2%	
Patterson-Clifton-Passaic	7,542	2,541	5,001	-66%	
Trenton	1,827	1,726	-101	-5%	
Vineland-Millville-Bridgeton,	810	793	-17	-2%	
NY, NY-NJ	69,906	57,084	-12,822	-18%	
NEW MEXICO	6,655	7,395	740	11%	-
Albuquerque	1,664	2,080	416	25%	
NEW YORK	109,732	107,289	-2,443	-2%	37%
NY, NY-N.E. NJ SCA	95,498	91,374	-4,124	-4%	
Albany-Schenectady-Troy	4,187	4,641	454	11%	
Binghamton, NY-PA	1,664	1,708	44	3%	
Buffalo	7,498	7,552	54	1%	
Elmira	-	644		-	
Nassau-Suffolk	69,906	14,987)	72,071	3%	
New York, NY-NJ		57,084)			
Poughkeepsie	-	1,266		-	
Rochester	4,285	5,048	763	18%	
Syracuse	3,537	3,568	31	1%	
Utica-Rome	2,047	1,982	-65	-3%	

Appendix 4-4

TOTAL NUMBER OF RETAIL ESTABLISHMENTS WITH PAYROLL 1967 AND 1972
(continued)

State and SMSA	1967	1972	Change 1967-1972 Absolute	Change 1967-1972 Percent	Average Percent Change for SMSA's in State
NORTH CAROLINA	27,963	31,943	3,980	14%	31%
Asheville	884	1,001	117	13%	
Burlington	-	639		-	
Charlotte-Gastonia	2,064	3,375	1,311	64%	
Fayetteville	827	1,118	291	35%	
Greensboro-Winston-Salem-High Point	3,255	4,355	1,100	34%	
Raleigh-Durham	2,223)	1,271 R 952 D	2,684	461	21%
Wilmington	693	839	146	21%	
NORTH DAKOTA	5,030	4,926	-104	-2%	-
Fargo-Moorhead, ND-MN	773	855	82	11%	
OHIO	59,259	60,571	1,312	2%	9%
Akron	3,412	3,599	187	5%	
Canton	2,176	2,294	118	5%	
Cincinnati, OH-KY-IN	7,566	7,591	25	0%	
Cleveland	10,420	10,402	-18	0%	
Columbus	4,523	5,623	1,100	25%	
Dayton	4,109	4,495	386	9%	
Hamilton-Middletown	1,193	1,265	72	6%	
Lima	1,154	1,418	264	23%	
Lorain-Elyria	1,348	1,294	-54	-4%	
Mansfield	806	830	24	3%	
Springfield	769	1,025	256	33%	
Steubenville-Weirton, OH-WV	1,022	952	-70	-7%	
Toledo, OH-MI	3,630	4,460	830	23%	
Youngstown-Warren	2,963	3,109	146	5%	
OKLAHOMA	17,446	18,336	890	5%	17%
Lawton	594	590	-4	-1%	
Oklahoma City	3,723	4,671	948	25%	
Tulsa	2,911	3,679	768	26%	
OREGON	12,853	15,082	2,229	17%	18%
Eugene-Springfield	1,187	1,455	268	23%	
Portland, OR-WA	5,180	6,182	1,002	19%	
Salem	1,072	1,208	136	13%	
PENNSYLVANIA	66,998	66,991	-7	0%	2%
Allentown-Bethlehem-Easton, PA-NJ	3,092	3,379	287	9%	
Altoona	855	830	-25	-3%	
Erie	1,532	1,629	97	6%	
Harrisburg	2,401	2,520	119	5%	
Johnstown	1,467	1,367	-100	-7%	
Lancaster	1,894	2,017	123	6%	
Northeast PA (Scranton-Wilkes Barre)	3,406	3,702	296	9%	
Philadelphia, PA-NJ	24,990	25,258	268	1%	
Pittsburgh	13,075	12,840	-235	-2%	
Reading	1,828	1,813	-15	-1%	
Williamsport	-	723		-	
York	2,020	2,036	16	1%	
RHODE ISLAND	5,558	5,947	389	7%	28%
New London-Norwich, CT-RI	1,171	1,717	546	47%	
Providence-Warwick-Pawtucket, RI-MA	5,224	5,622	398	8%	

Appendix 4-4

TOTAL NUMBER OF RETAIL ESTABLISHMENTS WITH PAYROLL
1967 AND 1972
(continued)

State and SMSA	1967	1972	Change 1967-1972 Absolute	Change 1967-1972 Percent	Average Percent Change for SMSA's in State
SOUTH CAROLINA	13,902	15,814	1,912	14%	47%
Charleston	1,359	1,911	552	41%	
Columbia	1,515	1,848	333	22%	
Greenville (Spartanburg)	1,607	2,853	1,246	78%	
SOUTH DAKOTA	5,819	5,639	-180	-3%	-
Sioux Falls	678	695	17	3%	
TENNESSEE	22,299	24,649	2,358	11%	26%
Chattanooga, TN-GA	1,878	2,296	418	22%	
Kingsport-Bristol, TN-VA	-	1,377	-	-	
Knoxville	2,184	2,511	327	15%	
Memphis, TN-AR-MS	3,869	4,551	682	18%	
Nashville-Davidson	2,913	4,319	1,406	48%	
Clarksville					
Johnson					
TEXAS	71,318	78,385	7,067	10%	13%
Abilene	873	910	37	4%	
Amarillo	1,173	1,205	32	3%	
Austin	1,573	2,317	744	47%	
Beaumont-Port Arthur-Orange	1,993	2,280	287	14%	
Brownsville-Harlingen-San Benito	918	1,021	103	11%	
Bryan-College Station	-	400		-	
Corpus Christi	1,765	1,957	192	11%	
Dallas-Fort Worth	12,264) 3,874 FW 8,390 D	15,569	3,305	27%	
El Paso	1,774	2,092	318	18%	
Galveston-Texas City	1,067	1,179	112	10%	
Houston	10,403	12,567	2,164	21%	
Killeen-Temple	-	995	-	-	
Laredo	457	541	84	18%	
Longview					
Lubbock	1,240	1,350	110	9%	
McCallen-Pharr-Edinburg	1,111	1,208	97	9%	
Midland	442	494	52	12%	
Odessa	676	695	19	3%	
San Angelo	503	541	38	8%	
San Antonio	4,351	5,226	875	20%	
Sherman-Denison	588	633	45	8%	
Tyler	606	696	90	15%	
Waco	1,122	1,096	-26	-2%	
Wichita Falls	902	945	43	5%	
UTAH	5,665	6,787	1,122	20%	29%
Provo-Orem	623	826	203	33%	
Salt Lake City-Ogden	3,314) 666 O 2,648 SLC	4,098	784	24%	
VERMONT	3,242	3,577	335	10%	-
VIRGINIA	22,445	24,511	2,066	9%	20%
Johnson					
Kingsport-Bristol, TN-VA	-	1,377	-	-	
Lunchburg	680	771	91	13%	
Newport News-Hampton	1,202	1,650	448	37%	
Norfolk-VA Beach-Portsmouth, VA-NC	2,957	3,513	556	18%	
Petersburg-Colonial Heights-Hopewell	-	693	-	-	
Richmond	2,499	2,878	379	15%	
Roanoke	1,013	1,174	161	16%	

Appendix 4-4

TOTAL NUMBER OF RETAIL ESTABLISHMENTS WITH PAYROLL
1967 AND 1972
(continued)

State and SMSA	1967	1972	Change 1967-1972 Absolute	Change 1967-1972 Percent	Average Percent Change for SMSA's in State
WASHINGTON	19,405	21,596	2,191	11%	11%
Richland-Kennewick	-	651	-	-	
Seattle-Everett	7,338	8,257	919	13%	
Spokane	1,504	1,701	197	13%	
Tacoma	2,010	2,177	167	8%	
Yakima	-	1,092	-	-	
WEST VIRGINIA	9,912	10,246	334	3%	6%
Charleston	1,295	1,417	122	9%	
Huntington-Ashland, WV-KY-OH	1,391	1,602	211	15%	
Parkersburg-Marietta, WV-OH	-	934	-	-	
Wheeling, WV-OH	1,219	1,158	-61	-5%	
WISCONSIN	29,985	29,936	-49	0%	4%
Appleton-Oshkosh	-	1,777	-	-	
Eau Claire					
Green Bay	921	939	18	2%	
Kenosha	693	715	22	3%	
La Crosse	-	626	-	-	
Madison	1,718	1,930	212	12%	
Milwaukee	7,466	7,611	145	2%	
Racine	988	982	-6	-1%	
WYOMING	2,911	3,142	231	8%	-
U.S.	1,191,546	1,264,922	73,376	6%	

Source: U.S. Department of Commerce, Census of Retail Trade, 1967 and 1972

APPENDIX 4-5

RETAIL EMPLOYMENT BY STATE
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
ALASKA	1	40.98	10	21.97	17.905	7.338	3.225
NEVADA	2	36.43	19	16.68	46.414	16.909	6.634
WYOMING	3	34.09	29	10.96	27.551	9.391	2.721
DISTRICT OF COLUMBIA	4	33.02	51	-24.15	51.755	17.087	-16.475
ARIZONA	5	32.64	5	26.55	156.277	51.008	32.787
COLORADO	6	32.47	1	34.64	204.869	66.525	52.709
VIRGINIA	7	31.99	39	5.76	314.055	100.457	17.105
TENNESSEE	8	30.53	3	29.78	269.311	82.221	61.801
FLORIDA	9	30.09	36	8.20	619.422	186.401	46.962
UTAH	10	28.34	16	17.25	84.982	24.081	12.502
TEXAS	11	28.33	24	14.09	872.620	247.190	107.780
CALIFORNIA	12	28.12	32	8.59	1491.336	419.293	117.986
NEW MEXICO	13	27.93	6	26.02	75.816	21.174	15.656
SOUTH CAROLINA	14	27.20	4	27.99	167.993	45.695	36.743
NORTH CAROLINA	15	27.12	12	21.01	329.761	89.444	57.261
OREGON	16	26.97	8	23.60	170.393	45.952	32.533
GEORGIA	17	26.75	15	17.90	329.449	88.144	50.029
LOUISIANA	18	25.93	26	12.67	224.819	58.292	25.279
MISSISSIPPI	19	25.68	7	25.62	133.165	34.192	27.155
KANSAS	20	25.19	23	15.06	165.932	41.795	21.722
NEW HAMPSHIRE	21	24.59	9	22.25	58.826	14.466	10.706
ARKANSAS	22	24.34	2	33.81	132.178	32.178	33.398
ALABAMA	23	24.15	22	15.99	199.434	48.161	27.494
WEST VIRGINIA	24	24.00	28	11.53	93.661	22.476	9.681
KENTUCKY	25	23.93	20	16.46	198.837	47.589	28.107
IDAHO	26	23.49	18	16.78	58.250	13.685	8.370
DELAWARE	27	23.42	43	1.39	39.806	9.323	0.546
MARYLAND	28	23.26	44	1.25	297.500	69.210	3.670
OKLAHOMA	29	22.70	17	16.79	189.558	43.028	27.248
MICHIGAN	30	21.74	47	0.70	570.741	124.101	3.971
NEBRASKA	31	21.71	35	8.23	128.100	27.805	9.740
MAINE	32	21.25	38	6.35	65.216	13.857	3.896
WASHINGTON	33	21.01	40	5.36	227.303	47.747	11.573
OHIO	34	20.83	42	1.69	737.881	153.719	12.281
WISCONSIN	35	20.62	33	8.56	347.805	71.716	27.425
SOUTH DAKOTA	36	20.60	14	18.54	51.955	10.701	8.125
IOWA	37	20.51	25	14.02	222.854	45.714	27.404
INDIANA	38	20.10	30	10.13	372.134	74.817	34.234
NORTH DAKOTA	39	19.80	11	21.71	47.187	9.342	8.417
MINNESOTA	40	19.57	31	9.61	304.497	59.592	26.697
MONTANA	41	19.30	13	18.57	56.904	10.983	8.914
VERMONT	42	18.49	27	11.89	30.972	5.726	3.292
MISSOURI	43	18.16	41	3.35	341.691	62.039	11.071
NEW JERSEY	44	18.10	34	8.42	494.027	89.399	38.387
CONNECTICUT	45	17.80	46	0.83	210.961	37.541	1.731
HAWAII	46	17.45	37	6.61	70.631	12.325	4.381
RHODE ISLAND	47	17.39	45	0.90	61.679	10.726	0.549
PENNSYLVANIA	48	17.03	21	16.33	777.010	132.312	109.060
ILLINOIS	49	15.60	48	-2.85	757.472	118.168	-22.218
MASSACHUSETTS	50	11.93	50	-13.07	429.760	51.261	-64.590
NEW YORK	51	9.42	49	-4.62	1102.344	103.883	-53.436

APPENDIX 4-6

RETAIL EMPLOYMENT - SMSA GROUP 1
(Total Employment in thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
HOUSTON, TX	1	28.98	1	27.70	190.974	55.335	41.425
DALLAS, TX	2	27.71	2	22.20	240.181	66.555	43.631
NASSAU-SUFFOLK, NY	3	22.20	13	6.45	186.535	41.414	11.296
WASHINGTON, DC-MD-VA	4	20.76	4	10.57	232.886	48.339	22.258
BALTIMORE, MD	5	20.75	8	8.71	170.523	35.388	13.658
DETROIT, MI	6	20.72	10	7.55	309.818	64.193	21.742
LOS ANGELES, CA	7	19.13	7	9.68	577.960	110.554	51.018
MINNEAPOLIS, MN-WI	8	19.04	3	15.12	188.142	35.830	24.716
SAN FRANCISCO, CA	9	18.58	6	9.76	240.281	44.646	21.375
PITTSBURGH, PA	10	18.58	11	6.74	150.249	27.920	9.487
PHILADELPHIA, PA-NJ	11	15.98	9	8.27	304.007	48.593	23.229
ST. LOUIS, MO-IL	12	15.27	5	10.06	185.647	28.344	16.976
CHICAGO, IL	13	15.22	12	6.48	550.848	83.832	33.506
BOSTON, MA	14	13.94	15	-14.01	263.912	36.792	-42.995
NEW YORK, NY-NJ	15	5.92	14	-8.43	576.736	34.135	-53.079

RETAIL EMPLOYMENT - SMSA GROUP 2
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
SAN DIEGO, CA	1	42.96	7	23.11	106.950	45.945	20.077
ANAHEIM, CA	2	39.24	4	31.43	131.668	51.661	31.485
SAN JOSE, CA	3	37.80	6	26.52	84.351	31.884	17.681
RIVERSIDE, CA	4	34.06	9	20.31	79.642	27.126	13.447
PHOENIX, AZ	5	33.32	1	40.73	103.530	34.498	29.966
DENVER, CO	6	28.01	3	37.75	131.590	36.856	36.059
TAMPA, FL	7	27.42	2	38.17	123.275	33.797	34.056
PORTLAND, OR-WA	8	26.40	8	22.81	86.662	22.883	16.095
MIAMI, FL	9	25.84	13	16.42	148.247	38.303	20.914
NEW ORLEANS, LA	10	25.68	11	17.46	85.112	21.855	12.650
COLUMBUS, OH	11	23.65	5	27.58	100.870	23.852	21.803
ATLANTA, GA	12	23.16	12	16.87	147.374	34.133	21.273
INDIANAPOLIS, IN	13	21.31	10	17.63	87.454	18.638	13.108
NEWARK, NJ	14	19.75	20	-0.19	131.443	25.965	-0.250
CINCINNATI, OH-KY-IN	15	19.00	15	14.76	104.536	19.866	13.443
KANSAS CITY, MO-KS	16	17.56	17	9.91	114.020	20.027	10.282
MILWAUKEE, WI	17	16.92	16	13.22	124.604	21.078	14.553
BUFFALO, NY	18	16.05	19	3.02	93.556	15.019	2.747
CLEVELAND, OH	19	15.88	18	6.92	163.784	26.003	10.604
SEATTLE, WA	20	15.87	14	15.70	113.579	18.030	15.414

APPENDIX 4-6

RETAIL EMPLOYMENT - SMSA GROUP 3
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
ORLANDO, FL	1	33.61	3	33.04	42.159	14.171	10.469
FORT LAUDERDALE, FL	2	33.22	1	38.51	79.629	26.454	22.141
GREENVILLE, SC	3	32.25	5	27.25	34.878	11.249	7.468
SAN ANTONIO, TX	4	30.68	9	21.08	73.299	22.488	12.762
SACRAMENTO, CA	5	30.65	6	23.39	64.228	19.686	12.176
CHARLOTTE, NC	6	29.18	31	9.00	39.206	11.441	3.236
NASHVILLE, TN	7	29.16	17	14.91	48.102	14.026	6.242
SALT LAKE CITY, UT	8	27.88	4	30.87	67.135	18.715	15.836
GREENSBORO, NC	9	27.83	21	13.39	51.025	14.199	6.027
JACKSONVILLE, FL	10	27.66	13	16.79	48.209	13.335	6.929
OMAHA, NE-IA	11	26.16	15	16.12	46.960	12.285	6.519
RICHMOND, VA	12	26.10	23	12.30	45.817	11.960	5.019
GRAND RAPIDS, MI	13	25.01	25	11.09	42.092	10.526	4.202
BIRMINGHAM, AL	14	24.43	10	19.27	57.280	13.995	9.254
MEMPHIS, TN-AR-MS	15	24.14	7	22.30	64.188	15.496	11.706
OKLAHOMA CITY, OK	16	24.12	2	34.03	73.461	17.721	18.651
HONOLULU, HI	17	23.59	8	21.11	58.231	13.738	10.151
TULSA, OK	18	23.55	11	19.24	40.102	9.444	6.472
FLINT, MI	19	22.93	32	8.57	26.133	5.992	2.063
NORFOLK, VA-NC	20	22.74	14	16.76	57.890	13.165	8.308
TOLEDO, OH-MI	21	21.69	20	14.04	59.472	12.901	7.322
WILMINGTON, DE-NJ-MD	22	21.65	18	14.27	35.997	7.792	4.495
LOUISVILLE, KY-IN	23	21.59	29	9.24	65.259	14.090	5.521
YOUNGSTOWN, OH	24	20.68	22	13.08	38.754	8.016	4.484
ALLENTOWN, PA-NJ	25	20.44	12	17.63	41.522	8.488	6.224
ROCHESTER, NY	26	20.17	26	10.35	68.537	13.827	6.431
NEW BRUNSWICK, NJ	27	20.05	16	15.85	41.338	8.287	5.657
AKRON, OH	28	19.57	19	14.26	47.921	9.377	5.981
SYRACUSE, NY	29	19.05	35	3.89	38.699	7.374	1.449
DAYTON, OH	30	18.75	34	6.32	64.091	12.015	3.810
PROVIDENCE, RI-MA	31	16.82	36	-0.79	60.263	10.137	-0.477
NORTHEAST PENN, PA	32	15.13	27	9.95	41.068	6.213	3.718
GARY, IN	33	14.94	28	9.80	37.430	5.593	3.340
ALBANY, NY	34	13.71	33	7.45	53.383	7.319	3.702
SPRINGFIELD, MA-CT	35	13.19	37	-11.58	31.650	4.175	-4.146
HARTFORD, CT	36	12.35	30	9.10	64.232	7.932	5.356
JERSEY CITY, NJ	37	5.03	24	11.80	38.361	1.930	4.050

APPENDIX 4-6

RETAIL EMPLOYMENT - SMSA GROUP 4
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
ANN ARBOR, MI	1	42.72	24	17.35	14.856	6.347	2.196
ALBUQUERQUE, NM	2	37.56	5	32.20	29.348	11.022	7.148
COLORADO SPRINGS, CO	3	37.11	1	45.13	18.896	7.013	5.876
LAS VEGAS, NV	4	36.88	14	22.97	23.906	8.817	4.466
EL PASO, TX	5	36.15	20	19.87	24.909	9.005	4.129
COLUMBIA, SC	6	36.11	10	24.41	23.850	8.613	4.680
AUSTIN, TX	7	35.54	8	25.36	28.507	10.130	5.767
SALINAS, CA	8	35.51	30	16.14	16.898	6.000	2.348
JACKSON, MS	9	34.81	15	22.91	19.506	6.791	3.636
TUCSON, AZ	10	34.52	3	37.16	31.328	10.815	8.488
OXNARD, CA	11	33.28	26	17.06	23.530	7.831	3.430
LAKELAND, FL	12	31.84	2	45.13	24.342	7.751	7.569
SPOKANE, WA	13	31.42	34	15.45	20.620	6.478	2.760
SANTA BARBARA, CA	14	30.86	46	11.69	19.166	5.915	2.006
BEAUMONT, TX	15	30.24	50	10.59	21.433	6.481	2.053
FRESNO, CA	16	30.00	16	21.68	31.065	9.320	5.535
LITTLE ROCK, AR	17	29.91	11	24.39	25.737	7.699	5.047
PENSACOLA, FL	18	28.05	7	29.85	17.036	4.779	3.916
NEWPORT NEWS, VA	19	27.99	18	21.21	21.733	6.084	3.803
LORAIN, OH	20	27.66	43	11.93	14.506	4.013	1.546
BAKERSFIELD, CA	21	27.50	40	13.19	21.993	6.049	2.563
MONTGOMERY, AL	22	27.38	38	13.93	16.148	4.421	1.974
LANSING, MI	23	27.18	61	5.09	23.404	6.361	1.134
TACOMA, WA	24	26.99	51	9.86	22.555	6.088	2.025
RALEIGH, NC	25	26.89	42	12.19	32.020	8.611	3.480
STOCKTON, CA	26	26.75	44	11.85	19.338	5.172	2.048
CHATTANOOGA, TN-GA	27	26.67	36	14.65	24.583	6.556	3.142
WEST PALM BEACH, FL	28	26.52	6	29.91	35.934	9.528	8.274
ERIE, PA	29	26.28	47	11.22	16.895	4.440	1.705
LONG BRANCH, NJ	30	25.55	27	17.03	32.834	8.390	4.779
CHARLESTON, SC	31	24.43	21	19.67	20.117	4.915	3.307
SHREVEPORT, LA	32	24.23	29	16.58	21.964	5.322	3.124
KNOXVILLE, TN	33	24.07	9	24.71	29.842	7.183	5.912
LEXINGTON, KY	34	24.02	13	23.49	22.513	5.407	4.283
FORT WAYNE, IN	35	23.57	49	10.64	26.962	6.355	2.592
BATON ROUGE, LA	36	23.54	33	15.66	23.779	5.598	3.219
HUNTINGTON, WV-KY-OH	37	23.48	67	-2.37	15.192	3.567	-0.369
VALLEJO, CA	38	23.37	32	16.01	14.931	3.490	2.061
HUNTSVILLE, AL	39	23.20	28	16.90	15.588	3.616	2.253
JOHNSON CITY, TN-VA	40	22.76	4	33.48	24.262	5.522	6.086
HARRISBURG, PA	41	22.51	53	9.14	31.575	7.106	2.645
MADISON, WI	42	22.15	12	24.08	26.019	5.762	5.049
DES MOINES, IA	43	22.05	37	14.37	28.056	6.187	3.526
YORK, PA	44	21.77	54	9.01	23.241	5.060	1.921
CORPUS CHRISTI, TX	45	21.31	22	19.36	21.222	4.523	3.442
CANTON, OH	46	21.28	31	16.11	27.542	5.862	3.822
LAWRENCE, MA-NH	47	21.12	68	-4.72	14.890	3.145	-0.737
NEW HAVEN, CT	48	20.95	59	6.16	29.374	6.153	1.704
PEORIA, IL	49	20.94	62	4.68	24.799	5.193	1.109
BINGHAMTON, NY-PA	50	20.83	48	10.92	17.781	3.704	1.751
DULUTH, MN-WI	51	20.71	45	11.82	18.441	3.820	1.950
APPLETON, WI	52	20.02	55	8.78	20.004	4.004	1.614
DAVENPORT, IA-IL	53	19.46	41	12.74	29.929	5.825	3.382
LANCASTER, PA	54	19.12	19	21.13	25.208	4.820	4.398
AUGUSTA, GA-SC	55	18.20	35	15.44	16.409	2.986	2.195
EVANSVILLE, IN-KY	56	17.52	39	13.67	18.807	3.295	2.262
JOHNSTOWN, PA	57	16.78	25	17.16	14.587	2.447	2.137
TRENTON, NJ	58	16.73	60	5.50	21.315	3.566	1.112
MOBILE, AL	59	16.30	52	9.71	23.414	3.816	2.073
ROCKFORD, IL	60	16.22	64	3.58	18.333	2.974	0.633
WORCESTER, MA	61	16.10	69	-8.37	22.730	3.660	-2.075
READING, PA	62	15.24	23	17.55	20.995	3.200	3.135
SOUTH BEND, IN	63	14.83	58	6.33	17.629	2.615	1.049
WICHITA, KS	64	14.22	57	7.66	28.314	4.027	2.014
KALAMAZOO, MI	65	14.16	17	21.53	17.659	2.500	3.129
CHARLESTON, WV	66	13.59	56	7.88	16.635	2.261	1.215
BRIDGEPORT, CT	67	9.83	63	3.60	26.076	2.564	0.906
UTICA, NY	68	8.79	66	0.57	18.053	1.586	0.103
PATERSON, NJ	69	8.64	65	2.52	28.146	2.432	0.693

APPENDIX 4-6

RETAIL EMPLOYMENT - SMSA GROUP 5
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
SANTA CRUZ, CA	1	43.96	5	32.79	10.664	4.688	2.633
KILLEEN, TX	2	38.75	10	25.61	9.786	3.792	1.995
YAKIMA, WA	3	37.52	30	15.43	10.308	3.868	1.378
ANCHORAGE, AK	4	37.48	4	33.05	10.647	3.991	2.645
SANTA ROSA, CA	5	37.37	28	16.83	13.716	5.125	1.976
FORT MYERS, FL	6	37.12	1	48.63	14.273	5.298	4.670
MODESTO, CA	7	35.89	22	17.94	13.716	4.923	2.086
STEUBENVILLE, OH-WV	8	35.79	41	10.29	7.545	2.700	0.704
SARASOTA, FL	9	35.55	2	38.74	19.241	6.841	5.373
DAYTONA BEACH, FL	10	34.32	3	37.60	18.851	6.470	5.151
EUGENE, OR	11	33.85	9	25.82	17.414	5.895	3.574
POUGHKEEPSIE, NY	12	32.93	44	8.88	11.784	3.881	0.961
ROANOKE, VA	13	31.63	42	9.99	16.895	5.344	1.535
HAMILTON, OH	14	31.59	45	8.78	11.596	3.663	0.936
PARKERSBURG, WV-OH	15	31.25	34	14.46	9.523	2.976	1.203
PROVO, UT	16	31.10	14	23.81	8.035	2.499	1.545
ST. CLOUD, MN	17	30.89	7	26.52	11.353	3.507	2.380
LUBBOCK, TX	18	30.72	15	22.06	16.869	5.183	3.049
BILOXI, MS	19	30.62	20	19.90	11.043	3.381	1.833
WACO, TX	20	29.44	24	17.49	11.538	3.397	1.718
FAYETTEVILLE, NC	21	28.75	29	16.40	13.014	3.742	1.834
BATTLE CREEK, MI	22	28.72	48	7.33	12.324	3.539	0.842
AMARILLO, TX	23	28.42	46	8.72	11.927	3.390	0.957
STAMFORD, CT	24	27.92	50	5.65	16.016	4.472	0.856
GREEN BAY, WI	25	27.16	26	17.37	13.521	3.672	2.001
TOPEKA, KS	26	26.98	25	17.48	14.262	3.848	2.122
LIMA, OH	27	26.89	33	14.49	13.590	3.655	1.720
FORT SMITH, AR-OK	28	26.79	12	24.72	10.898	2.920	2.160
SPRINGFIELD, MO	29	26.46	31	15.40	14.390	3.807	1.920
LINCOLN, NE	30	26.41	18	21.55	16.871	4.456	2.991
SALEM, OR	31	24.67	13	24.51	13.347	3.293	2.627
BROWNSVILLE, TX	32	23.39	16	21.86	10.017	2.343	1.797
PORTLAND, ME	33	23.17	39	11.38	16.573	3.840	1.693
WHEELING, WV-OH	34	22.50	32	14.90	12.726	2.863	1.650
SPRINGFIELD, OH	35	22.33	11	25.20	11.831	2.642	2.381
TERRE HAUTE, IN	36	21.44	51	4.96	11.913	2.554	0.563
LAKE CHARLES, LA	37	21.30	8	26.25	9.393	2.001	1.953
MCALLEN, TX	38	20.55	23	17.77	11.294	2.321	1.704
MACON, GA	39	20.52	17	21.68	15.320	3.143	2.730
ASHEVILLE, NC	40	20.48	38	12.20	10.188	2.087	1.108
LOWELL, MA-NH	41	19.75	54	-7.03	8.958	1.769	-0.677
CHAMPAIGN, IL	42	19.72	52	4.60	10.272	2.026	0.452
SAGINAW, MI	43	19.56	21	18.91	14.388	2.815	2.288
MELBOURNE, FL	44	19.52	6	27.57	21.206	4.140	4.583
RACINE, WI	45	19.29	19	20.03	10.671	2.058	1.781
WATERBURY, CT	46	18.83	37	12.29	13.059	2.459	1.429
ATLANTIC CITY, NJ	47	17.52	49	7.04	17.910	3.137	1.178
FALL RIVER, MA-RI	48	17.40	55	-7.27	9.055	1.576	-0.710
COLUMBUS, GA-AL	49	17.34	43	9.75	13.699	2.376	1.217
GALVESTON, TX	50	16.97	35	14.30	13.704	2.326	1.714
NEW LONDON, CT-RI	51	16.62	27	16.98	14.651	2.435	2.127
SAVANNAH, GA	52	16.60	47	8.04	15.222	2.527	1.133
MUSKEGON, MI	53	15.56	53	3.87	8.081	1.257	0.301
CEDAR RAPIDS, IA	54	11.62	40	10.95	13.259	1.541	1.309
SPRINGFIELD, IL	55	11.44	36	13.56	13.423	1.536	1.603
NEW BEDFORD, MA	56	7.94	56	-9.61	9.064	0.720	-0.964
BROCKTON, MA	57	7.82	57	-12.85	8.328	0.651	-1.228

APPENDIX 4-6

RETAIL EMPLOYMENT - SMSA GROUP 6
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
PASCAGOULA, MS	1	53.86	3	53.34	5.744	3.094	1.998
RICHLAND, WA	2	47.74	62	6.04	6.043	2.885	0.344
TUSCALOOSA, AL	3	45.73	48	14.23	6.910	3.160	0.861
TALLAHASSEE, FL	4	40.16	17	26.60	9.432	3.788	1.982
LAFAYETTE, LA	5	39.91	42	15.91	9.157	3.655	1.257
FORT COLLINS, CO	6	38.49	1	66.74	9.226	3.551	3.693
ALBANY, GA	7	38.40	37	17.77	6.390	2.454	0.964
TYLER, TX	8	37.91	28	19.83	6.974	2.644	1.154
LYNCHBURG, VA	9	36.01	55	10.12	9.008	3.244	0.828
RENO, NV	10	35.84	13	29.22	13.581	4.868	3.071
GREELEY, CO	11	34.20	4	50.98	7.330	2.507	2.475
ALEXANDRIA, LA	12	34.08	32	19.13	7.773	2.649	1.248
MONROE, LA	13	32.95	44	15.00	9.752	3.213	1.272
BLOOMINGTON, IN	14	32.72	7	33.08	6.703	2.193	1.666
LONGVIEW, TX	15	30.90	9	31.32	10.478	3.238	2.499
LAREDO, TX	16	30.59	66	4.43	5.963	1.824	0.253
GAINESVILLE, FL	17	30.55	8	31.63	9.069	2.771	2.179
MIDLAND, TX	18	30.41	6	37.02	4.686	1.425	1.266
NASHUA, NH	19	30.26	11	30.24	7.749	2.345	1.799
BOISE CITY, ID	20	29.64	12	29.65	12.771	3.785	2.921
SIOUX FALLS, SD	21	29.51	36	18.51	9.813	2.896	1.533
CLARKSVILLE, TN-KY	22	29.38	5	47.03	7.165	2.105	2.292
ABILENE, TX	23	29.17	38	17.73	9.006	2.627	1.356
WILMINGTON, NC	24	29.17	23	21.86	7.580	2.211	1.360
SAN ANGELO, TX	25	28.93	51	11.05	5.075	1.468	0.505
ANNISTON, AL	26	28.54	15	28.84	6.178	1.763	1.383
WICHITA FALLS, TX	27	28.46	10	30.50	11.027	3.138	2.577
KENOSHA, WI	28	28.31	53	10.55	7.440	2.106	0.710
EAU CLAIRE, WI	29	27.91	20	23.48	9.560	2.668	1.818
BILLINGS, MT	30	26.81	30	19.29	8.768	2.351	1.418
BRYAN, TX	31	26.56	21	23.23	3.931	1.044	0.741
FARGO, ND-MN	32	25.49	39	16.91	11.316	2.884	1.637
MANSFIELD, OH	33	25.37	29	19.39	9.838	2.496	1.598
MANCHESTER, NH	34	25.19	33	19.10	13.351	3.363	2.141
SHERMAN, TX	35	24.35	14	29.22	5.453	1.328	1.233
TEXARKANA, TX-AR	36	24.24	49	13.72	7.079	1.716	0.854
DUBUQUE, IA	37	24.14	47	14.34	7.489	1.808	0.939
SIOUX CITY, IA-NE	38	23.91	60	7.57	10.444	2.497	0.735
ROCHESTER, MN	39	23.78	68	2.61	7.111	1.691	0.181
LAFAYETTE, IN	40	23.52	41	16.38	8.938	2.102	1.258
VINELAND, NJ	41	23.37	40	16.38	7.789	1.820	1.096
LAWTON, OK	42	23.04	31	19.15	6.744	1.554	1.084
WATERLOO, IA	43	22.80	65	4.44	10.684	2.436	0.454
LA CROSSE, WI	44	22.16	61	6.90	6.820	1.511	0.440
JACKSON, MI	45	20.98	43	15.47	8.845	1.856	1.185
NEW BRITAIN, CT	46	20.10	70	1.61	9.399	1.889	0.149
DANBURY, CT	47	20.04	54	10.22	8.013	1.606	0.743
BRISTOL, CT	48	19.53	67	4.21	5.294	1.034	0.214
PUEBLO, CO	49	19.53	18	25.39	8.163	1.594	1.653
WILLIAMSPORT, PA	50	18.59	22	22.48	7.317	1.360	1.343
ANDERSON, IN	51	17.95	56	9.72	9.644	1.731	0.854
ALTOONA, PA	52	17.85	57	9.65	8.344	1.489	0.734
PETERSBURG, VA	53	17.58	45	14.50	8.221	1.445	1.041
ELMIRA, NY	54	17.49	64	4.90	6.318	1.105	0.295
BURLINGTON, NC	55	17.43	26	20.62	7.808	1.361	1.335
COLUMBIA, MO	56	17.33	25	21.59	6.335	1.098	1.125
BLOOMINGTON, IL	57	17.32	46	14.44	8.583	1.487	1.083
FAYETTEVILLE, AR	58	17.27	2	63.19	11.890	2.053	4.604
ST. JOSEPH, MO	59	17.04	50	11.80	7.211	1.229	0.761
DECATUR, IL	60	16.98	71	-0.18	9.034	1.534	-0.016
MERIDEN, CT	61	16.80	52	10.77	3.888	0.653	0.378
NORWALK, CT	62	16.14	59	7.75	8.954	1.445	0.644
PITTSFIELD, MA	63	16.01	74	-13.43	5.216	0.835	-0.809
ODESSA, TX	64	15.45	63	5.15	6.719	1.038	0.329
OWENSBORO, KY	65	15.26	24	21.63	5.753	0.878	1.023
GREAT FALLS, MT	66	15.09	16	28.31	7.455	1.125	1.645
LEWISTON, ME	67	14.84	58	9.63	5.854	0.869	0.514
PINE BLUFF, AR	68	14.16	34	18.74	5.664	0.802	0.894
FLORENCE, AL	69	14.05	19	24.41	6.926	0.973	1.359
BAY CITY, MI	70	12.51	69	2.19	6.244	0.781	0.134
FITCHBURG, MA	71	12.13	73	-5.08	5.566	0.675	-0.298
MUNCIE, IN	72	10.87	27	19.86	10.008	1.088	1.658
GADSDEN, AL	73	8.71	35	18.65	5.649	0.492	0.888
KANKAKEE, IL	74	3.73	72	-3.22	6.302	0.235	-0.210

Appendix 4-7. RANKING OF STANDARD METROPOLITAN COUNTY AREAS ON THE BASIS OF 1977 DISPOSABLE PERSONAL INCOME

Area	Group Rank
New York, NY-NJ	1
Chicago	2
Los Angeles-Long Beach	3
Philadelphia, PA-NJ	4
Detroit	5
Washington, DC-MD-VA	6
Boston-Lowell-Brockton-Lawrence-Haverhill	7
San Francisco-Oakland	8
Nassau-Suffolk	9
Houston	10
Dallas-Fort Worth	11
St. Louis, MO-IL	12
Pittsburgh	13
Newark	14
Minneapolis-St. Paul, MN-WI	15
Anaheim-Santa Ana-Garden Grove	16
Cleveland	17
Atlanta	18
Cincinnati, OH-KY-IN	19
San Diego	20
Baltimore	21
Denver-Boulder	22
Seattle-Everett	23
Miami	24
Milwaukee	25
San Jose	26
Kansas City, MO-KS	27
Sacramento	28
Tampa-St. Petersburg	29
Riverside-San Bernardino-Ontario	30
Indianapolis	31
Phoenix	32
Portland, OR-WA	33
Hartford-New Britain-Bristol	34
Columbus, OH	35
New Orleans	36
Bridgeport-Stamford-Norwalk-Danbury	37
Buffalo	38
Fort Lauderdale-Hollywood	39
Rochester, NY	40
Toledo, OH-MI	41
San Antonio	42
Louisville, KY-IN	43
Providence-Warwick-Pawtucket	44
Memphis, TN-AR-MS	45
Dayton	46
New Haven-Waterbury-Meriden	47
Nashville-Davidson	48
Oklahoma City	49
Honolulu	50
Greensboro-Winston-Salem-High Point	51
Birmingham	52
Albany-Schenectady-Troy, NY	53
New Brunswick-Perth Amboy-Sayreville	54
Salt Lake City-Ogden	55
Grand Rapids	56
Jersey City	57
Norfolk-Virginia Beach-Portsmouth, VA-NC	58
Allentown-Bethlehem-Easton, PA-NJ	59
Akron	60
Worcester-Fitchburg-Leominster	61
Long Branch-Asbury Park	62
Charlotte-Gastonia	63
Gary-Hammond-East Chicago	64
Jacksonville	65
Tulsa	66
Omaha, NB-IA	67
Richmond	68
Syracuse	69
Orlando	70
Harrisburg	71
Northeast Pennsylvania	72
Wilmington, DE-NJ-MD	73
Springfield-Chicopee-Holyoke, MA	74
Oxnard-Simi Valley-Ventura	75
Flint	76
West Palm Beach-Boca Raton	77
Raleigh-Durham	78
Youngstown-Warren	79
Fresno	80
Austin	81
Greenville-Spartanburg	82
Madison	83
Knoxville	84
Lansing-East Lansing	85
Tucson	86
Paterson-Clifton-Passaic	87
Davenport-Rock Island-Moline, IA-IL	88
Vallejo-Fairfield-Napa	89
Baton Rouge	90
New Bedford-Fall River	91
Peoria	92
Fort Wayne	93
Las Vegas	94
Tacoma	95
Beaumont-Port Arthur-Orange	96
Little Rock-North Little Rock	97
Des Moines	98
Canton	99
Wichita	100
Albuquerque	101
Charleston-North Charleston, SC	102
Columbia, SC	103
Lancaster	104
Bakersfield	105
York	106
Trenton	107
Chattanooga, TN-GA	108
Jackson, MS	109
Stockton	110
Spokane	111
Shreveport	112
Santa Barbara-Santa Maria-Lompoc	113
Reading	114
Santa Rosa	115
Mobile	116
Newport News-Hampton	117
Salinas-Seaside-Monterey	118
Evansville, IN-KY	119
Saginaw	120
Johnson City-Kingsport-Bristol, TN-VA	121
Augusta, GA-SC	122
Ann Arbor	123
Charleston, WV	124
Kalamazoo-Portage	125
Anchorage	126
Rockford	127
Huntington-Ashland, WV-KY-OH	128
El Paso	129
Manchester-Nashua	130
Colorado Springs	131
Erie	132
Lexington-Fayette	133
Lorain-Elyria	134
South Bend-Mishawaka	135
Modesto	136
Appleton-Oshkosh	137
New London-Norwich	138
Macon	139
Binghamton, NY-PA	140
Duluth-Superior, MN-WI	141
Eugene-Springfield	142
Lakeland-Winter Haven	143
Corpus Christi	144
Utica-Rome	145
Portland, ME	146
Pensacola	147
Huntsville	148
Hamilton-Middletown	149
Johnstown	150
Roanoke	151
Columbus, GA-AL	152
Battle Creek	153
Poughkeepsie	154
Springfield, IL	155
Montgomery	156
Lubbock	157
Amarillo	158
Reno	159
Daytona Beach	160
Salem	161
Tallahassee	162
Wheeling, WV-OH	163
Sarasota	164
Steubenville-Weirton, OH-WV	165
Topeka	166
Santa Cruz	167
Lima	168
Lincoln	169
Champaign-Urbana-Rantoul	170
Racine	171
Cedar Rapids	172
Terre Haute	173
Springfield, MO	174
Fort Myers	175
Galveston-Texas City	176
Savannah	177
Atlantic City	178
Gainesville	179
Fayetteville, NC	180
Springfield, OH	181
Killeen-Temple	182
Boise City	183
Green Bay	184
Muskegon-Norton Shores-Muskegon Heights	185
Yakima	186
Melbourne-Titusville-Cocoa	187
Fort Smith, AR-OK	188
Asheville	189
Fayetteville-Springdale, AR	190
Waterloo-Cedar Falls	191
Decatur	192
Anderson	193
Jackson, MI	194
Fort Collins	195
Lafayette, LA	196
Abilene	197
Wichita Falls	198
McAllen-Pharr-Edinburg	199
Richland-Kennewick	200
Biloxi-Gulfport	201
Pittsfield	202
Lynchburg	203
Lafayette-West Lafayette, IN	204
Waco	205
Parkersburg-Marietta, WV-OH	206
Bradenton	207
Lake Charles	208
Bloomington-Normal	209
Sioux City, IA-NB	210
Greeley	211
Provo-Orem	212
Alexandria	213
Odessa	214
Tyler	215
Altoona	216
Brownsville-Harlingen-San Benito	217
Muncie	218
Wilmington, NC	219
Fargo-Moorhead, ND-MN	220
St. Cloud	221
Florence	222
Bay City	223
Longview-Marshall	224
Mansfield	225
Kenosha	226
Pascagoula-Moss Point	227
Vineland-Millville-Bridgeton	228
Sioux Falls	229
Tuscaloosa	230
Billings	231
Kokomo	232
Clarksville-Hopkinsville, TN-KY	233
Monroe	234
Williamsport	235
Pueblo	236
Bloomington	237
Bryan-College Station	238
Rochester, MN	239
Kankakee	240
Grand Forks	241
Petersburg-Colonial Heights-Hopewell	242
Eau Claire	243
Midland	244
Dubuque	245
Anniston	246
Columbia, MO	247
Burlington	248
La Crosse	249
Lawton	250
Texarkana, TX-AR	251
Albany, GA	252
Great Falls	253
Lewiston-Auburn	254
St. Joseph	255
San Angelo	256
Sherman-Denison	257
Panama City	258
Lawrence	259
Pine Bluff	260
Elmira	261
Gadsden	262
Owensboro	263
Laredo	264

Source: The Marketing Economics Guide for 1978-79.

