Economic Analysis & Disaster Resiliency Study

ECONOMIC DEVELOPMENT ADMINISTRATION (EDA)

SECOND SUPPLEMENTAL APPROPRIATIONS DISASTER RELIEF OPPORTUNITY GRANT

Prepared By:
The Central Florida Regional Planning Council
for the Economic Development Administration

Central Florida Region

Economic Analysis and Disaster Resiliency Study

Prepared for:

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Second Supplemental Appropriations Disaster Relief Opportunity Grant

Prepared by:

Central Florida Regional Planning Council

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I. EXECUTIVE SUMMARY

Purpose of Study

The Economic Analysis and Disaster Resiliency Study, funded by the Economic Development Administration (EDA) of the U.S. Department of Commerce, was commissioned to document existing conditions within each of the five counties in the Central Florida Region and to review the implications of a catastrophic event with respect to regional economic impacts. The study findings will be utilized by the local governments in the region to improve decision making and preparation before, during, and after future catastrophic events. The study will assist in maintaining business continuity planning to ensure businesses avoid or recover more quickly from a disaster. If these areas can become more resilient and better prepared, less economic damage may be incurred and the recovery period may be shorter in the aftermath of future disasters.

Funding for this study was provided by the EDA as part of the Second Supplemental Appropriations Disaster Relief Opportunity Grant. A local match was provided by the Central Florida Regional Planning Council (CFRPC). The Second Supplemental Appropriations Disaster Relief Opportunity Grant was awarded to areas which sustained significant damage from Tropical Storm Fay in 2008. The storm left a path of destruction in three Central Florida counties: Hardee, Highlands, and Okeechobee. These jurisdictions were recognized as disaster relief eligible counties.

Central Florida Region

The Central Florida Region, as encompassed by the CFRPC, includes five counties and 25 municipalities. The five Central Florida counties are DeSoto, Hardee, Highlands, Okeechobee, and Polk. Polk County, the only urban county in the region and home to the City of Lakeland, is located in the northern part of the region and bridges the Orlando to the Tampa Bay area. Polk County is the largest county in the region with a population nearing 600,000. The rural counties of Hardee and DeSoto with populations of approximately 29,000 and 34,000 respectively, comprise the region's southwestern rim. Highlands County, an area that is transitioning from rural to urban, is located south of Polk County and east of Hardee and DeSoto Counties. Highlands County has a population of approximately 100,000. Okeechobee County, a rural county with a population of more than 40,000, is located in the southeast area of the region, on the northern banks of Lake Okeechobee.

In addition to Tropical Storm Fay in 2008, the Central Florida Region sustained significant damage from three hurricanes in less than three months during 2004.

Hurricanes Charley, Jeanne and Frances all traversed the Central Florida region. Combined, these three hurricanes caused approximately $31 billion in damages statewide.

Scope of Study

The study was completed in two phases. The first phase of the study developed an itemized inventory of current conditions, resources, and vulnerabilities for each county by Traffic Analysis Zones (TAZ). This inventory includes population and demographics with special emphasis on disabled or otherwise potentially-compromised residents, employment by industry, natural conditions and vulnerabilities, residential structures by decade built with special emphasis on wind vulnerability, critical infrastructure including health care facilities, bridges, and dams, repetitive loss structures, and staging areas for reconstruction. Although spatial location of critical bridges and dams was inventoried, it was beyond the scope of this study to consider the implications of failure of each and every structure individually.

The second phase of the study provided for an economic analysis of the effects of a catastrophic event on each of the five counties. The study details the positive economic impacts (cleanup activity, reconstruction and construction spending, potential influx of federal relief fund scenario) and the negative impacts (unemployment, loss of population, loss of personal income, and reduced regional domestic product) and associated ripple effects (loss of sales tax revenue). As part of the study's second phase, Category 1 through 5 hurricane impacts were simulated regionally and for each of the five counties. Although the Central Florida Region is prone to several types of disasters including tornados, wildfires, freshwater flooding and hurricanes, the hurricane event was selected to be modeled as it encapsulates the effects of all other such disasters, with the possible exception of wildfires.

The study does not project a specific hurricane path, but assumes a hypothetical event that strikes evenly across each of the five counties. Due to the uncertainty of destruction caused by a hurricane or similar catastrophic event, it is impossible to precisely predict all economic impacts. However, this report will be a useful tool for local governments to assess possible impacts of a disaster, and effectively plan for recovery. The study provides two recovery scenarios: one scenario of normal recovery based on research of recovery experiences under similar situations; and a second scenario of accelerated recovery rates based on $1 billion of direct federal relief funds to each of the five counties. Increased activity due to projected state and local construction and cleanup activities were also separated from regular recovery for analysis purposes.

Overview of Study Findings

For the Category 1 and 2 hurricane events, there are few long term ramifications for each county in the Region, and recovery is possible relatively quickly (within 1 to 2 years) through a combination of planning efforts and state and local recovery funds. A Category 3 hurricane poses a more significant threat to economic indicators, and typically results in a 3 to 5 year setback in local economic indicators. However, this study indicates that federal relief spending of $1 billion in the three years following a Category 3 hurricane almost completely mitigates the negative impacts.

In most scenarios, a Category 4 or 5 hurricane event would present long term devastation, with full recovery taking longer than 10 years. Even an infusion of $1 billion of federal relief spending is predicted to have little lasting impact. This is consistent with Florida's past experience with Hurricane Andrew which was a Category 5 event when it landed in Homestead, Florida on August 24, 1992. In addition, the Central Florida Region continues to recover from the effects of Hurricane Charley which struck the region in 2004 as a Category 4 storm. In fact, as modeled in this study, some counties would even take a significantly altered economic trajectory following the severe impact of a Category 5 hurricane.

Loss of residential structures and employment are the two most significant drivers of economic damage and recovery. An economic recovery can only occur when a community's population can return to home and work. Lack of housing and employment can lead to permanent relocation of an area's population, which would have long term negative impacts on recovery. Jobs created through rebuilding efforts provide a temporary improvement to the local economy, but they are not permanent. Identifying outside resources, funding, and planning for economic recovery through rebuilding, will allow a community to return to its pre-disaster status more quickly.

A sustained Category 5 hurricane event is extremely unlikely in Central Florida due to the slowing of hurricanes as they travel across land. However the region may suffer a combination of natural disasters consistent with the impacts of a Category 5 hurricane event, such as the multiple hurricanes that struck the region in 2004, or some other combination of concurrent disasters. Understanding the potential consequences of natural disasters is a significant step toward preparing for and mitigating those impacts in the future.

II. INTRODUCTION

A. Purpose of the Economic Analysis & Disaster Resiliency Study

In 2008, three of the counties within the area of the Central Florida Region sustained significant damage from Tropical Storm Fay. The Counties of DeSoto, Hardee, and Okeechobee were recognized as disaster relief eligible jurisdictions following the storm. The Economic Development Administration (EDA) of the U.S. Department of Commerce awarded the Central Florida Regional Planning Council (CFRPC) with a Second Supplemental Appropriations Disaster Relief Opportunity Grant in 2009. A local match for the grant was provided by the CFRPC.

The Economic Analysis and Disaster Resiliency Study is a study to document existing conditions within each of the five counties in the Central Florida Region and to review the implications of a catastrophic event with respect to regional economic impacts. The study findings will be used by local governments in the region to improve decision making to prepare before, during and after future catastrophic events. The study will assist in efforts to maintain business continuity planning to ensure businesses will avoid or recover faster from disaster.

B. About the Central Florida Regional Planning Council

The Central Florida Regional Planning Council (CFRPC) is one of 11 regional planning councils in Florida and is a planning and public policy agency which works with public and private leadership in the Central Florida Region to achieve a healthy and sustainable future. Established on July 1, 1974, the purpose of the Council is to advise and represent local governments on matters of comprehensive planning, state and federal grant programs, and preservation, conservation and use of substantial regional resources. The CFRPC's energies are directed toward regional planning, economic development, statewide initiatives, emergency management, regional transportation, and regional visioning.

The Council is comprised of local government elected officials and private citizen representatives from the region. There are two components of the Regional Planning Council:

- The Regional Planning Council's Governing Board, or Council: a body of representatives that governs the agency.

- The staff: the professionals who provide technical support for Council decision-making and services for local governments throughout the region.

Counties in the Central Florida Region

The Council provides a forum for the expression of common interests, varying needs and diverse opinions on the future of the Region, which is comprised of five inland counties that include Desoto, Hardee, Highlands, Okeechobee and Polk. The CFRPC is the only Regional Planning Council that does not include a coastal county member. However, because of its location within the southern peninsula of Florida, coastal concerns in the five neighboring Regions create unavoidable impacts for the Central Florida Region.

The Central Florida Region is the Economic Development District for the Central Florida Planning Region VII. The Economic Development District was formed in 1978 for the purpose of receiving federal designation for financial assistance through the Economic Development Administration (EDA) of the U.S. Department of Commerce. The EDA was established to generate jobs, help retain existing jobs, and stimulate industrial, technological and commercial growth in economically distressed areas of the United States. Four of the counties that comprise the CFRPC's Region are predominantly rural and economically distressed and are facing growth pressures. These counties, DeSoto, Hardee, Highlands and Okeechobee are designated by the State as Rural Areas of Critical Economic Concern. EDA assistance is available to rural and urban areas of the nation experiencing high unemployment, low income or other severe economic distress. The fifth county, Polk County is a geographically large county containing urban and rural areas with high unemployment and areas of rural poverty.

C. About the Region

As shown in **Map 1**, the Central Florida Region, as encompassed by the CFRPC, includes five counties and 25 municipalities. The five counties include: DeSoto County, Hardee County, Highlands County, Okeechobee County, and Polk County.

Polk County, the only urban county in the region and home to the City of Lakeland, is located in the northern part of the region and bridges the Tampa Bay area to Orlando. Polk County is the largest county in the region with a population nearing 600,000. The rural counties of Hardee and DeSoto with populations of approximately 29,000 and 34,000 respectively, serve as the region's southwestern rim. Highlands County, an area that is transitioning from rural to urban, is located south of Polk County and east of Hardee and DeSoto Counties. Highlands County has a population of approximately 100,000. Okeechobee County, a rural county with a population of more than 40,000, is located in the southeast area of the region.

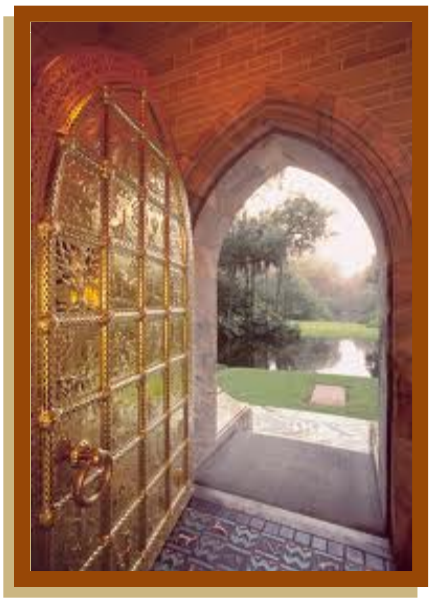
Economy

The Region is substantially rural in nature. The primary component of the Region's economy is agriculture. Agricultural products from the Region include beef cattle and crops of tomatoes, sugarcane, cucumbers, and citrus including oranges and grapefruit. Phosphate mining is also a significant contributor to the Region's economy, in particular to southwestern Polk County and Hardee County which have substantial phosphate holdings within an area known as the Bone Valley. The Mosaic Corporation, one of the world's largest producers of phosphate products, has facilities throughout the Region.

Polk County is the headquarters of Publix Supermarkets, a regional grocery chain and Polk's largest private employer, as well as W. S. Badcock Corporation (furniture), and the Saddle Creek Corporation (warehousing, distribution). Polk County's location along the I-4 corridor continues to attract warehouse and distribution center development. In addition, the University of South Florida Polytechnic Campus is located in Lakeland.

Growth has propelled the Central Florida Region's economy for the past 30 years, but that growth plateaued in 2009. Growth in Polk County, the northern most county in the Region, is driven by the jurisdiction's proximity to the Tampa (to the west) and Orlando (to the east) metropolitan areas along the Interstate 4 corridor. Recent growth has been the most significant in Lakeland (closest to Tampa) and the Northeast areas near Haines City (nearest to Orlando). From 1990 to 2000, unincorporated areas of Polk County grew by 25 percent, while incorporated areas of the County grew by approximately 11 percent.

Tourism



Tourism is an economic driver for the area, but far less so than in most of the rest of Florida. The lack of development and amenities results in fewer tourists visiting the area, and there are no oceanfront beaches to attract nearby residents. The largest tourist attraction is the Sebring International Raceway, located southeast of Sebring in Highlands County. There, the 12 Hours of Sebring, an American Le Mans Series race usually held in the second week of March, drew a "paying crowd" of more than 169,000 in 2006.

Other major attractions in the Region include Bok Tower Gardens (nature sanctuary) and the soon to open Legoland, both located in Polk County. Legoland will reside on the site that formerly housed Cypress Gardens. Legoland is scheduled to open in Winter Haven in late 2011.

The Region also boasts an extensive network of recreational trails (jogging, biking, equestrian, etc.). While many connections are already in place, construction continues and will link all of the trails and greenways.

Transportation

Central Florida serves as an important distribution center and transportation hub. There are three rail freight lines operating in the Florida Heartland, with approximately 190 miles of track: CSX Transportation, Seminole Gulf Railway, and South Central Florida Express. The Amtrak passenger rail service operates on CSX tracks, with stops in Sebring (Highlands County), Okeechobee (Okeechobee County), Lakeland and Winter Haven (Polk County), as well as Tampa and Orlando.

A Florida High Speed Rail line is planned to run from downtown Tampa to Orlando International Airport with future lines planned to connect downtown Orlando, Jacksonville, and Miami. One of the high speed rail stations will be in Lakeland in Polk County. In 2010, President Obama announced that federal funding was awarded to Florida to begin construction on the Tampa to Orlando high speed route to begin service in 2015.

There are no seaports in the Region, as there is neither a seacoast nor navigable rivers. The Okeechobee Waterway is a navigable canal which is located south of the Central Florida Region, connecting the Gulf of Mexico to the Atlantic Ocean through Lake Okeechobee.

National Defense

The Avon Park Air Force Range (APAFR) is a United States Air Force bombing range and air-to-ground training complex, located east of the City of Avon Park in Highlands County. The APAFR was first opened during World War II under the name of Avon Park Army Air Field. The airfield was used for training B-17 air crews in air-to-ground bombing and for antisubmarine patrols. After World War II ended, the base was closed and placed in a caretaker status. In 1956, the base was renamed Avon Park Air Force Range, and a major improvement program began.

The APAFR consists of approximately 106,000 acres of land, of which about 82,000 acres are open to the public for recreation, provided there are no active military missions. APAFR includes Avon Park Air Force Auxiliary Field (also known as MacDill Air Force Base Auxiliary Field). The airfield consists of an 8,000 feet main runway, a limited-operational control tower, an aircraft rescue and firefighting facility and limited ramp and hangar facilities. The airfield is limited to military aircraft operations and is currently closed but open to military aircraft emergencies.

The host unit for the APAFR is the Deployed Unit Complex, 23rd Wing, Detachment 1, which is a unit of the 23rd Wing located at Moody Air Force Base, in Georgia. In addition to the APAFR, the Complex also oversees a flight line facility at nearby MacDill Air Force Base for transient military flight crews, maintenance crews and aircraft utilizing APAFR. This permits visiting squadrons to have ready access to APAFR while concurrently taking advantage of the more robust maintenance support capabilities at MacDill. This combination of facilities provides extensive, diversified and convenient training airspace and ranges with unique training capabilities for military air, ground, and air-to-ground training.

Natural Resources

The Central Florida Region contains more than 1,500 lakes and ponds and is home to significant natural resources including the Lake Wales Ridge. The Lake Wales Ridge which extends through eastern Polk and Highlands Counties, is the highest point in Florida at approximately 300 feet above sea level. The Ridge is home to several protected species including scrub habitat, sand skinks, and scrub jays. The Ridge houses one of the largest collections of rare organisms in the world and is also home to citrus farming and housing developments due to its sandy soils. The 26,000 acre Lake Wales Ridge State Forest is located just east of the City of Frostproof in Polk County.

The Circle B Bar Reserve is located in Polk County. The Reserve comprises 1,267 acres in Lakeland and is managed as part of the Southwest Florida Water Management District. The Reserve is named after the cattle ranch that once occupied the site, and was purchased to help maintain the Banana Creek marsh area. The Polk County Nature Discovery Center, completed in 2008, is located at the Reserve which boasts an extensive array of birds since the former ranch underwent a wetland restoration effort.

D. Natural Disasters in the Region

The Central Florida Region is prone to several types of natural disasters including tornados, wildfires, freshwater flooding and hurricanes. In 2008, Hardee, Highlands, and Okeechobee Counties sustained significant damage from Tropical Storm Fay and were recognized as disaster relief eligible counties. In 2004, the Region incurred significant damage from three consecutive hurricanes, Charley, Jeanne and Frances. For the purposes of this study, Hurricane Categories 1 through 5 were modeled as this type of event includes the effects of the disasters listed above with the exception of wildfires.

E. Scope of Study

The Economic Analysis and Disaster Resiliency Study reviews all five counties in the Region and the implications of a disaster with respect to regional economic impacts.

The study was completed in two phases. The first phase of the study developed an itemized inventory for each of the five counties detailing each county's traffic analysis zones, employment by industry, residential structures by decade built, critical infrastructure, and staging areas for reconstruction.

The second phase of the study provides for an economic analysis of the effects of a catastrophic event on each of the five counties. The study details the positive impacts (cleanup activity, reconstruction, spending, influx of federal funds) and the negative impacts (unemployment, loss of population, loss of personal income, reduced regional domestic product, and reduced sales tax revenue) and associated ripple effects. As part of the study's second phase, Hurricane Categories 1 through 5 were simulated across each of the five counties. Although a Category 5 Hurricane Event is unlikely in Central Florida, the region may suffer similar natural disasters consistent with the impacts of a Category 5 Hurricane Event such as the multiple hurricanes that struck the region in 2004. Although the Central Florida Region is prone to several types of disasters including tornados, wildfires, freshwater flooding and hurricanes, the hurricane event was modeled as it is comprised of the effects of all such disasters with the exception of wildfires.

The study does not project a specific hurricane path, but assumes a hypothetical event that strikes evenly across each of the five counties. All areas of the Region are rated based upon location-specific risk levels including Natural Risk Assessment to Support Local Mitigation Strategies, Hurricane Evacuation Assessment, the Special Inland Flooding Area (areas that fall within the 100-year floodplain) and the Non-Evacuation Area.

Hurricane damage estimates are derived using a combination of the Mapping for Emergency Management Parallel Hazard Information System (MEMPHIS) model hazard risk assessment study and risk levels by geographic location. Storm surge, winds and flooding were not recomputed, but instead based upon the MEMPHIS study estimates.

Recovery Scenarios

The study provides two recovery scenarios:

- One scenario of normal recovery based on research of recovery experiences under similar situations; and

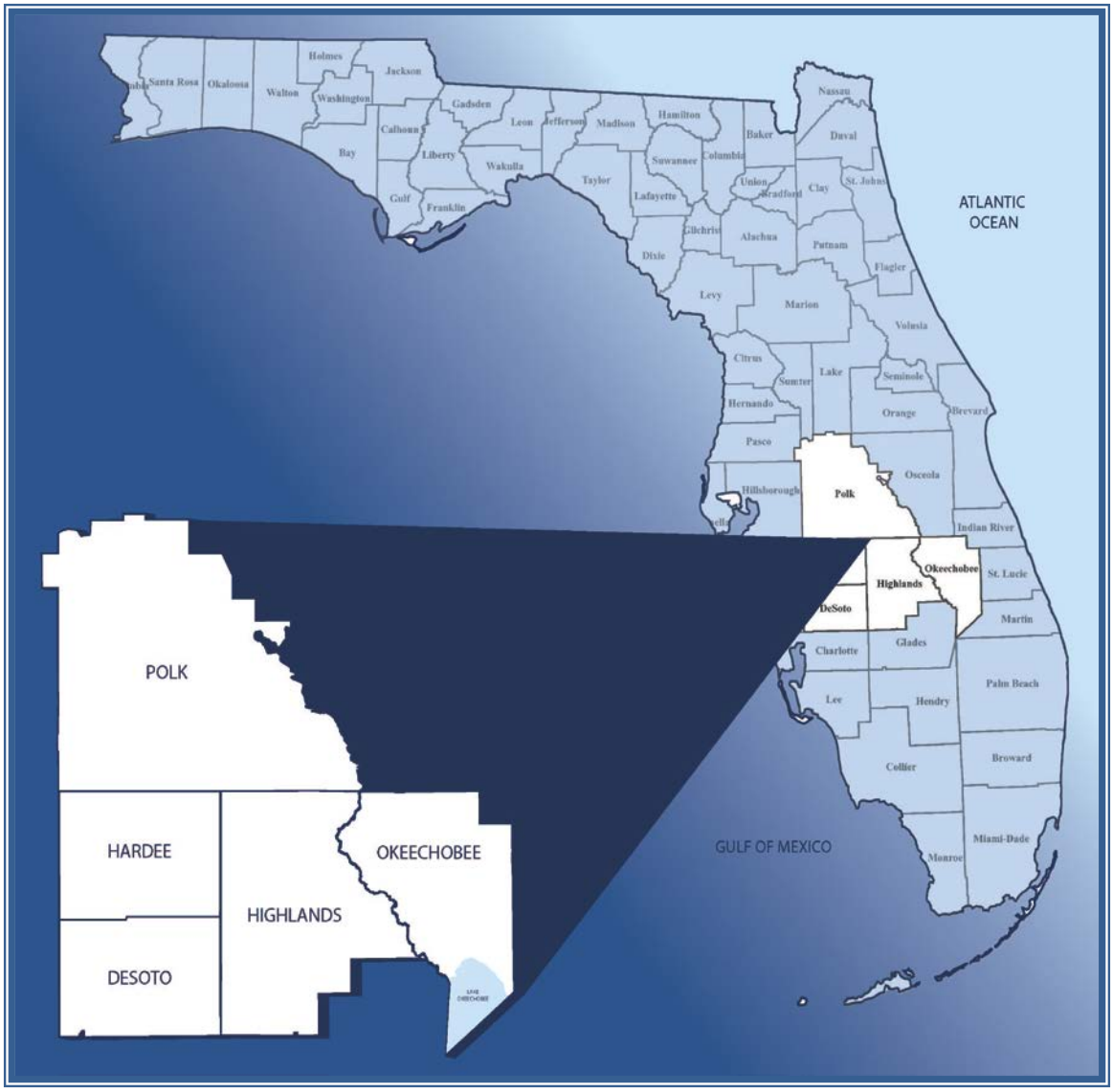
- A second scenario of accelerated recovery rates based on direct federal funding totaling $1 billion for each of the five counties. The study provides for distribution of $500 million during the event year and $250 million in years two and three following the event to each county.

The scenarios provide for the modeling of employment losses and the cleanup/construction activity. Employment losses are weighted based upon location and then applied evenly across the industries within that evacuation zone (i.e., administration and support services suffer the same employment losses as water transportation, if they are in the same evacuation zone).

Construction activity is a product of private and public funds, which include insurance payouts, homeowner repairs and reconstruction, and the restoration of any public assets that sustained damage. Cleanup activity is conducted with government funds. The results of construction and cleanup activities are combined to indicate the net impacts of a hurricane event across the Region over a ten year time period.

The customized econometric model called REMI (Regional Economic Models, Inc.) Policy Insight is used to forecast economic trends for the normal and accelerated recovery scenarios.

Map 1
The Central Florida Region



There are five counties and 25 municipalities in the Central Florida Region.

III. TYPES OF REGIONAL DISASTERS

The Central Florida Region is prone to several types of disasters including hurricanes, tornados, wildfires, and freshwater flooding.

A. Hurricanes

A hurricane is defined as a weather system with a closed circulation developing around a low pressure center over tropical waters. The winds rotate counterclockwise in the Northern Hemisphere (clockwise in the Southern Hemisphere). Tropical storms and hurricanes act as safety valves that limit the build-up of heat and energy in the tropical regions by maintaining the atmospheric heat and moisture balance between the tropics and the pole-ward latitudes. (*Statewide Hazard Mitigation Plan, 2009*) Tropical cyclones are named when their winds reach tropical storm strength (sustained 39 miles per hour (mph)). Below is an overview of tropical depressions, tropical storms and hurricanes.

- *Tropical Depression:* The formative stages of a tropical cyclone in which the maximum sustained (1-minute mean) surface wind is <39 mph.
- *Tropical Storm:* A warm core tropical cyclone in which the maximum sustained surface wind (1-minutes mean) ranges from 39 to <74 mph.
- *Hurricane:* A warm core tropical cyclone in which the maximum sustained surface wind (1 minute mean) is at least 74 mph.

Table 1 displays the Saffir-Simpson Hurricane Wind Scale used to define and describe the intensity of hurricanes. The central pressure of the hurricanes is measured in millibars or inches. The wind speed is also a significant indicator in determining the category of the storm. The wind speed is tied to both wind damage and potential storm surge and resulting coastal flooding damages. Due to the land locked geography of the Central Florida Region, storm surge is only a factor for the area immediately surrounding Lake Okeechobee and the extreme southwest corner of DeSoto County. High winds, tornados and freshwater flooding will present the greatest threat to our region.

Table 1
Saffir-Simpson Hurricane Wind Scale

CATEGORY		CENTRAL PRESSURE		WINDS (MPH)	DAMAGE POTENTIAL
		MILLIBARS	INCHES		
	1	>980	>28.94	74-95	Damage primarily to trees & foliage, signs, unanchored mobile homes, flooding in low-lying areas, minor pier damage, some small craft torn from moorings.
	2	965-979	28.50-28.91	96-110	Considerable damage to foliage & trees; major damage to mobile homes, signs, roofing materials of buildings; windows; coastal roads and low-lying areas cut off by rising water; considerable damage to piers and marinas.
Major Hurricanes	3	945-964	27.91-28.41	111-130	Foliage torn from trees; large trees uprooted; Signs down; roofing, window and door damage; Some structural damage to buildings. Mobile homes destroyed. Serious flooding at coast with structures damaged by battering waves and floating debris.
Major Hurricanes	4	920-944	27.17-27.88	131-155	Shrubs and trees blown down; all signs down. Extensive damage to roofing materials, windows and doors. Complete roof failure on many residences. Complete destruction of mobile homes. Major destruction of coastal structures and erosion of beaches.
Major Hurricanes	5	<920	<27.17	>155	Shrubs and trees blown down; considerable damage to roofs of buildings; all signs down. Very severe and extensive damage to windows and doors. Complete failure of many residences and industrial buildings. Extensive shattering of glass. Complete destruction of mobile homes. Major/complete destruction of coastal structures.

Hurricane Hazards

The major hazards produced by a hurricane are the storm surge, rainfall (freshwater flooding), high winds, and tornados.

Due to the land-locked geography of the Central Florida Region, storm surge is only considered a threat for the area immediately surrounding Lake Okeechobee and the extreme southwest corner of DeSoto County. High winds, tornados and freshwater flooding present the greatest threat to all areas of the Central Florida Region.

Storm Surge

Storm surge is the abnormal rise in water level caused by the wind and pressure forces of a hurricane or tropical storm. Storm surge produces most of the flood damage and drowning associated with storms that make landfall or that closely approach the coastline. Of the hurricane hazards, storm surge is considered to be the most dangerous as nine out of ten hurricane-related deaths are caused by drowning.

The range of storm surge is highly dependent upon the configuration of the continental shelf (narrow or wide) and the depth of the ocean bottom (bathymetry). A narrow shelf or one that drops steeply from the shoreline and subsequently produces deep water in close proximity to the shoreline tends to produce a lower surge but higher and more powerful storm waves. This is the situation along the Atlantic Ocean side of Florida. However, the Gulf Coast of Florida has a long gently sloping shelf and shallow water depths and can expect a higher surge but smaller waves.

Hurricanes Dennis, Katrina and Ike demonstrated that the size of the hurricane can significantly impact the potential storm surge. These storms, which had particularly large radii of maximum wind speeds, produced storm surges comparable to much more intense categories of storm (as measured by using only wind speeds).

Map 2, Central Florida Region Storm Surge Map, indicates that the area immediately surrounding Lake Okeechobee, the southeast corner of Highlands County, and the extreme southwest corner of DeSoto County are located within Surge Zones.

Rainfall (Freshwater Flooding)

Rainfall associated with hurricanes varies with hurricane size, forward speed and other meteorological factors. The rainfall associated with a hurricane is between 6 to 12 inches on average, with higher amounts common. Historically, freshwater flooding has not been considered a life-threatening hazard. However, over the past 20 years, freshwater flooding has become the leading cause of death related to hurricanes. Evacuation planning efforts in the United States have significantly reduced the number

of U.S. deaths related to storm surge. Hurricane Katrina tragically illustrated the danger of storm surge flooding in both Louisiana and Mississippi. However, it is also recognized that many coastal and inland residents do not recognize the risk associated with freshwater flooding, especially when driving. In response, a national program, *"Turn Around, Don't Drown"* was implemented in 2002.

The freshwater flooding associated with a hurricane may also inundate potential evacuation routes and prevent persons from evacuating areas vulnerable to storm surge. Flooded roads and storm drains have resulted in fatal accidents in many areas either during the effects of hurricanes or immediately following. At least one death in the Region was directly attributed to freshwater flooding following Hurricane Charley in 2004 due to a washed out portion of State Road 60 between Bartow and Lake Wales in Polk County. The driver died as a result of the combination of internal injuries and drowning.

High Winds

High winds can also have a devastating effect on persons outside, in mobile homes, in unsound, substandard structures or in structures with unprotected windows or glass exposures. A study conducted by the Tampa Bay Regional Planning Council[1] in 1986 concluded that while a fully-engineered multi-story structure could withstand the storm surge of a major storm, without protection on the windows and other cladding, occupants within any structure would be at serious risk of wind damage. This factor held true for all types of structures exposed to sustained winds in excess of 115 miles per hour (mph).

Tornados

Hurricanes can also produce tornados that add to the storm's destructive power. Tornados are most likely to occur in the right-front quadrant of the hurricane. However, they are often found well away from the center of the hurricane embedded in the rain bands. Some hurricanes seem to produce no tornados, while others develop multiple ones. Studies have shown that more than half of the hurricanes making landfall produce at least one tornado.

Hurricane Wind Analysis

[1] Hurricane Shelter Alternative Study, TBRPC and USACOE, 1986.

Hurricane winds are a devastating element of the hurricane hazard. Based on the Saffir-Simpson Hurricane Wind Scale, hurricane-force winds range from sustained winds of 74 mph to more than 155 mph.

The intensity of a land-falling hurricane is expressed in terms of categories that relate wind speeds and potential damage. According to the Saffir-Simpson Hurricane Wind Scale, a Category 1 hurricane has less intense winds compared to storms in higher categories. A Category 4 hurricane would have winds between 131 and 155 mph and, on average, would usually be expected to cause 100 times the damage of the Category 1 hurricane. Depending on circumstances, less intense storms may still be strong enough to produce damage, particularly in areas that have not prepared in advance.

Tropical storm-force winds (39 to 73 mph) are strong enough to be dangerous. For this reason, emergency managers plan to have their evacuations complete and their personnel sheltered before the onset of tropical storm-force winds, not hurricane-force winds.

Hurricane-force winds can easily destroy poorly constructed buildings and mobile homes. Debris such as signs, roofing material, and small items left outside become flying missiles in hurricanes. Extensive damage to trees, towers, water and underground utility lines (from uprooted trees), and fallen poles cause considerable disruption.

High-rise buildings are also vulnerable to hurricane-force winds, particularly at the higher levels, since wind speed tends to increase with height. Recent research suggests that people should stay below the tenth floor, but still above any floors at risk for flooding. It is not uncommon for high-rise buildings to suffer a great deal of damage due to windows being blown out. Consequently, the areas around these buildings can be very dangerous.

The strongest winds usually occur in the right side of the eye wall of the hurricane. Wind speed usually decreases significantly within 12 hours after landfall. Nonetheless, winds can stay above hurricane strength as the storm traverses inland. Hurricane Hugo (1989), for example, battered Charlotte, North Carolina (which is 175 miles

inland) with gusts of up to 100 mph. Tropical Storm Fay turned northeastward on August 19, 2008, making landfall early that day on the southwestern coast of the Florida peninsula at Cape Romano with maximum winds of 60 mph. Even after moving inland, Fay strengthened, exhibiting what resembled a classical eye in radar and satellite imagery, and it reached its peak intensity of about 65 mph as it passed over the western shores of Lake Okeechobee. Between August 20 and August 23 however, Fay continued interaction with the landmass of northern Florida causing the cyclone to weaken slightly. Fay's maximum winds remained between 50 to 60 mph during most of that period.

Figure 1, Maximum Inland Extent of Winds for Hurricanes Approaching the Gulf Coast (west coast of Florida) provided below indicates the extent to which winds are dispersed inland depending on the Hurricane Category. **Figure 2** provides the same information for the east coast. The figures indicate that a Category 5 Hurricane may have far reaching high wind impacts.

Figure 1
Maximum Inland Extent of Winds for Hurricanes Approaching the Gulf Coast

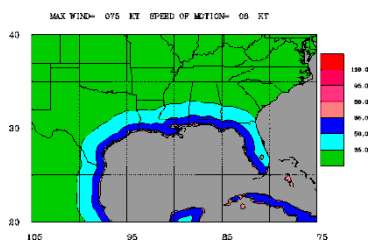
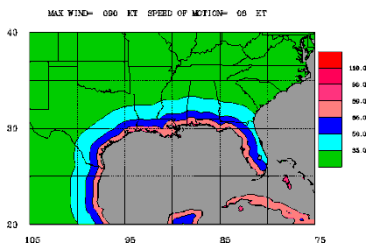
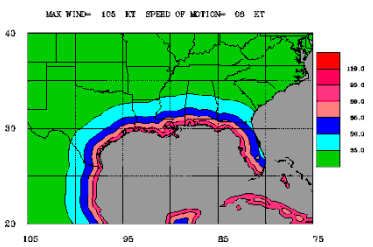
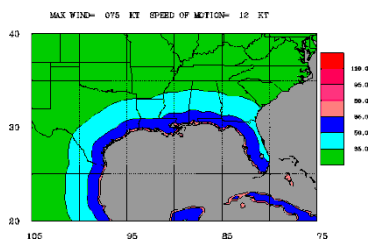
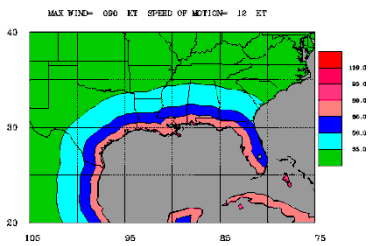
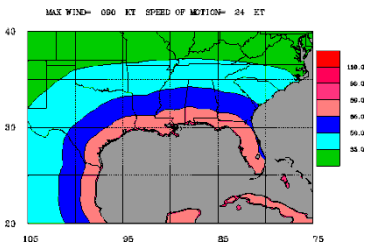
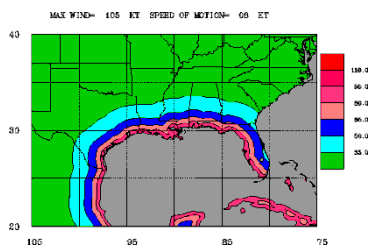
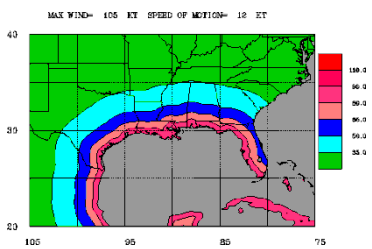
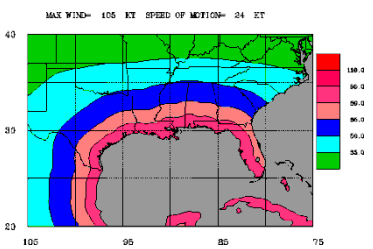
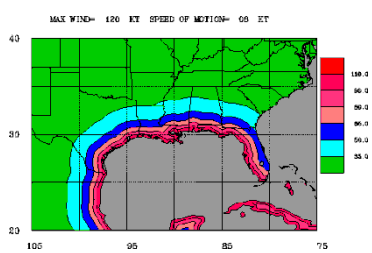
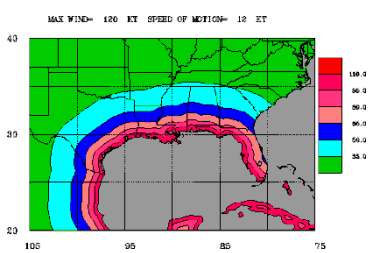
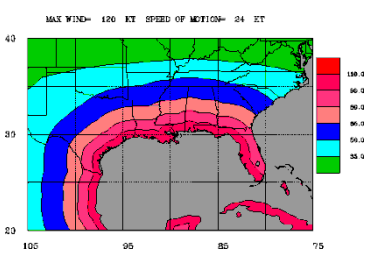
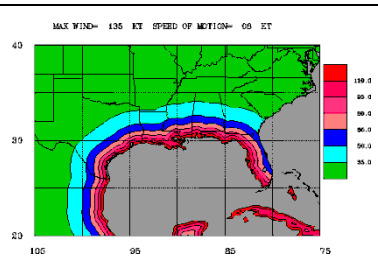
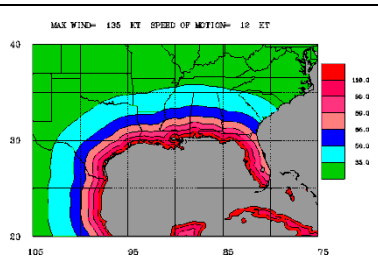
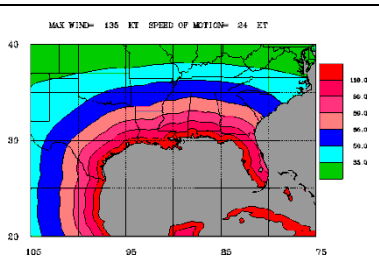
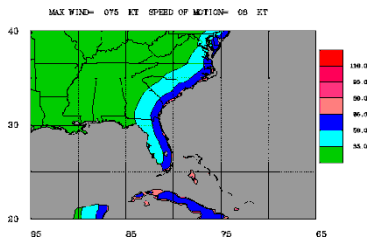
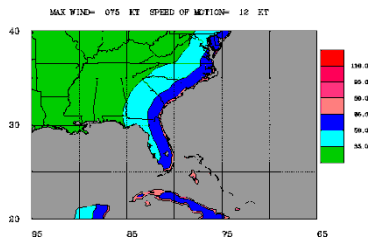
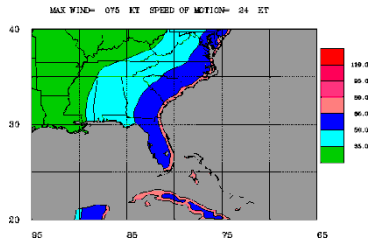
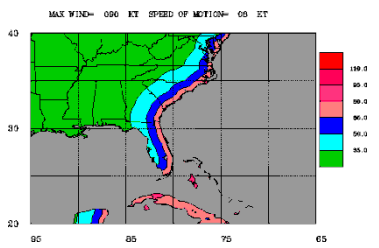
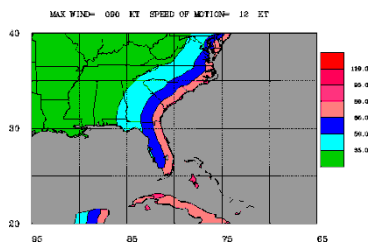
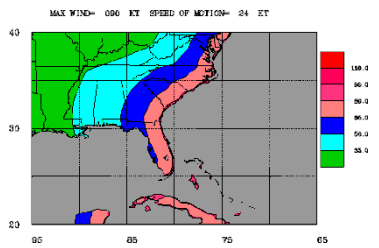
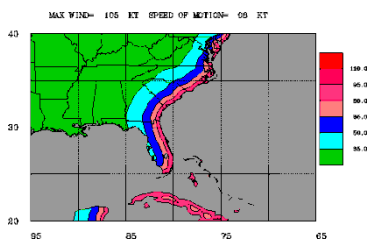
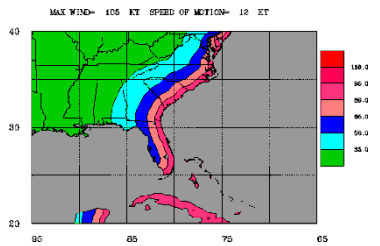
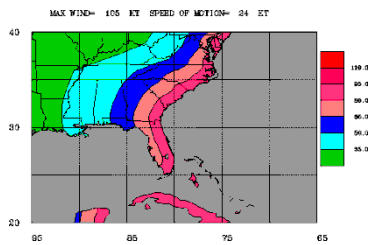
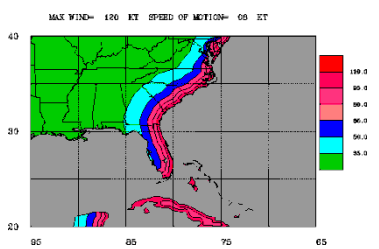
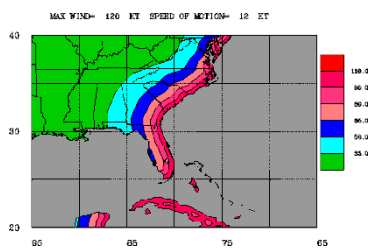
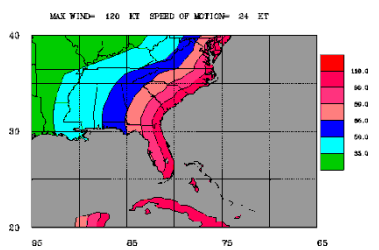
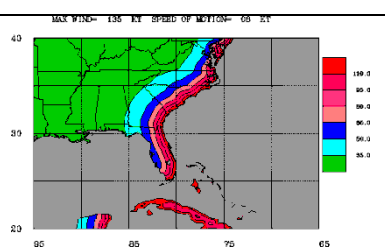
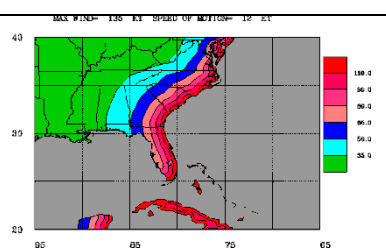
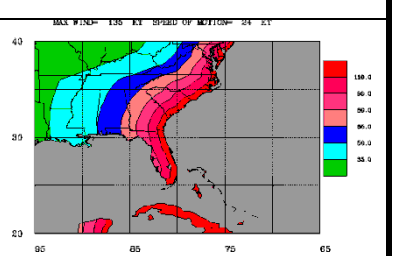
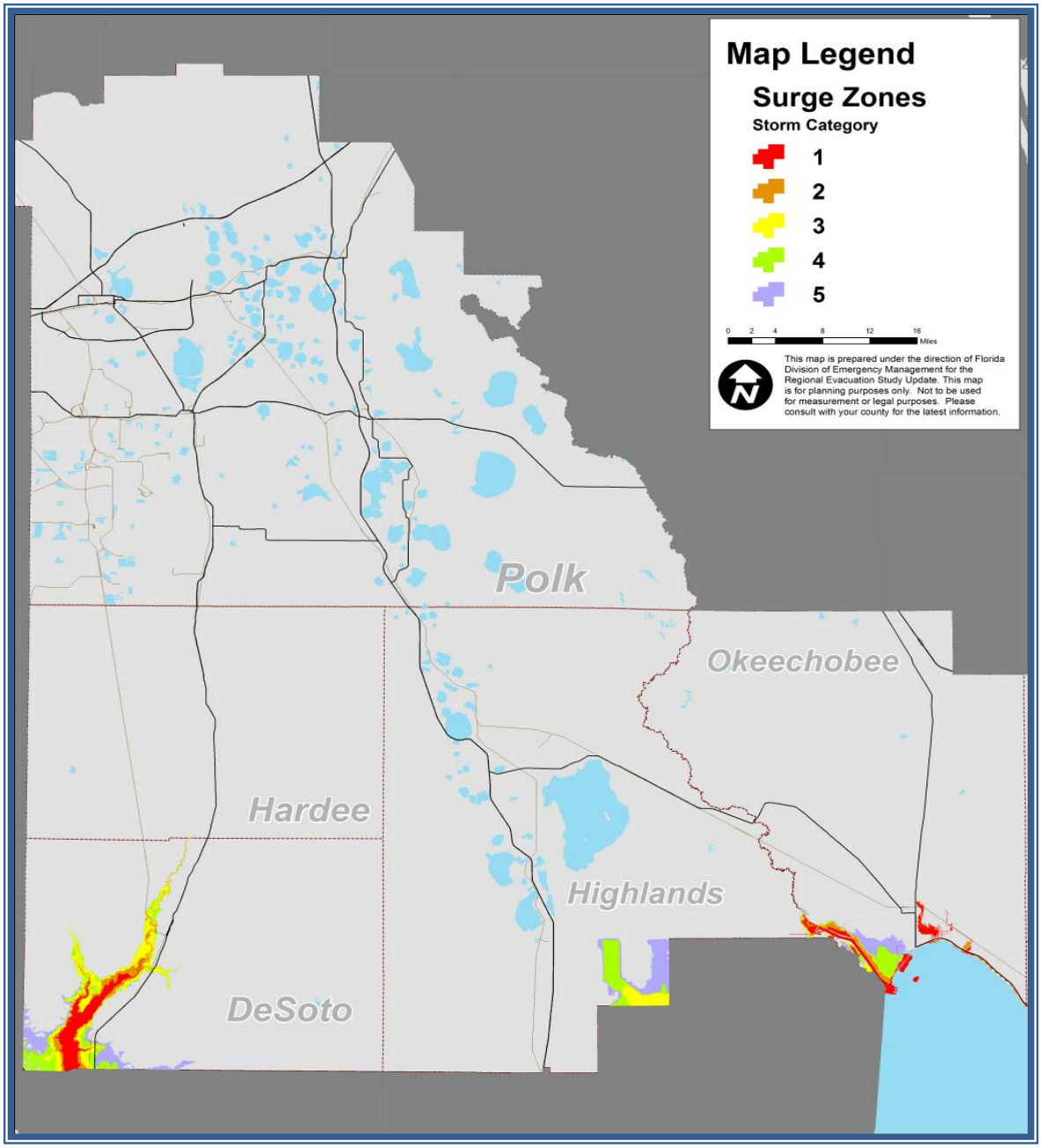
Cat	Forward Speed – 8 kts	Forward Speed – 12 kts	Forward Speed – 24 kts
1			
2			
3			
4			
5			

Figure 2
Maximum Inland Extent of Winds for Hurricanes Approaching the East Coast

Cat	Forward Speed – 8 kts	Forward Speed – 12 kts	Forward Speed – 24 kts
1			
2			
3			
4			
5			

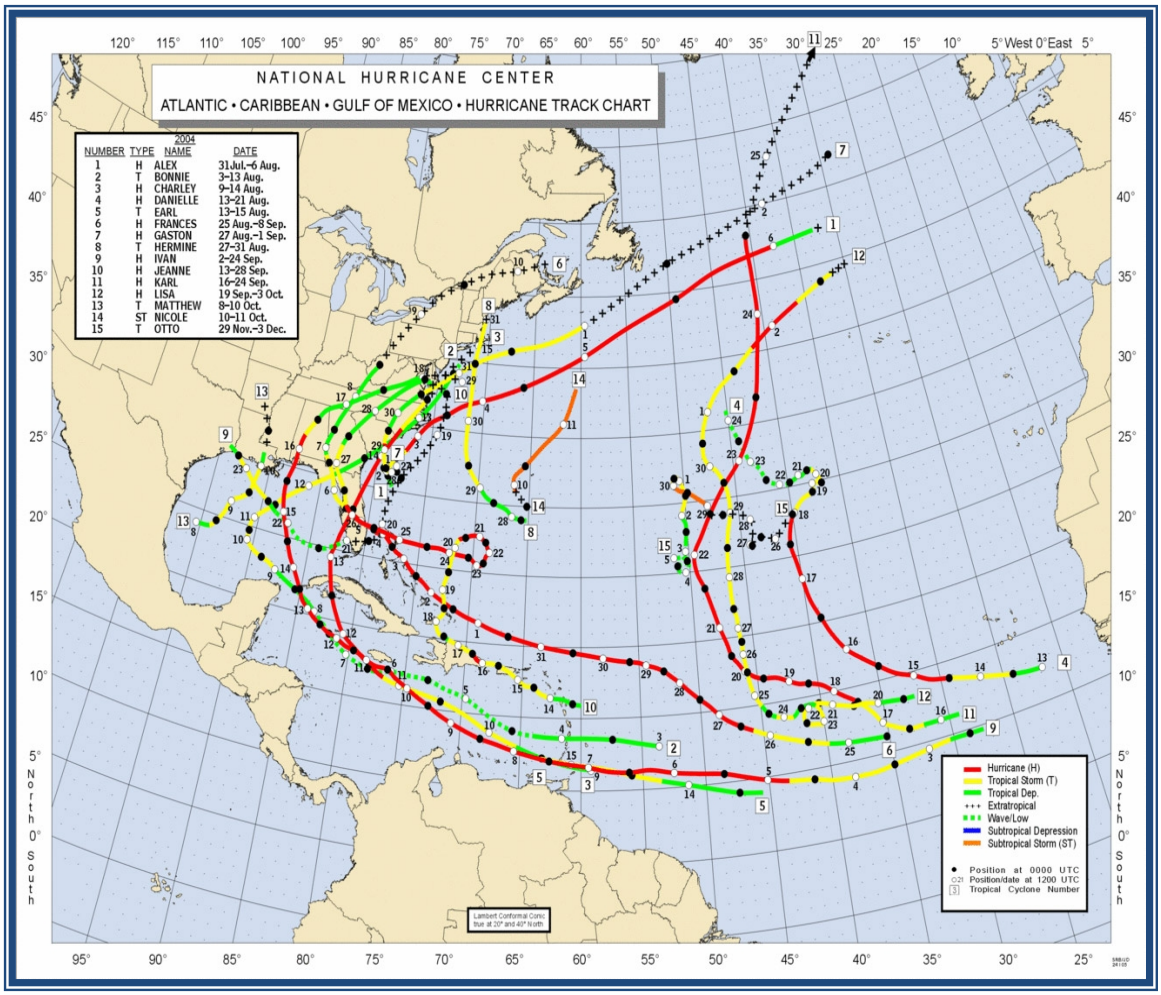
Map 2
Central Florida Region Storm Surge Map



Florida Hurricane Tracks

The National Hurricane Center has published the Hurricane Track Chart provided as **Map 3** below. The Hurricane Track Chart illustrates the 15 hurricanes that impacted the Atlantic, Caribbean and Gulf of Mexico areas in 2004. Of those 15 hurricanes, three directly impacted the Central Florida Region: Hurricanes Charley, Frances and Jeanne.

Map 3
Hurricane Track Chart



B. Tornados

In general, tornados associated with hurricanes are less intense than those that occur in the Great Plains (see the *Enhanced Fujita-Pearson Intensity Scale* below). Nonetheless, the effects of tornados, added to storm surge and inland flooding and the larger area of hurricane-force winds, can produce substantial damage.

The majority of tornados, 69 percent, are weak tornados, EF0-EF2 categories. Approximately 29 percent of all tornados are strong and can last 20 minutes or longer. Approximately 2 percent of all tornados fall into the EF-4 and EF-5 categories. The most powerful tornados are spawned by what are called supercell thunderstorms. These are storms that, under the right conditions, are affected by horizontal wind shears (winds moving in different directions at different altitudes). These wind shears cause horizontal columns of air to begin to rotate. This horizontal rotation can be tilted vertically by violent updrafts, and the rotation radius can shrink, forming a vertical column of very quickly swirling air. This rotating air can eventually reach the ground, forming a tornado. At present, there is no way to predict exactly which storms will spawn tornados or where the tornados will touch down. Doppler radar systems have greatly improved the forecaster's warning capability, but the technology usually provides lead times from only a few minutes up to about 30 minutes. Consequently, early warning systems and preparedness actions are critical.

The Enhanced Fujita Tornado Damage Scale (Enhanced F-scale) is a set of wind estimates (not measurements) based on damage. It uses three-second gusts estimated at the point of damage based on a judgment of 8 levels of damage[2]. These estimates vary with height and exposure. The 3 second gust is not the same wind as in standard surface observations. Standard measurements are taken by weather stations in open exposures, using a directly measured "one minute mile" speed.

[2] This is listed at *www.spc.noaa.gov/faq/tornado/efscale.html*.

- **EF0 Gale Tornado** - *65-85 mph*
  Some damage to chimneys. Tree branches broken. Shallow rooted trees uprooted.

- **EF1 Moderate Tornado -** *86-110 mph*
  Peels surface off roofs. Mobile homes overturned. Moving autos pushed off roads.

- **EF2 Significant Tornado -** *111-135 mph*
  Considerable damage. Roofs torn off frame houses. Large trees snapped or uprooted. Light-object missiles generated.

- **EF3 Severe Tornado -** *136-165 mph*
  Severe damage. Roofs and some walls torn off well constructed homes. Trains overturned. Most trees in forests uprooted. Heavy cars lifted off ground.

- **EF4 Devastating Tornado -** *166-200 mph*
  Well-constructed houses leveled. Structures with weak foundations blown off some distance. Cars thrown and large missiles generated.

- **EF5 Devastating Tornado -** *Over 200 mph*
  Strong frame houses lifted off foundations and disintegrated. Automobile-sized missiles fly through the air in excess of 100 mph. Trees debarked.

C. Wildfires

Florida is home to millions of residents who enjoy the state's beautiful scenery and warm climate, but few realize these qualities also create severe wildfire conditions. Each year, thousands of acres of wildland and many homes are destroyed by fires that can erupt at any time of the year from a variety of causes, including arson, lightning and open burning of debris and trash. Adding to the fire hazard is the growing number of people living in new communities built in areas that were once wildland. This growth places even greater pressure on the state's wildland firefighters. (Florida Division of Emergency Management, 2008) *http://www.floridadisaster.org/bpr/EMTOOLS/wildfire/wildfire.htm*

Wildfire Hazard Profile

A wildfire is any fire occurring in wildlands (i.e. grasslands, forest, brushland, etc). Wildfires have burned across the woodlands of Florida for centuries and are part of the natural management of much of Florida's ecosystem. (Statewide Hazard Mitigation Plan, 2009) There are four types of forest fires:

- Surface fires are the most common type of wildfire. These fires burn along the forest floor, moving slowly, killing or damaging trees.
- Ground fires (muck fires) are usually started by carelessness and burn on or below the forest floor. These fires are hard to detect and even harder to extinguish.
- Crown fires are spread rapidly by the wind by jumping along the tops of trees, and are the fastest moving of all types of fires.
- Wildland-Urban Interface (WUI) fires are those which are located in a geographical area where structures and other human development meet or intermingle with wildlands or vegetative fuels.

Florida's typical fire season extends from January to May. During relatively dry months, the potential for wildfires increases dramatically. The driest months, combined with low humidity and high wind, have the highest number of reported fires (January, February and March). During these months, fine fuels (i.e. grass, leaves, and pine needles) are in optimal burning condition. The highest number of lightning-caused fires occur in July, coinciding with the peak of the thunderstorm season. However, lightning accounted for only 11.7 percent of the fires started between 1974 and 1990. Other fire sources are manmade and include arson, carelessness, debris/trash burning, and operating equipment which may emit sparks. Due to the fact that much of the Region is comprised of timber lands, a major portion is vulnerable to forest fires, although the threat to the population at large is not considered significant.

Each wildfire can potentially threaten human life, structures and natural resources. When urban development encroaches into wildland areas, the fire hazard becomes more severe and fire control more difficult.

History of Wildfire in Florida

Wildfires have significantly impacted Florida over the years. Below is an overview of the most catastrophic fires.

In the Spring of 1985, a drought, which had been underway since August 1984, created numerous spot fires around Florida. On May 16, 1985, a wildfire was discovered west of the 42,000 acre planned community known as the Palm Coast Development, located in the coastal plain flat woods along the East Coast of Florida in Flagler County. A wildfire burned through Palm Coast destroying 100 homes, damaging 200 more and burning 13,000 acres. This disaster was a mixed wildland urban interface fire associated with urban sprawl type development where the land was subdivided into many unmanaged tracts of fire vulnerable wildlands.

In 1989, a record number of acres burned (645,326) as a result of 7,291 fires. A large percentage of the acreage was located in the Everglades. Another record number of wildfires occurred in 1981, with 14,042 fires burning 587,400 acres as a result of a drought that started in July of 1980 and continued throughout 1981. In 1985, another drought stricken year, 8,261 fires burned 443,811 acres.

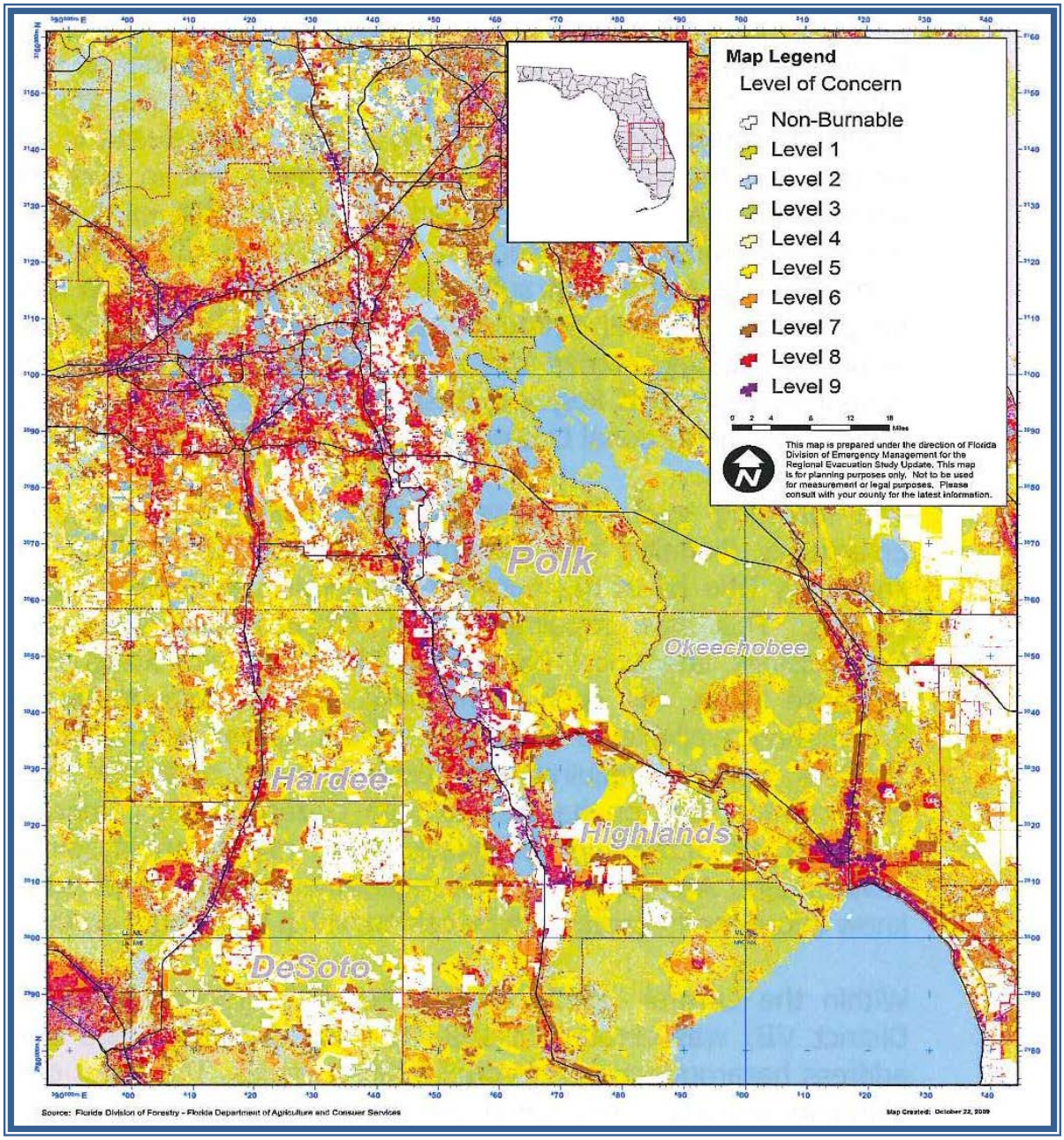
From 1981 through 1996, an average of 6,080 wildfires occurred per year, burning 219,725 acres. Because of changing weather conditions, the yearly figures range from a low of 3,985 wildfires (86,944 acres burned) in 1991 to a record high of 14,042

wildfires (587,400 acres burned) in 1981. Florida experienced a record high (645,326 acres burned) in 1989 as a result of drought conditions throughout Florida.

The beginning months of 1998 brought widespread flooding. After the rain stopped, severe drought conditions developed and lasted from April through June of 1998. As a result of the extreme drought conditions, high temperatures and a buildup of flammable wildland fuels, the 1998 wildfires began. The first fire broke out on May 25, 1998 in the Apalachicola National Forest. In a two-month period, almost 500,000 acres of the state had burned in approximately 2,300 separate wildfires. The cost of this event reached over $160 million. The wildfires of 1998 damaged or destroyed over 300 homes and the value of lost timber exceeded $300 million.

In the Spring and Summer of 2007, the wildfires that put much of Florida in a several week-long smoky haze were started May 5 by a lightning strike on Bugaboo Island in Georgia's Okefenokee National Wildlife Refuge. Thick smoke from area wildfires caused the closure of stretches of Interstate 75 and Interstate 10 in northern Florida. A section of Interstate 95 in Duval County, from Pecan Park to State Road A1A, was also closed due to smoke, as was a section of Interstate 75 in Broward County, near fire-ravaged Collier County in southern Florida. The fires scorched at least 212,000 acres, according to the Joint Information Center, a coalition of state and federal agencies. Of those acres, 101,000 were in Florida and about 111,000 were in Georgia. Interstate 75 was closed from Valdosta, Georgia; south to Lake City, Florida and Interstate 10 was closed from Sanderson, Florida, eastward to Live Oak.

Map 4
Central Florida Region Wildfire Potential



D. Freshwater Flooding

Inland riverine and freshwater flooding often becomes a significant factor as a result of tropical storms and hurricanes. Unlike storm surge, the rainfall associated with, and in advance of a hurricane does not typically, in itself, necessitate the emergency evacuation of residents during the passage of a hurricane. Following a storm however, the coastal flooding and rainfall – particularly from slow moving storms - necessitates an evacuation of flooded inland residents days after the storm as swollen rivers and streams breach their banks or levees.

As noted previously, due to Tropical Storm Fay's very slow motion, storm-total rainfall amounts in some areas were staggering, including a few locations in east-central Florida that received more than two feet of rain. Fay's rain-induced floods caused significant damage and were directly responsible for numerous deaths in the Dominican Republic, Haiti and Florida. (*www.nhc.noaa.gov*)

With regard to hurricane evacuation, rainfall may cause the early inundation of roadways used as evacuation routes by vehicles attempting to escape from areas vulnerable to the approaching storm surge. In addition, given Florida climatology and the normal summer weather, flooding may occur as a disassociated event prior to a hurricane.

Freshwater Flooding: The 100-Year Floodplain

Coastal/Riverine/Inland Flooding Profile

Flooding refers to the general or temporary conditions of partial or complete inundation of normally dry land areas by surface water runoff from any source. (*Statewide Hazard Mitigation Plan, 2009*) The State of Florida and the Central Florida Region are affected by a large number of weather systems which result in flooding.

Flooding can be divided into two major categories: Coastal and Riverine. As indicated previously, interrelated hazards, such as hurricanes and severe storms, can result in both types of flooding, sometimes in different locations. Many areas of Florida are susceptible to flooding from both storm surge and watershed runoff.

Coastal flooding is usually the result of a severe weather system such as a tropical cyclone, hurricane, tropical storm or "northeaster" which contains the element of wind. The damaging effects of coastal floods are caused by a combination of higher water levels of the storm surge, winds, rains, erosion and battering by debris. Loss of life and property damage are often more severe since it involves velocity wave action and accompanying winds.

Riverine flooding is associated with a river's watershed, which is the natural drainage basin that conveys water runoff from rain. Riverine flooding occurs when the flow of runoff is greater than the carrying capacities of the natural drainage systems. Rain water that is not absorbed by soil or vegetation seeks surface drainage lines following natural topography lines. These lines merge to form a hierarchical system of rills, creeks, streams and rivers. Generally, floods can be slow or fast rising depending on the size of the river or stream. The rivers in north Florida drain portions of Alabama and Georgia, and excessive rainfall in those states often causes flood conditions in Florida.

Flash floods are much more dangerous and flow much faster than riverine floods. They can result from tropical storms, dam failures or excessive rain and snow. Flash

floods pose more significant safety risks because of the rapid onset, the high water velocity, the potential for channel scour and the debris load.

The variations of flooding, including severe thunderstorms, hurricanes, seasonal rain and other weather-related conditions, are a natural part of the earth's hydrologic system; however, when buildings and infrastructure are constructed within the natural drainage system, there are significant losses. Based on frequency, floods are the most destructive category of natural hazards in the United States. The losses of life, property, crops, business facilities, utilities and transportation are major impacts of flooding. Economic losses from impacts to major transportation routes and modes, public health and other environmental hazards are key factors in long-term recovery. (Statewide Hazard Mitigation Plan, 2009)

Probability of Flooding: (Flood Insurance Rate Maps – FIRMs)

The probability of freshwater flooding has been quantified by the Federal Emergency Management Agency (FEMA) through the National Flood Insurance Program. Areas subject to flooding, the Velocity Zone, the 100-year floodplain and the 500-year floodplain, have been delineated on Flood Insurance Rate Maps (FIRMs) for every jurisdiction in the region. Moderate to low risk areas include zones B, C and X. High risk areas include zones A, AE, AH, AO, and AR. High risk coastal areas include the Velocity zones (Zones V, VE, and V1-V30) and undetermined risk areas (Zone D). See **Table 2** for Definitions of National Flood Insurance Program (NFIP) Zones.

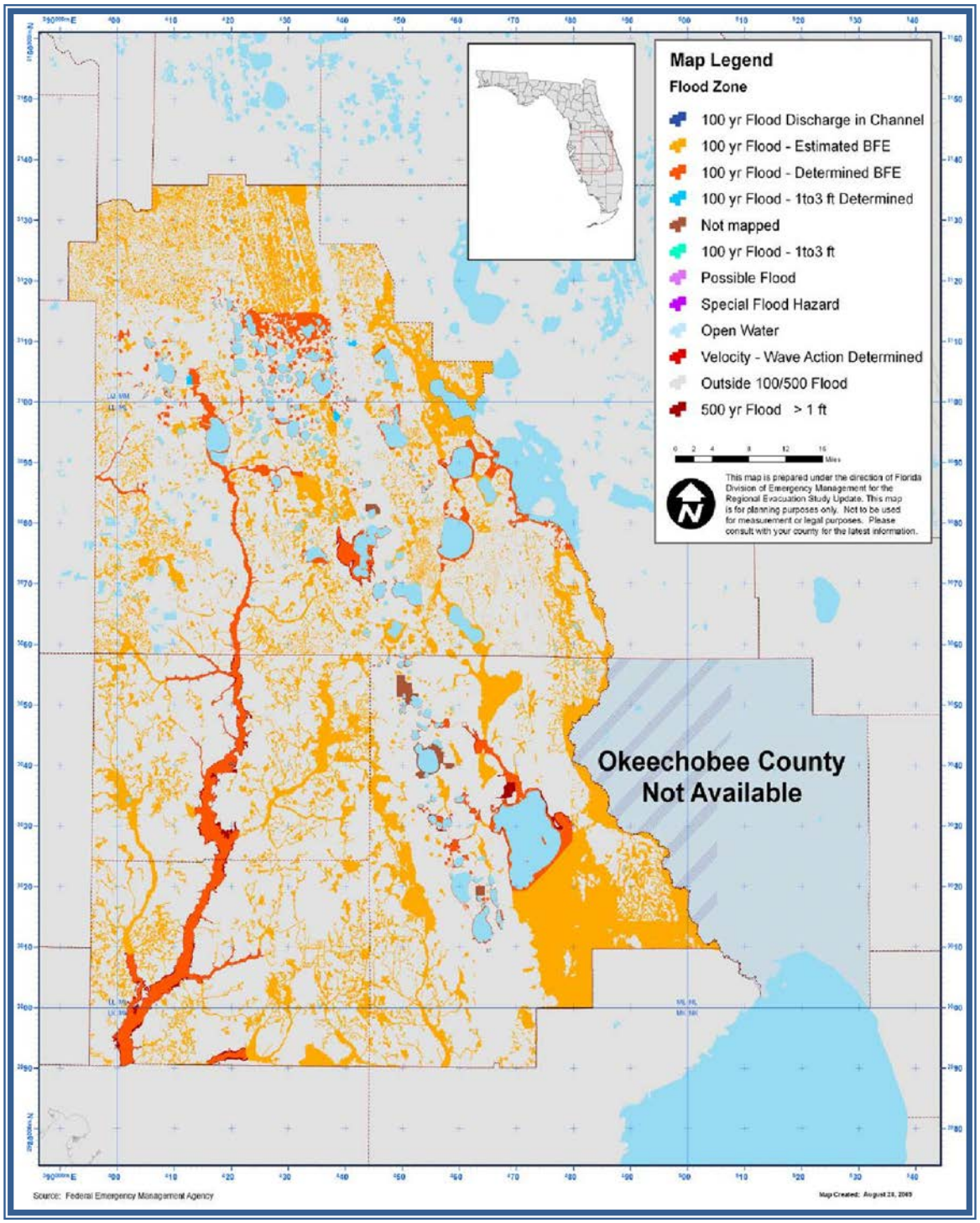
The model used to determine the flood plain is a cumulative model. It is based on several storm events; no one storm will inundate all of the areas within the flood zone. In addition, because there is a return interval (1 percent or greater chance of flooding in any given year) associated with the flood level, there is a basis for planning and cost-benefit analysis.

While the 6 to 12 inches of rain typically associated with a hurricane is not considered life-threatening, freshwater flooding along rivers and streams, can and does cause significant property damage and has the potential of causing personal injury and deaths. Over the past two decades, freshwater flooding had become a leading cause of death in hurricane events with most of those deaths the result of driving or walking in flood waters.

Map 5 indicates the flood zones within the Central Florida Region. Within each flood zone, it is recognized that there are properties which have sustained repeated damage from flooding and are extremely susceptible to flood damage. Floodplain acreage, broken down by county, is contained in **Table 3**.

Table 2 Definitions of NFIP Zones	
AE	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. In most instances, base flood elevations (BFEs) derived from detailed analyses are shown at selected intervals within these zones.
X500	An area inundated by 500-year flooding; an area inundated by 100-year flooding with average depths of less than 1 foot or with drainage areas less than 1 square mile; or an area protected by levees from the 100-year flooding.
X	Areas outside the 1% annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.
A	Flood zone area with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths of base flood elevations are shown within these zones.
ANI	An area that is located within a community or county that is not mapped on any published FIRM.
IN	An area designated as within a "Special Flood Hazard Area" (SFHA) on a FIRM. This is an area inundated by 100-year flooding for which no BFEs or velocity may have been determined. No distinctions are made between the different flood hazard zones that may be included within the SFHA. These may include Zones A, AE, AO, AH, AR, A99, V, or VE.
VE	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
UNDES	A body of open water, such as a pond, lake, ocean, etc., located within a community's jurisdictional limit, which has no defined flood hazard.
AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
D	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.
AH	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
V	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
100IC	An area where the 100-year flooding is contained within the channel banks and the channel is too narrow to show to scale. An arbitrary channel width of 3 meters is shown. BFEs are not shown in this area, although they may be reflected on the corresponding profile.

Map 5
Central Florida Region Flood Zones



The total acreage within the floodplain by county is presented below (**Table 3**). It was calculated using the total acreage as determined by the Soil Conservation Service and the FEMA FIRM Maps as of 2009. As **Table 3** indicates, Polk County has the most acreage within floodplains. Highlands County has the second most acreage.

Table 3
Flood Plain Acreage by County

County	Total Acreage	Flood Plain Acreage	Percentage of Acreage in Flood Plain
DESOTO	406,867	101,573	24.9%
HARDEE	403,200	95,749	23.7%
HIGHLANDS	708,139	279,239	39.4%
OKEECHOBEE	499,200	No Data Available	N/A
POLK	1,287,094	566,452	44.0%

Source: Soil Conservation Service (Total Acreage); FEMA (Digital Inventory of Floodplain Acreage), 2009

Dam Failure

A flood event may also trigger a dam failure. The dam impounds water in the reservoir, or upstream area. The amount of water impounded is measured in acre-feet.[3] Dam failures are not routine but the results can be significant. Two factors influence the potential severity of a dam failure: (1) the amount of water impounded and (2) the density, type and value of the development downstream. (*Statewide Hazard Mitigation Plan, 2009*)

The "dam hazard" is a term indicating the potential hazard to the downstream area resulting from failure or mis-operation of the dam or facilities. (See **Table 4** Dams in the Central Florida Region). According to the USGS National Inventory of Dams, there are 143 dams in the Central Florida Region which have been identified by their hazard risk of low, significant and high.

- *Low hazard:* A dam where failure or mis-operation results in no probable loss of human life and low economic and/or environmental loss. Losses are principally limited to the owner's property.

[3] Hazard Reference: H = High, S = Significant, L = Low

- *Significant hazard:* A dam where failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities or impact other concerns. These dams are often located in predominantly rural or agricultural area but could be located in areas with population and significant infrastructure.

- *High hazard:* A dam where failure or mis-operation will probably cause loss of human life. (*Statewide Hazard Mitigation Plan, 2009*)

As the following tables indicate, dams are located within the Central Florida Region counties of Highlands, Okeechobee and Polk. Of the 143 dams in the Region, 20 dams are identified as "high hazard," 9 of which are located in Okeechobee County and 10 of which are located in Polk County. One high hazard dam is located in Highlands County.

Table 4
Dams in the Central Florida Region

DAM NAME	NIDID	LONGITUDE	LATITUDE	COUNTY	RIVER	HAZARD	USNG
G-90	FL00440	-81.41	27.34	HIGHLANDS	JACK CREEK	H	17R ML 59445 24161
STRUCTURE 65B	FL00286	-81.19	27.46	OKEECHOBEE	KISSIMMEE RIVER (C-38)	L	17R ML 81226 37400
HENRY CREEK LOCK	FL00297	-80.71	27.16	OKEECHOBEE	HENRY CREEK	H	17R NL 28732 04190
CULVERT NO. 9	FL00294	-82.2849	30.44089	OKEECHOBEE	LOCAL DRAINAGE CANAL	H	17R LP 76622 68342
STRUCTURE 65C	FL00287	-81.11	27.4	OKEECHOBEE	KISSIMMEE RIVER (C-38)	L	17R ML 89125 30745
STRUCTURE 65D	FL00288	-81.02	27.31	OKEECHOBEE	KISSIMMEE RIVER (C-38)	L	17R ML 98021 20772
STRUCTURE 65E	FL00290	-80.95	27.22	OKEECHOBEE	KISSIMMEE RIVER (C-38)	L	17R NL 04951 10804
KI-2	FL26002	-80.9365	27.21065	OKEECHOBEE	KISSIMMEE RIVER	H	17R NL 06291 09769
CULVERT NO. 7	FL00296	-82.2983	30.41094	OKEECHOBEE	LEMKIN CREEK	H	17R LP 75293 65038
STRUCTURE 193 (HURRICANE GATE NO.6)	FL00291	-80.79	27.2	OKEECHOBEE	TAYLOR CREEK	H	17R NL 20798 08605
PUMPING STATION 133	FL00292	-80.81	27.2	OKEECHOBEE	LEVEE D4 BORROW DITCH	H	17R NL 18817 08602
STRUCTURE 191	FL00295	-80.76	27.19	OKEECHOBEE	CANAL 59 & NUBBIN SLOUGH	L	17R NL 23772 07503
KI-1	FL26001	-80.9053	27.1892	OKEECHOBEE	KISSIMMEE RIVER	H	17R NL 09382 07395
CULVERT NO. 6	FL00298	-80.8805	27.16416	OKEECHOBEE	LOCAL DRAINAGE CANAL	H	17R NL 11843 04623
CULVERT NO. 8	FL00293	-80.7797	27.2024	OKEECHOBEE	LOCAL DRAINAGE CANAL	H	17R NL 21821 08872

DAM NAME	NIDID	LONGITUDE	LATITUDE	COUNTY	RIVER	HAZARD	USNG
P-4	FL83458	-81.93	27.81	POLK		S	17R ML 08398 76502
KEYSVILLE (E)	FL10051	-82.02	27.81	POLK		S	17R LL 99533 76573
KEYSVILLE (W)	FL10050	-82.04	27.81	POLK		S	17R LL 97563 76589
K-8	FL83456	-82.06	27.81	POLK		S	17R LL 95593 76606
NORALYN N-9	FL00193	-81.84	27.8	POLK		L	17R ML 17255 75331
KINGSFORD K-3	FL00644	-82.01	27.8	POLK	MIZELLE CREEK	S	17R ML 00509 75457
KEYSVILLE (S)	FL10052	-82.03	27.8	POLK		S	17R LL 98538 75473
FORT MEADE PR-6	FL00578	-81.77	27.79	POLK		H	17R ML 24144 74178
KINGSFORD K-2	FL00209	-82.05	27.8	POLK		L	17R LL 96568 75490
PR 1-2 (PEACE RIVER)	FL00211	-81.76	27.79	POLK		H	17R ML 25129 74171
PHOSPHORIA P-2	FL00658	-81.89	27.81	POLK	PEACE RIVER	S	17R ML 12338 76473
NORALYN N-11C	FL00189	-81.86	27.82	POLK		L	17R ML 15301 77560
WEST POLK K-1	FL00210	-82.04	27.8	POLK		L	17R LL 97553 75481
NORALYN N-10	FL00208	-81.84	27.81	POLK		L	17R ML 17263 76438
FORT MEADE PR-4	FL00579	-81.77	27.81	POLK	PEACE RIVER	H	17R ML 24158 76393
KEYSVILLE (N)	FL10048	-82.04	27.82	POLK		S	17R LL 97572 77697
KEYSVILLE (N-CENTER)	FL10049	-82.04	27.82	POLK		S	17R LL 97572 77697

DAM NAME	NIDID	LONGITUDE	LATITUDE	COUNTY	RIVER	HAZARD	USNG
K-7	FL83475	-82	27.82	POLK		H	17R ML 01512 77664
K-7	FL83451	-82	27.82	POLK		H	17R ML 01512 77664
SILVER CITY SA NO 6 PH2	FL00212	-81.91	27.78	POLK		L	17R ML 10343 73164
NORALYN N-15	FL00203	-81.87	27.82	POLK		L	17R ML 14316 77567
S-6 ROCKLAND MINE	FL00620	-81.88	27.72	POLK	WHIDDEN CREEK	L	17R ML 13252 66496
NORALYN N-11A	FL00646	-81.86	27.82	POLK	CAMP BRANCH	S	17R ML 15301 77560
NORALYN N-13	FL00204	-81.85	27.82	POLK		L	17R ML 16286 77553
NORALYN N-4	FL00670	-81.83	27.82	POLK	PEACE RIVER	S	17R ML 18255 77539
WEST POLK A-7	FL00201	-82.01	27.83	POLK		L	17R ML 00536 78780
WEST POLK A-8	FL00200	-82	27.83	POLK		L	17R ML 01521 78772
WEST POLK A-10	FL00205	-81.99	27.82	POLK		L	17R ML 02497 77656
PAYNE CREEK SETTLING AREA NO 2	FL00238	-81.93	27.71	POLK		L	17R ML 08314 65424
F2B	FL83461	-82.08	27.66	POLK		S	17R LL 93477 60006
F2C	FL83462	-82.05	27.66	POLK		S	17R LL 96436 59980
FORT GREEN FG-1	FL00572	-82.01	27.67	POLK	PAYNE CREEK	S	17R ML 00390 61055
PALMETTO SETTLING AREA NO 1	FL00252	-81.93	27.67	POLK		L	17R ML 08281 60993
PALMETTO SETTLING AREA NO 2	FL00253	-81.93	27.67	POLK		L	17R ML 08281 60993
PALMETTO SETTLING AREA NO 4	FL00255	-81.93	27.67	POLK		L	17R ML 08281 60993

DAM NAME	NIDID	LONGITUDE	LATITUDE	COUNTY	RIVER	HAZARD	USNG
PALMETTO SETTLING AREA NO 5	FL00256	-81.93	27.67	POLK		L	17R ML 08281 60993
PALMETTO SETTLING AREA NO 6	FL00257	-81.93	27.67	POLK		L	17R ML 08281 60993
SETTLING AREA A DIKE	FL00251	-81.86	27.68	POLK		L	17R ML 15192 62051
FORT GREEN FG-2	FL00571	-82.01	27.69	POLK	PAYNE CREEK	S	17R ML 00409 63271
FORT GREEN FG-3	FL00573	-82	27.7	POLK	PAYNE CREEK	S	17R ML 01404 64371
AREA D	FL00235	-82.01	27.71	POLK		L	17R ML 00427 65486
GARDINIER AREA E	FL00623	-81.86	27.72	POLK	WHIDDEN CREEK	S	17R ML 15223 66482
PAYNE CREEK SETTLING AREA NO 1	FL00237	-81.93	27.71	POLK		L	17R ML 08314 65424
FM 1-2 (FORT MEADE)	FL00214	-81.83	27.77	POLK		H	17R ML 18218 72001
PAYNE CREEK SETTLING AREA NO 3	FL00239	-81.93	27.71	POLK		L	17R ML 08314 65424
PAYNE CREEK SETTLING AREA NO 4	FL00240	-81.93	27.71	POLK		L	17R ML 08314 65424
PAYNE CREEK SETTLING AREA NO 5	FL00241	-81.93	27.71	POLK		L	17R ML 08314 65424
SETTLING AREA C & C DIKE	FL00247	-81.87	27.71	POLK		L	17R ML 14230 65381
WATSON SA NO 10	FL00248	-81.76	27.71	POLK		L	17R ML 25075 65309
AREA C	FL00236	-82	27.72	POLK		L	17R ML 01422 66586
CS-11	FL83455	-81.78	27.83	POLK		S	17R ML 23187 78615
SETTLING AREA D DIKE	FL00231	-81.86	27.72	POLK		L	17R ML 15223 66482
WATSON SA N09 BOWLEGS	FL00232	-81.78	27.73	POLK		L	17R ML 23117 67537

DAM NAME	NIDID	LONGITUDE	LATITUDE	COUNTY	RIVER	HAZARD	USNG
ES-TECH SA-13	FL00639	-81.77	27.73	POLK	PEACE RIVER	L	17R ML 24102 67531
AREA E	FL00228	-82.04	27.74	POLK		L	17R LL 97497 68834
ROCKLAND MINE S-1	FL00226	-81.86	27.74	POLK		L	17R ML 15239 68697
FM 3 (FORT MEADE)	FL00221	-81.83	27.75	POLK		H	17R ML 18203 69785
PAYNE CREEK SETTLING AREA NO 6	FL00242	-81.93	27.71	POLK		L	17R ML 08314 65424
SOUTH RIDGEWOOD/CLARK JAMES DAM	FL00194	-81.9	27.88	POLK		L	17R ML 11410 84235
MULBERRY S (1)	FL10076	-81.91	27.9	POLK		S	17R ML 10442 86458
BARTOW-2	FL00191	-81.88	27.89	POLK		L	17R ML 13387 85328
MULBERRY (4)	FL10056	-81.95	27.89	POLK		S	17R ML 06496 85380
MULBERRY (1)	FL10053	-81.96	27.89	POLK		S	17R ML 05512 85388
MULBERRY W	FL10087	-81.89	27.88	POLK		S	17R ML 12394 84228
MULBERRY (CTR)	FL10086	-81.89	27.88	POLK		S	17R ML 12394 84228
MULBERRY (9)	FL10061	-81.95	27.88	POLK		S	17R ML 06488 84272
MULBERRY N	FL10084	-81.89	27.88	POLK		S	17R ML 12394 84228
MULBERRY W (CTR)	FL10075	-81.9	27.9	POLK		S	17R ML 11426 86450
MULBERRY (8)	FL10060	-81.94	27.88	POLK		S	17R ML 07472 84264
MULBERRY (7)	FL10059	-81.94	27.88	POLK		S	17R ML 07472 84264
MULBERRY (6)	FL10058	-81.94	27.88	POLK		S	17R ML 07472 84264

DAM NAME	NIDID	LONGITUDE	LATITUDE	COUNTY	RIVER	HAZARD	USNG
MULBERRY (12)	FL10064	-81.95	27.88	POLK		S	17R ML 06488 84272
MULBERRY (11)	FL10063	-81.95	27.88	POLK		S	17R ML 06488 84272
WEST POLK A-9	FL00202	-81.99	27.83	POLK		L	17R ML 02506 78764
MULBERRY NW	FL10085	-81.89	27.88	POLK		S	17R ML 12394 84228
P-11	FL13003	-81.85	27.93	POLK	SADDLE CREEK	S	17R ML 16370 89739
SADDLE CREEK SC-7	FL00560	-81.84	28.12	POLK	SADDLE CREEK	L	17R MM 17499 10781
SADDLE CREEK SA-1	FL00565	-81.88	28.12	POLK	SADDLE CREEK	S	17R MM 13570 10808
SADDLE CREEK SA-2	FL00564	-81.9	28.12	POLK	SADDLE CREEK	S	17R MM 11606 10823
SADDLE CREEK SETTLING AREA NO 5	FL00178	-81.9	28.11	POLK		S	17R MM 11598 09715
LAKE HARTRIDGE DAM	FL00179	-81.73	28.08	POLK	LAKE CONINE	S	17R MM 28277 06280
P-7	FL13001	-81.68	28.05	POLK	P7 CANAL	S	17R MM 33171 02928
MULBERRY S (2)	FL10077	-81.91	27.9	POLK		S	17R ML 10442 86458
P-8	FL13002	-81.64	28.03	POLK	P8 CANAL	S	17R MM 37090 00691
MULBERRY E	FL10074	-81.91	27.9	POLK		S	17R ML 10442 86458
MULBERRY N	FL10073	-81.91	27.91	POLK		S	17R ML 10450 87566
WEST AKINS DAM	FL00185	-81.95	27.91	POLK		H	17R ML 06514 87595
MULBERRY SW	FL10082	-81.87	27.9	POLK		S	17R ML 14379 86429
MULBERRY E	FL10081	-81.88	27.9	POLK		S	17R ML 13395 86436

DAM NAME	NIDID	LONGITUDE	LATITUDE	COUNTY	RIVER	HAZARD	USNG
MULBERRY NE	FL10080	-81.88	27.9	POLK		S	17R ML 13395 86436
MULBERRY W	FL10078	-81.9	27.9	POLK		S	17R ML 11426 86450
MULBERRY (5)	FL10057	-81.95	27.88	POLK		S	17R ML 06488 84272
P-6	FL13000	-81.7	28.05	POLK	P6 CANAL	S	17R MM 31205 02939
BRADLEY JXN 6	FL10094	-81.92	27.84	POLK		S	17R ML 09408 79818
CLEAR SPRINGS CS-4	FL00675	-81.82	27.85	POLK	PEACE RIVER	S	17R ML 19263 80856
CLEAR SPRINGS N-12	FL00197	-81.84	27.85	POLK		L	17R ML 17293 80870
NORALYN N-14	FL00196	-81.85	27.85	POLK		L	17R ML 16309 80876
BRADLEY JUNCTION S	FL10071	-81.94	27.85	POLK		S	17R ML 07447 80941
NI 1 (NICHOLS)	FL00206	-82	27.85	POLK		H	17R ML 01539 80988
BRADLEY JXN 5	FL10093	-81.9	27.84	POLK		S	17R ML 11377 79804
MULBERRY (10)	FL10062	-81.95	27.88	POLK		S	17R ML 06488 84272
BRADLEY JXN 3	FL10091	-81.91	27.84	POLK		S	17R ML 10393 79811
BRADLEY JUNCTION E (CTR)	FL10070	-81.94	27.86	POLK		S	17R ML 07455 82049
BRADLEY JXN 2	FL10090	-81.92	27.84	POLK		S	17R ML 09408 79818
BRADLEY JUNCTION 1	FL10089	-81.92	27.84	POLK		S	17R ML 09408 79818
WEST POLK A-4	FL00199	-81.99	27.84	POLK		L	17R ML 02515 79872
NICHOLS N-3	FL00577	-82.01	27.84	POLK	ALAFIA RIVER	S	17R ML 00545 79888

DAM NAME	NIDID	LONGITUDE	LATITUDE	COUNTY	RIVER	HAZARD	USNG
KINGSFORD A-11	FL00664	-82.02	27.84	POLK	ALAFIA RIVER	S	17R LL 99560 79896
NICHOLS N-4	FL00576	-82.02	27.84	POLK	ALAFIA RIVER	S	17R LL 99560 79896
BRADLEY JXN 4	FL10092	-81.91	27.84	POLK		S	17R ML 10393 79811
NICHOLS (W)	FL10044	-82.03	27.87	POLK		S	17R LL 98603 83228
MULBERRY (3)	FL10055	-81.95	27.88	POLK		S	17R ML 06488 84272
MULBERRY (2)	FL10054	-81.95	27.88	POLK		S	17R ML 06488 84272
MULBERRY S	FL10088	-81.89	27.87	POLK		S	17R ML 12386 83120
MULBERRY E	FL10083	-81.89	27.87	POLK		S	17R ML 12386 83120
MULBERRY N	FL10065	-81.94	27.87	POLK		S	17R ML 07464 83157
NICHOLS (E)	FL10047	-82.02	27.87	POLK		S	17R LL 99588 83220
CLEAR SPRINGS CS-8	FL00652	-81.78	27.85	POLK	PEACE	S	17R ML 23201 80831
NICHOLS (W-CENTER)	FL10045	-82.03	27.87	POLK		S	17R LL 98603 83228
BRADLEY JUNCTION S (CTR)	FL10069	-81.94	27.86	POLK		S	17R ML 07455 82049
CLEAR SPRINGS N-12A	FL00653	-81.84	27.86	POLK	PEACE RIVER	S	17R ML 17301 81977
NORALYN N-14	FL00668	-81.86	27.86	POLK	SIX MILE CREEK	H	17R ML 15332 81991
BRADLEY JUNCTION W (CTR)	FL10068	-81.93	27.86	POLK		S	17R ML 08440 82041
BRADLEY JUNCTION N (CTR)	FL10067	-81.93	27.86	POLK		S	17R ML 08440 82041
BRADLEY JUNCTION NW	FL10066	-81.93	27.86	POLK		S	17R ML 08440 82041

DAM NAME	NIDID	LONGITUDE	LATITUDE	COUNTY	RIVER	HAZARD	USNG
BRADLEY JUNCTION NE	FL10072	-81.94	27.86	POLK		S	17R ML 07455 82049
NORALYN N-5	FL00673	-81.83	27.83	POLK	PEACE RIVER	S	17R ML 18263 78647
NICHOLS (E-CENTER)	FL10046	-82.03	27.87	POLK		S	17R LL 98603 83228

Source: USACE (2009)

History of Inland Flooding

Based on data collected by the National Climatic Data Center (NCDC), there were 914 flooding events in Florida between 1993 and 2006, for an average of 70 flooding events per year. Total property damages were estimated at $1.278 billion with an additional $947.081 million in crop-related damages. Below is a summary of the major flooding events in the Central Florida Region from 1993 to 2008.

