SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL

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VOLUME ONE OF THE STRATEGIC REGIONAL POLICY PLAN

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DEMOGRAPHICS

> INTRODUCTION

The six-county region known today as Southwest Florida has experienced significant changes over the past 100 years. This section describes the incredible population growth of the Region and the characteristics of that population.

Originally, the Southwest Florida Region fell within the boundaries of several larger counties. From 1840 to 1900, the Southwest Florida Region included only two counties. Those counties, Hillsborough and Monroe, governed the west coast of Florida from present-day Citrus County, south to the Keys. Early in the 1900s, the Region included parts of Manatee, DeSoto, Lee, and Monroe Counties. It was not until 1924 that the current boundaries of the six counties of Southwest Florida (Charlotte, Collier, Glades, Hendry, Lee, and Sarasota) were established. Today, the Region contains approximately 6,023 square miles of land area (Figure 1). This is 11.2% of the total land area of the State (53,937square miles).



FIGURE 1 LAND AREA OF SOUTHWEST FLORIDA

Source: <u>Florida Statistical Abstract, 2000</u>, Table 1.77, "County Rankings and Density: population Estimates, Rank, Percentage Distribution, Land Area, and Density in the State and Counties of Florida, April 1, 1999," BEBR.

Southwest Florida is both a geographical and political area. The political region was established by Charlotte, Collier, Glades, Hendry, and Lee Counties in 1973. It assumed it present form after the addition of Sarasota County in 1975. Designated by the Florida Department of Community Affairs as Region 9, Southwest Florida is bounded by Manatee, DeSoto, Highlands, and Okeechobee Counties to the north; Okeechobee, Palm Beach, Broward, and Dade Counties to the east; and Monroe County to the south. Map 1 shows the six counties in the Region and the sixteen incorporated municipalities.

MAP 1 - LOCATION OF COUNTIES AND URBAN AREAS



Southwest Florida Region

> POPULATION GROWTH

In 1930, the entire Region had only 40,580 people located primarily in the coastal counties. The U.S. Census that year was the first to count the population of the Region, with its current boundaries. In 1998, the estimated permanent population passed the 1,000,000 mark. The peak population during the winter months is not formally counted but is estimated to add about 22% to this total. Figure 2 and Table 1 show the rapid growth throughout the Region, especially in the coastal counties.



FIGURE 2 POPULATION GROWTH BY COUNTY, 1960 TO 2000

Source: Derived from Table 1.

TABLE 1 PERMANENT POPULATION AND GROWTH BY COUNTY									
	1960 1970 1980 1990						2000		
County	Total	Total	Increase	Total	Increase	Total	Increase	Total	Increase
Charlotte	12,594	27,559	14,965	58,460	30,901	110,975	52,515	141,627	30,652
Collier	15,753	38,040	22,287	85,971	47,931	152,099	66,128	251,377	99,278
Glades	2,950	3,669	719	5,992	2,323	7,591	1,599	10,576	2,985
Hendry	8,119	11,859	3,740	18,599	6,740	25,773	7,174	36,210	10,437
Lee	54,539	105,216	50,677	205,266	100,050	335,113	129,847	440,888	105,775
Sarasota	76,895	120,413	43,518	202,251	81,838	277,776	75,525	325,957	48,181
Region	170,850	306,756	135,906	576,539	269,783	909,327	332,788	1,206,635	297,308
State	4,951,560	6,791,418	1,839,858	9,747,197	2,955,779	12,937,926	3,190,729	15,982,378	3,044,452
Nation	179 323 175	203 302 031	23 978 856	226 545 805	23 243 774	248 709 873	22 164 068	281 421 906	32 712 033

Sources: <u>Florida Statistical Abstract</u>, 1981, 1998, Table 1.66; 1990 data from Table DP-1, "General Population and Housing Characteristics: 1990," U. S. Census. 2000 data from Table DP-1, "Profile of General Demographic Characteristics: 2000," U. S. Census.

Demographics

The Region's portion of both the Florida and U.S. populations has grown steadily (see Table 2). In 1950, less than 0.05% of the U.S. population lived in Southwest Florida. By 2000, that figure had increased to 0.4%. Thus, from 1950 to 2000, the Region's share of the total U.S. population increased over nine times.

TABLE 2 REGION'S SHARE OF STATE				
AND NA	TIONAL POPU	LATIONS		
Year	Florida	United States		
1950	2.571%	0.047%		
1960	3.450%	0.095%		
1970	4.517%	0.150%		
1980	5.915%	0.253%		
1990	7.028%	0.366%		
1999	7.410%	0.416%		
2000	7.550%	0.429%		

Sources: Derived from data and sources in Table 1.

The situation is similar for the Region's share of the state's population. In 1950, slightly more than 2.5% of all Floridians lived in Southwest Florida. By 2000, this figure had grown to more than 7.5%. This occurred even while Florida's population growth was surpassing that of the nation as a whole.

Growth Rates

Southwest Florida has experienced very strong growth for over 40 years. Growth *rates*, expressed as a percentage, are shown in Table 3. From 1950 to 1960, the population of the Region grew 140%. In the following decades, the population increased 80%, 88%, and then 58%. Since 1990, the growth rate has slowed even further. The Region's *average annual growth rate* from 1990 to 2000 was 3.3%, down from 5.8% in the 1980s.

TABLE 3							
County 1950-60 1960-70 1970-80 1980-90 1990-00							
Charlotte	194%	119%	112%	90%	28%		
Collier	143%	141%	126%	77%	65%		
Glades	34%	24%	63%	27%	39%		
Hendry	34%	46%	57%	39%	40%		
Lee	150%	93%	95%	63%	32%		
Sarasota	153%	57%	68%	37%	17%		
Region	140%	80%	88%	58%	33%		
State	79%	37%	44%	33%	24%		

Source: Derived from Table 1.

Growth rates must be analyzed in terms of the total population. When the population is considerably smaller, a small increase in actual population results in a high growth rate. For example, from 1950 to 1960, the Region's population grew by about 135,000 people, a 140% increase. But for the period 1980 to 1990, growth of about 333,000 persons yielded only a 58% increase,

reflecting the effect of a larger base population. For 1990-2000, growth of about 297,000 person resulted in an increase of less than 24%.

Population Forecasts

Southwest Florida's population will continue to grow into the next century, as depicted in Table 4 and Figure 3. Table 4 shows the latest official projections of growth through the year 2030. The *rate* of growth, however, is projected to decline over the next three decades. But even with the declining growth rates, the Region is expected to grow at a faster rate than the state through the year 2030.

	TABLE 4 POPULATION FORECASTS*														
	1990	200	0	201	0	202	0	203	0						
	(actual)	(actu	(actual)		(forecast)		east)	(forecast)							
County	Total	Total	Increase	Total	Increase	Total	Increase	Total	Increase						
Charlotte	110,975	141,627	27.6%	171,576	21.1%	202,390	18.0%	232,200	14.7%						
Collier	152,099	251,377	65.3%	343,514	36.7%	441,637	28.6%	445,200	0.8%						
Glades	7,591	10,576	39.3%	12,821	21.2%	14,961	16.7%	15,000	0.3%						
Hendry	25,773	36,210	40.5%	45,772	26.4%	55,521	21.3%	63,400	14.2%						
Lee	335,113	440,888	31.6%	539,332	22.3%	642,222	19.1%	693,300	8.0%						
Sarasota	277,776	325,957	17.3%	371,322	13.9%	418,156	12.6%	462,700	10.7%						
Region	909,327	1,206,635	32.7%	1,484,337	23.0%	1,774,887	19.6%	1,911,800	7.7%						
State	12,937,926	15,982,378	23.5%	18,776,412	17.5%	21,683,344	15.5%	23,198,000	7.0%						

*With percent change from previous decade.

Sources: 1990 data from Table DP-1, "General Population and Housing Characteristics: 1990," U. S. Census. 2000 data from Table DP-1, "Profile of General Demographic Characteristics: 2000," U. S. Census. Projections from <u>Florida Statistical Abstract 2000</u>, Table 1.84, "Projections: Population Estimates, April 1, 1999, and Projections, Specified Years April 1, 2005 through 2030, in the State and Counties of Florida."





Source: Derived from Table 4.

Urban/Rural Split

Table 5 illustrates the increasing urbanization of Southwest Florida. The Census Bureau defines "urban" as urbanized areas and places of more than 2,500 persons outside of urbanized areas. (An "urbanized area" consists of a central place and adjacent densely settled areas that together have a minimum population of 50,000.) "Rural" areas constitute all areas not classified as urban.

	TABLE 5														
	CHANGE IN POPULATION, RURAL TO URBAN, 1970-1990														
	R	ural Tota	al	Rural Percent			U	Jrban Tot	al	Urban Percent					
County	County 1970 1980 199				1980	1990	1970	1980	1990	1970	1980	1990			
Charlotte	11,068	22,408	22,024	40.2%	38.3%	19.8%	16,491	36,052	88,951	59.8%	61.7%	80.2%			
Collier	12,881	12,252	33,998	33.9%	14.3%	22.4%	25,159	73,719	118,101	66.1%	85.7%	77.6%			
Glades	3,669	5,992	7,591	100.0%	100.0%	100.0%	0	0	0	0.0%	0.0%	0.0%			
Hendry	7,963	10,711	14,240	67.1%	57.6%	55.3%	3,896	7,888	11,533	32.9%	42.4%	44.7%			
Lee	27,388	32,137	46,541	26.0%	15.7%	13.9%	77,828	173,129	288,572	74.0%	84.3%	86.1%			
Sarasota	19,913	12,819	18,771	16.5%	6.3%	6.8%	100,500	189,432	259,005	83.5%	93.7%	93.2%			
Pagion	82 882	06 310	1/12 165	27 0%	16 7%	15 70/	223 874	480 220	766 162	73 0%	83 30/2	8/ 30/			

Sources: U.S. Census of Population, 1980, Number of Inhabitants, Table 3; U.S. Census of Population, 1990, Summary Tape File 3, Florida, Table 1.

By 1970, almost three-fourths of the Region's population lived in urban areas. The percentage of urban residents climbed to 83.3% by 1980, but increased only 1% over the following decade to 84.3% in 1990. Of the six counties, Sarasota County had the highest concentration of urban population in 1990, while Glades County remained completely rural.

Southwest Florida remains a mosaic of populated and unpopulated areas. Map 2 shows the population density of the entire Region, with the darker shades indicating the areas of denser population.

MAP 2 — POPULATION DENSITY



> AGE/SEX/RACE

Cohorts

Due to the Region's attractiveness as a retirement destination, older people make up a larger proportion of the population of Southwest Florida than they do in the state as a whole (see Table 6). 27.4% of the Region's population is age 65 or older. This is significantly higher than the state's 17.6%.

P	TABLE 6 POPULATION DISTRIBUTION BY AGE GROUP (2000 CENSUS)												
County 0 to 14 15 to 24 25 to 44 45 to 64 65+													
Charlotte	12.8%	7.3%	18.8%	26.4%	34.7%								
Collier	16.5%	10.0%	24.6%	24.5%	24.5%								
Glades	18.2%	11.5%	27.0%	24.5%	18.8%								
Hendry	24.7%	18.6%	28.3%	18.3%	10.1%								
Lee	16.4%	9.4%	24.0%	24.8%	25.4%								
Sarasota	13.4%	7.8%	21.7%	25.6%	31.5%								
Region	15.5%	9.1%	23.0%	24.9%	27.4%								
State	19.0%	12.2%	28.6%	22.7%	17.6%								

Source: Table DP-1, Profile of General demographic Characteristics: 2000, U.S. Census.

Age distributions vary among the counties in the Region. The over-65 group is the largest segment in Charlotte and Sarasota Counties, while Glades and Hendry Counties have proportionately younger populations.

Median Age

In 1970 the median age in the Region was 39.2 years, compared to 32.3 for the state and 28.1 for the nation (Table 7). ("Median age" means that exactly one-half of the population is younger and the other half is older than that number.)

	TABLE 7 MEDIAN AGE													
						Change			Change					
County	1970	1980	1990	2000	1970-80	1980-90	1970-00	1980-90	1980-00	1990-00				
Charlotte	58.3	57.3	53.6	54.3	-1.0	-4.7	-4.0	-3.7	-3.0	0.7				
Collier	35.2	38.0	40.7	44.1	2.8	5.5	8.9	2.7	6.1	3.4				
Glades	27.1	35.5	40.0	40.2	8.4	12.9	13.1	4.5	4.7	0.2				
Hendry	25.5	27.5	30.3	29.5	2.0	4.8	4.0	2.8	2.0	-0.8				
Lee	39.3	41.3	42.0	45.2	2.0	2.7	5.9	0.7	3.9	3.2				
Sarasota	49.6	50.4	49.0	50.5	0.8	-0.6	0.9	-1.4	0.1	1.5				
Region	39.2	41.7	42.0	44.0	2.5	2.8	4.8	0.3	2.3	2.0				
State	32.3	34.7	36.4	38.7	2.4	4.1	6.4	1.7	4.0	2.3				
Nation	28.1	30.0	32.8	35.3	1.9	4.7	7.2	2.8	5.3	2.5				

Source: U.S. Census, 1990, Summary Population and Housing Characteristics, Florida, Table 1; <u>Statistical Abstract</u> of the United States, 1993, Table No. 13. 2000 data from Table DP-1, "Profile of General Demographic Characteristics: 2000." U.S. Census.

During the 1970s, the Region's median age increased rapidly, reaching 41.7 years by 1980. It increased only slightly to 42.0 years by 1990, although the state and nation increased by a much larger amount during that same decade. Yet the Region's median age remains higher than the state and nation by 15% and 28%, respectively. Charlotte County remains the oldest county in the region, although its median age declined more than that of any other Southwest Florida county from 1970 to 2000. Hendry County continues to be the only county in the Region with a population younger than the nation as a whole.

Race And Hispanic Origin

The racial composition of the Region has changed little over the last decade. Totals for 1990 and 2000 are found in Tables 8 and 9.

			TA	BLE 8									
RACE AND HISPANIC ORIGIN, 1990													
County	TOTAL	WHITE	BLACK	ASIAN	AM. IND.	OTHER	HISPANIC						
Charlotte	110,975	95.0%	3.8%	0.7%	0.2%	0.3%	2.5%						
Collier	152,099	91.4%	4.6%	0.4%	0.3%	3.3%	13.6%						
Glades	7,591	78.9%	12.1%	0.2%	5.7%	3.1%	8.0%						
Hendry	25,773	72.1%	16.7%	0.4%	2.1%	8.6%	22.3%						
Lee	335,113	91.4%	6.6%	0.6%	0.2%	1.2%	4.5%						
Sarasota	277,776	94.6%	4.3%	0.5%	0.2%	0.3%	2.1%						
Region	909,327	92.2%	5.6%	0.5%	0.3%	1.4%	5.6%						
State	12,937,926	83.1%	13.6%	1.2%	0.3%	1.8%	12.2%						
C	0 0			1	CD 1 11								

Source: U.S. Census, Census of Population: Florida, 1990 CP-1-11.

	TABLE 9 RACE AND HISPANIC ORIGIN, 2000														
County	TOTAL	Total One Page	White	Plack	Amer. Indian or Alaska Nativo	Asian, Hawaiian, and Other Pacific	Other	Total Two or More Pages ¹	Hispanic or Latino ²						
Charlotte	141 627	98.9%	92.6%	4.4%	0.2%	0.9%	0.8%	1.1%	3.3%						
Collier	251.377	97.8%	86.1%	4.5%	0.3%	0.7%	6.2%	2.2%	19.6%						
Glades	10,576	98.4%	77.0%	10.5%	4.9%	0.3%	5.6%	1.6%	15.1%						
Hendry	36,210	96.8%	66.1%	14.7%	0.8%	0.5%	14.7%	3.2%	39.6%						
Lee	440,888	98.4%	87.7%	6.6%	0.3%	0.8%	3.1%	1.6%	9.5%						
Sarasota	325,957	99.0%	92.6%	4.2%	0.3%	0.8%	1.1%	1.0%	4.3%						
Region	1,206,635	98.4%	88.5%	5.5%	0.3%	0.8%	3.3%	1.6%	10.4%						
State	15.982.378	97.6%	78.0%	14.6%	0.9%	1.7%	3.0%	2.4%	16.8%						

 For the 2000 Census, an individual could report more than one race. That information is available only for the 2000 Census. Thus, in pre-2000 Census data, a person of more than one race was reported as being of only <u>one</u> race. As a result, racial data from earlier Censuses are not strictly comparable with similar data from the 2000 Census.

2. An individual who describes himself as Hispanic or Latino may be of any race.

Source: Table DP-1, "Profile of General Demographic Characteristics: 2000," U.S. Census.

Within the Region there is a large concentration of white residents in the coastal counties and a higher minority population in the inland counties, reflecting the dominance of the mostly-white retiree population in coastal areas. Charlotte and Sarasota Counties had the highest percentage of white residents in 1990 and 2000. In both 1990 and 2000, Hendry County had the highest percentage of blacks and Glades County had the highest percentage of American Indians. For the same years, the Region had a lower percentage of black residents than the state as a whole, again reflecting the large retiree population. While the black population in the state grew slightly from 1990 to 2000, that of the region declined somewhat.

The Census Bureau does not classify Hispanic origin as a racial distinction. Rather, the census questionnaire asks all Hispanic residents to classify themselves among the five racial categories. Therefore, the Hispanic totals in census tabulations are independent of race. Collier County had the highest total Hispanic population in 1990 and 2000, but Hendry County had the highest *percentage* of Hispanic residents. The Region's percentage of Hispanic residents has increased rapidly in the last decade (from 5.6% in 1990 to 10.4% in 2000). In 1990, the percentage of Hispanic population in the region (5.6%) was less than half that of the state (12.2%). By 2000, however, the regional figure (10.4%) was more than half that of the state (16.8%).

Table 10 illustrates the rapid growth that has occurred in the Hispanic population. From 1980 to 2000, the Hispanic population of the region increased 487%, twice that of the state (212.6%) and significantly more than that of the nation (141.7%). All six Southwest Florida counties have seen growth in the Hispanic population, in both the 1980s and the 1990s.

			HIS	TAB PANIC OR	BLE 10 AIGIN, 1980	0-2000			
	19	80	19	90	20	00		Changes	
County	Total Population	Hispanic or Latino*	Total Population	Hispanic or Latino*	Total Population	Hispanic or Latino*	1980-90	1980-00	1990-00
Charlotte	58,460	708	110,975	2,764	141,627	4,667	290.4%	559.2%	68.8%
Collier	85,971	9,214	152,099	20,734	251,377	49,296	125.0%	435.0%	137.8%
Glades	5,992	325	7,591	605	10,576	1,594	86.2%	390.5%	163.5%
Hendry	18,599	2,401	25,773	5,757	36,210	14,336	139.8%	497.1%	149.0%
Lee	205,266	5,897	335,113	15,094	440,888	42,042	156.0%	612.9%	178.5%
Sarasota	202,251	2,935	277,776	5,882	325,957	14,142	100.4%	381.8%	140.4%
Region	576,539	21,480	909,327	50,836	1,206,635	126,077	136.7%	487.0%	148.0%
State	9,746,324	858,105	12,937,926	1,574,143	15,982,378	2,682,715	83.4%	212.6%	70.4%

*An individual who describes himself as Hispanic or Latino may be of any race

Sources: 1980 data from Table 59, "Persons by Spanish Origin, Race, and Sex: 1980," and Table 62, "General Characteristics: 1980," General Social and Economic Characteristics: Florida, 1980 Census of Population, U. S. Census. 1990 data from Table DP-1, "General Population and Housing Characteristics: 1990," U. S. Census. 2000 data from Table DP-1, "Profile of General Demographic Characteristics: 2000," U. S. Census.

> CHANGES IN THE POPULATION

Birth & Death Rates

All population change is a result of three components: birth, death, or movement (migration). The Region's older population produces the expected lower birth rates and higher death rates per person compared to the state and nation (see Table 11).

	TABLE 11BIRTH RATES AND DEATH RATES, 1999													
	В	irth Rate per	: 1,000 pop.		Ι	Death Rate p	per 1,000 po	p.						
County Total White Black Other Total White Black														
Charlotte	6.9	6.6	14.6	7.9	15.1	15.2	12.6	7.2						
Collier	13.0	12.0	30.9	39.5	10.2	10.4	6.8	1.2						
Glades	7.6	7.2	5.7	15.7	9.9	10.5	7.2	7.1						
Hendry	20.0	19.7	22.7	14.1	7.9	8.4	6.1	2.6						
Lee	11.3	10.3	25.6	14.4	12.0	12.3	7.9	2.7						
Sarasota	8.2	7.7	17.3	19.8	14.7	15.0	10.2	2.5						
Region	10.4	9.6	22.9	18.6	12.6	13.0	8.5	3.3						
State	12.8	11.3	21.0	193	10.5	11 1	79	2.2						

Sources: <u>Florida Vital Statistics Annual Report 1999</u>, Table B-1, "Resident and Recorded Live Births and Birth Rates per 1,000 Population, by Race of Mother, by County, Florida, 1999" and Table D-1, "Resident and Recorded Deaths and Rates per 1,000 Population, by Race, by County, Florida, 1999."

Birth rates and death rates vary widely across the Region. For example, the Hendry County birth rate for 1999 is over twice that of Charlotte, Glades, and Sarasota Counties. Birth rates are highest for blacks and other races in the Region, as in the entire state. Death rates are highest among the white population in the Region as in the state.

Birth and death rates closely reflect the age of a population. Hendry County, for example, has the lowest median age and the highest birth rate in the Region. Charlotte County has the highest median age and the highest death rate (see Tables 7 and 11 above).

Mortality

Table 12 presents the total number of deaths in the Region and the non-disease and disease-related death rates per 100,000 in population for 1990 and 1999. The majority of deaths in the Region are caused by diseases typically associated with old age. Glades and Hendry Counties had higher non-disease-related death rates than the coastal counties in 1990 and 1999. In both 1990 and 1999, Charlotte, Lee, and Sarasota Counties posted the highest disease-related death rates. The Region exceeded the state's figures for both death rates in 1990 and 1999.

	TABLE 12													
		NON-I	DISEASE	AND DISE	ASE-REI	LATED DEA	THS							
	AND DEATH RATES PER 100,000 POPULATION, 1990, 1997, AND 1999													
Total Deaths Non-Disease Related Death Rates ² Disease-Related Death														
County	1990	1997	1999	1990	1997	1999	1990	1997	1999					
Charlotte	1,565	2,019	2,073	66.2	50.3	56.6	1394.0	1487.4	1448.8					
Collier	1,480	2,036	2,264	76.7	66.0	65.0	877.6	951.9	957.2					
Glades	84	100	98	227.8	145.1	121.1	779.4	891.4	867.7					
Hendry	216	234	242	110.9	125.4	78.2	687.8	646.7	710.0					
Lee	3,731	4,611	5,017	70.0	65.4	74.6	1022.8	1104.1	1121.2					
Sarasota	4,025	4,588	4,744	70.0	51.1	66.1	1421.4	1423.9	1405.7					
Region	11,101	13,588	14,438	73.4	62.0	68.7	1147.9	1200.2	1196.0					
State	133,294	153,830	162,122	67.3	60.1	60.4	940.2	985.5	992.7					

1. Includes heart, cancer, stroke, chronic lower respiratory disease, diabetes, influenza and pneumonia, Alzheimer's, chronic liver disease and cirrhosis, nephritis, HIV, septicemia, hypertension, perinatal, congenital, and all other natural causes.

2. Includes accident, suicide, homicide, and all other external causes.

Source for county and state data: <u>Florida Vital Statistics Annual Report 1999</u>, Table D-11, "Resident Deaths for Selected Causes, by Age Group, by County, Florida, 1999."

Most of the 13,654 disease-related deaths in 1999 in Southwest Florida were caused by nine groups of diseases (heart disease, cancer, stroke, lung disease, diabetes, influenza and pneumonia, Alzheimer's disease, liver disease, and human immunodeficiency virus). In 1999, 11,267 people died in Southwest Florida due to those diseases with 81.9% dying from heart disease, cancer, and stroke (see Figure 4).

Non-disease- related deaths comprise a lesser, but still significant, portion of all deaths. They represented 667 deaths in 1990 in Southwest Florida, increasing to 784 deaths in 1999. Not surprisingly, motor vehicle and other accidents are generally the greatest causes of these types of death (Figure 5).



FIGURE 4 DISEASE RELATED DEATHS, 1999

FIGURE 5 NON-DISEASE-RELATED DEATHS, 1999



Sources: Table D-11, "Resident Deaths for Selected Causes, by Age Group, by County, Florida, 1999," <u>Florida</u> <u>Vital Statistics 1999</u>, Florida Department of Health, Office of Vital Statistics. Motor vehicle death data from "Resident Deaths from Motor Vehicle Crashes." Unintentional injury data from "Resident Deaths from Unintentional Injuries." Motor vehicle and unintentional injury data from Florida Department of Health, Office of Vital Statistics, website, Public Health Indicator Reports, accessed June 19, 2001.

Migration

The Region's population growth has been caused largely by "net migration," which is the surplus of in-migration over out-migration. For the state as a whole, migration caused 82.4% of the population gain since 1990. For the Region, migration caused *all* of the gain. Recent effects of births, deaths, and migration are summarized in Table 13.

TABLE 13MIGRATION AND POPULATION CHANGE, 1990 TO 1999													
	Population												
County	Number	% Change	Number	% Change	Increase								
Charlotte	-7,358	0.0%	33,156	100.0%	25,798								
Collier	6,591	9.8%	60,995	90.2%	67,586								
Glades	-29	0.0%	2,305	100.0%	2,276								
Hendry	3,313	69.3%	1,466	30.7%	4,779								
Lee	1,292	1.6%	80,709	98.4%	82,001								
Sarasota	-15,988	0.0%	59,256	100.0%	43,268								
Region	-12,179	0.0%	237,887	100.0%	225,708								
State	418,994	17.6%	1,964,975	82.4%	2,383,969								

Source: Table 2, "Components of Population Change in Florida, by County, April 1, 1990 to April 1,1999;" in <u>Florida Estimates of Population 1999</u>, BEBR, February 2000.

Within Southwest Florida, the six counties vary widely. Hendry County, with the youngest population, owed a larger percentage of its growth to natural increase than any other county. Charlotte and Sarasota Counties, having older populations and thus higher death rates, both required some in-migration just to maintain their 1990 population levels.

A large number of those moving into the Region from other states are from the Northeast and Midwest. In 1990, 18.9% of the Region's residents lived in one of these two areas only five years earlier. In 1980 this figure was 23.0%. The full data, showing wide variations by county, are contained in Table 14.

	TABLE 14														
	PREVIOUS RESIDENCE, 1980 & 1990 ¹														
	Popul	ation ²	Nort	h-east Mid-west		-west	South		W	est	Abı	road	Florida ³		
County	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	
Charlotte	56,192	106,202	14.0%	15.3%	14.0%	10.8%	5.4%	4.7%	1.1%	1.6%	1.3%	0.6%	8.3%	10.0%	
Collier	81,189	143,129	9.5%	9.4%	12.9%	9.6%	4.7%	6.4%	0.8%	1.6%	1.8%	2.6%	7.2%	7.3%	
Glades	5,587	7,133	5.8%	2.2%	8.8%	3.6%	2.0%	4.8%	0.4%	0.5%	0.0%	1.4%	26.0%	19.8%	
Hendry	17,119	23,581	2.8%	1.3%	3.5%	3.1%	4.6%	5.1%	0.2%	0.8%	1.7%	4.6%	17.5%	15.0%	
Lee	194,379	315,388	11.0%	9.4%	13.0%	10.0%	5.6%	5.4%	1.1%	1.4%	1.1%	0.9%	6.4%	6.1%	
Sarasota	194,346	265,067	11.3%	8.9%	11.0%	8.0%	4.1%	4.3%	1.1%	1.5%	1.3%	0.8%	6.5%	6.0%	
Region	548,812	860,500	10.9%	9.7%	12.1%	9.2%	4.8%	5.1%	1.0%	1.5%	1.3%	1.2%	7.3%	7.1%	

¹ Expressed as a percentage of the population of the current county of residence.

² 5 years and older.

³ Different County, Same state.

Source: U.S. Census, 1980 General Social Economic Characteristics, Florida, 1980 & 1990 Table 174 & 143. Other parts of Florida also contribute to the Region's population growth. For Southwest Florida, the in-migrants from other regions within Florida represented gains of 7.3% in 1980 and 7.1% in

1990. In 1980 and 1990, Glades and Hendry Counties were more likely than other coastal counties to have new residents who had lived in other Florida counties five years earlier.

> TRANSIENT/SEASONAL POPULATION

As a tourist and retirement mecca, Southwest Florida experiences significant seasonal variations in population. These fluctuations in population can be attributed to three broad groups: part-time residents (usually in the winter), tourists, and seasonal workers (mostly resort employees and farmworkers). It is very difficult to determine the number of people within each group because of mobility and varying lengths of stay.

Winter Residents

Winter residents, sometimes called "snowbirds," are persons who live in other parts of the country except during the winter. The busiest period for winter residents is from mid-November to mid-April. They may own a second home or condominium here or have a long-term rental arrangement.

During the season, winter residents may increase the Region's population by as much as 22%. Most of this increase occurs in the coastal counties. This estimate is based on a combination of taxable sales, the number of homes held for seasonal use, and a ratio of seasonal households to total households.

Tourists

Tourists can include business travelers and short-term vacationers. Business travelers visit throughout the year, often staying only a few days. Vacationers spend anywhere from a few days to several weeks in the Region. Peak vacation season is now occurring later than in previous years, peaking in mid-winter to early spring.

Visit Florida, the public/private state organization for tourism, publishes annual profiles of vacationing tourists. Data from their 1998 profile appear in Table 15 (Southwest Florida was defined by Visit Florida in 1998 to include Charlotte, Collier, Glades, Hendry and Lee Counties.) Sarasota County data were included in the Central West region. The region's boundaries were redrawn in 2000 and the new Southwest Region defined by Visit Florida will include Charlotte, Collier, Desoto, Glades, Hendry, Manatee, Lee and Sarasota Counties.) As the data indicate, Southwest Florida receives only 5.9% of the visitors to Florida, compared with 29.5% in the Central region where Disney World is located. The average age and average income of the visitors to the Southwest Florida region is slightly higher than elsewhere in the state. This is probably due to the high number of retirees who visit the region. Although the length of stay of visitors to the region is longer than elsewhere in the state, the average expenditures per person per day of a visitor to Southwest Florida falls in the middle. Finally, the table shows that only 8% of the visitors to the region come for business purposes. This is the smallest percentage of business travelers to any region in the state.

TABLE 15 VISITORS TO FLORIDA, 1998														
Central South Central North Central North South Nort Region East West West East East West Centra														
Share	29.5%	18.6%	17.3%	11.9%	8.0%	6.6%	5.9%	2.2%						
Average Age	42.7	45.5	45.3	40.7	46.5	44.7	48.1	47.2						
Average Income	\$63,200	\$69,500	\$58,800	\$56,300	\$60,000	\$54,500	\$70,700	\$54,700						
Average Persons on Trip	2.8	2.3	2.4	3.1	2.6	2.4	2.4	2.2						
Lengh of Stay (Nights)	6.4	6.0	6.3	5.5	6.6	4.6	8.4	4.0						
Average miles traveled	794	964	776	367	719	516	897	593						
Business/Leisure Mix	22%/78%	25%/75%	19%/81%	17%/83%	13%/87%	24%/76%	8%/92%	16%/84%						
Expenditures per Person/Day	\$139.80	\$137.00	\$97.30	\$92.40	\$102.60	\$102.60	\$100.90	\$88.00						

Source: "Florida Visitor Study," 1998. Visit Florida.

Migrant Farmworkers

Migrant farmworkers are the third group contributing to seasonal population variations in Southwest Florida. Estimates of the migrant farmworker population are provided by two sources. The first is a U.S. Health and Human Services report entitled An Atlas of State Profiles Which Estimate Number of Migrant and Seasonal Farmworkers and Members of Their Families (see Table 16). As defined by this report, migrant farmworkers are individuals who work in agriculture and who temporarily reside in areas other than their normal homes. Their length of stay in an area is determined mostly by the agricultural season.

TABLE 16 ESTIMATES OF MIGRANT AND SEASONAL FARMWORKERS*							
	Atlas	1990	IFAS	1998			
	Migrant	Seasonal	Migrant	Seasonal			
County	Polulation	Population	Polulation	Population			
Charlotte	75	1,281	0	0			
Collier	14202	7,808	19,713	21,903			
Glades	503	2,396	1,233	1,370			
Hendry	3,958	7,108	6,776	7,529			
Lee	6,139	10,322	3,080	3,422			
Sarasota	1,220	10,403	N/A	N/A			
Region	26,097	39,318	30,802	34,224			

*Estimates include farmworkers and their families.

Sources: "An Atlas of State Profiles which Estimate Number of Migrant and Seasonal Farmworkers and Members of their Families," U.S. Department of Health and Human Services, March, 1990; Farmworkers in Southwest Florida 1998," Institute of Food & Agricultural Sciences (IFAS), Fritz, Roka.

The Atlas estimated that 26,097 migrant farmworkers and their family members lived in the region in 1990. The Atlas estimated that another 39,318 people were seasonal farmworkers or family members of seasonal farmworkers in the region. Seasonal workers are those that reside in the area year-round, but only work in agriculture during season.

In 1998, the Institute of Food and Agricultural Sciences (IFAS) at the University of Florida completed a five-county study entitled Farmworkers in Southwest Florida. This study produced estimates of the migrant and seasonal farmworker population in Southwest Florida during the growing season. Using slightly different definitions, the IFAS study counted anyone who worked seasonally in agriculture as a seasonal worker, whether he/she was a migrant or not. As shown in Table 16, the IFAS study estimated that 34,224 seasonal farmworkers and their family members worked in the five-county area in 1998. Of the 34,224, the IFAS study estimated that 30,802 were migrant farmworkers or family members of migrants.

> HOUSEHOLD NUMBER AND SIZE

The number of households in Southwest Florida increased 34.4% from 1990 to 2000 (Table 17). (The term "household" refers to one or more persons living together who may or may not be related.) This represents an average annual increase of about 3.4%. This is well below the 6.2% annual growth in households from 1980 to 1990.

TABLE 17 HOUSEHOLDS							
	H	Iouseholds		% C	hange		
County	1980	1990	2000	1980-90	1990-00		
Charlotte	25,922	48,433	63,864	86.8%	31.9%		
Collier	33,966	61,703	102,973	81.7%	66.9%		
Glades	2,224	2,885	3,852	29.7%	33.5%		
Hendry	5,959	8,402	10,850	41.0%	29.1%		
Lee	82,509	140,124	188,599	69.8%	34.6%		
Sarasota	88,739	125,493	149,937	41.4%	19.5%		
Region	239,319	387,040	520,075	61.7%	34.4%		
State	3,744,254	5.134.869	6 337 929	37.1%	23.4%		

Note: The population in households is the total population less the population in group quarters. The population in households is needed in order to calculate the average household size for the Region. Sources: 1980 data for households and size from "Number of households and average household size

for Florida and its Counties 1999, 1990 and 1980," in Florida Population Studies, Volume 33, Number 1, Bulletin 125, January 2000, BEBR. 1990 data from Table DP-1, "General Population and Housing Characteristics: 1990," 1990 Summary Tape File 1 (STF 1), U. S. Census. 2000 data from Table DP-1, "Profile of General Demographic Characteristics: 2000," U. S. Census.

The growth of households in the Region was only slightly higher than the population increase (32.7%) from 1990 to 2000. This difference is accounted for by the continuing decrease in the number of persons per household (Table 18). During the period 1990 to 2000, the number of persons per occupied housing unit (average household size) in the Region decreased from 2.30 persons to 2.28.

TABLE 18 AVERAGE HOUSEHOLD SIZE								
	% Change							
County	1980	1990	2000	1980-1990	1980-1990	1990-2000		
Charlotte	2.25	2.23	2.18	-0.9%	-3.1%	-2.2%		
Collier	2.49	2.41	2.39	-3.2%	-4.0%	-0.8%		
Glades	2.69	2.57	2.51	-4.5%	-6.7%	-2.3%		
Hendry	3.06	2.99	3.09	-2.3%	1.0%	3.3%		
Lee	2.46	2.35	2.31	-4.5%	-6.1%	-1.7%		
Sarasota	2.25	2.18	2.13	-3.1%	-5.3%	-2.3%		
Region	2.53	2.46	0.97	-3.0%	-4.4%	-1.3%		
State	2.55	2.46	2.46	-3.5%	-3.5%	0.0%		

Sources: 1980 data for households and size from "Number of households and average household size for Florida and its Counties 1999, 1990 and 1980," in Florida Population Studies, Volume 33, Number 1, Bulletin 125, January 2000, BEBR. 1990 data from Table DP-1, "General Population and Housing Characteristics: 1990," 1990 Summary Tape File 1 (STF 1), U. S. Census. 2000 data from Table DP-1, "Profile of General Demographic Characteristics: 2000," U. S. Census.

All counties in the Region experienced declines in the number of persons per occupied household in 1990 and 2000. Hendry County was the exception, with a small increase from 1990 to 2000. That county had the largest average household size in 1990 and 2000 while County had the smallest. Household size and age are directly related because most children start their own households after reaching a certain age. Also, older persons may be living alone because they are widows or widowers. The 2000 Census shows that average household size in the state as a whole was unchanged from 1990. For the same period, however, both the Region and the nation experienced declines (1.27% and 1.52%, respectively).

> HOUSEHOLDS OF SPECIAL CONCERN

Households of special concern are divided into the following groups: large-family households, female heads of household (with no husband present), minority households, and elderly or disabled households. Each type has special needs that distinguish it from other types of households.

Large-family Households

Large-family households include five or more persons. These households require a larger-thanaverage size home. In 1990, large-family households made up 6.2% of Southwest Florida's households, as shown in Table 19. This was 2.3 percentage points lower than the state's figure of 8.5%. Within the Region, Hendry County had the highest percentage of such households (16.7%), while Sarasota County had the lowest percentage (4.6%).

TABLE 19								
LARGE-FAMILY HOUSEHOLDS, 1980 AND 1990*								
	198	0	19	90				
County	Households	Percent	Households	Percent				
Charlotte	1,436	5.2%	2,495	5.2%				
Collier	3,280	9.6%	4,774	7.7%				
Glades	313	13.8%	315	10.9%				
Hendry	1,118	18.6%	1,400	16.7%				
Lee	7,117	8.6%	9,277	6.6%				
Sarasota	5,471	6.2%	5,824	4.6%				
Region	18,735	7.8%	24,085	6.2%				
State	390,867	10.4%	436,757	8.5%				

* Large-family households contain five or more members.

Source: U.S. Census, 1980 & 1990, General Social and Economic Characteristics,

Florida, Tables 62 & 171 and Tables 39 & 57.

Female Heads of Household

The number of females acting as the head of a household, without a husband present, comprised 9.4% of all family households in the Region in 1980 (Table 20). By 1990, the number of female-headed households increased slightly to 10.1% of all family households.

TABLE 20 FEMALE HEADS OF HOUSEHOLD, 1980 AND 1990*								
		1980			1990			
			% Below			% Below		
County	Households	% All Families	Poverty Level	Households	% All Families	Poverty Level		
Charlotte	1,243	6.3%	20.2%	2,622	7.4%	20.9%		
Collier	2,165	8.6%	32.7%	4,161	9.4%	22.0%		
Glades	148	8.6%	37.2%	167	7.8%	22.8%		
Hendry	614	12.8%	59.6%	1,007	15.3%	41.2%		
Lee	6,170	9.8%	27.0%	10,834	10.8%	23.5%		
Sarasota	6,325	10.0%	19.8%	8,822	10.4%	18.1%		
Region	16,665	9.4%	25.8%	27,613	10.1%	22.0%		
State	363,260	13.4%	30.4%	533,410	15.1%	28.4%		

*No husband present.

Sources: U.S. Census, 1980 & 1990, General Social and Economic Characteristics, Florida, Tables 72 & 181; Tables 29 and 149.

Within the Region in 1990, this percentage varied from a high of 15.3% in Hendry County to a low of 7.4% in Charlotte County. The Region's proportion of female-headed households was well below the state's figure of 15.1%.

The percentage of female-headed households below the poverty level ranged from 18.1% in Sarasota County to 41.2% in Hendry County in 1990. It is especially important for these households to have access to employment opportunities and affordable transportation and child care.

Elderly and Disabled Households

The Region has a substantially higher proportion of elderly (age 65 or older) than the state as whole. In 1990, 27.4% of the Region's population was elderly, as opposed to 18.3% of the total state population. Between 1980 and 2000, the number of the Region's elderly residents grew 128% (Table 21).

TABLE 21ELDERLY POPULATION, 1980, 1990, and 2000								
1980 1990 2000								
County	Number	% of Pop.	Number	% of Pop.	Number	% of Pop.		
Charlotte	19,849	34.0%	37,489	33.8%	49,167	34.7%		
Collier	16,391	19.1%	34,583	22.7%	61,513	24.5%		
Glades	882	14.7%	1,490	19.6%	1.990	18.8%		
Hendry	1,553	8.3%	2,825	11.0%	3,641	10.1%		
Lee	45,877	22.4%	83,003	24.8%	112,111	25.4%		
Sarasota	60,629	30.0%	89,408	32.2%	102,583	31.5%		
Region	145,181	25.2%	248,798	27.4%	331,005	27.4%		
State	1 684 763	17.3%	2 369 431	18.3%	2 807 597	17.6%		

Sources: "65 and over" 1980 data for Florida from "Resident Population of States (by single year to 85+ and sex): April 1, 1980 Census," release date June 4, 1996, U. S. Bureau of the Census, at <u>http://www.census.gov/population/estimates/state/stiag/stiag480.txt.</u> "General Population and Housing Characteristics: 1990," in 1990 Summary Tape File 1 (STF 1), U. S. Census 1990. 2000 data from Table DP-1, "Profile of General Demographic Characteristics: 2000," U. S. Census 2000.

These households have special requirements due to the age or infirmities of the residents. These needs include access to medical facilities, congregate living facilities, and specialized recreational and social services. Households comprised of disabled persons have similar special needs.

Table 22 also shows people who listed some type of a mobility or self-care limitation in the 1990 Census. The data indicate that roughly 4% of the population aged 16-64 had a disability of some type, while 14% of the 65 and older population reported a disability.

TABLE 22 DISABLED PERSONS, 1990							
County	Persons with mobility or self care limitations (ages	Percent of 16-64	Persons with mobility or self care limitations (ages 65 & over)	Pecent of 65 & over			
Charlotte	2.392	4.2%	4.850	13.3%			
Collier	2,944	3.3%	3,842	11.3%			
Glades	394	8.9%	277	19.0%			
Hendry	856	5.5%	529	20.6%			
Lee	8,629	4.5%	11,759	14.4%			
Sarasota	6,003	4.0%	12,090	14.0%			
Region	22,135	4.3%	34,124	13.8%			
State	391,826	5.0%	415,062	18.1%			

Source: U.S. Census, 1990, Social and Economic Characteristics, Tables 34 & 140.

Very Low and Low Income Households

Very low and low income households constitute households of special concern through their inability to meet housing costs and also the general cost of living. "Very-low income" and "low-income" persons are defined as those living in households with incomes less than 80% of the area's median income (based on the U. S. Department of Housing and Urban Development's analysis of 1990 census data).

Although the median household income of each county in the Region approximately doubled from 1979 to 1989, very low and low income households still represented a significant portion of the Region's households in 1990 (Table 23). Collier, Glades, and Hendry Counties maintained the largest percentages of very low income households. Charlotte, Glades, and Lee Counties had the highest percentages of low income households.

TABLE 23 VERY LOW AND LOW INCOME HOUSEHOLDS, 1980 & 1990								
		Very Lov	w Income			Low I	ncome	
	Nun	nber	% of Ho	useholds	Nun	umber % of Household		useholds
County	1980	1990	1980	1990	1980	1990	1980	1990
Charlotte	5,069	10,287	19.5%	21.2%	4,438	10,914	17.1%	22.5%
Collier	7,875	17,233	23.1%	28.0%	5,583	12,012	16.4%	19.5%
Glades	483	823	21.3%	28.6%	441	661	19.4%	23.0%
Hendry	1,526	2,299	25.4%	27.3%	913	1,575	15.2%	18.7%
Lee	16,574	28,868	20.0%	20.6%	14,214	28,576	17.2%	20.4%
Sarasota	18,495	25,366	20.8%	20.2%	15,791	18,459	17.8%	14.7%
Region	50,022	84,876	21.7%	21.9%	41,380	72,197	17.2%	18.6%

Source: U.S. Census of Population, 1980, Table 180. & U.S. Census of Population, 1990, Selected Social Characteristics, Florida, Table 3; SWFRPC Staff calculations.

Those in the lower income ranges often live in fairly concentrated areas, usually where the housing stock is older and of lower quality. Map 3 shows the areas of concentration of very-low and low-income persons.

MAP 3 - LOW-INCOME RESIDENTS


> EDUCATION

As the population of Southwest Florida grows, the demand on schools also grows. Table 24 shows that the number of students enrolled in the Region's public schools from 1985 to 1999 increased 66.5%, compared to 49.1% in the state as a whole. While the rate of growth has slowed over the last three decades, it still is higher than the state's. For the 1995-99 period, Collier County experienced the largest percentage increase (22.6%) while Hendry County saw an increase of only 7.6%. Collier County also had the largest numerical increase, with 5,785 additional students.

	TABLE 24 ENROLLED STUDENTS, PUBLIC SCHOOLS K-12												
% Change													
County	1985	1990	990 1995 1998 1985-99 1985-90 1990-95 199										
Charlotte	8,101	11,700	15,143	16,313	101.4%	58.2%	18.2%	7.7%					
Collier	15,819	19,260	25,548	31,333	98.1%	29.7%	24.5%	22.6%					
Glades	900	860	1,022	1,110	23.3%	-4.3%	18.7%	8.6%					
Hendry	5,058	5,555	6,841	7,358	45.5%	13.2%	19.5%	7.6%					
Lee	33,821	41,058	49,627	54,800	62.0%	26.3%	16.2%	10.4%					
Sarasota	23,345	27,122	30,432	34,003	45.7%	17.6%	10.9%	11.7%					
Region	87,044	105,555	128,613	144,917	66.5%	26.5%	16.8%	12.7%					

Sources: <u>Profiles of Florida School Districts</u>, 1985-86 (1985), 1990-91 (1990), 1995-96 (1995), and 1999-2000 (1999). Florida Department of Education, Education Information and Accountability Services. The 1985 figure for Florida is from <u>Florida Statistical Abstract 1987</u>, Table 4.02, "Public Elementary and Secondary Schools: Specified Student Data in Florida, 1983-84 through 1986-87."

Table 25 illustrates educational attainment for persons aged 25 and over. The data below shows that 33% of that group in Southwest Florida had a high school diploma in 1990, while 12% had a bachelor's degree. The high school diploma percentage is similar to that for the state as a whole (30.1%) and identical to the college degree percentage. Within Southwest Florida in 1990, Collier and Sarasota Counties had the highest percent of graduates with bachelor's degrees or master's degrees or higher.

TABLE 25 EDUCATIONAL ATTAINMENT, 1990											
County	Persons 25 yrs & Over	High School Graduate or higher	Associate Degree	Bachelor's Degree	Master's Degree or higher						
Charlotte	87,427	75.7%	5.5%	8.2%	5.2%						
Collier	110,308	79.0%	5.9%	14.8%	7.4%						
Glades	5,198	57.4%	3.6%	0.0%	2.7%						
Hendry	15,027	56.6%	4.0%	6.8%	3.2%						
Lee	245,559	76.9%	5.7%	10.7%	5.7%						
Sarasota	217,375	81.1%	6.4%	14.0%	7.9%						
Region	680,894	77.9%	5.9%	0.1%	6.6%						
State	8,887,168	74.4%	6.6%	12.0%	6.3%						
Nation	158,868,436	75.2%	6.2%	13.1%	7.2%						

Source: Table DP-2, "Social Characteristics: 1990," (Educational Attainment), 1990 Summary Tape File 3 (STF 3), U. S. Census.

> CRIME

Crime Rate

Crime rates have shown an overall decline in the last two decades (Table 26). From 1980 to 1990, crime rates in the region declined 7.1%, while the state rate grew 1.8%. For that period, only two Southwest Florida counties (Hendry and Sarasota) had increases in the crime rate. From 1990 to 2000, the decline continued with greater strength. All six Southwest Florida Counties experienced decreases over the 1990 rates. Overall, the Region's crime rate per 100,000 persons decreased 18.4% from 1990 to 2000, while the state's figure dropped 34.4%.

	TABLE 26 CRIME RATE*											
		Rate		% Chan	ge							
County	1980	1990	2000	1980-90	1990-00							
Charlotte	3,352.9	2,809.9	2,327.9	-16.2%	-17.2%							
Collier	7,883.9	6,335.0	3,959.8	-19.6%	-37.5%							
Glades	4,713.7	3,522.9	3,337.7	-25.3%	-5.3%							
Hendry	5,100.1	5,303.9	4,266.8	4.0%	-19.6%							
Lee	5,301.1	5,159.8	4,838.4	-2.7%	-6.2%							
Sarasota	6,574.0	7,446.0	4,201.3	13.3%	-43.6%							
Region	5,487.6	5,096.3	4,158.1	-7.1%	-18.4%							
State	8,387.8	8,539.4	5,604.3	1.8%	-34.4%							

*Per 100,000 population.