Appendix 4-6. RANKING OF STANDARD METROPOLITAN COUNTY AREAS ON THE BASIS OF 1977 TOTAL RETAIL SALES

Area	Group Rank
Chicago	1
New York, NY-NJ	2
Los Angeles-Long Beach	3
Philadelphia, PA-NJ	4
Detroit	5
Boston-Lowell-Brockton-Lawrence-Haverhill	6
San Francisco-Oakland	7
Washington, DC-MD-VA	8
Nassau-Suffolk	9
Houston	10
St. Louis, MO-IL	11
Dallas-Fort Worth	12
Pittsburgh	13
Minneapolis-St. Paul, MN-WI	14
Anaheim-Santa Ana-Garden Grove	15
Atlanta	16
Cleveland	17
Baltimore	18
Newark	19
Seattle-Everett	20
Miami	21
San Diego	22
Denver-Boulder	23
Indianapolis	24
Milwaukee	25
San Jose	26
Tampa-St. Petersburg	27
Cincinnati, OH-KY-IN	28
Phoenix	29
Riverside-San Bernardino-Ontario	30
Kansas City, MO-KS	31
Buffalo	32
Portland, OR-WA	33
Fort Lauderdale-Hollywood	34
Columbus, OH	35
New Orleans	36
Sacramento	37
Bridgeport-Stamford-Norwalk-Danbury	38
Rochester, NY	39
Hartford-New Britain-Bristol	40
Oklahoma City	41
San Antonio	42
Memphis, TN-AR-MS	43
Nashville-Davidson	44
Louisville, KY-IN	45
Birmingham	46
Providence-Warwick-Pawtucket	47
Salt Lake City-Ogden	48
Toledo, OH-MI	49
Dayton	50
Greensboro-Winston-Salem-High Point	51
New Haven-Waterbury-Meriden	52
Albany-Schenectady-Troy, NY	53
Akron	54
Charlotte-Gastonia	55
Orlando	56
Jacksonville	57
Honolulu	58
Norfolk-Virginia Beach-Portsmouth, VA-NC	59
Tulsa	60
Worcester-Fitchburg-Leominster	61
Gary-Hammond-East Chicago	62
Richmond	63
West Palm Beach-Boca Raton	64
Grand Rapids	65
Flint	66
Northeast Pennsylvania	67
Syracuse	68
Youngstown-Warren	69
New Brunswick-Perth Amboy-Sayreville	70
Allentown-Bethlehem-Easton, PA-NJ	71
Wilmington, DE-NJ-MD	72
Long Beach-Asbury Park	73
Springfield-Chicopee-Holyoke, MA	74
Canton	75
Raleigh-Durham	76
Fresno	77
Omaha-NB-IA	78
Lansing-East Lansing	79
Greenville-Spartanburg	80
Knoxville	81
Austin	82
Fort Wayne	83
Harrisburg	84
Beaumont-Port Arthur-Orange	85
Oxnard-Simi Valley-Ventura	86
Little Rock-North Little Rock	87
Las Vegas	88
Tucson	89
Paterson-Clifton-Passaic	90
Baton Rouge	91
Peoria	92
New Bedford-Fall River	93
Wichita	94
Davenport-Rock Island-Moline, IA-IL	95
El Paso	96
Albuquerque	97
Chattanooga, TN-GA	98
Bakersfield	99
Mobile	100
Des Moines	101
Johnson City-Kingsport-Bristol, TN-VA	102
Columbia, SC	103
Tacoma	104
Corpus Christi	105
Jersey City	106
Madison	107
Charleston-North Charleston, SC	108
Lakeland-Winter Haven	109
York	110
Shreveport	111
Lancaster	112
Lexington-Fayette	113
Evansville, IN-KY	114
Stockton	115
Trenton	116
Reading	117
Jackson, MS	118
Ann Arbor	119
Newport News-Hampton	120
Melbourne-Titusville-Cocoa-Spokane	122
Santa Barbara-Santa Maria-Lompoc	123
Huntsville	124
Rockford	125
Manchester-Nashua	126
Duluth-Superior, MN-WI	127
Charleston, WV	128
Appleton-Oshkosh	129
Pensacola	130
Colorado Springs	131
Huntington-Ashland, WV-KY-OH	132
Santa Rosa	133
Binghamton, NY-PA	134
Vallejo-Fairfield-Napa	135
Portland, ME	136
Daytona Beach	137
Salinas-Seaside-Monterey	138
Kalamazoo-Portage	139
Modesto	140
Eugene-Springfield	141
Augusta, GA-SC	142
Saginaw	143
Anchorage	144
South Bend-Mishawaka	145
Utica-Rome	146
Sarasota	147
Lubbock	148
Erie	149
Johnstown	150
Roanoke	151
Galveston-Texas City	152
Lorain-Elyria	153
St. Cloud	154
Reno	155
Savannah	156
Montgomery	157
Macon	158
New London-Norwich	159
Fort Myers	160
Poughkeepsie	161
Lima	162
Salem	163
Hamilton-Middletown	164
Amarillo	165
Springfield, IL	166
Wheeling, WV-OH	167
Columbus, GA-AL	168
Atlantic City	169
Springfield, MO	170
Green Bay	171
Champaign-Urbana-Rantoul	172
McAllen-Pharr-Edinburg	173
Fayetteville, NC	174
Boise City	175
Topeka	176
Terre Haute	177
Santa Cruz	178
Asheville	179
Waco	180
Longview-Marshall	181
Fort Smith, AR-OK	182
Killeen-Temple	183
Brownsville-Harlingen-San Benito	184
Decatur	185
Biloxi-Gulfport	186
Springfield, OH	187
Lafayette, LA	188
Parkersburg-Marietta, WV-OH	189
Cedar Rapids	190
Waterloo-Cedar Falls	191
Gainesville	192
Mansfield	193
Steubenville-Weirton, OH-WV	194
Racine	195
Lincoln	196
Fayetteville-Springdale, AR	197
Muskegon-Norton Shores-Muskegon Heights	198
Lake Charles	199
Monroe	200
Fargo-Moorhead, ND-MN	201
Anderson	202
Abilene	203
Wichita Falls	204
Battle Creek	205
Yakima	206
Altoona	207
Lynchburg	208
Muncie	209
Odessa	210
Jackson, MI	211
Tallahassee	212
Pittsfield	213
Wilmington, NC	214
Provo-Orem	215
Bloomington-Normal	216
Clarksville-Hopkinsville, TN-KY	217
Kokomo	218
Bradenton	219
Fort Collins	220
Richland-Kennewick	221
Pueblo	222
Texarkana, TX-AR	223
Tyler	224
Vineland-Millville-Bridgeton	225
Rochester, MN	226
Bay City	227
Billings	228
Sioux City, IA-NB	229
Petersburg-Colonial Heights-Hopewell	230
Florence	231
Eau Claire	232
Tuscaloosa	233
Williamsport	234
Laredo	235
Alexandria	236
Lafayette-West Lafayette, IN	237
La Crosse	238
Kankakee	239
Albany, GA	240
Panama City	241
Lewiston-Auburn	242
Kenosha	243
San Angelo	244
Elmira	245
Grand Forks	246
Sherman-Denison	247
Anniston	248
Sioux Falls	249
Midland	250
Burlington	251
St. Joseph	252
Gadsden	253
Bloomington	254
Pascagoula-Moss Point	255
Great Falls	256
Bryan-College Station	257
Dubuque	258
Greeley	259
Columbia, MO	260
Pine Bluff	261
Lawton	262
Owensboro	263
Lawrence	264

Source: The Marketing Economics Guide for 1978-79.

Appendix 4-9. RANKING OF STANDARD METROPOLITAN COUNTY AREAS ON THE BASIS OF 1977 PER HOUSEHOLD INCOME

Area	Group Rank
Anchorage	1
Washington, DC-MD-VA	2
Nassau-Suffolk	3
Madison	4
Bryan-College Station	5
Tallahassee	6
Bridgeport-Stamford-Norwalk-Danbury	7
Saginaw	8
Vallejo-Fairfield-Napa	9
Sacramento	10
Gainesville	11
New Brunswick-Perth Amboy-Sayreville	12
Honolulu	13
Houston	14
Grand Rapids	15
Anaheim-Santa Ana-Garden Grove	16
Midland	17
Long Branch-Asbury Park	18
San Jose	19
Harrisburg	20
Jackson, MS	21
Lafayette-West Lafayette, IN	22
Cincinnati, OH-KY-IN	23
Oxnard-Simi Valley-Ventura	24
Odessa	25
Toledo, OH-MI	26
Ann Arbor	27
Minneapolis-St. Paul, MN-WI	28
Detroit	29
Newark	30
Amarillo	31
Lafayette, LA	32
Bloomington	33
Richland-Kennewick	34
Chicago	35
Battle Creek	36
Greeley	37
Steubenville-Weirton, OH-WV	38
Champaign-Urbana-Rantoul	39
Hartford-New Britain-Bristol	40
Dubuque	41
Des Moines	42
San Francisco-Oakland	43
Rochester, MN	44
Wilmington, DE-NJ-MD	45
Philadelphia, PA-NJ	46
Davenport-Rock Island-Moline, IA-IL	47
Reno	48
Beaumont-Port Arthur-Orange	49
Flint	50
Columbus, OH	51
New London-Norwich	52
Santa Rosa	53
Milwaukee	54
Waterloo-Cedar Falls	55
Kansas City, MO-KS	56
Kalamazoo-Portage	57
Pascagoula-Moss Point	58
Peoria	59
Las Vegas	60
Boston-Lowell-Brockton-Lawrence-Haverhill	61
Trenton	62
Macon	63
Salinas-Seaside-Monterey	64
Santa Barbara-Santa Maria-Lompoc	65
Dallas-Fort Worth	66
Raleigh-Durham	67
Indianapolis	68
Cleveland	69
Jersey City	70
New Orleans	71
Columbia, MO	72
Lawrence	73
New York, NY-NJ	74
Fort Wayne	75
New Haven-Waterbury-Meriden	76
Racine	77
Augusta, GA-SC	78
Charleston-North Charleston, SC	79
Lansing-East Lansing	80
Fort Collins	81
Decatur	82
Bloomington-Normal	83
Pittsburgh	83
St. Louis, MO-IL	85
Cedar Rapids	86
Charleston, WV	87
Memphis, TN-AR-MS	88
Nashville-Davidson	89
Sioux Falls	90
Stockton	91
Kankakee	92
Charlotte-Gastonia	93
Rockford	94
Columbia, SC	95
Tyler	96
Manchester-Nashua	97
Little Rock-North Little Rock	98
Lorain-Elyria	99
Fresno	100
Rochester, NY	101
Austin	102
Lubbock	103
Boise City	104
Omaha, NB-IA	105
Denver-Boulder	106
Baton Rouge	107
Lancaster	108
Sioux City, IA-NB	109
Seattle-Everett	110
Allentown-Bethlehem-Easton, PA-NJ	111
Atlanta	112
Kokomo	113
Fort Lauderdale-Hollywood	114
Columbus, GA-AL	115
Portland, ME	116
Topeka	117
Knoxville	118
Modesto	119
Springfield, IL	120
Grand Forks	121
Louisville, KY-IN	122
Wichita Falls	123
Bay City	124
Providence-Warwick-Pawtucket	125
Anderson	126
Billings	127
Akron	128
Wheeling, WV-OH	129
Dayton	130
Roanoke	131
Greensboro-Winston-Salem-High Point	132
Green Bay	133
Gary-Hammond-East Chicago	134
Jackson, MI	135
La Crosse	136
Portland, OR-WA	137
Richmond	138
Spokane	139
Abilene	140
San Angelo	141
Reading	142
Great Falls	143
Hamilton-Middletown	143
Oklahoma City	145
West Palm Beach-Boca Raton	146
Erie	147
York	148
Albuquerque	149
Bakersfield	150
Evansville, IN-KY	151
Youngstown-Warren	152
Miami	153
Lincoln	154
Worcester-Fitchburg-Leominster	155
Riverside-San Bernardino-Ontario	156
Salt Lake City-Ogden	157
Los Angeles-Long Beach	158
San Antonio	159
San Diego	160
Florence	161
Muncie	162
Phoenix	163
Norfolk-Virginia Beach-Portsmouth, VA-NC	164
Paterson-Clifton-Passaic	165
Alexandria	166
Appleton-Oshkosh	167
Eugene-Springfield	168
Lynchburg	169
Orlando	170
Poughkeepsie	170
Colorado Springs	172
Springfield-Chicopee-Holyoke, MA	173
Shreveport	174
Tacoma	175
Huntington-Ashland, WV-KY-OH	176
Tucson	177
Birmingham	178
Santa Cruz	179
Kenosha	180
Terre Haute	181
Greenville-Spartanburg	182
Fargo-Moorhead, ND-MN	183
Newport News-Hampton	184
Albany, GA	185
Syracuse	185
Canton	187
Wichita	188
Lake Charles	189
Tuscaloosa	190
Burlington	191
South Bend-Mishawaka	192
Albany-Schenectady-Troy, NY	193
Springfield, OH	194
Pittsfield	195
Yakima	196
Fort Myers	197
Lima	198
Sarasota	199
Pensacola	200
Sherman-Denison	201
Tulsa	202
Duluth-Superior, MN-WI	203
Wilmington, NC	204
Williamsport	205
Fayetteville-Springdale, AR	206
Corpus Christi	207
Huntsville	208
Mansfield	208
Muskegon-Norton Shores-Muskegon Heights	210
Chattanooga, TN-GA	211
Lexington-Fayette	212
Galveston-Texas City	213
Buffalo	214
St. Cloud	215
Altoona	216
Salem	217
Jacksonville	218
Parkersburg-Marietta, WV-OH	219
Lewiston-Auburn	220
Pueblo	221
Anniston	222
Montgomery	223
Northeast Pennsylvania	224
Biloxi-Gulfport	225
Petersburg-Colonial Heights-Hopewell	226
Asheville	227
Springfield, MO	228
New Bedford-Fall River	229
Pine Bluff	230
Lakeland-Winter Haven	231
Johnstown	232
Longview-Marshall	233
Savannah	234
Binghamton, NY-PA	235
Fayetteville, NC	236
Bradenton	237
Lawton	238
Vineland-Millville-Bridgeton	239
Eau Claire	240
Waco	241
Monroe	242
Mobile	243
Tampa-St. Petersburg	244
Provo-Orem	245
Panama City	246
Daytona Beach	247
Baltimore	248
Atlantic City	249
Clarksville-Hopkinsville, TN-KY	250
Brownsville-Harlingen-San Benito	251
Fort Smith, AR-OK	252
Killeen-Temple	253
Utica-Rome	254
Johnson City-Kingsport-Bristol, TN-VA	255
St. Joseph	256
Owensboro	257
McAllen-Pharr-Edinburg	258
Melbourne-Titusville-Cocoa	259
El Paso	260
Laredo	261
Texarkana, TX-AR	262
Elmira	263
Gadsden	264

Source: The Marketing Economics Guide for 1978-79.

Appendix 4-10. RANKING OF STANDARD METROPOLITAN COUNTY AREAS ON THE BASIS OF 1977 PER HOUSEHOLD RETAIL SALES

Area	Group Rank
St. Cloud	1
Anchorage	2
Laredo	3
Melbourne-Titusville-Cocoa	4
Odessa	5
Rochester, MN	6
Lafayette, LA	7
Indianapolis	8
Gainesville	9
Lubbock	10
Midland	11
Corpus Christi	12
Beaumont-Port Arthur-Orange	13
Ann Arbor	14
Bryan-College Station	15
Saginaw	16
Reno	17
Longview-Marshall	18
Canton	19
Kokomo	20
Mansfield	21
Fort Wayne	22
Waterloo-Cedar Falls	22
Galveston-Texas City	24
Decatur	25
Bridgeport-Stamford-Norwalk-Danbury	26
Flint	27
Amarillo	28
La Crosse	29
San Angelo	30
Nassau-Suffolk	31
Champaign-Urbana-Rantoul	32
Green Bay	33
Boise City	34
Las Vegas	35
Sarasota	36
Little Rock-North Little Rock	37
Fargo-Moorhead, ND-MN	38
Fort Lauderdale-Hollywood	39
Charlotte-Gastonia	40
Seattle-Everett	41
Portland, ME	42
San Jose	43
Anaheim-Santa Ana-Garden Grove	44
Lansing-East Lansing	45
Atlanta	46
Muncie	47
Fort Myers	48
Washington, DC-MD-VA	49
Madison	50
Houston	51
Monroe	52
West Palm Beach-Boca Raton	53
Jackson, MS	54
Sherman-Denison	55
Lakeland-Winter Haven	56
Kankakee	57
Albany, GA	58
Billings	58
Peoria	60
St. Louis, MO-IL	61
Panama City	62
Nashville-Davidson	63
Chicago	64
Manchester-Nashua	65
Youngstown-Warren	66
Honolulu	67
Lexington-Fayette	68
Oklahoma City	69
Akron	70
Savannah	71
Roanoke	72
Des Moines	73
Rockford	74
Orlando	75
Brownsville-Harlingen-San Benito	76
Wilmington, DE-NJ-MD	77
Huntsville	78
Bloomington-Normal	79
Detroit	80
Richland-Kennewick	81
Baton Rouge	82
Grand Rapids	83
Bay City	84
Columbus, OH	85
Memphis, TN-AR-MS	85
Wichita Falls	87
Tyler	88
Lake Charles	89
Long Branch-Asbury Park	90
Columbia, SC	91
Denver-Boulder	92
New Brunswick-Perth Amboy-Sayreville	93
Knoxville	94
Appleton-Oshkosh	95
Charleston, WV	96
Minneapolis-St. Paul, MN-WI	97
Parkersburg-Marietta, WV-OH	98
Miami	99
Modesto	100
Lewiston-Auburn	101
Abilene	102
Wilmington, NC	103
Davenport-Rock Island-Moline, IA-IL	104
Raleigh-Durham	104
Harrisburg	106
Richmond	107
Pensacola	108
Dubuque	109
Salt Lake City-Ogden	110
Bakersfield	111
Wheeling, WV-OH	112
Daytona Beach	113
Anderson	114
Kalamazoo-Portage	115
Albuquerque	116
Altoona	117
Sacramento	118
Rochester, NY	119
Great Falls	120
El Paso	121
Oxnard-Simi Valley-Ventura	122
Springfield, IL	123
Waco	123
Grand Forks	125
Lafayette-West Lafayette, IN	126
Phoenix	127
Bloomington	128
Cleveland	128
Petersburg-Colonial Heights-Hopewell	130
Lima	131
Boston-Lowell-Brockton-Lawrence-Haverhill	132
Fresno	132
Biloxi-Gulfport	134
Elmira	135
Duluth-Superior, MN-WI	136
Evansville, IN-KY	137
Gary-Hammond-East Chicago	138
Pueblo	139
Tallahassee	140
Birmingham	141
Eugene-Springfield	142
Milwaukee	143
Wichita	144
Cincinnati, OH-KY-IN	145
Lynchburg	146
Toledo, OH-MI	147
Austin	148
New Haven-Waterbury-Meriden	149
Stockton	150
Charleston-North Charleston, SC	151
Jackson, MI	151
Tulsa	153
Cedar Rapids	154
Texarkana, TX-AR	155
Santa Barbara-Santa Maria-Lompoc	156
Worcester-Fitchburg-Leominster	157
Greensboro-Winston-Salem-High Point	158
Fort Collins	159
New London-Norwich	160
Trenton	161
Macon	162
Williamsport	163
Asheville	164
San Francisco-Oakland	165
Burlington	166
Salinas-Seaside-Monterey	167
Tuscaloosa	168
McAllen-Pharr-Edinburg	169
Jacksonville	170
Kansas City, MO-KS	171
Philadelphia, PA-NJ	172
Augusta, GA-SC	173
Newark	174
Lorain-Elyria	175
Topeka	176
New Orleans	177
Chattanooga, TN-GA	178
Pittsburgh	179
Poughkeepsie	180
Eau Claire	181
Mobile	182
Columbus, GA-AL	183
Riverside-San Bernardino-Ontario	184
Florence	185
Portland, OR-WA	186
Dallas-Fort Worth	187
Steubenville-Weirton, OH-WV	188
Racine	189
Erie	190
Sioux Falls	191
Santa Rosa	192
Clarksville-Hopkinsville, TN-KY	193
Louisville, KY-IN	194
Sioux City, IA-NB	194
Providence-Warwick-Pawtucket	196
Springfield, MO	197
Hartford-New Britain-Bristol	198
Fayetteville-Springdale, AR	199
San Diego	200
Paterson-Clifton-Passaic	201
Colorado Springs	202
Lancaster	203
Baltimore	204
Terre Haute	205
Syracuse	206
Shreveport	207
Dayton	208
San Antonio	209
Los Angeles-Long Beach	210
Reading	211
Pittsfield	212
Vallejo-Fairfield-Napa	213
South Bend-Mishawaka	214
Montgomery	215
Huntington-Ashland, WV-KY-OH	216
Johnson City-Kingsport-Bristol, TN-VA	217
Norfolk-Virginia Beach-Portsmouth, VA-NC	218
Vineland-Millville-Bridgeton	219
Salem	220
Gadsden	221
Johnstown	222
Springfield, OH	222
Columbus, MO	224
Atlantic City	225
Greenville-Spartanburg	226
York	227
Tucson	228
Newport News-Hampton	229
Buffalo	230
Fayetteville, NC	231
Pine Bluff	232
Binghamton, NY-PA	233
Muskegon-Norton Shores-Muskegon Heights	234
Anniston	235
Pascagoula-Moss Point	236
Spokane	237
Santa Cruz	238
Hamilton-Middletown	239
Northeast Pennsylvania	240
Albany-Schenectady-Troy, NY	241
Fort Smith, AR-OK	241
Allentown-Bethlehem-Easton, PA-NJ	243
Yakima	244
Omaha-NB-IA	245
Lawrence	246
Owensboro	247
Springfield-Chicopee-Holyoke, MA	248
Alexandria	249
Kenosha	250
St. Joseph	251
New Bedford-Fall River	252
Lincoln	253
Provo-Orem	254
Tacoma	255
Killeen-Temple	256
Tampa-St. Petersburg	257
Battle Creek	258
Utica-Rome	259
Bradenton	260
Greeley	261
New York, NY-NJ	262
Lawton	263
Jersey City	264

Source: The Marketing Economics Guide for 1978-79.

5 INDUSTRIAL DEVELOPMENT ACTIVITY

OVERVIEW OF INDUSTRIAL DEVELOPMENT

Industrial development in the United States occurs in two basic types of facility: the free-standing unit and the planned industrial park. Since the majority of new industrial facilities are located in industrial parks, this overview will focus on trends in industrial buildings located in parks. In addition to the fact that it is a multi-tenant as opposed to a single-tenant arrangement, an industrial park is minimally distinguished by the following characteristics.

- Its control and administration are vested in a single entity.
- Its uses and individual plant characteristics are regulated by a compatibility, both within the park and between the park and the surrounding land uses.

The growth of industrial parks in the United States has been very great in recent years. The first industrial park was developed in Chicago in 1902. Substantial growth in the number of industrial parks did not occur until after World War II, however. In the post-1965 period the number of parks has more than tripled, as shown by those parks listed in Industrial Development's Site Selection Handbook, "Office and Industrial Parks Index."

Year	Number of Listed Parks
1965	1,250
1970	2,500
1977	4,000

As the number of planned industrial districts has increased so has the proportion of new industrial construction that is located within them. A research report entitled "A Composite Case History of New Facility Location" by the Industrial Development Research Council (IDRC) indicates that almost 40 percent of new manufacturing plants and more than half of new warehouses are being constructed in parks. Some estimates are even higher. The "Office and Industrial Parks Index/1977" reports that industry experts believe that as many as two-thirds of new industrial facilities are located in planned parks. In any event, the study focuses on industrial parks. Free-standing industrial facilities are too diverse to be included in the overview analysis.

A variety of factors has led to the increasing importance of industrial parks. One of the most critical is the growing need for specialized development expertise in the planning of new industrial facilities. The complexity of developing industrial facilities has greatly increased over the past 10 years as a result of the proliferation of environmental and land-use regulation at all levels of government. Obtaining required permits and approvals for development is a complex, time-consuming and often heavily political process. Location in an industrial park enables a firm to avoid many of the burdens of obtaining these approvals. The National Real Estate Investor (NREI) reports that a survey of the regional officers of the Society of Industrial Realtors (SIR) and the National Association of Industrial and Office Parks (NAIOP) indicates that the wish to avoid these problems and delays is the main reason that 87 percent of those firms not wanting a free-standing site wish to locate in a planned park. Virtually all of the sources consulted by RERC in this study cite this as a key factor in the trend from free-standing sites to industrial parks.

This advantage has particular importance for firms with a quick need for facilities. Smaller firms with less in-house development expertise and foreign manufacturers unfamiliar with U.S. regulations are also particularly prone to locate in industrial parks since many details and time-consuming developmental tasks are handled by the complex developer or operator.

Other factors contributing to the growth in industrial parks are the greater assurance of property value that results from location in a regulated and controlled environment, the frequently superior site design and landscaping found in planned parks, and the high quality maintenance in most parks. Small plants can often obtain higher building to land ratios in industrial parks than in free-standing sites with set-back regulations. Industrial parks often provide more readily available financing or financing on preferable terms. Planned parks reduce or eliminate a firm's responsibility in providing utilities and other necessary infra-structure such as roads and sewers. Planned industrial districts often have substantial market research available for their prospective tenants as well. Finally, there is an increasing shortage of small isolated sites available for development.

The characteristics of individual industrial parks vary widely. One source of information describing planned parks is a 1977 survey of 1,000 parks (approximately 30% of those known in the U.S.) conducted by Dr. Van G. Whaler and published in Industrial Development. Manufacturing establishments represent 75 percent of the occupants in the respondent parks. In addition to these light and heavy manufacturers, the surveyed parks house distribution warehouses, offices, and occasionally retail tenants. Many nationally owned companies and food and drug chains are found in these planned parks.

The size of these industrial parks varies substantially. The Whaler survey found parks ranging from 16 to over 10,000 acres. A plurality of the respondents' parks contain 80 to 500 acres while 30 percent are between 20 and 60 acres. The average acreage is just under 300. The survey clearly suggests that the vast majority of industrial parks are in the smaller portions of the range and the trend toward smaller parks is expected to continue.

The individual sites used by park tenants in the Whaler survey are typically very small. While these parcels range from one-half to 48 acres, more than 60 percent are between one-half and three acres.

The national geographic distribution of industrial parks is shown in the following exhibit of parks listed in the 1977 issue of the "Office and Industrial Parks Index." The greatest numbers of parks are found in Illinois, California, Texas, and Florida. States having the fewest parks are Wyoming, Nevada, North Dakota, and South Dakota.

Most parks are located within an urban area. The suburbs have traditionally been the predominant intra-metropolitan park locale, but there has been a recent upswing in rural and urban parks. While the majority of parks will undoubtedly continue to be suburban, this is a noteworthy shift. Chicago, Dallas-Ft. Worth, and Los Angeles are the metropolitan areas with the largest concentrations of parks. Following these, and increasing in importance as industrial park location sites, are Atlanta, Denver, and Minneapolis-St. Paul.

While much information about industrial development is best understood through the individual assessment of industrial parks and free-standing sites, certain general considerations should be mentioned. These include trends in intra-metropolitan industrial location, the issue of new plant construction versus modernization or rehabilitation, and the general state of today's industrial real estate market.

The location of the vast majority of new industrial facilities within a metropolitan area is expected to continue to be in the suburbs, in spite of the slightly increasing share of new park developments going to city and rural areas. Regional personnel from both the SIR and the NAIOP contacted by the NREI confirm this. NREI concludes that new plant construction in center cities is infeasible almost without exception. Factors limiting central city growth include a lack of comparable municipal services, crime, the fiscal and political problems of the city, a lack of expansion space, traffic congestion, parking problems, high land costs, and high real estate taxes. While a number of these factors may be diminishing (through massive federal programs, tax abatement programs, and public land assemblage, for example) the net advantage of suburban areas is likely to continue. However, instances of successful in-city park development in Boston, Philadelphia, and Chicago warrant continued attention as models of urban industrial possibilities.

Exhibit 5-1 INDUSTRIAL PARK LISTINGS IN 1977
"OFFICE AND INDUSTRIAL PARKS INDEX"
SITE SELECTION HANDBOOK

More than 200	25 - 49
Illinois	Maine
California	Massachusetts
Texas	Rhode Island
Florida	Maryland
	West Virginia
	Kentucky
100 - 200	Alabama
	Wisconsin
New York	Iowa
Pennsylvania	Louisiana
Ohio	Nebraska
North Carolina	Kansas
Georgia	Montana
Minnesota	Utah
Missouri	Oregon
Colorado	
	Less than 25
50 - 99	
	Vermont
New Hampshire	Delaware
Connecticut	South Carolina
New Jersey	Arkansas
Virginia	Oklahoma
Tennessee	North Dakota
Mississippi	South Dakota
Indiana	Wyoming
Michigan	Idaho
Arizona	Nevada
Washington	New Mexico
	Hawaii
	Alaska

Similarly, in the issue of new plant construction versus the modernization of older facilities, previous trends are also expected to continue although to be diminished somewhat. For the most part, modernization of industrial facilities is not feasible. Low ceilings, inappropriate building layouts, inadequate loading and parking areas, generally congested sites with little expansion room, increasing taxes and undesirable locations often render industrial plant modernization economically impractical. In many cases feasible rehabilitation of an older industrial property involves conversion of the unit to residential or commercial use. Thus, the need for new industrial space is unlikely to be greatly reduced by the renovation of older industrial facilities.

The state of the national industrial real estate market is in a pronounced upswing at the present time. After a year of slightly increasing demand, slow absorption of oversupply (remaining from the 1973-1975 glut), and some new construction, early 1978 was a pivotal point. Growth is beginning again and it has generated geographically widespread optimism among those involved in the industrial real estate market. Absorption of space has made dramatic improvements and most of the earlier overbuilding has been absorbed. As a result, prospective tenants may have difficulty locating larger blocks of space.

Renewal of construction has been primarily limited to non-speculative properties, although speculative financing is reported to be readily available by SIR and NAIOP representatives. Memories of the 1973-1974 period of overbuilding have made developers more cautious. Speculative properties which are under construction tend to be carefully designed for broad market appeal. A Denver broker for Bennett and Kahnweiler, one of the nation's major industrial developers, emphasized the importance of removing marketability risk with flexible property design.

Several factors have contributed to the renewal of industrial construction in 1978. Many developers have decided to cease waiting for a national energy program and to use substitute fuels in place of natural gas. Similarly, there has been a decision by many industrial builders that they can no longer await a firm fiscal and economic policy from the federal government before making development decisions. Their strategy now is to attempt to beat ever increasing inflation. Finally, after holding out for expected federal aid to Northeastern and North Central states, developers have opted to utilize recently introduced local economic development programs.

New development is occurring in spite of increased construction costs, regional instances of sewer and building moratoria and restrictions in natural gas hookups. Construction is reported to be showing excellent strength in the Southeast and Southwest and is also strong in the Midwest. Overall, 1978 is judged by SIR and NAIOP officials surveyed by NREI as providing the best industrial development opportunities in the past five years.

STATISTICAL SCREENING AND ANALYSIS

Selection of Statistical Indicator

In order to obtain a more detailed picture of recent industrial development in the United States, statistics have been collected for states and SMSA's. The ideal statistic to profile recent industrial development -- i.e., the square footage of newly constructed industrial space -- does not exist in any central location for anything approaching comprehensive geographical coverage. As a result, a more readily available measure must be used. Although not directly reflecting the actual physical amount of new construction, a number of related measures indicate general industrial trends in an area and thus can be used as proxies for square footage figures of new development. The statistics considered for this are: dollar expenditures for new structures and additions to plant, dollar expenditures for total new capital expenditures, number of establishments, production workers, value added, and total employment.

"Total Capital Expenditures" and the subcategory "New Structures and Additions to Plant" (as collected by the Bureau of the Census) are those statistics most closely related to physical developments. A number of problems preclude their use, however. "Total Capital Expenditures," the more comprehensively available statistic, includes expenditures for new machinery and equipment which are not indicative of increased industrial square footage. More importantly, the proportion of "Total Capital Expenditures" that is attributable to plant construction or additions varies widely. Thus, use of "Total Capital Expenditures" would not accurately reflect industrial growth. The limited availability of the statistic "New Structures and Additions to Plant" (this is only reported annually for the entire U.S. or for total manufacturing) precludes its use.

"Number of Establishments" is another possible measure. This statistic is not annually available with geographic or industrial breakdowns. Of the three possible remaining indicators, total employment is equally reliable and most readily available.

Certain limitations of this statistic must be noted, however. Stagnant or decreasing employment does not necessarily mean there is little new industrial construction. New plants may be under development for the replacement of obsolete facilities. Neither does growing employment insure industrial development. Existing facilities may be operating under capacity and/or employment growth may be accommodated within rehabilitated facilities. (The latter is expected to be an infrequent occurrence as noted earlier.) In spite of these limitations, employment is a reasonable proxy for industrial development and is the best available statistic.

A number of sources, including the Census of Manufactures, the Annual Survey of Manufactures, County Business Patterns (all Bureau of the Census publications), the National Planning Association, and Dun and Bradstreet, collect geographically and industrially disaggregated employment statistics. The National Planning Association data are not broken down by type of industry.

The best sources are the Annual Survey of Manufactures and County Business Patterns, both of which give two-, three-, and four-digit Standard Industrial Code (SIC) breakdowns of employment on an annual basis for all states. In addition, the Annual Survey of Manufactures gives employment for 76 selected SMSA's, and County Business Patterns provides two-, three-, and four-digit breakdowns for all counties.

For the purposes of this report two sources of data are tapped. The first source is the National Planning Association. From NPA data are obtained total manufacturing employment for 1970, estimates for 1975, and projections for 1980 and 1985 for the U.S. and the 50 states.

The second source is the Annual Survey of Manufactures which contains 1970 and 1975 employment data for states and the U.S. by two-digit SIC breakdown.

Statistical Screening

National Analysis

The NPA data can be examined and interpreted in different ways. For the purposes of identifying ICES candidates in the industrial sector, absolute change in total manufacturing employment (TME) is the most significant variable. A state or SMSA with a small population base, such as North Dakota or Alaska, may experience a large percent increase in TME but have less industrial construction than a state with a small percent increase but large population base, such as Texas.

The data on all levels reveal a national trend of declining TME during 1970-1975, followed by a projected increase for 1975-1980 and another slight decline for 1980-85. The 1975-1980 increase should be viewed cautiously as it constitutes, at least in part, a rebound from the recession of the early 70s. Some of this increase is merely a catch-up effect from the slump. Support for this analysis is evident in projections for 1980-1985 in which a slight decline is shown.

While the rapid growth in TME during the 1975-80 period will without doubt be accompanied by significant industrial development and construction, this too should be interpreted cautiously. Industrialists may not meet the increased demand for goods in the next few years through intense plant construction alone, as they could then be left with overcapacity with any future declines in the economy. Rather, increased employment might reflect investment in more machinery or added shifts of workers.

State Analysis

During the period between 1970 and 1975, 24 states experienced an absolute increase in TME, while 26 states and the District of Columbia evidenced declines. Though New York, Pennsylvania, Ohio and Illinois have had the greatest losses during this period, they still remained near the top of the rank for TME in 1975. California and Texas are the only two of the top ten states in 1975 to have had an increase. Almost all the Pacific, Western and Great Plains states had increases in TME, except for Washington, Hawaii and Montana. On the other hand, New England, the Midwest and Atlantic states all had decreases except for Iowa and Minnesota. About half the Southern states had a decrease and half had an increase. Map 5-1 shows this pattern.

During this time, the nation had approximately a 6% decline in manufacturing employment. Eighteen states had a greater percentage loss than the country as a whole. Eight states had more than a 10% increase - North Dakota, South Dakota, Kansas, Nevada, New Mexico, Utah, Arizona and Colorado. Many of the states making the greatest gains were those which ranked quite low in actual manufacturing employment in 1975. Conversely, a number of those states with the highest percentage of loss still ranked high in TME in 1975.

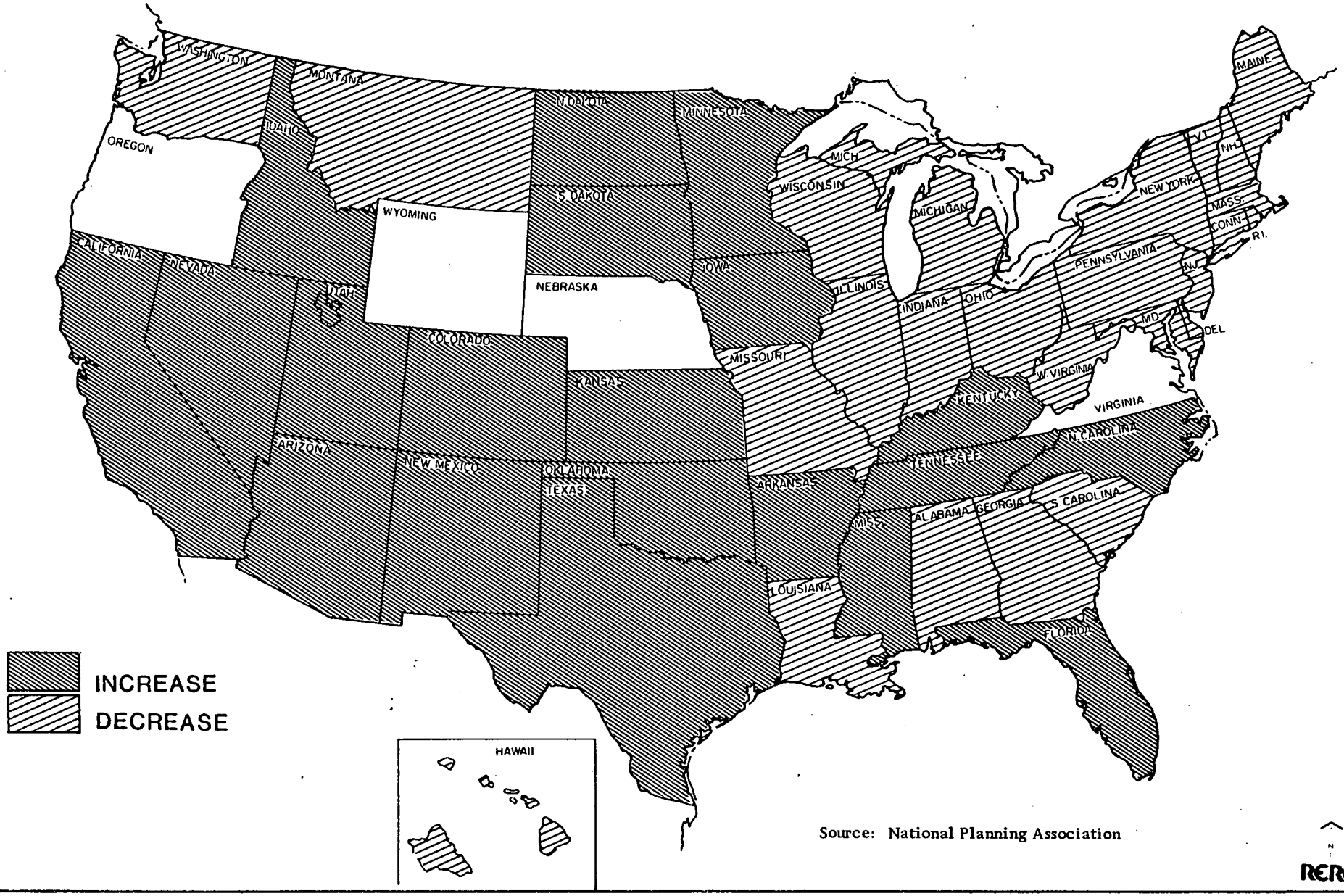
The greatest absolute growth in the 1970-75 period occurred in Texas and Florida, each of which added 30,000 manufacturing employees. Twelve states added 10,000 or more employees while another dozen grew by less than 10,000. Those states adding more than 10,000 employees are concentrated in the South, West and Mountain regions.

The absolute magnitude of the declines was substantially greater than that of the increases in the growing states. Five states, New York, Pennsylvania, Ohio, Illinois and New Jersey, lost over 100,000 manufacturing employees in this 5 year period. New York alone lost 335,735.

MAP 5-1

CHANGE IN TOTAL MANUFACTURING EMPLOYMENT: 1970-1975

(CHANGE OF LESS THAN 1000 NOT SHOWN)



Source: National Planning Association

RERC

Projections for TME changes during 1975-80 are optimistic for the nation as a whole, at least partly the effect of a rebound from the recession of earlier years. An increase of almost 10% is predicted for all but two states and the District of Columbia. For the 1980-1985 period, a slight decline of about 2% overall is projected, with 26 states and the District of Columbia contributing to the decline.

The top 10 growth and loss states and the magnitude of their employment changes in each of the three study periods are shown in Table 5-1. A detailed table which includes these data for all states appears at the end of this section of the report.

SMSA Analysis

An evaluation of manufacturing employment growth in SMSA's permits further pinpointing of industrial growth. Houston has experienced the greatest growth, adding almost 28,000 manufacturing employees to its employment base. Salt Lake City follows, adding almost 10,000 manufacturing employees. Ten SMSA's have grown by more than 4,000 manufacturing employees.

Several clear trends emerge from these data. Almost all of the SMSA's with growing manufacturing employment are in the South or West. Three of these cities, Tampa, Orlando and Fort Lauderdale, are located in Florida. Substantial growth in manufacturing employment is also predominant in metropolitan areas with populations from 500,000 to 1 million. Four of the high growth SMSA's, Salt Lake City, Orlando, Fort Lauderdale and Norfolk, are within this range. Extremely large and small SMSA's show little growth. None of those SMSA's adding manufacturing employment of 4,000 or more have populations less than 250,000 and only Houston is represented among those metropolitan areas with populations over 2 million.

Overall, of the 15 largest SMSA's, only Houston, Washington D.C. and Minneapolis did not lose manufacturing employment. In smaller areas, however (those with populations under 500,000), approximately half of the areas show some gain. As with the states, the greatest gainers, in percentage terms, are the smaller areas, some gaining in ranges of 40 to 90 percent. By contrast, Houston, which grew most in absolute terms, added 18 percent in the period.

Nine SMSA's lost 30,000 manufacturing employees or more. Six of these are areas with populations of over two million. These nine declining areas and their manufacturing employment losses are shown in Table 5-2.

Table 5-1. THE 10 STATES WITH THE GREATEST GAINS AND LOSSES IN TOTAL MANUFACTURING EMPLOYMENT

(thousands of employees)

(absolute increases or decreases; actual and projected)

1970-1975				1975-1980				1980-1985			
State	Increase	State	Decrease	State	Increase	State *	Decrease	State	Increase	State	Decrease
Texas	30.3	New York	335.7	California	257.5	New York	52.2	Texas	41.5	New York	152.7
Florida	29.4	Pennsylvania	201.1	Texas	148.9	Hawaii	0.9	Kentucky	16.8	Pennsylvania	114.3
Kansas	24.1	Ohio	155.4	Michigan	118.1	District of Columbia	0.3	Arizona	15.2	New Jersey	59.3
Colorado	19.5	Illinois	133.2	Ohio	112.9			N. Carolina	14.9	Ohio	44.0
Iowa	17.9	New Jersey	116.2	N. Carolina	107.9			Minnesota	14.0	Illinois	43.9
Arkansas	17.0	Massachusetts	95.7	Tennessee	84.4			Oklahoma	12.9	California	34.8
Arizona	15.4	Michigan	80.1	Florida	71.4			Florida	11.5	Connecticut	34.1
Tennessee	15.2	Connecticut	56.8	Wisconsin	71.2			Mississippi	11.3	Massachusetts	30.8
Kentucky	13.9	Indiana	39.6	Indiana	68.6			Arkansas	8.2	Maryland	28.9
Oklahoma	11.3	Maryland	39.4	Illinois	62.2			Louisiana	8.2	Virginia	22.7

*Only two states and D.C. have projected losses in this period.

Source: National Planning Association

Table 5-2 SMSA'S WHICH EXPERIENCED LARGE DECLINES IN MANUFACTURING EMPLOYMENT, 1970-1975

City	Employment Loss
New York, New York-New Jersey	261,770
Chicago, Illinois	89,257
Philadelphia, Pennsylvania-New Jersey	85,346
Cleveland, Ohio	41,383
Newark, New Jersey	40,832
Pittsburgh, Pennsylvania	34,848
Baltimore, Maryland	34,502
St. Louis, Missouri - Illinois	34,322
Dayton, Ohio	30,729

These cities are concentrated in the Northeast and Midwest.

During the period between 1975 and 1980 the traditional large urban areas are forecast to experience strong gains. For example, TME increases of over 65,000 in Detroit, 58,000 in Los Angeles and 33,000 in Chicago are projected. Figures for 1980-85, though, predict that many of these SMSA's will then lose most of this increase. Detroit appears more stable than the rest, with only a slight decline projected after the huge increase. The New York SMSA heads the list of greatest losses in TME for all three periods. Table 5-3 displays the top ten SMSA losers and gainers in the three study periods. A detailed display of these data for all SMSA's is included in the Appendix.

There appears to be the expected trend toward expanding industrial employment in the Sunbelt, especially the Southwest. Leaders in TME include Houston, San Jose, Phoenix and Salt Lake City. Also making a strong showing in the smaller category of SMSA's is Pascagoula, Mississippi. There is also an accompanying trend of geographic dispersal as Sunbelt cities that are currently gaining in industrial employment may slow their growth and, in some cases, decline in favor of less industrialized cities in the same state. Examples of this pattern are found in California, where the Los Angeles and San Francisco SMSA's have decreased TME over the last few years, and after the boom period of 1975-80 are predicted to continue their losses. On the other hand, San Diego and Riverside have gained recently and are expected to continue to gain. In Texas a similar pattern of relative decline on the part of Dallas in favor of Houston can be seen.

Energy Consumption Analysis

To further pinpoint areas having a high potential for the application of ICES in industrial projects, a screening based on fuel consumption data can be conducted. These data are found in the Bureau of the Census, 1972 Census of Manufactures. The kilowatt hour equivalent of all fuels consumed is given for each two-digit SIC category. The following table gives these data for those 17 industry categories previously identified by Argonne National Laboratory as being of particular interest.