March 1998, El Nino Effect: On March 1, 1998, Alachua, Baker, Bradford, Citrus, Clay, Columbia, DeSoto, Duval, Flagler, Gilchrist, Hamilton, Hillsborough, Marion, Nassau, Pasco, Putnam, St. Johns, Suwannee, and Union Counties were flooded. More than 2,800 homes and over 175 businesses were destroyed and property damage totaled $25.5 million. Flooding was attributed to the El Nino effect.

June 2003, Series of Severe Storms: A series of severe thunderstorms swept through southwest Central Florida between June 21 and June 24, 2003. Precipitation associated with these storms resulted in flooding in parts of several Florida counties including Charlotte, Citrus, DeSoto, Dixie, Hardee, Levy, Manatee, Sarasota, and Taylor. Floodwater from these thunderstorms caused damage to public and private property amounting to more than $11 million and damaged or destroyed more than 100 homes.

August through September 2004, Cumulative Effects of Hurricanes Charley, Francis & Jeanne: There was significant flooding in the Babson Park, Crooked Lake and Bartow areas of Polk County. This flooding was not the result of a single event but rather a cumulative effect of three hurricanes passing through the county within about a 15 mile area. These three storms each brought more rain to the region. What began as mild freshwater flooding in the typical low lying areas ended the season with entire neighborhoods under the influence of standing water.

Peace River Flooding

The efforts to mitigate this flooding required many months of excavation work to open drainage ditches and in one instance it required pumping from one lake to another approximately 1/3 of a mile away so that the water could drain into a natural stream.

August 2008, Tropical Storm Fay: Tropical Storm Fay caused significant flooding throughout the Region and Florida. Fay came ashore in the Florida Keys August 18 and continued northward up the Florida Peninsula. Fay was recorded as the first storm to landfall four times in one state impacting the Florida Keys, South Florida, exiting off the east coast, coming back inland near Flagler Beach, exiting off the Gulf Coast, and making landfall again near Carrabelle. Some areas of Florida received as much as 25 inches of rain. Millions of dollars in damage and 15 deaths were caused in Florida by Fay. (*www.noaa.nhc.gov*)

Repetitive Loss Areas

The location of repetitive loss structures[4] helps to identify specific areas in the community where flooding continues to be a problem and where mitigation efforts should be concentrated. For many of these flood prone areas, mitigation will involve significant property owner investment and will probably be delayed until redevelopment/reconstruction occurs. New construction or significant remodeling will require adherence to current floodplain management regulations. The repetitive loss properties and repetitive loss areas are addressed in the County Local Mitigation Strategies (LMSs). A breakdown of the properties by structure type is provided in **Table 5** below.

As indicated by the table, unincorporated DeSoto County, the City of Okeechobee, unincorporated Polk County, and the City of Lakeland have the most repetitive loss properties.

[4] A "repetitive-loss property" is one that has suffered two or more flood losses over 10 years with the cumulative cost of repairs equaling or exceeding 50% of the value of the structure. Increased Cost of Compliance for repetitive-loss structures is available only in communities that have repetitive-loss provisions in their floodplain-management ordinances and track repetitive-loss damages.

Table 5
Repetitive Loss Properties

Community Name	Repetitive Loss Structures	Single Family	2-4 Family	Other Res	Condo Assoc	Non-Res
DeSoto County	28	25	0	0	1	2
Arcadia	6	0	0	0	2	4
Hardee County	6	5	0	0	1	0
Bowling Green	0	0	0	0	0	0
Ona	6	0	0	0	6	0
Wauchula	0	0	0	0	0	0
Zolfo Springs	2	2	0	0	0	0
Highlands County	5	5	0	0	0	0
Avon Park	1	1	0	0	0	0
Lake Placid	2	0	2	0	0	0
Sebring	0	0	0	0	0	0
Okeechobee County	9	9	0	0	0	0
Okeechobee	26	24	0	0	0	2
Polk County	23	23	0	0	0	0
Auburndale	0	0	0	0	0	0
Bartow	8	8	0	0	0	0
Davenport	2	2	0	0	0	0
Dundee	0	0	0	0	0	0
Eagle Lake	0	0	0	0	0	0
Fort Meade	0	0	0	0	0	0
Frostproof	4	4	0	0	0	0
Haines City	4	4	0	0	0	0
Highland Park	0	0	0	0	0	0
Hillcrest Heights	0	0	0	0	0	0
Lake Alfred	0	0	0	0	0	0
Lake Hamilton	0	0	0	0	0	0
Lake Wales	8	8	0	0	0	0
Lakeland	47	40	0	0	0	7
Mulberry	6	6	0	0	0	0
Polk City	2	2	0	0	0	0
Winter Haven	2	2	0	0	0	0

Source: Local Mitigation Strategy Plans for DeSoto, Hardee, Highlands, Okeechobee and Polk Counties, Florida Division of Emergency Management, NFIP (Numbers based on latest Repetitive Loss List dated 06/30/09)

IV. HISTORY OF HURRICANES IN THE CENTRAL FLORIDA REGION

Hurricanes are a natural and dangerous phenomenon, representing a significant threat to residents, visitors and the economic health and stability of the Central Florida Region. Emergency management planners and atmospheric scientists have theorized that global weather patterns have returned to a period of increased tropical storm activity and intensity (a Category 3 or higher on the Saffir-Simpson Hurricane Wind Scale). An analysis of hurricane activity, beginning in the 1920s, indicates that hurricane activity is cyclical and that a more active period generally follows a period of relative inactivity. This has been the case in Florida where the hurricane cycle had been relatively inactive from the 1960s until the last 20 years when it became a more active period. However, this may not be the case during El Niño periods which historically have demonstrated fewer, yet more intense storms.

Florida's population up through the 1840s, was concentrated within the cities and ports along Florida's east coast, northwest panhandle and Florida Keys. This was followed by new settlements along the southwest coast. These coastal communities and their concentrated populations were vulnerable to hurricanes. Records show that in 1848 a major hurricane battered the Tampa Bay area causing the tide in Tampa Bay to rise 15 feet above normal sea levels, flooding Fort Brooke and the stores and homes that were located along Tampa Bay. *"The hurricane's powerful surge had shifted sand all along the coast and reshaped many of the keys near Tampa Bay. Navigation routes were filled in and closed, making charts of the area produced before 1848 almost useless after the hurricane. In terms of intensity and destruction, the 1848 storm remains perhaps the greatest in Tampa's history."* (Barnes, 1999) Two weeks later, another storm made landfall along the west coast creating a path of destruction from Cape San Blas to Tampa Bay.

According to historians, a total of 77 hurricanes made landfall in the State of Florida between the years of 1875 to 1997, with the late 1920s through the following decades of 1930 and 1940, a period of major hurricane activity. For Florida, the 1920s was a period of economic prosperity and growth in its resort areas, including the Tampa Bay area. It was during this time, as Tampa Bay experienced the effects of "Florida Fever", that the area was visited by the most severe hurricane in over 70 years. In October 1921 the Tampa Bay area was pummeled by a hurricane that produced a storm surge of 10.5 feet, the highest recorded since the hurricanes of 1848. It was such a powerful storm that it created both Longboat Pass (which now separates the City of Bradenton Beach and Longboat Key) and Hurricane Pass in Dunedin. Before the storm, Passage Key, located between Egmont Key and Anna Maria Island, was home to a fishing village and fresh water lake. Following the storm it was reduced to a sand bar with little vegetation. Today it serves as a National Bird Sanctuary.

The Okeechobee Hurricane in September 1928 remains Florida's "single greatest tragedy", with an official death toll of 2,500 people (Barnes, 1998 and Blake, 2007). The storm caused a 15 foot rise in the elevation of Lake Okeechobee which resulted in 1,200 drowning deaths. This storm was one of the key factors that led to the construction of the Herbert Hoover Dike that now surrounds Lake Okeechobee.

Hurricane Donna, which came ashore in 1960, was the first major hurricane to make landfall in Florida since the 1940s. The hurricane caused damage in the Florida Keys, and Collier and Lee Counties. Wind gusts of 120 mph were recorded in Manatee County, and over 100 mph in Polk County.

A summary of 'significant hurricanes', which directly impacted the Central Florida Region, is provided below. While this list is not all inclusive, it represents those storms that had the greatest impact on the area.

Hurricane History, Through the Year 2009

Great Miami Hurricane 1926

The "Great Miami" Hurricane of 1926 began as a tropical wave located 1,000 miles east of the Lesser Antilles on September 11th. The system, which quickly moved westward intensified to hurricane strength north of Puerto Rico on September 15th. Winds clocking nearly 150 mph were reported as the hurricane passed over the Turks Islands on September 16th and the Bahamas on September 17th. Since at that time little meteorological information was available to the Weather Bureau in Miami, hurricane warnings were not issued until midnight on September 18th. This gave the booming South Florida population little notice of the impending disaster.

The storm made landfall as a Category 4 hurricane with the eye moving directly over Miami Beach and downtown Miami during the morning hours of September 18th. This storm produced the highest sustained winds ever recorded in the United States at the time, and the barometric pressure fell to 27.61 inches as the eye passed over Miami. Most residents, not having experienced a hurricane, ventured outdoors during the storm's lull, the time in which the eye was passing overhead. Consequently, this led to many casualties as residents were exposed to the eastern half of the hurricane. Every building in the

downtown district of Miami was damaged or destroyed. A storm surge of nearly 15 feet was reported in Coconut Grove. In addition, the town of Moore Haven, located on the south side of Lake Okeechobee, was completely inundated by lake surge, killing hundreds of people and leaving floodwaters in the town for weeks afterward.

The hurricane continued northwest across the Gulf of Mexico on a path for Pensacola on September 20th. The storm nearly stalled to the south of Pensacola later that day and buffeted the central Gulf Coast with 24 hours of heavy rainfall, hurricane force winds, and storm surge. The hurricane weakened as it moved inland over Louisiana later on September 21st. Nearly every pier, warehouse, and vessel on Pensacola Bay was destroyed.

The great hurricane of 1926 ended the economic boom in South Florida. In today's dollars the storm damage would total $90 billion. The death toll is uncertain due to a highly transient population across southeastern Florida during the 1920s, however more than 800 people were reported missing in the aftermath of the storm. A Red Cross report lists 373 deaths and 6,381 injuries as a result of the hurricane.

San Felipe-Okeechobee Hurricane 1928

This San Felipe-Okeechobee Hurricane of 1928 was first detected over the tropical Atlantic on September 10th. The storm moved westward through the Leeward Islands on September 12th, turning west-northwest on September 13th, and making direct landfall in Puerto Rico as a Category 4 hurricane. The hurricane continued west-northwest through the Bahamas making landfall near Palm Beach, Florida on September 16th. On September 17th the storm turned north-northeast over the Florida Peninsula, reaching eastern North Carolina on September 19th. It then turned northward and merged with a non-tropical low over the eastern Great Lakes on September 20th.

While there are no reliable wind readings where the storm made landfall in Florida, Palm Beach was able to report a minimum barometric pressure of 27.43 inches, making this the fourth strongest hurricane of record to hit the United States. Sustained winds of 144 mph were reported in Puerto Rico, San Juan, while a pressure of 27.65 inches was reported at Guayama, Puerto Rico. A ship located just south of St. Croix, United States Virgin Islands (USVI), reported a barometric pressure of 27.50 inches and Guadeloupe, in the Leeward Islands, reported a pressure of 27.76 inches.

This hurricane caused widespread destruction and loss of life from the Leeward Islands to Florida. In Florida, at least 1,836 people died from water inundation resulting from a 6 foot to 9 foot surge in Lake Okeechobee. In addition, 312 people were reported dead in Puerto Rico and 18 in the Bahamas. Property damage was estimated at $50 million in Puerto Rico and $25 million in Florida.

Hurricane Donna 1960

On August 29, 1960 a tropical wave formed off the African coast, which became a tropical storm over the tropical Atlantic on August 30th and then a hurricane on September 1st. Donna followed a general west-northwest track for the following five days, passing over the northern Leeward Islands on September 4th and 5th as a Category 4 hurricane and then moving north of Puerto Rico later on the September 5th. Donna turned westward on September 7th and passed through the southeastern Bahamas. A northwest turn on September 9th brought the hurricane to the middle Florida Keys on September 10th as a Category 4 storm. Donna then curved to the northeast, crossing the Florida Peninsula on September 11th, moving towards eastern North Carolina on September 12th as a Category 3 storm, and then on to the New England states as a Category 3 storm on Long Island on September 12th and 13th and as Category 1 and 2 storms elsewhere. The storm became extra-tropical over eastern Canada on the September 13th.

Donna is the only single hurricane of record to produce hurricane-force winds in Florida, the Mid-Atlantic States, and New England. Sombrero Key, Florida reported sustained winds of 128 mph, with wind gust up to 150 mph. In the Mid-Atlantic States, Elizabeth City, North Carolina reported 83 mph sustained winds, while Manteo, North Carolina reported a 120 mph wind gust. In New England, Block Island, Rhode Island reported 95 mph sustained winds with gusts up to 130 mph.

Storm surges of up to 13 feet were reported in the Florida Keys and up to 11 feet along the southwest coast of Florida. Four to 8 foot surges were reported along portions of the North Carolina coast and 5 to 10 foot surges were reported along portions of the New England coast. Puerto Rico received 10 to 15 inches of rainfall and Florida received 6 to 12 inches. Four to 8 inches fell elsewhere along the path of the hurricane.

With a landfall barometric pressure of 27.46 inches, Donna is the fifth strongest hurricane of record to hit the United States. Fifty (50) deaths were reported in the United States and 114 deaths were reported from the Leeward Islands to the Bahamas, including 107 in Puerto Rico from flooding and heavy rains. Property damage totaled $387 million in the United States with $13 million elsewhere along the storm's path.

The 2004 Hurricane Season

The hurricane events of 2004 were unprecedented in their number (three of which caused wind damage and flooding in Central Florida) and their cumulative impacts within Florida inland counties.

Hurricane Charley - August 9 to August 14, 2004

Hurricane Charley began as a tropical wave, which developed into a tropical depression on August 9th, approximately 115 miles south-southeast of Barbados. The depression strengthened to a tropical storm in the eastern Caribbean by early the next day, becoming a hurricane on August 11th. Charley's center passed about 40 miles southwest of the southwest coast of Jamaica, and then on August 12th the storm passed approximately 15 miles northeast of Grand Cayman as a Category 2 hurricane. Charley turned to the north-northwest and continued to strengthen, making landfall in western Cuba as a Category 3 hurricane packing 120 mph maximum winds.

Charley weakened after crossing the western end of Cuba and by 8 a.m. on August 13th, the center reached the Dry Tortugas with maximum wind speeds of approximately 110 mph. Influenced by an unseasonably strong mid-tropospheric trough, Charley turned north-northeast and rapidly intensified as it accelerated toward the southwest coast of Florida. Dropsonde measurements indicate that Charley's central pressure fell from 964 mb to 941 mb in 4.5 hours. By 10 am, the maximum winds had increased to near 125 mph. Three hours later the winds had increased to 145 mph, a Category 4 hurricane. At approximately 3:45 pm, Charley made landfall on the southwest coast of Florida, just north of Captiva Island, with maximum winds of nearly 150 mph. One hour later, Charley's eye passed over Punta Gorda.

The hurricane proceeded to cross Central Florida near Arcadia, Wauchula, Bartow and Lakeland. It continued northeast passing over Kissimmee and Orlando. Charley was still a hurricane around midnight when the center of the storm cleared the northeast coast of Florida near Daytona Beach. After moving into the Atlantic Charley came ashore again, on August 14th, as a Category 1 hurricane near Cape Romain, South Carolina. Once again the center moved offshore before making a final landfall at North Myrtle Beach. Charley soon weakened to a tropical storm over southeastern North Carolina and became extra-tropical on August 15th as it moved back over the Atlantic near Virginia Beach.

Charley was the strongest hurricane to hit the United States since hurricane Andrew in 1992. Serious damage occurred to inland Florida communities, and although small in size, it caused catastrophic wind damage in Charlotte, DeSoto, and Hardee Counties with lesser damage in Polk County. Polk and Hardee Counties issued evacuation orders prior to the storm event.

Charley was a very small hurricane when it made landfall in Florida with maximum winds and storm surge located only about 6 to 7 miles from its center. This helped minimize the extent and amplitude of the storm surge, which likely did not exceed 7 feet. However, the hurricane's violent winds devastated Punta Gorda and neighboring Port Charlotte. The storm produced 16 tornados in Florida, North Carolina and Virginia. Rainfall amounts were generally modest (less than 8 inches). Charley is the second costliest hurricane in U.S. history with total damages estimated to be near $15 billion. Given the ferocity of the storm, casualties were remarkably low with 10 deaths in the United States, 4 in Cuba and 1 in Jamaica.

Tropical Storm/Hurricane Frances - August 25 to September 8, 2004

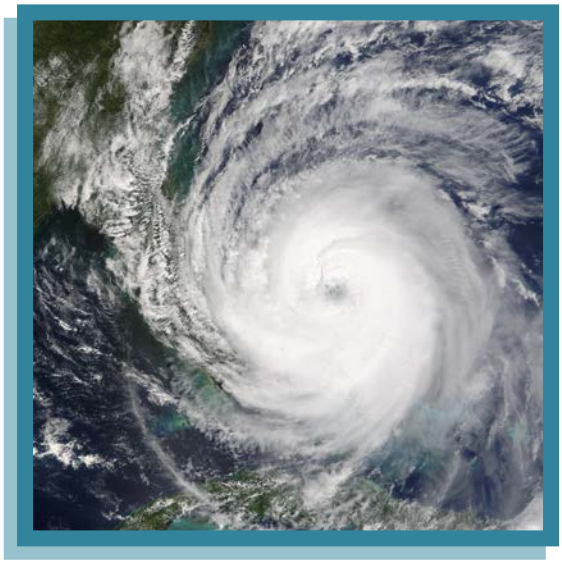
Frances began as a tropical wave, becoming a tropical depression on August 25th as the storm moved within several hundred miles west-southwest of the southern Cape Verde Islands. The depression reached tropical storm status later that day and strengthened into a hurricane the following day. Frances generally moved west-northwest for the next several days, passing north of the Leeward Islands on August 31st, and just north of the Turks and Caicos Islands on September 2nd. On two occasions, a series of concentric eye wall cycles allowed Frances to reach Category 4 strength, with peak winds of 145 mph. Westerly wind shear caused Frances to weaken to a Category 2 hurricane by the time it passed over the northwestern Bahamas on September 4th. Frances made landfall after midnight on September 5th near Stuart, Florida as a Category 2 hurricane with 105 mph maximum winds. Frances

gradually weakened as it moved slowly across the Florida Peninsula and became a tropical storm just before emerging into the northeastern Gulf of Mexico early on September 6th. Frances made its final landfall as a tropical storm in the Florida Big Bend region on the afternoon of September 6th. The storm weakened over the southeastern United States and became extra-tropical over West Virginia on September 9th.

Frances produced a storm surge of nearly 6 feet at its point of landfall along the Florida east coast. Widespread heavy rains and associated freshwater flooding occurred over much of the eastern United States, with Linville Falls, North Carolina reporting 18.07 inches of rainfall. The storm also produced over 100 tornados throughout the southeastern and mid-Atlantic states. Eight deaths were reported with 7 in the United States and 1 in the Bahamas. Property damage in the U.S. is estimated to be near $8.9 billion, with over 90% of the damage occurring in Florida.

Hurricane Jeanne - September 13 to September 28, 2004

Jeanne began as a tropical wave, becoming a tropical depression near the Leeward Islands on September 13th, and then strengthening to a tropical storm on September 14th. Jeanne moved west-northwest delivering 70 mph winds to Puerto Rico on September 15th and then strengthened to a hurricane just before making landfall in the Dominican Republic. Jeanne spent nearly 36 hours over the rough terrain of Hispaniola, generating torrential rainfall before reemerging into the Atlantic north of the island. Weak steering currents in the Atlantic caused Jeanne to move slowly for 5 days through and north of the southeastern Bahamas, which gradually allowed the storm to regain the strength it had lost over Hispaniola. By September 23rd high pressure over the northeastern United States and western Atlantic caused Jeanne to turn westward. The storm strengthened and became a major hurricane on September 25th with its center crossing Abaco and Grand Bahama Island. Early on September 26th the center of Jeanne's 60-mile-wide eye crossed the Florida coast near Stuart, virtually at the identical spot that Frances had come ashore three weeks earlier. Maximum winds at the time of landfall were estimated to be near 120 mph.



Jeanne weakened as it moved across Central Florida, becoming a tropical storm during the afternoon of September 26th near Tampa. The next day it weakened into a depression as it moved over Central Georgia. The storm produced heavy rains over the Carolinas, Virginia, and the Delmarva Peninsula from September 28th through the 29th. The storm then became extra-tropical.

Jeanne was a heavy rain producer in Puerto Rico and Hispaniola, with nearly 24 inches reported in Vieques. Rains produced historic floods in Puerto Rico and deadly flash-floods and mudslides in Haiti, where over 3,000 people were killed and roughly 200,000 were left homeless. The death toll stood at 3 in Florida, and one each in Puerto Rico, South Carolina, and Virginia. Property damage in the United States was estimated to be near $6.9 billion.

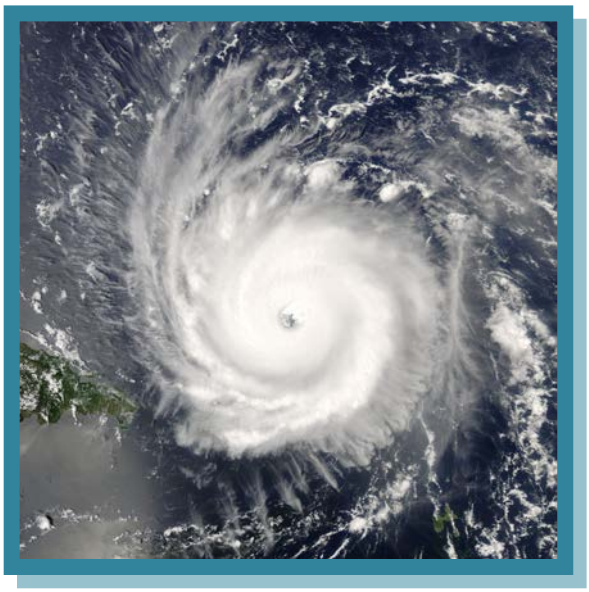
Winds were somewhat stronger in the Central Florida Region for Hurricane Jeanne than they were for Hurricane Frances, resulting in greater wind damage but minimal coastal flooding. Areas still flooded from Frances, which hit 3 weeks earlier, received additional flood waters from Jeanne. (*www.nhc.noaa.gov*)

The 2005 Hurricane Season

Hurricane Wilma - October 15 to October 25, 2005

Wilma was a massive and powerful storm that formed out of a weather disturbance stretching across much of the Caribbean Sea during the second week of October. On October 14th a surface low pressure system developed near Jamaica which led to the formation of a tropical depression on October 15th, about 220 miles east-southeast of Grand Cayman. Over a two day period the storm moved erratically westward and southward while slowly strengthening into a tropical storm. Wilma became a hurricane on October 18th and began a west-northwest track. On October 19th the storm's

central pressure fell 88 mb in 12 hours, shattering previous records for the lowest drop in central pressure within a 12-hour period for Atlantic hurricanes. Winds were estimated to have reached 185 mph.



On October 20th the storm slightly weakened and turned northwest toward the northeastern Yucatan Peninsula. Wilma made landfall as a Category 4 storm over Cozumel late on October 21st. The slow-moving hurricane then made landfall early the next day over the northeastern Yucatan Peninsula, again as a Category 4 storm. Wilma weakened over northeastern Yucatan, emerging over the Gulf of Mexico early on October 23rd as a Category 2 hurricane. Later that day it accelerated in a northeast direction toward southern Florida, strengthening over the Gulf waters and making landfall near Cape Romano on October 24th as a Category 3 hurricane. Within less than 5 hours, the eye crossed the Florida Peninsula, moving into the Atlantic, just north of Palm Beach as a Category 2 hurricane. Wilma briefly intensified just east of Florida, weakening thereafter, and then moving rapidly to the northeast over the western Atlantic becoming extra-tropical about 230 miles southeast of Halifax, Nova Scotia on October 25th. Remnants of the storm were absorbed by another low late the next day.

Wilma brought hurricane conditions to the northeastern Yucatan Peninsula, its adjacent islands, and southern Florida. On October 22nd Cancun, Mexico reported 100 mph winds with gusts up to 130 mph. Isla Mujeres, Mexico reported 62.05 inches of rain during the hurricane event. On October 24th the South Florida Water Management District (SFWMD) station in Lake Okeechobee reported 92 mph winds with gusts up to 112 mph; a nearby SFWMD station in Belle Glade reported a gust up to 117 mph. In Florida, 10 tornados were credited to the storm.

Twenty-two deaths have been directly attributed to Wilma; 12 in Haiti, 1 in Jamaica, 4 in Mexico, and 5 in Florida. The northeastern Yucatan, including Cancun and Cozumel incurred severe damage, and the storm produced major flooding in western Cuba. Widespread damage in southern Florida was estimated at $16.8 billion.

V. RECENT HURRICANES OF NATIONAL SIGNIFICANCE

Hurricane Andrew – August 14 to 28, 1992

Hurricane Andrew, considered one of the most destructive hurricanes of record to hit the United States, began as a mere tropical wave off the west coast of Africa on August 14th. The wave transformed into a tropical depression on August 16th and became Tropical Storm Andrew the next day. Further development was slow, as the west-northwest moving Andrew encountered an unfavorable upper-level trough. Vertical wind shear on August 20th nearly caused the storm to dissipate. By August 21st, Andrew was located midway between Bermuda and Puerto Rico, turning westward into a more favorable environment, allowing rapid strengthening of the storm. Andrew became a hurricane on August 22nd and reached Category 4 status on August 23rd. After a brief weakening over the Bahamas, Andrew regained Category 4 status as it blasted its way across South Florida on August 24th. The hurricane continued westward into the Gulf of Mexico where it made a gradual turn to the north, bringing it to the central Louisiana coast on August 26th as a Category 3 hurricane. Andrew then made a turn to the northeast, eventually merging with a frontal system over the Mid-Atlantic States on August 28th.

Although Hurricane Andrew made landfall in southern Florida, the storm affected the entire state. Only two other hurricanes in history, both Category 5 storms - the Labor Day storm of 1935 and Camille in 1969 - were stronger than Hurricane Andrew when they made landfall in the United States. Even so, Andrew packed a wallop, causing a storm surge in South Florida of over 16 feet and producing winds that gusted over 175 mph. The scale of the disaster was enormous and the massive recovery that ensued was of epic proportions. Damages were staggering, surpassing $50 billion. The storm ultimately affected Florida's emergency management policies and procedures, land development regulations, including the statewide building code, as well as the insurance industry.

Reports from private barometers indicate Andrew's central pressure at landfall in Homestead, Florida was 27.23 inches, which makes it the third most intense hurricane of record to hit the United States. In South Florida, wind measuring instruments were destroyed, thereby rendering it impossible to record peak wind speeds. An automated station at Fowey Rocks reported 142 mph sustained winds with gusts to 169 mph (measured 144 ft. above the ground). Higher values may have occurred, but the station was eventually damaged and therefore stopped reporting. The National Hurricane Center had a peak wind gust of 164 mph (measured 130 ft above the ground), while a gust of 177 mph was measured at a private home. Once the storm reached Louisiana, 96 mph sustained winds with gusts to 120 mph were reported in Berwick, Louisiana.

Andrew produced a 17 foot storm surge near its point of landfall in Florida, while 8 foot storm tides inundated portions of the Louisiana coast. Andrew also spawned a killer tornado in southeastern Louisiana.

Andrew was responsible for 23 deaths in the United States and three in the Bahamas. Damages in the United States totaled $26.5 billion dollars, with $1 billion attributed to damages in Louisiana and the rest to South Florida. The vast majority of the damage in Florida was due to high winds. Damage in the Bahamas was estimated at $250 million.

Hurricane Katrina - August 23 to August 30, 2005

Katrina was one of the most devastating and costly hurricanes in United States history, causing catastrophic damage, estimated at $75 billion in the New Orleans area and along the Mississippi coast. Katrina is also the deadliest hurricane since the Palm Beach-Lake Okeechobee hurricane of September 1928.

Katrina formed out of the combination of a tropical wave, an upper-level trough, and the mid-level remnants of Tropical Depression Ten, which developed on August 23rd, about 200 miles southeast of Nassau, Bahamas. Moving northwest, it became Tropical Storm Katrina on August 24th, about 75 miles east-southeast of Nassau. The storm moved through the northwestern Bahamas from August 24th through the 25th, and then turned westward toward southern Florida. Katrina became a hurricane just before making landfall near the Miami-Dade/Broward County line during the evening of August 25th. The hurricane traveled

in a southwest direction, crossing southern Florida and moving into the eastern Gulf of Mexico on August 26th. While over the Gulf, Katrina strengthened significantly, reaching Category 5 intensity on August 28th. Later that day, maximum sustained winds reached 175 mph while the central pressure, which was measured by aircraft, was at 902 mb. By this time the storm center was located about 195 miles southeast of the mouth of the Mississippi River. Katrina turned northwest and then north, with the center making landfall near Buras, Louisiana on August 29th. Maximum winds were estimated at 125 mph, a Category 3 hurricane. Continuing northward, the hurricane made a second landfall near the Louisiana/Mississippi border with maximum winds estimated at 120 mph, still a Category 3 storm. Katrina weakened as it moved north-northeast over land, but was still a hurricane as it neared Laurel, Mississippi. By August 30th the cyclone had weakened to a tropical depression over the Tennessee Valley. By August 31st it had become an extra-tropical low and was absorbed by a frontal zone later that day over the eastern Great Lakes.

Katrina brought hurricane conditions to southeastern Louisiana, southern Mississippi, and southwestern Alabama. On August 29th the Coastal Marine Automated Network (C-MAN) station at Grand Isle, Louisiana reported 10-minute average winds of 87 mph with a gust to 114 mph. Higher wind speeds are likely but many stations in the area were either destroyed, lost power, or lost communications during the storm and were unable to report data. Storm surge caused flooding between 25 and 28 feet above normal tide level along portions of the Mississippi coast, and between 10 and 20 feet above normal tide levels along the southeastern Louisiana coast. Hurricane conditions also occurred over Southern Florida and the Dry Tortugas. In addition, tropical storm conditions occurred in the Florida Keys and along the northern Gulf coast as far east as the coast of the western Florida Panhandle. Katrina produced 10 to 14 inches of rain over southern Florida and 8 to 12 inches of rain along its track inland from the northern Gulf coast. Thirty-three tornadoes were reported from the storm. On August 26th the National Hurricane Center in Miami reported sustained winds of 69 mph with a gust to 87 mph.

Katrina caused catastrophic damage in southeastern Louisiana and southern Mississippi. Storm surge along the Mississippi coast caused total destruction of many structures, with surge damage extending several miles inland. Similar damage occurred in southeastern Louisiana, southeast of New Orleans. The surge overtopped and breached levees in the New Orleans metropolitan area, inundating much of the city and its eastern suburbs with flood waters. Wind damage from Katrina extended well inland into northern Mississippi and Alabama. Florida's Miami-Dade and Broward counties also sustained wind and water damage.

Katrina is responsible for approximately 1,200 reported deaths in Louisiana and Mississippi, with 1,000 occurring in Louisiana and 200 in Mississippi. Most of the deaths in Louisiana were likely a direct cause of the widespread storm surge-induced flooding and its lingering aftermath in the New Orleans area. Fatalities in Mississippi were likely due to storm surge in three coastal

counties. Seven deaths were reported in southern Florida, with three directly caused by downed trees in Broward County, and three others due to drowning in Miami-Dade County. Two deaths were reported in Georgia, with one directly caused by a tornado and the other occurring in a car accident indirectly related to the storm. Alabama reported two indirect fatal car accidents during the storm. Based on the fatality numbers, Katrina provides a grim reminder that storm surge poses the greatest potential cause for large loss of life in a single hurricane.

It is difficult to identify where Katrina ranks among the deadliest U.S. hurricanes on record due to the unknown number of fatalities caused directly by this hurricane and by others in the past. However, records indicate that Katrina is surpassed by the Galveston, Texas hurricane of 1900 that claimed at least 8,000 lives, and it appears to be surpassed by the 1928 Lake Okeechobee, Florida hurricane with over 2,500 fatalities. If we assume that the storm events associated with Katrina are the direct cause of fatalities, then Katrina ranks as the third deadliest hurricane in the United States since 1900, and the deadliest in 77 years.

The extent, magnitude, and impacts of the damage caused by Katrina are staggering. Thousands of homes and businesses throughout entire neighborhoods in the New Orleans metropolitan area were destroyed by floods and strong winds. Windows were virtually blown out of New Orleans' downtown high rise buildings and the roof of the Louisiana Superdome was partially peeled away. Storm surge struck the Mississippi coastline with such ferocity that entire coastal communities were obliterated, some left with little more than the foundations upon which homes, businesses, government facilities, and historic buildings once stood. Despite being more distant from Katrina's eye, storm surge over Dauphin Island, Alabama destroyed or damaged dozens of beachfront homes and cut a new canal through the island's western end. Katrina's heavy rains flooded neighborhoods in parts of southern Florida, primarily in Miami-Dade County. While some structures in Florida, Georgia, Alabama, Louisiana, and Mississippi were spared storm surge damage or fresh water flooding, many were still impacted by strong winds and tornadoes. Strong winds also caused significant tree damage throughout much of Mississippi and Alabama. Considering cumulative impacts throughout a number of states, Katrina left about three million people without electricity, some for several weeks. Given the savagery of the storm, and its widespread destruction and devastation, it will likely take years to rebuild the areas affected by Hurricane Katrina.

Estimates of the insured property losses caused by Katrina vary considerably and range between about $20 billion and $60 billion. The American Insurance Services Group (AISG) estimates that Katrina is responsible for $38.1 billion of insured losses in the United States. A preliminary estimate of the total cost of damages caused by Katrina is assumed to be roughly twice the AISG insured losses estimate, or about $75 billion. This figure would make Katrina far and away the costliest hurricane in United States history. Even after adjusting for inflation, the estimated total damage cost of Katrina is roughly double that of Hurricane Andrew (1992).

Based on values currently used to evaluate Katrina costs, and normalizing for inflation and increases in population and wealth, only the Great Miami Hurricane of 1926 surpasses Katrina in terms of property damage cost.

VI. DISASTER RESILIENCY

A. Local Disaster Mitigation Strategies

Local Mitigation Strategies provide the foundation for short term and long term post-disaster recovery, including mitigation strategies and funding. Local Mitigation Strategies are typically county level plans, working together with their communities and other partners as appropriate. The plans are designed to minimize risks during and after a natural or man-made disaster and are supported by state and federal programs.

The Disaster Mitigation Act of 2000 required that for all disasters declared on or after November 1, 2004, applicants must have an approved local mitigation plan as a condition of receiving a project grant under federal mitigation grant programs. All 67 counties in the State of Florida are required to have a Local Mitigation Strategy.

Federally funded, state administered Mitigation Grant Programs that recognize Local Mitigation Strategies include Flood Mitigation Assistance Grant, Pre-Disaster Assistance Grant, Hazard Mitigation Grant Program, Repetitive Flood Claims Grant, and Severe Repetitive Loss Program.

State funded programs that recognize Local Mitigation Strategies include the Emergency Management Preparedness and Assistance Trust Fund Competitive Grant, Florida Communities Trust, Community Development Block Grant Program, and the Residential Construction Mitigation Program.

Generally, Local Mitigation Strategies include an assessment of vulnerabilities and risks for such natural events as flooding, temperature extremes, severe storms (with events such as wind, hail, lightning and tornados), hurricanes, sinkholes, and wildfires; and such manmade hazards as hazardous materials incidents and terrorist events. The LMS also usually includes a Planning Process for the assessment which includes demographics and other pertinent information; and Mitigation Strategies which may include goals and objectives designed to increase preparedness and minimize loss of life, property, and damage to critical facilities.

B. Changes to Florida Building Codes

Building codes provide minimum construction standards in order to protect life, property investments, and communities. These codes ensure safe building techniques designed to prevent injury or damage to property due to such safety risks as electrical shock, fire hazards, and structural weaknesses. Building codes play an important role in both public safety and loss prevention. In states with massive exposure to manmade and natural catastrophes, effective building codes play an even more necessary role.

In the State of Florida, strict building codes not only address risks associated with general building construction, but also those risks associated with hurricanes. In 1992, Hurricane Andrew destroyed more than 25,000 homes in the state, and caused an estimated $26 to $34 billion in damage. The tragedy of Hurricane Andrew brought to light the vulnerable construction practices and inspections that were negatively impacting the State, specifically in South Florida. Because of the devastating effects of the hurricane, building codes in Florida were reviewed and overhauled.

Although building codes are constantly changing, and they can vary by city, county, and state, the State of Florida now has a statewide minimum building code. As a result of the disastrous impacts of Hurricane Andrew, the State of Florida adopted a statewide minimum building code, which became effective in 2002. The new unified code provides stricter guidelines and requirements to further protect buildings from hurricane-force winds, rains, flooding and other manmade and natural disasters. The building code address specific requirements for items such as roofs, windows, exterior doors, wind zones, and minimum finished floor height in flood prone areas. Under certain circumstances, local governments can amend building code requirements, but only in cases where the amendments are more stringent than the State code.
The complete Florida Building Code can be found online at www.floridabuildingcode.org.

Pre-manufactured home guidelines are overseen by the U.S. Department of Housing and Urban Development, which in 1994 improved their construction standards. In 1999, Florida augmented the federal standards that fortify pre-manufactured homes against higher wind speeds and airborne debris/projectiles.

VII. DATA INVENTORY AND EXISTING CONDITIONS

The Economic Analysis and Disaster Resiliency study was conducted in two phases. The first phase of the study provided for an itemized inventory of each of the five counties detailing each county's existing conditions including:

- Traffic analysis zones
- Population
- Land Use
- Residential structures by decade built
- Employment by industry
- Critical infrastructure
- Staging areas for reconstruction

The purpose of this section of the report is to provide an overview of the existing conditions in Region and provide the data sets used in the second phase of the study. The second phase, which will be discussed in the following sections, provides an economic analysis of a catastrophic event.

The detailed maps and tables illustrating this data are located in the Appendix to this study.

A. Traffic Analysis Zones (TAZs)

A traffic analysis zone (TAZ) is the unit of geography most commonly used in conventional transportation planning models. Zones are constructed by census block information, providing socioeconomic data for each zone. Often the most critical socio-economic data relates to the number of automobiles per household, household income, and employment within each zone. Zones vary in size, but those with less than 3,000 people are common. The spatial extent of zones typically varies in models, ranging from very large in exurban areas to as small as city blocks or buildings in central business districts.

The TAZ data provides local details, allowing for a finer level of analysis and analytical improvement. The TAZ data exceeds the inputs found within the REMI PI+ model since the model is based on county-wide data. Census population data at the tract, block and block group level is only available for the 2000 Census; this information is outdated since it does not reflect the significant growth that has occurred in the study area.

The most recent TAZ data was obtained from the Florida Department of Transportation (FDOT) District One for DeSoto, Hardee, and Okeechobee counties, from Highlands County, and from the Transportation Planning Organization (TPO) for Polk County. Data was provided for the base year of 2006, with projections for 2010 and 2015.

The TAZ data provides the number of permanent occupied dwelling units (single family and multi-family) and permanent population along with the percentage of vacant and seasonal units. Using this percentage and subtracting the percentage of vacant units, estimates of the seasonal dwelling units and seasonal population were determined. This data was interpolated to generate estimates for 2010 and 2015.

The number of mobile home and recreational vehicle spaces within each TAZ was derived from an inventory of mobile home and recreational vehicle (RV) parks from the Florida Department of Health, and enhanced with property appraiser parcel data and Census data (American Community Survey, 2008). This listing was geo-coded using GIS and aerial photography.

TAZ by County

Table 6 below provides the total number of TAZs by County. The detailed TAZ maps for each County are provided in the report **Appendix**. The TAZs are shown in different colors and are labeled by number. Polk County, the largest county in both population and geographic area, has the most TAZs with a total of 621.

The source of the TAZ data for the counties of DeSoto, Hardee, and Okeechobee is the Florida Department of Transportation (FDOT), District 1. The TAZ data for Highlands and Polk Counties was provided by Highlands County and the Polk Transportation Planning Organization (TPO).

Table 6
Number and Source of TAZs by County

County	Number of TAZs	Source and Date
DeSoto	94	FDOT District 1, 2008
Hardee	131	FDOT District 1, 2008
Highlands	177	FDOT District 1, 2008
Okeechobee	117	FDOT District 1, 2008
Polk	621	Polk TPO, 2008

FDOT: Florida Department of Transportation
TPO: Transportation Planning Organization

B. Population

Population projections are provided for each of the five counties in the Central Florida Region. **Table 7** provides the 2006 population in the Region for both the incorporated and unincorporated areas of each county. The source of the population data is the University of Florida, Bureau of Economic and Business Research (BEBR).

In 2006, the Central Florida Region had an estimated population of 760,737 which was 4.15 percent of the State's total population. Polk County is the most populated with 565,049 residents and Hardee County is the least populated with 27,187 residents.

Each of the five counties tends to have a concentration of population in certain geographical areas.

- The population center of DeSoto County is situated in its central area in and around the City of Arcadia.
- The main population centers of Hardee County are located in and around the City of Wauchula, and along the north-south US-17 corridor.
- The main population centers in Highlands County are located along the north-south US 27 corridor and in and around the City of Sebring, located in the central area of the County.
- The main population center in Okeechobee County is located on the north side of Lake Okeechobee in and around the City of Okeechobee.
- The densest population centers in Polk County are located in and around the City of Lakeland, the northeastern region, and along many of the east-west and north-south Federal and State highway corridors.

Table 7 2006 Central Florida Population Estimates	
DE SOTO COUNTY	**33,164**
Arcadia	6,755
UNINCORPORATED	26,409
HARDEE COUNTY	**27,186**
Bowling Green	3,084
Wauchula	4,454
Zolfo Springs	1,551
UNINCORPORATED	18,097
HIGHLANDS COUNTY	**96,672**
Avon Park	8,792
Lake Placid	1,762
Sebring	10,218
UNINCORPORATED	75,900
OKEECHOBEE COUNTY	**38,666**
Okeechobee	5,673
UNINCORPORATED	32,993
POLK COUNTY	**565,049**
Auburndale	12,512
Bartow	16,181
Davenport	2,344
Dundee	3,126
Eagle Lake	2,659
Ft. Meade	5,877
Frostproof	2,991
Haines City	17,973
Highland Park	246
Hillcrest Heights	262
Lake Alfred	4,239
Lake Hamilton	1,409
Lake Wales	12,755
Lakeland	91,623
Mulberry	3,459
Polk City	1,831
Winter Haven	31,419
UNINCORPORATED	354,143
CENTRAL FLORIDA TOTAL 760,737 **FLORIDA TOTAL 18,349,132**	

Overall Population[5]

In February 2007, estimated that the permanent resident population of Central Florida on April 1, 2006 (**Table 8**), was 760,737; an increase of 94,390 or 14.2 percent from the 2000 Census. It placed eighth out of the eleven regional planning areas in absolute growth in the State during that time period. BEBR projects the population will reach 825,623 in 2010 and 900,779 in 2015, which represents increases of 23.9 percent and 35.18 percent above the 2000 Census figures. The permanent resident population projection for 2015 also represents an increase of more than 140,042 or 18.4 percent above the 2006 population baseline, which will place Central Florida sixth out of the eleven regional councils in absolute growth in the State.

Group Quarters Population

In 2000, there were 21,093 Central Florida residents living in group quarters (3.17 percent of the population); 15,815 of these were institutionalized in correctional facilities, nursing homes, and juvenile institutions, while the other 5,494 were in other group quarters, such as college dormitories, group homes and military quarters. The remaining 624,161 residents of Central Florida lived in households.

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5 Population estimates and projections customarily distinguish between the *permanent resident population* in a jurisdiction (people who reside in the location year-round or at least half of the time) and the *seasonal population* (people who reside in the location only a portion of the year or who are visitors, such as tourists). The permanent resident population is further broken into those who reside in *households* (occupied housing units) and those who are in *group quarters*, such as correctional facilities, nursing homes, military quarters, group homes, etc. The decennial census and the Census Bureau's new American Community Survey (ACS) present results for the permanent resident population, but not for the seasonal population. However, both the census and the ACS present data on vacant housing units, including those that are for seasonal use. Typically, local jurisdictions use these seasonal housing unit estimates, along with hotel and motel inventories, to prepare estimates and projections of the seasonal population for planning purposes. The estimates and projections prepared by the University of Florida's Bureau of Economic and Business Research (BEBR) also refer to the permanent resident population. Most of the data presented in this section is drawn from the sample portion of the 2000 Census of Population and Housing (Summary File 3) and from the 2006 ACS. The latter was tabulated only for the 40 counties that had a 2006 population of at least 65,000 permanent residents, so there is no 2006 ACS data for the 27 smallest counties in the State of Florida – in those counties, the 2006 tables will show "N.A." in all cells. Note that the annual ACS is collected for a much smaller sample than the 2000 Census, resulting in much larger margins of error. In addition, there are differences in the methodology that can affect the meaning of the data collected. As a result, comparisons should be made with caution. In some cases, although 2006 ACS data was tabulated for a county, the small sample size resulted in insufficient data to fill all of the cells in a given table – in those cases the 2006 tables will show "N.A." in selected cells. Regional summaries based on the 2006 ACS were compiled only for the 3 regions where all counties had data: South Florida, Tampa Bay and Treasure Coast.

Housing Units by Type

Of the 256,209 housing units in Central Florida at the time of the 2000 Census, 58.15 percent were single-family, 15.64 percent were multi-family, and the remaining 26.21 percent were mobile homes, boats, recreational vehicles (RVs) or other like structures or vehicles used as dwelling units (**Table 13**). Of the total housing units, 57,945 (18.44 percent) were vacant, with the highest vacancy rates found among mobile homes at 30.46 percent. Mobile homes accounted for 30 percent of the housing stock in Central Florida (94,333 units) (**Table 13**).

Occupied Housing Units (Households)

There were 256,209 occupied housing units (households) in Central Florida in 2000, 74.4 percent of which were occupied by owners and 25.6 percent by renters (**Table 14**). The ownership ratio in the region was 70.1 percent above the State of Florida average.

Household Size

In 2000, the average household size (number of persons per occupied unit) in Central Florida was 2.52, which was higher than the State of Florida average of 2.46. The average household size was highest in Hardee County (3.06) and lowest in Highlands County (2.30). Renters, who are mostly concentrated in single family units, had a larger household size (3.02) than owners (2.65). Average household sizes also were generally smaller when located farther away from the main transportation corridors of Central Florida.

Seasonal Dwelling Units

In 2000, 30,497 seasonal, recreational or occasional use dwelling units were vacant in Central Florida, representing 52.63 percent of all vacant units for the Central Florida area.

In addition, according to licensing records of the Florida Department of Business and Professional Regulation, in 2007 Central Florida had 26 hotels with 2,179 rooms, 129 motels with 6,220 rooms, and 8 bed and breakfast inns with 56 rooms. Together, these units house a seasonal population which is in addition to the permanent resident population estimated above.

Age Composition

In 2000, the population of Central Florida included 133,349 people who were at least 65 years old, which represented 20.01 percent of the total population. This compared to 17.6 percent for the State of Florida as a whole. DeSoto County had 19.2 percent, Hardee County had 13.61 percent, Highlands County had 33.12 percent, Okeechobee County had 16.49 percent, and 18,3 percent of Polk County's population was 65 years of age and older.

In 2000, 9.19 percent of the total Central Florida population lived alone, including 61,266 of the region's elderly. Of the region's total population, 13,102 were at least 85 years old (1.97 percent).

Race/Ethnicity

The Hispanic or Latino population, which includes those born outside the United States as well as those born into Hispanic families in the United States, included 80,619 residents or 12.1 percent of the total Central Florida population in 2000 (**Table 18**). Of that total, 25.1 percent of the population of DeSoto County (8,078 persons), 36.0 percent of the population of Hardee County (9,702 persons), 12.0 percent of the population of Highlands County (10,462 persons), 18.7 percent of the population of Okeechobee County (6,727 persons), and 9.43 percent of the population of Polk County (45,650 persons) were of Hispanic ethnicity.

Place of Birth and Citizenship

In 2000, 68,913 Central Florida residents were born outside the United States, or 10.3 percent of the total population. Of those, 38,993 (5.85 percent of the total Central Florida population) were not US citizens. In addition, 316,773 of the residents of Central Florida (47.54 percent) were born in another State and 280,661 persons (42.12%) were born somewhere else in the State of Florida, outside of the Central Florida region.

Linguistic Isolation

In 2000, 8,127 Central Florida households (3.17 percent) were classified as linguistically isolated (**Table 20**), with Spanish spoken in 80.9 percent of these households.

Labor Force

In 2000, there were 235,874 people 16 years old and older in Central Florida (44.85 percent) who were not in the labor force. This was more than the share of the not in labor force population in the State of Florida as a whole (41.3 percent). In the region, DeSoto County had 12,396 persons (47.93 percent), Hardee County had 9,347 persons (45.90 percent), Highlands County had 40,914 persons (56.55 percent), Okeechobee

County had 13,227 persons (47.08 percent), and Polk County had 159,990 persons (42.19 percent) not in the labor force.

Poverty Status

There were 92,671 Central Florida residents in 2000 that lived in households with incomes below the poverty level accounting for 14.35% of the total population.

Small Area Dwelling Unit and Population Data

Polk County produces its own dwelling unit, household and population estimates for traffic analysis zones. The other Counties rely on the Florida Department of Transportation.

Table 8
Resident Population[6] by Age, April 1, 2006, 2010 and 2015

Central Florida Age Categories	Absolute Number			% of Total Population		
	2006	2010	2015	2006	2010	2015
Age under 5 years	49,000	53,372	56,902	6.44%	6.46%	6.32%
Age 5 to 17 years	129,091	138,402	147,897	16.97%	16.76%	16.42%
Age 18 to 24 years	65,949	70,433	74,331	8.67%	8.53%	8.25%
Age 25 to 34 years	87,578	96,839	106,250	11.51%	11.73%	11.80%
Age 35 to 44 years	95,847	97,131	101,202	12.60%	11.76%	11.23%
Age 45 to 54 years	96,326	106,460	109,300	12.66%	12.89%	12.13%
Age 55 to 64 years	87,223	101,153	117,374	11.47%	12.25%	13.03%
Age 65 to 74 years	73,704	79,647	97,905	9.69%	9.65%	10.87%
Age 75 to 84 years	57,428	58,859	60,907	7.55%	7.13%	6.76%
Age 85 years and over	18,591	23,327	28,711	2.44%	2.83%	3.19%
TOTAL	**760,737**	**825,623**	**900,779**	**100.00%**	**100.00%**	**100.00%**
Age under 18 years	178,091	191,774	204,799	23.41%	23.23%	22.74%
Age 65 years and over	149,723	161,833	187,523	19.68%	19.60%	20.82%

Source: Florida Legislature, Office of Economic and Demographic Research (August 2007)

[6] Official state and county estimates and projections published by the University of Florida's Bureau of Economic and Business Research (BEBR) were released in database format by the Florida Legislature's Office of Economic and Demographic Research (EDR) in August 2007, with age, gender and race/ethnic detail, and interpolations for every quarter of every single year from 1960 (Q2) to 2030 (Q2).

Table 9
Change in Resident Population by Age, 2006-10, 2010-15 and 2006-15

Central Florida Age Categories	Absolute Change			% Change in the Period		
	2006-10	2010-15	2006-15	2006-10	2010-15	2006-15
Age under 5 years	4,372	3,530	7,902	8.92%	6.61%	16.13%
Age 5 to 17 years	9,311	9,495	18,806	7.21%	6.86%	14.57%
Age 18 to 24 years	4,484	3,898	8,382	6.80%	5.53%	12.71%
Age 25 to 34 years	9,261	9,411	18,672	10.57%	9.72%	21.32%
Age 35 to 44 years	1,284	4,071	5,355	1.34%	4.19%	5.59%
Age 45 to 54 years	10,134	2,840	12,974	10.52%	2.67%	13.47%
Age 55 to 64 years	13,930	16,221	30,151	15.97%	16.04%	34.57%
Age 65 to 74 years	5,943	18,258	24,201	8.06%	22.92%	32.84%
Age 75 to 84 years	1,431	2,048	3,479	2.49%	3.48%	6.06%
Age 85 years and over	4,736	5,384	10,120	25.47%	23.08%	54.43%
TOTAL	**64,886**	**75,156**	**140,042**	**8.53%**	**9.10%**	**18.41%**
Age under 18 years	13,683	13,025	26,708	7.68%	6.79%	15.00%
Age 65 years and over	12,110	25,690	37,800	8.09%	15.87%	25.25%

Source: Florida Legislature, Office of Economic and Demographic Research (August 2007)

Table 10
Resident Population by Race/Ethnicity, April 1, 2006, 2010 and 2015

Central Florida Race/Ethnic Categories	Absolute Number			% of Total Population		
	2006	2010	2015	2006	2010	2015
White Non-Hispanic	527,457	540,573	563,879	69.34%	65.47%	62.60%
Black or African American (NH)	99,303	109,572	121,414	13.05%	13.27%	13.48%
Other race and 2 or more races	11,222	12,930	15,045	1.48%	1.57%	1.67%
Hispanic or Latino (all races)	122,755	162,548	200,441	16.14%	19.69%	22.25%
TOTAL	**760,737**	**825,623**	**900,779**	**100.00%**	**100.00%**	**100.00%**

Source: Florida Legislature, Office of Economic and Demographic Research (August 2007)

Table 11
Change in Resident Population by Race/Ethnicity, 2006-10, 2010-15 and 2006-15

Central Florida Race/Ethnic Categories	Absolute Change			% Change in the Period		
	2006-10	2010-15	2006-15	2006-10	2010-15	2006-15
White Non-Hispanic	13,116	23,306	36,422	2.49%	4.31%	6.91%
Black or African American (NH)	10,269	11,842	22,111	10.34%	10.81%	22.27%
Other race and 2 or more races	1,708	2,115	3,823	15.22%	16.36%	34.07%
Hispanic or Latino (all races)	39,793	37,893	77,686	32.42%	23.31%	63.29%
TOTAL	**64,886**	**75,156**	**140,042**	**8.53%**	**9.10%**	**18.41%**

Source: Florida Legislature, Office of Economic and Demographic Research (August 2007)

Table 12
Licensed Public Lodging Facilities, 2007

Type of Lodging Facility	Absolute Number		%	
	Facilities	Rooms/Units	Facilities	Rooms/Units
Hotels	26	2,179	0.77%	5.94%
Motels	129	6,220	3.80%	16.96%
Non-Transient Apartments	482	21,353	14.20%	58.23%
Transient Apartments	48	621	1.41%	1.69%
Non-Transient Rooming Houses	4	33	0.12%	0.09%
Transient Rooming Houses	21	425	0.62%	1.16%
Bed and Breakfast Inns	8	56	0.24%	0.15%
Resort Condominiums - Single	28	28	0.82%	0.08%
Resort Condominiums - Group	8	407	0.24%	1.11%
Resort Condominiums - Collective	53	1,520	1.56%	4.14%
Resort Dwellings - Single	2,558	2,559	75.35%	6.98%
Resort Dwellings - Group	4	613	0.12%	1.67%
Resort Dwellings - Collective	26	657	0.77%	1.79%
TOTAL	**3,395**	**36,671**	**100.00%**	**100.00%**

Source: Florida Department of Business and Professional Regulation, Division of Hotels and Restaurants (March 13, 2007)

Table 13
Housing Units[7] by Vacancy Status and Tenure by Units in Structure, 2000

Central Florida Units in Structure	Occupied Units			Vacant Units	Total Units	Vacant %
	Owner	Renter	Total			
1, detached	127,405	21,568	148,973	17,123	166,096	10.31%
1, attached	4,387	2,869	7,256	1,485	8,741	16.99%
2	944	7,780	8,724	1,652	10,376	15.92%
3 or 4	994	6,530	7,524	1,563	9,087	17.20%
5 to 9	782	4,968	5,750	1,549	7,299	21.22%
10 to 19	519	2,730	3,249	926	4,175	22.18%
20 to 49	440	1,643	2,083	510	2,593	19.67%
50 or more	474	5,016	5,490	601	6,091	9.87%
Mobile home	53,336	12,263	65,599	28,734	94,333	30.46%
Boat, RV, van, etc.	1,399	162	1,561	3,802	5,363	70.89%
TOTAL	**190,680**	**65,529**	**256,209**	**57,945**	**314,154**	**18.44%**
% Single Family	66.82%	32.91%	58.15%	29.55%	52.87%	
% Multi-Family	4.48%	48.13%	15.64%	14.30%	15.39%	
% Mobile Home	27.97%	18.71%	25.60%	49.59%	30.03%	
% Boat, RV, Van, etc.	0.73%	0.25%	0.61%	6.56%	1.71%	

Source: US Bureau of the Census, 2000 Census of Population and Housing (Summary File 3)

[7] A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room occupied (or if vacant, intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live separately from any other people in the building and that have direct access from the outside of the building or through a common hall. Both occupied and vacant housing units are included in the housing unit inventory. Boats, recreational vehicles (RVs), vans, tents, and the like are housing units only if they are occupied as someone's usual place of residence. Vacant mobile homes are included provided they are intended for occupancy on the site where they stand. Vacant mobile homes on dealers' lots, at the factory, or in storage yards are excluded from the housing inventory. Also excluded from the housing inventory are quarters being used entirely for nonresidential purposes, such as a store or an office, or quarters used for the storage of business supplies or inventory.

Table 14
Residents by Tenure by Units in Structure[8], 2000

Central Florida Units in Structure	Persons in Occupied Units			Persons per Occupied Unit		
	Owner	Renter	Total	Owner	Renter	Total
1, detached	337,499	65,078	402,577	2.65	3.02	2.70
1, attached	9,068	7,760	16,828	2.07	2.70	2.32
2	1,991	19,908	21,899	2.11	2.56	2.51
3 or 4	2,050	15,026	17,076	2.06	2.30	2.27
5 to 9	1,469	9,996	11,465	1.88	2.01	1.99
10 to 19	1,007	4,929	5,936	1.94	1.81	1.83
20 to 49	701	2,912	3,613	1.59	1.77	1.73
50 or more	772	7,835	8,607	1.63	1.56	1.57
Mobile home	119,214	35,465	154,679	2.24	2.89	2.36
Boat, RV, van, etc.	2,315	259	2,574	1.65	1.60	1.65
TOTAL	**476,086**	**169,168**	**645,254**	**2.50**	**2.58**	**2.52**

Source: US Bureau of the Census, 2000 Census of Population and Housing (Summary File 3)

[8] **Table 15** presents the number of residents in the occupied housing units shown in **Table 14** for 2000, by type of housing unit. They also show the average number of residents by type of housing unit, which can be used in transportation models to estimate the number of evacuating people.

Table 15
Number of Vacant Units by Vacancy Status[9], 2000

Central Florida Vacancy Status	Vacant Units	%
For rent	9,744	16.82%
For sale only	6,487	11.20%
Rented or sold, not occupied	3,788	6.54%
For seasonal, recreational, or occasional use	30,497	52.63%
For migrant workers	520	0.90%
Other vacant	6,909	11.92%
TOTAL	**57,945**	**100.00%**

Source: US Bureau of the Census, 2000 Census of Population and Housing (Summary File 3)

[9] Vacancy status and other characteristics of vacant units were determined by census enumerators obtaining information from landlords, owners, neighbors, rental agents, and others. Vacant units for seasonal, recreational, or occasional use are vacant units used or intended for use only in certain seasons, for weekends, or other occasional use throughout the year. Seasonal units include those used for summer or winter sports or recreation, such as beach cottages and hunting cabins. Seasonal units also may include quarters for such workers as herders and loggers. Interval ownership units, sometimes called shared-ownership or time-sharing condominiums, also are included in this category. Vacant migrant worker units include those intended for occupancy by migrant workers employed in farm work during the crop season. (Work in a cannery, a freezer plant, or a food-processing plant is not farm work.)

Table 16
Resident Population by Gender and Age, 2000

Central Florida Age Categories	Absolute Number			% of Total Population		
	Male	Female	Total	Male	Female	Total
Age under 5 years	21,406	20,205	41,611	6.45%	6.04%	6.24%
Age 5 to 17 years	60,412	56,100	116,512	18.21%	16.76%	17.49%
Age 18 to 24 years	30,106	25,704	55,810	9.08%	7.68%	8.38%
Age 25 to 34 years	40,474	37,312	77,786	12.20%	11.15%	11.67%
Age 35 to 44 years	47,712	45,924	93,636	14.38%	13.72%	14.05%
Age 45 to 54 years	38,811	39,994	78,805	11.70%	11.95%	11.83%
Age 55 to 64 years	32,525	36,313	68,838	9.81%	10.85%	10.33%
Age 65 to 74 years	34,236	37,890	72,126	10.32%	11.32%	10.82%
Age 75 to 84 years	21,643	26,478	48,121	6.53%	7.91%	7.22%
Age 85 years and over	4,368	8,734	13,102	1.32%	2.61%	1.97%
TOTAL	**331,693**	**334,654**	**666,347**	**100.00%**	**100.00%**	**100.00%**
% Age under 18 years	24.67%	22.80%	23.73%			
% Age 65 years and over	18.16%	21.84%	20.01%			

Source: US Bureau of the Census, 2000 Census of Population and Housing (Summary File 3)

Table 17
Resident Population by Race and Ethnicity[10], 2000

Central Florida Race Categories	Ethnicity – Hispanic or Latino			% of Total Population		
	Non-Hispanic	Hispanic	Total	Non-Hispanic	Hispanic	Total
White alone	488,089	40,909	528,998	83.33%	50.74%	79.39%
Black or African American alone	79,115	1,367	80,482	13.51%	1.70%	12.08%
Other race alone and 2+ races	18,524	38,343	56,867	3.16%	47.56%	8.53%
TOTAL	**585,728**	**80,619**	**666,347**	**100.00%**	**100.00%**	**100.00%**

Source: US Bureau of the Census, 2000 Census of Population and Housing (Summary File 3)

[10] Race and ethnicity are separate categories in the 2000 Census. For each person the surveys included two separate questions. The first asks whether each person in the household considers himself/herself to be of Hispanic or Latino origin (ethnicity). The second asks each person in the household to identify one or more racial categories that should be used to classify his/her racial makeup. Both questions request the respondent to classify himself/herself, rather than having a Census Bureau employee assign a classification. The tables presented here are cross-tabulations of the two characteristics. Race is tabulated into three categories: (1) White persons who identified only one race (White alone); (2) Black or African American persons who identified only one race (Black or African American alone); and (3) persons of other races who identified only one race (Other race alone) and those who identified two or more races, combined into a single category. For each race category, the totals were calculated for those who indicated that they were of Hispanic or Latino origin and those who indicated that they were not.

Table 18
Resident Population by Age, Household[11] Type and Relationship, 2000

Central Florida Household Type, Relationship	Number of Persons, by Age			% of Total Population		
	Under 65	65+	Total	Under 65	65+	Total
In households	517,183	128,071	645,254	97.03%	96.04%	96.83%
In family households	460,590	93,333	553,923	86.41%	69.99%	83.13%
In nonfamily households	56,593	34,738	91,331	10.62%	26.05%	13.71%
Male householder	23,123	9,313	32,436	4.34%	6.98%	4.87%
Living alone	16,577	8,251	24,828	3.11%	6.19%	3.73%
Not living alone	6,546	1,062	7,608	1.23%	0.80%	1.14%
Female householder	17,978	23,525	41,503	3.37%	17.64%	6.23%
Living alone	13,942	22,496	36,438	2.62%	16.87%	5.47%
Not living alone	4,036	1,029	5,065	0.76%	0.77%	0.76%
Nonrelatives	15,492	1,900	17,392	2.91%	1.42%	2.61%
In group quarters	15,815	5,278	21,093	2.97%	3.96%	3.17%
Institutionalized population	11,268	4,331	15,599	2.11%	3.25%	2.34%
Non-institutionalized population	4,547	947	5,494	0.85%	0.71%	0.82%
TOTAL	**532,998**	**133,349**	**666,347**	**100.00%**	**100.00%**	**100.00%**
Population Living Alone	30,519	30,747	61,266	5.73%	23.06%	9.19%

Source: US Bureau of the Census, 2000 Census of Population and Housing (Summary File 3)

[11] A household includes all of the people who occupy a housing unit. (People not living in households are classified as living in group quarters.) A family includes a householder and one or more other people living in the same household who are related to the householder by birth, marriage or adoption. All people in a household who are related to the householder are regarded as members of his or her family. A family household may contain people not related to the householder, but those people are not included as part of the householder's family in census tabulations. Not all households contain families since a household may be comprised of a group of unrelated people or of one person living alone (nonfamily households).

Table 19
Resident Population by Place of Birth and Citizenship Status, 2000

Central Florida Place of Birth	Absolute Number	%
Native - Born in state of residence	280,661	42.12%
Native - Born in other state in the US	316,773	47.54%
Native - Born outside the United States	12,612	1.89%
Foreign-born - Naturalized citizen	17,308	2.60%
Foreign-born - Not a citizen	38,993	5.85%
TOTAL	**666,347**	**100.00%**

Source: US Bureau of the Census, 2000 Census of Population and Housing (Summary File 3)

Table 20
Households by Language and Linguistic Isolation[12], 2000

Central Florida Language Spoken in the Household	Households by Linguistic Isolation			Linguistic Isolation (%)		
	Isolated	Not Isolated	Total	Isolated	Not Isolated	Total
English	0	220,844	220,844	0.00%	100.00%	100.00%
Spanish	6,574	18,159	24,733	26.58%	73.42%	100.00%
Other Indo-European languages	987	6,985	7,972	12.38%	87.62%	100.00%
Asian & Pacific Island languages	475	1,633	2,108	22.53%	77.47%	100.00%
Other languages	91	512	603	15.09%	84.91%	100.00%
TOTAL	**8,127**	**248,133**	**256,260**	**3.17%**	**96.83%**	**100.00%**

Source: US Bureau of the Census, 2000 Census of Population and Housing (Summary File 3)

[12] A household in which no person 14 years old and over speaks only English and no person 14 years old and over who speaks a language other than English speaks English "very well" is classified as "linguistically isolated." In other words, a household in which all members 14 years old and over speak a non-English language and also speak English less than "very well" (have difficulty with English) is "linguistically isolated." All the members of a linguistically isolated household are tabulated as linguistically isolated, including members under 14 years old who may speak only English.

Table 21
Civilian Non-Institutionalized Population 5 Years and Over by Disability Status[13], 2000

Central Florida Language	Disability Status			Disability Status (%)		
	With	Without	Total	With	Without	Total
5 to 15 years	6,572	91,740	98,312	6.68%	93.32%	100.00%
16 to 20 years	7,266	35,108	42,374	17.15%	82.85%	100.00%
21 to 64 years	86,125	252,995	339,120	25.40%	74.60%	100.00%
65 to 74 years	23,070	48,324	71,394	32.31%	67.69%	100.00%
75 and over	30,137	27,487	57,624	52.30%	47.70%	100.00%
TOTAL	**153,170**	**455,654**	**608,824**	**25.16%**	**74.84%**	**100.00%**

Source: US Bureau of the Census, 2000 Census of Population and Housing (Summary File 3)

[13] The data on disability status were derived from answers to two long-form questionnaire items. The first was a two-part question that asked about the existence of the following long-lasting conditions: (a) blindness, deafness, or a severe vision or hearing impairment (sensory disability) and (b) a condition that substantially limits one or more basic physical activities, such as walking, climbing stairs, reaching, lifting, or carrying (physical disability). This question was asked of a sample of the population 5 years old and over. The second was a four-part question that asked if the individual had a physical, mental, or emotional condition lasting 6 months or more that made it difficult to perform certain activities. The four activity categories were: (a) learning, remembering, or concentrating (mental disability); (b) dressing, bathing, or getting around inside the home (self-care disability); (c) going outside the home alone to shop or visit a doctor's office (going outside the home disability); and (d) working at a job or business (employment disability). Categories (a) and (b) were asked of a sample of the population 5 years old and over; (c) and (d) were asked of a sample of the population 16 years old and over. For data products that use a disability status indicator, individuals were classified as having a disability if any of the following three conditions were true: (1) they were 5 years old and over and had a response of "yes" to a sensory, physical, mental or self-care disability; (2) they were 16 years old and over and had a response of "yes" to going outside the home disability; or (3) they were 16 to 64 years old and had a response of "yes" to employment disability.

Table 22
Resident Population 16 Years and Over by Gender and Employment Status, 2000

Central Florida Employment Status	Absolute Number			% of Total Population 16 and Over		
	Male	Female	Total	Male	Female	Total
In labor force	158,757	131,279	290,036	61.20%	49.26%	55.15%
In Armed Forces	222	91	313	0.09%	0.03%	0.06%
Civilian	158,535	131,188	289,723	61.12%	49.22%	55.09%
Employed	150,138	123,185	273,323	57.88%	46.22%	51.97%
Unemployed	8,397	8,003	16,400	3.24%	3.00%	3.12%
Not in labor force	100,635	135,239	235,874	38.80%	50.74%	44.85%
TOTAL	**259,392**	**266,518**	**525,910**	**100.00%**	**100.00%**	**100.00%**
Unemployment Rate (%)	5.29%	6.10%	5.65%			

Source: US Bureau of the Census, 2000 Census of Population and Housing (Summary File 3)

Table 23
Resident Population by Poverty Status and by Age, 2000

Central Florida Age	Income in 1999 – Poverty Status			Poverty Status (%)		
	Below	Above	Total	Below	Above	Total
Under 5 years	9,615	31,011	40,626	23.67%	76.33%	100.00%
5 years	1,853	6,227	8,080	22.93%	77.07%	100.00%
6 to 11 years	11,421	41,344	52,765	21.65%	78.35%	100.00%
12 to 17 years	10,380	42,481	52,861	19.64%	80.36%	100.00%
18 to 64 years	48,756	313,753	362,509	13.45%	86.55%	100.00%
65 to 74 years	5,246	66,148	71,394	7.35%	92.65%	100.00%
75 years and over	5,400	52,224	57,624	9.37%	90.63%	100.00%
TOTAL	**92,671**	**553,188**	**645,859**	**14.35%**	**85.65%**	**100.00%**
Under 18	33,269	121,063	154,332	21.56%	78.44%	100.00%
65+	10,646	118,372	129,018	8.25%	91.75%	100.00%

Source: US Bureau of the Census, 2000 Census of Population and Housing (Summary File 3)

C. Land Area and Land Use

Land Area

Table 24 indicates the area of each of the five counties. The area is measured in square miles. Polk County is the largest in the Region with 2,010 square miles. The smallest county is Hardee County with 638.3 square miles. There is a total of 5,285.7 square miles in the Region. The average population density in the Region is 144 people per square mile.

Table 24
Central Florida Region Area in Square Miles

DESOTO COUNTY	639.5
HARDEE COUNTY	638.3
HIGHLANDS COUNTY	1,106.3
OKEECHOBEE COUNTY	891.6
POLK COUNTY	2,010.0
TOTAL	**5,285.7**

There are large areas of active and inactive phosphate mines in the southwestern and southern portions of Polk County and in the northwestern and western portions of Hardee County. These areas have few residential land uses.

Many areas throughout the Region are river basins which experience flooding and high water levels after seasonal or severe storm rainfalls. Polk and Highlands County have a large number of fresh water lakes, and agricultural and citrus producing lands. DeSoto, Hardee, and Okeechobee Counties have large areas of livestock lands.

The Green Swamp, an Area of Critical State Concern, is located in the north and northeast regions of Polk County and is the second largest source of fresh water in the State of Florida.

Land Use

Table 25 provides a generalized Future Land Use (or maximum potential uses allowed on the land) inventory of the Region. The majority of land in the Region, 62.7 percent, maintains an Agriculture Future Land Use designation. Less than one percent of the land in the Region is designated as Commercial/Office. Approximately 9.3 percent of the land uses are residential in nature.

Table 25
Generalized Future Land Uses, 2006 – Central Florida

Code	Land Use Category	Acres	%
AG	Agriculture	2,023,698	62.7%
COM	Commercial/Office	23,527	0.7%
CONS	Conservation	289,461	9.0%
IND	Industrial	191,506	5.9%
MU	Mixed-Use	141,151	4.4%
PUB	Institutional, Government	31,222	1.0%
REC	Recreation/Open Space	103,704	3.2%
RH	Residential High Density	5,233	0.2%
RL	Residential Low Density	90,872	2.8%
RM	Residential Medium Density	203,214	6.3%
WAT	Water Bodies	63,378	2.0%
	Unknown	62,364	1.9%
	TOTAL	**3,229,330**	**100%**

Source: DeSoto County, Hardee County, Highlands County, Okeechobee County, Polk County, South Florida Water Management District, and Southwest Florida Water Management District

D. Residential Structures (Housing) by Decade Built

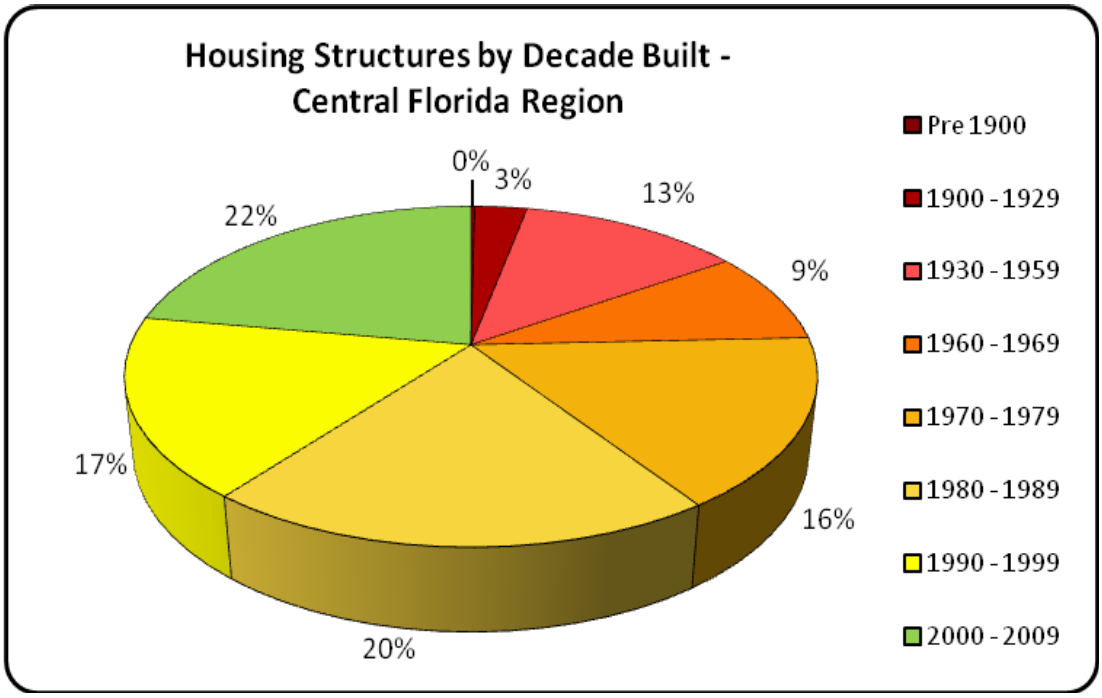
Residential structures (housing data) for the study was compiled through the United States Census Bureau from the 2000 Census, years 2005 to 2008 of the three year American Community Survey and from each jurisdiction's property appraiser data. The housing data was gathered by date of structure construction by decade. **Table 26** below provides the number of residential structures constructed by era. The eras allowed for consolidation of the decades to reflect the data. Detailed maps indicating residential structures by decade are provided in the **Appendices** for each county in the Region.

Table 26
Housing Units by County by Era Constructed
Pre 1900 to 2009

	DESOTO	HARDEE	HIGHLANDS	OKEECHOBEE	POLK	TOTAL
Pre 1900	500	2	6	0	78	586
1900 - 1929	242	431	61	112	7,594	8,440
1930 - 1959	1,346	1,652	1,568	704	30,459	35,729
1960 - 1969	807	809	3,398	1,415	18,843	25,272
1970 - 1979	1,492	1,757	7,054	3,102	33,038	46,443
1980 - 1989	1,697	1,132	12,618	3,415	39,173	58,035
1990 - 1999	1,208	1,042	8,218	3,120	35,607	49,195
2000 - 2009	1,335	1,164	6,182	3,063	52,571	64,315
TOTAL	**8,627**	**7,989**	**39,105**	**14,931**	**217,363**	**288,015**

Figure 3 below provides a pie chart depicting the percentage of housing constructed by era. The majority, 20 percent, of residential structures in the Region were constructed between 1980 and 1989. Twenty-two percent were constructed between 2000 and 2009.

Figure 3



For the purposes of the residential structure analysis, housing has been divided into three categories of wind and flood vulnerability: Least, Moderate, and Most Vulnerable. The vulnerability is determined through review of year built. The Florida Building Code has been updated over time to require less vulnerable structures. The three categories of vulnerability were determined based on changes to the building codes. Homes built before the Florida Building Code was enacted are considered "most vulnerable" – technically homes built before 1994 - however, for the purposes of this analysis, 1990 is assumed. The "moderately vulnerable" homes are those structures constructed between 1990 and 2000. The "least vulnerable" homes are those structures constructed after 2002. For the purposes of this analysis however; and based on the data available, the year 2000 is assumed for the least vulnerable due to the level and type of data available for the study.

The following designations are provided below to categorize wind vulnerability.

- Least Vulnerable: Built 2000 to present
- Moderate Vulnerability: Built 1990 to 2000
- Most Vulnerable: Built prior to 1990

Within the Central Florida Region, the majority of residential structures were constructed prior to 1990. **Figure 4** below illustrates wind vulnerability (based on era constructed) by County.

Figure 4

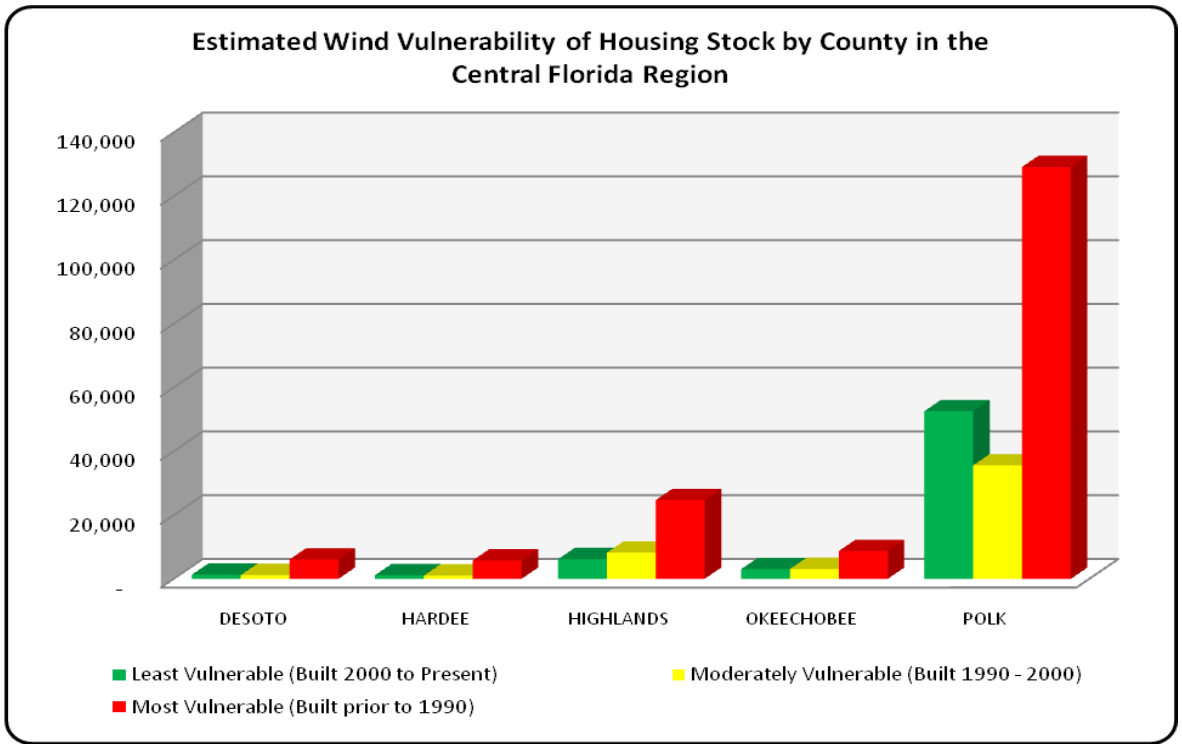


Figure 4 indicates that the majority of the housing throughout the region is categorized as "most vulnerable" since it was constructed prior to more stringent building construction standards. The qaulity and location of a community's housing stock significantly influences its abiltiy to recover quickly from a disaster. Communities do not recover as quickly when their population is unable to return to their place of residence and their place of employment.

E. Employment by Industry

This section provides an overview of the employment by industry within the Region at both the regional level and also for each of the five counties.

Regional Employment

Employment by industry data illustrates the number of employees per county that exist within each employment industry category. Categories include Private, Non-Farm Sector (**Table 27**) and Total Employment (including Government and Farm categories) (**Table 28**). Employment numbers are provided for the years 2000 and 2008, in order to provide a comparison of industry over time in the Region overall and by county. This data provides a view of those industries or sectors that are vulnerable in the case of a disaster in the respective county.

The 2008 employment by industry data was provided by the Regional Economic Model Inc. (REMI). This data is used to determine employment losses in each event scenario.

Table 27 provides a listing of the industry categories within the Region. The table indicates the number of persons employed by industry within the Region in both 2000 and 2008. The industries listed, ranging from retail trade to utilities, employed 257,365 people in 2000. In 2008, the industries employed 313,252, an increase of 55,887 employees from 2000, providing for growth of more than 20 percent.

Table 28 provides a summary of total employment in the Region including Private, Non-Farm and Government and Farm sectors. In 2000, the number of total employees in the Region was 310,307. In 2008, the total was 364,812 or an increase of 54,505 or 17.5 percent. The Farm Sector decreased by 3,462 employees from 13,661 in 2000 to 10,199 in 2008.