Sources: 1980 data from the <u>Florida Statistical Abstract 1981</u>, Table 22.05, "Criminal Offenses: Crime Index Offenses, Crime Rates, Percentage of Offenses Cleared, Number of Victims in the State, Standard Metropolitan Statistical Area (SMSA) Counties, and NonSMSA Counties in Florida, 1980." 1990 and 2000 data from Florida Department of Law Enforcement website (www.fdle.state.fl.us.FSAC), "Total Index Crime for Florida by County and Offense," accessed June 1, 2001.

Arrests

From 1990 to 2000, arrest rates increased in Southwest Florida (4.4%), while in the state, the arrest rate declined 4.0% (Table 27). Within the Region, Collier and Lee Counties had the largest increases. Glades and Hendry Counties had the highest arrest rates in 1990, as well as in 2000. Hendry and Sarasota Counties had the highest rates in 1995.

	TABLE 27 ARRESTS												
1990 1995 2000													
County	Number	Rate*	Number	Rate*	Number	Rate*							
Charlotte	4,966	4,673.1	3,498	2,740.4	3,642	2,571.5							
Collier	6,673	4,340.2	8,518	4,567.2	13,494	5,368.0							
Glades	495	5,951.7	377	4,408.8	706	6,675.5							
Hendry	2,214	8,240.6	2,347	7,956.7	2,535	7,000.8							
Lee	12,242	3,617.3	13,743	3,648.2	20,489	4,647.2							
Sarasota	13,919	5,273.5	17,051	5,727.2	15,777	4,915.8							
Region	40,509	4,513.2	45,534	4,435.3	56,643	4,713.9							
State	756,750	5,754.7	726,240	5,132.7	882,859	5,524.0							

*Per 100,000 population.

Note: The formula for the arrest rate is the number of arrests divided by population multiplied by 100,000 Compare changes in the rate of arrests, not the number of arrests. This is because the rate incorporates changes in population --while the number of arrests does not.

Sources: 1990, 1995, and 2000 crime data from Florida Department of Law Enforcement, "Part I Arrests by County." The population numbers are from Florida Department of Law Enforcement, "Florida's Crime Rate, 1960-2000." Both from the FDLE website (www.fdle.state.fl.us.FSAC), accessed June 1, 2001.

When arrests are compared to population for the period 1990-2000, the Region has shown a slight increase (Table 28). The state has had a slight decrease. In 1990, arrests were 4.5% of population in Southwest Florida, compared to 5.8% in the state. By 2000, those numbers had changed to 4.7% and 5.5%, respectively. Charlotte County had the lowest percentage (2.6%) of the six counties. Glades and Hendry Counties had the highest.

TABLE 28 ARRESTS AND POPULATION									
As a % of Population									
County	1990	1995	2000						
Charlotte	4.7%	2.7%	2.6%						
Collier	4.3%	4.6%	5.4%						
Glades	6.0%	4.4%	6.7%						
Hendry	8.2%	8.0%	7.0%						
Lee	3.6%	3.6%	4.6%						
Sarasota	5.3%	5.7%	4.9%						
Region	4.5%	4.4%	4.7%						
State	5.8%	5.5%	5.5%						

Source: Derived from Table 27.

Adult and Juvenile Arrests

In 2000, most arrests made in the Region-involved adults (Table 29), as was true for the state overall. Sarasota and Glades Counties had the highest percentage of adult arrests, while Collier had the highest percentage of juvenile arrests.

TABLE 29 ADULT AND JUVENILE ARRESTS, 2000												
Total Adult Juvenile												
County	Arrests	Number	Percent	Number	Percent							
Charlotte	3,642	3,016	82.8%	626	17.2%							
Collier	13,494	10,826	80.2%	2,668	19.8%							
Glades	706	662	93.8%	44	6.2%							
Hendry	2,535	2,258	89.1%	277	10.9%							
Lee	20,489	17,237	84.1%	3,252	15.9%							
Sarasota	15,777	14,492	91.9%	1,285	8.1%							
Region	56,643	48,491	85.6%	8,152	14.4%							
State	882.859	757.877	85.8%	124,982	14.2%							

Source: Florida Department of Law Enforcement website (www.fdle.state.fl.us.FSAC), "Part I Arrests by County," accessed June 1, 2001.

Types of Crimes

The crime index is a basic measure of crime used by the Florida Department of Law Enforcement to gauge the volume, fluctuation, and distribution of crime. The seven crimes in this index are murder, forcible sex, robbery, aggravated assault, burglary, larceny, and motor vehicle theft. These crimes were selected as an index on the basis of their serious nature, their frequency of occurrence, and the reliability of reporting from citizens to law enforcement agencies. The crime index represents the number of crimes that comes to the attention of law enforcement agencies, not the number of arrests or convictions. As a result, changes in the crime rates may reflect a higher or lower number of reports to law enforcement officials - rather than an actual increase or decrease in crime.

Index crime for Southwest Florida in 2000 is listed in Table 30. The Region and the state show proportionately the same rates among the seven crimes in the index. Both in the region and the state, property crimes constituted the majority of crimes.

Demographics

	TABLE 30 INDEX CRIME, 2000														
	Total Aggravated									Motor V	Motor Vehicle				
	Crime	Mı	ırder	Forcib	ole Sex	Robl	bery	Ass	ault	Burg	lary	Larc	eny	Th	eft
County	Index	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
Charlotte	3,297	3	0.09%	19	0.58%	44	1.3%	246	7.5%	755	22.9%	1,943	58.9%	287	8.7%
Collier	9,954	13	0.13%	202	2.03%	208	2.1%	955	9.6%	2,186	22.0%	5,820	58.5%	570	5.7%
Glades	353	0	0.00%	3	0.85%	9	2.5%	20	5.7%	117	33.1%	183	51.8%	21	5.9%
Hendry	1,545	5	0.32%	34	2.20%	82	5.3%	150	9.7%	454	29.4%	659	42.7%	161	10.4%
Lee	21,332	16	0.08%	351	1.65%	821	3.8%	1,412	6.6%	4,282	20.1%	11,570	54.2%	2,880	13.5%
Sarasota	13,484	12	0.09%	179	1.33%	286	2.1%	1,003	7.4%	2,584	19.2%	8,741	64.8%	679	5.0%
Region	49,965	49	0.10%	788	1.58%	1,450	2.9%	3,786	7.6%	10,378	20.8%	28,916	57.9%	4,598	9.2%
State	895,708	890	0.10%	12.388	1.38%	31.392	3.5%	83.371	9.3%	170.131	19.0%	509.616	56.9%	87.920	9.8%

Source: Florida Department of Law Enforcement website (www.fdle.state.fl.us.FSAC), Total Index Crime for Florida by County and Offense, 1999 and 2000, accessed June 1, 2001.

From 1999 to 2000, the region saw a small increase (3.2%) in the number of crimes, while the state overall experienced a small decrease (4.1%). The number of index crimes increased in Charlotte, Lee, and Sarasota Counties. Sarasota County experienced the largest percentage increase, while Lee County had the largest increase in the number of index crimes.

> SUMMARY

As this section indicates, the Southwest Florida Region has experienced substantial population growth over the past 100 years. The majority of the population growth has resulted from migration of retirees who moved to the area to enjoy the warm weather and ideal climate. As a result, the retiree influx has produced a population that is primarily white and generally older than the state as a whole. The next section examines the economy of the Region and the economic impact wealthy retirees have produced.

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ECONOMIC CONDITIONS

> INTRODUCTION

Over the last few decades, Southwest Florida has experienced tremendous growth in terms of population and economy. This chapter describes the recent growth of the Region's economy. When applicable, population growth and inflation are incorporated to reflect economic growth patterns more accurately. (See methodology discussion of examples of how "real" and "real per capita" figures were derived.)

This chapter explores the functional aspects of the Region's economic systems. Income is discussed first, followed by labor force and employment. Next, Southwest Florida's seven major economic sectors are analyzed in detail.

> INCOME

Income is one of the major indicators of an economy's well-being. One of the most commonly used income statistics is personal income. Personal income is the before-tax income from all sources, after deductions for social insurance programs (e. g., Social Security). Personal income is comprised of five categories: wages and salaries, other labor income, proprietors' income, property income (rents, dividends, interest, and other sources), and transfer payments (Social Security, Aid to Families with Dependent Children, etc.). "Earned" personal income is the income earned by the employed labor force. It consists of the first three categories mentioned above (wages and salaries, other labor income, and proprietors' income). Property income and transfer payments are classified as "unearned" income.

Data in this section deal primarily with total personal income and its components. The first part examines the impact of inflation on purchasing power. The second part analyzes total personal income in the aggregate and by component, to determine present levels and to identify future trends. The third part evaluates per capita personal income and median family income in order to assess incomes on a societal scale. The fourth part looks at earned personal income on a place-of-work basis (by economic sectors). The final section briefly surveys trends and present levels of effective buying income (the spendable portion of personal income).

Inflation and the Cost of Living

Inflation is the force that results in an increase over time in the price of goods and services, thus reducing the purchasing power of income. To determine the real value of income, the inflation factor must be eliminated. This section uses two income measures, total growth and real growth, to exclude the effects of inflation. Total growth refers to the growth, over time, of actual or nominal dollar levels of each indicator. Real growth discloses an indicator's productive growth. The real growth measure discounts inflation over time.

Inflation is measured by a number of different indicators. One of the most common is the Consumer Price Index (CPI) prepared by the U. S. Department of Labor. The CPI is defined as a measure of the average change ("inflation") over time in the prices paid by urban consumers for a market basket of consumer goods and services. Eight major groups of expenditures are included in the CPI. These are food and beverages, housing, apparel, transportation, medical care, recreation, education and communication, and other goods and services.

The CPI data included here (Table 31 and Figure 6) are for all urban consumers and cover about 87% of the total U. S. population. Based on that data, the cost of goods and services increased 343.8% in the period from 1970 to 2000, due solely to inflationary pressures. In other words, \$3.44 was required in 2000 to purchase an item that cost \$1.00 in 1970.

		TABI	LE 31		
	CONSU	MER PRICE IN	DEX AND INF	LATION	
Vaar	Consumer Price	Inflation (Percent	Veer	Consumer Price	Inflation (Percent
<u>Y ear</u>		Change)	1096	100 C	
1970	38.8	5.7%	1980	109.6	1.9%
19/1	40.5	4.4%	1987	113.6	3.6%
1972	41.8	3.2%	1988	118.3	4.1%
1973	44.4	6.2%	1989	124.0	4.8%
1974	49.3	11.0%	1990	130.7	5.4%
1975	53.8	9.1%	1991	136.2	4.2%
1976	56.9	5.8%	1992	140.3	3.0%
1977	60.6	6.5%	1993	144.5	3.0%
1978	65.2	7.6%	1994	148.2	2.6%
1979	72.6	11.3%	1995	152.4	2.8%
1980	82.4	13.5%	1996	156.9	3.0%
1981	90.9	10.3%	1997	160.5	2.3%
1982	96.5	6.2%	1998	163.0	1.6%
1983	99.6	3.2%	1999	166.6	2.2%
1984	103.9	4.3%	2000	172.2	3.4%
1985	107.6	3.6%			

Note: Data is for all urban consumers, all items, U. S. city average, not seasonally adjusted. Base period is 1982-1984. 1982-84 = 100.

Source: U.S. Department of Labor, Bureau of Labor Statistics, website (http://stats.bls.gov/datahome.htm), accessed June 2001.



FIGURE 6 CONSUMER PRICE INDEX, 1970-2000

Source: Derived from Table 31.

Of course, the actual rise in price varies according to the commodity being purchased and the geographic location. Additionally, the CPI is only a general indicator. It serves, however, as a useful tool to assess real economic growth through time by enabling the user to adjust for inflation.

The Florida Price Level Index is another indicator. It reflects the cost of purchasing goods and services in each county relative to the average cost of those purchases for the state. The FPLI compares costs at one point in time, not the change in prices over a period of time. Thus, it is not a measure of inflation. It was created by the Legislature to assist in the distribution of state funds to local school districts. FDLI is prepared annually by the Florida Department of Education (Office of Education Planning, Budgeting, and Management). Under the Florida Price Level Index, the average price level for the state is 100. An index number greater than 100 indicates an average cost of living that is greater that that of the state as a whole. A number less than 100 indicates that the cost of living is less than that of the whole state. In effect, the Florida Price Level Index measures the relative strength of an area's purchasing power, compared to the rest of the state.

In 2000, Collier County was the most expensive county in the Region in which to live and Charlotte County was the least expensive (Table 32). For every \$1.00 spent in the state in 2000, consumers spent about \$1.02 in Collier County and about \$0.96 in Charlotte County for the same goods and services.

	TABLE 32 FLORIDA PRICE LEVEL INDEX													
1995 2000 Categories for 2000														
County	Index	Index	Food	Personal Goods Food Health Care Housing and Services Transportation										
Charlotte	96.68	95.94	99.38	100.72	92.25	98.14	97.05							
Collier	103.68	101.77	99.43	103.21	102.68	101.56	101.81							
Glades	97.83	96.03	96.10	99.97	93.04	97.90	99.44							
Hendry	95.02	96.79	99.52	95.88	90.87	98.96	105.26							
Lee	99.68	98.34	99.48	101.89	97.57	99.04	97.14							
Sarasota	104.71	100.20	101.38	94.55	101.51	101.35	96.96							

Source: Table I, "2000 Florida Price Level Index," Table II, "Florida Price Level Index: 1995 to 2000," and Table III, "Population Weighted Category Indices." Florida Department of Education, website (www.firn.edu/doe/.bin00047/fplifnl.pdf), accessed June 28, 2001.

Personal Income and Its Components

Total personal income consists of all earned income (wages and salaries, other labor income, and proprietors' income), property income (rents, dividends, and interest) and transfer payments. Looked at another way, personal income is total income less deductions for Social Security.

In terms of dollar amounts without adjustment for inflation, the Region's total personal income has significantly increased (Table 33). Between 1980 and 1999, total personal income increased 451.1% in nominal terms. This is more than the state (324.5%) or the nation (235.2%).

			ТА	BLE 33		TABLE 33													
TOTAL PERSONAL INCOME (\$000,000)																			
% Chang																			
County	1980	1985	1990	1995	1999	1980-90	1990-99	1980-99											
Charlotte	576.4	1,114.2	2,046.4	2,654.5	3,336.6	255.0%	63.0%	478.9%											
Collier	1,088.1	2,136.6	4,308.0	6,627.6	9,287.7	295.9%	115.6%	753.5%											
Glades	33.5	61.4	99.1	124.4	164.3	195.5%	65.9%	390.3%											
Hendry	197.5	289.9	429.4	570.2	732.4	117.4%	70.6%	270.8%											
Lee	2,144.2	3,985.1	6,963.3	9,113.4	11,159.6	224.7%	60.3%	420.4%											
Sarasota	2,604.2	4,677.2	7,857.2	9,513.4	11,935.0	201.7%	51.9%	358.3%											
Region	6,644.0	12,264.3	21,703.4	28,603.5	36,615.6	226.7%	68.7%	451.1%											
State	98,881.8	166,919.3	258,479.0	333,525.4	419,800.5	161.4%	62.4%	324.5%											
Nation	2.323.900.0	3.515.000.0	4.903.200.0	6.200.900.0	7,789,600.0	111.0%	58.9%	235.2%											

Note: Computed by place of residence. Personal contribution for social insurance has been removed and an adjustment for residence has been included, both calculated by the Bureau of Economic Analysis.

Source: Florida data from Table CA1-3, "Personal Income, Florida," Regional Accounts Data, Local Area Personal Income. National data from Table 2.1, "Personal Income and Its Disposition," National Income and Product Account Tables. Both from U. S. Department of Commerce, Bureau of Economic Analysis, website (http://www.bea.doc.gov/bea/regional/data/htm), accessed June 28, 2001 and July 5, 2001

Per capita income figures may speak to the overall wealth of an area. An analysis of the components of personal income, however, reveals much about the economic nature of a region. Table 34 provides a breakdown of personal income for the Region in 1999. Only 34.4% of the Region's personal income was derived from wages and salaries as compared to 48.2% for the state. Personal income in the Region relies more on transfer payments and property income than in the state as a whole. Property income (dividends, interest, and rent) makes up 39.9% of personal income in the Region versus 25.3% for the state as a whole. Transfer payments comprise 15.0% of personal income in the Region, but only 14.6% of the state's personal income. Again, the data reflect-Southwest Florida's popularity as a retirement destination.

	TABLE 34 COMPONENTS OF PERSONAL INCOME, 1999 (Millions of Dollars)													
			U	nearned	Income**									
	Wage and S	Other La Incon	abor 1e	Proprietors'		Proprie Inco Nonfa	etors' me arm	Dividends, Interest, Rent Income		Transfer Payments				
County	(\$)	%	(\$)	%	(\$)	%	(\$)	%	(\$)	%	(\$)	%		
Charlotte	909.7	27.3%	108.8	3.3%	181.8	5.5%	20.0	11.0%	1,316.2	39.6%	809.6	24.3%		
Collier	2,948.7	31.6%	300.7	3.2%	845.1	9.1%	125.8	14.9%	4,317.5	46.3%	916.1	9.8%		
Glades	27.9	21.6%	4.2	3.3%	26.8	20.8%	19.2	71.4%	41.0	31.8%	29.0	22.5%		
Hendry	302.7	41.6%	38.6	5.3%	184.5	25.3%	151.1	81.9%	95.3	13.1%	107.1	14.7%		
Lee	4,495.7	38.2%	532.8	4.5%	703.5	6.0%	40.9	5.8%	4,077.2	34.6%	1,959.2	16.6%		
Sarasota	4,221.8	34.6%	425.8	3.5%	674.9	5.5%	11.3	1.7%	5,098.3	41.7%	1,791.6	14.7%		
Region	12,906.4	34.4%	1,411.0	3.8%	2,616.6	7.0%	368.2	14.1%	14,945.4	39.9%	5,612.6	15.0%		
State	209,968.8	48.2%	25,206.9	5.8%	26,040.1	6.0%	2,525.3	9.7%	110,285.6	25.3%	63,739.7	14.6%		
Nation	4,468,923.0	55.0%	496,591.0	6.1%	665,067.0	8.2%	26,912.0	4.0%	1,476,316.0	18.2%	1,016,203.0	12.5%		

* By place of work.

** By place of residence

Source: Table CA05, "Personal Income by Major Source and Earnings by Industry," Regional Accounts Data, Local Area Personal Income, U. S. Department of Commerce, Bureau of Economic Analysis, website http://www.bea.doc.gov/bea/regional/reis.action.cfm, accessed July 11, 2001.

Earned Income

Earned income is the sum of wages and salaries, other labor income, and proprietors' income. In 1999, earned income in the Region totaled \$16,934.0 million, or 46.2% of total personal income (Table 35).

	TABLE 35											
EARNED INCOME (\$000)												
County	1980	1985	1990	1995	1999							
Charlotte	\$232,338	\$380,278	\$713,192	\$928,112	\$1,200,308							
Collier	\$573,283	\$1,011,788	\$1,969,357	\$2,831,510	\$4,094,557							
Glades	\$23,780	\$31,490	\$41,567	\$42,048	\$58,974							
Hendry	\$156,091	\$213,352	\$297,057	\$398,984	\$525,731							
Lee	\$1,124,810	\$1,982,706	\$3,394,844	\$4,480,911	\$5,731,940							
Sarasota	\$1,170,889	\$1,931,421	\$3,040,394	\$3,987,270	\$5,322,489							
Region	\$3,281,191	\$5,551,035	\$9,456,411	\$12,668,835	\$16,933,999							
% of Total Personal Income*	49.4%	45.3%	43.6%	44.3%	46.2%							
% Annual Increase		13.8%	14.1%	6.8%	6.7%							
Earned Income (1980 \$s)*	\$3,281,191	\$4,250,978	\$5,961,808	\$6,849,816	\$8,375,519							
%Real Annual Growth in Regional												
Earned Income		5.9%	8.0%	3.0%	4.5%							

Note: Earned income is earnings by place of work.

Source: Table CA05, "Personal Income by Major Source and Earnings by Industry, " from Regional Accounts Data, Local Area Personal Income, U. S. Department of Commerce, Bureau of Economic Analysis, website, accessed July 16, 2001. U.S. Department of Labor, Bureau of Labor Statistics, website (http://stats.bls.gov/datahome.htm), accessed June 2001.

From 1980 to 1999, earned income in the Region increased 416.1%. Adjusting for inflation, the 1980 to 1999 increase in real dollars was 155.3%. When accounting for population growth as well as inflation, the per capita real earned income for the Region increased by 29.7%.

It can be concluded, then, that the Region's increase in earned income (Table 35) has not kept pace with the increase in total personal income (Table 33). Per capita earned income in the Region was \$5,691 in 1980. By 1999, this figure had increased 29.7%, to \$7,379 (in 1980 dollars). Per capita total personal income in 1980 and 1999 was \$11,524 and \$15,956, respectively. This is a 38.5% increase in 1980 dollars.

Further, earned income declined as a percentage of total personal income between 1980 and 1999 from 49.4% in 1980 to 46.2% in 1999. Consequently, the source of the increase in the average real per capita personal income Table 33 must be found elsewhere.

Property Income

Property income is the total income from tangible and intangible property. It includes dividend, interest, and rent income. In the Region (Table 36), property income totaled \$14,945 million in 1999, accounting for 40.8% of total personal income (by place of residence).

TABLE 36									
PROPERTY INCOME (\$millions)									
County	1980	1985	1990	1995	1999				
Charlotte	\$229.644	\$500.755	\$916.028	\$1,040.703	\$1,316.165				
Collier	\$440.566	\$966.277	\$2,073.535	\$3,231.754	\$4,317.457				
Glades	\$6.370	\$13.042	\$25.627	\$31.110	\$40.980				
Hendry	\$23.022	\$41.728	\$74.194	\$77.811	\$95.347				
Lee	\$725.763	\$1,466.955	\$2,697.669	\$3,304.902	\$4,077.162				
Sarasota	\$1,152.996	\$2,163.975	\$3,791.678	\$4,084.178	\$5,098.301				
Region	\$2,578.361	\$5,152.732	\$9,578.731	\$11,770.458	\$14,945.412				
Total Regional Personal Income by Place of									
Residence	\$6,643.968	\$12,264.329	\$21,703.384	\$28,603.515	\$36,615.639				
% of Total Regional Personal Income	38.8%	42.0%	44.1%	41.2%	40.8%				
% Annual Growth in Property Income in the									
Region		20.0%	17.2%	4.6%	6.7%				

Note: Property income consists of dividend, interest, and rent income, all reported as a single category by BEA.

Source: Table CA05, "Personal Income by Major Source and Earnings by Industry," Regional Accounts Data, Local Area Personal Income, U. S. Department of Commerce, Bureau of Economic Analysis, website http://www.bea.doc.gov/bea/regional/reis.action.cfm, accessed July 11, 2001. CPI from U.S. Department of Labor, Bureau of Labor Statistics, website (http://stats.bls.gov/datahome.htm), accessed June 2001.

For the period 1980 to 1999, property income increased 479.6%. Discounting the effects of inflation, this was a real increase of 430.2%. Factoring in the Region's population growth during this period (96.9%), individual real property income increased 169.3%.

Property income increased as a share of total personal income from 38.8% in 1980 to 40.8% in 1999. Thus, property income has increased faster than total personal income. This supports a direct correlation between personal income and the number of retirees in the Region.

Transfer Payment Income

Income from transfer payments stems largely from Social Security, Aid to Families with Dependent Children, unemployment insurance, retirement benefits, and veterans' benefits payments. Table 37 presents the Region's annual transfer payment income for the period 1980 to 1999. Transfer payments in this period increased 461.2%.

TABLE 37									
TRANSFER PAYMENTS (\$000,000)									
County	1980	1985	1990	1995	1999				
Charlotte	\$120.515	\$229.383	\$411.264	\$686.047	\$809.585				
Collier	\$114.083	\$228.243	\$417.215	\$730.191	\$916.087				
Glades	\$5.310	\$8.974	\$12.955	\$23.729	\$28.995				
Hendry	\$16.738	\$29.493	\$51.760	\$93.469	\$107.135				
Lee	\$332.211	\$634.382	\$1,061.961	\$1,659.081	\$1,959.231				
Sarasota	\$411.327	\$729.890	\$1,113.442	\$1,559.135	\$1,791.602				
Region	\$1,000.184	\$1,860.365	\$3,068.597	\$4,751.652	\$5,612.635				
Total Regional Personal Income by Place of									
Residence	\$6,643.968	\$12,264.329	\$21,703.384	\$28,603.515	\$36,615.639				
% of Total Regional Personal Income	15.1%	15.2%	14.1%	16.6%	15.3%				
% Annual Growth in Transfer Payments in the									
Region		17.2%	13.0%	11.0%	4.5%				

Source: Table CA05, "Personal Income by Major Source and Earnings by Industry," Regional Accounts Data, Local Area Personal Income, U. S. Department of Commerce, Bureau of Economic Analysis, website http://www.bea.doc.gov/bea/regional/reis.action.cfm, accessed July 11, 2001. CPI from U.S. Department of Labor, Bureau of Labor Statistics, website (http://stats.bls.gov/datahome.htm), accessed June 2001.

Transfer payment income totaled \$5,613 million in 1999, accounting for 15.3% of total personal income in the Region. Discounting the effects of inflation, this was a real increase of 413.3%. The per capita real transfer payment income in 1980 was \$1,735 and \$4,523 in 1999. This is an increase of 160.7%. Transfer payments, as a share of total personal income, increased from 15.1% in 1980 to 15.3% in 1999.

Per Capita and Median Family Income

Between 1960 and 1999, the Region experienced substantial increases in population and income. Per capita income in the Region increased 1598.6% between 1960 and 1999 (Table 38). Removing the effects of inflation, this was an increase of 201.8%, or 6.1% annually.

	TABLE 38 INCOME CHARACTERISTICS (1960-1999)										
		Per Capita Income									
County	1960	1970	1980	1990	1999	1960	1970	1980	1990	1999	
Charlotte	\$3,918	\$6,255	\$12,700	\$29,522	NA	\$1,398	\$3,153	\$9,632	\$14,431	\$24,356	
Collier	\$4,673	\$9,136	\$18,700	\$38,428	NA	\$2,174	\$4,710	\$12,238	\$21,386	\$44,862	
Glades	\$3,625	\$6,165	\$12,600	\$23,175	NA	\$1,540	\$2,823	\$5,833	\$10,719	\$18,905	
Hendry	\$4,127	\$7,042	\$14,500	\$26,635	NA	\$2,838	\$4,797	\$10,240	\$10,035	\$24,858	
Lee	\$4,286	\$7,878	\$15,700	\$32,310	NA	\$1,705	\$3,543	\$10,119	\$15,623	\$27,861	
Sarasota	\$4,688	\$7,739	\$16,100	\$35,322	NA	\$2,218	\$4,496	\$12,362	\$18,441	\$38,934	
Region	\$4,220	\$7,369	\$15,050	\$30,899	NA	\$1,979	\$3,920	\$10,071	\$15,106	\$33,615	
State	N/A	\$6 476	\$21 023	\$32,212	NA	\$1.968	\$3 698	\$9 919	\$14 698	\$27 781	

Sources: Median family income data for 1990 from Table 148, "Income in 1989 of Households, Families, and Persons: 1990," 1990 Census of Population: Social and Economic Characteristics, Florida, Section 1 (1990 CP-2-11). Per capita income data for counties and state for 1970, 1980, 1990, and 1999 from Table CA05, "Personal Income by Major Source and Earnings by Industry," from Regional Accounts Data, Local Area Personal Income, U. S. Department of Commerce, Bureau of Economic Analysis, website, accessed July 16, 2001.

Median family income increased 632.2% from 1960 to 1990. That is an annual increase of 21.1%. Adjusted for inflation, the Region saw median family income increase of 65.8% in real terms between 1960 and 1990. This is an annual increase of 2.2%.

The slower annual rate of increase for median family income, as compared to per capita income, may be due in part to a decline in family size. The Region has consistently exceeded the state's per capita income figures for the years listed. These excesses, albeit small ones, can be attributed to Collier, Lee, and Sarasota Counties.

A comparison of per capita incomes among the Region's six counties is shown in Figure 7. Figure 8 compares the average per capita incomes of the Region and state. Both graphs show a rapid increase in per capita income beginning in 1970 and continuing through 1990.









Sources: Derived from Table 38.

Earned Wage and Salary Income by Economic Sector

Eight different employment sectors contribute to the economy of the Region. (A ninth sector, government, is discussed elswhere in this document.) Table 39 presents earnings, i.e., average wage and salary income, by nonfarm sector (excluding government). Table 40 displays these earnings as a percentage of total earnings for all industries. The economy of the Region is dependent on four sectors: services; wholesale and retail trade; finance, insurance and real estate; and construction. These four sectors accounted for 87.7% of earnings in 1999. Within the Region, the coastal counties reflect this same pattern. The economies of Glades and Hendry Counties, however, differ somewhat from the rest of the Region. In addition to the services sectors, Glades County is dependent on the agricultural services and transportation/communication/utilities sectors. Hendry County is more reliant on agricultural services, along with manufacturing, wholesale and retail trade and services.

TABLE 39 EARNINGS BY PRIVATE, NONFARM INDUSTRY, 1999 (\$000)										
Economic Sector	Charlotte	Collier	Glades	Hendrv	Lee	Sarasota	Region ³			
Agricultural Serv./Forestry										
/Fishing	(D)	\$114,857	\$4,240	\$70,074	\$73,304	(D)	\$262,475			
Mining	(D)	\$8,185	(D)	(D)	\$10,421	(D)	\$18,606			
Construction	\$119,275	\$472,311	\$2,121	\$14,164	\$623,178	\$417,272	\$1,648,321			
Manufacturing	\$37,429	\$113,030	(D)	\$53,436	\$243,621	\$328,535	\$776,051			
Trans./Comm./Utilities	\$46,769	\$121,482	(D)	(D)	\$311,296	\$152,413	\$631,960			
Wholesale and Retail Trade	\$224,142	\$648,145	\$4,206	\$50,789	\$1,137,598	\$875,661	\$2,940,541			
FIRE ¹	\$80,596	\$599,110	\$711	\$7,416	\$559,850	\$609,159	\$1,856,842			
Services	\$453,250	\$1,446,711	\$7,703	\$41,537	\$1,662,916	\$2,363,297	\$5,975,414			
Total ²	\$983,231	\$3,523,831	\$24,574	\$253,100	\$4,622,184	\$4,814,655	\$14,221,575			

1-- FIRE is finance, insurance, and real estate

2-- Total is total private, nonfarm earnings. While data for some sectors are not shown in the county columns due to disclosure restrictions, the total for each column (county, region, and state) includes "D" data. ("D" means that data are not shown to avoid disclosure of confidential information.)

3-- "D" data (i. e., nondisclosed data) are not included in the regional totals for the individual sectors (rows). Thus, the regional totals for agricultural serv./forestry/fishing, mining, manufacturing, and trans.comm./utilities are not complete.

Source: Table CA05, "Personal Income by Major Source and Earnings by Industry," Regional Accounts Data, Local Area Personal Income, U. S. Department of Commerce, Bureau of Economic Analysis, website http://www.bea.doc.gov/bea/regional/reis.action.cfm, accessed July 11, 2001.

TABLE 40 PRIVATE NONFARM EARNINGS BY SECTOR AS PERCENTAGE OF TOTAL, 1999										
Economic Sector	Charlotte	Collier	Glades	Hendry	Lee	Sarasota	Region			
Agricultural Serv./Forestry /Fishing	NA	3.3%	17.3%	27.7%	1.6%	NA	1.8%			
Mining	NA	0.2%	NA	NA	0.2%	NA	0.1%			
Construction	12.1%	13.4%	8.6%	5.6%	13.5%	8.7%	11.6%			
Manufacturing	3.8%	3.2%	NA	21.1%	5.3%	6.8%	5.5%			
Trans./Comm./Utilities	4.8%	3.4%	NA	NA	6.7%	3.2%	4.4%			
Wholesale and Retail Trade	22.8%	18.4%	17.1%	20.1%	24.6%	18.2%	20.7%			
FIRE	8.2%	17.0%	2.9%	2.9%	12.1%	12.7%	13.1%			
Services	46.1%	41.1%	31.3%	16.4%	36.0%	49.1%	42.0%			
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			

Note: Due to nondisclosure of data, some cells (marked "NA") cannot be calculated. The total for each column for the counties, however, includes all data and does total 100%. The regional sector totals for agricultural, serv/ forestry/ fishing, mining, manufacturing, and trans.comm./utilities are not complete due to nondisclosed data. Source: Derived from Table 39 above.

Effective Buying Income

One measure of purchasing power or disposable income is effective buying income (EBI). First introduced by Sales and Marketing Management magazine, EBI represents personal income after deductions are made for income taxes. Table 41 shows 1992 and 1997 EBI figures for each county in the Region. The Region's EBI increased 7.1% from 1992 to 1997. Within the Region, Collier County reported the highest EBI for both years while Glades County posted the lowest. Sarasota County EBI posted the highest gain for this time period, at 31.2% while Hendry County EBI declined 2.5%.

	TABLE 41									
	EFFECTIV	E BUYING INCOME								
SOUTHWEST FLORIDA (in dollars)										
	1992 Median	1997 Median	1992-1997							
County	Household E.B.I.	Household E.B.I.	% Change							
Charlotte	26,090	28,000	7.3							
Collier	35,105	38,931	1.1							
Glades	22,835	23,090	1.1							
Hendry	25,011	24,396	-2.5							
Lee	29,783	31,040	4.2							
Sarasota	25,316	33,346	31.2							
Region	27,357	29,800	7.1							

Source: "Survey of Buying Power," Sales and Marketing Management, 1992, 1993, 1997.

> LABOR FORCE AND EMPLOYMENT

Labor Force

The Region's labor force increased 124.8%, from 224,912 persons to 505,509 persons, during the period 1980 to 2000 (Table 42). The population of Southwest Florida grew 109.3% during the same time period. Thus, the labor force grew at a faster rate than the population. There are variations, however, within that span of years. For example, the labor force as a part of total population was 39.0% in 1980, 44.9% in 1990, and 41.9% in 2000.

		DCE AND	TABLE 4	2 TEDISTIC	CS SELEC	FED VEAI	DC
	IVILAN LADUK FU	JKUE ANL	Labor Force	<u>IERISIN</u>	% Change		
County		1980 1990		2000	1980-90	1990-00	1980-00
Charlotte							
	Labor Force	18,854	41,441	50,634	119.8%	22.2%	168.6%
	% of Total Population	32.3%	37.3%	35.8%			
Collier	*						
	Labor Force	36,088	72,944	100,050	102.1%	37.2%	177.2%
	% of Total Population	42.0%	48.0%	39.8%			
Glades	-						
	Labor Force	2,273	3,207	3,713	41.1%	15.8%	63.4%
	% of Total Population	37.9%	42.2%	35.1%			
Hendry							
5	Labor Force	7,932	12.845	15,125	61.9%	17.8%	90.7%
	% of Total Population	42.6%	49.8%	41.8%			
Lee	-						
	Labor Force	82.039	154.303	181.961	88.1%	17.9%	121.8%
	% of Total Population	40.0%	46.0%	41.3%			
Sarasota							
	Labor Force	77,726	123.463	154.026	58.8%	24.8%	98.2%
	% of Total Population	38.4%	44.4%	47.3%			
Region	<u> </u>						
-0-	Labor Force	224,912	408.203	505.509	81.5%	23.8%	124.8%
	% of Total Population	39.0%	44 9%	41.9%			
State	,	27.370					
	Labor Force	4 271 000	6 468 000	7 490 000	51.4%	15.8%	75 4%
	% of Total Population	43.8%	50.0%	46.9%	011.70	10.070	, , 0

Sources: Labor force data from Florida Research and Economic Database website (http://fred.labormarketinfo.com/default.asp). 1980 population data from Table 62, "General Characteristics: 1980." 1990 population data from Table DP-1, "General population and Housing Characteristics: 1990," U. S. Census. 2000 population data from Table DP-1, "Profile of General Demographic Characteristics: 2000," U. S. Census.

Despite the fact that the Region's growth in the labor force exceeded the state's growth in the period from 1980 to 2000, the Region continued to trail the state in labor participation rates. This can be attributed to the fact that retirees, a relatively high proportion of the population in Southwest Florida, generally do not participate in the labor market.

Unemployment

Southwest Florida's unemployment rates reflect state and national trends as well as local economic activities. In 2000, the average unemployment rate for the Region was 2.9% (Table 43). This was below both the state and national rates. Within the Region, Hendry and Glades Counties experienced the highest unemployment rates (11.1% and 6.6%, respectively). Sarasota County enjoyed the lowest rate, 2.1%. Figure 9 shows changes in the unemployment rates of the Region, state, and nation.

TABLE 43 UNEMPLOYMENT RATE									
County	1980	1985	1990	1995	1999	2000			
Charlotte	4.6	5.0	5.4	4.7	3.2	2.7			
Collier	7.8	7.6	5.5	6.9	3.8	3.5			
Glades	13.0	8.7	9.0	9.6	7.4	6.6			
Hendry	8.7	12.8	12.8	15.2	12.2	11.1			
Lee	5.4	4.8	4.4	4.2	2.6	2.6			
Sarasota	4.8	4.2	4.1	3.4	2.1	2.1			
Region	7.4	7.2	6.9	4.9	3.1	2.9			
State	6.0	6.0	5.9	5.5	3.9	3.6			
Nation	7.1	7.2	5.4	5.6	4.2	4.0			

Source: Florida Research & Economic Database.





Source: Derived from Table 43.

Employment by Economic Sector

From 1990 to 1999, 84,185 jobs were created in the Region (Table 44). This is an increase of 23.9%, or an annual increase of 2.4%.

The fastest growing sector in the period 1990 to 1999 was the services sector, which increased 47.0%, and the trade sector, which increased 20.7%. The dramatic increase in employment rates in these sectors is due to increased tourist spending and a fundamental shift of the U.S. economy toward a service-based economy. Figure 10 illustrates increases in the Region's employment by economic sectors.

				TABLE 44				
	NON-AG	RICULTUI	RAL EMI	PLOYMEN	T BY ECC	DNOMIC S	ECTOR	
Year	Total	Μ	С	T/C/U	Trade	F/I/R	S	G
Charlotte				Ĩ				
1970	4,951	161	411	241	1,226	872	1,140	900
1980	14,456	380	3,160	596	3,595	1,935	3,120	1,670
1990	26,919	921	2,645	923	8,517	1,818	8,120	3,975
1999	34,822	1,154	2,580	894	10,565	1,755	12,624	5,250
Collier								
1970	10,318	345	2,112	395	2,647	1,536	1,763	1,520
1980	27,981	1,104	4,223	1,049	8,539	2,549	6,673	3,844
1990	60,674	2,361	7,661	1,854	16,952	5,044	19,900	6,902
1999	88,270	2,861	10,684	2,268	24,774	5,818	32,385	9,510
Glades								
1970	578	200	9	40	60	9	40	220
1980	567	9	60	75	90	18	27	288
1990	574	28	N/A	N/A	120	N/A	85	341
1999	794	N/A	38	N/A	134	20	219	383
Hendry		-						
1970	2,092	397	40	61	456	58	460	620
1980	3,953	657	166	163	1,095	237	299	1,336
1990	5,043	N/A	372	216	1,355	276	837	1,987
1999	6,675	N/A	268	330	2,192	240	1,239	2,406
Lee								
1970	24,233	1,695	3,530	1,785	7,596	2,502	3,005	4,120
1980	64,777	3,517	8,371	3,805	19,717	5,882	12,762	10,723
1990	121,830	5,830	12,531	5,570	36,957	9,132	32,154	19,656
1999	153,729	6,908	15,168	7,271	45,136	9,199	44,347	25,700
Sarasota		•	-					
1970	31,674	3,412	4,002	1,660	9,540	2,231	5,969	4,860
1980	69,354	6,137	7,662	3,062	20,621	5,872	16,154	9,846
1990	114,102	8,931	9,272	3,667	34,139	8,121	36,425	13,547
1999	129,710	8.175	9.283	3.524	35.528	8.612	52,553	12.035

			TA	BLE 44 Co	nt.			
	NON-AG	RICULTU	RAL EMI	<u>PLOYMEN</u>	T BY ECC	DNOMIC S	ECTOR	
Year	Total	М	С	T/C/U	Trade	F/I/R	S	G
Region								
1970	73,846	6,210	10,104	4,182	21,525	7,208	12,377	12,240
1980	181,088	11,804	23,642	8,750	53,657	16,493	39,035	27,707
1990	329,142	18,071	32,481	12,230	98,040	24,391	97,521	46,408
1999	414,000	19,098	38,021	14,287	118,327	25,644	143,393	55,284
Florida (Nu	<u>mber of emp</u>	oloyees in the	ousands)					
1970	2,167	332	167	153	575	129	412	399
1980	3,473	454	265	209	926	251	760	608
1990	5,247	520	323	268	1,448	366	1,487	835
1999	6,629	488	367	341	1,713	439	2,331	951
United Stat	<u>es (Number (</u>	of employees	s in thousan	ids)				
1970	70,257	19,367	3,588	4,515	15,040	3,645	11,548	12,554
1980	89,378	20,285	4,346	5,146	20,310	5,160	17,890	16,241
1990	108,694	19,076	5,120	5,777	25,774	6,709	27,934	18,304
1999	128,080	18,432	6,273	6,792	29,791	7,632	39,000	20,160
% Change	- Region							
1970-1980	145.2	90.1	134.0	109.2	149.3	128.8	215.4	126.4
1980-1990	81.8	53.1	37.4	39.8	82.7	47.9	149.8	67.5
1990-1999	25.8	5.7	17.1	16.8	20.7	5.1	47.0	19.1
% Change	- State							
1970-1980	60.3	36.7	58.7	36.6	61.0	94.6	84.5	52.4
1980-1990	51.1	14.5	21.9	28.2	56.4	45.8	95.7	37.3
1990-1999	26.3	-6.2	13.6	27.2	18.3	19.9	56.8	13.9
% Change	- Nation							
1970-1980	27.2	4.7	21.1	14.0	35.0	41.6	54.9	29.4
1980-1990	21.6	-6.0	17.8	12.3	26.9	30.0	56.1	12.7
1990-1999	17.8	-34	22.5	17.6	15.6	13.8	39.6	10.1

Note: The number shown for each industry is the monthly average for that industry in the year cited. Due nondisclosure, averaging, rounding, etc. of data within an industry column, subtotals may be different from the totals. Nondisclosed data (noted by "NA") is not included in the row totals for each industry for the region.

Sector Abbreviations:

- Total Total Non-Agricultural Wage and Salary Employees
- M Manufacturing
- C Construction
- T/C/U Transportation, Communication, Utilities (including electric, gas and sanitary services, etc.)
- Trade Wholesale and Retail Trade
- F/I/R Finance, Insurance, and Real Estate
- S Services
- G Government (including court systems, county offices, police, fire, etc.)
- Source: <u>Statistical Abstract of the United States</u>, 1993, Table No. 660, 663 & 690 & 2000 Table 683. <u>Florida</u> <u>Statistical Abstract</u>, 1998, Table 6.05. Source: Data for 1990 and 1999 for counties and state from (Florida) Agency for Workforce Innovation, Office of Workforce Information Services, Labor Market Statistics, ES-202 Program, in cooperation with the U. S. Department of Labor, Bureau of Labor Statistics. Website (http://www2.myflorida.com/awi/lms/es202/htm), accessed August 6, 2001.



FIGURE 10 REGIONAL NON-AGRICULTURE EMPLOYMENT BY ECONOMIC SECTOR 1980-1999

Source: Derived from Table 43.

The predominance of employment sectors differs significantly within the Region, state, and nation. This can be shown through the use of the location quotient. The location quotient (LQ) measures the relative predominance of an economic sector in one particular economy by comparing it to the economy of another area. With respect to Southwest Florida, the LQ was calculated twice to measure the Region's economy against the state's and the nation's. The location quotients are calculated as follows:

- LQ = <u>Regional Employment in Sector/Total Regional Employment</u> State Employment in Sector/Total State Employment
- LQ = <u>Regional Employment in Sector/Total Regional Employment</u> National Employment in Sector/Total National Employment

The results are presented in Table 45. An LQ equal to one indicates that the industry has the same share of total regional employment as it has of total state (or national) employment. An LQ greater than one indicates that sector has a greater share of total regional employment than of total state (or national) employment. An LQ less than one means the sector has a lower share of total regional employment than of total state (or national) employment than of total state (or national) employment than of total state (or national) employment.

The location quotient figures indicate that the manufacturing and transportation /communication /utilities sectors are less dominant in the regional economy than in the state or national economies (both in 1990 and in 1999). The construction sector had greater representation in the regional economy than in the state in 1990 and 1999. When compared to the nation, construction declined in the region from 1990 to 1999. In comparison to the state, however, construction continues to play a larger role in the region than in the state.

	T	ABLE 45				
1990, 1999 SECTO	R SHARES	OF TOTA	L NON-AG	RICULTUI	RAL	
EMPLOYMENT COV	ERED BY	UNEMPLO	YMENT C	OMPENSA	TION*	
Regi	on's Location	Quotient Wh	nen Regional			
Employ	ment is Com	pared with St	ate Employm	ent		
	% of Emp	loyment in	% of Emp	loyment in		
	Region		St	ate	Location	Quotient
Sector	1990	1999	1990	1999	1990	1999
Construction	9.9	9.2	6.2	5.5	1.6	1.7
Manufacturing	5.5	4.6	9.9	7.4	0.6	0.6
Trans./Comm./Utilities	3.7	3.5	5.1	5.1	0.7	0.7
Trade	29.8	28.6	27.6	25.8	1.1	1.1
Finance/Insurance/Real Estate	7.4	6.2	7.0	6.6	1.1	1.0
Services	29.6	34.6	28.3	35.4	1.1	1.0
Government	14.1	13.4	15.9	14.3	0.9	0.9
Regi	on's Location	Quotient Wh	nen Regional			
Employm	ent is Compa	red with Nati	i onal Employ	ment		
	% of Emp	loyment in	% of Emp	loyment in		
	Reg	gion	St	ate	Location	Quotient
Sector	1990	1999	1990	1999	1990	1999
Construction	5.5	4.6	4.7	4.9	1.2	0.9
Manufacturing	9.9	9.2	17.6	14.4	0.6	0.6
Trans./Comm./Utilities	3.7	3.5	5.3	5.3	0.7	0.7
Trade	29.8	28.6	23.7	23.3	1.3	1.2
Finance/Insurance/Real Estate	7.4	6.2	6.2	6.0	1.2	1.0
Services	29.6	34.6	25.7	30.4	1.2	1.1
Government	14.1	13.4	16.8	15.7	0.8	0.8

* Mining and agricultural employment are not included. Source: Calculated from Table 44

Employment by Occupation

Categorizing the employment of an area by occupation is useful because occupations reflect the skills of the labor force. Twelve major occupation groups encompassing some 400 professions are defined by the U.S. Bureau of the Census.

As in the case of employment within economic sectors, employment within occupation groups increased significantly from 1980 to 1990 (Table 46). The greatest increases were in the protective service, professional, and executive categories, which registered over 95% growth in employment. Only the private household service category decreased during this period.

In 1990, sales, administrative, and professional occupations comprised almost one-half of the working labor force. Other primary occupations included precision production, executive, and service other than private or protective. Machine operators, assemblers and inspectors represented only 2.9% of the Region's work force, reflecting the absence of a strong manufacturing base.

TABLE 46									
REGIONAL EN	MPLOYEN	IENT BY							
MAJOR OCCUPATIO	<u>ON GROUI</u>	<u>P 1980 AN</u>	D 1990						
	Total	Percent	Total	Percent					
	In Listed	of	In Listed	of	Percent				
	Occup.	Total	Occup.	Total	Change				
Occupation Group	1980	1980	1990	1990	1980-1990				
Professional, Technicians and Related Support	27,294	12.7	54,462	14.4	99.5				
Executive, Administrative and Managerial	24,305	11.3	47,431	12.5	95.1				
Sales Occupation	31,549	14.6	59,037	15.6	87.1				
Administrative Support including clerical	32,791	15.2	55,131	14.5	68.1				
Precision Production, Craft and Repair	32,095	14.9	48,564	12.8	51.3				
Machine Operators, Assemblers, and Inspectors	7,356	3.4	10,877	2.9	47.9				
Transportation and Material Moving Occupations	8,302	3.8	14,145	3.7	70.4				
Handlers, Equipment Cleaners, Helpers & Laborers	9,459	4.4	14,627	3.9	54.6				
Farming, Forestry and Fishing	9,943	4.6	15,054	4.0	51.4				
Private Household Service	1,946	0.9	1,645	0.4	-15.5				
Protective Service	3,154	1.5	6,604	1.7	109.4				
Service other than Private or Protective	27,489	12.7	49,252	13.0	79.2				
Employed, 16 years old and over	215,683	100.0	379,393	100.0	75.9				

Note: Breakdown may not match that shown in previous reports due to a change in Census classifications.

Sources: 1980 data from U. S. Census of Population, General Social and Economic Characteristics, Florida, Table 176, "Labor Force Characteristics for Counties: 1980," U. S. Census. 1990 data from 1990 Census of Population, Social and Economic Characteristics, Florida, Table 145, "Occupation of Employed Persons: 1990," U. S. Census.

> MAJOR ECONOMIC SECTORS

An analysis of the individual sectors that make up the regional economy is necessary to understand the characteristics that shape the economy of the Region. The eight major employment sectors described in this section are agriculture; construction; manufacturing; transportation, communications, and utilities; retail and wholesale trade; finance, insurance, and real estate; services; and government.

