

**PART I**

**SOCIOECONOMIC ENVIRONMENT  
OF THE FLORIDA KEYS**

## 1.0 INTRODUCTION

This report analyzes socioeconomic trends and conditions that may affect future land use demand and urban development potential in the Florida Keys. The basic thrust of the Florida Keys Carrying Capacity Study (FKCCS) is to develop a model that measures the impacts of various physical development scenarios; therefore, this socioeconomic analysis deals predominantly with physical development as well. The report focuses on the cause-and-effect relationships between socioeconomic factors and physical development as well as their likely influence on probable future development scenarios.

When appropriate, some information is presented by major sub-area -- Upper, Middle and Lower Keys -- according to delineation by the Monroe County Planning Department (MCPD). The main sources of information for this analysis are summarized below:

- U.S. Bureau of Census;
- U.S. Department of Commerce;
- National Oceanic and Atmospheric Administration (NOAA);
- Bureau of Economic and Business Research (BEBR), University of Florida;
- MCPD; and
- Monroe County Property Appraiser.

This report is structured around two major considerations: conditions and implications. For each subject, following the introduction, the conditions and implications are presented as a series of bullet points. Supporting statistical data are presented in an Appendix. References to "Tables" designated by a single number indicate those contained in the main body of the report, and those numbered A-1, A-2, etc. are located in the Appendix.

## 2.0 SPECIAL CONSIDERATIONS

Several special considerations make the Florida Keys unique in South Florida and influence the analysis that follows. Readers should bear these in mind as they read this report.

- **Population Components.** Population demands are often created by a combination of permanent and temporary population. The size and timing of temporary population is an important consideration in communities heavily influenced by tourists, seasonal residents, and/or business travelers. Temporary population in the Florida Keys is so significant that it must be considered in the analysis of land use demand. Research by the MCPD (MCPD 2000) established the magnitude of temporary population through detailed study of a number of indicators in the Keys (see Section 8). Temporary population is comprised of two primary components: transient population and seasonal population. Transient population is that group that

stays in the Florida Keys for less than 30 days; they are typically vacationers. Seasonal population is the group that stays in the Keys for 30-180 days during. The stay is usually during the summer or winter seasons. If a person stays in the Keys for more than six months, he or she is usually defined as a permanent resident.

- **Temporary Population.** In this report, the temporary population is a total of the transient and seasonal groups. Monroe County (MCPD 2000) estimated that the temporary population, on average, is equal to 86% of the permanent residents on any given day of the year. This annualized average was used because physical development in response to a population demand that fluctuates between seasons is still a permanent commitment on the ground; therefore, an estimate that distributes the annualized temporary population according to daily probabilities is more manageable when planning for future land and facility development.
- **Permanent Population.** Permanent population of the Florida Keys is composed of those who live in the community for more than six months each year. Because temporary population is equal to such a large share of permanent population in Monroe County, some of the ratios used in forecasting land use demand and some socioeconomic conditions – normally stated as per capita values of permanent population – are considerably higher than those found in other communities that are not as significantly impacted by temporary residents and visitors.
- **Population and Demand Projections.** It is commonly accepted practice to forecast future population and land use demand on the basis of permanent residents, making adjustments for temporary population in the value of the per capita ratios incorporated into the formulas. Although the MCPD prepared its population projections to incorporate a temporary component, other projection series used in this analysis did not include this special consideration. The MCPD population projection series is referred to in this report as the “managed growth” projection because it incorporates strong consideration of growth trends established during the administration of the Rate of Growth Ordinance (ROGO) program. On the other hand, the “natural growth” projection was prepared by the Bureau of Economic and Business Research at the University of Florida, and it relied more heavily on regional growth patterns and long-term demographic trends. Comparability between the different projection series can be insured only by using the permanent population as a standardized base. However, the stable relationship between permanent and temporary population components identified in the population study by the MCPD indicates that per capita ratios of land use demand, say, gross retail floor area, based on permanent population will adequately incorporate demand created by temporary residents as well. Both of these population projections are presented below in this report.

- **Seasonal Fluctuation and Modeling.** Discussions with the “core modeling group” on the consulting team established that the CCIAM focuses upon changes between end-points that are no less than five years apart. Changes of less than a year’s duration are not part of the modeling process; therefore, seasonal fluctuations of population are not germane in the modeling context.
- **Strict Growth Controls.** In 1992, Monroe County adopted a ROGO that currently limits residential development to a net increase of 255 housing units per year in the entire county. This number may be exceeded by construction of units that were “grandfathered” into the process because of legal or administrative considerations. The base number of units permissible under ROGO was established at time of ordinance adoption as one-half of the average annual number of housing units permitted during the past five years. The five years upon which this construction limit is based are largely recessionary, and most of the 1990s since adoption of ROGO has been one of national and statewide economic expansion. To illustrate the potential effects of the ROGO program, population growth in the 1980-1990 decade was 23.5% (Table 3), of which approximately 80% came from net migration (Section 7.0). During the 1990s, the Monroe County population increased by only 2.0% (Table 3) and net migration was a negligible portion of this growth (Section 7.0). This combination of conditions illustrates a strong, effective growth management program.

### 3.0 CRITICAL FORCES IN THE SOCIOECONOMIC ENVIRONMENT

This section of the report presents the most important socioeconomic forces affecting future development of the Florida Keys. Although discussed in greater detail in subsequent sections of this report, the following trends and projections are especially significant in terms of socioeconomic influences on likely development scenarios in the Florida Keys. These trends are unlikely to change during a planning horizon of two decades.

- **In the Florida Keys, net migration was negative during the 1990s, with more people moving out of the Keys than into the area (Table 5). In contrast, during 1980-90, net migration comprised 79.2% of the population growth.**
- **Temporary population in the Florida Keys is estimated at approximately 86% of the resident population on any given day of the year (Monroe County, 2000).** Even if a significant share of the temporary population is in the Keys for only a short time each year, the cumulative effect on land use demand is important. For example, a hotel room or a condominium unit houses a family for only a week or several months but it is a physical presence on the land for the entire year. This sustained increment of temporary population is an important part of the total demand that stimulates development of urban land use. As tourists and seasonal residents continue to come to the Florida Keys, these pressures will continue to be independent of a slowly growing resident population.

- **Employment growth in tourism-related businesses was substantial during the 1990s, and as the area's major growth industry, it is creating jobs at wages that are below average and not compatible with local prices, especially that of housing.** If young, moderately compensated workers must commute from Miami-Dade County each day, the cost of transportation and driving time can become a limiting factor in expansion of the work force in the Middle and Lower Keys. One implication of this potential situation is that most new job creation will take place in the Upper Keys, close to the South Dade labor shed.
- **Using the growth rates identified in the population forecast prepared by the MCPD, approximately 50% of new residents will be found in Key West/Lower Keys, 37% will move into the Upper Keys, and the remaining 13% will reside in the Middle Keys (see Section 10.0).** Under the adjusted BEBR growth projection for the 2000-2020 period, approximately 1,500 new residents will be found in Key West and the Lower Keys. Another 1,100 will come to the Upper Keys, and an additional 400 will reside in the Middle Keys (BEBR 2001). If the managed growth projection occurs, these capture rates will result in 2,300, 1,700 and 600 new residents in Key West/Lower Keys, Upper Keys and Middle Keys, respectively (Section 10.0). Population projections can be converted into new housing units by dividing them by the current average household size of 2.23 persons reported in the 2000 Census, as shown in Table 1, below.

**TABLE 1  
FUTURE HOUSING DEMAND**

<b>Subarea</b>	<b>Managed Growth Projection<sup>1</sup></b>	<b>Natural Growth Projection<sup>2</sup></b>
Key West/Lower Keys	1,031	673
Middle Keys	269	179
Upper Keys	762	493
<b>TOTAL UNITS</b>	<b>2,062</b>	<b>1,345</b>

- Notes: (1) By the MCPD and based on extension of the ROGO growth rates.  
 (2) By the BEBR, University of Florida and influenced by regional trends, not by ROGO. Projections are more appropriately representative of natural demographic forces.

- **The future growth pattern discussed above does not vary appreciably from that which occurred *during* ROGO.** ROGO has a strong influence on the location as well as the quantity of growth. A permit for construction of a new house is predicated upon achieving a certain number of “points” that are awarded in response to land use, environmental, and infrastructure conditions that are associated with areas that already have substantial urban development. Construction on undisturbed sites that are unserved by public infrastructure is highly unlikely under ROGO. These criteria have had a major influence on

limiting new construction to existing neighborhoods since adoption of ROGO in 1992. This policy is currently supported by Monroe County, and a major shift in position would have to occur for these criteria to be relaxed if ROGO were to be “sunset” in 2002. Therefore, it is not unreasonable to expect the same general pattern of growth to continue if either population projection series comes about. Growth impacts -- biophysical, socioeconomic, public facilities -- will continue to increase in the same general locations as in the past. Only the magnitude will be different.

#### **4.0 REGIONAL PERSPECTIVE**

In order to present a regional perspective, the South Florida Region (region) has been expanded in this analysis to include Monroe, Miami-Dade, Broward and Collier Counties, because of its proximity to both Monroe and Miami-Dade Counties.

This region experiences growth generated by natural increase from its own resident population and is also influenced by immigration of persons relocating from elsewhere in the United States and foreign countries. Although distinguishing characteristics are found in each of the counties, the region is strongly linked by major economic forces. The primary socioeconomic engine that drives growth of this region is immigration of people, but each of the counties captures a different share of the regional growth and they also differ materially in scale.

Detailed statistics that support the following conditions and implications are presented in Tables A-1 and A-2 in the Appendix.