Table 27
Central Florida Region Private, Non-Farm Sector Employment by Industry 2000-2008

Industry	2000	2008
Retail Trade	38,166	42,181
Health Care and Social Assistance	29,722	36,844
Transportation and Warehousing	22,361	18,506
Manufacturing	21,314	18,763
Administrative and Waste Services	20,446	31,655
Construction	18,176	24,221
Other Services except Public Administration	16,589	20,439
Accommodation and Food Services	15,275	20,289
Forestry, Fishing, Related Activities	13,065	18,388
Professional and Technical Services	11,495	13,556
Wholesale Trade	10,620	13,041
Finance and Insurance	9,472	14,215
Real Estate and Rental and Leasing	8,827	17,148
Management of Companies and Enterprises	6,035	6,044
Arts, Entertainment, Recreation	5,645	6,593
Information	3,361	3,261
Educational Services	3,061	5,323
Mining	2,563	1,654
Utilities	1,172	1,129
Total	**257,365**	**313,250**

Table 28
Central Florida Region Total Employment

Industry	2000	2008
Private, Non-Farm	257,365	313,250
Government	39,281	41,363
Farm	13,661	10,199
Total	**310,307**	**364,812**

Figure 5 below illustrates growth in 14 of the 19 industry categories between 2000 and 2008. Five industry categories - transportation and warehousing, manufacturing, information, mining, and utilities - declined during the 8-year time frame.

Figure 5

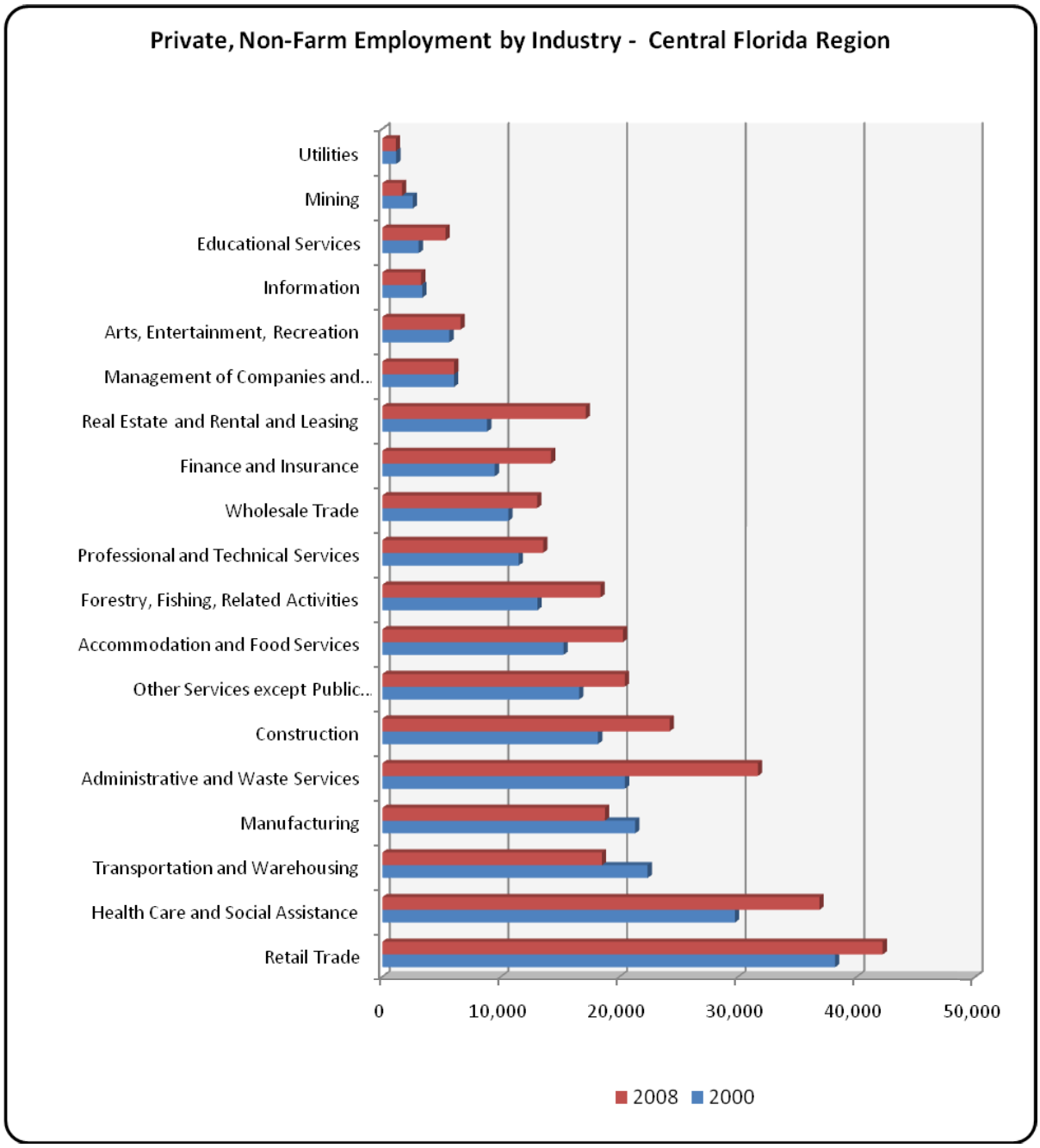


Figure 6 below indicates that in 2000, approximately 83 percent of employment in the Central Florida Region was in the Private, Non-Farm Sector while 13 percent of employment was in the Government Sector and 4 percent was in the Farm Sector.

Figure 6

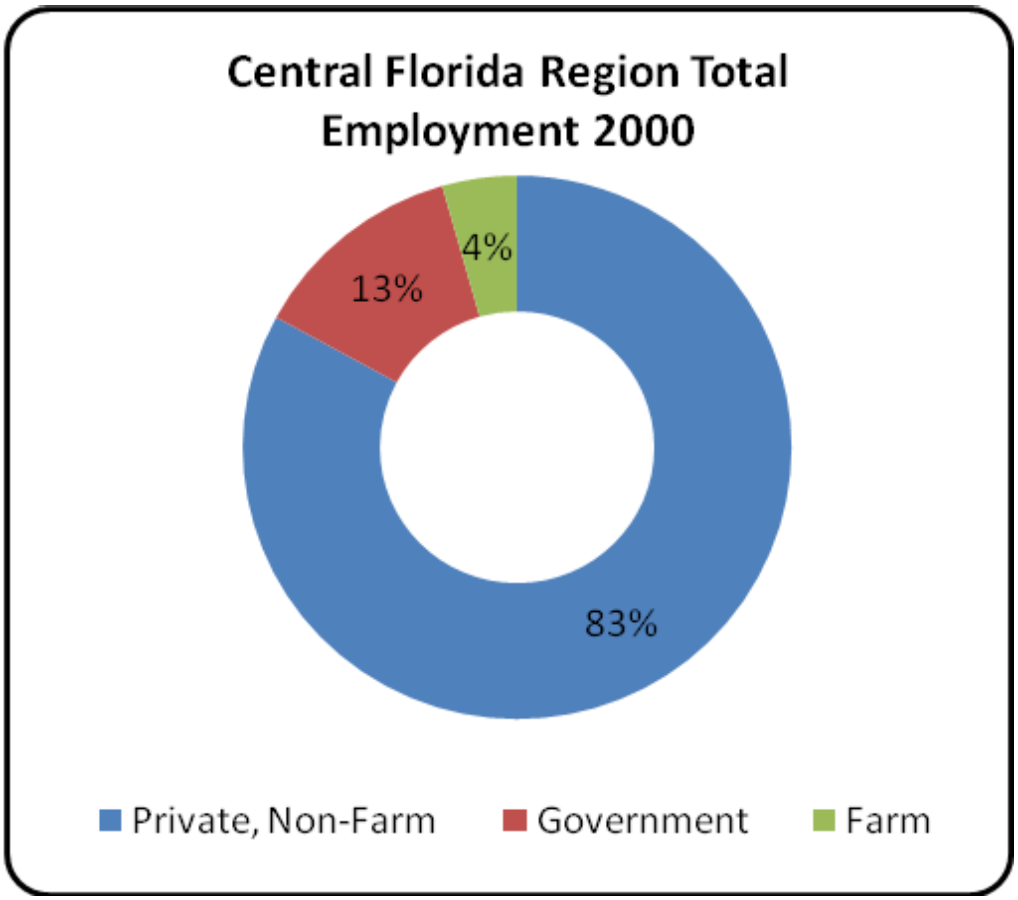
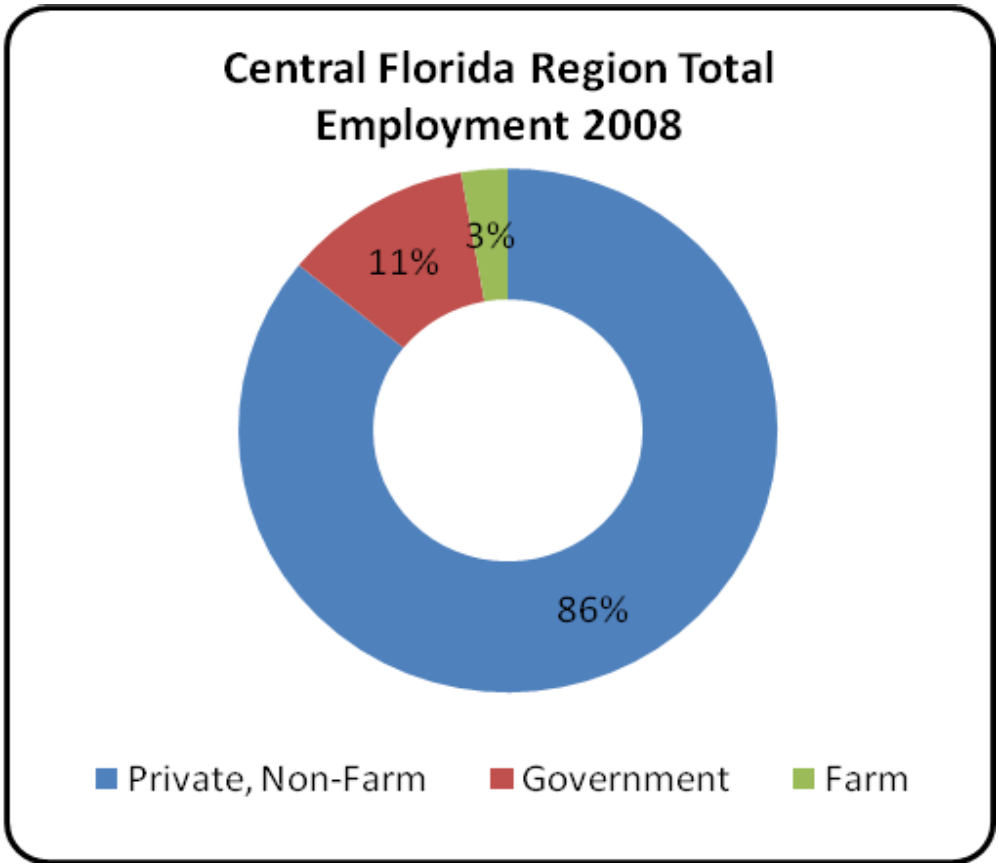


Figure 7 below indicates that in 2008, approximately 86 percent of employment in the Central Florida Region was in the Private, Non-Farm Sector, while 11 percent was in the Government Sector and 3 percent of employment was in the Farm Sector.

Figure 7



As **Figure 6** and **Figure 7** indicate from 2000 to 2008, the Private, Non-Farm Sector increased by 3 percent, while the Government Sector declined by 2 percent and the Farm Sector declined by 1 percent of total employment.

Employment by Industry – By County

The following section provides a breakdown of Employment by Industry for each County within the Study area.

Desoto County – Employment by Industry (2000 – 2008)

Table 29 and **Table 30** provide the categories of employment by industry in DeSoto County. Categories include Private Non-Farm Sector (**Table 29**) and Total Employment (including Government and Farm categories) (**Table 30**). Employment numbers are provided for the years 2000 and 2008, in order to provide a comparison of industry over time in Hardee County.

Table 29 indicates the number of persons employed by industry within DeSoto County in both 2000 and 2008. The industries listed, ranging from forestry, fishing, and related activities to mining employed 7,335 people in 2000. In 2008, the industries employed 12,528, an increase of 5,193 employees from 2000 providing for growth of more than 70 percent. The largest category of Private, Non-Farm Sector employers was Forestry, Fishing, and Related Activities. The second largest employer in the County is Retail Trade.

Table 30 provides a summary of total employment in DeSoto County including Private, Non-Farm and Government and Farm sectors. In 2000, the number of total employees in DeSoto County was 14,485. In 2008, the total was 16,354 or an increase of 1,869 or 12.9 percent. The Government Sector declined by 441 employees from 2,887 employees in 2000 to 2,446 in 2008. The Farm Sector decreased by 2,882 employees from 4,263 in 2000 to 1,381 in 2008.

Table 29 DeSoto County Employment by Industry 2000-2008		
Industry	**2000**	**2008**
Forestry, Fishing, Related Activities	2,784	4,787
Retail Trade	978	2,009
Health Care and Social Assistance	563	549
Construction	500	810
Other Services except Public Administration	461	657
Accommodation and Food Services	354	449
Manufacturing	305	430
Wholesale Trade	227	323
Real Estate and Rental and Leasing	226	510
Administrative and Waste Services	222	579
Finance and Insurance	167	242
Professional and Technical Services	154	277
Arts, Entertainment, Recreation	111	196
Transportation and Warehousing	99	409
Utilities	92	71
Management of Companies and Enterprises	51	80
Information	38	68
Educational Services	2	71
Mining	1	10
Total Jobs	**7,335**	**12,527**

Table 30 DeSoto County - Total Employment		
Industry	**2000**	**2008**
Private, Non-Farm	7,335	12,527
Government	2,887	2,446
Farm	4,263	1,381
Total	**14,485**	**16,354**

Figure 8 below illustrates growth 17 of the 19 industry categories between 2000 and 2008. Two industry categories – health care and social assistance and utilities - declined during the 8-year time frame. The category of forestry, fishing, related activities increased by 2,003 employees or 71.9 percent from 2000 to 2008. Retail trade also increased from 978 in 2000 to 2,009 in the year 2000 for an increase of more than 100 percent.

Figure 8

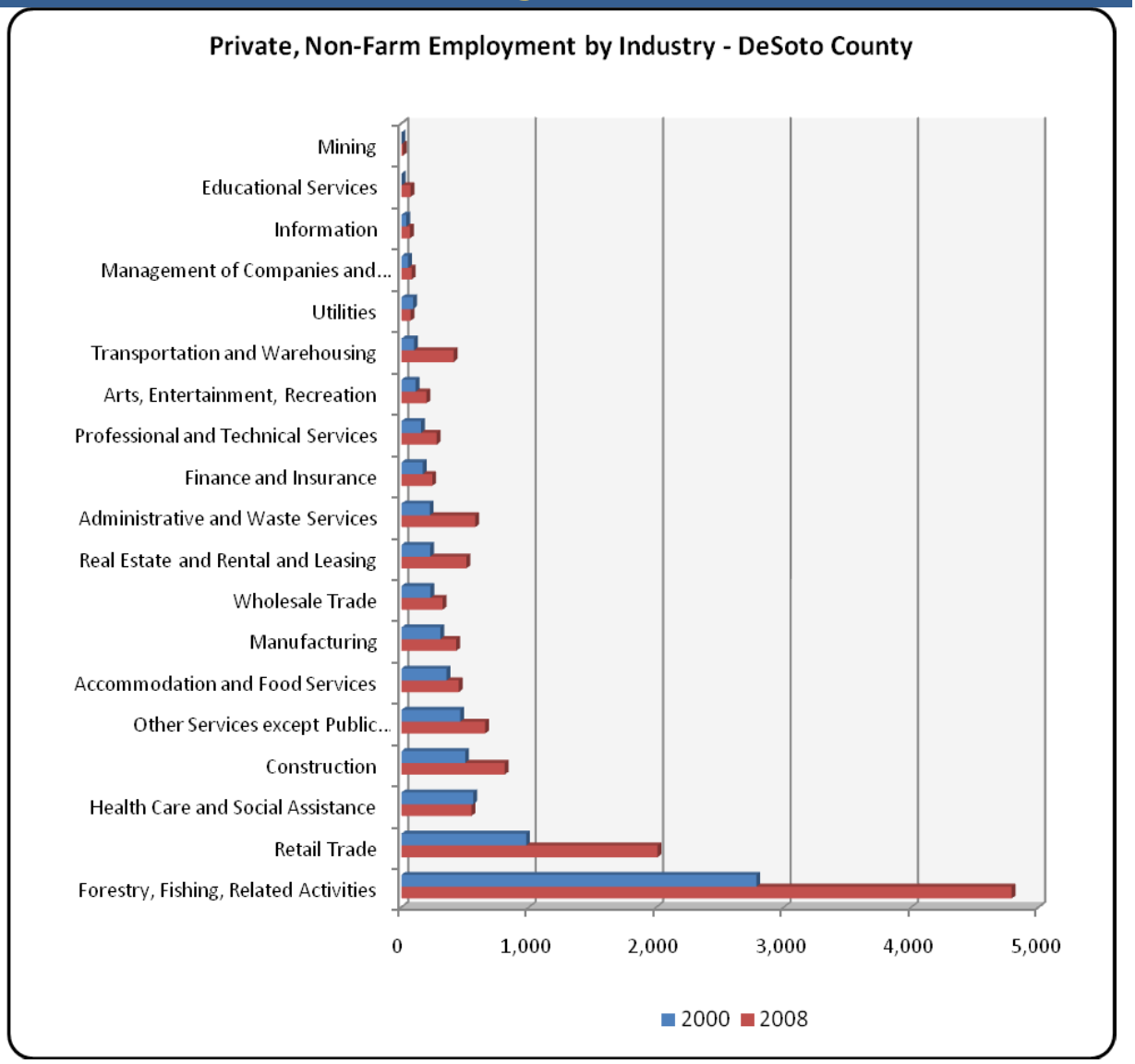


Figure 9 below indicates that in 2000, approximately 51 percent of employment in DeSoto County was in the Private, Non-Farm Sector while 20 percent of employment was in the Government Sector and 29 percent was in the Farm Sector

Figure 9

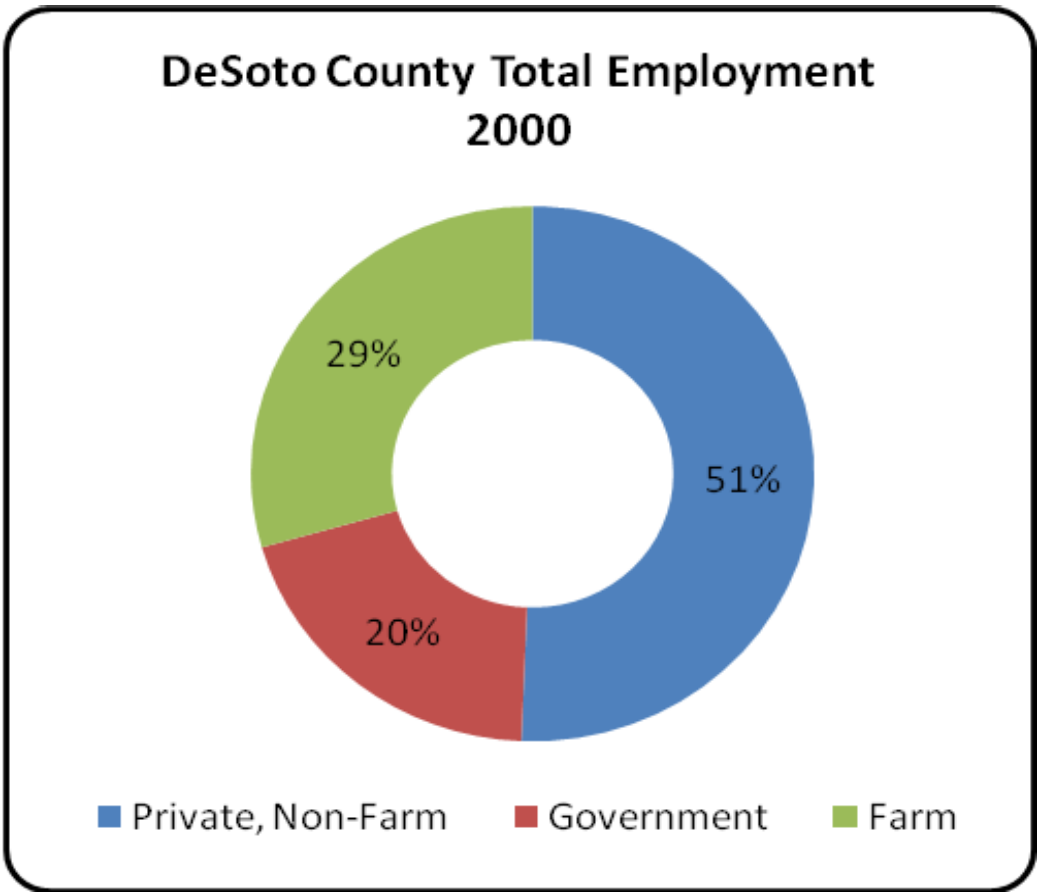
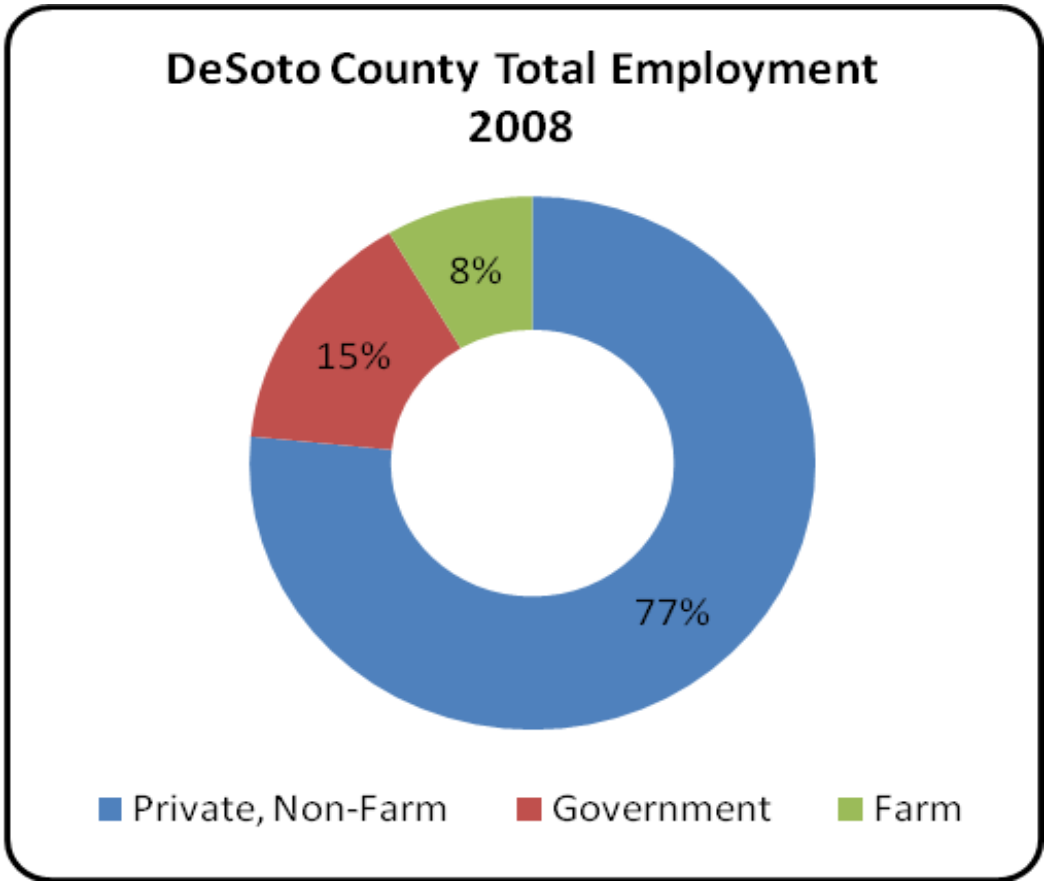


Figure 10 below indicates that in 2008, approximately 77 percent of employment in DeSoto County was in the Private, Non-Farm Sector, while 15 percent was in the Government Sector and 8 percent of employment was in the Farm Sector.

Figure 10



As **Figures 9** and **10** indicate from 2000 to 2008, the Private, Non-Farm Sector is the leading type of employment in DeSoto County with a 26 percent increase followed by decline in both the Government and Farm Sectors. The Government Sector declined by 5 percent and the Farm Sector declined by 21 percent of total employment.

Hardee County – Employment by Industry (2000 – 2008)

Table 31 and **Table 32** provide the categories of employment by industry in Hardee County. Categories include Private, Non-Farm Sector (**Table 31**) and Total Employment (including Government and Farm categories) (**Table 32**). Employment numbers are provided for the years 2000 and 2008, in order to provide a comparison of industry over time in Hardee County.

Table 31 indicates the number of persons employed by industry within Hardee County in both 2000 and 2008. The industries listed, ranging from forestry, fishing and related activities to educational services, employed 7,855 people in 2000. In 2008, the industries employed 10,318, an increase of 2,463 employees from 2000 providing for growth of more than 31.3 percent. The largest categories of Private, Non-Farm Sector employers were Health Care and Social Service, Transportation and Warehousing, and Forestry, Fishing, Related Activities.

Table 32 provides a summary of total employment in Hardee County including Private, Non-Farm and Government and Farm sectors. In 2000, the number of total employees in Hardee County was 11,427. In 2008, the total was 13,987 or an increase of 2,560 or 22.4 percent. The Government Sector increased by 87 employees from 1,770 employees in 2000 to 1,857 in 2008. The Farm Sector increased by 10 employees from 1,802 in 2000 to 1,812 in 2008.

Table 31 Hardee County Employment by Industry 2000-2008		
Industry	**2000**	**2008**
Forestry, Fishing, Related Activities	1,973	1,980
Retail Trade	1,018	962
Health Care and Social Assistance	997	2,080
Transportation and Warehousing	549	1,203
Other Services except Public Administration	536	632
Construction	445	411
Utilities	319	186
Finance and Insurance	317	332
Accommodation and Food Services	287	333
Professional and Technical Services	269	186
Wholesale Trade	259	309
Manufacturing	244	231
Administrative and Waste Services	217	883
Real Estate and Rental and Leasing	215	314
Management of Companies and Enterprises	88	44
Information	66	99
Arts, Entertainment, Recreation	54	98
Educational Services	2	35
Total	**7,855**	**10,318**

Table 32 Hardee County Total Employment		
Industry	**2000**	**2008**
Private, Non-Farm	7,855	10,318
Government	1,770	1,857
Farm	1,802	1,812
Total	**11,427**	**13,987**

As shown in **Figure 11**, Health Care and Social Assistance increased significantly with employment numbers more than doubling between 2000 and 2008. Transportation and Warehousing grew from less than 600 jobs in 2000 to more than 1,200 jobs by 2008. The Retail Trade industry, another major employer, saw slight decrease in employment numbers. Administrative and Waste Services increased by more than 300 percent, with job numbers growing from 217 in 2000 to 883 in 2008. Other growing employment industries include Wholesale Trade and Educational Services, while industries such as Professional and Technical Service declined.

Figure 11

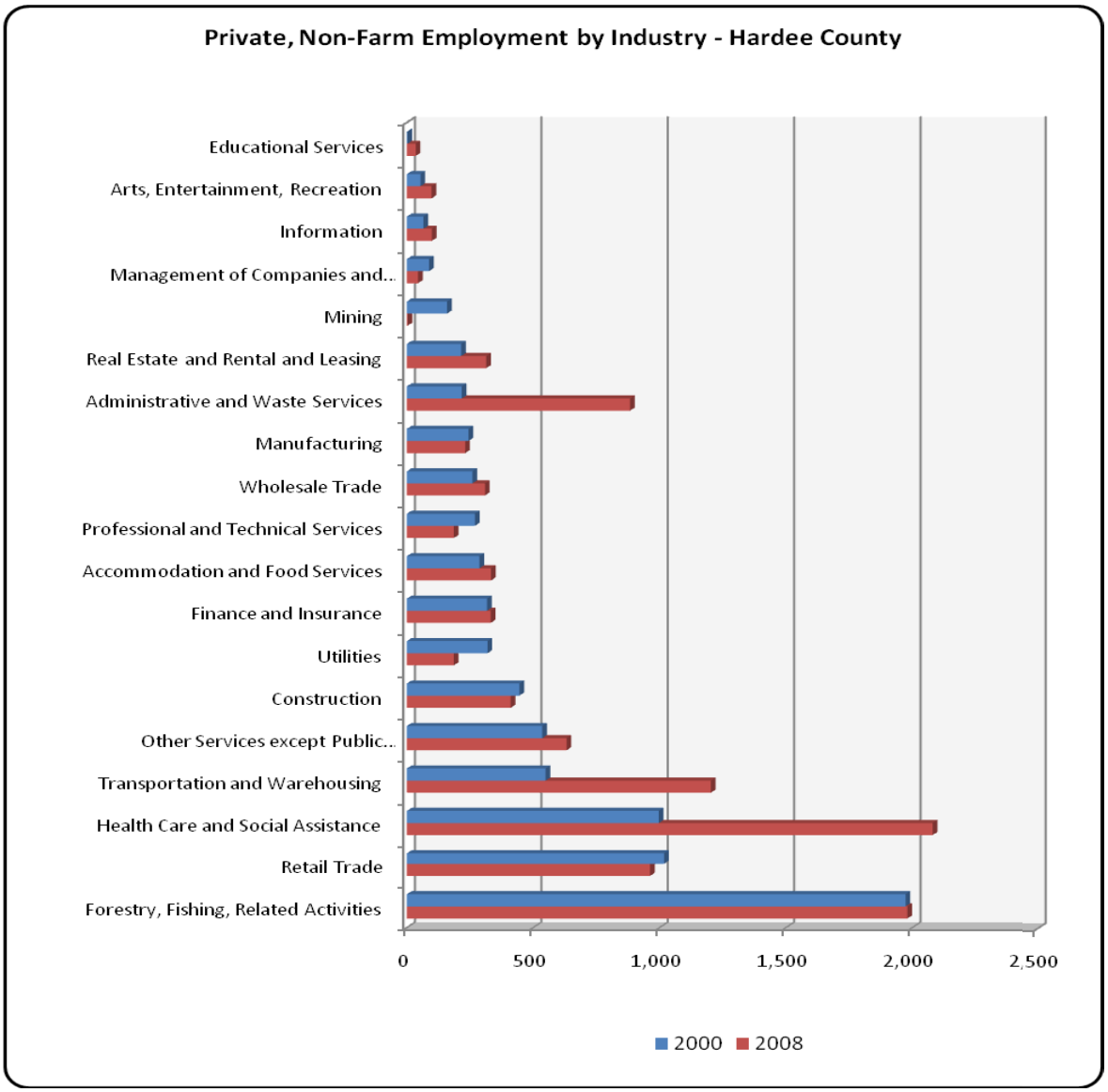


Figure 12 below indicates that in 2000, approximately 69 percent of employment in Hardee County was in the Private, Non-Farm Sector while 15 percent of employment was in the Government Sector and 16 percent was in the Farm Sector.

Figure 12

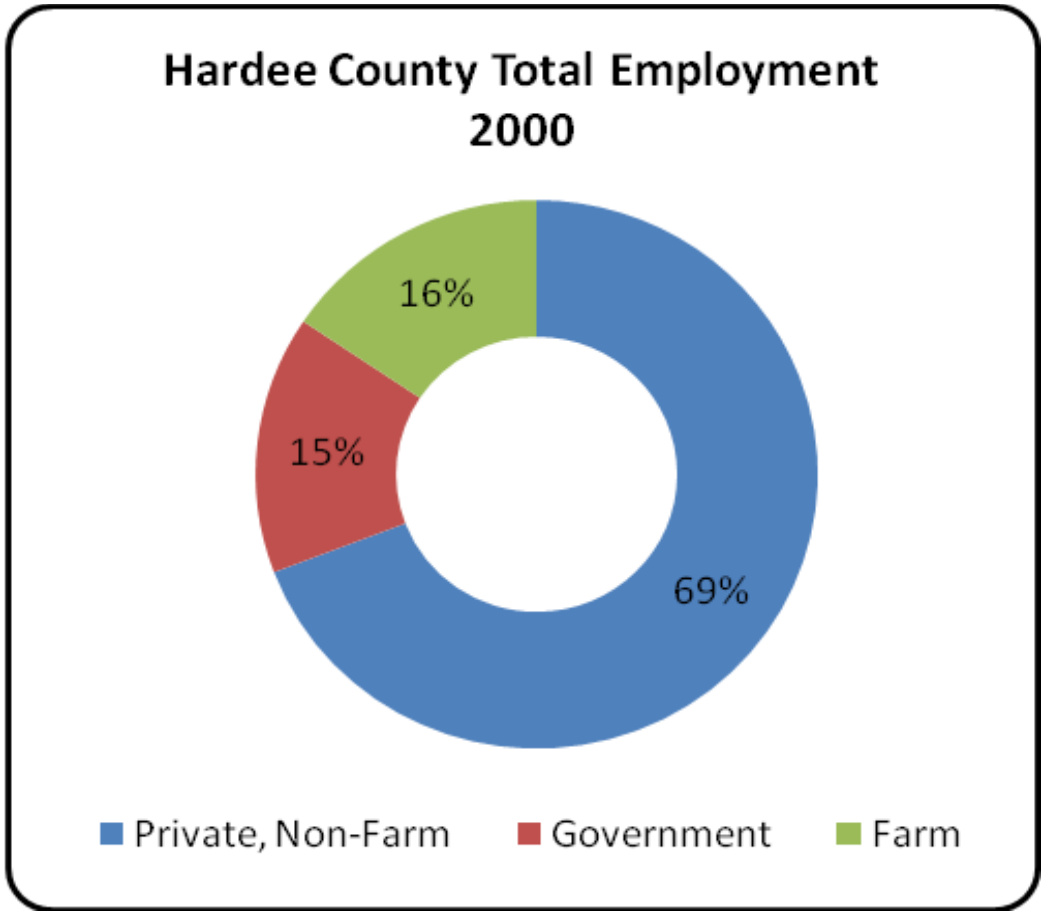
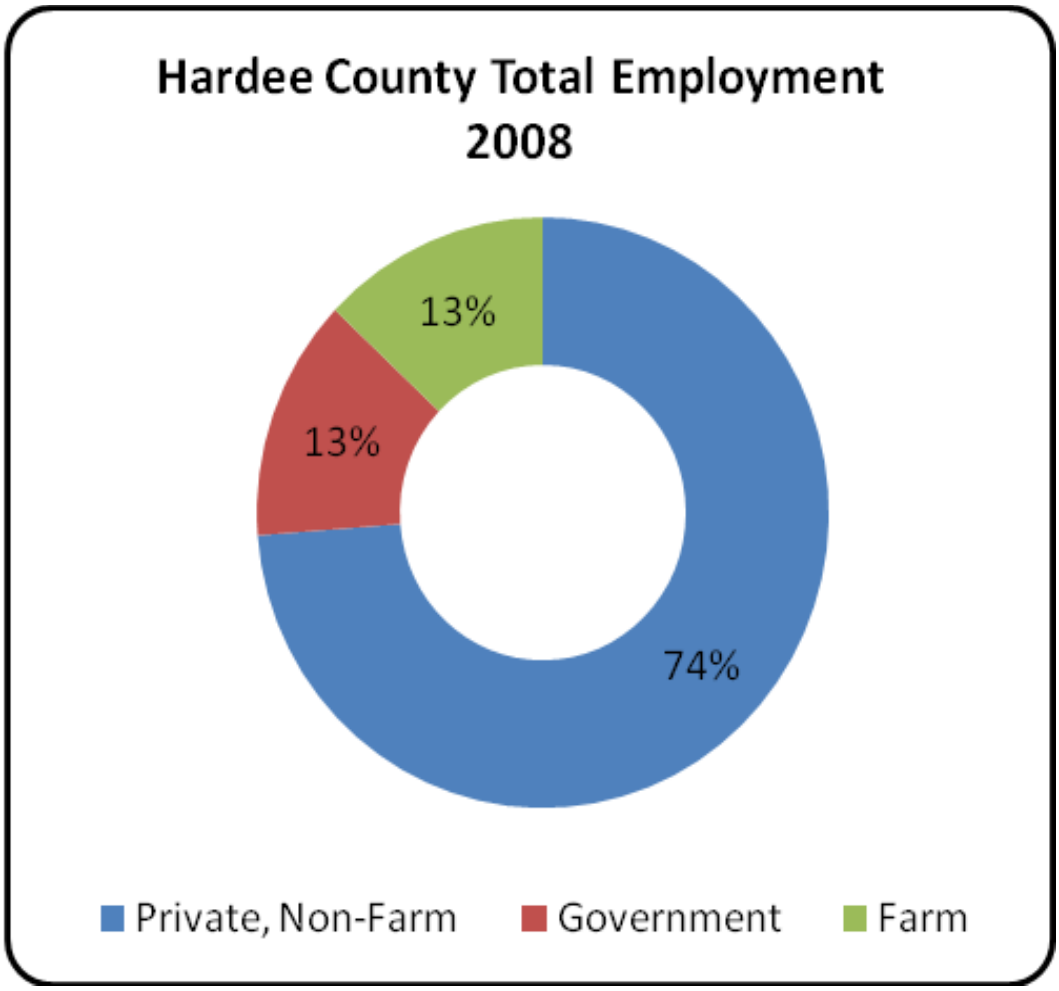


Figure 13 below indicates that in 2008, approximately 74 percent of employment in Hardee County was in the Private, Non-Farm Sector, while 13 percent was in the Government Sector and 13 percent of employment was in the Farm Sector.

Figure 13



As **Figures 12** and **13** indicate from 2000 to 2008, the Private, Non-Farm Sector is the leading type of employment in Hardee County with a 5 percent increase followed by slight decline in both the Government and Farm Sectors. The Government Sector decreased by 2 percent and the Farm Sector decreased by 3 percent of total employment.

Highlands County – Employment by Industry (2000 – 2008)

Table 33 and **Table 34** provide the categories of employment by industry in Highlands County. Categories include Private, Non-Farm Sector (**Table 33**) and Total Employment (including Government and Farm categories) (**Table 34**). Employment numbers are provided for the years 2000 and 2008, in order to provide a comparison of industry over time in Highlands County.

Table 33 indicates the number of persons employed by industry within Highlands County in both 2000 and 2008. The industries listed, ranging from health care and social assistance to management of companies and enterprises, employed 28,004 people in 2000. In 2008, the industries employed 36,000, an increase of 7,996 employees from 2000 providing for growth of more than 28.6 percent. The largest categories of Private, Non-Farm Sector employers were Health Care and Social Assistance, Retail Trade, and Forestry, Fishing, Related Activities.

Table 34 provides a summary of total employment in Highlands County including Private, Non-Farm and Government and Farm sectors. In 2000, the number of total employees in Highlands County was 34,024. In 2008, the total was 42,435 or an increase of 8,411 or 24.7 percent. The Government Sector increased by 300 employees from 4,209 employees in 2000 to 4,509 in 2008. The Farm Sector increased by 115 employees from 1,811 in 2000 to 1,926 in 2008.

Table 33 Highlands County Employment by Industry 2000-2008		
Industry	**2000**	**2008**
Health Care and Social Assistance	4,327	5,325
Retail Trade	4,814	5,260
Forestry, Fishing, Related Activities	3,124	4,589
Administrative and Waste Services	2,722	3,334
Other Services except Public Administration	2,138	2,834
Construction	1,883	2,697
Accommodation and Food Services	1,339	2,515
Real Estate and Rental and Leasing	1,215	2,240
Professional and Technical Services	1,783	1,559
Finance and Insurance	569	1,061
Manufacturing	1,248	946
Transportation and Warehousing	809	870
Wholesale Trade	758	857
Arts, Entertainment, Recreation	480	816
Mining	79	439
Information	467	281
Educational Services	105	225
Utilities	130	108
Management of Companies and Enterprises	14	44
Total	**28,004**	**36,000**

Table 34 Highlands County Total Employment		
Industry	**2000**	**2008**
Private, Non-Farm	28,004	36,000
Government	4,209	4,509
Farm	1,811	1,926
Total	**34,024**	**42,435**

Figure 14 below illustrates that growth occurred in all but four of the 19 employment industry categories between 2000 and 2008. Professional and Technical Services, Manufacturing, Information, and Utilities all experienced a decline during the eight year time frame. Health Care and Social Assistance, Retail Trade, Forestry, Fishing, Related Activities, Administrative and Waste Services, and Other Services including Accommodations and Food Services are major employers that experienced major increases ranging from 21 percent to more than 45 percent of total employment in the years 2000 to 2008. Other growing employment industries include Wholesale Trade, Arts, Entertainment, and Recreation, and Educational Services.

Figure 14

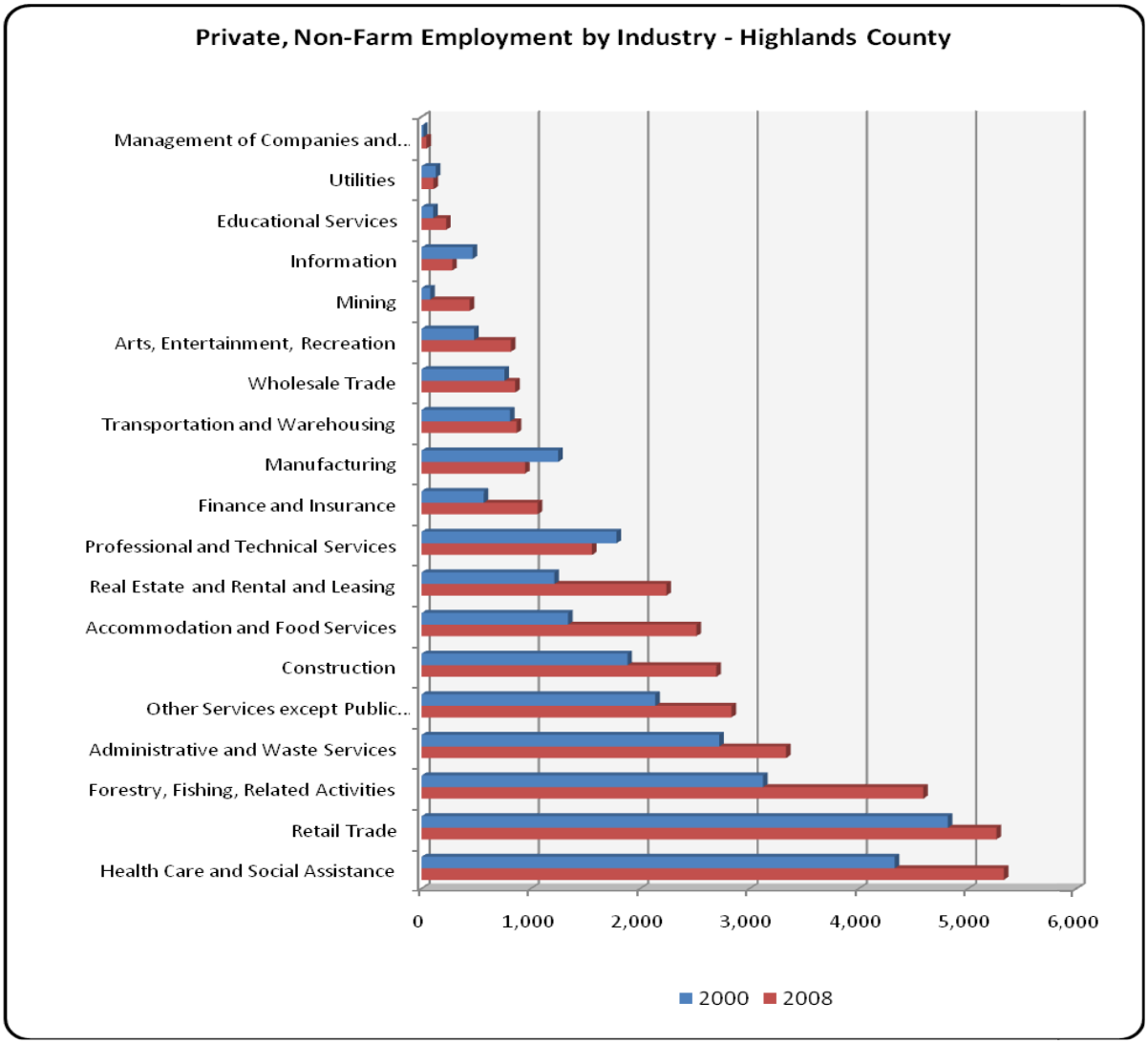


Figure 15 indicates that in 2000, approximately 82 percent of employment in Highlands County was in the Private, Non-Farm Sector while 13 percent of employment was in the Government Sector and 5 percent was in the Farm Sector

Figure 15

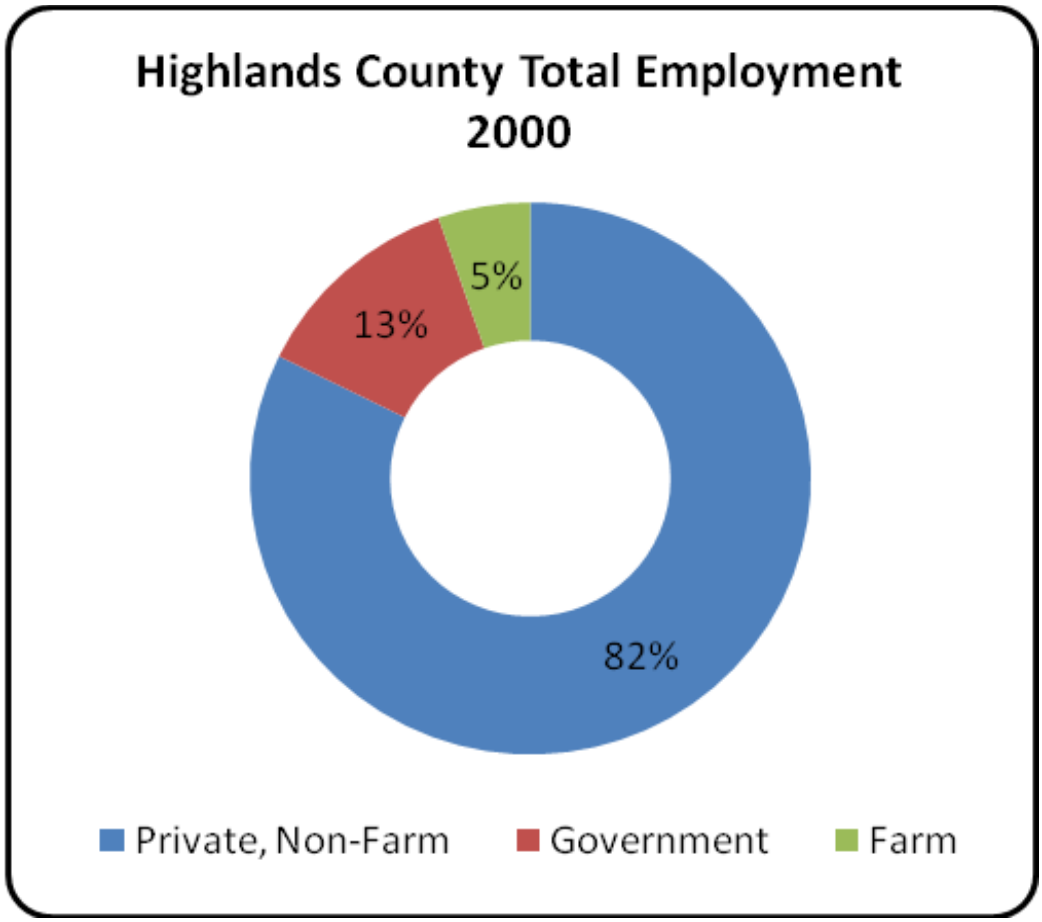
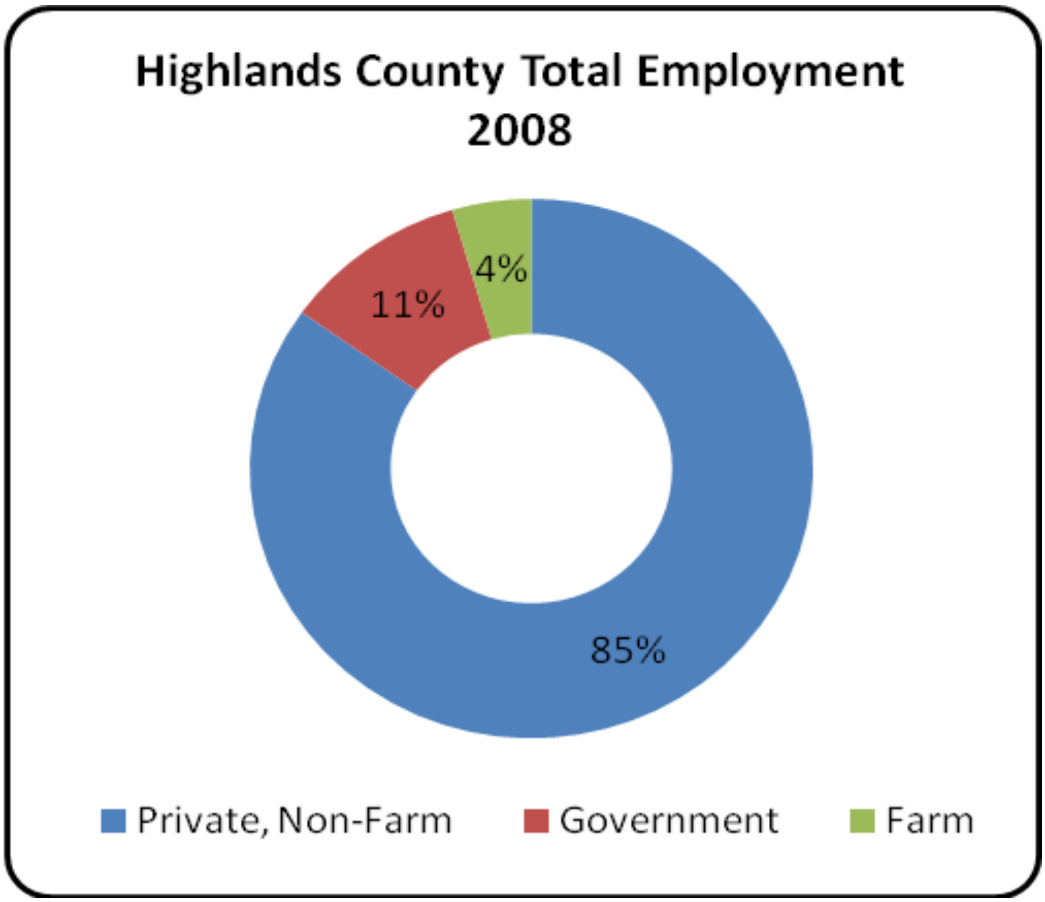


Figure 16 below indicates that in 2008, approximately 85 percent of employment in Highlands County was in the Private, Non-Farm Sector, while 11 percent was in the Government Sector and 4 percent of employment was in the Farm Sector.

Figure 16



As **Figures 15** and **16** indicate from 2000 to 2008, the Private, Non-Farm Sector is the leading type of employment in Highlands County with a 3 percent increase followed by slight decline in both the Government and Farm Sectors. The Government Sector decreased by 2 percent and the Farm Sector decreased by 1 percent of total employment.

Okeechobee County – Employment by Industry (2000 – 2008)

Table 35 below provides the categories of employment by industry in Okeechobee County. Categories include Private, Non-Farm Sector (**Table 35**) and Total Employment (including Government and Farm categories) (**Table 36**). Employment numbers are provided for the years 2000 and 2008, in order to provide a comparison of industry over time in Okeechobee County.

Table 35 indicates the number of persons employed by industry within Okeechobee County in both 2000 and 2008. The industries listed, ranging from retail trade to utilities, employed 9,005 people in 2000. In 2008, the industries employed 10,909, an increase of 1,904 employees from 2000 providing for growth of more than 21.1 percent. The largest categories of Private, Non-Farm Sector employers were Retail Trade, Health Care and Social Assistance, and Accommodation and Food Services.

Table 36 provides a summary of total employment in Okeechobee County including Private Non-Farm and Government and Farm sectors. In 2000, the number of total employees in Okeechobee County was 12,977. In 2008, the total was 14,201 or an increase of 1,224 or 9.4 percent. The Government Sector increased by 242 employees from 1,900 employees in 2000 to 2,142 in 2008. The Farm Sector decreased by 921 employees from 2,072 in 2000 to 1,151 in 2008.

Table 35
Okeechobee County Employment by Industry 2000-2008

Industry	2000	2008
Retail Trade	1,929	1,752
Health Care and Social Assistance	1,808	1,290
Accommodation and Food Services	902	1,115
Construction	698	1,061
Other Services except Public Administration	651	840
Administrative and Waste Services	373	831
Forestry, Fishing, Related Activities	505	701
Wholesale Trade	212	630
Transportation and Warehousing	468	529
Professional and Technical Services	426	397
Real Estate and Rental and Leasing	238	369
Finance and Insurance	221	353
Manufacturing	227	291
Utilities	32	243
Educational Services	1	150
Arts, Entertainment, Recreation	193	134
Information	112	116
Management of Companies and Enterprises	3	57
Mining	6	49
Total	**9,005**	**10,908**

Table 36
Okeechobee County Total Employment

Industry	2000	2008
Private, Non-Farm	9,005	10,908
Government	1,900	2,142
Farm	2,072	1,151
Total	**12,977**	**14,201**

Figure 17 below illustrates that growth occurred in all but four of the 19 employment industry categories between 2000 and 2008. Retail Trade, Health Care and Social Assistance, Professional and Technical Services, and Art, Entertainment, Recreation, experienced a decline in employment. Growing industries include Accommodation and Food Services, Administrative and Waste Services, and Wholesale Trade, which tripled in job growth. Educational Services and Utilities also experienced increases in employment between 2000 and 2008.

Figure 17

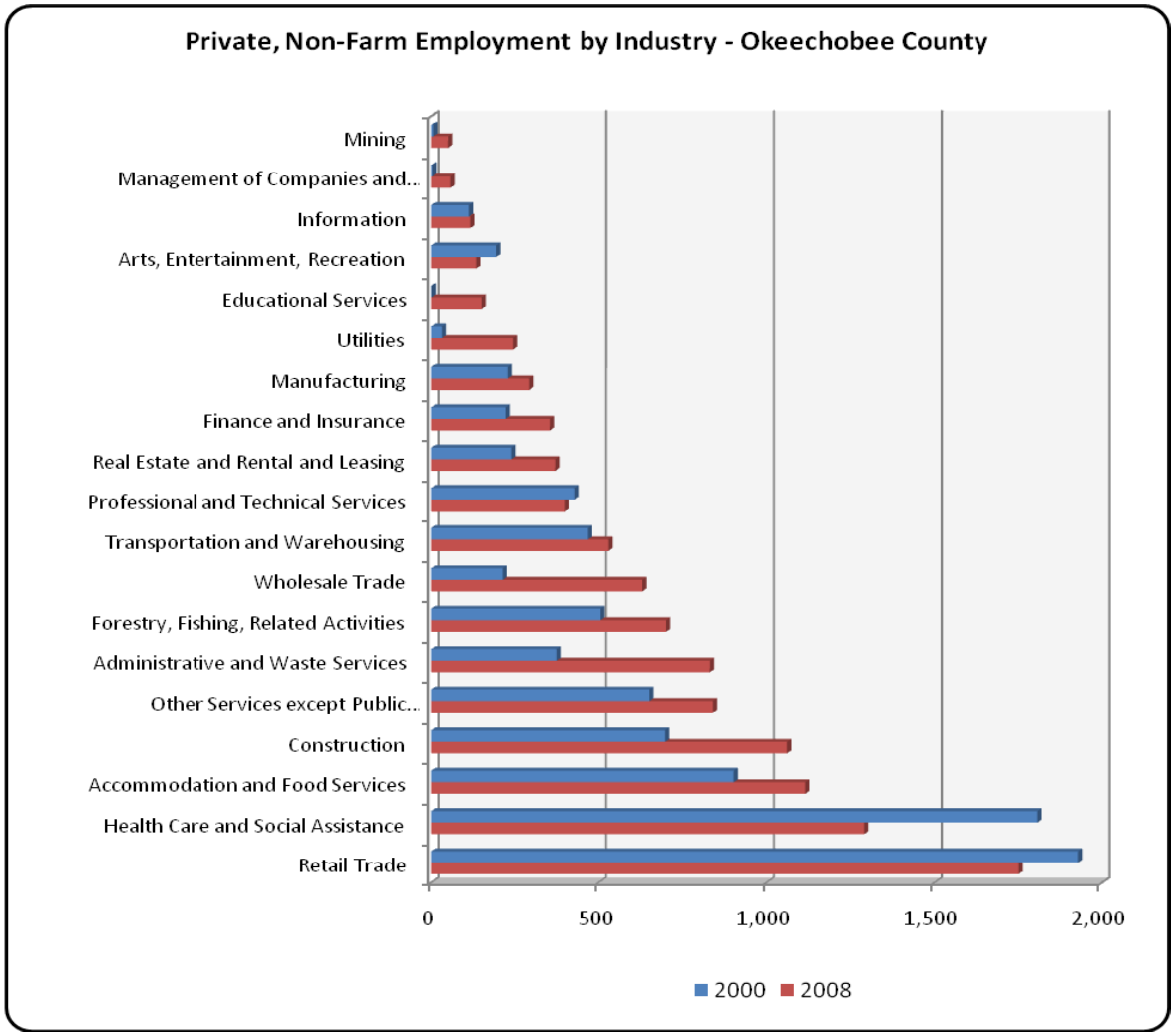


Figure 18 below indicates that in 2000, approximately 69 percent of employment in Okeechobee County was in the Private, Non-Farm Sector while 15 percent of employment was in the Government Sector and 16 percent was in the Farm Sector.

Figure 18

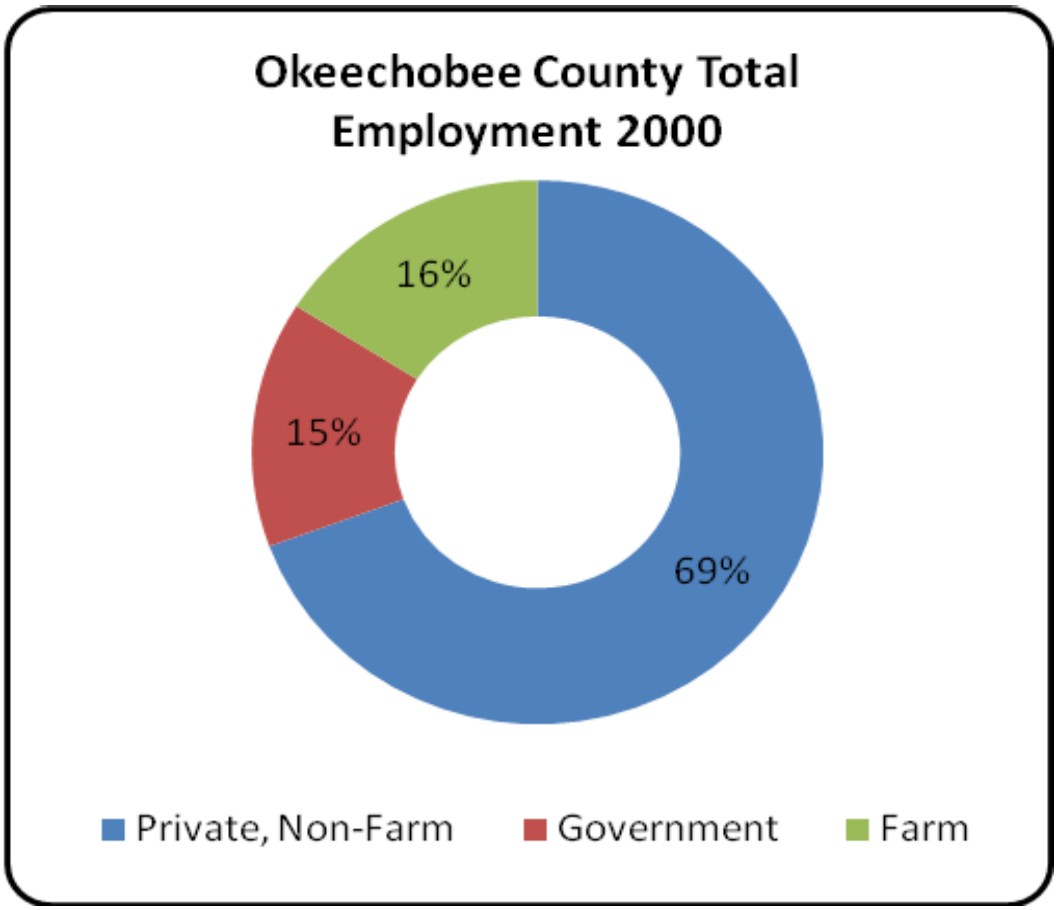
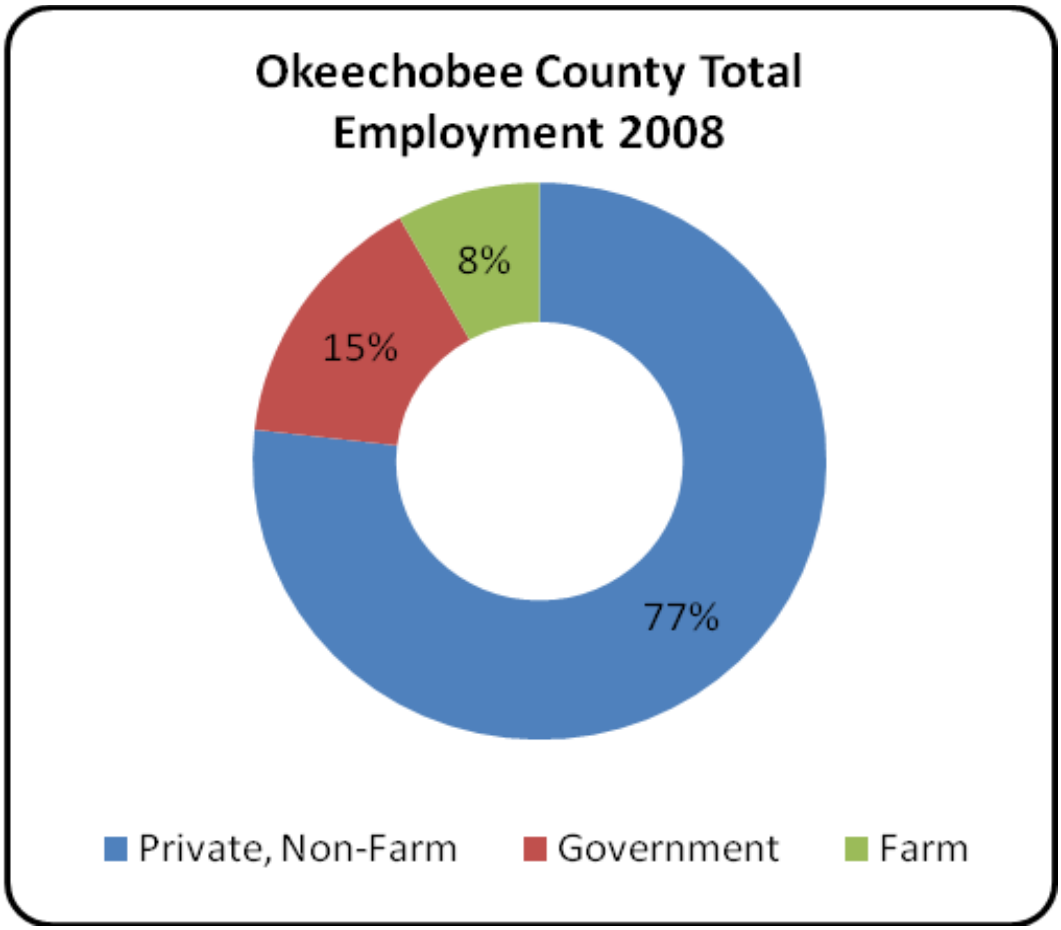


Figure 19 below indicates that in 2008, approximately 77 percent of employment in Okeechobee County was in the Private, Non-Farm Sector, while 15 percent was in the Government Sector and 8 percent of employment was in the Farm Sector.

Figure 19



As **Figures 18** and **19** indicate from 2000 to 2008, the Private, Non-Farm Sector is the leading type of employment in Okeechobee County with an 8 percent increase followed by no change in the Government Sector. The Farm Sector decreased by 8 percent.

Polk County – Employment by Industry (2000 – 2008)

Table 37 below provides the categories of employment by industry in Polk County. Categories include Private, Non-Farm Sector (**Table 37**) and Total Employment (including Government and Farm categories) (**Table 38**). Employment numbers are provided for the years 2000 and 2008, in order to provide a comparison of industry over time in Polk County.

Table 37 indicates the number of persons employed by industry within Polk County in both 2000 and 2008. The industries listed, ranging from retail trade to utilities, employed 205,007 people in 2000. In 2008, the industries employed 243,494, an increase of 38,487 employees from 2000 providing for growth of more than 18.8 percent. The largest categories of Private, Non-Farm Sector employers were Retail Trade, Health Care and Social Service, Administrative and Waste Services, and Construction.

Table 38 provides a summary of total employment in Polk County including Private, Non-Farm and Government and Farm sectors. In 2000, the number of total employees in Polk County was 237,235. In 2008, the total was 277,832 or an increase of 40,597 or 17.1 percent. The Government Sector increased by 1,894 employees from 28,515 employees in 2000 to 30,409 in 2008. The Farm Sector increased by 216 employees from 3,713 in 2000 to 3,929 in 2008.

Table 37 Polk County Employment by Industry 2000-2008		
Industry	**2000**	**2008**
Retail Trade	29,427	32,198
Health Care and Social Assistance	22,027	27,600
Administrative and Waste Services	16,912	26,028
Construction	14,650	19,242
Manufacturing	19,290	16,865
Accommodation and Food Services	12,393	15,877
Transportation and Warehousing	20,436	15,495
Other Services except Public Administration	12,803	15,476
Real Estate and Rental and Leasing	6,933	13,715
Finance and Insurance	8,198	12,227
Professional and Technical Services	8,863	11,137
Wholesale Trade	9,164	10,922
Forestry, Fishing, Related Activities	4,679	6,331
Management of Companies and Enterprises	5,879	5,819
Arts, Entertainment, Recreation	4,807	5,349
Educational Services	2,951	4,842
Information	2,678	2,697
Mining	2,318	1,151
Utilities	599	523
Total	**205,007**	**243,494**

Table 38 Polk County Total Employment		
Industry	**2000**	**2008**
Private, Non-Farm	205,007	243,494
Government	28,515	30,409
Farm	3,713	3,929
Total	**237,235**	**277,832**

Figure 20 below illustrates that growth occurred in all but five of the 19 employment industry categories between 2000 and 2008. Transportation and Warehousing, Management of Companies and Enterprises, Mining, Manufacturing, and Utilities experienced a decline during the eight year time frame. Retail Trade, Health Care and Social Assistance, Administrative and Waste Services, and Construction are major employers that experienced employment increases between 2000 and 2008. While Wholesale Trade experienced an increase of more than 1,500 jobs between the years 2000 to 2008, Manufacturing experienced a decline of nearly 2,500 jobs.

Figure 20

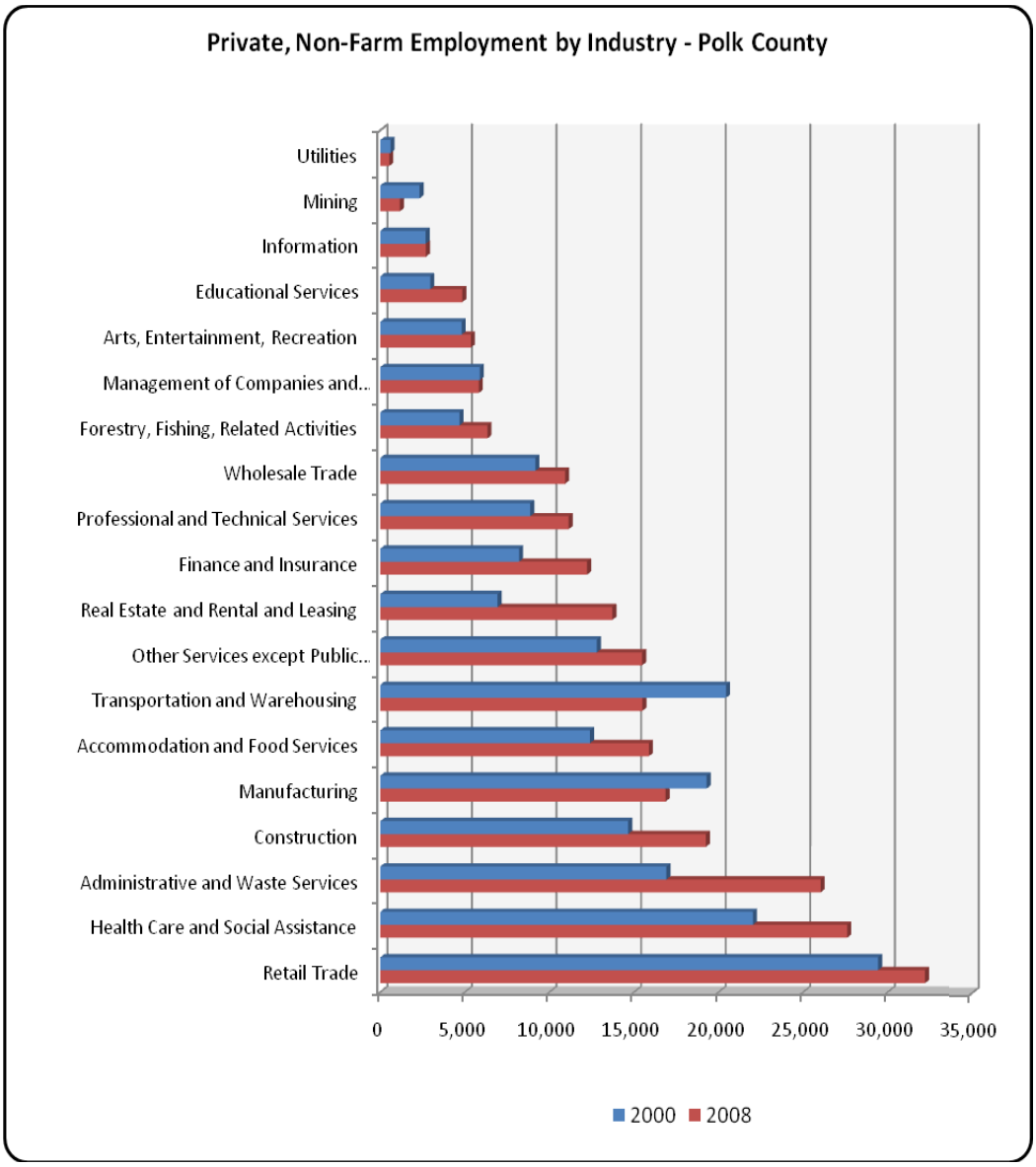


Figure 21 below indicates that in 2000, approximately 86 percent of employment in Polk County was in the Private, Non-Farm Sector while 12 percent of employment was in the Government Sector and 2 percent was in the Farm Sector.

Figure 21

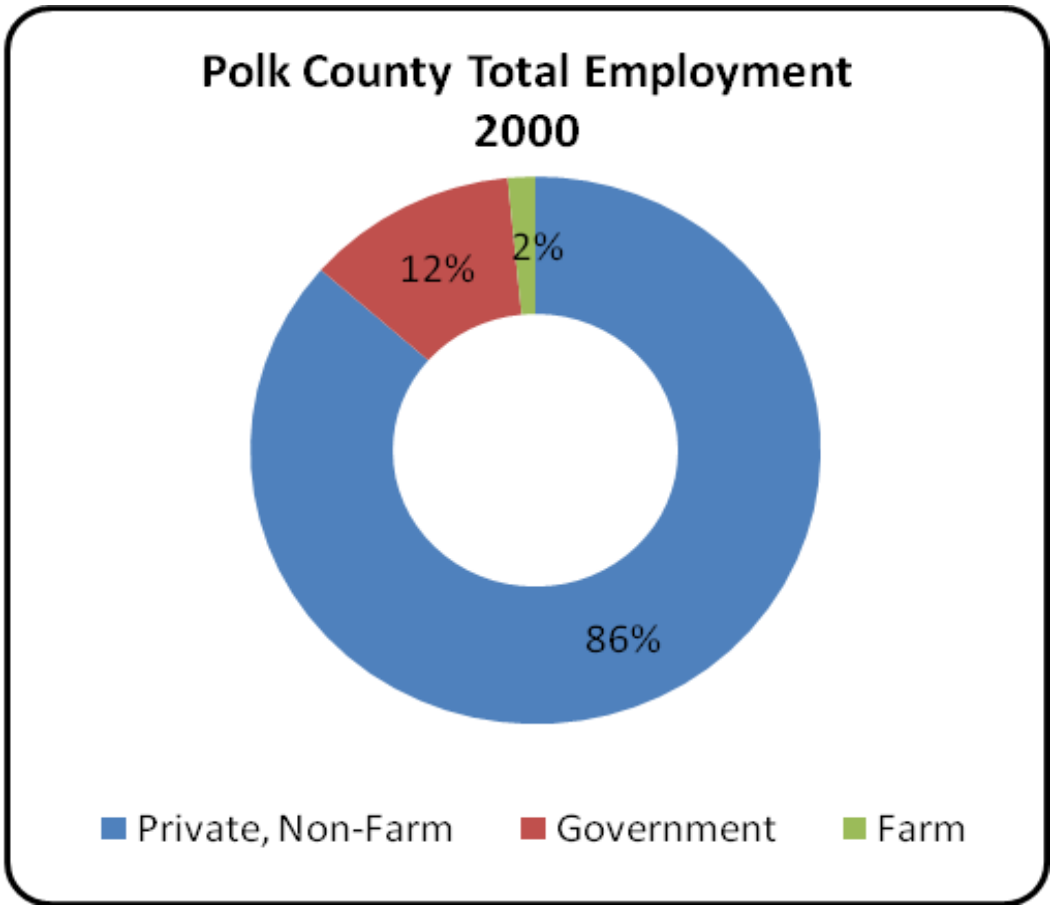
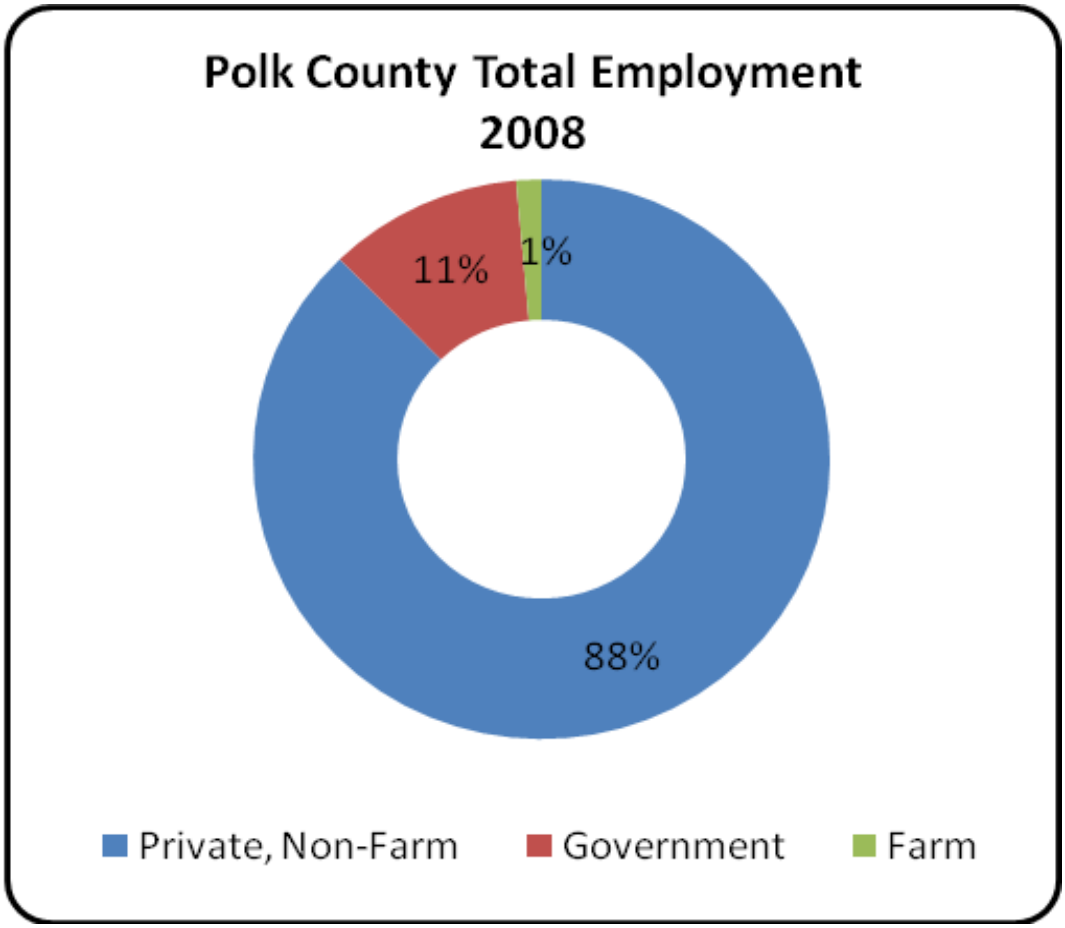


Figure 22 below indicates that in 2008, approximately 88 percent of employment in Polk County was in the Private, Non-Farm Sector, while 11 percent was in the Government Sector and 1 percent of employment was in the Farm Sector.

Figure 22



As **Figures 21** and **22** indicate from 2000 to 2008, the Private, Non-Farm Sector is the leading type of employment in Polk County with a 2 percent increase followed by slight decline in both the Government and Farm Sectors which both decreased by 1 percent of total employment.

F. Critical Infrastructure

Critical infrastructure data was gathered by county. Below is **Table 39** that provides the Critical Infrastructure Data List and cites the sources of the data.

Critical infrastructure is essential assets and systems that provide for public health, safety, security, economy, communications, transportation, and energy. In Florida, County emergency management directors are provided the authority under the Florida Statutes to designate critical infrastructure. For the purposes of the study, a standardized list of inputs is evaluated, and they are:

a) Hospitals (public and private)
b) Emergency Medical Services (public and private)
c) Fire Departments
d) Law Enforcement (civil security, which includes the United States National Guard)
e) Emergency Distribution Centers
f) Primary Roads (interstates, federal highways, and state roads)
g) Heavy Rail
h) Cellular Transmission Towers

The **Appendix** provides the mapping of Critical Infrastructure by County.

Table 39
List and Sources of Critical Infrastructure Data

Critical Infrastructure Data List	Source and Date
Cellular Transmission Towers	Federal Communications Commission
Emergency Medical Services	University of Florida GeoPlan Center
Fire Stations	National Fire Department Census (United States Department of Homeland Security)
Heavy Rail	Federal Rail Administration
Hospitals	University of Florida GeoPlan Center
Primary Roads	Florida Department of Transportation

The identification of critical and sensitive facilities is an important factor for emergency management planning. The Critical Facilities Inventory is maintained by state and local emergency management agencies and updated to ensure that preparedness and protective actions can be focused to provide efficient evacuation, sheltering and recovery operations.

Typically critical facilities include transportation facilities, including roadways, bus depots, ports, airports; communications facilities; utilities such as power plants, water treatment plants and water distribution systems; wastewater treatment plants and lift stations; health care facilities such as hospitals, nursing homes, hospice and dialysis facilities; assisted living and residential treatment facilities; schools and day care centers; correctional facilities and sheriff/police stations; fire stations; and county and municipal buildings. Volunteer and relief agencies, potential staging areas, recovery centers and points of distribution (PODs) were also included in the critical facilities inventories.

An inventory of each county's facilities was obtained, updated and coded by type of facility. Facilities were coded as follows:

Table 40
Critical Facility Types and Codes

TYPE OF CRITICAL FACILITY	CRITICAL CODE
Health Care Facilities	
Assisted Living	
Assisted Living Facilities/Adult Family Care Homes	11
Adult Family Care Home	52
Long Term Care	
Skilled Nursing Facilities	35
Intermediate Care Facilities	25
Transitional Living Facilities	34
Residential Treatment Facilities	32
Hospitals	
Hospitals	23
VA Hospital	24
Residential Treatment Facilities	32
Ambulatory Surgical Center	14
Crisis Stabilization Unit	17
Hospices	22
Laboratory	

TYPE OF CRITICAL FACILITY	CRITICAL CODE
Clinical Laboratory	26
End Stage Renal Disease Facilities	18
Critical Response Facilities	
Law Enforcement	74034
Fire Department	74026
Call Center	11318
EMS	74017
EOCs	74044
PODs	90003
Relief Agencies	74002
Disaster Recovery Center	90006
Logistical Staging Areas	90002
National Guard	67306
Coast Guard	74010
Community Resources	
Designated Shelters	90004
Faith-Based Facility	82020
Community Centers	82011
Public Buildings – State	83034
Public Buildings – Local	83026
Public Schools	73002
College	73004
Private School	73007
Correctional Facility	74036
Library	82024
Stadium	82046
Attraction	82002
Transportation	
Transportation – Seaplane Base	81072
Fuel Facility – Along Evacuation Route	72004
Fuel Facility – FDOT	75018
Transportation – Commercial Port	81044
Transportation – Airport	81006
Transportation – Heliport/Helipad	81026
Transportation – Major Intersection	90001
Communication	
Phone/Satellite/Cellular Towers, etc.	11303
Electrical Systems	

TYPE OF CRITICAL FACILITY	CRITICAL CODE
Electric Power Plant	75030
Nuclear Power Plant	75034
Electric Substation	75038
Infrastructure	
Solid Waste Facilities	75041
Waste Water Facility	85006
Water Treatment Plants/Public Water Supply	85004
Hazardous Materials	
Hazardous Materials – 302 facilities	10400
Miscellaneous	
Television	88012

Sources: *Health Care – AHCA online at www.fdhc.state.fl.us*
Mobile Homes – FDOH online at www.fdoh.state.fl.us
Schools – FDOE online at www.fdoe.state.fl.us
Shelters and PODs – County Emergency Management Agencies, August 2009
Hazardous Materials – HMIS, August 2009

The **Appendices** provide maps of the critical facilities by county.

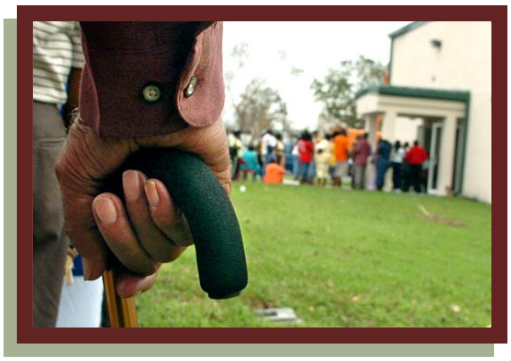
Hospitals and Skilled Nursing Facilities

In the Central Florida Region there are 12 hospitals and over 120 skilled nursing facilities. The effects of a hurricane's hazards on these residents would be greatly compounded by their lack of mobility and need for continuity of care. **Table 41** provides a listing of the total number of facilities by county in the Region.

Table 41 Health Care Facilities in Central Florida						
Type of Facility	**DeSoto**	**Hardee**	**Highlands**	**Okeechobee**	**Polk**	**Region**
Assisted Living						
Assisted Living Facilities/Adult Family Care Homes	5	5	13	0	42	65
Long Term Care						
Skilled Nursing Facilities	0	2	6	1	23	32
Intermediate Care Facilities	0	0	4	0	9	13
Hospitals						
Hospitals	1	1	3	1	6	12
Residential Treatment Facilities	0	2	0	1	2	5
Laboratory						
End Stage Renal Disease Facilities	1	0	3	1	10	15
Home Care						
Home Health Agencies	2	1	10	4	35	52
Hospices	0	0	0	1	1	2

Assisted Living Facilities (ALFs), Residential Treatment Facilities

In addition to the medical facilities there are over 50 licensed assisted living facilities (ALFs) in the Central Florida Region. ALFs are living arrangements where adults live together to receive room, meals, and help with their daily living. ALFs are not nursing homes.



The majority of ALFs were built as private homes and care for four or five residents. In addition to one and two story dwellings, some ALFs are located in high rise buildings, or multi-unit buildings. Three groups of people live in ALFs: the elderly, the physically disabled, and the mentally disabled. ALFs may also distinguish residents according to specific health problems.

Critical Infrastructure (Water Systems, Waste Water Systems, Power, Communications and Transportation)

The Critical Facilities Inventory also includes a listing of critical facilities/infrastructure necessary for response and recovery.

G. Staging Areas for Reconstruction Activities

Staging areas are supply points that are used to efficiently distribute needed supplies to the population after a disaster. These supplies are provided because the population is unable obtain them from the local retailers, who may have lost their inventory to the emergency or the means to distribute their goods. The staging areas typically provide the population with essential food, water, and other commodities. The areas may also be used for the distribution of pharmacological items from the Strategic National Stockpile.

A County's Emergency Management Director determines the planned staging areas, dependent upon factors including space and location to a vulnerable/in-need population. A County many have several planned staging areas in their inventory for redundancy purposes in the event of an emergency. The County may open some or all of their identified staging areas as needed, and these locations are subject to change due to reasons such as actual location of need and ability to set up the staging area in the planned location.

A listing of staging areas by county is provided below in **Table 42**.

Table 42
Staging Areas by County

County	Site	Address
DeSoto	Turner Center (Parking Lot)	2250 NE Roan Street, Arcadia
Hardee	Win Dixie	1510 US 17 North, Wauchula
Hardee	Wal-Mart	1480 US 17 North, Wauchula
Hardee	Sweetbay Supermarket	1133 South 6th Avenue, Wauchula
Highlands	Bert J. Harris, Jr. Agri-Civic Center	4509 George Boulevard, Sebring
Highlands	Old Food Lion Parking Lot	3650 US 27 South, Sebring
Highlands	South Florida Community College	600 West College Drive, Avon Park
Highlands	Winn Dixie Parking Lot	70 Plaza Avenue, Lake Placid
Highlands	Lorida Community Center	1925 Oak Avenue, Lorida
Highlands	Venus VFW	45 Venus Clubhouse Road, Venus
Highlands	Kissimmee River Estates Area	SR 70 East, Lake Placid
Okeechobee	Okeechobee Agri-Civic Center	4200 Highway 70 East, Okeechoee
Polk	Ben Hill Griffin Packing House	700 South Scenic Highway, Frosproof
Polk	Ft. Meade Park (Parking area)	NE Edgewood Drive, Ft. Meade
Polk	Eagle Lake – Sheriff's Office	675 Eagle Avenue, Eagle Lake
Polk	Dundee Baptist Church	111 Scenic Highway, Dundee
Polk	Davenport Methodist Church	3 North Suwannee Avenue, Davenport
Polk	Carver Recreation Center	520 South Idlewood, Bartow
Polk	Bartow Civic Center	2250 South Floral Avenue
Polk	Auburndale Parks & Recreation Office	119 West Park Street, Auburndale
Polk	First Presbyterian Church of Winter Haven	637 Sixth Street Northwest, Winter Haven
Polk	Polk City Government Center	123 Broadway Boulevard Southeast, Polk City
Polk	First Baptist Church - Mall	1010 Memorial Boulevard, Lakeland
Polk	Resurrection Catholic Church	3720 Old State Road 37
Polk	Lake Hamilton Town Hall	100 Smith Ave, Lake Hamilton
Polk	Lake Eva Civic Center	305 Ledwith Avenue, Haines City
Polk	Hillcrest Heights Town Hall	151 North Scenic Highway, Babson Park

VIII. METHODOLOGY FOR SECOND PHASE

A. Overview

The Economic Analysis and Disaster Resiliency study was conducted in two phases. The first phase of the study provided for an itemized inventory of each of the five counties detailing each county's existing conditions including: traffic analysis zones, population, land use, residential structures by decade built, employment by industry, critical infrastructure, and staging areas for reconstruction. This detailed information is provided in the earlier sections and the **Appendices**.