Agriculture, Farming, Forestry, Fishing, and Mining (SIC 01-14)

Agriculture, including farming, forestry, and fishing, was the primary economic activity of Southwest Florida in the late nineteenth and early twentieth centuries. Agriculture remains a major land use in the Region, but has less economic significance. This is due primarily to the growth of other economic sectors and the urbanization of the Region. Other factors have also played a role, such as changing market demands, natural catastrophes, increasing prices for raw land, and the loss of productivity due to over-farming.

The Region's prolonged growing season encourages the farming of sugarcane, citrus, flowers, and a broad range of produce. Ranching is also favored by the area's climate. Much of the farming requires extensive use of water, which has made large capital investments for irrigation systems necessary. Such expenses, coupled with other risks, have caused some farmlands to be abandoned or sold for urban development.

The forestry industry in Southwest Florida first developed around the extensive resources of the freshwater wetland cypress forests. This activity has decreased due to the intensity of initial logging, which reduced the renewable stock, and the drainage of much of the wetlands. These two factors have largely prevented the regeneration of broad expanses of cypress forests.

The large fishing industry in the Region is dependent upon the productivity of Southwest Florida's coastal waters. This natural productivity is sensitive to the many changes accompanying other types of economic development, particularly those that destroy wetland-estuarine areas essential to marine life food chains. In certain areas of the Region, the fishing industry and land development are in competition for the use of the same natural resources.

Agriculture remains the primary economic activity in the two inland counties of Glades and Hendry. The condition of farming, forestry, and fishing in the Region is discussed below.

<u>Farming</u>

Farming is an important activity in Florida. Although the state is not ordinarily thought of as an agricultural state, it ranks ninth in the United States in value of agricultural products sold, totaling over \$6.81 billion in 1998. (Florida Statistical Abstract 2000, Table 9.42.)

There were 1,859 farms in the Region in 1997 (Table 47). These farms encompassed an estimated 1,810,329 acres. Since 1949, however, the amount of land devoted to farming has decreased from 2.4 million acres to 1.8 million acres in 1997.

The distribution of agricultural lands devoted to crops, woodlands, and livestock raising has also undergone considerable change. During this forty-eight year period, the number of commercial farms in the Region increased from 1,202 to 1,839, a 54.6% increase, but with variations throughout the years.

TABLE 47 FARMING ACREAGE IN SOUTHWEST FLORIDA, SELECTED YEARS								
	Number of	Total Farm			Livestock Raising			
	Farms	Acreage	Cropland	Woodlands	and Other			
Charlotte		Ū.	-					
1949	113	406,624	2,776	291,293	184,555			
1982	139	217,117	38,103	70,191	108,823			
1987	197	214,364	23,925	69,183	121,256			
1992	214	227,202	35,622	24,646	166,934			
1997	209	290,340	44,577	95,813	149,950			

EAD	MINC ACDEAC	TABLE E IN SOUTHW	TABLE 47(cont.) FADMING ACDEACE IN SOUTHWEST FLODIDA, SELECTED VEADS									
ГАГ	Number of	E IN SOUTHW Total Farm	EST FLOKID	A, <u>SELECTED</u>	I LAKS							
	Farms	Acreage	Cronland	Woodlands	and Other							
Collier	1 (11)	Aler Cage	Cropland	() Obulanus								
1949	193	466 874	11 308	141 786	313 779							
1982	197	281 304	51 931	81 964	197 409							
1987	224	332.177	59.871	82.368	189,920							
1992	254	301.977	97.628	72,485	141.864							
1997	235	277.279	69.212	52,707	155.360							
Glades			•									
1949	85	530,775	21,426	36.733	472.615							
1982	171	489.619	31,287	(D)	(D)							
1987	194	222,232	32,420	63,588	(D)							
1992	206	369,965	43,236	28,477	298,252							
1997	188	380,377	41,361	5,984	333,032							
Hendry												
1949	148	636,396	36,891	293,579	305,926							
1982	298	538,640	(D)	(D)	366,306							
1987	396	545,111	141,185	46,060	357,866							
1992	389	529,835	195,139	63,679	271,017							
1997	403	604,677	204,996	104,758	294,923							
Lee												
1949	395	177,252	23,704	127,100	26,448							
1982	349	118,552	27,850	17,175	73,527							
1987	415	132,665	32,689	20,066	79,910							
1992	517	106,721	29,990	12,477	64,254							
1997	509	129,001	34,155	12,738	82,108							
Sarasota												
1949	268	173,575	26,654	115,329	31,592							
1982	317	206,976	11,904	35,799	159,273							
1987	352	166,766	13,492	42,117	111,157							
1992	328	151,242	25,290	11,743	114,209							
1997	315	128,655	18,781	21,704	88,170							
Region												
1949	1,202	2,391,496	122,760	1,005,820	1,334,915							
1982	1,471	1,852,208	161,075	205,129	905,338							
1987	1,778	1,613,315	303,582	323,382	860,109							
1992	1,908	1,686,942	416,905	213,507	1,056,530							
1997	1,859	1,810,329	413,082	293,704	1,103,543							

(D): Data not disclosed.

Source: <u>Florida Statistical Abstract</u>, BEBR, 1990 and 1998, Tables 9.36 and 9.37; Florida Statistical Abstract 2000, <u>Table 9.36, "Farms: Land in Farms by Use in the State and Counties of Florida, 1997</u>; U.S. Census of Agriculture, 1992, Table 6; U.S. Department of Agriculture, 1997 Census of Agriculture, 1997, Table 6.

Although the number of farms increased, the average size of farms decreased from nearly 1,990 acres in 1949 to 974 acres in 1997 (Table 47). (Average farm size was derived by dividing total farm acreage by the number of farms.) Farm size varied widely among the Region's six counties. In 1997, the smallest farms were in Lee County (253 acres) while the largest farms were in Glades County (2,023 acres).

Citrus fruit is a major agricultural commodity in Southwest Florida. Between 1987 and 1997, Southwest Florida's orange harvest, for example, increased 228%, while Florida's citrus harvest increased only 94% during the same period (Table 48). This indicates that citrus production in Florida is shifting to Southwest Florida. Fear of hard freezes, the threat of citrus canker, competition from foreign citrus growers, and escalating land values will continue to impact citrus production in Southwest Florida.

	TABLE 48 SOUTHWEST FLORIDA CITRUS HARVEST AND ACREAGE 1987, 1992 & 1997											
		Р	ounds Harve	sted (in 000	s)							
		Oranges			Grapefruit			Total Acres				
County	1987	1992	1997	1987	1992	1997	1987	1992	1997			
Charlotte	106,156	242,721	446,262	7,938	50,186	72,457	7,274	(D)	23,487			
Collier	144,901	402,264	886,334	28,584	40,517	127,485	11,299	30,448	34,861			
Glades	140,591	196,607	302,971	(D)	6,913	10,351	(D)	(D)	(D)			
Hendry	917,374	1,750,977	2,730,962	197,849	275,786	338,743	57,974	(D)	114,600			
Lee	106,040	97,930	307,882	18,552	30,123	55,615	5,642	8,342	13,786			
Sarasota	20,523	43,735	43,707	4,958	12,877	(D)	1,873	3,264	2,376			
Region	1,435,585	2,734,234	4,718,118	257,881	416,402	604,651	84,062	42,054	189,110			
State	10,467,824	12,273,120	20,314,139	3,633,686	3,290,952	4,892,929	734,803	887,904	959,364			
Region as % of State	13.7%	22.3%	23.2%	7.1%	12.7%	12.4%	11.4%	4.7%	19.7%			

Source: U.S. Census of Agriculture, 1987, Table 28; U.S. Census of Agriculture, 1992, Table 31; U.S. Department of Agriculture, Census of Agriculture, 1997, Table 31.

Sugarcane production is another important agricultural activity in the Region (Table 49). In Southwest Florida, sugarcane is grown only in Glades and Hendry Counties. The Region's production of sugarcane for sugar in 1987 accounted for 1,113,505 tons or 7.9% of the state's total production. By 1997, however, the Region's share of sugarcane production had increased to 15.8% of the state production. Part of this increase is due to a reduction in statewide production over the last five years. The future of sugarcane production in the Region is uncertain as sugar prices continue to drop.

TABLE 49 SOUTHWEST FLORIDA SUGARCANE PRODUCTION, 1987, 1992 & 1997										
	Н	arvested Acr	res	Pro	Production In Tons					
County	1987	1992	1997	1987	1992	1997				
Glades	8,187	15,773	15,333	265,824	529,94	518,268				
Hendry	24,660	54,755	55,026	847,681	1,878,990	2,069,704				
Region	32,847	70,528	70,359	1,113,505	2,408,934	2,587,972				
State	418.759	445,999	436.597	14,146,123	16.718.840	16.313.361				

Includes sugarcane produced for seed and sugar.

Source: U.S. Census of Agriculture, 1992, Table 27; U.S. Department of Agriculture, Census of Agriculture, 1997, Table 27.

Vegetable production is likewise crucial to the agricultural economy of Southwest Florida (Table 50). As a percentage of total agricultural land in the Region, vegetable acreage is small: 2.8% in 1987 and 2.1% in 1997. As a percentage of total cropland in the state devoted to vegetable production, the Region accounted for a significant 17.2% in 1987 and 16.8% in 1997. However, the overall acreage in vegetable production declined since 1987, despite a slight increase in the 1992 Census.

TABLE 50 SOUTHWEST FLORIDA VEGETABLE* PRODUCTION, 1987, 1992 & 1997										
		Farms			Acres					
County	1987	1992	1997	1987	1992	1997				
Charlotte	5	11	6	790	1,335	1,201				
Collier	51	43	16	25,964	30,404	17,010				
Glades	3	7	(D)	(D)	722	(D)				
Hendry	37	25	28	7,567	5,801	9,646				
Lee	34	27	24	9,730	8,750	6,907				
Sarasota	25	21	10	1,706	1,261	1,485				
Region	155	134	87	45,757**	48,273	38,249**				
State	2,053	1,988	1,500	265,331	271,534	226,366				

(D) Data withheld for confidentiality purposes.

* Includes sweet corn, tomatoes, melons and others.

**Total does not include Glades County 1987 and 1997 acreage due to data withheld for confidentiality purposes.

Source: U.S. Census of Agriculture, 1992, Table 29; U.S. Department of Agriculture, Census of Agriculture, 1997, Table 29.

Cattle production in Southwest Florida agricultural economy has declined slightly since 1987 (Table 51). The number of cattle in the Region decreased 12.2% between 1987 and 1997. Rangeland acreage, however, increased 29.8% during the same time period. The Region's share of the state's cattle and rangeland acreage in 1987 and 1997 increased from 16.8% to 24.1%, indicating that the Southwest Florida cattle industry is still very important to the state.

TABLE 51 SOUTHWEST FLORIDA CATTLE STOCK AND RANGELAND, 1987, 1992 & 1997										
	Pastur	e/Rangeland* A	Number of Cattle and Calves							
County	1987	1992	1997	1987	1992	1997				
Charlotte	116,908	160,603	132,020	26,767	26,513	25,159				
Collier	171,518	114,537	121,921	35,630	27,393	9,990				
Glades	(D)	287,709	304,328	57,092	57,072	67,693				
Hendry	289,297	222,952	262,555	103,759	92,100	91,875				
Lee	73,996	58,212	74,827	15,743	11,801	12,358				
Sarasota	103,906	110,626	85,501	25,894	29,099	25,651				
Region	755,625**	954,639	981,152	264,975	243,978	232,726				
State	4,495,653	4,456,686	4,069,927	1,879,124	1,783,968	1,808,900				

* All pastureland and rangeland other than cropland and pastured woodland.

** Total does not include Glades County 1987 acreage due to data withheld for confidentiality purposes.

(D) Data withheld for confidentiality purposes.

Source: U.S. Census of Agriculture, 1992, Tables 6 and 14; U.S. Department of Agriculture, Census of Agriculture, 1997, Table 6 and 14.

Fishing Industry

The fishing industry has historically been both a commercial and recreational boon to Southwest Florida. Some of the earliest communities in the Region began as fishing villages. Sport fishing has been (and still is) touted by several communities as a substantial area attraction.

An important determinant of fishing industry activity is the market for fish in general, and for certain species of fish in particular. A good market price, for example, encourages increased fishing and a greater demand for species with a high price. As a result, fishing harvests may vary from year to year.

As seen in Table 52, the majority of fishing licenses granted in 1998 in the Region were for restricted species and saltwater products.

In that same year, landings of marine species in Southwest Florida totaled 17.9 million pounds, a 31.8% decrease from 1975 (Table 53). Factors that cause declines in fishing include the destruction of fishing resources, either from over-fishing or destruction of species; competition by other areas or nations for fishing resources; and the cost of operating fishing craft.

	TABLE 52										
FISHERY RESOURCE LICENSES, 1998											
Туре	Charlotte	Collier	Lee	Sarasota	Region						
Crab, Blue	118	135	243	86	582						
Crab, Stone	71	131	178	79	459						
Crawfish/Lobsters	15	35	77	15	142						
Marine Life	4	7	11	10	32						
Purse seine	2	7	1	6	16						
Restricted species	175	216	464	124	979						
Retail dealers	52	46	101	43	242						
Saltwater products	229	272	623	183	1,307						
Wholesale dealers	10	19	57	15	101						
Other permits	4	7	24	2	37						
TOTAL	680	875	1,179	563	3,897						

Source: Department of Environmental Protection, Florida Marine Research Institute, 1998 figures.

Over-fishing can result from intense competition between commercial and sports fishermen, while destruction of species can result from either water degradation, such as red tides, or the destruction of feeding areas. Reports have also been made about traditional international fishing areas being closed by the actions of other nations. Similarly, reports have been made regarding the cost and effects of modernizing the fishing industry. Modernization has either driven out or made less competitive those fishermen who could not afford the transition.

Declines in fishing have also affected other sectors of the economy, such as manufacturing and wholesale and retail trade. The manufacturing sector includes the seafood processing industry while the trade sector includes wholesale and retail sales of seafood.

	TABLE 53 SUMMARY OF MARINE LANDINGS - SELECTED YEARS										
Vear	Food Fish (000 Lbs.)	Food Fish	Invertebrates	Invertebrates	Shrimp	<u>ED TEAR</u> Shrimp \$0	Total (000 Lbs.)	Total \$0			
Charlotte		40				WU					
1975	2,939	N/A	283	N/A	172	N/A	3,394	N/A			
1978	2,419	N/A	784	N/A	140	N/A	3,343	N/A			
1983	4,260	1,392	338	194	96	233	4,694	1,819			
1989	3,368	2,223	512	859	67	125	3,946	3,207			
1992	2,393	1,339	668	337	80	231	3,141	1,908			
1998	1,097	N/A	1,375	N/A	62	N/A	2,534	N/A			
Collier											
1975	3,911	N/A	1,055	N/A	1	N/A	4,967	N/A			
1978	2,402	N/A	1,329	N/A	0	0	3,731	1,976			
1983	1,787	1,161	816	2,325	0	0	2,603	3,486			
1989	4,679	3,088	1,448	2,432	0	0	6,126	5,520			
1992	2,193	2,030	1,986	7,481	8	40	4,188	9,551			
1998	1,548	N/A	1,951	N/A	110	N/A	3,498	N/A			

	TABLE 53 (cont.)											
	S	SUMMARY	OF MARINE	E LANDINGS	- SELECT	ED YEAR	S					
	Food Fish	Food Fish	Invertebrates	Invertebrates	Shrimp	Shrimp	Total	Total				
Year	(000 Lbs.)	\$0	(000 Lbs.)	\$0	(000 Lbs.)	\$0	(000 Lbs.)	\$0				
Lee												
1975	11,860	N/A	102	N/A	5,169	N/A	17,131	N/A				
1978	10,358	N/A	166	N/A	5,169	N/A	15,693	12,304				
1983	10,184	6,711	832	709	3,491	9,994	14,507	17,414				
1989	7,340	4,844	1,529	2,568	2,481	4,615	11,349	12,027				
1992	6,559	4,220	1,496	1,313	1,955	5,932	10,010	11,464				
1998	3,160	N/A	2,650	N/A	6,219	N/A	12,158	N/A				
Sarasota												
1975	544	N/A	157	N/A	0	0	701	N/A				
1978	122	N/A	0	0	0	0	122	0				
1983	306	191	21	74	12	38	339	303				
1989	1,469	970	56	93	0	1	1,525	1,064				
1992	453	425	57	90	7	35	517	550				
1998	89	N/A	96	N/A	0	N/A	185	N/A				
Region												
1975	19,254	N/A	1,597	N/A	5,342	N/A	26,193	N/A				
1978	15,301	N/A	2,279	N/A	5,309	N/A	22,889	14,280				
1983	16,537	9,455	2,007	3,302	3,599	10,265	22,143	23,022				
1989	16,855	11,124	3,544	5,953	2,549	4,741	22,947	21,818				
1992	11,598	8,014	4,207	9,221	2,050	6,238	17,855	23,473				
1998	5,894	N/A	6,072	N/A	6,391	N/A	18,375	N/A				
% of State	е											
1975	19.3	N/A	5.2	N/A	16.7	N/A	16.1	N/A				
1978	16.6	N/A	7.3	N/A	15.3	N/A	14.5	15.5				
1983	16.3	15.5	5.4	8.3	10.8	15.9	12.9	13.9				
1989	18.5	18.5	9.9	9.9	10.6	10.6	15.2	13.2				
1992	10.4	10.0	13.2	17.2	10.1	13.7	10.8	12.8				
1998	10.5	N/A	16.5	N/A	19.7	N/A	14.4	N/A				

* Total may not equal sum of breakdown due to rounding.

Source: National Marine Fisheries Service, unpublished data for selected years; Department of Environmental Protection, Florida Marine Research Institute, 1992 figures.

Mineral Production

Oil and Gas Production

Only two areas in Florida have measurable oil and gas production. One is the Jay Field in Florida's Panhandle and the other is in Southwest Florida in an area at the junction of Collier, Hendry, and Lee Counties (Map 4). Southwest Florida produced 1.2 million barrels of oil and 173,353,000 cubic feet of gas in 1993 (Table 54).



OIL-PRODUCING FIELDS SOUTHWEST FLORIDA REGION

TABLE 54 OIL AND GAS PRODUCTION SOUTHWEST FLORIDA, 1971-2000									
Year	Number of Producing Wells	Oil Barrels in Thousands	Gas Thousand Cubic Feet						
1971	65	4,657	335,149						
1975	74	4,835	380,726						
1980	80	4,406	328,894						
1985	70	2,795	210,190						
1990	40	1,426	113,392						
1993	88	1,217	173,353						
1999	60	1,128	126,899						
2000	57	1,045	113,189						

Source: Florida Department of Environmental Protection, Florida, Geological Survey, Oil and Gas Section, "Florida Oil and Gas Monthly Production Report."

The oil produced in this area is shipped by pipeline to Port Everglades on the east cost of Florida. The natural gas, when produced in sufficient quantities, is used as a power source at the sites of oil production. There are eleven designated fields in this area with approximately 85 producing wells.

Some sources suggest a high probability that oil exists in the Gulf of Mexico west of Collier County. In light of environmental concerns over the ability to manage cleanup operations after coastal oil spills, however, the political and public consensus has been against further oil exploration and drilling operations along the Southwest Florida coastline. A recent federal moratorium on offshore lease sales in Southwest Florida waters has prevented any new offshore petroleum drilling operations. The issue of offshore drilling is likely to continue to be a controversial one for the foreseeable future.

The importance of the Region's current oil and gas production in relation to the energy situation in the country is minimal. The oil produced in these fields would not make the Region self-sufficient in fuels. This production does represent, however, the only significant source of exportable energy resources within the Region.

Significant Minerals

Mineral resources within the Region include sands, shells, marls, and clays (used in construction); differing grades of phosphatic sands and clays, limestones (crushed stone), and fullers earth; and peats and petroleum and natural gas deposits. There are also suspected offshore petroleum and natural gas reserves in the Gulf. Other exploitable mineral resources in the Region are limited or unknown.

Table 55 lists the principal mineral resources produced in Southwest Florida. The continued growth and diversification of the mineral industry in Southwest Florida will depend on the utilization of its non-metallic mineral resources.

	TABLE 55 PRINCIPAL MINERALS PRODUCED IN						
SUUTHWEST FLORIDA, 1998							
County		Principal mineral resources					
Charlotte		Crushed stone, sand and gravel					
Collier		Oil and gas, Crushed stone					
Glades		Crushed stone, sand and gravel					
Hendry		Crushed stone, sand and gravel, oil and gas					
Lee		Oil and gas, Crushed stone					
Sarasota		Sand and gravel, Crushed stone					

Source: The Mineral Industry of Florida, 1998, USGS. http://minerals.usgs.gov/minerals/pubs/state/fl.html

Contract Construction (SIC Codes 15-17)

The contract construction sector encompasses the building of residential and commercial structures. In addition, this sector meets the demand for second homes, overall boosting the economy and compensating for the small manufacturing sector. In the past, the contract construction sector has grown the most rapidly of all eight economic sectors in the Region in terms of total number and percent of persons employed. It is, however, the sector most adversely affected by slowdowns in overall economic activity.

The number of firms engaged in construction totaled 4,426 in 1999 (Table 56). Lee County had the greatest percentage (35.7%) of these firms followed by Sarasota with 29.3% and Collier with 24.9%. Those three counties had the majority of construction firms in the Region (89.9% or 3,977). Together, those firms employed 34,996 persons (92.3% of all persons engaged in construction).

	TABLE 56 CONTRACT CONSTRUCTION FIRMS AND EMPLOYMENT, 1999											
	(NAICS Codes 23)											
					Nu	mber of	Firms by	Number o	of Employ	rees		
		County Firms as % of		County Employees as %								
	Total	Regional	Total	of Regional								
County	Firms	Total	Employees	Total	1-4	5-9	10-19	20-49	50-99	100+		
Charlotte	395	8.9%	2,644	7.0%	253	73	40	23	5	1		
Collier	1,101	24.9%	10,143	26.8%	669	194	119	80	26	13		
Glades	15	0.3%	98	0.3%	8	4	2	1	0	0		
Hendry	39	0.9%	159	0.4%	29	6	3	1	0	0		
Lee	1,578	35.7%	15,753	41.6%	965	243	185	123	44	18		
Sarasota	1,298	29.3%	9,100	24.0%	883	215	107	62	21	10		
Region	4,426	100.0%	37,897	100.0%	2,807	735	456	290	96	42		

Note: The data under former SIC codes for contract construction (15, 16, and 17) are now reported under NAICS code 23 for construction. (SIC is Standard Industrial Code. NAICS is North American Industry Classification System.) For additional information, see the following website: http://www.census.gov/epcd/www/naics.html.\

Source: U. S. Census Bureau, County Business Patterns 1999, Florida, Table 6, "Counties--Employees, Payroll, and Establishments by Industry: 1999." Website (http://www.census.gov/prod/www/abs/cbptotal.html) accessed August 13, 2001.

The activity of the contract construction sector, more than any other sector, reflects the impact of population growth. Construction activity can be measured by the actual increase in the number of housing units, if available, or by the number of building permits issued.

The value of building permits, as presented in Figure 11, indicates the importance of the construction sector by itself as well as its impact other sectors of the economy. For example, the estimated \$2.5 billion in expenditures on construction in 1999 is comprised of the following: wages and salaries paid to construction workers, the goods and services of the manufacturing and trade sectors necessary for construction, and the financial/insurance/real estate activities which are part of the marketing of buildings.



FIGURE 11 VALUES OF RESIDENTIAL BUILDING

Note: Building permits do not represent actual construction, only the intent to construct. Also, this does not reflect the value of permits for additions and alterations, which represents the differences between the percentages shown and the countywide total of 100%.

Source: Florida Statistical Abstract, 1986, Table 11.16; 1992, 1996, and 2000 Table 11.15. Building Permit Activity in Florida.

Directly related to this, but not part of building permit values, are land values and transactions. As the economic activity generated by construction spreads throughout the Region, the multiplier effect of the construction industry on practically every other sector becomes apparent.

Housing Stock

As expected, the large population growth in the Region has produced a rapidly growing housing market. From 1970 to 2000, the Region's housing stock added more than 500,000 units, reaching slightly more than 670,000 units (Table 57).
Table 58 indicates growth in housing units in the Region from 1970 to 2000. Housing unit growth averaged 2.9% per year in the Region during the 1990s. While this is a decline from the growth rates seen the 1970s and 1980s, it is still higher than the growth rate of the state overall. In the Region, Collier County had the greatest percentage of growth for the period of 1970-2000 (722.2%).

				T	ABLE 57					
			H	IOUSING	UNITS 19	970-2000				
							Char	nges		
County	1970	1980	1990	2000	1970-80	1980-90	1990-00	1970-90	1970-00	1980-00
Charlotte	13,752	34,798	64,641	79,758	153.0%	85.8%	23.4%	370.0%	480.0%	129.2%
Collier	17,580	50,743	94,165	144,536	188.6%	85.6%	53.5%	435.6%	722.2%	184.8%
Glades	1,443	3,475	4,624	5,790	140.8%	33.1%	25.2%	220.4%	301.2%	66.6%
Hendry	3,985	7,032	9,945	12,294	76.5%	41.4%	23.6%	149.6%	208.5%	74.8%
Lee	43,511	111,013	189,051	245,405	155.1%	70.3%	29.8%	334.5%	464.0%	121.1%
Sarasota	56,242	113,355	157,055	182,467	101.5%	38.6%	16.2%	179.2%	224.4%	61.0%
Region	136,513	320,416	519,481	670,250	134.7%	62.1%	29.0%	280.5%	391.0%	109.2%
State	2,526,536	4,378,691	6,100,262	7,302,907	73.3%	39.3%	19.7%	141.4%	189.0%	66.8%

Source: U.S. Census, 1980, General Housing Characteristics, Florida, Table 46; U.S. Census, 1990, General Housing Characteristics, Florida, Tables 13 and 49.

Additional source: 2000 data from U. S. Census Bureau, Census 2000 Housing Units, website (http://quickfacts.census.gov/cgi-bin/hunits/counts.pl) accessed August 15, 2001.

As Table 58 indicates, an increasing percentage of housing units are built for seasonal use, often by retirees who spend just part of the year in Southwest Florida. From 1980 to 1990, the Region experienced a 14.6% decrease in the number of year-round housing units (Table 59). During this same time period, the state's inventory of year-round units fell only 4.4%.

	TABLE 58												
	SEASONAL AND YEAR-ROUND HOUSING UNITS, 1980-1990												
	Vacai	nt, Season	al & Migr	atory*		Year-	round		All Housing Units		Change		
	19	980	19	90	198	80	199	0	1980	1990	1980-		
County	Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total	Total	1990		
Charlotte	902	2.6%	10,869	16.8%	33,896	97.4%	53,772	83.2%	34,798	64,641	85.8%		
Collier	1,016	2.0%	22,989	24.4%	49,727	98.0%	71,176	75.6%	50,743	94,165	85.6%		
Glades	1,065	30.6%	1,372	29.7%	2,410	69.4%	3,252	70.3%	3,475	4,624	33.1%		
Hendry	304	4.3%	552	5.6%	6,728	95.7%	9,393	94.4%	7,032	9,945	41.4%		
Lee	2,415	2.2%	31,478	16.7%	108,598	97.8%	157,573	83.3%	111,013	189,051	70.3%		
Sarasota	1,153	1.0%	19,728	12.6%	112,202	99.0%	137,327	87.4%	113,355	157,055	38.6%		
Region	6,855	2.1%	86,988	16.7%	313,561	97.9%	432,493	83.3%	320,416	519,481	62.1%		
State	108,300	2.5%	421,003	6.9%	4,270,391	97.5%	5,679,259	93.1%	4,378,691	6,100,262	39.3%		

* Vacant units intended for seasonal occupancy or held for migratory labor.
 Sources: U.S. Census, 1980, General Housing Characteristics, Florida, Table 46; U.S. Census, 1990, General Housing Characteristics, Florida, Tables 13 and 49.

Housing Types

A majority of the Region's housing stock continues to be traditional single-family units. In 1980, single-family units accounted for 62.9% of total year-round units in the Region (Table 59). By 1990, however, that figure dropped to 50.1%, a decrease of 12.8 percentage points. By contrast, multi-family units, as a percentage of total units, increased from 21.7% in 1980 to 33.7% in 1990. The Region's share of mobile homes has remained roughly the same since the 1980's.

	TABLE 59												
	TYPES OF DWELLINGS, 1980* AND 1990 (1)												
		Single	Family	Multi	Multi Family		Mobile		Total Units				
County		1980	1990	1980	1990	1980	1990	1980	1990	1990			
Charlotte	Total	24,353	41,659	3,228	12,273	6,315	10,395	33,896	64,641	314			
	Percent	71.8%	64.4%	9.5%	19.0%	18.7%	16.1%	100.0%	100.0%	0.5%			
Collier	Total	27,020	36,747	16,356	46,626	6,351	10,151	49,727	94,165	641			
	Percent	54.3%	39.0%	32.9%	49.5%	12.8%	10.8%	100.0%	100.0%	0.7%			
Glades	Total	1,370	1,670	132	258	908	2,691	2,410	4,644	25			
	Percent	56.8%	36.0%	5.5%	5.6%	37.7%	57.9%	100.0%	100.0%	0.5%			
Hendry	Total	4,078	4,868	634	1,133	2,016	4,072	6,728	10,127	54			
	Percent	60.6%	48.1%	9.4%	11.2%	30.0%	40.2%	100.0%	100.0%	0.5%			
Lee	Total	65,587	90,606	24,410	64,280	18,601	32,745	108,598	189,051	1,420			
	Percent	60.4%	47.9%	22.5%	34.0%	17.1%	17.3%	100.0%	100.0%	0.8%			
Sarasota	Total	74,675	84,598	23,347	50,319	14,180	20,827	112,202	157,055	1,311			
	Percent	66.6%	53.9%	20.8%	32.0%	12.6%	13.3%	100.0%	100.0%	0.8%			
Region	Total	197,083	260,148	68,107	174,889	48,371	80,881	313,561	519,683	3,765			
	Percent	62.9%	50.1%	21.7%	33.7%	15.4%	15.6%	100.0%	100.0%	0.7%			
State	Total	2,797,611	3,032,769	1,061,341	2,246,445	411,439	762,855	4,270,391	6,100,262	58,193			
	Percent	65.5%	49.7%	24.9%	36.8%	9.6%	12.5%	100.0%	100.0%	1.0%			

*Year-round housing units.

1 All housing units.

2 "Other" includes housing units that do not fit the previous categories. Examples are houseboats, railroad cars, campers, and vans.

Source: U.S. Census, 1980 & 1990, General Housing Characteristics, Florida, Tables 5 & 46 and Tables 13 & 49.

This trend in increasing multi-family homes, which is reflected in state housing figures as well, can be attributed to the seasonal/retirement nature of the Region. Multi-family units (condominiums and apartments) are easier to maintain than single-family homes and are often located along scenic amenities such as golf courses or the coastline.

Figure 12 graphically portrays the variety of housing types found in all counties in the Region, using data from the 1980 and 1990 U.S. Censuses.

FIGURE 12 VARIETY OF HOUSING TYPES BY COUNTY



FIGURE 12 (cont.) VARIETY OF HOUSING TYPES BY COUNTY



Manufacturing (SIC Codes 20-39)

This sector has traditionally been considered the most important segment of an area's economy in determining the future growth of employment and income. Manufacturing jobs, typically high-wage, can boost the disposable income of a given area. The product of manufacturing activity is often exported. As a result, this export or "basic" economic activity generates a flow of monies into the community from outside. A second effect, the "multiplier effect," is to create a demand for additional local employment to service these export or manufacturing jobs. Thus, due to high pay and the economic multiplier effect, the manufacturing sector is a desirable segment of the economy and is actively promoted by localities.

Table 60 examines growth in manufacturing for 1985 to 1999. Manufacturing activity in the Region as measured by employment increased by 3.0% between 1985 and 1996. Statewide, manufacturing decreased 15.8% during that period. Within the Region, Collier County showed the largest increase in the number of manufacturers (74.0%) and in the number of manufacturing employees (59.4%). Sarasota County accounted for both the largest number of manufacturers (395) and manufacturing employees (8,359) in 1999. Those manufacturing employees in Sarasota County were 46.8% of all manufacturing employment within the Region in 1999.

	TABLE 60 MANUFACTURING ACTIVITY, 1985-1999												
		Es	stablishmer	nts			Тс	otal Employe	ees				
County	1985	1988	1991	1996	1999	1985	1988	1991	1996	1999			
Charlotte	54	67	68	77	71	494	694	575	813	677			
Collier	123	150	183	217	214	1,733	1,814	2,499	2,619	2,762			
Glades	5	6	6	4	3	127	167	60	78	76			
Hendry	17	13	15	26	20	771	1,032	900	1,033	713			
Lee	267	296	333	382	383	4,439	6,014	6,028	6,211	5,293			
Sarasota	411	441	402	385	395	9,801	12,021	8,836	9,395	8,359			
Region	877	973	1,007	1,091	1,086	17,365	21,742	18,898	20,149	17,880			
State	14,477	13,733	15,508	16,936	15,601	499,207	454,400	490,477	483,161	420,214			

Note: The source has specific employment numbers in some cases and ranges in other cases. First, the source provides the total number of employees in each industry. In 1996, Charlotte County had 813 employees in manufacturing. For Glades County in 1996, the source lists a range of 20 to 99 employees. Second, the source provides information about the number of establishments by employment-size class. For Glades County in 1996, there were 2 establishments with 1 to 4 employees, 1 with 5 to 9 employees, and 1 with 50 to 99 employees. That would yield a low of 57 (2X1+1X5+1X50) and a high of 116 (2X4+1X9+1X99). Thus, combining the information, Glades County had from 57 to 99 manufacturing employees in 1996. That is listed in the table above as an estimate of 78 (an average of the low 57 and high 99, or 78). The same process was used to estimate the number of employees for Glades County in 1999.

Source: 1996 data from U. S. Census Bureau, County Business Patterns 1996, Florida, Table 1a, "The State--Establishments, Employees, and Payroll, by Major Group: 1996 and 1995," and Table 2, "Counties--Employees, Payroll, and Establishments, by Industry: 1996." 1999 data from U. S. Census Bureau, County Business Patterns 1999, Florida, Table 1, "The State--Establishments, Employees, and Payroll by Major Group: 1999 and 1998," and Table 6, "Counties--Employees, Payroll, and Establishments by Industry: 1999." Website (http://www.census.gov/prod/www/abs/cbptotal.html) accessed August 13, 2001

	TABLE 6 MANUFACTURING FIRMS IN SO	TABLE 61 MANUFACTURING FIRMS IN SOUTHWEST FLORIDA, 1999									
NAICS Code ¹	Classification: 1999	Number of Estab.	Number of Employees*								
311	Food Mfg.	17	447								
312	Beverage and Tobacco Product Mfg.	0	0								
313	Textile Mills	0	0								
314	Textile Product Mills	26	129								
315	Apparel Manufacturing	0	0								
316	Leather and Allied Product Mfg.	0	0								
321	Wood Product Mfg.	14	407								
322	Paper Mfg.	0	0								
323	Printing and Related Support Activities	149	1,135								
324	Petroleum and Coal Products Mfg.	0	0								
325	Chemical Mfg.	21	449								
326	Plastics and Rubber Products Mfg.	45	1,983								
327	Nonmetallic Mineral Product Mfg.	91	1,851								
331	Primary Metal Mfg.	7	111								
332	Fabricated Metal Product Mfg.	130	2,788								
333	Machinery Mfg.	58	972								
334	Computer and Electronic Product Mfg.	38	1,753								
335	Electrical Equipment, Appliance, and	16	486								
336	Transportation Equipment Mfg.	41	577								
337	Furniture and Related Product Mfg.	78	1,224								
339	Miscellaneous Mfg.	112	1,270								
	Totals ²	1,086	17,804								

Manufacturing employment in the Region can be divided into categories, each with its own NAICS code. Table 61 lists these types of manufacturing companies in Southwest Florida.

*Averages based on employment-size class ranges provided.

1--The 1996 data uses the Standard Industrial Classification (SIC) codes, while the 1999 data uses the North American Industry Classification System (NAICS) codes. Due to differences in the systems of classification, the data may not be totally comparable. The NAICS codes will replace all SIC codes in the near future. For additional information, see the NAICS website at http://www.census.gov/epcd/www/naics.html.

2--The totals shown in the total row are larger than the totals of the data shown in the columns due to nondisclosure of data. All nondisclosed data are included in the totals.

Source: 1999 data from U. S. Census Bureau, County Business Patterns 1999, Florida, Table 6, "Counties--Employees, Payroll, and Establishments by Industry: 1999." Website (http://www.census.gov/prod/www/abs/cbptotal.html) accessed August 13, 2001. Table 62 shows the top 13 manufacturers, by employment, within the Region. Two of these firms are involved in agricultural production, while five are newspaper-publishing entities.

TOP SO	TAI IITHWEST FLO	BLE 62 RIDA MANUFACTURERS							
AS MEASURED BY EMPLOYMENT, 1998									
Company	County	Product	Employment						
Gargiulo Inc.	Collier	Potatoes and tomatoes	800						
News-Press Publishing Corp.	Lee	Newspaper publishing	670						
Hi-Stat Manufacturing Co., Inc.	Sarasota	Motor Vehicle Parts & Accessories	650						
Heat Pumps Unlimited, Inc.	Lee	Heat Pumps	600						
Sarasota Herald Tribune	Sarasota	Newspaper publishing	600						
Eaton Corp.	Sarasota	Aerospace relays & switches	500						
U.S. Sugar	Hendry	Sugar cane & citrus juices	500						
Bausch & Lomb, Inc.	Sarasota	Contact lenses	400						
Scripps, EW Co.	Naples	Newspaper publishing	350						
Suncoast Media	Charlotte	Newspaper publishing	280						
Breeze Corp.	Lee	Newspaper publishing	215						
Krehling Industries	Collier	Ready mix concrete	150						
Naples Lumber & Supply	Collier	Structural wood	120						

Source: Florida Chamber of Commerce, <u>1999 Directory of Florida Industries</u>.

Transportation, Communications and Utilities (SIC Codes 40-49)

The transportation/communications/utilities (T/C/U) sector of the Region's economy is the second least developed sector when compared to state employment for the same sector (Table 45). In 1999, the T/C/U sector in the Region accounted for 3.5% of all non-agricultural employment. The state's T/C/U sector comprised 5.1% of total non-agricultural employment (Table 45).

Regional employment and the number of establishments in the T/C/U sector for the year 1999 are presented in Table 63.

	TABLE 63 EMPLOYMENT IN TRANSPORTATION, COMMUNICATIONS AND UTILITIES, 1999											
	Transportation Communications Utilities Totals											
County	Employees	Estab.	Employees	Estab.	Employees	Estab.	Employees	Estab.				
Charlotte	351	64	113	10	295	14	894	93				
Collier	1,338	205	501	28	429	23	2,268	256				
Glades												
Hendry	54	3	46	3	91	4	330	27				
Lee	3,579	334	2,867	73	825	29	7,271	436				
Sarasota	1,602	219	1,292	50	631	23	3,524	292				
Region	6,924	825	4,819	164	2,271	93	14,287	1,104				

Note: Glades County data are withheld due to nondisclosure. Also, Charlotte County and Hendry County have some data withheld due to nondisclosure. For the three subcategories (transportation, etc.), the regional totals do not include nondisclosed data. The overall totals (right-hand columns) for the entire T/C/U group for each <u>county</u>--except Glades County--include all data.

Transportation

Southwest Florida's transportation facilities are diversified among water, rail, road, and air transportation facilities. These are concentrated mainly in the Region's coastal counties. (Please refer to Regional Transportation section, for an expanded discussion of the Region's transportation systems.)

Water transportation in the Region is composed of one port and two major waterways. The port facilities at Boca Grande are used mainly for the import of fuel oil and petroleum products. They will be closed by the year 2002 with the conversion of the FP&L Fort Myers plant to natural gas fuel. There are, however, several other water-dependent oil storage facilities, dockage areas for fishing fleets, and numerous public and private marinas and unregistered dockage areas.

The Region's two major waterways are the Intracoastal Waterway (West Coast Inland Navigation District) and the Okeechobee Waterway. Primarily used by recreational traffic, a portion of each waterway is used to carry petroleum products to the electrical generating plant east of Fort Myers. The volume of goods and passengers transported on the Intracoastal Waterway from the mouth of the Caloosahatchee River and to the east coast via the Okeechobee Waterway is presented in Table 64.

Source: (Florida) Agency for Workforce Innovation, Office of Workforce Information Services, Labor Market Statistics, ES-202 Program, in cooperation with the U. S. Department of Labor, Bureau of Labor Statistics. Website (http://www2.myflorida.com/awi/lms/es202/htm), accessed August 6, 2001

	WAT	TABLE 64 ERBORNE COM	IMERCE ¹	
	Intracoast (Caloosahatche R	al Waterway e River to Anclote iver)	Okeechobee	e Waterway
Year	Tons ²	Passengers ³	Tons ²	Passengers ³
1980	1,215,318	139,276	972,424	39,537
1990	769,000	NA	691,000	NA
1995	529,000	NA	430,000	NA
1997	645,000	NA	560,000	NA

1--This table is based on traffic for the entire length of the intracoastal waterway (160 miles) and the Okeechobee Waterway. Therefore, it includes effects of regions other than Southwest Florida.2--These are short tons. That is, each ton equals 2,000 pounds3--Passenger totals exclude ferry passengers.

Sources: "Waterborne Commerce of the United States, CY 1989, Part 2," Army Corps of Engineers, p. 51; and "MV-GC Region Freight Traffic Tables, Advanced Information, Part 2," CY 1990 and 1992, U. S. Army Corps of Engineers, p. 140 and 187, respectively. Data for 1995 and 1997 are from Waterborne Commerce of the United States, Calendar Year 1997, Part 2, Waterways and Harbors: Gulf Coast, Mississippi River System, and Antilles, pp. 102-104, U. S. Army Corps of Engineers.

Air transportation, prior to 1983, centered primarily around two major airports, Page Field (Fort Myers) and the Sarasota-Bradenton Airport. Substantial commercial, charter, and general aviation traffic, however, was handled by a number of smaller airports. In 1983, the Southwest Florida Regional Airport in Lee County replaced Page Field as a major airport in the area. It has become the dominant air facility of the six-county area. In May, 1993 the Southwest Florida Regional Airport became the Southwest Florida International Airport. Passenger, flight operations, and cargo statistics for the major airports in Southwest Florida are provided in Table 65. Included in Table 65 are statistics from the Southwest Florida International Airport, the Naples Airport, and the Sarasota Bradenton International Airport, the other commercial service airports in the Southwest Florida Region.

Projected growth of airport activity is expected to continue to be substantial. From 1985 to 2000, Southwest Florida International Airport experienced phenomenal growth in total passenger activity (206.0%). The Sarasota-Bradenton and Naples airports also witnessed considerable growth during that time at 26.5% and 52.7%, respectively, but with short cycles of decline.

		TABLE 65		
	AIR TRANSP	PORTATION TRAF	FIC, 1970-2000	
	Total	Total Flight	Air Cargo	Air
	Passengers ⁽²⁾	Operations ⁽³⁾	Total (Lbs.) ⁽⁴⁾	Mail (Lbs.)
Page Field/ SWF In	t'l/Reg'l Airport(1)			
1970	N/A	113,453	1,007,760	176,120
1975	278,228	95,288	522,118	22,237
1980	1,129,056	139,075	3,642,477	209,600
1985	1,701,969	46,352	2,972,335	1,283,026
1990	3,734,067	72,524	12,068,173	4,986,031
1995	4,098,264	69,621	19,556,628	8,471,217
2000	5,207,212	77,042	31,676,009	3,166,270
Sarasota/Bradentor	n Airport			
1970	287,834	132,100	2,095,421	181,989
1975	585,498	133,595	2,824,850	45,611
1980	1,214,975	144,604	3,028,637	11,330
1985	1,222,446	157,931	2,701,261	840,000
1990	2,010,304	173,214	2,474,156	6,606
1995	1,537,336	143,617	1,716,028	2,045,582
2000				
Naples Airport				
1970	N/A	N/A	N/A	N/A
1975	N/A	N/A	N/A	N/A
1980	195,345	N/A	N/A	N/A
1985	75,259	80,680	N/A	N/A
1990	127,255	N/A	N/A	N/A
1995	175,536	N/A	N/A	N/A
2000				

⁽¹⁾Prior to 1983, traffic statistics apply to Page Field; from 1983, Page Field figures are reflected only in the "Flight Operations" column.

⁽²⁾Includes enplanements and deplanements.

⁽³⁾ Includes landings and take-offs.

⁽⁴⁾ Includes Air Express which is freight with a guaranteed delivery date.

Source: Economic Views, SWFRPC, and Airport Manager's Office of each airport.

There are other smaller publicly owned airports in the Region. They are normally oriented towards general aviation, with some interest in compatible industrial development.

Rail transportation service is provided by Seminole Gulf railway serving Sarasota, Charlotte, Lee and Collier Counties on at least one of two lines, and by the South Central Florida Express, Inc. serving Glades and Hendry Counties.

Freight service is furnished, but passenger service is not available. Main rail lines extend southward from Tampa and from Central Florida and westward from Southeast Florida. Most of the original rail mileage in the Region, however, has been abandoned. Rail service to Boca Grande, Immokalee, Venice and the City of Naples has been discontinued. Primary products transported by the railroad

include agricultural commodities. These agricultural products are grown primarily in the interior part of the Region and are exported to other areas of the state.

The main mode of transportation in Southwest Florida is the private automobile. In addition, the road network is used by commercial truck traffic, which distributes the vast majority of goods consumed in the Region. Other uses include mass transit, intercity bus traffic, service vehicles, and bicycles.

The Region's urban road system is badly congested, particularly during the winter months, when the tourist and seasonal population is at its peak. Inter-city and suburban traffic operates at better service levels and is normally satisfactory in the off-season. However, further improvements will be needed to reduce the congestion that is likely to worsen as the Region's population increases.

Communication

Communication in Southwest Florida was represented by print media (SIC 27) and a variety of telecommunications businesses (SIC 48). There are approximately 13 printing and publishing companies (SIC 271) and 158 communications businesses in Southwest Florida in 1999 (Table 66). One hundred and eight telephone-related businesses (SIC 481) comprised the majority of the communication business, with 32 television and radio stations (SIC 483) being the greatest part of the remainder.

	TABLE 66 COMMUNICATION 1999*												
	Printing Communication Telephone Radio & TV Statio												
	Number of		Number of		Number of		Number of						
County	Businesses	Employment	Businesses	Employment	Businesses	Employment	Businesses	Employment					
Charlotte	0	0	10	113	8	110	0	0					
Collier	0	0	27	498	17	179	5	88					
Glades	0	0	0	0	0	0	0	0					
Hendry	0	0	3	46	0	0	0	0					
Lee	7	826	79	2,869	47	1,818	19	687					
Sarasota	6	720	52	1,294	36	681	8	143					
Region	13	1,546	171	4,820	108	2,788	32	918					

Note: Printing: SIC code 271 (newspaper printing and publishing). Communication: SIC code 48 (communication overall). Telephone: SIC code 481 (telephone communications). Radio & TV: SIC code 483 (radio and television broadcasting stations).

Sources: Table 14.36, "Newspaper Printing and Publishing: Average Monthly Private Reporting Units, Employment, and Payroll Covered by Unemployment Compensation Law in the State and Counties of Florida, 1999," Table 14.37, "Telecommunications: Average Monthly Private Reporting Units, Employment, and Payroll Covered by Unemployment Compensation Law in the State and Counties of Florida, 1999," and Table 14.38, "Radio and Television Broadcasting Stations and Cable and Other Pay Television Services: Average Monthly Private Reporting Units, Employment, and Payroll Covered by Unemployment Compensation Law in the State and Counties of Florida, 1999." <u>Florida Statistical Abstract 2000</u>.

Retail and Wholesale Trade

Total Gross Sales

An important indicator of the Region's overall economic state is gross sales, which reflects both taxable and nontaxable sales activities. As shown in Table 67, the Region's total gross sales increased by 9.0% per year the period of 1989 to 1999. Discounting the effects of inflation and population growth, real per capita gross sales in the Region increased 0.8% per year during 1989-1999. The state's real per capita gross sales increased 1.6% during the same period. Within the Region, Collier, Lee, and Sarasota Counties witnessed the largest increases in real per capita gross sales between 1989 and 1999.

	TABLE 67											
	Nominal Change Real 1999 Per Capita Real Per Capita											
	Total Gross	Sales (000\$)	in Gross Sales		Per Capita Sales		Sales	Cha	nge			
County	1989	1999	1989-99	Annual	1989	1999	(1989 \$)	1989-99	Annual			
Charlotte	\$1,248,957	\$2,352,019	88.3%	8.8%	\$12,589	\$17,197	\$12,799	1.7%	0.2%			
Collier	\$3,043,700	\$6,975,459	129.2%	12.9%	\$21,032	\$31,752	\$23,633	12.4%	1.2%			
Glades	\$43,764	\$74,509	70.3%	7.0%	\$5,636	\$7,551	\$5,620	-0.3%	0.0%			
Hendry	\$605,505	\$989,301	63.4%	6.3%	\$23,166	\$32,381	\$24,101	4.0%	0.4%			
Lee	\$5,809,780	\$10,787,030	85.7%	8.6%	\$17,903	\$25,861	\$19,248	7.5%	0.8%			
Sarasota	\$4,887,326	\$8,496,915	73.9%	7.4%	\$18,517	\$26,467	\$19,699	6.4%	0.6%			
Region	\$15,639,032	\$29,675,233	89.8%	9.0%	\$18,053	\$26,145	\$19,460	7.8%	0.8%			
State	\$289,076,440	\$538,986,640	86.5%	8.6%	\$22,589	\$35,177	\$26,182	15.9%	1.6%			

Source: <u>Florida Statistical Abstract</u>, BEBR, 1990, 1993 and 1999; Table 16.82, "Gross and Taxable Sales: Sales Reported to the Department of Revenue in the State and Counties of Florida, 1998 and 1999." <u>Florida</u> <u>Statistical Abstract 2000.</u>

Wholesale Trade (SIC Codes 50-51)

There were 1,448 firms in the Region engaged in wholesale trade in 1991 (Table 68). By 19969 this section had grown to 2,104 firms, an increase of 45.3%. This is only slightly less than the increase of 46.0% seen in the state during the same period. Lee and Sarasota Counties serve as the Region's primary wholesale centers, comprising 69.1% of the Region's wholesale establishments in 1999.