- **Long-term growth rates of the South Florida Region have exhibited a decline since 1970.** On a regional basis, the region grew by 112.8% during the 1970-2000 period. In the 1970-1980 period, the population in the region increased by 41.2%, but the magnitude of increase declined to 22.9% during the 1990-2000 decade.
- **During 1990-2000, the South Florida Region grew by 784,498 to a total of 4,207,346 persons.** During the 1990s, Miami-Dade and Broward Counties grew by 16.3% and 29.3%, respectively. Monroe County, on the other hand, increased by only 1,565 permanent residents to an existing population of 79,589, and captured only 0.2% of the region's total population growth. Collier County's population grew by 65.3%, an increase of 99,278 new residents.
- **Although the South Florida growth pressures are still significant, counties with strong growth management policies have grown at substantially lower rates than Broward and Collier Counties.** The Monroe County ROGO program was designed to rigorously control the rate of growth, and it has been effective. Miami-Dade County has also undertaken more strict growth control measures through its strategy to direct growth toward in-fill sites within the existing urban service area.

**TABLE 2  
LONG-TERM REGIONAL POPULATION TRENDS**

<b>County</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
Monroe	52,586	63,188	78,024	79,589
Miami-Dade	1,267,792	1,625,509	1,937,194	2,253,362
Broward	620,100	1,018,257	1,255,531	1,623,018
Collier	37,040	85,971	152,099	251,377
<b>Totals</b>	<b>1,977,518</b>	<b>2,792,925</b>	<b>3,422,848</b>	<b>4,207,346</b>

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

**TABLE 3  
PERCENT CHANGE IN POPULATION FOR PERIOD**

<b>County</b>	<b>1970-80</b>	<b>1980-90</b>	<b>1990-2000</b>	<b>1970-2000</b>
Monroe	20.2%	23.5%	2.0%	51.4%
Miami-Dade	28.2%	19.2%	16.3%	77.7%
Broward	64.2%	23.3%	29.3%	161.7%
Collier	132.1%	76.9%	65.3%	578.7%
<b>Totals</b>	<b>41.2%</b>	<b>22.6%</b>	<b>22.9%</b>	<b>112.8%</b>

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

## **5.0 GROWTH OF PERMANENT POPULATION**

This section traces the major growth trends of Monroe County using data from the University of Florida's Census Bureau and the BEBR. One of the most important comparisons is the relationship of pre-1990 trends of population expansion to those that occurred during the ROGO-influenced 1990s. In general, Florida urban areas grew apace with the national trend.

- **The long-term trend for Monroe County shows that it has always had the lowest annual growth rate in the region.** When viewed by individual decades, Monroe County showed an increase by 20.2% in the 1970-1980 period and 23.5% during the 1980s. However, the 1990s recorded a significantly lower growth factor of 2.0%.
- **The influence of ROGO has had a striking effect on the county population growth when compared with previous decades.** The 1980-1990 population growth was 23.5%. This was moderately high but a normally sustainable rate in most Florida counties with relatively strong economies. However, growth from 1990 to 2000 was only 2.0%, which indicates that the objectives of Monroe County's ROGO were achieved. The overall four-county South Florida Region experienced a population increase of 22.9% during the 1990s, indicating that the "managed" growth rate of Monroe County is substantially lower than that which can be reasonably expected in the strong economies of other counties in this region.

- **However, if Monroe County's program for managing population growth is not continued after 2002, a substantial increase of population growth cannot be viewed as an inevitable occurrence when the latest BEBR (Natural Growth) population projection is considered.** The latest projection by BEBR incorporates county and regional trends that extend through the Year 2000, and this latest population projection indicates that the growth prospects of Monroe County are limited when “natural” socioeconomic conditions are viewed as basic causal factors. BEBR’s previous projections for Monroe County anticipated an increase of approximately 12.0% per decade for the next twenty years, but the new growth series is forecasting a growth of only 3.8% over the next two decades (BEBR, 2001). This is essentially the same growth rate Monroe County experienced under ROGO during the 1990s.

## 6.0 ALTERNATIVE PROJECTIONS OF PERMANENT POPULATION

There are two "official" and authoritative series of population projections for Monroe County that reflect the different methodologies and results represented by managed growth and by demographic forces unaffected by public policy and regulation. For convenience these two projections are referred to as *managed growth* and *natural growth*, respectively, in this report.

The MCPD prepared the *managed growth* projection used in this analysis. It was prepared by the local staff and incorporated careful consideration of the influences of ROGO as well as other distinctive demographic factors such as seasonal and transient population. Because the managed growth projection must be compared with a natural growth projection of resident population, the future resident population component of the MCPD projection will be used in this analysis. It establishes a baseline for limited population increase under a strong managed growth policy. The MCPD projects a 5.4% growth from 2000 to 2010.

The *natural growth* projection was prepared by the BEBR at the University of Florida with the 2000 Census as its base. BEBR is the State's official population forecasting organization, and it prepares projections of future population growth for all Florida counties on a regularly scheduled basis. BEBR projections are based on documented demographic trends for larger areas, and individual county projections are allocated from projections for larger areas. Thus, the BEBR projection for Monroe County does not contain a strong consideration of the influences of ROGO. Growth according to the BEBR projection would result in an increase of 1.90% during the 2000-2010 decade (BEBR 2001). After adjustment of County projections to conform to the new Census count of 2000, the projected growth from 2000 to 2010 is 4.79%.

Both are important considerations for modeling as well as other socioeconomic analysis because they form the basis for independent forecasting of land use demands and allocation that will be used for analysis of alternative development scenarios evaluated by the CCIAM. The results of both population projections are summarized below in Table 4.

**TABLE 4  
MONROE COUNTY POPULATION PROJECTIONS**

<b>Series</b>	<b>2000<sup>3</sup></b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>
Managed Growth (MCPD) <sup>1</sup>	79,589	81,700	83,400	83,800	84,200 <sup>4</sup>
Natural Growth (BEBR) <sup>2</sup>	79,589	80,300	81,100	81,800	82,600

Notes: (1) MCPD, adjusted to U.S. Census of 2000  
(2) BEBR, based on U.S. Census of 2000  
(3) U.S. Census of 2000  
(4) Extrapolated from 2010-2015 growth

A technical comment should be made about the above population projections. First, the Managed Growth projection of the MCPD was made prior to the U.S. Census of 2000, and it has been adjusted to correspond with the difference between its estimate and the Census count. The actual projection by the County agency was 7.54% greater than the enumeration in 2000; therefore, subsequent projections have been reduced by this fixed margin of error. Second, the Natural Growth projection by BEBR is the “medium” series that is considered by this agency to be the most likely to occur. According to the description of the medium projection in the BEBR publication, *Projections of Florida Population by County, 2000-2030* (May 2001): “This is the set we believe is most likely to provide an accurate forecast of future county populations.” BEBR also reports low and high projections that are based on statistical analysis of potential variation within the same set of fundamental assumptions and trends. This does not constitute a different array of demographic trends, assumptions and limiting conditions that normally define different population projection series. For these reasons, only the medium projection has been used in this analysis.

Because of the different assumptions, trends and methodologies used in the MCPD and BEBR population projections, they represent valid and materially different alternative approaches to estimating future population growth potentials. One series can act as a valid comparison for the other.

- **The natural growth projection, the latest BEBR projection series, will result in an additional 3,011 persons in Monroe County by 2020. Assuming 2.23 persons per household (pph) (U.S. Census 2000), this equates to an annual average growth of 151 new residents and 68 new households throughout the county each year.** The diminished growth indicates that the demand for land to accommodate future urban development, as well as the need for additional public facilities and services, will be considerably less than that occurring before the initiation of strong growth controls by the County.
- **The managed growth projection represents a 20-year growth expectation that is only 53.1% greater than the amount that is projected under the natural growth series -- a total of 4,611 new residents in the Keys.** By comparison with the pre-ROGO decade of the 1980s, the next 20 years will

bring only 31.1% of the countywide population expansion that took place in 1980-1990. The average of 231 new county residents each year during the future of 2000-2020 will amount to 104 new households. Under this series, future land and facility demand will continue to be limited.

## 7.0 COMPONENTS OF POPULATION CHANGE

Population growth is comprised of two primary components: natural increase and net migration. Natural increase occurs from an excess of births over deaths. Net migration is the number that results from subtracting those who move from the county from those that move into the county. Growth management policy has no effect on the birth or death rate of an area, but migration rates can be affected by regulations such as ROGO. Communities with a high rate of net migration have a greater opportunity to control their growth rate by ordinance.

**TABLE 5  
COMPONENTS OF POPULATION CHANGE MONROE COUNTY**

<b>Components</b>	<b>1980-1990</b>	<b>1990-1999</b>
Natural Increase	3,080	1,860
Net Migration	11,756	-641

Source: U.S. Bureau of the Census; Population Estimates Program, data from USBC website.

- During the 1980s, natural increase amounted to only 20.8% of the total population growth of Monroe County, with net migration comprising 79.2%.** Although growth by net migration is generally less stable than that from natural life processes, its dominance in retirement areas such as South Florida is a common occurrence. However, this did not happen in the Florida Keys. The net migration trend reversed itself and more people left Monroe County than moved into the Keys during the 1990s.
- Statistics reported by the U.S. Bureau of the Census attribute effectively all of the 1990-1999 growth in the Florida Keys to *natural increase*.** These estimates reveal that the 1,860 new Monroe County residents are a result of the excess of births over deaths. In contrast, the net migration factor of -641 indicates that more people are moving out than moving into the Keys - a sharp reversal of demographic conditions. These conditions indicate the shift of emphasis from migration to natural increase is closely linked to the reduction of the overall rate of growth that occurred during the 1990s. Further, unless this trend of negative migration is reversed, Monroe County will continue to grow slowly in coming years.