Table 5-3. THE 10 SMSA'S WITH THE GREATEST GAINS AND LOSSES IN TOTAL MANUFACTURING EMPLOYMENT

(thousands of employees)

(absolute increases or decreases; actual and projected)

1970-1975				1975-1980				1980-1985			
SMSA	Increase	SMSA	Decrease	SMSA	Increase	SMSA	Decrease	SMSA	Increase	SMSA	Decrease
San Jose	29.1	New York	261.8	Detroit	66.0	New York	72.7	San Jose	17.0	New York	78.5
Houston	27.9	Chicago	89.3	Los Angeles	58.2	Baltimore	13.6	Anaheim	14.2	Los Angeles	56.3
Anaheim	28.8	Philadelphia	85.3	Anaheim	45.9	Philadelphia	11.2	Phoenix	9.4	Philadelphia	49.3
Phoenix	15.2	Cleveland	41.4	San Jose	43.9	Jersey City	6.6	San Diego	8.1	Baltimore	32.7
Denver	13.7	Newark	40.8	Chicago	33.5	Hartford	3.3	Salt Lake City	7.9	Chicago	32.6
Miami	12.3	Pittsburgh	34.8	Houston	29.1	Kankakee	2.3	Rochester	6.2	Newark	21.6
Pascagoula, MS	12.3	Baltimore	34.5	San Diego	24.5	Atlanta	2.2	Minneapolis	5.4	Cleveland	18.9
Salt Lake City	9.6	St. Louis	34.3	Dallas	24.4	Seattle	1.6	Ft. Lauderdale	5.0	Pittsburgh	17.8
Newport News	6.5	Dayton	30.7	Rochester	23.5	Newark	1.1	Pascagoula, MS	4.2	Dallas	16.0
San Diego	6.2	Buffalo	29.2	Phoenix	22.5	Springfield, MA-CT	0.9	Denver	3.0	Boston	15.0

Source: National Planning Association

Table 5-4. FUELS AND ELECTRIC ENERGY CONSUMED

SIC Category		KWH Equivalent,* Total (Billions)
20	Food and Kindred Products	300.6
21	Tobacco Manufactures	5.5
22	Textile Mill Products	106.5
23	Apparel and Related Products	19.6
25	Furniture and Fixtures	17.8
26	Paper and Allied Products	385.4
27	Printing and Publishing	30.1
28	Chemicals and Allied Products	814.2
29	Petroleum and Coal Products	466.9
30	Rubber and Plastic Products, not elsewhere classified	66.3
31	Leather and Leather Products	9.8
34	Fabricated Metal Products	102.7
35	Machinery, except Electrical	107.6
36	Electrical Machinery	80.1
37	Transportation Equipment	114.2
38	Instruments and Related Products	20.1
39	Miscellaneous Manufacturing	18.4

*Represents data on all fuels consumed--non-electrical energy was converted to KWH equivalents.

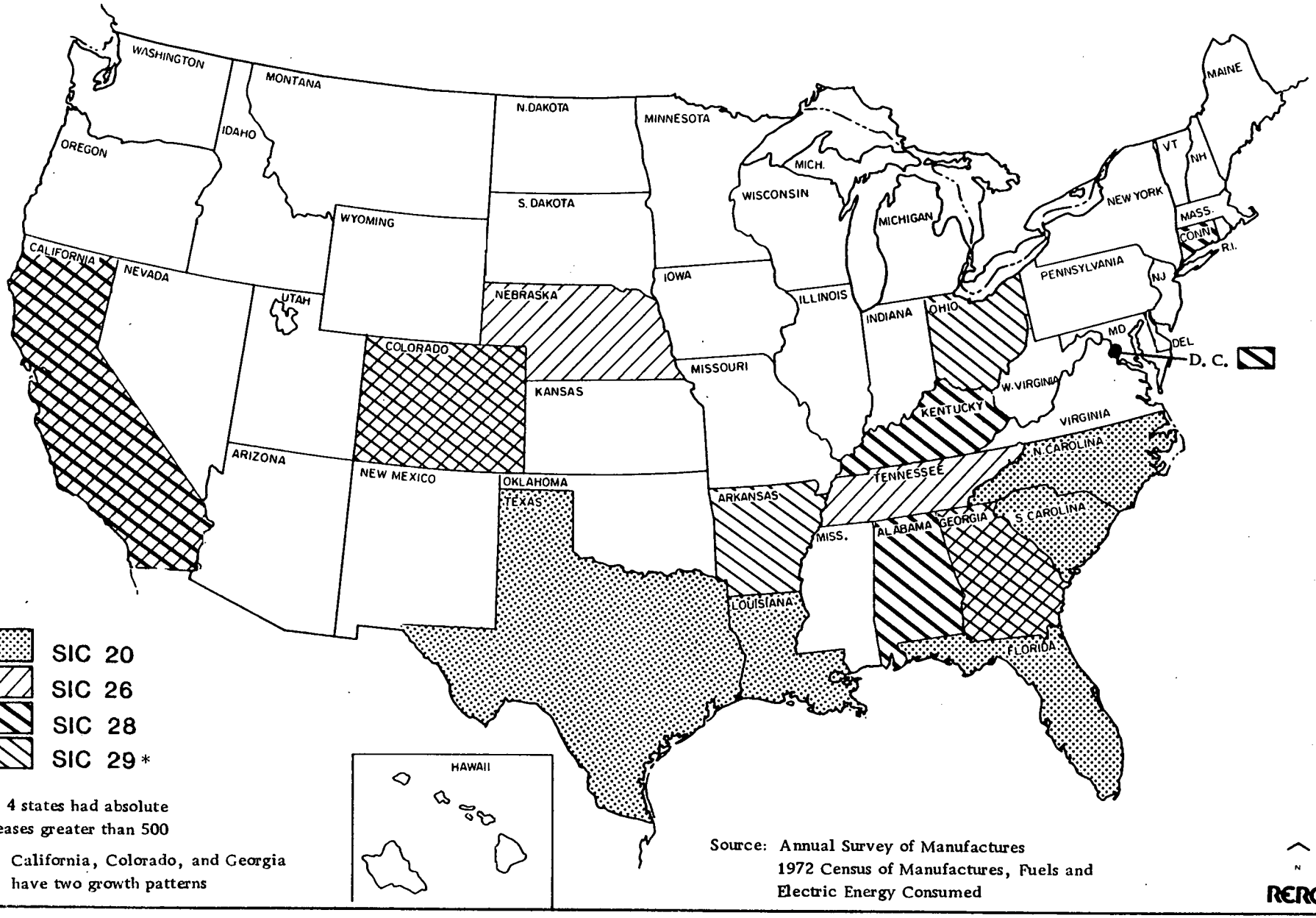
Four two-digit SIC categories stand out as significantly more intense energy users--Food and Kindred Products (SIC 20), Paper and Allied Products (SIC 26), Chemicals (SIC 28) and Petroleum (SIC 29). States in which manufacturing employment within these categories has made strong gains may be especially likely to have ICES candidates.

State trends in manufacturing employment by two-digit SIC categories are shown for the 1970-75 period in the tables at the end of this section. The following map depicts those 5 states with the greatest growth in employment in each of these four energy intensive industries.

MAP 5-2

STATES WITH HIGHEST EMPLOYMENT GROWTH IN FOUR ENERGY INTENSIVE INDUSTRIES

(1970-1975 ABSOLUTE GROWTH)



*only 4 states had absolute increases greater than 500

Note: California, Colorado, and Georgia have two growth patterns

Source: Annual Survey of Manufactures
1972 Census of Manufactures, Fuels and Electric Energy Consumed

RERC

OBSERVATIONS

An awareness of the concept of Integrated Community Energy Systems is evident in certain portions of the industrial development community. The strongest indication of this awareness is the plan of the Port Authority of New York and New Jersey to use a resource recovery system to provide inexpensive energy in its three proposed industrial parks. (Project information sheets have been prepared for these parks.) The cost savings of this method of energy provision are being promoted by the Port Authority as the "most advantageous economic innovation to be offered manufacturers locating in the Port Authority's new industrial development parks." The Port Authority's Engineering Department has determined that such on-site power generation through the burning of solid waste is both economically and environmentally feasible.

Two methods are being considered -- 1) "Mass burning," which is the burning of raw garbage to produce electricity or steam, and 2) using "refuse derived fuel" which is the separation of waste into a solid fuel and a recoverable material. Recoverable materials could then be sold as an input to the production processes of certain manufactures. This would be another benefit to a firm locating in the park. Consideration is also being given to selling the excess energy produced to local utilities.

Care must be taken, however, not to overestimate the degree of emphasis which industrial developers place on energy and energy-related issues. One item which indicates caution in this regard is the finding by the IDRC in its study of the locational decisions of leading industrial firms. None of the 77 individuals questioned indicated an interest in an "energy park" concept. Independent energy sources were investigated in only two of these cases and less than 50 percent cited a need for back-up power systems or an alternate energy plan. While there are many possible explanations for these findings, the response of many firms is probably based on their decision to avoid concerns of energy shortages by locating their facilities in areas of energy security.

Another indication that energy concerns are not of high priority to industrial developers is the experience of Bennett and Kahnweiler in Denver. This firm constructed an energy saving industrial facility in early 1977. The energy saving features added 3 to 4 cents a square foot to the $1.35 per square foot rental. This increase in rent is compensated by an energy cost savings approximately twice the added rental costs. Although the building is fully leased, tenants show virtually no interest in the energy saving features of the facility. Renter interest

seems to be focused on costs primarily, not on long range savings. While this response is due in part to Denver's generally low energy cost, this experience should be noted.

Further evidence of this hesitant attitude on the part of industrial developers is provided in a late 1977 article in Industrial Development. Institutional barriers, not technical constraints, are cited in this article as the main impediment to a wider application of cogeneration. The risk of becoming subject to governmental regulation as a utility, the low risk/low return nature of the utility business, and the difficulties of financing cogenerative facilities limit the interest of businesses in cogeneration. Utility rate structures which base the costs of service on average costs as opposed to the probably higher cost of new and recently installed facilities also tend to impede the adoption of cogeneration. In spite of these barriers, however, the article concluded that cogeneration could serve an important role in providing energy for industrial purposes.

CHAPTER 5 APPENDIX

CONTENTS

APPENDIX 5-1

MANUFACTURING EMPLOYMENT BY STATE
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
ARIZONA	1	24.73	7	16.71	107.650	26.623	15.412
COLORADO	2	23.55	8	16.24	139.469	32.844	19.489
NEVADA	3	23.38	2	40.02	11.970	2.799	3.421
UTAH	4	21.57	5	19.89	67.054	14.465	11.123
OKLAHOMA	5	21.16	11	8.28	147.868	31.291	11.313
NORTH DAKOTA	6	21.00	1	43.78	14.640	3.074	4.458
ALASKA	7	20.72	16	4.25	9.243	1.915	0.377
NEW MEXICO	8	20.67	4	34.36	28.615	5.914	7.318
FLORIDA	9	19.99	10	8.98	357.304	71.431	29.449
ARKANSAS	10	19.42	9	9.67	192.914	37.455	17.005
KANSAS	11	19.36	6	17.72	160.045	30.986	24.093
TEXAS	12	18.89	17	3.99	788.261	148.887	30.276
IDAHO	13	18.80	13	7.43	45.873	8.624	3.172
MISSISSIPPI	14	18.78	15	5.37	206.308	38.739	10.512
KENTUCKY	15	18.43	14	5.41	270.226	49.809	13.881
LOUISIANA	16	17.58	28	-1.77	175.278	30.819	-3.155
TENNESSEE	17	17.37	18	3.22	486.033	84.444	15.160
OREGON	18	16.51	23	0.19	183.966	30.369	0.354
CALIFORNIA	19	16.19	24	0.17	1589.938	257.489	2.647
SOUTH DAKOTA	20	16.01	3	36.45	20.639	3.305	5.513
IOWA	21	15.89	12	8.21	236.327	37.555	17.925
NEBRASKA	22	15.42	20	1.11	88.631	13.669	0.970
NORTH CAROLINA	23	14.82	22	0.28	727.844	107.901	2.030
MINNESOTA	24	14.04	21	0.65	325.952	45.772	2.107
WISCONSIN	25	14.01	26	-0.68	508.104	71.205	-3.499
VIRGINIA	26	13.93	25	-0.14	371.466	51.764	-0.534
WEST VIRGINIA	27	12.89	38	-7.88	118.332	15.258	-10.124
WYOMING	28	12.88	19	2.84	8.143	1.049	0.225
SOUTH CAROLINA	29	12.54	27	-0.72	342.605	42.946	-2.489
ALABAMA	30	12.37	29	-2.33	324.936	40.195	-7.746
MICHIGAN	31	11.58	36	-7.29	1019.848	118.073	-80.134
MONTANA	32	11.00	35	-6.42	23.483	2.584	-1.611
GEORGIA	33	10.52	34	-6.27	445.908	46.910	-29.813
DELAWARE	34	10.44	31	-5.15	68.451	7.144	-3.720
INDIANA	35	10.19	33	-5.55	673.572	68.619	-39.600
VERMONT	36	9.82	39	-8.15	38.907	3.821	-3.454
MISSOURI	37	9.68	37	-7.30	422.276	40.878	-33.261
OHIO	38	8.72	41	-10.71	1295.249	112.948	-155.433
RHODE ISLAND	39	8.60	30	-3.95	115.275	9.912	-4.739
NEW HAMPSHIRE	40	8.43	45	-13.50	84.793	7.144	-13.231
WASHINGTON	41	7.58	32	-5.29	233.234	17.688	-13.024
MAINE	42	6.25	46	-13.53	97.721	6.106	-15.291
ILLINOIS	43	5.08	40	-9.80	1225.475	62.212	-133.199
CONNECTICUT	44	3.07	42	-12.62	393.483	12.078	-56.811
PENNSYLVANIA	45	1.32	43	-13.04	1341.511	17.702	-201.078
MARYLAND	46	1.20	47	-14.33	235.387	2.833	-39.362
NEW JERSEY	47	1.18	44	-13.30	757.069	8.902	-116.170
MASSACHUSETTS	48	0.40	48	-14.48	565.173	2.243	-95.694
HAWAII	49	-1.23	49	-18.18	21.943	-0.270	-4.875
NEW YORK	50	-3.60	51	-18.78	1451.539	-52.184	-335.735
DISTRICT OF COLUMBIA	51	-5.86	50	-18.62	16.070	-0.942	-3.676

APPENDIX 5-2

MANUFACTURING EMPLOYMENT - SMSA GROUP 1
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
HOUSTON, TX	1	16.11	1	18.22	180.827	29.123	27.867
DETROIT, MI	2	11.90	4	-3.18	554.561	65.995	-18.221
DALLAS, TX	3	10.04	6	-4.16	243.053	24.401	-10.546
MINNEAPOLIS, MN-WI	4	9.57	3	0.01	218.696	20.923	0.015
NASSAU-SUFFOLK, NY	5	9.16	9	-9.14	140.451	12.867	-14.122
SAN FRANCISCO, CA	6	7.78	8	-8.78	189.436	14.734	-18.238
LOS ANGELES, CA	7	7.30	5	-3.44	797.737	58.208	-28.458
ST. LOUIS, MO-IL	8	5.06	11	-11.97	252.509	12.776	-34.322
CHICAGO, IL	9	3.92	10	-9.46	854.692	33.474	-89.257
BOSTON, MA	10	3.03	7	-5.86	278.418	8.435	-17.334
PITTSBURGH, PA	11	2.91	12	-12.54	243.102	7.076	-34.848
WASHINGTON, DC-MD-VA	12	-0.22	2	3.53	49.137	-0.110	1.677
PHILADELPHIA, PA-NJ	13	-2.33	13	-15.11	479.418	-11.184	-85.346
BALTIMORE, MD	14	-8.25	14	-17.35	164.349	-13.561	-34.502
NEW YORK, NY-NJ	15	-10.60	15	-27.62	685.942	-72.723	-261.770

MANUFACTURING EMPLOYMENT - SMSA GROUP 2
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
SAN DIEGO, CA	1	32.88	6	9.02	74.585	24.523	6.173
RIVERSIDE, CA	2	31.71	9	1.34	54.293	17.217	0.720
ANAHEIM, CA	3	30.35	2	21.54	151.244	45.900	26.808
SAN JOSE, CA	4	28.44	1	23.22	154.495	43.946	29.117
PHOENIX, AZ	5	25.91	3	21.19	86.759	22.476	15.172
DENVER, CO	6	20.66	5	15.50	101.838	21.044	13.670
MIAMI, FL	7	19.91	4	15.80	89.900	17.901	12.266
TAMPA, FL	8	16.78	7	8.62	61.694	10.352	4.896
PORTLAND, OR-WA	9	13.13	8	5.39	91.823	12.056	4.694
COLUMBUS, OH	10	12.45	13	-7.44	97.075	12.086	-7.808
INDIANAPOLIS, IN	11	7.36	12	-7.08	119.121	8.771	-9.073
CINCINNATI, OH-KY-IN	12	6.82	15	-8.58	173.083	11.798	-16.243
BUFFALO, NY	13	6.26	20	-17.18	140.569	8.805	-29.167
MILWAUKEE, WI	14	5.71	10	-2.52	202.918	11.595	-5.241
CLEVELAND, OH	15	3.69	17	-13.13	273.691	10.111	-41.383
KANSAS CITY, MO-KS	16	2.11	16	-12.91	116.321	2.451	-17.249
NEW ORLEANS, LA	17	1.99	14	-7.86	50.767	1.011	-4.329
NEWARK, NJ	18	-0.49	18	-14.88	233.571	-1.148	-40.832
SEATTLE, WA	19	-1.34	11	-6.13	122.273	-1.638	-7.991
ATLANTA, GA	20	-1.85	19	-15.84	117.274	-2.165	-22.080

APPENDIX 5-2

MANUFACTURING EMPLOYMENT - SMSA GROUP 3
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
FORT LAUDERDALE, FL	1	30.24	2	22.87	25.849	7.817	4.812
SALT LAKE CITY, UT	2	26.04	1	26.44	46.028	11.985	9.626
ORLANDO, FL	3	25.03	3	22.69	26.289	6.581	4.862
OKLAHOMA CITY, OK	4	18.94	5	3.49	41.871	7.929	1.412
JACKSONVILLE, FL	5	17.46	8	1.84	30.066	5.249	0.543
NORFOLK, VA-NC	6	17.30	4	17.21	28.476	4.927	4.182
SAN ANTONIO, TX	7	17.02	11	-0.98	38.939	6.626	-0.387
ROCHESTER, NY	8	16.20	15	-3.13	144.833	23.460	-4.681
TULSA, OK	9	14.44	10	0.42	43.884	6.337	0.185
GREENVILLE, SC	10	14.37	6	2.78	94.278	13.545	2.553
NASHVILLE, TN	11	14.27	9	0.42	76.545	10.925	0.321
GRAND RAPIDS, MI	12	13.30	18	-4.84	68.627	9.126	-3.494
LOUISVILLE, KY-IN	13	11.64	26	-9.32	107.685	12.539	-11.064
CHARLOTTE, NC	14	11.55	16	-3.88	81.927	9.463	-3.306
YOUNGSTOWN, OH	15	11.50	12	-1.47	84.272	9.691	-1.258
GREENSBORO, NC	16	11.38	13	-1.78	134.993	15.365	-2.443
FLINT, MI	17	11.29	7	2.54	66.007	7.455	1.636
OMAHA, NE-IA	18	10.63	19	-5.18	38.978	4.142	-2.130
TOLEDO, OH-MI	19	9.57	25	-8.68	83.883	8.027	-7.977
BIRMINGHAM, AL	20	8.77	24	-8.12	68.170	5.978	-6.025
GARY, IN	21	8.29	28	-11.76	94.670	7.851	-12.622
SYRACUSE, NY	22	7.46	33	-14.48	54.139	4.037	-9.166
PROVIDENCE, RI-MA	23	7.40	20	-5.89	126.061	9.323	-7.887
AKRON, OH	24	7.31	27	-9.54	87.843	6.417	-9.264
SACRAMENTO, CA	25	7.27	14	-2.26	22.368	1.626	-0.517
MEMPHIS, TN-AR-MS	26	5.84	21	-6.93	56.926	3.327	-4.240
ALBANY, NY	27	5.64	31	-12.98	60.945	3.437	-9.088
NEW BRUNSWICK, NJ	28	5.21	22	-7.68	87.416	4.552	-7.274
DAYTON, OH	29	5.18	37	-22.31	107.010	5.544	-30.729
ALLENTOWN, PA-NJ	30	5.10	23	-7.97	104.328	5.323	-9.040
WILMINGTON, DE-NJ-MD	31	4.57	30	-12.16	62.315	2.849	-8.624
RICHMOND, VA	32	4.22	17	-4.66	50.457	2.129	-2.464
NORTHEAST PENN, PA	33	1.01	29	-11.91	81.638	0.825	-11.036
HONOLULU, HI	34	-0.32	34	-16.60	16.057	-0.052	-3.196
SPRINGFIELD, MA-CT	35	-1.59	32	-13.47	58.717	-0.934	-9.137
HARTFORD, CT	36	-3.69	35	-18.07	89.449	-3.297	-19.732
JERSEY CITY, NJ	37	-7.67	36	-19.75	85.649	-6.568	-21.083

APPENDIX 5-2

MANUFACTURING EMPLOYMENT - SMSA GROUP 4
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
BAKERSFIELD, CA	1	32.35	6	16.45	9.501	3.074	1.342
VALLEJO, CA	2	29.54	14	7.93	7.909	2.336	0.581
SANTA BARBARA, CA	3	27.29	31	-0.84	10.558	2.881	-0.089
TUCSON, AZ	4	26.78	3	22.85	11.283	3.022	2.099
COLORADO SPRINGS, CO	5	26.52	4	17.30	8.312	2.204	1.226
EL PASO, TX	6	26.44	7	15.41	28.046	7.414	3.745
NEWPORT NEWS, VA	7	25.54	2	24.53	32.989	8.426	6.499
LAKELAND, FL	8	24.89	10	11.44	22.303	5.551	2.289
SALINAS, CA	9	24.66	20	5.06	7.844	1.934	0.378
ALBUQUERQUE, NM	10	24.05	1	40.61	13.722	3.300	3.963
AUSTIN, TX	11	23.97	9	12.02	13.556	3.250	1.455
STOCKTON, CA	12	23.53	11	8.92	18.384	4.326	1.506
ANN ARBOR, MI	13	23.41	23	3.47	33.749	7.900	1.132
OXNARD, CA	14	22.67	18	5.33	14.664	3.324	0.742
LAS VEGAS, NV	15	22.43	5	17.02	5.136	1.152	0.747
FRESNO, CA	16	22.33	16	6.05	19.331	4.316	1.102
LEXINGTON, KY	17	20.99	12	8.91	27.618	5.797	2.260
JACKSON, MS	18	20.18	13	8.49	15.052	3.037	1.178
COLUMBIA, SC	19	19.89	15	6.69	22.805	4.536	1.431
HUNTINGTON, WV-KY-OH	20	19.46	32	-0.86	25.921	5.045	-0.225
SHREVEPORT, LA	21	18.32	59	-11.67	22.244	4.075	-2.938
LORAIN, OH	22	17.21	36	-3.56	34.419	5.923	-1.270
BEAUMONT, TX	23	16.73	19	5.14	41.752	6.986	2.042
TACOMA, WA	24	16.48	29	1.33	20.211	3.331	0.266
HUNTSVILLE, AL	25	16.46	24	3.21	20.243	3.333	0.629
WEST PALM BEACH, FL	26	16.15	53	-9.83	18.995	3.067	-2.070
LANSING, MI	27	15.99	30	-0.33	37.872	6.054	-0.126
SPOKANE, WA	28	15.49	27	2.12	13.274	2.056	0.275
LITTLE ROCK, AR	29	15.21	22	3.58	29.058	4.420	1.004
MADISON, WI	30	13.83	34	-2.01	16.390	2.267	-0.336
FORT WAYNE, IN	31	13.82	39	-3.94	53.400	7.382	-2.190
APPLETON, WI	32	12.90	26	2.26	40.205	5.188	0.888
BINGHAMTON, NY-PA	33	12.34	58	-11.35	39.733	4.904	-5.086
ERIE, PA	34	12.06	40	-4.04	41.694	5.028	-1.754
CORPUS CHRISTI, TX	35	11.96	37	-3.84	11.273	1.348	-0.450
JOHNSON CITY, TN-VA	36	11.78	28	1.64	51.781	6.100	0.837
PEORIA, IL	37	11.52	49	-9.21	44.235	5.097	-4.487
DES MOINES, IA	38	11.47	21	4.36	27.278	3.130	1.139
BATON ROUGE, LA	39	10.95	44	-6.98	20.577	2.254	-1.545
CHATTANOOGA, TN-GA	40	10.63	38	-3.86	52.816	5.617	-2.118
MONTGOMERY, AL	41	9.68	17	5.43	12.411	1.201	0.639
PENSACOLA, FL	42	9.31	25	3.20	15.332	1.427	0.475
CANTON, OH	43	9.23	57	-11.23	55.087	5.082	-6.966
RALEIGH, NC	44	8.37	43	-6.42	25.434	2.129	-1.744
MOBILE, AL	45	7.66	42	-6.27	23.856	1.827	-1.596
ROCKFORD, IL	46	7.39	46	-8.09	49.549	3.661	-4.363
DAVENPORT, IA-IL	47	7.01	33	-1.65	44.834	3.142	-0.750
EVANSVILLE, IN-KY	48	6.45	41	-5.30	34.107	2.199	-1.909
YORK, PA	49	5.68	50	-9.40	55.745	3.168	-5.785
KNOXVILLE, TN	50	5.63	35	-2.19	47.585	2.678	-1.064
LAWRENCE, MA-NH	51	5.43	56	-10.87	37.832	2.056	-4.616
KALAMAZOO, MI	52	5.28	55	-10.67	29.739	1.570	-3.552
LANCASTER, PA	53	4.98	52	-9.78	50.989	2.537	-5.530
HARRISBURG, PA	54	4.96	47	-8.46	37.362	1.852	-3.451
WORCESTER, MA	55	4.70	64	-13.95	42.441	1.993	-6.879
NEW HAVEN, CT	56	4.52	48	-8.98	45.081	2.037	-4.449
LONG BRANCH, NJ	57	4.22	54	-10.33	22.786	0.962	-2.624
WICHITA, KS	58	2.79	8	12.64	44.798	1.249	5.027
SOUTH BEND, IN	59	2.26	45	-7.79	30.150	0.681	-2.546
UTICA, NY	60	2.15	69	-21.88	31.668	0.681	-8.870
JOHNSTOWN, PA	61	1.50	63	-12.45	22.232	0.334	-3.162
CHARLESTON, SC	62	1.23	67	-15.87	14.871	0.183	-2.805
READING, PA	63	1.15	62	-12.13	50.847	0.584	-7.017
PATERSON, NJ	64	-0.50	66	-14.92	69.997	-0.353	-12.278
TRENTON, NJ	65	-1.06	61	-12.07	35.421	-0.375	-4.861
AUGUSTA, GA-SC	66	-1.29	51	-9.76	26.469	-0.342	-2.863
BRIDGEPORT, CT	67	-1.43	65	-14.70	61.542	-0.883	-10.607
CHARLESTON, WV	68	-4.68	60	-11.69	15.619	-0.731	-2.068
DULUTH, MN-WI	69	-5.18	68	-16.61	11.609	-0.601	-2.313

APPENDIX 5-2

MANUFACTURING EMPLOYMENT - SMSA GROUP 5
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
SANTA CRUZ, CA	1	31.84	22	5.61	7.075	2.253	0.376
MODESTO, CA	2	31.35	12	11.26	17.119	5.366	1.732
SANTA ROSA, CA	3	31.21	6	20.51	8.743	2.729	1.488
KILLEEN, TX	4	29.49	3	42.61	5.636	1.662	1.684
ANCHORAGE, AK	5	29.34	4	38.15	1.847	0.542	0.510
FORT MYERS, FL	6	29.25	2	56.63	3.070	0.898	1.110
YAKIMA, WA	7	29.14	7	17.52	6.847	1.995	1.021
SARASOTA, FL	8	28.93	1	60.23	5.464	1.581	2.054
AMARILLO, TX	9	28.26	24	2.43	7.431	2.100	0.176
FAYETTEVILLE, NC	10	27.26	9	14.25	10.015	2.730	1.249
ST. CLOUD, MN	11	26.17	14	11.00	8.483	2.220	0.841
LUBBOCK, TX	12	24.70	13	11.17	8.162	2.016	0.820
PROVO, UT	13	24.61	15	10.97	8.880	2.185	0.878
PARKERSBURG, WV-OH	14	23.02	39	-5.18	17.048	3.924	-0.931
EUGENE, OR	15	22.17	21	7.49	20.227	4.484	1.410
WACO, TX	16	20.69	16	10.66	13.904	2.877	1.339
LIMA, OH	17	20.13	44	-7.59	26.213	5.277	-2.154
HAMILTON, OH	18	19.73	37	-3.03	27.579	5.442	-0.862
DAYTONA BEACH, FL	19	19.13	10	13.82	6.597	1.262	0.801
POUGHKEEPSIE, NY	20	18.90	23	3.33	29.638	5.602	0.954
SPRINGFIELD, MO	21	18.63	28	2.00	17.164	3.198	0.336
FORT SMITH, AR-OK	22	18.56	20	7.68	21.011	3.899	1.498
LAKE CHARLES, LA	23	18.56	30	1.41	9.486	1.761	0.132
MCALLEN, TX	24	18.52	5	21.96	3.510	0.650	0.632
SALEM, OR	25	18.40	19	7.69	11.856	2.181	0.847
LINCOLN, NE	26	17.93	8	16.46	12.474	2.237	1.763
TOPEKA, KS	27	17.85	11	12.28	11.008	1.965	1.204
BATTLE CREEK, MI	28	17.53	33	0.09	25.199	4.418	0.022
STAMFORD, CT	29	17.44	43	-7.40	26.931	4.696	-2.153
GREEN BAY, WI	30	17.17	26	2.23	17.817	3.059	0.389
BILOXI, MS	31	16.47	57	-29.28	5.087	0.838	-2.106
ROANOKE, VA	32	16.23	32	0.18	20.567	3.338	0.037
RACINE, WI	33	14.92	25	2.31	25.688	3.833	0.579
CHAMPAIGN, IL	34	14.89	34	-1.86	6.056	0.902	-0.115
SAGINAW, MI	35	13.82	18	9.01	31.396	4.338	2.595
GALVESTON, TX	36	13.26	29	1.49	11.912	1.579	0.175
SPRINGFIELD, OH	37	12.89	45	-7.64	19.577	2.524	-1.619
TERRE HAUTE, IN	38	12.40	41	-5.67	14.810	1.836	-0.891
STEUBENVILLE, OH-WV	39	10.96	27	2.20	31.280	3.429	0.672
COLUMBUS, GA-AL	40	10.64	36	-2.19	19.035	2.026	-0.426
ASHEVILLE, NC	41	10.48	35	-2.11	20.365	2.135	-0.440
MELBOURNE, FL	42	7.78	31	1.03	18.221	1.417	0.185
FALL RIVER, MA-RI	43	7.77	42	-5.91	20.765	1.614	-1.304
WHEELING, WV-OH	44	7.14	49	-10.40	14.605	1.043	-1.696
LOWELL, MA-NH	45	6.96	48	-9.94	19.690	1.371	-2.173
WATERBURY, CT	46	6.19	40	-5.56	34.580	2.140	-2.037
PORTLAND, ME	47	5.98	50	-10.76	15.861	0.949	-1.912
BROWNSVILLE, TX	48	5.62	17	9.40	5.423	0.305	0.466
NEW LONDON, CT-RI	49	4.33	47	-8.34	25.545	1.105	-2.324
MUSKEGON, MI	50	2.59	56	-19.26	20.126	0.521	-4.801
MACON, GA	51	0.92	46	-8.13	13.430	0.124	-1.189
SAVANNAH, GA	52	0.39	54	-13.69	14.755	0.058	-2.341
SPRINGFIELD, IL	53	0.02	52	-12.68	9.188	0.002	-1.334
NEW BEDFORD, MA	54	-0.96	51	-12.14	24.110	-0.232	-3.331
CEDAR RAPIDS, IA	55	-2.31	38	-3.37	24.332	-0.561	-0.849
BROCKTON, MA	56	-3.97	53	-12.92	11.802	-0.469	-1.751
ATLANTIC CITY, NJ	57	-7.98	55	-16.54	8.395	-0.670	-1.664

APPENDIX 5-2

MANUFACTURING EMPLOYMENT - SMSA GROUP 6
(Total Employment in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Employment 1975	Change 75-80	Change 70-75
GREELEY, CO	1	36.63	1	88.30	6.146	2.251	2.882
FORT COLLINS, CO	2	35.59	7	31.74	6.513	2.318	1.569
LAFAYETTE, LA	3	31.00	3	70.54	2.258	0.700	0.934
TYLER, TX	4	29.37	32	5.13	11.131	3.269	0.543
RICHLAND, WA	5	28.87	10	20.60	7.060	2.038	1.206
MIDLAND, TX	6	28.74	6	33.12	1.479	0.425	0.368
TALLAHASSEE, FL	7	28.15	21	10.83	2.384	0.671	0.233
CLARKSVILLE, TN-KY	8	26.64	8	30.59	8.295	2.210	1.943
ABILENE, TX	9	26.36	9	23.43	5.295	1.396	1.005
SAN ANGELO, TX	10	25.83	12	17.65	3.713	0.959	0.557
ROCHESTER, MN	11	25.76	38	0.90	6.409	1.651	0.057
ALBANY, GA	12	25.46	34	3.82	8.379	2.133	0.308
LONGVIEW, TX	13	24.90	23	10.13	15.335	3.819	1.411
WICHITA FALLS, TX	14	23.96	11	17.92	5.397	1.293	0.820
TUSCALOOSA, AL	15	23.72	22	10.36	11.731	2.783	1.101
RENO, NV	16	23.56	4	41.60	4.248	1.001	1.248
ODESSA, TX	17	23.40	29	6.41	4.347	1.017	0.262
BRYAN, TX	18	22.37	20	12.39	1.578	0.353	0.174
BOISE CITY, ID	19	22.22	13	15.12	5.724	1.272	0.752
PASCAGOULA, MS	20	21.87	2	74.28	28.770	6.293	12.262
BLOOMINGTON, IN	21	21.80	5	35.12	12.022	2.621	3.125
MONROE, LA	22	20.53	36	1.68	6.777	1.391	0.112
DUBUQUE, IA	23	20.16	14	15.01	15.857	3.196	2.069
COLUMBIA, MO	24	20.06	39	-0.93	1.909	0.383	-0.018
FAYETTEVILLE, AR	25	20.06	25	8.82	17.847	3.580	1.446
KENOSHA, WI	26	19.41	42	-3.17	15.911	3.089	-0.521
LAREDO, TX	27	18.91	18	12.56	1.264	0.239	0.141
ALEXANDRIA, LA	28	18.80	70	-16.26	4.415	0.830	-0.857
SIOUX CITY, IA-NE	29	17.49	27	7.56	10.866	1.901	0.764
EAU CLAIRE, WI	30	17.19	53	-9.13	11.114	1.910	-1.116
GAINESVILLE, FL	31	16.47	45	-4.11	3.642	0.600	-0.156
WILMINGTON, NC	32	15.82	52	-7.42	9.826	1.554	-0.787
PUEBLO, CO	33	15.69	28	7.01	9.833	1.543	0.644
MANSFIELD, OH	34	14.91	41	-2.33	21.864	3.260	-0.521
LAFAYETTE, IN	35	14.81	44	-3.51	10.636	1.575	-0.387
BILLINGS, MT	36	14.77	19	12.50	3.690	0.545	0.410
SHERMAN, TX	37	14.15	26	8.12	7.534	1.066	0.566
DECATUR, IL	38	13.60	49	-5.34	18.712	2.544	-1.055
LYNCHBURG, VA	39	13.45	51	-6.83	24.135	3.247	-1.770
MANCHESTER, NH	40	13.43	48	-5.19	17.284	2.322	-0.947
WATERLOO, IA	41	13.23	15	14.36	20.702	2.738	2.600
NASHUA, NH	42	13.16	57	-10.72	13.509	1.778	-1.622
ANNISTON, AL	43	12.86	40	-1.41	11.573	1.488	-0.165
PINE BLUFF, AR	44	12.35	31	5.18	6.154	0.760	0.303
LA CROSSE, WI	45	12.02	37	1.50	8.521	1.024	0.126
JACKSON, MI	46	11.64	50	-5.79	16.337	1.901	-1.004
FARGO, ND-MN	47	11.26	30	5.85	3.276	0.369	0.181
SIOUX FALLS, SD	48	11.20	17	13.05	7.000	0.784	0.808
LAWTON, OK	49	11.11	24	9.76	1.485	0.165	0.132
DANBURY, CT	50	9.92	55	-9.19	15.981	1.585	-1.617
OWENSBORO, KY	51	8.37	35	2.85	9.818	0.822	0.272
PETERSBURG, VA	52	8.19	16	13.60	13.228	1.084	1.584
BURLINGTON, NC	53	7.44	56	-9.30	24.494	1.822	-2.511
NEW BRITAIN, CT	54	7.04	65	-12.36	26.091	1.838	-3.681
ANDERSON, IN	55	6.95	47	-4.57	25.787	1.791	-1.236
VINELAND, NJ	56	5.98	61	-12.05	19.283	1.153	-2.643
BRISTOL, CT	57	5.82	67	-14.29	10.262	0.597	-1.711
NORWALK, CT	58	5.43	60	-11.59	17.425	0.946	-2.284
ST. JOSEPH, MO	59	5.13	58	-10.99	9.042	0.464	-1.116
ELMIRA, NY	60	5.00	71	-16.62	13.868	0.694	-2.765
BLOOMINGTON, IL	61	4.93	43	-3.26	5.837	0.288	-0.197
TEXARKANA, TX-AR	62	4.65	68	-14.59	11.044	0.514	-1.887
MERIDEN, CT	63	4.08	63	-12.27	6.763	0.276	-0.946
ALTOONA, PA	64	3.20	64	-12.33	14.166	0.454	-1.993
FLORENCE, AL	65	3.15	46	-4.35	11.997	0.378	-0.546
GADSDEN, AL	66	2.53	59	-11.55	10.633	0.269	-1.388
FITCHBURG, MA	67	0.77	62	-12.05	12.017	0.092	-1.646
PITTSFIELD, MA	68	0.50	66	-13.32	12.211	0.061	-1.876
WILLIAMSPORT, PA	69	0.13	54	-9.17	17.901	0.023	-1.808
LEWISTON, ME	70	-0.33	73	-18.97	11.054	-0.036	-2.588
BAY CITY, MI	71	-1.50	69	-15.84	9.106	-0.137	-1.714
MUNCIE, IN	72	-2.47	72	-18.07	15.000	-0.370	-3.308
GREAT FALLS, MT	73	-11.30	74	-20.08	2.424	-0.274	-0.609
KANKAKEE, IL	74	-21.21	33	5.04	11.096	-2.353	0.532

Appendix 5-3.

MANUFACTURING EMPLOYMENT IN THE STATES AND THE U.S.: BY TWO-DIGIT SIC CATEGORIES

(numbers in thousands)

	SIC 20 Food and Kindred Products				SIC 21 Tobacco Manufactures				SIC 22 Textile Mill Products				SIC 23 Apparel and Related Products				SIC 24 Lumber and Wood Products			
			Change				Change				Change				Change				Change	
	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent
United States, Total	1,619.0	1,527.3	- 91.7	- 5.7%	71.4	66.2	- 5.2	- 7.3%	924.5	838.4	- 86.1	- 9.3%	1,341.4	1,212.5	-128.9	- 9.6%	541.6	591.7	49.9	9.2%
New England																				
Maine	11.6	10.0	- 1.6	-13.8%	-	-	-	-	8.1	10.3	2.2	27.2%	3.4	2.4	- 1.0	-29.4%	10.6	12.5	1.9	17.9%
New Hampshire	3.2	2.6	- 0.6	-18.8%	-	-	-	-	7.4	5.5	- 1.9	-25.7%	1.6	2.1	0.5	31.3%	4.5	5.3	0.8	17.7%
Vermont	1.6	2.1	0.5	31.3%	-	-	-	-	0.6	1.1	0.5	83.3%	1.0	1.4	0.4	40.0%	2.7	3.1	0.4	14.8%
Massachusetts	34.9	29.4	- 5.5	-15.8%	-	-	-	-	30.4	23.6	- 6.8	-22.4%	46.1	40.0	- 6.1	-13.2%	3.7	4.1	0.4	10.8%
Rhode Island	4.9	3.6	- 1.3	-26.5%	-	-	-	-	18.0	12.1	- 5.9	-32.8%	3.1	2.9	- 0.2	- 6.5%	0.5	0.4	- 0.1	-20.0%
Connecticut	10.5	8.6	- 1.9	-18.1%	-	-	-	-	14.4	10.2	- 4.2	-29.2%	13.0	12.9	- 0.1	- 0.8%	1.4	1.2	- 0.2	-14.3%
Middle Atlantic																				
New York	105.5	84.8	- 20.7	-19.6%	-	-	-	-	48.5	41.5	- 7.0	-14.4%	269.3	189.9	- 79.4	-29.5%	14.8	15.1	0.3	2.0%
New Jersey	57.6	47.8	- 9.8	-17.0%	-	-	-	-	26.4	21.4	- 5.0	-18.9%	66.1	61.2	- 4.9	- 7.4%	4.5	4.5	0.0	0.0%
Pennsylvania	106.1	92.0	- 14.1	13.3%	8.8	4.8	- 4.0	-45.5%	62.4	49.5	- 12.9	-20.7%	171.1	126.1	- 45.0	-26.3%	13.3	19.1	5.8	43.6%
South Atlantic																				
Delaware	9.0	7.1	- 1.9	-21.1%	-	-	-	-	1.2	0.8	- .4	-33.3%	0.7	1.7	1.0	142.9%	0.5	0.7	0.2	40.0%
Maryland	37.0	31.9	- 5.1	-13.8%	-	-	-	-	2.7	0.5	- 2.2	-81.5%	18.5	17.0	- 1.5	- 8.1%	3.8	4.9	1.1	28.9%
District of Columbia	2.8	1.3	- 1.5	-53.6%	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
Virginia	32.8	33.6	0.8	2.4%	14.6	15.3	0.7	4.8%	40.4	40.0	- 0.4	- 1.0%	34.6	34.5	- 0.1	- 0.3%	20.3	19.4	- 0.9	- 4.4%
West Virginia	6.8	4.5	- 2.3	-33.8%	-	-	-	-	1.7	0.8	- 0.9	-52.9%	4.4	4.6	0.2	4.5%	4.3	4.8	0.5	11.6%
North Carolina	37.6	38.2	0.6	1.6%	24.6	25.4	0.8	3.3%	271.9	250.6	- 21.3	- 7.8%	69.1	68.6	- 0.5	- 0.7%	25.9	28.2	2.3	8.9%
South Carolina	12.3	11.4	- 0.9	- 7.3%	1.0	0.6	- 0.4	-40.0%	137.7	135.3	- 2.4	- 1.7%	41.9	42.4	0.5	1.2%	13.3	12.7	- 0.6	- 4.5%
Georgia	43.3	44.8	1.5	3.5%	-	-	-	-	109.0	102.3	- 6.7	- 6.1%	69.0	67.0	- 2.0	- 2.9%	18.8	24.5	5.7	30.3%
Florida	44.9	44.8	- 0.1	- 0.2%	5.8	3.8	- 2.0	-34.5%	2.4	4.8	2.4	100.0%	20.6	29.7	9.1	44.2%	12.9	13.0	0.1	0.8%
East North Central																				
Ohio	76.6	72.3	- 4.3	- 5.6%	-	-	-	-	9.2	6.5	- 2.7	-29.3%	19.2	17.8	- 1.4	- 7.3%	10.8	12.2	1.4	12.9%
Indiana	42.8	36.4	- 6.4	-15.0%	-	-	-	-	0.7	0.8	0.1	14.3%	11.7	14.4	2.7	23.1%	10.8	17.3	6.5	60.2%
Illinois	120.4	102.8	- 17.6	-14.6%	-	-	-	-	4.7	3.9	- 0.8	-17.0%	39.3	26.6	- 12.7	-32.3%	10.6	10.9	0.3	2.8%
Michigan	49.0	43.6	- 5.4	-11.0%	-	-	-	-	2.6	2.8	0.2	7.7%	20.6	18.3	- 2.3	-11.2%	12.5	13.2	0.7	5.6%
Wisconsin	59.6	59.4	- 0.2	- 0.3%	-	-	-	-	6.8	5.0	- 1.8	-26.5%	8.0	5.9	- 2.1	-26.3%	13.1	18.7	5.6	42.7%
West North Central																				
Minnesota	41.9	42.8	0.9	2.1%	-	-	-	-	2.1	1.8	- 0.3	-14.3%	8.2	6.2	- 2.0	-24.4%	5.9	9.8	3.9	66.1%
Iowa	51.0	44.7	- 6.3	-12.4%	-	-	-	-	0.3	0.4	0.1	33.3%	-	2.9	-	-	3.9	5.2	1.3	33.3%
Missouri	48.7	41.3	- 7.4	-15.2%	-	-	-	-	2.2	-	-	-	31.7	27.0	- 4.7	-14.8%	7.5	9.2	1.7	22.7%
North Dakota	3.5	3.0	- 0.5	-14.3%	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-
South Dakota	7.8	8.3	0.5	6.4%	-	-	-	-	-	-	-	-	-	-	-	-	1.1	1.7	0.6	54.5%
Nebraska	23.2	25.5	2.3	9.9%	-	-	-	-	-	0.4	-	-	1.3	1.9	0.6	46.2%	0.9	2.0	1.1	122.2%
Kansas	17.1	22.1	5.0	29.2%	-	-	-	-	-	-	-	-	3.8	3.5	- 0.3	- 7.0%	0.8	2.8	2.0	250.0%
East South Central																				
Kentucky	21.9	21.2	- 0.7	- 3.2%	11.3	9.1	- 2.2	-19.5%	2.9	6.5	3.6	124.1%	27.6	25.2	- 2.4	- 8.7%	8.5	10.8	2.3	27.1%
Tennessee	32.6	34.9	2.3	7.1%	0.9	1.0	.1	11.1%	32.4	26.9	- 5.5	-17.0%	63.9	63.8	- 0.1	- 0.2%	15.0	13.1	- 1.9	-12.7%
Alabama	22.7	23.8	1.1	4.8%	-	-	-	-	42.0	42.8	0.8	1.9%	42.0	48.4	6.4	15.2%	21.1	19.8	- 1.3	- 6.2%
Mississippi	15.5	17.2	1.7	11.0%	-	-	-	-	6.8	7.3	0.5	7.4%	37.0	35.9	- 1.1	- 3.0%	23.3	19.5	- 3.8	-16.3%
West South Central																				
Arkansas	24.0	23.7	- 0.3	- 1.3%	-	-	-	-	3.9	3.9	0.0	0.0%	15.2	14.5	- 0.7	- 4.6%	18.7	18.0	- 0.7	- 3.7%
Louisiana	28.8	28.6	- 0.2	- 0.7%	-	-	-	-	-	1.9	-	-	7.0	8.8	1.8	25.7%	14.1	14.6	0.5	3.5%
Oklahoma	16.0	14.9	- 1.1	- 6.9%	-	-	-	-	-	1.8	-	-	8.5	11.3	2.8	32.9%	1.6	3.1	1.5	93.8%
Texas	79.0	77.1	- 2.2	- 2.8%	-	-	-	-	6.7	5.5	- 1.2	-17.9%	57.2	68.0	10.8	18.9%	18.9	25.9	7.0	37.0%
Mountain																				
Montana	3.4	3.6	0.2	5.9%	-	-	-	-	-	-	-	-	-	0.1	-	-	6.9	6.7	- 0.2	- 2.9%
Idaho	15.0	15.0	0.0	0.0%	-	-	-	-	-	-	-	-	-	0.3	-	-	14.1	12.7	- 1.4	- 9.9%
Wyoming	1.2	1.1	- 0.1	- 8.3%	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-
Colorado	19.4	24.3	4.9	25.3%	-	-	-	-	-	-	-	-	1.7	3.2	1.5	88.2%	1.9	4.2	2.3	121.1%
New Mexico	4.0	4.5	0.5	12.5%	-	-	-	-	-	-	-	-	-	1.8	1.8	-	-	2.4	-	-
Arizona	6.3	5.9	- 0.4	- 6.3%	-	-	-	-	-	-	-	-	4.2	5.6	1.4	33.3%	2.9	4.4	1.5	51.7%
Utah	7.8	8.5	0.7	9.0%	-	-	-	-	-	-	-	-	5.4	4.2	- 1.2	-22.2%	1.2	1.9	0.7	58.3%
Nevada	1.2	1.4	0.2	16.7%	-	-	-	-	-	-	-	-	-	0.1	-	-	-	0.3	-	-
Pacific																				
Washington	27.5	27.4	- 0.1	- 0.4%	-	-	-	-	-	0.8	-	-	5.3	4.8	- 0.5	- 9.4%	40.7	44.8	4.1	10.1%
Oregon	22.1	22.6	0.5	2.3%	-	-	-	-	2.1	-	-	-	4.4	-	-	-	69.6	63.8	- 0.8	- 1.2%
California	154.4	156.6	2.2	1.4%	-	-	-	-	11.0	11.8	0.8	7.3%	74.5	81.1	6.6	8.9%	46.0	53.7	7.7	16.7%
Alaska	3.5	3.1	- 0.4	-11.4%	-	-	-	-	-	-	-	-	-	-	-	-	1.8	1.8	0.0	0.0%
Hawaii	11.8	11.6	- 0.2	- 1.7%	-	-	-	-	-	-	-	-	3.0	3.1	0.1	3.3%	0.4	0.7	0.3	75.0%

Source: Annual Census of Manufactures, 1970-1975.