				ТА	BLE 68						
WHOLESALE TRADE (SIC CODES 50-51) 1991, 1996, 1999											
		Firms		Numł	per of Empl	oyees	Annu	al Payroll (\$	000's)		
County	1991 1996 1999 1991 1996 1999 1991							1996	1999**		
Charlotte	82	118	144	397	522	710	\$7,822	\$12,509	\$20,880		
Collier	252	413	460	1,781	1,418	2,723	\$39,950	\$41,870	\$95,436		
Glades	3	6	4	10*	10*	30	(D)	(D)	\$948		
Hendry	24	17	42	175*	156	380	(D)	\$3,692	\$12,120		
Lee	563	700	756	4,933	4,861	5,628	\$112,503	\$109,070	\$182,388		
Sarasota	524	613	698	3,640	3,679	4,067	\$84,047	\$100,977	\$134,940		
Region	1,448	1,867	2,104	10,936	10,646	13,538	244,322	268,118	\$446,712		
State	27,479	34,934	40,106	280,872	317,359	364,383	\$7,253,466	\$9,933,729	\$14,962,896		

* Average based on employment-size class data provided.

** The source for the 1999 data provides monthly payroll amounts. That information has been converted to annual data for this table.

(D) Data withheld to avoid disclosure of information about individual firms.

Source: U.S. Department of Commerce, <u>County Business Patterns</u>, Florida, 1991, 1996. 1999 data from Table 16.44, "Wholesale Trade: Average Monthly Private Reporting Units, Employment, and Payroll Covered by Unemployment Compensation Law in the State and Counties of Florida, 1999." <u>Florida Statistical Abstract 2000</u>.

Retail Trade (SIC Codes 52-59)

The Region's retail needs were fulfilled by 6,873 retail firms in 1999 (Table 69). This is a decrease over 1991. Regional retail employment, however, increased 13.1% during the 1991-1999 period. The retail trade payroll figure in the Region increased from \$1,082.9 million in 1991 to \$1,903.6 million in 1999. This is an increase of 75.8%.

	TABLE 69 RETAIL TRADE (SIC CODES 52-59) 1991, 1996, 1999											
	Firms Number of Employees Annual Payroll (\$000's)											
County	1991	1996	1999	1991	1996	1999	1991	1996	1999*			
Charlotte	669	679	620	8,630	9,964	9.833	\$89,134	\$123,257	\$158,412			
Collier	1,484	1,691	1,634	17,178	21,994	21,994	\$210,410	\$317.082	\$425,544			
Glades	20	16	19	103	231	133	\$822	\$1,873	\$1,524			
Hendry	153	112	131	1,425	1,387	1,788	\$13,757	\$16.640	\$25,980			
Lee	2,516	2,519	2,375	33,593	36,117	39,396	\$399,197	\$511.943	\$719,256			
Sarasota	2,431	2,304	2,094	31,672	29,702	31,561	\$369,575	\$433,148	\$572,928			
Region	7,273	7,321	6,873	92,601	99.395	104,705	\$1,082,895	\$1,403,943	\$1,903,644			
State	89 601	90 524	81 519	1 162 683	1 236 621	1 348 272	\$14 234 771	\$16,505,640	\$24,014,532			

* The source for the 1999 data provides monthly payroll amounts. That information has been converted to annual data for this table.

Source: 1999 data from Table 16.45, "Retail Trade: Average Monthly Private Reporting Units, Employment, and Payroll Covered by Unemployment Compensation Law in the State and Counties of Florida, 1998 and 1999." <u>Florida Statistical Abstract 2000</u>. U.S. Department of Commerce, <u>County Business Patterns</u>, Florida, 1991, 1996.

Nominal retail sales in the Region totaled \$17.5billion in 1999 (Table 70). Nominal per capita retail sales were \$15,417 in the Region, versus \$14,792 in the state as a whole. In real terms, retail sales in Southwest Florida increased 4.2% per year from 1989 to 1999. For that period, the real change per year in retail sales per capita was 0.8% in the Region and 1.5% in the state as a whole

	TABLE 70TAXABLE RETAIL SALES 1989-1999 (\$000s)											
	Retail	Sales	Per Capita	a Sales	<u>Annual</u> 1989-99 Re	<u>% Change</u> al Change in						
County	1989	1999 ¹	1989	1999 ¹	Retail Sales ²	Per Capita Sales ²						
Charlotte	764,313	1,440,452	7,704	\$10,532	4.0%	0.2%						
Collier	1,861,079	4,378,454	12,860	\$19,931	7.5%	1.5%						
Glades	21,873	18,943	2,817	\$1,920	-3.6%	-4.9%						
Hendry	150,720	250,510	5,766	\$8,199	2.4%	0.6%						
Lee	3,582,772	6,686,466	11,040	\$16,030	3.9%	0.8%						
Sarasota	2,802,280	4,724,114	10,617	\$14,715	2.5%	0.3%						
Region	9,183,037	17,498,939	10,600	\$15,417	4.2%	0.8%						
State	122,788,168	226,636,112	9,595	\$14,792	3.7%	1.5%						

1--These are the nominal 1999 figures.

2--This compares the "deflated" or real 1999 figures to the 1989 figures.

Source: Retail sales data from Table 16.82, "Gross and Taxable Sales: Sales Reported to the Department of Revenue in the State and Counties of Florida, 1998 and 1999." Florida Statistical Abstract 2000. 1999 population data for Florida and counties from Florida Statistical Abstract 2000, Table 1.25, "Counties and Cities: Census Counts, April 1, 1990, and Population Estimates, April 1, 1999, in the State, Counties, and Municipalities of Florida." <u>Florida Statistical Abstract</u>, BEBR, 1990, 1993; Table 16.82.

Finance, Insurance and Real Estate (F/I/R) (SIC Codes 60-67)

This sector of the Region's economy is one of the most active, with impacts extending far beyond its capacity as an employer. Employment in the sector reached 25,644 persons in 1999, comprising 6.2% of the Region's total non-agricultural employment (Table 44 above).

<u>Finance</u>

The finance subsector supplies funds for many capital investments in the Region. Activities and trends of this sector can be discerned through an examination of commercial banks. In 1999, there were 109 commercial banks in the Region (Table 71). In the period from 1988 to 1999, total deposits increased 120.6% to \$18.6 billion. (In constant 1988 dollars, commercial bank deposits increased a real 56.6% to \$132.0 billion.)

TABLE 71 ACTIVITY OF COMMERCIAL BANKS IN SOUTHWEST FLORIDA (FDIC Insured) (Amount of deposits in thousands of dollars)											
	Number % Change Per Capita % Change										
	of Ba	anks	l otal	Deposits	of	Value I	Deposits	of Per			
County	1988	1999	1988	1999	Deposits ²	1988	1999 ¹	Capita Value ²			
Charlotte	9	15	\$725,787	\$1,884,586	84.4%	\$7,767	\$13,779	26.0%			
Collier	13	28	\$1,480,654	\$4,102,784	96.8%	\$11,017	\$18,676	20.4%			
Glades	1	2	\$12,180	\$17,057	-0.6%	\$1,626	\$1,729	-24.5%			
Hendry	3	5	\$134,559	\$282,656	49.2%	\$5,286	\$9,252	24.3%			
Lee	17	27	\$2,639,450	\$5,628,240	51.4%	\$8,583	\$13,493	11.6%			
Sarasota	15	32	\$3,434,524	\$6,673,553	38.0%	\$13,329	\$20,787	10.7%			
Region	58	109	\$8,427,154	\$18,588,876	56.6%	\$10,203	\$16,377	14.0%			
State ³	403	333	\$92,847,096	\$200,783,393	53.6%	\$7,477	\$13,104	24.5%			

1--These are the nominal 1999 figures.

2--This compares the "deflated" or real 1999 figures to the 1989 figures.

3--The number of banks listed for the state in 1997 in the current SRPP table is correct. The significant decrease in the number of banks from 1988 probably reflects consolidations and mergers by banks, especially in recent years. This region, however, seems to have been less affected.

Source: Table 17.09, "Banking Activity: Number of FDIC-insured Commercial and Savings Banks and Banking Offices and Amount of Deposits in the State and Counties of Florida, June 30, 1999," <u>Florida Statistical Abstract 2000</u>. 1999 population data from <u>Florida Statistical Abstract 2000</u>, Table 1.25, "Counties and Cities: Census Counts, April 1, 1990, and Population Estimates, April 1, 1999, in the State, Counties, and Municipalities of Florida." <u>Florida Statistical Abstract</u>, BEBR, 1990, Tables 17.09 and 17.25; 1993, Table 17.09

In 1999, the nominal value of deposits per capita in the Region was \$16,377. This was 25.0% higher than the state per capita figure of \$13,104. The real per capita deposits in 1988 constant dollars for the Region and state in 1999 were \$11,630 and \$9,305, respectively.

<u>Insurance</u>

The insurance subsector includes insurance carriers and agents that provide insurance for life, fire, health, and casualty. Table 72 presents a breakdown of activity in the insurance subsector at the county, regional, and state levels.

The insurance subsector represents a very small portion of total economic activity in the Region. The Region employed 7.0% of the insurance agents/brokers in the state and accounted for 7.1% of the state's insurance agent/broker payroll in 1996. The insurance subsector is the smallest employer within the Region's F/I/R sector.

	TABLE 72											
INSURANCE AGENTS AND BROKERS (SIC CODE 64), 1991, 1999												
					Annua	lPayroll						
	Fir	ms	Number of	Employees*	(\$0	00's)						
County	1991	1999	1991	1999	1991	1999						
Charlotte	38	42	139	152	\$2,477	\$3,720						
Collier	79	124	444	655	\$11,609	\$26,940						
Glades	2	(D)	10*	(D)	(D)	(D)						
Hendry	14	10	60*	(D)	(D)	\$756						
Lee	197	207	929	897	\$23,419	\$33,768						
Sarasota	181	199	726	1,635	\$18,758	\$65,436						
Region	511	582	2,308	3,339	\$56,263	\$130,620						
State	6,628	7,759	72,510	48,547	\$991,587	\$1,923,540						

*Average based on employment-size class data provided.

(D) Data withheld to avoid disclosure of information about individual firms.

Source: Table 17.44, "Insurance Agents, Brokers, and Service: Average Monthly Private Reporting Units, Employment, and Payroll Covered by Unemployment Compensation Law in the State and Counties of Florida, 1999," Florida Statistical Abstract 2000. U.S. Department of Commerce, <u>County Business</u> <u>Patterns</u>, Florida, 1991.

<u>Real Estate</u>

The greatest number of firms in the finance/insurance/real estate sector is found in the real estate subsector. Table 73 indicates that 1,857 real estate firms existed in the Region in 1999. This is an decrease of 3.3% from a total of 1,921 in 1991.

Real estate employment in the Region in 1999 was 9,731 or 8.1% of total state employment within this sector. The Region accounted for 8.5% of the annual payroll for real estate in 1999.

TABLE 73 REAL ESTATE (SIC CODE 65), 1991, 1999											
	Firms Employees* Annua										
County	1991	1999	1991	1999	1991	1999					
Charlotte	152	132	1,188	845	\$12,527	\$15,612					
Collier	538	569	2,350	2,525	\$43,223	\$88,536					
Glades	4	(D)	60	(D)	(D)	(D)					
Hendry	19	20	264	53	\$1,640	\$720					
Lee	647	623	4,659	4,323	\$84,881	\$124,704					
Sarasota	561	513	2,730	1,985	\$43,506	\$61,872					
Region	1,921	1,857	11,251	9,731	\$185,777	\$291,444					
State	17.482	17,985	104.906	119.544	\$1.826.009	\$3,428,028					

*Average based on employment-size class data provided.

(D) Data withheld to avoid disclosure of information about individual firms.

Source: U.S. Department of Commerce, County Business Patterns, Florida, 1991. 1999 data from Table 17.45, "Real Estate: Average Monthly Private Reporting Units, Employment and Payroll Covered by Unemployment Compensation Law in the State and Counties of Florida, 1999," <u>Florida Statistical</u> <u>Abstract 2000</u>.

Services (SIC Codes 70-89)

The services sector employs the largest number of people in the Region. This sector is comprised of business activities that provide services rather than sell material goods. Included in this sector are lodging, personal services (e.g., dry cleaners), business services, repair shops, health services, legal services and amusement/recreation services.

In 1999, there were 13,221 service establishments in Southwest Florida (Table 74). Sarasota claimed the greatest number with 4,697 or 35.5% of the Region's service establishments, followed by Lee County with 4,055 firms or 30.7%. Within this sector, the service industries employing the most people are business services; health services; engineering, accounting, research and management services; and amusement and recreation services (Tables 75 and 76).

TABLE 74 SERVICES (SIC CODES 70-89)										
Firms Employees Annual Payroll (\$000's)										
County	1991	1999	1991	1999	1991	1999				
Charlotte	782	1,069	8,135	12,624	\$161,385	\$309,722				
Collier	1,914	3,216	22,468	32,385	\$417,960	\$957,118				
Glades	17	32	45	219	\$460	\$2,938				
Hendry	137	152	919	1,239	\$14,027	\$22,495				
Lee	3,257	4,055	34,471	44,374	\$743,153	\$1,155,635				
Sarasota	3,653	4,697	41,647	52,552	\$813,585	\$1,420,208				
Region	9,760	13,221	107,685	143,393	\$2,150,570	\$3,868,116				
State	129,712	167,747	1,632,975	2,352,756	\$33,559,394	\$65,231,388				

Source: 1999 data from (Florida) Agency for Workforce Innovation, Office of Workforce Information Services, Labor Market Statistics, ES-202 Program, in cooperation with the U. S. Department of Labor, Bureau of Labor Statistics. Website (http://www2.myflorida.com/awi/lms/es202/htm), accessed August 6, 2001.

	TABLE 75											
SERVICE FIRMS (SIC CODES 70-89)												
SIC Code	Description	Charlotte	Collier	Glades	Hendry	Lee	Sarasota	Region *				
70	Hotels & Other Lodging Places	25	69	9	11	127	79	320				
72	Personal Services	87	244		9	285	331	956				
73	Business Services	174	613		12	813	876	2,488				
75	Automotive Repair, Services, & Parking	82	165		18	306	255	826				
76	Misc. Repair Services	18	114			142	104	378				
78	Motion Pictures	12	22			44	41	119				
79	Amusement & Recreation Services	46	142		3	178	183	552				
80	Health Services	277	458		23	717	970	2,445				
81	Legal Services	44	213		7	247	339	850				
82	Educational Services	11	28			42	65	146				
83	Social Services	55	94		19	150	145	463				
84	Museums, Art Galleries, etc.		6			3	9	18				
86	Membership Organizations	63	215		9	203	191	681				
87	Engineer., Account., Research, Mgmt., etc.	127	559	4	19	609	722	2,040				
88	Private Households	33	259		10	181	349	832				
89	Miscellaneous Services		13			14	32	59				
	Total**	1,069	3,216	32	152	4,055	4,697	13,221				

* The "Region" column is the sum of the number listed in this table for each county for each service category. The "Region" column is not a complete total because the data in this table do not include non-disclosed data. The "Total" cell in the "Region" column is the total of the numbers in the "Total" row. It is not the total of the "Region" column.

** The "Total" row is the total number listed for each county for all services (SIC Codes 70-89) in the ES-202 Program source. The "Total" row is not a total of the columns in this table. The data in the columns in this table do not include unassigned industries and non-disclosed data. The "Total" cell in the "Region" column is the total of the numbers in the "Total" row.

Sources: Data for SIC Codes 76, 78, 80, 81, 83, 84, 86, 88, and 89 (Florida) Agency for Workforce Innovation, Office of Workforce Information Services, Labor Market Statistics, ES-202 Program, in cooperation with the U. S. Department of Labor, Bureau of Labor Statistics. Website (http://www2.myflorida.com/awi/lms/es202/htm), accessed August 6, 2001. Data for "Total" row also from that source.

	TABLE 76											
	SERVICE EMPLOYMENT (SIC CODES 70-89)											
SIC Code	Description	Charlotte	Collier	Glades	Hendry	Lee	Sarasota	Region *				
70	Hotels & Other Lodging Places	399	4,220	31	111	2,847	2,021	9,629				
72	Personal Services	421	1,256		27	1,627	1,749	5,080				
73	Business Services	2,705	5,901		97	10,389	27,176	46,268				
75	Automotive Repair, Services, & Parking	287	729		38	2,184	1,277	4,515				
76	Misc. Repair Services	53	406			496	360	1,315				
78	Motion Pictures	67	211			461	408	1,147				
79	Amusement & Recreation Services	707	3,921		11	2,750	4,159	11,548				
80	Health Services	5,844	8,111		421	10,748	17,025	42,149				
81	Legal Services	249	1,038		19	1,305	1,648	4,259				
82	Educational Services	102	725			715	982	2,524				
83	Social Services	651	1,571		242	4,973	3,435	10,872				
84	Museums, Art Galleries, etc.		61			22	146	229				
86	Membership Organizations	350	1,630		47	1,203	1,921	5,151				
87	Engineer., Account., Research, Mgmt., etc.	670	2,048	27	64	4,320	4,794	11,923				
88	Private Households	50	417		9	274	585					
89	Miscellaneous Services		64			43	60	167				
	Total**	12,624	32,385	219	1,239	44,374	52,552	143,393				

* The "Region" column is the sum of the number listed in this table for each county for each service category. The "Region" column is not a complete total because the data in this table do not include non-disclosed data. The "Total" cell in the "Region" column is the total of the numbers in the "Total" row. It is not the total of the "Region" column.

- ** The "Total" row is the total number listed for each county for all services (SIC Codes 70-89) in the ES-202 Program source. The "Total" row is not a total of the columns in this table. The data in the columns in this table do not include unassigned industries and non-disclosed data. The "Total" cell in the "Region" column is the total of the numbers in the "Total" row.
- Sources: Data for SIC Codes 76, 78, 80, 81, 84, 86, 88, and 89 (Florida) Agency for Workforce Innovation, Office of Workforce Information Services, Labor Market Statistics, ES-202 Program, in cooperation with the U. S. Department of Labor, Bureau of Labor Statistics. Website (http://www2.myflorida.com/awi/lms/es202/htm), accessed August 6, 2001. Data for "Total" row also from that source.

Government (SIC Codes 90-97)

Governmental agencies affect nearly all segments of the economy either directly or indirectly. The economic impacts of local government agencies are provided mainly through employment, while the major impacts of state and federal governments are through financial payments to individuals and capital expenditures. The impacts of these three levels of government on the economy are discussed below.

Federal Government Transfer Payments

The most significant effect of federal activities upon the regional economy, aside from establishing the currency of the nation, is the redistribution of income through taxes (outflows) and payments (inflows). Outflows include income taxes and Social Security taxes. Inflows to individuals are in the form of transfer payments and housing assistance. Inflows to organizations are through grant programs.

Transfer payments, discussed above in the income section, constitute a substantial portion of regional income. One category of transfer payments includes Social Security (Old Age, Survivors, Disability, and Health Insurance). Within Southwest Florida, there were 321,411 recipients in 1998, (29.1% of the population). These payments totaled \$244,792,000 for the last month of 1998. Table 77 presents information by county on the number of recipients and the amount of payments.

The number of these beneficiaries in the Region increased by 147.1% from 1975 to 1998. During this period, total payments increased by 860.9%. Discounting the effects of inflation, real payments per beneficiary increased 28.1% since 1975 or from \$57 to \$73 per month in 1975 dollar values.

	TABLE 77										
			SOCIAI	SECURIT	Y						
		(Month	n of Decembe	r, 1975, 197	9, 1988, 1	998)					
	Total Number	Monthly		Monthly		Monthly		Monthly			
	of	Payments	Retired	Payments		Pavments		Pavments			
County	Beneficiaries	(\$000s)	Workers	(\$000s)	Disabled	(\$000s)	Other	(\$000s)			
Charlotte											
1975	14,196	\$2,834	9,726	\$2,118	736	\$185	3,734	\$531			
1979	19,790	\$5,606	13,699	\$4,181	1,163	\$426	4,928	\$999			
1988	32,000	\$16,376	23,966	\$12,985	1,385	\$843	6,655	\$2,548			
1998	49,396	\$36,785	37,115	\$29,147	3,100	\$2,505	9,180	\$5,135			
Collier											
1975	13,314	\$2,601	8,035	\$1,802	748	\$176	4,531	\$623			
1979	19,159	\$5,408	11,929	\$3,780	1,158	\$400	6,072	\$1,228			
1988	32,215	\$17,261	22,355	\$13,059	1,285	\$732	8,575	\$3,470			
1998	52,833	\$42,084	38,280	\$32,668	2,685	\$2,142	11,870	\$7,275			
Glades											
1975	555	\$96	330	\$63	49	\$11	176	\$22			
1979	717	\$185	421	\$119	63	\$21	233	\$45			
1988	835	\$394	550	\$283	60	\$33	225	\$78			
1998	1,767	\$1,225	1,200	\$888	190	\$146	380	\$195			
Hendry											
1975	1,981	\$321	905	\$177	186	\$41	890	\$104			
1979	2,378	\$571	1,133	\$326	234	\$72	1,011	\$173			
1988	3,200	\$1,461	1,875	\$970	260	\$133	1,065	\$358			
1998	4,765	\$3,101	2,775	\$2,073	530	\$358	1,460	\$668			
Lee							•				
1975	40,801	\$7,848	26,045	\$5,579	2,536	\$609	12,220	\$1,660			
1979	55,964	\$15,485	36,685	\$11,062	3,739	\$1,313	15,540	\$3,110			
1988	84,660	\$43,127	60,645	\$33,100	4,170	\$2,430	19,845	\$7,597			
1998	110,604	\$82,923	79,780	\$63,871	7,735	\$5,988	23,090	\$13,608			
Sarasota											
1975	59,232	\$11,776	39,139	\$8,553	2,476	\$606	17,617	\$2,617			
1979	74,093	\$21,012	49,759	\$15,289	3,560	\$1,264	20,774	\$4,459			
1988	97,575	\$50,971	71,210	\$39,616	3,360	\$1,952	23,005	\$9,403			
1998	102,046	\$78,674	75,545	\$61,534	5,440	\$4,252	21,065	\$12,888			
Region											
1975	130,079	\$25,476	84,180	\$18,292	6,731	\$1,628	39,168	\$5,557			
1979	172,101	\$48,267	113,626	\$34,757	9,917	\$3,496	48,558	\$10,014			
1988	250,485	\$129,590	180,601	\$100,013	10,520	\$6,123	59,370	\$23,454			
1998	321,411	\$244,792	234,695	\$190,181	19,680	\$15.391	67,045	\$39.229			

Source: <u>Florida Statistical Abstract</u>, BEBR, 1976, 1980, 1990, Table 7.12. Table 7.12, "Social Security: Number of Beneficiaries and Amount of Benefits in Current-payment Status by Type of Beneficiary in the State and Counties of Florida, December 1998," <u>Florida Statistical Abstract 2000</u>.

State Government Revenues and Expenditures

The primary influence of state government on the economy of Southwest Florida is felt through the collection and distribution of taxes. Of course, this excludes regulatory and administrative powers and capital improvement projects.

Four major state taxes are collected within the counties: sales and use, licenses (primarily motor vehicle), pari-mutuel wagering, and documentary stamp and surtax. These totaled approximately \$1,115.7 million in fiscal year 1997-1998 with sales and use taxes comprising 86.1% of the total (Table 78). Just as the Region's population comprised 7.5% of the state's population in 1998, the amount of taxes collected in the Region also equaled 7.3% of the state total.

	TABLE 78 STATE GOVERNMENT TAX COLLECTIONS											
	FISCAL YEAR 1998-99 (\$000)											
County	Total	Sales & Use Tax	Motor Vehicle Licenses	Pari-Mutuel Wagering Taxes	Documentary Stamp Tax							
Charlotte	\$91,921,758	\$88,127,258	\$3,794,500	\$0	N/A							
Collier	\$267,780,001	\$260,523,721	\$7,256,280	\$0	N/A							
Glades	\$1,534,687	\$1,346,434	\$188,253	\$0	N/A							
Hendry	\$17,278,922	\$15,906,596	\$1,372,326	\$0	N/A							
Lee	\$410,071,761	\$369,339,423	\$11,889,120	\$1,843,218	N/A							
Sarasota	\$294,661,891	\$284,980,993	\$9,200,442	\$480,456	N/A							
Region	\$1,083,249,020	\$1,020,224,425	\$33,700,921	\$2,323,674	N/A							
State	\$14.377.426.679	\$13,858,158,449	\$460,626,292	\$58,641,938	N/A							

Source: Table 23.45, "State Government Finance: Tax Collections by or within Counties by Type of Tax Collected in the State and Counties of Florida, Fiscal Year 1998-99," <u>Florida Statistical Abstract 2000</u>. 1998 population data from Table 1.25, "Counties and Cities: Census Counts, April 1, 1990, and Population Estimates, April 1, 1998, in the State, Counties, and Municipalities of Florida," <u>Florida Statistical Abstract 1999</u>.

A portion of the taxes collected from the counties was returned through several state programs. In fiscal year 1996-1997, approximately \$119 million was distributed through three programs (Table 79). The one-half cent sales tax provided the largest source of returned revenue, followed by revenue sharing, and the 2-cent gas and special fuel tax.

TABLE 79 DISTRIBUTION OF TAXES BY MAJOR SOURCE FISCAL YEAR 1998-99 (\$000)										
		1/2 Cent S	Sales Tax		Revenue	Sharing				
Countv	Total	Counties	Cities	Emergency & Supplemental	County	Municipal	County Tax on Motor Fuel			
Charlotte	\$13,370	\$7,345	\$728	\$0	\$4,336	\$208	\$753			
Collier	\$33,294	\$20,063	\$3,579	\$0	\$7,673	\$685	\$1,293			
Glades	\$954	\$102	\$19	\$240	\$233	\$40	\$319			
Hendry	\$2,977	\$1,066	\$393	\$0	\$802	\$219	\$498			
Lee	\$52,939	\$24,936	\$10,762	\$0	\$12,310	\$3,220	\$1,711			
Sarasota	\$39,179	\$19,570	\$6,342	\$0	\$10,080	\$1,989	\$1,199			
Region	\$142,713	\$73,082	\$21,823	\$240	\$35,434	\$6,361	\$5,773			
State	\$1,860,733	\$773,718	\$385,646	\$6,500	\$419,620	\$205,139	\$70,111			

Source: Table 23.48, "State Funds to Local Government: Distribution of Shared Taxes by the Florida Department of Revenue to County and City Governments by Major Source in the State and Counties of Florida, Fiscal Year 1998-99," <u>Florida Statistical Abstract 2000</u>.

The state also distributes funds through programs to assist families with dependent children, the blind, and the disabled (Table 80). These monies are largely federally funded but are distributed by both federal and state agencies, such as the Florida Department of Health. For 1998, the state and federal government distributed more than \$550 million in public assistance in Florida. Consequently, the state and federal governments, through their roles as collectors and distributors of tax money, have considerable influence upon economic activity.

	TABLE 80										
PUBLIC ASSISTANCE, FISCAL YEAR 1998-99											
	Aid to Families	with Dependent	Food	Stamps	Public Assistance Supplemental						
County	Average Monthly Average Monthly		Recipients	Benefits in Becipients Food Stamps		Payments					
Charlotte	235	\$51,161	3,561	\$256,000	1,433	\$482,000					
Collier	481	\$108,566	6445	\$474,000	1,923	\$669,000					
Glades ¹	0	\$0	0	\$0	108	\$41,000					
Hendry	379	\$89,356	3,755	\$300,000	695	\$253,000					
Lee	1,120	\$248,837	12,790	\$906,000	5,812	\$2,057,000					
Sarasota	564	\$123,569	6,582	\$464,000	3,216	\$1,037,000					
Region	2,779	\$621,489	33,133	\$2,400,000	13,187	\$4,539,000					
State	89,889	\$20,768,154	912,351	\$68,275,000	366,966	\$134,978,000					

¹Glades County AFDC and Food Stamps are handled through the Hendry County office.

Sources: Table 7.18, "Public Assistance: Average Monthly Aid to Families with Dependent Children (AFDC) Cases by Type of Recipient and Average Monthly Payments for All Cases in the State, Department of Health Districts, and Counties of Florida, Fiscal Year 1998-99," <u>Florida Statistical Abstract 2000</u>. Table 7.19, "Public Assistance: Recipients of Supplemental Security Income and Amount of Payments in the State and Counties of Florida, December 1999," <u>Florida Statistical Abstract 2000</u>. Table 7.22, "Food Stamps: Recipients and Benefits in the State and Counties of Florida, December 1999," <u>Florida Statistical Abstract 2000</u>.

Local Government Revenues and Expenditures

The three types of local government entities that have the most influence on the economy are county agencies, city governments, and school districts. Both counties and cities provide a wide range of services, while school districts are primarily limited to the provision of educational services.

The revenues for services provided by local agencies come from such diverse sources as fines, fees, revenues from federal and state governments, and local taxes. Excluding local taxes, federal and state revenues are the largest source of income for the Region's local governments.

Table 81 provides an estimate of federal state and local funds received for educational purposes during fiscal year 1997-1998. Per capita student funding in the region ranges from a low of \$6,448 in Charlotte County to a high of \$7,639 in Collier County. All of these are above the state average of \$6,338.

The receipt of funds by a county school district through the Florida Education Finance Program (under the General Revenue category) is partly based upon a county's ability to generate its own revenue. This ability is a function of both the value of taxable land within the county as well as the number of students. If this value is relatively high on a per student basis (determined by dividing the total taxable value by the number of students), the county will receive relatively less state funding than a community with a low tax base. This occurs in Glades and Hendry Counties which receive a considerably larger portion of their total budget from state sources than do the other counties in the region.

	TABLE 81									
	PUBLIC ELEMENTARY AND SECONDARY SCHOOLS									
	REVENUE (\$000s) BY MAJOR SOURCE, 1997-98									
	Federal Sources State Sources Local Sources									
		Revenue per						1		
County	Total	FTE Student	Amount	% of Total	Amount	% of Total	Amount	% of Total		
Charlotte	\$107,852	\$6,448	\$6,351	5.9%	\$37,356	34.6%	\$64,146	59.5%		
Collier	\$241,904	\$7,639	\$18,390	7.6%	\$44,116	18.2%	\$179,398	74.2%		
Glades	\$7,385	\$6,667	\$742	10.0%	\$3,489	47.2%	\$3,154	42.7%		
Hendry	\$56,140	\$7,502	\$6,074	10.8%	\$37,474	66.8%	\$12,593	22.4%		
Lee	\$369,448	\$6.674	\$26,940	7.3%	\$123,728	33.5%	\$218,779	59.2%		
Sarasota	\$266,379	\$7.363	\$12,705	4.8%	\$63.012	23.7%	\$190,662	71.6%		
Region	\$1,049,108	\$42,293	\$71,202	6.8%	\$309,175	29.5%	\$668,732	63.7%		
State	\$15 314 451	\$6 338	\$1 145 240	7 5%	\$7 746 017	50.6%	\$6 423 194	41.9%		

Source: Table 20.63, "Elementary and Secondary Schools: All Funds Revenue by Major Source in the State and Counties of Florida, 1997-98," Florida Statistical Abstract 2000.

Revenues of local governments (excluding school districts) in the Region totaled \$1,730.5 million in fiscal year 1996-1997 (Table 82). Per capita revenues among the Region's counties varied from a low of \$1,124 in Hendry County to a high of \$1,853 in Lee County.

TABLE 82								
COUNTY REVENUES BY SOURCE, FISCAL YEAR 1996-97*								
					Charges		Other	
	Total	Taxes &	Federal	State &	for	Fines and	Sources &	Per Capita
County	Revenues	Impact Fees	Grants	Other Gov'ts.	Services	Forfeits	Transfers	Revenues
Charlotte	\$198,594	\$77,560	\$1,072	\$16,339	\$67,629	\$795	\$35,199	\$1,512
Collier	\$325,575	\$117,972	\$2,267	\$33,288	\$87,662	\$3,911	\$80,475	\$1,628
Glades	\$12,697	\$4,240	\$588	\$2,250	\$1,081	\$460	\$4,077	\$1,316
Hendry	\$34,074	\$13,368	\$501	\$4,525	\$5,018	\$438	\$10,225	\$1,124
Lee	\$730,419	\$176,689	\$9,290	\$70,818	\$234,811	\$2,505	\$236,305	\$1,853
Sarasota	\$429,158	\$179,555	\$4,277	\$37,454	\$113,643	\$2,786	\$91,444	\$1,380
Region	\$1,730,517	\$569,384	\$17,995	\$164,674	\$509,844	\$10,895	\$457,725	\$1,607
Florida	\$21,912,409	\$6,635,148	\$656,600	\$1,795,524	\$6,268,576	\$149,625	\$6,406,936	\$1,489

*Revenue numbers are in thousands of dollars, except per capita revenues.

Source: Table 23.83, "County Finance: Revenue by Source of County Governments in Florida, Fiscal Year 1996-97," <u>Florida Statistical Abstract 2000</u>.

The value of property in the Region is an important factor for determining revenues, as it serves as the basis for property taxation. The value of property, the operating millage and total ad valorem taxes by county are shown in Table 83.

TABLE 83PROPERTY VALUATIONS OF REAL PROPERTY, 1998 (\$000s)								
County	Taxable Value	Total Operating Millage (County- wide)	Total Debt Millage (County- wide)	Total Ad Valorem Taxes Levide in the County ¹	Per Capita Ad Valorem Taxes Levide			
Charlotte	6,581,130,232	4.599	0.000	113,422,352	849			
Collier	21,342,594,299	3.551	0.000	317,220,059	1,510			
Glades	368,545,224	10	0.000	7,348,302	744			
Hendry	1,211,775,691	10	0.000	28,891,270	951			
Lee	23,354,417,246	5.328	0.000	482,538,215	1,190			
Sarasota	20,354,551,176	3.982	0.098	318,961,343	1,009			
Region	73,213,013,868	N/A	N/A	1,268,381,542	1,147			
Florida	631,788,107,048	N/A	N/A	13,636,899,385	909			

¹Includes taxes levied by school districts, cities, special districts, and water management. Source: <u>Local Government Financial Information Handbook</u>, September 1999.

The per capita ad valorem taxes levied were calculated by dividing the total ad valorem taxes levied by the population. Although both Glades and Hendry Counties have the highest property taxes (both at 10.0 mils), the per capita taxes their residents payed were among the lowest in the region. Charlotte County also had low per capita ad valorem taxes, due in part to a lower tax rate.

Collier County with the lowest millage rate (3.551) had the highest per capita ad valorem taxes levied. This is due largely to the cost and value of real-estate in Naples and the surrounding unincorporated area.

Local government expenditures in Southwest Florida amounted to 1,721.2 million dollars in fiscal year 1996-97 (Table 84). The largest uses were debt service and other uses (27.6%) followed closely by public safety (19.6%). Per capita expenditures ranged from a low of \$1,098 in Hendry County to a high of \$1,948 in Lee County.

Differing needs and expenses among jurisdictions make generalizations on the cost of governmental services in the Region difficult. Many factors determine the cost and scope of public services. The ultimate decisions are made by elected officials, based upon their perceptions of the public's desires and the needs of the area.

TABLE 84 LOCAL GOVERNMENTS EXPENDITURES, FISCAL YEAR 1996-97*								
County	Inty Total General Public Physical & Transportation Human Services, Debt Per Cap							Per Capita
	Expenditures	Government	Safety	Economic,		Cultural, &	Service &	Expenditures
				Environment		Recreation	Other Uses	
Charlotte	199,237	36,190	42,366	39,059	17,677	14,127	49,817	1,517
Collier	295,794	49,139	72,963	54,427	26,954	24,228	68,083	1,479
Glades	12,440	2,462	3,234	1,083	1,469	416	3,777	1,289
Hendry	33,277	5,964	8,364	3,330	3,577	1,530	10,513	1,098
Lee	768,140	131,971	116,655	70,691	156,939	48,863	243,021	1,948
Sarasota	412,320	63,719	93,625	75,591	44,052	35,368	99,963	1,326
Region	1,721,208	289,445	337,207	244,181	250,668	124,532	475,174	1,599
Florida	20,591,540	2,764,046	3,852,665	3,445,248	2,481,868	2,476,422	5,571,291	1,400

*Expenditures are in thousands of dollars, except per capita expenditures.

Source: Table 23.84, "County Finance: Expenditure by Function of County Governments in Florida, Fiscal Year 1996-97," <u>Florida Statistical Abstract 2000</u>.

Summary

Federal sources and State sources both contribute to the function of the local economy. These contributions result from financial assistance provided to individuals and funds provided to local governments. Local government, however, is the level of government that is most directly related to the local economy. The contributions of local governments to the Southwest Florida economy result mainly from the provision of services to the community. The revenues received by the local governments in order to provide these services come from state and federal sources, and from the local powers to assess fees, charges, and taxes. Local governments have experienced increased costs in the provision of these services. This has been due to population growth and the expansion of services. Based on the experience of local governments elsewhere in the state, these costs will probably continue to increase.

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NATURAL SYSTEMS

> INTRODUCTION

Natural resources in Southwest Florida have had a major influence on the area's economic development and growth. The most important of these resources are the Region's location and climate, land and water resources, vegetation and wildlife, and inland and tidal wetlands. These resources have attracted the large number of retirees and tourists to the region, thereby fueling the area's service, trade, and construction industries.

> THE CLIMATE

Temperature

Due to the Region's southerly location, a near-subtropical climate with an associated high annual rainfall is typical. Average monthly temperatures range from 64.3 degrees Fahrenheit in January to 82.6 degrees Fahrenheit in August.

Freezes are not common in the Region, but may occur once or twice a year. "Jacket weather" occurs periodically during the fall and winter months.

Weather and climate are very important factors in the economy of Southwest Florida. The combination of warm weather, decreased humidity, and low rainfall during the winter months encourages tourism and an influx of seasonal residents. A high yearly rainfall and moderate winter temperatures enable agriculture to thrive year-round. Periods of freezing weather, when they occur, have adverse effects upon the local economy. Unusually severe winter freezes and resulting agricultural losses in other parts of the state have caused a migration of agricultural interests into the Region from counties to the north.

Precipitation Patterns

Patterns of precipitation in Southwest Florida exhibit strong seasonal variations. The Region enjoys a rainy season from May through October and a dry season from November through April. Increased atmospheric moisture and incoming solar radiation levels in May generally trigger the rainy season, while a reversal of these conditions occurs in September to signal the start of the dry season. There are also longer-term variations as shown on Figure 13.



FIGURE 13 ANNUAL RAINFALL FROM 1960 TO 1992

The winter is commonly referred to as the dry season. Typically, it is less humid, cooler, and drier. Storms, which do occur, are generally associated with the movement of frontal systems. Isolated hurricanes and tropical storms can cause abnormal annual rainfall levels, but they have little effect upon long-range precipitation patterns.

With the advent of spring, cold fronts stall to the north of Southwest Florida, causing drier weather and forcing water tables to their lowest levels of the year. At this time of year, frequent wild fires occur, sparked by the dry conditions. To cope with the lowering of regional water tables, water managers may restrict the consumption of water by the public. This is particularly true of nonessential activities such as lawn watering and car washing.

The following table was acquired from the National Weather Service for the Fort Myers area to provide an example of the Region's weather extremes. Information for other areas of the Region are also at their Internet site for the Tampa Station at:

http://www.marine.usf.edu/nws/docs/climate/ClimateCoop.html

The low topographical relief of the Region causes problems when heavy rainfall does occur. A major concern of the Region is when such rains precede the onset of tropical storms and hurricanes. The high water levels due to the combination of smaller storms and a tropical storm can be disastrous.

TABLE 85 FORT MYERS TEMPERATURE EXTREMES					
Event	Temperature	Date			
3 Warmest Highs	103	6/7/81			
_	103	6/16/81			
	101	6/15/81			
3 Coldest Lows	26	12/13/62			
	27	12/24/89			
	28	12/25/89			
3 Coldest Highs	44	12/24/89			
C C	45	1/27/40			
	46	12/20/96			
3 Warmest Lows	83	7/7/97			
	83	7/3/97			
	83	7/16/81			
Coldest Month	55.5F	Jan-58			
Coldest Year	72.3F	1958			
Warmest Month	85.9F	Jun-81			
Warmest Year	76.7F	1997			
Earliest Freeze		12/12/57			
Latest Freeze		2/26/67			
FORT MY	ERS PRECIPITATION H	EXTREMES			
Event	Precipitation Amount	Date			
3 Wettest Days	7.78"	9/21/62			
J =	7.75"	5/18/89			
	6.82"	8/30/32			
Wettest Month	20.25"	Jun-36			
Wettest Year	80.17"	1947			
Driest Month	Trace	Apr-70			
Driest Year	32.83"	1964			

Tropical Storms and Hurricanes

Southwest Florida has been identified by the National Weather Service as one of the most hurricane-vulnerable areas of the United States. The potential for large-scale loss of life and property during a hurricane is great. The analysis of hurricane probability is based upon historical occurrences in Southwest Florida, as evidenced in data available from the National Climatic Center, Asheville, North Carolina; the National Hurricane Center, Coral Gables, Florida; and the Fort Myers and Tampa Area Offices of National Weather Service.

From 1873 to 1998, Southwest Florida experienced forty-nine tropical cyclones of hurricane intensity. Eight of these typical cyclones prior to 1885 were not differentiated as tropical storms or hurricanes. Therefore, some of these early storms could have been below hurricane intensity. A hurricane is defined as a tropical storm with sustained winds equaling or exceeding seventy-four

miles per hour. (This is approximately 64.3 knots.) Seventeen hurricanes passed within fifty miles of Fort Myers, averaging one every seven years (Map 5). For the fifty-to-one-hundred-mile radius from Fort Myers, an additional thirty-two hurricanes passed by and through the Region at a rate of one every two and one-half years (Map 6). Based on this information, using a one-hundred-mile radius as a minimum distance for issuing hurricane warnings, Southwest Florida can expect to receive such warnings once every two and one-half years. Of course, deviations can occur. During the 1985 hurricane season, for example, two warnings were issued in Southwest Florida.

The official Atlantic hurricane season is June 1 through November 30. The period of greatest hurricane frequency in Southwest Florida is the three-month period from August to October, when 90 percent of all hurricanes passing within 100 nautical miles of Fort Myers (the center point of reference) have historically occurred. September is the worst single-month for hurricanes in the Region.

Hurricanes that cause the greatest amount of damage have wind velocities averaging greater than one hundred and eleven miles per hour (96.5 knots). Such storms passed within one hundred miles of Fort Myers on the average of once every five and one-half years from 1973 to 1993. The last hurricane to make landfall in Southwest Florida was Hurricane Donna. This storm had winds averaging nearly 135 miles per hour. Donna passed directly over Fort Myers Beach and Fort Myers on September 10, 1960. Hurricane Andrew was the last hurricane to cross the Region from the east, passing south of Naples in 1992.

Coastal flooding from tropical storms and hurricanes is a common occurrence. Such storms occur almost annually, with flooding in low-lying areas, along barrier islands, and around river and bay systems (Map 7).

MAP 5- HURRICANES AT 50 MILES



MAP 6 - HURRICANES AT 100 MILES







MAP 7 - STORM SURGE MAP

Air Quality

A few common air pollutants are found all over Florida. Pollution can cause serious health problems, destroy the environment, and damage property. The U.S. Environmental Protection Agency (EPA) has identified six pollutants as criteria air pollutants. They are carbon monoxide, lead, nitrogen, ozone, particulate matter, and sulfur dioxide. Moreover, EPA has regulated them by first developing health-based criteria (science-based guidelines) as the basis for setting permissible levels. One set of limits (primary standard) protects health. Another set of limits (secondary standard) is intended to prevent environmental and property damage.

A geographic area that does better than the primary standard is called an attainment area; areas that do not meet the primary standard are called non-attainment. Fortunately, all of Southwest Florida is under attainment status. The Federal and State Ambient Air Quality Standards are provided in Table 86 below.

TADLE 07								
I ADLE 80 State and fededal amdient aid olial ity standadds								
STATE AND FEDERAL ANDEENT AIK QUALITY STANDARDS								
Pollutant	Averagi	Florida Standard	Primary NAAQS	Secondary				
	ng Time			NAAQS				
Carbon	8-hour ^a	9 ppm	9 ppm	-				
Monoxide	1-hour ^a	35 ppm	35 ppm	-				
Lead	Quarterly	1.5 ug/m ³	1.5 ug/m ³	1.5 ug/m ³				
Nitrogen	Annual ^b	100 ug/m ³ (53 ppb)	100 um/m ³ (53 ppb)	100ug/m ³ (53 ppb)				
Dioxide								
Ozone	1-hour ^c	0.12 ppm	0.12 ppm	0.12 ppm				
	8-hour ^d	0.08 ppm	0.08 ppm	0.08 ppm				
Particulate Matter	Annual ^b	50 ug/m^3	50 ug/m^3	-				
(PM_{10})	24-hour ^c	150 ug/m^3	150 ug/m^3	-				
Particulate Matter	Annual ^b	15.0 ug/m^3	15.0 ug/m^3	-				
(PM _{2.5})	24-hour ^c	65 ug/m^3	65 ug/m^3	-				
Sulfur	Annual ^b	60 ug/m^3 (20 ppb)	60 ug/m^3 (20 ppb)	-				
Dioxide	24-hour ^a	$260 \text{ug/m}^3 (100 \text{ ppb})$	$260 \text{ug/m}^3 (100 \text{ ppb})$	-				
	3-hour	$1300 \text{ ug/m}^3(500 \text{ ppb})$	-	1300ug/m^3				
				(500ppb)				

a - Not to be exceeded more than once per year.

b - Arithmetic mean.

c - Not to be exceeded on more than an average of one day per year over a three-year period.

d - Not to be exceeded by the three-year average of the 4th highest daily maximum.

e – Not to exceeded by a three-year average of the 98th percentile of the 24-hour averages.

Source: Florida Department of Environmental Protection, South District Office, December 2001.

Monitoring Network

The Florida Department of Environmental Protection notes that there are over two hundred (200) ambient air monitors located strategically throughout the state. Two types of monitoring networks are used to collect the ambient air data in the state. The first network is the "State/Local Air Monitoring Stations (SLAMS) and National Air Monitoring Stations (NAMS) Network. The SLAMS/NAMS network is designed to meet a minimum of four basic objectives:

- 1. To determine the highest concentrations expected to occur in the area covered by the network.
- 2. To determine representative concentrations in areas of high population density.
- 3. To determine the impact on ambient pollution levels of significant sources or source categories.
- 4. To determine general background concentration levels.

Data from the SLAMS/NAMS network provide an overall view of the state's air quality and are used in the development of statewide control strategies.

Individual stations within the network are designated as either "SLAMS" or "NAMS" sites. The NAMS sites are a subset of the stations selected from the NAMS/SLAMS network with emphasis given to urban and multi-source areas. Areas monitored are selected on both urban population and pollutant concentration levels. The primary objective is to monitor in areas where the pollutant concentration levels and population exposures are expected to be the highest.

Particulate Matter Pollution

According to information provided by the Florida Department of Environmental Protection (FDEP), there are nine monitoring devices in Lee, Collier, and Hendry Counties. Lead pollution is not monitored in any of the counties of Southwest Florida. The Florida Department of Environmental Protection has targeted the installation and location of PM $_{2.5}$ monitors in Collier, Lee, and Sarasota Counties. These monitors will capture particulate matter less than 2.5 microns. The Federal Environmental Protection Agency updated the PM $_{10}$ standard in 1997 and promulgated a new standard for fine particles designated as PM $_{2.5}$. Health studies indicate that particles measuring less than 2.5 micrometers in diameter are most damaging to human health because they penetrate and remain in the deepest passages of the lungs.

The FDEP currently maintains monitoring devices in Lee County. Lee County is monitored for particulate matter 10 microns or less in diameter, and particulate matter 2.5 microns or less in diameter. Two particulate matter (PM_{10}) monitors are maintained by the Florida Sugar Cane League in Hendry County. endry County's monitoring stations are for particulate matter 10 microns or less in diameter. Three monitors in the Naples area are operated and maintained by Collier County.

In Sarasota County, ambient air quality monitoring devices are operated and maintained by the Sarasota County Natural Resources Department. Sarasota County has the largest number of monitoring stations. Pollutants that are monitored include sulfur dioxide, carbon monoxide, ozone, nitrogen oxides, and particulates.

Historical Data Analysis

In November of 1992, the Southwest Florida Regional Planning Council examined the air quality of the Region in a publication titled "Southwest Florida Air Quality 1985-1991." The purpose of the study was to determine whether any areas of the Region were significantly impacted by poor ambient air quality. Findings were based on existing field data using air quality monitoring site information and stationary point source emission data supplied by the Florida Department of Environmental Protection, Division of Air Resource Management. The approach was to examine the trend of ozone

and particulate pollution over time.