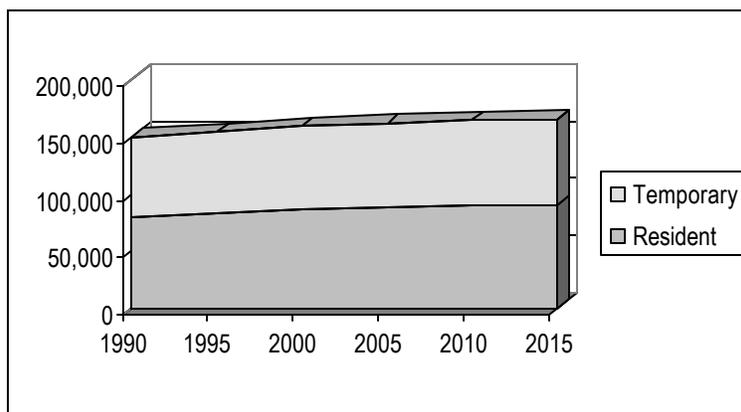
## 8.0 SEASONAL AND TEMPORARY POPULATION

Conditions related to seasonal population fluctuations and temporary population are important in some planning and analysis studies. They are especially important to the business community when forecasting changes in seasonal demands, staffing needs, and other factors that are directly affected by seasonal changes in demand. However, the effect on physical development is different because of the large capital expenditure inherent in construction projects. A facility capacity that only meets the need of periods of minimal demand will be markedly overloaded during times of peak demand, but development of capacity to meet peak demand will result in high vacancy rates in off-peak times. Therefore, the two extremes must be balanced.

This balance can be achieved through facility capacity that is targeted to fulfill annualized average demand that reflects an incremental population equivalent that is consistent for any time period in the year. This approach basically incorporates an additional increment of temporary population that can be used to augment demand created by the permanent population at any given time. For purposes of computing land use demand, this approach implies that either the population is larger than it actually is (e.g., total demand results from permanent population plus a consistent temporary population) or that the demands created by temporary residents are imputed to the permanent population in terms of higher than normal ratios such as gross floor area of retail development per capita. When imputing demands of temporary population into land use ratios and demand projections, it is assumed that the supply will respond to the fluctuation of population that occurs during various seasons of the year. This response often takes the form of a permanent commitment to physical development.

Estimates of temporary population were prepared by the MCPD, and they took into consideration commercial lodging occupancy rates in different parts of the Florida Keys as well as data from the local Tourism Development Council. The final result of the Monroe County study was a two-fold estimate and projection of permanent and temporary population in the Florida Keys. Essentially, these estimates and projections present a combined total of those who live in Monroe County all of the year and *those who are temporarily in the Keys on any given day of the year*. Monroe County has opted for use of the annualized average approach in its consideration of the influences of temporary population on land use demand.

**FIGURE 1  
TRENDS OF RESIDENT AND TEMPORARY POPULATION**



Source: MCPD

Figure 1, above, illustrates the consistent relationship determined to exist between temporary and permanent residents by the MCPD. This is a strong visual depiction of the confidence that can be placed in using permanent population as the primary indicator of demand. In terms of statistical measurement, review of the MCPD report, *Monroe County Population: Estimates & Forecasts 1990 to 2015*, revealed that the County's population projection treated the temporary portion of the population as a stable percentage of the resident population. That is, on any given day in the year, the number of people permanently residing in the Keys would be augmented by persons who did not live in the Keys year-round by a relatively constant percentage. The County analysis presents this percentage as an average of 85.87%, with a standard deviation of  $\pm 2.2$  percentage points – or a variation around the mean of only 2.56% of its value. Thus, on any given day in the year an additional 859 visitors will augment each 1,000 permanent residents of the Florida Keys and seasonal residents that must be accounted for when estimating land use demand. The details of the Monroe County data are shown in Table A-3 in the Appendix.

The approach used in this report is based on trends and projections of permanent population, because only MCPD has projected a temporary population factor. Other population projections are made for permanent population only. This is not a problem, though. The consistency of the non-permanent component makes it possible to impute demands created by these people into the permanent component with a high degree of confidence. One must simply remember that demand ratios actually include an allocation of demand created by seasonal residents and short-term visitors. This is neither a technical problem for economists and urban planners, nor is it a problem of conceptual understanding for lay persons.

- **Temporary population in the MCPD study ranges from 89% of the permanent population in 1990 to 82% in 2015, showing a consistent decline over the period.** That said, and as discussed above, it could be stated that on average visitors to the Keys on any given day of the year will equal about 86% of the permanent population.
- The use of peak and off-peak population figures (or resident vs. temporary population levels) has important ramifications for modeling needs that focus on changes across seasons of a year. However, the modeling concept in this study measures changes between two end-points of at least five years apart. In some cases the time frame for modeling impacts of future development scenarios will extend from the present to an end-point in the year 2020. **With this modeling approach, data fluctuations within individual years are not germane to the analysis as long as the overall order of magnitude is consistent and accurate to professional standards.**
- **The consistency of this quantitative relationship between the permanent population and the temporary population in Monroe County makes it possible to impute the impacts of temporary population on the demand for goods, services and facilities.** For example, the per capita demand for goods, services and facilities will be greater than normally found in other urban areas that are not subjected to the large number of visitors each year. Thus, demands will be substantially greater than that would be expected from a resident population of around 80,000 people. This is a key factor to be incorporated into efforts to forecast future land and facility demands, or to assess the impacts of future development scenarios.

The importance of tourism and retirement in the local economy makes seasonal housing (second homes) an especially important market component in the Florida Keys, but measuring the size of this market segment is difficult. The following are salient factors that contribute to understanding this phenomenon:

- The 2000 U.S. Census conducted during April, indicated that the permanent population was 79,589, with 76,705 living in households. At the average household size of 2.23, this population equates to approximately 34,400 households.
- However, the U.S. Census Bureau reports on its web site that the total number of housing units in Monroe County was 51,617 in 2000.
- If all of the 51,617 housing units occupied by permanent residents, the pph would be only 1.49 persons – two-thirds of the size reported by the U.S. Census Bureau from 2000 Census data.
- A comparison of the total number of housing units physically located in the Florida Keys at the time of the 2000 Census with the number of households counted at this time, infers that the 17,217 units in excess of those required for households who live permanently in Monroe County are for temporary residents (33% of the total inventory of housing units).

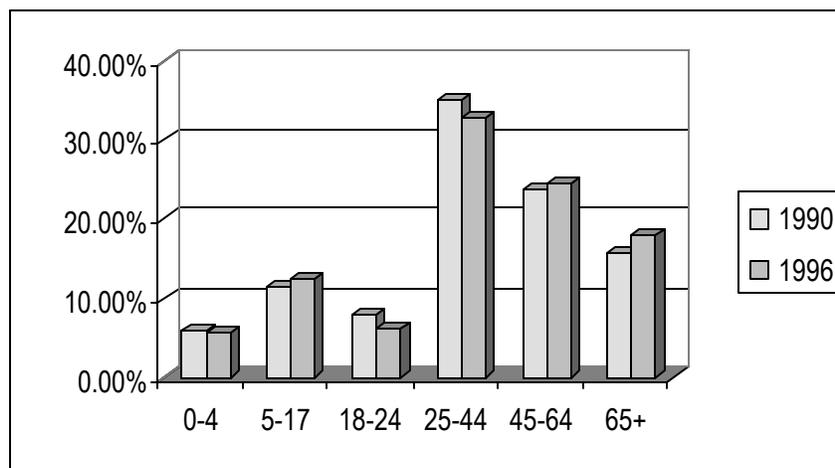
- In addition to the information from the Census Bureau, information from the Monroe County Property Appraiser’s database was used to prepare an estimate of the number of units used for temporary occupancy. All of the residential units that could be owned by occupants (in contrast to rental apartments) were sorted by the zip code of the owner. This data search identified to whom and to where the tax bill was mailed and identified the units that were owned and permanently occupied by residents of the Florida Keys. This data analysis also revealed that persons who live elsewhere for most of the year owned 32% of the units; their tax bill was mailed to a location outside of Monroe County.

Using the U.S. Census data, 33% of the total housing units in Monroe County are dedicated to temporary residents, and the Property Appraiser’s data indicate that temporary residents own 32% of the units. These mutually reinforcing statistics are even more persuasive when it is remembered that two different sources of data and methodologies resulted in two very similar estimates. Therefore, it can be estimated that temporary – or seasonal – housing comprises one-third of the total market demand in the Florida Keys.

## 9.0 AGE CHARACTERISTICS OF POPULATION

Age structure of a population is related to demographic factors such as the size of the labor force and the number of school-age children. It also affects the amount of housing required to meet the needs of young households. Statistics that support the following conditions and implications are presented in Table A-4 in the Appendix. A bar chart showing the general trends is shown below (Figure 2).

**FIGURE 2**  
**AGE COMPOSITION, 1990 AND 1996**



Source: U.S. Bureau of the Census

- **Monroe County underwent several shifts in some of its age groups over a brief 6-year period during 1990-96.** The 5-17 age group that generally represents school-age children increased its share of the total population in terms of both number and relative share, while those in the 18-24 group declined both numerically and as a percentage of all people in the county. The decline in this latter group indicates that there is a greater limitation on future labor force supplies because of the small number of persons in the age group that is the source of most new workers.
- **Individuals in the 25-44 age group are declining in share and number.** This means that those who are normally approaching their peak earning years are becoming a less dominant percentage of the local population. This indicates another future economic weakness, because fewer people will be available to move into senior positions in Monroe County businesses.
- **Individuals in the retirement age group over 65 increased at a very rapid rate, considering the time span of only 6 years.** Their growth amounted to approximately 2,500 people, and it shifted their share of the total population from 15.82% to 18.19%. This amounts to 400+ new retirees each year, a significant amount. There is an incipient weakness in the age groups that serve as a source of future workers, and it will be accentuated by the demands created by large numbers of retirees who consume goods and services but are not of an age group that contributes to their production.