Appendix 5-3.

MANUFACTURING EMPLOYMENT IN THE STATES AND THE U.S.: BY TWO-DIGIT SIC CATEGORIES

(numbers in thousands)
(continued)

	SIC 25 Furniture and Fixtures				SIC 26 Paper and Allied Products				SIC 27 Printing and Publishing				SIC 28 Chemicals and Allied Products				SIC 29 Petroleum and Coal Products			
			Change				Change				Change				Change				Change	
	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent
United States, Total	436.9	397.8	- 39.1	- 8.9%	659.0	589.5	- 69.5	-10.5%	1,077.2	1,072.8	- 4.4	- 0.4%	881.0	848.1	- 32.9	- 3.7%	143.8	141.1	- 2.7	- 1.9%
New England																				
Maine	0.8	0.9	0.1	12.5%	16.1	15.6	- 0.5	- 3.1%	2.7	2.8	0.1	3.7%	0.9	0.7	- 0.7	-22.2%	-	-	-	-
New Hampshire	1.9	1.3	- 0.6	-31.6%	6.0	6.2	0.2	3.3%	3.7	3.9	0.2	5.4%	0.5	0.8	0.2	60.0%	-	0.1	-	-
Vermont	1.8	2.1	0.3	16.6%	-	2.0	-	-	3.6	3.5	- 0.1	- 2.8%	0.5	0.2	- 0.3	-60.0%	-	-	-	-
Massachusetts	10.0	8.3	- 1.7	-17.0%	36.6	27.3	- 9.3	-25.4%	44.0	40.2	- 3.8	- 8.6%	18.5	14.9	- 3.6	-19.5%	-	-	-	-
Rhode Island	1.0	0.6	- 0.4	-40.0%	3.2	2.0	- 1.2	-37.5%	5.2	4.9	- 0.3	- 5.8%	3.4	2.8	- 0.6	-17.6%	-	-	-	-
Connecticut	5.5	3.2	- 2.3	-41.8%	3.9	7.2	3.3	84.6%	18.5	21.3	2.8	15.1%	13.3	12.0	- 1.3	- 9.7%	0.6	-	-	-
Middle Atlantic																				
New York	31.8	23.0	- 8.8	-27.7%	61.1	42.4	- 18.7	-30.6%	184.4	151.8	- 32.6	-17.7%	61.6	52.5	- 9.1	-14.8%	1.9	-	-	-
New Jersey	8.9	8.2	- 0.7	- 7.9%	36.2	28.1	- 8.1	-22.4%	40.3	38.7	- 1.6	- 3.9%	102.1	95.7	- 6.4	- 6.3%	7.0	-	-	-
Pennsylvania	22.4	17.3	- 5.1	-27.8%	47.9	37.5	- 10.4	-21.7%	62.5	72.7	10.2	16.3%	51.1	42.7	- 8.4	-16.4%	12.9	11.2	- 1.7	-13.2%
South Atlantic																				
Delaware	-	0.2	-	-	-	-	-	-	1.7	1.5	- 0.2	-11.8%	-	-	-	-	-	-	-	-
Maryland	4.2	2.2	- 2.0	-47.6%	10.6	8.8	- 1.8	-17.0%	19.4	21.7	2.3	11.9%	17.5	12.9	- 4.6	-26.3%	-	1.1	-	-
District of Columbia	-	0.1	-	-	-	-	-	-	15.9	13.3	- 2.6	-16.4%	-	-	-	-	-	-	-	-
Virginia	23.7	22.9	- 0.8	- 3.4%	13.5	22.9	9.4	69.0%	14.5	11.7	- 2.8	-19.3%	37.9	31.6	- 6.3	-16.6%	-	-	-	-
West Virginia	1.3	1.0	- 0.3	-23.1%	1.4	1.6	0.2	14.3%	4.2	3.9	- 0.3	- 7.1%	22.9	18.9	- 4.0	-17.5%	0.6	1.0	0.4	66.7%
North Carolina	66.5	66.4	- 0.1	- 0.2%	15.9	14.8	- 1.1	- 6.9%	15.3	16.3	1.0	6.5%	21.1	31.1	10.0	47.4%	-	0.8	-	-
South Carolina	4.5	3.9	- 0.6	-13.3%	11.9	11.9	0.0	0.0%	4.2	5.2	1.0	23.8%	23.7	27.3	3.6	15.2%	-	-	-	-
Georgia	9.4	7.5	- 1.9	-20.2%	23.0	23.6	0.6	2.6%	14.3	14.3	0.0	0.0%	14.1	13.9	- 0.2	- 1.4%	1.0	1.5	0.5	50.0%
Florida	11.3	8.2	- 3.1	-27.4%	16.4	14.5	- 1.9	-11.6%	23.3	27.5	4.2	18.0%	20.2	22.7	2.5	12.4%	0.9	0.9	0.0	0.0%
East North Central																				
Ohio	18.2	16.8	- 1.4	- 7.7%	39.1	32.4	- 6.7	-17.1%	66.8	56.7	- 10.1	-15.1%	50.6	45.4	- 5.2	-10.3%	5.8	6.8	1.0	17.2%
Indiana	20.5	19.4	- 1.1	- 5.4%	13.4	11.5	- 1.9	-14.2%	29.0	26.1	- 2.9	-10.0%	26.5	25.4	- 1.1	- 4.2%	6.7	4.5	- 2.2	-32.8%
Illinois	23.0	20.8	- 2.2	- 9.6%	41.6	35.7	- 5.9	-14.2%	109.8	107.2	- 2.6	- 2.4%	57.9	52.5	- 5.4	- 9.3%	11.6	10.5	- 1.1	- 9.5%
Michigan	20.3	19.0	- 1.3	- 6.4%	26.9	21.6	- 5.3	-19.7%	34.7	34.9	0.2	0.6%	35.3	33.0	- 2.3	- 6.5%	-	2.1	-	-
Wisconsin	8.1	8.0	- 0.1	- 1.2%	39.0	37.5	- 1.5	- 3.8%	26.3	29.8	3.5	13.3%	10.7	8.2	- 2.5	-23.4%	-	0.3	-	-
West North Central																				
Minnesota	4.0	3.7	- 0.3	- 7.5%	17.7	17.6	- .1	- 0.6%	27.4	26.4	- 1.0	- 3.6%	6.3	6.5	0.2	3.2%	2.3	1.7	- 0.6	-26.1%
Iowa	2.8	3.0	0.2	7.1%	4.1	4.3	0.2	4.9%	15.1	13.1	- 2.0	-13.2%	5.6	5.7	0.1	1.8%	0.2	0.3	0.1	50.0%
Missouri	4.7	6.7	2.0	42.6%	12.6	13.2	0.6	4.8%	34.4	33.6	- 0.8	- 2.3%	24.3	22.7	- 1.6	- 6.6%	1.9	-	-	-
North Dakota	-	-	-	-	-	-	-	-	2.4	3.5	1.1	45.8%	-	-	-	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-	-	2.9	2.2	- 0.7	-24.1%	-	-	-	-	-	-	-	-
Nebraska	1.8	1.7	- 0.1	- 5.6%	-	1.0	-	-	5.9	7.8	1.9	32.2%	1.9	2.5	0.6	31.6%	-	0.2	-	-
Kansas	2.1	1.6	- 0.5	-23.8%	3.9	-	-	-	13.0	17.0	4.0	30.8%	8.6	5.6	- 3.0	-34.9%	3.6	3.9	0.3	8.3%
East South Central																				
Kentucky	5.6	4.5	- 1.1	-19.6%	4.7	6.9	2.2	46.8%	12.1	11.9	- 0.2	- 1.7%	13.7	14.1	0.4	2.9%	-	-	-	-
Tennessee	21.6	21.4	- 0.2	- 0.9%	14.9	14.8	- 0.1	- 0.7%	20.6	23.1	2.5	12.1%	53.7	50.4	- 3.3	- 6.1%	0.8	0.8	0.0	0.0%
Alabama	5.7	4.7	- 1.0	-17.5%	15.8	17.5	1.7	20.8%	8.8	7.0	- 1.8	-20.5%	11.6	10.6	- 1.0	- 8.6%	0.8	-	-	-
Mississippi	11.1	12.7	1.6	-14.4%	6.2	5.6	- 0.6	-10.8%	4.0	4.0	0.0	0.0%	5.4	5.6	0.2	3.7%	-	1.3	-	-
West South Central																				
Arkansas	10.9	9.4	- 1.5	-13.8%	8.5	8.8	0.3	3.5%	5.9	6.1	0.2	3.4%	3.7	5.0	1.3	35.1%	1.3	3.0	1.7	130.8%
Louisiana	-	1.2	-	-	15.0	13.6	- 1.4	- 9.3%	7.6	6.1	- 1.5	-19.7%	22.3	27.8	5.5	24.7%	11.0	9.9	- 1.1	-10.0%
Oklahoma	1.1	2.0	0.9	81.8%	1.1	1.7	0.6	54.5%	9.0	9.9	0.9	10.0%	1.4	-	-	-	5.2	4.7	- 0.5	- 9.6%
Texas	15.0	14.9	- 0.1	- 0.7%	17.6	16.7	- 0.9	- 5.1%	33.1	43.1	10.0	30.2%	54.2	61.3	7.1	13.1%	34.8	34.5	- 0.3	- 0.9%
Mountain																				
Montana	-	0.1	-	-	-	-	-	-	1.6	2.0	0.4	25.0%	0.7	0.4	- 0.3	42.8%	0.8	-	-	-
Idaho	-	0.1	-	-	-	-	-	-	1.9	2.2	0.3	15.8%	3.9	4.8	0.9	23.1%	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	0.9	0.7	- 0.2	-22.2%	-	-	-	-	1.3	1.3	0.0	0.0%
Colorado	1.5	1.2	- 0.3	-20.0%	1.7	1.1	- 0.6	-35.3%	10.9	10.9	0.0	0.0%	1.9	3.2	1.3	68.4%	0.6	1.3	0.7	116.7%
New Mexico	-	-	-	-	-	-	-	-	1.6	2.2	0.6	37.5%	0.5	1.4	0.9	180.0%	0.2	0.3	0.1	50.0%
Arizona	0.9	1.5	0.6	66.7%	-	1.2	-	-	5.0	7.3	2.3	46.0%	1.6	1.9	0.3	18.0%	-	-	-	-
Utah	0.5	1.7	1.2	240.0%	0.5	-	-	-	3.4	4.2	0.8	23.5%	1.0	1.0	0.0	0.0%	0.7	0.8	0.1	14.3%
Nevada	0.4	-	-	-	-	-	-	-	1.2	1.7	0.5	41.6%	0.8	0.9	0.1	12.5%	-	-	-	-
Pacific																				
Washington	2.6	1.6	- 1.0	-38.5%	18.6	15.6	- 3.0	-16.1%	11.0	10.8	- 0.2	- 1.8%	6.4	6.1	- 0.3	- 4.7%	-	1.9	-	-
Oregon	2.7	2.6	- 0.1	- 3.7%	9.2	8.8	- 0.4	- 4.3%	7.8	7.9	0.1	1.3%	1.9	2.1	0.2	10.5%	0.4	-	-	-
California	37.7	41.2	3.5	9.3%	34.2	35.4	1.2	3.5%	82.8	89.9	7.1	8.6%	50.0	52.4	2.4	4.8%	17.0	16.4	- 0.6	- 3.6%
Alaska	-	0.2	-	-	-	-	-	-	0.5	0.7	0.2	40.0%	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	2.5	2.7	0.2	8.0%	-	-	-	-	-	-	-	-

Appendix 5-3.

MANUFACTURING EMPLOYMENT IN THE STATES AND THE U.S.: BY TWO-DIGIT SIC CATEGORIES

(numbers in thousands)
(continued)

	SIC 30 Rubber and Plastic Products, n.e.c.				SIC 31 Leather and Leather Products				SIC 32 Stone, Clay, and Glass Products				SIC 33 Primary Metal Industries				SIC 34 Fabricated Metal Products			
			Change				Change				Change				Change				Change	
	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent
United States, Total	545.8	587.4	41.6	7.6%	295.8	240.0	- 55.8	-18.9%	591.3	591.6	0.3	0.1%	1,261.2	1,090.6	-170.6	-13.5%	1,333.5	1,419.9	86.4	6.5%
New England																				
Maine	4.0	3.7	- 0.3	- 7.5%	24.2	16.4	- 2.8	-32.2%	1.2	1.9	0.7	58.3%	1.1	-	-	-	1.6	2.6	1.0	62.5%
New Hampshire	6.1	6.3	0.2	3.3%	15.7	10.0	- 5.7	-36.3%	2.6	3.1	0.5	19.2%	2.4	1.3	- 1.1	-45.8%	2.8	3.8	1.0	35.7%
Vermont	-	1.6	-	-	0.6	0.5	- 0.1	-16.7%	4.1	2.2	- 1.9	-46.3%	0.9	-	-	-	0.6	3.0	2.4	400.0%
Massachusetts	34.4	28.2	- 6.2	-18.0%	36.2	21.1	- 15.1	-41.7%	12.6	12.5	- .1	- 0.8%	20.2	9.9	- 10.3	-51.0%	40.2	44.1	3.9	9.7%
Rhode Island	-	5.7	-	-	-	2.0	-	-	2.2	1.6	- .6	-27.3%	10.5	8.0	- 2.5	-23.8%	9.0	13.3	4.3	47.8%
Connecticut	12.4	14.0	1.6	12.9%	1.8	1.8	0	0.0%	8.9	6.2	- 2.7	-30.3%	26.0	19.4	- 6.6	-25.4%	46.3	47.0	0.7	1.5%
Middle Atlantic																				
New York	34.0	27.3	- 6.7	19.7%	39.2	29.1	- 10.1	-25.8%	35.8	35.4	- 0.4	- 1.1%	68.3	53.9	- 14.5	-21.2%	88.4	83.0	- 5.4	- 6.1%
New Jersey	33.8	31.1	- 2.7	- 8.0%	9.7	8.4	- 1.3	-13.4%	39.7	32.1	- 7.6	-19.1%	34.0	25.6	- 8.4	-24.7%	63.7	48.4	- 14.3	-22.4%
Pennsylvania	32.9	33.2	0.6	1.8%	26.5	21.3	- 5.2	-19.6%	55.2	51.6	- 3.6	- 6.5%	217.4	189.8	- 27.6	-12.7%	113.2	105.3	- 7.9	- 7.0%
South Atlantic																				
Delaware	4.7	2.9	- 1.8	-38.3%	1.5	-	-	-	0.8	-	-	-	2.6	2.2	- 0.4	-15.4%	1.5	1.3	- 0.2	-13.3%
Maryland	8.3	8.5	0.2	2.4%	2.5	1.9	- 0.6	-24.0%	10.3	8.6	- 1.7	-16.5%	36.7	26.7	- 10.0	-27.2%	14.4	11.3	- 3.1	-21.5%
District of Columbia	-	-	-	-	-	-	-	-	0.4	-	-	-	-	-	-	-	0.4	0.7	0.3	75.0%
Virginia	8.7	9.8	1.1	12.6%	5.0	3.2	- 1.8	-36.0%	9.3	9.4	0.1	1.1%	7.7	8.3	0.6	7.8%	11.8	15.7	3.9	33.1%
West Virginia	-	-	-	-	1.7	-	-	-	19.7	18.2	- 1.5	- 7.6%	23.0	23.2	0.2	0.9%	6.9	7.6	0.7	10.1%
North Carolina	11.9	16.5	4.6	38.7%	2.9	3.7	0.8	27.6%	14.1	15.5	1.4	9.9%	6.0	6.3	0.3	5.0%	16.2	18.9	2.7	16.7%
South Carolina	4.5	-	-	-	-	-	-	-	9.1	9.8	0.7	7.7%	2.4	4.5	2.1	87.5%	7.1	8.8	1.7	23.9%
Georgia	7.3	12.5	5.2	71.2%	4.5	3.2	- 1.3	-28.9%	13.2	16.3	3.1	23.5%	9.3	10.6	1.3	14.0%	14.0	16.3	2.3	16.4%
Florida	5.2	9.8	4.6	88.5%	2.5	3.5	1.0	-40.0%	15.1	14.7	- 0.4	- 2.6%	3.7	3.0	- 0.7	-18.9%	22.8	22.6	- 0.2	- 0.9%
East North Central																				
Ohio	89.6	86.9	- 2.7	- 3.0%	8.7	-	-	-	60.4	59.0	- 1.4	- 2.3%	167.8	141.2	- 26.6	-15.9%	147.2	154.6	7.4	5.0%
Indiana	26.9	27.1	0.2	0.7%	3.2	-	-	-	23.7	22.0	- 1.7	- 7.2%	110.4	96.2	- 14.2	-12.9%	51.8	61.9	10.1	19.5%
Illinois	37.0	38.0	1.0	2.7%	10.9	-	-	-	37.2	36.4	- .8	- 2.2%	107.8	89.8	- 18.0	-16.7%	137.7	135.7	- 2.0	- 1.5%
Michigan	21.8	26.6	4.8	22.0%	3.2	-	-	-	21.0	18.7	- 2.3	-11.0%	90.6	72.6	- 18.0	-19.9%	122.2	115.7	- 6.5	- 5.3%
Wisconsin	11.2	13.7	2.5	22.3%	13.9	3.0	- 10.9	-78.4%	7.7	7.6	- 0.1	- 1.3%	28.1	29.7	1.6	5.7%	43.6	50.5	6.9	15.8%
West North Central																				
Minnesota	3.9	7.1	3.2	82.0%	-	-	-	-	6.6	7.5	0.9	13.6%	8.3	6.4	- 1.9	-22.9%	19.2	32.2	13.0	67.7%
Iowa	7.5	10.1	2.6	34.6%	-	1.2	-	-	6.7	6.9	0.2	3.0%	8.4	8.1	- 0.3	- 3.6%	14.0	18.9	4.9	35.0%
Missouri	9.3	10.4	1.1	11.8%	-	-	-	-	13.4	10.6	- 2.8	-20.9%	14.5	16.7	2.2	15.2%	26.4	31.5	5.1	19.3%
North Dakota	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	1.0	0.5	- 0.5	-50.0%
South Dakota	-	0.4	-	-	-	-	-	-	.8	1.0	0.2	25.0%	-	-	-	-	0.7	0.9	0.2	28.5%
Nebraska	-	4.1	-	-	-	0.3	-	-	1.4	2.5	1.1	78.6%	2.3	2.6	-	-	7.2	6.0	- 1.2	-16.7%
Kansas	-	7.6	-	-	-	-	-	-	5.7	6.4	0.7	12.3%	-	-	-	-	8.6	8.8	0.2	2.3%
East South Central																				
Kentucky	6.1	5.9	- 0.2	- 3.3%	-	4.8	-	-	6.0	8.0	2.0	33.3%	13.3	16.5	3.2	24.1%	17.4	17.9	0.5	2.9%
Tennessee	13.4	15.1	1.7	12.7%	17.7	18.0	0.3	1.7%	14.1	16.5	2.4	17.0%	17.5	16.3	- 1.2	- 6.9%	28.1	30.4	2.3	8.2%
Alabama	9.1	13.1	4.0	44.0%	-	0.7	-	-	8.2	9.0	0.8	9.8%	46.8	40.4	- 6.4	-13.7%	16.5	21.9	5.4	32.7%
Mississippi	4.3	5.0	0.7	16.3%	2.0	2.0	0.0	0.0%	6.1	7.7	1.6	26.2%	1.9	2.2	0.3	15.8%	8.1	7.0	- 1.1	-13.6%
West South Central																				
Arkansas	5.2	6.1	0.9	17.3%	6.7	8.6	1.9	28.4%	4.2	4.8	0.6	14.3%	4.9	6.6	1.7	34.7%	8.4	13.2	4.8	57.1%
Louisiana	0.2	0.5	0.3	150.0%	-	-	-	-	6.0	7.2	1.2	20.0%	5.4	5.3	- 0.1	- 1.9%	9.2	12.4	3.2	34.8%
Oklahoma	4.5	7.8	3.3	73.3%	-	-	-	-	7.4	7.1	- 0.3	- 4.1%	3.8	4.7	0.9	23.7%	13.9	15.0	1.1	7.9%
Texas	11.2	19.1	7.9	70.5%	-	-	-	-	26.1	30.3	4.2	16.1%	39.7	32.0	- 2.7	- 6.8%	55.2	72.6	17.4	31.5%
Mountain																				
Montana	-	-	-	-	-	-	-	-	0.6	1.2	0.6	100.0%	-	-	-	-	0.4	0.1	- 0.3	-75.0%
Idaho	-	1.5	-	-	-	0.1	-	-	-	1.0	-	-	-	-	-	-	0.5	1.2	0.7	140.0%
Wyoming	-	-	-	-	-	-	-	-	0.6	0.9	0.3	50.0%	-	-	-	-	-	0.1	-	-
Colorado	5.8	5.2	- 0.6	-10.3%	-	-	-	-	6.1	6.8	0.7	11.5%	7.9	8.0	0.1	1.3%	8.6	9.4	0.8	9.3%
New Mexico	-	-	-	-	-	-	-	-	1.3	2.5	1.2	92.3%	-	-	-	-	0.5	1.0	0.5	100.0%
Arizona	0.7	2.0	1.3	185.7%	-	-	-	-	3.0	3.9	0.9	30.0%	7.4	7.4	0.0	0.0%	3.9	5.2	1.3	33.3%
Utah	0.6	-	-	-	-	-	-	-	2.0	3.3	1.3	65.0%	-	-	-	-	-	4.4	-	-
Nevada	-	0.2	-	-	-	-	-	-	1.3	1.5	0.2	15.4%	-	-	-	-	0.7	0.6	- 0.1	-14.3%
Pacific																				
Washington	0.9	1.8	0.9	100.0%	-	0.3	-	-	5.1	7.6	2.5	49.0%	14.2	13.7	- 0.5	- 3.5%	6.7	10.7	3.0	44.8%
Oregon	0.6	1.5	0.9	150.0%	0.3	-	-	-	2.9	4.0	1.1	37.9%	-	-	-	-	6.6	9.3	2.7	40.9%
California	44.2	48.7	4.5	10.2%	-	-	-	-	44.2	47.5	3.3	7.4%	56.8	48.1	- 8.7	-15.3%	105.9	116.9	11.0	10.4%
Alaska	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	0.1	-	-	1.6	1.6	0.0	0.0%	-	-	-	-	0.6	-	-	-

*N. E. C. - not elsewhere classified.

Appendix 5-3.

MANUFACTURING EMPLOYMENT IN THE STATES AND THE U.S.: BY TWO-DIGIT SIC CATEGORIES

(numbers in thousands)
(continued)

	SIC 35 Machinery, except electrical				SIC 36 Electrical Machinery				SIC 37 Transportation Equipment				SIC 38 Instruments and Related Products				SIC 39 Miscellaneous Manufacturing			
			Change				Change				Change				Change				Change	
	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent	1970	1975	Number	Percent
United States, Total	1,890.6	1,979.2	88.6	4.7%	1,831.6	1,520.9	-310.7	-17.0%	1,688.6	1,604.4	- 84.2	- 5.0%	404.6	502.0	97.4	24.1%	429.3	394.9	- 34.4	- 8.0%
New England																				
Maine	2.8	3.1	0.3	10.7%	-	-	-	-	4.2	-	-	-	-	0.4	-	-	-	0.9	-	-
New Hampshire	10.1	10.7	0.6	5.9%	16.9	12.3	- 4.6	-27.2%	1.1	1.7	0.6	54.5%	0.9	6.1	5.2	577.8%	1.6	1.9	0.3	18.8%
Vermont	7.1	5.9	- 1.2	-16.9%	-	-	-	-	-	-	-	-	-	1.4	-	-	-	1.1	-	-
Massachusetts	71.8	76.2	4.4	6.1%	96.6	79.6	- 17.0	-17.6%	24.2	21.0	- 3.2	-13.2%	37.0	41.4	4.4	11.9%	29.0	25.6	- 3.4	-11.7%
Rhode Island	6.8	7.8	- 1.0	-11.4%	7.1	6.8	- 0.3	- 4.2%	-	2.5	-	-	4.3	6.2	1.9	44.2%	24.4	25.4	1.0	4.3%
Connecticut	60.2	54.5	- 5.7	- 9.5%	44.7	33.5	- 11.2	-25.1%	92.3	79.4	- 12.9	-14.0%	24.3	22.9	- 1.4	- 5.8%	16.7	11.9	- 4.8	-28.7%
Middle Atlantic																				
New York	148.7	125.9	- 22.8	-15.3%	198.3	153.9	- 44.4	-22.4%	90.3	65.4	- 24.9	-27.6%	94.4	96.0	1.6	1.7%	84.0	62.7	- 11.3	-13.5%
New Jersey	66.7	61.9	- 4.8	- 7.2%	115.6	71.9	- 43.7	-37.8%	27.4	21.9	- 5.6	-20.4%	19.6	28.5	8.9	45.4%	26.4	21.4	- 5.0	-18.9%
Pennsylvania	136.5	128.9	- 7.6	- 5.6%	133.6	101.5	- 32.1	-24.0%	79.3	67.0	- 12.0	-15.1%	33.1	34.4	1.3	3.9%	27.2	26.0	- 1.2	- 4.4%
South Atlantic																				
Delaware	2.4	2.2	- 0.2	- 8.3%	1.1	0.6	- 0.5	-45.5%	-	-	-	-	1.3	-	-	-	0.2	0.1	- 0.1	-50.0%
Maryland	15.2	19.8	4.6	30.3%	33.6	27.9	- 5.7	-17.0%	24.2	17.0	- 7.2	-29.8%	2.2	3.5	1.3	59.1%	3.2	3.5	0.3	9.4%
District of Columbia	0.4	-	-	-	-	0.1	-	-	-	-	-	-	-	0.1	-	-	-	0.3	-	-
Virginia	8.9	16.1	7.2	80.9%	26.5	28.4	1.9	7.2%	26.2	-	-	-	2.5	-	-	-	3.9	3.1	- 0.8	-20.5%
West Virginia	4.4	6.7	2.3	52.3%	5.8	5.0	- 0.8	-13.8%	-	2.9	-	-	0.7	0.8	0.1	14.3%	1.8	1.3	- 0.5	-27.8%
North Carolina	27.2	33.1	5.9	21.7%	34.4	33.1	- 1.3	- 3.8%	8.2	8.9	0.7	8.5%	5.5	7.2	1.7	30.9%	4.7	5.9	1.2	25.5%
South Carolina	15.3	21.8	6.5	42.5%	12.9	15.2	2.3	17.8%	6.9	4.3	- 2.6	-37.7%	2.4	3.8	1.4	58.3%	4.1	4.4	0.3	7.3%
Georgia	11.8	14.4	2.6	22.0%	10.8	13.1	2.3	21.3%	49.4	-	-	-	-	-	-	-	6.2	6.3	0.1	1.6%
Florida	16.7	19.2	2.5	15.0%	28.5	34.2	5.7	20.0%	28.7	29.9	1.2	4.2%	4.1	6.4	2.3	56.1%	4.3	6.3	2.0	46.5%
East North Central																				
Ohio	211.4	196.4	- 15.0	- 7.1%	143.8	100.6	- 43.2	-30.0%	163.4	148.8	- 14.6	- 8.9%	18.1	20.6	2.5	13.8%	20.0	16.3	- 3.7	-18.5%
Indiana	72.0	70.5	- 1.5	- 2.1%	111.4	94.3	- 17.1	-15.4%	92.5	88.1	- 4.4	- 4.8%	5.8	7.1	1.3	22.4%	9.4	9.3	- 0.1	- 1.1%
Illinois	210.3	209.7	- 0.6	- 0.3%	186.3	140.5	- 45.8	-24.6%	40.4	44.3	3.9	- 9.7%	42.2	45.2	3.0	7.1%	35.5	33.7	- 1.8	- 5.1%
Michigan	150.5	136.1	- 14.4	- 9.6%	37.7	31.3	- 6.4	-17.0%	273.8	261.6	- 12.2	- 4.5%	7.7	12.4	4.7	61.0%	11.0	7.5	- 3.5	-31.8%
Wisconsin	103.9	105.3	1.4	1.3%	46.7	45.9	- 0.8	- 1.7%	34.0	39.2	5.2	15.3%	10.5	10.4	- 0.1	- 1.0%	8.3	9.6	- 1.3	-15.7%
West North Central																				
Minnesota	55.4	61.0	5.6	10.1%	22.4	22.0	- 0.4	- 1.8%	10.1	8.1	- 2.0	-19.8%	10.8	10.3	- 0.5	- 4.6%	6.0	4.9	- 1.1	-18.3%
Iowa	47.0	57.4	10.4	22.1%	22.9	23.2	0.3	1.3%	5.1	7.4	2.3	45.1%	1.9	2.1	0.2	10.5%	5.4	6.6	1.2	22.2%
Missouri	29.3	31.6	2.3	7.8%	34.9	31.1	- 3.8	-10.9%	68.1	56.0	- 12.1	-17.8%	5.3	-	-	-	8.6	6.4	- 2.2	-25.6%
North Dakota	1.3	3.8	2.5	192.3%	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.5	0.3	150.0%
South Dakota	1.3	2.6	1.3	100.0%	0.8	-	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-
Nebraska	9.2	10.4	1.2	13.0%	9.4	8.4	- 1.4	-14.9%	4.1	3.0	- 1.1	-26.8%	2.9	3.9	1.0	34.5%	2.1	1.2	- 0.9	-42.9%
Kansas	15.6	25.9	10.3	66.0%	-	5.6	-	-	30.2	39.2	9.2	30.5%	0.6	-	-	-	1.3	-	-	-
East South Central																				
Kentucky	29.0	39.6	10.6	36.6%	33.1	27.3	- 5.8	-17.5%	10.8	12.8	2.0	18.5%	3.7	3.4	- 0.3	- 8.1%	3.9	3.6	- 0.3	- 7.7%
Tennessee	23.2	26.8	3.6	15.5%	31.2	30.0	- 1.2	- 3.8%	18.5	19.0	0.5	2.7%	2.8	3.0	0.2	7.1%	7.7	11.5	3.8	49.4%
Alabama	9.0	12.6	3.6	40.0%	11.5	11.3	- 0.2	- 1.7%	21.3	18.6	- 2.7	-12.7%	0.8	2.0	1.2	150.0%	3.2	2.7	- 0.5	-15.6%
Mississippi	8.6	10.0	1.4	16.3%	12.6	15.3	2.7	21.4%	17.2	29.0	11.8	68.6%	1.7	1.5	- 0.2	-11.8%	3.8	3.4	- 0.4	-10.5%
West South Central																				
Arkansas	6.0	9.2	3.2	53.3%	16.3	16.5	0.2	1.2%	6.0	5.0	- 1.0	-16.7%	-	-	-	-	3.7	-	-	-
Louisiana	5.4	10.1	4.7	87.0%	5.2	7.4	2.2	42.3%	17.1	22.2	5.1	29.8%	0.6	0.4	- 0.2	-33.3%	1.4	0.8	- 0.6	-42.9%
Oklahoma	19.8	26.5	7.7	38.9%	10.4	10.9	0.5	4.8%	12.3	9.8	- 2.5	-20.3%	0.4	-	-	-	2.0	-	-	-
Texas	63.6	101.8	38.2	60.1%	53.9	49.6	- 4.3	- 8.0%	93.9	62.4	- 31.5	-33.5%	-	10.2	-	-	8.0	8.6	0.6	7.5%
Mountain																				
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	0.3	-	-	-
Idaho	1.3	2.3	1.0	76.9%	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colorado	12.7	17.6	4.9	38.6%	8.2	6.0	- 2.2	-26.8%	3.0	10.1	7.1	236.7%	3.7	10.2	6.5	175.7%	2.8	4.7	1.9	67.9%
New Mexico	0.5	2.0	1.5	300.0%	2.9	2.8	- 0.1	- 3.4%	-	1.6	-	-	-	0.3	-	-	1.4	3.3	1.9	135.7%
Arizona	15.8	9.2	- 6.6	-41.8%	22.1	21.0	- 1.1	- 5.0%	4.5	8.6	4.1	91.1%	-	4.5	-	-	0.9	1.5	0.6	66.7%
Utah	4.0	9.1	5.1	127.5%	4.7	3.7	- 1.0	-21.3%	4.3	6.3	2.0	46.5%	-	0.4	-	-	0.5	2.7	2.2	440.0%
Nevada	0.1	0.6	0.5	500.0%	-	0.6	-	-	-	0.1	-	-	-	-	-	-	-	1.0	-	-
Pacific																				
Washington	10.0	11.1	1.1	11.0%	4.4	3.9	- 0.5	-11.9%	60.5	61.3	0.8	1.3%	-	1.3	-	-	2.3	5.9	3.1	134.8%
Oregon	9.6	11.4	1.8	18.8%	11.0	3.4	- 7.6	-69.1%	6.9	-	-	-	1.9	11.5	9.6	505.3%	2.7	2.1	- 0.6	-22.2%
California	147.7	159.1	11.4	7.7%	205.3	185.0	- 20.3	- 9.9%	209.9	245.7	35.8	17.1%	31.0	56.7	25.7	82.9%	35.9	28.9	- 7.0	-19.5%
Alaska	-	0.1	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	-	0.1	-	-
Hawaii	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	0.7	0.1	16.7%

Appendix 5-3.

MANUFACTURING EMPLOYMENT IN THE STATES AND THE U.S.: BY TWO-DIGIT SIC CATEGORIES
(numbers in thousands)
(continued)

	SIC -- Administrative and Auxiliary				Total Manufacturing			
			Change				Change	
	1970	1975	Number	Percent	1970	1975	Number	Percent
United States, Total	927.7	1,128.9	200.7	21.6%	18,896.0	18,344.7	-551.3	- 2.9%
New England								
Maine	0.8	-	-	-	103.8	95.8	- 8.0	- 7.7%
New Hampshire	0.7	0.8	0.1	12.5%	89.8	85.8	- 4.0	- 4.5%
Vermont	0.3	0.5	0.2	66.6%	41.5	40.4	- 1.1	- 2.7%
Massachusetts	36.1	39.8	3.7	10.2%	672.8	588.7	- 4.1	- 0.6%
Rhode Island	1.2	1.2	0.0	0.0%	118.7	109.3	19.4	16.3%
Connecticut	18.3	30.6	12.3	67.2%	452.6	398.5	- 54.1	-12.0%
Middle Atlantic								
New York	160.7	153.1	- 7.6	- 4.7%	1,828.2	1,489.6	-388.6	-21.3%
New Jersey	75.1	87.5	12.4	16.5%	858.8	777.2	81.6	9.5%
Pennsylvania	83.2	100.6	17.4	20.9%	1,514.0	1,341.9	-172.1	-11.4%
South Atlantic								
Delaware	22.5	-	-	-	70.8	66.6	- 4.2	- 5.9%
Maryland	0.5	13.7	13.2	2,640.0%	274.4	243.4	- 31.0	-11.3%
District of Columbia	0.5	-	-	-	22.7	19.5	- 3.2	-14.1%
Virginia	9.5	9.5	0.0	0.0%	354.1	398.1	44.0	12.4%
West Virginia	5.3	6.7	1.4	26.4%	122.4	118.1	- 4.3	- 3.5%
North Carolina	20.6	26.3	5.7	27.7%	699.6	715.7	16.1	2.3%
South Carolina	7.4	8.8	1.4	18.9%	323.8	340.5	16.7	5.2%
Georgia	10.1	18.7	8.6	85.1%	441.9	453.6	11.7	2.6%
Florida	5.2	8.3	3.1	59.6%	310.0	327.8	17.0	5.5%
East North Central								
Ohio	72.6	80.4	7.8	34.5%	1,407.0	1,278.1	-129.9	- 9.2%
Indiana	12.5	18.4	5.9	47.2%	696.7	653.4	- 43.3	- 6.2%
Illinois	83.8	98.7	14.9	17.8%	1,356.9	1,251.4	-105.5	- 7.8%
Michigan	97.8	99.5	1.7	1.7%	1,043.6	973.1	- 70.5	- 6.8%
Wisconsin	15.1	22.2	7.1	47.0%	500.6	519.3	18.7	3.7%
West North Central								
Minnesota	22.5	39.5	17.0	75.5%	301.8	322.2	20.4	6.8%
Iowa	1.7	4.5	2.8	164.7%	213.4	225.8	12.4	5.8%
Missouri	25.4	31.5	16.1	63.4%	449.3	407.4	- 41.9	- 9.3%
North Dakota	-	0.2	-	-	10.3	14.1	3.8	36.9%
South Dakota	-	0.1	-	-	17.2	21.6	4.4	25.6%
Nebraska	1.1	2.1	1.0	90.9%	81.3	87.4	6.1	7.5%
Kansas	2.5	4.2	2.7	108.0%	130.4	167.8	37.4	28.7%
East South Central								
Kentucky	7.9	10.9	3.0	40.0%	244.8	264.6	19.8	8.1%
Tennessee	7.3	15.8	8.5	116.4%	447.9	452.7	4.8	1.1%
Alabama	3.0	4.6	1.6	53.3%	304.7	312.7	8.0	2.6%
Mississippi	1.0	2.3	1.3	130.0%	178.8	194.4	15.6	8.7%
West South Central								
Arkansas	1.7	2.8	1.1	64.7%	160.5	174.7	14.2	8.9%
Louisiana	2.1	3.3	1.2	57.1%	167.9	182.9	15.0	8.9%
Oklahoma	10.8	15.3	4.5	41.7%	131.0	151.8	20.8	15.9%
Texas	25.3	36.5	11.2	44.3%	722.5	783.8	61.3	8.5%
Mountain								
Montana	-	0.1	-	-	20.1	20.6	0.5	2.5%
Idaho	1.6	1.7	0.1	6.3%	45.3	47.3	2.0	4.4%
Wyoming	-	0.3	-	-	6.0	7.0	1.0	16.7%
Colorado	3.8	8.3	4.5	118.4%	117.1	138.3	21.2	18.1%
New Mexico	0.2	0.5	0.3	150.0%	21.6	27.3	5.7	26.4%
Arizona	1.7	3.7	2.0	117.6%	88.8	95.6	6.8	7.7%
Utah	1.2	1.8	0.6	50.0%	51.1	64.3	13.2	25.8%
Nevada	-	0.5	-	-	8.3	11.3	3.0	36.1%
Pacific								
Washington	6.5	11.4	4.9	75.4%	237.5	242.3	4.8	2.0%
Oregon	3.5	6.3	2.8	80.0%	169.2	181.0	11.8	7.0%
California	49.5	71.3	21.8	44.0%	1,553.1	1,558.1	5.0	0.3%
Alaska	-	-	-	-	7.9	8.0	0.1	1.3%
Hawaii	0.7	-	-	-	24.8	23.7	- 1.1	- 4.4%

Source: Annual Census of Manufactures, 1970-1975.

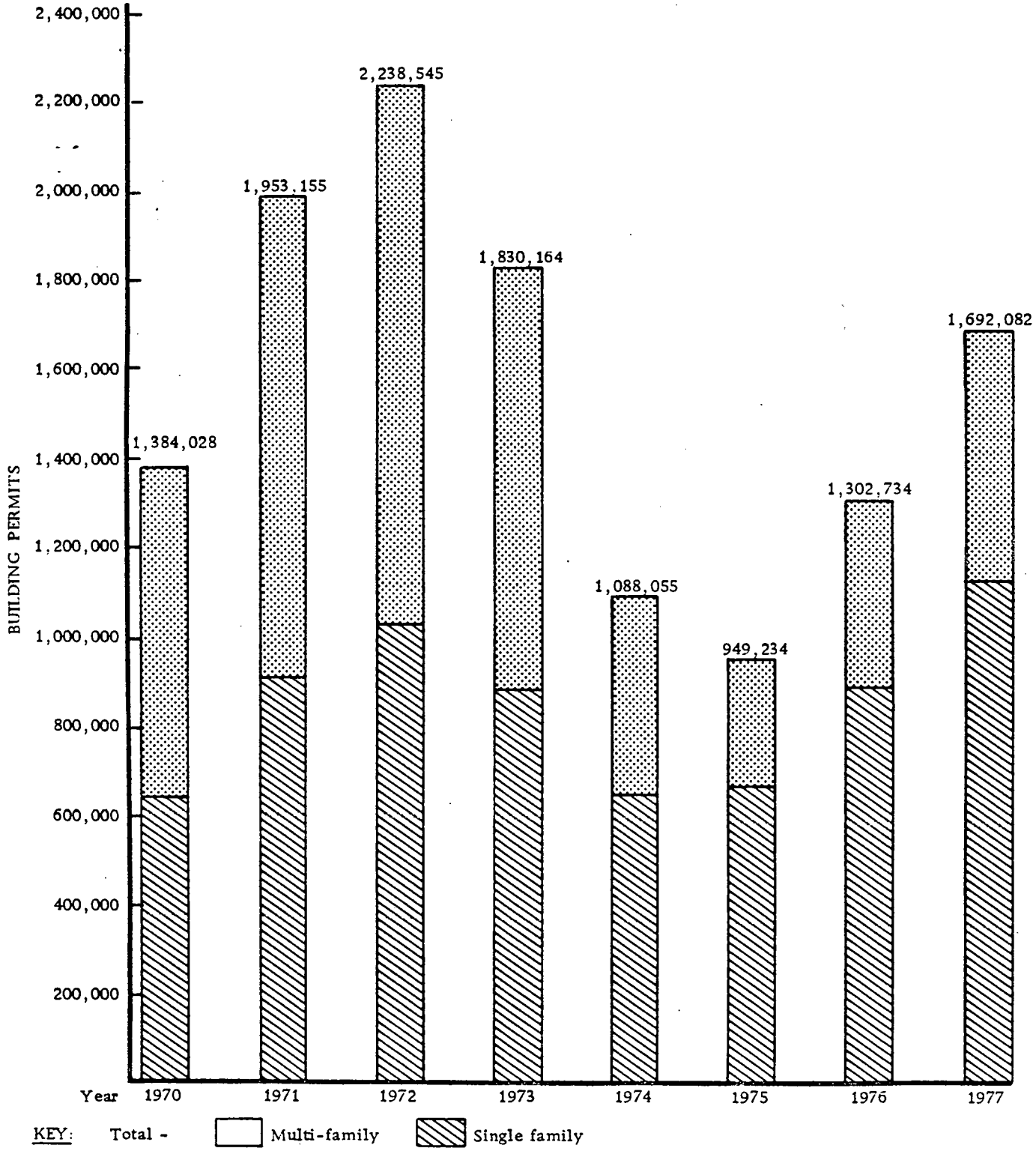
OVERVIEW OF RESIDENTIAL DEVELOPMENT

Residential development can take a number of forms including single-family homes, rental apartments, condominiums, and mobile homes. Single-family homes may be either attached or detached (i.e., duplex). Rental apartments and condominiums consist of low-rise (one to three stories), mid-rise (four to eight stories), high-rise (nine or more stories), garden-style (one level), and townhouse (two levels). Mobile homes have become very popular in recent years and are primarily concentrated on the fringe of metropolitan areas and in small towns and rural areas.