The second phase of the study provides an economic analysis of the effects of a catastrophic event. The study details the effects of the positive impacts (cleanup activity, reconstruction, spending, influx of federal funds) and the negative impacts (unemployment, loss of population, loss of personal income, and reduced regional domestic product) and associated ripple effects.

Although the Central Florida Region is prone to several types of disasters including tornados, wildfires, freshwater flooding and hurricanes, the hurricane event was selected to be modeled as it involves the effects of all such disasters with the exception of wildfires. The events to be analyzed include Categories 1 though 5 Hurricane Events. Although a Category 5 Hurricane Event is unlikely in Central Florida, the Region may experience similar natural disasters consistent with the impacts of a Category 5 Hurricane Event, such as the effect of three hurricanes, Frances, Charley and Jeanne, all occurring in 2004.

Hurricane Categories 1 through 5 were simulated across each of the five counties. The study does not project a specific hurricane path, but assumes a hypothetical event that strikes evenly across each of the five counties. All areas of the Region are rated based upon location-specific risk levels including Natural Risk Assessment to Support Local Mitigation Strategies, Hurricane Evacuation Assessment, the Special Inland Flooding Area (areas that fall within the 100-year floodplain) and the Non-Evacuation Area. For each of the events, two scenarios were modeled and analyzed. One scenario assumes normal recovery based on research of experiences under similar situations in other locales. The second scenario assumes accelerated recovery rates based on federal funding.

Hurricane damage estimates are derived using a combination of the Mapping for Emergency Management Parallel Hazard Information System (MEMPHIS) model

hazard risk assessment study and risk levels by geographic location. Storm surge, winds and flooding were not recomputed, but instead based upon the MEMPHIS study estimates.

The Study was conducted using the best available data. Because of the unpredictability of destruction from a hurricane or similar catastrophic event, it is impossible to accurately predict all of the economic impacts.

B. Recovery Scenarios

The study provides two recovery scenarios:

- One scenario of normal recovery based on research of recovery experiences under similar situations; and

- A second scenario of accelerated recovery rates based on direct federal funding totaling $1 billion for each of the five counties. The study provides for distribution, to each county, of $500 million during the event year and $250 million in years two and three following the event.

The scenarios provide for the modeling of employment losses and the cleanup/construction activity. Employment losses are weighted based upon location and then applied evenly across the industries within that evacuation zone.

Construction activity is a product of private and public funds, which include insurance payouts, homeowner repairs and reconstruction, and the restoration of any public assets that sustained damage. Cleanup activity is conducted with government funds. The results of construction and cleanup activities are combined to indicate the net impacts of a hurricane event across the Region over a ten year time period.

C. Data and Modeling

Two models were used in conducting the economic analysis for each of the five counties in the Region: MEMPHIS and REMI.

MEMPHIS

Data from the Mapping for Emergency Management Parallel Hazard Information System (MEMPHIS) model was used to estimate structural damage and employment loss. For each of the scenarios, detailed ES-202 employment data from the State of Florida Agency for Workforce Innovation was geo-coded to assist in employment loss estimates. The customized econometric model called REMI (Regional Economic Models, Inc.) Policy Insight is used to forecast economic trends for the normal and accelerated recovery scenarios.

REMI PI+ MODELING

The Regional Economic Models, Inc. Policy Insight Plus (REMI PI+) model is a dynamic, multi-sector regional economic simulation model that can be used to forecast economic activity and measure the impact of public policy changes or events on economic activity, population characteristics, and government fiscal variables. Since it is a structural model, it is capable of estimating causal relationships.

REMI's PI+ software provides a regional simulation of the Central Florida economy. The model is tailored to Central Florida using data from sources including but not limited to the Bureau of Census, the Bureau of Economic Analysis, and the Bureau of Labor Statistics. The model is a regionalized version of a benchmarked national model. The region includes the five counties in the Central Florida Region: DeSoto County, Hardee County, Highlands County, Okeechobee County, and Polk County.

Each county in the Central Florida Region is modeled as an independent, fully functioning economy that interacts with every other county in the area and with the nation in general. Each economy is founded on conventional assumptions, such as households maximize utility and firms maximize profits. Hundreds of equations have been developed over the last 25 years to mathematically describe an economy's structure. These equations can be organized into five major components: Output and Demand, Labor and Capital Demand, Population and Labor Force, Wages-Prices-Costs, and Market Shares.

The model contains five major modules or blocks (Figure 1), which interact simultaneously.

- The Output Block determines expenditures for final demand, including consumption, investment, government, and imports as well as demand for intermediate inputs. Final demand responds to changes in other model blocks. This module contains a key engine in the model, an input-output model based on the federal Bureau of Economic Analysis (BEA) benchmark transactions table that shows flows of goods and services among industries.

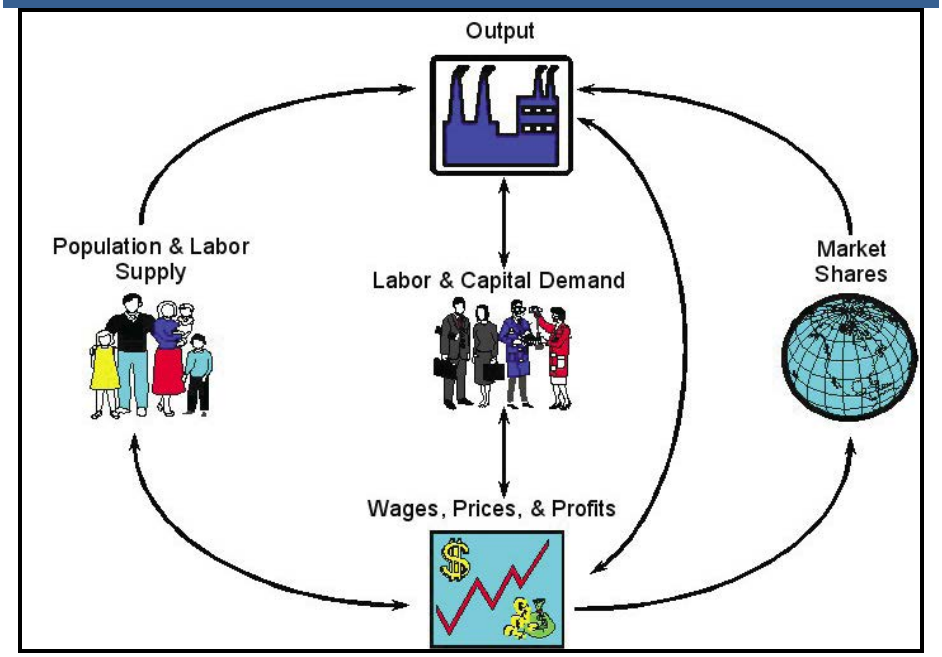
- The Labor and Capital Demand Block determines employment, capital, and fuel demand as well as labor productivity.

- The Population and Labor Force Block determines the population characteristics of the region, including age, race and sex composition. Labor force participation adjusts in response to changes in wages and employment opportunities. A key driver of population changes is migration, which is influenced by relative wage levels as well as amenities.

- The Wage, Price and Costs Block is where the prices of factor and housing and product price levels are determined.

- The Market Shares Block helps to measure exports from and imports to the region. Changes in market share are driven by production costs, demand characteristics, distance to markets and output.

Figure 23
Illustration of the REMI PI+ Model



Source: Regional Economic Models, Inc.

The REMI model assumes that businesses demand labor, capital, and fuel as inputs in order to supply goods and services as output; households and some businesses supply the inputs of production markets and also generate the demand for goods and services; and wages, prices, and profits adjust to form equilibriums in each market.

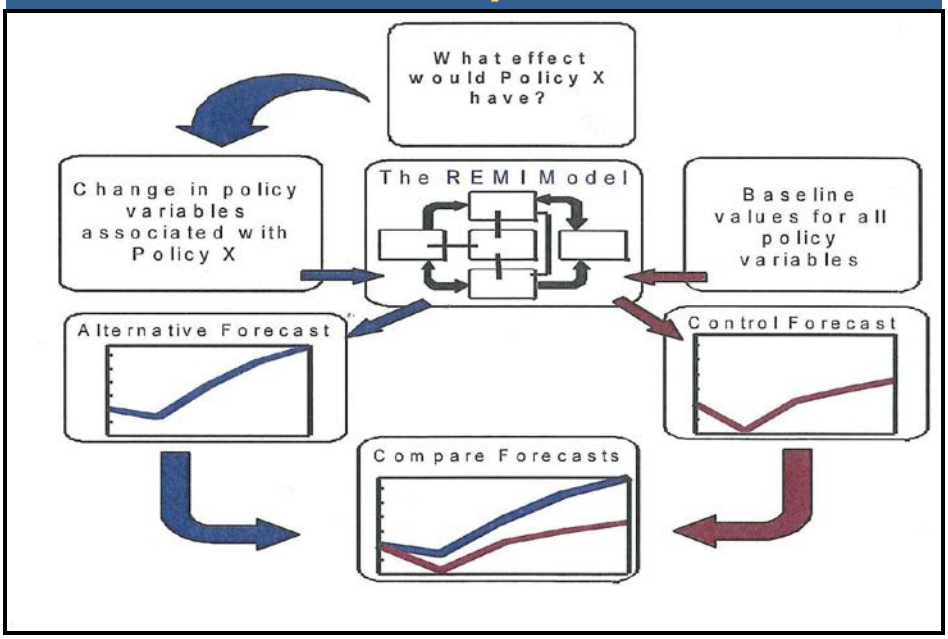
The REMI PI+ model is a general equilibrium model that provides feedback, which means that the model describes the entire economy as it changes over time. For example, changes in population, demographics, and wages each influence the labor supply at any moment in time, but are themselves influenced in the future by the changes in the labor supply. These adjustments happen gradually, so the economy does not statically jump from one equilibrium to another.

In addition, the REMI PI+ model can capture a multiplier effect from other parts of the economy. The multiplier effect can be described as the cumulative effect of demand generating additional demand. For example, one dollar of retail sales is expected to generate 0.28¢ sales in construction, 0.30¢ in fabricated metal product manufacturing, 1.1¢ in utilities, etc.

Figure 24 illustrates how REMI estimates the effects of a policy or event. First, the REMI model is calibrated and the standard future scenario is predicted. This future scenario is called the control forecast. A policy or event is then proposed that will impact the economy. A modeler inputs this policy or event into REMI by changing

appropriate input variables. A simulation is run on these new parameters, which creates an alternative forecast. The alternative forecast is compared to the control forecast and differences between the two are attributed to the policy or event. This Study compared the effects of category 1 through 5 hurricanes.

Figure 24
Illustration of Policy Forecast in REMI



Source: Regional Economic Models, Inc.

IX. STUDY ASSUMPTIONS AND SCENARIOS MODELED FOR SECOND PHASE

A. Assumptions

The following are the assumptions used to conduct the second phase of the study.

- All hurricane events (Category 1 through 5) affect an entire county and do not incur damage in any other counties. No specific hurricane track is modeled. Each county is evaluated independently. Cumulative multi-county impacts were not evaluated, such as a single Category 2 hurricane impacting DeSoto, then Hardee, then Polk County from the Gulf of Mexico.

- Historic structures, such as buildings located in historic preservation areas or buildings listed on the National Register of Historic Places, are evaluated without additional weight or consideration. These structures often do not meet the standards in the Florida Building Code. These structures are more costly to repair due to the material restrictions and repair guidelines.

- Local governments operating with self-insurance are assumed to fully fund repairs to vehicles, property, and facilities. An analysis of the insurance fund is not performed.

- Roadway and train bridges are assumed to remain intact in all scenarios. The loss of a single bridge in various locations in the Central Florida region would significantly affect reconstruction and post event repair activities.

- All recreational vehicles that were tabulated as a place of permanent residence were removed from the County prior to the storm event.

- Structures are using the building code standard based on the year the structure was built. This analysis does not evaluate individual structures for improved wind resistance, reinforcements or freshwater flooding prevention.

- There is no coastal community in the five-county study area that would experience a storm surge.

- Each event has a maximum duration of four 4 hours at peak sustained wind speeds. Hurricanes that stall over a specific area are not modeled, and would cause greater damage and flooding.

B. Scenarios Modeled

The following are scenarios that were modeled as part of the study.

Losses (Property Damage and Employment Losses)

Each scenario calculates the damage to resident and commercial properties and reduces the labor force by a ratio. For the purposes of this study, it is assumed that persons residing within a county work within the county. However, the Model is regional and negative affects within one county cascade to other counties. The employment loss scenarios do not account for the employment losses in other counties, adjacent to the county with the event or otherwise.

Gains (Cleanup Activity and Construction)

Each scenario assumes flood insurance coverage for properties located within the 10 year and 100-year floodplain. Windstorm insurance is not modeled. Local government debris cleanup is assumed. Roadway washouts are not modeled. The primary roads (Federal and State highways) are assumed to be cleared and fully operational within 48 hours of any event. Prolonged disruptions to the transportation (roadway and heavy rail) corridors are not modeled.

Recovery Rates

A normal recovery rate is modeled that only uses local and state revenues, based on past similar events.

An accelerated recovery rate is assumed to be in the form of $1 billion of Federal money in direct aid to each county including aid to local governments, private property owners, and business operators. A total of $500 million of the funds are distributed in the event year and $250 million distributed in each of the following two years.

X. ECONOMIC ANALYSIS

The Analysis provides a review of the Region under Category 1 through 5 hurricanes.

The results of the Study provided through an evaluation of impacts to employment, population, gross regional domestic product, personal income, and sales tax revenue. Each section begins with an aggregation of the impacts at the Regional level and then follows with an analysis of the impacts within each of the five counties.

An analysis of sales tax revenue was conducted for the combined Central Florida Region and for each county individually. This analysis was based on the relationship between employment and sales tax revenue, as reported for years 2004 and 2005 by the Florida Department of Revenue, and was corrected for expected impacts to tourism related to infrastructure losses associated with high strength hurricanes. According to a 1999 report from the Florida Committee on Tourism, local sales tax revenue ranged from 9.7 percent to 15.4% across the Region, with a regional average of 13.9 percent. This proportion of the region's sales tax revenue was assumed to have been negatively impacted by high-strength hurricanes (Categories 3 through 5) due to the associated infrastructure losses, with a return to normal sales tax revenues in three to five years, depending on the initial hurricane strength.

Each of the sections evaluating impacts provides a series of figures depicting the following information. Please note that what is forecasted depends on what is being discussed in the section (i.e., Employment, Population, Gross Regional Domestic Product, Personal Income, Sales Tax Revenue).

Forecasted – No Event:
This line forecasts information with the assumption that is no event through the year 2016.

Forecasted – Post Category:
This line provides the forecast based on the identified Category Hurricane. It does not assume any construction jobs due to the hurricane.

Event Related (Normal Recovery Rate):
This line provides the employment forecast following a hurricane assuming the influx of construction jobs based on available local and state emergency funds. The forecast is based on similar past events in the Region.

Federal Infusion + Event Related Construction Jobs (Accelerated Recovery):

This line provides the employment forecast assuming that $1 billion in federal funding is allocated to the local governments, private property owners, and business operators. The model assumes that $500 million is allocated in the event year (2006) and that $250 million is allocated in each of the following two years.

A. Total Employment Impacts

Impacts to each county's total employment were analyzed following each of the 5 hurricane events. The total impacts to employment in the overall Region by storm category are provided below. The individual county analyses follow the Regional analysis.

Overall Region - Category 1 Hurricane

Figure 25 depicts the impacts of a Category 1 Hurricane in the Region. If no event were to occur, the estimated number of employees in the Region was estimated at approximately 340,000 in 2006. A Category 1 Hurricane causes the loss of approximately 15,000 jobs in the Region. Without federal assistance, employment in the Region does not return to projected no event ("no event") levels until four to five years after the event.

With a federal infusion of $1 billion in each county, the Region immediately recovers in the event year to greater than projected no event employment. Approximately 38,000 jobs are actually added to the Region with the federal infusion of $1 billion for a Category 1 Hurricane.

Figure 25

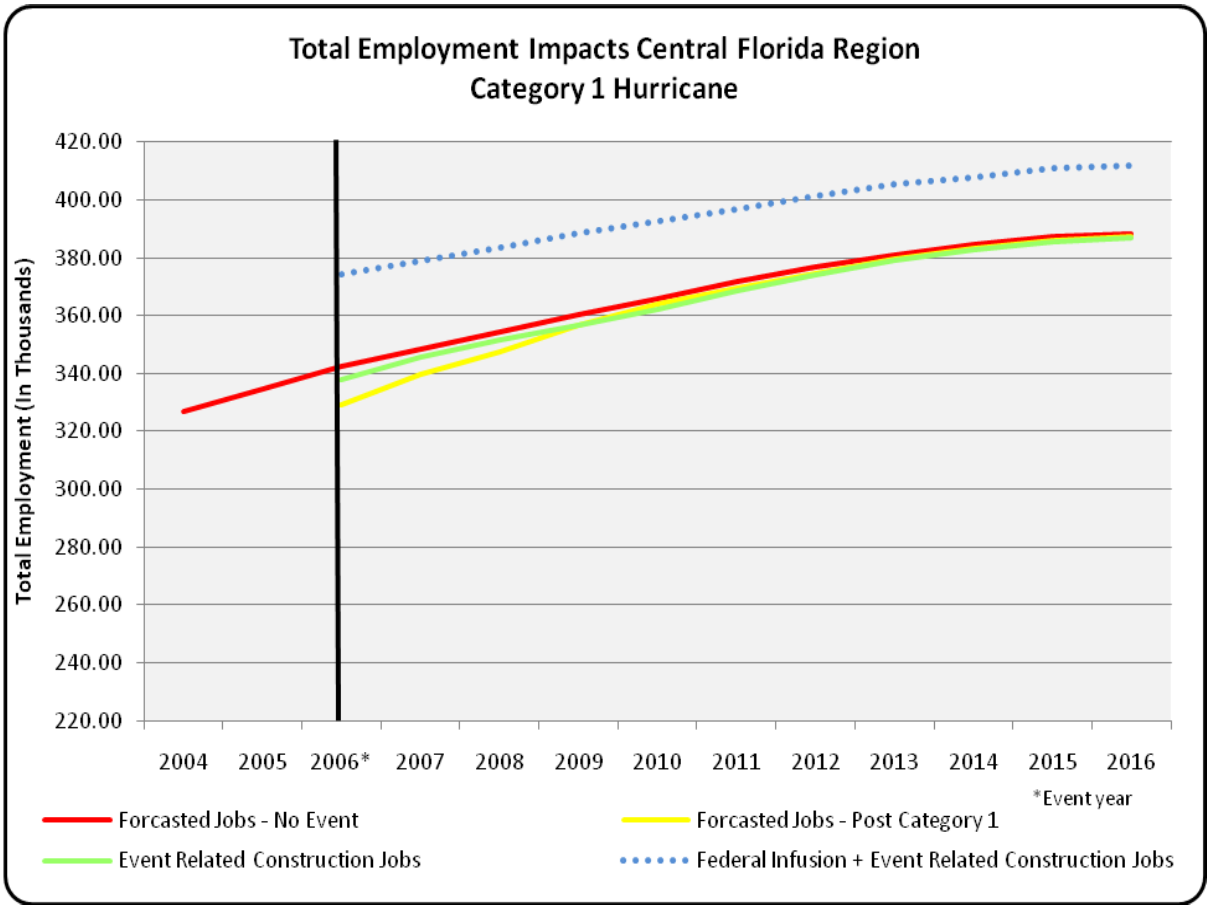
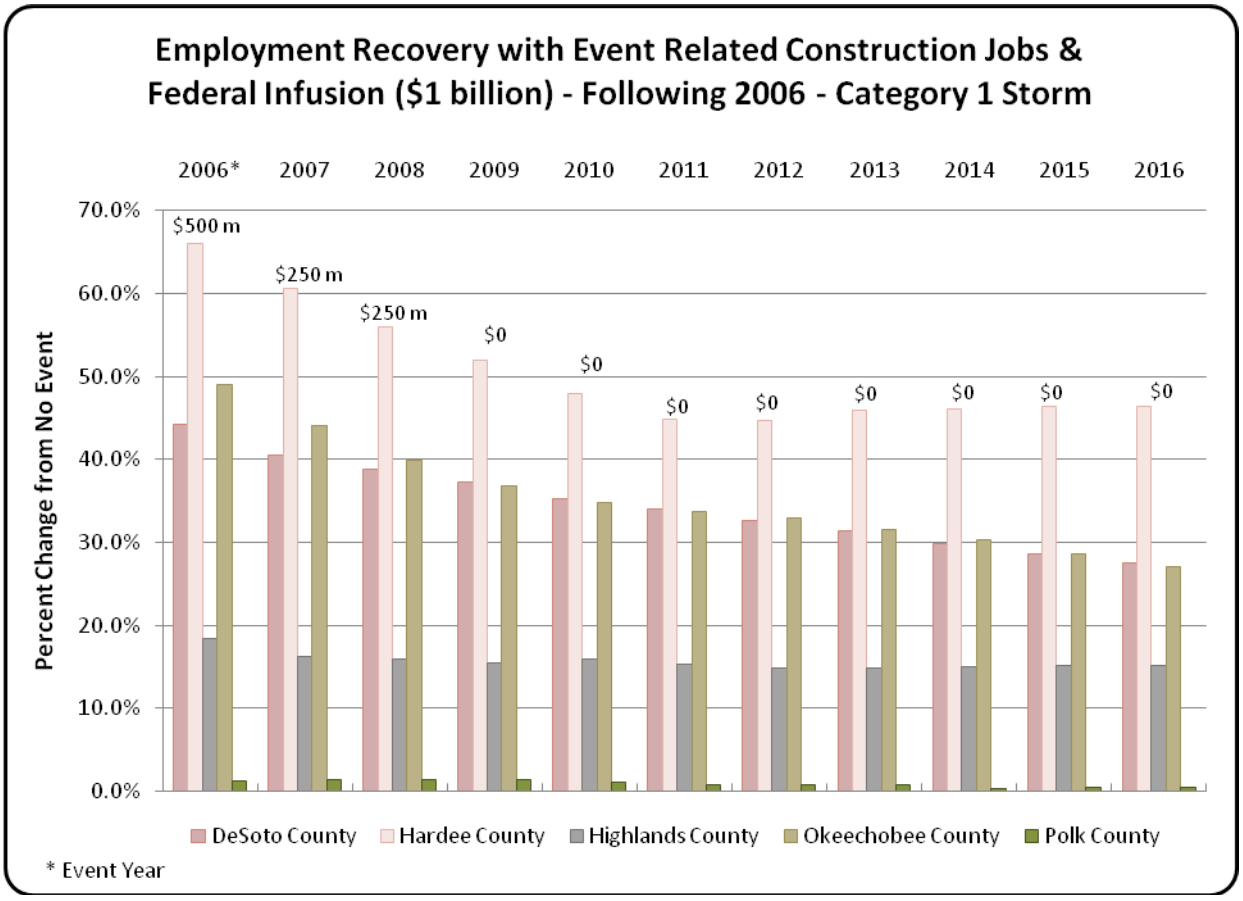

Total Employment Impacts Central Florida Region
Category 1 Hurricane
Total Employment (In Thousands)
420.00
400.00
380.00
360.00
340.00
320.00
300.00
280.00
260.00
240.00
220.00
2004
2005
2006*
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
*Event year
Forcasted Jobs - No Event
Forcasted Jobs - Post Category 1
Event Related Construction Jobs
Federal Infusion + Event Related Construction Jobs

Figure 26 provides an overview of Employment Recovery with Event Related Construction Jobs and the $1 billon of federal infusion for all five counties in the Region. **Figure 26** indicates consistency with **Figure 25** in that with the federal infusion, all five of the counties recover within the event year from the Category 1 Hurricane.

Figure 26



Overall Region - Category 2 Hurricane

Figure 27 depicts the impacts of a Category 2 Hurricane in the Region. If no event were to occur, the estimated number of employees in the Region is estimated at approximately 340,000. A Category 2 Hurricane causes the loss of approximately 22,000 jobs in the Region. Without federal assistance, employment in the Region does not return to projected no event levels until five to six years after the event.

With a federal infusion of $1 billion in each county, the Region immediately recovers in the event year to greater than projected no event employment. Approximately 35,000 jobs are actually added to the Region with the federal infusion of $1 billion for a Category 2 Hurricane.

Figure 27

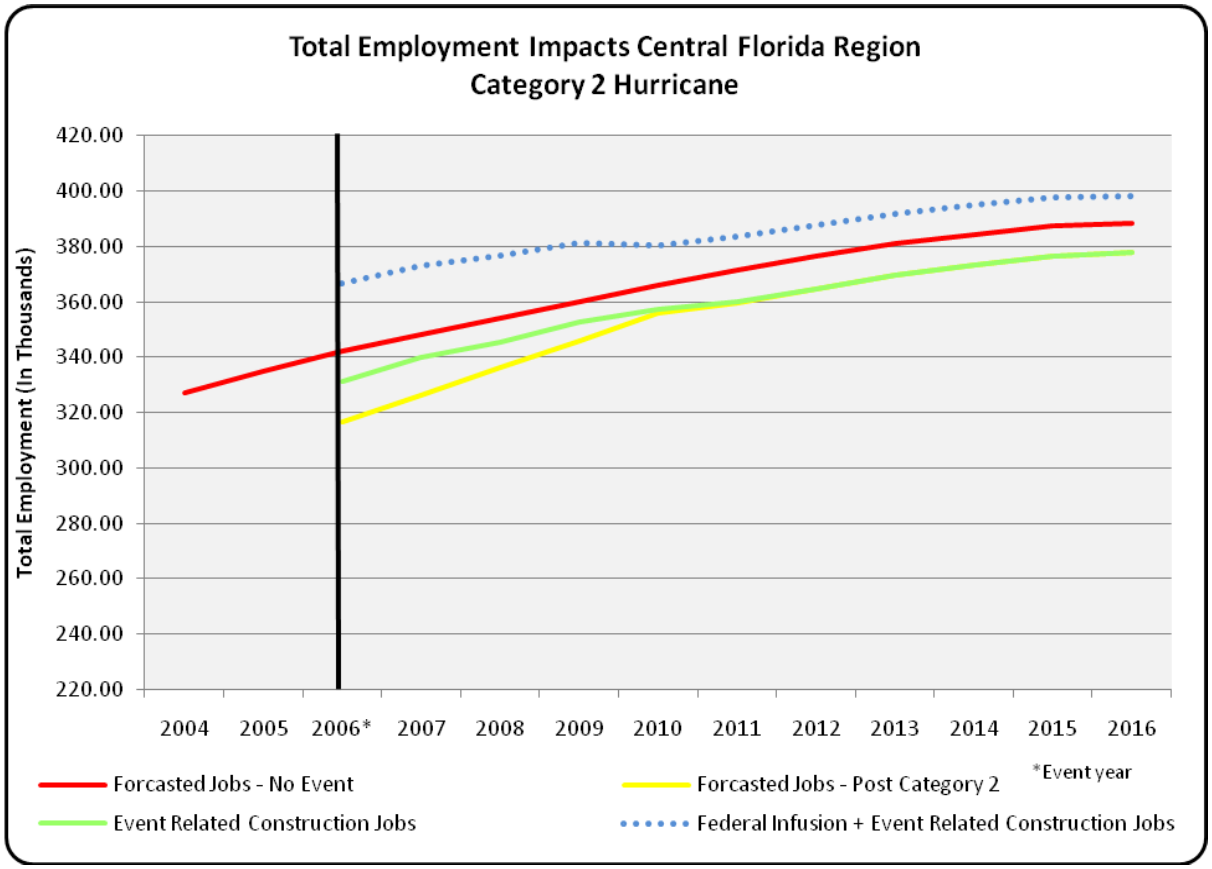
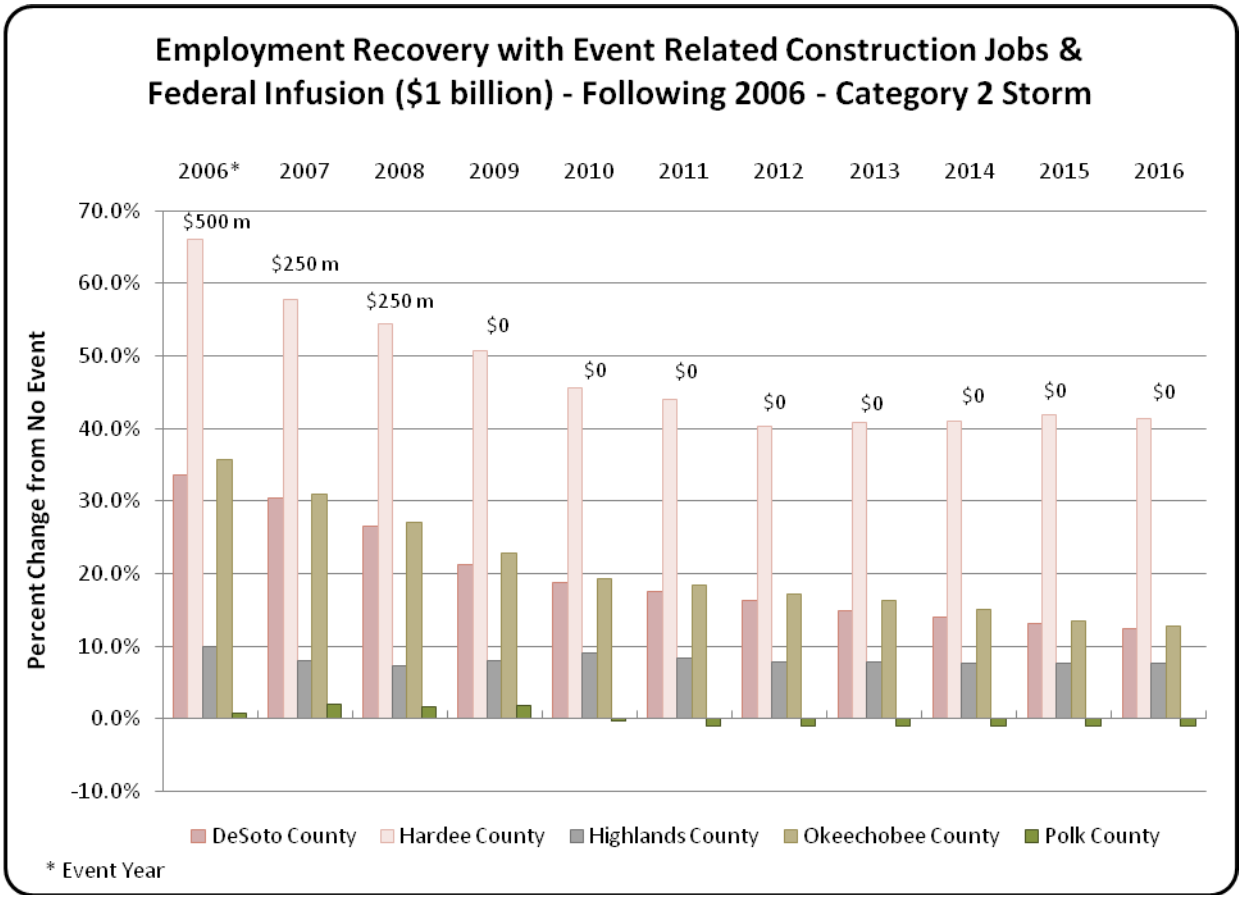


Figure 28 provides an overview of Employment Recovery with Event Related Construction Jobs and the $1 billon of federal infusion by all five counties in the Region. **Figure 28** indicates consistency with **Figure 27** in that with the federal infusion, all five of the counties recover within the event year from the Category 2 Hurricane.

Figure 28



Overall Region - Category 3 Hurricane

Figure 29 depicts the impacts of a Category 3 Hurricane in the Region. If no event were to occur, the estimated number of employees in the Region is estimated at approximately 340,000. A Category 3 Hurricane causes the loss of approximately 22,000 jobs in the Region. Without federal assistance, employment in the Region does not return to projected no event levels within a ten year time period after the event.

With a federal infusion of $1 billion in each county, the Region immediately recovers in the event year to greater than projected no event employment.

Figure 29

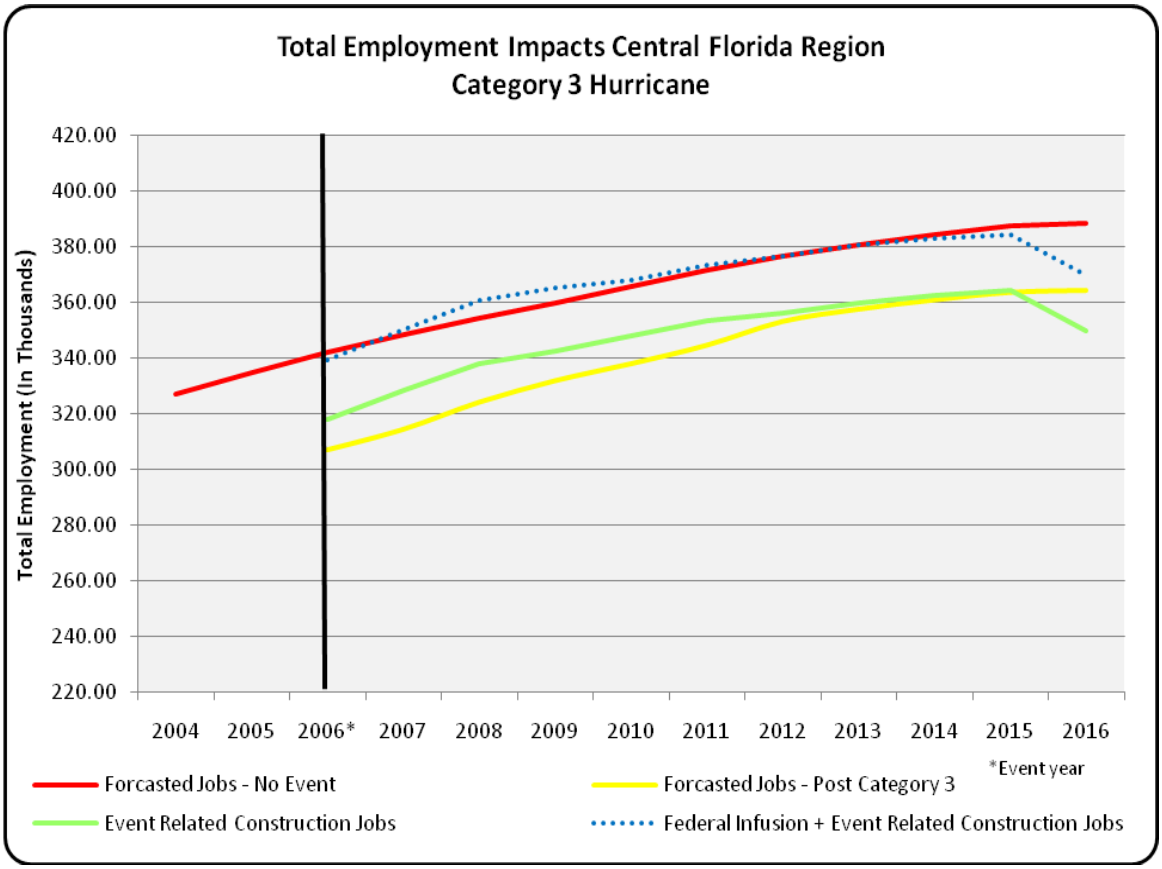
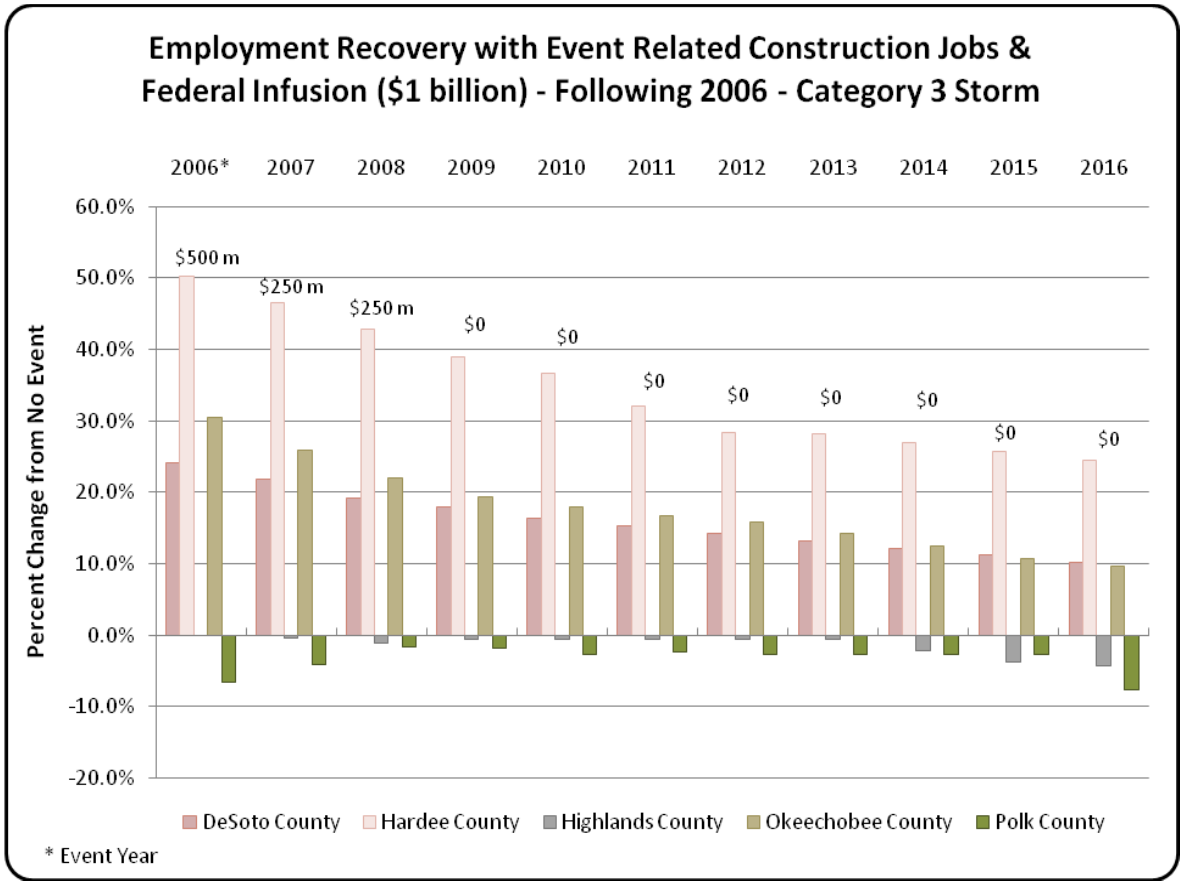


Figure 30 provides an overview of Employment Recovery with Event Related Construction Jobs and the $1 billon federal infusion for all five counties in the Region. **Figure 30** is consistent with **Figure 29**. With the federal infusion, all five of the counties recover within the event year from the Category 3 Hurricane.

Figure 30



Overall Region - Category 4 Hurricane

Figure 31 depicts the impacts of a Category 4 Hurricane in the Region. If no event were to occur, the estimated number of employees in the Region is estimated at approximately 340,000. A Category 4 Hurricane causes the loss of approximately 60,000 jobs in the Region. Even with federal assistance, employment in the Region does not return to projected no event levels within a ten year time period after the event.

Even with a federal infusion of $1 billion in each county, the Region does not recover to the projected no event level of employment within a ten year time frame following the Category 4 Hurricane.

Figure 31

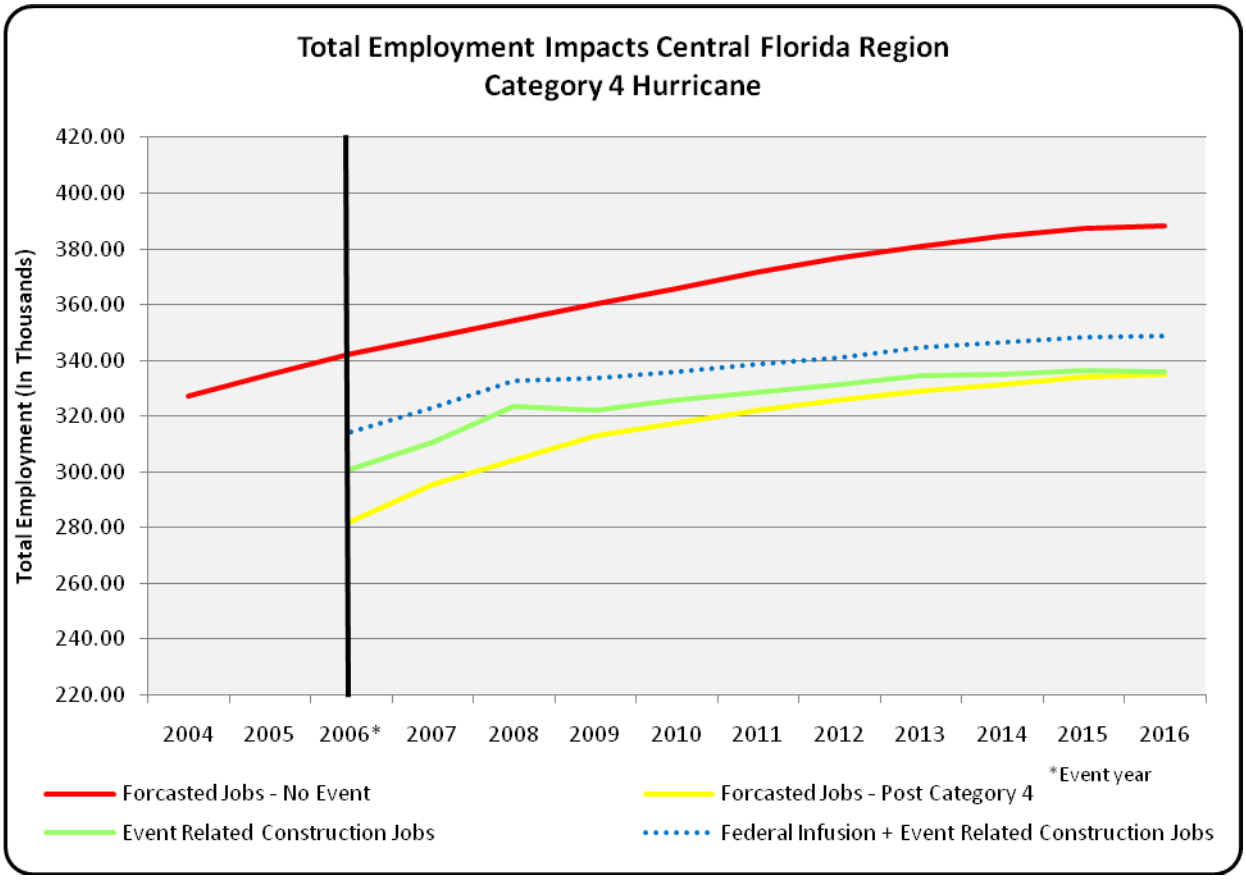
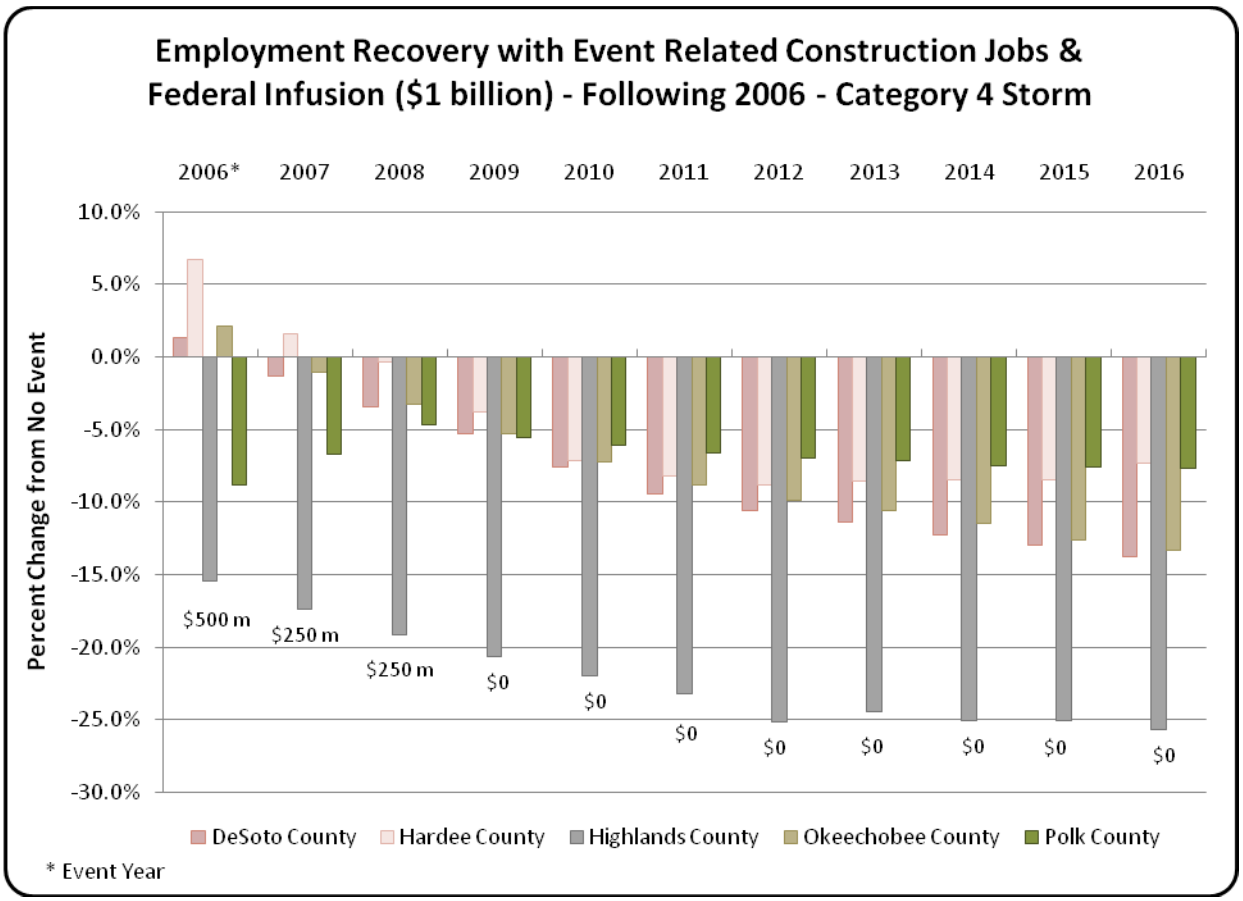


Figure 32 provides an overview of Employment Recovery with Event Related Construction Jobs and the $1 billon federal infusion by all five counties in the Region. **Figure 32** is consistent with **Figure 31**. Even with the federal infusion, all five of the counties do not recover within a ten year time frame following the Category 4 Hurricane.

Figure 32



Overall Region - Category 5 Hurricane

Figure 33 depicts the impacts of a Category 5 Hurricane in the Region. If no event were to occur, the estimated number of employees in the Region is estimated at approximately 340,000. A Category 5 Hurricane causes the loss of approximately 115,000 jobs in the Region. Even with federal assistance, employment in the Region does not return to projected no event levels ("no event") within a ten year time period after the event.

With a federal infusion of $1 billion in each county, the Region does not recover to the projected no event level of employment within a ten year time frame following the Category 5 Hurricane.

Figure 33

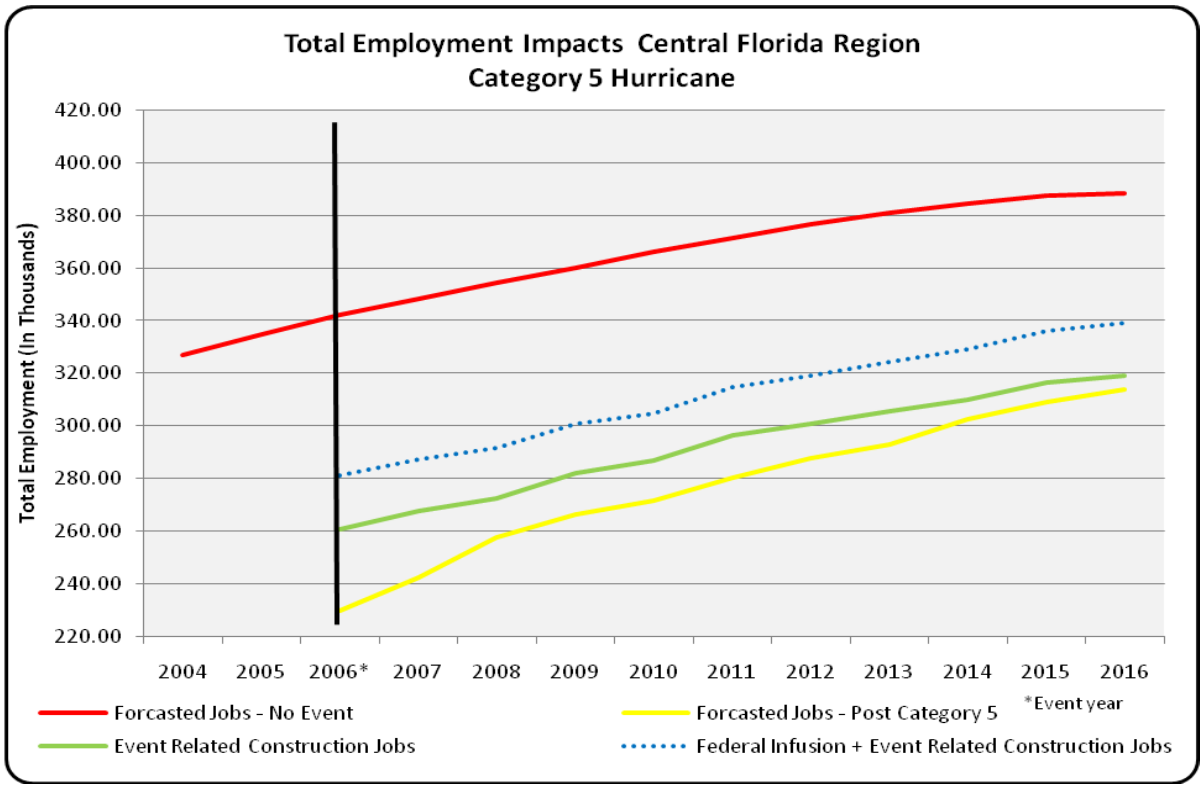
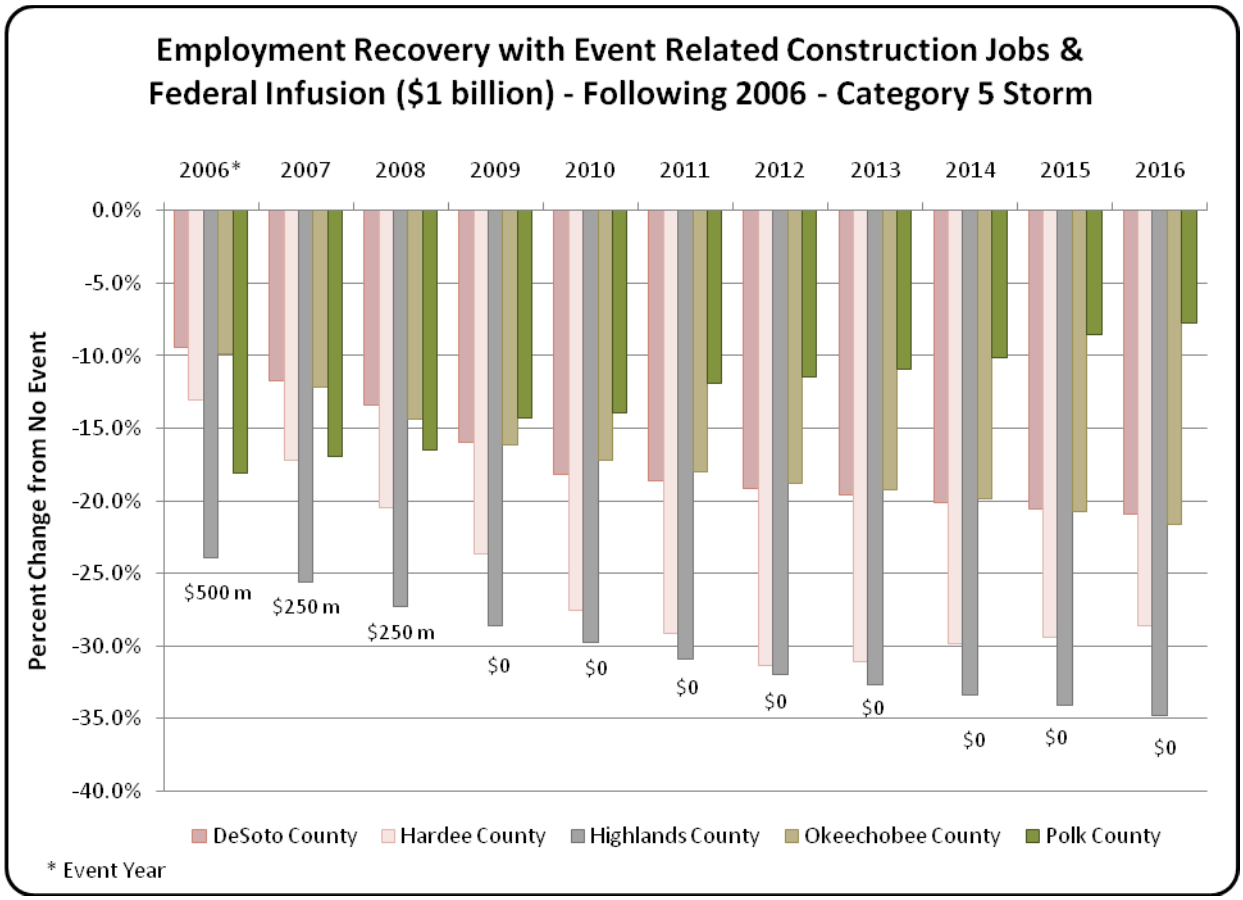


Figure 34 provides an overview of Employment Recovery with Event Related Construction Jobs and the $1 billon federal infusion by all five counties in the Region. **Figure 34** is consistent with **Figure 33**. Even with the federal infusion, all five of the counties do not recover within a ten year time frame following the Category 5 Hurricane.

Figure 34



DESOTO COUNTY - CATEGORY 1-5 HURRICANES

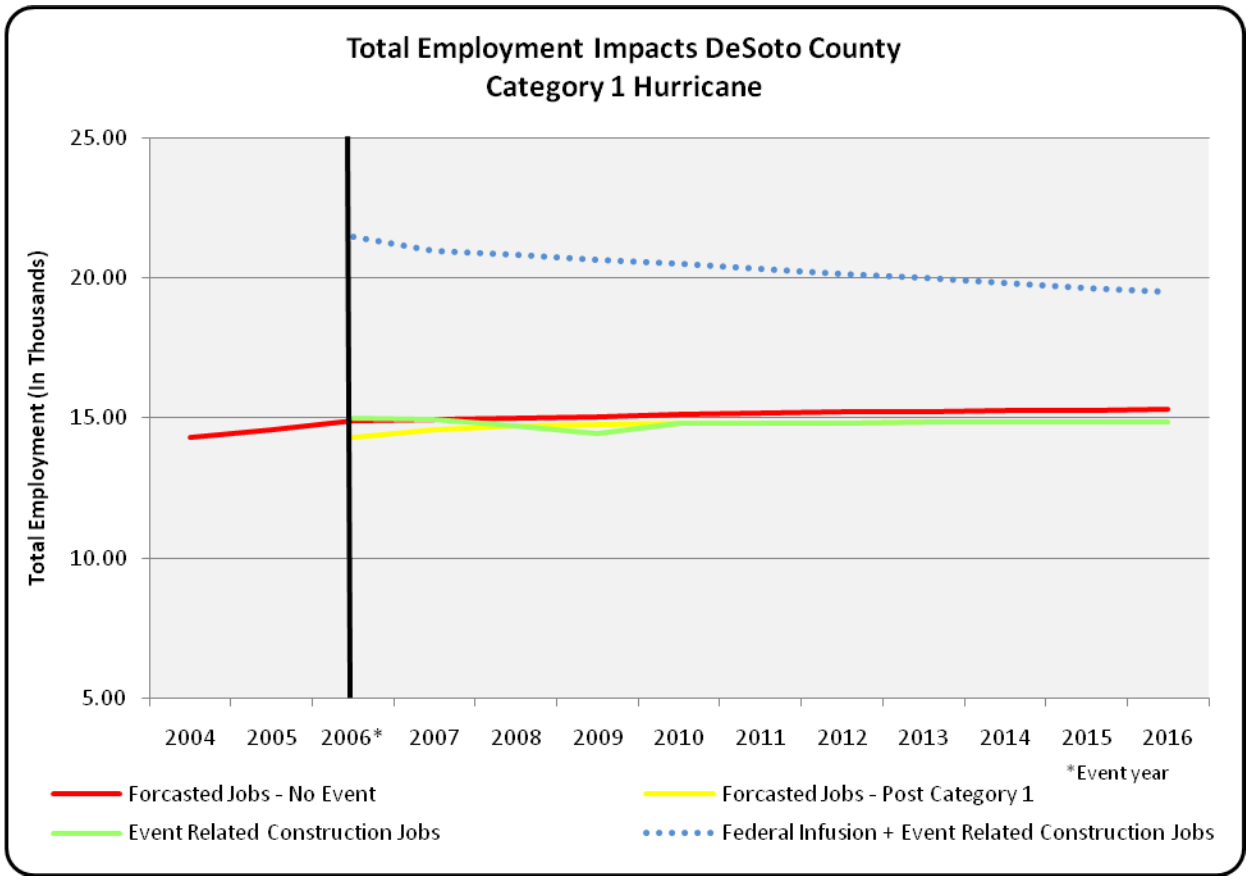
Employment Impacts by Category of Hurricane for DeSoto County are provided below.

DeSoto County - Category 1 Hurricane

Figure 35 depicts the impacts of a Category 1 Hurricane in DeSoto County. If no event were to occur, the estimated number of employees in the County is estimated at approximately 15,000. A Category 1 Hurricane would cause the loss of approximately 440 jobs. Temporary new construction and cleanup jobs would increase the 2006 employment to 14,938. However, by 2016, the County would permanently lose 459 jobs compared to the forecast without the hurricane event.

With a federal infusion of $1 billion in DeSoto County, the County gains approximately 7,000 jobs.

Figure 35

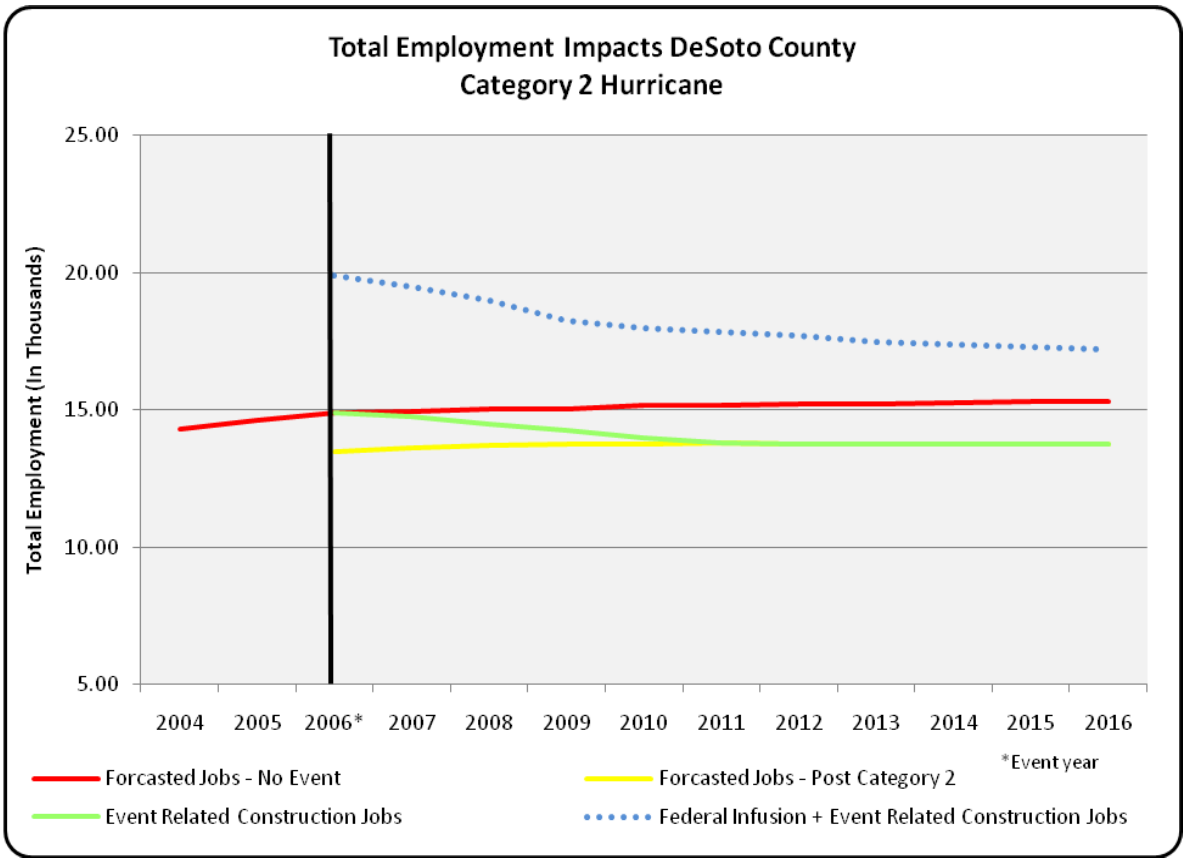


DeSoto County - Category 2 Hurricane

Figure 36 depicts the impacts of a Category 2 Hurricane in DeSoto County. If no event were to occur, the estimated number of employees in the County is estimated at approximately 15,000. A Category 2 Hurricane would result in the loss of 1,365 jobs in the event year in DeSoto County. Temporary new construction and cleanup jobs would increase the 2006 employment to 14,632. However, by 2016, the County would permanently lose 1,423 jobs compared to the forecast without the hurricane event.

With a federal infusion of $1 billion in DeSoto County, the County gains approximately 5,000 jobs.

Figure 36

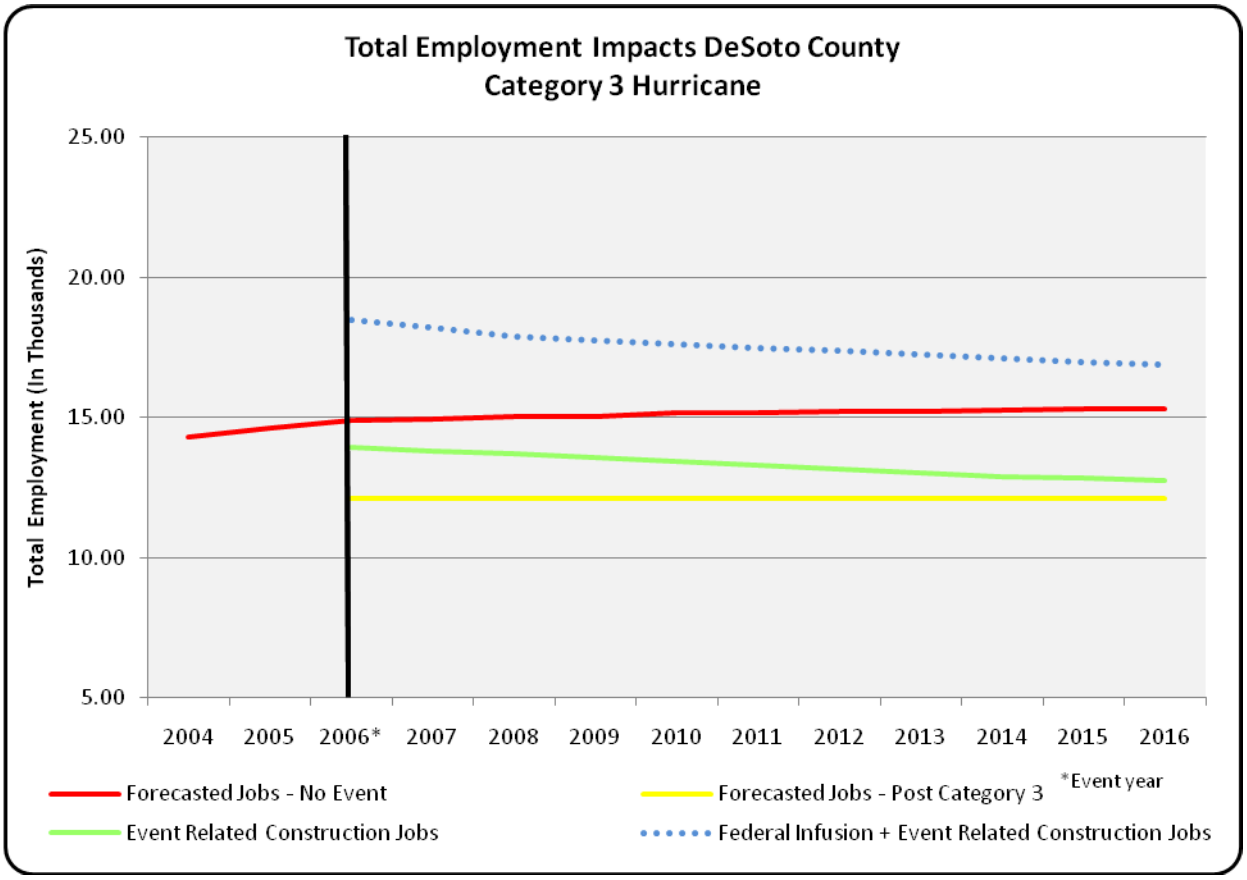


DeSoto County - Category 3 Hurricane

Figure 37 depicts the impacts of a Category 3 Hurricane in DeSoto County. If no event were to occur, the estimated number of employees in the County is estimated at approximately 15,000. A Category 3 Hurricane would result in the loss of 2,500 jobs in the event year in DeSoto County. Temporary new construction and cleanup jobs would increase the 2006 employment to 13,860. However, by 2016, the County would permanently lose 2,602 jobs compared to the forecast without the hurricane event.

With a federal infusion of $1 billion in DeSoto County, the County gains approximately 3,000 jobs in the event year.

Figure 37

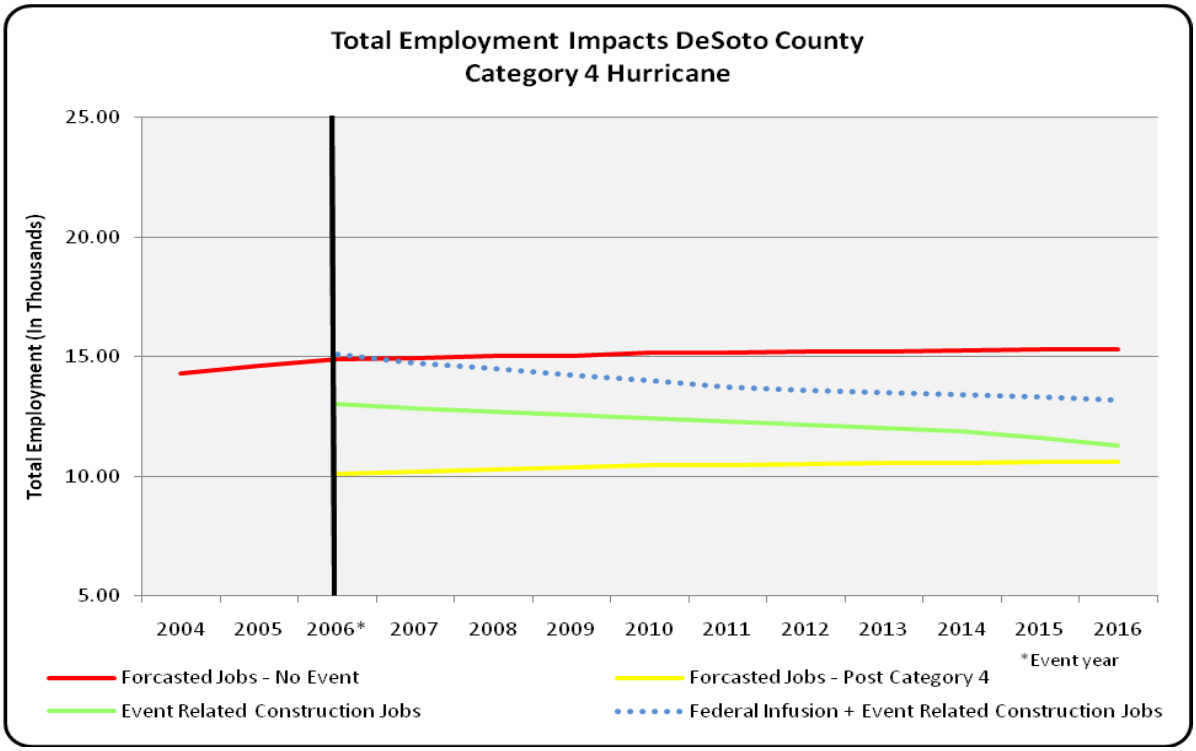


DeSoto County - Category 4 Hurricane

Figure 38 depicts the impacts of a Category 4 Hurricane in DeSoto County. If no event were to occur, the number of employees in the County is estimated at approximately 15,000. A Category 4 Hurricane would result in the loss of 4,443 jobs in the event year in DeSoto County. Temporary new construction and cleanup jobs would increase employment to 13,087. However, by 2016, the County would permanently lose 4,633 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in DeSoto County, the County recovers during the event year but then continues to lose jobs through a ten year period following the event.

Figure 38

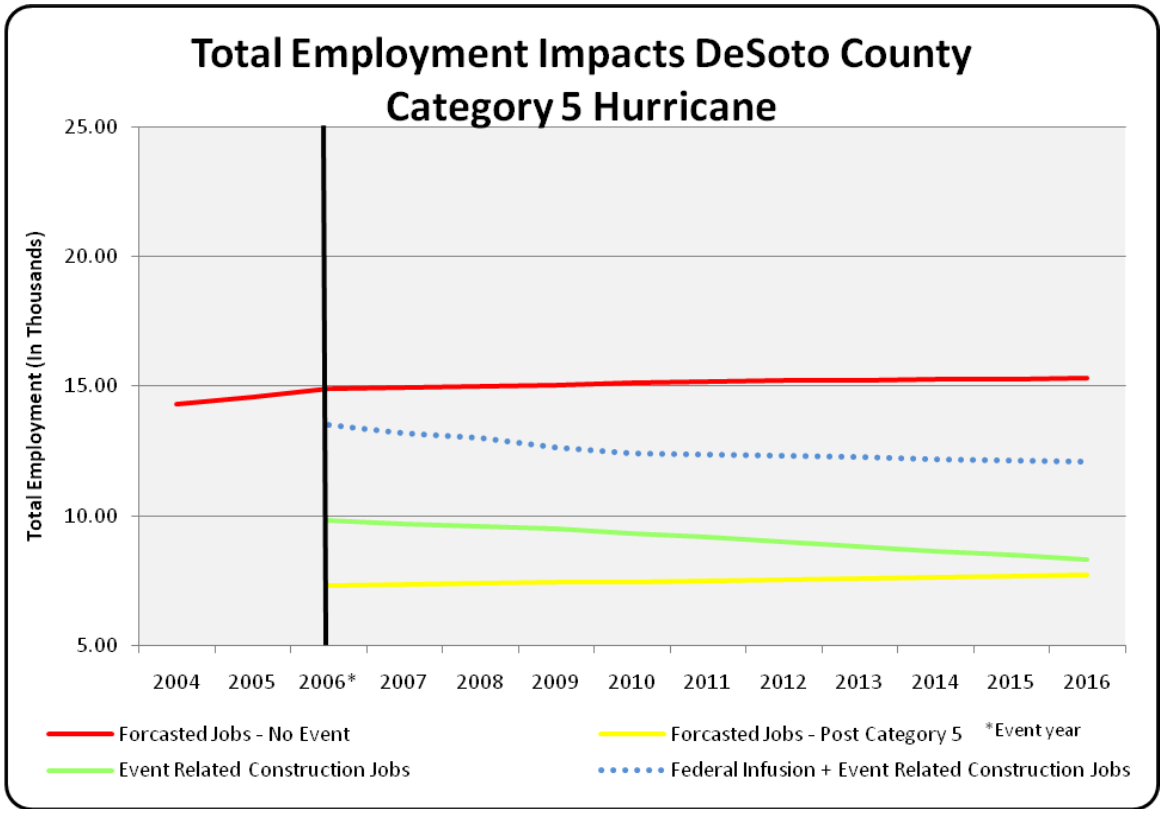


DeSoto County - Category 5 Hurricane

Figure 39 depicts the impacts of a Category 5 Hurricane in DeSoto County. If no event were to occur, the number of employees in the County is estimated at approximately 15,000. A Category 5 Hurricane would result in the loss of 7,408 jobs in the event year in DeSoto County. Temporary new construction and cleanup jobs would increase employment to 9,800. However, by 2016, the County would permanently lose 7,724 jobs compared to the forecast without the hurricane event.

With a federal infusion of $1 billion in DeSoto County, the County gains approximately 8,000 jobs, however, the County does not recover to projected no event conditions within a ten year period following the event.

Figure 39



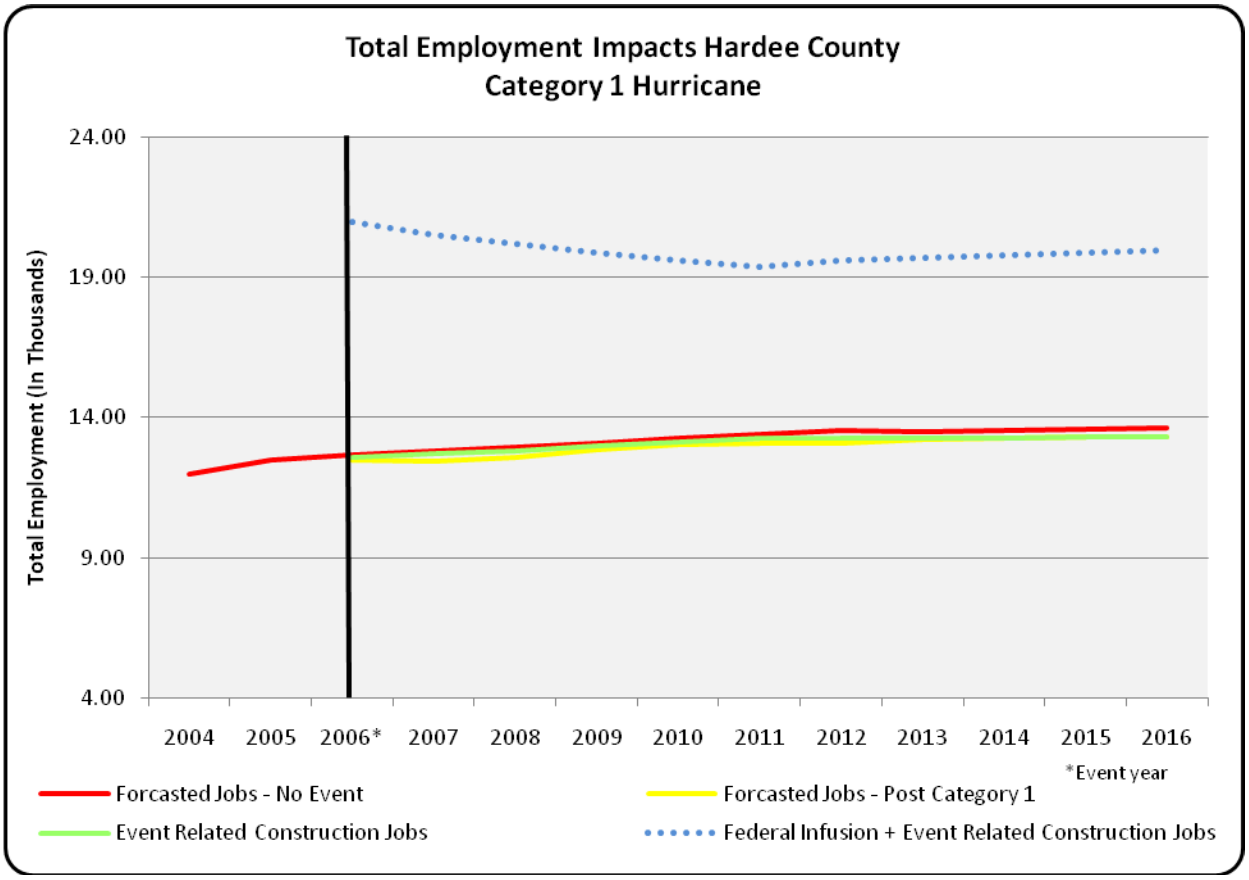
HARDEE COUNTY - CATEGORY 1-5 HURRICANES

Hardee County - Category 1 Hurricane

Figure 40 depicts the impacts of a Category 1 Hurricane in Hardee County. If no event were to occur, the number of employees in the County is estimated at approximately 13,000. A Category 1 Hurricane would cause the loss of approximately 374 jobs in the County. Temporary new construction and cleanup jobs would increase employment to 12,340. However, by 2016, the County would permanently lose 406 jobs compared to the forecast without the hurricane event.

With a federal infusion of $1 billion in Hardee County, the County would gain approximately 8,000 jobs.

Figure 40

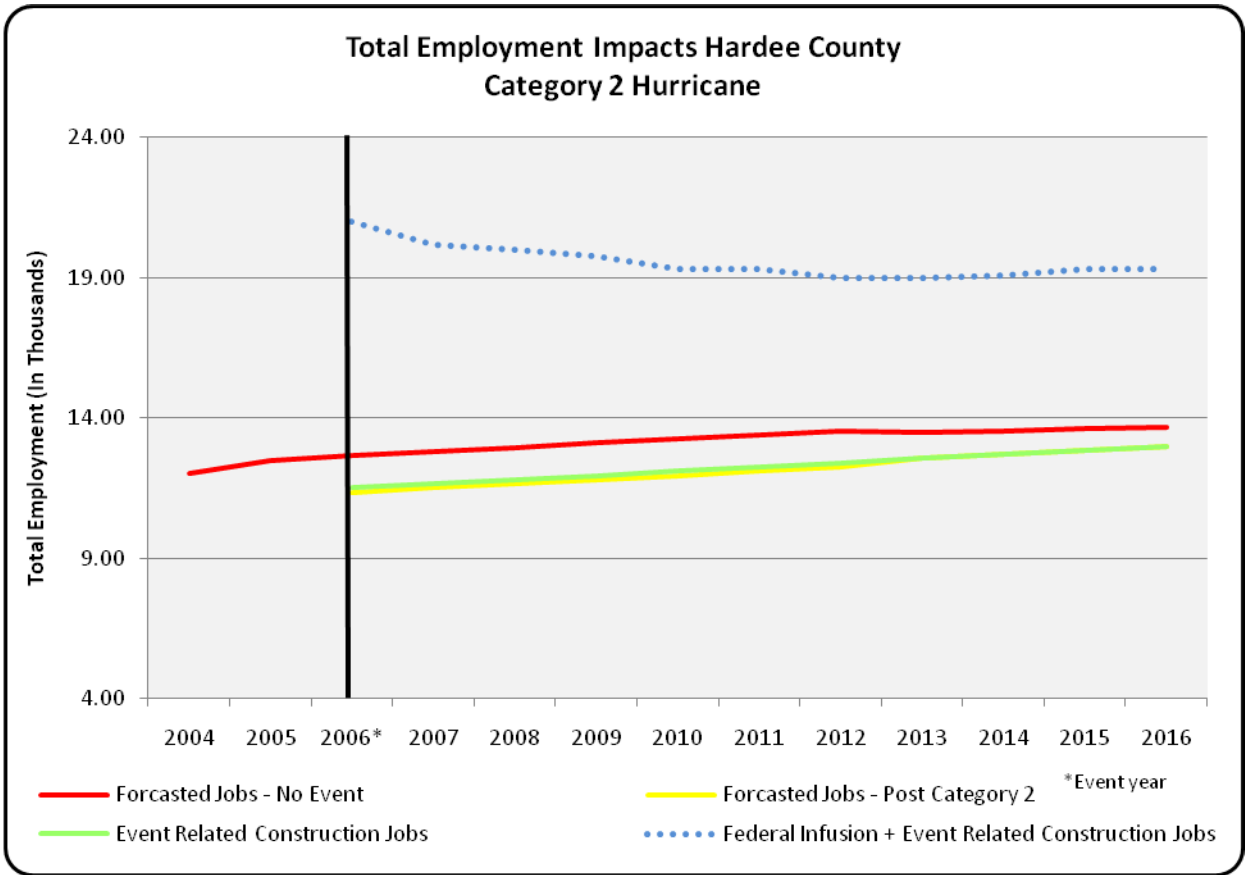


Hardee County - Category 2 Hurricane

Figure 41 depicts the impacts of a Category 2 Hurricane in Hardee County. If no event were to occur, the estimated number of employees in the County is estimated at approximately 13,000. A Category 2 Hurricane would cause the loss of approximately 979 jobs in the County. Temporary new construction and cleanup jobs would increase employment to 11,722. However, by 2016, the County would permanently lose 1,063 jobs compared to the forecast without the hurricane event.

With a federal infusion of $1 billion in Hardee County, the County would gain approximately 8,000 jobs in the event year.

Figure 41

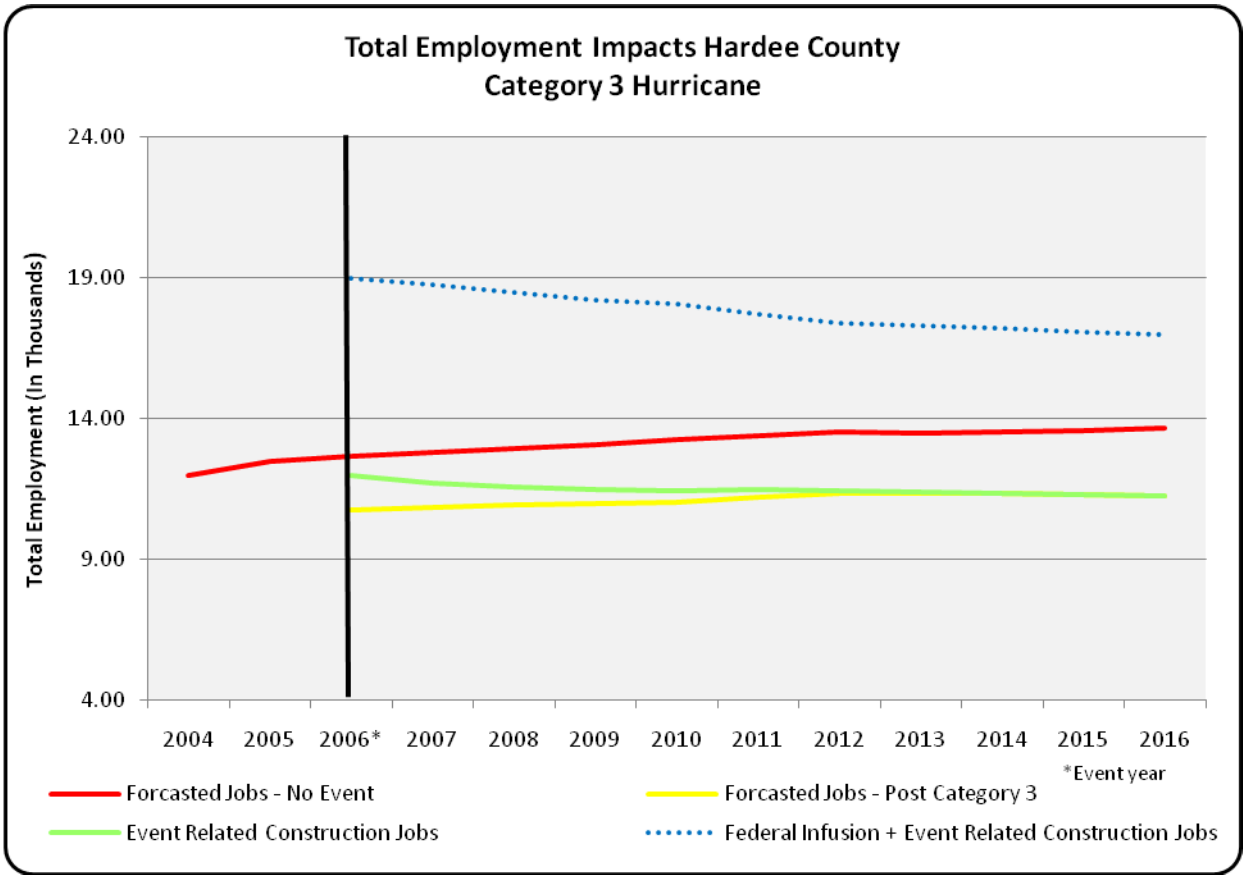


Hardee County - Category 3 Hurricane

Figure 42 depicts the impacts of a Category 3 Hurricane in Hardee County. If no event were to occur, the number of employees in the County is estimated at approximately 13,000. A Category 3 Hurricane would result in the loss of 1,899 jobs in the event year in Hardee County. Temporary new construction and cleanup jobs would increase employment to 11,631. However, by 2016, the County would permanently lose 2,062 jobs compared to the forecast without the hurricane event.

With a federal infusion of $1 billion in Hardee County, the County would gain approximately 6,000 jobs in the event year.