While age characteristics of the population provide a worthwhile perspective in the overall socioeconomic context, they do not provide variables that are directly applicable to the primary modeling objective of this study. They are presented thusly in this report.

## 10.0 POPULATION DISTRIBUTION AND CONCENTRATION

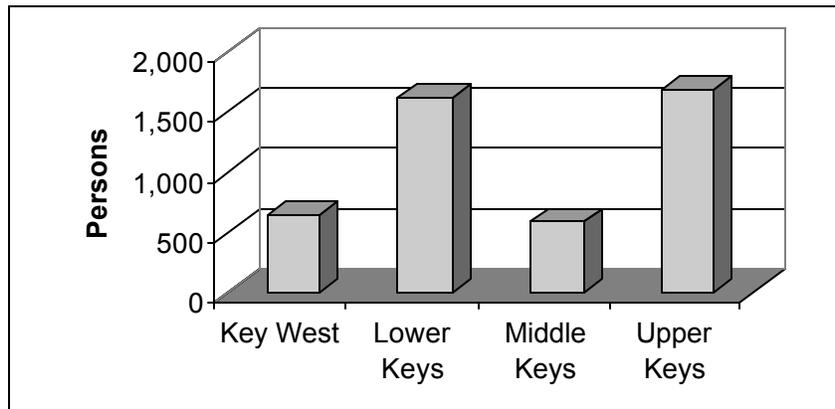
This section examines trends of resident population in a geographic context, focusing on the traditional market areas of the Upper, Middle, and Lower Keys consistent with the MCPD report, *Monroe County Population Estimates and Forecasts: 1990 to 2015*. A primary objective of this analysis is to determine the growth pattern that was established during the ROGO years of the 1990s. This geographic view of recent growth history also identifies areas that have expressed especially strong or weak demand for land use and public services. The projected permanent population by MCPD is presented by major subarea of the county in Table A-5 in the Appendix.

- **Statistics presented in the MCPD population projection report show that Key West is the dominant population center of Monroe County. According to MCPD estimates, it contained 25,677 people in 1997. This was 31% of the estimated County population of 82,800 that year, but this community is expected to capture only 14% of the anticipated countywide population growth during 2000-2020 (see Figure 3). In addition to being a major focus of tourist activities, the strong presence of local government and military activities provides the stability to support a higher**

**population concentration than that found in other parts of the Keys.** The implications of this condition are both socioeconomic and geographic. From the socioeconomic perspective, Key West generates jobs that create income, and these actions attract more people and the stability created by the presence of military installations reinforces the economic strength of the community. Geographically, this growth and economic activity is taking place at the extreme end of the Florida Keys, and essentially all of its hundreds of thousands of visitors each year must pass through the rest of the Keys to get there. Thus, continued growth of Key West will have impacts on the entire 100-mile chain of islands.

- Outside of Key West, the remainder of the Florida Keys exhibits a strong concentration of population at either end of the island chain. The Lower Keys has 24% of the countywide residents, while the Upper Keys has almost 30%.** The Middle Keys exhibits a population that is only 15.7% of the county total. The Middle Keys, being more remote from traditional urban centers, contain a smaller share of the existing population than the Lower Keys near Key West and the Upper Keys that are within easy driving distance of Miami (Figure 3). While Marathon is an urban area located in the Middle Keys, it should be noted that Marathon is still a relatively small suburban center when compared with Key West and Key Largo. Also, MCPD projections of future population growth indicate that the Middle Keys will receive the lowest share of new residents.

**FIGURE 3  
DISTRIBUTION OF FUTURE POPULATION GROWTH**



Source: MCPD

- **Setting aside the magnitude of actual population numbers, the future growth pattern (Figure 3) does not vary appreciably from that which occurred *during* ROGO.** As discussed in Section 2, ROGO restricts the total number of additional housing units that can be built annually. It also establishes strong location controls through a point system that places highest priority for approval on construction of units in subdivisions where infrastructure has been developed and sites have been altered from their natural condition. This policy is strongly supported by the County, and it is unlikely to change materially in the foreseeable future. Therefore, it is reasonable to expect the same general pattern of growth to continue if either population projection series comes about. The influences of ROGO have been in evidence for almost a decade (since 1992), long enough for them to become established as a major market force as well as a controlling County regulation.
- **It should be noted here that this report deals mainly with land use *demands*.** The supply side of the analysis is largely incorporated into the Vacant Land Study being undertaken by another member of the consulting team. The findings of the Vacant Land Study, when coupled with the demand analysis, will provide a broad basis for estimating the amount of future growth that can take place in various areas of the Florida Keys.

## 11.0 HOUSEHOLD SIZE

This section examines average household size over time, and determines if any material trends are likely to continue. Average household size is a critical number for estimating future housing-unit demand from projected population, water and sewage treatment demand, and other demographically derived demands. It is also a necessary parameter when translating future development scenarios into support populations in the CCIAM.

- **The average household size in Monroe County remained virtually unchanged during the decade of the 1990s (2.24 in the 1990 Census and 2.23 in the 2000 Census).** The typical household is maintaining a relatively constant size over time, although county growth rates and growth components have changed significantly since 1990.
- **The slow population growth of the past decade and the aggressive growth management program, if continued, would result in such a small increase of total population that significant modification of existing overall average conditions would be difficult to achieve.**

## **12.0 WORK FORCE AND PAYROLLS**

This section will examine the basic demographics of working-age people in Monroe County, establishing key trends that will affect future labor force availability from within the resident population. In this analysis the concept of the "work force" includes both the civilian labor force and the active employees in the Florida Keys. The labor force is the supply of people from which employment must be drawn. Employment by industry group is related to land use activities through established ratios of space to people. Payroll data can be used to estimate some of the economic impacts of commercial, office and other similar development.

### **12.1 Labor Force**

The labor force can be generally described as the people who are between 18 and 64 years old and either working or actively seeking work. As job opportunities arise, persons who were not actively seeking work will often seek employment and others will move into the community. Both of these actions will expand the size of the labor force.

Some of the key factors discussed in the section dealing with the age composition are also important labor force considerations. Primarily, the overall Monroe County labor force appears to be maturing. The most significant weakness is that young adults who make up the fundamental source of entry-level workers are declining in both absolute numbers and as a percentage of the total population. The primary supply of young people who normally replace workers who move up to take the place of those who retire is getting smaller. Over the long term, this is a condition that cannot continue if the business climate of the Florida Keys is to remain healthy.

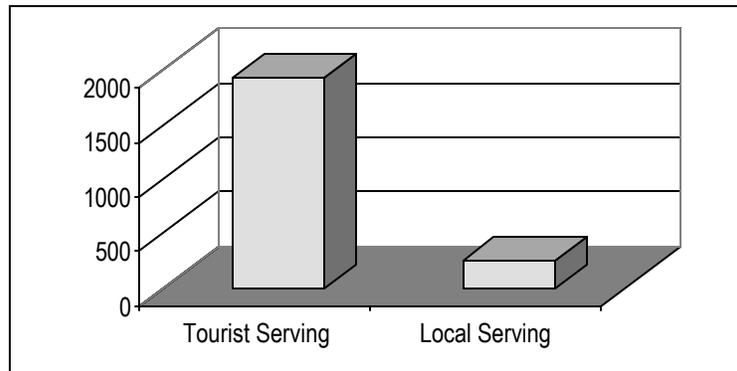
### **12.2 Employment**

Employment statistics provide a good view of the structure of an economy, and changes by sector illustrate how the economic structure has been modified. As noted before in this report, changes during the 1990s are important because of the slowing of Monroe County's rate of population growth. The pattern of employment shifts during this period was examined and several salient conditions and trends were identified. The detailed statistics from which the following conclusions were drawn are presented in Table A-7 in the Appendix.

- Total employment in local establishments increased by 18.14% in the 1990-1997 period, while resident population increased by 2.0% from 1990 to 2000. Employment increased at a factor that is nine times that of population growth during this period. The current average increase of employment is 683 workers per year, but the 1990-2000 increase of Monroe County residents indicates that population is growing by about 150 people yearly at this time. These conflicting trends indicate that greater numbers of workers are commuting into the Florida Keys from other locations.

- The retail trade amounted to approximately one-fourth of all employment growth, the largest amount of numerical growth in any sector. Those working in retailing increased their share of total employment from 37% to 39%, expanding by 2,354 workers. The large number of visitors and temporary residents create retail demand that is independent of the permanent population. Food establishments represented the largest employment increase in this sector, 30.5% of the total expansion.
- In contrast, the combined store types of general merchandise and food stores exhibited an employment increase of 258 employees, or 11.0% of all new retail employees. This is significant because these store types usually dominate the retail sector. These are also the types of stores that rely heavily on local resident market demand for success and growth. Thus, the slow rate of growth of permanent residents did not markedly expand the demand for these retail goods. If this trend continues, it will limit a major part of the demand for retail land in the Florida Keys.
- Firms in the store groups directly affected by tourist expenditures, such as food establishments, miscellaneous goods (souvenirs and specialty items), hotels/motels, and amusement services, experienced an increase of 1,664 employees during the 1990-97 period, 34.8% of the county's total employment growth. Statistics indicate that the local economic impacts of tourism have continued to expand in the Florida Keys during the 1990s. If this trend continues, demand pressures for land to accommodate additional businesses for the "tourist trade" will increase substantially.