In summary, the 1992 study of the particulate matter pollution trend showed that there are variations within the Region. For example, three particulate monitoring sites in Sarasota recorded a downward trend while one site illustrated an upward trend. Perhaps of greater significance, all sites within Charlotte, Lee, and Collier Counties recorded an upward trend. Sites in Hendry County, however, recorded just the opposite. Of the twelve sites monitored, fifty percent registered an upward trend, while the remaining fifty-percent registered a downward trend. This might suggest that the particulate pollution of the area remained at a consistent level.

Particulate Pollution Trend Analysis

While parts of Florida are experiencing nuisance amounts of particulates in the form of dust or soot, particulate levels have always registered under the standards in Southwest Florida. Recent obtained data for Southwest Florida notes that the region is in attainment of the State and Federal Ambient Air Quality Standards for particulate matter. The data below reflects the 1st to 4th highest values for monitoring sites in Lee, Collier, and Hendry Counties as noted in Table 87. Table 88 reflects the most recent particulate matter values for Sarasota County.

The highest particulate matter (PM_{10}) annual average (arithmetic means) was 25 ug/m³, well below the 50 ug/m³ maximum. Of the four (4) monitoring sites in Lee, Hendry and Collier Counties, both sites in Hendry County recorded 23 ug/m³ in 1997. The Sarasota Reverse Osmosis Plant site registered the highest value of 25 ug/m³ for the five-year period. In 1998, Sarasota County recorded 24 ug/m³, the second highest average particulate concentration during the years between 1997-2001. Although, Collier County particulate matter has remained consistent since 1997, Lee County's particulate pollution has steadily increased over the years from 17 uq/m³ in 1997, to 23 ug/m³ in 2001.

TABLE 87							
PARTICULATES MONITOR VALUES							
	Year Highest Maximum Value (µ/m ³)					Annual (µ/m ³⁾	
Location PM ₁₀		1 st	2^{nd}	3 rd	4^{th}		
Fort Myers – Princeton	2001	47	43	41	41	23	
	2000	44	43	30	29	19	
	1999	33	32	32	30	19	
	1998	40	36	36	30	18	
	1997	38	33	33	-	17	
Naples – Collier County	2000	42	29	24	24	18	
Government Complex	1999	36	30	28	27	17	
	1998	67	43	34	33	18	
	1997	46	37	31	-	17	
Clewiston – FSCL, Lopez St.	1997	43	38	36	-	23	
Clewiston – Delta Ranch		60	39	36	-	23	
	Year	Highest Maximum Values Annua					
Location PM _{2.5}		1^{st}	2^{nd}	3^{rd}	4^{th}		
Fort Myers – Princeton Street	2001	21.4	19.8	18.5	16	9.63	
	2000	32.4	24.9	24.6	23.5	10.33	
	1999	24.2	22	21.2	18.7	9.99	
Source: Florida Department of Environmental Protection, South District Office, 12/2001.



FIGURE 14 PARTICULATES

Source: Derived from Table 87.

At present, there are fewer PM $_{2.5}$ monitoring stations in Southwest Florida than PM $_{10}$ stations. The highest annual PM $_{2.5}$ average of 11 ug/m³ was recorded in 2000 at the Bee Ridge site of Sarasota County. The Princeton Street site within the City of Fort Myers recorded the next highest average of 10.33 ug/m³ during the five-year period.



FIGURE 15 PARTICULATES

Source: Derived from Table 87.

		TABLE 8	8							
	PARTICULA Year	ATES MON Hig	<u>TES MONITOR VALUES</u> Highest Maximum Value (u/m ³)							
Location PM ₁₀		1^{st}	1^{st} 2^{nd}		4^{th}					
Bee Ridge Park	2001	58	52	39	30	20				
115-0013	2000	42	31	31	30	18				
	1999	39	35	33	33	19				
	1998	39	34	31	28	19				
	1997	52	37	30	29	19				
City of Sarasota R.O.Plant	2001	58	41	39	39	23				
115-1003	2000	44	40	40	40	25				
	1999	44	42	41	39	23				
	1998	48	43	42	41	24				
	1997	47	45	40	37	23				
Venice 115-2001	2001	61	45	41	30	19				
	2000	35	35	35	34	20				
	1999	38	34	33	31	19				
	1998	41	39	38	36	20				
	1997	50	35	29	27	19				
	Year]	Highest Max	ximum Valu	es	Annual (µ/m ³⁾				
Location PM _{2.5}		1^{st}	2^{nd}	3^{rd}	4^{th}					
Bee Ridge Park	2001	42.4	29.2	27.9	22.8	10				
	2000	37.6	36.1	30.2	24.6	11				
	1999	34.1	25.2	23.2	22.4	10				

-						
Source: Sarasota County Natur	al Resources	Department,	Environmental	Services,	January 15	, 2002.

Ozone Pollution

Ozone is formed from chemical reactions involving sunlight and nitrogen oxides, hydrocarbons and oxygen. The reactions begin in the morning when sunrays react with these various chemicals. The heaviest concentration of ozone is said to be in the evening when the air is generally stagnant. Both volatile organic compounds and nitrogen oxides are emitted by transportation and industrial sources as diverse as autos, chemical manufacturing, dry cleaners, paint shops, and other sources using solvents. Ozone in the upper atmosphere is beneficial to life because it shields the earth from harmful ultraviolet radiation.

Ozone Program Developments

The Federal Environmental Protection Agency revised the National Ambient Air Quality Standard for ozone in 1997 from 0.12 ppm of ozone measured over one hour to a standard of 0.08 ppm measured over eight hours. Health studies, which indicate longer exposure at lower concentrations can cause adverse effects on humans, serve as the basis of the new standard. Also, repeated exposure to ozone can make people more susceptible to respiratory inflection and lung problems, and can aggravate pre-existing respiratory diseases.

Ozone Trend Analysis

Ozone monitoring for the southern part of the region, consists of two (2) monitors, strategically located in Lee County, and two (2) new sites in Collier County, which are to be established. The data in Tables 89 & 90 provide the highest averages for the 1 and 8 hours ozone monitoring sites between the years of 1993-2001. As shown in Table 89, there have been slight decreases in pollution at the Lee County monitored sites in recent years. An examination of all of 3-year periods beginning in 1993 show attainment of the standards, excluding the 1998-2000 period which registered 80 ug/m³ for ozone. The Florida Department of Environmental Protection has noted that the fires in Mexico contributed to the high values in 1998. Moreover, the data shows that during the last eight years, ozone concentration in the southern part of the region was less than the 0.12 parts per million (ppm) for the 1-hour ambient air quality standard.

In recent years, the data revealed an upward trend in ozone pollution at the South Lido Park site in Sarasota County. The complexity of the ozone problem, including its dependence on meteorological conditions, photochemical formation, and land use, makes it a difficult problem to solve. Pollution from the Tampa Bay area is thought to be a contributing factor of the high concentrations in Sarasota County. Clearly, in the near future, the Florida Department of Environmental Protection will be faced with ways of reducing ozone exposure to the residents of Sarasota County to safeguard public health and welfare.

				070N	E VA	TAB	SLE 8 FOR	9 LEE (JTV					
8 Hour Average															
	Order	1995		1996		1997		1998		1999		2000		2001	
		Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date
Location		ppb		ppb		ppb		ppb		ppb		ppb		ppb	
Cape Coral	1st	75	4/14	65	6/6	71	4/17	95	5/14	88	4/20	85	10/17	56	1/6
071-2002	2nd	72	5/6	65	7/11	70	3/23	95	5/20	87	4/13	77	4/20	56	2/7
	3rd	69	5/22	65	7/12	67	4/24	95	5/20	81	9/4	75	10/18	53	2/6
	4th	66	3/21	62	6/5	67	8/29	92	5/13	77	3/20	73	3/6	52	2/18
	5th	63	3/29	61	6/3	66	4/8	80	4/25	77	4/21	73	4/30	51	1/25
Fort Myers	1st	58	12/3	81	3/14	81	10/3	95	5/14	86	3/12	94	10/17	75	8/25
Beach	2nd	58	12/5	74	4/17	73	3/23	91	5/13	84	9/4	83	10/18	73	5/24
071-3002	3rd	54	12/2	72	4/11	73	4/24	91	5/20	83	4/20	78	10/19	71	3/23
	4th	52	12/7	70	7/11	72	4/17	82	4/25	81	4/13	77	4/20	68	3/27
	5th	50	12/6	70	7/12	71	4/8	82	5/21	76	4/21	75	3/6	68	8/26

				OZON	TA E VA	ABLE S	89 (C) FOR	ONT.) LEE (COUN	ТY					
1 Hour Average															
	Order	1995		1996		1997		1998		1999		2000		2001	
		Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date
Location		ppb		ppb		ppb		ppb		ppb		ppb		ppb	
Cape Coral	1st	92	5/6	74	8/1	81	4/8	117	5/20	96	4/13	90	10/17	80	4/18
071-2002	2nd	86	4/14	72	7/1	76	3/23	109	5/14	96	4/20	86	7/27	78	3/23
	3rd	78	5/22	69	6/4	75	4/24	100	5/21	87	4/19	84	8/28	75	3/24
	4th	73	3/21	68	3/14	75	8/29	96	5/13	86	3/20	81	4/20	75	4/17
Fort Myers	1st	66	12/3	89	3/14	98	10/3	103	5/20	96	3/12	98	10/17	85	5/24
Beach	2nd	65	11/17	80	4/17	83	10/2	102	5/13	93	9/4	91	10/18	79	3/23
071-3002	3rd	63	12/5	77	4/11	82	4/8	102	5/14	91	4/13	88	10/20	79	8/25
	4th	62	12/2	73	5/31	80	8/14	89	5/21	89	4/20	86	4/30	74	2/23

Source: Florida Department of Environmental Protection, South District Office, 12/2001.

FIGURE 16 OZONE POPULATION



Source: Derived from Table 89.

						TAB	LE 9	0							
	OZONE VAULES FOR SARASOTA COUNTY														
8 Hour Average															
	Order	1995		1996		1997		1998		1999		2000		2001	
		Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date
Location		ppb		ppb		ppb		ppb		ppb		ppb	1	ppb	
South Lido Park	1st	87	8/16	85	6/6	92	7/13	108	5/14	96	10/13	96	10/19	105	5/24
115-1005	2nd	82	6/14	75	4/11	90	9/20	100	5/13	94	4/21	91	5/30	92	8/27
	3rd	78	5/6	75	9/23	80	5/14	97	5/15	91	8/13	89	10/29	90	8/28
	4^{th}	77	3/29	74	6/3	79	4/8	88	11/1	85	4/13	86	10/16	86	8/26
	5^{th}	75	5/22	74	6/5	79	9/9	83	4/25	82	4/20	84	10/17	82	8/8
Paw Park	1st											85	10/17	88	5/24
115-1006	2nd											84	10/19	81	8/26
Site established	3rd											82	8/30	80	8/28
Nov-99	4th											81	4/30	78	3/24
	5th											81	10/18	78	8/25
	· · · ·					1 Hour	Avera	age							
	Order	1995		1996		1997		1998		1999		2000		2001	
		Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date	Conc.	Date
Location		ppb		ppb		ppb		ppb	-	ppb		ppb		ppb	
South Lido Park	1st	101	5/16	97	7/11	107	9/20	131	5/13	111	8/13	122	10/29	121	5/24
115-1006	2nd	99	8/16	94	6/6	93	9/9	122	5/14	111	9/3	107	5/30	114	8/26
	3rd	89	8/17	87	9/23	92	5/28	106	5/15	102	4/21	104	8/30	101	8/22
	4th	88	6/14	86	4/17	88	5/6	97	5/16	100	4/13	104	10/19	98	8/28
Paw Park	1st											109	10/29	102	8/22
115-1006	2nd											100	8/30	101	5/24
Site established	3rd											98	10/17	100	8/26
Nov-99	4th											93	5/30	97	8/25

Source: Sarasota County Natural Resources Department, January 15, 2001.

FIGURE 16 OZONE POPULATION



Pollen Pollution

Air pollution is generally seen as a product made by man. Pollen however, is a natural air contaminant, which occurs during periods when plants are pollinating. Pollination is the transfer of pollen from one plant to another and is an essential step in the reproduction of most seed plants. Wind-pollinated seed plants, such as many trees, grasses, and flowering weeds, are the principle sources of pollen. Airborne pollen is a major allergen responsible for seasonal allergic rhinitis. Upon contact with the nasal membrane, pollens release proteins that may cause an allergic response in sensitive persons.

Summary and Conclusion

Current air quality is good, or "attainment". The current sources of air pollution are "areawide" resulting from autos in urban areas, land clearing, and partly from various licensed emitters. Auto emissions <u>per car</u> are down, but the increasing volume of cars has turned around the reduction leading to areawide increases. Fortunately for those of us residing in Southwest Florida, large industrial polluters are limited. Although the area has a small number of industrial smokestacks spewing out poisonous gasses, there is considerable pollution from automobiles and licensed emitters throughout the region.

The rapid rate of growth in Southwest Florida will put even more pressure on the environment. It is important to recognize that a regional approach to air quality is critical if the existing air quality is to be maintained and improved. Modeling or site monitoring may not present a clear picture of what is occurring in a given area. Occasionally, underlying factors may be the dominant criteria, which

influence the outcome of a sampled population. Such factors are location, spatial distribution, and the sheer number of monitors, which can have a profound impact on the outcome of the data. Similarly, computer modeling has its limitations as well. Problems leading to data constraints may involve physical characteristics, meteorological conditions, technological disasters, topography, and development activities.

Future air quality improvements will not come unless emissions from growth are fully offset. Controlling growth alone will not solve the Region's air quality problem. Effective environment management, incorporating new technologies, and effective land use planning are some answers to the air quality dilemma facing the citizens of Southwest Florida. Clearly, the high ozone levels in Sarasota County will require immediate attention to avoid future air quality problems.

Summary and Conclusion

Current air quality is good, or "attainment". The current sources of air pollution are "areawide" resulting from autos in urban areas, land clearing, and partly from various licensed emitters. Auto emissions <u>per car</u> are down, but the increasing volume of cars has turned around the reduction leading to areawide increases.

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Future air quality improvements will not come unless emissions from growth are fully offset. Controlling growth alone will not solve the Region's air quality problem. Effective environment management, incorporating new technologies, and effective land use planning are some answers to the air quality dilemma facing the citizens of Southwest Florida.

> GEOLOGY

Formation of the Land

The land mass that is now Southwest Florida remained shallowly submerged beneath the ocean until the Miocene and Pleistocene Epochs. Most of Collier and eastern Lee Counties emerged during the Miocene Epoch, about fifteen million years ago. Not until the Pleistocene Epoch, slightly more than one million years ago, did the coastal areas from southern Sarasota County to southern Collier County emerge and begin evolving into the coastline known today. Most of Glades and Hendry Counties also emerged during this epoch.

The process of emergence and submergence of the Florida peninsula is believed to have been cyclic, occurring throughout known geologic time. The emergence, characteristic of the Miocene and Pleistocene Epochs, was caused principally by declining sea level. Evidence exists, however, that global sea level has been rising.

Southwest Florida can be divided into ten major physiographic provinces, as described in the Southwest Florida Ecological Characterization Atlas, 1984 (Map 8):

<u>Gulf Coastal Lowlands</u>: Found in northwest Lee County and most of Sarasota and Charlotte Counties, the Gulf Coastal Lowlands are separated from the DeSoto Plain by marine terraces that developed on the south side of the Peace River Valley. The transition from upland to shoreline occurs as a broad, gently southwestward sloping plain composed of depositional sediments of marine origin. These sediments are aligned generally parallel to the coastline, an arrangement that indicates their formation by marine forces.

<u>DeSoto Plain</u>: The DeSoto Plain is broad and flat. It is found in northeast Charlotte and northwest Glades Counties. At the southern portion of the plain, it ends in a scarp which declines thirty feet in elevation over five or six miles. The DeSoto Plain, as postulated, is an emergent, ancient submarine shoal formed during a time of high sea level. The submarine

origin of the plain is suggested by the absence of linear features such as ancient shorelines or beach ridges.

<u>Okeechobee Plain</u>: The southern extent of the Okeechobee Plain falls within Glades County. The Plain is dominated by Lake Okeechobee and the Kissimmee River. It is broad, flat, and descends to meet the Caloosahatchee Valley to the south.

<u>Caloosahatchee Valley</u>: The Caloosahatchee Valley rises less than fifteen feet in elevation. It extends from Lake Okeechobee in Glades County to the Lee County shoreline. It is underlain by clay, shell, and limestone deposits. The northern extent is marked by the descending scarp of the DeSoto Plain.

<u>Immokalee Rise</u>: The Immokalee Rise occupies most of Hendry County, northern Collier County, and part of eastern Lee County. It is generally twenty-five feet in elevation, but in some areas it peaks at thirty-five and forty-two feet. Sandy surface deposits are underlain by shell and limestone. The Rise can be delineated by a number of small solution lakes at its borders. It formed as a submarine shoal approximately 100,000 years ago.

<u>Everglades</u>: The eastern portion of Hendry County can be characterized as part of the Everglades. The average elevation within this area is 10 feet. The natural watery grass and hammock vegetation has been replaced by agriculture.

<u>Big Cypress Spur</u>: The Big Cypress Spur is located mainly in northeastern Collier County and includes the Big Cypress Swamp. The area not included in the Big Cypress Swamp is covered by peat and marl, while the Swamp is distinguished by an irregular surface, an abundance of quartz sand, and karst surfaces.



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SOURCE: SOUTHWEST FLORIDA ECOLOGICAL CHARACTERIZATION ATLAS, 1984.

<u>Southwestern Slope</u>: Most of Collier County is included in the Southwestern Slope area. The Slope most likely originated as a marine terrace during periods of higher sea level. It varies in elevation from a high of twenty-five feet to sea level. The surface consists of shells, marls, and organic material underlain by limestone.

<u>Gulf Barrier Chain</u>: The Gulf Barrier Chain is a string of barrier islands from Longboat Key to Cape Romano. It is believed that these islands formed as dune ridges and spits from sand supplied by coastal headlands, rivers, and formerly emergent areas of the continental shelf. When the rise in sea level began to slow, 4,000 to 5,000 years ago, this sand was acted upon by winds, currents, and waves to form islands parallel to the shoreline. Sanibel Island, however, is believed to have formed from deltaic deposits composed chiefly of mollusk shells.

<u>Reticulate Coastal Swamps</u>: Found along the coast of Collier County, the Reticulate Coastal Swamps are characterized by a profusion of mangrove islands separated by narrow creeks. Encompassing approximately 200 miles of coastline, the Ten Thousand Islands of Collier County are part of the largest mangrove system in the world (the Ten Thousand Islands/Everglades Park Complex). The Coastal Swamps are composed of saltwater vegetation (primarily mangroves) at the ocean fringe, which gradually becomes brackish, then fresh, as the swamps extend landward.

Aquifer Systems

Aquifers are geologic formations of primary interest to man because of their ability to store freshwater. An aquifer is a water-bearing layer of rock that will yield water in a usable quantity to a well or spring. (The water-bearing properties of the various geologic formations in the Region are discussed in Appendix.) Generally one or more of an aquifer's strata are impermeable to water penetration. At some point in the aquifer, however, there is usually an area for water recharge where penetration by water is possible. All water stored in aquifers originates as rainfall.

The two principle aquifer systems in Southwest Florida are the Floridan and surficial aquifers. The importance of these to the Region and their formations are discussed in greater detail below.

TOPOGRAPHY

Topography is the result of natural forces acting upon regional geologic formations from ancient time until the present. It is an important aspect of the Region's character. It determines drainage patterns, flood limits, soil type, settlement history and potential, and vegetation and wildlife range. Topography in the Region (Map 9) is quite flat, ranging from sea level to a maximum elevation of ninety feet.

> SOILS

Soils in Southwest Florida consist of sand, silt, and clay derived from geologic substrata, water, and organic matter. Of the fourteen types of soil associations within the Region, four account for over half of the Region's soil: the Adamsville-Pompano, Immokalee-Myakka-Pompano, Felda-Wabasso-Penida and Pompano-Charlotte Associations. All are deep, nearly level, and poorly drained, with a water table less than ten inches from the surface during at least part of the year.

Other associations present in significant amounts include the Ochopee-Broward and Broward-Pompano Associations (Map 10).

While most soils in the Region have some suitability for agricultural uses, they act as natural constraints to urban development. Extensive soil preparation is required prior to development in most areas of the Region. For example, in areas with a high water table, many feet of soil must be added vertically to development sites to facilitate drainage and provide flood protection.

FRESHWATER RESOURCES

The major surface water systems in southwest Florida include the Kissimmee-Lake Okeechobee-Everglades System, the Peace River-Myakka River-Charlotte Harbor Basin, the Coastal Sarasota Basin, the Big Cypress Basin, and the watersheds of the Caloosahatchee River. (Map 11 and Map 12 shows the major surface waters of the Region) The natural surface hydrology of south Florida resulted from the interaction of the region's subtropical climate with its topography and geology. The natural hydrologic system was self-sustaining and dynamic with conditions ranging from dry periods to prolonged flooding during wet periods. During wet periods, water tended to accumulate on the predominantly flat, low-lying lands, flowing overland and via shallow streams into freshwater lakes and the Gulf. Ponding persisted for several months, allowing infiltration of surface water into the underlying aquifers. During dry periods, surface water levels receded, but water stored in the soil and aquifers provided the base flow for the rivers and wetlands. Occasionally, prolonged droughts caused more complete drying of the land. As a result, wild fires were not uncommon during droughts.



ELEVATIONS SOUTHWEST FLORIDA REGION



SOILS OF THE REGION SOUTHWEST FLORIDA REGION

MAP 11 - SURFACE WATERS



SURFACE WATERS SOUTHWEST FLORIDA REGION



MAJOR BAYS AND RIVER SYSTEMS SOUTHWEST FLORIDA REGION

Long periods of flooding and the extremes of droughts and hurricanes made much of south Florida inhospitable to development. Early development was generally confined to isolated uplands and the coastal ridge, often the only dry land available. There was, however, a strong desire to settle the lowlands, which were very fertile and potentially of great agricultural value. In order to accommodate development, the natural hydrologic system was modified to meet the population's desire for drainage for agricultural and urban activities. Extensive damage wrought by floods and droughts led to the construction of the Central & Southern Flood Control Project, a regional network of canals, levees, storage areas, and water control structures designed to provide reliable water supply and flood protection for existing and future development and other major drainage systems. The region's surface hydrology is now largely governed by man-made systems superimposed on the natural hydrology. In an attempt to restore impacted natural systems, the U.S. Army Corps of Engineers has recently completed a Restudy of the Central & Southern Flood Control Project. The Restudy proposes a series of methods to accomplish restoration including storage of excess runoff in reservoirs and aquifer storage and recovery wells. These methods will be furthered studied during the Reconnaissance and Feasibility Study phase of this overall project.

The Florida Department of Environmental Protection has a permanent fixed surface water quality station network. The results of this monitoring are entered into EPA's STORET computer database. The "1996 Florida Water Quality Assessment, 305 (b) Technical Appendix" (Florida Department of Environmental Protection), provides an excellent summary of water quality conditions within the Region and State. Additionally, the District Water Management Plans and the Charlotte Harbor National Estuary Program's "Synthesis of Existing Information Volume 1: A Characterization of Water Quality, Hydrologic Alterations, and Fish and Wildlife Habitat in the Greater Charlotte Harbor Watershed" contain information on the region's water resources. Finally, the Central and Southern Florida Project Comprehensive Review Study prepared by the U.S. Army Corps of Engineers, (Restudy) contains extensive information on the Kissimmee- Lake Okeechobee Everglades system.

The following basin descriptions are excerpts from those documents:

Sarasota Bay Basin

The Sarasota Bay Basin, which drains 268 square miles, extends from Tampa Bay to Charlotte Sarasota, Little Sarasota, and Lemon bays, all Outstanding Florida Waters, have a Harbor. combined estuarine area of about 24 square miles. Sarasota Bay, an Estuary of National Significance, is really more like a sound, protected by a strip of barrier islands and receiving little fresh water. Several small streams, most less than five miles long, enter the estuary. Nearly all these and the basin's relatively clear waters support healthy, but degrading, seagrass beds. The basin has two major urban centers, Sarasota and Bradenton; most of the rest is developed into subdivisions and small municipalities. Some agricultural drainage occurs, mostly from citrus groves in the eastern basin and rangeland at the headwaters of Phillippi Creek and Cow Pen Slough. The city of Sarasota wastewater plant, which discharges into Whitaker Bayou, is the basin's major point source of pollution, creating nutrient, dissolved oxygen, and coliform bacteria problems. The plant, which has had a long history of enforcement actions, has now up-graded to advanced treatment. Currently, a combined system of seepage irrigation and direct discharges to Whitaker Bayou are used to dispose of wastewater. The plant is allowed a maximum of 59 days a year of direct discharge (primarily into Phillippi Creek). The Corps of Engineers and Sarasota County's Stormwater Utility are considering a flood-control

project for the bayou's tributaries that would channel the creek. FDEP has suggested that these agencies explore other alternatives. Agricultural and urban stormwater runoff are also a problem, however, according to SWFWMD staff, urban stormwater is thought to be the dominant factor in non-point source runoff, as agricultural runoff accounts for only 6% to 9% of Stormwater runoff in the basin. Septic tanks affect many streams running through developed areas. Tributaries and direct runoff supply the bay with large amounts of nutrients.

Past studies have indicated that seagrass beds are declining in Upper Sarasota Bay, especially on the eastern side, presumably because high algal concentrations are reducing the water's transparency. However, according to more recent studies prepared by the Sarasota Bay NEP, seagrass habitat has increased by 18% within the Bay since 1988.

Runoff from the Bradenton area provides further nutrients. According to material provided by the Sarasota Bay NEP, nutrient (nitrogen) pollution has been reduced in the Bay by 47% since 1990 and nitrogen pollution from wastewater treatment plants has been reduced by 80%. Sarasota, Little Sarasota, and Lemon bays are all threatened by increased boat traffic, seawalling, and the replacement of mangroves by lawns and drainage canals. The dredging of Stump Pass in Lemon Bay has provoked controversy, and FDEP has rejected requests from Sarasota County for a permit to dredge and reopen Midnight Pass. In association with the National Estuarine Program, several local agencies are monitoring the bay's water quality. Additionally, the Sarasota Bay NEP has established a Comprehensive Conservation and Management Plan for the Bay.

Myakka River Basin

The Myakka Basin lies in a transitional area between temperate and subtropical habitats. The upper basin, sitting in a flat, marshy area with a small, fringing cypress floodplain, is very sparsely populated and developed, and used mostly for pasture and some citrus groves. The headwaters of the Myakka arise from marshes in Hardee County in southwestern Florida. SWFWMD staff has stated that a very small portion of the Myakka River headwater tributaries that exist in Hardee County have been altered and contribute only a small amount, if any, to the rivers flow. The majority of the headwater marshes and tributaries contributing to the Myakka River occur in Manatee County.

The blackwater river then enters two successive impoundments, Upper and Lower Lake Myakka (the latter is only partially impounded). This part of the basin, also sparsely populated, is mostly included in the 45-square-mile Myakka River State Park. Below the park, the river winds crookedly through undeveloped marsh and swamp prairies until it widens into the Myakka Estuary. This area receives water from two main tributaries, Deer Prairie Creek and Big Slough Canal. The North Port and Port Charlotte developments lie just east of the estuary. The river traverses about 54 miles, draining roughly 540 square miles before discharging to Charlotte Harbor.

Because the basin is relatively undeveloped and contains so many varied habitats (such as marshes, swamps, prairies, flatwoods, hammocks, and estuary), many endangered species have been found, and it is a popular recreational area. Much of the river is a State Wild and Scenic River and an Outstanding Florida Water. Additionally the estuary is a SWIM priority water body and is recognized as an estuary of national significance within the Charlotte Harbor NEP program.

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The basin generally has very good water quality and supports productive freshwater and estuarine habitats. The river is very sluggish, often with no net flow during the dry season. Dissolved oxygen levels are typically low. Tidal influence on flows and salinity can extend as far as 20 miles upstream. Part of the upper basin drains phosphate-rich areas, which, combined with agricultural and rangeland runoff, elevate the river's nutrient levels. Upper Lake Myakka is eutrophic, with dense mats of hydrilla and water hyacinth and low concentrations of dissolved oxygen. The lake provides habitat and feeding areas for abundant wildlife.

In the lower basin, Deer Prairie Creek and Myakkahatchee Creek (Big Slough Canal) both drain rangeland. The latter's upper stretches have been channeled to enhance drainage. In the lower stretches, it traverses some urban areas, receiving drainage from residential canals. Myakkahatchee Creek shows elevated coliform and nutrient levels, probably because of runoff from pastures and urban development. Myakkahatchee Creek is also a potable water supply and that, as such, it is a Class I water body. Relatively little development is present along the estuary, which maintains much of its pristine, mangrove-vegetated shoreline. The estuary is threatened by encroaching development to the east.

Peace River Basin

The Peace River, a blackwater stream, originates in the Green Swamp and some of central Polk County's numerous, partially connected lakes. It coalesces into a defined stream near Bartow and flows generally southwest for about 105 miles, entering Charlotte Harbor. The basin's drainage encompasses approximately 2,400 square miles. Numerous lakes and large areas of swamps in the headwaters of the Peace River act as important recharge areas for the Floridan Aquifer. Cypress and hardwood floodplains line the river corridor itself, which contains little development. The river provides a popular canoe route from Ft. Meade to Arcadia. Its main tributaries include Peace, Saddle, Charlie, Horse, and Shell Creeks. Major urban areas in the upper basin and out side of the Southwest Florida Region include Lakeland, Winter Haven, and Bartow. At the river's mouth lie Port Charlotte and Punta Gorda.

Agriculture dominates land uses in the upper basin. The large expanses of barren land (about 25 percent of the basin) reflect extensive phosphate mining in the upper basin and the headwaters of many of the Peace River's tributaries. In the lower basin, land is used mainly for agriculture and rangeland. Citrus groves prevail in the middle stretches. Pollution sources in the basin include domestic wastewater, industrial discharges from phosphate mining, chemical- and citrus-processing plants, and surface runoff from urban, agricultural, rangeland, and barren (mined) areas. Charlotte Harbor and its watershed, including the Peace River, are SWIM priority water bodies and are contained in the Charlotte Harbor National Estuary Program.

Four major pollution sources affect different areas along the river and its tributaries. In the northern basin both domestic and industrial point sources and urban stormwater severely degrade water quality. Part of the upper basin has also been affected by phosphate mining. Most of the major tributaries throughout the basin contribute varying degrees of agricultural and rangeland runoff. The worst water-quality problems originate in the upper basin. Lake Parker, Banana Lake, and Lake Hancock and their tributaries (Saddle Creek, Banana-Hancock Canal, and Lake Lena Run) have some of the poorest water quality in the state, with elevated nutrients, periodically low levels of dissolved oxygen, low acidity, high bacterial counts, and severely depressed biological communities.

The Peace River in the vicinity of Bartow, Fort Meade, and Zolfo Springs is degraded by several phosphate mining and fertilizer industries. Strip mining of phosphate rock occurs (or has occurred) within the drainage of the river and most of its tributaries in this stretch. Although waters flowing through phosphate strata have higher background concentrations of phosphorus, these mining operations contribute far greater nutrient loading than natural background loads. Furthermore, mining disrupts the flow regime of the small creeks and severely limits habitat for biota. In addition to the mining operations, this area has many citrus groves so pesticides may cause further threats to aquatic life.

The nonpoint sources shift from mining operations to agricultural and rangeland runoff further south in the basin. Because of this less intensive land use and the confluence of Horse Creek (a relatively undisturbed tributary system) the Lower Peace River exhibits relatively good water quality, as compared to the upper reaches of the river. The only exception as it enters Charlotte Harbor is high phosphorous content.

Within the Southwest Florida portions of this basin, increased development threatens the Prairie and Shell Creek drainage basins. Near its confluence with the Peace River, Shell Creek has been impounded for drinking water for the City of Punta Gorda. The City of Punta Gorda is permitted to withdraw an annual average of 5.38 million gallons per day from the reservoir. Development in Port Charlotte and Punta Gorda affects the estuarine portion of the river. Construction and urban runoff add sediments and nutrients. The Punta Gorda wastewater plant has converted from surfacewater discharge to spray irrigation. Because the sprayfields are underdrained and flow to Myrtle Slough, the plant must convert to advanced treatment.

A five-year study by FGFWFC found that the upper and lower ends of the Peace River have fishery problems, but the middle is fairly clean, with plentiful fish. In the upper river the composition of fish populations, largely gar and tilapia, reflects the environmental impacts of drainage from Lake Hancock and the Peace Creek Drainage Canal. By the time the river reaches Wauchula, better water from tributaries changes fish populations. In the middle section of the river, largemouth bass, bluegill, and sunfish can be found in addition to tilapia and gar. Diversity decreases again near the river mouth at Punta Gorda on the Gulf of Mexico.

The Peace River Water Supply Facility is located in Desoto County and provides public water supply to areas of Charlotte, Sarasota and Desoto Counties. The facility is owned and operated by the Peace River/Manasota Regional Water Supply Authority (PR/MRWSA). The raw water source is the Peace River. The treatment facility is currently designed to treat 12 million gallons per day (MGD) and is currently undergoing construction to add an additional 12 MGD giving the facility a total treatment capacity of up to 24 MGD.

An 85-acre off-stream reservoir 625 MG capacity and aquifer storage and recovery (ASR) system supplement water supplies during periods of low river flows. The off-stream reservoir is filled with untreated river water during periods of high river flow. The ASR system stores treated water when excess treatment capacity and raw water supply is available and provides for recovery of the treated water when either the river cannot supply adequate raw water or the demand exceeds the treatment facility capacity. The ASR system currently consists of 9 wells. Twelve 12 additional ASR wells are currently under construction for future use.

There are currently three large phosphate mines proposed within the Peace River basin, including Horse Creek and other tributary watersheds, and Myakka River basin, including Myakkahatchee Creek. These proposals include the following:

- IMC Phosphates Ona Mine, approximately 20,595 acres straddling Horse and Brushy creeks in the Peace River basin, in Hardee County.
- Farmland-Hydro Mine, approximately 15,100 acres straddling Brushy and other creeks in the Peace River basin and adjacent to the Peace River corridor, in Hardee County.
- IMC Phosphates Pine Level Mine, approximately 23,000 acres straddling Horse Creek in the Peace River basin in DeSoto County and straddling Myakkahatchee Creek in the Myakka River Basin in Manatee County.

The IMC-Agrico Ona and the Farmland-Hydro mines are currently undergoing the Ecosystem Management Team Permitting review process. IMC Phosphates has held off on pursuing the Pine Level mine permit until the Ona mine permit application review is resolved.

Charlotte Harbor Basin

The Charlotte Harbor Estuary is one of Florida's largest bays, covering 119 square miles of Charlotte Harbor as well as Pine Island Sound (71 square miles), San Carlos Bay (23 square miles), and Matlacha Pass (23 square miles). The northern part of Charlotte Harbor receives fresh water from the Peace and Myakka rivers. The eastern side of the bay also receives drainage from several small coastal creeks and canals. San Carlos Bay is an extension of the Caloosahatchee River Estuary. Northern Charlotte Harbor is heavily influenced by flows from the black-water, phosphorus-laden Peace River. The northern portion of Charlotte Harbor is also a SWIM-priority water body under the direction of the Southwest Florida Water Management District (SWFWMD). The southern portion of the Harbor Complex contained within the South Florida Water Management District's jurisdiction is not considered as a priority SWIM body by the District.

Pine Island Sound and Matlacha Pass have less fresh water flows. Mangroves line the shorelines, creating hundreds of small islands and supporting seagrass growth. The Caloosahatchee River influences San Carlos Bay's water. The basin is a productive nursery area for marine life. Urban development is heavily concentrated in the northern basin at Port Charlotte and near the mouth of the Peace River at Punta Gorda. Local urbanization is present in the south at the mouth of the Caloosahatchee. More and more of the drainage area is being developed, however, mainly as massive communities. Most of the rest of the shoreline comprises mangrove swamps. The barrier islands are moderately developed, primarily for tourism, and the area's economy is based on tourism, retirement communities, and fisheries.

Water quality in the basin is generally good. Most pollution comes from development, including bacteria from accelerated urban runoff through canals and sediments from construction and reverse osmosis discharges. Nutrient levels, particularly phosphorus, are elevated, and Secchi readings are somewhat low in areas. High phosphorus levels primarily originate from the Peace River Basin. Nutrient pollution in San Carlos Bay may result from urban runoff around Ft. Myers and agricultural runoff from the Caloosahatchee River drainage. Urbanization at the mouth of the Peace River probably affects Upper Charlotte Harbor to some degree. Fisheries have declined, and

shellfishing is periodically closed because of bacterial contamination. An extensive canal system in the largely undeveloped northern portion of Cape Coral affects the timing and possible quality of freshwater flows into the north end of Matlacha Pass.

The most serious historic water-quality problems were found in the Sanibel River on Sanibel Island, at the southern end of the Charlotte Harbor Basin. For years, the river historically received domestic wastewater and stormwater runoff from the island's more developed areas. Although leachate from local wastewater plants has been controlled, runoff remains a problem. The area has not been sampled recently.

Excessive surface water withdrawals from rivers and creeks for purposes of water supply may also degrade estuaries that receive freshwater inflows. Changes in historic/natural duration, seasonality and volume of water may affect important sport and commercial saltwater fisheries and other estuarine species. Surface water withdrawals from the Peace River and Myakahatchee Creek are proposed for expansion.

The Charlotte Harbor National Estuary Program study area covers the entire Charlotte Harbor Ecosystem Complex, including Lemon Bay and Estero Bay and their watersheds. Detailed information also exists as part of the Charlotte Harbor National Estuary Program. A "Synthesis of Exiting Information" has been prepared that contains comprehensive information covering the NEP Study Area including Peace River, Myakka River, Coastal Venice, Lemon Bay, Cape Haze, Gasparilla Sound, Charlotte Harbor Proper, Pine Island Sound, Matlacha Pass, San Carlos Bay, Tidal Caloosahatchee River and Estero Bay. Further information about the program and a copy of their Comprehensive Conservation and Management Plan can be found at their Internet location: http://www.charlotteharbornep.com

Kissimmee River Basin

One of the most prominent hydrologic features of south Florida is the Kissimmee-Lake Okeechobee-Everglades system. Shingle, Boggy, and Reedy creeks comprise the main headwaters of the Kissimmee River in the southern outskirts of the highly urbanized Orlando area. Shingle Creek flows sluggishly through urban and swampy land, eventually emptying into Lake Tohopekaliga (Toho). Reedy Creek flows from Disney World through swamps into a slough between Cypress Lake and Lake Hatchineha, and then southward into Lake Kissimmee. This flat upper basin also contains hundreds of small lakes. After leaving Lake Kissimmee, the river once meandered through a large, sparsely populated floodplain to Lake Okeechobee. Connections between the lakes have been modified by channels, primarily for navigation in the 1800s and later for flood control. In the late 1960s the Corps converted the river into a canal, C-38, to provide flood control, allow navigation, and reclaim agricultural land. The 103-mile long, shallow, meandering river was replaced with a 56mile long, 30-foot deep channel. This resulted in the drainage of 43,000 acres of floodplain wetlands Unfortunately, aesthetics, biological diversity, and downstream water quality declined. The river which eventually discharges into Lake Okeechobee is a major source of surface water flow into the lake.

The South Florida Water Management District (SFWMD) is currently engaged in an effort to reintroduce flows to remnant river oxbows and restore 26,500 acres of wetlands in the river floodplain. Construction of this project is expected to be completed in 2009.

The two most notable water quality problem areas in the Kissimmee River basin are Lake Tohopekaliga (Toho) and the lower Kissimmee River. Lake Toho has eutrophication problems due to excessive nutrient loads, while the lower Kissimmee River's problems are due to channelization. Water quality in the channel varies from north to south. From Lake Kissimmee to near Lake Okeechobee, water quality is fairly good. The channel flows mostly through unimproved rangeland. However, as the river nears Lake Okeechobee, cattle become more concentrated and dairies more numerous. Nutrient and BOD-rich runoff from all along the channel flows quickly through the river to Lake Okeechobee and exacerbates eutrophication problems there.

Perhaps more significant than the water quality problems in the river is the habitat modification and consequent loss of biological diversity and functional wetlands. Recently, efforts have been made to restore parts of the river to its natural, meandering course by strategically placing weirs in the channel. In those sections the river has returned to its original floodplain, effectively re-creating the buffering wetlands. Land purchases, design plans, and monitoring are being continued toward the restoration goal of 32,000 acres.

Fisheating Creek Basin

Fisheating Creek Basin forms part of Lake Okeechobee's northwest drainage basin. The creek itself, which is mostly lined by cypress swamps, is a meandering blackwater stream that flows through rangeland in Highlands and Glades counties. It eventually empties into Gator Slough, which then flows into Lake Okeechobee. The river is an excellent place to observe wildlife. In drier years, many of Lake Okeechobee's wading birds seek refuge in its swamp and sloughs. The basin, which drains 918 square miles, is primarily improved rangeland with some agriculture. Other waterways include several major canals connected to a network of smaller canals designed to drain land for more intensive grazing and agriculture. The basin is very sparsely populated, with no major urban areas; it also contains the Brighton Indian Reservation.

Fisheating Creek and Gator Slough generally have good water quality; several remote segments are popular for recreational canoeing and swimming. Rangeland and agricultural runoff, however, have impaired the canals' water quality. Altered flows and habitats as well as nutrient enrichment have produced low biological diversity and declining fisheries. The canals also have problems with odors and weed growth. Slowly flowing streams such as the upper part of Fisheating Creek and the canals usually have low dissolved oxygen levels. The basin is one of the many sources of nutrient pollution for Lake Okeechobee. Lykes Brothers restored 22 miles of wetlands where it had illegally dug ditches and canals. Subsequent monitoring reports indicate a very high success rate for the restoration.

Lake Okeechobee Basin

Lake Okeechobee, which covers 700 square miles depending on the lake's level, is Florida's largest lake and the second largest in the United States. It is a priority Surface Water Improvement and Management water body. The Kissimmee River is the largest basin draining into the lake, followed by Fisheating Creek, the Indian Prairie Canal, and Taylor Creek/Nubbin Slough. Land use in the surrounding basins is predominantly improved pasture, rangeland, sugar cane and wetlands (Fisheating Creek). The lake's natural drainage, which spills into extensive wetlands south of the

lake, has been diked and dredged into six major canals: the westward-flowing Caloosahatchee and the eastward-flowing St. Lucie, West Palm Beach, Hillsboro, North New River, and Miami canals. These and numerous other drainage canals have allowed about 1,200 square miles of land, the Everglades Agricultural Area, to be claimed for agriculture. The EAA is planted mostly in sugar cane but also has significant crop and sod farming.

The Lake may be considered an historically eutrophic water body that is becoming hypereutrophic, due primarily to nutrient inputs from the Kissimmee River and the Taylor Creek/Nubbin Slough Basins. Water quality conditions in the upper Kissimmee River appear to be improving, primarily due to re-routing of wastewater flows from the river to reuse and ground-water discharge sites. However, large quantities of nutrients are still discharged from Lake Toho to Lake Kissimmee and other downstream areas. Water quality improves from Lake Kissimmee to near Lake Okeechobee, where the channel flows mostly through unimproved rangeland; however, pollutant loadings significantly increase as cattle and dairies grow more numerous near the lake.

The lake's total phosphorus levels have doubled in the last 20 years, due in large part to agricultural runoff. This same runoff also has contributed to frequent and widespread algal blooms and at least one major fish kill. Even with the extensive pollutant abatement programs implemented in Lake Okeechobee watersheds during the past 15 years (i.e., reduction of Everglades Agricultural Area backpumping, dairy buyouts, the Florida Department of Environmental Protection Dairy Rule, the South Florida Water Management District Works of the District Regulatory Program), recent lake water nutrient concentrations and loads show no substantive signs of improvement. Further, because the lake's phosphorus is internally recycled, and a vast reservoir of the nutrient is stored in lake sediments as well as the lake's wetlands and watershed canal sediments, phosphorus levels in lake waters may not reach acceptable levels for many decades.

The situation in south Florida today, as summarized in the the Central and Southern Florida Project Comprehensive Review Study, can be attributed largely to a diminished capacity to retain the huge volume of water that once pooled and sheet flowed across the pre-drainage landscape but that now is either discharged in massive volumes through canal systems to tide or is stored at unnaturally high levels in remnant diked wetlands of the Everglades. In hindsight, many of these problems are now recognized to be unanticipated effects of the existing Central and Southern Florida (C&SF) Project. They are exacerbated by the inescapable reality that people continue to move to south Florida at one of the highest rates in the nation. The result is a currently non-sustainable system of urban, agricultural and natural environments in south Florida that exceeds the capacity, or is hampered by, the existing system of water management.

Caloosahatchee River Basin

The Caloosahatchee River, a blackwater river that drains low, flat mucklands, runs from Lake Okeechobee to the lower Charlotte Harbor Basin at San Carlos Bay. Basically a waterway channeled for flood control, the river flows about 45 miles from the Moore Haven Locks on western Lake Okeechobee to the Franklin Locks near the town of Olga. Ortona Locks lies in between, near Ortona. The three locks prevent saltwater intrusion. The Caloosahatchee is the only flood-control outlet leading west from Lake Okeechobee, part of the Okeechobee Waterway, and the only navigable passage between the Gulf of Mexico and the Atlantic Ocean. From Olga to the Gulf, roughly 30 miles, the river broadens into a tidally influenced estuarine system. Rangeland and

agriculture dominate land use in the basin, particularly the upper portion. Tributaries are generally drainage canals.

The lower river, below Ortona Locks, still has portions of the old meanders and natural tributaries, some of which receive water from saline artesian wells. Citrus and fern farms predominate here, and some large residential developments have been built. Much of the area is made up of wetlands. Although the upper basin contains no large urban centers, Fort Myers, North Fort Myers, and Cape Coral - which number among the state's fastest growing cities - lie along both banks of the estuarine portion of the Caloosahatchee.

The river has a long history of human use and flows by some of southern Florida's oldest settlements. The Indians used the river as a trade route before the Seminole Wars in the early 1800s. It later became more important as a steamboat waterway, especially after dredging and channeling in the early to mid-1900s.

The upper portions near Lake Okeechobee frequently violate dissolved oxygen standards and also have high conductivity and nutrient levels from low flows and agricultural drainage (mostly sugar cane). Nine-Mile Canal, which drains agricultural fields, has very poor water quality, and pollutiontolerant species dominated biological samples. Although no algal blooms were seen during a sample period, they have been reported. Water quality improves downriver near Alva. Here land use is less intensive (mostly orchards), and the river has more natural tributaries and old channels. Several tributaries have good water quality and diverse biological communities. The river's biological communities are somewhat poorer than those in its tributaries, probably because reduced flow in the channel has decreased available habitat. The city of Fort Myers uses the Caloosahatchee above Franklin Locks for potable water.

Below the locks, the river widens, becoming estuarine, with Fort Myers on one bank and Cape Coral on the other. The latter, a massive residential area, developed largely before dredging and filling were strictly regulated. A huge network of canals provides the fill and drainage for roads and homes. Once sparsely populated, the community is growing rapidly. As more houses are built, polluted stormwater runoff will degrade the canals' water quality, and already limited underground drinking water supplies will dwindle. In 1992 Cape Coral officially connected its first home to a dual-water system that allows treated effluent and canal water to be used for irrigation, an approach that will also help preserve drinking-water supplies over the long term. The two Fort Myers wastewater plants that discharge to the river must meet advanced treatment standards, and eventually Fort Myers may implement its own dual-water system.

While wastewater discharges remain a problem, at present high-nutrient waters from the river and tributaries and storm-water runoff from cities more seriously affect the estuary. Nutrient and chlorophyll levels are high, and small algal blooms occur regularly. The Orange River, a tributary entering the Caloosahatchee below the locks, is a favored wintering place for manatees because a nearby power plant discharges warm water. A fish kill and clam die-off occurred in 1990 because of high-temperature water discharges and low dissolved oxygen levels.

Big Cypress - West Coast Basin

The basin, which comprises 2,657 square miles of land south and east of the city of Fort Myers, has

very little topographic relief; wetlands dominate the southeastern basin, and mixed dry land and wetlands dominate the northwestern basin. A network of ditches drains much of the "dry" area, which is periodically wet. Sawgrass interspersed with patches of cypress or hardwoods dominates the wetlands. Inches of difference in elevation account for vast differences in vegetation. Along the southern coast lies a thick mangrove swamp extending inland five or more miles. This area below Naples, known as the Land of Ten Thousand Islands, is a rich estuary where freshwater sloughs and rivers mix with the Gulf of Mexico's bays and tidal creeks. Most of the basin east of the Barron River Canal is part of the Big Cypress Swamp or Everglades National Park - which, along with Ten Thousand Islands Aquatic Preserve, contains most of the state's coastal wetlands.

In the northwestern basin, considerable farming (including cattle ranching and vegetable growing) goes on in the quadrangle formed by the cities of Naples, Sunniland, Immokalee, and Ft. Myers. The citrus and ranching industries are exerting pressure to extend this area southward. Some ranching already exists in privately owned areas in the southwestern basin, especially near major drainage canals.

A 175-square-mile east of Naples was extensively ditched and drained in the 1960s for a residential development called Golden Gate Estates. A network of 183 miles of canals and 813 miles of roads was built. Within the southern portion of the project few lots were ever inhabited, the canals and roads remain, and the site has never recovered. FDEP is now acquiring part of southern Golden Gate Estates and restoration efforts are planned.