Figure 42

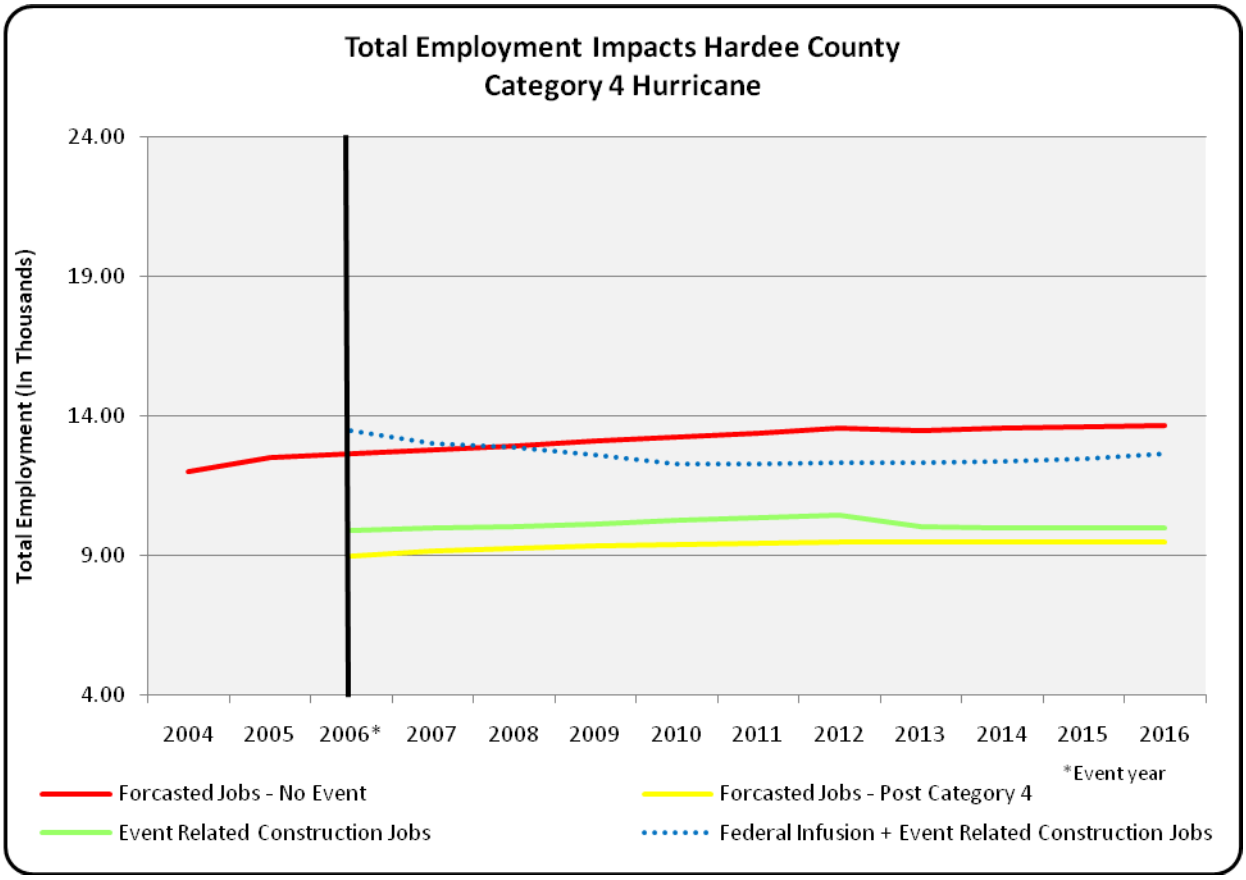


Hardee County - Category 4 Hurricane

Figure 43 depicts the impacts of a Category 4 Hurricane in Hardee County. If no event were to occur, the estimated number of employees in the County is estimated at approximately 13,000. A Category 4 Hurricane would result in the loss of 3,590 jobs in the event year in Hardee County. Temporary new construction and cleanup jobs would increase employment to 9,770. However, by 2016, the County would permanently lose 3,899 jobs compared to the forecast without the hurricane event.

With a federal infusion of $1 billion in Hardee County, the County recovers in the event year but then continues to lose jobs throughout a ten year period following the event.

Figure 43

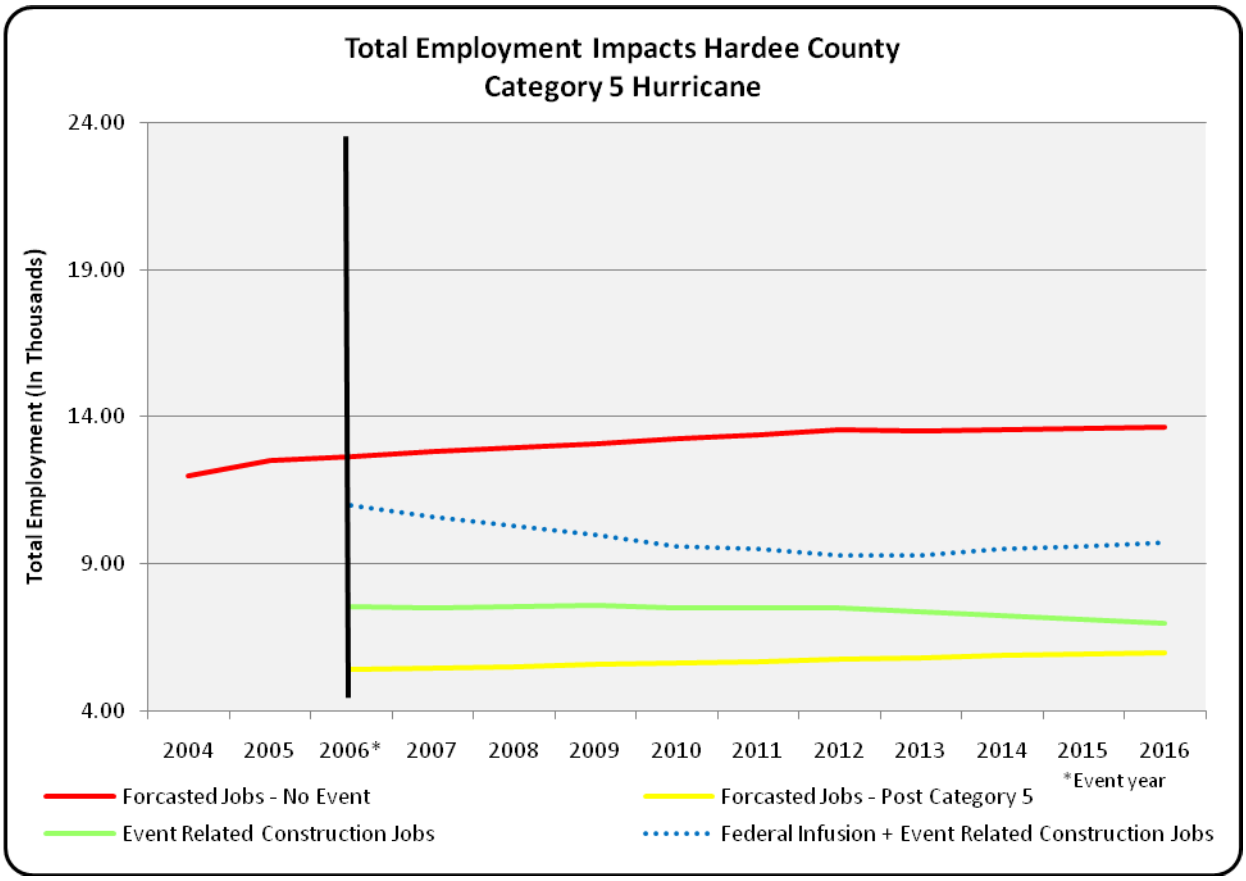


Hardee County - Category 5 Hurricane

Figure 44 depicts the impacts of a Category 4 Hurricane in Hardee County. If no event were to occur, the estimated number of employees in the County is estimated at approximately 13,000. A Category 4 Hurricane would result in the loss of 7,143 jobs in the event year in Hardee County. Temporary new construction and cleanup jobs would increase employment to 7,461. However, by 2016, the County would permanently lose 7,756 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Hardee County, the County does not recover in within a ten year period following the event.

Figure 44



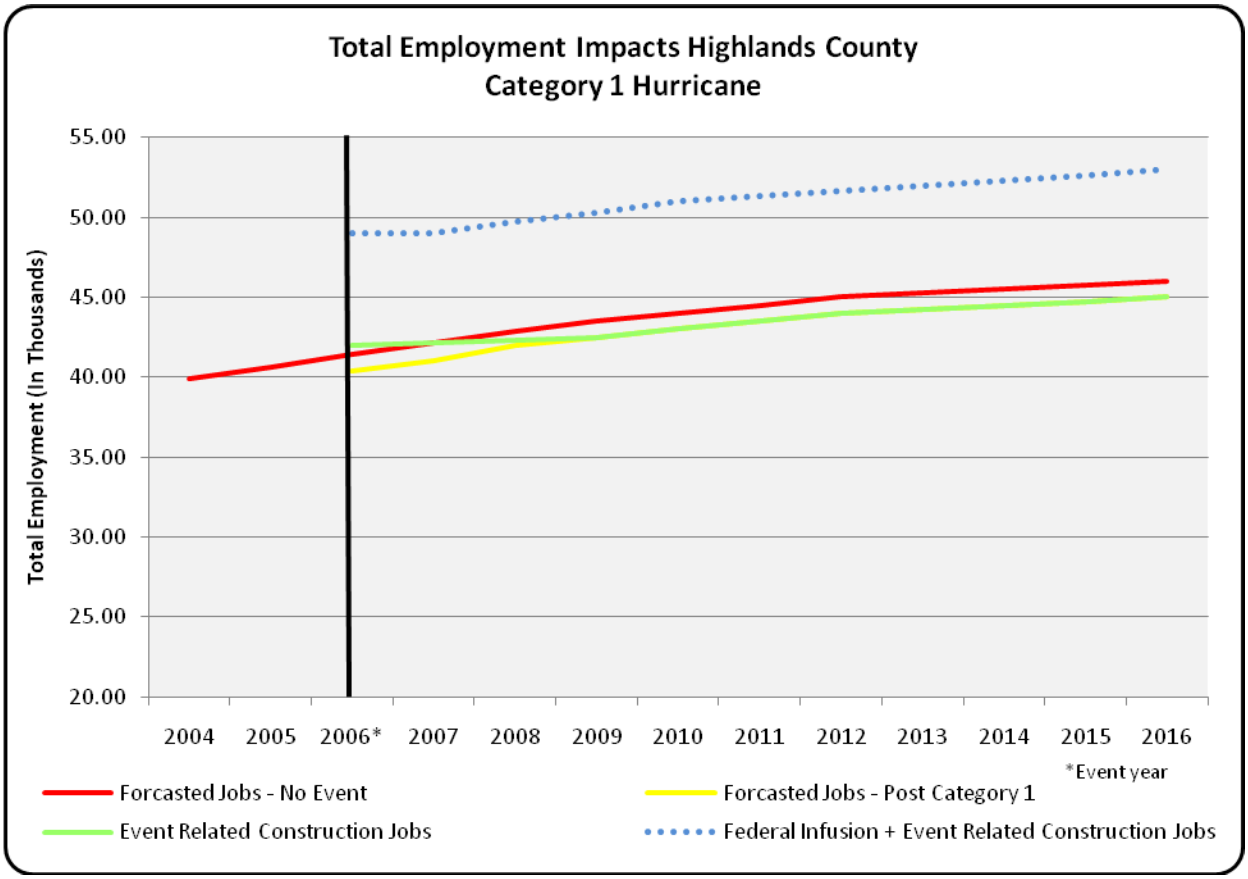
HIGHLANDS COUNTY - CATEGORY 1-5 HURRICANES

Highlands County - Category 1 Hurricane

Figure 45 depicts the impacts of a Category 1 Hurricane in Highlands County. If no event were to occur, the number of employees in the County is estimated at approximately 42,000. A Category 1 Hurricane would cause the loss of approximately 1,250 jobs in the County. Temporary new construction and cleanup jobs would increase employment to 42,438. However, by 2016, the County would permanently lose 1,378 jobs compared to the forecast without the hurricane event.

With a federal infusion of $1 billion in Highlands County, the County would gain approximately 8,000 jobs.

Figure 45

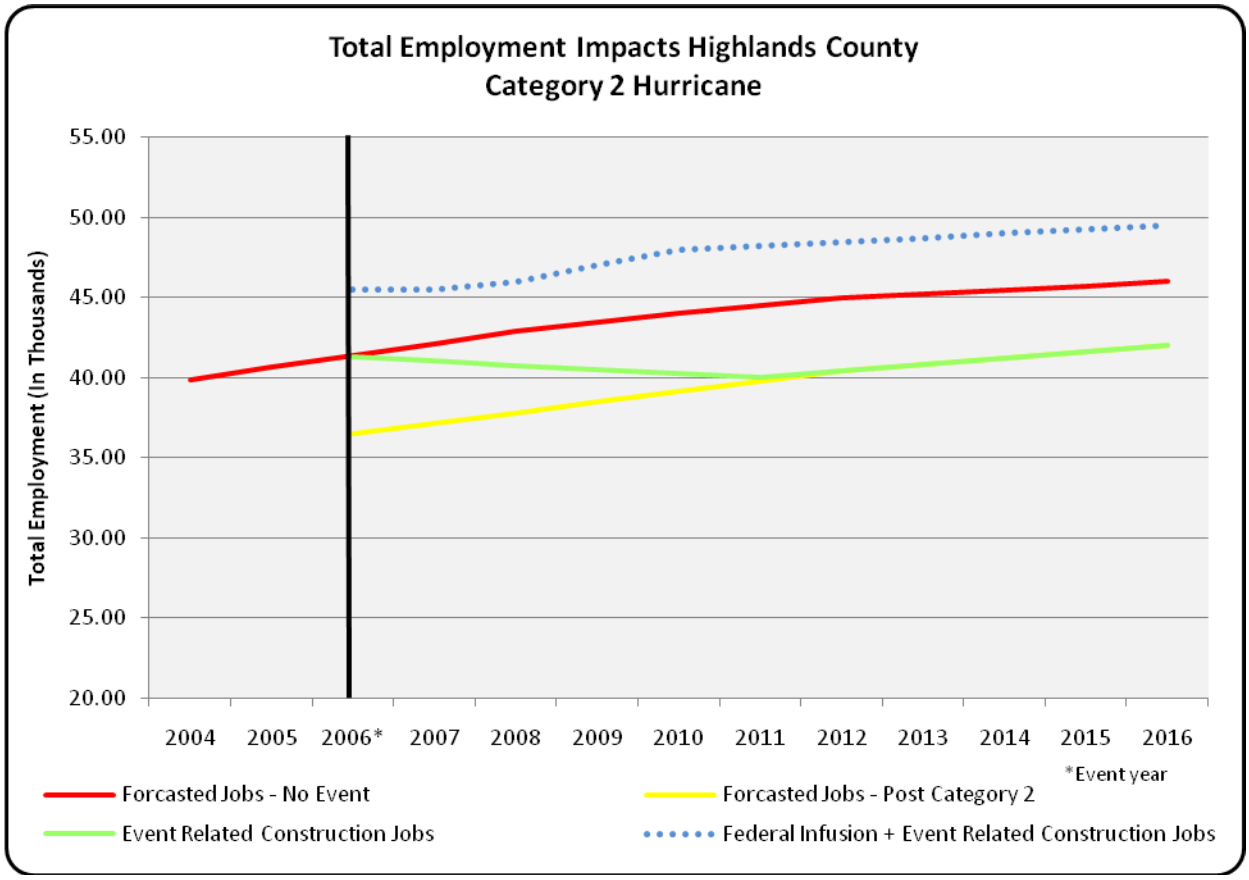


Highlands County – Category 2 Hurricane

Figure 46 depicts the impacts of a Category 2 Hurricane in Highlands County. If no event were to occur, the number of employees in the County is estimated at approximately 42,000. A Category 2 Hurricane would cause the loss of approximately 3,877 jobs in the County. Temporary new construction and cleanup jobs would increase employment to 41,438. However, by 2016, the County would permanently lose 4,274 jobs compared to the forecast without the hurricane event.

With a federal infusion of $1 billion in Highlands County, the County would gain approximately 4,000 jobs.

Figure 46

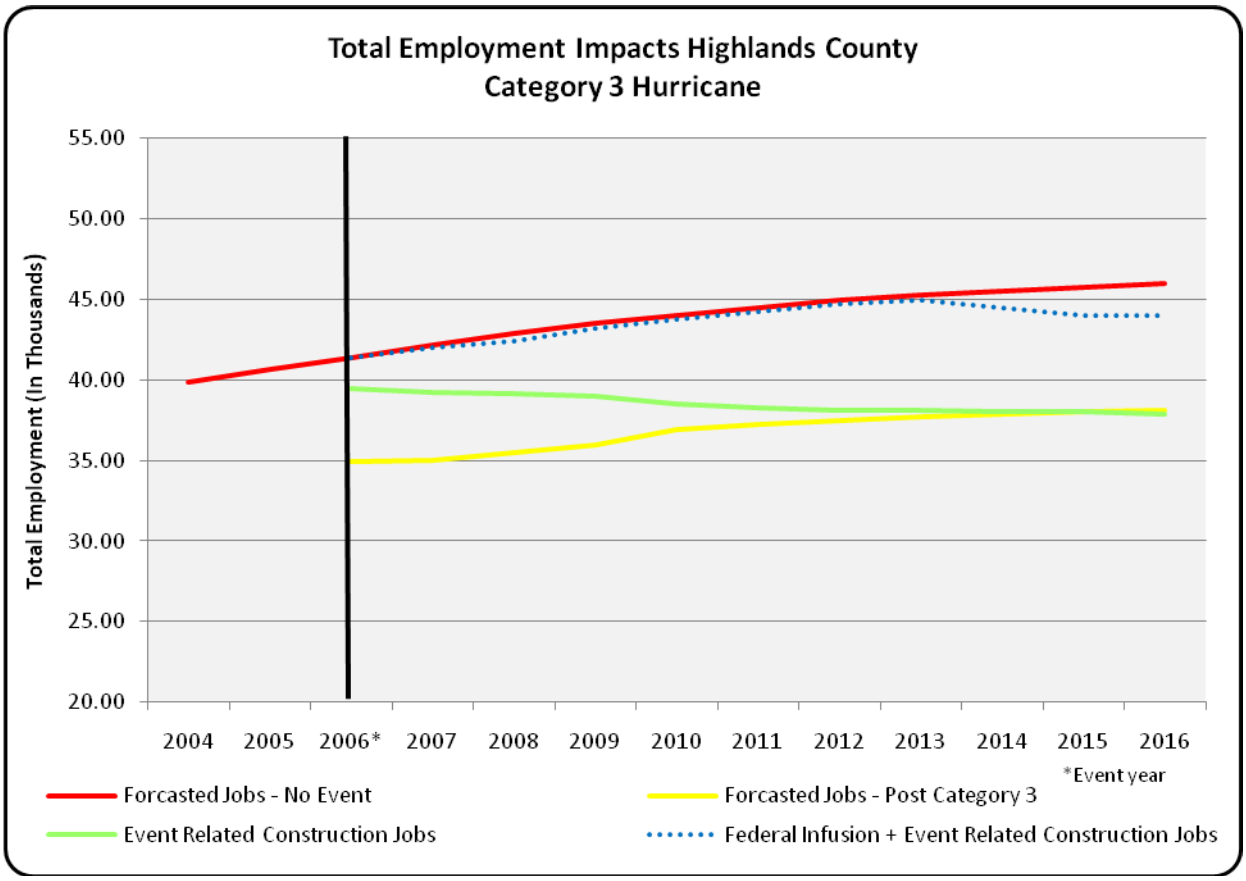


Highlands County - Category 3 Hurricane

Figure 47 depicts the impacts of a Category 3 Hurricane in Highlands County. If no event were to occur, the number of employees in the County is estimated at approximately 42,000. A Category 3 Hurricane would cause the loss of approximately 7,089 jobs in the County. Temporary new construction and cleanup jobs would increase employment to 39,373. However, by 2016, the County would permanently lose 7,814 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Highlands County, the County does not lose nay jobs until approximately 8 years after the event.

Figure 47

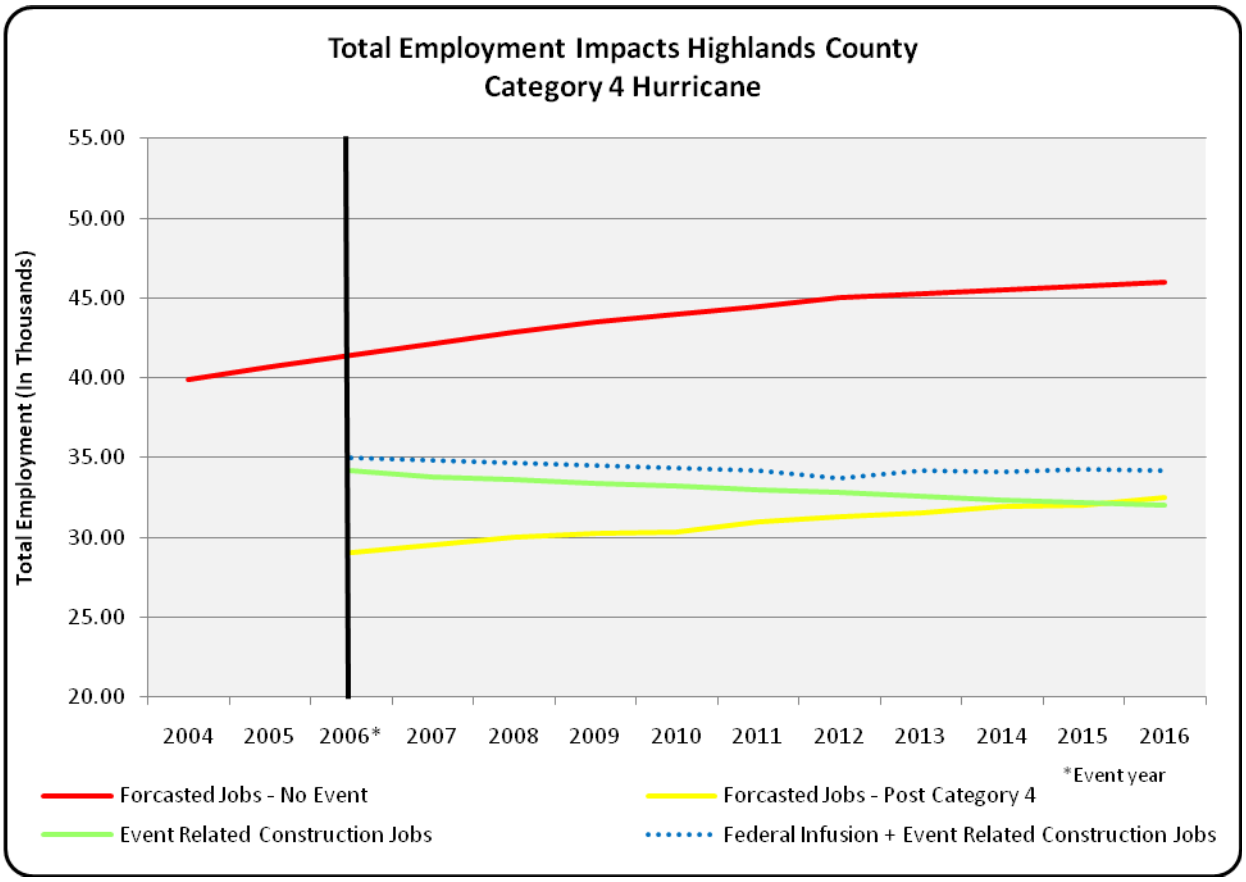


Highlands County - Category 4 Hurricane

Figure 48 depicts the impacts of a Category 3 Hurricane in Highlands County. If no event were to occur, the number of employees in the County is estimated at approximately 42,000. A Category 4 Hurricane would cause the loss of approximately 12,622 jobs in the County. Temporary new construction and cleanup jobs would increase employment to 33,607. However, by 2016, the County would permanently lose 13,912 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Highlands County, the County does not recover from the event within the ten year period following the event.

Figure 48

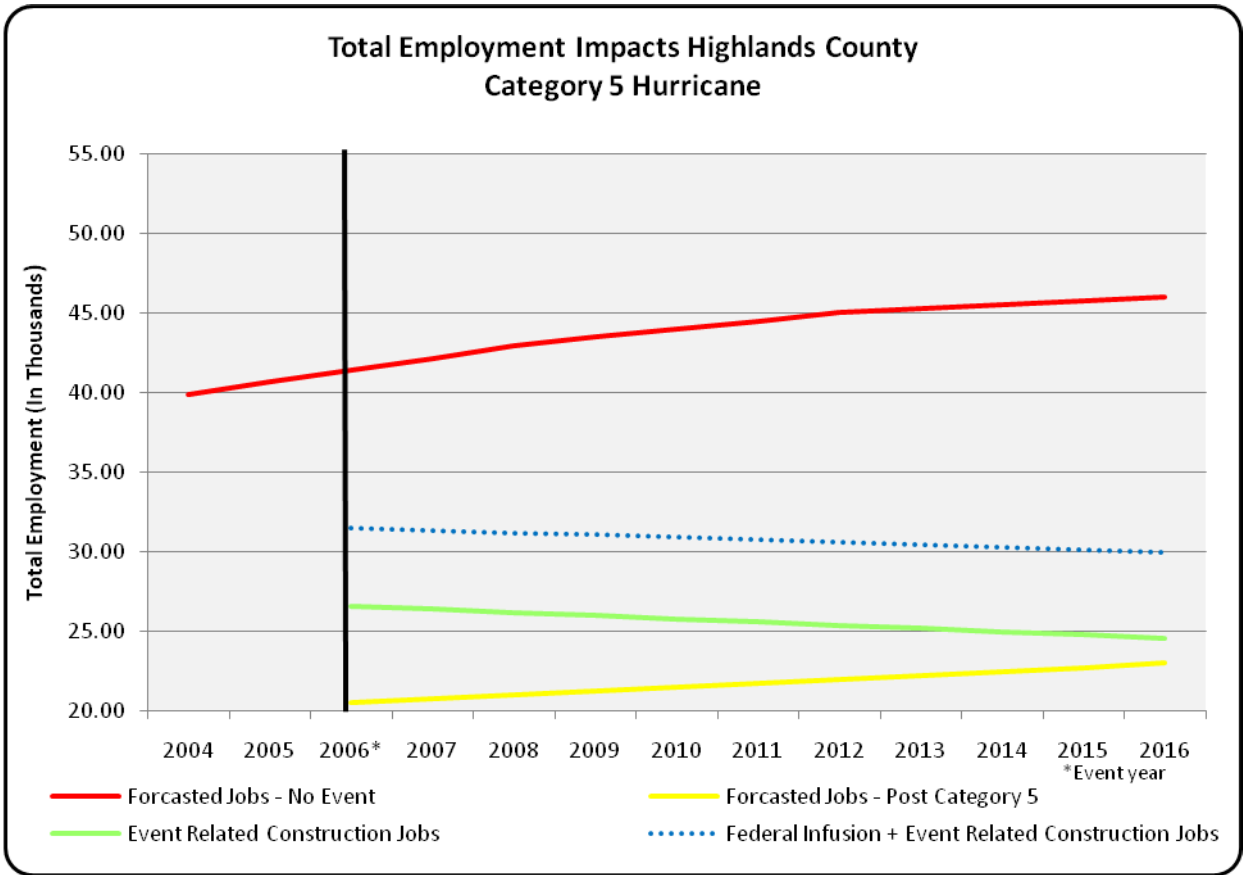


Highlands County – Category 5 Hurricane

Figure 49 depicts the impacts of a Category 5 Hurricane in Highlands County. If no event were to occur, the number of employees in the County is estimated at approximately 42,000. A Category 5 Hurricane would result in the loss of 21,045 jobs in the event year in Highlands County. Temporary new construction and cleanup jobs would increase employment to 26,448. However, by 2016, the County would permanently lose 23,197 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Hardee County, the County does not recover in within a ten year period following the event.

Figure 49



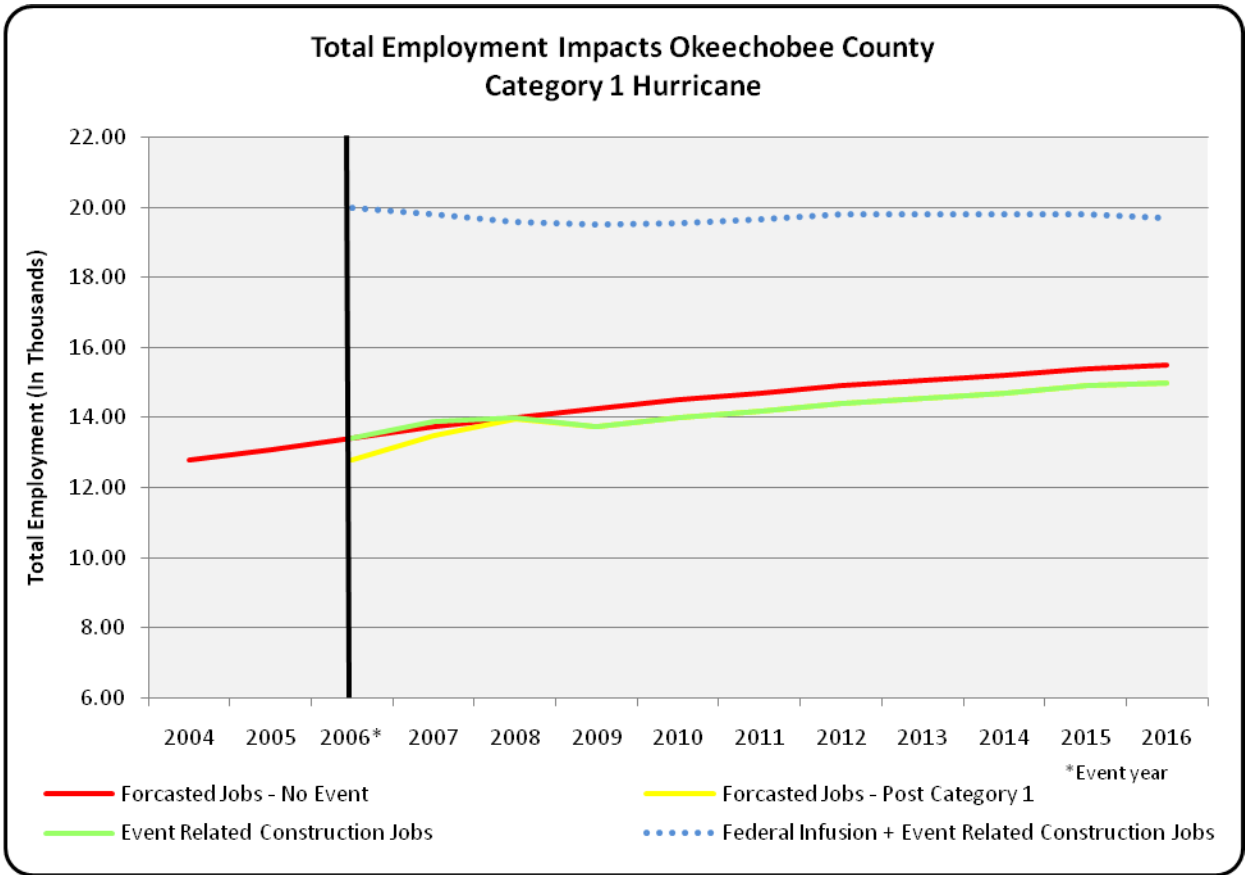
OKEECHOBEE COUNTY - CATEGORY 1-5 HURRICANES

Okeechobee County - Category 1 Hurricane

Figure 50 depicts the impacts of a Category 1 Hurricane in Okeechobee County. If no event were to occur, the number of employees in the County is estimated at approximately 13,000. A Category 1 Hurricane would cause the loss of approximately 404 jobs in the County during the event year. Temporary new construction and cleanup jobs would increase employment to 13,712. However, by 2016, the County would permanently lose 463 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Okeechobee County, the County would gain approximately 7,000 jobs.

Figure 50

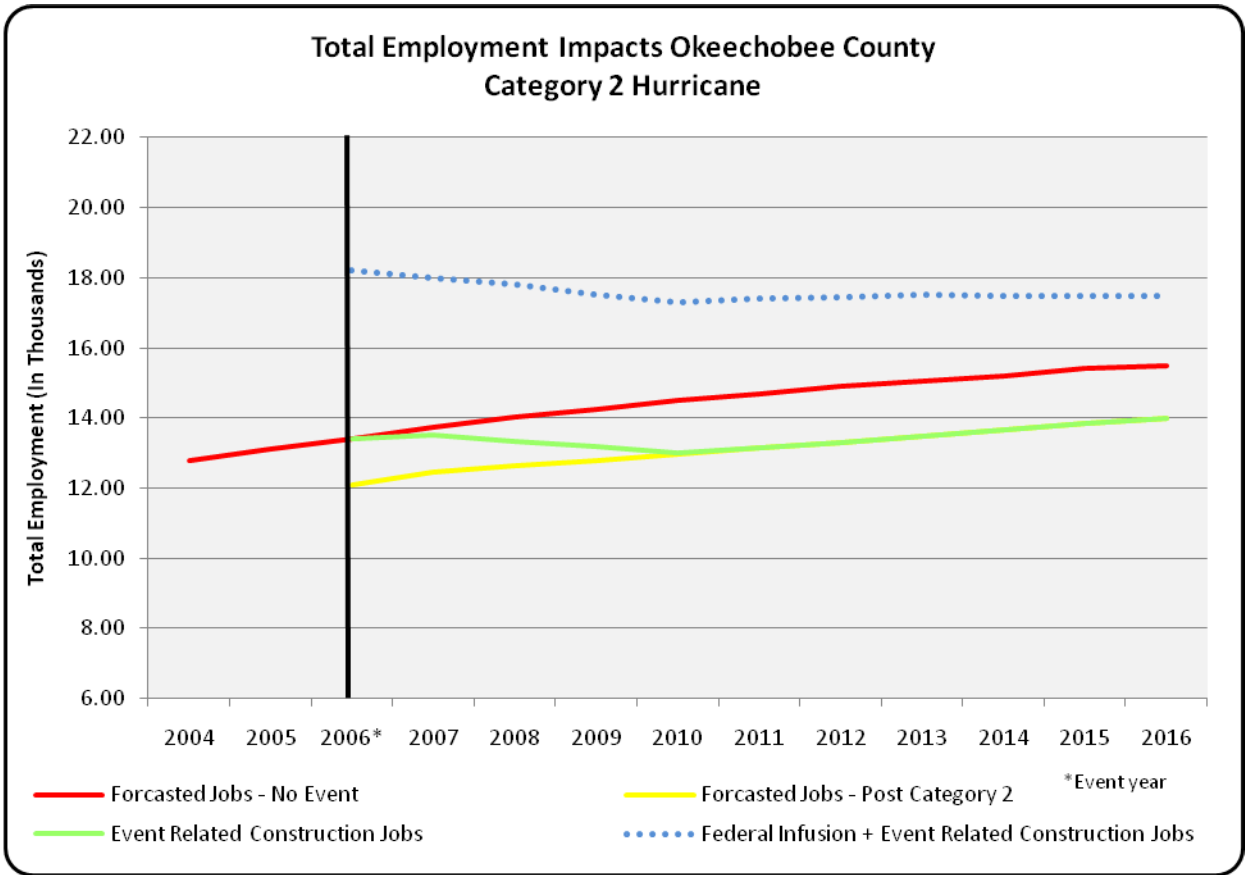


Okeechobee County - Category 2 Hurricane

Figure 51 depicts the impacts of a Category 2 Hurricane in Okeechobee County. If no event were to occur, the number of employees in the County is estimated at approximately 13,000. A Category 2 Hurricane would cause the loss of approximately 1,253 jobs in the County during the event year. Temporary new construction and cleanup jobs would increase employment to 13,431. However, by 2016, the County would permanently lose 1,436 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Okeechobee County, the County would gain approximately 5,000 jobs.

Figure 51

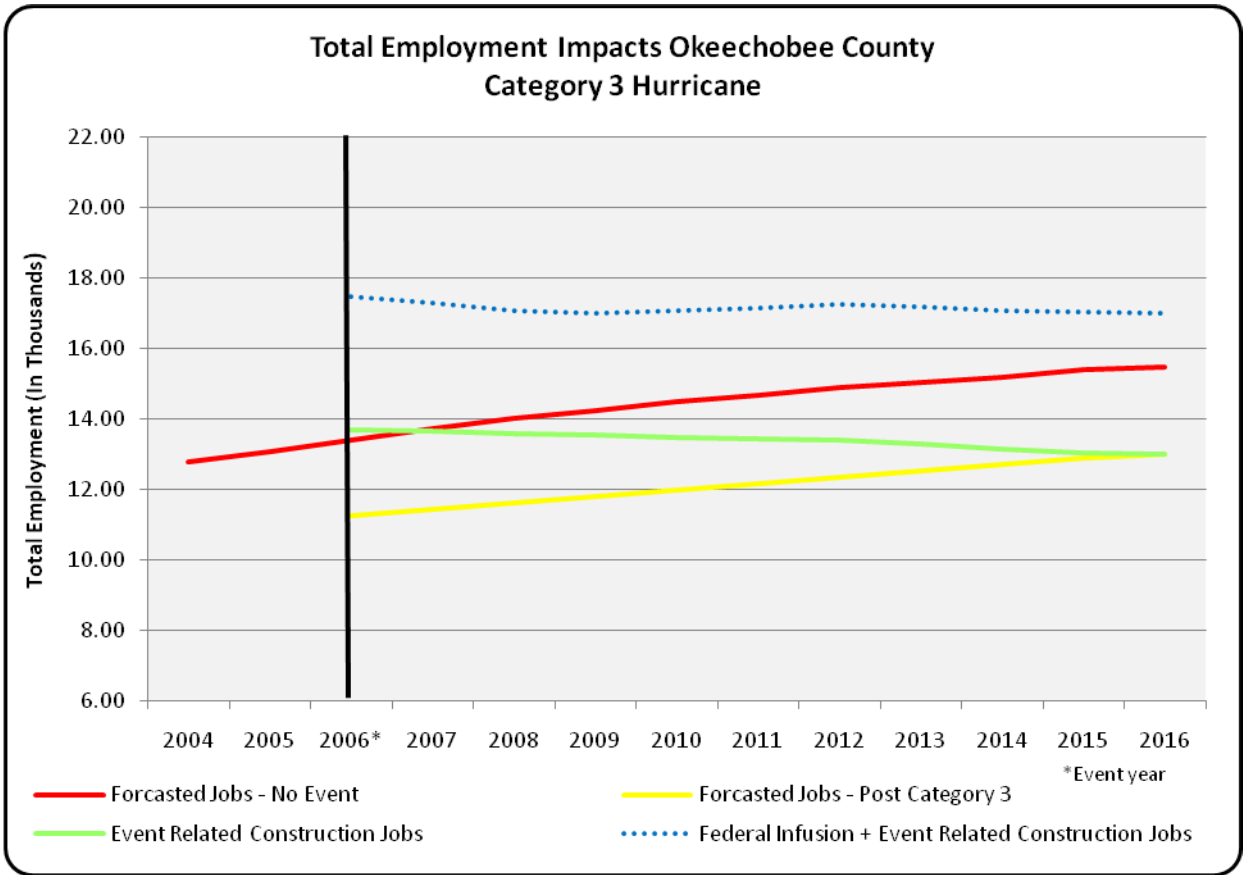


Okeechobee County - Category 3 Hurricane

Figure 52 depicts the impacts of a Category 3 Hurricane in Okeechobee County. If no event were to occur, the number of employees in the County is estimated at approximately 13,000. A Category 3 Hurricane would cause the loss of approximately 2,291 jobs in the County during the event year. Temporary new construction and cleanup jobs would increase employment to 13,630. However, by 2016, the County would permanently lose 2,625 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Okeechobee County, the County would gain approximately 4,000 jobs during the event year.

Figure 52

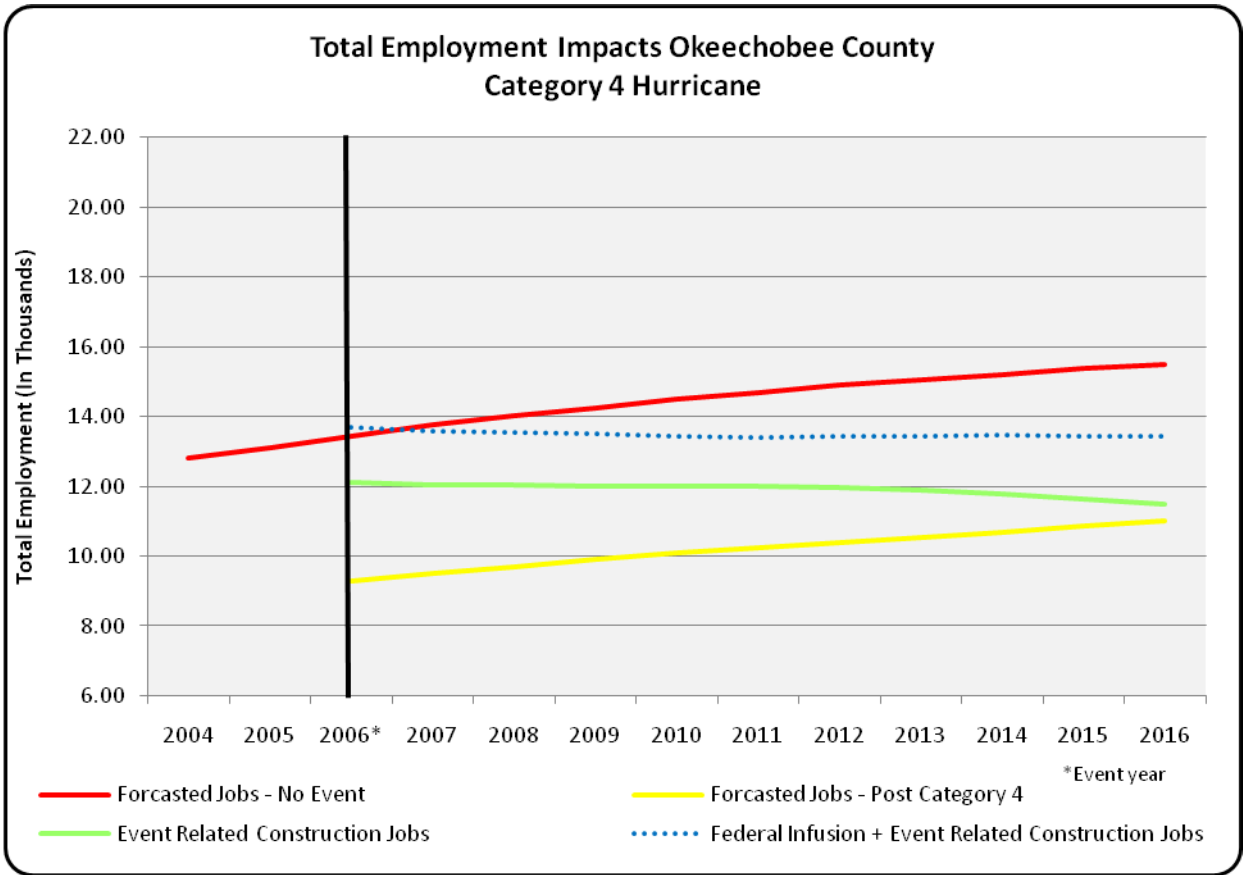


Okeechobee County - Category 4 Hurricane

Figure 53 depicts the impacts of a Category 4 Hurricane in Okeechobee County. If no event were to occur, the number of employees in the County is estimated at approximately 13,000. A Category 4 Hurricane would cause the loss of approximately 4,078 jobs in the County in the event year. Temporary new construction and cleanup jobs would increase employment to 12,013. However, by 2016, the County would permanently lose 4,674 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Okeechobee County, the County does not recover from the event within the ten year period following the event.

Figure 53

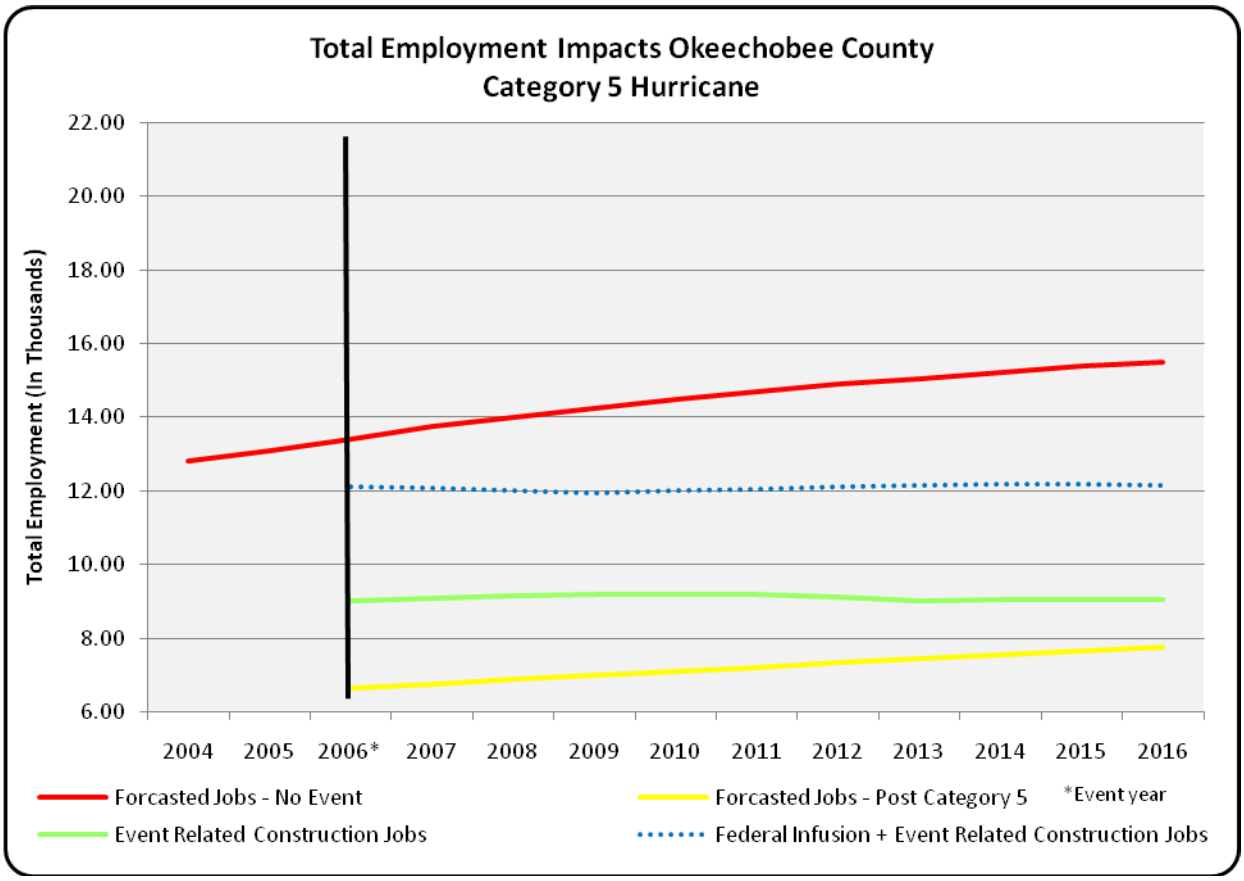


Okeechobee County - Category 5 Hurricane

Figure 54 depicts the impacts of a Category 5 Hurricane in Okeechobee County. If no event were to occur, the number of employees in the County is estimated at approximately 13,000. A Category 5 Hurricane would cause the loss of approximately 6,800 jobs in the County in the event year. Temporary new construction and cleanup jobs would increase employment to 8,995. However, by 2016, the County would permanently lose 7,793 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Okeechobee County, the County does not recover from the event within the ten year period following the event, however, more than half of the jobs lost in the event year are recovered over the ten year period which is attributed to the federal infusion.

Figure 54



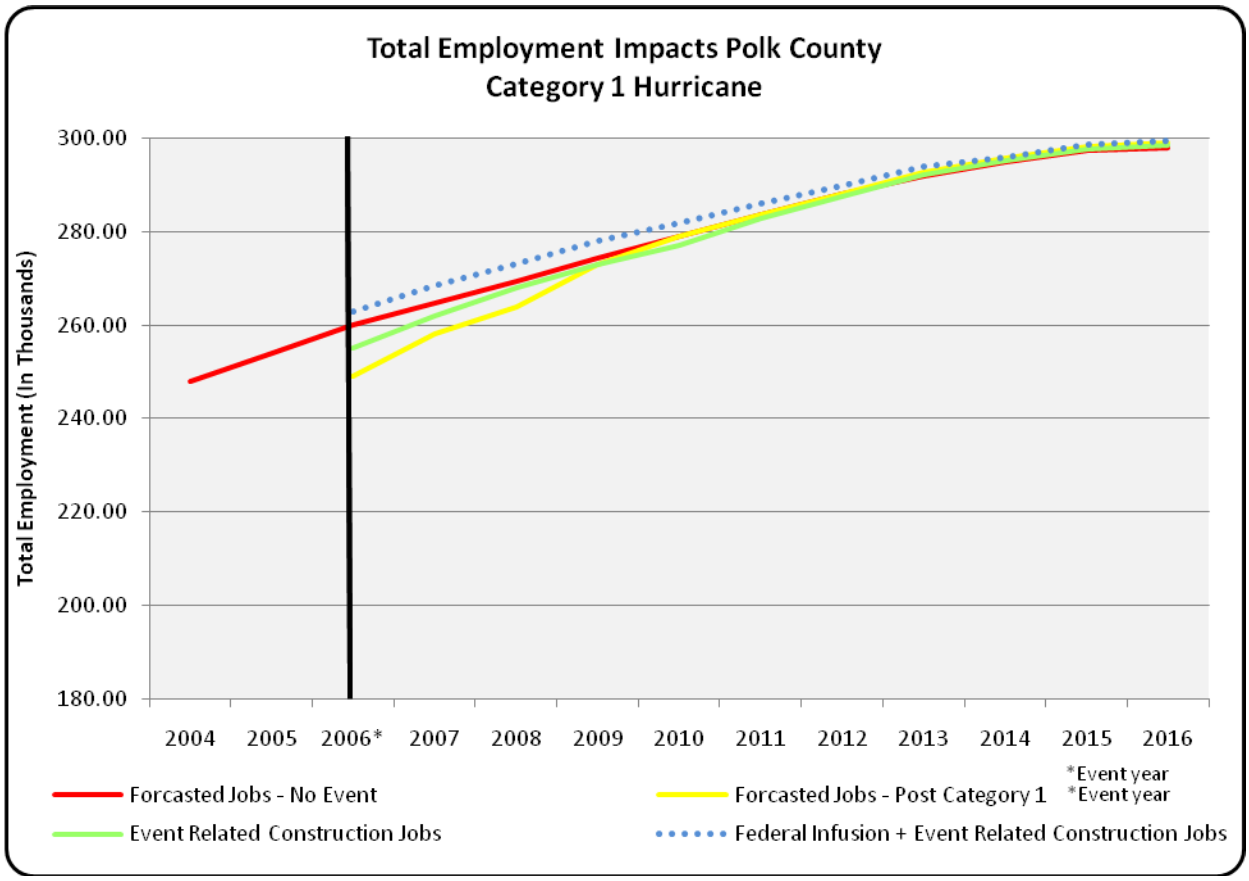
POLK COUNTY - CATEGORY 1-5 HURRICANES

Polk County - Category 1 Hurricane

Figure 55 depicts the impacts of a Category 1 Hurricane in Polk County. If no event were to occur, the number of employees in the County is estimated at approximately 260,000. A Category 1 Hurricane would cause the loss of approximately 10,352 jobs in the County during the event year. Temporary new construction and cleanup jobs would increase employment to 253,401. However, by 2016, the County would permanently lose 894 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Polk County, the County would gain approximately 1,000 jobs.

Figure 55

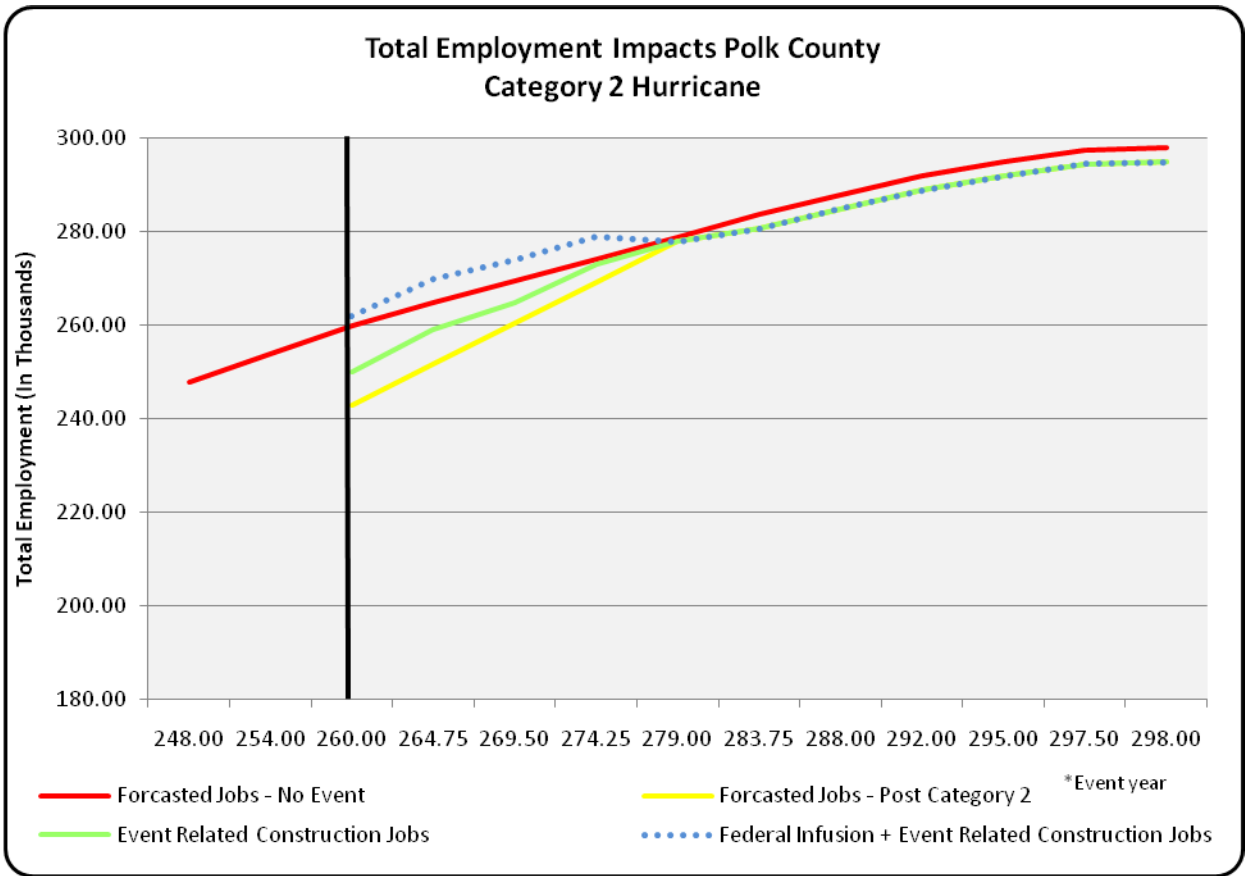


Polk County - Category 2 Hurricane

Figure 56 depicts the impacts of a Category 2 Hurricane in Polk County. If no event were to occur, the number of employees in the County is estimated at approximately 260,000. A Category 2 Hurricane would cause the loss of approximately 16,200 jobs in the County during the event year. Temporary new construction and cleanup jobs would increase employment to 252,925. However, by 2016, the County would permanently lose 3,576 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Polk County, the County would gain approximately 500 jobs in the event year.

Figure 56

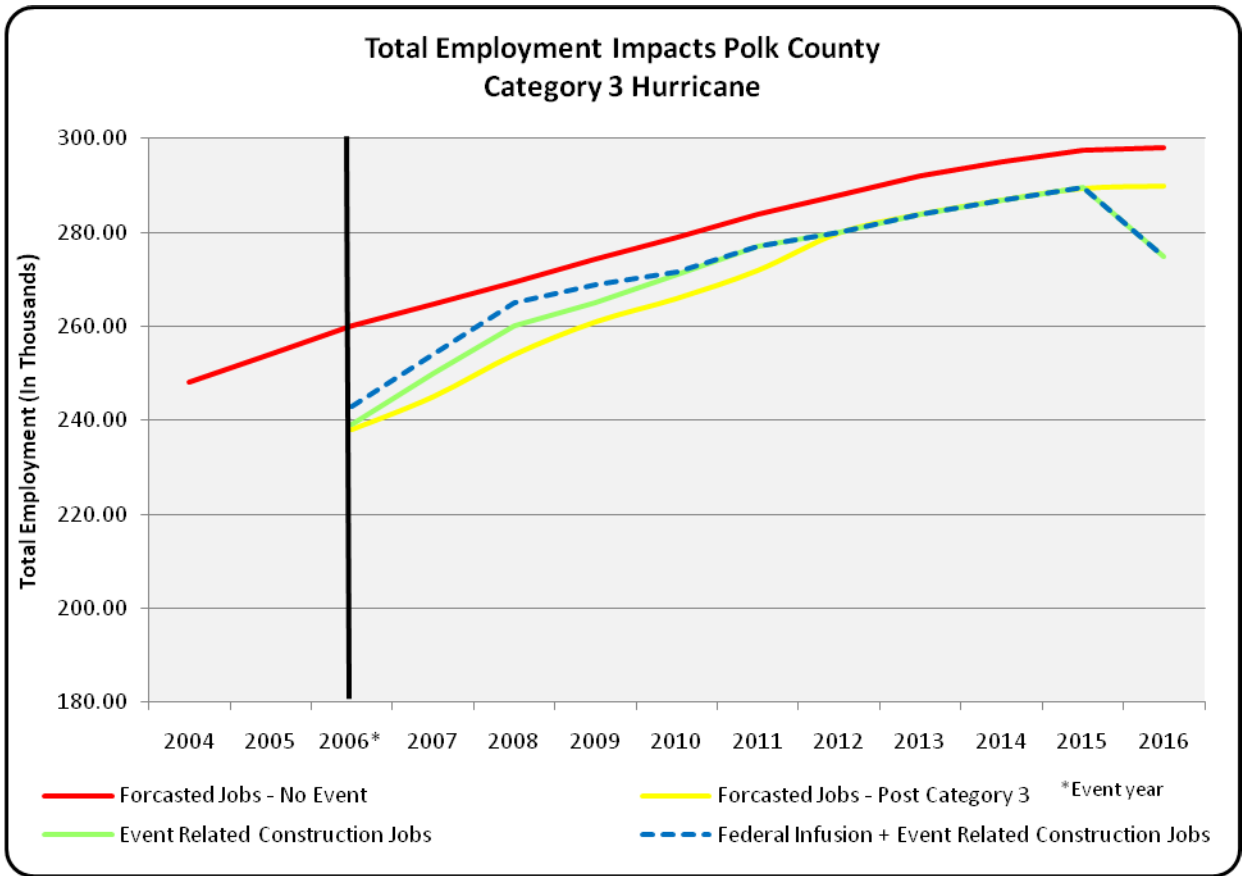


Polk County - Category 3 Hurricane

Figure 57 depicts the impacts of a Category 3 Hurricane in Polk County. If no event were to occur, the number of employees in the County is estimated at approximately 260,000. A Category 3 Hurricane would cause the loss of approximately 20,703 jobs in the County during the event year. Temporary new construction and cleanup jobs would increase employment to 240,214. However, by 2016, the County would permanently lose 5,960 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Polk County, the County does not recover from the event within the ten year period following the event.

Figure 57

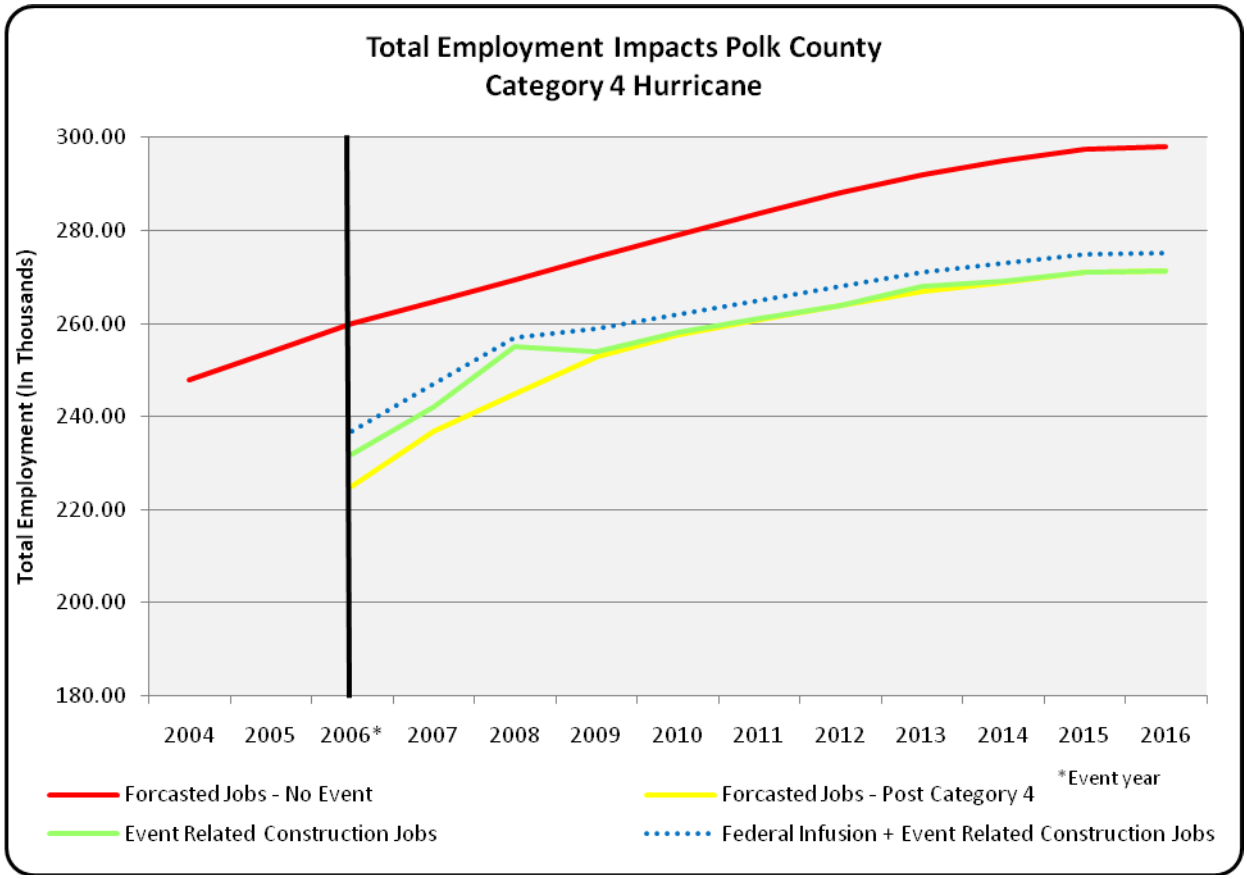


Polk County - Category 4 Hurricane

Figure 58 depicts the impacts of a Category 4 Hurricane in Polk County. If no event were to occur, the number of employees in the County is estimated at approximately 260,000. A Category 4 Hurricane would cause the loss of approximately 33,643 jobs in the County during the event year. Temporary new construction and cleanup jobs would increase employment to 230,325. However, by 2016, the County would permanently lose 9,833 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Polk County, the County does not recover from the event within the ten year period following the event.

Figure 58

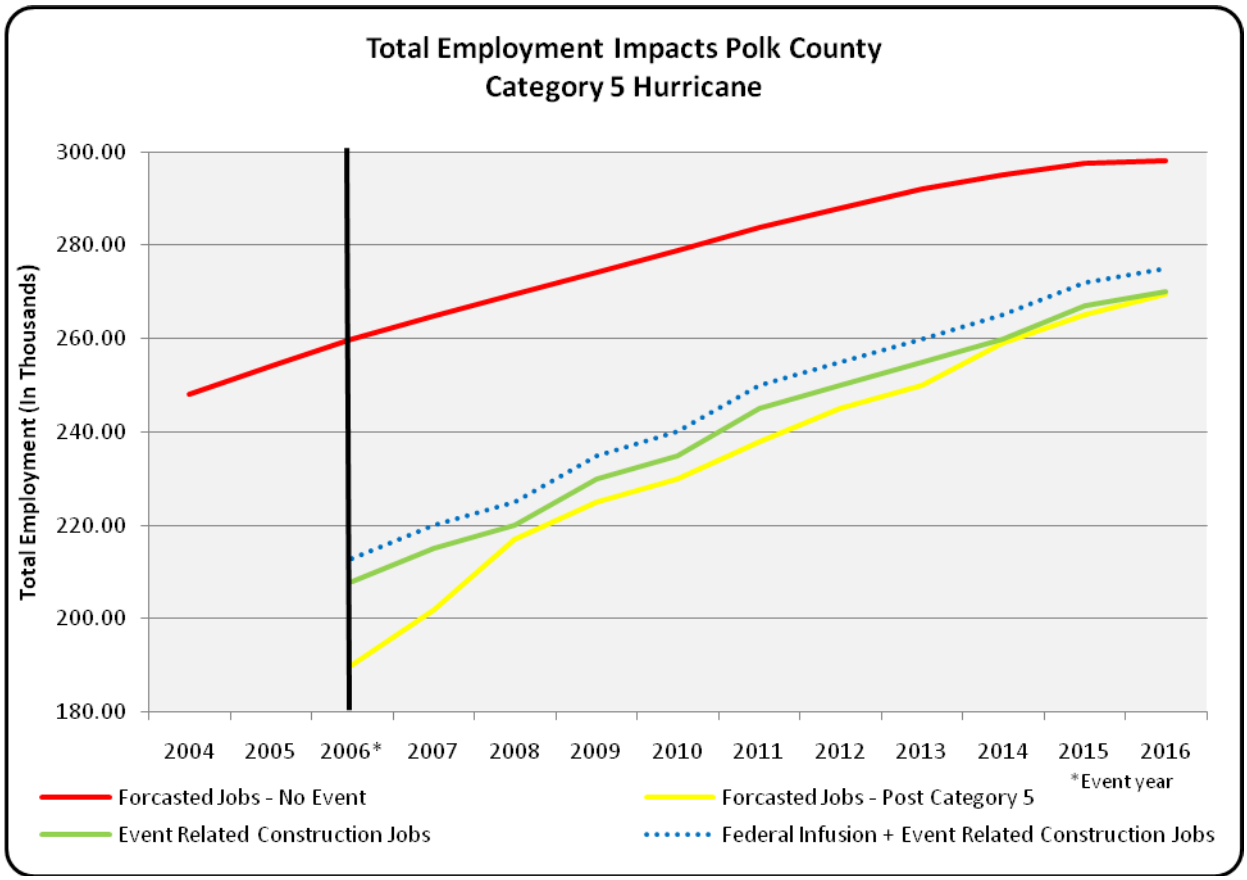


Polk County - Category 5 Hurricane

Figure 59 depicts the impacts of a Category 5 Hurricane in Polk County. If no event were to occur, the number of employees in the County is estimated at approximately 260,000. A Category 5 Hurricane would cause the loss of approximately 71,281 jobs in the County during the event year. Temporary new construction and cleanup jobs would increase employment to 204,446. However, by 2016, the County would permanently lose 31,288 jobs compared to the forecast without the hurricane event.

Even with a federal infusion of $1 billion in Polk County, the County does not recover from the event within the ten year period following the event.

Figure 59

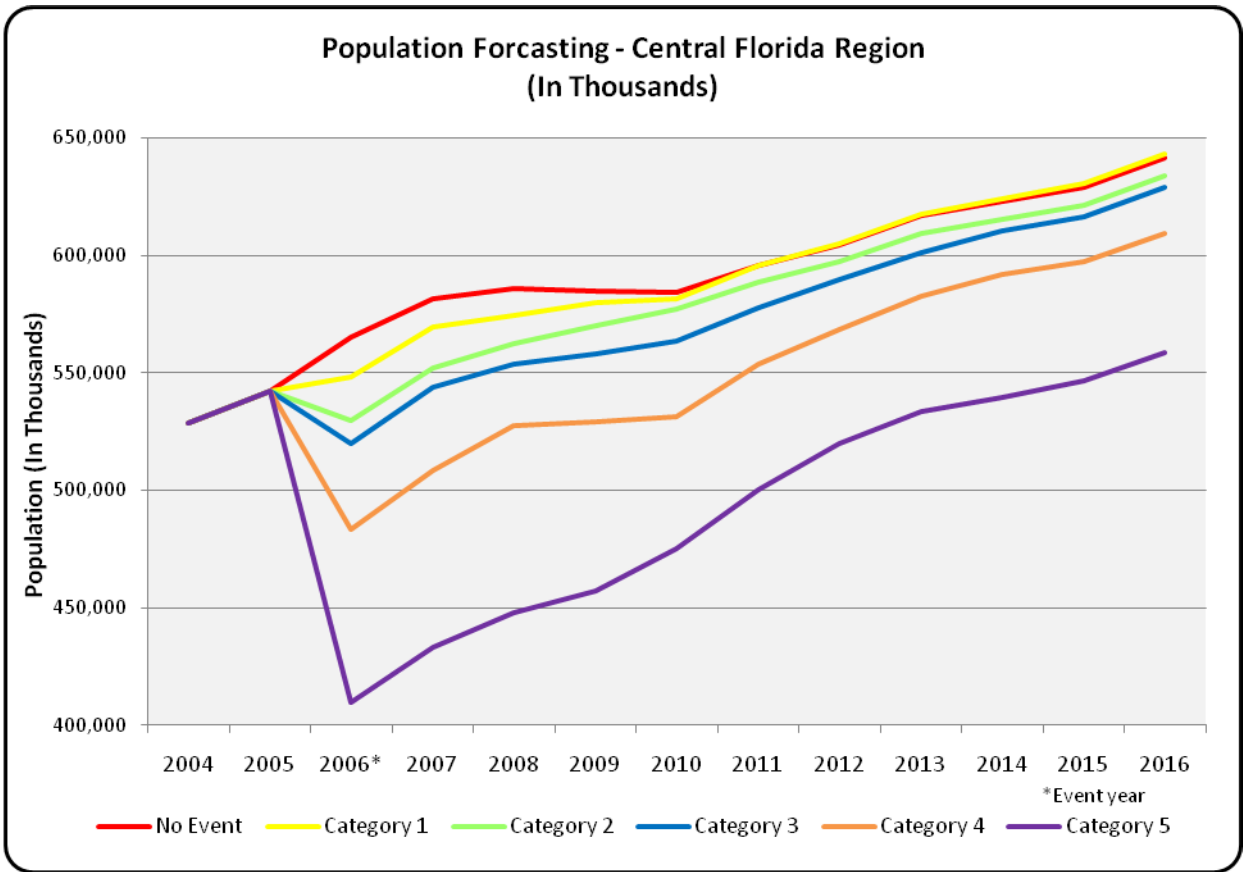


B. Population Impacts by Region and County

Population in the Region

The following is an analysis of all five hurricane categories in relation to population projections. As shown in **Figure 60** below, the population recovers to its "No Event" level only following a Category 1 Hurricane. The most significant decrease in population occurs following a Category 5 hurricane when the Region loses more than 150,000 people. This analysis accounted for the $1 billion federal infusion for each for the five counties.

Figure 60

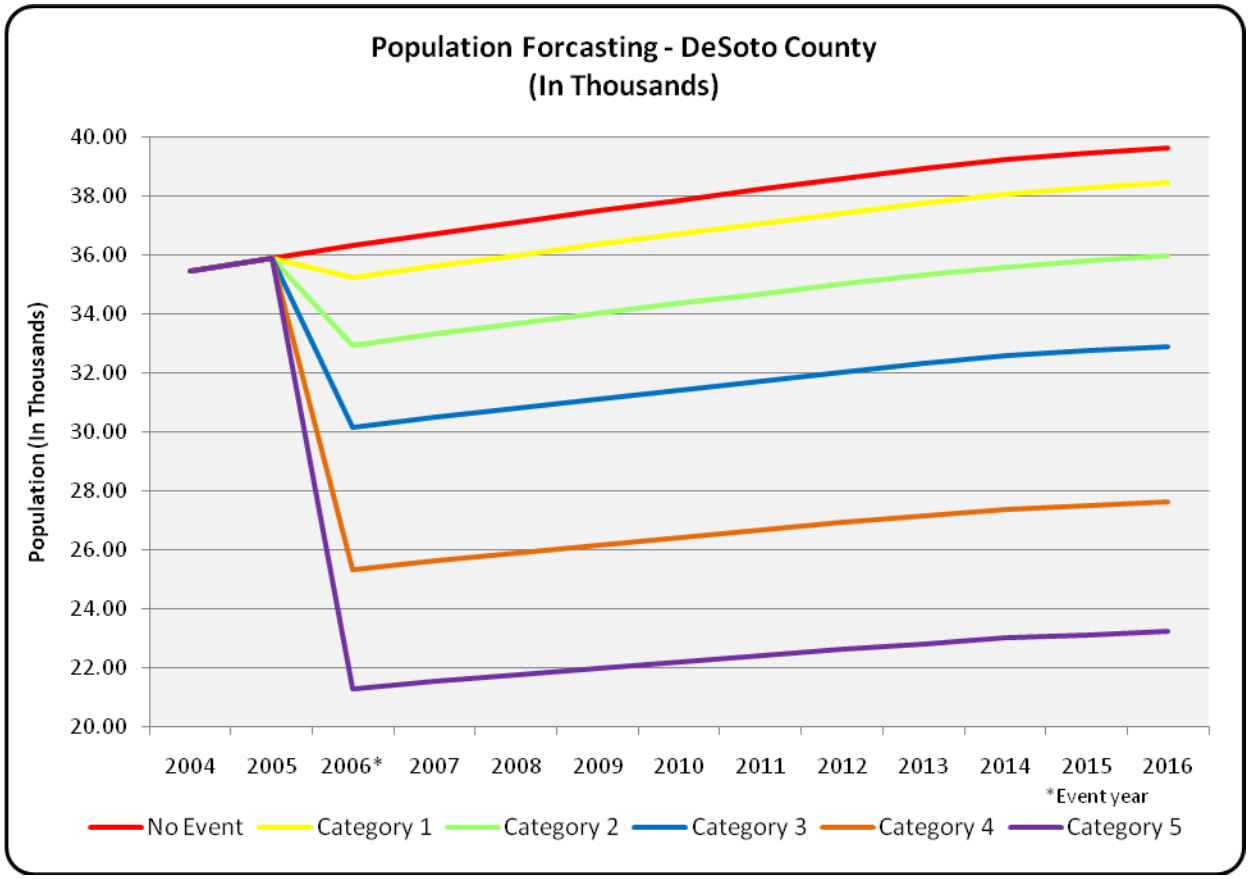


Population Impacts by Category of Hurricane are provided below. The analysis is provided for each county in the Region.

DeSoto County – Population

As shown in **Figure 61**, the 2006 DeSoto County population was 36,330 persons. A Category 5 county-wide hurricane would have reduced the County's population to 21,270 persons. It would take more than 10 years for the County's population to return to the 2006 level.

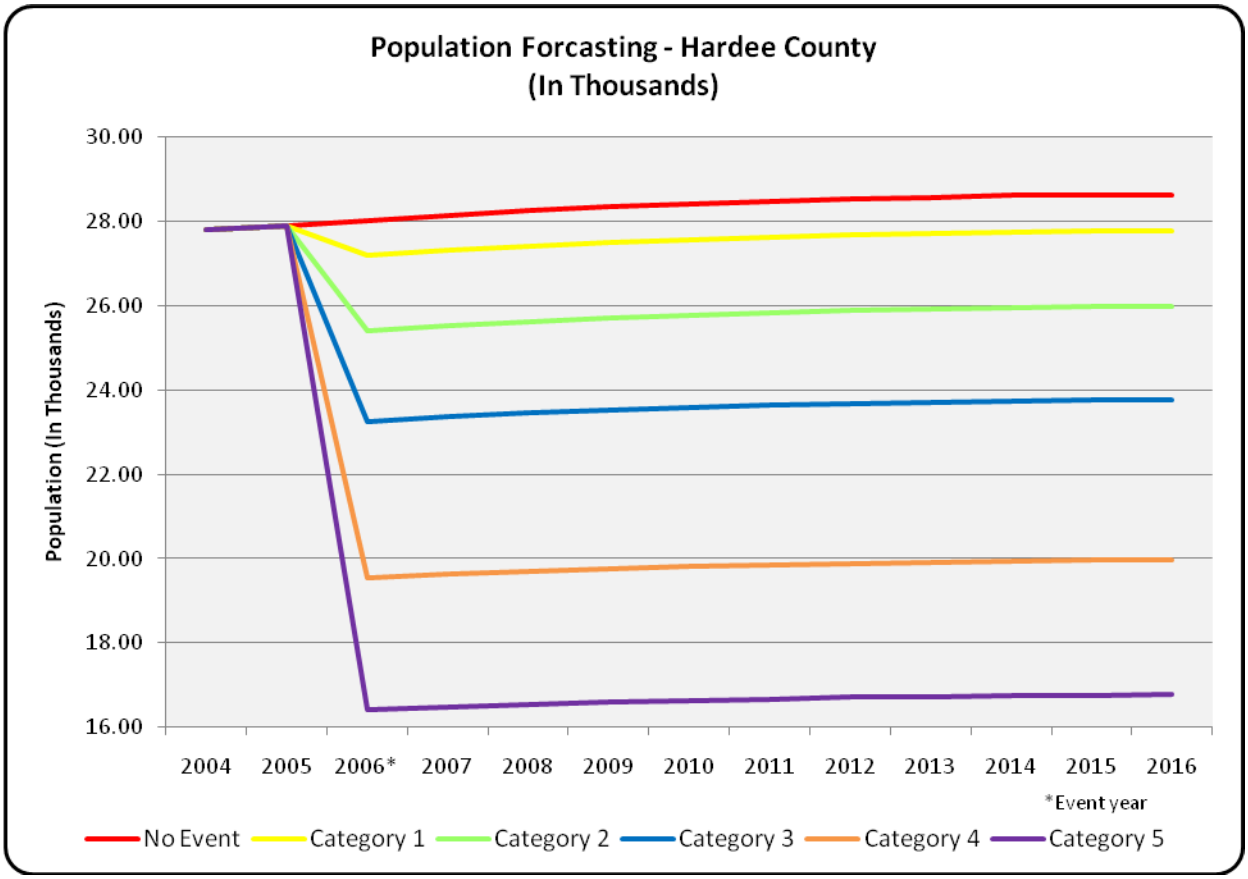
Figure 61



Hardee County – Population

As shown in **Figure 62**, the 2006 Hardee County population was 28,030 persons. A Category 5 county-wide hurricane would have reduced the County's population to 16,410 persons. It would take more than 10 years for the County's population to return to the 2006 level.

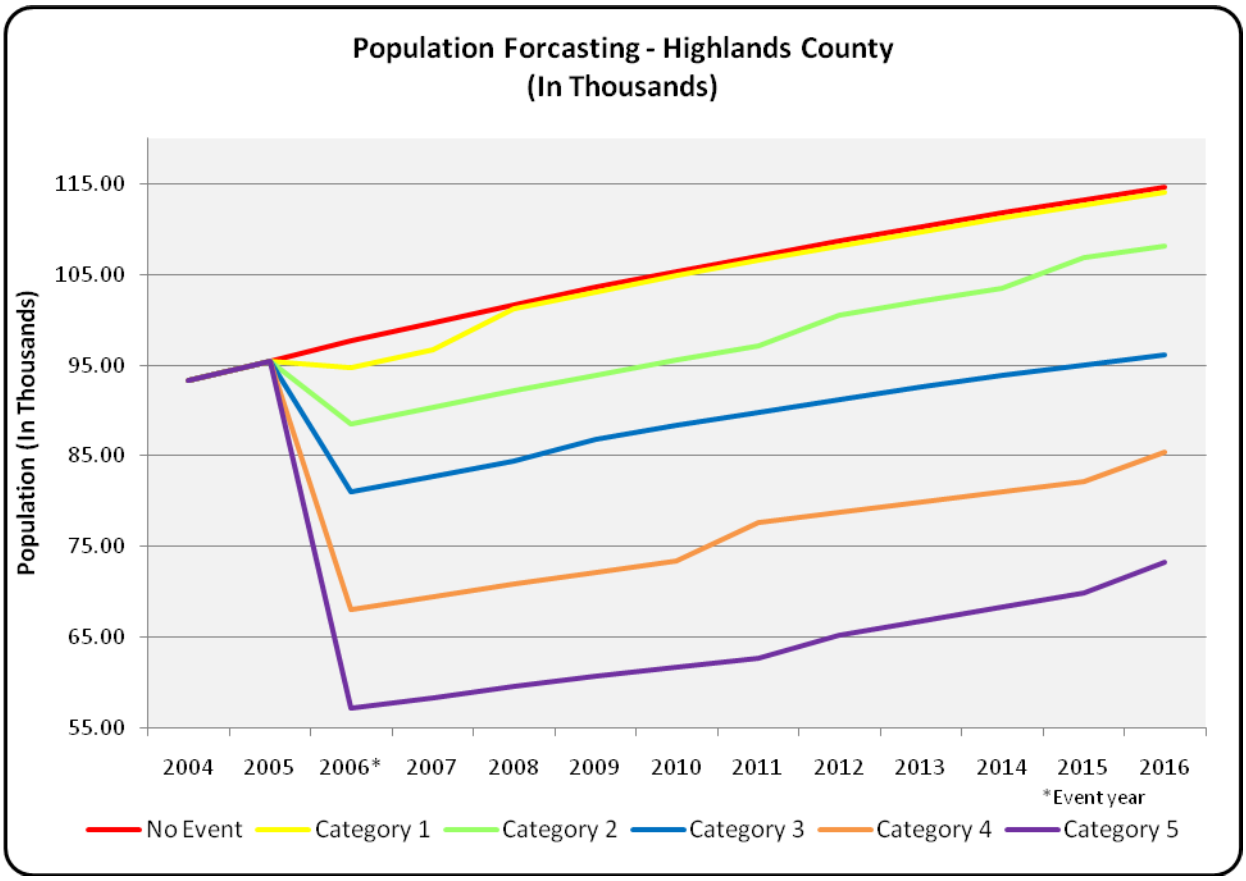
Figure 62



Highlands County – Population

As shown in **Figure 63**, the 2006 Highlands County population was 97,620 persons. A Category 5 county-wide hurricane would have reduced the County's population to 57,160 persons. It would take more than 10 years for the County's population to return to the projected no event population following Hurricane Categories 2 through 5 events. The County recovers within 3 years from a Category 1 event.

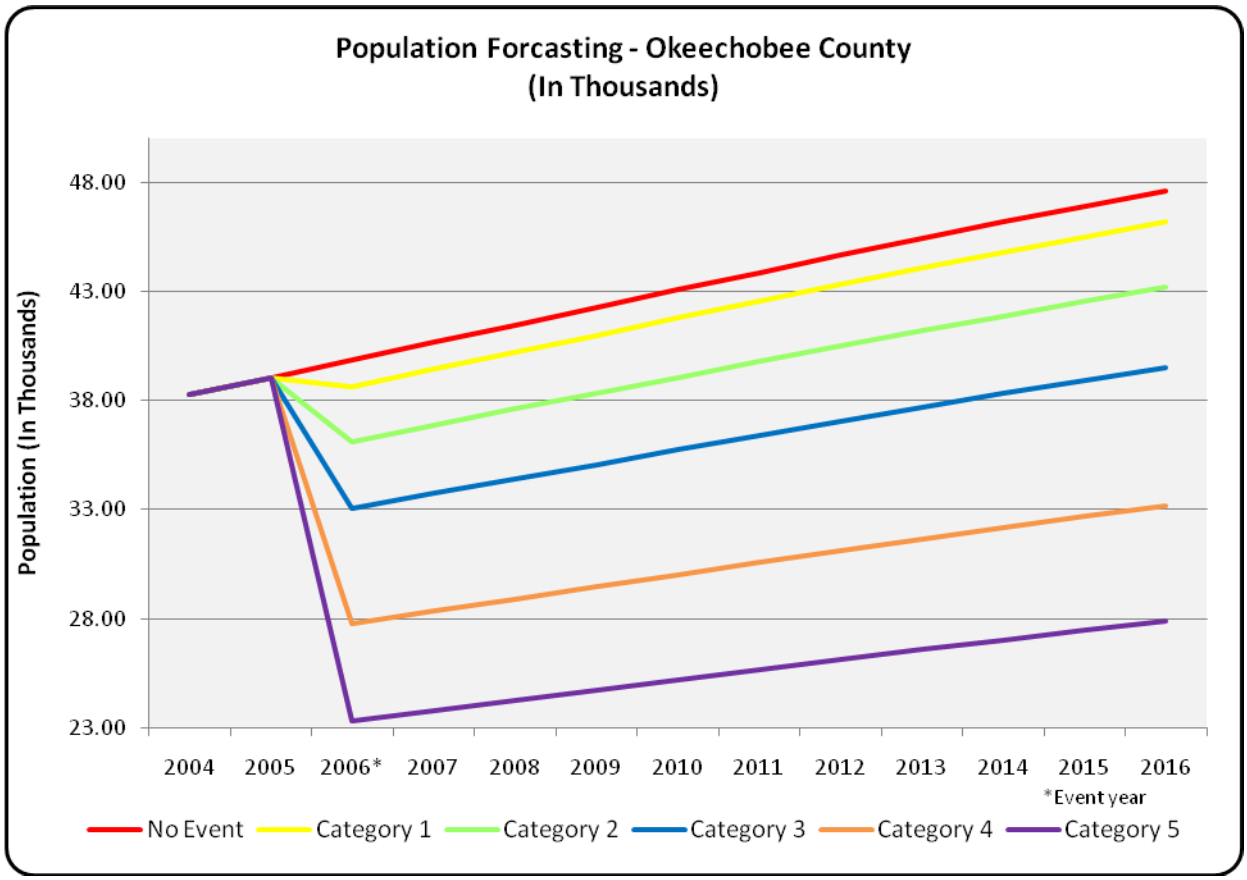
Figure 63



Okeechobee County – Population

As shown in **Figure 64**, the 2006 Highlands County population was 39,840 persons. A Category 5 county-wide hurricane would have reduced the County's population to 23,330 persons. It would take more than 10 years for the County's population to return to the projected no event population following Hurricane Categories 1 through 5 events.