**FIGURE 4**  
**LOCAL VS. TOURIST-SERVING RETAIL EMPLOYMENT GROWTH**



Source: County Business Patterns - 1990 & 1997

When retail activities are grouped into businesses that strongly serve tourist demands and those that are more closely linked to local demands, their relative position is striking. Figure 4 compares the 1990-97 growth of employment in these two types of retail businesses in the Florida Keys.

## 12.3 Payrolls

The number of jobs is an important economic indicator, but the payrolls provide a direct measure of the buying power of local workers. While the number of workers affects total payroll value, the economic structure also affects it because certain sectors pay higher wages than others. Large numbers of low-paying jobs can actually create social and economic problems in communities with a growing employment base. The Florida Keys exhibit some of the low-paying payroll characteristics, with the average payroll per employee in seven of the twelve employment sectors being less than the overall per-employee average in 1997. However, it should be noted that many workers in businesses serving the tourist industry receive low wages, with gratuities from customers comprising a large share of their income. They are required by law to report this extra income to the Internal Revenue Service, but it is not counted in the normal employer wage and salary reports for businesses. Unfortunately, there is no practicable means of accurately measuring this income component in this study. The conclusions and implications of Monroe County payrolls are presented below must be based on available published data. See Table A-7 in the Appendix for detailed data.

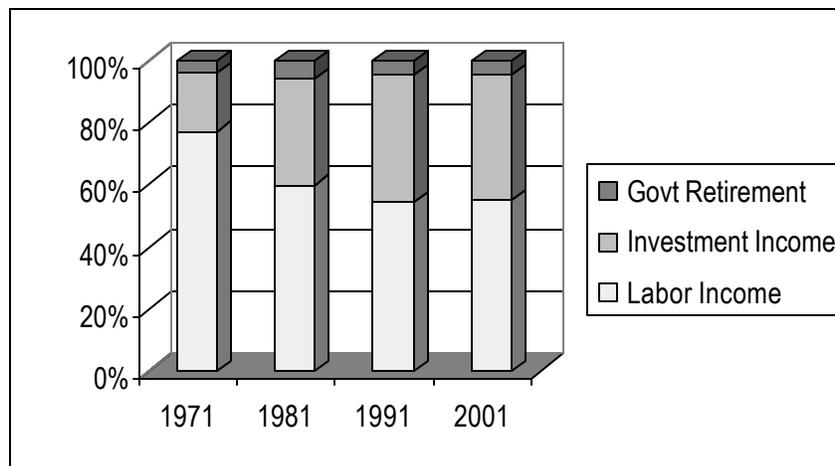
- **Total annual payrolls in Monroe County grew by 49% during the 1990-1997 period. This amounted to an increase of almost \$200 million.** This growth created an increase of effective buying income of approximately \$17.6 million (allocating 35% of the gross for income tax withholdings and other payroll deductions) annually.
- **The average employee wage increased by 26% during the same period.** When compared with the average increase per employee (\$18,559), per-employee increases in retailing and tourist-related businesses were found to be universally lower. Tourist-related workers had an average wage of \$15,488 annually -- 83% of the overall average. These employees are found mainly in food establishments, miscellaneous retail stores (souvenir shops and related), hotels/motels, and amusement services.
- **A high average wage rate per employee was found in the combined groups of construction-manufacturing-wholesaling. This group exhibited an average of \$22,770, but it showed a *decline* in the number of workers during the 1990-1997 period.** Total employment in this combined segment fell by 68 workers over the seven years. However, the only part of this group that could have been materially affected by the sharp drop of population growth during the 1990s was the construction industry. The employment level in this group fell by 200 workers during the analysis period. A potential difficulty in maintaining an adequate number of construction firms and workers may arise if development continues to be limited in the Keys.

## 13.0 PERSONAL INCOME TO RESIDENTS

Household and per capita income deal with the combined income of individuals and households, including retirement payments. This is significant as there is a substantial portion of local employees who are not local residents.

- **The US Census Bureau estimated a 1997 median household income for Monroe County at \$36,353. This is strong when compared with an average household size of 2.23 in 2000.** In contrast, the median household income in 1990 was \$29,351, with an almost constant average household size of 2.25 persons. At the median level, the same household is earning 23.9% more in 1997 than in 1990.
- **Although personal income increased from \$162 million to \$1,661 million, income resulting from wages and salaries (labor income) has markedly declined since 1971 (BEBR 2000). Income from investments (dividends, interest, and rent) increased its share of total personal income from 18.9% in 1971 to a current share of 40.9%. This shift documents a change in the affluence of Florida Keys residents.** An increase in the relative share of investment income of more than 100% in 30 years indicates a significantly larger number of households do not rely on weekly paychecks for their income. This trend adds stability to the local economy, and in numerous instances, "imports" income from investments in other areas that supports local economic growth (Figure 5).

**FIGURE 5  
TRENDS OF PERSONAL INCOME COMPOSITION**



Source: *Florida Long-Term Forecasts*

## 14.0 COST OF LIVING INDEX

To conduct this analysis the Florida Price Level Index (PLI), which uses the entire state as its basis of 100.00 index points, was examined for the period 1989-1998. These indices are computed and published annually by the State Department of Education as aggregate PLIs for each county in the state as well as indices for several groups of goods and services. Price levels for Monroe County were compared with index numbers for Miami-Dade, Broward, and Collier Counties because of their relationships discussed previously in this report. Details about the Price of Living Index for Monroe and other counties in the region are exhibited in Tables A-8 and A-9 in the Appendix.

- **Monroe County had the highest aggregate price index in Florida during 1989 (115.03) and 1998 (112.43).** Miami-Dade and Broward County had retained their respective rankings of #2 and #3, but their average index had declined from 94.3 to 93.0 over this period. Collier County maintained an almost constant Price Level Index during 1989-1998, but it shifted from #8 to #7 in the statewide ranking. Compared with the Florida Keys, Collier County maintained a PLI of 100.69-100.99 over the 1989-1998 time frame.
- **In 1989 the PLI for housing in Monroe County was 131.89 but had declined to 127.23 by 1998.** This represents a slight closing of the gap between local housing prices and those for the state as a whole. Miami-Dade increased from 110.17 to 113.17 index points during the same period. Collier County experienced a small increase in its housing price index from 101.38 to 102.16.
- **In terms of other price indices, Monroe County does not differ substantially from the statewide index.** While local prices may be slightly higher for other consumer items such as food, clothing and health services, they do not differ greatly from the regional market.
- **Unless many local households are moving into high-income levels at an unusually rapid pace, demand for expensive housing is usually generated by wealthy households moving into the community. Normally, an existing population tends to have a limited amount of growth of local households into high-income levels and in-migration of affluent families is need to stimulate demand in the highest price ranges.** In the case of the Florida Keys, the shift of more personal income into the "investment" category indicates that this is occurring even though overall *net* migration has been a negative factor in the growth since 1990. Since it would be highly unlikely to achieve a shift from 18% to 41% of personal income in the "investment" category since 1971 on the basis of local income growth alone, this statistical change implies that affluent families are moving into the Keys and those of more moderate incomes are moving out.

### 15.0 RETAIL AND SERVICE ACTIVITIES

The purpose of this section is to trace the trends of retail and services activities in terms of their impact on land use demand. The primary focus of this analysis is to examine the trends in terms of the number of selected establishments and their average size as a factor in future land absorption. Additionally, this analysis examines these trends before 1990 and during the ROGO period of the 1990s, subject to availability of published data.

**TABLE 6  
SELECTED RETAIL AND SERVICE ESTABLISHMENTS<sup>(1)</sup>**

Type of Business	1980	1990	1997
<b>RETAIL ACTIVITIES</b>			
Total	566	859	1,066
General Merchandise	13	15	16
Food Stores	61	85	82
Apparel Stores	58	82	123
Home Furnishings	33	57	40
Eating & Drinking Places	174	265	349
Miscellaneous Specialty Retail	67	96	153
<b>SERVICE ACTIVITIES</b>			
Total	586	1,175	1,710
Banking	7	20	48
Real Estate	82	175	250
Hotels & Other Lodging	104	122	214
Recreation Services	48	111	173

Notes: <sup>(1)</sup> Specific business types selected to illustrate key resident and tourist demands  
 Source: US Census Bureau; County Business Patterns, appropriate years

- Retail and service establishments increased in number during 1980-1997. A total of 880 new retail and service businesses opened during the 1980s and 742 additional establishments opened in 1990-1997.** The average retail establishment has maintained a constant size with eleven employees over the 27-year time frame. Service firms, on the other hand, have declined in average size from eleven employees in 1980 to eight employees in 1997. Overall, most of the retail and service outlets in the Florida Keys tend to be small, with most of them having fewer than 10 employees.
- Even though some of the individual business types exhibit substantial increases in the number of establishments opened since 1990, it should be noted that a large number of the stores in Monroe County are very small and require only a small amount of land to accommodate them.** For example, in six of the twelve store groups listed above in Table 5 more than

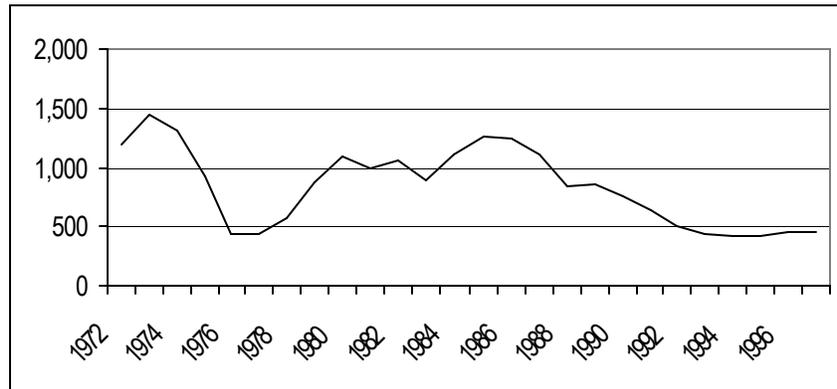
60% of their individual establishments employ fewer than 5 people, with home furnishings stores and real estate offices having at least three-fourths of their establishments in this small size category. Except for banks and food stores, 4 additional store groups have more than 40% of their establishments employing 1-4 people.