In 1977, residential construction in the United States totaled 1,690,024 housing units. Of this, 1,126,079 (66.5%) units were single-family dwellings, 62,092 (3.7%) units were two-family dwellings, 59,179 (3.5%) units were three and four-family dwellings, and 442,674 (26.2%) units were in structures with five or more units. In contrast, in 1970 1,384,028 housing units were constructed of which 646,767 (46.7%) units were single-family dwellings, 43,006 (3.1%) units were two-family dwellings, 45,090 (3.3%) units were three and four-family dwellings, and 616,671 (44.6%) units were in structures with five or more units. The remaining numbers and percentages of total residential construction indicate publicly owned structures. Building permit data for the United States from 1970 through 1977 document the decrease in the multi-family share of recent dwelling-unit construction. Exhibit 6-1 shows the national trend in residential construction from 1970 to 1977.

FIGURE 6-1

RESIDENTIAL BUILDING PERMITS AUTHORIZED, UNITED STATES, 1970-1977



SOURCE: U. S. Department of Commerce, Construction Reports, 1970 through 1977.

Multi-family construction lags significantly behind single-family construction when the dollar value is considered as well. In 1977 all private residential construction totaled $65,145,000. Of this amount, $54,550,000 (83.7%) was in single-family housing and $10,596,000 (16.3%) was in structures with two or more units. This sizeable difference is explained by both the absolute numbers of units in each type of structure and by the fact that one single-family unit is more expensive to build than one unit in a multi-family structure.

The threshold criteria for ICES candidates are 300,000 and 400,000 square feet for high-rise and low-rise residential projects respectively. Therefore, interest in construction activity is limited to large multi-family developments. Although high-rise residential developments are likely to be suitable ICES candidates, current trends indicate that of the multi-family developments being constructed, activity is geared toward low-rises (garden style), and townhouses, and occasionally to mid-rise structures. There is, of course, some high-rise construction, but it is generally limited to central areas in the larger SMSA's.

Of importance for the application of ICES, is the fact that most multi-family developments are being designed with 200 or fewer units and the typical project today consists of 125-250 low-rise garden apartments. This trend of few units in low-rise developments can be explained by considering several contributing factors.

Although most multi-family construction is occurring in or near metropolitan areas (defined by the Census as Standard Metropolitan Statistical Area - SMSA) as opposed to rural areas, these new developments are principally planned along the fringes of the core city, or in the suburban portion of the SMSA. Suppliers of housing must follow the demand for housing, which still seems to be suburban-oriented in the large metropolitan areas. In addition to the prospective buyer's locational preferences, developers must consider other restraints such as lack of suitable land parcels in older metropolitan areas, and the difficulty of securing high density zoning approval from government boards in suburban areas. Since most suburban residents dislike high density surroundings, garden- and townhouse-style developments are more marketable.

The Urban Land Institute's Residential Development Handbook states that a major problem for developers of high-rise projects is determining the appropriate mixture in size and layout of unit types. This mixture is decided in the conceptual stage while considering the potential market for the development. The difficulty is that a significant time lag exists

between completion of plans and completion of construction. During that period of time the potential market may change, thus presenting possible problems in attracting occupants for all of the unit types.

The Institute's handbook also suggests that many high-rise developers incur higher construction and "front-end" costs because unlike garden and townhouse developments, high-rise structures are not conducive to phased construction.

In phasing, a developer will break the project into stages and build a specified number of units initially, with additional units planned for construction on the same site at a later date as absorption occurs. While the second phase is under construction the developer's first phase is occupied and is providing a return on initial investment. However, in high-rise construction, the developer receives no return until the project is completed and occupied.[1] The Urban Land Institute's Residential Development Handbook mentions many important aspects of phasing, but those of particular interest for the application of ICES include:

1. Densities may vary from phase to phase, as may general housing type, and the density of all phases is averaged to arrive at an overall project density.

2. Phasing requirements will vary from one community to another, based on existing ordinances and state enabling legislation.

3. The location of phase one will depend mainly upon the ease of access and convenience to existing utilities.

Higher interest rates and construction costs are critical concerns for developers of all types of housing units. However, these increasing costs bear a slightly different relationship to the multi-family rental market. It is easier to pass on the additional construction-related costs to consumers purchasing a residential unit, than it is to transfer those costs in a rental market. In general, consumers' expenditures in the rental markets nationally have not increased to the extent that the prices on new single-family housing have increased. Rent controls that exist in certain market areas exacerbate this situation. The National Real Estate Investor cites this economic disparity as the predominant cause of a lack of apartment construction. This is the case even in markets experiencing a high demand for rental units due to very high occupancy rates. This article states that "developers

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1 Urban Land Institute, Residential Development Handbook. Washington D.C.: The U.L.I., 1978, p. 129.

who own tracts for apartment projects are sitting on them, waiting for the time when interest rates are lower or tenants are more willing, and able, to pay the higher rentals."[2]

In the aggregate, housing is supplied according to demand, which actually increases as population increases. An area experiencing growth in population will also realize an increase in its housing demand; an area maintaining a stable population composition will continue to have a significant housing demand (though not as pronounced as in rapid growth areas) due to necessary replacement of housing stock. At the opposite end of the spectrum, an area experiencing a decline in population may or may not have a decreased demand for housing, depending upon the degree of replacement activity taking place. There are, for example, cities such as Rochester, New York, which have experienced zero population growth yet also evidence numerous housing starts. In Rochester, between 1970 and 1975, population increased only 8,300 while the level of housing production was extremely high - 37,300 units. This situation is not unique. It is duplicated in many slow and no-growth areas across the country.

Regional trends indicate the largest amount of multi-family, construction activity is occurring in the South. In 1977, the South led the nation with 36.2% of all structures with five or more units, followed by the West with 29.3%, the North Central region with 24.1%, and the Northeast region with 10.4%. Figure 6-2 summarizes building permit data from 1970 - 1977 for the four U.S. Census regions and verifies these trends.

A recent study on urban development and population substantiates these regional phenomena, and attributes the growth in the South to the attraction of the climate in the Sunbelt, lower taxes and lower cost of living.[3]

Future Trends

Projecting future trends is an extremely difficult task with any land use sector. There are too many factors affecting trends in real estate. Many of these factors -- inflation, money supply, interest rates, etc. -- are at best reluctantly forecasted by experts in the respective fields, and these forecasts may be divergent.

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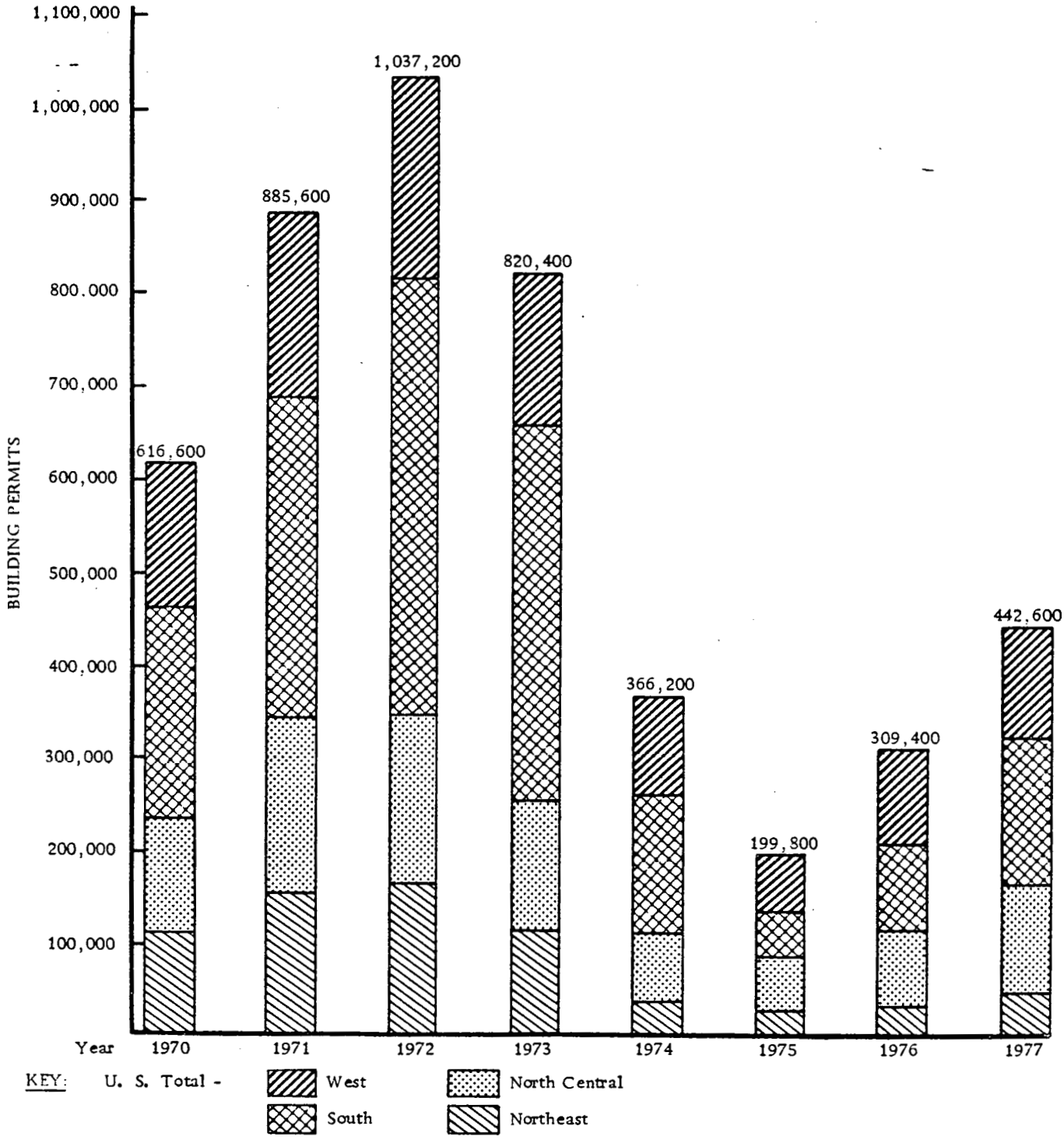
[2] The National Real Estate Investor, September 1978, p. 33.

[3] Ekersberg, Alfred, unpublished study on Urban Development and Population. Prepared for seminar, "Planning for Neighborhoods, Cities and Regions" sponsored by the Bureau of Urban and Regional Planning Research of the University of Illinois at Urbana-Champaign, 1978.

FIGURE 6-2

RESIDENTIAL BUILDING PERMITS AUTHORIZED FOR STRUCTURES WITH FIVE OR MORE UNITS, BY REGIONS, 1970-1977



SOURCE: U. S. Department of Commerce, Construction Reports, 1970 through 1977.

In addition, they generally refer to a relatively small specific market area (i.e., SMSA) which enables them to assess the specific area's demographic changes, labor market changes, income changes, population mobility, capital mobility, value changes, and consumer preferences.

Some forecasters envision a surge in the proportion of multi-family housing construction in the future due to the extremely high costs of new single-family units. However, this may not be the case. Morgan Guaranty Trust Company of New York predicts a "brighter future" for housing for the next five years, but explains that government programs are now moving to support rental housing, "though reduced from their heydays of the early 1970s." Though multi-family construction will not skyrocket, these authors feel that "the depressed level of production of these units seen in the last several years cannot be expected to persist in view of the potential demand for such housing."

Another article in Real Estate Review espouses the idea that the single-family housing market will hold its own, though the demand for multi-family housing remains strong. The author, Anthony Downs, cites several factors which would indicate that multi-family housing development may continue to decline in relation to single-family construction. The most important of these are:

- Financing for single-family homes is more easily available to both builders and occupants than financing for rental apartments is to developers -- and at lower interest rates; and

- Thousands of relatively small or childless households who might otherwise rent apartments are buying homes as investments.

The following section gives a detailed review by states and metropolitan areas of the trends in multi-family housing construction.

STATISTICAL SCREENING AND ANALYSIS

Selection of Statistical Indicator

The best source of statistical data available to evaluate past multi-family development activity is the U.S. Department of Commerce publication Construction Reports. The Department of Commerce began publishing these data in 1960, issuing monthly and annual summary reports. The data are presented by reporting the number of building permits issued as an authorization for the construction of new housing units. The number of permits for housing are reported by states, SMSA's, and the 14,000 permit-issuing localities.

Unfortunately, there are no statistical data sources that could be used which would specifically depict construction activity of large multi-family structures. Though Construction Reports provide permit data in four housing-style classifications, the largest is "structures with five or more units." Thus, the screening utilizes that information to give an indication of multi-family housing trends.

Other sources of information employed in the screening process are state and SMSA population change and change in the number of households. As indicated earlier, change in population is related, albeit imperfectly, to the demand for housing. Household change is also a useful indicator of housing demand, since the household unit is the one which is the consumer of housing.

Screening for Multi-Family Growth Areas

To determine which states and SMSA's are more or less active than average in multi-family construction, housing permit figures for 1970 and 1977 are examined for absolute and percent change in structures with five or more units and for the percent of total private construction attributable to multi-family structures. Projected population growth of states and projected household growth of SMSA's are also considered to identify areas which can be expected to show increased residential construction.

State Analysis

An examination of states according to increases in multi-family housing permits reveals that the states with the greatest relative growth in number of structures with 5 or more units are those states which have relatively small numbers of multi-family units, and are relatively small in absolute population.

These are also the states which have experienced significant population growth between 1970 and 1975 and where population growth is projected for 1975 through 1980. The notable exceptions here are Florida, which had a 50% decline, and Georgia, which had a 77% decline in multi-family housing permits despite above-average population growth.

Table 6-1 summarizes multi-family construction activity for the 22 states which experienced an increase in the number of multi-family building permits between 1970 and 1977.

All other states show an absolute decline in the number of multi-family housing permits, with Delaware, Georgia, Massachusetts, Connecticut, New York, Colorado, Oklahoma, Maryland and Mississippi showing declines of more than 60% between 1970 and 1977.

The location which has the greatest share of its new residential construction in multi-family units is Washington, D.C., where 62.8% of building permits in 1977 were for structures with five or more units. However, Washington, D.C. experienced a slight decline (2.6%) in the number of multi-family units between 1970 and 1977 and is one of the few areas (in the state comparison) which is projected to have a decline in population between 1975 and 1980. States which have experienced a high ratio of multi-family to total building permits in 1977 have also experienced an increase in the number of multi-family structures between 1970 and 1977, as can be seen in the preceding table.

In addition to the change in number of multi-family permits in states, it is useful to examine those states which in 1977 are high in absolute numbers of permits. Since many of the states which experienced the most substantial percent increases are ranked low in terms of the absolute number of multi-family units constructed, there will be few potential ICES candidates in those locations despite indications of growth. Of those states which show an increase in permits from 1970 to 1977, only three also had a high number of permits in 1977. These three are Texas, Virginia and Indiana. Table 6-2 shows those states with the highest number of permits for multi-family housing in 1977.

It is not surprising to see that the highest levels of multi-family housing activity are in the most populous states. The significant difference in absolute numbers between California and Texas at the top and the next closest state, Florida, indicates that these states would be the most likely locations for large scale residential projects.

Table 6-1

RESIDENTIAL BUILDING PERMITS AUTHORIZED FOR STATES 1970 AND 1977

Rank by Percent Change 1970-1977	State	1970 Number of Structures With 5 or More Units	1970 Number of Structures With 5 or More Units as a Percent of Total Units	1977 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units as a Percent of Total Units	1970-1977 Percent Change in Number of Structures With 5 or More Units
1	Alaska	334	20.0%	3,170	45.9%	849.1%
2	Nevada	2,221	25.6%	8,460	41.5%	280.9%
3	Wyoming	354	32.4%	1,142	26.1%	222.6%
4	North Dakota	1,072	43.1%	2,867	44.2%	167.4%
5	Montana	625	37.4%	1,448	25.7%	131.7%
6	South Dakota	1,180	50.7%	2,576	43.5%	118.3%
7	Idaho	1,090	30.9%	2,254	17.7%	106.8%
8	Vermont	602	36.0%	1,210	41.1%	101.0%
9	Washington	8,494	30.5%	15,865	25.8%	86.8%
10	Alabama	4,886	36.9%	1,785	37.5%	80.7%
11	New Mexico	2,308	33.4%	3,622	26.5%	56.9%
12	Wisconsin	6,903	30.2%	10,748	26.0%	55.7%
13	Oregon	5,220	31.5%	7,297	18.6%	39.8%
14	Iowa	4,032	36.7%	5,452	26.5%	35.2%
15	Louisiana	5,293	28.2%	6,620	25.8%	25.1%
16	Tennessee	6,735	30.0%	7,872	30.0%	16.9%
17	Texas	53,345	57.1%	61,785	45.4%	15.8%
18	Arizona	6,538	22.3%	7,533	18.0%	15.2%
19	Rhode Island	1,915	46.7%	2,200	41.5%	14.9%
20	West Virginia	1,130	44.9%	1,292	36.7%	14.3%
21	Indiana	9,771	41.4%	10,601	27.8%	8.5%
22	Utah	2,362	25.9%	2,531	11.4%	7.2%
	U.S. Average		45.6%		26.2%	24.3%

Source: U.S. Department of Commerce, Construction Reports, 1970 and 1977

Table 6-2 RESIDENTIAL BUILDING PERMITS AUTHORIZED 1977

Rank	State	1977 Number of Structures with 5 or more Units
1	California	68,491
2	Texas	61,785
3	Florida	27,226
4	Illinois	22,498
5	Ohio	16,136
6	Washington	15,865
7	Michigan	14,894
8	Pennsylvania	11,975
9	Virginia	11,331
10	Wisconsin	10,748
11	Indiana	10,601
12	New York	10,333
13	Minnesota	10,173

Source: U.S. Department of Commerce, Construction Reports, 1977.

SMSA Analysis

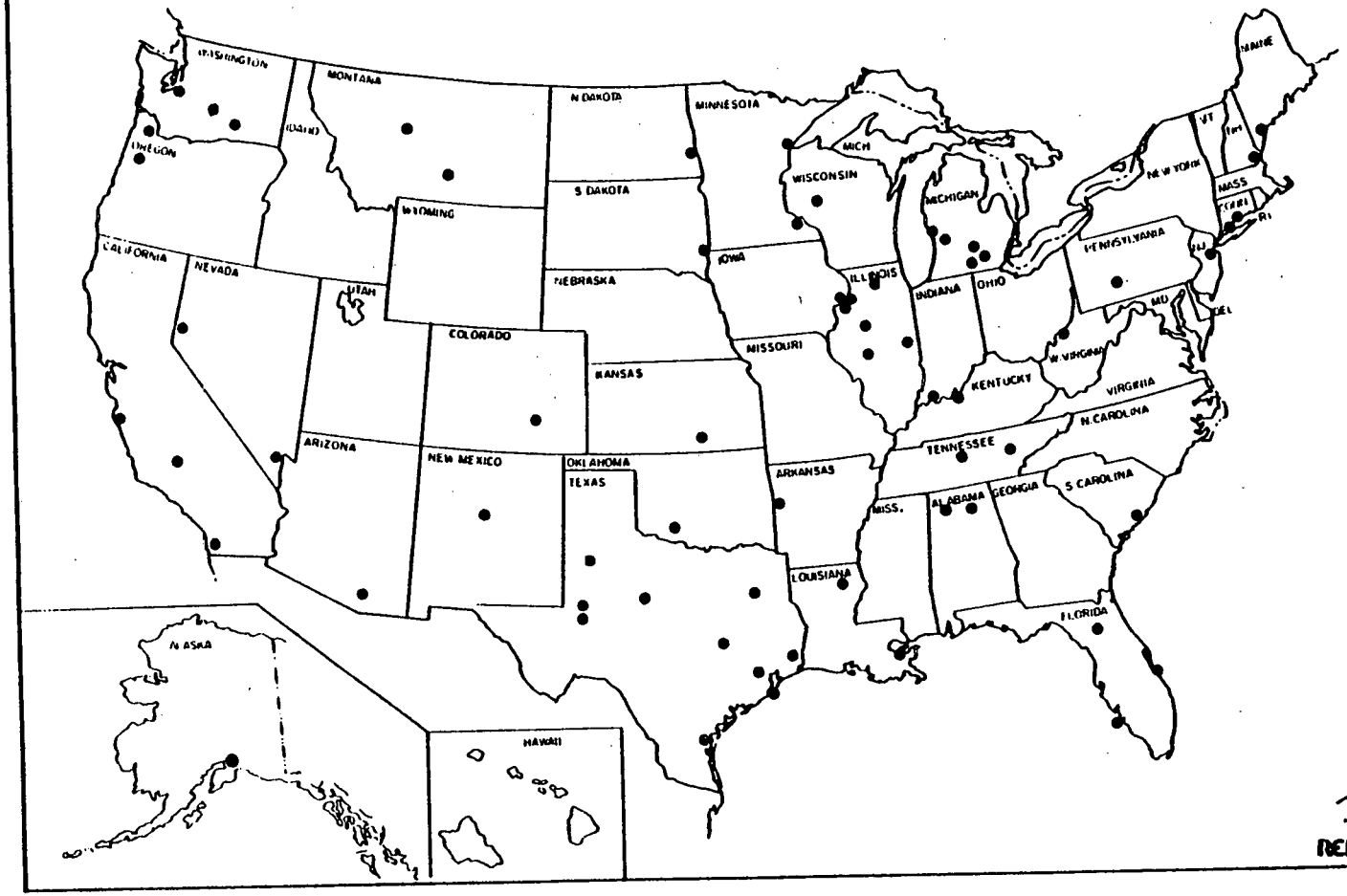
For purposes of this analysis, SMSA's are divided into six groups according to population size. This prevents distortions where smaller SMSA's may have percent changes that are high, but absolute change that is small.

The following map highlights those SMSA's in all size categories with high increases between 1970 and 1977 in multi-family building permits. Most of the SMSA's are in the smaller population size groups and the vast majority are in the Sunbelt.

In SMSA Group 1, only one SMSA, Houston, experienced an increase in the number of multi-family structures between 1970 and 1977. Houston also has a very high portion of housing permits attributable to multi-family (71.2% in 1977) and has the highest projected increase in the number of households of any SMSA in Group 1 (21.7%). Other SMSA's in this group which have had a high portion of residential construction in multi-family and are also expected to show gains in the number of households are Dallas and Los Angeles. Table 6-3 summarizes this activity for these three SMSA's.

MAP 6-1

SMSA'S WITH LARGE INCREASES IN MULTI-FAMILY RESIDENTIAL PERMITS ISSUED, 1970-1977



Washington: Tacoma, Yakima, Richland
Oregon: Portland, Salem
California: Salinas, Bakersfield, San Diego
Nevada: Reno, Las Vegas
Montana: Great Falls, Billings
Colorado: Fort Collins, Pueblo
Arizona: Tucson
New Mexico: Albuquerque
North Dakota: Fargo
South Dakota: Sioux Falls
Kansas: Wichita
Oklahoma: Lawton
Texas: Lubbock, Midland, Odessa, Abilene, Tyler, Bryan, Houston, Beaumont, Galveston, Corpus Christi
Louisiana: Monroe, New Orleans
Arkansas: Ft. Smith
Alabama: Florence, Huntsville
Florida: Gainesville, Ft. Meyers, Melbourne
S. Carolina: Charleston
Tennessee: Nashville, Knoxville
Kentucky: Owensboro
Minnesota: Duluth, Rochester
Wisconsin: Eau Claire, Superior
Iowa: Davenport
Illinois: Rockford, Peoria, Springfield, Champaign
Indiana: Lafayette, Anderson
Michigan: Muskegon, Grand Rapids, Lansing, Jackson, Battle Creek
W. Virginia: Parkersburg
Pennsylvania: Johnstown
New Jersey: New Brunswick
Connecticut: Norwalk, Stamford
New Hampshire: Manchester
Maine: Portland

NERC

Table 6-3 RESIDENTIAL BUILDING PERMITS AUTHORIZED AND PROJECTED HOUSEHOLD GROWTH FOR SELECTED SMSA'S - GROUP 1

SMSA's	1970 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units As a % of Total Number of Units	1970-77 % Change in Number of Structures With 5 or More Units	1975-80 Projected Household Change (%)
Houston, TX	17,888	24,091	71.2%	+34.7%	21.7%
Dallas, TX	21,341	19,140	43.2	-10.3	19.2
Los Angeles, CA	36,208	18,568	47.2	-48.7	9.8

Source: U.S. Department of Commerce, Construction Reports, 1970 and 1977; and National Planning Association.

In SMSA Group 2, San Diego stands out as the most active SMSA in terms of an increase in the number of multi-family structures, a very high absolute number of multi-family permits issued in 1977 and a high increase projected for households. Other SMSA's which have experienced an increase in their multi-family construction are New Orleans, Louisiana, and Portland, Oregon, though the number of permits issued in 1977 was far below that of San Diego. Table 6-4 reviews the activity in these SMSA's.

Table 6-4 RESIDENTIAL BUILDING PERMITS AUTHORIZED AND PROJECTED HOUSEHOLD GROWTH FOR SELECTED SMSA's - GROUP 1

SMSA's	1970 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units As a % of Total Number of Units	1970-77 % Change in Number of Structures With 5 or More Units	1975-80 Projected Household Change (%)
San Diego, CA	12,062	14,656	40.2%	21.5%	22.1%
Portland, OR	3,154	3,792	19.0	20.2%	15.5
New Orleans, LA	2,665	3,577	29.6	34.2%	14.8

Source: U.S. Department of Commerce, Construction Reports, 1970 and 1977, and National Planning Association.

In Group 3, although Fort Lauderdale experienced a decline in the number of multi-family permits, it still issued the highest number of permits of any Group 3 SMSA in 1977 and has one of the largest projected increases in households in that group for 1975-80. The only SMSA's exhibiting a significant increase in multi-family structures coupled with a moderate number of permits issued in 1977 are Nashville, Tennessee and New Brunswick, New Jersey. This is summarized in Table 6-5 below.

Table 6-5 RESIDENTIAL BUILDING PERMITS AUTHORIZED AND PROJECTED HOUSEHOLD GROWTH FOR SELECTED SMSA'S - GROUP 3

SMSA's	1970 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units As a % of Total Number of Units	1970-77 % Change in Number of Structures With 5 or More Units	1975-80 Projected Household Change (%)
Fort Lauderdale, FL	11,772	6,152	44.1%	-47.7%	19.6%
Nashville, TN	1,910	3,590	45.0	88.0	14.1
New Brunswick, NJ	200	2,120	52.3	960.0	9.5

Source: U.S. Department of Commerce, Construction Reports, 1970 and 1977, and National Planning Association.

The rapid growth in multi-family housing and the relatively low growth in households in New Brunswick is most likely attributable to the fact that it is a university community where there would be a high demand for apartments by the student population.

SMSA's in this group exhibiting large decreases in multi-family construction are Rochester, New York, Oklahoma City, Oklahoma, Jacksonville, Florida, Orlando, Florida, Omaha, Nebraska and Springfield, Massachusetts.

Las Vegas is the most active SMSA in Group 4 in terms of multi-family permits. Las Vegas also experienced a large increase in multi-family permits between 1970 and 1977 and is expected to have one of the largest increases in households between 1975 and 1980. West Palm Beach, Florida also issued a large number of permits for multi-family housing in 1977, but this was a decline from 1970 when multi-family construction was booming there. Other SMSA's in this group with significant increases in multi-family housing and a moderate number of multi-family units in 1977 are Albuquerque,

New Mexico, Tucson, Arizona, Mobile, Alabama, Lexington, Kentucky, and Beaumont, Texas. Albuquerque and Tucson are notable since they doubled their level of multi-family housing construction between 1970 and 1977, and are projected to have a large household increase between 1975 and 1980. Selected SMSA's in Group 4 are examined in Table 6-6.

Table 6-6 RESIDENTIAL BUILDING PERMITS AUTHORIZED AND PROJECTED HOUSEHOLD GROWTH FOR SELECTED SMSA'S - GROUP 4

SMSA's	1970 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units As a % of Total Number of Units	1970-77 % Change in Number of Structures With 5 or More Units	1975-80 Projected Household Change (%)
Las Vegas, NV	1,498	5,633	44.3%	276.0%	17.8%
West Palm Beach, FL	5,695	4,543	32.0	-20.2	14.2
Albuquerque, NM	1,438	2,896	40.2	101.3	24.0
Tucson, AZ	1,271	2,538	33.3	99.7	24.3
Mobile, AL	973	2,434	58.8	150.2	5.9
Lexington, KY	1,875	2,064	42.1	10.1	12.2
Beaumont, TX	482	1,236	44.8	156.4	17.4

Source: U.S. Department of Commerce, Construction Reports, 1970 and 1977, and National Planning Association.

Sixteen SMSA's in Group 5 experienced an increase in multi-family housing between 1970 and 1977, but because these SMSA's are relatively small, 11 of these areas had few permits for multi-family structures in 1977. Thus, for purposes of identifying potential areas for ICES, the analysis will focus on the SMSA's which have the greatest number of multi-family structures.

These SMSA's include Fort Myers, Florida, Anchorage, Alaska, Lubbock, Texas, Melbourne, Florida and Salem, Oregon. Of these, Fort Myers and Anchorage experienced large gains in the number of multi-family permits as well as two of the largest projected household increases for 1975 to 1980. These data are summarized in Table 6-7.

Table 6-7

RESIDENTIAL BUILDING PERMITS AUTHORIZED AND PROJECTED HOUSEHOLD GROWTH FOR SELECTED SMSA'S - GROUP 5

SMSA's	1970 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units As a % of Total Number of Units	1970-77 % Change in Number of Structures With 5 or More Units	1975-80 Projected Household Change (%)
Fort Myers, FL	1,213	2,597	39.6%	114.1%	24.1%
Anchorage, AK	334	2,139	50.5	540.4	24.0
Lubbock, TX	692	1,635	45.1	136.3	16.2
Melbourne, FL	458	1,263	30.3	175.8	11.9
Salem, OR	636	1,245	23.6	95.8	14.1

Source: U.S. Department of Commerce, Construction Reports, 1970 and 1977, and National Planning Association.

A number of SMSA's in this group are beginning to show signs of increased multi-family construction or high projected household increases and should be followed to detect definite trends. These SMSA's include Parkersburg, West Virginia, Portland, Maine, St. Cloud, Minnesota, and Sarasota, Florida.

Group 6 contains ten SMSA's which have a considerable amount of multi-family construction and have experienced increases in multi-family permits between 1970 and 1977. Twenty-eight metropolitan areas have shown increases in multi-family construction, but as is the the case in Group 5, many of these areas have a small absolute number of multi-family units and are therefore not strong ICES candidate locations.

Of the ten active SMSA's, Reno, Nevada has the most multi-family construction, with Bryan, Texas and Richland, Washington also high. Richland appears to be one of the SMSA's most likely to have rapid growth since it experienced a 238% increase in multi-family permits issued between 1970 and 1977, and is projected to have a 30% increase in households between 1975 and 1980 (the largest increase in Group 6). The trends for Group 6 are shown in Table 6-8 following.

Table 6-8

RESIDENTIAL BUILDING PERMITS AUTHORIZED AND PROJECTED HOUSEHOLD GROWTH FOR SELECTED SMSA'S - GROUP 6

SMSA's	1970 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units	1977 Number of Structures With 5 or More Units As a % of Total Number of Units	1970-77 % Change in Number of Structures With 5 or More Units	1975-80 Projected Household Change (%)
Reno, NV	716	2,517	43.2%	251.5%	18.5%
Bryan, TX	416	1,464	60.0	251.9	13.6
Richland, WA	46	1,141	32.9	2380.4	30.1
Fargo, ND	464	1,020	51.0	119.8	12.3
Tyler, TX	139	942	60.7	577.7	24.5
Sioux Falls, SD	441	910	52.7	106.3	19.6
Tuscaloosa, AZ	601	868	49.4	44.4	23.5
Manchester, NH	230	830	40.7	260.9	14.0
Lafayette, IN	80	795	60.6	893.8	10.7
Longview, TX	232	774	46.3	233.6	28.1

Source: U.S. Department of Commerce, Construction Reports, 1970 and 1977, and National Planning Association

Detailed tables for all SMSA's are included at the end of this chapter.

In summary, areas experiencing an increase in multi-family permits issued, high absolute numbers of multi-family units, and projected household increases are the likeliest candidates for ICES residential application. Most of the SMSA's which rank high in these criteria are in the Sunbelt, with only a few in the Northeast, Midwest, Mountain region and Northwest.

CHAPTER 6 APPENDIX

CONTENTS

Appendix 6-1

RESIDENTIAL BUILDING PERMITS AUTHORIZED, REGIONS AND STATES 1970 AND 1977

	1970			1977			Numerical Change in Permits in 5+ Unit Structures 1970-1977	Percent Change 1970-1977
	Number of Permits in 5+ Unit Structures	Total Number of Permits All Structures	Percent of Total Structures	Number of Permits in 5+ Unit Structures	Total Number of Permits All Structures	Percent of Total Structures		
NORTHEAST								
Maine	1,080	3,913	27.6%	916	4,753	19.3%	- 164	- 15.2%
New Hampshire	1,896	5,001	37.9%	1,238	6,702	18.5%	- 658	- 34.7%
Vermont	602	1,672	36.0%	1,210	2,947	41.1%	+ 608	+ 101.0%
Massachusetts	22,824	38,263	59.7%	5,683	21,978	25.9%	-17,141	- 75.1%
Rhode Island	1,915	4,104	46.7%	2,200	5,301	41.5%	+ 285	+ 14.9%
Connecticut	12,476	21,858	57.1%	3,419	15,653	21.8%	- 9,057	- 72.6%
New York	34,647	63,711	54.4%	10,333	39,645	26.1%	-24,314	- 70.2%
New Jersey	17,422	39,596	44.0%	8,879	34,665	25.6%	- 8,543	- 49.0%
Pennsylvania	19,074	40,230	47.4%	11,975	50,298	23.8%	- 7,099	- 37.2%
NORTH CENTRAL								
Ohio	28,158	58,272	48.3%	16,136	60,844	26.5%	-12,022	- 42.7%
Indiana	9,771	23,627	41.4%	10,601	38,178	27.8%	+ 830	+ 8.5%
Illinois	25,569	53,109	48.1%	22,498	75,374	29.8%	- 3,071	- 12.0%
Michigan	17,009	50,748	33.5%	14,894	58,684	25.4%	- 2,115	- 12.4%
Wisconsin	6,903	22,838	30.2%	10,748	41,296	26.0%	+ 3,845	+ 55.7%
Minnesota	12,289	23,279	55.2%	10,173	38,087	26.7%	- 2,116	- 17.2%
Iowa	4,032	10,982	36.7%	5,452	20,591	26.5%	+ 1,420	+ 35.2%
Missouri	9,528	22,832	41.7%	5,569	28,081	19.8%	- 3,959	- 41.6%
North Dakota	1,072	2,486	43.1%	2,867	6,485	44.2%	+ 1,795	+ 167.4%
South Dakota	1,180	2,326	50.7%	2,576	5,927	43.5%	+ 1,396	+ 118.3%
Nebraska	3,126	7,689	40.7%	1,840	11,322	16.3%	- 1,286	- 41.1%
Kansas	3,144	9,220	34.1%	3,345	17,524	19.1%	+ 201	+ 6.4%
SOUTH								
Delaware	3,107	5,778	53.8%	649	3,414	19.0%	- 2,458	- 79.1%
Maryland	18,092	34,752	52.1%	6,441	30,431	21.2%	-11,651	- 64.4%
Washington, D.C.	1,798	1,947	92.3%	1,330	2,118	62.8%	- 468	- 2.6%
Virginia	16,447	43,523	37.8%	11,331	54,946	20.6%	- 5,116	- 31.1%
West Virginia	1,130	2,516	44.9%	1,292	3,519	36.7%	+ 162	+ 14.3%
North Carolina	11,023	30,301	36.4%	5,198	32,631	15.9%	- 5,825	- 52.8%
South Carolina	4,198	21,385	19.6%	2,985	22,139	13.5%	- 1,213	- 28.9%
Georgia	25,656	51,217	50.1%	6,033	33,435	18.0%	-19,623	- 76.5%
Florida	53,923	104,239	51.7%	27,226	108,052	25.2%	-26,697	- 49.5%
Kentucky	8,173	16,160	50.6%	4,739	17,920	26.4%	- 3,434	- 42.0%
Tennessee	6,735	22,499	30.0%	7,872	26,262	30.0%	+ 1,137	+ 16.9%
Alabama	4,886	17,006	28.7%	8,829	23,562	37.5%	+ 3,943	+ 80.7%
Mississippi	4,561	12,375	36.9%	1,785	8,231	21.7%	- 2,776	- 60.9%
Arkansas	3,069	8,626	35.6%	2,665	11,294	23.6%	- 404	- 13.2%
Louisiana	5,293	18,793	28.2%	6,620	25,673	25.8%	+ 1,327	+ 25.1%
Oklahoma	8,961	18,245	49.1%	3,538	21,256	16.6%	- 5,423	- 60.5%
Texas	53,345	93,504	57.1%	61,785	136,212	45.4%	+ 8,440	+ 15.8%

RESIDENTIAL BUILDING PERMITS AUTHORIZED, REGIONS AND STATES
1970 AND 1977
(continued)

	1970			1977			Numerical Change in Permits in 5+ Unit Structures 1970-1977	Percent Change 1970-1977
	Number of Permits in 5+ Unit Structures	Total Number of Permits All Structures	Percent of Total Structures	Number of Permits in 5+ Unit Structures	Total Number of Permits All Structures	Percent of Total Structures		
WEST								
Montana	625	1,670	37.4%	1,448	5,627	25.7%	+ 823	+ 131.7%
Idaho	1,090	3,523	30.9%	2,254	12,722	17.7%	+ 1,164	+ 106.8%
Wyoming	354	1,094	32.4%	1,142	4,373	26.1%	+ 788	+ 222.6%
Colorado	13,546	31,055	43.6%	5,028	37,281	13.5%	- 8,518	- 62.9%
New Mexico	2,308	6,911	33.4%	3,622	13,667	26.5%	+ 1,314	+ 56.9%
Arizona	6,538	29,266	22.3%	7,533	41,913	18.0%	+ 995	+ 15.2%
Utah	2,362	9,117	25.9%	2,531	22,191	11.4%	+ 169	+ 7.2%
Nevada	2,221	8,692	25.6%	8,460	20,396	41.5%	+ 6,239	+ 280.9%
Washington	8,494	27,860	30.5%	15,865	61,559	25.8%	+ 7,371	+ 86.8%
Oregon	5,220	16,590	31.5%	7,297	39,128	18.6%	+ 2,077	+ 39.8%
California	104,629	194,833	53.7%	68,491	270,909	25.3%	-36,138	- 34.5%
Alaska	334	1,673	20.0%	3,170	6,912	45.9%	+ 2,836	+ 849.1%
Hawaii	4,836	10,638	45.5%	2,963	7,916	37.4%	- 1,873	- 38.7%
U.S. Average			45.6%			26.2%		24.3%

Source: U.S. Department of Commerce, Construction Reports, 1970 and 1977

APPENDIX 6-2

TOTAL HOUSEHOLDS - SMSA GROUP 1
(Total Households in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Households 1975	Change 75-80	Change 70-75
HOUSTON, TX	1	21.69	1	21.07	745.280	161.662	129.682
DALLAS, TX	2	19.20	2	13.35	855.577	164.255	100.783
MINNEAPOLIS, MN-WI	3	13.56	4	11.82	671.624	91.077	70.981
WASHINGTON, DC-MD-VA	4	12.28	3	11.87	1020.930	125.372	108.295
BALTIMORE, MD	5	10.96	5	11.59	697.914	76.493	72.463
LOS ANGELES, CA	6	9.77	12	6.62	2598.667	253.947	161.427
DETROIT, MI	7	8.52	9	7.13	1430.113	121.870	95.231
SAN FRANCISCO, CA	8	8.50	6	9.45	1190.668	101.195	102.773
BOSTON, MA	9	8.26	7	8.66	977.212	80.744	77.908
NASSUA, NY	10	7.16	8	8.33	755.576	54.066	58.107
CHICAGO, IL	11	6.73	10	6.96	2334.958	157.194	151.959
PITTSBURGH, PA	12	6.23	15	3.06	783.143	48.816	23.281
ST. LOUIS, MO-IL	13	6.00	13	5.88	794.146	47.610	44.117
PHILADELPHIA, PA-NJ	14	3.34	11	6.76	1580.459	52.802	100.027
NEW YORK, NY-NJ	15	0.13	14	3.29	3590.590	4.760	114.392

TOTAL HOUSEHOLDS - SMSA GROUP 2
(Total Households in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Households 1975	Change 75-80	Change 70-75
SAN JOSE, CA	1	24.20	8	16.76	378.130	91.520	54.277
PHOENIX, AZ	2	22.83	2	29.61	396.365	90.485	90.554
SAN DIEGO, CA	3	22.07	3	27.36	541.166	119.445	116.262
ANAHEIM, CA	4	21.49	4	25.00	546.920	117.513	109.398
DENVER, CO	5	21.17	5	21.21	481.173	101.849	84.203
MIAMI, FL	6	20.97	7	19.04	512.669	107.497	81.983
TAMPA, FL	7	16.53	1	30.08	524.637	86.718	121.324
PORTLAND, OR-WA	8	15.50	10	13.51	388.918	60.276	46.292
NEW ORLEANS, LA	9	14.78	12	12.53	359.175	53.102	40.007
COLUMBUS, OH	10	13.83	9	14.31	358.936	49.645	44.922
RIVERSIDE, CA	11	13.12	11	13.29	412.006	54.049	48.336
ATLANTA, GA	12	10.95	6	20.06	589.399	64.565	98.493
KANSAS CITY, MO-KS	13	10.89	15	8.56	451.040	49.130	35.570
CINCINNATI, OH-KY-IN	14	10.70	16	8.19	466.398	49.907	35.289
INDIANAPOLIS, IN	15	10.52	13	10.72	384.213	40.400	37.204
MILWAUKEE, WI	16	9.94	14	9.86	475.972	47.292	42.732
CLEVELAND, OH	17	9.60	19	2.84	668.346	64.129	18.453
NEWARK, NJ	18	6.83	20	2.62	659.236	45.017	16.857
SEATTLE, WA	19	6.47	17	7.16	507.597	32.836	33.930
BUFFALO, NY	20	5.61	18	6.07	444.164	24.922	25.432

APPENDIX 6-2

TOTAL HOUSEHOLDS - SMSA GROUP 3
(Total Households in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Households 1975	Change 75-80	Change 70-75
ORLANDO, FL	1	23.25	2	39.66	201.652	46.875	57.267
GREENVILLE, SC	2	19.74	5	19.15	173.039	34.154	27.807
FORT LAUDERDALE, FL	3	19.59	1	43.28	320.991	62.882	96.955
SALT LAKE CITY, UT	4	19.50	9	16.89	237.568	46.321	34.333
JACKSONVILLE, FL	5	18.02	3	22.55	233.251	42.027	42.913
OMAHA, NE-IA	6	16.83	16	13.50	187.920	31.636	22.353
SAN ANTONIO, TX	7	16.58	7	17.20	295.923	49.051	43.430
TULSA, OK	8	15.91	11	15.50	212.618	33.837	28.527
CHARLOTTE, NC	9	15.69	12	14.59	195.456	30.670	24.889
OKLAHOMA CITY, OK	10	15.38	13	14.46	263.180	40.487	33.250
GREENSBORO, NC	11	15.28	17	12.68	253.034	38.675	28.480
RICHMOND, VA	12	14.65	14	13.74	194.216	28.461	23.469
SACRAMENTO, CA	13	14.34	6	17.33	300.922	43.143	44.437
NASHVILLE, TN	14	14.14	10	16.05	252.304	35.673	34.891
MEMPHIS, TN-AR-MS	15	14.13	15	13.70	277.553	39.226	33.448
BIRMINGHAM, AL	16	13.49	19	11.36	268.394	36.219	27.379
GRAND RAPIDS, MI	17	13.27	18	12.38	180.063	23.889	19.840
HONOLULU, HI	18	12.42	4	19.81	198.398	24.647	32.808
ROCHESTER, NY	19	11.77	32	7.02	315.491	37.119	20.701
YOUNGSTOWN, OH	20	11.56	27	8.56	176.416	20.396	13.906
LOUISVILLE, KY-IN	21	11.11	21	9.92	295.077	32.788	26.618
FLINT, MI	22	10.85	23	8.84	161.709	17.548	13.136
WILMINGTON, DE-NJ-MD	23	10.81	22	9.49	163.327	17.663	14.158
ALLENTOWN, PA-NJ	24	9.62	20	10.43	212.169	20.407	20.039
DAYTON, OH	25	9.56	34	5.40	277.353	26.512	14.199
TOLEDO, OH-MI	26	9.53	24	8.78	255.141	24.323	20.599
NEW BRUNSWICK, NJ	27	9.45	35	4.59	176.359	16.665	7.744
NORFOLK, VA-NC	28	8.16	8	17.18	242.647	19.792	35.568
AKRON, OH	29	8.11	36	4.23	215.247	17.449	8.739
SYRACUSE, NY	30	7.33	31	7.52	207.106	15.191	14.480
ALBANY, NY	31	7.15	25	8.68	271.496	19.400	21.677
PROVIDENCE, RI-MA	32	6.58	33	6.59	303.296	19.946	18.764
NORTHEAST PENN, PA	33	5.69	26	8.61	219.832	12.518	17.421
HARTFORD, CT	34	5.62	30	7.73	240.907	13.543	17.276
GARY, IN	35	5.51	29	7.86	199.020	10.957	14.498
SPRINGFIELD, MA-CT	36	0.13	28	8.04	181.564	0.228	13.509
JERSEY CITY, NJ	37	-1.86	37	2.24	212.890	-3.960	4.671