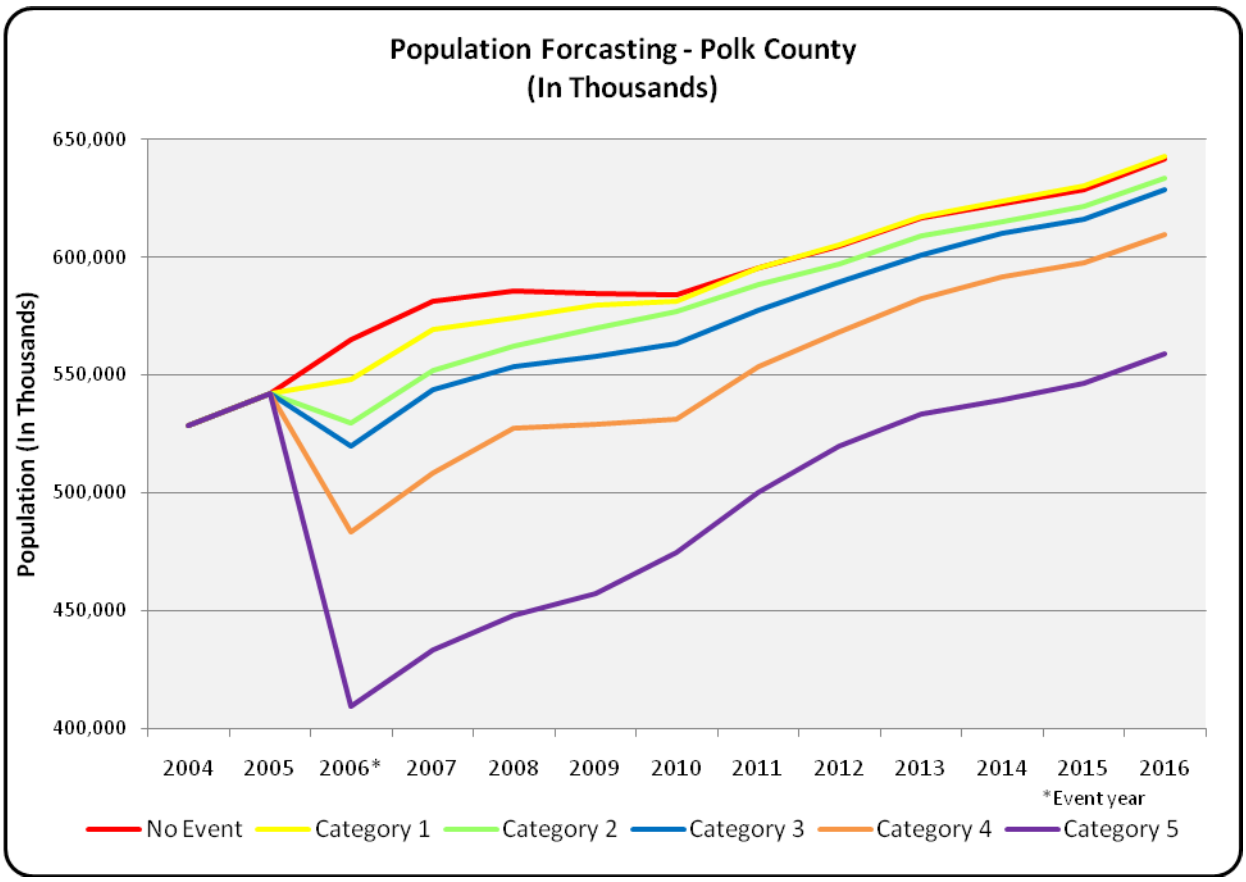
Figure 64



Polk County – Population

As shown in **Figure 65**, the 2006 Polk County population was 565,049 persons. A Category 5 county-wide hurricane would have reduced the County's population to 409,412 persons. The County would recover to its projected no event population within four to five years of a Category 1 Hurricane. It would take more than 10 years for the County population to return to the projected no event population following Hurricane Categories 2 through 5 events.

Figure 65



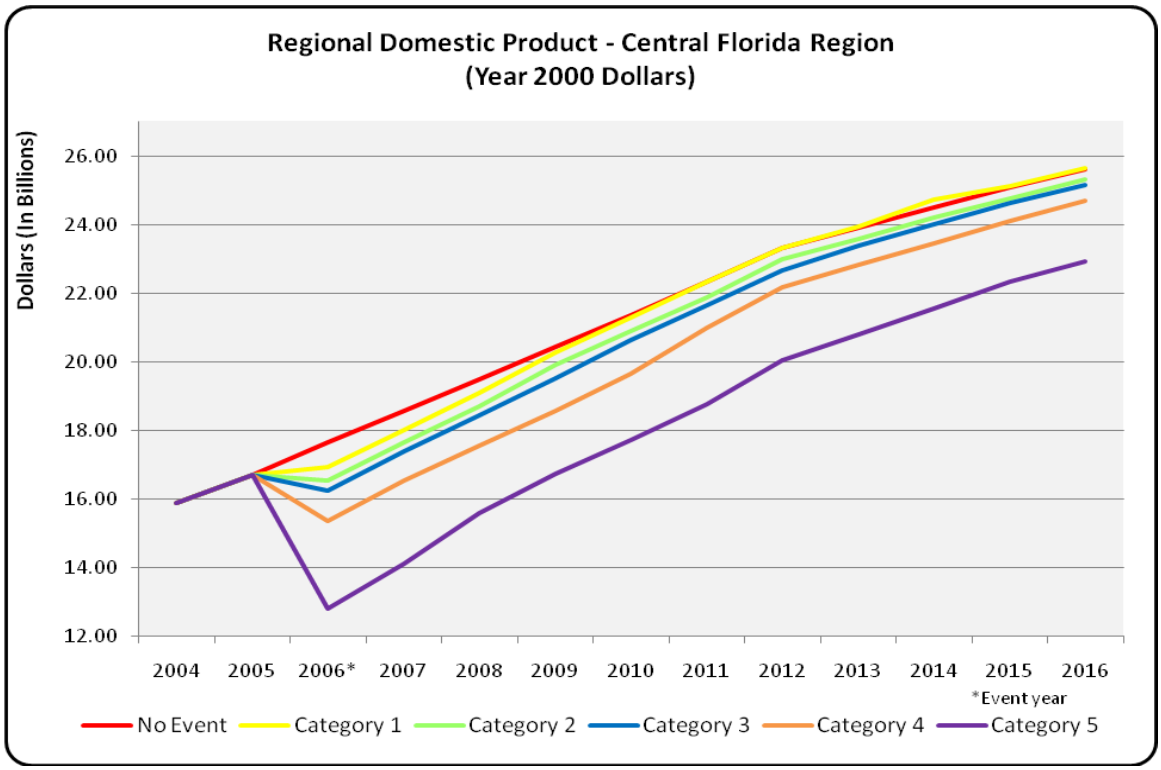
C. Regional and County Gross Domestic Product

Figure 66 below provides an overview of the Central Florida Region's Gross Regional Domestic Product through each of the five projected Hurricane events. The "No Event" line represents the forecasted gross regional domestic product without a hurricane event. The "Category" lines represent the gross regional domestic product with a hurricane event affecting the Region.

The 2004 and 2005 data is derived from actual figures. The 2006 data is the modeled event. The data for years 2007 through 2016 is forecast.

The scenarios assume a county-wide effect. The Category 5 Hurricane event significantly impacts the Gross Regional Domestic Product at a greater rate than Category 1 through 4. It is projected that following a Category 5 Hurricane, with $1 billion of federal infusion for each county in the Region, that greater than $4 billion will be lost in Regional Domestic Product. With the $1 billion of federal infusion, the Region recovers to its projected no event level within four to five years following a Category 1 Hurricane.

Figure 66



DOMESTIC PRODUCT BY COUNTY

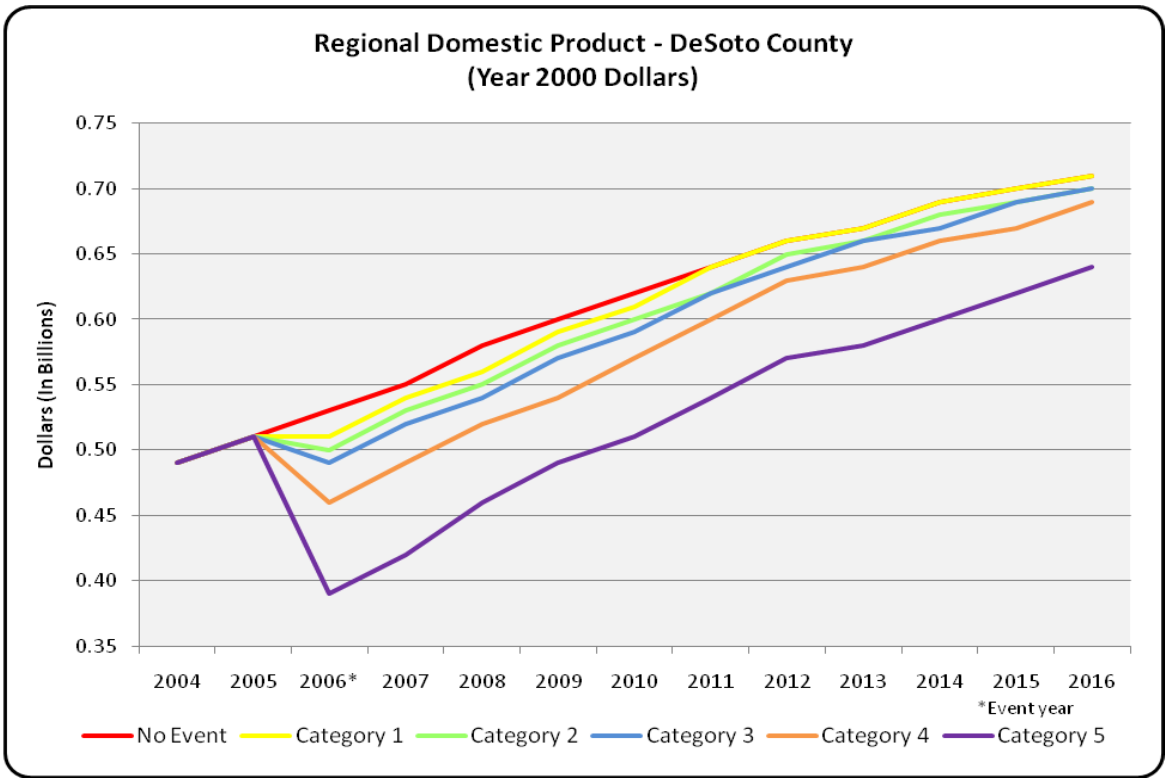
This section provides an analysis of each County's Domestic Product through each of the five Categories of Hurricane events. The "No Event" line represents the forecasted gross regional domestic product without a hurricane event. The "Category" lines represent the gross regional domestic product with a hurricane event affecting the Region.

The 2004 and 2005 data is derived from actual figures. The 2006 data is the modeled event. The data for years 2007 through 2016 is forecasted. The scenarios assume a county-wide effect. The Category 5 Hurricane event most significantly impacts the Domestic Product.

Desoto County

As shown in **Figure 67**, a county-wide Category 5 hurricane would reduce DeSoto County's gross domestic product to $390 million in the year 2006. It would take longer than the ten year time frame shown below for the gross domestic product to recover to the projected no event level. It would take five years to recover to the projected no event level from a county-wide Category 1 hurricane.

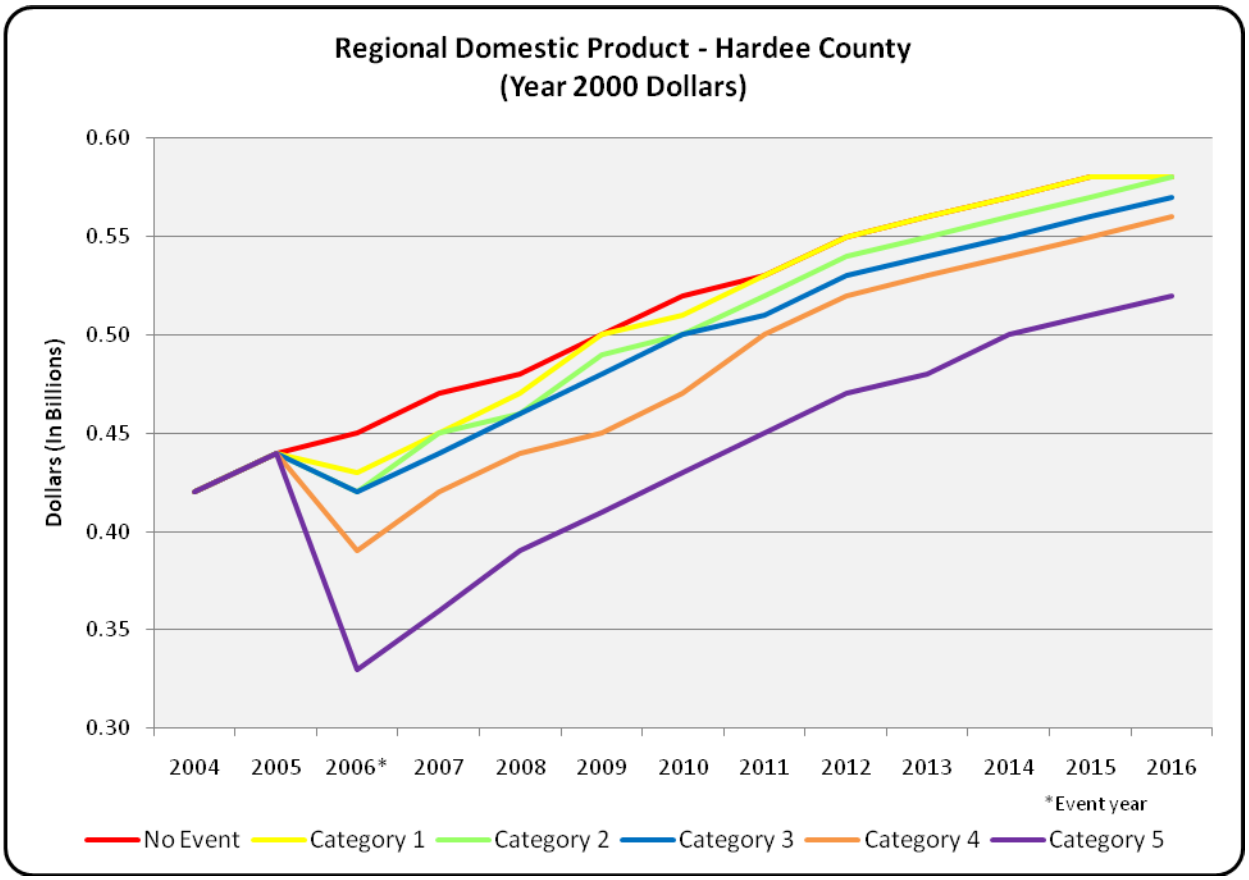
Figure 67



Hardee County

As shown in **Figure 68**, a county-wide Category 5 hurricane would reduce Hardee County's gross domestic product from $430 million to less than $330 million in the event year of 2006. It would take longer than the ten year time frame shown below for the gross domestic product to recover to the projected no event level. It would take five years to recover to the projected no event level from a county-wide Category 1 hurricane.

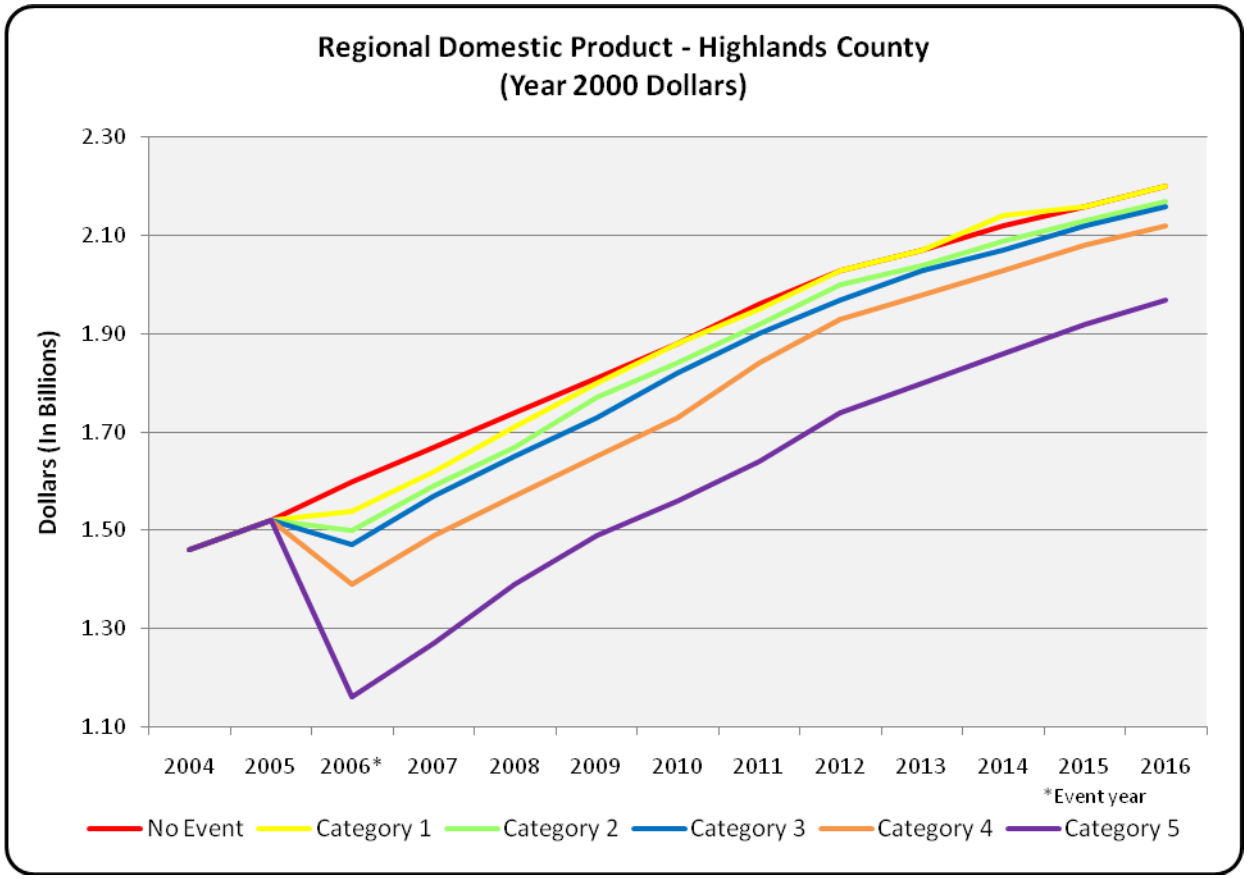
Figure 68



Highlands County

Highlands County contributed $1.60 billion in 2006 to the regional domestic product without a hurricane event. As shown in **Figure 69**, a county-wide Category 5 hurricane would reduce Highlands County's regional domestic product to $1.16 billion in the event year. It would take longer than the ten year time frame shown below for the domestic product to recover to the projected no event level following a Category 5 Event. It will take approximately four years to recover to the projected no event level from a county-wide Category 1 hurricane.

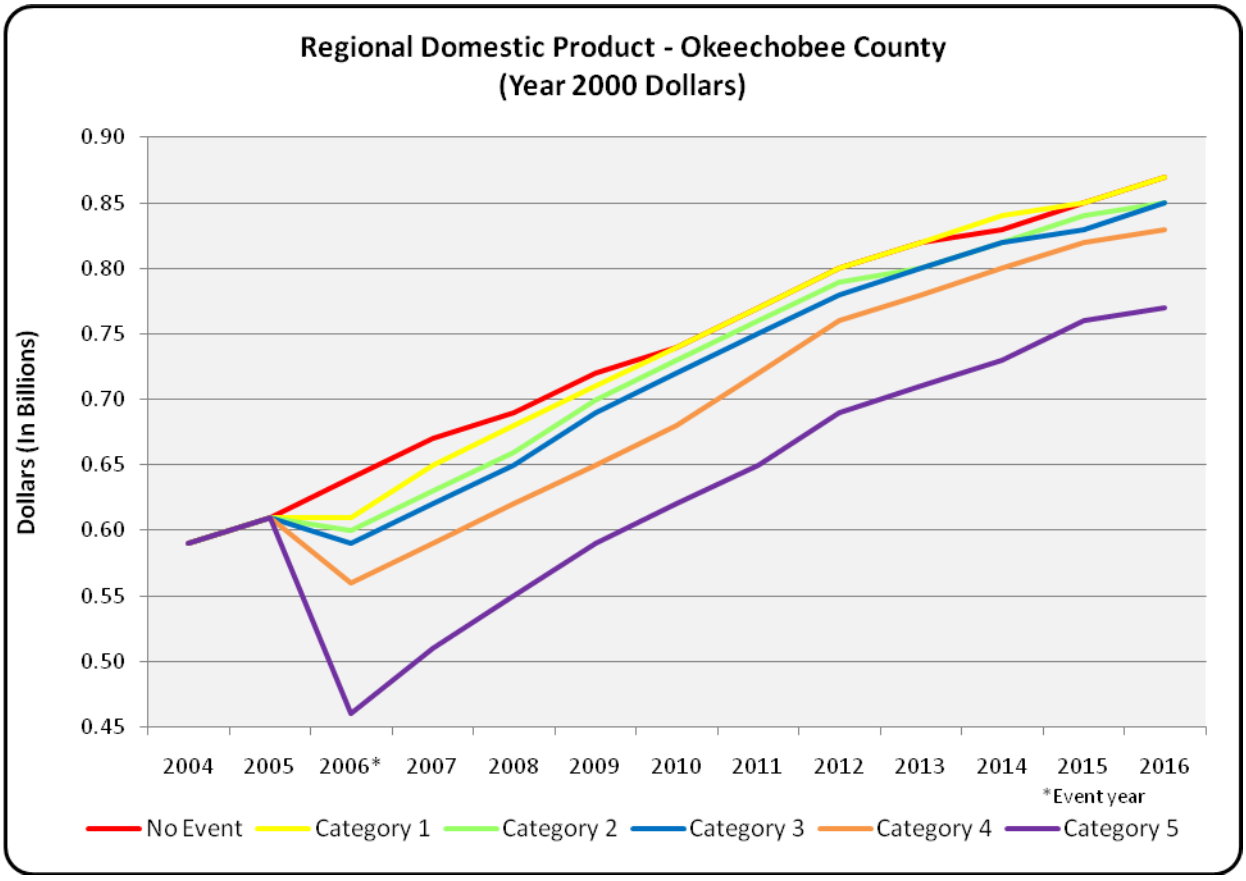
Figure 69



Okeechobee County

Okeechobee County contributed $640 million in 2006 to the regional domestic product without a hurricane event. As shown in **Figure 70**, a county-wide Category 5 hurricane would reduce Okeechobee County's regional domestic product to $460 million in the event year. It would take longer than the ten year time frame shown below for the domestic product to recover to the projected no event level following a Category 5 Event. It will take approximately four years to recover to the projected no event level from a county-wide Category 1 hurricane.

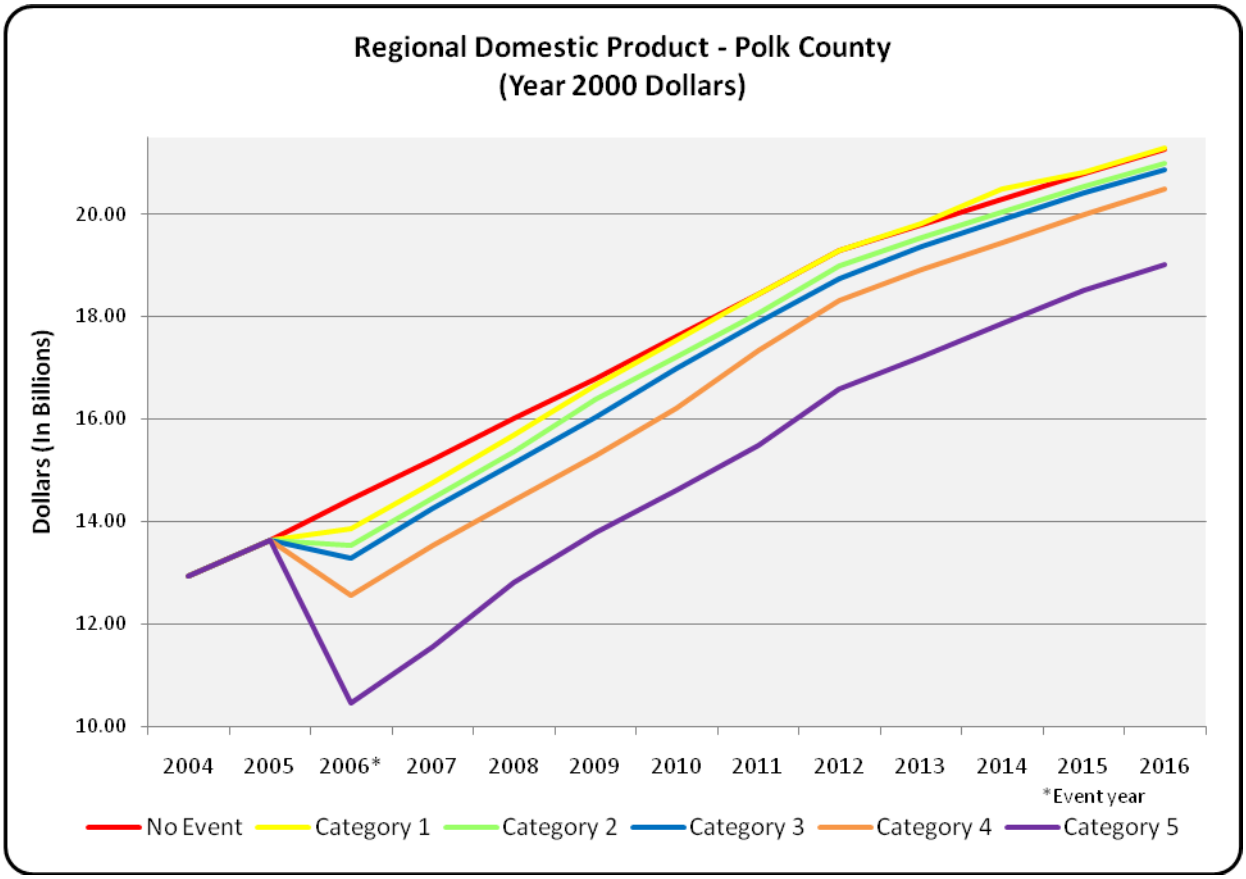
Figure 70



Polk County

Polk County contributed $14.437 billion in 2006 to the regional domestic product without a Categories of hurricane event. As shown in **Figure 71**, a county-wide Category 5 hurricane would reduce Polk County's regional domestic product to $10.5 billion in the event year. It would take longer than the ten year time frame shown below for the domestic product to recover to the projected no event level following a Category 5 Event. It will take approximately three years to recover to the projected no event level from a county-wide Category 1 hurricane.

Figure 71



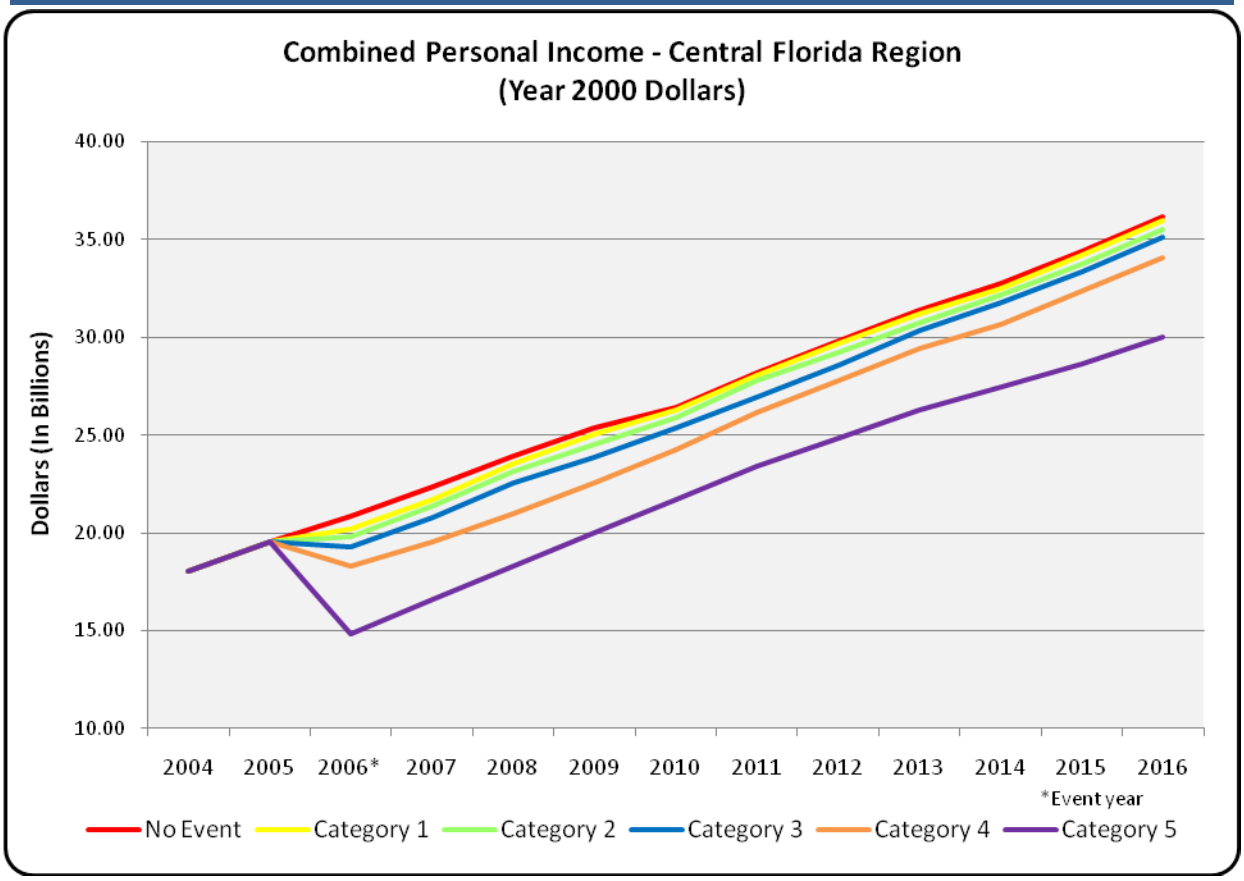
D. Combined Personal Income by Region and County

This section provides an analysis of each county's Combined Personal Income through each of the five Categories of Hurricane events. The "No Event" line represents the forecasted combined personal income without a hurricane event. The "Category" lines represent the forecasted combined personal income with a hurricane event affecting the Region.

The 2004 and 2005 data is derived from actual figures. The 2006 data is the modeled event. The data for years 2007 through 2016 is forecasted.

The scenarios assume a county-wide effect. **Figure 72** below indicates that the Category 5 Hurricane event most significantly impacts personal income in the Region. The Region, through the $1 billion in federal infusion allocated to each of the five counties, reaches projected no event income levels within three to four years following the events for Hurricane Categories 1 and 2.

Figure 72



COMBINED PERSONAL INCOME BY COUNTY

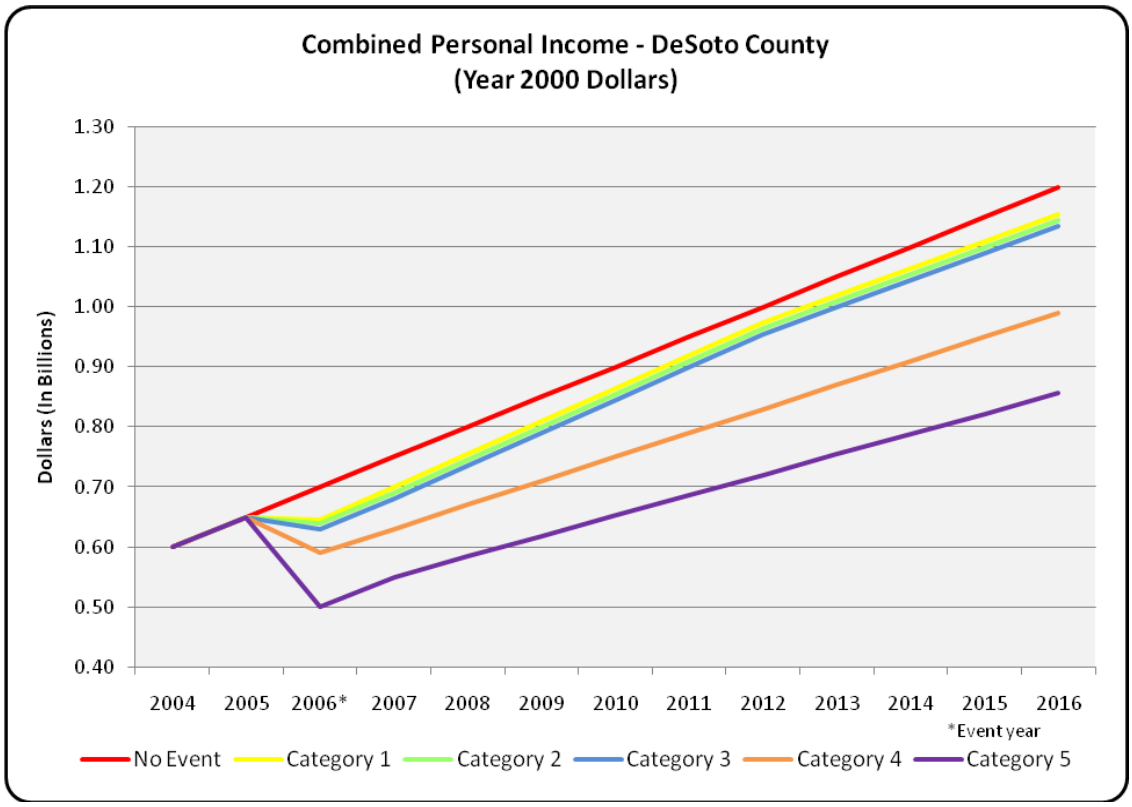
This section provides an analysis of each county's Combined Personal Income through each of the five Categories of Hurricane events. The "No Event" line represents the forecasted combined personal income without a hurricane event. The "Category" lines represent the combined personal income with a hurricane event affecting the Region.

The scenarios assume a county-wide effect. The Category 5 Hurricane event most significantly impacts the Combined Personal Income.

Desoto County

As shown in **Figure 73**, the combined personal income in DeSoto County is $690 million. A county-wide Category 5 hurricane would reduce DeSoto County's combined personal income to $490 million in the event year of 2006. It would take longer than the ten year time frame shown below for the combined personal income to recover to the projected no event level from Hurricane Categories 1 through 5.

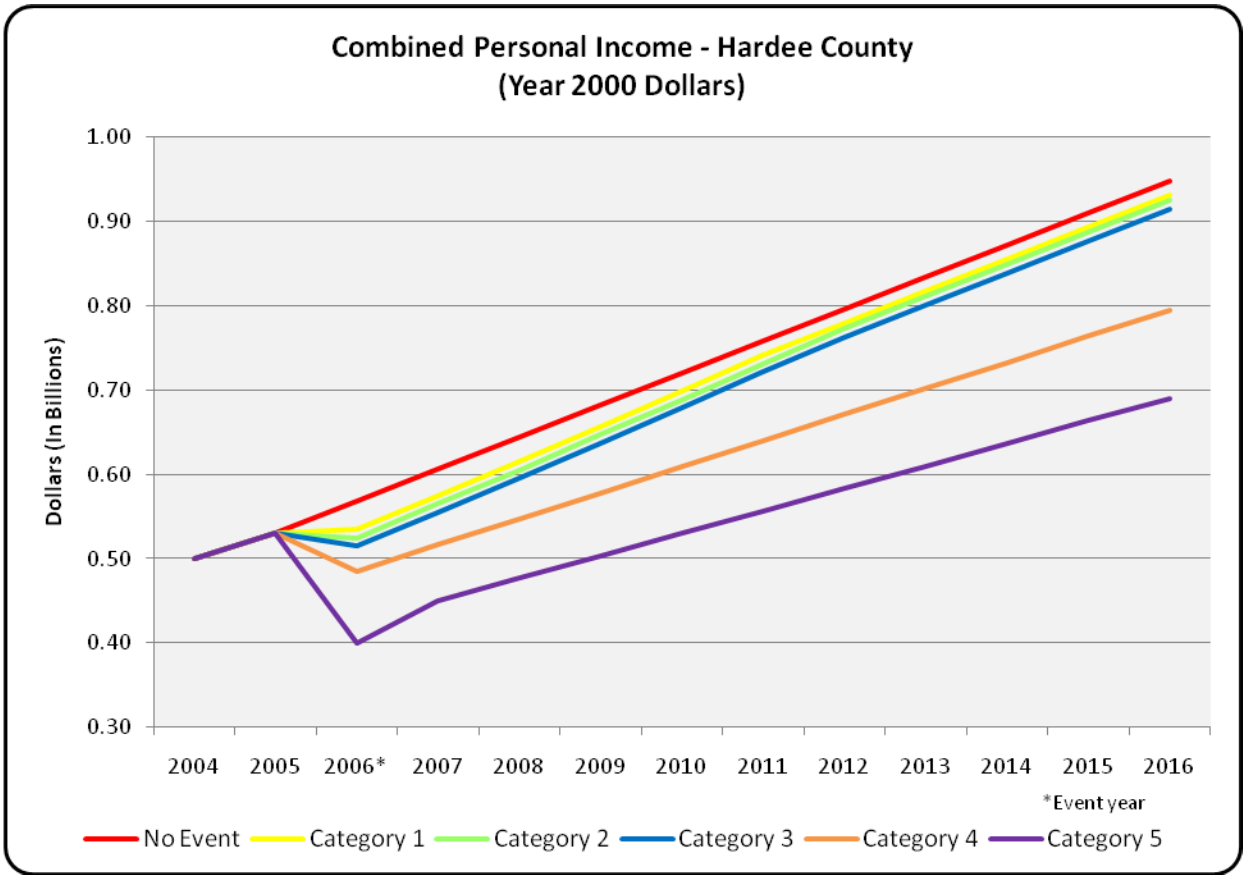
Figure 73



Hardee County

As shown in **Figure 74**, the combined personal income in Hardee County is $580 million. A county-wide Category 5 hurricane would reduce Hardee County's combined personal income to $410 million in the event year of 2006. It would take longer than the ten year time frame shown below for the combined personal income to recover to the projected no event level from Hurricane Categories 1 through 5.

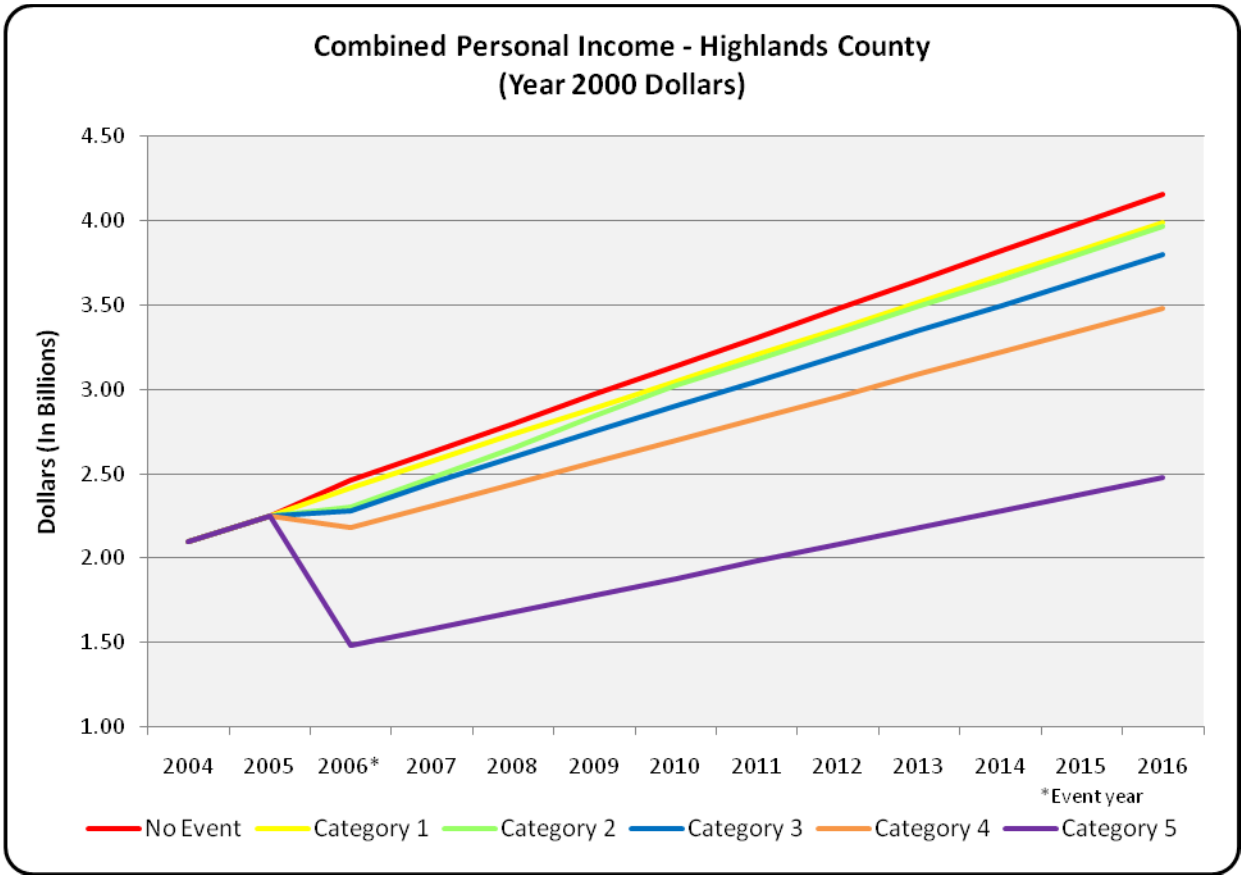
Figure 74



Highlands County

As shown in **Figure 75**, the combined personal income in Highlands County is $2.47 billion. A county-wide Category 5 hurricane would reduce Highlands County's combined personal income to $1.47 billion in the event year of 2006. It would take longer than the ten year time frame shown below for the combined personal income to recover to the projected non event level from Hurricane Categories 1 through 5.

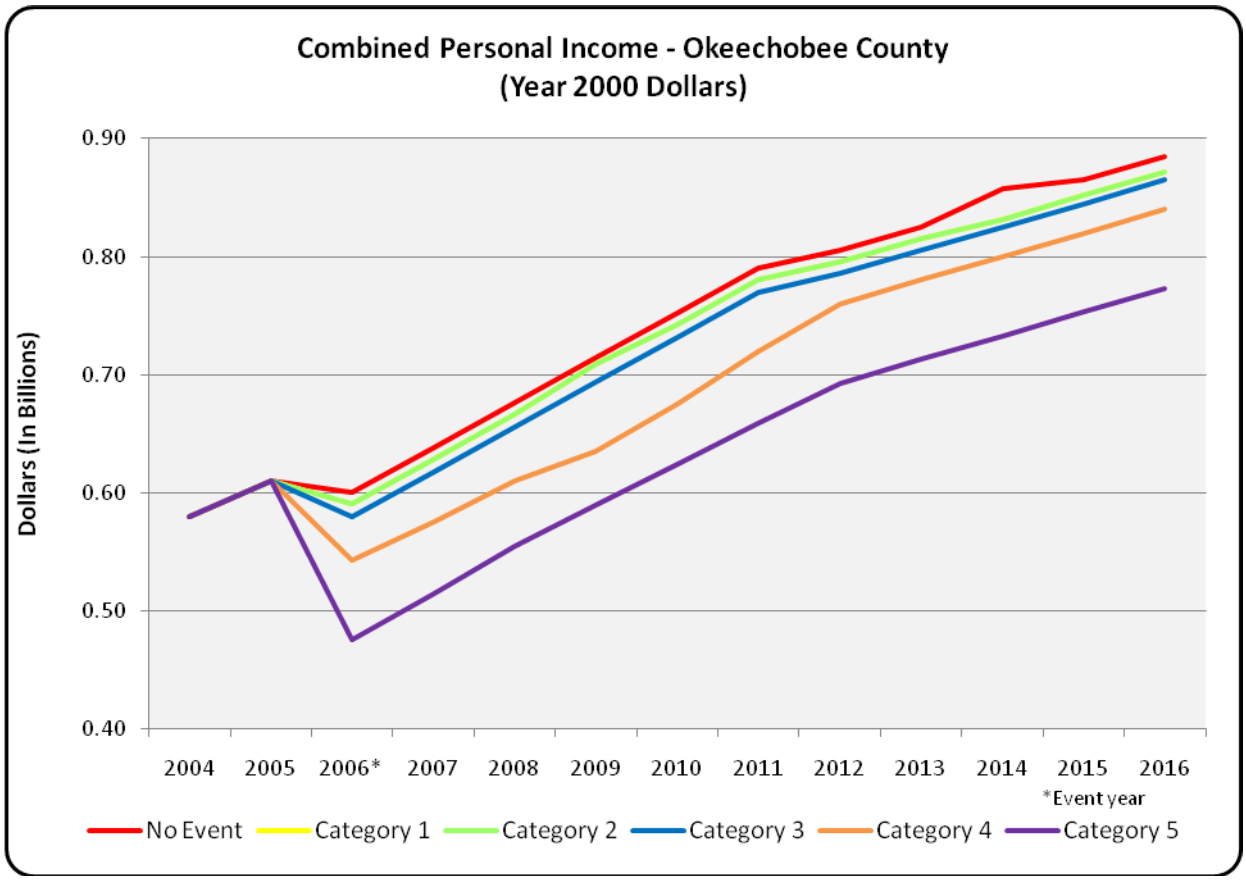
Figure 75



Okeechobee County

As shown in **Figure 76**, the combined personal income in Okeechobee County is $880 million. A county-wide Category 5 hurricane would reduce Okeechobee County's combined personal income to $430 million in the event year of 2006. It would take longer than the ten year time frame shown below for the combined personal income to recover to the projected no event level from Hurricane Categories 1 through 5.

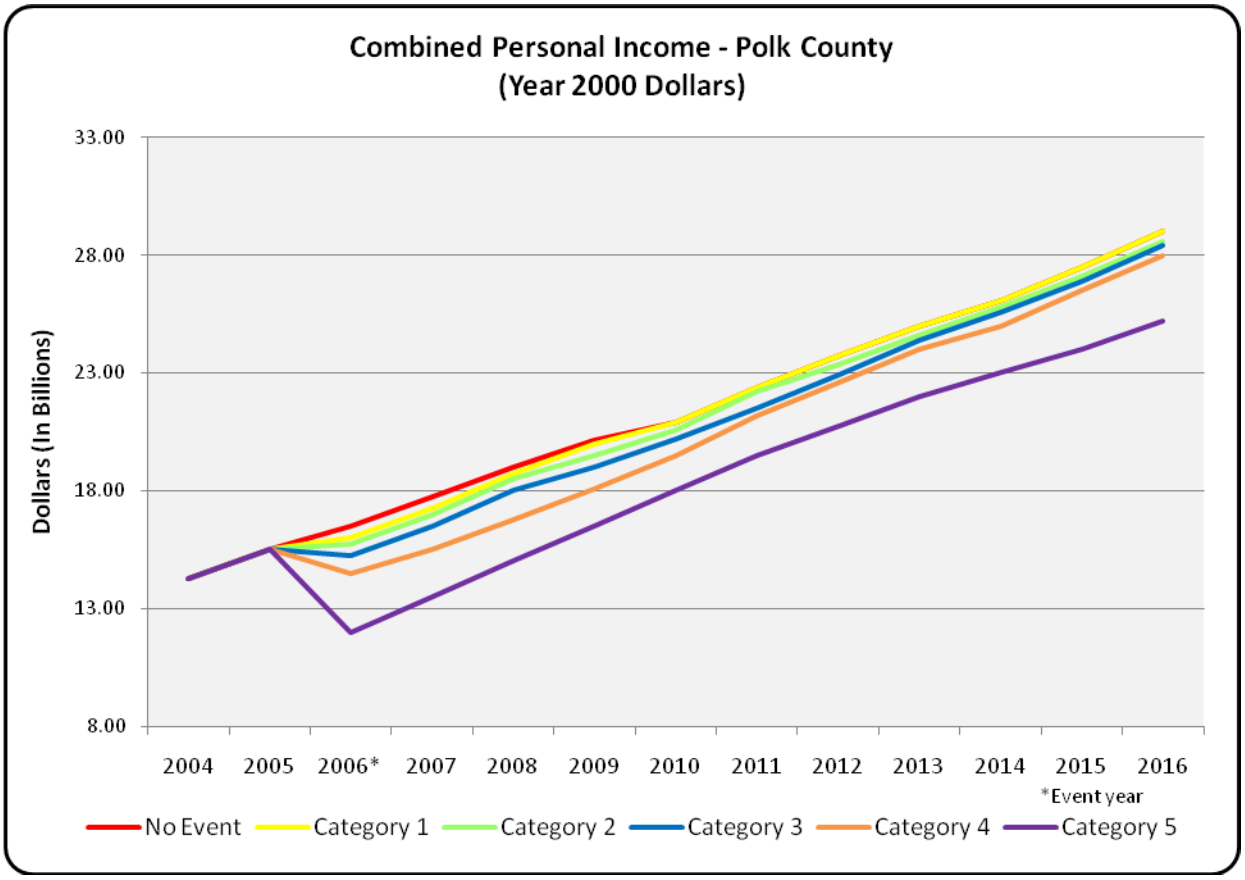
Figure 76



Polk County

As shown in **Figure 77**, the combined personal income in Polk County is $15.94 billion. A county-wide Category 5 hurricane would reduce Polk County's combined personal income to $11.55 billion in the event year of 2006. It would take longer than the ten year time frame shown below for the combined personal income to recover to the projected no event level from Hurricane Categories 3 through 5. The County recovers to projected no event levels within four to five years of a Category 1 or 2 Hurricane.

Figure 77



E. Sales Tax Revenue Impacts

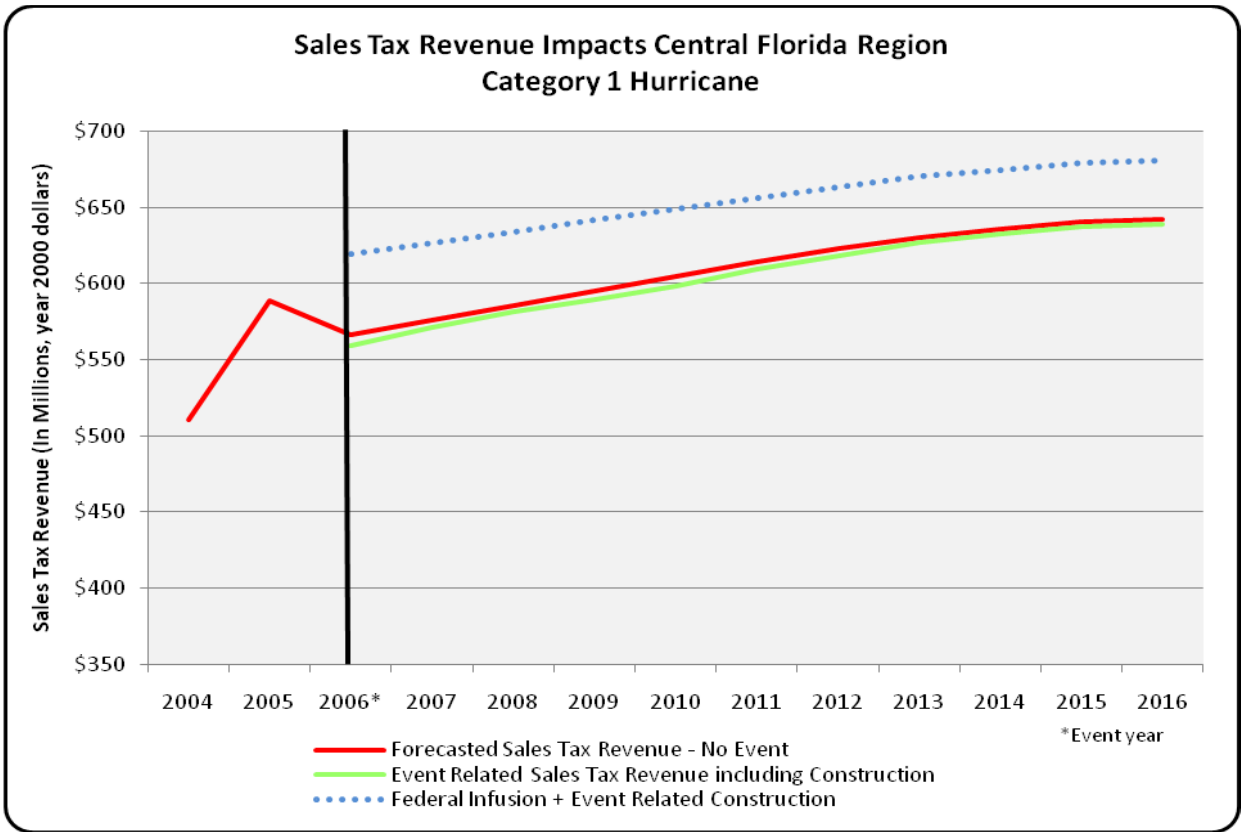
Estimated Sales Tax Revenue impacts by Category of Hurricane for the combined Central Florida Region and all of the counties are provided below.

SALES TAX REVENUE IMPACTS IN THE REGION

Central Florida Region - Category 1 Hurricane

Figure 78 depicts the impacts of a Category 1 Hurricane on projected sales tax revenue in the combined Central Florida Region. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $570 million. A Category 1 Hurricane would cause the loss of relatively little sales tax revenue.

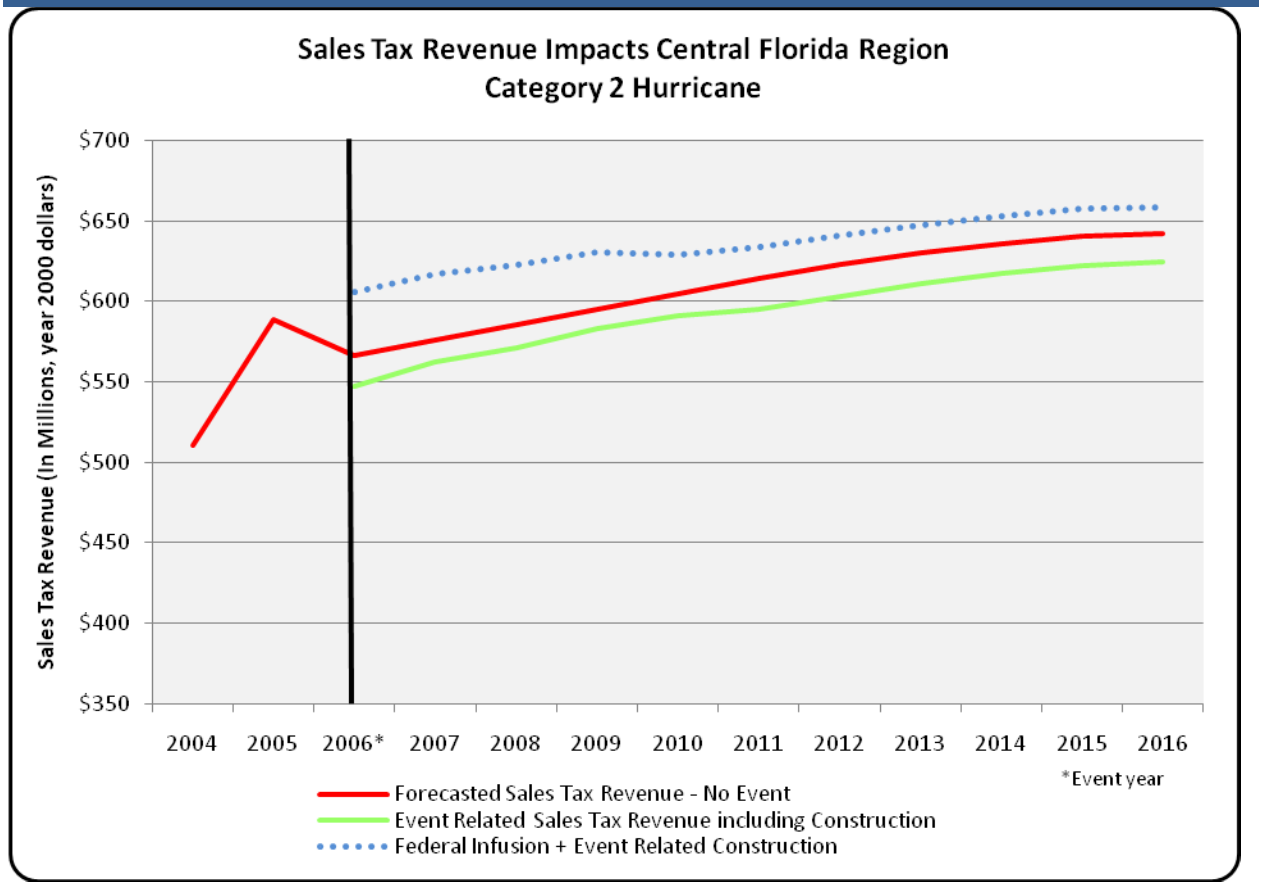
Figure 78



Central Florida Region - Category 2 Hurricane

Figure 79 depicts the impacts of a Category 2 Hurricane on projected sales tax revenue in the combined Central Florida Region. If no event were to occur, the estimated sales tax revenue in the County is estimated at approximately $570 million. A Category 2 Hurricane would result in the loss of approximately $20 million of sales tax revenue in the event year in the Region. This equates to about a one-year setback in revenues. A $1 billion federal infusion would be unlikely given the projected impact to regional sales tax revenue. The impact of the construction and cleanup jobs is apparent in the small "bump" in the first three years of the recovery projections.

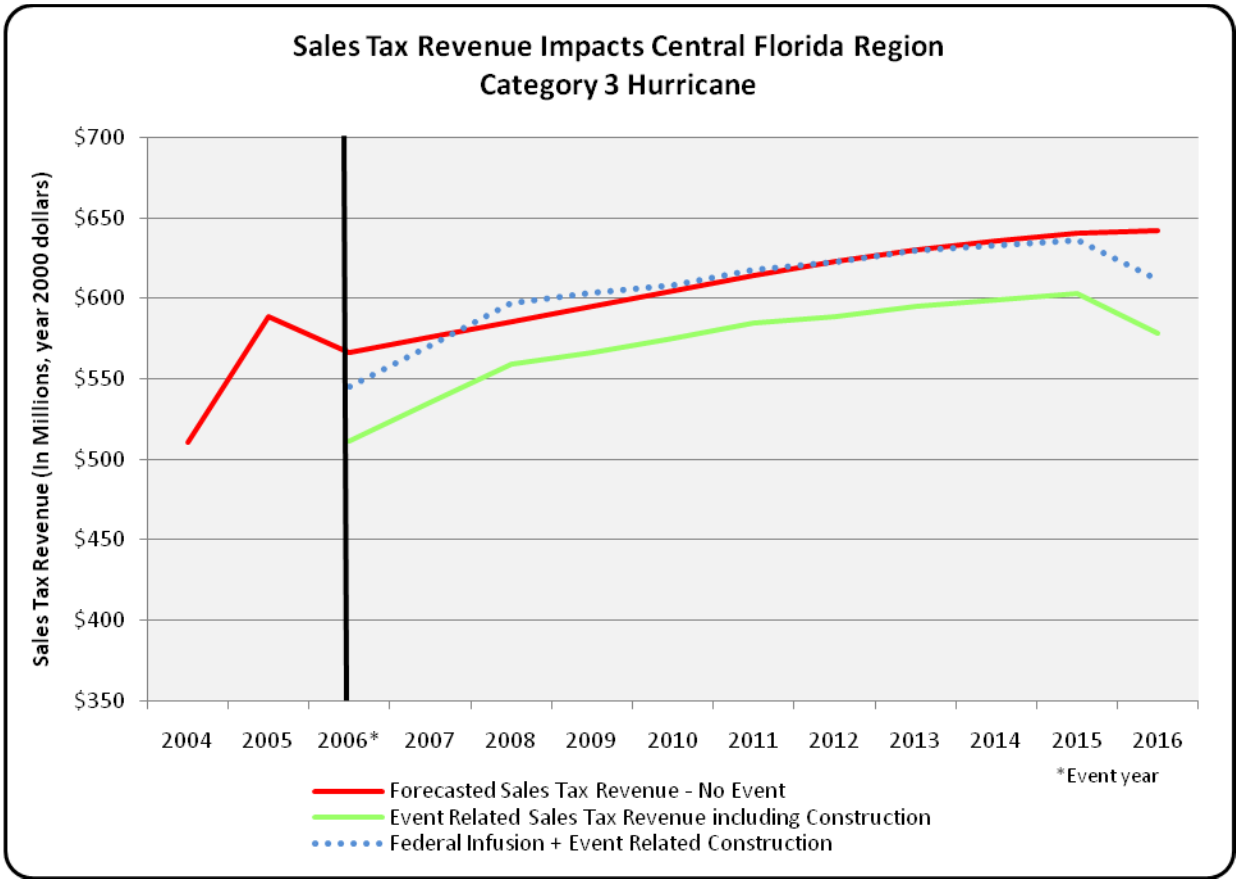
Figure 79



Central Florida Region - Category 3 Hurricane

Figure 80 depicts the impacts of a Category 3 Hurricane on projected sales tax revenue in the combined Central Florida Region. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $570 million. A Category 3 Hurricane would result in the loss approximately $60 million in the event year. Temporary new construction and cleanup jobs would increase the sales tax revenue in the first three years, but the Region would still need approximately four years to return to pre-event sales tax revenue levels. At present, it is unclear what factors cause the sudden dip in event-related sales tax revenues from the year 2015 to 2016. A federal infusion of $1 billion would be extremely beneficial, as it would return the Region to pre-hurricane sales tax revenue levels within one year of the event. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first three years as a slightly different slope than the No Event scenario.

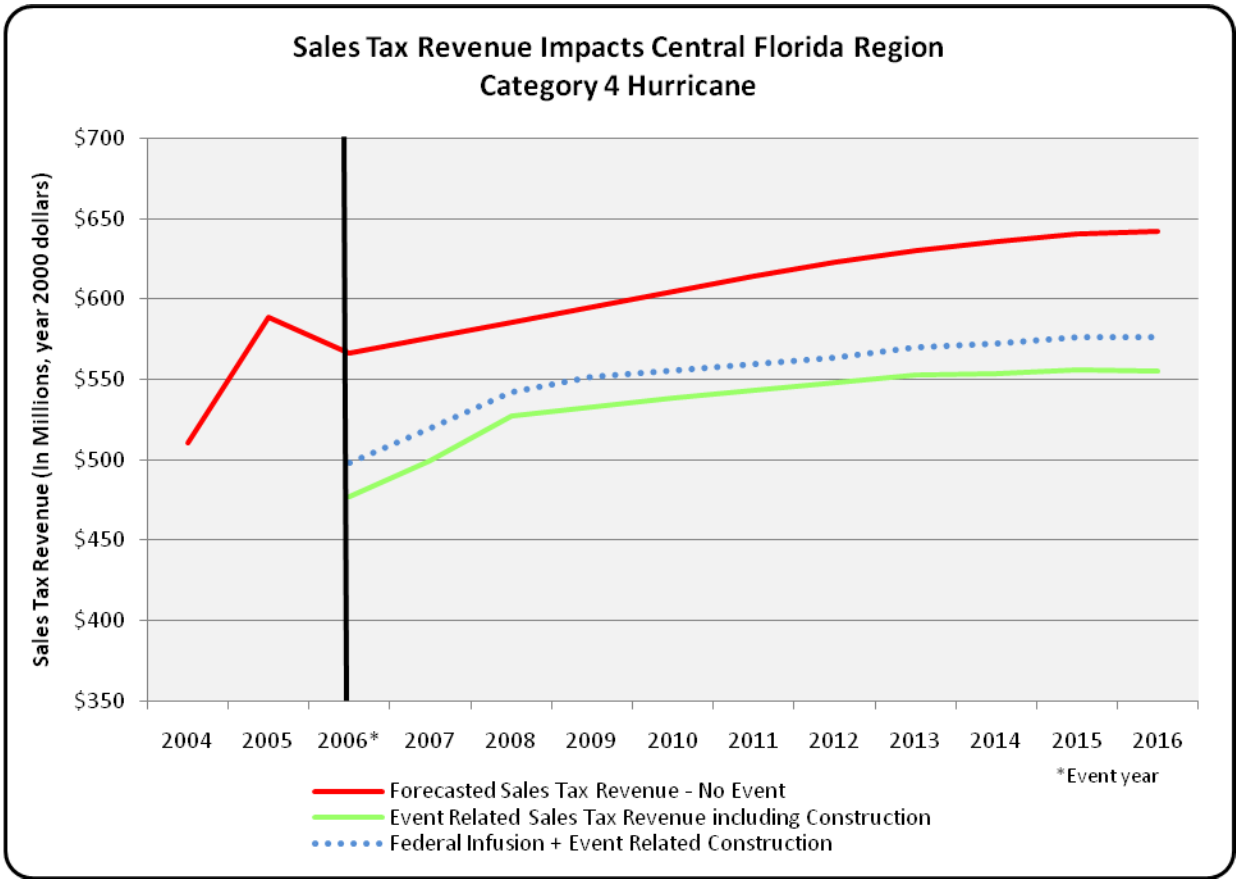
Figure 80



Central Florida Region - Category 4 Hurricane

Figure 81 depicts the impacts of a Category 4 Hurricane on projected sales tax revenue in the combined Central Florida Region. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $570 million. A Category 4 Hurricane would result in the loss of approximately $100 million in the event year in the Region. A federal infusion of $1 billion would help recover sales tax revenue to pre-event levels in about six years. Otherwise, sales tax revenue would not recover within the forecasted 10-year period. A hurricane of this magnitude might permanently disrupt the economic trajectory of the Region; however that is somewhat unlikely given the assumptions built into the model. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first four years as a slightly different slope than the No Event scenario.

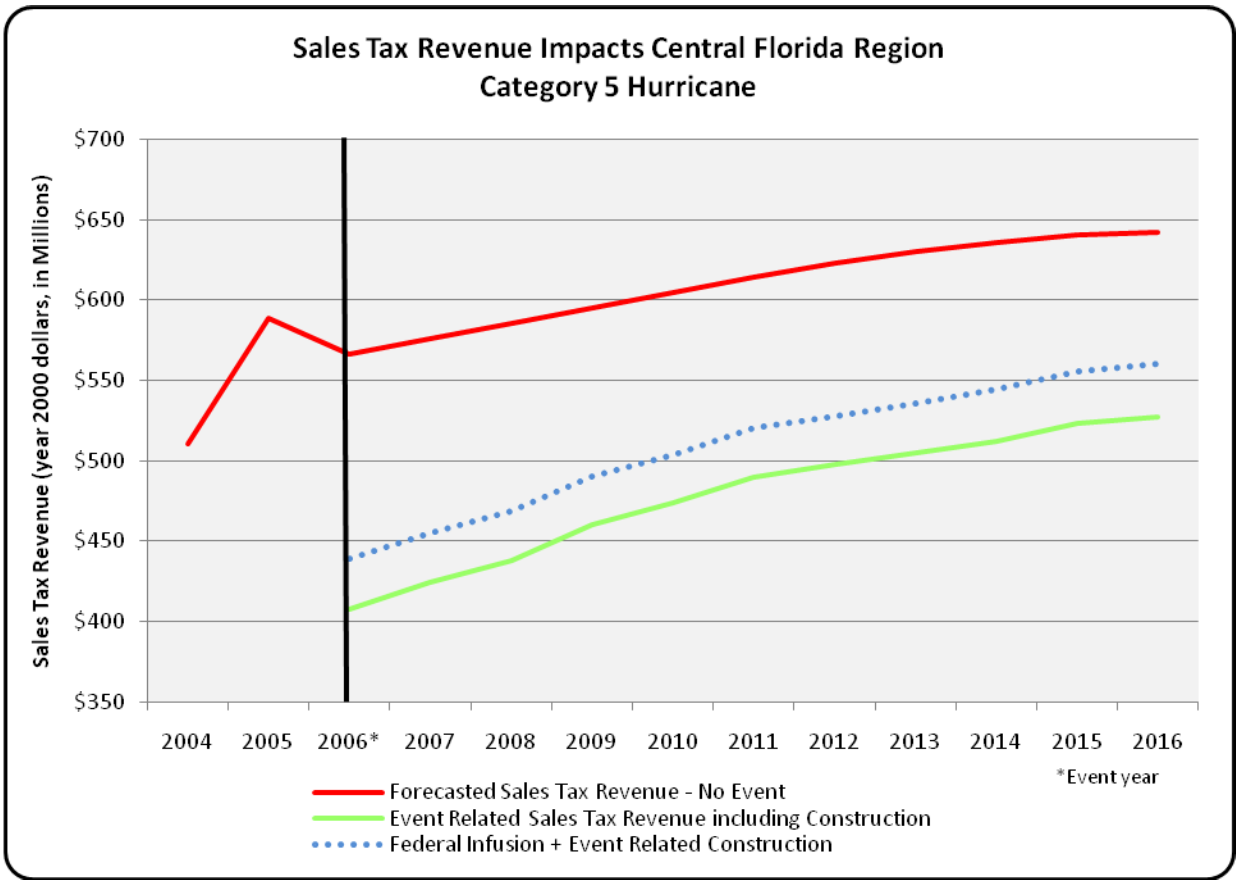
Figure 81



Central Florida Region - Category 5 Hurricane

Figure 82 depicts the impacts of a Category 5 Hurricane on the combined Central Florida Region. If no event were to occur, the estimated sales tax revenue in the County is estimated at approximately $570 million. A Category 5 Hurricane would result in the loss of approximately $150 million in sales tax revenue in the event year, and would not return to pre-event levels for greater than 10 years, even with a $1 billion federal infusion. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first five years as a slightly different slope than the No Event scenario. A Category 5 Hurricane would create an extreme loss in sales tax revenue that would affect Regional revenue for a very long time. However, the chance of a Category 5 Hurricane equally impacting the entire region in the manner projected in this model is fairly unlikely.

Figure 82

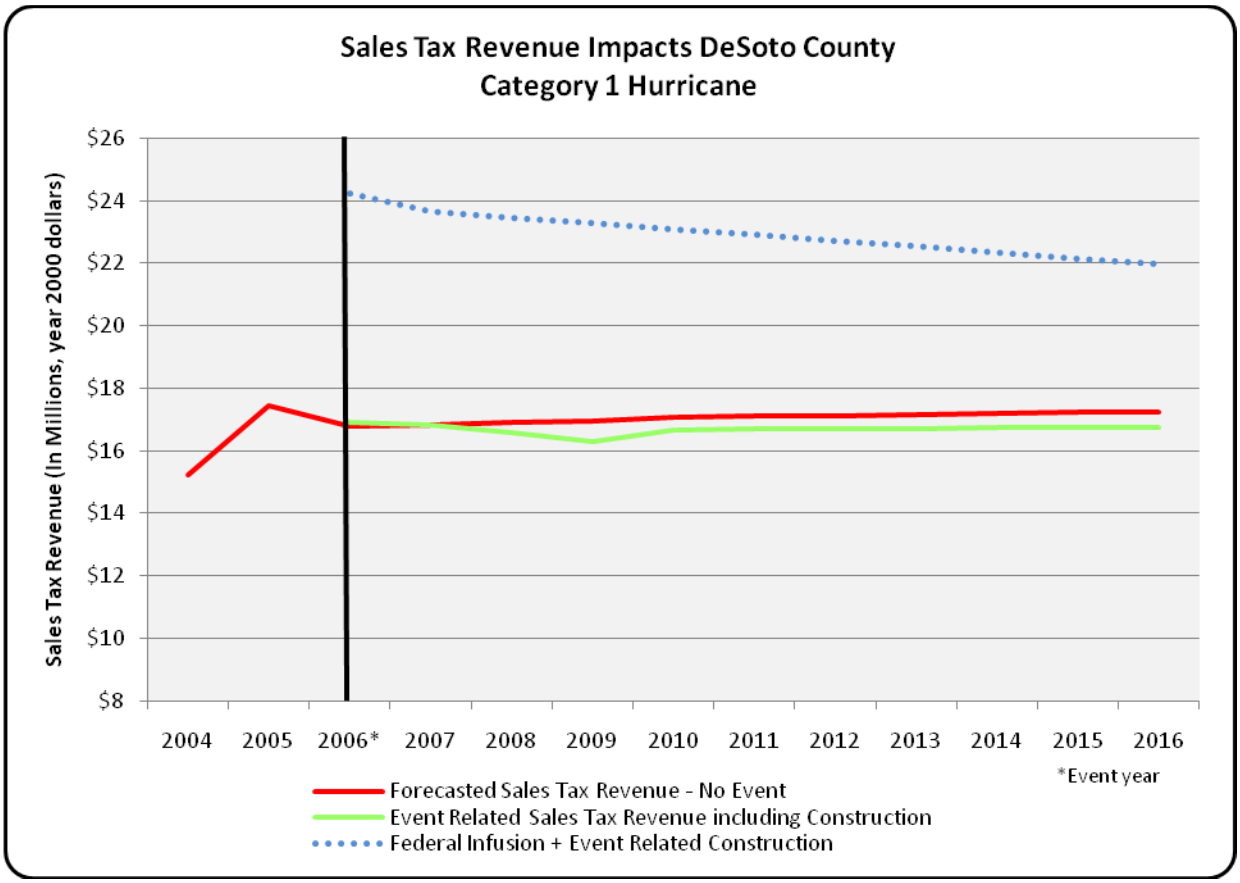


DESOTO COUNTY SALES TAX REVENUE

DeSoto County - Category 1 Hurricane

Figure 83 depicts the impacts of a Category 1 Hurricane on projected sales tax revenue in DeSoto County. If no event were to occur, the estimated sales tax revenue in the County is projected at approximately $17 million. Sales tax revenue losses associated with a Category 1 Hurricane would tend to be offset by associated increases due to event-related construction and cleanup efforts. However, by 2016, the County would still not have regained approximately $500,000 compared to the No Event projection. A federal infusion of $1 billion in aid would be unlikely given the projected impact on local sales tax revenue.

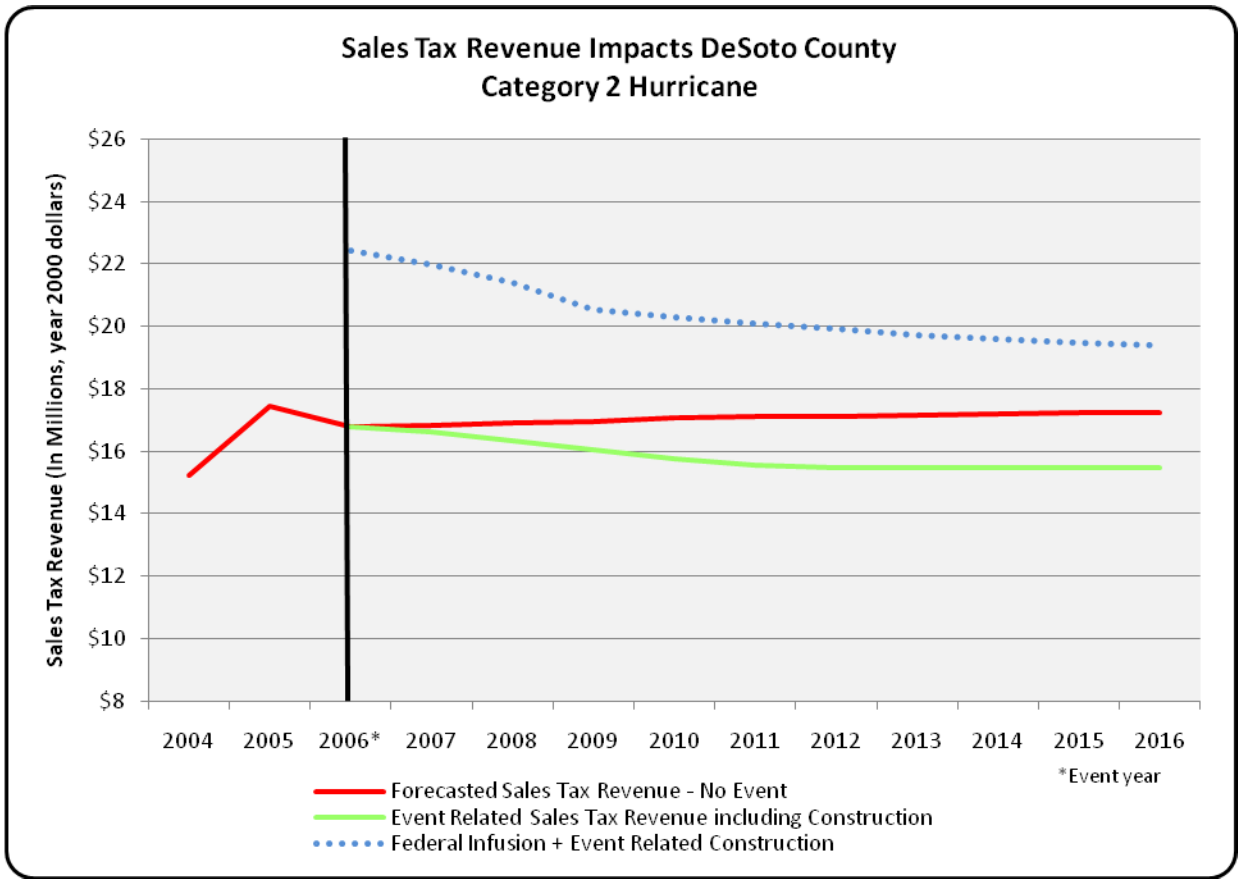
Figure 83



DeSoto County - Category 2 Hurricane

Figure 84 depicts the impacts of a Category 2 Hurricane on projected sales tax revenue in DeSoto County. If no event were to occur, the estimated sales tax revenue in the County is projected at approximately $17 million. Sales tax revenue losses associated with a Category 2 Hurricane would tend to be initially offset by associated increases due to event-related construction and cleanup efforts. However, by 2016, the County would still not have regained approximately $2 million compared to the No Event projection. A federal infusion of $1 billion in aid would be unlikely given the projected initial impact on local sales tax revenue.

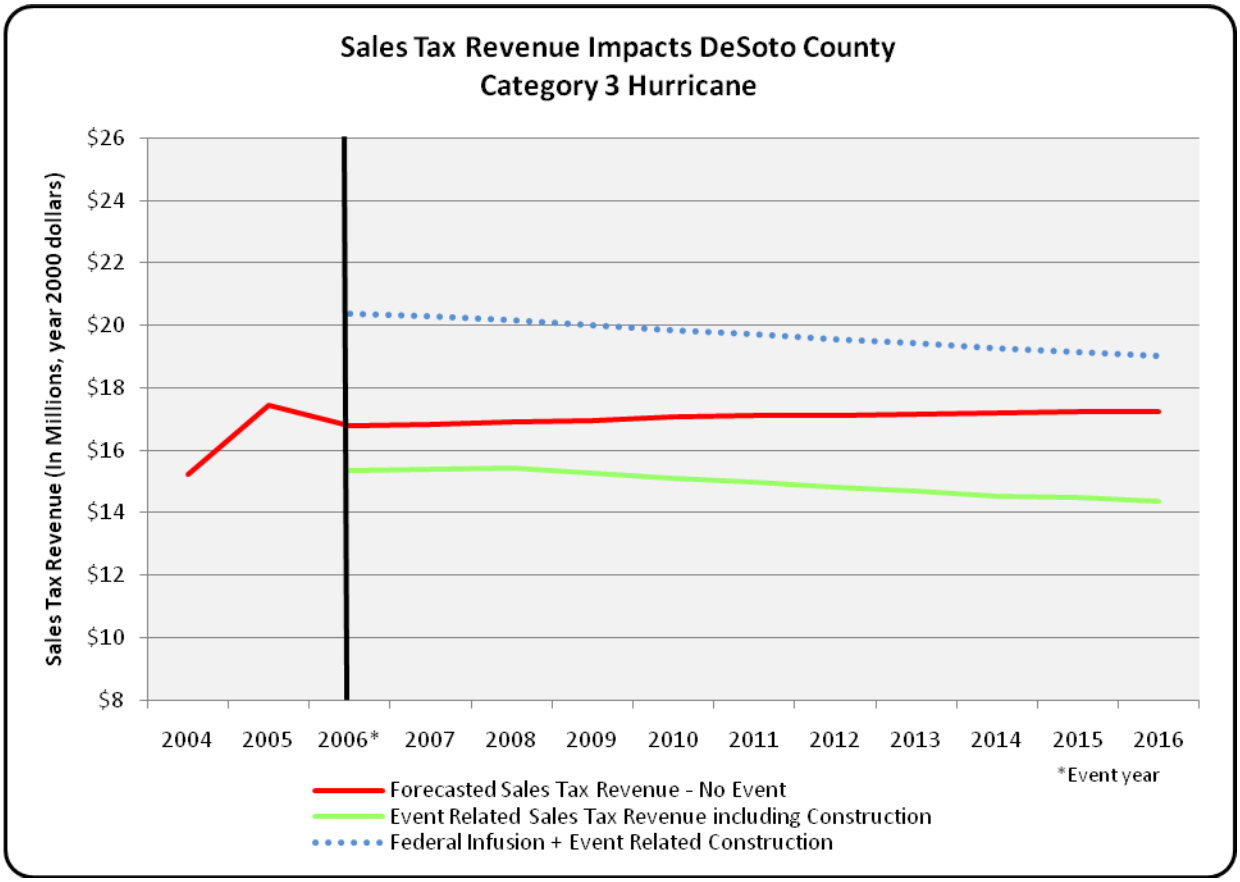
Figure 84



DeSoto County - Category 3 Hurricane

Figure 85 depicts the impacts of a Category 3 Hurricane on projected sales tax revenue in the DeSoto County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $17 million. A Category 3 Hurricane would result in the loss approximately $2 million in the event year. This magnitude storm is projected to have a long-lasting impact on sales tax revenue in this county. Temporary new construction and cleanup jobs would increase the sales tax revenue slightly in the first three years. A federal infusion of $1 billion in aid would be unlikely given that it seems to overcompensate for the projected initial impact on local sales tax revenue. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first two years as a slightly different slope than the No Event scenario.

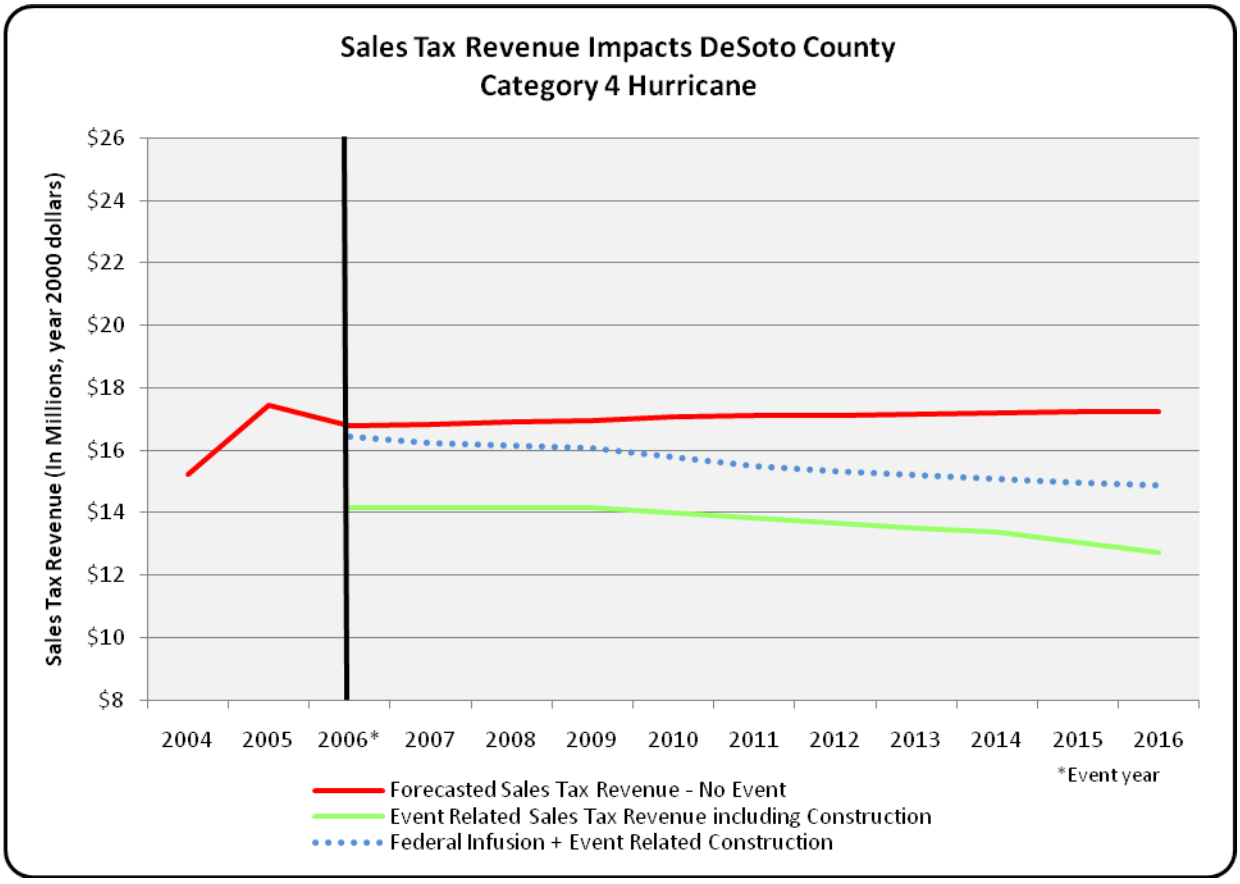
Figure 85



DeSoto County - Category 4 Hurricane

Figure 86 depicts the impacts of a Category 4 Hurricane on projected sales tax revenue in DeSoto County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $17 million. A Category 4 Hurricane would result in the initial loss of approximately $3 million in the event year. A federal infusion of $1 billion would provide initial relief. Sales tax revenue would not recover within the forecasted 10-year period. A hurricane of this magnitude might permanently disrupt the economic trajectory of the County; however that is somewhat unlikely given the assumptions built into the model. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first three years as a slightly different slope than the No Event scenario.

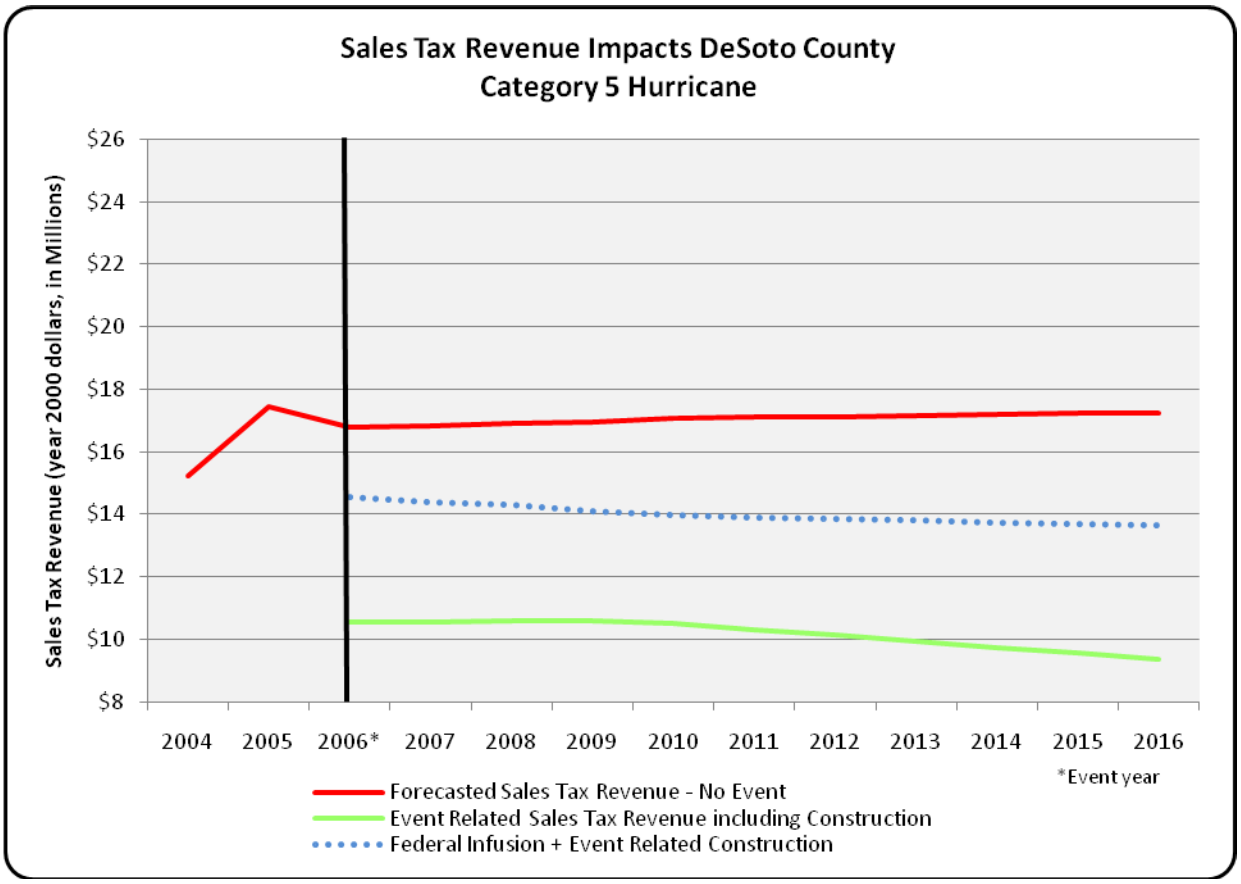
Figure 86



DeSoto County - Category 5 Hurricane

Figure 87 depicts the impacts of a Category 5 Hurricane on projected sales tax revenue in DeSoto County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $17 million. A Category 4 Hurricane would result in the initial loss of approximately $6.5 million in the event year. A federal infusion of $1 billion would provide some initial relief, but would fail to recover local sales tax revenue within the ten year forecast period. A hurricane of this magnitude might permanently disrupt the economic trajectory of the County; however that is somewhat unlikely given the assumptions built into the model. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first four years as a slightly different slope than the No Event scenario.