- **Individual stores are smaller and widely dispersed.** Because market areas are small and populations for a potential customer base are also limited, more small stores are distributed throughout the long distance from Key Largo to Key West. Adequate support populations for large anchored shopping centers are difficult to find within driving times normally used to establish retail trade areas around sites on the mainland. In the case of the Florida Keys, trade areas are linear instead of circular. This condition inherently requires that commercial uses be dispersed and small in size if they are to be proportional to their available market support.
- **The established growth pattern in the Keys indicates the most likely locations for major retail projects would be in Key West/Lower Keys and Key Largo.** These areas have the largest concentration of population, and they captured the dominant share of countywide growth during ROGO. However, it should be emphasized that the projected growth rates under either population projection series are still low-to-moderate in terms of absolute demand for more commercial land use. Demand will increase slowly and support for larger new commercial projects will take several years to accumulate. In addition, the limited amount of population growth projected for the Middle Keys will generate a similarly limited amount of additional resident demand for retail and consumer service establishments. Unless existing commercial land use is replaced with a new project, significant commercial development is unlikely to occur under the projected population expansion.

## 16.0 HOUSING CONSTRUCTION ACTIVITIES

Housing construction is at the heart of growth management and development impacts. It is the largest land use category in terms of acreage consumed and defines the location of people and their demands for housing as well as other land uses. Residential development -- especially construction of single-family houses -- is capable of responding more rapidly to economic change or public policy than any other urban land use. Because single-family houses are built as individual units, and usually in response to the purchase decision of a single household, sales and construction rates can change very quickly. This creates a significant annual variation around long-term average absorption rates. Figure 6 below shows the general trend of housing starts in Monroe County since 1971. The original data were "smoothed" through application of a three-year moving average that presents a more clearly defined pattern of responses to two national economic recessions and implementation of the county's ROGO program. The pattern traced by this graph is a good illustration of the effectiveness of ROGO.

**FIGURE 6  
MONROE COUNTY HOUSING CONSTRUCTION TRENDS**



Source: *Florida Long-Term Forecasts*; BEBR

Two recessionary periods occurred in the early 1970s and the late 1980s. Actual numbers of housing starts (see Table A-10 in the Appendix) show that the second recession was initially felt by the Florida Keys in 1987. This economic downturn began its recovery in the general economy during 1992-1993, and economic growth continued unabated until the end of the decade. However, this post-recession expansion was not reflected by housing starts in Monroe County.

In 1992, Monroe County initiated the ROGO program that limits new housing construction to 255 additional units annually. However, building permits had already been issued for a number of units that were "grandfathered", and other building permits could be issued for replacement units. These conditions permitted total housing starts to exceed the regulatory limits on additional units.

Nonetheless, the effects of ROGO are especially clear when the housing starts after 1992 are compared with those of the pre-recessionary period before 1987. During the 1981-1986 period, data for annual housing starts show that Monroe County averaged 1,167 units per year, and during the recessionary period of 1988-92 the economically determined average was 780 units annually. But during 1993-1998, the average computed from annual was 431 units for all jurisdictions in the county. The first period showed a range of annual housing starts between 652 and 17,05 annually, with a computed standard deviation amounting to 33% of the mean. The second period, a recession, expressed a range of annual starts from 537 to 906 units in a year. The standard deviation around the mean value was 21% of the recessionary average. Finally, the period during which ROGO was brought into effect showed a range of 369 to 500 annual units. The standard deviation had declined to only 15% around the mean. This trend indicates that the market became less flexible (as indicated by the decreasing size of the range of annual starts), and the smaller standard deviation indicates that the market became more stable, if smaller.

The results of this policy action can be summarized as follows.

- **The number of housing units allowed yearly under ROGO was based on a computed traffic capacity of existing roadways during periods of hurricane evacuation. It was computed that the available capacity of the highway system would permit development of another 2,500 housing units and still meet evacuation standards. This number of units was allocated evenly over a ten-year period that ends in mid-2002.** This policy decision, even though based on a clear public interest in human safety, diverged from established market conditions. The annual allocation of the evacuation capacity (255 units per year) is 32% of the average housing absorption rate during the five years prior to adoption of ROGO. When compared with the pre-recessionary period of 1981-86, the ROGO allocation is only 21% of the average yearly absorption rate. These statistics indicate that the annual allocation of new housing units under ROGO has been significantly less than market demand during the 1980s. Since the national and state economies experienced considerable growth since 1992, it is evident that ROGO has been successful at countering market forces and controlling the rate of development in the Florida Keys.
- **A rapid upsurge of residential construction to a rate that approaches the documented levels of the 1980s is unlikely.** The annual average housing absorption rate during 1981-1992 was 949 units, with both expansion and recession periods included. However, this would result in a population growth rate of slightly more than 2,000 people per year. This does not appear to be likely when compared with the *natural growth* population projection of BEBR, which anticipates an increase of approximately 800 people annually over the next 20 years. While an accelerated rate may occur for a short period, it is unlikely that it could be maintained for two decades.
- **Absorption will rise quickly to 780 units annually, a rate comparable to that of the recessionary period that preceded ROGO.** This would equate to 1,750 new residents per year, or 35,000 new people over the next 20 years at this rate of development. This consequence is also unlikely because it is much greater than the population growth anticipated in the *natural growth* projection series by BEBR or the MCPD projection. Based on the development history of the past decade it is not unreasonable to question the capacity of the Monroe County market to maintain this growth rate, even if Monroe County adopted a *laissez faire* growth management policy.
- **Long-term housing construction activity will not exceed the ROGO-influenced rate of approximately 400 units per year that occurred during the period of 1993-1998.** This absorption rate is a conservative average when compared with the rates that occurred during the 1980s. If the average rate of 400 units per year were maintained for 20 years, it would generate 18,000 new residents in the Florida Keys. This is almost six times the total growth foreseen in the latest BEBR population based on the U.S. Census of 2000. This consequence lies above the upper limit of a reasonable Monroe County growth potential.

## 17.0 TOURISM

Tourism is one of the most important sectors of the economy in the state and the Florida Keys. Sample surveys are conducted annually to determine the number of visitors, but much of the salient information is in the form of indicators that describe activities frequently participated in, or facilities usually visited by, tourists.

The most consistent source of estimates of total tourist activity is the *Florida Visitor Study*, conducted each year by the State of Florida. In 1998, an estimated 48.7 million tourists visited the state, 1,266,000 (2.6%) of which vacationed in the Florida Keys. This represents approximately 7,100,000 person-days (number of people times number of days in Keys) in the Keys, contributing an average of 19,400 additional persons per day to the Florida Keys. When viewed from this perspective, tourists comprise an additive factor amounting to approximately one-fourth of the resident population.

A separate study of visitors to the Florida Keys was prepared by economists at the NOAA from a sample survey during June 1995-May 1996. The purpose of the study was to determine activities and economic values of visitors to the Florida Keys. The estimated number of annual visitors is shown in Table 7, below.

**TABLE 7**  
**VISITORS TO FLORIDA KEYS 1995-1996**

<b>Category</b>	<b>Total Persons</b>	<b>Person-Days</b>
Recreating Visitors	2,540,488	13,298,387
Non-recreating Visitors	517,093	2,974,738
All Visitors	3,057,581	16,273,125

Source: Visitor Profiles: Florida Keys & Key West; NOAA

Of these totals, 27% visited the Upper Keys, 21% the Middle Keys, 9% had the Lower Keys as their destination, and 43% drove on to Key West. This survey also investigated the expenditure patterns of the visitors over this 12-month period. The average expenditure per person per day that was determined by this study was \$108.07, a value that is not an unreasonable comparison with the rate of \$117.80 reported in the *Florida Visitor Study* for 1998. However, the orientation of the NOAA study toward outdoor recreation identified some specific expenditures that add another dimension to this discussion of tourism. They are shown in Table 8, below, and it can be observed that the categories differ somewhat from those of the State study, but these differences are complementary.