APPENDIX 6-2

TOTAL HOUSEHOLDS - SMSA GROUP 4
(Total Households in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Households 1975	Change 75-80	Change 70-75
COLORADO SPRINGS, CO	1	24.74	4	30.40	90.069	22.284	20.996
TUCSON, AZ	2	24.26	2	35.31	151.477	36.748	39.526
AUSTIN, TX	3	24.01	3	31.66	129.326	31.053	31.098
ALBUQUERQUE, NM	4	24.01	7	26.80	125.389	30.105	26.500
EL PASO, TX	5	23.47	8	25.46	120.754	28.343	24.507
LAKELAND, FL	6	22.74	6	28.88	94.662	21.524	21.212
ANN ARBOR, MI	7	22.25	22	15.67	79.599	17.709	10.781
COLUMBIA, SC	8	18.31	10	22.96	106.306	19.460	19.851
PENSACOLA, FL	9	17.99	16	19.31	85.508	15.382	13.842
LORAIN, OH	10	17.84	42	10.49	80.828	14.423	7.675
LAS VEGAS, NV	11	17.80	5	30.28	115.217	20.508	26.777
SPOKANE, WA	12	17.63	23	15.45	108.313	19.101	14.497
BEAUMONT, TX	13	17.39	57	7.67	114.895	19.981	8.181
JACKSON, MS	14	17.19	13	21.69	90.761	15.606	16.178
NEWPORT NEWS, VA	15	16.68	34	12.94	106.731	17.804	12.230
LITTLE ROCK, AR	16	16.62	9	23.46	127.272	21.147	24.183
CHATTANOOGA, TN-GA	17	16.36	25	14.58	134.731	22.045	17.148
OXNARD, CA	18	15.83	11	22.87	131.194	20.762	24.416
FORT WAYNE, IN	19	15.49	41	10.60	122.597	18.991	11.754
SANTA BARBARA, CA	20	15.12	33	13.41	95.514	14.440	11.294
JOHNSON CITY, TN-VA	21	14.78	24	14.67	133.252	19.701	17.046
WEST PALM BEACH, FL	22	14.21	1	41.29	175.352	24.911	51.242
CHARLESTON, SC	23	14.16	12	22.29	112.077	15.870	20.428
FRESNO, CA	24	14.03	21	16.36	147.879	20.741	20.790
KNOXVILLE, TN	25	13.88	26	14.34	148.631	20.631	18.646
ERIE, PA	26	13.73	44	9.67	87.053	11.951	7.675
YORK, PA	27	13.64	36	12.12	117.934	16.086	12.745
DES MOINES, IA	28	13.60	27	14.16	115.972	15.771	14.386
MONTGOMERY, AL	29	13.21	14	20.75	81.102	10.714	13.935
SHREVEPORT, LA	30	13.16	30	13.83	118.378	15.583	14.382
MADISON, WI	31	13.04	32	13.56	100.868	13.151	12.042
LONG BRANCH, NJ	32	12.99	37	11.37	151.081	19.632	15.423
SALINAS, CA	33	12.85	29	13.89	81.344	10.455	9.920
HUNTINGTON, WV-KY-OH	34	12.63	51	8.66	99.098	12.514	7.898
BAKERSFIELD, CA	35	12.61	35	12.29	114.442	14.434	12.528
LEXINGTON, KY	36	12.23	20	16.56	97.084	11.871	13.794
TACOMA, WA	37	12.20	64	6.09	131.063	15.992	7.521
RALEIGH, NC	38	12.12	15	20.33	150.694	18.260	25.458
LANSING, MI	39	11.79	39	11.12	137.521	16.213	13.765
APPLETON, WI	40	11.61	52	8.46	85.213	9.894	6.644
CANTON, OH	41	11.38	43	10.26	133.832	15.226	12.450
CORPUS CHRISTI, TX	42	11.01	28	14.12	91.322	10.057	11.301
BINGHAMTON, NY-PA	43	10.99	63	6.10	99.191	10.900	5.701
LANCASTER, PA	44	10.85	31	13.75	111.422	12.089	13.472
BATON ROUGE, LA	45	10.76	17	17.90	125.611	13.521	19.068
HARRISBURG, PA	46	10.70	40	11.06	147.019	15.737	14.636
STOCKTON, CA	47	10.41	46	9.47	101.343	10.549	8.769
PEORIA, IL	48	9.70	45	9.62	118.718	11.519	10.415
DAVENPORT, IA-IL	49	9.67	54	7.95	124.173	12.003	9.145
ROCKFORD, IL	50	9.41	62	6.15	89.820	8.449	5.207
DULUTH, MN-WI	51	8.83	67	5.21	88.912	7.853	4.402
EVANSVILLE, IN-KY	52	8.56	49	8.75	99.870	8.545	8.036
VALLEJO, CA	53	7.48	18	16.95	89.355	6.688	12.950
HUNTSVILLE, AL	54	6.69	58	7.38	88.644	5.926	6.093
LAWRENCE, MA-NH	55	6.21	60	6.61	87.265	5.417	5.414
MOBILE, AL	56	5.87	19	16.75	127.945	7.510	18.355
CHARLESTON, WV	57	5.56	48	9.04	90.471	5.028	7.503
AUGUSTA, GA-SC	58	5.29	53	8.16	84.216	4.452	6.355
WICHITA, KS	59	5.27	59	6.67	133.464	7.035	8.342
NEW HAVEN, CT	60	5.10	61	6.50	138.686	7.071	8.469
JOHNSTOWN, PA	61	5.02	56	7.89	87.221	4.381	6.376
READING, PA	62	4.19	50	8.67	106.157	4.448	8.472
SOUTH BEND, IN	63	3.01	66	5.66	91.672	2.757	4.908
TRENTON, NJ	64	2.96	38	11.16	104.169	3.083	10.455
KALAMAZOO, MI	65	2.45	47	9.41	84.135	2.058	7.238
WORCESTER, MA	66	0.84	55	7.94	122.880	1.035	9.044
UTICA, NY	67	0.61	68	4.09	107.957	0.661	4.238
BRIDGEPORT, CT	68	-0.53	65	5.87	131.694	-0.695	7.300
PATERSON, NJ	69	-0.65	69	2.59	151.489	-0.984	3.827

APPENDIX 6-2

TOTAL HOUSEHOLDS - SMSA GROUP 5
(Total Households in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Households 1975	Change 75-80	Change 70-75
SANTA CRUZ, CA	1	26.85	8	32.24	58.971	15.831	14.376
YAKIMA, WA	2	26.24	23	15.71	53.830	14.126	7.309
SARASOTA, FL	3	26.03	2	44.19	70.653	18.389	21.653
KILLEEN, TX	4	25.17	3	39.78	61.385	15.453	17.469
FORT MYERS, FL	5	24.11	1	55.32	58.342	14.067	20.779
ANCHORAGE, AK	6	24.01	10	29.23	45.797	10.997	10.358
PARKERSBURG, WV-OH	7	23.73	37	9.84	51.321	12.176	4.599
ROANOKE, VA	8	21.72	30	13.03	73.775	16.027	8.506
DAYTONA BEACH, FL	9	21.61	7	32.40	83.667	18.077	20.475
MODESTO, CA	10	21.04	12	23.56	77.003	16.205	14.682
EUGENE, OR	11	20.51	13	20.17	82.348	16.887	13.822
WACO, TX	12	20.20	26	15.44	55.654	11.242	7.443
SANTA ROSA, CA	13	19.72	11	28.81	87.736	17.301	19.624
LIMA, OH	14	18.73	42	7.74	68.465	12.826	4.919
PROVO, UT	15	18.43	9	30.99	45.465	8.381	10.756
ST. CLOUD, MN	16	18.10	16	17.82	39.890	7.220	6.033
GREEN BAY, WI	17	18.10	27	15.13	50.250	9.097	6.603
STAMFORD, CT	18	17.19	47	7.11	69.146	11.888	4.588
FORT SMITH, AR-OK	19	16.99	4	34.82	71.113	12.085	18.365
LINCOLN, NE	20	16.52	17	17.79	63.721	10.526	9.624
LUBBOCK, TX	21	16.17	19	17.23	62.710	10.140	9.216
BATTLE CREEK, MI	22	15.87	44	7.65	60.317	9.572	4.285
HAMILTON, OH	23	15.66	24	15.66	77.714	12.170	10.521
POUGHKEEPSIE, NY	24	15.63	36	10.58	69.185	10.811	6.622
SPRINGFIELD, MO	25	15.34	14	19.10	67.083	10.293	10.758
TOPEKA, KS	26	14.95	45	7.50	62.636	9.366	4.370
STEUBENVILLE, OH-WV	27	14.56	49	6.66	54.640	7.954	3.411
AMARILLO, TX	28	14.36	33	12.46	53.284	7.650	5.902
SALEM, OR	29	14.07	15	18.82	70.573	9.933	11.179
BILOXI, MS	30	13.62	22	16.50	52.563	7.160	7.446
FAYETTEVILLE, NC	31	13.54	21	16.52	60.713	8.221	8.610
WHEELING, WV-OH	32	12.10	50	6.65	63.498	7.686	3.958
PORTLAND, ME	33	12.08	32	12.63	61.126	7.385	6.855
GALVESTON, TX	34	12.02	25	15.58	61.378	7.380	8.275
MELBOURNE, FL	35	11.85	48	6.89	73.736	8.738	4.752
RACINE, WI	36	11.59	40	8.72	54.212	6.282	4.350
SPRINGFIELD, OH	37	11.49	52	6.22	61.487	7.065	3.602
SAGINAW, MI	38	11.21	38	9.71	69.390	7.782	6.140
TERRE HAUTE, IN	39	9.86	55	4.37	60.553	5.968	2.533
ASHEVILLE, NC	40	9.33	35	11.20	58.279	5.436	5.871
BROWNSVILLE, TX	41	8.81	5	34.41	47.838	4.216	12.247
MACON, GA	42	8.53	28	13.60	76.575	6.530	9.170
SAVANNAH, GA	43	7.40	51	6.41	67.652	5.003	4.074
MCALLEN, TX	44	7.36	6	32.79	58.059	4.271	14.336
FALL RIVER, MA-RI	45	7.04	53	6.17	58.151	4.096	3.380
WATERBURY, CT	46	6.24	43	7.70	71.668	4.473	5.122
LAKE CHARLES, LA	47	5.99	34	12.28	47.389	2.838	5.184
CEDAR RAPIDS, IA	48	5.30	46	7.49	54.761	2.901	3.814
NEW LONDON, CT-RI	49	5.26	41	8.34	77.416	4.074	5.959
COLUMBUS, GA-AL	50	5.17	57	0.27	67.720	3.504	0.181
CHAMPAIGN, IL	51	5.01	54	5.56	50.121	2.510	2.642
LOWELL, MA-NH	52	4.87	56	3.39	64.018	3.115	2.102
ATLANTIC CITY, NJ	53	3.61	20	17.20	71.342	2.574	10.471
SPRINGFIELD, IL	54	3.16	29	13.13	65.299	2.062	7.577
MUSKEGON, MI	55	2.61	39	8.74	57.178	1.495	4.594
NEW BEDFORD, MA	56	-0.88	31	12.81	60.668	-0.536	6.889
BROCKTON, MA	57	-5.07	18	17.53	51.947	-2.633	7.749

APPENDIX 6-2

TOTAL HOUSEHOLDS - SMSA GROUP 6
(Total Households in Thousands)

	Rank 75-80 Growth	% Growth 75-80	Rank 70-75 Growth	% Growth 70-75	Total Households 1975	Change 75-80	Change 70-75
RICHLAND, WA	1	30.13	18	17.52	33.394	10.063	4.978
PASCAGOULA, MS	2	28.26	10	28.06	31.619	8.935	6.928
LONGVIEW, TX	3	28.12	31	13.13	44.158	12.416	5.126
FORT COLLINS, CO	4	26.62	1	42.93	40.551	10.793	12.179
GREELEY, CO	5	24.47	9	28.83	34.552	8.454	7.732
TYLER, TX	6	24.46	14	19.86	37.248	9.112	6.173
TUSCALOOSA, AL	7	23.50	19	17.48	38.754	9.106	5.766
LAFAYETTE, LA	8	22.80	13	20.42	36.213	8.258	6.141
TALLAHASSEE, FL	9	22.55	2	37.04	45.423	10.245	12.278
ALBANY, GA	10	22.51	33	12.92	30.611	6.890	3.502
NASHUA, NH	11	20.82	40	11.81	28.477	5.928	3.007
GAINESVILLE, FL	12	20.64	5	32.21	41.426	8.551	10.092
ALEXANDRIA, LA	13	20.47	39	11.84	42.760	8.751	4.526
BLOOMINGTON, IN	14	20.07	35	12.25	28.203	5.660	3.077
SIOUX FALLS, SD	15	19.64	32	13.10	32.835	6.448	3.803
SAN ANGELO, TX	16	19.17	30	13.21	25.710	4.928	3.000
LYNCHBURG, VA	17	18.80	25	14.67	45.498	8.553	5.820
RENO, NV	18	18.49	8	28.99	54.364	10.054	12.219
BOISE CITY, ID	19	18.22	4	32.52	47.800	8.711	11.730
BILLINGS, MT	20	18.21	12	22.14	33.872	6.169	6.139
KENOSHA, WI	21	17.92	47	9.91	39.057	6.999	3.521
WILMINGTON, NC	22	17.78	7	29.96	43.724	7.775	10.081
MONROE, LA	23	17.68	15	18.92	41.134	7.271	6.543
EAU CLAIRE, WI	24	17.53	34	12.86	37.885	6.643	4.317
DUBUQUE, IA	25	16.95	51	9.37	26.603	4.509	2.279
ROCHESTER, MN	26	16.91	28	13.38	28.636	4.843	3.379
MIDLAND, TX	27	16.73	20	17.38	23.318	3.902	3.453
MANSFIELD, OH	28	16.47	61	6.61	42.541	7.007	2.636
LAREDO, TX	29	16.39	16	18.40	21.252	3.484	3.302
ANNISTON, AL	30	16.32	42	11.49	34.289	5.597	3.533
CLARKSVILLE, TN-KY	31	16.08	6	31.46	41.778	6.718	9.999
SIOUX CITY, IA-NE	32	15.12	41	11.77	41.143	6.222	4.332
WICHITA FALLS, TX	33	14.93	46	10.01	45.464	6.786	4.135
MANCHESTER, NH	34	13.95	21	17.00	48.714	6.796	7.078
ABILENE, TX	35	13.91	29	13.25	44.133	6.141	5.162
TEXARKANA, TX-AR	36	13.68	49	9.48	40.009	5.475	3.464
BRYAN, TX	37	13.64	3	32.70	22.622	3.086	5.575
WATERLOO, IA	38	13.60	60	6.84	42.405	5.766	2.713
BURLINGTON, NC	39	12.62	48	9.56	32.781	4.138	2.860
SHERMAN, TX	40	12.45	73	1.13	28.161	3.505	0.316
FARGO, ND-MN	41	12.27	27	13.93	40.669	4.990	4.971
PUEBLO, CO	42	10.85	24	14.85	40.839	4.431	5.280
LAFAYETTE, IN	43	10.70	55	8.00	35.005	3.745	2.594
LA CROSSE, WI	44	9.91	36	12.25	27.306	2.706	2.980
ANDERSON, IN	45	9.75	66	5.24	46.561	4.541	2.317
COLUMBIA, MO	46	9.70	26	14.37	27.661	2.683	3.475
PETERSBURG, VA	47	9.51	72	2.10	35.361	3.362	0.726
JACKSON, MI	48	9.41	54	8.12	45.798	4.308	3.440
VINELAND, NJ	49	9.25	22	15.91	43.097	3.987	5.914
DECATUR, IL	50	8.45	50	9.45	44.722	3.778	3.863
BRISTOL, CT	51	8.27	68	4.91	22.278	1.842	1.042
ALTOONA, PA	52	8.04	67	5.11	45.732	3.677	2.222
ODESSA, TX	53	7.79	23	15.39	31.956	2.489	4.262
ST. JOSEPH, MO	54	7.53	53	8.35	36.522	2.749	2.815
DANBURY, CT	55	7.27	71	3.32	35.087	2.551	1.129
NEW BRITAIN, CT	56	7.24	63	5.95	48.640	3.522	2.730
WILLIAMSPORT, PA	57	6.98	56	7.79	38.692	2.700	2.797
ELMIRA, NY	58	6.83	69	4.27	32.625	2.228	1.335
OWENSBORO, KY	59	6.45	44	10.45	26.601	1.715	2.517
LAWTON, OK	60	6.15	74	-0.14	28.861	1.776	-0.040
FAYETTEVILLE, AR	61	5.41	11	22.79	51.433	2.784	9.546
FLORENCE, AL	62	5.34	37	12.06	40.260	2.151	4.333
LEWISTON, ME	63	5.30	43	10.81	25.681	1.362	2.506
BLOOMINGTON, IL	64	4.63	17	18.14	37.749	1.746	5.797
NORWALK, CT	65	4.17	62	6.13	41.213	1.719	2.380
MERIDEN, CT	66	3.93	57	7.71	19.248	0.756	1.378
PINE BLUFF, AR	67	3.60	58	7.23	27.548	0.991	1.857
GREAT FALLS, MT	68	3.34	38	11.88	28.365	0.948	3.011
GADSDEN, AL	69	1.22	45	10.08	33.391	0.406	3.058
BAY CITY, MI	70	-0.50	52	8.71	37.703	-0.188	3.020
MUNCIE, IN	71	-1.45	65	5.27	41.571	-0.604	2.080
PITTSFIELD, MA	72	-1.47	64	5.55	32.245	-0.474	1.695
FITCHBURG, MA	73	-2.06	59	7.13	32.441	-0.669	2.158
KANKAKEE, IL	74	-8.59	70	3.92	29.049	-2.495	1.096

Appendix 6-3

RESIDENTIAL BUILDING PERMITS AUTHORIZED, SMSA's 1970 AND 1977

SMSA	1970 Number of Permits in 5+ Unit Structures	1970 Total Number of Permits All Structures	1970 Percent of Total Structures	1977 Number of Permits in 5+ Unit Structures	1977 Total Number of Permits All Structures	1977 Percent of Total Structures	Number Change in Permits 1970-1977	Percent Change 1970-1977
Abilene, TX	30	77	39.0%	470	1,143	41.1%	+ 440	+1,466.6%
Akron, OH	1,513	3,469	43.6%	1,173	3,945	29.7%	- 340	- 22.5%
Albany, GA	126	998	12.6%	70	683	10.2%	- 56	- 44.4%
Albany-Schenectady-Troy, NY	1,859	3,869	48.0%	440	2,496	17.6%	- 1,419	- 76.3%
Albuquerque, NM	1,438	3,745	38.4%	2,896	7,207	40.2%	+ 1,458	+ 101.3%
Alexandria, LA	8	170	4.7%	0	159	0 %	- 8	- 100.0%
Allentown-Bethlehem-Easton, PA/NJ	1,733	3,413	50.8%	1,015	3,792	26.8%	- 718	- 41.4%
Altoona, PA	529	674	78.5%	232	726	32.0%	- 297	- 56.1%
Amarillo, TX	140	343	40.8%	64	1,766	3.6%	- 76	- 54.3%
Anaheim-Santa Ana-Garden Grove, CA	14,880	23,410	63.6%	8,328	27,473	30.3%	- 6,552	- 44.0%
Anchorage, AK	334	1,673	20.0%	2,139	4,233	50.5%	+ 1,805	+ 540.4%
Anderson, IN	16	459	3.5%	357	986	36.2%	+ 341	+2,131.3%
Ann Arbor, MI	1,699	3,325	51.1%	386	1,670	23.1%	- 1,313	- 77.3%
Anniston, AL	76	220	34.5%	30	400	7.5%	- 46	- 60.5%
Appleton-Oshkosh, WI	501	1,897	26.4%	390	2,697	14.5%	- 111	- 22.2%
Asheville, NC	100	230	43.5%	0	132	-0- %	- 100	- 100.0%
Atlanta, GA	19,434	29,868	65.1%	2,770	17,884	15.5%	-16,664	- 85.7%
Atlantic City, NJ	1,021	1,883	54.2%	16	1,044	1.5%	- 1,005	- 98.4%
Augusta, GA-SC	848	3,174	26.7%	132	2,702	4.9%	- 716	- 84.4%
Austin, TX	2,359	4,759	49.6%	1,276	4,590	27.8%	- 1,083	- 45.9%
Bakersfield, CA	574	2,557	22.4%	976	5,119	19.1%	+ 402	+ 70.0%
Baltimore, MD	10,472	16,435	63.7%	3,410	15,021	22.7%	- 7,062	- 67.4%
Baton Rouge, LA	936	2,714	34.5%	765	5,109	15.0%	- 171	- 18.3%
Battle Creek, MI	16	988	1.6%	267	845	31.6%	+ 251	+1,568.8%
Bay City, MI	25	560	4.5%	0	527	0 %	- 25	- 100.0%
Beaumont-Port Arthur-Orange, TX	482	874	55.1%	1,236	2,760	44.8%	+ 754	+ 156.4%
Billings, MT	12	285	4.2%	189	1,339	14.1%	+ 177	+1,475.0%
Biloxi-Gulfport, MS	819	1,680	48.8%	193	1,178	16.4%	- 626	- 76.4%
Binghampton, NY-PA	402	792	50.8%	327	1,027	31.8%	- 75	- 18.7%
Birmingham, AL	1,923	5,143	37.4%	2,727	6,979	39.1%	+ 804	+ 41.8%
Bloomington, IN	310	503	61.6%	5	244	2.0%	- 305	- 98.4%
Bloomington-Normal, IL	360	884	40.7%	479	1,570	30.5%	+ 119	+ 33.1%
Boise City, ID	544	1,158	47.0%	656	4,166	15.7%	+ 112	+ 20.6%
Boston, MA	11,881	15,193	78.2%	3,898	8,450	46.1%	- 7,983	- 67.2%
Bridgeport, CT	771	1,641	47.0%	329	1,729	19.0%	- 442	- 57.3%
Bristol, CT	700	930	75.3%	61	324	18.8%	- 639	- 91.3%
Brockton, MA	1,313	2,113	62.1%	178	645	27.6%	- 1,135	- 86.4%

Appendix 6-3

RESIDENTIAL BUILDING PERMITS AUTHORIZED, SMSA's 1970 AND 1977 (continued)

SMSA	1970 Number of Permits in 5+ Unit Structures	1970 Total Number of Permits All Structures	1970 Percent of Total Structures	1977 Number of Permits in 5+ Unit Structures	1977 Total Number of Permits All Structures	1977 Percent of Total Structures	Number Change in Permits 1970-1977	Percent Change 1970-1977
Brownsville-Houston-San Benito, TX	288	594	48.5%	143	1,204	11.9%	- 145	- 50.3%
Bryan College Station, TX	416	718	57.9%	1,464	2,442	60.0%	+ 1,048	+ 251.9%
Buffalo, NY	2,894	6,151	47.0%	762	3,832	19.9%	- 2,132	- 73.7%
Burlington, NC	61	842	7.2%	112	565	19.8%	+ 51	+ 83.6%
Canton, OH	1,174	2,508	46.8%	847	3,024	28.0%	- 327	- 27.9%
Cedar Rapids, IA	400	1,133	35.3%	590	1,755	33.6%	+ 190	+ 47.5%
Champaign-Urbana, IL	483	954	50.6%	956	1,617	59.1%	+ 473	+ 97.9%
Charleston, SC	195	1,614	12.1%	928	3,632	25.6%	+ 733	+ 375.9%
Charleston, WV	336	616	54.5%	339	924	36.7%	+ 3	+ .9%
Charlotte, NC	3,478	6,368	54.6%	611	4,666	13.1%	- 2,867	- 82.4%
Chattanooga, TN-GA	873	2,800	31.2%	613	2,562	23.9%	- 260	- 29.8%
Chicago, IL	21,479	38,753	55.4%	14,843	49,222	30.2%	- 6,636	- 30.9%
Cincinnati, OH-KY-IN	4,644	7,949	58.4%	3,017	10,431	28.9%	- 1,627	- 35.0%
Clarksville-Hopkinsville, TN-KY	96	258	37.2%	37	833	4.4%	- 59	- 61.5%
Cleveland, OH	3,246	7,492	43.3%	3,226	10,251	31.5%	- 20	- .6%
Colorado Springs, CO	1,882	4,956	38.0%	22	2,585	.85	- 1,860	- 98.8%
Columbia, MO	169	482	35.1%	235	523	44.9%	+ 66	+ 39.1%
Columbia, SC	666	3,135	21.2%	230	2,719	8.5%	- 436	- 65.5%
Columbus, GA-AL	793	2,934	27.0%	729	1,635	44.6%	- 64	- 8.1%
Columbus, OH	5,383	10,461	51.5%	2,144	8,506	25.2%	- 3,239	- 60.2%
Corpus Christi, TX	265	1,223	21.7%	890	2,624	33.9%	+ 625	+ 235.8%
Dallas-Ft. Worth, TX	21,341	37,357	57.1%	19,140	44,340	43.2%	- 2,201	- 10.3%
Danbury, CT	947	2,056	46.1%	100	1,173	8.5%	- 847	- 89.4%
Davenport-Rock Island-Moline, IL-IA	144	1,328	10.8%	1,054	3,449	30.6%	+ 910	+ 631.9%
Dayton, OH	3,842	7,961	48.3%	810	5,083	15.9%	- 3,032	- 78.9%
Daytona Beach, FL	711	1,948	36.5%	78	3,407	2.3%	- 633	- 89.0%
Decatur, IL	17	376	4.5%	460	1,155	39.8%	+ 443	+2,605.9%
Denver-Boulder, CO	10,138	20,670	49.0%	2,916	23,055	12.6%	- 7,222	- 71.2%
Des Moines, IA	1,050	2,212	47.5%	1,435	3,961	36.2%	+ 385	+ 36.7%
Detroit, MI	9,285	21,807	42.6%	5,895	24,672	23.9%	- 3,390	- 36.5%
Dubuque, IA	145	307	47.2%	0	388	0 %	- 145	- 100.0%
Duluth-Superior, MN-WI	400	967	41.4%	963	2,274	42.3%	+ 563	+ 140.8%
Eau Claire, WI	153	828	18.5%	315	1,567	20.1%	+ 162	+ 105.9%
Elmira, NY	254	417	60.9%	0	339	0 %	- 254	- 100.0%
El Paso, TX	1,678	3,855	43.5%	742	4,555	16.3%	- 936	- 55.8%
Erie, PA	371	1,045	35.5%	457	1,637	27.9%	+ 86	+ 23.2%
Eugene-Springfield, OR	587	1,970	29.8%	800	4,274	18.7%	+ 213	+ 36.3%
Evansville, IN-KY	270	874	30.9%	1,438	2,953	48.7%	+ 1,168	+ 432.6%

Appendix 6-3

RESIDENTIAL BUILDING PERMITS AUTHORIZED, SMSA's 1970 AND 1977
(continued)

SMSA	1970 Number of Permits in 5+ Unit Structures	1970 Total Number of Permits All Structures	1970 Percent of Total Structures	1977 Number of Permits in 5+ Unit Structures	1977 Total Number of Permits All Structures	1977 Percent of Total Structures	Number Change in Permits 1970-1977	Percent Change 1970-1977
Fall River, MA-RI	201	686	29.3%	0	458	0 %	- 201	- 100.0%
Fargo-Moorehead, ND-MN	464	925	50.2%	1,020	2,001	51.0%	+ 556	+ 119.8%
Fayetteville, NC	296	732	40.4%	57	457	12.5%	- 239	- 80.7%
Fayetteville-Springdale, AR	411	1,056	38.9%	422	1,934	21.8%	+ 11	+ 2.7%
Fitchburg-Leominster, MA	254	460	55.2%	6	421	1.4%	- 248	- 97.6%
Flint, MI	1,638	4,139	39.6%	1,147	3,282	34.9%	- 491	- 30.0%
Florence, AL	0	450	0 %	451	1,127	40.0%	+ 451	+ 100.0%
Fort Collins, CO	164	1,319	12.4%	520	3,553	14.6%	+ 356	+ 217.1%
Fort Lauderdale-Hollywood, FL	11,772	17,293	68.1%	6,152	13,937	44.1%	- 5,620	- 47.7%
Fort Meyers, FL	1,213	3,461	35.0%	2,597	6,564	39.6%	+ 1,384	+ 114.1%
Fort Smith, AR-OK	204	698	29.2%	773	1,755	44.0%	+ 569	+ 278.9%
Fort Wayne, IN	525	1,342	31.9%	196	2,793	7.0%	- 329	- 62.7%
Fresno, CA	1,717	4,660	36.8%	1,908	6,347	30.1%	+ 191	+ 11.1%
Gadsden, AL	200	321	62.3%	253	372	68.0%	+ 53	+ 26.5%
Gainesville, FL	181	902	20.1%	661	1,957	33.8%	+ 480	+ 265.2%
Galveston-Texas City, TX	242	547	44.2%	668	1,443	46.3%	+ 426	+ 176.0%
Gary-Hammond-E. Chicago, IN	2,023	4,124	49.1%	1,592	5,814	27.4%	- 431	- 21.3%
Grand Rapids, MI	946	3,462	27.3%	1,450	4,563	31.8%	+ 504	+ 53.3%
Great Falls, MT	220	379	58.0%	386	716	53.9%	+ 166	+ 75.5%
Greeley, CO	355	1,240	28.6%	253	1,625	15.6%	- 102	- 28.7%
Green Bay, WI	329	1,275	25.8%	235	1,784	13.2%	- 94	- 28.6%
Greensboro-Winston-Salem-High Point, NC	2,666	6,284	42.4%	1,075	5,208	20.6%	- 1,591	- 59.7%
Greenville-Spartanburg, SC	1,773	4,650	38.1%	715	4,271	16.7%	- 808	- 53.1%
Hamilton-Middletown, OH	727	1,538	47.3%	387	2,866	13.5%	- 340	- 46.8%
Harrisburg, PA	1,345	2,392	56.2%	1,349	3,315	40.7%	+ 4	+ .3%
Hartford, CT	2,993	4,686	63.9%	636	3,654	17.4%	- 2,357	- 78.8%
Honolulu, HI	3,854	7,970	48.4%	2,312	4,677	49.4%	- 1,542	- 40.0%
Houston, TX	17,888	21,995	81.3%	24,091	33,821	71.2%	+ 6,203	+ 34.7%
Huntington-Ashland, WV-KY-OH	480	616	77.9%	403	994	40.5%	- 77	- 16.0%
Huntsville, AL	120	953	12.6%	584	1,948	30.0%	+ 464	+ 386.7%
Indianapolis, IN	3,515	7,177	49.0%	2,817	8,971	31.4%	- 698	- 19.9%
Jackson, MI	5	584	.9%	630	1,177	53.5%	+ 625	+ 126.0%
Jackson, MS	1,339	2,491	53.8%	316	1,727	17.7%	- 1,023	- 76.4%
Jacksonville, FL	4,184	6,022	69.5%	631	5,813	10.9%	- 3,553	- 84.9%
Jersey City, NJ	425	950	44.7%	101	433	23.3%	- 324	- 76.2%
Johnson City-Kingsport-Bristol, TN-VA	108	289	37.4%	114	1,323	8.6%	+ 6	+ 5.6%
Johnstown, PA	68	242	28.1%	268	817	32.8%	+ 200	+ 294.1%
Kalamazoo-Portage, MI	915	1,596	57.3%	1,197	2,640	45.3%	+ 282	+ 30.8%

Appendix 6-3

RESIDENTIAL BUILDING PERMITS AUTHORIZED, SMSA's
1970 AND 1977
(continued)

SMSA	1970 Number of Permits in 5+ Unit Structures	1970 Total Number of Permits All Structures	1970 Percent of Total Structures	1977 Number of Permits in 5+ Unit Structures	1977 Total Number of Permits All Structures	1977 Percent of Total Structures	Number Change in Permits 1970-1977	Percent Change 1970-1977
Kankakee, IL	222	673	33.0%	157	767	20.5%	- 65	- 29.3%
Kansas City, MO-KS	4,969	10,392	47.8%	1,038	10,822	9.6%	- 3,931	- 79.1%
Kenosha, WI	364	645	56.4%	575	1,169	49.2%	+ 211	+ 58.0%
Killen-Temple, TX	633	1,312	48.2%	502	2,067	24.3%	- 131	- 20.7%
Knoxville, TN	576	2,426	23.7%	963	3,531	27.3%	+ 387	+ 67.2%
La Crosse, WI	89	518	17.2%	486	1,198	40.6%	+ 397	+ 446.1%
Lafayette-W. Lafayette, IN	80	393	20.4%	795	1,311	60.6%	+ 715	+ 893.8%
Lafayette, LA	514	875	58.7%	527	2,001	26.3%	+ 13	+ 2.5%
Lake Charles, LA	359	601	59.7%	180	682	26.4%	- 179	- 49.9%
Lakeland-Winter Haven, FL	329	673	48.9%	361	1,073	33.6%	+ 32	+ 9.7%
Lancaster, PA	508	1,160	43.8%	411	2,300	17.9%	- 97	- 19.1%
Lansing-E. Lansing, MI	551	2,423	22.7%	1,478	3,800	38.9%	+ 927	+ 168.2%
Laredo, TX	160	404	39.6%	72	606	11.9%	- 88	- 55.0%
Las Vegas, NV	1,498	5,775	25.9%	5,633	12,705	44.3%	+ 4,135	+ 276.0%
Lawrence-Haverhill, MA-NH	438	1,046	41.9%	599	1,707	35.1%	+ 161	+ 36.8%
Lawton, OK	31	508	6.1%	426	1,172	36.3%	+ 395	+1,274.2%
Lewiston-Auburn, ME	81	245	33.1%	130	324	40.1%	+ 49	+ 60.5%
Lexington-Fayette, KY	1,875	3,282	57.1%	2,064	4,906	42.1%	+ 189	+ 10.1%
Lima, OH	181	475	38.1%	16	817	2.0%	- 165	- 91.2%
Lincoln, NB	418	1,122	37.3%	579	2,369	24.4%	+ 161	+ 38.5%
Little Rock-No. Little Rock, AR	1,489	2,962	50.3%	538	2,263	23.8%	- 951	- 63.9%
Long Branch-Asbury Park, NJ	1,582	3,108	50.9%	405	2,700	15.0%	- 1,177	- 74.4%
Longview, TX	232	682	34.0%	774	1,672	46.3%	+ 542	+ 233.6%
Lorain-Elyria, OH	1,194	2,388	50.0%	432	2,407	18.0%	- 762	- 63.8%
Los Angeles-Long Beach, CA	36,208	46,473	77.9%	18,568	39,322	47.2%	-17,640	- 48.7%
Louisville, KY-IN	4,589	7,960	57.7%	1,195	5,711	20.9%	- 3,394	- 74.0%
Lowell, MA-NH	1,262	2,158	58.5%	84	803	10.5%	- 1,178	- 93.3%
Lubbock, TX	692	1,291	53.6%	1,635	3,624	45.1%	+ 943	+ 136.3%
Lynchburg, VA	446	1,128	39.5%	152	1,023	14.9%	- 294	- 65.9%
McAllen-Pharr-Edinburg, TX	17	574	3.0%	796	2,609	30.5%	+ 779	+ 46.8%
Macon, GA	915	2,315	39.5%	407	1,623	25.1%	- 508	- 55.5%
Madison, WI	1,670	2,870	58.2%	855	3,887	22.0%	- 815	- 48.8%
Manchester, NH	230	437	52.3%	830	2,039	40.7%	+ 600	+ 260.9%
Mansfield, OH	314	798	39.3%	105	691	15.2%	- 209	- 66.6%
Melbourne-Titusville-Cocoa, FL	458	1,100	41.6%	1,263	4,174	30.3%	+ 805	+ 175.8%
Memphis, TN-AR	2,275	7,299	31.2%	1,581	6,614	23.9%	- 695	- 30.5%
Meriden, CT	129	245	52.7%	108	200	54.0%	- 21	- 16.3%
Miami, FL	11,610	18,977	61.2%	3,995	12,309	32.5%	- 7,615	- 65.6%

Appendix 6-3

RESIDENTIAL BUILDING PERMITS AUTHORIZED, SMSA's 1970 AND 1977 (continued)

SMSA	1970 Number of Permits in 5+ Unit Structures	1970 Total Number of Permits All Structures	1970 Percent of Total Structures	1977 Number of Permits in 5+ Unit Structures	1977 Total Number of Permits All Structures	1977 Percent of Total Structures	Number Change in Permits 1970-1977	Percent Change 1970-1977
Midland, TX	14	93	15.1%	393	1,114	35.3%	+ 379	+2,707.1%
Milwaukee, WI	2,554	7,012	36.4%	3,608	10,543	34.2%	+ 1,054	+ 41.3%
Minneapolis-St. Paul, MN	10,031	15,857	63.3%	5,284	21,722	24.3%	- 4,747	- 47.3%
Mobile, AL	973	2,202	44.2%	2,434	4,139	58.8%	+ 1,461	+ 150.2%
Modesto, CA	419	2,047	20.5%	759	5,164	14.7%	+ 340	+ 81.1%
Monroe, LA	72	452	15.9%	315	570	55.3%	+ 243	+ 337.5%
Montgomery, AL	543	1,653	32.8%	258	1,687	15.3%	- 285	- 52.5%
Muncie, IN	360	713	50.5%	136	614	22.1%	- 224	- 62.2%
Muskegon-Muskegon Heights-Norton Shores-Manchester, MI	0	794	0 %	120	847	14.2%	+ 120	+ 120.0%
Nashua, NH	220	1,324	16.6%	76	1,052	7.2%	- 144	- 65.5%
Nashville-Davidson, TN	1,910	4,721	40.5%	3,590	7,977	45.0%	+ 1,680	+ 88.0%
Nassau-Suffolk, NY	3,693	12,199	30.3%	1,518	9,868	15.4%	- 2,175	- 58.9%
Newark, NJ	2,712	5,352	50.7%	2,988	6,499	46.0%	+ 276	+ 10.2%
New Bedford, MA	409	901	45.4%	226	806	28.0%	- 183	- 44.7%
New Britain, CT	827	1,199	69.0%	216	626	34.5%	- 611	- 73.9%
N. Brunswick-Perth Amboy-Sayreville, NJ	200	1,774	11.3%	2,120	4,057	52.3%	+ 1,920	+ 960.0%
New Haven-W. Haven-New London, CT	1,525	2,393	63.7%	442	1,787	24.7%	- 1,082	- 71.0%
New Orleans, LA	2,665	8,917	30.0%	3,577	12,092	29.6%	+ 912	+ 34.2%
Newport News-Hampton, VA	2,929	4,149	70.6%	230	2,068	11.1%	- 2,699	- 92.1%
New York, NY	18,626	25,513	73.0%	6,272	12,530	50.1%	-12,354	- 66.3%
Norfolk-Va. Beach-Portsmouth, VA	3,704	5,989	61.8%	3,317	9,494	34.9%	- 387	- 10.4%
Northeast Penn., PA	821	1,586	51.8%	388	2,239	17.3%	- 433	- 52.7%
Norwalk, CT	32	269	11.9%	335	794	42.2%	+ 303	+ 946.9%
Norwich-Groton-N. London, CT	1,562	2,118	73.7%	190	1,075	17.7%	- 1,372	- 87.8%
Odessa, TX	244	375	65.1%	708	1,394	50.8%	+ 464	+ 190.2%
Oklahoma City, OK	5,179	9,116	56.8%	467	7,824	6.0%	- 4,712	- 91.0%
Omaha, NB-IA	2,583	5,020	51.5%	432	3,879	11.1%	- 2,151	- 83.3%
Orlando, FL	1,797	7,340	24.5%	327	5,923	5.5%	- 1,470	- 81.8%
Owensboro, KY	98	392	25.0%	235	804	29.2%	+ 137	+ 139.8%
Oxnard-Simi Valley-Ventura, CA	1,540	5,263	29.3%	949	8,456	11.2%	- 591	- 38.4%
Parkersburg-Marietta, WV-OH	6	151	4.0%	136	391	34.8%	+ 130	+2,166.7%
Pascagoula-Moss Point, MS	272	1,638	16.6%	0	799	0 %	- 272	- 100.0%
Passaic-Paterson-Clifton, NJ	3,408	5,108	66.7%	212	721	29.4%	- 3,196	- 93.8%
Pensacola, FL	772	2,664	29.0%	239	1,829	13.1%	- 533	- 69.0%
Peoria, IL	607	2,217	27.4%	1,289	4,167	30.9%	+ 682	+ 112.4%
Petersburg-Colonial Heights-Hopewell, VA	179	617	29.0%	6	835	.72	- 173	- 96.6%
Philadelphia, PA-NJ	13,190	23,585	55.9%	3,113	19,799	15.7%	-10,077	- 76.4%
Phoenix, AZ	5,105	20,634	24.7%	4,192	27,955	15.0%	- 913	- 17.9%
Pine Bluff, AR	0	201	0 %	272	378	72.0%	+ 272	+ 272.0%

Appendix 6-3

RESIDENTIAL BUILDING PERMITS AUTHORIZED, SMSA's 1970 AND 1977 (continued)

SMSA	1970 Number of Permits in 5+ Unit Structures	1970 Total Number of Permits All Structures	1970 Percent of Total Structures	1977 Number of Permits in 5+ Unit Structures	1977 Total Number of Permits All Structures	1977 Percent of Total Structures	Number Change in Permits 1970-1977	Percent Change 1970-1977
Pittsburgh, PA	2,942	8,139	36.1%	2,936	9,963	29.5%	- 6	- .2%
Pittsfield, MA	57	244	23.4%	5	127	3.9%	- 52	- 91.2%
Portland, MA	102	594	17.2%	447	1,154	38.7%	+ 345	+ 338.2%
Portland, OR-WA	3,154	10,460	30.2%	3,792	19,944	19.0%	+ 638	+ 20.2%
Poughkeepsie, NY	314	922	34.1%	273	1,118	24.4%	- 41	- 13.1%
Providence-Warwick-Pawtucket, RI-MA	2,035	4,083	49.8%	2,307	5,104	45.2%	+ 272	+ 13.3%
Provo-Orem, UT	538	1,666	32.3%	489	3,485	14.0%	- 49	- 9.1%
Pueblo, CO	165	877	18.8%	364	1,106	32.9%	+ 199	+ 120.6%
Racine, WI	173	675	25.6%	183	962	19.0%	+ 10	+ 5.8%
Raleigh-Durham, NC	1,723	5,791	29.8%	1,098	5,234	21.0%	- 625	- 36.3%
Reading, PA	341	980	34.8%	262	1,670	15.7%	- 79	- 23.2%
Reno, NV	716	2,074	34.5%	2,517	5,824	43.2%	+ 1,801	+ 251.5%
Richland-Kennewick, WA	46	478	9.6%	1,141	3,464	32.9%	+ 1,095	+2,380.4%
Richmond, VA	1,319	4,787	27.6%	1,746	7,362	23.7%	+ 427	+ 32.4%
Riverside-Sander-Ontario, CA	3,281	9,875	33.2%	3,339	36,673	9.1%	+ 58	+ 1.8%
Roanoke, VA	1,391	2,722	51.1%	633	1,847	34.3%	- 758	- 54.5%
Rochester, MN	128	394	32.5%	636	1,409	45.1%	+ 508	+ 396.9%
Rochester, NY	1,778	4,166	42.7%	274	3,135	8.7%	- 1,504	- 84.6%
Rockford, IL	197	1,122	17.6%	673	2,448	27.5%	+ 476	+ 241.6%
Sacramento, CA	4,738	11,639	40.7%	3,555	20,079	17.7%	- 1,183	- 25.0%
Saginaw, MI	245	1,537	15.9%	320	1,343	23.8%	+ 75	+ 30.6%
St. Cloud, MN	278	647	43.0%	468	1,605	29.2%	+ 190	+ 68.3%
St. Joseph, MO	567	789	71.9%	175	610	28.7%	- 392	- 69.1%
St. Louis, MO-IL	4,368	11,417	38.3%	3,425	15,857	21.6%	- 943	- 21.6%
Salem, OR	636	2,174	29.3%	1,245	5,275	23.6%	+ 609	+ 95.8%
Salinas-Seaside-Monterey, CA	540	1,665	32.4%	900	2,354	38.2%	+ 360	+ 66.7%
Salt Lake City, UT	1,436	5,532	26.0%	1,889	15,360	12.3%	+ 453	+ 31.5%
San Angelo, TX	603	762	79.1%	522	1,045	50.0%	+ 81	+ 86.6%
San Antonio, TX	5,450	1,789	32.8%	2,366	6,261	37.8%	- 3,084	- 56.6%
San Diego, CA	12,062	22,761	53.0%	14,656	36,444	40.2%	+ 2,594	+ 21.5%
San Francisco-Oakland, CA	13,789	25,430	54.2%	4,524	21,926	20.6%	- 9,265	- 67.2%
San Jose, CA	9,230	17,780	51.9%	3,448	12,901	26.7%	- 5,782	- 62.6%
Santa Barbara-Santa Maria-Lompoc, CA	937	1,810	51.8%	425	2,476	17.2%	- 512	- 54.6%
Santa Cruz, CA	408	1,772	23.0%	271	2,658	10.2%	- 137	- 33.6%
Santa Rosa, CA	664	2,751	24.1%	663	4,876	13.6%	- 1	- .2%
Sarasota, FL	866	2,690	32.2%	373	3,785	9.9%	- 493	- 56.9%
Savannah, GA	1,623	2,362	68.7%	999	2,222	45.0%	- 624	- 38.4%
Seattle-Everett, WA	4,197	10,052	41.8%	7,892	24,125	19.0%	- 3,695	- 88.0%
Sherman-Denison, TX	347	716	48.5%	0	221	0 %	- 347	- 100.0%

Appendix 6-3

RESIDENTIAL BUILDING PERMITS AUTHORIZED, SMSA's 1970 AND 1977 (continued)

SMSA	1970 Number of Permits in 5+ Unit Structures	1970 Total Number of Permits All Structures	1970 Percent of Total Structures	1977 Number of Permits in 5+ Unit Structures	1977 Total Number of Permits All Structures	1977 Percent of Total Structures	Number Change in Permits 1970-1977	Percent Change 1970-1977
Shreveport, LA	464	2,357	19.7%	756	2,073	36.5%	+ 292	+ 62.9%
Sioux City, IA-NB	100	343	29.2%	159	746	21.3%	+ 59	+ 59.0%
Sioux Falls, SD	441	792	55.7%	910	1,726	52.7%	+ 469	+ 106.3%
South Bend, ID	478	1,186	40.3%	244	1,552	15.7%	- 234	- 49.0%
Spokane, WA	953	2,730	34.9%	942	4,982	18.9%	- 11	- 1.2%
Springfield, IL	71	698	10.2%	436	1,314	33.2%	+ 365	+ 514.1%
Springfield, MO	433	1,594	27.2%	1,068	3,067	34.8%	+ 635	+ 146.7%
Springfield, OH	465	1,144	40.6%	62	474	13.1%	- 403	- 86.7%
Springfield-Chicopee-Holyoke, MA	1,400	2,964	47.2%	88	1,344	6.5%	- 1,312	- 93.7%
Stamford, CT	162	503	32.2%	482	1,151	41.9%	+ 320	+ 197.5%
Steubenville-Weirton, OH-WV	159	412	38.6%	110	367	30.0%	- 49	- 30.8%
Stockton, CA	980	2,564	38.2%	1,000	5,482	18.2%	+ 20	+ 2.0%
Syracuse, NY	744	1,837	40.5%	618	2,781	22.2%	- 126	- 16.9%
Tacoma, WA	863	3,432	25.1%	1,430	6,699	21.3%	+ 567	+ 65.7%
Tallahassee, FL	969	2,223	43.6%	73	1,904	3.8%	- 896	- 92.5%
Tampa-St. Petersburg, FL	10,162	18,419	55.2%	1,837	12,944	14.2%	- 8,325	- 81.9%
Terre Haute, ID	175	216	81.0%	0	566		- 175	- 100.0%
Texarkana, TX-AR	171	442	38.7%	28	296	9.5%	- 143	- 83.6%
Toledo, OH-MI	2,707	4,475	60.5%	2,211	5,240	42.2%	- 496	- 18.3%
Topeka, KS	479	989	48.4%	355	1,805	19.7%	- 124	- 25.9%
Trenton, NJ	1,051	2,141	49.1%	798	1,318	60.5%	- 253	- 24.1%
Tucson, AZ	1,271	5,646	22.5%	2,538	7,633	33.3%	+ 1,267	+ 99.7%
Tulsa, OK	2,735	5,315	51.5%	1,918	6,965	27.5%	- 817	- 29.9%
Tuscaloosa, AL	601	1,155	52.0%	868	1,758	49.4%	+ 267	+ 44.4%
Tyler, TX	139	423	32.9%	942	1,551	60.7%	+ 803	+ 577.7%
Utica-Rome, NY	1,205	1,491	80.8%	176	525	33.5%	- 1,029	- 85.4%
Vallejo-Fairfield-Napa, CA	1,008	2,728	37.0%	707	6,492	10.9%	- 301	- 29.9%
Vineland-Millv.-Bridgeton, NJ	858	1,482	57.9%	0	323	0 %	- 858	- 100.0%
Waco, TX	810	1,039	78.0%	467	1,424	32.8%	- 343	- 42.3%
Washington, DC-MD-VA	13,026	27,588	47.2%	6,506	25,468	25.5%	- 6,520	- 50.1%
Waterbury, CT	1,431	2,295	62.4%	223	948	23.5%	- 1,208	- 84.4%
Waterloo-Cedar Falls, IA	216	666	32.4%	338	1,353	25.0%	+ 122	+ 56.5%
West Palm Beach-Boca Raton, FL	5,695	9,464	60.2%	4,543	14,178	32.0%	- 1,152	- 20.2%
Wheeling, WV-OH	213	343	62.1%	0	148	0 %	- 213	- 100.0%
Wichita, KS	241	1,033	23.3%	1,210	3,526	34.3%	+ 969	+ 402.1%
Wichita Falls, TX	334	716	46.6%	6	606	1.0%	- 328	- 98.2%
Williamsport, PA	150	311	48.2%	101	434	23.3%	- 49	- 32.7%

Appendix 6-3

RESIDENTIAL BUILDING PERMITS AUTHORIZED, SMSA's
1970 AND 1977
(continued)

SMSA	1970 Number of Permits in 5+ Unit Structures	1970 Total Number of Permits All Structures	1970 Percent of Total Structures	1977 Number of Permits in 5+ Unit Structures	1977 Total Number of Permits All Structures	1977 Percent of Total Structures	Number Change in Permits 1970-1977	Percent Change 1970-1977
Wilmington, DE-NJ-MD	1,768	3,904	45.3%	731	2,943	24.8%	- 1,037	- 58.7%
Wilmington, NC	80	1,555	5.1%	170	1,143	14.9%	+ 90	+ 112.5%
Worcester, MA	1,671	2,545	65.7%	24	1,051	2.3%	- 1,647	- 98.6%
Yakima, WA	65	518	12.5%	315	1,309	24.1%	+ 250	+ 384.6%
York, PA	622	1,268	49.1%	172	2,053	8.4%	- 450	- 72.3%
Youngstown-Warren, OH	1,410	3,071	45.9%	668	2,376	28.1%	- 742	- 52.6%

Source: U.S. Department of Commerce, Construction Reports, 1970 and 1977

Institutional land use is divided into several distinct categories. Though all of them are public or non-profit in orientation, it is impossible make valid comparisons across categories.