Figure 87

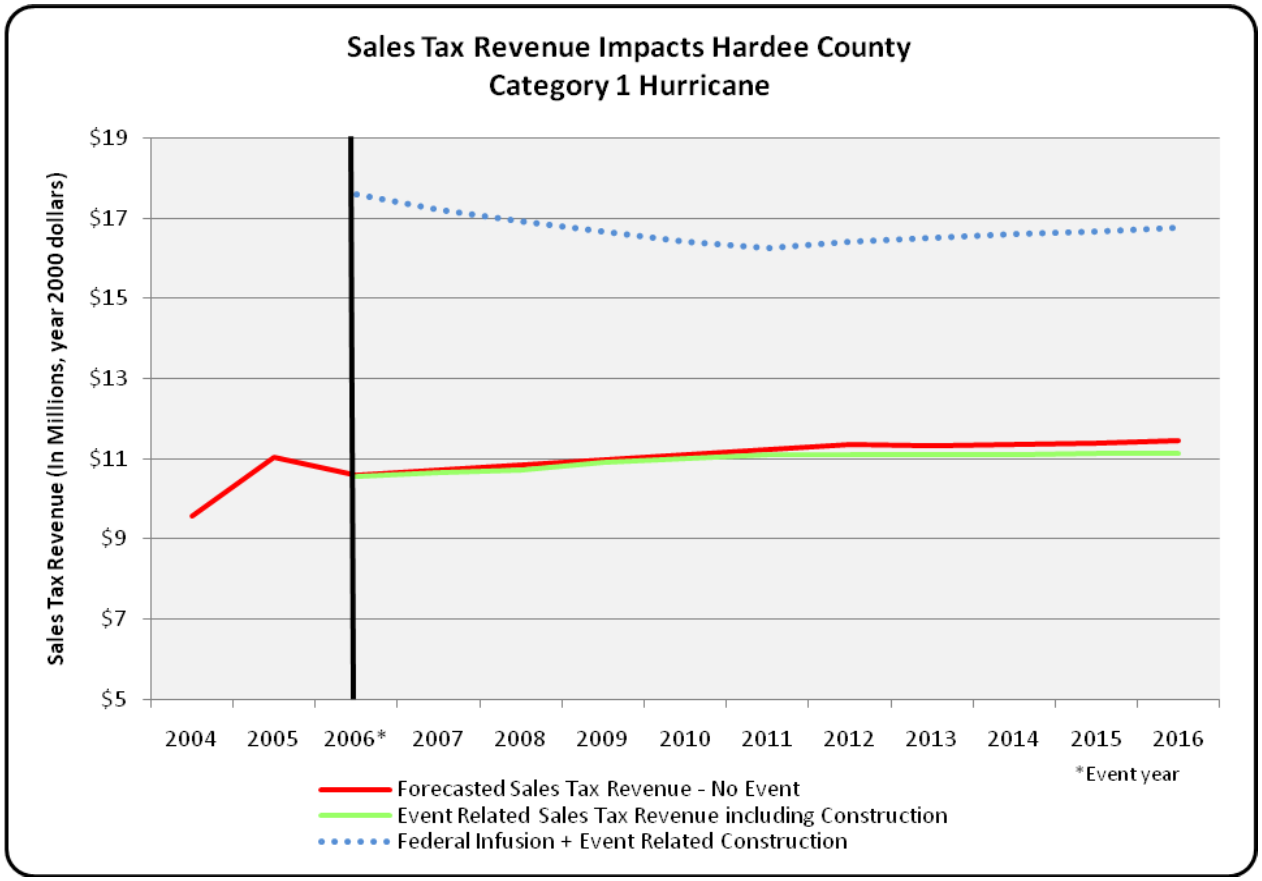


HARDEE COUNTY SALES TAX REVENUE

Hardee County - Category 1 Hurricane

Figure 88 depicts the impacts of a Category 1 Hurricane on projected sales tax revenue in Hardee County. If no event were to occur, the estimated sales tax revenue in the County is projected at approximately $10.5 million. Sales tax revenue losses associated with a Category 1 Hurricane would tend to be offset by associated increases due to event-related construction and cleanup efforts. However, by 2016, the County would still not have regained approximately $250,000 compared to the No Event projection. A federal infusion of $1 billion in aid would be unlikely given the projected impact on local sales tax revenue.

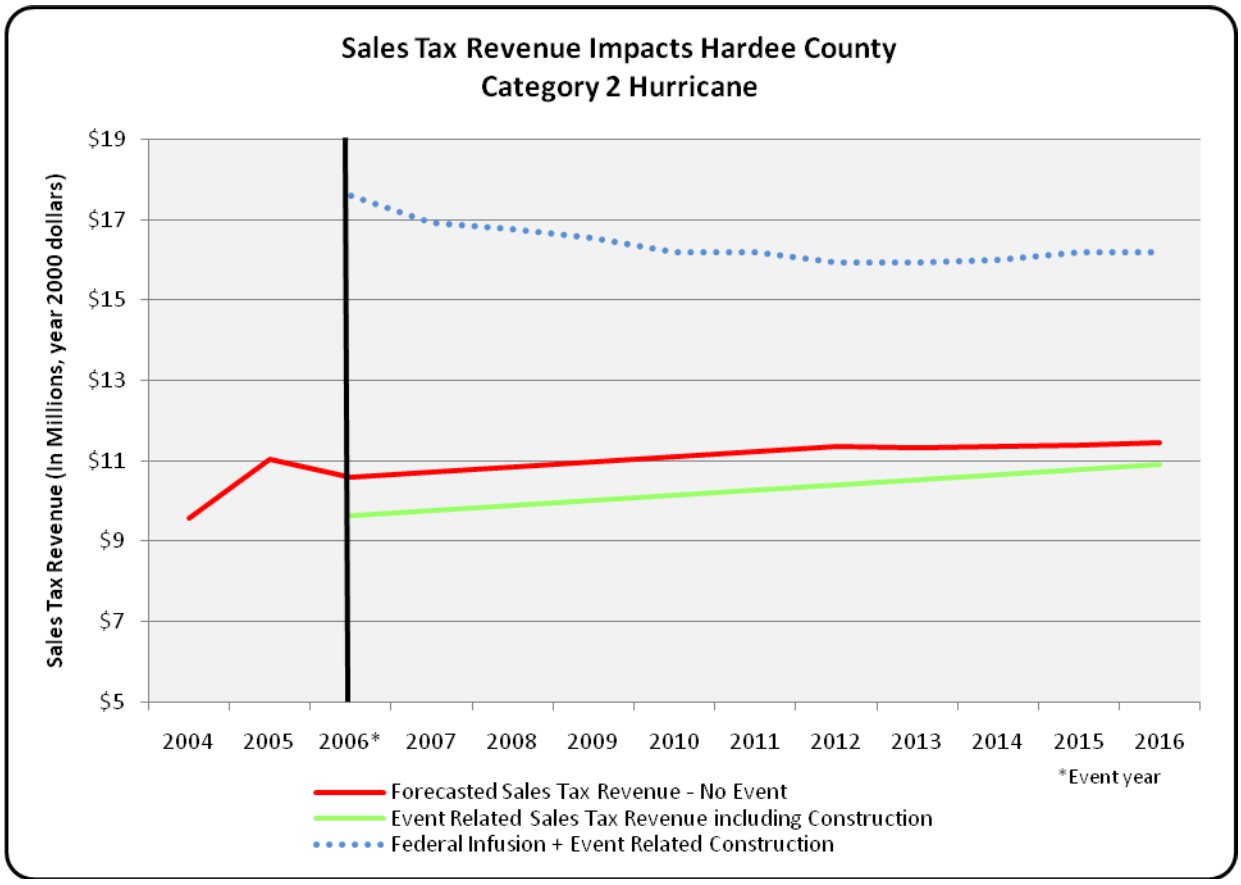
Figure 88



Hardee County - Category 2 Hurricane

Figure 89 depicts the impacts of a Category 2 Hurricane on projected sales tax revenue in Hardee County. If no event were to occur, the estimated sales tax revenue in the County is projected at approximately $10.5 million. A Category 3 Hurricane would result in the loss approximately $1 million in the event year, and by 2016, the County would still not have regained approximately $500,000 compared to the No Event projection. A federal infusion of $1 billion in aid would be unlikely given the projected impact on local sales tax revenue.

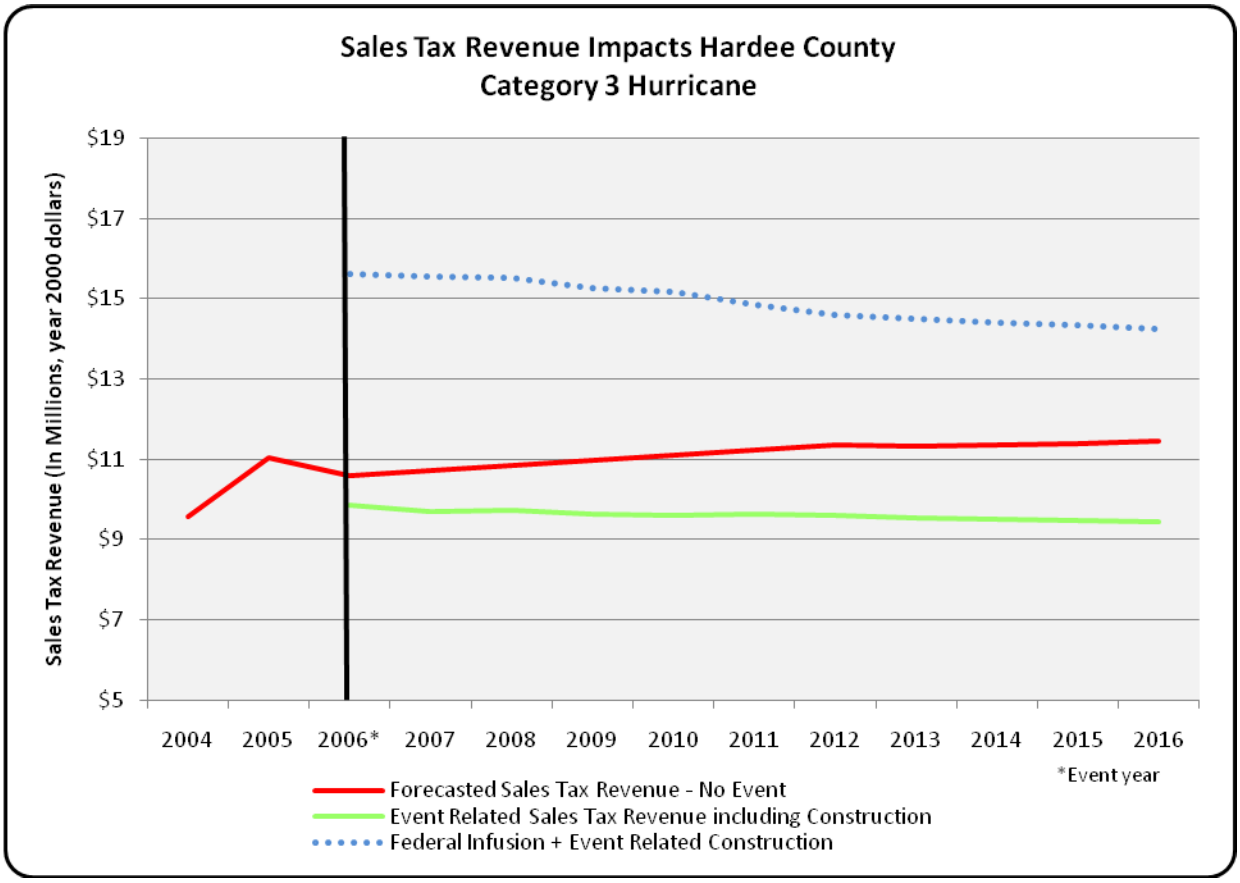
Figure 89



Hardee County - Category 3 Hurricane

Figure 90 depicts the impacts of a Category 3 Hurricane on projected sales tax revenue in the Hardee County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $10.5 million. A Category 3 Hurricane would result in the loss approximately $1 million in the event year. This magnitude storm is projected to have a long-lasting impact on sales tax revenue in this county, by creating an alternate economic trajectory. A federal infusion of $1 billion in aid would be unlikely given that it seems to overcompensate for the projected initial impact on local sales tax revenue. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first two years as a slightly different slope than the No Event scenario.

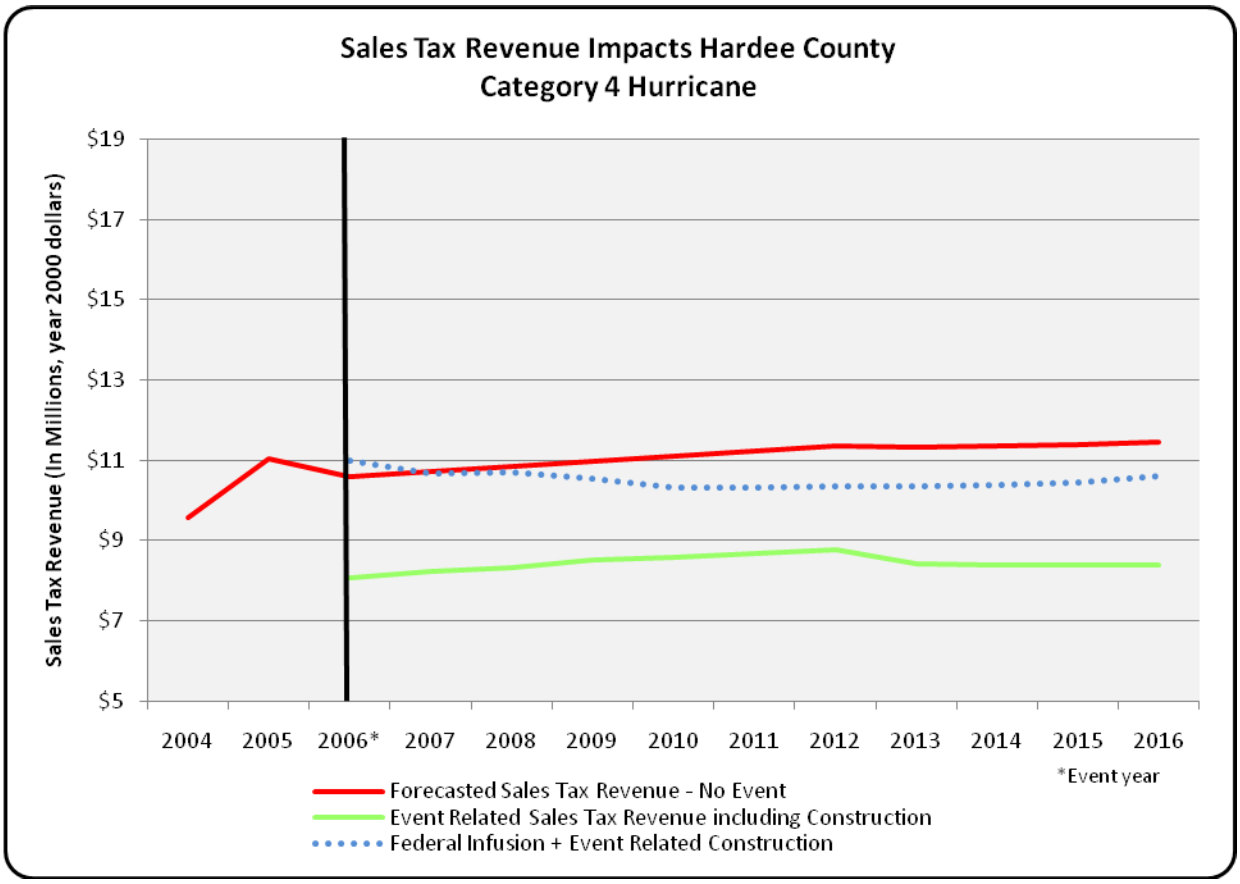
Figure 90



Hardee County - Category 4 Hurricane

Figure 91 depicts the impacts of a Category 4 Hurricane on projected sales tax revenue in Hardee County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $10.5 million. A Category 4 Hurricane would result in the initial loss of approximately $3.5 million in the event year. A federal infusion of $1 billion would provide initial relief. Sales tax revenue would not recover within the forecasted 10-year period, with a final projected deficit of approximately equal to the initial event-related decrease. A hurricane of this magnitude might permanently disrupt the economic trajectory of the County; however that is somewhat unlikely given the assumptions built into the model. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first three years as a slightly different slope than the No Event scenario.

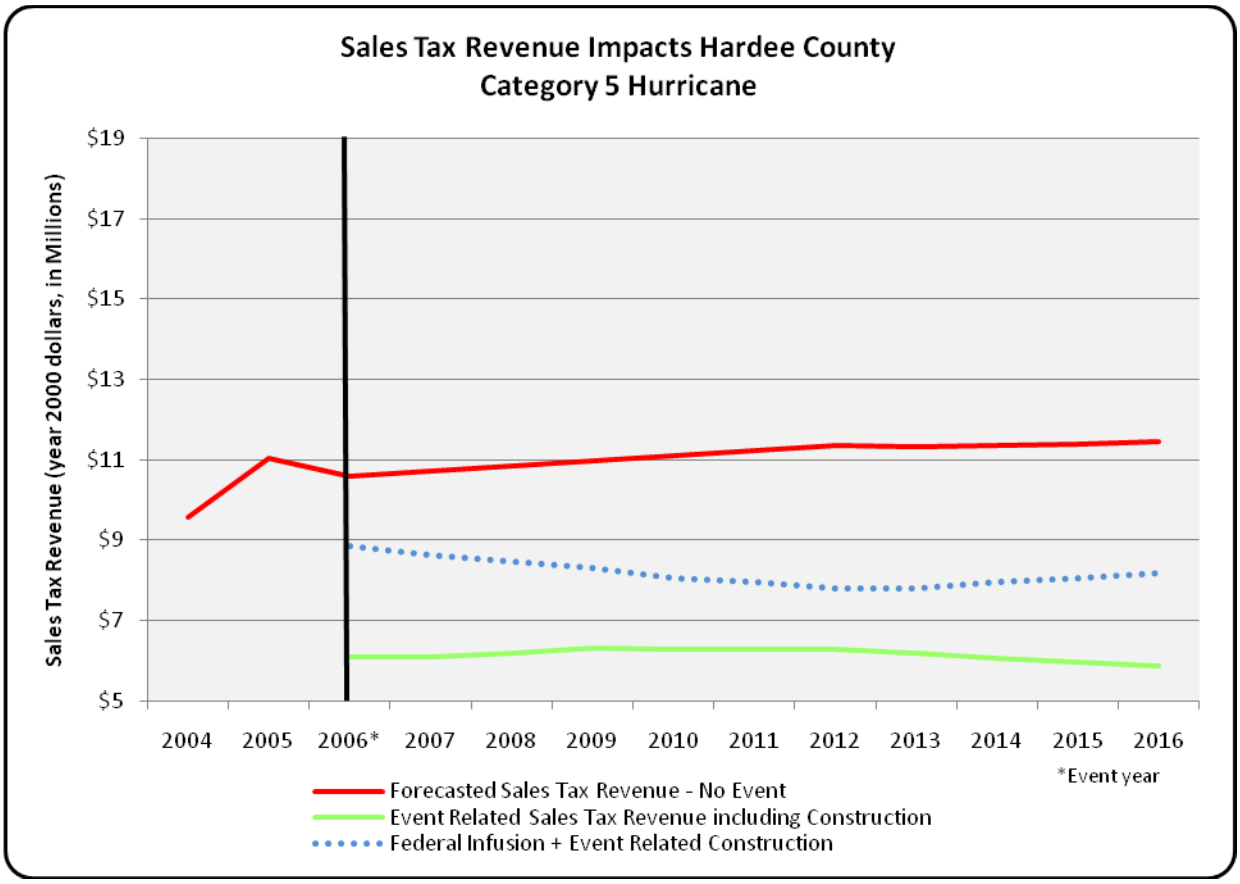
Figure 91



Hardee County - Category 5 Hurricane

Figure 92 depicts the impacts of a Category 5 Hurricane on projected sales tax revenue in Hardee County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $10.5 million. A Category 4 Hurricane would result in the initial loss of approximately $4.5 million in the event year. A federal infusion of $1 billion would provide some initial relief, but would fail to recover local sales tax revenue within the ten year forecast period. A hurricane of this magnitude might permanently disrupt the economic trajectory of the County; however that is somewhat unlikely given the assumptions built into the model. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first four years as a slightly different slope than the No Event scenario.

Figure 92

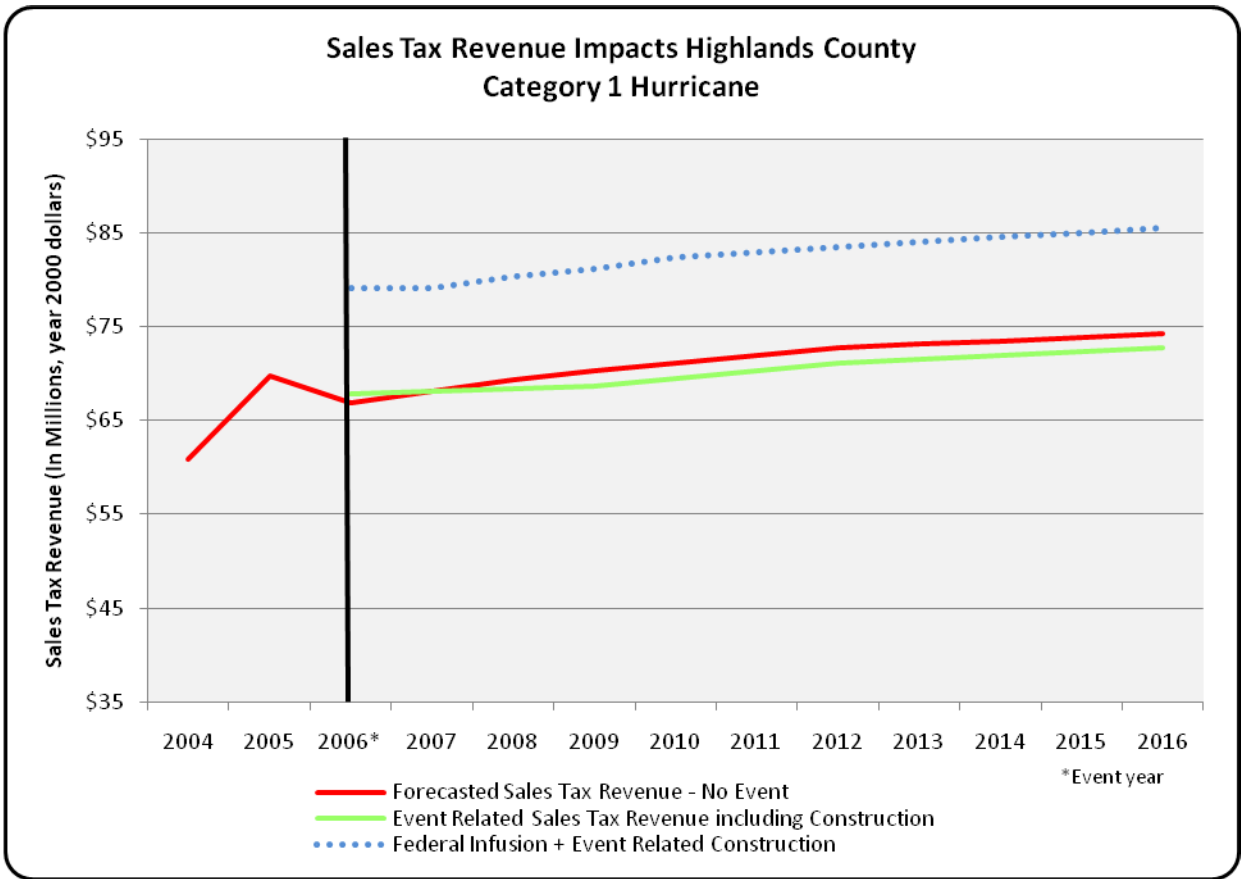


HIGHLANDS COUNTY SALES TAX REVENUE

Highlands County - Category 1 Hurricane

Figure 93 depicts the impacts of a Category 1 Hurricane on projected sales tax revenue in Highlands County. If no event were to occur, the estimated sales tax revenue in the County is projected at approximately $67 million. Sales tax revenue losses associated with a Category 1 Hurricane are projected to be offset by associated increases due to event-related construction and cleanup efforts. However, by 2016 the County would still not have regained approximately $500,000 compared to the No Event projection. A federal infusion of $1 billion in aid would be unlikely given the projected impact on local sales tax revenue.

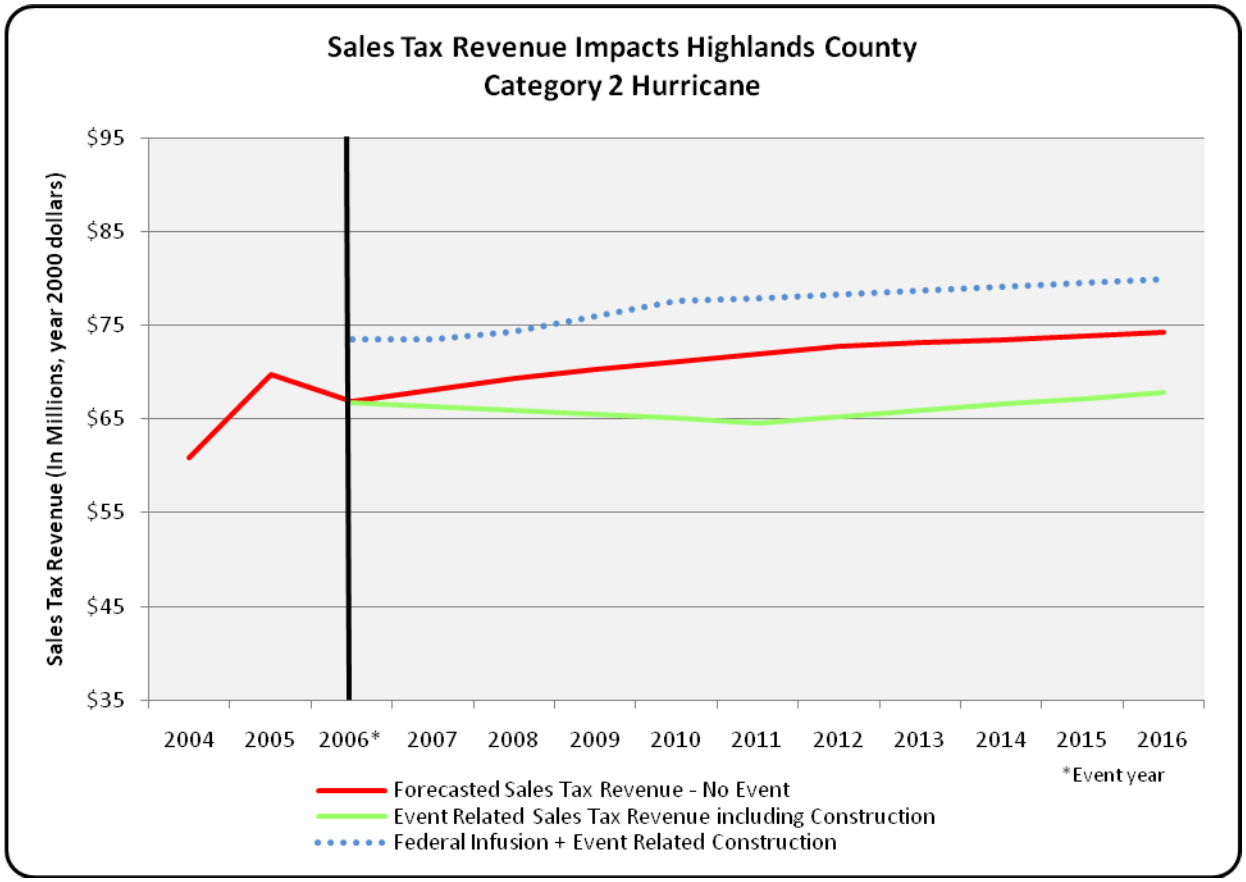
Figure 93



Highlands County - Category 2 Hurricane

Figure 94 depicts the impacts of a Category 2 Hurricane on projected sales tax revenue in Highlands County. If no event were to occur, the estimated sales tax revenue in the County is projected at approximately $67 million. Sales tax revenue losses associated with a Category 2 Hurricane would tend to be initially offset by associated increases due to event-related construction and cleanup efforts. However, by 2016 the County would still not have regained approximately $12 million compared to the No Event projection. A federal infusion of $1 billion in aid would be unlikely given the projected impact on local sales tax revenue.

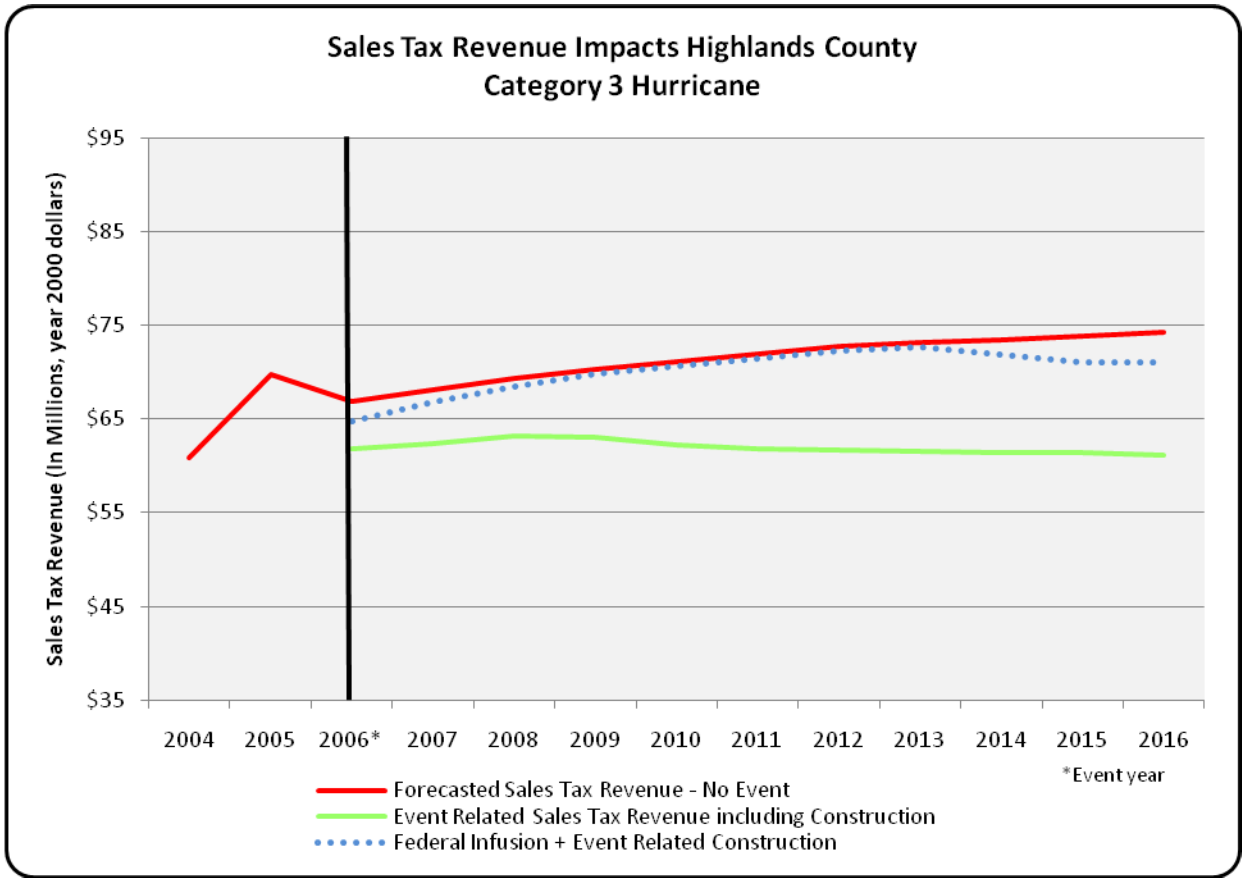
Figure 94



Highlands County - Category 3 Hurricane

Figure 95 depicts the impacts of a Category 3 Hurricane on projected sales tax revenue in the Highlands County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $67 million. A Category 3 Hurricane would result in the loss approximately $10 million in the event year. This magnitude storm is projected to have a long-lasting impact on sales tax revenue in this county. Temporary new construction and cleanup jobs would bolster the sales tax revenue slightly in the first three years. A federal infusion of $1 billion in aid would be enough to put the County back in line with projected No Event forecasts. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first two years as a slightly different slope than the No Event scenario.

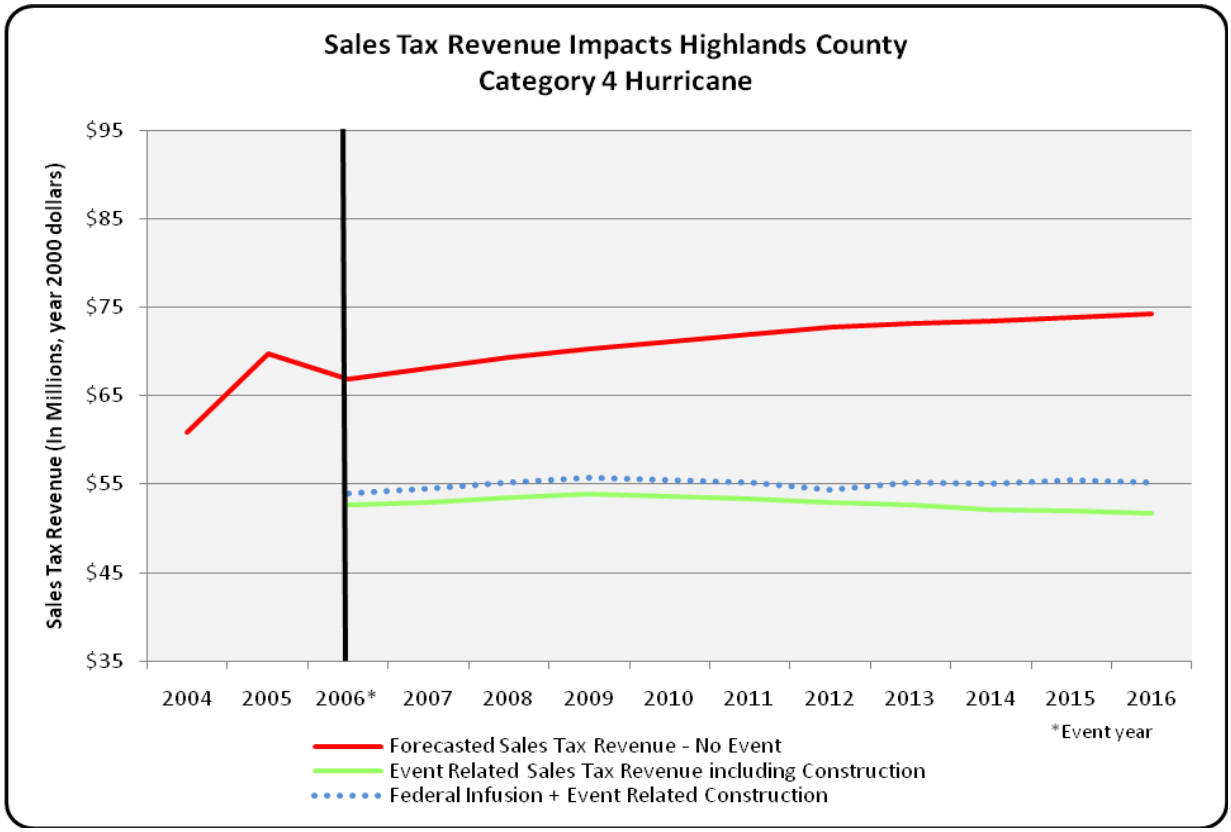
Figure 95



Highlands County - Category 4 Hurricane

Figure 96 depicts the impacts of a Category 4 Hurricane on projected sales tax revenue in Highlands County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $67 million. A Category 4 Hurricane would result in the initial loss of approximately $15 million in the event year. A federal infusion of $1 billion would provide little to no relief. Sales tax revenue would not recover within the forecasted 10-year period. A hurricane of this magnitude might permanently disrupt the economic trajectory of the County; however that is somewhat unlikely given the assumptions built into the model. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first three years as a slightly different slope than the No Event scenario.

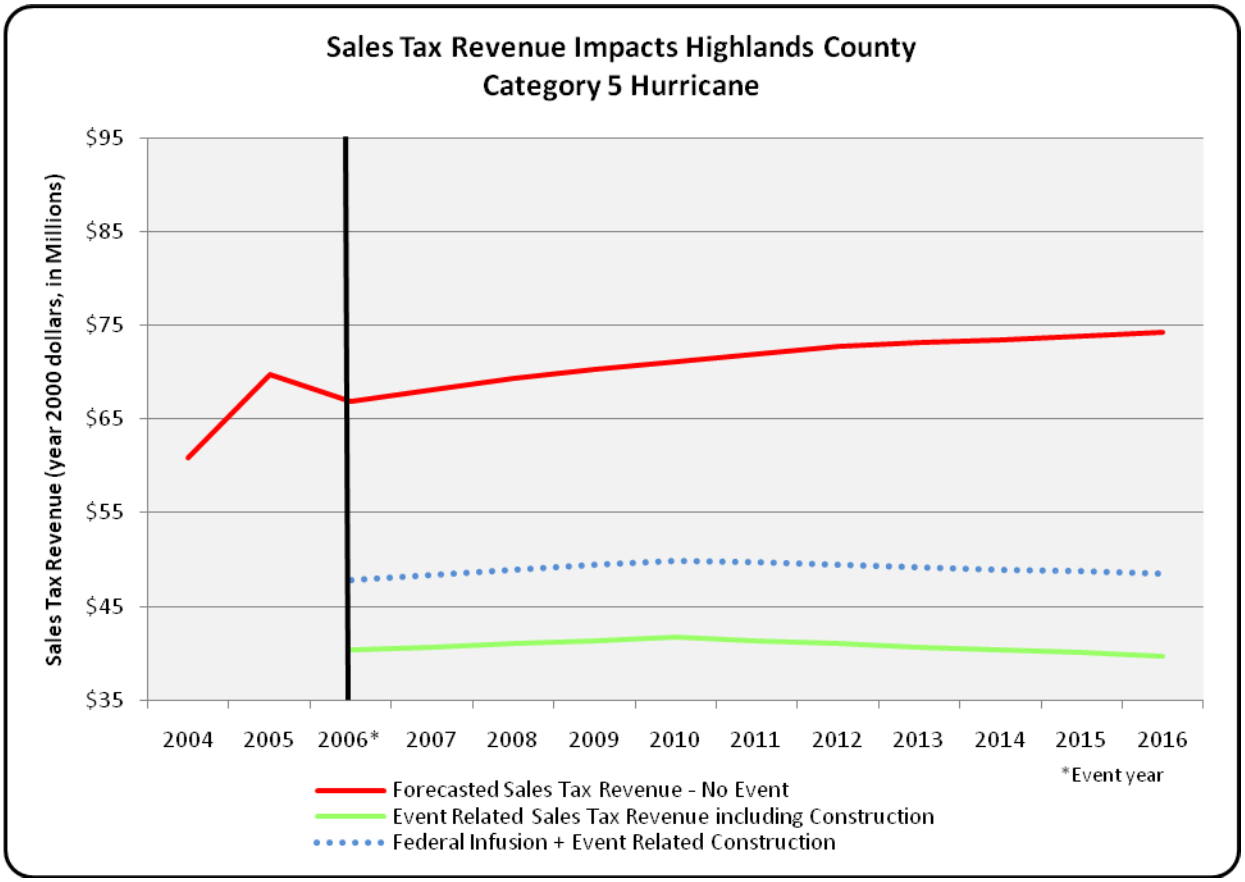
Figure 96



Highlands County - Category 5 Hurricane

Figure 97 depicts the impacts of a Category 5 Hurricane on projected sales tax revenue in Highlands County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $67 million. A Category 4 Hurricane would result in the initial loss of approximately $27 million in the event year. A federal infusion of $1 billion would provide some initial relief, but would fail to recover local sales tax revenue within the ten year forecast period. A hurricane of this magnitude might permanently disrupt the economic trajectory of the County; however that is somewhat unlikely given the assumptions built into the model. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first four years as a slightly different slope than the No Event scenario.

Figure 97

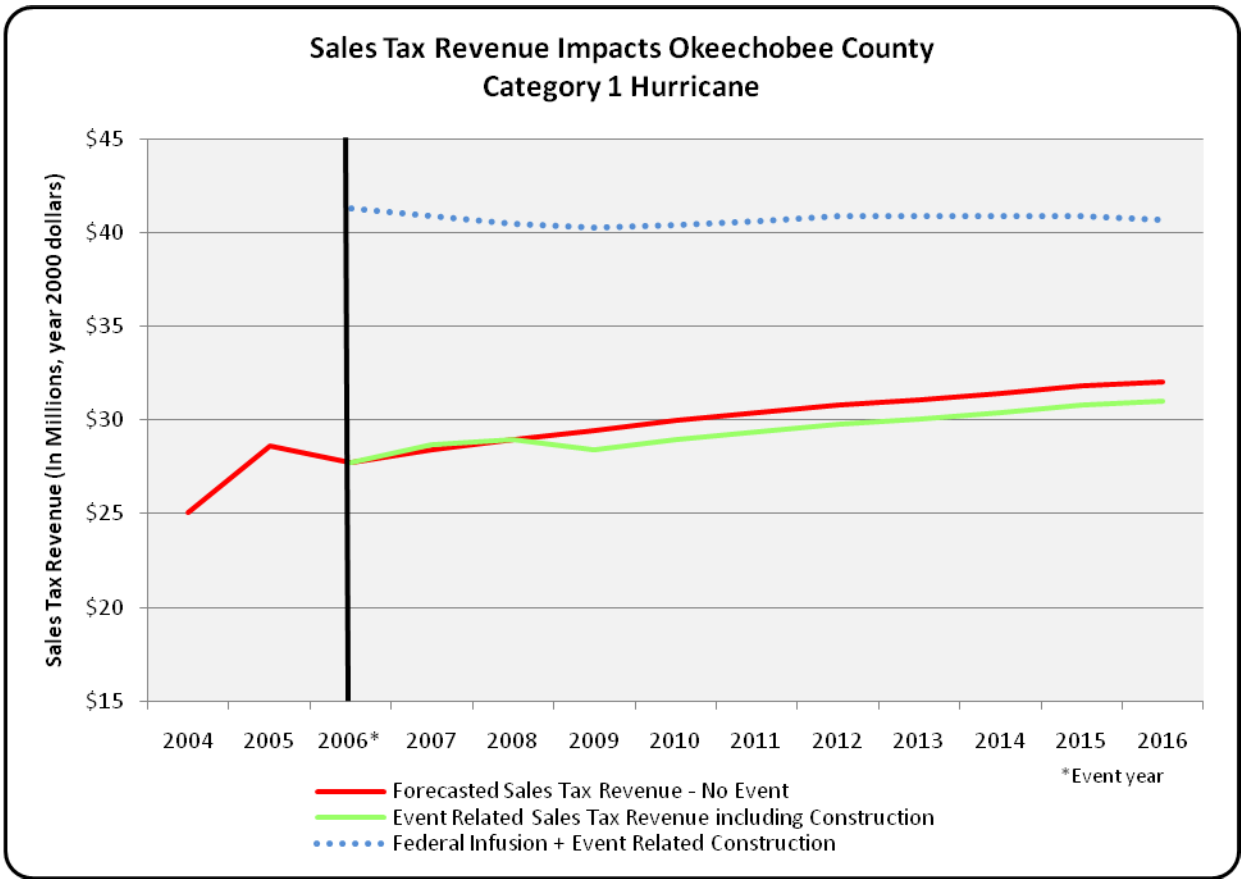


OKEECHOBEE COUNTY SALES TAX REVENUE

Okeechobee County - Category 1 Hurricane

Figure 98 depicts the impacts of a Category 1 Hurricane on projected sales tax revenue in Okeechobee County. If no event were to occur, the estimated sales tax revenue in the County is projected at approximately $28 million. Sales tax revenue losses associated with a Category 1 Hurricane would tend to be offset by associated increases due to event-related construction and cleanup efforts. However, by 2016, the County would still not have regained a fraction of sales tax revenue compared to the No Event projection. A federal infusion of $1 billion in aid would be unlikely given the projected impact on local sales tax revenue.

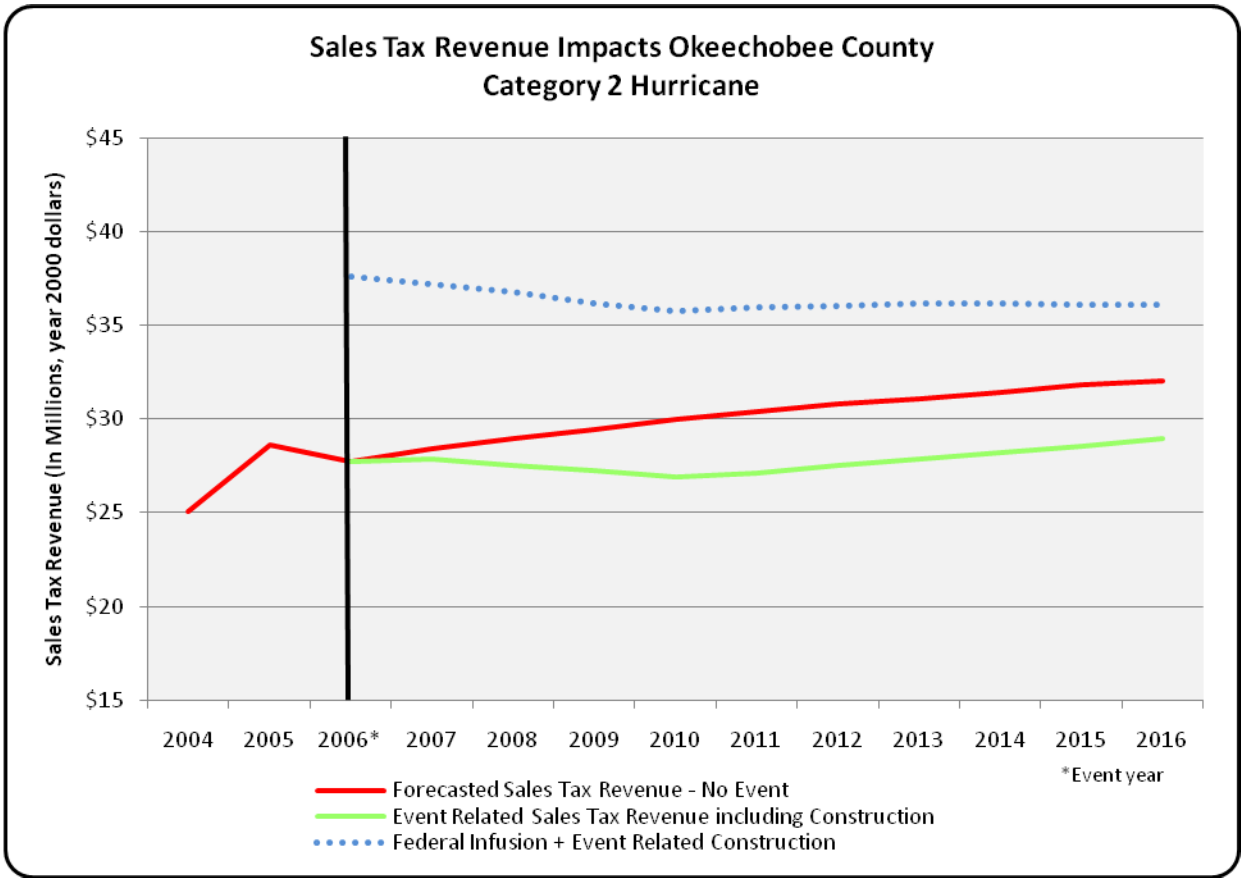
Figure 98



Okeechobee County - Category 2 Hurricane

Figure 99 depicts the impacts of a Category 2 Hurricane on projected sales tax revenue in Okeechobee County. If no event were to occur, the estimated sales tax revenue in the County is projected at approximately $28 million. Sales tax revenue losses associated with a Category 2 Hurricane would tend to be initially offset by associated increases due to event-related construction and cleanup efforts. However, by 2016 the County would still not have regained approximately $3 million compared to the No Event projection. A federal infusion of $1 billion in aid would be unlikely given the projected impact on local sales tax revenue.

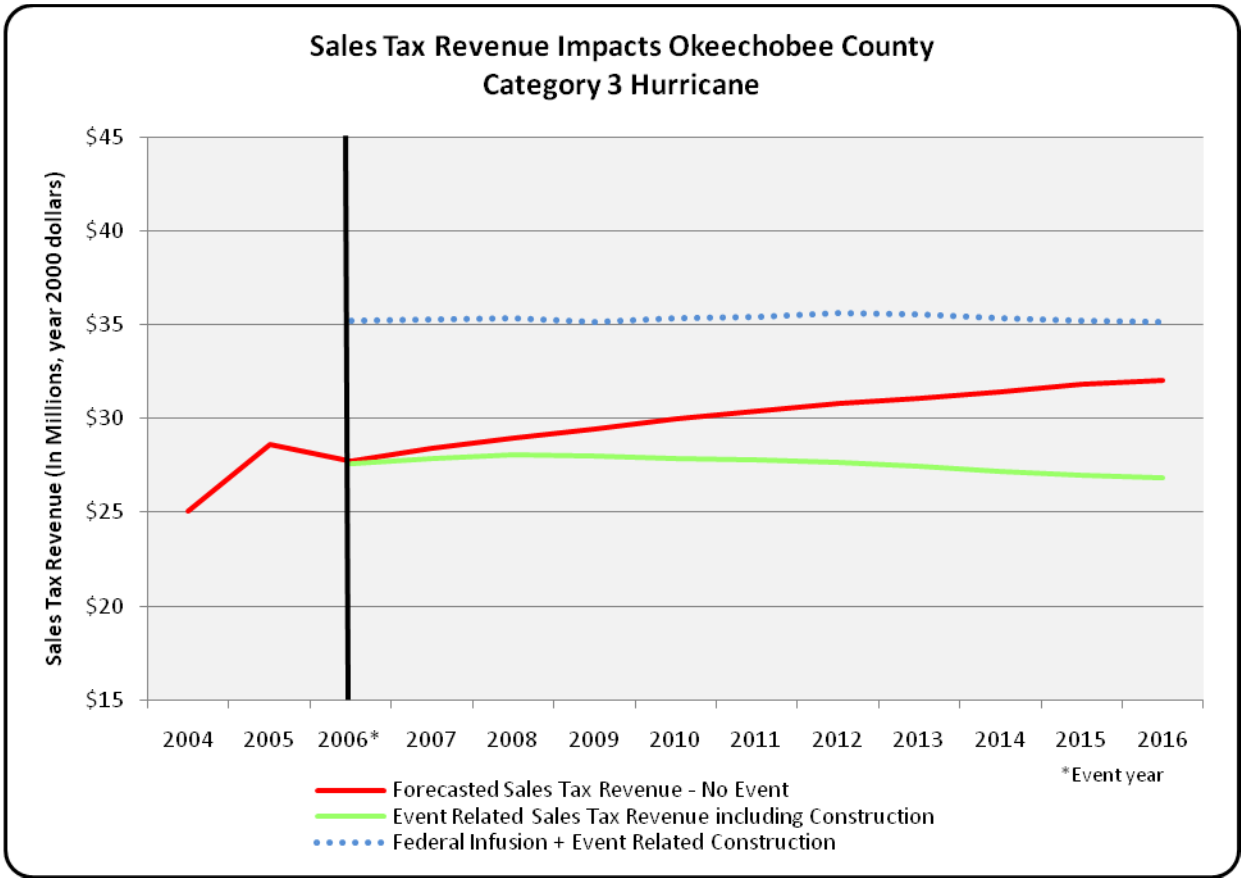
Figure 99



Okeechobee County - Category 3 Hurricane

Figure 100 depicts the impacts of a Category 3 Hurricane on projected sales tax revenue in the Okeechobee County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $28 million. Sales tax revenue lost in the event year would be initially offset by associated temporary new construction and cleanup jobs. This magnitude storm is projected to have a long-lasting impact on sales tax revenue in this county, with a projected $5 million deficit still present after 10 years. Temporary new construction and cleanup jobs would bolster the sales tax revenue slightly in the first three years. A federal infusion of $1 billion in aid would be unlikely given that it seems to overcompensate for the projected initial impact on local sales tax revenue. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first two years as a slightly different slope than the No Event scenario.

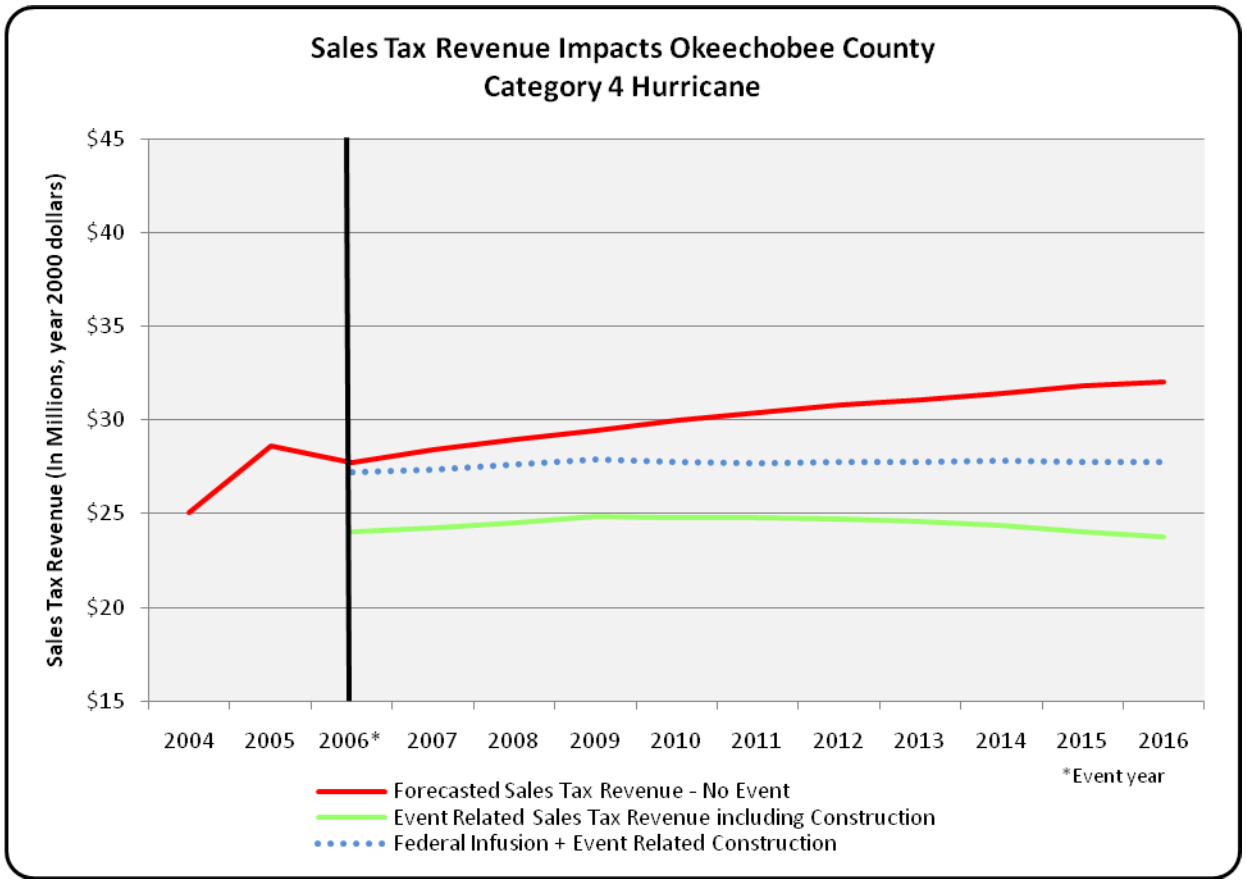
Figure 100



Okeechobee County - Category 4 Hurricane

Figure 101 depicts the impacts of a Category 4 Hurricane on projected sales tax revenue in Okeechobee County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $28 million. A Category 4 Hurricane would result in the initial loss of approximately $4 million in the event year. A federal infusion of $1 billion would provide initial relief, but might not ultimately restore the economic trajectory of the County. Sales tax revenue would not recover within the forecasted 10-year period. A hurricane of this magnitude might permanently disrupt the economic trajectory of the County; however that is somewhat unlikely given the assumptions built into the model. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first three years as a slightly different slope than the No Event scenario.

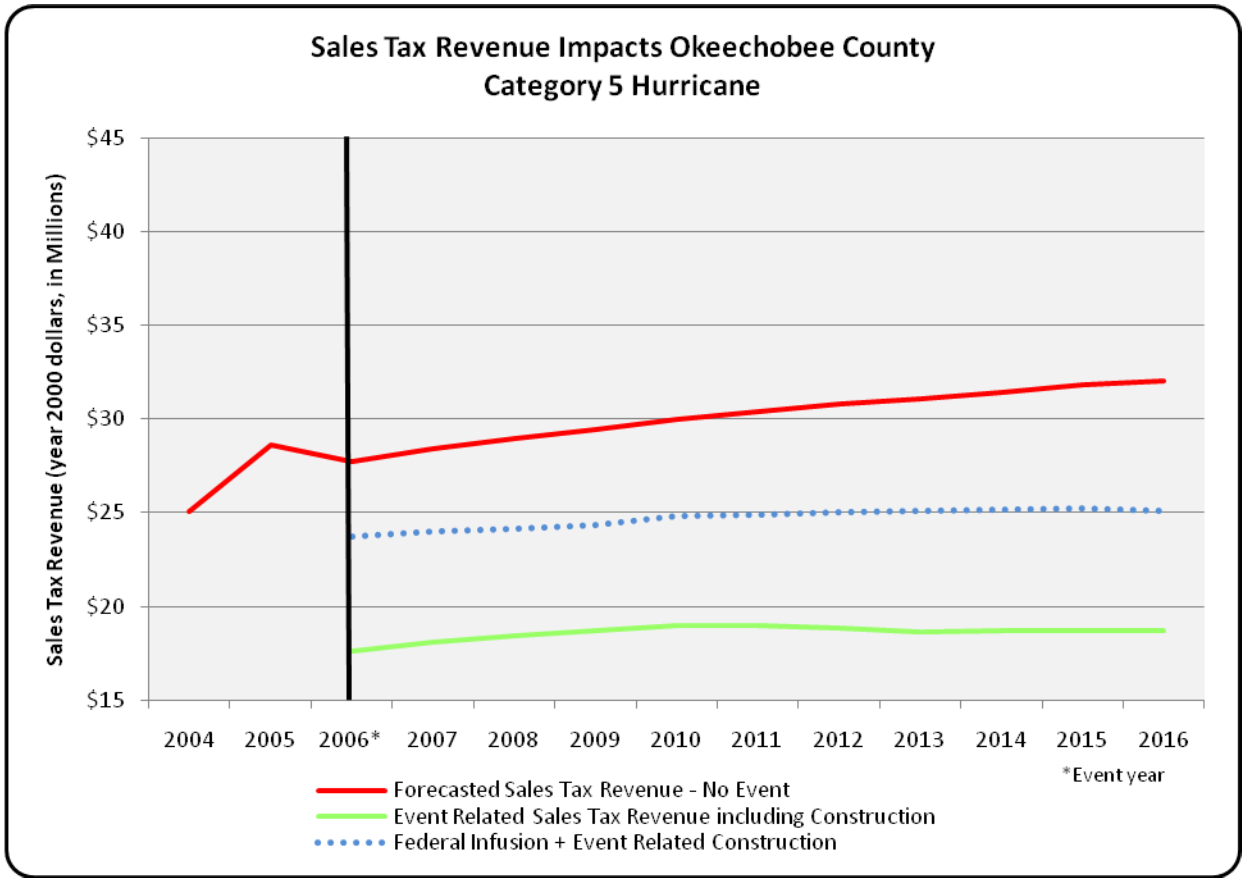
Figure 101



Okeechobee County - Category 5 Hurricane

Figure 102 depicts the impacts of a Category 5 Hurricane on projected sales tax revenue in Okeechobee County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $28 million. A Category 4 Hurricane would result in the initial loss of approximately $10 million in the event year. A federal infusion of $1 billion would provide some initial relief, but would fail to recover local sales tax revenue within the ten year forecast period. A hurricane of this magnitude might permanently disrupt the economic trajectory of the County; however that is somewhat unlikely given the assumptions built into the model. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first four years as a slightly different slope than the No Event scenario.

Figure 102

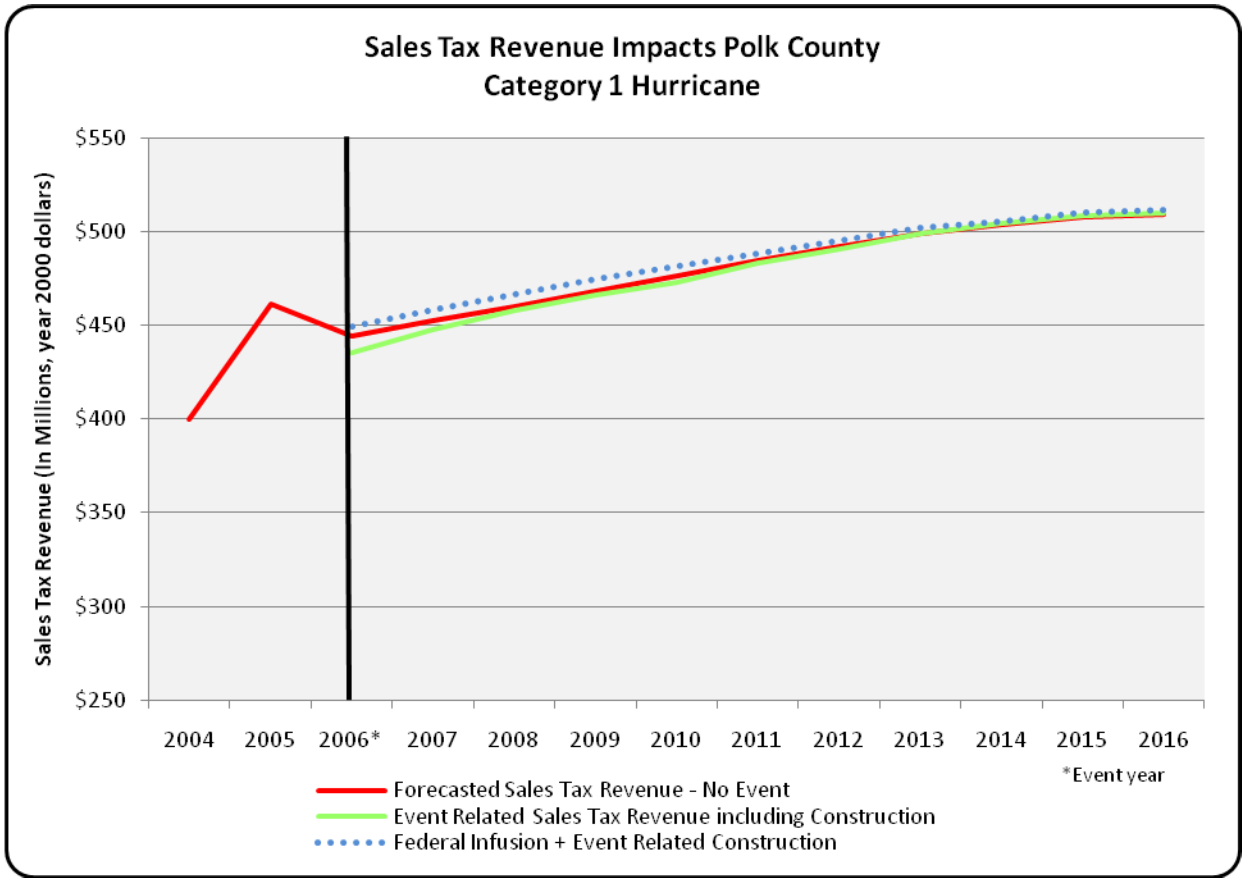


POLK COUNTY SALES TAX REVENUE

Polk County - Category 1 Hurricane

Figure 103 depicts the impacts of a Category 1 Hurricane on projected sales tax revenue in Polk County. If no event were to occur, the estimated sales tax revenue in the County is projected at approximately $445 million. Sales tax revenue losses associated with a Category 1 Hurricane are approximately $5 million, but are partially offset by increases due to event-related construction and cleanup efforts. The County sales tax revenue would be set back by less than a year. A federal infusion of $1 billion in aid would be unlikely given the projected impact on local sales tax revenue.

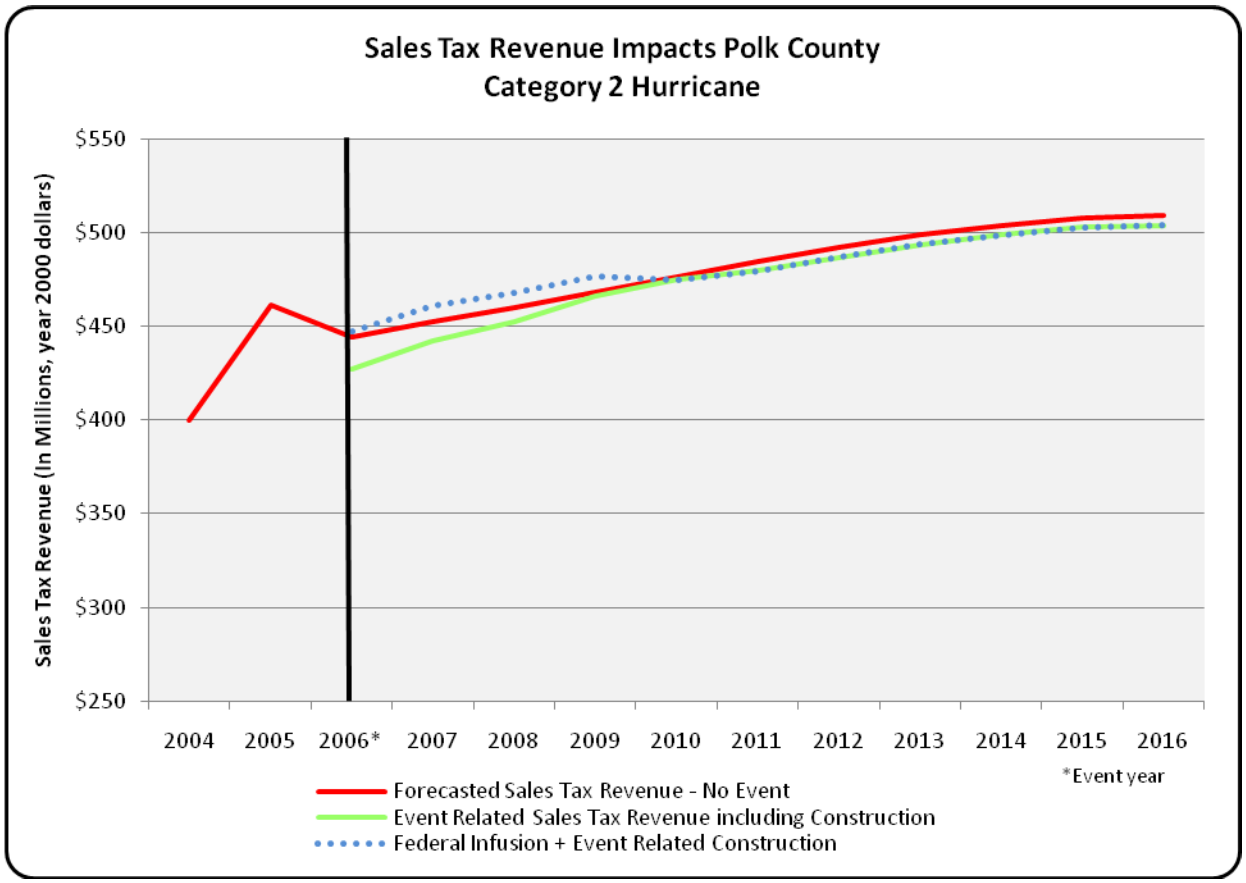
Figure 103



Polk County - Category 2 Hurricane

Figure 104 depicts the impacts of a Category 2 Hurricane on projected sales tax revenue in Polk County. If no event were to occur, the estimated sales tax revenue in the County is projected at approximately $445 million. Sales tax revenue losses associated with a Category 2 Hurricane are approximately $20 million, but are partially offset by increases due to event-related construction and cleanup efforts. A storm of this magnitude would set the County sales tax revenues back approximately one-and-a-half years. However, by 2016 the County would still not have regained a small fraction of sales tax revenue compared to the No Event projection. A federal infusion of $1 billion in aid would be unlikely given the projected impact on local sales tax revenue.

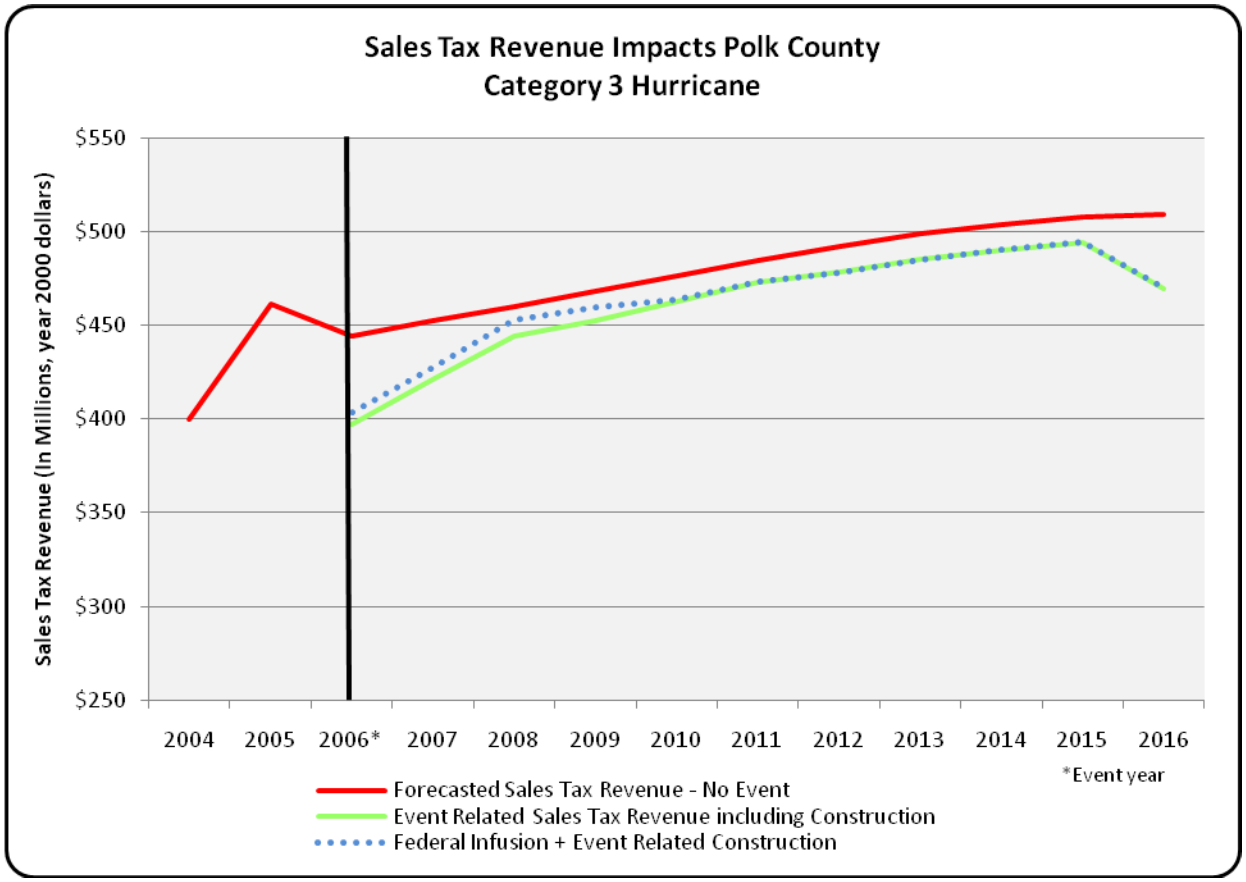
Figure 104



Polk County - Category 3 Hurricane

Figure 105 depicts the impacts of a Category 3 Hurricane on projected sales tax revenue in the Polk County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $445 million. A Category 3 Hurricane would result in the loss approximately $45 million in the event year. This magnitude storm is projected to set back sales tax revenue in this county approximately 2 years, although recovery is relatively fast. Temporary new construction and cleanup jobs would bolster the sales tax revenue slightly in the first three year, and a federal infusion of $1 billion in aid would appear to have limited impact. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is apparent in the first two years as a slightly different slope than the No Event scenario.

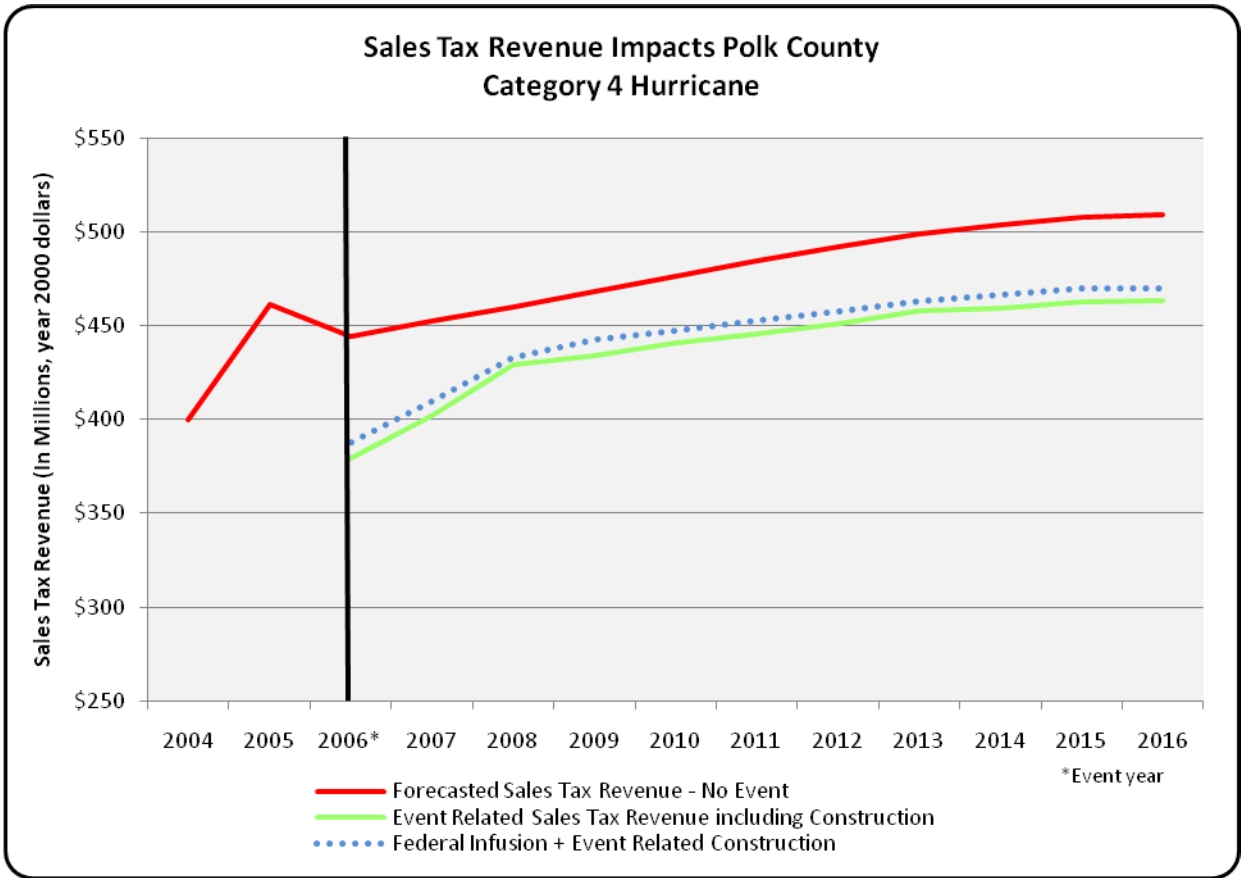
Figure 105



Polk County - Category 4 Hurricane

Figure 106 depicts the impacts of a Category 4 Hurricane on projected sales tax revenue in Polk County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $445 million. A Category 4 Hurricane would result in the initial loss of approximately $60 million in the event year. A federal infusion of $1 billion would provide limited relief. Sales tax revenue would regain pre-event levels in approximately five years. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is very apparent in the first three years as a slightly different slope than the No Event scenario.

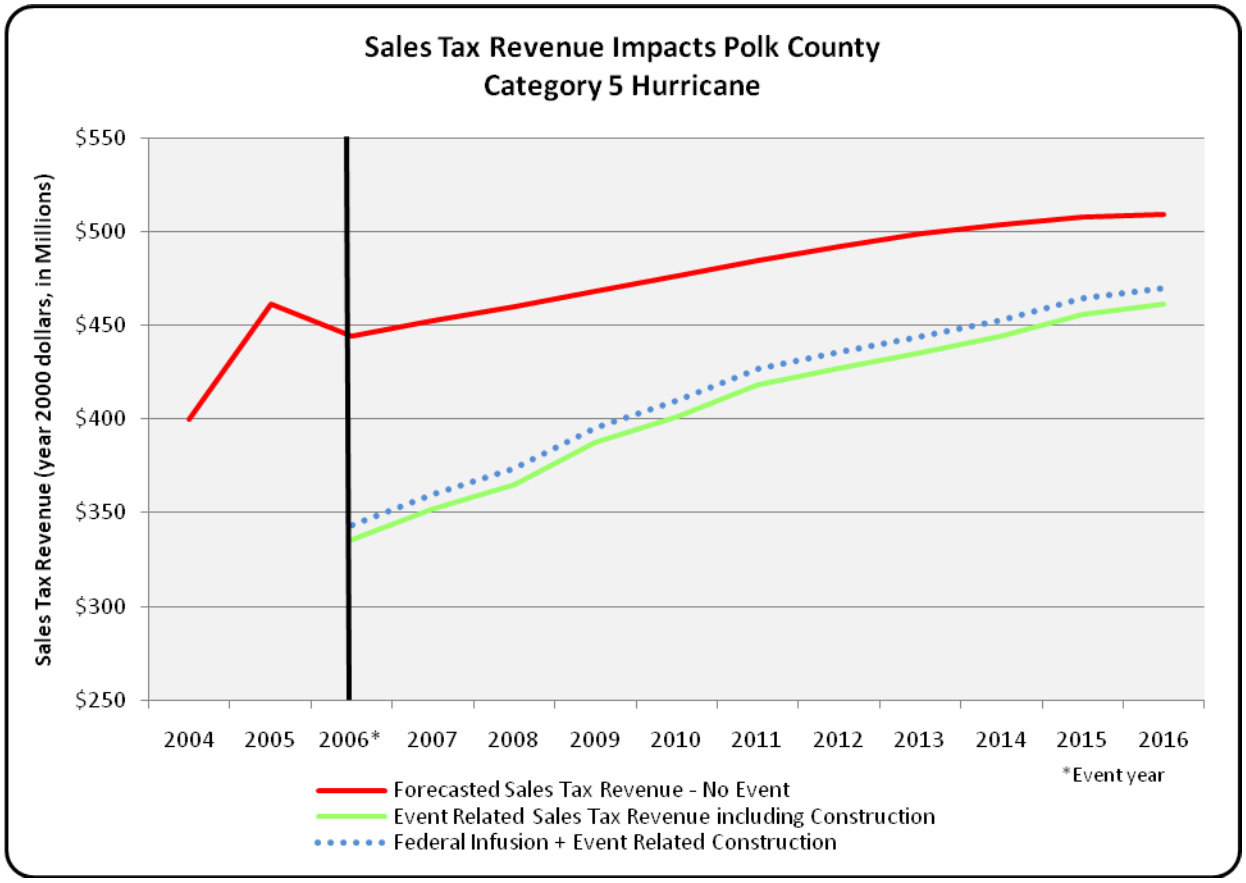
Figure 106



Polk County - Category 5 Hurricane

Figure 107 depicts the impacts of a Category 5 Hurricane on projected sales tax revenue in Polk County. If no event were to occur, the estimated sales tax revenue in the Region is estimated at approximately $445 million. A Category 5 Hurricane would result in the initial loss of approximately $105 million in the event year. A federal infusion of $1 billion would provide limited relief. Sales tax revenue would regain pre-event levels in approximately eight years. The lag in tourism-related sales tax revenues due to predicted damage of tourism infrastructure is very apparent in the first four years as a slightly different slope than the No Event scenario.

Figure 107



XIII. CONCLUSIONS

The Central Florida Regional Planning Council (CFRPC) Economic Analysis & Disaster Resiliency Study provides analyses of the simulated impacts of Category 1 through 5 hurricanes to each of the five counties, DeSoto, Hardee, Highlands, Okeechobee, and Polk, in the Central Florida Region. A hurricane encapsulates all of the other types of disasters that are likely to occur in Central Florida (tornado, flooding, high winds, storm surge), with the possible exception of wildfires. By investigating and preparing for these types of disasters before the occur, these counties can mitigate damages and expedite economic recovery, thus enhancing the resiliency of the region.

Phase I involved a comprehensive itemized inventory of current conditions, resources, and vulnerabilities for each county by Traffic Analysis Zones (TAZ). This inventory includes population and demographics with special emphasis on disabled or otherwise potentially-compromised residents, employment by industry, natural conditions and vulnerabilities, residential structures by decade built with special emphasis on wind vulnerability, critical infrastructure including health care facilities, bridges, and dams, repetitive loss structures, and staging areas for reconstruction. Although spatial location of critical bridges and dams was inventoried, it was beyond the scope of this study to consider the implications of failure of each and every structure individually.

Phase II involved modeling simulated impacts to population, employment, regional domestic product, combined personal income, and sales tax revenue from Category 1 through 5 hurricanes over a ten-year period following the simulated disaster. The study assumed two recovery rates for each category hurricane: a normal recovery rate utilizing typical state and local relief funding, and an accelerated recovery rate scenario utilizing $1 billion of federal relief funding. Each of the analyses provides a baseline, or a "no event" scenario, providing a comparative scenario of growth in population, employment, regional domestic product, combined personal income, and sales tax revenue if no hurricane events were to occur.

The normal recovery rate assumed that state and local revenues would be expended in the aftermath of hurricanes. The normal recovery rate fiscal expenditures were based upon similar state and local spending from past events. The accelerated recovery rate assumed that $1 billion in federal funding would be available to each county in the form of direct aid to local governments, private property owners, and business operators. A total of $500 million in funding was projected to be distributed during the year the hurricane occurred and $250 million in each of the following two years, thereby totaling $1 billion in federal disaster relief funding.

Inventory Results

Additional natural resources vulnerabilities were determined for the region, including storm surge threat, wildfire potential, and freshwater flooding. It was determined that although during very strong hurricane conditions (Category 4 and 5) it was possible to get some storm surge affecting the lower reaches of the Peace River, storm surge flooding is not a serious threat for the population as a whole. Wildfires also do not pose an extreme threat since agricultural fields and citrus groves are not at a very high risk of threatening human life. Naturally, wildfire poses a more serious threat to populated areas, however the threat of a large, uncontrolled fire is minimal. Freshwater flooding was also examined for all of the counties that had data available.

An inventory and ranking of critical infrastructure, including hospitals, urgent care facilities, police, fire rescue, bridges, and dams was conducted. Due to the constraints of the modeling software, specific, localized failures of these facilities were not considered when determining damage from simulated hurricane events. However, having a ranked assessment of this infrastructure will allow for increased awareness of how these resources might be impacted by a real disaster, and what steps can be taken to mitigate specific failures. This type of endeavor is more suited to local governments than regional organizations.

In preparation for the disaster scenario modeling, a complete housing stock inventory was conducted. It was determined that due to a legacy effect from changes in building codes, that over three-quarters of the housing stock in the region was built to pre-2000 standards. The post-2000 building codes have more stringent standards for wind vulnerability, and therefore are the least susceptible to hurricane conditions. However, since it was beyond the scope of this study to determine if retrofits had increased building resistances to wind, these numbers may slightly inflate the region's vulnerability.

A demographic investigation of the region's 803,000 residents provided that 19.5 percent of the population is over the age of 65, and 18.6 percent of the population is in poverty. Given a mass evacuation scenario, this could pose major impediments to protecting the safety of the region's population, since elderly and impoverished people are often mobility impaired. According to the 2010 Census, fully 26 percent of the region's population self-identify as Hispanic and some portion of them primarily speak only Spanish or English as a second language. This means that disaster preparedness must also include a component that addresses language-barriers.

Additionally, a regional employment inventory was taken to understand the impact that a disaster might have on local economies. In 2008, private, non-farm employment accounted for over 85 percent of the employment in the region. Retail, Health Care, and Administrative and Waste Services each account for more than 10 percent of proportional employment share, and 35 percent of total employment. Construction, Manufacturing, and Accommodation and Food Services each account for 6-10 percent of proportional employment share, and 20 percent of

the total employment. All Other Industries accounted for 44 percent of total employment regionally.