Farther west along the coast, urbanization is rapid, and cities and communities are springing up from Fort Myers to Naples. In fact, the coast around Naples is one of the country's fastest growing areas. Development has brought new canals and roads; the canals join natural drainage channels that lead west to southwest to the Gulf of Mexico. Marco Island, a winter resort south of Naples, is almost completely developed. Water flows very sluggishly in this part of the basin because of the small difference between land and sea elevations. Water in man-made canals and natural streams is typically low in dissolved oxygen, often below state criteria. Although low levels are considered natural in many southern Florida waters, care must be taken to prevent dissolved oxygen from dropping further through nonpoint or point source discharges.

Because the basin is so large and remote, STORET water-quality data are very limited. Water quality is also hard to assess because of the naturally low levels of dissolved oxygen and the fact that most "streams" are actually man-made canals. Given these background conditions, however, some impacts can be seen on the canals. The 1994 Nonpoint Source Assessment noted that most canals run through agricultural lands. The western half of the Tamiami Canal is threatened or moderately impaired from nutrients, algal and weed growth, and pesticides. Canals draining urban areas are also affected by urban runoff and septic tank leachate. Naples Bay and parts of Estero Bay are threatened or moderately impaired. Lake Trafford, near Immokalee, which is severely impaired from agriculture, urbanization, and septic tank runoff, experiences algal blooms, weed growth, and occasional fish kills. In addition, health advisories recommending no consumption and limited consumption of largemouth bass because of high mercury content have been issued for portions of Everglades National Park.

The basin's most disturbing, ecologically destructive problem is severely altered freshwater flows from drainage canals with inadequate or nonexistent control structures. In addition, proposals have

been made to expand existing canals and create new ones to alleviate flooding in developed and developing areas. The canals cause excess fresh water to drain into the estuaries in the wet season and increase saltwater intrusion in the dry season. The unnatural shifts in salinity may also be damaging the estuary's seagrasses and lowering productivity and fish yields. The bays at the mouth of the main canals are the most seriously threatened. Finally, the drought of the last few years has severely stressed the region's plants and animals. The potential for widespread, disastrous fires is great. Water-use restrictions have been implemented in much of the basin.

GROUND WATER RESOURCES

Principal Aquifer Systems

Virtually all areas within the Region are underlain by aquifers capable of yielding some quantity of water. Three principal aquifer systems exist in southwest Florida: the Surficial, Intermediate, and Floridan Aquifer Systems. Generally, the Surficial and Intermediate Aquifer Systems are utilized for ground water supply in areas where the quality of water from the underlying Floridan Aquifer System is poor.

The Surficial Aquifer System contains the undifferentiated water table aquifers and the confined Lower Tamiami Aquifer. The Intermediate Aquifer System contains two major confined aquifers, the sandstone and mid-Hawthorn aquifers located along the southwestern Florida coast from Charlotte to Monroe counties. The Floridan Aquifer System underlies all of south Florida; however, the quality of water is good only in the Kissimmee Basin area north of Lake Okeechobee. Within this region, the Floridan Aquifer System behaves predominantly in a confined manner, and is overlain by laterally discontinuous undifferentiated surficial deposits, which produce small quantities of water.

<u>Surficial Aquifer</u>

In general, the Surficial Aquifer System is composed of interbedded unconsolidated sand and shell units along with carbonate rocks, which together represents the water producing zones. Shallow water table aquifers are the principal water source for domestic self supply within the Region. Water table aquifers are also a source of water for agricultural irrigation in these areas. There is limited use of water table aquifers in Hendry County by agriculture.

In the Region, the water table aquifer is moderately to highly productive, with transmissivities ranging between 10,000 to 1,000,000 gallons per day/foot. As with all shallow aquifers, the proximity of the water table aquifers to the surface increase their susceptibility to contamination from a variety of man-made sources. Lack of confinement, high recharge, relatively high permeability, and a high water table, all increase contamination potential. In addition, because of increasing demands on these aquifers, they are in constant threat of saltwater intrusion along the coasts.

Lower Tamiami Aquifer

The Lower Tamiami Aquifer is the most prolific aquifer in Collier and Hendry Counties, serving as the primary source of municipal, industrial, and agricultural water supply. As with all shallow aquifers, the proximity of the Lower Tamiami Aquifer to the surface increases its susceptibility to contamination from a variety of man-made sources. In addition, because of large demands placed on this system, it has been endangered by saltwater intrusion along the coast and is frequently included in water shortage restrictions.

Intermediate Aquifer System

The Intermediate Aquifer System consists of the sandstone aquifer and the mid-Hawthorn artesian aquifer. It is composed predominantly of interbedded clays/silts, sand, sandstones, dolostones and limestones. The sandstone aquifer is relatively thin and discontinuous when compared to the mid-Hawthorn aquifer. It produces more water, however, particularly for agriculture in Hendry, eastern Lee and northern Collier Counties.

<u>Floridan Aquifer System</u>

Except for Sarasota and Charlotte Counties this aquifer system not only serves as a major drinking water source, but also as a major source of water for irrigation and livestock. In Sarasota and Charlotte counties, water in the aquifer is mineralized and surface water sources provide most of the public drinking water supply. This predominantly artesian system contains several distinct producing zones.

The Floridan aquifer serves as a major source for irrigation water within the Region and is utilized, on a small scale, as a complementary source of drinking water for blending with the Surficial Aquifer System supply. Within this region, however, Floridan water typically must undergo desalination prior to use. Transmissivities are typically high, ranging from 100,000 to 500,000 gallons per day/ft.

Regional Water Use

Estimated water demand for Southwest Florida is shown on Table 88. These figures were taken from the "Districtwide Water Supply Assessment," prepared by the South Florida Water Management District and from the "Southwest Florida Water Management District Water Supply Assessment." The primary water users in Southwest Florida are agriculture (spray irrigation), municipal water supply systems, and industry.

	TABLE 88 ESTIMATED WATER DEMAND														
	(average mgd)														
	Potable	Water	Commerc Self	ial/Industrial Supply	Recreation Sup	onal Self	Thermo	electric	Agricu	ıltural	Total				
County	1995	2020	1995	2020	1995	2020	1995	2020	1995	2020	1995	2020			
Charlotte	16	28.2	1.54	1.79	2.1	0.5	0.0	0.0	24.9	30.6	44.5	65.1			
Collier	43.9	87.9	6.0	11.4	45.6	91.6	0.0	0.0	142.4	179.7	237.9	370.6			
Glades	0.9	1.8	0.0	0.0	0.07	0.07	0.0	0.0	109.6	162.0	110.6	163.9			
Hendry	5.9	8.8	0.0	0.0	0.7	0.7	0.0	0.0	534.9	564.8	541.5	574.3			
Lee	45.9	75.3	5.4	8.6	32.9	59.7	0.8	0.8	60.4	80.3	145.4	224.7			
Sarasota	46.7	74.7	0.9	1	8.8	13.5	0.0	0.0	14.2	19	70.6	108.2			

Source: "Regional Water Supply Plan", Southwest Florida Water Management District, pg. 65, 66 "Lower West Coast Water Supply Plan", South Florida Water Management District, Appendix F.

A major use of water is to satisfy domestic demands. Although it accounts for less than one-tenth of the water used for agriculture, domestic water use is generally associated with the water supply problem. Part of this problem results from the high degree of water quality required for domestic use.

> VEGETATION

The Southwest Florida Region possesses many diverse habitats, which are ecologically linked via water and energy flow systems, wildlife behavior patterns, and vegetation transitions. These distinct communities are discussed below under four major headings: Inland Terrestrial Habitats, Freshwater Habitats, Coastal or Saltwater Habitats, and Domestic Habitats. The community descriptions, ecological considerations, and threats to preservation are extensively borrowed from "Fish and Wildlife Resources of the Charlotte Harbor Area," FG&FWFC, which accurately describes the native habitats of the entire Region.

> INLAND TERRESTRIAL HABITATS

Pine-Oak Woodlands

These areas range from xeric, scrubby forests to wet, low lying pine flatwoods. There is much overlapping among the foresters upland habitats found in south Florida, and lumbering or grazing operations may have significantly altered the character of such communities. Sand pine scrub and scrubby flatwoods are the major associations discussed in this category.

Xeric Oak and Sand Pine Scrub

Xeric oak and sand pine scrub are a dry, fire-dependant subclimax community occurring on deep, acidic, excessively well-drained soils. Sand pine scrub is restricted to Florida and the southeastern coast of Alabama. The largest tracts of this habitat in Florida are the "Big Scrub" of the Ocala National Forest and at the southern end of the Lake Wales Ridge. Within the region, this association occurs primarily on relic sand dunes or bars created in the geologic past when sea level was significantly higher. Sand pine dominated scrubs are restricted to minute areas of the region. The scrub community may have an overstory of sand pine, but usually is dominated by sand live

oak, myrtle oak, Chapman's oak, staggerbush, silk bay, rosemary, saw palmetto, scrub palmetto, and gopher apple. Herbaceous ground cover is sparse, with large areas of white to gray sand and frequent patches of lichens or true mosses, particularly reindeer moss.

Animals residing in scrub must be able to withstand heat and water stress through behavioral or physiological adaptation. Several typical scrub species are endemic to Florida, including the Florida scrub lizard, blue-tailed mole skink, sand skink, short-tailed snake, Florida scrub jay, and Florida mouse. Most of these species prefer the open, early stages of scrub succession as opposed to more mesic, denser stands.

This community exhibits a fire-based ecology, which determines the area's vegetative composition and density. Retention of lower limbs by sand pines and development of a dense understory usually provide ample fuel for a hot, fast burning fire every twenty to forty years. These fires scarify the cones, clear most accumulated litter, and are generally conducive to even-aged forest development. If fire is excluded, succession is toward a xeric, oak-dominated hardwood forest, and ultimately, to a xeric hammock association.

The deep, well-drained sands of these ridges typically provide valuable aquifer recharge areas. Scrubs are of considerable scientific interest because of their endemic fauna, unique ecology, and exemplification of ecosystem response to heat stress. Sand pine scrub is vulnerable to erosion and root damage caused by foot or vehicular traffic, and to trampling by grazing animals. An adequate fire regime is also essential to scrub regeneration. The most pressing threats to this community, however, are urban development and conversion to citrus groves or improved pasture.

Scrubby Flatwoods

This association is similar to sand pine scrub in its xeric character, evergreen shrubby understory, fire-dependent ecology, endemic fauna, and its occurrence on well-drained, deep sandy soils. It may, however, have slash or longleaf pine as the dominant overstory species, and herbaceous ground cover is more frequent than in true scrub. Like sand pine scrub, this association occurs as relatively small patches interspersed in areas of less well-drained vegetation, and it is susceptible to similar types of disturbance or development.

Exclusion of fire or selective harvesting may result in an association of xeric oaks and typical scrub understory without a pine overstory. This cover type has been termed "oak scrub," and generally possesses the environmental characteristics of sand pine scrub and scrubby flatwoods.

Hammocks

The term "hammock" in Florida is generally applied to any hardwood or broadleaved evergreen forest community, which is not regularly inundated. Soils are generally more fertile than in pineland or oak-pine dominated uplands, but may range from well-drained sands to wet, highly organic soils. Hammocks often occur as inclusions in other major habitat types, thereby providing many wildlife benefits through greater habitat diversity, protective cover, and food resources. Hammock vegetation may vary considerably with soil fertility, moisture content, and geography. The basic associations found within the study area include the live oak cabbage palm complex, mesic

hammocks, and hydric hammocks. There is considerable intergradation within the live oak - cabbage palm complex. They are, therefore, considered variants of a single hammock association.

Hammocks are vulnerable to the same development pressures threatening other upland communities throughout Florida. Residential, industrial, and agricultural interests often eliminate hammocks entirely, infringe upon their ecological integrity through development of adjacent uplands, or cause dramatic changes in the water table. Although their relatively rich soils permit more rapid recovery than most other upland habitats found in Florida, the mature forest canopy may take many years to recover from selective clearing or other disturbances.

Cabbage Palm - Live Oak Hammock Complex

Hammocks dominated by live oak are relatively xeric, primarily occurring on well-drained sandy soils within pine flatwoods or pasturelands. Bluejack oak, laurel oak, and cabbage palm are common, and occasionally co-dominant, canopy species. Herbaceous ground cover is sparse in these open woodlands, but Chapman's oak, beautybush, and winged sumac are common shrubs. There is usually a well-developed litter layer of dry leaves in such hammocks. Typical wildlife species include the southern flying squirrel, cotton mouse, eastern mole, bluejay, screech owl, black racer, green anole, southern toad, and squirrel treefrog.

Cabbage palm hammocks occur on moister, highly organic soils. Cabbage palm may be the only tree species, or others, particularly live oak, may be common. Shrubs and vines often form a dense understory in this community, which provides suitable habitat for the squirrel treefrog, rat snake, Carolina wren, fish crow, cotton mouse, and raccoon.

Mesic Hammock

This association occurs on rich, organic soils of intermediate moisture content. Typical trees include laurel oak, pignut hickory, water oak, red bay, southern magnolia, and American holly. Characteristic shrubs include saw palmetto, beautybush, sparkleberry, greenbriar, Virginia creeper, and muscadine grape. Common vertebrates encountered include the southern toad, green anole, pileated woodpecker, great crested flycatcher, red-eyed vireo, gray squirrel, and cotton mouse.

This community occurs on wet, poorly-drained soils along rivers and streams. Typical trees include swamp bay, water oak, sweetgum, laurel oak, and Florida elm. Lianas, wax myrtle, and saw palmetto are common, and various ferns and lizard's tail provide a relatively sparse ground cover. Characteristic vertebrates found include the green treefrog, southern leopard frog, red-bellied woodpecker, and cotton mouse.

Pine Flatwoods

This association occurs on generally level ground with relatively poorly-drained soils. These areas possess sandy soils with a moderate amount of organic matter in the top three inches, and an acidic, organic hardpan from one to several feet below the surface. Flatwoods are the most abundant natural cover type in the study area, having once occupied over half of the state. They occur over extensive areas, and often contain smaller inclusions of other habitats including ponds, marshes, prairies, bayheads, or cypress domes and strands.

The two major types of flatwoods in the Region are dominated by slash pine and longleaf pine, respectively. The former is much more extensive and occupies wetter sites, while the latter occupies better-drained areas, and is limited in the Region. Beneath the fairly open overstory, the vegetation varies tremendously from a low-growing ground cover of wiregrass, running oak, broomsedge, elephant's foot, and rabbit tobacco to a community also possessing a dense understory of gallberry, fetterbush, saw palmetto, wax myrtle, and sprouts of live oak, water oak, and laurel oak.

Large areas of the Southwest Florida region are vegetated by wet or hydric slash pine flatwoods, which are dominated by a slash pine overstory with an understory of several wetland plant types, including many wet prairie species. This type of habitat is usually considered to be jurisdictional wetlands. Pine densities are typically sparse, lower trunks are buttressed, and trees have a high frequency of double crowning with a sparse canopy. This habitat has a high level of biodiversity due to its changing seasonal function as habitat for wetland and upland species.

Pine flatwoods support an impressive variety of wildlife species. Typical species include white tailed deer, bobcat, raccoon, opossum, nine-banded armadillo, gray fox, gray squirrel, Sherman's fox squirrel, cotton rat, least shrew, great horned owl, redtailed hawk, pine warbler, rufous-sided towhee, brown-headed nuthatch, pine woods treefrog, oak toad, eastern diamondback rattlesnake, black racer, pine woods snake, and box turtle. Mature pine flatwoods along rivers or estuaries provide nesting habitat for the bald eagle. Open pine flatwoods provide habitat for the endangered red-cockaded woodpecker.

Fire and water regimes are primary determinants of flatwoods ecology. Slash pine flatwoods have greater species diversity and are subject to relatively little moisture stress, except in hydric systems. Fire occurs often enough to clear accumulated ground litter and reduce competition from hardwoods, but not frequently enough to eliminate fire-sensitive young slash pines and prevent stand regeneration. If fire is suppressed, succession is toward a mesic hardwood in drier slash pine stands, or to a bay forest community in wetter sites.

Pine flatwoods are diverse, fairly resilient systems, which can tolerate use by man. They are, however, sensitive to fire exclusion and water table fluctuations, which can dramatically alter their vegetative composition and ecology. Tremendous acreages of flatwoods have been converted to cropland or improved pasture, grazed as native range, or supplanted by urban and suburban development. Intensive timber management reduces the natural diversity of flatwoods and can render it relatively useless for most wildlife species. Similarly, overgrazing or trampling by livestock can destroy the value of pine flatwoods both as native range and as wildlife habitat. Development of flatwoods substantially reduces the diversity of wildlife characterizing South Florida's ecosystems, including reptiles/amphibians, songbirds, raptors, game animals and listed species often reduces the value of adjacent wetlands or other habitats through reductions in vegetative diversity, increased erosion, and sedimentation or subsequent pollution of surface waters.

Dry Prairies

These treeless plains, generally resembling pine flatwoods communities without the open overstory, are usually dominated by wiregrass, broomsedge, and carpet grasses. Saw palmetto is the most abundant shrub, but fetterbush, staggerbush, sand live oak, and blueberry are also common. Hammocks, bayheads, and cypress domes are often scattered throughout this association.

The Florida burrowing owl, Audubon's caracara, and the Florida sandhill crane prefer to inhabit dry prairies. In addition, the box turtle, black racer, turkey vulture, black vulture, common nighthawk, eastern meadowlark, least shrew, hispid cotton rat, eastern harvest mouse, and eastern spotted skunk are often encountered. The forested wetlands and other habitats often dispersed through dry prairies contribute significantly to the habitat diversity afforded by this association, and are partially responsible for the abundant wildlife populations.

Large areas of this vegetation have been converted to improved pasture or residential developments. Overgrazing generally leads to trampling of the forested inclusions, reduction of habitat diversity, and deterioration of the range as pasturage. Fire is important to prairie ecology, but either too frequent fires or their exclusion can seriously alter the vegetative composition of this association.

FRESHWATER HABITATS

Freshwater Wooded Wetlands

This general category includes several major habitat types, the common denominators being seasonal or permanent inundation and predominance of woody vegetation. Their species composition, ecology, and wildlife benefits vary tremendously with soil conditions, hydrology, topography, and watershed characteristics. Hardwood swamps and cypress swamps are the major communities possessing standing water for a substantial portion of the year. Bay forests represent a different type of wetland forest, ecologically, and are often included as a separate major community type.

Hardwood Swamps

This community is characterized by a canopy of large hardwoods including black gum, pop ash, red maple, sweetgum, and water oak. Bald cypress may occur as a minor canopy element, and buttonbush, wax myrtle, Virginia willow, dahoon holly, American hornbeam, and elderberry are common in the scattered understory. During dry periods, exposed mud may occupy most of the forest floor, but lizard's tail, smartweed, water pennywort, and various grasses or sedges usually occur in patches. Degree of canopy closure and seasonal water levels generally determine the understory and ground cover species and density.

These communities provide valuable habitats for fish and wildlife, with backwaters, oxbows, sloughs, and other features contributing significantly to habitat diversity. The wetlands and hammocks or other associated uplands provide nest and den sites, feeding areas, and suitable refuge from predators or flood waters. Animals likely to be encountered in swamps include the bobcat, opossum, raccoon, gray squirrel, river otter, pileated woodpecker, barred owl, red-shouldered hawk, wood duck, cottonmouth moccasin, Florida water snake, banded water snake, American alligator, green tree frog, squirrel tree frog, southern leopard frog, mosquitofish, and Everglades pigmy sunfish.

Periodic water level fluctuations are essential to the maintenance of hardwood swamp communities. Alternating floods and dry periods provide seasonal nutrient pulses to the forest and prevent successful invasion of the swamp by more aquatic or terrestrial vegetative associations. This dynamic hydrologic regime produces a multitude of ecological benefits including natural retention of stormwater, damping of peak flood stage levels, subsequent slow release of floodwaters, and vegetative filtration and assimilation of pollutants and nutrients contained in upland runoff.

This sensitive, productive ecosystem has traditionally been labeled as worthless by agricultural, industrial, and residential interests, with the resultant destruction of large swamp tracts via filling, drainage, or alteration of natural water regimes. State and federal laws now protect these habitats to a certain degree, but development of previously impacted wetlands, flood control or navigation projects, trampling by livestock, and development of critically important adjacent uplands continue to impact areas of hardwood swamp adversely.

Cypress Swamps

Cypress swamps are usually found along rivers or lake margins, interspersed through other communities such as pine flatwoods or dry prairies, and in shallow drainage systems called sloughs or strands. They are normally inundated for much of the year. Bald cypress predominates in lake and stream margin swamps and major sloughs, while pond cypress may dominate smaller domes or cypress heads. Though cypress is often the only canopy species encountered, black gum, red maple, coastal-plain willow, pop ash, and slash pine may occur as well. Understory species composition varies with the degree of canopy closure and the inundation regime, but often includes wax myrtle, buttonbush, poison ivy, and greenbrair. Arrowhead, pickerelweed, sawgrass, bacopa, water pennywort and various ferns are often encountered as ground cover, and in open marshes within cypress swamps.

Cypress swamps provide habitat for many of the same species as hardwood swamps, but often possess more aquatic habitat for fishes, amphibians, and reptiles. They are particularly important as seasonal refuges for deer and other animals occurring in adjacent flatwoods communities, and as feeding areas for wading birds during the dry season when forage animals are concentrated into depressions within the slough or dome.

Both fire and drought are important stress factors in cypress swamps, and fluctuating water levels play much the same role as in hardwood swamps. The ecological benefits, and development pressures threatening cypress swamp are also similar to those of hardwood-dominated wetlands.

Swamp Thickets

These are dense stands of shrubs or low trees occupying standing water or periodically flooded sites. They occur in or around ponds, lakes, impoundments, and marshes or along rivers and streams. Thickets generally form a transition zone between more aquatic and terrestrial habitats, or represent marshes and wet prairies undergoing secondary succession due to fire exclusion or a lowered water table. Wax myrtle, coastal-plain willow, red maple, buttonbush, and dahoon holly are characteristic shrubby species. Various grasses, sedges, and other forbs comprise the ground cover. Many passerine birds reside in such thickets permanently or seasonally, or utilize this habitat during migration. The marsh rice rat, cotton rat, and marsh rabbit are also common.

Bay Forests

This association occurs on wet, acidic, highly organic soils, which are seasonally flooded. Though often classified as a swamp habitat, bay forests usually have shallower standing water, shorter inundation periods, and less dramatic water level fluctuations than forested wetlands.

Bay forests usually occur along the margin of flatwoods ponds, or in shallow depressions in pine flatwoods, having succeeded from marshes, low pine flatwoods, and swamps through accumulation of organic matter. They are dominated by loblolly, red, and sweet bay, all broadleaved evergreen species with similar growth form. These species usually form a dense canopy, with little sunlight penetration to promote understory or ground cover growth in the humid, dimly lit forest interior. Most understory vegetation occurs at the forest fringes, consisting of wax myrtle, gallberry, fetterbush, and various lianas.

Although seldom extensive and providing little food for wildlife when compared to other wetland habitats, bay forests may contribute significantly to the habitat diversity of a given tract. The southeastern shrew prefers bay forests as its primary habitat, and the yellow-billed cuckoo, Carolina wren, blue-grey gnatcatcher, short-tailed shrew, and cotton mouse are also common in this community.

Freshwater Herbaceous Wetlands

These habitats are found in shallow drainage systems, flatwood depressions, and floodplains of lakes, ponds, and streams. The two major community types, wet prairies and freshwater marshes, are differentiated by the somewhat subjective analysis of species composition and water level regime. Wildlife resources are especially diverse and abundant, with many non-resident species making seasonal or occasional use of these productive communities. Marshes and wet prairies provide significant ecological benefits including filtration and assimilation of runoff, sediment stabilization, damping of flood peaks in rivers and lakes, and subsequent slow release of these stored floodwaters during the dry season.

Wet Prairies

This association occurs on low flatlands subject to periodic flooding, and often grades imperceptibly into a freshwater marsh or dry prairie community. Usually dominated by shorter grasses and herbs such as maidencane, cordgrass, beakrushes, spikerushes, white-topped sedge, yellow-eyed grass, and red root, wet prairies often also support St. John's wort and occasional patches of wax myrtle, coastal-plain willow, or buttonbush.

The Florida sandhill crane, marsh rice rat, hispid cotton rat, marsh rabbit, ribbon snake, and pygmy rattlesnake are characteristic of this association. Other species including the round-tailed muskrat, common snipe, marsh hawk, wood stork, white ibis, and numerous other wading birds often utilize wet prairies when water levels are suitable for their feeding or habitat requirements.

Water level fluctuation and fire are co-dominant factors in wet prairie maintenance and productivity through the resultant expansion and contraction of aquatic habitat for forage animals, and prevention of succession to more advanced vegetative associations.

Wet prairies are susceptible to trampling by livestock, overgrazing, disturbance by all-terrain vehicles, and conversion to agricultural lands or residential developments. The degree of disturbance often depends on specific development plans, because wet prairies can be seriously impacted by increased water depth due to stormwater retention systems, or by desiccation through drainage of adjacent lands and general lowering of the water table.

<u>Marshes</u>

Freshwater marshes include a number of vegetative associations composed of grasses, rushes, sedges or broadleaved herbs, where the ground surface is inundated for at least a few months of the year. They are found bordering lakes or streams, in shallow natural depressions, and on lowlands with very little topographic relief. Ranging in size from small pockets within flatwoods or other communities to vast, uninterrupted wetlands, marshes often intergrade into wet prairie or possess hammocks, cypress domes or strands, and deeper aquatic habitats. Sawgrass, lizard's tail, pickerelweed, cattail, arrowhead, spikerush, smartweed, bulrush, fire flag, cordgrass, and maidencane are common dominant species of particular marshes or patches within a marsh. The species listed under the wet prairie association are frequent, as are bacopa and water pennywort. Natural depressions, alligator holes, and sloughs often contain vegetation associated with deeper waters, including fragrant water lily, spatterdock, coontail, stonewort, milfoil, bladderwort, and pondweeds.

Marshes are extremely productive areas for wildlife, with all of the species listed in the wet prairie discussion being encountered when water levels are suitable. The American alligator, Everglade kite, redwinged blackbird, sora rail, common snipe, river otter, largemouth bass, bluegill, pig frog, leopard frog, cottonmouth moccasin, Florida water snake, Florida softshell turtle, red-bellied turtle, apple snail, crayfish, and numerous other species are characteristic inhabitants of various types of marshes. Because of the deeper, longer inundation schedule when compared with wet prairies, fire plays less of a role in marsh ecology than do fluctuating water levels. Periodic burning, however, is important in controlling natural succession, and in maintaining vigorous, productive stands of sawgrass and other marsh species. Marshy fringes of lakes and rivers are particularly important for maintaining water quality of the adjacent waterbody, and certain marsh communities offer potential for future use in treatment of domestic wastes.

Marshes are subject to encroachment from both upland and waterward fringes for residential or agricultural use, and channel, boat basin, or beach development. Drainage and over-inundation also pose a serious threat in many areas, as mentioned in the discussion of wet prairies.

Freshwater Aquatic Habitats

This category includes lakes, ponds, rivers, streams, drainage or navigation canals, and any other permanent, open freshwater habitat. These range from major waterbodies such as Lake Myakka and the Caloosahatchee River to farm ponds, small headwater streams, and residential canals. Salinity, currents, water quality, and cross-section vary considerably with seasonal rainfall, topography, watershed size and development, habitat types surrounding the waterway, and proximity to estuarine or marine waters.

The vegetation within these waterbodies may include various pondweeds, millfoils, fragrant water lily, stonewort, widgeon grass, fanwort, naiad, bladderwort, hydrilla, Brazilian elodea, coontail, water sprite, spatterdock, water lettuce, water hyacinth, and many other species. Stream salinity, seasonality, water quality, depth, and currents all determine which species, if any, occur at a given site.

Fish and wildlife resources of these areas also vary tremendously. Mosquitofish, bluegill, largemouth bass, Florida gar, golden shiner, Florida softshell, Florida snapping turtle, peninsular cooter,
stinkpot, and the American alligator usually occur in suitable waters, and estuarine or coastal species such as tarpon and mullet often enter river and stream systems.

Aquatic habitats are inseparably linked to the maintenance of adjacent habitats through conveyance of runoff, provision of nutrients during seasonal floods, and control of vegetative succession by preventing more xeric communities from invading the floodplain. The habitat diversity of adjacent flatwoods, marshes, prairies, and swamps generally determines the wildlife and water characteristics of the actual waterbody. Many species inhabiting these adjacent lands depend on streams, lakes, and ponds for drinking water, feeding areas, or seasonal habitat requirements. These include the wood duck, anhinga, osprey, bald eagle, belted kingfisher, numerous migratory waterfowl species, whitetailed deer, raccoon, river otter, pig frog, southern leopard frog, and American alligator, as well as numerous invertebrate species with terrestrial adult forms and aquatic juveniles.

Recreational and commercial values of aquatic habitats are related to navigability, hunting and fishing opportunities, and non-consumptive recreational uses such as canoeing, powerboating, birdwatching, and camping. Except for navigability, these values are directly dependent on preservation of native vegetation in and adjacent to the waterbody.

These areas are often adversely affected by channelization, water level stabilization, and other navigation or flood control measures. Pollution via municipal, industrial, or agricultural runoff also poses a serious threat to aquatic habitat productivity. Aquatic weeds such as water hyacinth and hydrilla may adversely affect the accessibility and natural flow of these waterbodies.

Lakes and Ponds

The lentic waterbodies under this designation include such diverse areas as Lake Myakka, man-made reservoirs and retention ponds, and small farm ponds. Water quality and vegetative characteristics vary tremendously, and generally determine wildlife diversity and abundance. Black crappie, gizzard shad, osprey, bald eagle, ring-billed gull, and lesser scaup are often associated with larger lakes. Belted kingfishers, piedbilled grebes, green water snakes, striped mud turtles, chicken turtles, and Florida mud turtles are just as likely to utilize smaller ponds and marsh potholes. Because these areas possess minimal current flow, they are particularly sensitive to pollution from sewage, stormwater, or agricultural runoff. Such nutrient enrichment can easily exceed the assimilative capacity of ponds and lakes, resulting in algal blooms, aquatic weed infestations, and significant shifts in aquatic species composition, massive fish kills, and other problems associated with rampant eutrophication. Prevention of water degradation via floodplain preservation and pollution abatement are the most effective means of protecting these habitats.

Rivers and Streams

This habitat designation is also diverse, including drainage ditches, channelized streams, upland canal systems, and major rivers such as the Caloosahatchee. Although primarily freshwater habitats, salinity may increase substantially near Gulf or estuarine outfalls, and marine animals or vegetation may intrude far into the freshwater system. The brown water snake, coastal shiner, spotted sunfish, and Everglades

Pigmy sunfish are characteristic inhabitants of freshwater streams. Preservation of floodplain vegetation and water quality are necessary for maintenance of healthy stream systems. Because these watercourses provide most of the freshwater required to maintain the aesthetics and productivity of estuaries, they are vital to the commercial and recreational industries of the Florida coast.

> COASTAL OR SALTWATER HABITATS

Mangrove Swamps

These are brackish or salt water swamps occurring along low-energy coastlines and characterized by one or more of the red, black, and white mangroves. Buttonwood is also common, particularly at or above mean high water. Species composition, productivity, and ecological benefits associated with mangrove swamps vary widely with the tidal regime, substrate conditions, salinity, and degree of disturbance of the swamp or adjacent uplands. Red mangrove tends to dominate below mean low water, with black mangrove occupying the shallow intertidal area and buttonwood occupying the drier inner zone. White mangrove may occur throughout the swamp, or dominate landward of the black mangroves, but it is uncommon in the deeper, permanently inundated zone. Areas with irregular topography may exhibit little zonation, with the three mangrove species intermixed with no definite pattern.

Ground cover and understory vegetation are usually sparse to absent in undisturbed swamps, but may include glasswort, saltwort, cordgrass, or black rush. Sea-oxeye daisy, keygrass, saltgrass, sea myrtle, Brazilian pepper, and Australian pine often occur on disturbed sites such as mosquito control ditch berms and small landfills, and along the upland fringes of this wetland community.

Mangrove swamps provide habitat for a multitude of forage species including mosquitoes, small fishes, bivalve and gastropod molluscs, fiddler crabs, amphipods, and other small crustaceans. Other typical mangrove inhabitants such as the ornate diamondback terrapin, mangrove water snake, raccoon, opossum, bobcat, great blue heron, wood stork, and white ibis represent higher order consumers. Birds comprise the most diverse and numerous groups of larger animals inhabiting mangrove swamps. Herons including the little blue, green, Louisiana, great blue, and both the yellow-crowned and black-crowned night herons nest in mangrove habitats, as do the snowy, reddish, cattle, and great egrets. Roseate spoonbills, white ibis, wood storks, and double-crested cormorants also nest in mangroves. Other species characteristic of these swamps include the redshouldered hawk, osprey, belted kingfisher, turkey vulture, black vulture, pileated woodpecker, fish crow, mangrove cuckoo, bluegray gnatcatcher, Carolina wren, Cuban yellow warbler, prairie warbler, and boat-tailed grackle. Many species are abundant in mangrove habitats as seasonal residents or migrants including the cardinal, robin, American redstart, palm warbler, black-throated blue warbler, and black-and-white warbler. Many of these birds are primarily associated with the waterward or landward swamp fringes.

Mangrove swamps also provide many ecological benefits including buffering of storm tides and winds, shoreline stabilization, and vegetative filtration and assimilation of pollutants or nutrients contained in upland runoff. They also offer potential for use in municipal waste treatment facilities. The most significant single aspect of mangrove ecology, however, is contribution of detritus to the estuarine system and nearshore waters. Along with seagrass and salt marsh components, mangrove detritus forms the base of the food web which supports virtually the entire estuarine and nearshore

marine communities. Mullet, redfish, spotted sea trout, snook, tarpon, king mackerel, bluefish, mangrove snapper, stone crab, blue crab, pink shrimp, oysters and clams are but a few species sought by commercial or sport fishermen within the Region which are dependent upon this nutrient base. Non-tidal mangrove wetlands may significantly contribute to the estuarine system via heavy utilization by wading birds and other predators of forage fishes, fiddler crabs, and other primary consumers of mangrove detritus.

Destruction of mangrove wetlands has been a significant factor in the deterioration of south Florida's natural resources. Filling for residential or commercial use, ditching and drainage for mosquito abatement, and dredging of boat basins or channels are the main threats to this valuable habitat type. Although partially protected by state and federal regulations, these habitats are continually being disturbed by the above activities and by destruction of adjacent upland communities which have historically provided clean freshwater inflow.

Salt Marshes

Salt marshes are found along gradually sloping, low-energy coastlines with salinities ranging from nearly fresh to full strength seawater. These marshes may intergrade into freshwater marshes in estuaries, and species composition varies with tidal regime, substrate conditions, pH, and other factors.

Smooth cordgrass occupies the deepest zone of the marsh, with blackrush dominating the wide midzone. Salt grass and slender cordgrass occur in the innermost zone which is only inundated by storm tides. This typical zonation may be indistinct or irregular, depending on substrate topography or disturbances such as ditching and diking. Sea myrtle, saltwort, sea-oxeye daisy, key saltgrass, glasswort, and other high marsh species may be encountered at landward fringes of the marsh, in salt barrens, in slightly elevated pockets, along low spoil ridges, and adjacent to mosquito ditches. Cabbage palm hammocks or spoil mounds with exotic vegetation such as Brazilian pepper and Australian pine may also be encountered. Mangrove swamps occupy most of the low-energy, undisturbed coastal area, but this association may be found around the region and as inclusions in fringe mangrove swamp.

Characteristic animals of salt marshes include the salt marsh snake, diamondback terrapin, Florida clapper rail, seaside sparrows, black-necked stilt, Marian's marsh wren, sharp-tailed sparrow, marsh rabbit, marsh rice rat, and raccoon. Many wading birds feed on the small crustaceans and fishes abundant in salt marshes.

The detrital production of salt marshes is substantial. Salt marshes, along with mangrove forests, are the most important emergent or terrestrial source of basic nutrients for the estuarine and nearshore food web.

The impacts of residential and commercial development on salt marshes are similar to those affecting mangrove swamps and other wetlands bordering developable uplands and open, navigable waters. Wetland development regulations apply also, but infringement in the high marsh zone, development of upland hammocks within marshes, and drainage via ditching for mosquito control have had significant impact. As with other coastal wetlands, salt marshes may be adversely affected by diversion of freshwater runoff or development of adjacent uplands.

> DUNES, BEACHES, AND FLATS

Coastal Strand

Coastal strand vegetation in Florida occurs primarily along high-energy shorelines, and is comprised of sandy beaches, the primary dunes, and associated scrubby backdune communities. These areas typically exhibit zonation, with sparse pioneer species such as sea oats, sea purselane and railroad vine predominant immediately landward of the barren, sandy beach zone. Behind this foredune is a somewhat more stable vegetative assemblage including saw palmetto, cabbage palm, seagrape, wax myrtle, scrub oak, and often Australian pine or Brazilian pepper. The more woody, stable backdunes may resemble sand pine scrub in general growth form, and to a certain extent, in species composition.

Coastal strand habitat is important to neo-tropical migrant birds, birds that migrate to and through Southwest Florida from the Caribbean and Central and South America. Many of these birds nest in North American, but spend the winter in the tropics, and include warblers, tanagers, finches, buntings, flycatchers, wrens, bluebirds, sparrows, vireos, hummingbirds, orioles, swallows etc. The most visible of the Southwest Florida migrants include the swallow-tailed kite, peregrine falcon, and Chuck-will's widow. Some of these species stay in Florida and utilize pine flatwoods and wetland communities near the coast during the breeding season. But many of these species fly straight across the Gulf of Mexico, and must search coastal hammocks and strand for food to complete their migration further north. Protection of coastal wooded areas is essential to their survival.

Terns, gulls, plovers, and sandpipers are common along the sandy beach where they feed on small fishes and invertebrates, and where some species nest. Large inlet areas and undeveloped beaches are extremely important nesting and overwintering areas for listed species, including the snowy plover, least tern, black skimmer, Wilson's plover, and the threatened piping plover. Sea turtles also nest on such beaches, and raccoons and beach mice frequent this habitat. The scrubby backdunes support such animals as beach mice, gray foxes, bobcats, skunks, American kestrels, gopher tortoises, and the Chadwick cotton mouse.

The coastal strand is one of Florida's most valuable, unique, and seriously threatened natural communities. It is a dynamic, transient community composed of species able to withstand or rapidly recover from the severe stresses of wind, shifting saline soils, salt spray, lack of fresh water, and occasional storm surf or inundation. This system constantly shifts, retreating landward and advancing seaward in response to longshore currents, wind, waves, and changes in sea level. Man's disturbances through nearshore dredging, residential or commercial development on the duneline, and construction of inlets, jetties, and groins have upset these natural processes throughout Florida. This has resulted in the loss of many formerly beautiful beaches, endangerment of this unique and sensitive community, and the need for huge financial expenditures for inlet and channel maintenance, beach nourishment, and building or road restoration. This community, especially the sparse, herbaceous foredune association, is also extremely sensitive to trampling through recreational use. In addition, domestic cats may severely impact endangered beach mouse populations.

Because of the dynamic nature of coastal strand communities and the exorbitantly expensive means necessary to restore them once destroyed by development, it is far more judicious to protect beaches

and dunes by regulating recreational, residential, and commercial development along the coast. Existing regulations address these issues, but have thus far been insufficient to ensure the preservation of this unique natural resource.

Tidal Flats

These areas are periodically inundated flats located at the mouths of rivers, near inlets, immediately waterward of salt marshes or mangrove forests, or in dredge spoil disposal areas. They range from transient, unstable areas used primarily by shorebirds and wading birds, to stable mudflats with extensive algal, mollusc, crustacean, and worm communities. Cuban shoalgrass, turtlegrass, red mangrove saplings, cordgrass, or other plants may occur sporadically, but these flats are generally devoid of vascular vegetation. Fiddler crabs, spider crabs, horseshoe crabs, quahog clams, oysters, slipper shells, barnacles, moon snails, various sponges, and numerous additional molluscs, crustaceans, and worms are often abundant in such habitats. These areas are important breeding areas for clams, scallops, and other commercially important shellfish species, and are heavily utilized by shorebirds and wading birds as feeding and loafing areas.

Tidal flats are primarily threatened by waterfront development trends. Dredging of flats for boat basins and channels and eliminating the "ugliness" and "unpleasant odors" associated with these habitats are often cited by developers as reasons for destruction of tidal flats. As with other landwater interface communities, destruction of adjacent uplands or wetlands can have significant impacts on the preservation and productivity of tidal flats.

BAYS AND ESTUARIES

The general characteristics of these habitats include shallow depth (less than twenty feet), good mixing of the water column, and flushing via tides and freshwater inflow. Salinity varies from freshwater to normal seawater, and may fluctuate seasonally. Mangroves, salt marshes, seagrass beds, phytoplankton, tidal flats, and oyster bars all play significant roles in estuarine ecology. Wildlife resources are abundant and diverse, with many commercial or sport fishes and crustaceans inhabiting these areas permanently or as juveniles. Many wading birds, waterfowl, and shorebirds winter, feed, and nest in these areas or on landward fringes and islands.

Seagrass beds are important to estuarine areas and the coastal ecology. These seagrasses play a vital role in producing detrital food for the estuary. They also give protection to young organisms, provide a substratum for various marine organisms, and harbor diverse bottom animals. Such communities have been damaged through the development of waterways, abuse by motorboats, and sediment runoff from land development.

> OTHER NATURAL COMMUNITIES

The Florida Natural Areas Inventory's "Guide to Natural Communities of Florida" lists the natural communities of Florida and their relative rarity and threat. Most important are communities ranked S1 Critically Imperiled (because of extreme rarity, 5 or fewer occurrences or very little remaining area, or especially vulnerable to extinction) and S2 Imperiled (because of rarity, 6 - 20 occurrences or little remaining area, very vulnerable). The region contains a limited number of these communities as shown below in Table 89.

TABLE 89					
	CO	<u>MMUNITIES</u>	-		
Scrub	S2	Dry Prairie	S2		
Beach Dune	S2	Floodplain Marsh	S2		
Coastal Berm	S2	River Floodplain Lake	S2		
Coastal Strand	S2	Aquatic Cave	S2		
Shell Mound	S2	Worm Reef	S1		
Pine Rocklands	S1	Algal Bed	S2		
Rockland Hammock	S2	Seagrass Bed	S2		

Rare and Endangered Vegetative Communities

In 1979, the State of Florida passed legislation known as "Preservation of Native Species of Flora," contained in Section 581.185 F.S. The regulations are limited, however, and only specify that "with regard to any plant listed as an endangered plant on the Regulated Plant Index, as provided in rules of the department (Agriculture and Consumer Services), it is unlawful for any person to willfully destroy or harvest any such plant on the private land of another or on any public land without first obtaining the written permission of the landowner or legal representative of the landowner and a permit from the department as provided in this section." The purpose for the law was to curb the loss of these species by uncontrolled collection. Orchids, ferns, and bromeliads were primary targets for these collectors.

The Southwest Florida Region is within the range of many of these species, most notably the orchids, ferns, and bromeliads mentioned above. The ranges for many of these plants are located in the Big Cypress area in Collier County, especially in and near the Fakahatchee Strand.

The official State of Florida list for endangered, rare, threatened species, and species of special concern is constantly under review and revision. The latest update for plants and animals (prepared by the Florida Game and Fresh Water Fish Commission, June 1, 1994) is in the Appendix.

Rare plant communities in the Southwest Florida region include tropical hardwood hammock, coastal strand, high marsh, sand pine scrub, and xeric oak scrub. The tropical elements of some hardwood strand found in Hendry and Collier counties, most notably in the Fakahatchee Strand, also are extremely rare and unique.

Protection of native species and rare plant communities cannot rest on the state statutes. Acquisition by federal, state, and local agencies of selected areas in which endangered plant species occur, proper management for their encouragement and protection, and public education on the characteristics of the flora and fauna of these areas and the importance of their protection, are all necessary if Florida is to retain its unique botanical heritage.

> WILDLIFE

Southwest Florida supports a diversity of wildlife, augmented through the migratory patterns of many different birds and fish. The species for which the area is known include the alligator, the

manatee, the tarpon, the wood stork, the pink shrimp, and the Florida panther. (For a list of rare and endangered species in the Region, refer to Appendix V-3.) Perpetuation of these species has been attempted through the allocation of land and water areas for wildlife preservation and conservation. These areas include Everglades National Park, Big Cypress National Water Preserve, six national wildlife refuges (Island Bay, Caloosahatchee, Pine Island, Matlacha Pass, Panther/Ten Thousand Islands, and J. N. "Ding" Darling), two large state parks (Myakka and Collier-Seminole), eight aquatic preserves (Cape Haze, Matlacha Pass, Pine Island Sound, Charlotte Harbor/Gasparilla Sound, Estero Bay, Lemon Bay, Rookery Bay, and Cape Romano/Ten Thousand Islands), two state preserves (Fakahatchee Strand and Charlotte Harbor), and one wildlife management area (Cecil M. Webb). Also included in the Region's protected areas for wildlife are Rookery Bay (a national estuarine sanctuary) and Corkscrew Swamp Sanctuary, founded by the National Audubon Society. Proposed acquisition areas include the Charlotte Harbor flatwoods, Myakka Prairies, and Belle Meade CARL areas. Mitigation parks for specific wildlife species, such as the gopher tortoise and scrub jay, include the Hickey Creek and Amberjack Slough projects.

Wide-ranging animal species present a major challenge for regional planners. The fact that they are wide ranging typically means that large amounts of acreage (or water area) must be available for use as habitat without excessive use by man, in such a way as that prey (or other food) species can remain available even when the habitat is being used by man. Additionally the land (or waterbody) must be developed in a way that wildlife may pass through on their way to adjacent available habitat without being slaughtered by cars, trucks, boats or barges.

Two recently completed efforts provide a good inventory of public and privately owned natural systems for the general protection for sustainable populations of the Region's listed plant and animal species. The first study involved the Florida Panther titled "Florida Panther Habitat Preservation Plan: South Florida Population," prepared by the Florida Panther Interagency Committee. This plan inventories Existing Conservation Lands in public ownership, Priority 1 Habitat and Priority 2 Habitat. Priority 1 Habitat are lands most frequented by the Florida Panther and are of high quality. Priority 2 Habitat are lands less frequented by Florida Panthers and/or are lower quality as habitat. The lands are shown on Map 13.

MAP 13 - PANTHER PRIORITY LANDS MAP

"Closing the Gaps in Florida's Wildlife Habitat Conservation System: Recommendations to Meet Minimum Conservation Goals for Declining Wildlife Species and Rare Plant and Animal Communities", was prepared by the FGFWFC. This study inventories existing conservation lands in public ownership, as does the Panther Plan and identifies Strategic Habitat Conservation Areas, generally in private ownership. According to the report, Strategic Habitat Conservation Areas depict lands need to meet minimum conservation goals for the following; 1) 30 species of wildlife inadequately protected by the system of conservation lands; 2) high quality sandhill sites; 3) high quality scrub sites; 4) high quality pine rockland sites; 5) high quality examples of tropical hardwood hammocks; 6) bat maternity caves and roost caves; 7) wetlands important to the breeding success of eight species of wading birds, and; 8) lands important to the long term survival of 105 globally rare species of plants. These Strategic Habitat Conservation Areas and Existing Conservation Areas are shown on Map 14.

Also presented is <u>BIODIVERSITY HOT SPOTS</u> Map 15. This map represents areas with a high degree of overlap for 54 declining species of wildlife plus known occurrences of flora, fauna, & natural communities. Map 16 <u>PRIORITY WETLANDS FOR LISTED SPECIES</u> represents wetland habitats critical to 33 wetland-dependant species of vertebrates listed as endangered, threatened, or species of special concern. Priority wetlands were identified using known occurrence records, species range maps, and vegetative cover derived from 1985-1989 Landsat Thematic Mapper Imagery. Species overlap indicates the number of wetland- dependant listed species whose ranges co-occur.

Similar information for West Indian Manatee also exists. The Florida Fish and Wildlife Conservation Commission have extensive information on Manatee use areas, boat traffic, and Manatee mortality. An approved Manatee protection plan currently exists for Collier County and is currently under development within the remaining of Southwest Florida's coastal counties. The latest information on manatee mortality is contained in Table 90.

Lee County leads all other west coast counties in the number of deaths in the categories of other human (11), dependant calves (107), other natural (150) and undetermined decomposed (142) and undetermined (56). Other known human-related causes of death include ingestion of monofilament line, pieces of plastic, entanglement with blue crab traps lines, ropes, gillnets and other nets used to catch fish (Beck and Barros, 1991). In Lee County, a significant portion of the Caloosahatchee River is closed to net fishing; however, this closed area supports a blue crab fishery.

When viewing these maps and other information, it is clear that only a partnership between public agencies and private organizations and land owners can implement this level of management, especially on lands that are not currently owned by the public, or that are not listed on current land acquisition programs or included in designated aquatic preserves.