Each subsector is subject to different supply and demand factors, and some are subject to a considerable amount of governmental regulation which dictates what can and cannot be built. In addition, the individuals making construction decisions are completely different for each sub-sector.

To accommodate all of these factors, it is most useful to examine each institutional sub-sector separately. Thus, this chapter is divided into the following sections:

- Hospitals
- Educational facilities
- Correctional facilities
- Government buildings
- Convention centers
- Military facilities

Since data on construction activity are limited for most of these land uses, this analysis focuses on national and state trends, and only where available are SMSA data included.

HOSPITALS

OVERVIEW OF HOSPITAL CONSTRUCTION ACTIVITY

In 1977, expenditures for health and hospital construction amounted to $4.5 billion according to the F.W. Dodge Construction Outlook. These funds were spent for renovations, modernization and expansion of existing facilities, and to a smaller extent for new health care facilities. Although there is a considerable amount of hospital construction activity, the level of activity will probably taper off as state certificate-of-need laws take effect.

Each state is required by federal Public Law 93-641, the National Health Planning and Resources Development Act of 1973, to enact legislation to limit the type and amount of capital expenditures by hospitals. This is an element in the federal government's approach for containing rising health costs by imposing more stringent controls on hospital expenditures. Large scale capital expenditures must be approved by local Health Systems Agencies and state Certificate-of-Need Agencies so that unnecessary capital expenditures are avoided. Since many cities and some states are overbedded at present, these agencies are working to limit the construction of new facilities where they are not needed, and to encourage the sharing of expensive equipment.

At the present time, 36 states have enacted certificate-of-need legislation, and the remainder have until 1980 to comply. However, those states not under certificate-of-need must, under earlier federal health care legislation, review any proposed large capital expenditures by hospitals receiving federal Medicare funds. Since almost all hospitals treat Medicare patients, almost all proposed, large hospital capital expenditures are reviewed by a state agency. Although the situation may vary from state to state, the Certificate-of-Need agencies have a great deal of authority in determining which projects are approved and which ones are rejected.

STATISTICAL ANALYSIS

Selection of Statistical Indicator

The best source of data on hospital construction trends is compiled by the F.W. Dodge Division of McGraw-Hill Information Services. A special Dodge report on hospital construction by state for each year from 1967 to 1976 provides statistics on the number of projects, the number of square feet and the contract dollar amount. RERC does not have direct access to the Dodge data, but a recent study entitled Trends in Hospital Construction, Phase 1: Summary

Report of Hospital Construction Data and Trends, was conducted by ICF Incorporated for the Health Resources Administration of the Department of Health, Education and Welfare in December 1977, and this report summarizes the Dodge data. Therefore, statistics from that study are used for this report.

The ICF Incorporated study also examined three other data sources on hospital construction. These are the Bureau of the Census reports on overall construction activity, the American Hospital Association's Construction Report on Hospitals, and the Department of Health, Education and Welfare, Bureau of Health Planning and Resources Development, Division of Facilities Development records on hospital construction projects funded under the Hill-Burton Program. When an analysis was made of the strengths and weaknesses of the data sources, ICF Incorporated determined that the F.W. Dodge reports offer the most comprehensive statistics by state on hospital construction activity.

For this statistical screening, the F.W. Dodge Hospital Construction Data, which give the dollar volume of activity by states for 1967 through 1976, are used. Since a large hospital project in one given year could slow a state's construction activity, it was decided that a 10-year annual average figure is the most appropriate indicator for each state. For example, in Georgia, construction activity jumped from $17.9 million to $103.-million between 1970 and 71. However, in 1973, construction dropped to $84.8 million and then to $55.4 million in 1975.

No comparable data are available for SMSA's, and although the number of hospitals or hospital beds for each SMSA can be calculated, it was decided that this would not be a very reliable indicator of construction activity. The reason for this is that for the nation as a whole, from 1967 to 1976, there was a 3% decrease in the number of hospitals (90 out of 7082 hospitals), and a 14.2% decrease in the number of staff hospital beds (237,610 out of 1,433,515 beds). This is attributed to the fact that although there is hospital construction activity, it generally takes the form of replacement of existing beds, renovation or modernization of existing facilities and expansion of non-bed areas such as doctors' offices and out-patient clinics.

Statistical Screening

From the F.W. Dodge data, it is apparent that although there are year-to-year fluctuations, construction activity for the U.S. as a whole has increased from $1,187.5 million in 1967 to $3,285.7 million in 1976. When the 1976 figure is deflated to reflect real hospital construction, $1,685.8 million of activity was recorded in 1976, a 42% increase since 1967. However, the greatest increase occurred during the first five years, with a slower overall increase in the latter period.

When the volume of construction activity is analyzed, it becomes evident that a small number of states account for a high level of construction activity. The top five states account for 35% of all hospital construction during the 10-year period, and the top 10 for 55% of construction activity. Those states with the greatest 10-year annual average volume of activity are also the most populous states -- New York, California, Texas, Pennsylvania, Illinois, Ohio, Michigan, Florida, Missouri, and New Jersey. Of these, only Missouri is not in the top 10 in 1976 population.

It is also noteworthy that between 1974 and 1976, for the nation as a whole, there was a 9.9% increase in construction expenditures for private hospitals, but by regions the change is as follows:

Northeast	+26.8%
North Central	+20.2%
South	+10.3%
West	-22.6%

This reinforces the notion that activity is stronger in the more populous Northeastern and Midwestern states than in the less densely populated Southern and Western states (with the notable exceptions of California and Texas).

The following table shows state hospital construction activity ranked according to a 10-year average expenditure. 1967, 1972 and 1976 figures are also included. For many states 1971 or 1972 was a peak period in hospital construction and the dollar volume of construction decreased dramatically after that.

Table 7-1. HOSPITAL CONSTRUCTION ACTIVITY

State	Rank	10 Year Average Expenditure (Millions $)	1967 Expenditure (Millions $)	1972 Expenditure (Millions $)	1976 Expenditure (Millions $)
New York	1	221.4	110.8	217.1	285.0
California	2	188.8	102.8	243.3	176.1
Texas	3	121.8	84.6	107.5	110.2
Pennsylvania	4	118.7	46.3	109.4	250.0
Illinois	5	116.6	74.3	144.3	159.0
Ohio	6	109.0	93.7	122.3	179.5
Michigan	7	102.5	80.8	86.5	169.9
Florida	8	93.2	30.0	188.2	112.2
Missouri	9	68.0	39.0	93.5	68.0
New Jersey	10	67.0	33.1	84.2	118.6
Massachusetts	11	63.6	49.0	104.2	57.7
Georgia	12	60.4	41.8	84.8	81.2
Indiana	13	53.5	30.8	32.6	70.5
Wisconsin	14	53.3	36.1	56.1	71.2
Virginia	15	45.9	34.9	12.6	74.2
Maryland	16	45.2	22.0	44.1	165.1
Tennessee	17	42.3	13.1	55.5	84.4
North Carolina	18	41.1	25.7	41.5	44.9
Louisiana	19	39.4	3.2	31.9	43.6
Minnesota	20	34.6	18.1	19.3	76.8
Oklahoma	21	34.4	7.3	53.0	41.1
Alabama	22	33.7	11.1	16.5	49.1
Connecticut	23	32.6	9.2	23.9	31.8
Kentucky	24	31.6	4.6	47.9	72.5
Washington	25	31.5	16.6	28.1	50.9
Kansas	26	30.7	10.6	21.6	92.4
Iowa	27	27.2	20.1	13.8	75.0
Arizona	28	26.0	14.1	42.8	56.8
District of Columbia	29	24.8	4.3	108.4	6.5
Oregon	30	21.7	15.5	28.0	39.2
South Carolina	32	21.4	0.6	14.8	34.1
Arkansas	32	21.4	9.2	8.1	34.1
Mississippi	33	20.5	12.1	32.7	49.8
Nebraska	34	20.3	17.6	34.5	22.7
West Virginia	35	19.4	3.5	8.4	32.4
Colorado	36	17.2	15.1	16.1	13.8
New Hampshire	37	8.8	1.4	7.5	21.1
New Mexico	38	8.7	6.1	2.2	23.6
South Dakota	40	8.1	3.3	3.6	29.4
Maine	40	8.1	1.6	26.2	10.6
Montana	41	7.8	2.2	5.8	13.9
Hawaii	42	7.2	N/A	13.7	3.5
North Dakota	43	7.1	7.0	15.3	4.0
Utah	44	6.6	4.2	6.9	2.6
Alaska	47	6.3	N/A	0.9	1.1
Rhode Island	47	6.3	0.6	0.7	8.7
Idaho	47	6.3	7.5	3.3	12.0
Nevada	48	6.0	4.1	4.4	2.2
Vermont	49	4.9	2.6	8.7	5.4
Wyoming	50	4.2	0.0	6.5	2.0
Delaware	51	2.9	5.1	0.1	1.4
U.S. Total		2199.8	1187.5	2483.6	2199.8

Source: F.W. Dodge Hospital Construction Data as reported by ICF Incorporated, Trends in Hospital Construction, December, 1977.

It is also worthwhile to examine the composition of hospital construction activity by project type for 1968 and 1976. Using the Hill-Burton Project Register for 1968 and the American Hospital Association's 1976 Construction Report on Hospitals, hospital projects are divided as follows:

Table 7-2

COMPARISON OF HOSPITAL CONSTRUCTION PROJECTS BY TYPE, 1968 AND 1976

	1968	1976
Remodeling	37.1%	47.7%
Replacements	59.6%	40.0%
New Hospitals	13.3%	12.3%

Source: ICF Incorporated, Trends in Hospital Construction, December 1977.

While the portion of new hospital construction remained small and even decreased slightly, there was a substantial decline in the portion of replacement construction. This indicates that overall, there are fewer large-scale projects in which new hospital facilities are being constructed (either to replace existing beds or to expand the number of beds). Emphasis is increasingly being placed on remodelling existing facilities to bring them up to the more stringent life-safety codes now in effect and to improve mechanical and energy systems. This has important implications for the application of ICES in hospitals since the potential ICES candidates may be facilities planning major renovations to their heating, ventilating and air conditioning systems or changes in their power generation systems, rather than brand new facilities.

OBSERVATIONS ON HOSPITAL CONSTRUCTION ACTIVITY

From discussions with hospital administrators and health planning officials, it is evident that there are few construction projects which involve de novo hospital construction or even replacement facilities. In most cases, in a given state there are only a small number of projects that are large enough to be possible ICES candidates. Most projects on the state Certificate-of-Need agencies' rosters awaiting approval are small--projects costing several hundred thousand dollars to build a parking garage, new operating room, remodel 20 patient-care rooms, etc. In order for a project to even approach the ICES threshold of 200,000 square feet, an expenditure of at least $25 million is needed. With the emphasis on eliminating unnecessary large scale capital projects, any project of the size to handle an ICES would certainly receive careful scrutiny by the health systems agencies before an approval was granted.

The projects identified for possible ICES application are either replacement facilities or large-scale expansions and renovations. There are differences in construction activity among the large states. California, New York, Texas and Illinois have few large projects being planned, while Ohio has more activity, and Pennsylvania has a very large number of major projects in the planning stage. The vigorous activity in Pennsylvania can be attributed to the fact that many facilities in both Philadelphia and Pittsburgh were constructed in the 1920's and are now in need of substantial renovation to meet new life safety codes. In addition, Pennsylvania has not yet enacted certificate-of-need legislation, so many hospitals are trying to get their projects approved before certificate-of-need takes effect.

Health care professionals indicate that the trend towards fewer new facilities and more remodelling and renovation will continue over the next few years. As the certificate-of-need laws are enacted in all states, there may be fewer large projects approved. The federal government's efforts to put a ceiling on increases in hospital expenditures could have a significant impact on health facilities construction, since the cost of new construction is passed on to patients (and their insurers) in the form of higher health care bills.

EDUCATIONAL FACILITIES

OVERVIEW OF EDUCATIONAL FACILITIES CONSTRUCTION

Though the boom in construction of new educational facilities occurred ten years ago, there is still a considerable amount of development activity on college and university campuses. Most larger campuses have at least one building going up or being planned and there are renovation and modernization projects scheduled. Much of the activity has been caused by the institutions' needs to comply with regulations to remove architectural barriers for the handicapped, and concerns over environmental protection and energy conservation.

There is probably more construction overall on public campuses than private, though the larger and wealthier private schools are experiencing new building. The small private colleges are seeing little new construction. There is no discernible geographic concentration of new construction facilities, although the most populous states have the largest number of higher educational institutions, and therefore tend to experience more educational construction projects.

STATISTICAL SCREENING AND ANALYSIS

Selection of Statistical Indicator

For the statistical analysis, the indicator used is Gross Addition to Plant Value for Higher Education Institutions by state for 1972 and 1975. This appears to be the best indicator of construction activity. There is very little change in the number of institutions from one year to the next (between 1974 and 1976 there was only a +1.4% change for the U.S. as a whole). There are no comparable data for SMSA's, and the only relevant data pertains to public institutions only. Therefore, it was decided to confine the statistical screening to states and the District of Columbia.

Statistical Analysis

In 1975, for the U.S. as a whole, $4,761 million was added to the plant value of higher educational institutions. This represents an 8.5% decline from the 1972 figure of $4,163 million when the 1975 statistic is adjusted for inflation. The ten states with the largest addition to plant value in 1975 are: California, New York, Texas, Illinois, Pennsylvania, New Jersey, Ohio, Michigan, Tennessee and Minnesota.

Of these states, all but two (Tennessee and Minnesota) are in the top ten in total population. Florida and Massachusetts, which are high in total population, appear lower in their ranks by addition to plant value. This would indicate that there is a close relationship between a state's population and additions to physical plant on campuses with the state. Table 7-3 shows the states ranked by gross addition to plant value for higher educational institutions in 1975 and their 1975 population ranks.

According to an official of the Association of Physical Plant Administrators of Colleges and Universities, 7% of new floor space will be added this year on campuses. That amounts to 147 million gross square feet to be added to the 2.1 billion square feet now existing on the 3,100 accredited higher educational campuses. In addition, 20% of current square footage is under renovation valued at more than $10,000.

Although there is a considerable amount of money being spent for construction, much of the activity is for smaller buildings and additions of less than 50,000 square feet. Almost every college or university contacted has some project planned or in construction, but few have individual buildings or even groups of new buildings which are large enough to meet the ICES criteria. Since the average small campus is only 1 million square feet, it is not likely that one or two new buildings can meet the ICES threshold of 300,000 square feet.

The average large campus is 18 million square feet, so there is a greater likelihood that a new building would in itself be large enough for an ICES. Such is the case at the University of Texas where most of the new buildings being planned are over 200,000-300,000 square feet.

Though few brand new campuses are being built now, there are a number of instances where branch campuses are being constructed or planned. This is more prevalent in public institutions where a branch center is set up in or adjacent to an established population center. These campuses start out as commuter campuses, and often over time expand and provide on-campus living accommodations as well. New campuses may also be constructed when an older university has run out of expansion land at the existing campus and must build new facilities a distance away. Several examples of this have occurred recently, such as the State University of New York at Buffalo, which is building a campus in nearby Amherst, New York, and colleges of the City University of New York, which are planning new campuses.

Table 7-3.

STATES RANKED BY GROSS ADDITION
TO PLANT VALUE FOR HIGHER EDUCATIONAL INSTITUTIONS IN 1975
AND THEIR 1975 POPULATION RANKS

State	Gross Addition to Plant Value		Population Rank
	Rank	Millions $	
California	1	463	1
New York	2	396	2
Texas	3	342	3
Illinois	4	275	5
Pennsylvania	5	207	4
New Jersey	6	190	9
Ohio	7	172	6
Michigan	8	164	7
Tennessee	9	141	17
Minnesota	10	137	19
Massachusetts	12	134	10
Maryland	12	134	18
Virginia	13	124	13
North Carolina	15	121	11
Florida	15	121	8
Indiana	16	112	12
Wisconsin	17	94	16
South Carolina	18	93	26
Iowa	19	92	25
Oregon	20	90	14
Alabama	21	83	21
Missouri	22	80	15
Washington	23	79	22
Oklahoma	24	75	27
Connecticut	25	68	24
Nebraska	26	67	35
Colorado	27	63	28
District of Columbia	28	57	44
Kentucky	29	53	23
Utah	30	47	36
Oregon	31	46	30
Arizona	32	44	32
Louisiana	33	43	20
Arkansas	34	41	33
Mississippi	35	37	29
Kansas	36	29	31
Hawaii	37	28	40
West Virginia	38	27	34
New Mexico	39	25	37
Delaware	40	21	48
Rhode Island	41	20	39
Maine	42	16	38
Idaho	43	15	41
Vermont	44	13	49
Nevada	46	12	47
Alaska	46	12	51
New Hampshire	47	10	42
North Dakota	48	9	46
Montana	49	8	43
Wyoming	51	6	50
South Dakota	51	6	45

Source: U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States 1977, Table 263 "Institutions of Higher Education - Value of Plant, Current-Fund Income, and Expenditure, States and other Areas: 1975."

Another category of higher educational institutions that have been expanding into new facilities is community colleges. Many community college districts have recently built new facilities as the demand for continuing education and part-time studies has increased. However, it must be pointed out that many of these college districts could find themselves experiencing financial problems as local tax limitation initiatives are felt throughout the country. The California system has already begun to feel the pinch of Proposition 13 as planned construction projects have been shelved and construction projects in progress have been scaled down or terminated.

OBSERVATIONS

Though the large scale new construction projects are not occurring with the frequency of the 60's, there is a great deal of interest among university facility planners and plant administrators in energy-related improvements. Over the last few years, colleges and universities have seen their energy costs increase dramatically and many campuses have found themselves with shortages of energy supplies during the winter months. Some colleges altered their schedules so they could shut down for a month in the winter. In addition to this and other operational changes, universities have made major physical changes in their energy systems to conserve fuel. It is estimated that, overall, $1.84 - 2.00 per gross square foot of space will be spent this year by higher educational institutions for major plant replacements or conversions to alternate fuels.[1] In addition to these energy-related expenditures, the high priority placed on energy matters is emphasized by the fact that one of the major professional organizations, the Council of Educational Facility Planners, is holding this year's annual conference on the topic Energy and Education, and another professional organization, the Association of Physical Plant Administrators of Colleges and Universities, will be doing a major study on energy this year.

[1]Dick Anderson, Association of Physical Plant Administrators.

CORRECTIONAL FACILITIES

OVERVIEW OF CORRECTIONAL FACILITIES CONSTRUCTION

Over the past 5-10 years, there has been more construction of correctional facilities than there had been in many prior years. Capital outlay for construction of corrections facilities in FY 1976 totalled $160,718,000 for the United States for prisons built and operated by three levels of governments--federal, state and county.

The federal Bureau of Prisons in the Department of Justice is responsible for federal penitentiaries which comprise 5% of all prisons. The Bureau builds one or two new facilities each year to replace prisons which are quite old, some built before the turn of the century. Today, prisons are no longer being built to last that long, since philosophies on corrections and prisons change so frequently.

Just about every county in the nation is building or planning to build a new jail. According to the National Clearinghouse for Criminal Justice Planning, over the last 5 years the county jail has been the most frequently built public building in the nation. Depending on the size of the county, these jails range from 20 - 400 beds, with only a few reaching larger sizes. However, since even a 400-bed facility is generally too small in square footage for ICES, it has been decided not to examine the county facilities.

Construction activity by state Departments of Correction has been quite vigorous in the last few years. This report will focus on state institutions since there has been substantial activity at this level and many of the facilities are large enough to meet the ICES threshold criteria.

STATISTICAL SCREENING AND ANALYSIS

Selection of Statistical Indicator

To evaluate state corrections construction, statistics for capital outlay for corrections construction by state for fiscal year 1976 are used. Although portions of state capital expenditures are allocated for renovation and modernization as opposed to new facilities, the capital outlay figures are useful to give a general overview of activity in this sector. To supplement these statistics, the results of a 1977 mail survey conducted by Contact, Inc. is used. The survey results contain information on states which are under court order or

involved in litigation concerning overcrowding of prisons, and states which are constructing new facilities or renovating or adding to existing ones. This is especially useful since it identifies not only where construction has taken place, but where construction can be expected as a result of a court order to relieve prison overcrowding.

Statistical Analysis

These data reveal some very interesting trends in corrections construction. Thirty-nine, or 78%, of the 50 states and the District of Columbia are either constructing a new facility or renovating or adding to an existing complex or building. Twenty, or 40%, of the states and the District of Columbia are under court order or are involved in litigation in which overcrowding is at issue. This figure may actually be higher, since 12 states did not respond to this survey question. There is a great deal of concern at the state level over prison overcrowding, and many states which are not actually under court order are aware that they too have overcrowded conditions and are acting to relieve these conditions before a case ever reaches the courts.

Table 7-4 ranks the 50 states in 1976 corrections capital outlay for construction and indicates whether in 1977 the state was going to be involved in new construction and/or renovation and whether it was under court order or in litigation concerning overcrowding.

When individual state Departments of Correction were contacted for information about prisons being planned, it was found that many states had more than one facility being planned or under construction. However, many of these state facilities do not meet the ICES threshold criteria. Although there is no rule of thumb for translating prison beds into square footage, a facility would have to house a minimum of 500 beds (and this can vary depending on the type of facility) to be in the vicinity of 300,000 square feet. However, very often a state will buy a large tract of land in an unpopulated area and over time may build several institutions for different inmate populations.

OBSERVATIONS

It is difficult to say what can be expected to happen in the coming years in prison construction. For the immediate future, it is reasonable to assume that the current focus on prison overcrowding will persist and that states will be under continued pressure to relieve these situations. In

Table 7-4. CORRECTIONAL FACILITIES CONSTRUCTION ACTIVITY

Rank	State	1976 Capital Outlay for Corrections (Thousands $)	Under Court Order or in Litigation Concerning Overcrowding (Yes, No)	New Construction or Renovation of Facilities (Yes, No)
1	Florida	$42,815	Yes	Yes
2	New York	16,483	Yes	Yes
3	Michigan	9,677	N.A.	N.A.
4	Tennessee	9,395	Yes	Yes
5	North Carolina	7,644	No	Yes
6	Connecticut	6,672	No	Yes
7	South Carolina	6,267	Yes	Yes
8	Georgia	5,643	N.A.	N.A.
9	Texas	5,425	Yes	Yes
10	Arkansas	5,394	Yes	Yes
11	Mississippi	4,327	Yes	Yes
12	Montana	3,323	No	Yes
13	Ohio	3,218	Yes	Yes
14	Illinois	3,179	Yes	N.A.
15	Indiana	3,166	N.A.	N.A.
16	Massachusetts	2,970	N.A.	Yes
17	California	2,421	N.A.	Yes
18	New Jersey	1,936	Yes	Yes
19	Virginia	1,823	N.A.	Yes
20	Wisconsin	1,814	No	Yes
21	Oklahoma	1,799	No	Yes
22	Missouri	1,552	Yes	Yes
23	Nevada	1,471	No	No
24	Arizona	1,216	Yes	Yes
25	Delaware	1,196	Yes	Yes
26	Kansas	1,135	N.A.	No
27	Maryland	918	N.A.	Yes
28	Alabama	911	Yes	Yes
29	Utah	824	No	Yes
30	Idaho	587	Yes	Yes
31	Louisiana	578	Yes	Yes
32	Vermont	560	No	Yes
33	Washington	549	No	Yes
34	Nebraska	530	No	Yes
35	Minnesota	503	No	Yes
36	Oregon	472	Yes	No
37	New Hampshire	442	No	Yes
38	Maine	381	No	No
39	Colorado	339	N.A.	Yes
40	Kentucky	281	N.A.	Yes
41	Iowa	245	No	No
42	West Virginia	149	No	Yes
43	North Dakota	142	No	No
44	Alaska	134	Yes	No
45	Rhode Island	98	Yes	Yes
46	New Mexico	45	No	Yes
47	Hawaii	29	No	Yes
48	South Dakota	10	N.A.	No
50	Pennsylvania	0	N.A.	Yes
50	Wyoming	0	Yes	Yes
51	Washington,D. C.	N.A.	Yes	Yes

N.A. - Data Not Available.

Source: Real Estate Research Corporation; derived from U.S. Department of Justice and U.S. Department of Commerce, Expenditure and Employment Data for the Criminal Justice System 1976, Table 46 "Total Corrections Expenditure of State Governments, by character and object, fiscal year 1976"; and, Contact, Inc., Lincoln, Nebraska.

addition,, since many correctional facilities are very old, replacement facilities will have to be built.

Though the need is great, it remains that these facilities are funded by tax dollars, and as citizen resistance to increasing taxes rises, money for all public services, including corrections, will be scarcer. Correctional facilities could feel the pinch more than many other public agencies, since the constituency for improved prison conditions is not large, and public feeling is not supportive of such expenditures.

GOVERNMENT BUILDINGS

OVERVIEW OF CONSTRUCTION ACTIVITY OF GOVERNMENT BUILDINGS

Government buildings are constructed by all levels of government and vary considerably in size and type of structure. They range from a local police or fire station, day care center or neighborhood library to a large federal office building in a major city. The availability of federal funds to localities for emergency Local Public Works has enabled many cities and counties to build new facilities that they would not have been able to fund on their own. Although there has been a decline over the last seven years in the volume of construction of government buildings, the decline would have been far greater had there been no federal assistance.

The fact that these are government buildings means that before any project is initiated, the legislative body (Congress, State Legislature, City Council) must give its approval and authorize the expenditure of funds. Thus, there is generally a considerable lag time before the idea for a government building is transformed into an actual physical structure.

At the federal level, the General Services Administration is responsible for construction of federal government buildings, such as office buildings, post offices and courthouses. Many of these, such as post offices, Social Security district offices, and some office buildings, are too small to be ICES candidates. The GSA also transfers some funds to states and localities to build facilities. At present, the GSA has 28 projects across the country which have been approved by Congress but are not yet under construction. Approximately 30% of the projects are large enough to be potential ICES candidates.

STATISTICAL SCREENING AND ANALYSIS

Selection of Statistical Indicator

Due to the lack of available statistics on local government building activity, a statistical review of government buildings could only be conducted at the state level. For this, the indicator Capital Outlay for Government Buildings for the years 1971 and 1976 is used. Although capital outlay figures include expenditures made for equipment as well as renovations and modernizations, it is the best indicator available for construction activity of government buildings.

Statistical Analysis

In 1971, $239,719,000 in capital expenditures was recorded by state governments. In 1976, this figure totalled $312,974,000, or when adjusted for inflation, $209,693,000. This represents a 12.5% decrease in capital outlay for government buildings by states over the 5-year period. When looking at capital outlay on a state-by-state basis, 25 states show an increase in capital outlay for government buildings and 26 show change which was higher than the national average.

It is also useful to look at the actual capital expenditures by state for government buildings since these show where the largest volume of construction activity has occurred. This is important since some states have had consistently high expenditures which would not show up if degree of change is the only factor considered.

A ranking of states by change in capital outlay for government buildings from 1971 - 1976 is contained in Table 7-5.

Of the 25 states which experienced an increase in capital outlay, 17 are also in the top 25 in capital outlay for 1976. A noticeable exception is North Dakota, which had the largest increase between 1971 - 1976, but is 33rd in 1976 capital outlay. Only Florida and Delaware have both a large increase between 1971 and 1976, and a large 1976 capital outlay expenditure.

Table 7-6 shows the 1976 capital outlay for government buildings by state.

When examining expenditures for state government buildings, it must be remembered that a large outlay over a one- or two-year period may be accompanied by a very low expenditure in following years. This is due to the fact that once a large project is completed, there might not be a need for more government buildings in the state. This is what was found to be the case in New York, where a large complex of state buildings has recently been constructed in Albany and now there are no plans underway for any new state buildings.

Table 7-5.

STATES RANKED BY CHANGE IN CAPITAL OUTLAY FOR GOVERNMENT BUILDINGS, 1971-1976

Rank	State
1	North Dakota
2	Wyoming
3	South Carolina
4	Maine
5	Delaware
6	New Mexico
7	Montana
8	Colorado
9	New Hampshire
10	Indiana
11	Florida
12	Iowa
13	Arkansas
14	Missouri
15	Oregon
16	North Carolina
17	South Dakota
18	Alaska
19	Idaho
20	Rhode Island
21	Tennessee
22	Georgia
23	Michigan
24	Hawaii
25	Oklahoma
26	Virginia
27	Minnesota
28	Arizona
29	Nevada
30	New York
31	Kentucky
32	Utah
33	Texas
34	Washington
35	Massachusetts
36	Maryland
37	California
38	Mississippi
39	Vermont
40	West Virginia
41	Illinois
42	New Jersey
43	Connecticut
44	Wisconsin
45	Louisiana
46	Alabama
47	Pennsylvania
48	Nebraksa
49	Ohio
50	Kansas

Source: Real Estate Research Corporation derived from U. S. Department of Commerce, Bureau of the Census, State Government Finances, 1971 and 1976.

Table 7-6.

CONSTRUCTION ACTIVITY BY STATES FOR GOVERNMENT BUILDINGS, 1976

Rank	State	1976 Capital Outlay (Thousands $)
1	New York	$106,469
2	Florida	35,477
3	Alaska	18,282
4	North Carolina	14,870
5	Michigan	9,033
6	Colorado	8,400
7	Kentucky	8,046
8	Washington	7,471
9	Hawaii	7,311
10	Delaware	6,765
11	Tennessee	5,767
12	South Carolina	5,656
13	Missouri	4,623
14	Oregon	4,143
15	Maine	4,070
16	Wyoming	3,885
17	Texas	3,830
18	Massachusetts	3,723
19	Arizona	3,701
20	California	3,381
21	Oklahoma	3,353
22	Maryland	2,655
23	Georgia	2,636
24	Montana	2,603
25	New Hampshire	2,589
26	Illinois	2,469
27	Minnesota	2,044
28	Indiana	1,706
29	Iowa	1,637
30	Idaho	1,621
31	Arkansas	1,463
32	Mississippi	1,330
33	North Dakota	1,220
34	Nevada	1,163
35	Vermont	1,042
36	Virginia	1,039
37	West Virginia	935
38	New Mexico	848
39	Rhode Island	707
40	Wisconsin	641
41	South Dakota	506
42	Louisiana	452
43	Connecticut	254
44	New Jersey	232
45	Utah	221
46	Pennsylvania	50
47	Alabama	19
48	Nebraska	14
49	Ohio	11
50	Kansas	0

Source: U.S. Department of Commerce, Bureau of the Census, State Government Finances in 1976, Table 9 "Expenditure by Type and Function: 1976."

OVERVIEW OF CONVENTION CENTER FACILITIES CONSTRUCTION

There is very little information on convention center construction activity other than listings of new facilities. There is, however, an active convention center market in this country. In 1974 it was reported in the New York Times that Americans held more conventions (30,000 a year) and spent more on them ($7 billion annually), than any other nation. Today nearly all associations hold annual membership conventions and/or trade shows.

Convention center facilities are being built in all-sized cities and in all parts of the country. Generally, the size of the facility is correlated with the population of the city in which it is located. Table 7-7 shows this relationship.

Table 7-7 ESTIMATED AVERAGE CONVENTION CENTER SIZE BY CITY SIZE

Population	Facility Square Footage
75,000-200,000	20,000-50,000 square feet of exhibition space
200,000-1,000,000	60,000-100,000 square feet of primary area*
1,000,000 +	150,000-500,000 square feet of primary area*

*Primary area is total exhibition, arena, and/or auditorium space (exclusive of storage, basement, etc.)

Source: RERC

This trend can be seen in examples of new facilities being planned. Some cities considering new convention facilities and their sizes are: St. Paul, Minnesota - 100,000 square feet; Washington, D.C. - 400,000 square feet; and New York - 600,000 square feet. Chicago's McCormick Place is one of the largest facilities in the country, with nearly 700,000 square feet of exhibition area, while Grand Junction, Colorado recently constructed a facility of approximately 30,000 square feet. Since only the larger cities can support a facility large enough to meet the ICES threshold criteria, the number of convention center projects which are potential ICES candidates is very small.

Most convention center facilities are constructed in downtown areas. Outlying sites near airports, and more recently, resort areas, are also typical convention center locations. There are no distinct regional trends in center location, although researchers for the Aud Arena Stadium publication feel that in the future conventions will be seeking areas with milder climate and ample lodging facilities. Therefore, the South and Southwest may show signs of marked increases in convention center facility construction and/or patronage. Amenities such as family entertainment will also be sought as more families travel as a unit to major conventions.

An editor of Aud Arena Stadium Guide has expressed the feeling that convention center construction activity has peaked, as most large SMSA's have recently built new facilities. Some activity may result from cities replacing or remodeling existing facilities.

STATISTICAL ANALYSIS

There is no data source which gives an indication of convention center activity. Such an indicator, if it existed, would only be of limited usefulness, since past construction activity is not a meaningful clue to where future construction will occur. Certainly if a major new convention facility is constructed in a given year, it will be many years before a new one is needed.

It is possible to identify the most popular convention cities in terms of the cities' share of total convention attendance and events. Though this does not directly indicate where new facilities are being planned, four of the twenty most popular North American cities are considering building new convention facilities or expanding existing facilities. These are New York City, San Francisco, New Orleans and Washington, D.C. In order to be able to attract the very large conventions, cities need to expand their convention floor space. Two cities which are not among the 20 most popular convention sites but are planning new facilities are Seattle and St. Paul.

Table 7-8 summarizes convention attendance for the top twenty convention states. These twenty locations as a group represent an estimated 41% of total convention attendance and more than 50% of total dollar volume.

Table 7-8 TOP 20 CONVENTION CITIES, 1977

Rank	City	Share (Est. Mkt.%) Attendance	Share (Est. Mkt.%) Events
1	Chicago	4.73	3.67
2	New York	4.63	2.35
3	Dallas	3.87	3.38
4	Detroit/Dearborn	3.46	2.33
5	Toronto, Ont., Can.	3.28	1.72
6	Miami/Miami Beach	2.45	0.98
7	San Francisco	2.11	2.78
8	Los Angeles/Anaheim	1.96	2.22
9	Ft. Worth	1.93	0.44
10	New Orleans	1.72	2.50
11	Kansas City, Mo.	1.63	1.60
12	Denver	1.38	1.57
13	Atlanta	1.36	2.93
14	Boston	1.28	0.92
15	Houston	1.02	1.49
16	St. Louis, Mo.	1.02	2.02
17	Montreal, Canada	0.91	0.82
18	Washington, D.C.	0.76	2.15
19	Las Vegas	0.70	1.57
20	Minneapolis	0.62	0.73

Source: World Convention Dates, August 1977.

MILITARY FACILITIES

OVERVIEW OF MILITARY CONSTRUCTION ACTIVITY

Though new military bases are not being built and the Department of Defense is closing down installations across the country, there is still a considerable amount of construction activity taking place at existing military facilities. This takes the form of upgrading existing facilities and systems on bases, and construction of some small new structures such as housing, instruction buildings, health facilities, office and administrative buildings, and armories.

STATISTICAL SCREENING AND ANALYSIS

Selection of Statistical Indicator

Evaluating trends in military facilities construction is difficult since only limited data are available for states. For the nation as a whole, data are available for total military facilities construction on a yearly basis from Construction Review. For more detailed information, the Department of Defense's Requested Military Construction Program for FY 1979 gives a project-by-project breakdown by military installation and state for each proposed construction project.

Although this construction program was requested by DOD, as of September 1978, the FY 1979 military construction bill had not yet been enacted at the time of this writing. The military construction bill authorizes $1,961.61 million in construction within the United States (4% higher than that requested), although there may be some different projects contained in the bill. For this analysis, the requested construction program is used with the assumption that the changes will not be too significant. Because military installations are only rarely located in SMSA's, it is only worthwhile to examine statistical indicators to the state level where they are available.

Statistical Analysis

In 1972, for the U.S. as a whole, military facilities construction expenditures were $1,087 million. For FY 1979, the value of new construction authority requested from Congress by the Department of Defense for projects within the U.S. is $1,877.89 million in 1978 dollars, or when adjusted for inflation, $1,220.63 million. This is a 12.3% increase over the 6-year period.

When the FY 1979 requested expenditures are broken down by state, the states which have the highest level of proposed construction activity are shown in Table 7-9.

Table 7-9 PROPOSED FY 1979 MILITARY CONSTRUCTION ACTIVITY, BY STATE

State	Rank	Proposed Expenditures Millions $
California	1	$408.84
Virginia	2	121.45
Georgia	3	121.09
Texas	4	100.55
North Carolina	5	90.31
Maryland	6	78.54
New York	7	65.48
Tennessee	8	63.79
Florida	9	59.38
Washington	10	58.60
Hawaii	11	57.90
South Carolina	12	47.63
Louisiana	13	39.17
Maine	14	35.06
Oklahoma	15	33.30

Source: U.S. Department of Defense, "Fiscal Year 1979 Military Construction Program," February 27, 1978.

A complete ranking of states by proposed expenditures is presented at the end of the section.

It is noteworthy, however, that there are few large-scale construction projects which could be suitable for ICES application. The few are:

- Family Housing at Fort Polk, Louisiana
- Family Housing at El Toro, California
- Family Housing at Fort Ord, California
- Naval Hospital at Camp Lejeune, North Carolina
- New Heating Plant at Francis E. Warren Air Force Base, Wyoming.

About ten percent of the proposed FY 1979 expenditures are to be for energy-related improvements. These projects include:

- Energy Recovery Systems
- Insulation
- Install Boilers
- Weatherstrip
- Boiler Conversion or Modifications
- Energy Conservation Modifications
- Solar System
- Utilities Upgrading
- Fuel Conversion
- Heat Controls
- Modify Heat Plant
- Energy Control & Monitor System
- Electric Power Substation
- Emergency Electrical Power Plant
- Heating, Ventilating and Air Conditioning
- Replace Generators
- Heating Plant

These improvements will be made on 26% (121 out of 469) of the separate military facilities in the U.S. listed in the FY 1979 Military Construction Program. The fact that over one-fourth of military bases, camps, stations, shipyards, centers, hospitals, laboratories, terminals, arsenals, etc., are scheduled for some type of energy-related improvement, indicates that there could be potential for retrofitting an ICES at a military installation.