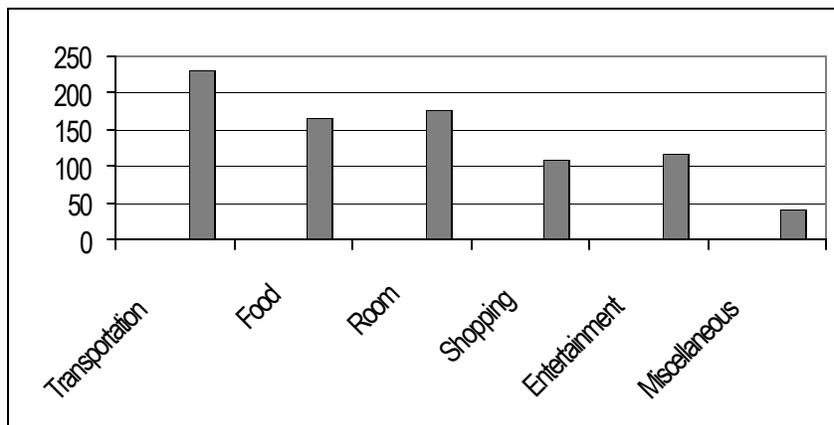
**TABLE 8  
AVERAGE VISITOR EXPENDITURES BY PERSON PER DAY**

<b>Expenditure Category</b>	<b>Amount</b>
Lodging	\$36.31
Food & Beverage	\$29.76
Transportation	\$10.56
Boating	\$5.69
Fishing	\$3.30
Diving	\$3.46
Sightseeing	\$4.16
Other Activity	\$1.57
Miscellaneous	\$12.53
Services	\$1.64
<b>Total Expenditure</b>	<b>\$108.98</b>

Source: Visitor Profiles: Florida Keys & Key West; NOAA

Although the NOAA study provides valuable input for understanding the value of outdoor recreational activities in the Keys, the State Visitor Studies present an expenditure pattern that is more closely aligned to the task of assessing the influences of tourism on future land use demand. Using the statistics from this study program, tourists expend an estimated \$2.3 million dollars daily in Monroe County. A graph of estimated annual tourist spending in Monroe County, based on the survey of tourist expenditure patterns in the *1998 Florida Visitor Study*, is shown below in Figure 7. Detailed statistics are presented in Table A-11 in the Appendix.

**FIGURE 7  
ESTIMATED YEARLY TOURIST EXPENDITURES  
(\$ MILLIONS)**



Source: *1998 Florida Visitor Study*

The typical tourist party spends a total of 20.5 person-days while visiting, representing a potential expenditure of approximately \$2,400 to \$3,200. The former estimate is based on average expenditures for all tourists, but the latter is representative of those coming by airplane. Airborne tourists comprise an important share of those coming to the Florida Keys.

Both of these data sets clearly show that the impact of tourism on the Florida Keys is very large in terms of both visitors and economic value. **Ironically, though, the land use impact is narrowly focused on a relatively few activities, and the total amount in acres or floor space is less than of residential land demand. The most critical aspect of land use demand created by tourists is its frequent location in close proximity to highly sensitive environmental resources that attract many visitors to the area.**

**TABLE 9  
CHARACTERISTICS OF TYPICAL TOURISTS**

<b>Characteristics</b>	<b>All Tourists</b>	<b>Air Travelers</b>	<b>Auto Travelers</b>
<b>LENGTH OF TRIP</b>			
Average nights	8.2	7.4	9.1
1-3 nights	26.3%	22.9%	25.0%
4-7 nights	39.5%	47.5%	33.5%
8+ nights	34.3%	29.7%	41.1%
<b>SIZE OF TRAVEL PARTY</b>			
Average persons	2.6	2.2	2.9
One Adult	30.0%	44.3%	16.1%
Couple (male/female)	27.0%	21.6%	32.3%
Families	10.0%	10.0%	9.8%
<b>EXPENDITURE/PERSON/DAY</b>	\$117.80	\$157.30	\$87.20
<b>ACCOMMODATIONS</b>			
Paid Lodging	65.1%	65.8%	65.3%
Unpaid Lodging	31.3%	31.2%	31.0%

Source: *Florida Visitor Study: 1998*

**17.1 Primary Tourist-Related Businesses**

Hotels/motels and restaurants are also important indicators of tourist activity (Table 10, below). Between 1989 and 1998, the number of hotels increased but the total number of rooms expanded by less than 800. Also, the expansion of 17 new motels did not change the average size of these establishments. A typical motel in the Florida Keys had 36 rooms in 1989 and the average was still 36 rooms in 1998. Restaurant facilities declined in number of establishments, but increased their total seating capacity and average size. The aggregate seating capacity of restaurants in Monroe County increased by 19% during 1989-1998, and the average size increased from 64 seats to 81 seats indicating that restaurants in the Florida Keys tend to be small.

**TABLE 10**  
**TOURIST-RELATED BUSINESSES IN MONROE COUNTY**

Facilities	1989	1998
<b>HOTELS</b>		
Number of Establishments	17	25
Number of Rooms	1,455	2,238
<b>MOTELS</b>		
Number of Establishments	157	174
Number of Rooms	5,647	6,068
<b>RESTAURANTS</b>		
Number of Establishments	553	524
Seating Capacity	35,591	42,357

Source: Florida Statistical Abstract; from State of Florida, Department of Business & Professional Regulation

- **The current annual tourist expenditures in Monroe County are estimated from the parameters reported in the State *Visitor Survey* to be \$836 million.** This is an average of \$10,500 for each permanent resident of the Florida Keys. Of particular importance, this is "imported" income brought to the area from other parts of the United States and foreign countries, and it is an important basis for economic growth.
- **Land use demand created by the "tourist industry" is narrowly focused.** In general establishments are located close to the shopping or recreational resources that initially created the tourism causing a clustering effect near attractions such as Historic Key West and Pennekamp State Park. Many of these businesses are small and dispersed throughout the Keys and do not comprise a major share of the total urban land use acreage.
- **Based on the increases in number of both hotels and motels, together with the number of rooms, the small average size indicates that the Florida Keys has not undergone major development activity from large lodging chains during the 1989-98 period.** Local hotels averaged 86 rooms in 1989 and 90 rooms in 1998, while Florida experienced an increase in average hotel size from 151 to 164 rooms. The Keys maintained a level average of 36 rooms per motel, whereas the state average was considerably greater at 86 to 90 rooms per motel. Average-size motels in the Florida Keys should require approximately one acre per establishment, and average-size hotels should require slightly more than two acres at industry standards for economically viable hotel and motel projects. An average-size hotel in the Keys, 97 rooms, will consume 38% of the County's allocated annual growth under ROGO. This is significant because hotel/motel units are classified as "housing units" under ROGO.

## 18.0 OUTDOOR RECREATION

The purpose of this section is to examine the types and rates of outdoor recreational activities in relationship to facilities dedicated to these uses. The primary orientation will be to assess the potential demand for these land uses.

In 1995-1996, a team of economists from NOAA undertook survey research to identify the outdoor recreational activities of residents and visitors in the Florida Keys. The primary emphasis of both groups was on either water-related recreation activities or activities generally found in urban areas. Water-borne activities such as diving and fishing had participation rates of more than 40% each by residents and over 20% each by visitors. Urban-based activities -- tourist attractions, museums, historic areas -- had participation rates of up to 32% by Keys residents and as high as 55% by visitors. Upland outdoor recreational activities such as camping had a large number of participants, but the participation rates were about 7% for both visitors and residents. See Tables A-12 and A-13 in the Appendix for detailed statistics on recreational activities of both residents and visitors.

Except for public parks, preserves, and beaches, that are provided by local, state and federal agencies, the primary land demand related to recreational activities is found in either existing urban areas such as Key West, or require relatively limited amounts of land along the shore to support activities that take place on the water. Marinas comprise a good example of this condition.

In general, the outdoor recreational activities emphasized by both residents and visitors are related significantly to public areas that are more likely to result from community values and priorities for public expenditures than from market demand. However, within the scope of establishing a broad socioeconomic context for future development scenarios, outdoor recreation does not have major land use demand implications on a broad scale. Instead, it has special demand implications that tend to be localized. For example:

- Beaches require shorelines with high visual quality and near-shore areas suitable for sunbathing and safe swimming;
- Marinas need good access to waterways, fishing grounds, coral reefs, and other diving locations;
- Campgrounds require larger undeveloped, preferably natural, sites close to other recreation areas; and
- Golf courses need at least 160 acres, preferably close to substantial upper income residential development, for an 18-hole, par-72 facility.

## 19.0 LITERATURE CITED

Most of the following literature citations are compendiums of demographic and economic statistics, including those from various sources that have been compiled into a single source volume. Rather than cite, say, the General Characteristics Report of several decennial US Censuses, as individual listings, the same information is cited from a standard compilation such as the *Florida Statistical Abstract*. In addition, a recent decision by the U.S. Bureau of the Census to make Census of 2000 and other socioeconomic data available from its continually changing web site has created a source that differs from typical published documents, and this information is referenced to the web address of [www.census.gov](http://www.census.gov).

Bureau of Economic and Business Research. (1989). *Florida Statistical Abstract*. Gainesville, Florida: University of Florida.

Bureau of Economic and Business Research. (1998). *Florida Statistical Abstract*. Gainesville, Florida: University of Florida.

Bureau of Economic and Business Research. (2000). *Florida Long-Term Forecasts*. Gainesville, Florida. University of Florida.

Bureau of Economic and Business Research (2001). *Projections of Florida Population by County, 2000-2030*. Gainesville, Florida. University of Florida.

Florida Division of Tourism. (1999). *Florida Visitor Study: 1998*. Tallahassee, Florida. State of Florida.

Leeworthy, Vernon R. and Peter C. Wiley. (1996). *Visitor Profiles: Florida Keys/Key West*. Strategic Environmental Assessments Division, Office of Ocean Resources Conservation and Assessment, National Ocean Service, National Oceanic and Atmospheric Administration. Silver Spring, Maryland.

Leeworthy, Vernon R. and Peter C. Wiley. (1997). *A Socioeconomic Analysis of the Recreation Activities of Monroe County Residents in the Florida Keys/Key West*. Strategic Environmental Assessments Division, Office of Ocean Resources Conservation and Assessment, National Ocean Service, National Oceanic and Atmospheric Administration. Silver Spring, Maryland.

Monroe County Planning Department. (2000) *Monroe County Population: Estimates & Forecasts 1990 to 2015*. Key West, Florida. Monroe County.