Further information can be obtained about wildlife in Southwest Florida at the following Internet location: <u>http://fcn.state.fl.us/fwc/pubs/pubs.html</u>

TABLE 90 MANATEE MORTALITY BY COUNTY, 1975 – 2000*										
		Watercraft	Flood	Other	Dependant	Natural Cold	Other	Verified, Not	Undetermined	
County	Total	Related	Gate	Human	Calf	Stress	Natural	Recovered	Decomposed	Undetermined
Charlotte	130	34		1	18	3	30	2	27	15
Collier	355	98		6	51	5	56	13	80	46
Glades	71	24	23	1	3		4	1	10	5
Hendry	4	2					1		1	
Lee	635	125	1	11	111	12	155	17	147	56
Sarasota	100	21			25	2	24	3	20	5
Total	1295	304	24	19	208	22	270	36	285	127

*Year 2000 numbers include through May only Source: Florida Fish and Wildlife Commission

MAP 14 - STRATEGIC HABITAT AND CONSERVATION AREAS



Source: Florida Fish and Wildlife Conservation Commission

MAP 15 - BIODIVERSITY HOT SPOTS



Source: Florida Fish and Wildlife Conservation Commission



MAP 16 - PRIORITY WETLANDS FOR LISTED SPECIES

Source: Florida Fish and Wildlife Conservation Commission

> THE COAST

Coastal Waters

The coastal waters of Southwest Florida are the Region's most abundant water resource, providing a valuable contribution to the economy. These waters are essential to tourism, recreation, commercial fishing, and the aesthetic characteristics of the Region. The benefits of the coastal waters are augmented due to the configuration of the coastline with its many bays, inlets and islands. The long interface between the land and the sea, which also serves as a mixing bowl for freshwater from the land and highly saline water from the Gulf, is very productive in vegetation and wildlife. This coastal interface represents roughly fifteen percent of the total coastline of the state (Table 91).

TABLE 91						
COASTLINE, SOUTHWEST FLORIDA						
County	Length (Miles)					
Charlotte	219.8					
Collier	675.2					
Glades						
Hendry						
Lee	589.6					
Sarasota	192					
Region	1676.6					
State	10,931.50					
Source: Marina Sitin	g Survey, SWFRPC, p. 3.					

Barrier Islands

Southwest Florida is fortunate in its abundance of barrier islands which form a chain from northern Sarasota County to southern Collier County (Map 17). Barrier islands are characterized as dynamic, low-lying, narrow strips of sand which possess the ability to migrate with changes in sea level. Aesthetically pleasing, they play a significant role in the area's tourism economy. Yet, aside from their aesthetic appeal, they serve important environmental functions. They protect the mainland from major storm damage, as well as act as a buffer for sensitive estuarine ecosystems. They also provide a habitat for wildlife and vegetative communities (Appendix).

MAP 17 - BARRIER ISLANDS



BARRIER ISLANDS SOUTHWEST FLORIDA REGION

Passes, Inlets, and Bays

The barrier islands are separated from each other by bodies of water known as passes or inlets. These openings enable the flushing of the various bay systems as well as the movement of marine life and nutrients from the protected estuaries to the more open water of the Gulf.

The bays of Southwest Florida act as estuaries and havens for many species of aquatic flora and fauna. Major bay systems include Charlotte Harbor, Lemon Bay, Sarasota Bay, and Estero Bay (Map 12).

Marine Environments

A detailed description of the Region's marine systems is presented earlier in this document.

Salinity Regime

In Southwest Florida, the salinity pattern of estuaries can vary depending upon seasonal rainfall and the annual tidal cycle. When tidal fluctuations are small, as in this region, the importance of freshwater inflow to the horizontal mixing of fresh and saline waters is greatly magnified.

Most Southwest Florida estuaries are located at the mouths of major rivers, behind barrier islands. There is a tendency for the salinity levels in these partially enclosed areas to exceed that of seawater, particularly during the dry season when there is little or no freshwater inflow. Because tidal influences are also small, flushing of the estuary does not occur and the water can become relatively stagnant.

The ability of an estuary to act as a barrier to predator species is mostly due to horizontal salinity gradients. Saltwater is more dense than freshwater. As a result, salinity in an estuary generally tends to increase with depth. A reduction of freshwater to the estuarine environment alters the salinity gradient. This can cause a change in resident marine species and organisms, with the potential to change total biomass production and composition.

An increase in freshwater flow into the estuarine system can also be harmful. It is believed that a relationship exists between large, abnormal inflows of freshwater and the occurrence of red tides. Red tides can cause considerable damage to fisheries. The seasonal variation of salinity in Southwest Florida estuarine systems is, under normal circumstances, predictable. Many marine species adapt by changing location, but some species have adapted physiologically, thereby enabling them to tolerate salinity changes. This regular seasonal variation has become important to the character of the near shore environment of the Region.

Although extreme changes in the salinity regime have and do occur naturally, they occur only in short intervals, with no lasting impact on the environment. Human-induced stresses, however, can be devastating. Diverting or damming river flow can permanently alter the estuary, possibly leading to its destruction or the disappearance of marine species. Stormwater runoff, naturally impeded by swamps, marshes, and upland vegetation, enters the estuary rapidly when channeled directly into the system by culverts, concrete, or pavement--a common situation in the urban environment. This water not only upsets the salinity balance, but it also carries pollution, which is harmful to the

estuary. These changes affect flora as well as fauna. Salt marsh, mangroves, and marine meadows depend upon the delicate balance of freshwater and saltwater in the estuarine environment (Snedaker et al, 1977).

Economically Important Marine Species

All marine animals, which impact the food chain, have important economic value. Monetary values, however, can only be assigned to the species that humans pay to catch or to eat. In Southwest Florida, the annual economic value of these species is significant. A more detailed discussion of fishery economies can be found in Part III, Economic Systems.

In Southwest Florida, economically valuable marine species can be broadly divided into two classes: sport fish and commercial species. Important sport fish include tarpon, snook, redfish, and spotted sea trout. Commercially valuable fish include black mullet, flounder, cobia, pompano, spotted sea trout, lane snapper, mangrove snapper, and tripletail. Oysters and other shellfish harvested from the estuaries are also a sizeable regional resource, but the most economically valuable marine species in Southwest Florida is shrimp (Charlotte Harbor: A Florida Resource, 1978; National Marine Fisheries Services, 1985).

Outstanding Florida Waters and Aquatic Preserves

Twenty-two areas in Southwest Florida are designated as Outstanding Florida Waters. Nine of these are the estuarine environments of Cape Romano/Ten Thousand Islands, Pine Island Sound, Matlacha Pass, Estero Bay, Cape Haze, Charlotte Harbor, Lemon Bay, Sarasota Bay, and Rookery Bay. All of these estuarine Outstanding Florida Waters, except Sarasota Bay, are also designated as Aquatic Preserves. These areas are considered Regionally Significant Natural Resources and are shown on Map 6 of Volume II, of the Regional Strategic Policy Plan.

Development Pressures

Land development activities, along with associated wastes, have caused varying degrees of degradation of marine flora and fauna. While the development industry has attempted to meet the ever-present demands of the population for waterfront living, much of the Region's marine resources have been severely impacted by dredge and fill activities and bulkheading. These activities have led to an overall degradation of the quality of coastal waters, along with a great reduction of marine fauna population in some areas.

Recent environmental legislation has led to improved quality in some water bodies. Destructive dredge and fill activities are now highly restricted. Review and analysis of waterfront development has become much more sophisticated. This should improve the inter-relationship between development and marine resources.

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Urban and Rural Setting

> INTRODUCTION

As Southwest Florida continues to attract new residents, more visitors, and businesses, the promotion of sustainable growth and development patterns will be critical to continued regional prosperity and quality of life. The challenges of traffic congestion and the cost of delay require that the region implement efficient land use plans on both the local and regional levels, and more closely integrate regional land use and transportation planning.

Over the last decade, Southwest Florida has experienced phenomenal growth. According to the U.S. Census, the seven county region's 2000 population burgeoned to more then 1.2 million people and supported over 500,000 jobs.

While the region has prospered economically from growth, the consequences of development raise new challenges to sustainable growth. Development continues to occur in a scattered, low-density manner. New pressure is being placed on more affordable rural or exurban areas and historically platted lots. From 1990 to 2000, the population increased by 297,308 persons or approximately 33%.

REGIONAL OVERVIEW

Local Governments

Southwest Florida consists of six counties with a total area (land and water) of 6,663 square miles or a land area of 5,986 square miles. Four of the six counties border the Gulf of Mexico. Consequently, the Region has a coastal orientation, with population and economic activity concentrated in coastal urban areas. Map 18 depicts the county or municipal locations within the region.

The northernmost county, Sarasota County, is 573 square miles in size and was established in 1921. The City of Sarasota (established in 1885) is the county seat and is the Region's second most populous city. Two of the three other municipalities in Sarasota County are Longboat Key and North-Port, which are relatively newly formed communities. The third municipality is Venice, one of the older cities in Southwest Florida. Englewood, an unincorporated area in the south coast section, is a growing population center that spills over into adjacent Charlotte County.

Charlotte County is 690 square miles in area. Established in 1921, it has seen most of its development around Punta Gorda, the county seat and only municipality. Major growth has occurred in recent years in the unincorporated areas of Port Charlotte (north of Punta Gorda) and the Englewood/Grove City/Manasota Key area on the coast. Punta Gorda has experienced growth primarily in the west and south.

The county with the greatest number of the Region's growth centers is Lee County, established in 1887, and now 803 square miles in size. Fort Myers is the county seat and the Region's third most populous city. Cape Coral (the most populous) is the most rapidly growing city in the Region and is physically the largest. Sanibel is the County's third city, established in 1974. It has a strong tradition of controlling growth. The Town of Fort Myers Beach (1996) and the city of Bonita Springs (1999) are the county's newest municipalities, and are largely built out from pre-incorporation development. There are also numerous distinct unincorporated areas with the potential to become major urban centers, such as Lehigh Acres, Alva, Estero, Captiva, and Boca Grande.

The southernmost county, Collier County, was established in 1923. It is the largest county in the Region in land mass, some 1,894 square miles. The area around Naples has been the primary focus of development. Everglades City is the oldest incorporated area of the county. It was the county seat until after the 1960 hurricane, when the county seat was moved to unincorporated East Naples, the current location. The City of Marco Island is the County's newest City, incorporated in 1997, and was formed from an already established platted area. Immokalee is the only other center of significant size. Although unincorporated, it serves as an agricultural/commercial center for northeastern Collier County.

Glades County, established in 1921, is the northernmost of the Region's two inland counties. It is 763 square miles in size. The only incorporated area is Moore Haven, the county seat. The major population center is unincorporated Buckhead Ridge in the northeastern corner of the county. Lake Okeechobee borders the eastern side of the County and is the cause for a burgeoning seasonal population. Glades County has experienced very gradual growth since its establishment.

The second largest county in the Region is Hendry County at 1,163 square miles. Formed in 1923, it has two population centers, the municipalities of LaBelle and Clewiston. LaBelle, in the northwestern part of the county, is the county seat. Clewiston is in the northeastern part, bordering Lake Okeechobee. The economy of Clewiston is primarily dependent upon the sugar cane industry, located in the area just south of Lake Okeechobee. Winter crops and ranching are also important parts of the economy of the county.

MAP 18 - COUNTIES AND CITIES



AREAWIDE LOCATIONS SOUTHWEST FLORIDA REGION

Other Units of Government

Besides the six counties and sixteen municipalities listed above, each of which is a unit of general purpose government, there are a number of single purpose agencies and districts.

Special Districts

In 1998, The Florida Department of Community Affairs (DCA) maintained a listing of 139 special districts (a reduction from a 1985 SWFRPC inventory of 387), including 24 water/drainage districts, 22 fire control districts, 21 Community Development Districts, and 72 other special districts, such as mosquito control, hospital, parks, housing, etc. Forty four of those registered with DCA were "dependent" districts. (This is a district that has a separate management unit but is overseen by the county commission, but all revenues raised from that area are expended in that same area.) An increase in the popularity of the municipal service taxing (or benefit) unit (a form of "dependent" district that does not have a separate management unit) has caused an decrease in the number of dependent and independent districts that has an advantage in being easily dissolved when no longer needed. In increasingly popular form of "dependent" district is the community redevelopment district. There are established for older areas, commonly for improved services or facilities, and rehabilitation or redevelopment of structures.

Independent Districts are those commonly single purpose districts with governing authority of other local governments. They are chartered through the legislature (commonly), and have had recently imposed reporting and management requirements that have reduced their numbers. As of 1998, there were 95 Independent Districts, with drainage and fire being the most common. An increasingly popular district is the Community Development (or Services) District, established pursuant to Ch. 190 F.S. These are commonly precursors for municipal formation in that they encompass development proposals that need a broad range of municipal services. There are at least 21 of these districts.

Multi-jurisdictional Agencies

The cities and counties of the Region have formed a number of organizations to deal more effectively with shared problems. This includes a number of city/county bodies, as well as county/county bodies.

The foremost of these is the Southwest Florida Regional Planning Council, which is made up of thirty-one members. Each of the six counties provides two county commissioners and one municipal representative to the Council, while the Governor appoints ten additional lay members, with at least one from each county. In addition to these members, cities may be dues paying members of the Council. The Council is an advisory body, which maintains a technical staff to assist area local governments and entities on a wide variety of growth and planning related matters.

In addition to the Council, there are four Metropolitan Planning Organizations concerned with transportation: Sarasota/Manatee County, Charlotte-Punta Gorda, Naples (Collier County), and Lee County. There are also, as multi-county bodies, the Area Agency on Aging-"Senior Solutions"-Council, the Health Planning council of Southwest Florida, Inc., the bi-county Airport Authority

for the Sarasota/Bradenton Airport, the Peace River/Manatee Water Supply Authority, and the West Coast Inland Navigation District.

Substate Districts and State Agencies

Some thirty state departments and commissions have authority over activities within the Region. A number of these employ different systems of substate offices to aid in the administration and management of their functions.

Two water management districts operate certain water structures and regulate certain water activities within the Region. The Southwest Florida Water Management District (headquarters in Brooksville) and the South Florida Water Management District (headquarters in West Palm Beach) have ad valorem taxing authority, the only non-elected bodies in Florida with that authority. They also employ "basin boards" or sub-district entities to assist them in the administration of their funds (Appendix V-9). The Southwest florida Water Management District has a governing board of 13, while the South Florida Water Management District has a board of 9.

Regional Offices of Federal Agencies

The federal government's operations extend throughout the Region, as they do elsewhere. Certain activities are of such an intense nature that different federal agencies maintain a presence through various offices located within the Region.

The Seminole and Miccosukee nations are a special aspect of the federal presence, in that they represent general purpose governments for specific areas within the Region. To a large extent, however, these areas are not subject to state law. (These nations' offices and the areas over which they exercise jurisdiction are also depicted in Appendix V-9.)

> URBAN USES OF THE LAND

Land Use

For the purposes of this report, land use will be categorized into two categories-urban and rural. The term "urban" will refer to those areas having a population of at least 1,000 persons per square mile, areas that have been prepared for populations of that density, areas of intense use that are needed to support urban populations, or areas prepared for intense uses needed to support urban populations. As a consequence of that classification, commercial, industrial, institutional, and transportation land uses in excess of 40 contiguous acres are included as "urban".

Rural land uses (discussed further in the report) will refer to those areas of lesser intensity, density, or extent than urban uses. Reservoirs and mining activities join estate lifestyles, agriculture, and preserves as the common rural uses.

Approximately 20.1% of the Region's 5,986 square miles of land uses are urban (1 993), or are transitioning to urban. The eight land uses that dominate the Region's urban area (taken from the Florida Land Use and Cover Classification System) follow:

<u>Residential:</u> Residential land uses are dominantly single-family, including dwelling are not physically connected to other units, such as the typical suburban home and mobile home, and multi-family, including units that touch or are attached to other units, such as duplexes, townhouses, and apartments.

<u>Commercial</u>: This refers to uses related to retail and wholesale distribution of goods and services, such as associated warehousing, shopping centers, office complexes, and highway "strip" commercial development.

<u>Industrial:</u> This includes uses related to fabrication, processing, and manufacturing, as well as associated warehousing. Typical examples in the Region include lumber yards and concrete and cement plants.

<u>Institutional</u>: Institutional land uses include those public and semi-public uses such as schools, governmental centers, correctional facilities, hospitals and religious facilities.

<u>Extractive:</u> Those mining operations that are currently underway or have ended without land restoration. Examples of extractive uses include shell pits, quarries, mines, oil and gas wells, and borrow pits for landfill.

<u>Transportation, Communications, Utilities:</u> Those operations such as airports, ports, wellfields, transmission lines, large sewage plants, power plants, etc.

<u>Mixed:</u> This refers to combinations of the land uses above in which no one use constitutes 70% of the land coverage of a 20-acre or larger parcel.

<u>Transitional:</u> This primarily refers to lands prepared for urban development but not pied. Other uses include parks, golf courses, and government-owned s in the urban area.

In addition to these eight categories, there are also "committed future urban areas." These are areas which are committed to urban uses through platting (also included in open and other) or development orders for Developments of Regional Impact. Local comprehensive plans are the sources of statistics for 1999 and the basis for the uses depicted in Map IV-2. (The scale of the map restricts the depiction of some uses that would be visible in larger maps. For example, all residential uses are combined into a single category.)

Residential is the dominant land use. It contains 10% of the region's land mass. Due to mapping scale, areas of homes intermixed with vacant lots are depicted as residential.

The second most dominant land use for the Region's existing urban areas is "transitional," or lands cleared and prepared for development. Usually there is the provision of street and drainage facilities. In 1975, this constituted nearly 65% of the area's urban lands. By 1999, it had dropped to 42.8%. It should be noted that some lands previously prepared for urban uses are transforming into agriculture or natural systems, so this estimate is currently inflated. Transitions are occurring in the Myakka Estates area of Sarasota County, Port LaBelle area of Hendry County, Rotonda area of Charlofte County, and Golden Gate Estates area of Collier County.

The distribution of empty land is not evenly balanced, since it is concentrated in the cities of Cape Coral and North Port, and unincorporated coastal areas of Lee (Lehigh Acres), Charlotte (Rotonda and Port Charlotte), and Collier (Golden Gate Estates) Counties. Elsewhere, these empty lands are not dominant. Overall, there are more vacant single family lots than those with homes.

The remaining urban uses in order of dominance in 1999 are commercial; transportation/utilities; extractive; institutional; and industrial. Table 92 depicts urban uses for 1975 and 1993.

Table 93 compares population and land use from 1975 to 1993. Population increased over 119% as urban land use increased 93%.

The increasing density of population is also seen in Table 93. From 1975 to 1987 population density increased from 1.12 persons per acre of urban land to 1.57 persons per acre. Simultaneously, the amount of land per person declined as the population grew.

TABLE 92 URBAN LAND USE 1975-1993								
	Acres	Urban	Acres	Urban	% Change			
Land Use Category	1975	%	1993	%	Since 1975			
Residential	118,003	28.8%	439,988	50.1%	272.9%			
Commercial	8,376	2.0%	17,491	2.0%	108.8%			
Industrial	1,948	0.5%	7,472	0.9%	283.6%			
Institutional	3,724	0.9%	8,621	1.0%	131.5%			
Extractive	5,158	1.3%	14,292	1.6%	177.1%			
Transportation, Communication,								
Utilities	7,123	1.7%	24,835	2.8%	248.7%			
Mixed*	2,330	0.6%	N/A	N/A	N/A			
Transitional	263,575	64.2%	365,879	41.6%	38.8%			
TOTALS	410,237	100.0%	878,578	100.0%	1, 141.6%			

* Not used in 1993.

Source: Land Use Policy Plan, SWFRPC, April, 1978, p. 15; local comprehensive plans of the Region updated to 1994 pursuant to the LGCPA of 1985; and 1993 aerial photos.

TABLE 93							
POPUL	ATION AND URBAN LA	ND USE, SOUTHWEST	FLORIDA				
	1975	1993	1975-93 Change				
Population	459,200	1,005,887	119%				
Urban Land Use	410,237 acres	790,134 acres	93%				
	1.12 pers/acre	1.27 pers/acre	13%				
Population density	0.89 acres/pers	0.78 acres/pers	-12.40%				

Source: U. S. Census Final Revised Figure, April 1, 1980; University of Florida Bureau of Economic and Business Research, "Population Studies Bulletin 55," 1981; "Bulletin 83," January, 1988.

MAP 19 - GENERALIZED EXISTING LAND USE

One of the consequences of growth is dramatic land consumption and a demand for more facilities. A sprawling development pattern creates a demand for transportation facilities, while, at the same time, transportation facilities are catalysts for more land development. A related and integral feature of the transportation and land use conundrum is that transportation facilities connecting communities enhances economic competitiveness and social vitality. In recognition of this relationship, communities are working together to improve mobility and design livable communities that are compatible with the environment and sustainable over time.

"Sustainable development" and "smart growth" are terms used to describe the connection between development and quality of life; the balancing of development or growth with economic, cultural, and environmental principals. Sustainable development can also be a strategy by which communities use resources efficiently, create efficient infrastructure, protect the environment, and enhance the sense of community. The regional transportation system is an integral component of the future overall regional quality of life. A fragmented, non-coordinated planning approach to regional transportation issues will result in an inefficient regional transportation system. A number of strategies can be employed that will help minimize the impacts of the transportation system at a variety of levels. For example, coordinated land use and transportation planning can help promote compact development patterns that support public transportation systems. Public transportation systems that effectively meet the travel demand help increase auto occupancy rates and reduce the number of single occupant automobiles.

In addition to land use planning that promotes public transit, traffic congestion can be alleviated through strategies other than highway construction, such as, the use of new technologies, travel demand management, and coordinated intergovernmental planning. Studies have shown that regular signal-retiming can be the most effective tool for keeping local traffic flowing smoothly. The Institute of Transportation Engineers estimates the reduction in travel time from traffic signal retiming ranges from 8% to 25%. Several of the cities and counties, in cooperation with the metropolitan planning organizations, throughout the region are implementing coordinated computerized traffic signal systems as a component of the metropolitan area intelligent transportation system (ITS) infrastructure. Intelligent Transportation Systems represent the next step in the evolution of the nation's entire transportation system. As information technologies and advances in electronics continue to revolutionize all aspects of our modern-day world, from our homes and offices to our schools and even our recreation, they are also being applied to our transportation network. These technologies include the latest in computers, electronics, and communications and safety systems. More importantly, ITS technologies enable public and private organizations across jurisdictions to share information instantaneously. Thus, jurisdictions can act cooperatively, on a real-time basis. ITS can be applied to our vast transportation infrastructure of highways, streets, and bridges, as well as to a growing number of vehicles, including cars, buses, trucks, and trains. These information and communications technologies can also be used to better manage and improve how transportation providers such as governments, transit agencies and freight handlers offer services to the public.

The Metropolitan Planning Organizations and private sector employers also encourage travel demand management programs. Employers often sponsor carpooling and van pooling programs to reduce the number of single occupant vehicles on the roads. Employers also use flextime, telecommuting, or staggered work hours to spread out peak travel time demand.

The SWFRPC, through the goals and policies adopted in this Strategic Regional Policy Plan, can provide the necessary framework for decision-making at the local level to promote these strategies.

> Region's Growing Demand for Highway Capacity

Demands on the transportation system are increasing. The growth of Florida's and the region's economy is predicted to continue to outpace national economic growth in the near term.

The Region's population, growing at an average annual rate of slightly less than 2.8%, is expected to grow by more than 1.6 million people during the next 20 years. Along with population growth comes increases in the number of cars and trucks on the region's roads.

Growth means increased demands on the transportation system.



FIGURE 14 REGION'S GROWING DEMAND FOR HIGHWAY CAPACITY

Source: Vehicle Miles Traveled - Florida Department of Transportation, Transportation Statistics, Public Road Mileage and Miles Traveled Report. Vehicle Registration - Florida Statistical Abstract Transportation, Table 13.32. Motor Vehicle Tags: Total Tags and Passenger Car Tags Sold and Revenue Collected in the State and Counties of Florida

> THE TRANSPORTATION SYSTEM AND ITS ROLE IN SOUTHWEST FLORIDA

Transportation systems and services are the means of mobility by which individuals and organizations pursue everyday functions within the region. An efficient, well-planned regional transportation system not only serves to meet the travel needs of the region's population and facilitates movement of goods, but also can contribute to the economic well being of the region while maintaining the environmental quality. Therefore, the regional transportation system should be considered as a part of the continuing effort to achieve an overall livable, sustainable and competitive region.

Transportation policies and strategies should be developed to meet the overall regional goals, as well as policies and strategies of other regional components of the Strategic Regional Policy Plan (SRPP). Regional transportation policies and strategies which address the need for inter-modalism and multimodalism, effective land use planning, and transportation demand management can achieve a variety of overlapping regional goals which have a profound and interconnected impact on the entire region.

Sustainable Transportation – Protecting the Public's Investment

A region's future is defined by its endowment of critical resources and assets: built, natural, human, cultural, and economic. One of the most basic tenets of sustainability is that you must first take care of what you have. A sustainable region is one that continuously and purposefully renews itself by systematically replacing resources that are consumed, renewing and repairing assets that become obsolete, and conserving resources that are non-renewable or irreplaceable. A sustainable region is one that supports a collaborative and fact-based decision making process, leading to better choices and a sensible use of our resources.

The 2020 Florida Transportation Plan (FTP) recognizes that we must manage the transportation system and its impacts in a way that we better preserve and sustain our resources long-term. The 2020 FTP provides policy guidance for a sustainable mobility network that address, cumulative, social, economic, and environmental impacts. Preservation and sustainability are interdependent pieces of an overall multi-disciplinary approach to transportation planning. The 2020 FTP update provides the opportunity to set forth a policy framework that will respond to the needs of the 21st century. According to the Florida Department of Transportation (FDOT) that policy framework is centered on three key areas:

<u>Mobility:</u> The ability for people and goods to move from place to place as Florida continues to grow.

<u>Economic development</u>: Using the transportation system to enable Florida to compete in both domestic and global economies, while accounting for their impact upon community and state economic goals.

<u>Sustainability:</u> Balancing efforts to improve the road system with the need to protect the environment and make communities more livable.

Both the state and regional transportation plans provide the framework for continuing the longterm development of the transportation system. Sustainability means meeting the needs of the present without compromising the ability to meet the needs of future. The value of the existing system must be preserved and maximized by the application of technological and other design and planning solutions that promote mobility and the most efficient use of limited resources. Achieving sustainable transportation requires the identification of strategies that encourage public and private transportation entities to meet mobility demands, manage the existing system efficiently, and enhance communities and environment in which the system functions.

The following inventory of existing facilities and conditions provide basic data to evaluate current conditions and to plan for tomorrow's enhancements.

Private Automobile

The single occupant vehicle (SOV) continues to be the overwhelmingly dominant mode of transportation in Florida and the country. The SOV is the dominant means of work travel in Florida, accounting for about 77 percent of all work trips in 1990. State ridership data shows that the use of alternative modes of transportation has continued to remain low. Roads can serve more

than motor vehicles, but most of them must be modified to better accommodate other means of travel. High occupancy vehicle lanes for carpools and public transit vehicles and improvements for transit vehicles, bicyclists and pedestrians can create corridors for the movement of people, not just vehicles.

If vehicle occupancy continues to remain low, efforts to make alternative transportation modes more attractive and competitive should be intensified to increase auto occupancy. Programs such as rideshare matching, preferred parking, and HOV lanes, which encourage car pooling, are examples of steps which may help increase the number of carpools and decrease the number of single occupant vehicles, thereby providing better transportation service without expensive highway construction. Land use plans which foster increased transit ridership through increasing densities and concentrated development in designated areas can contribute to increased public transportation ridership. Development corridor densities should be established in those areas that can be potentially well-served by public transit. Land use decisions made with little or no regard to the transportation system, and will not optimize the expenditure of taxpayers' money.

Automobile registration in Southwest Florida has increased at a rate faster than the population, with total automobiles in the region now exceeding the population. According to the Florida Statistical Abstract, 1,478,304 vehicles were registered in Southwest Florida in 1999, which equates to a ratio of 1.3 vehicles/person. In 1995 there were 1,304,605 vehicles registered in the region, equating to a ratio of 1.26 vehicles/person. Table 94 shows the growth in vehicle registration and population for each of the seven counties in the region. Besides owning a greater number of vehicles, commute times are also increasing as development extends outward from the employment centers and travel time delays increase.

TABLE 94 REGISTERED VEHICLES PER POPULATION								
Population Registered Vehicles Vechicles/Population								
County	1995	1999	1995	1999	1995	1999		
Charlotte	127,646	136,773	157,509	174,112	1.234	1.273		
Collier	186,504	219,685	236,994	282,363	1.271	1.285		
Glades	8,551	9,867	6,317	7,738	0.739	0.784		
Hendry	29,497	30,552	40,325	53,028	1.367	1.736		
Lee	376,702	417,114	480,054	539,288	1.274	1.292		
Sarasota	301,528	321,044	383,406	421,775	1.272	1.314		
Region	1,030,428	1,135,035	1,304,606	1,478,304	1.26	1.3		
State	14,149,317	15,322,040	16,980,698	18,507,126	1.2	1.21		

Source: Florida Statistical Abstract 1996 & 2000.

Roadways

The infrastructure necessary to retain and expand higher wage jobs includes a regional network of roads and facilities. The principal north-south roadways in the region include I-75 and U.S. 41. In addition to I-75 and U.S. 41, other regionally significant north-south roads serving Southwest Florida include S.R. 29, U.S. 27, S.R. 17, and S.R. 31. The main east-west routes in the region include S.R. 62, S.R. 64, S.R. 70, S.R. 72, S.R. 80, S.R. 82, and S.R. 78. Other regional significant

east-west roads serving Southwest Florida include I-75, U.S. 41, C.R. 846, S.R./C.R. 884 and C.R. 74.

Roadway Functional Classification

Functional classification is a way of describing roads by the role that they play in the network of public roads. All roads have two major functions: they provide local access to a particular location, and they provide mobility between locations. A road that emphasizes the mobility function is called an arterial. Arterials are furthered subdivided between principal arterials, which provide long-distance mobility and little access, and minor arterials, which connect closer areas and provide some access. Principal arterials include Interstates, freeways, and others. Between minor arterials and local roads is another class, called collectors. Collectors provide significant access while still providing mobility by connecting different nearby areas or roads. Collectors are further divided in rural areas between major collectors and minor collectors. Table 95 shows the miles of roadway by county and functional class of road.

TABLE 95 FEDERAL FUNCTIONAL CLASSIFICATION									
		Arte	rial	Colle	ector				
County	Interstate	Principal	Minor	Urban Major	Rural Minor	Local	Total		
Charlotte	22.01	40.53	90	224.32	64.43	1,951.50	2,392.84		
Collier	63.5	104.4	90.05	164.8	55.4	1,298.94	1,777.09		
Glades	0	41.43	59.61	50.19	47.97	173.05	372.25		
Hendry	0	63.51	1.28	124.5	34.52	305.48	529.29		
Lee	34.14	77.98	165.39	388.68	23.69	4,216.56	4,906.44		
Sarasota	46.62	63.99	73.21	246.76	7.63	1,821.50	2,555.69		
Region	166.27	391.84	570.04	1,199.25	1,135,03	9,767.03	12,533.60		
State	1,471.66	6,406.75	5,641.55	10,126.30	4,186.39	87,699.44	115,957.40		

Source: Florida Department of Transportation, Statistics Office, June 2000

Vehicular Miles Traveled

Increased auto ownership and shifts in population and employment centers have resulted in an increase in vehicular miles traveled. Available data on vehicle miles traveled on the State Highway System reflects the overall vehicle miles traveled for all roadways in the region. Increases in vehicle miles traveled result in an increase in roadways operating at unacceptable conditions, traffic congestion, and mobile source emissions. As development occurs in greater densities in areas not presently served by public transit, expanded transit services and other transportation demand management strategies should be provided as necessary to increase auto occupancy rates by providing an alternative to the single occupied vehicle. Table 96 shows the 1998 estimated daily vehicle miles traveled by county and functional class of road.

TABLE 96 ESTIMATED 1998 DAILY VEHICLE MILES TRAVELED								
County/Vehicle	County/Vehicle Arterial Collector							
Occupancy	Interstate	Principal	Minor	Urban Major	Rural Minor	Local	Total	
Charlotte (1.40)	770,481	837,591	497,975	407,915	76,240	761,757	3,351,959	
Collier (1.62)	1,179,889	1,230,706	852,523	651,965	12,901	876,549	4,804,532	
Glades (1.72)	0	239,314	161,327	19,577	11,798	34,610	466,626	
Hendry (1.76)	0	600,583	7,395	63,340	14,810	125,842	811,970	
Lee (1.46)	1,772,010	2,135,134	2,501,246	1,573,584	7,107	2,215,242	10,204,323	
Sarasota (1.43)	2,167,757	2,036,896	1,063,943	1,540,141	3,660	2,394,443	9,206,840	
Region (1.57)	5,890,137	6,540,224	5,084,409	4,256,522	126,516	6,408,443	28,846,250	
State (000's)	79,446	118,466	59,746	40,374	3,548	63,530	385,940	

Source: Florida Department of Transportation, Statistics Office, June 2000. VMT is vehicle miles traveled: the product of a road's length and its traffic volume.

In summary, Florida has seen a 16.5 percent increase in vehicle miles traveled on all public roads from 1986 to 1998. In 1986 Florida had 99,074 centerline miles of public in road; in 1997, Florida had 115,957 miles of public roads with 11,980 under Florida Department of Transportation jurisdiction.

Vehicle miles traveled (VMT) in Florida have increased 24.3% on all public roads since 1990. In 1990 Florida reported 109,997 vehicle miles traveled. By 1998 that figure had grown to 136,681. Urban travel is growing faster than rural. It is also growing faster on higher functionally classified roadways. If the trend continues, VMT will grow another 58.9% by 2020.

Congested Roadway Segments

Level of Service (LOS) is a qualitative assessment of road user's perception of a roadway quality of flow, and is represented by the letters "A" through "F". LOS "A" represents free flow, with individual users virtually unaffected by the presence of others in the traffic stream. "B" through "D" represent increasing decline in the freedom to maneuver within the traffic stream. LOS "E" represents operating conditions at or near the road capacity level. Roadway segments are shown as congested based on their operating levels as identified by FDOT. Quantitative and qualitative measures have been incorporated into level of service standards in order to determine the operating conditions. Table 97 shows only those roadways on the Florida Intrastate Highway System (FIHS) that were identified as congested based on LOS traffic volumes by FDOT. More detailed arterial analyses may be necessary in determining actual operating conditions for permitting and concurrency purposes.

TABLE 97 FLORIDA INTRASTATE HIGHWAY SYSTEM CENTERLINE MILES OPERATING BELOW THE LOS								
	1995 1997							
County	Total Miles	<los< th=""><th>Total Miles</th><th><los< th=""></los<></th></los<>	Total Miles	<los< th=""></los<>				
Charlotte	31	5	31	8				
Collier	64	3	64	7				
Glades	41	0	41	0				
Hendry	47	1	47	3				
Lee	56	35	56	38				
Sarasota	43	11	43	24				

Source: Florida Highway Data Source Book, April 2000.

Those regional roadways' segments operating at LOS E or below, which represents the poorest operating level at which a roadway can operate, are identified in Map 20. This map should not be used to identify roadways operating at the adopted level of service standard, which in many cases is higher than LOS E. For example, the adopted level of service for I-75 in most areas of the region is LOS C; roadway segments operating below LOS C have been identified as congested for this map.

MAP 20 - TRANSPORTATION NETWORK



SOUTHWEST FLORIDA REGIONAL TRANSPORTATION NETWORK

It should also be noted that the map does not show areas of localized congestion, such as an isolated intersection, unless the operating conditions of the intersection influence the operating conditions of the roadway segment as a whole. In addition, it does not reflect instances where bridge openings or rail crossings contribute to the degradation of the level of service during operation.

As expected, areas of congestion occur in the more developed areas of the region. Downtown Sarasota, Ft. Myers, and Naples and the rapidly growing areas along the coast, near employment centers of the region. In addition, residential development in southern Sarasota County, Cape Coral, Bonita Springs and Lehigh in Lee County, and east Golden gate Estates and northern Collier County has increased significantly over the past decade as development patterns have extended in all directions. Every indication is that market forces will continue this trend into the future. Other areas of the region, such as LaBelle in Hendry County and Punta Gorda in Charlotte County, have also seen steady growth and increased traffic congestion, albeit to a somewhat lesser degree.

Passengers, Goods and Freight Movement

Trucks transport more freight in, out, and through the region than any other mode, and are a common element in almost all intermodal freight movements. Trucking and the movement of goods and freight play critically important roles in the regional, state, and global economy. Measured by its value, nearly seventy eight percent of freight in Florida is carried exclusively by truck. Trucks are the dominant mode of transportation for businesses shipping goods into and out of the Southwest Florida region. Overall, trucks accounted for about 88 percent of total shipments, on average, among the companies responding to a recent Florida Chamber freight survey.

For most motorists, traffic congestion is frustration and lost time for all types of trips; for business trips, particularly those involving goods and freight movement via truck, congestion also means higher costs and reduced competitiveness. I-75 is the roadway with the highest numbers of trucks. Both the number of trucks and percent of total vehicular volume are high for the I-75 corridor. For example, in 1998 I-75, between Daniels Parkway and C.R. 82 in Lee County and from Clark Road in Sarasota County north to I-275 in Manatee County, handled upwards of 10,000 trucks per day. This represents approximately twenty percent (20%) of the total vehicular daily volume. According to a 1999 Center for Urban Transportation (CUTR) Study, this volume of trucks equates to between 20 to 40 million gross ton per mile.

Air Service

Southwest Florida International Airport and the Sarasota/Bradenton International Airport offer the majority of the Southwest Florida's scheduled airline passenger and shipping service. The Naples Airport and Charlotte County Airport also support limited commercial passenger service. A number of additional airports accommodate charter and general aviation traffic. They include Page Field in Lee County, Buchan Field and Venice Airport in Sarasota County, the Labelle Airport and Airglades Airport in Hendry County, Marco Island, Everglades City, and Immokalee Regional Airports in Collier County. The Critical Facilities Map shows the location of international and general aviation airports and other critical transportation facilities located in Southwest Florida.

Many business leaders and citizens recognize that the Southwest Florida International Airport is one of the region's best examples of how a specific industry can benefit the regional economy. From

1993 to 2001 freight levels have increased 91 percent. SWFIA moved approximately 32 million pounds of freight in 2001. While airport passenger activity fluctuates with the season, upwards of 700,000 passengers visit and leave the airport on a monthly basis. The airport handled 5.3 million passengers in 2001. Annual passenger enplanements at Southwest Florida International Airport are projected to increase 5.6 percent over the next 10 years, growing from the 1990 level of 1.9 million to 5 million by the year 2010. Through the commitment of the airport management and local government, air transport of goods and people through SWFIA stimulates business throughout the entire region. Continued support of the aviation industry, including general aviation airports and the encouragement of expanded international air service must be basic elements in future plans for economic development. Table 98 provides a summary of aviation activity.

TABLE 98 SOUTHWEST FLORIDA REGIONAL AVIATION SUMMARY						
		Total				
Year	Based Aircraft	Operations	Enplanments			
1990	1,209	773,349	2,867,774			
1995	1,349	688,076	2,856,945			
1997	1,587	761,388	3,048,943			
2001*	1,759	849,451	3,877,994			

*= Forecast year; Last historical year: 1997.

Source: FDOT, Aviation Office Non-Official Forecast

Future plans for SWFIA include a new midfield terminal, parallel runway, and a north south access road, running parallel to I-75. The roadway and terminal are scheduled to open in 2005. The new Midfield terminal complex will have 28 gates with associated aircraft ramp development and a transportation center with auto parking and auto rental facilities. While the new access road and terminal egress and ingress may see immediate improvement, the interchanges at Daniels Parkway and Alico Road with I-75 must also be modified to accommodate future airport traffic. Most vehicles arriving via I-75 from the north and south are expected to use these interchanges to access the airport.

The Sarasota Bradenton International Airport (SBIA) is located partly in northwestern Sarasota County and the City of Sarasota and mostly in southwestern Manatee County all of which is adjacent to and east of U.S. 41. The SBIA amended development order of 1990 authorized development of 305,000 gross square feet of terminal, 1,200 parking spaces and 13 airside gates and aircraft parking aprons. In 1996 SBIA submitted plans for a substantial deviation extending the buildout period to 2010, extension of runway 14-323 to 9,500 feet, and for an expansion of 175,00 square feet of airside terminal, up to nine additional gates, a 800 car garage, ancillary commercial aircraft storage, and annexation of four out parcels. The new development levels on these out parcels total 200 hotel room, 80,000 square feet of research/office park, 60,000 square feet of office, 261,180 square feet of commercial, and 220,00 square feet of industrial. As of 1996, the airport accommodated 2,232 enplanements per day.

Two major issues face airport planning and development in Southwest Florida. One is the extent to which existing airports can accommodate current and future aviation demand. The other is the coordination of airport improvements in the region, across the State and throughout the country.
Southwest Florida's aviation system provides integrated linkages to a network of state, national and international air travel. By the year 2020, airspace corridors over Florida may be a significant concern. It is estimated by FDOT in the Florida Aviation System Plan that interstate air travel is expected to increase by more than 3.7 percent by the year 2021. FDOT estimates that airspace congestion and limited airspace capacity already cost Florida businesses and citizens \$300 million per year.

Rail Service

Only one short-rail line, operated by Seminole Gulf Railroad, provides freight service to Southwest Florida using connections with the CSX line in Arcadia. There is no intermodal terminal in Southwest Florida where containers and trailers on flatcars can be loaded and unloaded. The lack of intermodal access means that there are few alternatives to highways for most types of shipments into and out of the region. Presently, most intermodal traffic bound for the Southwest Florida region is processed through the CSX intermodal terminal in Tampa. Tampa serves as the southern terminus for truck-to-rail transfer facilities on Florida's west coast.

Currently, the Seminole Gulf railroad line also enters Southwest Florida via two routes. The western most route operated by Seminole Gulf follows U.S. 17 from Arcadia in DeSoto County to Punta Gorda in Charlotte County. From there, it proceeds through Fort Myers to terminate east of U.S. 41 in Collier County. The two segments cover 51.6 miles and 26.7 miles respectively. Operating speeds are between 25 and 40 mph. The service frequency is two dinner trains per day plus nine freight trains per week.

The second more eastern route goes into Glades County along the U.S. 27 corridor from Sebring in Highlands County. From thee, it extends on to Moore Haven and then to Clewiston in Hendry County. From Clewiston, the route continues on into Palm Beach County. The distance from Sebring to Palmdale is 43 miles. The operating speed ranges from 10 to 25 mph.

Florida's Role in High-Speed Rail

Florida growth has historically been driven by early rail passenger service; recently, Floridians have shown a new interest in high-speed and inter-city passenger rail service. The State and Amtrak are currently planning to restore conventional passenger service and initiate a new high-speed rail feasibility study in Florida. Congress is currently considering a bill that would allow Amtrak to raise \$12 billion over the next decade by issuing high-speed rail bonds. The federal government would provide tax credits to bondholders, removing from Amtrak the burden of paying interest. The money would pay for initial work to upgrade 11 designated high-speed rail corridors throughout the country - one of which connects Tampa, Orlando and Miami. Participating states will be asked to contribute 20 percent of the cost.

In the 1990s, three high-speed rail corridors were designated, linking the major population centers of central and southern Florida. Twice, the public and private sectors initiated partnerships to implement innovative new high-speed rail systems with top speeds on the order of 150–200 mph between Miami, West Palm Beach, Orlando, and Tampa. However, on January 14, 1999, the State withdrew its support for the high-speed rail project, Florida Overland Express (FOX).

Florida Intercity Passenger Rail Service Plan

Following the withdrawal of support and funding for the Florida high speed rail proposal, Florida Department of Transportation (FDOT) decided to pursue a more incremental intermodal approach to improving intrastate passenger rail and freight rail service. The FDOT requested Amtrak to evaluate intercity passenger service potential over the next twenty years. The Florida Intercity Passenger Rail Vision Plan lays out a twenty-year program for implementation of a statewide passenger rail system in Florida.

The plan includes four phases of development. Phase I covers the restructuring of Amtrak's long distance service to Florida including the splitting of all three exiting interstate routes to increase service between Miami, Orlando, Jacksonville, and Tampa by 2002. Phase two proposes additional expansion of intrastate service between Tampa, Orlando, and Miami using new trains with passenger amenities such as large seats, bistro food, computer ports, and at-seat-entertainment, by 2005.

In phase three, between 2006 and 2015, service would be developed in three new corridors: Tampa to Naples, Orlando to Port Canaveral, and Daytona to Orlando. The study identifies the Tampa to Naples corridor as the fifth biggest potential market in the state. The Vision Plan Executive Summary suggests that the Tampa-Naples line might be routed via some combination of new track down I-75 and existing track, with the existing Seminole Gulf Railroad track being used south of the Peace River. A rail line down the I-75 corridor will likely reduce the number of at-grade crossings but require a greater interface with future public transit to access more urban development and visitor destinations along the coast. Since Phase 3 would presumably start in 2006, corridor alternatives will need to be further analyzed to establish opportunities for intermodal connection and ultimate design.

Phase 4, between 2015 and 2020, envisions additional rail service between Naples and Ft. Lauderdale/Miami via the Alligator Alley corridor.

Florida's High-Speed Rail Study Commission

While neither Amtrak's nor the FOX efforts resulted in the start of passenger service, the significant public and private resources invested led to a new effort to restart the high-speed rail concept in Florida in 2000. In November, Florida voters approved a constitutional amendment requiring the state to begin building a rail line by November 2003 that will ultimately link Florida's five biggest urban areas. The trains will have to travel at least 120 miles an hour.

During the 2001 Legislative session, State lawmakers created an agency devoted to establishing the high-speed rail. The high-speed rail network's cost estimate ranges from \$6 billion to \$20 billion, along with another \$1.7 billion per year for maintenance and debt payments. Building the Tampa-to-Orlando segment could cost as much as \$1.9 billion, according to a study by the Florida Department of Transportation. That's along with an annual operating cost of up to \$46 million, depending on the route taken and technology used.

MAP 21- REGIONAL PASSES



REGIONAL PASSES SOUTHWEST FLORIDA REGION

Transit Service

While the number of vehicular miles traveled driven on U.S. roads remained steady last year, the number of passengers riding buses or trains rose to the highest national level since 1959, transit industry figures show. According to national figures reported by municipal transit agencies to the American Public Transportation Association (APTA), there were 9.4 billion trips aboard mass transit last year, a 3.5 percent increase over the 9.1 billion rides in 1999. Clearly, the number of transit trips regionally pales in comparison. Nonetheless, service measures for local transit operation indicate a similar growth trend. According to regional figures reported by the Florida Department of Transportation, there were approximately 3.3 million trips reported in 1992 and over 4.1 million trips aboard the Lee County, Sarasota County, and Manatee County transit systems in 1998, a annual increase of approximately three percent. Two new County transit systems have come on line since 1998. The Charlotte County Dial-a-Ride bus service began operation on January 2001 and the Collier County (Collier Area Transit, CAT) bus service began operation in February of 2001.

Traditional fixed route transit is very viable in the urbanized areas of the region. Public policy, however, may require that for low density areas of the region more attention should be placed on demand-response and other forms of paratransit. However, the cost associated with providing demand response service will greatly limit the type and availability of transportation services.

Flexible routing and scheduling of relatively small vehicles to provide door-to-door or point-to-point transportation at the user's request characterizes demand response transportation service. Paratransit means a system of transporting that provides services between specific origins and destinations selected by individual user and the provider of the service. Paratransit services are provided by vans, buses, taxis, limousines, and other demand responsible operations that are characterized by their non-scheduled, non-fixed route nature. Due to the high cost of demand-response service, many communities are attempting to integrate paratransit service with the more traditional transit usually associated with urban areas.

Community "service routes with deviation" provide regular and recurring service in which routes and schedules are established to meet the travel needs of the greatest number of riders while maintaining a regular schedule and route. The service is characterized by the fact that the service route may be slightly changed or "deviated" along the established transit corridor to accommodate more passengers or to select a new destination along the route. Service routes with deviation can increase vehicle multi-loading and improve system efficiency. Further, fixed route with deviation service offers a method of combining subscription and demand response trips in a manner that produces a viable transit service for both the transit provider customers and the general public.

There are presently five government-operated bus transit systems in Southwest Florida (including two bus systems within the purview of the Sarasota/Manatee Metropolitan Planning Organization). According to the 1998 Performance Evaluation of Florida's Transit Systems, the systems profile noted the following indicators. The Lee County Transit System (Lee Tran) has approximately 53 buses in operation and served approximately 1.7 million annual passengers in FY 1998. The Sarasota County Area Transit System (SCAT) has approximately 56 buses in operation. SCAT served approximately 1.7 million annual passengers. Manatee County Area Transit (MCAT) has approximately 27 buses in operation and served approximately 700,00 thousand annual passengers in 1998. The county transit systems provide regular transit service throughout portions of their

respective counties. The routes comprise flyer services to the outlying suburbs, regular services along the major arterials, and various shuttle and looper services in the urban areas.

Lee County Transit (LeeTran)

LeeTran operates as an independent division governed by the Lee County Board of County Commissioners, a five-member board responsible for the oversight of all lee County government operations. LeeTran provides public transportation services to Lee County through the direct operation of its fixed-route, fixed schedule motorbus service and the contractual provision of demand- responsive service to persons certified eligible for Americans with Disabilities Act (ADA) service. Over the years, the Lee Tran system has grown to include 21 fixed routes, using forty-three conventional and nine trolley-replica buses. The Lee Tran service area covers 421 miles of road network.

Since 1984, ridership on LeeTran has increased approximately 129 percent, from 810,500 passenger trips in fiscal year 1984 to 1,855,535 passenger trips in fiscal year 1999. Fixed route ridership is projected to increase to approximately 2,287,000 trips by 2005, a 23 percent increase from fiscal year 1999. In addition to providing fixed-route bus service, LeeTran also provides complementary paratransit service. To be eligible for the paratransit service persons must be unable to use fixed route service because of the nature of a disability. ADA paratransit ridership is projected to increase from 80,000 in 2001 to ??? in 2006.