CHAPTER 7 APPENDIX

CONTENTS

Appendix 7-1 MILITARY FACILITIES CONSTRUCTION

Rank	State	Fiscal Year 1979 Proposed Construction Expenditures Millions $
1	California	408.84
2	Virginia	121.45
3	Georgia	121.09
4	Texas	120.55
5	North Carolina	90.31
6	Maryland	78.54
7	New York	65.48
8	Tennessee	63.79
9	Florida	59.38
10	Washington	58.60
11	Hawaii	57.90
12	South Carolina	47.63
13	Louisiana	39.17
14	Maine	35.06
15	Oklahoma	33.30
16	New Jersey	32.88
17	Colorado	32.14
18	Pennsylvania	28.71
19	Alaska	26.47
20	Connecticut	24.95
21	Wyoming	23.14
22	Nevada	22.54
23	Ohio	22.10
24	Kentucky	20.37
25	Kansas	20.34
26	Missouri	15.99
27	D.C.	14.08
28	Massachusetts	12.98
29	Indiana	12.27
30	Arizona	11.76
31	Alabama	11.69
32	New Mexico	11.03
33	Delaware	9.87
34	Rhode Island	9.82
35	Illinois	9.69
36	Michigan	8.14
37	Iowa	7.93
38	Utah	7.88
39	Arkansas	6.18
40	South Dakota	5.03
41	North Dakota	4.85
42	Minnesota	4.46
43	Mississippi	4.18
44	Idaho	3.32
45	Wisconsin	2.15
46	Oregon	0.70
47	Montana	0.61
48	Vermont	0.59
49	West Virginia	0.25
50	Nebraska	0.11
51	New Hampshire	0.00

Source: U.S. Department of Defense, "Fiscal Year 1979 Military Construction Program," February 27, 1978

8 TRANSPORTATION DEVELOPMENT ACTIVITY

OVERVIEW OF TRANSPORTATION

The Department of Transportation divides transportation related capital expenditures into seven categories. They are:

- Highways
- Urban Public Transit
- Airports
- CBD (Central Business District) Parking
- Marine Terminals
- Other Inter-City Terminals (bus, rail, truck)
- Other systems.

For the United States as a whole, for the period between 1972 and 1990, the Department reports that $531.9 billion (1971 dollars) of expenditures are planned for transportation capital projects. The following table shows the breakdown by transportation category of these projected capital expenditures.

Table 8-1 1972-90 TRANSPORTATION CAPITAL PLAN FOR UNITED STATES

System	Capital Costs (billions 1971 $)	Percent
Rural Highways	$235.6	44.0%
Urbanized Area Highways	193.0	36.0
Urban Public Transportation	63.7	12.0
Airports	24.2	5.0
CBD Parking	5.5	1.0
Marine Terminals	5.6	1.0
Other Inter-City Terminals	1.4	0.3
Other Systems	2.8	0.5
Total	$531.9	99.8%

Source: U.S. Department of Transportation, 1974 National Transportation Report, July 1975, "Table III-6-Plan and Program Capital Costs, National Plan"

Of these eight categories, only two can be considered to be potential candidates for ICES--airports and other inter-city terminals. As indicated in the above table, these facilities account for only a small portion (5.3%) of total transportation capital costs.

On an annualized basis this represents a combined expenditure for airports and inter-city terminals of $1.34 billion in 1971 dollars. This compares with a projected $6.1 billion expenditure for all manufacturing buildings in 1978, as estimated by the Dodge Construction Outlook. Given the extremely high construction cost of major airports and other terminal facilities (the $160 million expansion of the New York and New Jersey Port Authority bus terminal in Manhattan, for example) these figures represent a relatively small number of major transportation projects that might be considered to be potential ICES candidates.

Airport Development

There has been a phenomenal increase in air passenger travel since 1962, so that by 1972 air travel accounted for 78% of all passenger-miles travelled in the U.S. Overall, the capacity of the nation's airport system is adequate to handle this traffic, with the exception of a few high-density airports which experience backups during peak periods. Since few new large airports are likely to be built (due in part to high costs and environmental concerns), major airport development is fairly limited at the present time. The Federal Aviation Administration lists only seven major facilities in the United States for which substantial construction is either underway or contemplated. They are:

- Orlando International
- William B. Hartsfield, Atlanta International
- Sky Harbor International, Phoenix
- Lambert St. Louis International
- Chicago O'Hare International
- South Bend Indiana
- San Francisco International

There is a high likelihood, however, that some of this planned development will not take place. Air traffic projections on which the planning for some of these facilities was based have been revised substantially downward in recent years. Furthermore, the development of satisfactory airport facilities has become more difficult as convenient locations for airports become more difficult to obtain and noise pollution problems become a greater concern.

Inter-City Terminal Development

As indicated in Table 8-1, few inter-city terminal facilities are planned. In many cities, train stations stand empty and new non-transportation uses are being examined for these buildings.

A decline in rail and inter-city bus travel over the last 15 to 20 years has occured as airplanes and autos have become the most frequently used transportation modes for long and short distance trips, respectively. In the last 20 years, air service has been extended to many more cities, while rail service has shown a steady decline and unprofitable routes are continually being curtailed.

From 1962-1973 there was a 23.9% decline in the number of revenue passengers carried by rail, and a 73.4% decline in the number of revenue passenger miles traveled by rail.[1] Another indication of the declining importance of railroads in inter city travel is the fact that the ratio of commuter passenger miles to total passenger miles increased from 20.1% to 77.4% of total passenger miles over that time period, while the absolute number of commuter passenger miles has remained the same. The Department of Transportation indicates that only in the short haul rides, i.e., New York-Philadelphia-Washington, can Amtrak compete with other modes of travel, and DOT's studies have shown that no other corridor has the rail passenger-generating potential needed to introduce higher-speed rail service. Although energy conservation consciousness could have a positive effect on railroad ridership, it will not spur the development of substantial major rail terminal facilities.

Inter-city bus travel has also experienced a decline. In 1962, 97.1% of the total inter-city passenger miles were by private modes, with commercial buses accounting for only 2.9%. By 1972, private modes accounted for 97.8% and the commercial bus share declined to 2.2%.[2] However, commercial buses carried the largest number of passengers of the major commercial transit modes, though their relative position has declined slightly since 1962. In many rural areas, commercial bus service is the only form of public transportation available.

This would indicate that while inter-city buses play an important role in providing transportation services to many areas of the country, this transportation mode will not be generating a large amount of terminal construction activity. Clearly, no major sized terminal will be built in the small towns served by inter-city buses, and only in a small number of major cities (New York being the prime example) are there plans or construction underway for a new or expanded bus terminal.

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[1] U.S. Department of Transportation, 1974 National Transportation Report, July 1975; derived from chart on p. 298.

[2] Ibid., p. 290.

STATISTICAL SCREENING AND ANALYSIS

Selection of Statistical Indicator

Data representing the amount of new construction of airports and inter-city terminals are extremely limited. Comprehensive square footage figures are not available and proxies for such figures are scarce. The only appropriate indicator discovered is the average annual capital expenditures for airports and inter-city terminals from 1972 to 1990. This information is derived from the Department of Transportation, 1974 National Transportation Report, which includes state inventories of the physical state of transportation systems in 1972 and long range transportation capital plans for the year 1990.

No comprehensive SMSA data are available on transportation capital plans. However, in the DOT report, states are asked to report on bus, rail and truck terminals in urban areas of over 250,000 population if the state anticipates public participation in their operation or finance, or if it determines there would be a public need for or a major interaction with other public facilities by a particular terminal facility. These criteria severely limit the number of responses to the survey. Eleven urbanized areas reported on inter-city bus terminals, 19 on rail terminals and 2 on truck terminals.

Statistical Screening

Airports

For airports, Table 8-2 ranks the top 25 states by average annual capital expenditures between 1972 and 1990.

These rankings present few surprises because the major airports in the country are located in these states and the previously mentioned possible airport expansions or new facilities are in the top-ranked states.

Table 8-2 AVERAGE ANNUAL CAPITAL EXPENDITURES FOR AIRPORTS, 1972-1990

Rank	State	Expenditure (Millions $ 1971)
1	Illinois	$195.15
2	New York	166.85
3	California	146.57
4	Texas	81.50
5	Georgia	62.53
6	Pennsylvania	52.22
7	Louisiana	50.38
8	Michigan	44.62
9	Missouri	41.03
10	New Jersey	38.15
11	Florida	36.16
12	Kentucky	34.86
13	Ohio	29.08
14	Alaska	25.90
15	Hawaii	22.98
16	Wisconsin	20.71
17	Nevada	19.82
18	North Carolina	18.13
19	Washington, D.C.	17.97
20	Indiana	17.63
21	Minnesota	17.08
22	Colorado	15.06
23	Iowa	14.57
24	Arizona	14.15
25	Tennessee	14.01

Source: Derived from U.S. Department of Transportation, 1974 National Transportation Report, July 1975., Table III-R-4 "Capital Costs by State and Mode."

An examination of the limited data for urbanized areas shows the following ranking for the ten most populous areas.

Table 8-3 AVERAGE ANNUAL CAPITAL EXPENDITURES FOR AIRPORTS, 1972-1990

Rank	Metropolitan Area	Expenditure (Millions $ 1971)
1	New York, NY	$147.46
2	Chicago, IL	135.24
3	Los Angeles, CA	90.17
4	St. Louis, MO	45.54
5	San Francisco, CA	38.16
6	Philadelphia, PA	28.35
7	Detroit, MI	24.34
8	Washington, D.C.	18.56
9	Boston, MA	10.87
10	Cleveland, OH	5.60

Source. Derived from U.S. Department of Transportation, 1974 National Transportation Report, July 1975, Table III-R-10 "Capital Costs on the 10 Largest Urbanized Areas."

The airport expenditures for these metropolitan areas constitute a large portion of the capital expenditures of their respective states. It must be remembered that the capital plans can include major renovation, modernization, or large-scale equipment purchases, as well as expansion of existing facilities or the construction of new ones. Thus, not all of these states or urban areas may be planning the type of capital activity applicable for ICES. However, these data provide clues to where facility construction activity may occur.

Inter-City Terminals

For inter-city terminals, as can be seen from the table below, many states report no planned expenditures and only a few report significant capital plans.

For the 1972-90 period, rail terminal investment is planned to be $889 million, more than 55% of which is for St. Louis and 23% for New York and Philadelphia combined. St. Louis is embarking on a program of relocation of rail facilities in the urban area.

Table 8-4 AVERAGE ANNUAL CAPITAL EXPENDITURES FOR INTER-CITY TERMINALS, 1972-1990

Rank	State	Expenditure (Millions $ 1971)
1	Missouri	$ 95.57
2	Illinois	17.68
3	Pennsylvania	12.63
4	New York	12.33
5	Alaska	6.17
6	Oregon	5.78
7	Louisiana	4.94
8	California	3.03
9	Wisconsin	2.73
10	Massachusetts	1.22
11	Alabama	0.86
12	Washington	0.66
13	Connecticut	0.55
14	New Mexico	0.26
15	Ohio	0.13
16	Rhode Island	0.07
17	Iowa	0.02
18	Vermont	0.005
	All Other States	0.00

Source: Derived from U.S. Department of Transportation, 1974 National Transportation Report, July 1975, Table III-R-4, "Capital Costs by State and Mode."

For bus terminals, planned investments total $154 million, with 69% of this in the New York-New Jersey metropolitan area. Two-thirds of these investments are for construction of a new bus terminal in midtown Manhattan. The following table summarizes the limited planned capital expenditures for inter-city terminals for the 10 largest urbanized areas.

Table 8-5 AVERAGE ANNUAL CAPITAL EXPENDITURES FOR INTER-CITY TERMINALS 1972-1990

Rank	Metropolitan Area	Expenditure (Millions $ 1971)
1	New York, NY	$ 11.55
2	St. Louis, MO	2.72
3	Boston, MA	0.69
4	Philadelphia, PA	0.57
5	Los Angeles, Ca	0.23
6	San Francisco, CA	0.07
10	Chicago, IL	0.00
10	Detroit, MI	0.00
10	Washington, DC	0.00
10	Cleveland, OH	0.00

Source: Derived from U.S. Department of Transportation, 1974 National Transportation Report, July 1975, Table III-R-10, "Capital Costs for the 10 Largest Urbanized Areas."

TRANSPORTATION PROJECTS AND TRENDS

Since the statistical indicators are severely limited in providing information on the types of construction projects planned, it is useful to also discuss some of the trends of transportation facilities and to examine a number of the transportation projects identified during the course of this study.

Airports

Although construction of major new airports in the United States will be fairly limited, airports have several characteristics which make them particularly appropriate for possible ICES application. First is their pattern of energy usage. Airports are in use on a 24-hour a day basis. Second is the large size of commercial airports. Individual structures of major airport terminals run well over the threshold size level for ICES consideration. In the two airports for which detailed data were collected, the smaller airside or concourse buildings range from 270,000 to 368,000 square feet each. Landside buildings range from 460,000 to 500,000 square feet. Square footage totals for these two airports are 1 million and almost 2.5 million square feet.

There are a number of other planned or tentative transportation developments which may be appropriate ICES candidates, for which complete project information was not collected. Two are planned maintenance facilities in Pittsburgh and Philadelphia. In Philadelphia a maintenance facility for light rail cars is planned. This project is expected to be very large and to consist of two structures: a shop and a storage building.

The Urban Mass Transportation Administration (UMTA) may fund a light rail transit system in Buffalo, New York. If funded (the decision should be forthcoming in the near future), the system may involve construction of a facility with ICES potential. Although the stations would not meet ICES criteria, a maintenance facility might surpass the threshold size.

Mixed Use and Multi-Modal Facilities

Perhaps the most salient trend in major transportation developments of the type which might be appropriate for ICES consideration is the increased use of mixed-use or multi-modal facilities. Historically, transportation facilities have been developed in a totally piecemeal fashion. Little if any cooperation existed between modes of transportation or even between different transportation companies of the same mode. The evidence of this uncoordinated development is abundant. In Chicago, two examples are the nearby but separate rail stations in the Loop--Union Station and the Northwestern Station--and the lack of a rapid rail link to O'Hare Airport.

In recent years there has been a much greater appreciation of the advantages of coordinated transportation facilities and the coordinated provision of transportation and related developments. The projects collected for this study illustrate this appreciation.

One of the more interesting proposals encountered during the course of this study is a plan to construct ground transportation centers in a number of cities across the United States. Trailways, Inc. is proposing the development of a central facility to integrate all forms of ground transportation (interstate and local buses, taxis, and airport limousines) and related facilities such as meeting rooms, retail, hotel, and office space. Trailways is presently trying to enlist support for this concept in St. Louis and a number of other cities. Although all of these projects are in the early planning stages, all may be expected to meet ICES size criteria.

In Atlanta work is now underway on the construction of a new terminal facility. The new terminal is expected to be in operation in early 1981. In addition, Atlanta is a possible site for construction of an entirely new airport. Two 10,000 acre airsites have been land banked. If constructed, this facility would not be in operation until the 1990s, after an approximately five-year development program. Preliminary engineering and feasibility studies are now being done.

Also under construction is a new terminal facility in Orlando, Florida. This facility, which will replace the existing terminal on a nearby parcel, will be ready for operation in early 1981.

At the Sky Harbor International airport in Phoenix work is well under way on a $25 million terminal and $10 million parking garage. These facilities will be completed in mid-1979. Detailed data were not collected for this terminal because of its mature stage of development.

St. Louis is an example of the difficulties experienced in planning new airport facilities. Plans to build a new metropolitan airport in the Columbia-Waterloo area of Illinois have been halted by the decision of Secretary of Transportation Brock Adams to cease appropriation of federal funds for land banking at the Columbia-Waterloo site. This site was extremely controversial because of its location in Illinois rather than in Missouri. There is also substantial disagreement over whether the present St. Louis airport would have adequate capacity to meet the needs of the metropolitan area. At present its capacity is expected to be adequate until at least 1990. It should be emphasized, however, that the construction of a new airport at Columbia-Waterloo is not a dead issue and may be revived. This airport, if constructed, would be on line no earlier than the 1990s.

Inter-City Terminals

A variety of types of inter-city terminals and related facilities are planned or under construction across the country. They include bus terminals, commuter railroad terminals, inter-city railroad terminals, maintenance facilities, and ground transportation centers.

Contact was made with Amtrak officials in Washington, D.C. to determine Amtrak's plans for new station construction. Amtrak has standard station plans, the largest of which has approximately 20,000 square feet. Thus, these stations would not meet the criteria for an ICES. In some cases, however, there may be a maintenance facility associated with the terminal which would add sufficient square footage to make the facility larger than the threshold criterion.

The major expansion of the Port Authority Bus Terminal in Manhattan includes up to 1.2 million square feet of private hotel and/or office development in its third and final phase. This is in addition to 180,000 square feet of retail space in Phase I. Furthermore, the terminal includes direct underground links to the Lincoln Tunnel designed to reduce congestion in the area and facilitate bus access to the tunnel.

In Philadelphia, the Center City Commuter Station is a fully integrated part of the massive Market Street East project, a retail and office redevelopment of the downtown. This station provides a link between two existing rail stations and the commercial development of Market Street East.

Finally, the joint development of transportation and related facilities is evidenced in the proposal to designate the Orlando International Airport a Foreign Trade Zone. Such a designation would offer a number of advantages to firms engaged in importing and exporting and would lead to development of warehouses and related facilities on property either leased or sold by the Greater Orlando Aviation Authority. The 7,000 acres owned by the Authority would permit ample room for such development.

ANNOTATED BIBLIOGRAPHY

One of the first tasks undertaken for this project was an identification of sources of statistical data on development projects. A working memorandum was prepared which presented a preliminary overview of available statistical information on residential, commercial, industrial, institutional and transportation development across the country.

Now that the project is complete, it is worthwhile to update that bibliography so that only those sources which proved useful are included. In addition, during the course of the assignment, a number of additional sources were identified which will be included in this updated bibliography. It should also be pointed out that computerized data were obtained from the National Planning Association for this project. This provided us with statistical information on population employment, per capita income, number of households, manufacturing employment, retail employment and office-prone employment for states and SMSA's. Data are included for the years 1970, 1975, 1980 and 1985. The latter two years are NPA projections. These statistics have been used to supplement the other sources described in the bibliography.

RESIDENTIAL LAND USE

Residential Statistics

The U.S. Department of Commerce Census Data provide the best sources of direct measures of construction development. Following is a description of the relevant census publications.

1. HC-(1) Housing Characteristics for States, Cities, and Counties Vol. I

   frequency - decennial
   principal subjects - (a) units in structure (1, 2+, mobile home) (b) units in structure (owner occupied - 1, detached; 1, attached; 2; 3+4; 5+; renter occupied - 1, detached; 1, attached; 2; 3+4; 5-9; 10-19; 20-49; 50+; mobile home)

2. C-45 Housing Units Authorized for Demolition in Permit Issuing Places

   frequency - annual
   principal subjects - (a) number of buildings and housing units authorized for demolition, and (b) number of housing units authorized for new construction (for selected cities only)

3. C-40 Housing Authorized by Building Permits and Public Contracts

frequency - monthly, summary in December report
principal subjects - (a) type of owner - privately and publicly owned units, (b) number of units by type of structure, (c) total permit valuation by type of structure, (d) number of units authorized in selected permit-issuing places, (e) percent population in permit-issuing places, State and SMSA.

4. H-150 Annual Housing Survey

frequency - annual and occasional reports of national data, every third year for reports for specific SMSA's
principal subjects - (a) number and characteristics of residential living units, (b) measures of losses and new construction, (c) indicators of physical condition of units.

5. C-20 Housing Starts

frequency - monthly
principal subjects - (a) number of units by type of structure; privately and publicly owned, (b) housing units authorized by building permits and public contracts; by type of structure (c) backlog of unused permits (d) purpose of construction, i.e., for sale, contractor-built, owner-built, for rent (e) selected characteristics of apartment buildings started.

6. HC-(2) Vol. II Metropolitan Housing Characteristics

frequency - decennial
principal subjects - data covering most of census housing subjects in considerable detail and cross classification.

7. HC-(3) Vol. III Block Statistics

frequency - decennial
principal subjects - selected data, 100% housing and population subjects

8. HC-(7) Vol VII Subjects Reports

frequency - decennial
principal subjects - detailed information and cross classification.

9. PHC-(1) Census of Population and Housing

frequency - decennial
principal subject - number of units in structure.

For the subsectors comprising the residential construction market,

(1) single-family (detached)

(2) single-family (attached)

(3) multi-family (apartments)

(4) multi-family (condominium/cooperative)

census data are available as indicated in the chart on the following page.

RESIDENTIAL DATA AVAILABILITY

National	Regional	State	SMSA	City
C-40 Subsectors 1-3	C-40 Subsectors 1-3	HC-(1) Subsectors 1-3	HC-(1) Subsectors 1-3	HC-(1) Subsectors 1-3
C-20 Subsectors 1-4	H-150 Subsectors 1-4	C-40 Subsectors 1-3	C-40 Subsectors 1-3	C-45 Subsectors 1-3
HC-(7) Subsectors 1-4	C-20 Subsectors 1-4	HC-(7) Subsectors 1-4	H-150 Subsectors 1-4	C-40 Subsectors 1-3
	HC-(7) Subsectors 1-4	Construction Review Subsectors 1-3	C-20 Subsectors 1-4	HC-(2) Subsectors 1-3
	Construction Review Subsectors 1-3		HC-(2) Subsectors 1-3	HC-(3) Subsectors 1
			HC-(7) Subsectors 1-4	PHC-(1) Subsectors 1-3
			PHC-(1) Subsectors 1-3	
			Construction Review Subsectors 1-3	

Of these 9 sources, the C-40 Reports, Housing Authorized by Building Permits and Public Contracts, proved to be the most useful indicator for multi-family housing.

Additional Sources

A number of publications provide indirect measures of construction development, information on particular residential markets and projects being planned. A list of these and the information they contain is provided below:

1. Multi-Housing News for Apartment/Townhouse/Condominium Builders, published monthly by Gralla Publications, includes work in progress, future trends, and current trends.

2. U.S. Housing Markets, (survey of 17 metropolitan areas), published by Advance Mortgage Corp. & Citicorp Real Estate, Inc. includes number of private housing permits, a number of apartment completions, number of apartments under construction, regional trends and summaries of individual markets.

3. Chicagoland Development: Guide to Industrial, Commercial and Community Planning and Development, published monthly by the Chicago Association of Commerce and Industry, (other metropolitan areas may publish similar document), includes the current real estate activities and past real estate trends for metropolitan (8 county) area.

4. Construction Review, published by U.S. Department of Commerce, includes past and current construction trends, statistics on construction (residential/non-residential, public/private construction, authorized construction permits. It contains data for the levels of state, region, SMSA and inside/outside SMSA's.

5. National Real Estate Investor, published monthly by Communication Channels, Inc., includes city/area reviews in each issue, news on selected proposed and newly constructed apartment buildings, and a general apartment market overview each September.

6. Journal of Housing, published monthly by the National Association of Housing and Redevelopment Officials, includes articles regarding federal legislation, various government programs and projects.

7. Southwest Real Estate News
Midwest Real Estate Marketer
Southeast Real Estate News, published monthly by Communications Channels, Inc., include information on planned construction (residential, commercial and industrial) and announcements of management changes in large complexes for three regions of the U.S.

8. Residential Development Handbook, published by the Urban Land Institute includes information on feasibility, design principle and processes, marketing, maintenance, rehabilitation, and futu trends in residential development.

9. Urban Development and Population, unpublished study by Alfred K. Eckersberg for seminar on "Planning for Neighborhoods, Cities and Regions" sponsored by the Bureau of Urban and Regional Planning Research of the University of Illinois at Urbana-Champaign.

10. Anthony Downs "The Real Estate Forecast: Twelve Months of Fair Weather," Real Estate Review, Summer 77·

11. The Morgan Guaranty Survey published by Morgan Guaranty Trust Company, New York, March 1977, is a forecast of residential development activity.

Professional Contacts

Names of some professional contacts for more information are listed in Professional Builder and the National Real Estate Investor.

The July 1978 issue of Professional Builder, published by Cahners Publishing Co., lists the top 486 builders and home maufacturers in the U.S. Information on each builder includes total dollar volume and operating plans for 1977.

The July 15, 1978 "Directory Issue" of National Real Estate Investor lists various national associations in real estate and related industries and builders, contractors, and developers by state, by type of construction involvement.

Unfortunately, the professional housing and home builders associations were not very useful in providing information on trends in residential development or possible projects for ICES.

COMMERCIAL LAND USE

The major commercial land use activity sectors are office, retail, transient accommodations (hotels/motels), and multi-use developments. The following sections identify statistical and qualitative data sources that characterize development trends. Statistics are not readily available on multi-use projects. However information can usually be found in the sources which cover office and retail development.

Office Space Statistics

The primary source of information on trends in office space is the Building Owners and Managers Association (BOMA). Members of BOMA provide the data which is used in semi-annual reports on conditions in the office space market. Therefore, the data reflect the biases

in the membership. BOMA members are typically major developers and managers. For the purposes of this survey this is not a major constraint. ICES requires a building of significant size and the sample in the BOMA statistics are a reliable indicator of trends in major office buildings.

Statistics in the semi-annual surveys are primarily for competitive buildings and provide the following information:

- Number of buildings in the sample
- Rentable square feet
- Number and percent of square feet occupied and vacant for competitive users
- Non-competitive occupied area
- Occupancy rates for all office space
- Square feet placed on the market by reason (1- tenants: out of business; moved to other cities; moved to other outlying buildings; moved to other buildings downtown; contraction of operations; and 2- new space added to the market)
- Square feet taken off the market by reason (new local tenants; new tenants other cities; tenants from other outlying buildings; tenants from other buildings downtown; expansion by present tenants; other space taken from the market)

The above statistics are reported for each of the following geographical divisions:

- National (represents the total of the cities surveyed)
- Regional (Middle Atlantic; North Central; Midwest Northern; Southern; Southwest; Pacific Northwest; Pacific Southwest)
- Selected cities (the major cities and suburban areas within each of the seven regions)

BOMA also publishes the Downtown and Suburban Office Building Experience Exchange Report every May. An "office building energy analyses" was initiated in 1976. An average cents per square foot cost for major utility use (electric, gas, oil, steam, and chilled water)is provided by certain categories:

- story height of building
- age of building
- regional location
- size (in square feet) of building
- selected major cities

Current office space development trends and existing market conditions in various cities and areas are also discussed in several trade publications. The National Real Estate Investor (published monthly by Communication Channels, Inc.) is a major source of information on office buildings in the planning stage, under construction or recently opened. Major financing and leasing agreements are also identified. City/area reviews discuss conditions

affecting office space development in specific markets. The June issue includes an "Office Market Review." Buildings magazine published by Stamats Publishing Co.) provides information similar to that found in the NREI.

Although both of these publications are excellent sources of information on current conditions and developments, they do not provide consistent statistical data. The projects are reported as announced by the developers and the city/area reviews (usually done annually for the major markets) identify only major trends.

Individual companies will report on office space conditions within their market. These reports, however, provide information identical in many respects to that found in the BOMA surveys. The U.S. Department of Commerce publishes monthly national statistics on the value of new commercial construction put in place. The aggregate statistics are only a general indicator of general trends.

Additional Sources

NREI also publishes an annual directory issue of individuals and companies in 14 real estate classifications. The section on builders, contractors, and developers provides ready information on office space developers.

The most useful professional organization for information on office buildings is BOMA. Its Executive Vice President, Gardner McBride, is very cooperative.

Retail Statistics

A primary source of statistical information is the Census of Retail Trade (U.S. Department of Commerce, Bureau of the Census). Published in 1954, 1958, 1963, 1967 and 1972, it provides data for retail establishments located within Standard Metropolitan Statistical Areas (SMSA's), the principal city or cities of the SMSA, the Central Business District (CBD), and Major Retail Centers (MRC's). An MRC is defined by the Census Bureau as a concentration of retail stores located inside the SMSA but outside the CBD and having at least $5 million in retail sales and at least 10 retail establishments, one of which is classified as a department store. The statistics given for each geographical area described above include:

- Number of retail stores
- Aggregate sales
- Annual payrolls
- Number of paid employees
- Number of establishments and sales by: convenience goods stores (SIC codes 54, 58, 591); shopping goods stores (SIC codes 53, 56, 57, 594); and all other stores (SIC codes 52, 55, 59, except 591 and 594)

The 1977 volume of the Census of Retail Trade is expected to be published by the Department of Commerce in early 1979.

The Commerce Department also publishes monthly retail sales as part of its "Current Business Reports" series. Retail sales by kind of business for the United States and total sales for geographic regions are given in these reports.

Sales and Marketing Management's annual Survey of Buying Power (a Bill Publication) published in July and October, provides the following statistical data relevant to retail trends:

- Population
- Effective buying income
- Retail sales (by store group)
- Median age of the population
- Percent of population by age group
- Number of households
- Five-year projections (for metropolitan markets only)
- Outlook for next year (national only)

Except where noted above, this information is provided for the following geographical regions:

- National
- Regional
- State
- Metropolitan
- County
- City

Sales and Marketing Management is also a monthly trade publication discussing issues, trends and developments in the field. Although not confined to retail alone (for example, industrial sales techniques, etc. are included), S&MM is a good qualitative source of information.

The Marketing Economics Guide 1977-78 is published by the Marketing Economics Institute in October. It gives 1977 estimates of population, disposable income, total retail sales and a ranking of retail sales by store groups for 1500 cities, 3100 counties and all metropolitan areas in the country.

Shopping Center World, a monthly publication of the International Council of Shopping Centers is the major trade journal. Monthly features report on sales, leases and mortgages as announced, as well as new shopping center locations. Every two years a Census of the Industry is published which is the only authoritative "headcount" of shopping centers. The next one is scheduled for January 1979. Interim reports are often published as well.

The National Real Estate Investor provides similar information, although not as detailed as that found in Shopping Center World.

The Directory of Shopping Centers in the United States is compiled by the National Research Bureau, Inc. The directory lists over 19,000 centers and is classified by city, county, SMSA, state and region. The National Mall Monitor publishes a similar list. However, none of the information in either directory is aggregated, which severely limits their use.

The Shopping Center Development Handbook, part of the Community Builders Handbook series published by the Urban Land Institute, provides a thorough discussion of the issues surrounding the development of a shopping center. Although it does not provide statistical data, there are case studies of various shopping centers across the country. It is valuable as a reference source.

The major professional organization, the International Council of Shopping Centers, was not cooperative in providing information.

Transient Facilities Statistics

The "Hotel and Motel Red Book" is an annual directory published by American Hotel and Motel Association listing owners and/or managers of hotels/motels. As is the case with most directories, statistics are not aggregated, thus limiting their use for analytical purposes.

Service World International is a Cahners/IPC publication which annually lists the top 100 international hotel firms. The firms are ranked by number of rooms, a common standard of measurement in the industry. For each of the firms listed, the number of rooms, hotels, and food units are given, as well as a brief description of the company's immediate future development plans. Because the data are aggregated by firm with no geographical breakdown (e.g., the units could be located anywhere in the world) the information is useful only in terms of identifying the major hotel owners or managers.

Laventhal & Horwath publish an annual report on hotel and motor hotel operations entitled U.S. Lodging Industry. Much of the information is operating cost data. The following items, however, provide information on general trends:

- Occupancy rates, average rates, total sales, payroll and related expenses, other expenses, and productivity index by location (center city, airport, suburban, highway and resort)

- Occupancy, double occupancy and average room rate by age, size, area, and total sales classifications

- Energy costs per occupied room per day (fuel, electricity and water) for units by location, (center city, airport, suburban, highway and resort)

In addition, there are reports on market conditions in selected metropolitan areas.

Harris, Kerr, Forster & Company publishes an annual edition of Trends in the Hotel-Motel Business. Operating and financial data are voluntarily contributed by 800 establishments. The information is given by type of hotel:

- transient hotels
- resort hotels
- motels with restaurants
- motels without restaurants

Data items are:

- occupancy rates
- average daily room rate
- total revenues per available room per year
- income after property taxes and insurance per available room per year

The American Hotel & Motel Association publishes an annual "Construction and Modernization Report." The report summarizes the number of new projects underway each year and the total number of units by geographic region and by state. The Association also publishes Chain Lodging analysis which contains general information on hotel trends as they relate to chains.

There are two major trade publications, both of which discuss issues and trends affecting the industry. Lodging is published monthly by the American Hotel & Motel Association. The Motel/Motor Inn Journal is published by Lawrence W. Ingram.

There are a few other publications which are useful for giving general information on the industry. These are Appraisal Briefs and Travel Trends in the United States and Canada. Appraisal Briefs, published by the Society of Real Estate Appraisers, contains occasional articles on hotel construction. Travel Trends in the United States and Canada, published by the University of Colorado in 1978, is a study of tourism, and contains hotel information as it relates to tourism.

INDUSTRIAL LAND USE

Industrial Development Statistics

The Census of Manufactures and the companion Annual Survey of Manufactures done by the Bureau of the Census, are the most comprehensive readily available sources for statistics characterizing industrial development and construction trends in the United States. The Census of Manufactures is done at 4-year intervals with the last published volumes covering 1972. The Annual Survey of Manufactures is conducted for intercensus years.

For the purposes of this study, the best statistics cited in these volumes are the following:

- Total capital expenditures, new
- New structures and additions to plant
- New machines and equipment

In some tables only the total new expenditures are given, while others show separate totals for the 2 subcategories in addition to the overall total. Where available, the subcategory "New structures and additions" is the preferred measure.

This full breakout is provided in the Subject Series volume of the 1972 Census of Manufactures, in the report entitled "Expenditures for Plant and Equipment." Capital expenditures for new structures and additions to plant are given for the 2-digit SIC code categories for each state, the 9 census regions, and the U.S. as a whole. This is the finest-grained cross-tabulation of this statistic. Another table in this report shows this measure for each state, region and the U.S., with no breakout by industry type. The Annual Survey of Manufactures updates this statistic on the state level.

The growth in industries, at 2-, 3-, and 4-digit levels for the U.S. as a whole is shown in another table in this report which also lists capital expenditures for new structures and additions to plant. This last table is updated yearly in the Annual Survey of Manufactures.

Total new capital expenditures, which combines expenditures for new machines and equipment with expenditures for new structures and additions to plant, are given more comprehensive coverage. Two-, three-, and four-digit SIC breakdowns are given for this statistic for each state, region, and the U.S. as a whole in the 1972 Census of Manufactures. Another volume in this Census gives this statistic, similarly disaggregated by SIC levels, for SMSA's and selected counties and cities with 450 employees or more (except as prohibited by disclosure regulations). The Annual Survey of Manufactures updates total new capital expenditures for states with 2- and some 3- and 4-digit SIC breakdowns and for states, SMSA's, large industrial counties and selected cities with no SIC breakdown. Another table gives yearly total new capital expenditures for 78 selected SMSA's by 2-, 3-, and 4-digit SIC categories.

The overall amount of industry in various geographic locations is given in tables in the "Introduction to the General Summary Volume" of the 1972 Census of Manufactures. One shows the value added by manufacture for the Census regions, and states. The other ranks the 50 largest SMSA's by value added by manufacture in 1972, 1967, and 1963.

Additional Sources

There are a number of sources of general information on industrial development trends in the United States. The majority of these are periodicals, but several books are also available.

An excellent source of basic information is the Industrial Development Handbook published by the Urban Land Institute. This book is part of the three volume Community Builders Handbook Series. The objective of this series is to improve land-use and development practices by sharing the knowledge of developers in the field. This volume, while somewhat dated (its most recent edition was published in 1975), is a good source for basic information on industrial development.

An up-to-date source for information about the industrial real estate market in the United States is the National Real Estate Investor. The April and October issues of this magazine contain reports on surveys of the staffs of major professional associations involved in industrial real estate such as the National Association of Office and Industrial Parks and the Society of Industrial Realtors. The state of the industrial real estate market and factors affecting construction of manufacturing facilities are discussed.

A group of periodicals by Conway Publications is another major source of information on industrial development. Their Industrial Development magazine's section entitled "Million Dollar Plants" was used as the lead for many of the free standing plants in the project information sheets. This periodical, which is issued six times a year, also includes "Early Alert," a short listing of land purchases, site location and engineering studies, the exercise of options and requests for approval of various projects. In addition, each issue contains approximately five articles on various facets of industrial development.

Conway Publications also puts out the Site Selection Handbook. The Handbook has four editions each of which is issued annually. They are:

- "Office and Industrial Parks Index."
  This source lists office and industrial parks by state and city classified into the following categories:

  -- Heavy industrial (chemical, steel mills, refineries, electrometallurgical, etc.)

  -- Medium to light industrial/distribution/office with moderate performance standards

  -- Office park, R & D center or light industrial with strict performance standards

For each park the name; developer; name, address, and phone of person in charge; total acres; and acres available are typically although not universally provided. Other information which is occasionally included is year of park establishment; percentage occupied; number of plants or tenants; type of industrial activity permitted, transportation available; and sale or lease price of land and buildings.

- "Industry's Guide to Geo-Economic Planning."
  This edition of the Handbook gives geographically grouped listings of development organizations, including state, local and private development and redevelopment groups and transportation, utilities, and financial entities. The name of the organization and its head, and the address and phone number are given. In addition, the table "Industrial Growth Factors in the U.S." gives a variety of statistics for each state. Included are: the value of construction contracts, the amount of new industrial plant investment, the number of new industrial plants and the number of industrial plant expansions in addition to a variety of demographic, employment and other statistics. The construction statistics are not broken down by industry.

- "Corporate Real Estate Management."
  This issue lists name, title, address, and (in some cases) brief data on the real estate holdings of major U.S. firms.

- "Environmental, Energy, and Industry."
  This volume of the Handbook provides name, title, address, and phone numbers for state and federal energy related agencies and state and federal environmental control agencies.

A potentially excellent source of further information on industrial parks is the yet to be published Industrial Park Growth Rates, also from Conway Publications. This study, to be issued in late 1978, will include data on acres of industrial parks absorbed per year and the percentage completion of specific projects. Four thousand projects will be indexed.

Sales and Marketing Management publishes four survey issues each year, one of which is entitled the Survey of Industrial Purchasing Power. This issue is published in April and provides extensive up-to-date data geared toward improving the sales strategies of those marketing to industries. For each county in the United States the number of plants with 20 or more employees, the number of plants with 100 or more employees, the total shipments, the percentage of U.S. shipments and the percentage of plants with 100 or more employees are given for each four digit manufacturing category and for total manufacturing. These data are for the most recent year. These data, excepting the percentage of U.S. shipments (and including employment) are also given for each four-digit SIC category for the U.S. as a whole. The Survey of Industrial Buying Power also gives similar data for states and regions, the top 50 counties and the

top 25 metropolitan markets as ranked by 1977 value of manufacturing shipments.

One source for the identification of key developers is the Directory of Industrial and Office Parks put out by the National Association of Industrial Parks (now the National Association of Industrial and Office Parks.) The Directory which was published in 1971 was originally intended to be an annual publication, but the high cost of the directory led to a cancellation of these plans. Thus this information is somewhat dated. There is an index by developers of all listed parks so it is easy to determine those firms developing many of the listed parks. The parks are also indexed by region, state, county, and city. The following information is provided for each site:

- Name
- Developer
- Location
- Size
- Utilities
- Transportation
- Nature of Park
- Sites available
- Zoning and permitted use
- Present tenants
- Contact (name, address, phone number)

Forecasts of industrial growth are given in the U.S. Industrial Outlook, a volume published annually by the Department of Commerce. This book is primarily a textual discussion and expert analysis of many manufacturing and service industries. It is not totally comprehensive in its coverage. Major industries are covered but the definition of industrial subsectors does not follow a uniform and consistent pattern. Subsectors generally are aggregations of 3- and 4-digit SIC categories. Included in the volume are short tables profiling the industry in 1977 by value of shipments, number of establishments, number of employees, the compound annual rate of growth from 1966-77 and several other statistics giving trends and projections for a varying period of years. Appendix A ranks the projected growth in dollar volume of industry shipments for selected manufacturing industries defined as combinations of 3- and 4-digit SIC categories and also ranks them by real growth rates.

The bimonthly publication Plants, Sites and Parks has a brief listing by region and state of sites and buildings available for purchase or lease. This journal also includes brief notes of construction plans, land purchases, ground breakings and the like as sent in by individual companies.

The American Industrial Properties Report (AIPR), published 6 times per year, provides a list of over 400 office/industrial parks in its September issue. Parks are listed by multi-state region, state, and area code in large states. Park name, location (not address), individual in charge, and phone number are provided. An annual edition of the (AIPR) called the "Office/Industrial Site Seekers' Directory" is also published. This volume lists contacts and their name, address and phone number by multi-state region, state, and substate region.

Contacts listed include:

- State economic development agencies
- State energy contacts
- Environmental contacts
- Utilities
- Regional contacts
- Railroad contacts
- City contacts
- Financial institutions

There are many organizations involved with higher education, but when contacted, many were not able to provide us with information on facilities planning and construction. Some organizations only accredit colleges and others are involved in academic and programmatic issues, not physical ones. Several organizations are specifically oriented towards physical planning on campuses and these organizations are very helpful. They are the Council of Educational Facility Planners in Columbus, Ohio, the Association of Physical Plant Administrators of Colleges and Universities in Washington, D.C. and the National Association of College and University Business Offices in Washington, D.C.

The Council of Educational Facility Planners provided us with some useful information on trends in facilities planning, and also put together a list of planners for us to contact to find out about specific projects. This organization is very interested in energy matters and ICES.

The Association of Physical Plant Administrators is very involved in energy related matters on campuses and provided us with very useful statistical information on renovation activity on campuses, particulary those involving energy improvements. This organization has a large membership of individuals who would be interested in ICES. The National Association of College and University Business Offices gave us some general trend information and leads for a number of specific construction projects, but was less helpful than the previous two.

CORRECTIONS

The primary source of statistical information on correctional facilities is the U.S. Department of Justice and U.S. Department of Commerce, Expenditure and Employment Data for the Criminal Justice System, 1976. other information on corrections construction activity was obtained from Contact, Inc., an organization in Lincoln, Nebraska which conducts research and publishes informational newsletters on what is happening in the corrections field.

Madonna Skinner, the director of Contact, Inc. was very helpful in providing us with information on corrections facilities trends and which states were under court order to relieve overcrowding.

The National Clearinghouse for Criminal Justice Planning and Architecture in Champaign, Illinois gave us some useful insights into general trends in correctional facilities construction, but had no information on specific projects.

INSTITUTIONAL LAND USE

The major institutional sectors considered in this study are:

- Hospitals
- Educational facilities
- Correctional facilities
- Government Buildings
- Convention centers
- Military facilities

Since different sources must be used to identify trends and projects in each sub-sector, a separate description is given for each.

HOSPITALS

The primary source for hospital construction statistics is the 1977 study by ICF Incorporated entitled Trends in Hospital Construction. This is the first phase of a study underway for the Health Resources Administration of the U.S. Department of Health, Education and Welfare. This study contains an analysis of hospital construction activity over the last ten years and a review of several sources of statistical data on hospital construction. These data sources include F.W. Dodge reports, American Hospital Association (AHA) "Construction Report on Hospitals", Department of Health, Education and Welfare Hill-Burton project information, and the Department of Commerce, Construction Review.

Of these data sources, ICF concludes that the F.W. Dodge data are the most comprehensive and that the special Dodge report on hospitals is the most useful. This includes information by state for each year between 1967 and 1976 on the number of hospital construction projects, the number of square feet and the contract dollar amount.

The AHA's "Construction Report on Hospitals", published monthly, contains listing of hospital projects which have been proposed but not yet approved, projects which have been approved and projects under construction. Unfortunately it is only distributed to advertisers in Hospitals magazine.

EDUCATIONAL FACILITIES

It is difficult to find comprehensive data on all higher educational facilities, since some data sources include only public institutions and some only cover private ones. Thus we have to rely on the Bureau of Census, Statistical Abstract of the United States 1977 for information on public and private institutions. The Bureau of the Census Government Finances series contains information for states and SMSA's but these data are for public institutions only.

TRANSPORTATION LAND USE

Transportation capital expenditures are divided into seven categories by the U.S. Department of Transportation. They are:

- Highways
- Urban Public Transit
- Airports
- CBD Parking
- Marine Terminals
- Other Inter-City Terminals
- Other systems

The categories which would be of interest to Argonne in identifying potential ICES candidate projects are airports and other inter-city terminals. The latter category encompasses bus, rail and truck terminals.

Data on new transportation facilities construction is limited. The best source is the U.S. Department of Transportation, 1974 National Transportation Report, released in July, 1975. Of particular interest for this project are figures on capital costs by state and mode based on state reports to the Department of Transportation. Included in these state reports are inventories of the physical state of transportation systems in 1972 and long range transportation capital plans for the year 1990. Based on these figures, it is possible to derive an average annual capital expenditure for airports and inter-city terminals for the U.S. as a whole and for each state.

Other pieces of information contained in this publication are national trends and projections of transportation industry activity for aviation, railroads, inter-city buses and trucking; an inventory of airports by size for 1972 and projections of the number of airports for 1990; and for urban areas with a population exceeding 250,000, anticipated investment in inter-city terminals to 1990.

The Federal Bureau of Prisons was helpful in giving us an idea of what the trends have been in federal prison construction and where new federal prisons are being planned.

GOVERNMENT BUILDINGS

The most appropriate source of statistical information on government buildings is the Bureau of the Census publication State Government Finances. Volumes for 1971 and 1976 provide figures on capital expenditures by state governments. A comparable volume for Local Government Finances does not give a similar breakdown for capital outlay at the SMSA level.

The U.S. General Services Administration was able to provide information on federal projects under construction and in planning.

CONVENTION CENTERS

Little data are available on convention centers. The only sources which prove to be useful are the Aud Arena Stadium Guide and World Convention Dates.

The Aud Arena Stadium Guide, published by Billboard Publications, is the trade journal for convention center, stadium and auditorium managers. It contains announcements of new projects and general information on the convention industry.

World Convention Dates is a leaflet published by Hendrickson Publishing Co., Inc. It gives information on where the active convention states and cities are located.

MILITARY FACILITIES

Construction Review, published monthly by the Department of Commerce, includes statistics on U.S. military facilities construction. There is no state breakdown however.

The Department of Defense, Office of the Assistant Secretary for Public Affairs provided us with the FY 1979 Military Construction Program, which gives a breakdown by state and military facility of proposed construction activity. This document was useful in determining where potential ICES projects might be located.

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