Smith, Stanley K. and June M. Nogle. (2001) *Projections of Florida Population by County, 2000-2030*. Gainesville, Florida: Bureau of Economic and Business Research, University of Florida.

US Bureau of the Census. (1990) *General Population Characteristics: 1990 (Florida)*. Washington, D.C. US Government Printing Office.

US Bureau of the Census. (1980). *County Business Patterns: 1980*. Washington, D.C. US Government Printing Office.

US Bureau of the Census. (1990). *County Business Patterns: 1990*. Washington, D.C. US Government Printing Office.

US Bureau of the Census. (1997). *County Business Patterns: 1997*. Washington, D.C. US Government Printing Office.

US Bureau of the Census. (2001). Population Estimates Program: 1999.  
<http://www.census.gov>.

**APPENDIX**

**TABLES**

**TABLE A-1  
LONG-TERM REGIONAL POPULATION GROWTH**

County	Number of People			
	1970	1980	1990	2000
Monroe	52,586	63,188	78,024	79,589
Miami-Dade	1,267,792	1,625,509	1,937,194	2,253,362
Broward	620,100	1,018,257	1,255,531	1,623,018
Collier	38,040	85,971	152,099	251,377
Totals	1,978,518	2,792,925	3,422,848	4,207,346

Source: U.S. Census Bureau; Census of Population, appropriate years

**TABLE A-2  
PERCENTAGE POPULATION CHANGE BY DECADE**

County	Percentage Change		
	1970-1980	1980-1990	1990-2000
Monroe	20.16	23.48	2.01
Miami-Dade	28.22	19.17	16.32
Broward	64.20	23.30	29.27
Collier	126.00	76.92	65.27
Totals	238.58	142.87	112.87

Source: U.S. Census Bureau; Census of Population, appropriate periods

**TABLE A-3  
PERMANENT & SEASONAL POPULATION RELATIONSHIPS**

Year	Permanent Number	Seasonal Number	Percentage Seasonal
1990	78,855	70,493	89.40
1991	79,920	70,406	88.10
1992	80,699	69,969	86.70
1993	81,691	72,884	89.22
1994	82,378	71,644	86.97
1995	82,990	71,266	85.87
1996	83,635	72,251	86.39
1997	84,179	72,521	86.15
1998	84,665	71,454	84.40
1999	85,114	72,058	84.66
2000	85,622	73,491	85.83
2005	88,305	73,737	83.50
2010	90,236	74,533	82.60
2015	91,654	74,712	81.52
Average	84,282	72,244	85.81
Std Dev			2.32

Source: MCPD; *Monroe County Population Estimates & Forecasts: 1990-2015*

**TABLE A-4  
MONROE COUNTY POPULATION BY AGE GROUP**

Age Group	1990		1996	
	Number	% Total	Number	% Total
Total	78,024	100.00	81,351	100.00
0-4	4,609	5.90	4,699	5.77
5-17	9,026	11.57	10,288	12.65
18-24	6,207	7.96	5,075	6.24
25-44	27,323	35.02	26,647	32.76
45-64	18,512	23.73	19,843	24.39
65+	12,347	15.82	14,799	18.19

Source: U.S. Census Bureau; 1990 Census of Population; County Estimating Program

**TABLE A-5  
ADJUSTED PERMANENT POPULATION BY SUBAREA**

Subarea	1990	1995	2000	2005	2010	2015
Lower Keys	18,446	19,187	19,280	20,042	20,757	21,014
Middle Keys	14,092	14,129	12,521	12,756	12,826	12,593
Upper Keys	21,380	21,271	23,525	24,171	24,825	24,909
Key West	24,938	24,613	24,263	24,732	24,992	25,283
<b>TOTALS</b>	<b>78,856</b>	<b>79,200</b>	<b>79,589</b>	<b>81,701</b>	<b>83,400</b>	<b>83,799</b>

Source: Adjusted from MCPD original projections on basis of calibration to 2000 Census count

**TABLE A-6  
MONROE COUNTY EMPLOYMENT TRENDS**

Industry	1990		1997		1990-1997 Change	
	Number	Percent	Number	Percent	Number	Percent
Construction	2,098	7.96	1,898	6.10	-200	-9.53
Manufacturing	580	2.20	586	1.88	6	1.03
Wholesale Trade	822	3.12	948	3.05	126	15.33
Retail Trade	9,786	37.15	12,140	39.01	2,354	24.05
F.I.R.E.	1,827	6.94	1,955	6.28	128	7.01
Services	9,656	36.66	11,829	38.01	2,173	22.50

Source: County Business Patterns

**TABLE A-7  
MONROE COUNTY PAYROLL TRENDS**

Industry	1990		1997		1990-1997 Change	
	Total (\$000s)	Avg Income Per Worker	Total (\$000s)	Average Income Per Worker	Average Income Per Worker	Percent Change: Worker Average
Construction	\$36,396.0	\$17,348	\$41,500.0	\$21,865	\$4,517	26.0
Manufacturing	\$8,885.0	\$15,319	\$13,386.0	\$22,843	\$7,524	49.1
Wholesale Trade	\$13,259.0	\$16,130	\$22,375.0	\$23,602	\$7,472	46.3
Retail Trade	\$109,893.0	\$11,230	\$164,694.0	\$13,566	\$2,337	20.8
F.I.R.E.	\$32,101.0	\$17,570	\$47,027.0	\$24,055	\$6,484	36.9
Services	\$154,897.0	\$16,042	\$245,967.0	\$20,794	\$4,752	29.6

Source: County Business Patterns

**TABLE A-8  
PRICE LEVEL INDEX: 1998**

<b>County</b>	<b>Aggregate</b>	<b>Rank</b>	<b>Food</b>	<b>Housing</b>	<b>Apparel</b>	<b>Transportation</b>	<b>Health Services</b>
Monroe	112.43	1	104.36	127.23	101.75	98.91	102.37
Dade	106.28	2	99.48	113.17	102.76	105.30	98.20
Broward	105.80	3	103.00	109.40	103.64	103.37	103.19
Collier	100.99	7	101.27	102.16	96.59	99.35	101.17

Source: State of Florida; Department of Education

**TABLE A-9  
PRICE LEVEL INDEX: 1989**

<b>County</b>	<b>Aggregate</b>	<b>Rank</b>	<b>Food</b>	<b>Housing</b>	<b>Apparel</b>	<b>Transportation</b>	<b>Health Services</b>
Monroe	115.03	1	107.60	131.89	100.29	105.69	101.52
Dade	107.38	2	102.17	110.17	114.03	104.43	106.91
Broward	106.59	3	106.00	112.66	64.61	102.38	103.13
Collier	100.69	8	100.87	101.38	107.36	97.09	99.62

Source: State of Florida; Department of Education

**TABLE A-10  
MONROE COUNTY HOUSINGSTARTS**

<b>Year</b>	<b>Total Units</b>	<b>Years</b>	<b>5-Year Average</b>
1971	789		
1972	1,057		
1973	1,726		
1974	1,539		
1975	652	1971-1975	1,153
1976	599		
1977	74		
1978	657		
1979	965		
1980	977	1976-1980	654
1981	1,330		
1982	652		
1983	1,215		
1984	803		
1985	1,295	1981-1985	1,059
1986	1,705		
1987	741		
1988	879		
1989	906		
1990	771	1986-1990	1,000
1991	601		
1992	537		
1993	370		
1994	384		
1995	496	1991-1995	478
1996	369		
1997	500		
1998	468		

Source: U.S. Bureau of the Census from Florida Long-Term Forecasts

**TABLE A-11  
ANNUAL TOURIST EXPENDITURES  
MONROE COUNTY: 1998**

<b>Expenditure Item</b>	<b>Annual Expenditures (\$millions)</b>
Transportation	\$230.8
Food	\$164.0
Room	\$176.1
Shopping	\$108.6
Entertainment	\$117.2
Miscellaneous	\$39.8
<b>Totals</b>	<b>\$836.5</b>

Source: Florida Visitor Study: 1998

**TABLE A-12  
RECREATIONAL ACTIVITIES OF KEYS RESIDENTS**

<b>Activity</b>	<b>Participants</b>	<b>Rate<sup>(1)</sup></b>
Snorkeling & Scuba Diving	32,866	41.40
All Fishing	37,835	47.66
Nature Study	28,577	36.00
Personal Watercraft	3,520	4.43
All Sailing	6,555	8.26
Other Boating	18,581	23.41
Beach Activities	30,369	38.26
Camping	5,231	6.59
Visiting Museums & Historic Areas	22,753	28.66
Sightseeing & Attractions	17,305	21.80
Cultural Events	25,519	32.15
Outdoor Sports & Games	13,486	16.99

Notes: <sup>(1)</sup> Percent of all residents of all ages who participated in activity.

Source: NOAA; Socioeconomic Analysis of the Recreation Activities of Monroe County Residents

**TABLE A-13  
RECREATIONAL ACTIVITIES OF KEYS VISITORS**

<b>Activity</b>	<b>Visitors</b>	<b>Rate(1)</b>
Snorkeling	720,030	28.34%
Scuba Diving	204,644	8.6%
Fishing	534,388	21.03
Nature Study	726,766	28.61%
Beach Activities	825,203	34.48%
Sightseeing & Attractions	1,403,617	55.25%
Visiting Museums & Historic Areas	837,181	32.95%
Cultural Events	188,029	7.4%
Camping	198,845	7.83%
Personal Watercraft	193,859	7.63%

Notes: <sup>(1)</sup> Percent of all visitors who participated in activity.

Source: NOAA; Socioeconomic Analysis of the Recreation Activities of Monroe County Residents