Sarasota County Area Transit (SCAT)

The Sarasota County Area Transit System (SCAT) is a member of the Sarasota County Government. The authority is governed by the five-member Board of County Commissioners. SCAT serves the urbanized portion of Sarasota County, including the cities of Longboat Key, Sarasota, Venice, Englewood and North Port, via fixed-route motorbus service and demand response. SCAT has approximately 56 buses in operation; SCAT served approximately 1.7 million annual passengers in 1998.

Manatee County Area Transit (MCAT)

Manatee County Area Transit (MCAT) is a division within the Community Services Department of Manatee County. The Board of County Commissioners governs the division. MCAT provides service to the urbanized parts of Manatee County via fixed-route motorbus and demand response services. MCAT has approximately 27 buses in operation and served approximately 700,00 thousand annual passengers in 1998.

Charlotte County – Charlotte Area Transit (CAT)

Charlotte Area Transit (CAT) is the public transportation provider in Charlotte County. CAT is a program of the Charlotte County Board of County Commissioners. CAT operates two distinct programs: the Transportation Disadvantaged program, begun in 1989 and a Dial-a-Ride public transportation program. As of July 2000, 21 vehicles were used in the Transportation Disadvantaged programs are paratransit, providing curb-to-curb service based on

reservations and routes that change daily. No fixed-route service is currently provided in Charlotte County.

Dial-a-Ride bus service began on January 2001 with nine new vehicles serving Charlotte County. The response has been positive. By the second week in January 2001 the demand for trips averaged over 125 calls per day. Approximately 30 percent of these trips were serving transportation disadvantaged program clients.

Collier Area Transit (CAT)

Collier Area Transit (CAT), as of February 2001, is the new public transportation provider in Collier County. CAT is a program of the Collier County Board of County Commissioners. Collier County implemented a deviated fixed route system using five busses on six distinct but overlapping routes.

Transportation Disadvantaged

In Florida, there is a mandate for the coordination of transit services specified in Chapter 427, F.S. Chapter 427, F.S., as passed in 1979 by the Florida Legislature called for the coordination at the county level of all federal and State expenditures for the "transportation disadvantaged." The Transportation Disadvantaged program addresses the needs of the transportation disadvantaged by approving all community transportation coordinators and planning agencies contracts; assisting communities in developing Coordinated Transportation Development Plans; compiling information on the operations and needs of the program; and establishing standards, policies and procedures for the program. The Commission for the Transportation Disadvantaged is responsible for statewide coordination of transportation services and the disbursement of the Transportation Trust Fund.

The purpose for the establishment and operation of the TD program is to promote the delivery of transportation services in a manner that is cost effective, efficient, and reduces fragmentation and duplication of services. Transportation services are provided using a variety of vehicles, including buses, mini-vans, vans, and automobiles. Many of the vehicles are specially equipped to serve the needs of the disabled and public transit riders.

While it is not feasible for transit service to pay its total operating costs, service modifications to better serve region commuters should be investigated. Due to scattered concentrations of population centers throughout the region, a truly regional mass transit system is not feasible. As development continues in the outlying areas away from existing developed areas, however, the establishment of van service and additional intercounty express bus and park and ride services may be warranted.

In addition to the five public transportation systems, there are community transportation coordinators (CTC) for each county. The CTC arranges for the transportation of the Transportation Disadvantaged population. The transportation disadvantaged (TD) as defined by Chapter 427, are "those persons who because of physical or mental disability, income status, or age are unable to transport themselves or to purchase transportation and are therefore dependent upon others to obtain access to health care, employment, education, shopping, social activities or other life-sustaining activities, or children who are handicapped or high-risk or at-risk."

According to the Center for Urban Transportation Research (CUTR), the Florida Coordinated Transportation System provides trips for transportation disadvantaged (TD) persons in two population groups -the potential TD population and the TD Population. The Potential TD Population includes all persons who are elderly, disabled, or low- income, while the TD Population includes only those persons who are transportation disadvantaged according to the eligibility guidelines in Chapter 427.

Within the Southwest Region, there are five coordinators of services to the transportation disadvantaged:

<u>Charlotte County:</u> Charlotte County Transit Department is a paratransit service managed by the Charlotte County Government. The CTC operates as a partial-brokerage with five subcontracted operators in 1998. The Charlotte CTC coordinated 124,745 trips in 1998. Charlotte's Potential TD Population was 74,813 in 1998. Charlotte's TD Population was 14,350 in 1998.

<u>Collier County:</u> Collier County Board of County Commissioners became the Collier CTC in 1999. The coordinated service is managed by a private-for-profit corporation, Intelitran. Intelitran operated a complete brokerage system with three subcontracted operators in 1999. The Collier CTC coordinated 125,757 trips in 1998. Collier's' Potential TD Population was 87,058 in 1998. Collier's TD Population was 14,172 in 1998.

<u>Glades County and Hendry County</u>: Good Wheels Inc., is a private non-profit transportation company. It manages the partial brokerage TD program for a joint service area covering all of Glades and Hendry counties. The service provided a total of 73,877 trips in 1998; 9,534 trips were in Glades, and 64,343 in Hendry. Glades' Potential TD Population was 4,065 in 1998. Glades' TD Population was 717 in 1998. Hendry's Potential TD Population was 11,489 in 1998. Hendry's TD Population was 2,844 in 1998.

<u>Lee County</u>: Intelitran, a private-for-profit corporation coordinates a complete brokerage service under contract to LeeTran in Lee County. The CTC had five subcontracted operators in 1998. The service provided 205,483 trips in 1998. Lee's Potential TD Population was 171,490 in 1998. Lee's TD Population was 30,913 in 1998.

<u>Sarasota County</u>: Senior Friendship Centers, Inc. is a private non-profit organization, which primarily provides services to people over the age of 60. Senior Friendship Center also serves as the CTC for Sarasota County. The CTC operates as a partial brokerage with ten subcontracted operators in 1998. The service provided 240,060 trips in 1998. Sarasota's potential TD Population was 145,947 in 1998. Sarasota's TD Population was 24,294 in 1998.

> PIPELINE TRANSPORT, PORT FACILITIES, AND WATERWAYS

Pipeline Transport

A crude oil pipeline is used to transport oil produced in the region across south Florida to Port Everglades in Broward County. The Sunniland line is composed of four, six and eight-inch steel

pipe, with five pumping stations; 110 miles of gathering lines feed the main transmission line from oil fields in Hendry County. The Southwest Florida field produced 1.2 million barrels of oil in 1999.

Florida Power & Light company plans to work with Florida Gas Transmission Company to bring clean natural gas to Southwest Florida to fuel its repowered Fort Myers power plant by 2001. The Fort Myers plant, which operates on oil, will be converted to natural gas using leading technology that triples its generating capability. The electricity needs of Southwest Florida are growing 40 percent faster than the rest of FPL's service territory, and repowering offers the opportunity to meet that need in an environmentally conscious way without requiring more land and a new power plant. While Florida Gas Transmission has almost 5,000 miles of natural gas pipeline to serve the needs of Florida, currently none of that natural gas reaches Southwest Florida.

The Florida Gas Transmission proposal calls for constructing a natural gas pipeline approximately 100 miles long, beginning at existing facilities in Hillsborough County near Tampa and running through Polk, Hardee, DeSoto, Charlotte and Lee counties to Fort Myers Florida Gas Transmission expects to begin construction in the first quarter of 2000 in order to meet the phased start-up of the repowered Fort Myers facility in early 2001. The Fort Myers plant is the first of three projects to expand the capability of FPL's generating system by 14 percent over the next 10 years. Florida Gas Transmission, a wholly owned subsidiary of Citrus Corp., was formed in 1958 to bring natural gas reserves in Texas to the state of Florida. The original 1,480-mile mainline was completed in 1959. With approximately 5,000 miles of pipeline, the system has a transportation capacity of 1.4 billion cubic feet of natural gas per day.

Water Transportation

Port Boca Grande is the only deepwater port in Southwest Florida. The port lies almost at the southern tip of Gasparilla Island. Gasparilla Island is a six and one-half mile long barrier island that separates Charlotte Harbor from the Gulf of Mexico. The northern quarter of the island lies in Charlotte County while the southern portion (which includes Boca Grande) is in Lee County. Road access is limited to Charlotte County via a privately owned causeway and toll bridge. There is no land connection with Lee County. Limited port facilities are provided at Port Boca Grande in Lee County. This port has a restricted cargo capacity and provides limited services. The port was a phosphate-shipping center as early as 1887. Phosphate was last shipped out in 1979 and rail service to Boca Grande was ended the same year.

The only recent port-related activity has been the delivery of oil for the Florida Power and Light Company. The ten-acre facility was built in 1958 to receive fuel oil from tankers for transshipment by shallow draft barge to its generating plant east of Ft. Myers along the Caloosahatchee River. The facility is to be abandoned once the Fort Myers power plant is repowered by natural gas.

In addition to port facilities, coastal water traffic is accommodated by the Intracoastal and Okeechobee Waterways. The Intracoastal Waterway follows the coast, generally between barrier islands and the mainland. The Okeechobee Waterway begins in the eastern part of San Carlos Bay and proceeds east to Lake Okeechobee via the Caloosahatchee River. Much of the traffic on the waterways is recreational; however, some commercial activity takes place. The commercial activity

includes a variety of boats, some fishing and others traveling to and from a dock, supply point, fish house, or some other destination.

The potential for water borne or ferry service exits for a number of coastal communities in Southwest Florida. Sarasota, Charlotte, Lee, and Collier Counties all experience significant economic activity on off-shore islands, along the harbors and the many waterways. Provision of ferry service has the potential to reduce travel distances between transportation terminal points and visitor destinations. Ferry service can support the tourist industry and also promote further economic activity by providing employment transportation and enhanced trade. Currently, private businesses operate passenger ferry service to a number of coastal barrier islands and resorts, as well as daily service to Key West.

MAP 22- WATERWAYS



WATERWAYS SOUTHWEST FLORIDA REGION

TRANSPORTATION AND THE ENVIRONMENT

Natural resources are among our region's greatest assets. Florida is faced with growing and oftenconflicting demands for public facilities (such as transportation), economic development and preservation of our natural resources. Rapid population growth, expanding urban and non-urban development and a growing economy creates pressures on the environment and natural areas of southwest Florida. Air quality, water supply and water quality, wetlands and wildlife habitats may be impacted by the construction of transportation facilities and supporting storm water conveyance features. In recent years, some transportation projects have been significantly delayed because of conflicts over environmental issues, such as encroachment on wetlands and disturbances to wildlife habitats.

Historically, environmental mitigation for road construction projects focused on preventing roadway erosion and limiting stormwater runoff. More recently, concerns about water quality, plant and wildlife habitat, endangered species, historic landscapes, and scenic vistas have led to changes in roadway eco-management. The concept of ecosystem management has led to new methods for water resource and stormwater mitigation. Environmental agencies work with project engineers to find ways to reduce road-related pollutants in stormwater runoff by the construction of detention and retention ponds in proximity to highways.

Transportation eco-management has led to alternative landscape management strategies such as biological control of invasive plants, reestablishment and management of native plants and grasses, the use of controlled burns, application of composted materials, and relocation and restoration of endangered plant species.

The construction and use of some transportation projects can significantly impact wildlife habitats, both terrestrial and aquatic, including those of endangered species. In situations where impacts cannot be completely avoided or minimized, other conservation efforts are required. Informational signing and reducing speed limits to provide safer passage and connectivity for wildlife is an effective option in some instances. Where this is not feasible, habitats important to such animals as the Florida panther and black bear have been purchased and structural alternatives such as wildlife crossings have been constructed. Further, private landowners and public land managers are working together to develop greenway corridors of protected open space that are managed for conservation and recreation. The Region's greenways connect natural preserves, parks, cultural and historic sites, and in some cases, populated areas.

The successful protection of, and mitigation of impacts on, the quality of our air, our water, our wetlands, the habitats of endangered species and other environmental assets calls for a more integrated, flexible approach than just meeting legal standards. Providing for safe travel, enhanced mobility, and environmental protection require the use of sound ecosystem management practices and the support and participation transportation, environmental and economic interests throughout the region.

> TRANSPORTATION NEEDS VERSUS FINANCIAL FEASIBILITY

Transportation needs within the Southwest Florida Region are addressed by many agencies. Within the Southwest Florida Region, there are four Metropolitan Planning Organizations

(MPOs), which recently attempted to address the specific issue of needs and financially feasibility of the transportation networks through adoption of the Long Range Plans for the year 2020. As part of these plans, each MPO determined the roadway and other modal networks required to handle the future demands of the traveling public. These needs were then trimmed to account for the projected available revenues for each jurisdiction and presented in the Financially Feasible Plan (FFP).

The costs associated with the future roadway needs far outweigh the available funding. This is illustrated in the following table, which shows the overall shortfall anticipated to be approximately \$2.4 billion.

TABLE 99 FINANCIALLY FEASIBLE COSTS VERSUS NEEDS COSTS							
County	Available Revenues	Needs Plan Cost	Shortfall				
Charlotte	\$214.7 million	\$400.0 million	\$185.3 million				
Collier	\$691.0 million*	\$1,466.0 million	\$775.0 million				
Lee	\$908.7	\$1,358.9 million	\$450.2 million				
Sarasota	\$564.0 million*	\$1,514.0 million	\$950.0 million				
Total	\$2,378.4 million	\$4,738.9 million	\$2,360.5 million				

* Plans represent a 2025 time horizon.

Source: 2020/25 Transportation Plans for the four Metropolitan Planning Organizations, 2001.

The situation for rural counties is little better. As provided through the 2020 Florida Transportation Plan, Glades and Hendry Counties have a need for approximately \$86 million on the Florida Intrastate Highway System (FIHS) System. In Glades County and Hendry County, the four-lane improvement for S.R. 29 from S.R. 80 in Hendry County to U.S. 27 is not included in the 2025 Cost Feasible Plan. S.R. 80 in Lee and Hendry County have recently benefited by programmed construction projects in the FDOT Five-Year Work Program. S.R. 80 is four-lanes or improvement projects are included in the Work Program for the segments in Lee County to LaBelle in Hendry County. Future improvements for S.R. 80, from east of LaBelle to U.S. 27, are included in the 2025 Cost Feasible Plan. \$70.6 million is identified for right-of-way and construction. Combined with the total in the table above, the Region-wide need is \$4,754.3 million with only \$2,449 million in revenue. The total Region-wide shortfall is approximately \$2.4 billion.

This shortfall has significant impacts on several issues within the Region, especially economic development and hurricane evacuation. In order for local government and the State to better meet the projected needs, each local jurisdiction and other transportation agencies will be evaluating opportunities for increasing the revenues available for implementation and ways in which travel demand might be reduced or occupancy rates increased. Innovative approaches should be pursued including toll financing, congestion pricing, transportation demand management, changes in land development policy and others.

A continued concern of the Council is the issue of financial equity between FDOT Districts. A financial analysis performed in 1995 showed that District 1 was going to have its funding for transportation projects reduced by \$300 million over its "equity" positions, with the gap occurring in Interstate Highway funding, and in the application of low "floors" (guaranteed funding) and equity "caps" (maximum funding). The gap was forecasted to occur from the year 2000 to the year 2020.

There is still a gap between the "equity" position and forecasted funding to the year 2020. The \$300 million gap is rationalized as legitimate due, in part, to discretionary spending and to transportation modes in which the Region does not have a strong presence, such as transit, compared to the other receiving FDOT Districts. However, it should be noted that transportation investment is the state's biggest contribution to economic development capital investment. This area's donor status (signified by the gap) only enhances other parts of the state's competitiveness (Recipient Districts are Tampa Bay and Metro Dade).

Planning and Coordination

Florida's transportation and land use planning process has many pieces. At the state level, the Department of Transportation adopted the Florida Transportation Plan. On a regional basis, each of the eleven regional planning councils (RPCs), including the Southwest Florida Regional Planning Council, has adopted a Strategic Regional Policy Pan (SRPP). Similarly, each of the 25 metropolitan planning organizations (MPOs), including four in Southwest Florida, has adopted a long range transportation plan. At the local level, local governments have each adopted a comprehensive plan. Each plan is updated periodically, although the update schedules vary widely. With transportation funding decisions made largely at the state and MPO levels, and with land development and infrastructure decisions made almost exclusively at the local government level, coordination is critical to effective transportation and land use planning.

For urban Florida, each MPO is required to develop a financially feasible long range (at least 20 years) transportation plan. MPOs are also required to adopt transportation improvement programs (TIPs) that prioritize and schedule transportation projects over a five-year period. Once adopted, the TIP establishes the basis for expenditure of federal and state transportation funds.

Non-urban or Rural Southwest Florida

While, there is no universally accepted definition of "rural", the small towns and sparsely populated areas outside metropolitan areas or incorporated cities, are commonly recognized as rural. About 70% of Southwest Florida's land and associated natural resources and environmental assets are in rural areas. Successful rural communities are essential to achieving balanced economic and environmental sustainability. Rural Florida is home to the vast majority of our natural resources such as farmland, citrus groves, timber, and minerals. Florida's environmental assets are predominantly found in rural areas, often in federal and state preserves, forests and parks.

The issues and challenges that face our rural areas often differ from those we face in metropolitan areas. Long distances between residences, places of work, medical services, retail services and other key destinations influence mobility in rural areas. The ability of rural areas to attract jobs depends in part on access to an adequate transportation system. Well-intentioned statewide programs and regulations sometimes stall rural development initiatives, or are too complex and expensive, because they were primarily designed to assist urban Florida. More awareness of rural issues and flexibility in addressing them will help foster successful rural communities.

Each non-metropolitan area has an FDOT liaison that meets with county commissioners and other county officials throughout the year to address transportation project priorities, which were developed with community involvement. FDOT districts establish individual consultation

practices; some include participating in county-sponsored planning exercises or sitting on local technical advisory committees.

The Regional Planning Council, Florida Department of Transportation (FDOT) and Department of Community Assistance (DCA) district office review local government comprehensive plans to ensure that their transportation planning provisions are consistent with the regional and state transportation plans to the maximum extent feasible. FDOT is also a key player in the consultation process of developing a statewide strategy for increasing economic opportunities in Florida's rural communities and incorporating those strategies into the transportation planning processes All such efforts involve coordinating and communicating with non-metropolitan local government officials. FDOT funds transportation projects in rural areas from state and federal revenue sources. These state and federal funds may be used to finance appropriate transportation planning, construction, maintenance, and operation activities in rural areas. Most funding is allocated to the FDOT districts for capacity improvements and system preservation projects. Larger projects are prioritized regionally and then statewide. FDOT conducts an annual review of funds to assure that each county receives at least 80 percent of its fair share over a ten-year time frame.

FDOT Five-Year Work Program

While counties and cities in the region have an active role in constructing and maintaining the regional roadway network, the Florida Department of Transportation (FDOT) is the main responsible entity. The FDOT Five-Year Work Program is the five-year listing of all transportation projects planned for each fiscal year by the FDOT, as adjusted for the legislatively approved budget for the first year of the program. Projects listed in the first three years of the work program have definite commitments for construction, and can be viewed as committed for the purposes of concurrency and DRI review.

Roadway priorities are established by the Metropolitan Planning Organizations in the urbanized areas. For improvements in the non-urbanized areas of the region, the FDOT works with each of the County Commissions to establish necessary roadway improvements. Florida Law mandates that each County Commission establish the road improvement priorities for its county. In the FDOT District One Tentative Five-Year Work Program, for FY 2001/02 through FY 2005/06, the FDOT has appropriated \$2,277.2 million for product, product support, operation & maintenance, and fixed capital expenses. A total of \$1,558.3 million, or 68 % of the total expenditure is planned to be spent on product incorporated into the Five-Year Work Program, including transit and airport improvements. The breakdown of funding appropriated for transportation improvements in the tentative FDOT Five-Year Work Program for FY 2001/02 through FY 2005/06 in each of our seven counties is as follows:

TABLE 100 TOTAL FIVE-YEAR DRAFT TENTATIVE WORK PLAN								
		(in mil	lions) Operation &	Product				
County	Product	Fixed Capital	Maintenance	Support	TOTAL			
Charlotte	\$43.8	\$0.0	\$11.2	\$11.3	\$66.3			
Collier	\$90.8	\$0.0	\$6.7	\$26.6	\$124.2			
Glades	\$19.5	\$0.0	\$6.0	\$2.6	\$28.1			
Hendry	\$17.2	\$0.8	\$6.8	\$4.6	\$29.5			
Lee	\$275.7	\$0.0	\$19.8	\$49.3	\$344.9			
Sarasota	\$117.9	\$5.7	\$21.7	\$34.4	\$179.7			
District One	\$1,558.3	\$11.4	\$265.7	\$441.8	\$2,277.2			

Source: FDOT Program and Resource Plan as of November 6, 2000.





MAP 23B - CHARLOTTE COUNTY ROADS



Charlotte County 2020 Finacially Feasible Lane Network

MAP 24A- COLLIER ROADS



MAP 24B- COLLIER ROADS



MAP 25A - GLADES ROADS



Glades County Exsisting and Committed Lane Network

MAP 25B - GLADES ROADS



MAP 26A - HENDRY ROADS



MAP 26B - HENDRY ROADS



MAP 27A - LEE ROADS



MAP 27B - LEE ROADS



MAP 28A - SARASOTA ROADS



Sarasota County Exsisting and Committed Lane Network

MAP 28A - SARASOTA ROADS



MAP 29 - BIKE PEDESTRIAN FACILITIES



BICYCLE/PEDESTRIAN FACILITIES SOUTHWEST FLORIDA REGION

PRIMARY SUPPORT SERVICES

Sewage Treatment

Wastewater treatment systems in Southwest Florida consist primarily of three major types: centralized collection and treatment systems, package plants, and septic tanks. The service areas of collection systems are restricted and the level of treatment varies. The package plants usually provide a secondary level of treatment, although disposal methods vary. The most popular disposal methods include retention ponds, drainfields, percolation ponds, and spray irrigation systems.

The plants considered of regional significance are those with the capacity to treat over 1 million gallons per day, or (in rare circumstance) serve the citizens of more than one county. There are thirty such plants in Southwest Florida, depicted on map 30.

The large concentration of package plants in the coastal area often leads to the degradation of surface and groundwater quality. In addition, septic tanks are often too concentrated in location or are used in the wrong type of soils to be fully effective. Stricter state regulations are being enforced, however, to alleviate pollution and locational problems generated by these septic tank systems. Further, the percentage of homes on septic tanks and package systems are decreasing due to improved central sewage. Those areas where septic tanks may be considered suitable without major alteration of the soils are depicted on Map 31.

Water Treatment

Potable water supplies throughout the Region are provided by public, private and franchised water treatment facilities. The majority of water treatment plants are small, privately-operated plants that serve small complexes such as mobile home parks, apartments, and similar facilities. The larger plants are municipally operated and franchised systems.

Plants of regional significance are those of over 1 million gallons of water a day capacity, or serve the citizens of more than one county. There are 31 such plants in or serving Southwest Florida. These facilities are depicted on map 30.

MAP 30 - REGIONAL SEWER, SOLID WASTE



REGIONAL SEWER, WATER AND SOLID WASTE FACILITIES SOUTHWEST FLORIDA REGION

MAP 31 - SOILS FOR SEPTIC TANKS

In addition to water treatment plants, there are thousands of individual wells in the Region that provide water to residential, commercial and industrial users. These are especially prevalent in rural areas, although they are also found in some suburban developments.

The technologies utilized in producing potable water involve treating groundwater or surface water by conventional methods or by new treatment processes such as reverse osmosis.

Most of the Region's freshwater resources suitable for potable uses have been tapped, either by public water suppliers or major private water users, such as agricultural concerns. Historic hydrological trends within the Region indicate that these freshwater sources have been declining either in quantity or in quality. The decline in quality is the result of many factors, including the effects of increased salinity of the shallow aquifer systems due to excessive water withdrawal and the effects of urban and agricultural runoff on surface water. Many private wells have become unusable as potable water sources. Wells, bottled water, or the development or expansion of water distribution systems will be required as a solution to the problem.

Solid Waste

All solid waste disposal facilities within Southwest Florida currently consist of sanitary landfills, transfer stations, and yard trash compost sites. These facilities are operated by public or franchised agencies and regulated by the Florida Department of Environmental Regulation.

Although sanitary landfills are generally considered the best solid waste disposal method in terms of cost and health factors, they are not without problems. The higher groundwater table and the possible contamination of underground water supplies have made proper disposal of solid waste difficult.

There are seven landfills operating within the Region that are permitted by the Florida Department of Environmental Regulation. Collier County and Sarasota County each currently own and operate two landfills. Lee County has an incinerator which is owned by the county but is managed by a private company. Charlotte and Hendry Counties each own and operate a single facility, with Hendry county's facility serving Lee county's incinerator under a bi-county agreement. Glades County leases its present site but operates the facility. The locations of these facilities, all of which are regional in scope, are depicted on Map 30.

Mandatory solid waste pick-up is in effect in all or part of all counties in the Region.

Electrical Power

Currently within the Southwest Florida Region, there are five companies that supply electric service to the area. These companies are:

Glades Electric Cooperative Lee County Electric Cooperative Florida Power and Light Company Peace River Electric Clewiston Electric Company

Several of the cooperatives purchase power from the Florida Power and Light Company. Glades Electric Cooperative provides power to the majority of Glades and Hendry Counties. The Peace River Electric Cooperative provides power to a small section of rural Sarasota County. In addition, the Clewiston Electric Company provides electricity to its incorporated area in Hendry County. Lee County Electric Cooperative purchases its power from the Seminole Electric Cooperative, a generation and transmission utility located in Palatka, Florida.

Power is provided through an interconnected network of generating plants located throughout the state. The one electrical generating facility in the Region is operated by Florida Power and Light Company near Fort Myers, depicted on Map IV-14. It is oil-fired and has a total capacity of 1,176 megawatts. (By 2002, it is to convert to a natural gas powered plant, which will be the terminus of the gas pipeline using the SR 31 corridor.)

Drainage and Stormwater

There are twelve major drainage canals recognized by the water management districts. These include the Harney Pond Canal, Indian Prairie Canal, Caloosahatchee River, Faka Union Canal, Barron River, and Tamiami Canal.

There are also extensive local systems that have altered what were once vast wetland systems to accommodate man's needs both for urban development and agriculture. These include the canal systems for Golden Gate Estates, Cape Coral, Port Charlotte, Rotonda, and North Port. There are also major canals for suburban areas, such as Ten Mile Canal and Gator Slough in Lee County and Phillippi Creek in Sarasota County. These canal systems are depicted on Map 32.



MAP 32 – DRAINAGE AND STORMWATER

MAJOR CANALS SOUTHWEST FLORIDA REGION

SECONDARY SUPPORT SERVICES

Health Care Facilities

Health care is provided by hospitals, nursing homes, specialty hospitals, health departments, and various clinics (mental health, drug abuse, alcoholism, and migrant health). In Southwest Florida (1998), there are sixteen acute care facilities with a total of 3,606 beds. The same facilities also contain an additional 578 beds dedicated to special purposes, bringing the total to 4,169. There were also three specialty hospitals with an additional 275 beds. Additionally, there are sixty-two nursing homes having a total of 6,701 beds. There are numerous other health care facilities of specialized nature in the region, most of who are identified in Regional Support Service lists.

Schools

Public education is provided through six school districts (one for each county), two community college systems and the State's university system. The regional facilities are the post secondary school sites serving more than one county. It should be noted that the county based school districts generally have interlocal agreements allowing students in one county to attend facilities in another county if those are the most reasonably convenient facilities.

Four public schools at six campuses in the Region meet the needs for higher education. Two of these are colleges and two are community colleges. The community colleges are Edison Community College and Manatee Community College.

Edison Community College in Fort Myers (with branch campuses in Charlotte and Collier Counties, and extension programs in Hendry and Glades Counties) provides education to approximately 7,400 students. Manatee Community College (located in Manatee County) maintains a branch facility in Venice.

The colleges are a branch campus of the University of Florida, and Florida Gulf Coast University. The University of South Florida has a campus in Sarasota, sharing the site with New College, a fully accredited liberal arts college. The new Florida Gulf Coast University (established in 1997) is located in Lee County, south and west of the International Airport, and is Florida's newest University. It should be noted that the University of Florida offers courses at the Institute for Food and Agricultural Studies (IFAS) in Immokalee in Collier County.

There are also nine separate private colleges offering components of post secondary education.

Police Protection

Police protection in Southwest Florida is provided by both county and municipal agencies. In 1999, there were sixteen separate local police forces, as well as uniformed armed police at the Southwest Florida International Airport. The Florida Highway Patrol and the Florida Marine Patrol also provide police protection for certain areas.

Fire Protection

Fire protection in Southwest Florida is provided by a combination of municipal fire departments and special fire control districts. The State of Florida operates the Division of Forestry that provides protection to rural areas in the counties, while local governments service the remaining areas through fifty-four separate fire departments.

Problems associated with fire protection include funding of necessary expansions, administrative coordination, and the need for adequate distribution of hydrants to provide ample water pressure and a necessary water supply for each county. Although certain agencies in the Region, particularly municipal departments, are relatively well prepared for growth, other fire protection agencies are not ready to service increasing demands. Most area fire departments have mutual aid agreements to assist each other in crisis situations. To the degree that their agreements involve two or more jurisdictions, these may be considered regional facilities. Further, the nature of many hazards requires regional coordination plans for these diverse facilities.

Parks and Recreation Areas

In Southwest Florida, recreation areas are administered by the federal government, state government, county government, and various municipal governments, as well as by private agencies and private commercial interests.

Types and sizes of parks vary widely in the Region. Parks and recreation areas have been classified into two categories: user-oriented and resource-based. User-oriented recreation areas are defined as those containing facilities which can be provided almost anywhere for the convenience of the user. Among such facilities are ballfields, golf courses, and playgrounds. Resource-based outdoor recreation areas are dependent upon some particular element or combination of elements in the natural environment. These areas include beaches or hunting areas. Sizes of parks in Southwest Florida range from less than one acre to several thousand acres.

Within the urban setting, most of the regionally significant parks and recreation areas are owned by the State of Florida or a local government. These areas include the Oscar Scherer State Recreation Area, Wiggins Pass State Recreation Area, and Lakes Park. The regionally significant parks and recreation areas located in the urban portions of the Region are identified in Map 33 and Table IV-101.


MAP 33 - URBAN PARKS AND RECREATION

REGIONAL SIGNIFICANT URBAN PARKS AND RECREATION AREAS SOUTHWEST FLORIDA REGION

TABLE 101 REGIONALLY SIGNIFICANT URBAN PA	I RK AND RECREATION AI	REAS
State-owned	County	Land Acreage
1. Caloosahatchee River State Recreation Area	Lee	718
2. Koreshan State Historic Site	Lee	156
3. Sanibel Island State Botanical Site	Lee	186
4. Lover's Key State Recreation Area/ Carl Johnson Park		
(local)	Lee	712
5. Gasparilla Island State Recreation Area	Lee	113
6. Oscar Scherer State Recreation Area	Sarasota	467
7. Port Charlotte Beach State	Charlotte	
8. Recreation Area/Don Pedro Island	Charlotte	378
9. Delnor-Wiggins Pass State Recreation Area	Collier	166
10. Barefoot Beach State Preserve	Collier	157
11. Ringling Museum/C'dzan	Sarasota	40*
	Subtotal	3,248
Locally owned	County	Land Acreage
1. Nature Center	Lee	105
2. Lakes Park	Lee	276
3. Caspersen Beach	Sarasota	327
4. Four Mile Cove Eco-Park	Lee	365
5. Wellfield Park	Sarasota	161
6. Ed Smith	Sarasota (City)	52
7. Bowman Beach Regional Recreation Area	Lee	196
8. Twin Lakes	Sarasota	123
9. Knight Trail	Sarasota	267
10. Lido Beach/N. Lido	Sarasota	12
11. Brohard Beach	Sarasota	
12. Clam Pass	Collier	35
13. Lake Kennedy	Cape Coral	42
14. Lee Civic Center	Lee	96
	Subtotal	2,141
Privately owned	County	Land Acreage
1. Sanibel-Captiva Conservation Foundation Preservation		
Area	Lee	651
2. Conservancy Park	Collier	114
3. Warm Mineral Springs	Sarasota	29
4. Cypress Knee Museum	Glades	40
5. Charlotte Harbor Environmental Center	Charlotte	800
6. Conservancy of Southwest Florida		40
	Subtotal	1634
TOTAL OF ALL AREAS		7,027

<u>TOTAL OF ALL AREAS</u> Source: Florida Department of Natural Resources, "Florida Recreation and Parks Facility Inventory" (unpublished data), April 15, 1986.

Beaches and Beach Access

Although the existing public beaches and beach access sites in Southwest Florida appear adequate to serve the resident population, the increase in population during the peak tourist season overloads many facilities. Beach facilities can also become overcrowded at other times of the year, especially during holidays. There are 194 public beach parks and beach access points in the Region.

From one county to the next, the number of beaches and beach access points varies widely. Although some counties seem to have an abundance of facilities, access to these areas is often restricted or difficult. Also, several beach areas have remained undeveloped for recreational use.

Marinas and Boat Ramps

There are a large number of marinas and boat ramps in Southwest Florida due to the coastal orientation of the Region and the popularity of water-based recreational activities. There are approximately 250 marinas and boat ramps in the Region with almost 8,000 slips (both wet and dry storage). This is exclusive of approximately eighty private docking associations with ten slips or more.

> MAJOR ACTIVITY CENTERS

Land uses, transportation facilities, and support services can combine to create major activity centers with regional significance. These centers (depicted on Map 34) are characterized as follows:

Major economic centers

These are areas where the concentration of business activity serves as a draw for employment, retail, or business trade for an area greater than the county in which it is located. Such a center may be a solitary site of great magnitude, such as a regional mall, or it may be a concentration of relatively small activities that act to dominate a great part of the region's economic activity, such as a central business district. In Southwest Florida, these major economic centers include the three commercial airports (Sarasota-Bradenton, Southwest Florida Airport, , and Naples Airport), the central business districts in the cities of Sarasota and Fort Myers, and the several regional malls. The interstate interchanges merit special consideration as being points by which most commerce-such as truck traffic, motor vehicular tourists-enter the region. (U.S. 27 is effectively the only other route that serves that function, and is vital for the eastern part of the region.) Major cultural, health, and educational centers:

These are facilities that provide programs or services that benefit an area greater than the county in which they are found or are designated as unique facilities of significance to the Region. Facilities that are of multi-county significance include the major hospitals, educational institutions (the main campus of Edison Community College, the University of South Florida campuses in Lee and Sarasota Counties, and New College), and the Ringling Museum Complex in Sarasota. Unique facilities include the Edison Home, the Ford Home, the restored Lee County Courthouse, and that part of McGregor Boulevard lined with royal palms (all in Lee County), and Mote Marine Laboratories in Sarasota.

Major recreational facilities

These are facilities that contribute both to the marketing of the Region by the tourist industry and the enjoyment of area residents. They include the major beaches of the Region, the state park system, certain local parks such as Lakes Park in Lee County, and the spring training grounds of major league baseball teams.

MAP 34 - REGIONAL ACTIVITY CENTERS



REGIONAL ACTIVITY CENTERS SOUTHWEST FLORIDA REGION

MAP 34 - LEGEND REGIONAL ACTIVITY CENTERS

Central Business Districts, Downtowns, and Regional Malls

- 6. City of Sarasota/Central Business District
- 10. Sarasota Square Mall
- 20. Fort Myers/Central Business District
- 24. Edison Mall
- 30. Coastland Mall
- 31. Naples/Central Business District
- 34. LaBelle, Downtown
- 35. Clewiston, Downtown
- 54. Venice Central Business District
- 55. Punta Gorda Central Business District
- 56. Moore Haven, Downtown
- 57. North Port, Downtown
- 62. Murdock Center Regional Mall
- 72. Sarasota Downtown

Community Colleges, Universities, and Vocational Education Facilities

- 3. University of South Florida/New College
- 49. Edison Community College
- 68. Florida Gulf Coast University

Correctional Facilities

- 59. Hendry Correctional Facility
- 60. Charlotte Correctional Facility
- 75. Glades Correctional Facility

Enterprise Zones and Free Trade Zones

74. Dunbar enterprise zone (Fort Myers in Lee County)

Major Medical Facilities

- 9. Sarasota Memorial Hospital
- 11. Venice Hospital
- 13. Lemon Bay Hospital
- 15. Port Charlotte Hospital
- 16. Punta Gorda Hospital
- 18. Cape Coral Hospital
- 22. Lee Memorial Hospital (Downtown)
- 23. Southwest Florida Regional Medical Center

MAP 34 – LEGEND (Cont'd.) REGIONAL ACTIVITY CENTERS

- 32. Naples Hospital
- 36. Clewiston Hospital
- 58. Health Park Hospital

Sports, Entertainment, and Cultural Facilities

- 2. Ringling Museum Complex
- 4. Ed Smith Sports Stadium
- 5. Van Wezel Auditorium
- 7. Selby Gardens
- 8. White Sox Spring Training Ground
- 14. Rangers Spring Training Ground
- 19. Edison Home
- 21. McGregor Boulevard Scenic Drive
- 25. Twins Spring Training Ground
- 28. Lakes Park
- 29. Koreshan Museum
- 50. Lee County Civic Center
- 51. Barbara B. Mann Performing Arts Center
- 52. Naples-Fort Myers Dog Track
- 53. Sarasota Dog Track
- 63. Harborside Convention Center
- 64. Philharmonic Center for the Arts
- 65. Mote Marine Laboratories
- 66. Red Sox Training Ballpark
- 69. Florida Sports Complex (Mudbogging)
- 70. Everglades Wonder Garden
- 71. Minnesota Twins Training Ballpark
- 73. Janes Scenic Drive
- 76. TECO (Everblades) Ice Hockey Arena Ortona Indian Mound

Tourist oriented Areas and Beaches

- 37. Tourist-oriented Beaches/Sarasota
- 38. Tourist-oriented Siesta Key
- 39. Tourist-oriented Venice
- 40. Tourist-oriented Englewood/Charlotte
- 41. Tourist-oriented Captiva
- 42. Tourist-oriented Sanibel
- 43. Tourist-oriented Fort Myers Beach
- 44. Tourist-oriented Bonita Beach
- 45. Tourist-oriented Wiggins Pass/Vanderbilt Beach
- 46. Tourist-oriented Naples

MAP 34 – LEGEND (Cont'd.) REGIONAL ACTIVITY CENTERS

- 47. Tourist-oriented Lake Recreation
- 48. Tourist-oriented Lake Recreation
- 67. Tourist-oriented Marco Island

Transportation Facilities

- 1. Sarasota Bradenton Airport
- 12. Venice Municipal Airport
- 17. Charlotte County Airport
- 26. Page Field
- 27. Southwest Florida Regional Airport
- 33. Naples Airport

> RURAL USES OF THE LAND

Agriculture

Agriculture plays a key role in the economy of Southwest Florida. The primary agricultural uses include cropland, timberland, grazing or improved pasture, orchards and groves, dairies and feed lots, and other (including rangeland).

In 1997, approximately 43% of the Region was comprised of farmland acreage. The figures in Table 102 vary from other reports but this disparity is attributed to the use of different definitions. The general distribution of cropland is depicted on Map 35.

Citrus is increasingly important, both to the Region and the State (Map 36 and Table 103). Southwest Florida citrus acreage grew by 198% from 1982 to 1992. During that same period, the Region's share of statewide citrus acreage increased from 7.0% to 19.9%, partially due to declines elsewhere in the State.

TABLE 102 1997 FARMLAND					
County	Total	Cropland	Pasture Land	Wooded* Land	
Charlotte	290,340	44,577	181,571	95,813	
Collier	277,279	69,212	139,677	52,707	
Glades	380,377	41,361	314,047	5,984	
Hendry	604,677	204,996	333,231	104,758	
Lee	129,001	34,155	89,842	12,738	
Sarasota	128,655	18,781	117,251	21,704	
Total	1.819.329	413.082	1.175.619	293.704	

Source: U.S. Census of Agriculture, 1997, multiple tables.

MAP 35 - CROP LAND

MAP 36 - GROVES

TABLE 103 CITRUS ACREAGE					
County	1982	1987	1992	1997	%Change 1982-97
Charlotte	6,120	8,758	15408	23487	283
Collier	7,931	10,049	30343	34861	339
Glades	4,026	6,066	8690	10596	163
Hendry	32,944	40313	110272	114600	247
Lee	6,711	7308	8298	13786	105
Sarasota	1,570	1565	3248	2376	51
Region	59,302	74059	176259	199706	236
State	847,856	623,568	886,273	959,364	13
Region's part of State(%)	7.0	11.9	19.9	20.8	

Source: U.S. Census' of Agriculture, 1982-97

> CONSERVATION

Open Space

For the purpose of this inventory, "open space" applies to land set aside for preservation or conservation purposes. Uses within such areas include historic preservation, outdoor recreation, hunting, fishing, and nature study. Improvements are generally few and vary according to a particular tract's designation, either for preservation (preserve, wilderness area, refuge, or sanctuary) or for limited use (such as a wildlife management area). Both state and federal governments have been the two most active agencies in setting aside open space lands. In addition to the recreation areas found in the urban portions of the Region, there are forty major private, local, state or federal open space areas. These total 833,092 acres, not including water bodies (Table 104). A significant amount of this area was created through the federal acquisition of 475,000 acres in eastern Collier County, which constitute the Big Cypress National Water Preserve. This Preserve is contained within the Region's one Area of Critical State Concern (ACSC). This ACSC was established to provide a regulatory framework for the preservation and controlled use of the important environmental systems within its boundaries.

The Region is also in part subject to two Resource Planning and Management Committee programs. The first, the Charlotte Harbor program, involves the entirety of Sarasota, Charlotte, and Lee Counties. The second, the Kissimmee River, is concerned with the Kissimmee River Basin, including twenty square miles of Glades County.

Expansion plans include the final acquisition of the northeast corner of Big Cypress, through land and swamps involving the Department of Interior and private owners and several Save Our Rules/CARL proposals. Further, there is currently a joint initiative by the South Florida Water Management District, the County Commissions of Lee County and Collier County, and private parties to preserve the Flint Pen/Bird Rookery/Corkscrew Swamp system in Lee and Collier Counties. The ultimate size is as yet unknown, but should approach one hundred square miles.

Historic and Archaeological Sites

"Historic and archaeological sites" is the category under preservation and conservation land uses that reflects man's activities in the past. According to the Division of Archives, Florida Department of State, there are 8,219 historic and archaeological sites in Southwest Florida recorded on the Florida Master Site File (1994). These sites are distributed among Charlotte (429 sites), Collier (689 sites), Glades (129 sites), Hendry (96 sites), Lee (1,723 sites), and Sarasota (3,153 sites). Only parts of the Region have been extensively surveyed; consequently, there may be considerably more sites to be discovered.

At present, few of Southwest Florida's historical or archaeological sites are listed on the National Register of Historic Places. Collier County has twelve sites listed, including the following: Halfway Creek Site, Hinson Mounds, C. J. Ostl Site, Palm Cottage, Platt Island, Seaboard Coast Line Railroad Depot, Ted Smallwoods Store, Sugar Pot Site, and the Turner River Site.

Lee County also has twelve sites including: Boca Grande Lighthouse, Charlotte Harbor and Northern Railway Depot, Demere Key, Josslyn Island Site, Koreshan Unity Settlement Historic District, Mound Key, Pineland Site, and Sanibel Lighthouse and Keeper Quarters.

Sarasota County has the most sites listed, twenty-four, including Atlantic Coast Line Passenger Depot, Bacon and Tomlin, Inc., Burns Court Historic District, Caples-Ringlings' Estate, F. A. Decanizares House, Demarcay Hotel, Edward Theatre, El Vermona Apartments-Broadway Apartments, Frances-Carlton Apartments, Dr. Joseph Hilton House, Hotel Venice, S. H. Kress Building, Little Salt Springs, Osprey Archaeological and Historic Site, Capt. W. F. Purdy House, Roth Cigar Factory, Sarasota County Courthouse, Sarasota Herald Building, Sarasota High School, Sarasota Times Building, U. S. Post Office-Federal Building, Warm Mineral Springs, H. B. Williams House, and Dr. C. B. Wilson House.

Charlotte County has only one site and Glades has none. In Hendry County, the Hendry County Courthouse is listed on the National Register.

> OPEN AND OTHER LANDS

Open and other lands constitute about two percent of the Region's land area. As the designation is applied here, it refers principally to "barren lands" which can vary from empty fields within urban areas to forested areas which are not classified as "agriculture" to lands virtually indistinguishable in character from open space areas.

In addition, the status of such land is subject to abrupt changes. For example, the successful application for certain types of tax exemptions can change the status of these lands to open space or agricultural, without any physical changes having been made to the land.

Barren or vacant lands are transitory and do not in themselves constitute a use. As a result, they cannot be accurately depicted on a map. They generally have only a minor role in the development of the Region. One category, existing potable water well-fields, however, needs further examination because of its uniqueness. (See discussion in Part I of the Description of the Region.)

TABLE 104 OPEN SPACE AREAS				
Federal	County	Land Acreage		
1. Everglades National Park	Collier	39262		
2. Big Cypress National Preserve/Panther Sanctuary	Collier	475,060*		
3. Rookery Bay National Estuarine Sanctuary (also private)	Collier	11315		
4. Caloosahatchee National Wildlife Refuge/ Franklin Locks	Lee	103		
5. Ding Darling National Wildlife Refuge	Lee	5014		
6. Pine Island National Wildlife Refuge	Lee	404		
7. Matlacha Pass National Wildlife Refuge	Lee	231		
8. Island Bay National Wildlife Refuge	Charlotte	20		
9. Sarasota Bay National Estuarine Program	Sarasota	No Acres		
(also local participation)	Manatee			
10. Florida Panther NWR	Collier	24300		
	Subtotal	555,709		
State	County	Land Acreage		
11. Cape Romano State Aquatic Preserve	Collier	27,642		
12. Collier-Seminole State Park	Collier	6,423		
13. Fahkahatchee Strand State Preserve	Collier	58,290		
14. Estero Bay State Aquatic Preserve	Lee			
15. Matlacha Pass State Aquatic Preserve	Lee			
16. Pine Island Sound State Aquatic Preserve	Lee			
17. Mound Key State Archaeological Site	Lee	149		
18. Little Pine Island	Lee	4,259		
19. North Captiva Island	Lee	25		
20. Cavo Costa State Park	Lee	1,700		
21. Gasparilla Sound State Aquatic Preserve	Charlotte			
22. Cape Haze Aquatic Preserve	Charlotte	11,289		
23. Webb Wildlife Management Area	Charlotte	65,343		
24. Charlotte Harbor State Preserve	Charlotte/Lee	28,357		
	Subtotal	555,709		
Landowner Name	County	Land Acreage		
25. Lemon Bay Aquatic Preserve	Charlotte/ Sarasota			
26. Myakka River State Park	Sarasota	18,929		
27. Charlotte Harbor State Aquatic Preserve	Lee/Charlotte			
28. Deltona Sanctuary	Collier	14,000		
29. Corkscrew Regional Ecosystem Watershed	Lee/Collier	14,000*		
	Subtotal	250,406		
Locally-owned	County	Land Acreage		
30. Carlton Reserve/Ringling MacArthur	Sarasota	24,000		
	Subtotal	24,000		
Privately-owned	County	Land Acreage		
31. Audubon Sanctuary Corkscrew Swamp	Collier	11.000		
32. Lykes Fisheating Creek Private Preserve/Campground	Glades	180		
33. Little Salt Springs	Sarasota	100		
	Subtotal	11,280		
TOTAL OF ALL AREAS		841,395		

--- Water areas are not calculated as part of the subtotals or totals.

- Footnote: As this plan was being developed, the Florida Division of Forestry announced the pending establishment of a new State Forest in the Belle Meade area of Collier County. Upon its establishment, this table and accompanying map will be updated.
- Source: "Florida Recreation and Parks Facility inventory" (unpublished data), Florida Department of Natural Resources. Local comprehensive plans and contact with owners.

GAME AND FISH AREAS

It is difficult to map areas where hunting and fresh water fishing take place. To a certain extent, hunting can take place on lands not devoted to urban or intense agricultural activity. This in effect, means all non-preserve lands, not previously depicted as "urban" or "agriculture", on preceding map series. Fishing, similarly, can take place on any water body with quality that sustains recreational fish populations. These activities are popular, as demonstrated in Table 105, Fish and Wildlife Licenses.

Hunting is a more extensive land use, in that various birds (turkeys, for an example) small and large mammals need sufficient lands to maintain breeding populations. The Florida Fish and Wildlife Conservation Commission information serves to indicate where this activity takes place. Habitat for game species commonly overlaps habitat for the "listed" species indicated in the preceding Natural Resource section, but is even more extensive. Much of the hunting, as well as fishing, takes place on privately owned and managed lands.

TABLE 105 FISH AND WILDLIFE LICENSES					
	-	<u> 1999 Esti</u>	mate		
	Fishing Hunting License		censes		
County	Saltwater	Fresh	General	Specialty	NOI
Charlotte	24,406	3,407	539	611	354
Collier	29,929	5,313	884	968	518
Glades	150	6,520	98	396	142
Hendry	1,064	7,435	629	1,047	401
Lee	35.647	5,752	1,421	1.806	781
Sarasota	23,583	3,810	748	1,030	405
Total	114,779	32.237	4.319	5.858	2.601

NOTES: NOI-Not Otherwise include represents the sportsman and combined, hunting and fishing licenses and permits. Specialty: trapping, muzzleloading hunting, archery hunting, and particular game licenses.

Estimate: calculated from 10 months of data.