Study Results

The analyses of the Central Florida Post Disaster Resiliency Study indicate that there are short term impacts for each of the Region's five counties associated with Category 1 and 2 hurricanes. With disasters of this magnitude, federal relief funding is unlikely. Most economic indicators modeled in this study return to pre-disaster levels within two years of the event. Simulated Category 3 hurricanes have slightly longer term ramifications, with recovery times for most economic indicators at three to five years. As modeled, a disaster of this intensity can be almost entirely mitigated by federal relief spending of $1 billion in the three years following the event. In the event of a Category 4 or 5 hurricane event, this study indicates that most county and regional economic indicators may be set back anywhere from four years to greater than ten years, depending on the indicator. However, increased recovery is possible within a ten year time period through a combination of pre-post disaster planning and federal disaster relief spending. In most the scenarios modeled, a Category 4 or 5 hurricane event would create severe long term economic devastation, even with a significant infusion of state, local, and $1 billion in federal disaster relief spending.

In the event of a Category 1 or 2 hurricane in the region, there would be relatively little impact to employment, as modeled in this scenario. The region would be expected to return to pre-hurricane employment levels within two years of the event. A Category 3 hurricane would be predicted to have a slightly larger effect, with recovery to pre-event conditions within three- to five-years. Federal relief spending of $1 billion would be projected to entirely mitigate the negative effects of the hurricane on employment. The negative impacts to employment are much more pronounced given a Category 4 or 5 hurricane in the region. Even with federal relief spending of $1 billion, employment levels would take six to eight years to return to pre-event levels in the case of a Category 4 hurricane. Given the scenarios projected in this study, a Category 5 hurricane would negatively impact employment levels for more than ten years -- even with a $1 billion injection of federal relief funding -- which is the full-length of the time period examined for this study.

Results from modeling indicate population declines associated with simulated hurricane events display a similar trend. Category 1 and 2 hurricane-related declines in county populations are expected to return within three- to five-years to levels that would normally be forecasted without a disaster event. Category 3 hurricanes regional populations are projected to return to pre-event levels in approximately two years, but may not return to levels predicted to occur in baseline conditions. Category 4 and 5 hurricanes are predicted to have severely negative impacts on populations, given the scenarios modeled in this study. A Category 4 hurricane will

suppress population levels for approximately six years, while a Category 5 event will suppress total population numbers for more than ten years.

Regional Domestic Product (RDP) appears to recover more readily than other economic indicators. A Category 1 hurricane is projected to suppress RDP for only one year, and will achieve no-event trajectory levels in approximately the fifth year following the disaster event. Category 2 and 3 hurricanes will return to pre-event RDP levels in approximately one year, but stronger disasters predictably have a longer-lasting effect. RDP in Category 4 hurricane affected areas are projected to return to pre-event levels within three years, and Category 5 hurricanes are projected to return to pre-event levels within four years. However, within the ten-year time frame examined in this study, a Category 5 hurricane is expected to reduce overall RDP by approximately $2.5 billion, or about 9.8 percent.

When modeled in the scenarios of this study, Combined Personal Income (CPI) exhibited recovery trends similar to Regional Domestic Product. Effects of a Category 1, 2, or 3 hurricane did not significantly alter the overall amount or recovery of CPI following the disaster event. CPI is projected to recover to pre-event levels within one year for Category 1 through 3 hurricanes. Naturally increasing intensities of disaster incurred larger impacts, with Category 4 and 5 being significantly more impactful than less devastating hurricane events. A Category 4 hurricane is projected to negatively impact CPI throughout the ten-year time frame of this study; up to about $3 billion gap. Overall, CPI is projected to recover to pre-event levels from even a Category 5 hurricane within four years. However, even at the end of the projected ten-year time frame of this study, approximately a $6 billion gap from no-event levels remains, or about 16.7 percent.

Following a Category 1 hurricane, there is virtually no impact on regional sales tax revenue. Forecasted sales tax revenue following a Category 2 hurricane results in approximately a one year setback in regional sales tax revenue. A federal infusion of $1 billion is unlikely in either of these scenarios due to the lack of significant impact to the local economy. In Category 3, 4, and 5 hurricane scenarios, the impact of the lag in tourism dollars is apparent, but only slightly since it accounts for only a small proportion of regional sales tax revenue. The study indicates that regional sales tax revenue is set back approximately 3 years for a Category 3 hurricane although a federal infusion of relief funds will almost immediately counteract that effect. In Category 4 and 5 hurricanes, the projected impact is pronounced and long-lasting, with sales tax revenues not projected to return to pre-event levels within 10 years. Following a Category 4 hurricane, sales tax revenue can be recovered to pre-event levels within 7 years, but only with a $1 billion infusion of federal relief funds. However, even with an infusion of federal relief funds, sales tax revenue are not projected to return to pre-event levels within 10 years following a Category 5 hurricane. However, it is unlikely that the entire five-county region will be uniformly affected by a Category 5 hurricane.

An examination of the results for each county individually indicates that some counties may have a much longer recovery from a catastrophic event equivalent to a Category 4 or 5 hurricane, as simulated in this study. Some of the more rural counties in the Central Florida Region are predicted to permanently alter their economic trajectories based on the impacts of such an event, due to the combined negative impacts on business and residential structures and associated infrastructure.

Disaster Resiliency

The most vital tool for an economic recovery after a disaster is preparedness. Preparedness must take the form of a community's overall personal preparedness, as well as by local, county, regional, state, and federal governments and organizations. When individuals and business operators are better prepared, this allows for a faster return to pre-disaster status, and provides the ability to help others. When governments are better prepared, the immediate needs for recovery are more quickly met, and long term recovery efforts can begin sooner.

County governments should first ensure that their Local Mitigation Strategies (LMS) are current and updated, as the LMS assesses vulnerability, provides goals and objectives to aid in the minimization of life and property loss, and should also identify possible funding mechanisms to aid in disaster recovery.

Another highly recommended tool is the development of a Long Term Community Recovery plan (LTCR). After the devastating 2004 Hurricane Season, some rural Counties developed a LTCR plan through the Federal Emergency Management Agency (FEMA). The purpose of these plans is a comprehensive blueprint to deal with devastation and eventual recovery. Recovery efforts are understandably focused on the immediate needs of the community. A LTCR plan also enables the community to address opportunities to rebuild and recover in a manner that would provide long-term sustainability for the future. The LTCR plan should include projects focused on rebuilding basic infrastructure to support the population of the community and encouraging economic redevelopment. Specific projects should address:

- Water, sewer, stormwater, and sanitation systems, and possibly dams and levees;
- Utilities (electricity, waste collection, and heating and cooking gases)
- Public safety (including Police, Fire, and EMS stations and equipment and the National Guard);
- Education (schools and day care);

- Health care (hospitals, clinics, rehabilitation centers, medical centers, specialty offices);
- Transportation (public transportation facilities and connectivity, including major roads and bridges);
- Economic development (including retail strategies to get stores and shops operational as soon as possible, and the redevelopment of downtown areas and major employment centers);
- Land use planning and housing (to address both immediate and long range housing needs, including special populations such as nursing homes, assisted living facilities, dormitories, and jails);
- Telecommunications (broadband, cable, telephone, and cellular); and
- Quality of life (recreation, parks, cultural facilities).

Each project should include a model or template proposal which is continually updated. The LCTR plan, project list, and proposals will enable a community to apply for and receive certain funding more quickly, as recovery funds are typically administered on a "first come, first served" basis. Having an up-to-date LTCR plan and LMS enable a city or county government to respond rapidly and begin the recovery process as soon as possible. Some such projects have already been identified for the Central Florida Region, including: Improvements to Transportation Connectivity, Upgrading Telecommunications and Access to Broadband, Increasing Tourism, Reinstating Mobile Health Clinics, and Launching 2-1-1 Helpline, Website and Volunteer Resource Centers.

Other components are also recommended for the preparedness process. Outside resources should be identified ahead of time, and would include Federal and State governmental agencies such as FEMA and USDA Rural Development, as well as non-governmental organizations such as the Red Cross. Local leadership should also be identified, in addition to the public officials. Leaders from all segments of the community including government, schools, communities, and business are important resources for building relationships and cooperation for the long term recovery process.

Housing stock and employment losses are the two most significant drivers of economic loss and eventual recovery in a disaster scenario. An economic recovery can only take place when a community's population can return to their homes and work. Lack of housing and employment can lead to permanent relocation of an area's population, with long term negative impacts on recovery. Jobs created by recovery efforts may provide a temporary improvement to the local

economy, but are not permanent. Therefore, identifying outside resources, funding, and planning for economic recovery through rebuilding, will allow a community to return to its pre-disaster status more quickly. In general, plans should be in effect to enable a community's population to return to their homes and workplaces as quickly as possible after a disaster. Permanent population loss associated with disasters is primarily due to loss of infrastructure and housing. Lack of housing can affect a permanent relocation of an area's population, which could be devastating to any economic recovery.

As infrastructure and the economy need to be rebuilt, workers as well and consumers need to live in the community. Residents must be able to return from an evacuation or a shelter and move back into a long term or permanent home as quickly as possible. In addition, businesses should become operational as quickly as possible in order to meet the community's needs and help the economic recovery process to begin. Rebuilding a community can be an opportunity for improved construction of infrastructure that includes backup systems or plans, stronger and more resilient residential construction standards, and for businesses to align their services and products with the emerging needs of the community.

Each jurisdiction of the Central Florida Region should assess its vulnerabilities based on the hypothetical scenarios modeled this study, and a develop plan for post-disaster recovery. Funding needs should be assessed as part of the recovery plan. One factor to consider is that in a real disaster scenario, disaster relief work crews from outside of the Region may be priority-deployed to other impacted areas of the State prior to deployment to the Central Florida Region and as a result, each jurisdiction may have to organize local resources to provide the initial recovery efforts.

The next steps involve utilizing the findings of this study in a local context to plan for disaster scenarios. This study can be used to help anticipate and mitigate economic losses potentially associated with different disaster intensities. By combining knowledge of the local vulnerabilities and resources available during a disaster scenario, the region can create a more resilient recovery effort when disasters strike. Safety and security for the population -- for health, homes, and businesses -- is the ultimate goal. Economic disaster resiliency scenario modeling is one tool to help secure that future.

Central Florida Region

Economic Analysis and Disaster Resiliency Study

APPENDICES

DESOTO COUNTY APPENDIX

Population and Critical Facilities

Maps

Overall County (Base)
Traffic Analysis Zones
Residential Structures by Decade Built
Non-Residential Structures by Decade Built
Structures by Decade Built by Parcel Record
Critical Infrastructure

DESOTO COUNTY APPENDIX
POPULATION AND CRITICAL FACILITIES

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A. Introduction

This appendix provides a County Economic Profile, Vulnerability Profile and a more detailed vulnerability analysis of critical facilities and corresponding maps for DeSoto County.

B. County Profile

The data contained herein is provided to capture a profile of DeSoto County including geographic and economic characteristics. In addition, many of the critical infrastructure partners including private sector and public utilities are identified.

DeSoto County Profile

Visit eFlorida.com to learn more.

GEOGRAPHY

County Seat: Arcadia
Nearest MSA: Punta Gorda MSA
Time Zone: Eastern
Local Area Code(s): (863)
Largest Cities: 1 - Arcadia

Miles* To:

Tallahassee	267
Orlando	95
Tampa	65
Jacksonville	217
Miami	146
Atlanta	475
Chicago	1,064
Dallas	972
New York	1,034

*Miles are calculated from county seat

POPULATION

	Desoto	Florida
1980:	19,039	9,746,961
1990:	23,865	12,938,071
2008:	33,991	18,328,340
2015(p):	36,600	20,055,900
2030(p):	41,800	23,979,000

* (p) Denotes Projected Population

CLIMATE

Average Temperature	High	Low
January:	71	49
July:	91	73

Florida Mean Annual Precipitation.....53
Average Annual Rain Days.....112

PER CAPITA PERSONAL INCOME

	Desoto	Florida
2005	$18,599	$34,709
2006	$20,383	$37,099
2007	$21,100	$38,417

MIGRATION

(2008)	
In-Migration	1,241
Out-Migration	1,609
Net-Migration	-368

* Estimates based on IRS Statistics of Income data

LABOR FORCE

(2009)	
Labor Force	14,970
Labor Force % of County Population	44.0
Number in County Unemployed	1,509
Unemployment Rate	10.1%

* Monthly labor force data are available from the Florida Agency for Workforce Innovation.

MEDIA

Local Radio Stations:

WZZS - 106.9 FM
WFLN - Newsradio 1480 AM
WZSP - 105.3 FM

Local Television Stations:

none listed

Locally Printed Newspapers:

DeSoto Sun Herald

FINANCIAL INSTITUTIONS

Number of Banks:	6
Number of Savings and Loans:	0
Number of Credit Unions:	2

STATE AND LOCAL TAXATION

COUNTY

Countywide Ad Valorem Millage Rates:

Government	10.0000
Schools	7.7820
Special	0.0450
Total	17.8270

Ad Valorem Tax Exemption: Yes

Retail Sales Tax (Local Option)

Federal Enterprise Zone	No
State Enterprise Zone	EZ-1401

STATE

Corporate Income Tax	5.5%
Personal Income Tax	0.0%
Retail Sales Tax	6.0%

EMPLOYMENT BY INDUSTRY

(2008)	Desoto	Florida
Average Annual Employment	8,719	7,945,162
Natural Resources & Mining	16.5%	1.2%
Construction	5.9%	6.5%
Trade, Transportation and Utilities	24.1%	20.5%
Manufacturing	4.9%	4.7%
Information	0.5%	2.0%
Other Services	1.2%	3.2%
Public Administration	16.7%	5.9%
Unclassified	N/D	
Leisure & Hospitality	5.9%	11.9%
Education & Health Services	7.9%	19.4%
Professional & Business Services	4.4%	14.4%
Financial Activities	3.6%	6.6%

Average Annual Wage

(2008)	
All Industries	$29,679
Construction	$25,259
Education & Health Services	$34,315
Financial Activities	$33,000
Information	$29,726
Leisure & Hospitality	$14,246
Manufacturing	$43,225
Natural Resources & Mining	$22,203
Other Services	$19,574
Professional & Business Services	$32,760
Public Administration	$34,419
Trade, Transportation and Utilities	$27,468
Unclassified	N/D

*N/D = No Data

EXISTING EMPLOYMENT

Major Private Sector Employers

Wal-Mart Distribution Center
Business Line: Distribution/Logistics
Number of Employees.....502

Wal-Mart
Business Line: Retail
Number of Employees.....300

DeSoto Medical Hospital
Business Line: Healthcare
Number of Employees.....290

Peace River Citrus
Business Line: Citrus Juice
Number of Employees.....140

Bethel Farms
Business Line: Lawn & Gardening Items Production
Number of Employees..... 87

Sorrels Brothers Packing Co., Inc.
Business Line: Citrus Harvesting & Packing
Number of Employees..... 75

Winslow Lifecraft
Business Line: Manufacturing of Lifecraft
Number of Employees..... 75

First State Bank
Business Line: Banking
Number of Employees..... 58

Sun Bulb Company
Business Line: Wholesale Orchid Nursery
Number of Employees..... 54

TRANSPORTATION

Federal Interstates	I-75
Federal Highways	US-17
State Highways	SR 31
	SR-70
	SR 72
Railroads	CSX
	Seminole Gulf Railway

Nearest Airport with Scheduled Commercial Airline Service:	RSW (Punta Gorda Regional)
# Runways	2
Longest Paved Runway (ft.)	12,000
General Aviation Airports	DeSoto County Airport
	Punta Gorda Airport
Local Deep Water Port	Manatee Port Authority
Miles to Closest Port	49

COMMERCIAL/INDUSTRIAL SERVICES

Electric Companies:
FPL
PREC (Peace River Electric Cooperative)
Natural Gas Companies:
Florida Gas Transmission Co.
Telephone Companies:
Century Link
Water & Sewer Companies:
Lake Suzy Utilities
Florida Water
DeSoto County Water/Wastewater
City of Arcadia Water/Wastewater

Existing Industrial Zoned Land	Yes
Number of Acres	4,876
Largest Available Contiguous Parcel	672
Industrial Parks	Yes
Number of Acres	8
Largest Available Contiguous Parcel	8
Foreign Trade Zones	No
Zone Number(s)	

EDUCATION

	Public Schools*
Elementary:	3
Secondary:	2
Total:	5

*Source: DeSoto County School District

Private Schools Available: No

POST SECONDARY EDUCATION SERVING THE COUNTY:

Colleges/Universities:
Florida Gulf Coast University
Edison State College
Junior/Community Colleges:
South Florida Community College
Vocational/Technical Schools:
DeSoto County High School
Other Schools:
DeSoto County Adult Education Program
DeSoto County Magnet School

QUALITY OF LIFE

Cost of Living
Price Level Index, (2007)
Florida State Average = 100

	Sample
Total	91.16
Food	100.00
Housing	80.00
Medical Care	107.00
Personal Goods and Services	97.00
Transportation	96.00

Medical Services:
DeSoto Memorial Hospital
Recreational Opportunities:
Camping
Horseback Riding
Peace River Canoeing
Turner Agri-Civic Center Events
Historical Points Of Interest:
Historic Downtown Arcadia
Owens Historic School
Cultural Events/Festivals:
Arcadia All Florida Rodeo
DeSoto County Fair
Turner Agri-Civic Center
Watermelon Festival

Source: Enterprise Florida, Inc.
800 North Magnolia Avenue, Suite 1100
Orlando, Florida 32803
Phone: (407) 956-5600
Fax: (407) 956-5599
World Wide Web: http://www.eflorida.com

C. County Vulnerable Population Profile

DeSoto County Vulnerable Population Profile

Demographic Indicators

2009 County Population Estimate[1] -34,484
65-84 Population[1] - 5,765
85+ Population[1] - 786
Live Births (3yr count)[1] - 1,477
% of Population 65+ - 19%

Economic Indicators

Population Below Poverty[1] - 7,859
Food Stamp Recipients[7] - 3,997
WIC Enrollment[1] - 2,473
Average Monthly Medicaid Enrollment[1] - 4,754
Uninsured (Under 65)[1] - 8,106

Vulnerability Indicators

Population with 1 or more disabilities[2] - 6,634
% of Population with 1 or more disabilities - 19%
Elders Living Alone[8] - 1,480
Estimated Homeless[7] - 639
Children in Foster Care[7] - 83
Developmentally Disabled[4] - 87
Seriously Mentally Ill Adults[7] - 1,447
Brain &/or Spinal Cord Injured Clients[5] - 3
Estimated Oxygen Dependent Clients - 563
Elders with Dementia[8] - 1,136
CMS Clients[6] - 93
Dialysis Clients[3] - 36
Seriously Emotionally Disturbed Children[7] - 588

Data Sources

[1] Department of Health Office of Planning, Data Analysis and Evaluation
[2] US Census Data
[3] Florida End Stage Renal Disease Network
[4] Agency for Persons with Disabilities
[5] Department of Health Brain and Spinal Cord Injury Program
[6] Department of Health Division of Children's Medical Services
[7] Department of Children and Families
[8] Department of Elder Affairs

Source: Florida Department of Health, 2010

D. Critical Facility Vulnerability Analysis

Specific attention was paid to health care facilities such as hospitals and nursing homes; emergency response agencies, hazardous materials, mobile home parks, schools and colleges and community centers. Each facility has the name, location, latitude/longitude coordinates, description, critical code and results of the 2010 surge analysis (completed as part of the Florida Statewide Regional Evacuation Study for the Central Florida Region) based on the most accurate topographic data and the SLOSH model.

The Critical Facility Inventory (database) includes a comprehensive list of critical facilities identified by the State and County Emergency Management Agencies. This inventory is not published as part of the report. However, selected facilities which may require evacuation or mitigation are identified in the tables and maps which follow. The tables indicate vulnerability from storm surge (based on the SLOSH model), freshwater flooding (based on the FEMA Flood Maps) and wildfire (Wildfire Interface/Levels of Concern).

Table 1
DeSoto County Health Care Vulnerability Assessment

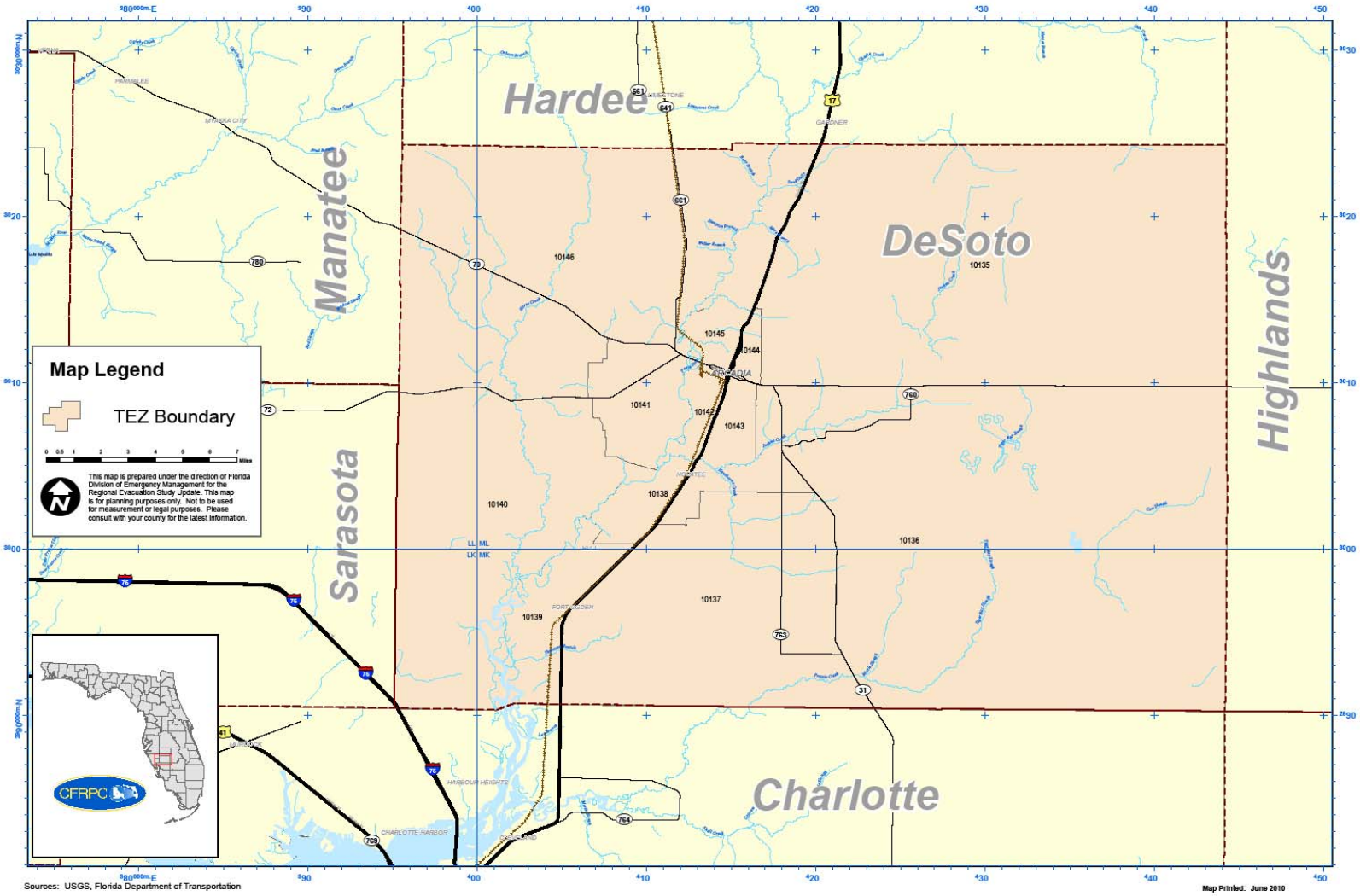
FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Assisted Living Facility	M & R Personal Care Inc.	1289 Hillsborough Street	Arcadia	34266	48	0	X	Out	N
Assisted Living Facility	DeSoto Care	1711 SW County Road 760A	Arcadia	34266	42	0	X	Out	Y
Assisted Living Facility	House Hope	414 Spring Avenue	Arcadia	34266	35	0	X	Out	Y
Assisted Living Facility	House Hope #2	222 South Manatee Avenue	Arcadia	34266	48	0	X	Out	Y
Assisted Living Facility	Arcadia Oaks Assisted Living	1013 East Gibson Street	Arcadia	34266	64	0	X	Out	Y
End-Stage Renal Disease	Arcadia Dialysis Center	1341 East Oak Street	Arcadia	34266	64	0	X	Out	N
Hospital	DeSoto Memorial Hospital	900 North Robert Avenue	Arcadia	34266	64	0	X	Out	Y
Clinical Laboratory	Charles R. Habelow, MD, PA	301 North Brevard Avenue	Arcadia	34266	55	0	X	Out	Y
Clinical Laboratory	Community Care Family Clinic	1110 East Gibson Street	Arcadia	34266	64	0	X	Out	Y
Clinical Laboratory	DeSoto Memorial Hospital Blood Gas Lab	900 North Robert Avenue	Arcadia	34266	64	0	X	Out	Y
Clinical Laboratory	DeSoto Memorial Hospital Clinical Laboratory	900 North Robert Street	Arcadia	34266	64	0	X	Out	Y
Adult Family Care Home	Dorothy G. Jones	136 Lowe Street	Arcadia	34266	55	0	X	Out	Y
Adult Family Care Home	Willie Mae Morrison	430 16th Avenue North	Arcadia	34266	64	0	X	Out	N

Table 2
DeSoto County Other Critical Facilities Vulnerability Assessment

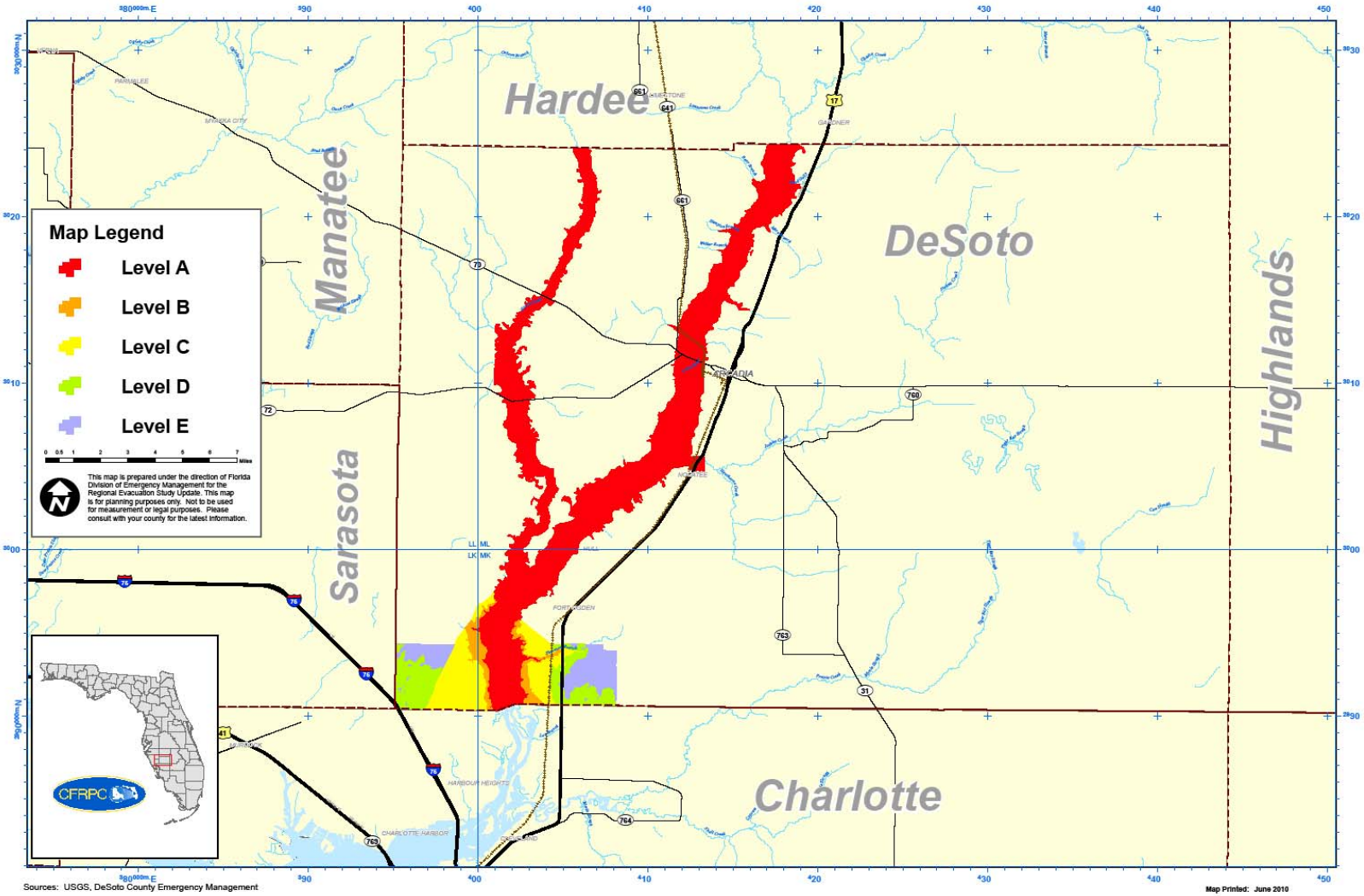
FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Radio Tower	WFLN	201 Asbury Street	Arcadia	34266	61	0	0	OUT	N
Radio Tower	WZSP	Off of Reynolds Street	Arcadia	34266	45	0	0	OUT	N
Call Center	DeSoto County Sheriff's Dept HQ	208 East Cypress Street	Arcadia	34266	59	0	0	OUT	N
Emergency Medical Service	DeSoto County Fire/Rescue Dept Station 1	1985 SE Carlstrom Field Road	Arcadia	34266	64	0	0	OUT	N
Emergency Medical Service	Arcadia Fire Rescue Station 3	121 West Hickory Street	Arcadia	34266	54	0	0	OUT	N
Emergency Operations Center	DeSoto County Emergency Management	2200 NE Roan Street	Arcadia	34266	61	0	0	OUT	N
Fire Station	Arcadia Fire Dept Station 3	121 West Hickory Street	Arcadia	34266	51	0	0	OUT	N
Fire Station	DeSoto County Fire Station 1	1985 SE Carlstrom Field Road	Arcadia	34266	64	0	0	OUT	N
Fire Station	DeSoto County Fire Station 2	8789 SW CR 761	Arcadia	34269	15	0	0	OUT	N
Fire Station	Arcadia Fire Dept Station 4	8120 SW Highway 72	Arcadia	34268					
Fire Station	Arcadia Fire Dept Station 6	11022 South Welch Avenue	Arcadia	34269	22	0	3	BC	N
Fire Station	Fort Ogden Volunteer Fire Dept Station 4	9413 SW Church Avenue	Fort Ogden	34267	42	0	0	OUT	N
Call Center	DeSoto County Sheriff's Dept HQ	208 East Cypress Street	Arcadia	34266	59	0	0	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Law Enforcement	Arcadia Police Dept HQ	17 North Polk Avenue	Arcadia	34266	55	0	0	OUT	N
Law Enforcement	DeSoto County Sheriff's Dept HQ	208 East Cypress Street	Arcadia	34266	59	0	0	OUT	N
Law Enforcement	Florida Highway Patrol Troop F	721 North Brevard Avenue	Arcadia	34266	61	0	0	OUT	N
Fuel Facility – DOT	Arcadia Sub-Yard	SR 70 West & Parker Street	Arcadia	34266	26	0	0	OUT	N
Electric Power Plant	DeSoto County Power Plant	4051 NE Karson Street	Arcadia	34266	64	0	0	OUT	N
Airport	Lake Suzy Estates		Port Charlotte		26	0	4	DE	N
Airport	Arcadia Municipal Airport	2269 SE A. G. Polk Drive	Arcadia	34266	58	0	0	OUT	N
Airport	Ellsworth Field		Arcadia		63	0	0	OUT	N
Airport	Hennessy		Arcadia		38	0	0	OUT	N
Airport	Frierson Grove		Arcadia		68	0	0	OUT	N
Airport	Montgomery Ranch		Arcadia		70	0	0	OUT	N
Airport	McDonald's Field		Arcadia		51	0	0	OUT	N
Airport	DeSoto Aircraft Field		Arcadia		50	0	0	OUT	N
Heliport - Helipad	DeSoto Memorial Hospital	900 North Robert Avenue	Arcadia	34266	64	0	0	OUT	N

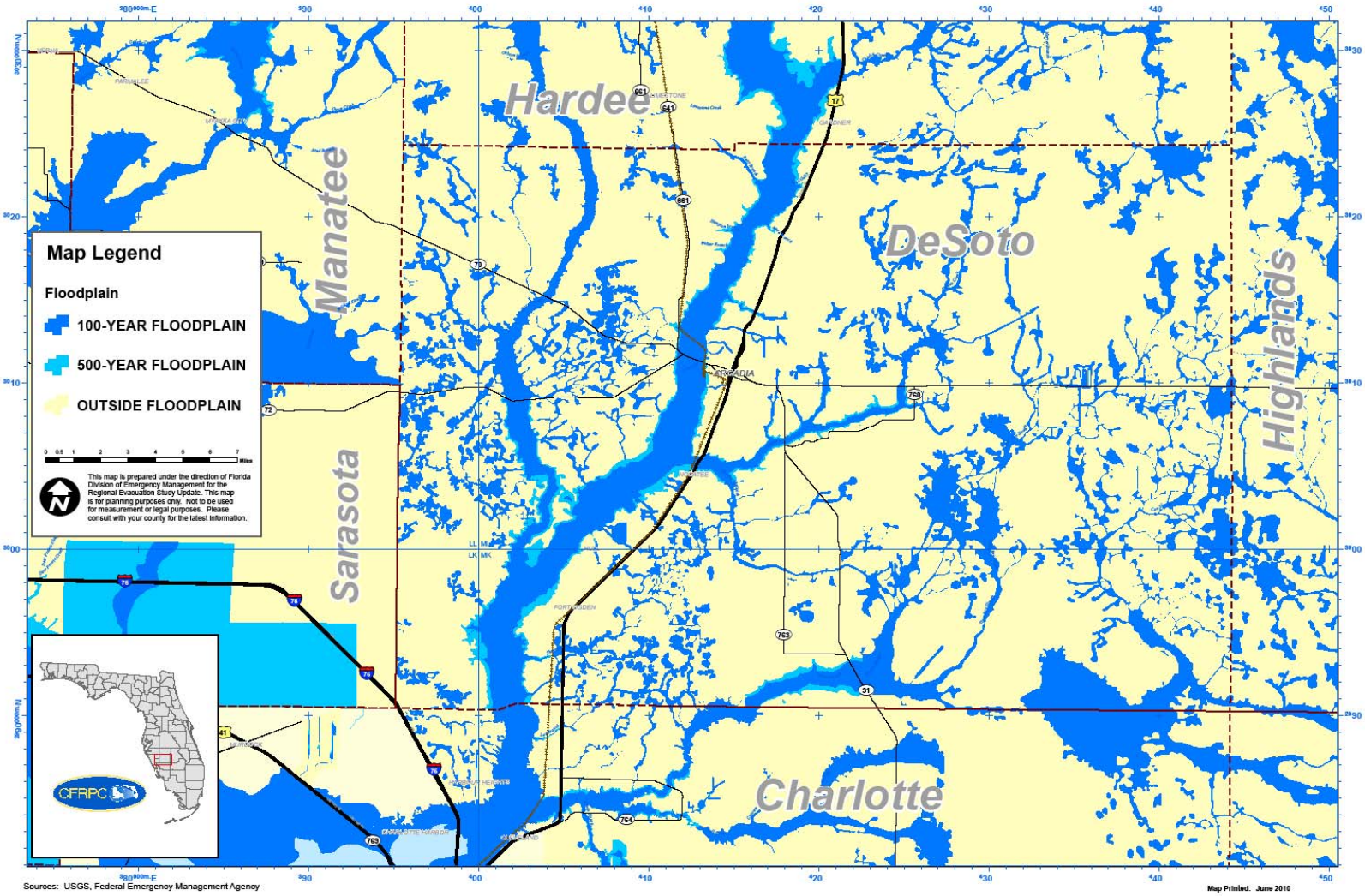
Map 1
DeSoto County Traffic Evacuation Zones



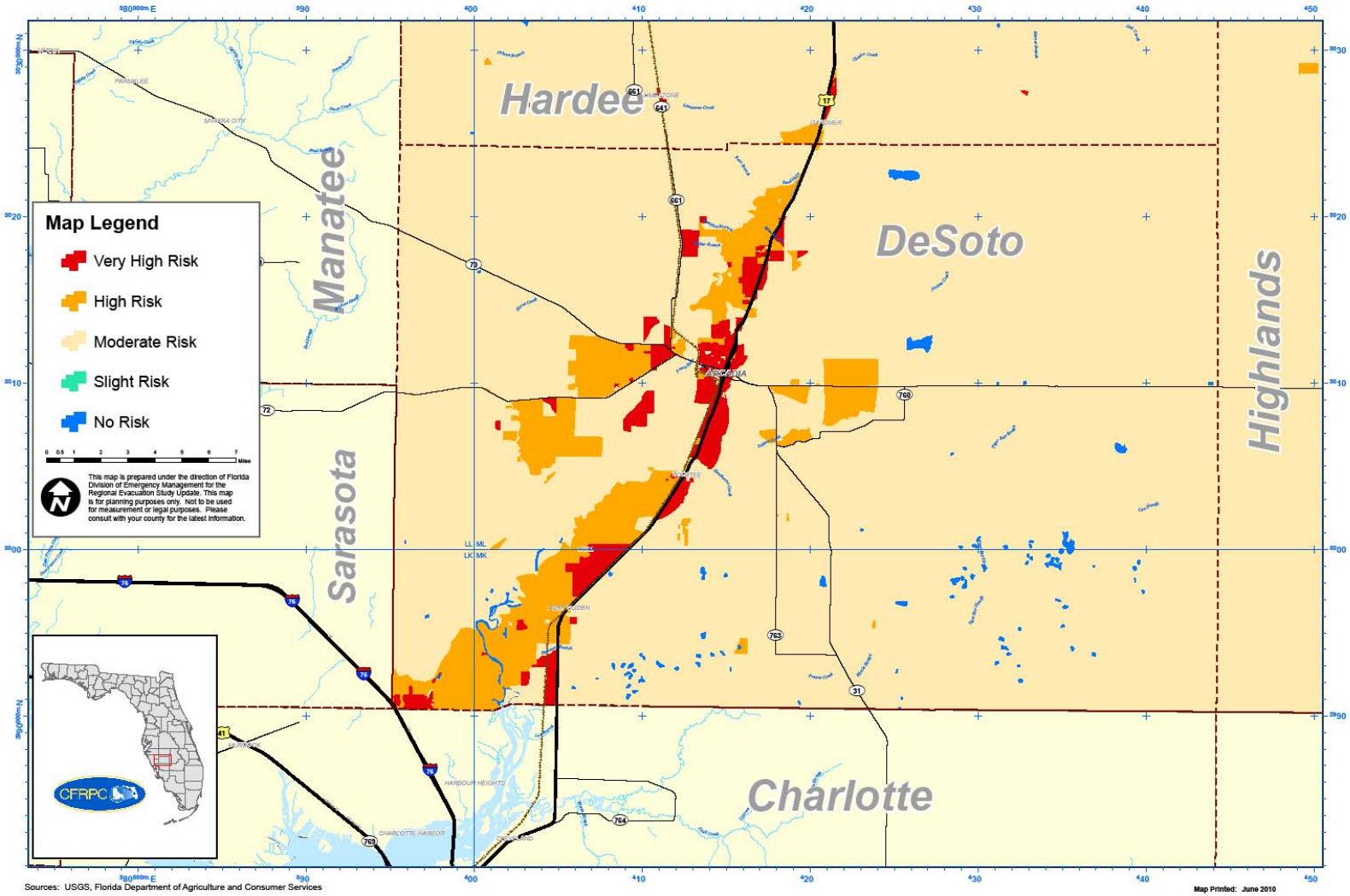
Map 2
DeSoto County Hurricane Evacuation Zones



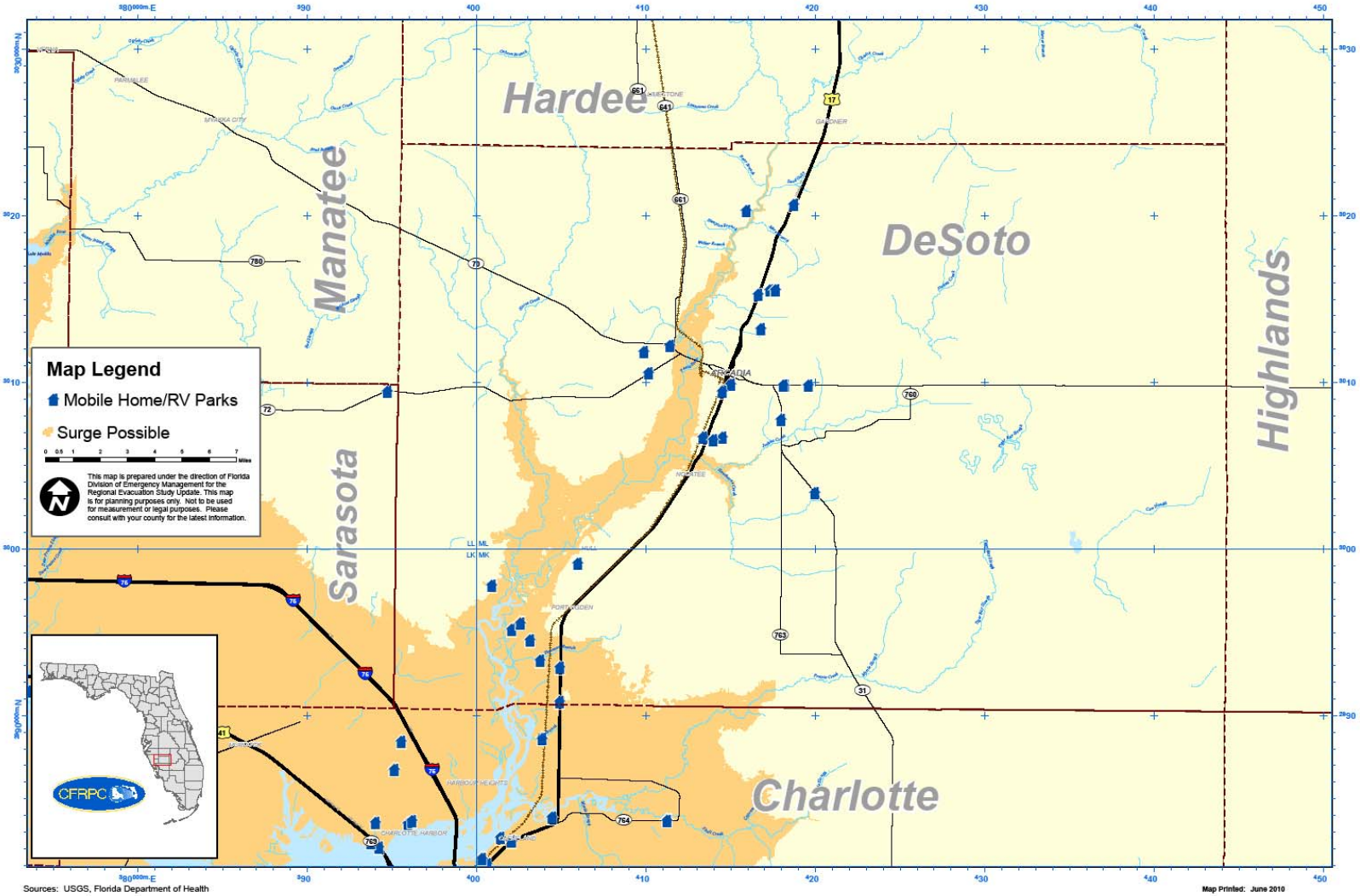
Map 3
DeSoto County FEMA FIRM Floodplains



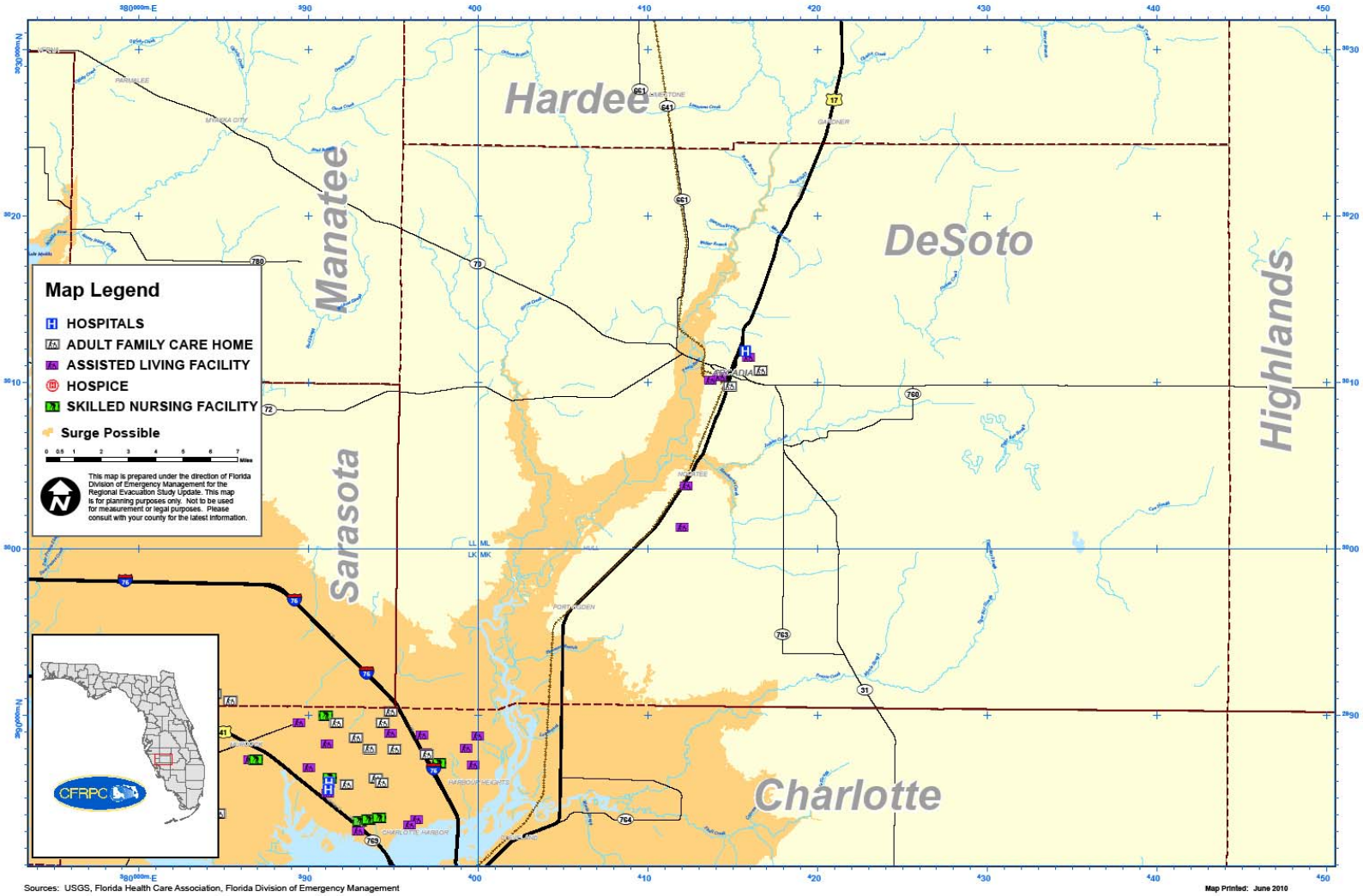
Map 4
DeSoto County Wildland-Urban Interface Fire Risk



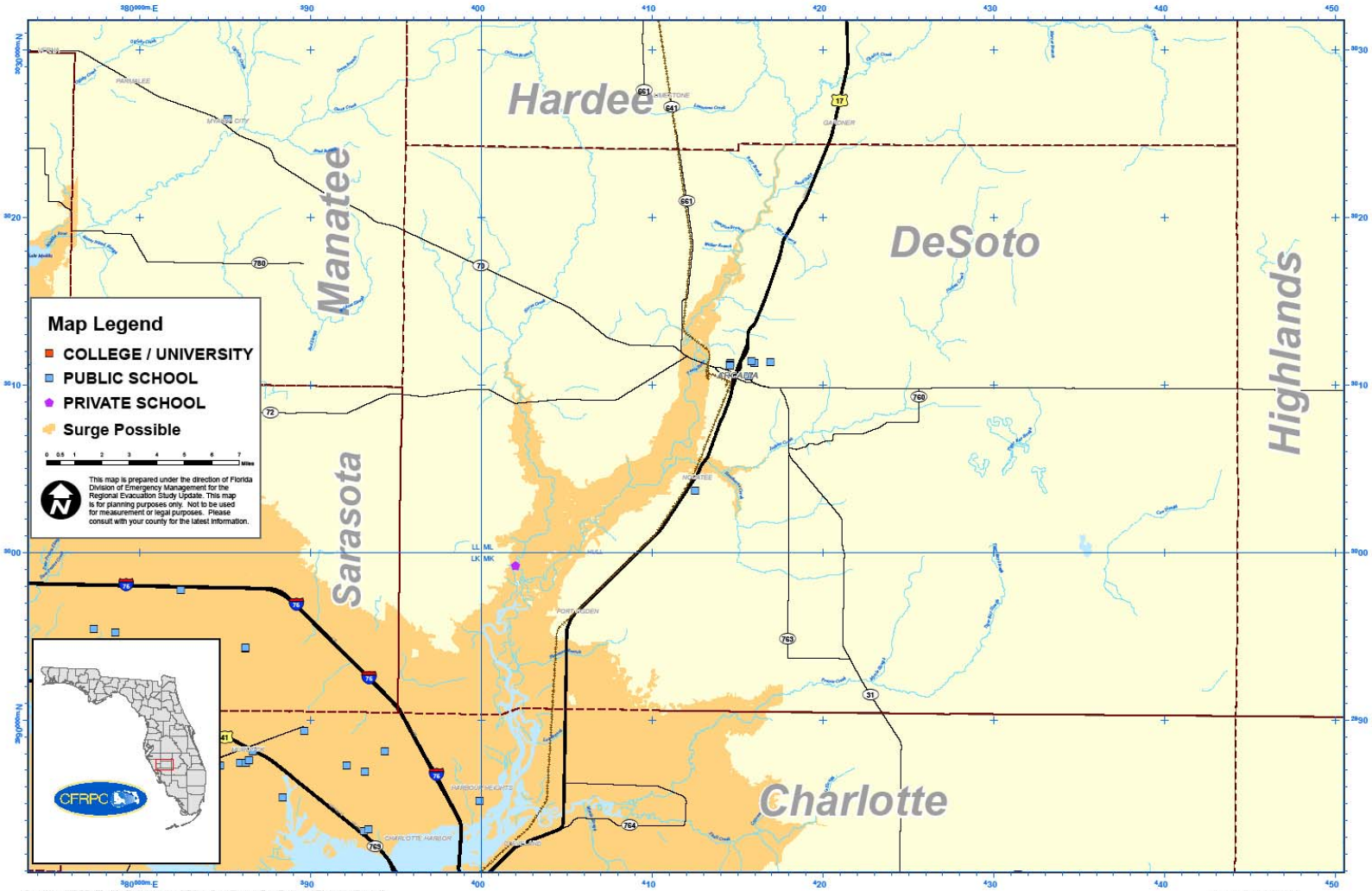
Map 5
DeSoto County Mobile Home and RV Parks



Map 6
DeSoto County Health Care Facilities



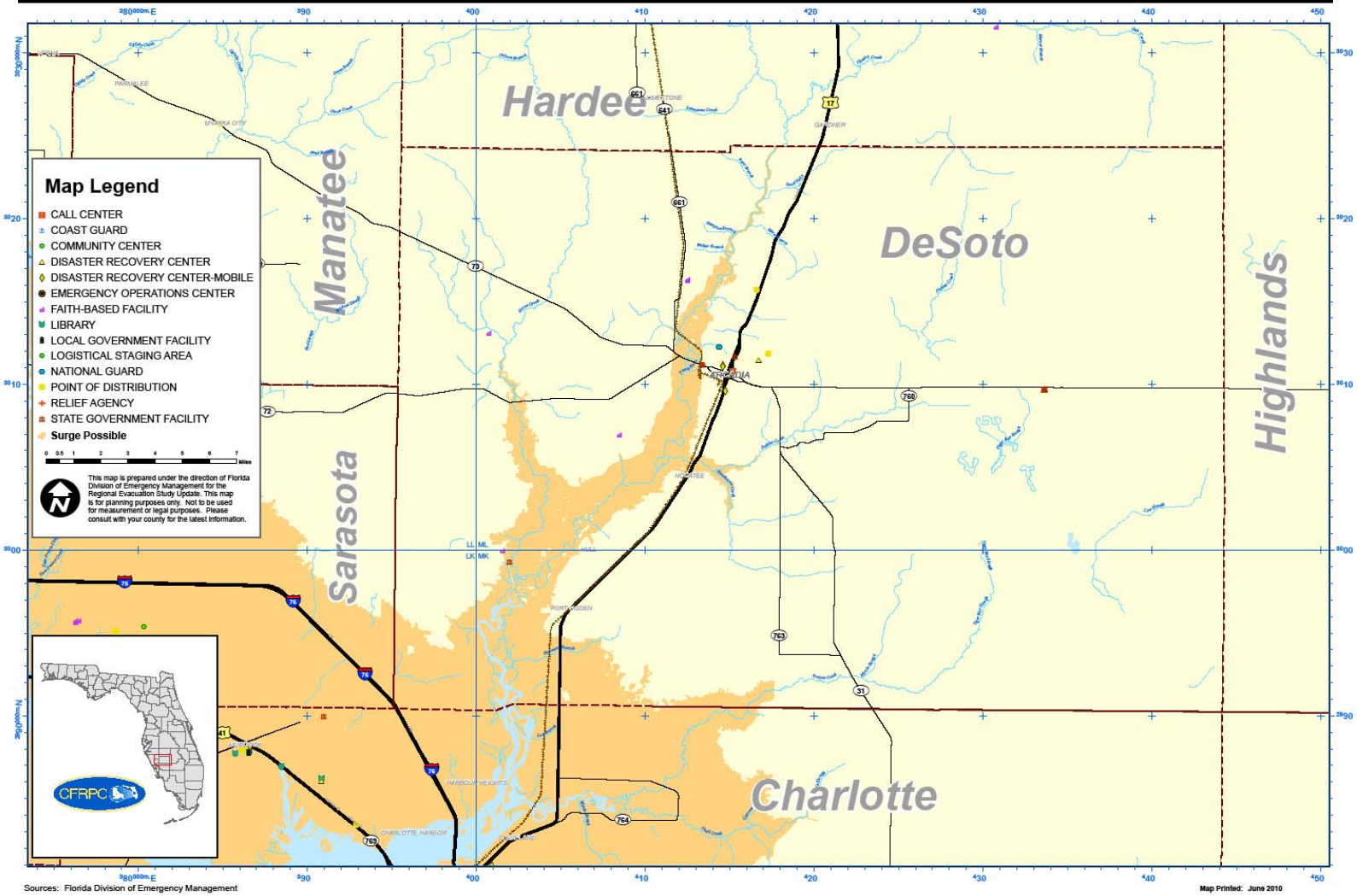
Map 7
DeSoto County Schools and Universities



Sources: USGS, Florida Department of Education, Tampa Bay Regional Planning Council

Map Printed: June 2010

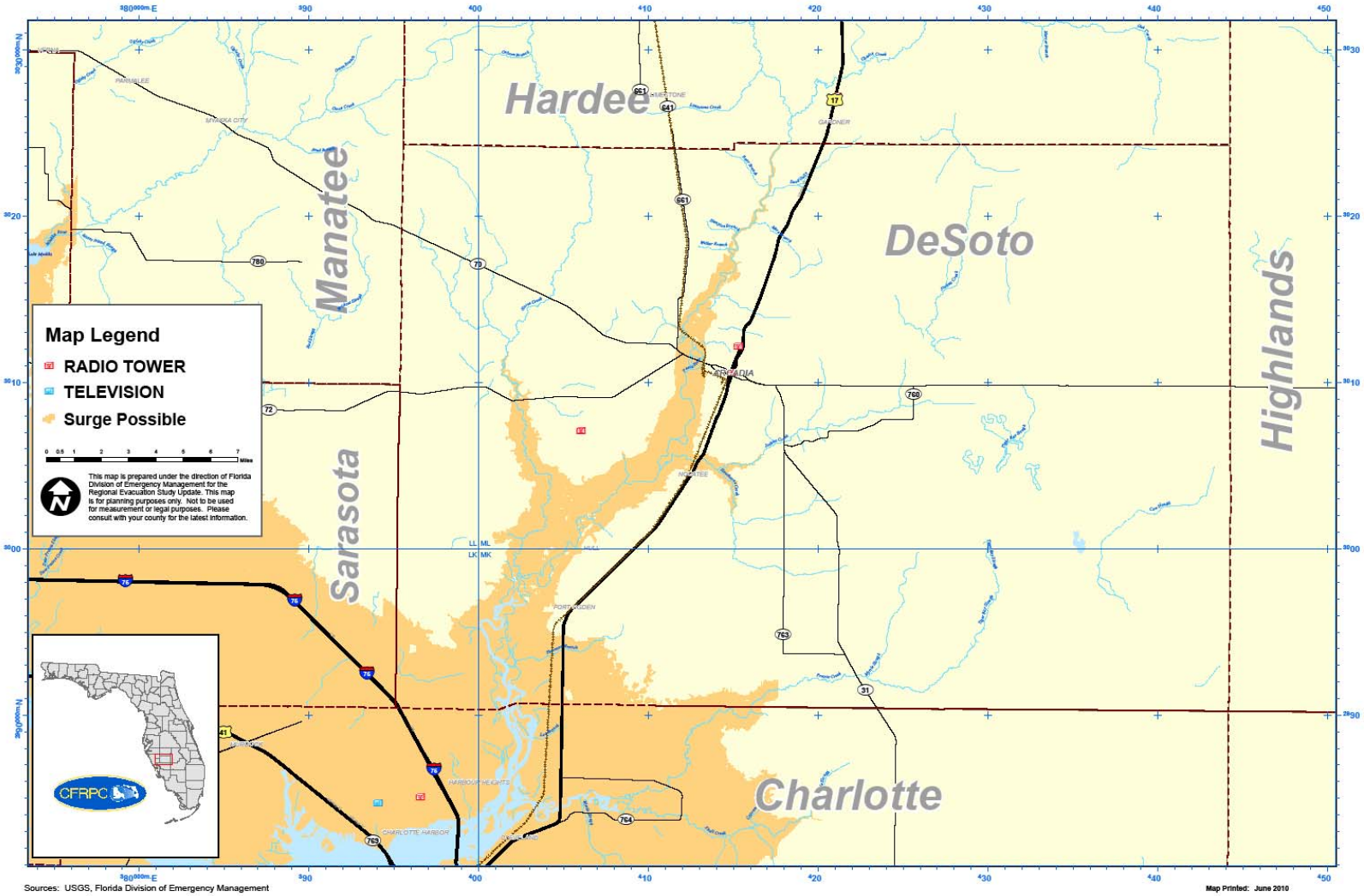
Map 8
DeSoto County EOCs, Logistical and Military Resources, PODs



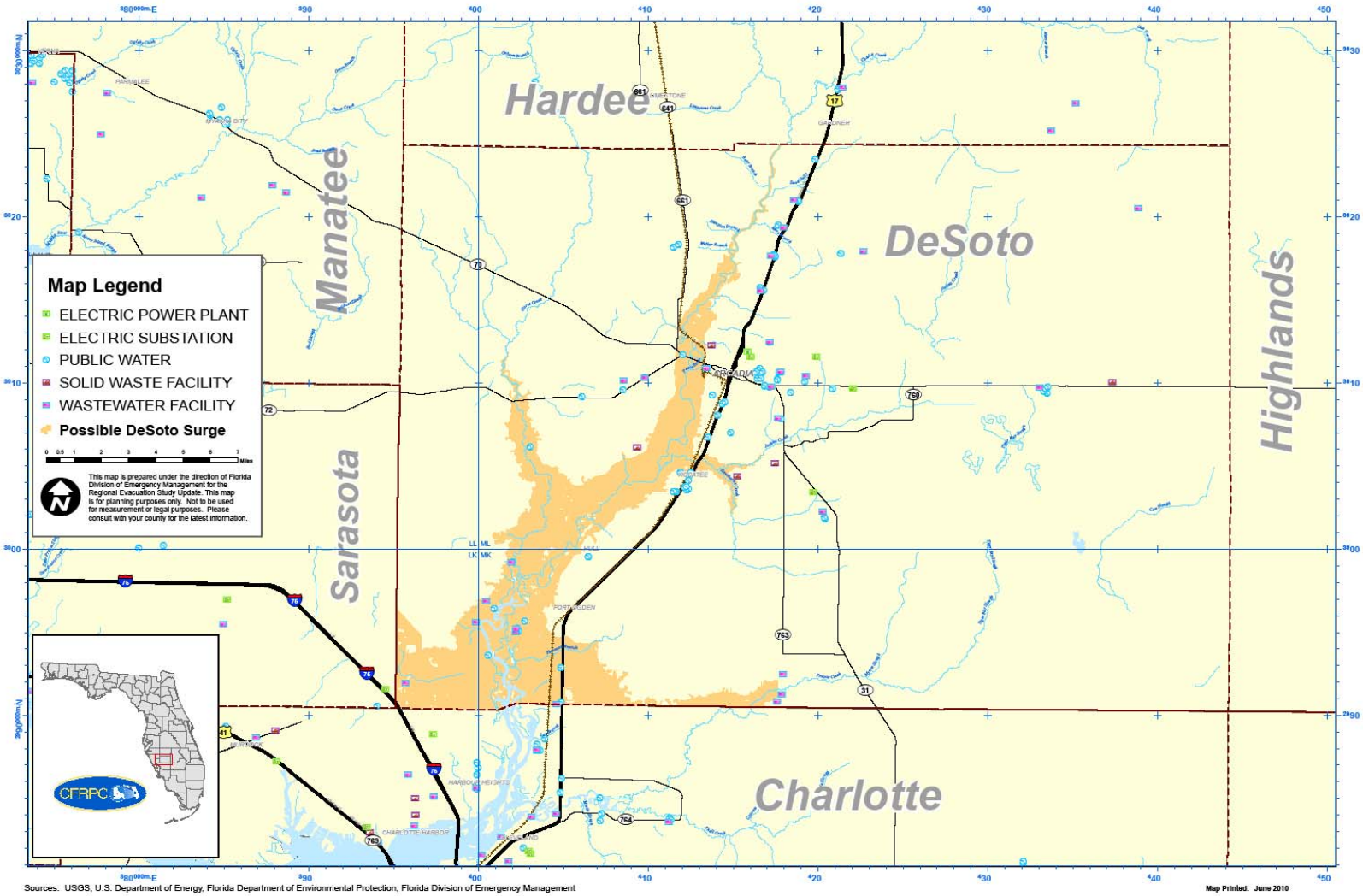
Sources: Florida Division of Emergency Management

Map Printed: June 2010

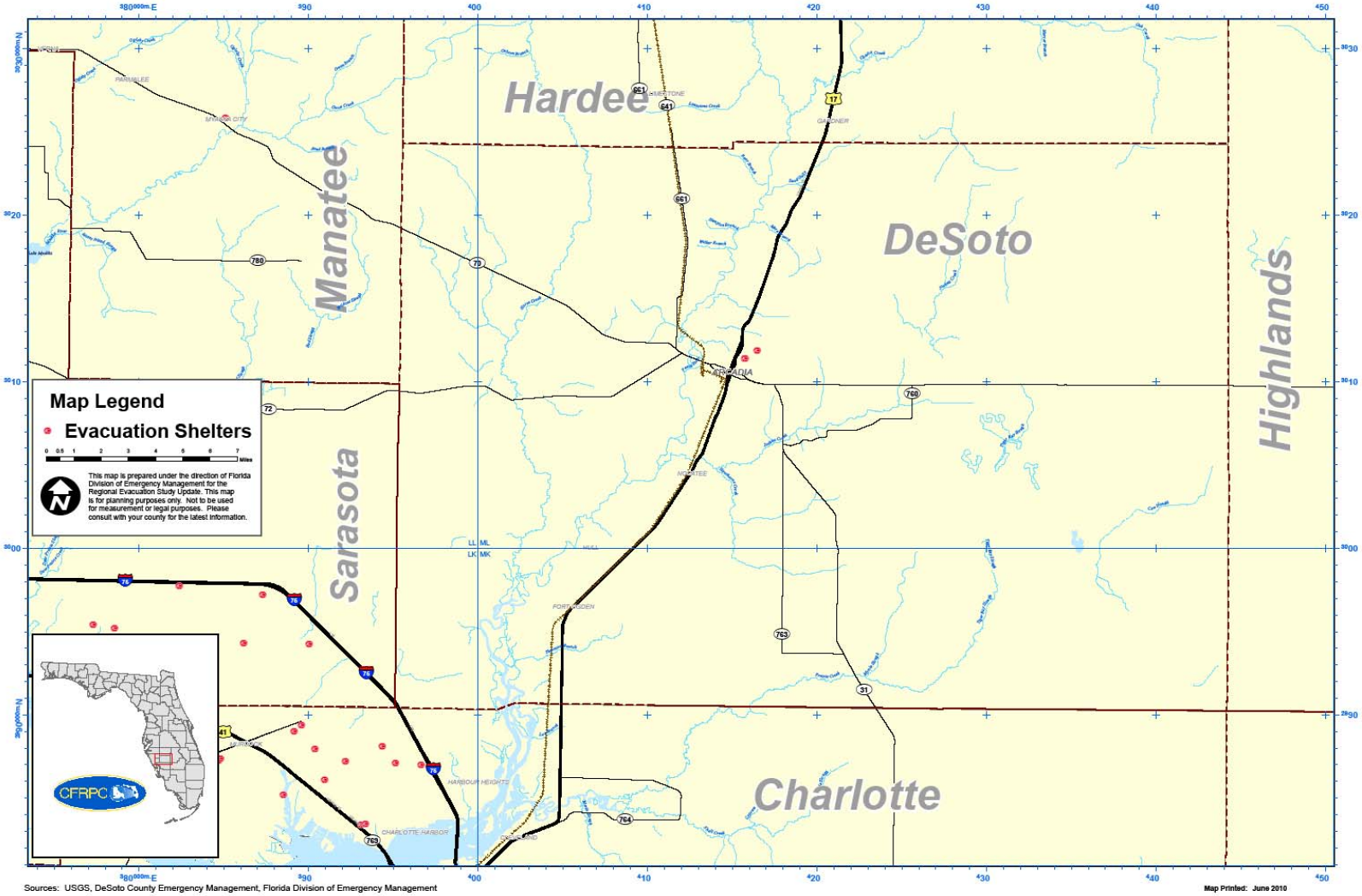
Map 9
DeSoto County Communications Resources



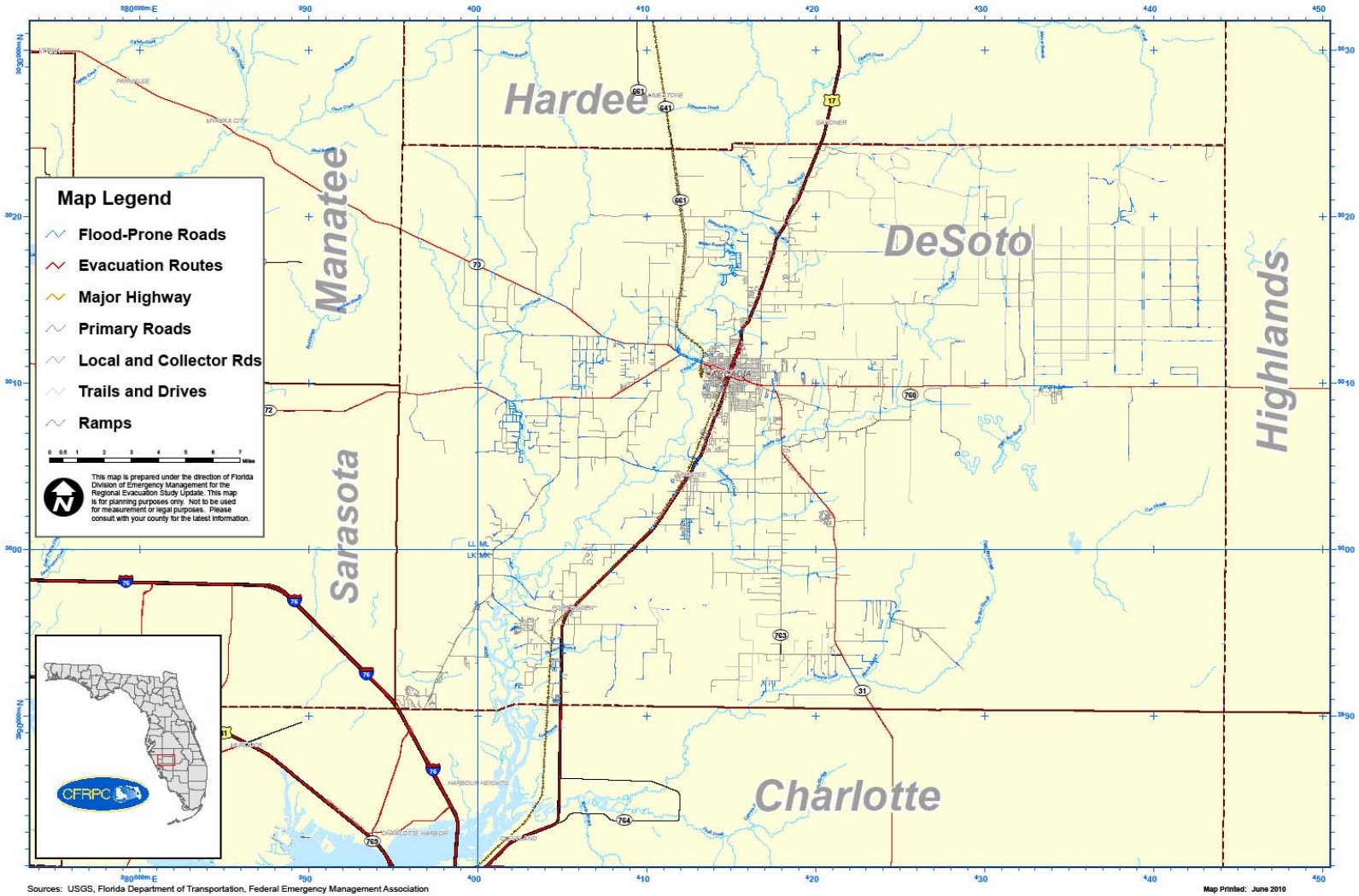
Map 10
DeSoto County Critical Infrastructure (Water, Wastewater, Landfills, etc.)



Map 11
DeSoto County Public Evacuation Shelters 2010



Map 12
DeSoto County Roads Vulnerable to Freshwater Flooding



DESOTO COUNTY MAPS

Overall County (Base)

Traffic Analysis Zones

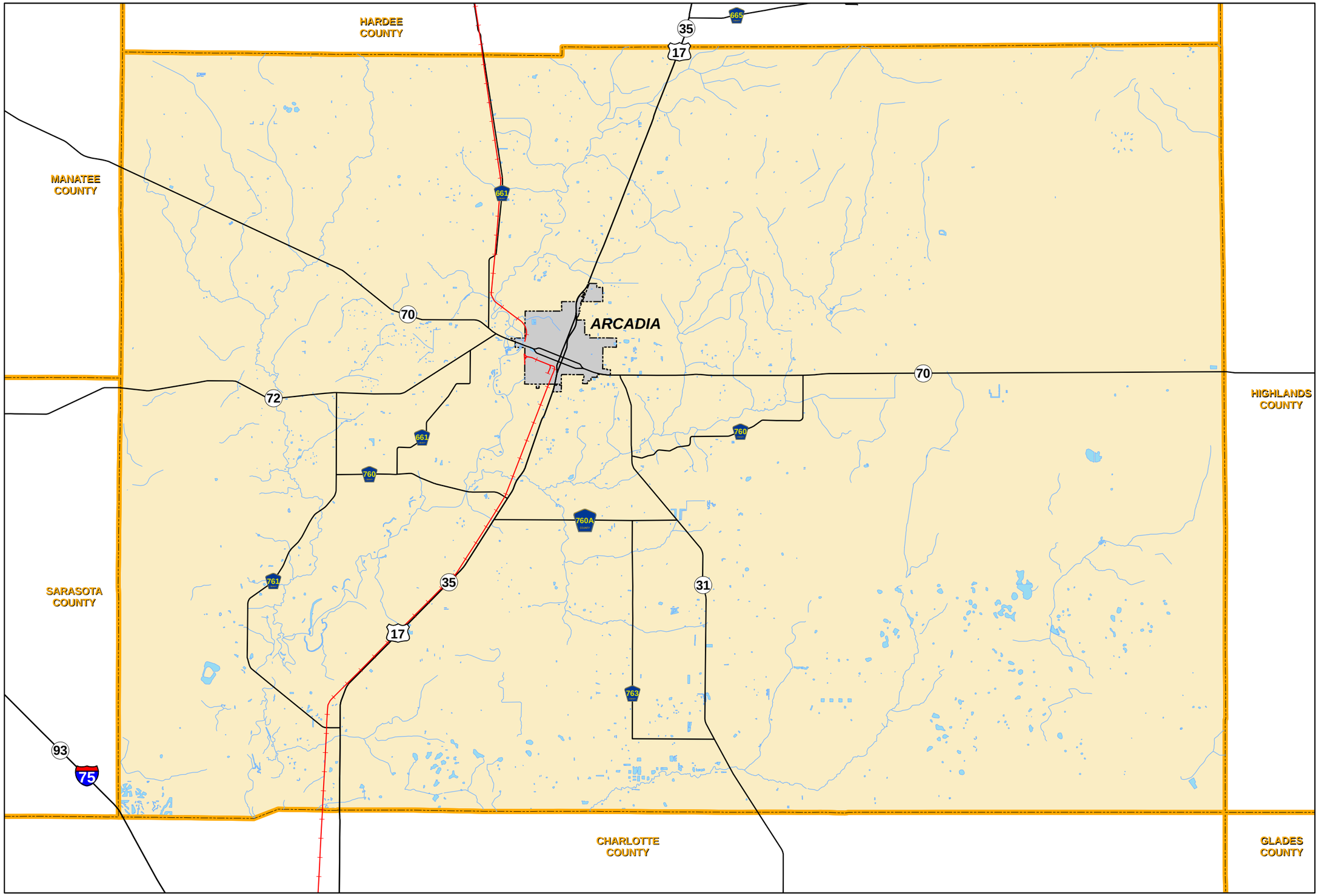
Residential Structures by Decade Built

Non-Residential Structures by Decade Built

Structures by Decade Built by Parcel Record

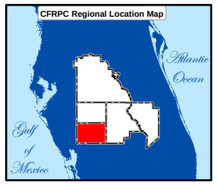
Critical Infrastructure

DeSoto County - Base Map



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- Municipalities
- County Boundaries



Central Florida Regional Planning Council

Central Florida
Disaster Resiliency Study

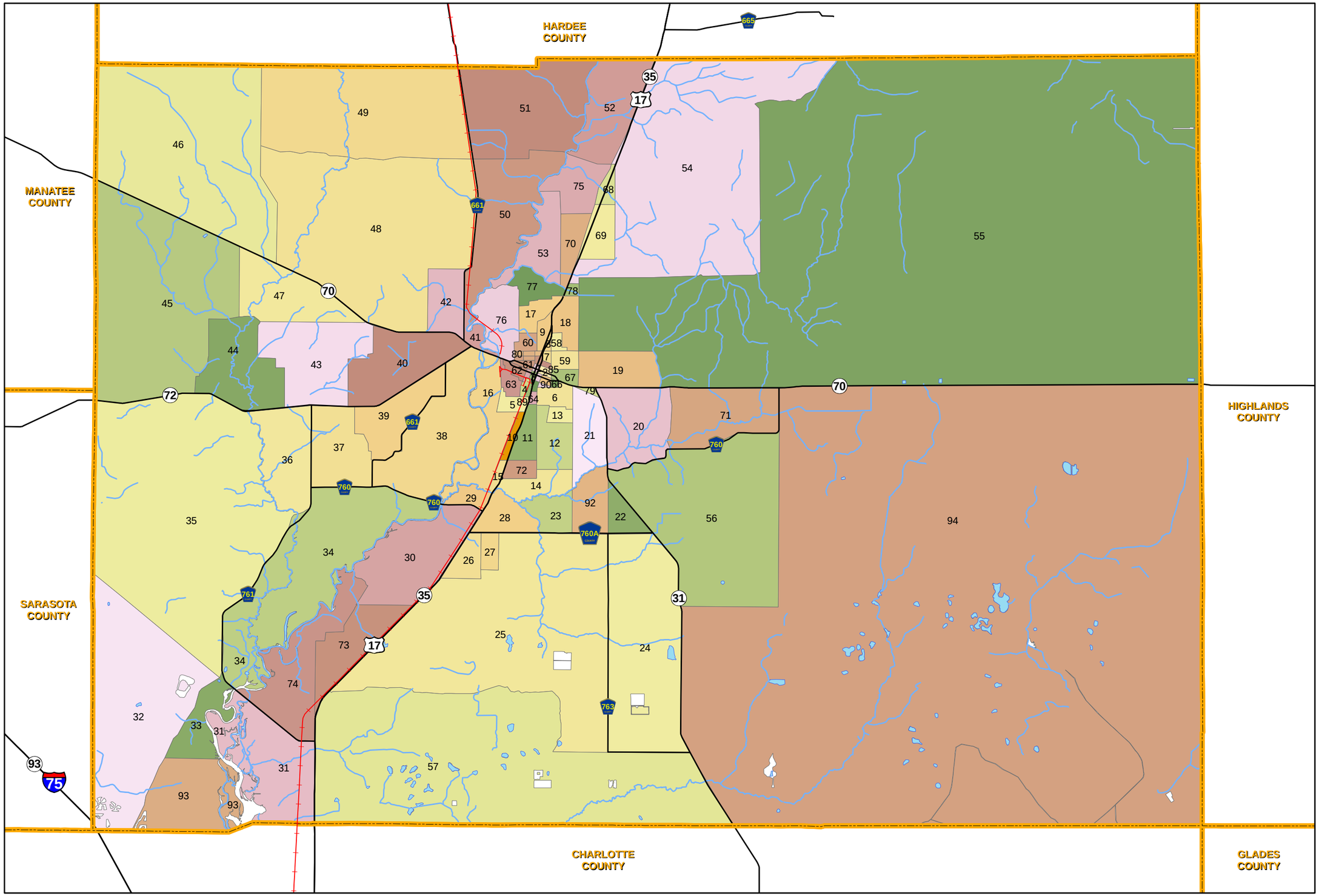
N

0 1 2 4
Miles

December 2010

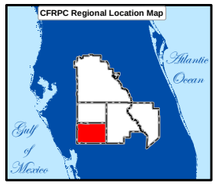
Source:
DeSoto County Property Appraiser
Florida Department of Transportation
Central Florida Regional Planning Council

DeSoto County - Traffic Analysis Zones (TAZ)



Legend

- 32 TAZ Numbers
- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida
Disaster Resiliency Study

N

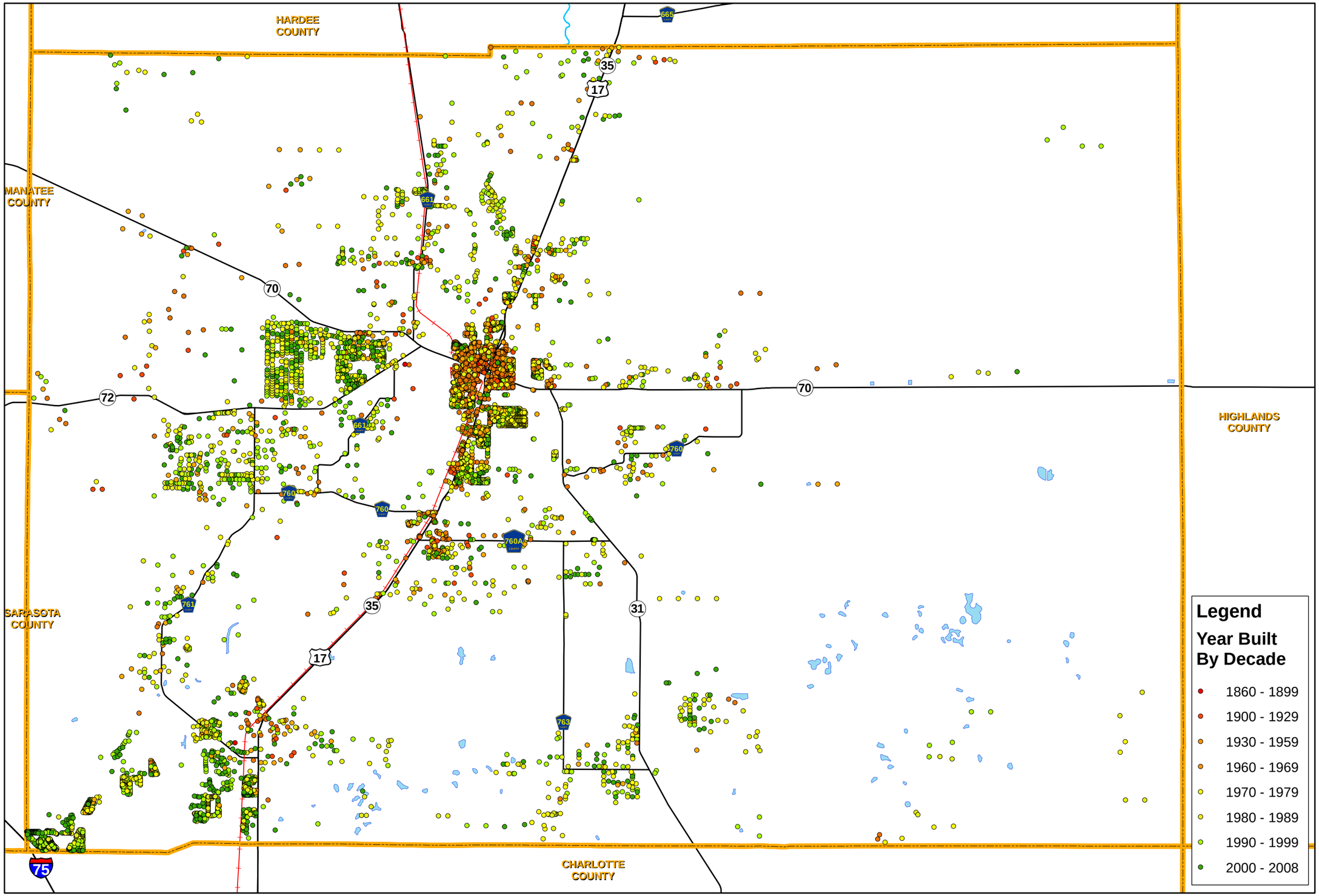
0 1 2 4
Miles

December 2010

Source: Florida Department of Transportation District 1 (2008)

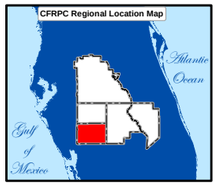
There are a total of 94 TAZs in DeSoto County

DeSoto County - Residential Structures by Decade Built



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

Legend

Year Built By Decade

- 1860 - 1899
- 1900 - 1929
- 1930 - 1959
- 1960 - 1969
- 1970 - 1979
- 1980 - 1989
- 1990 - 1999
- 2000 - 2008

N

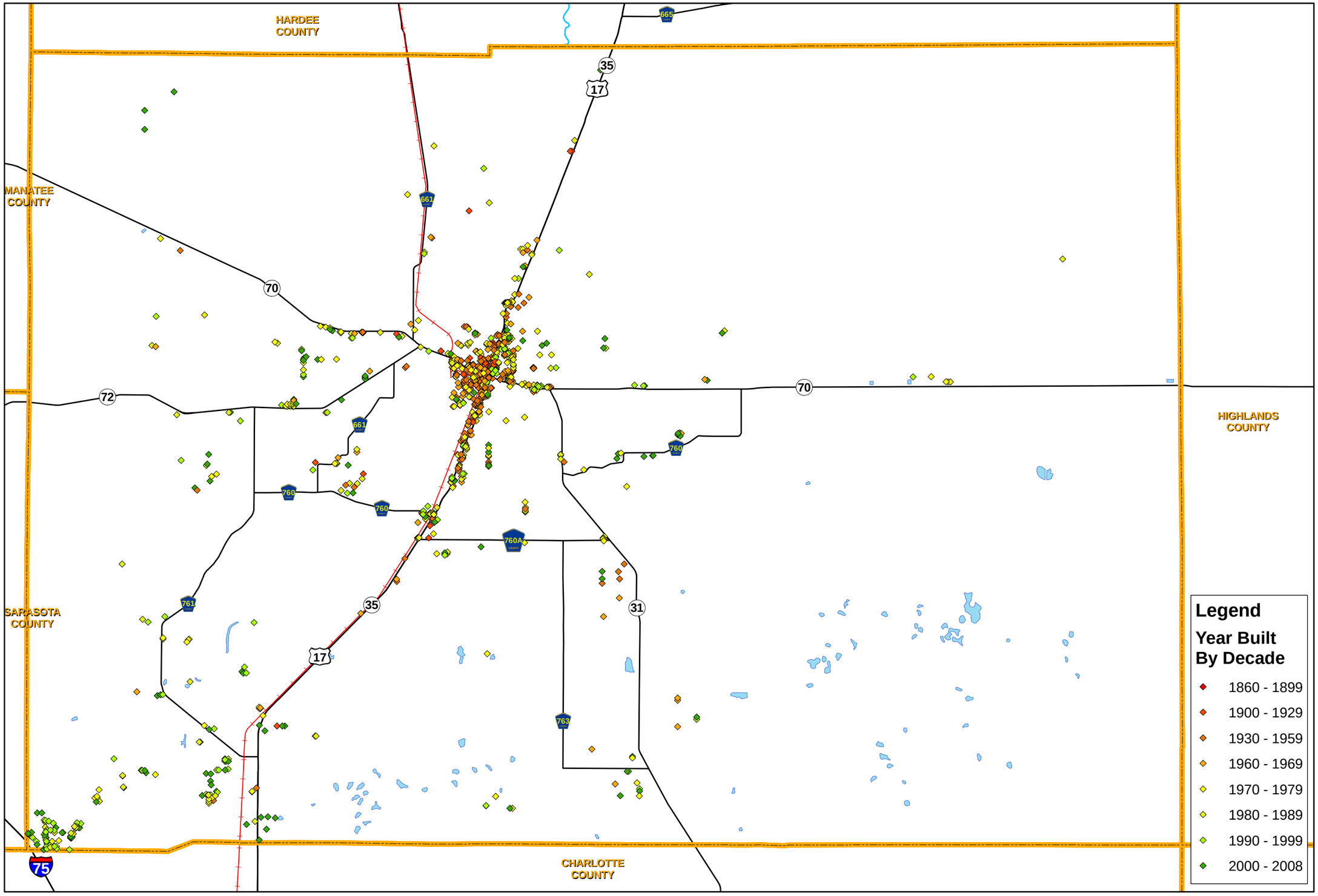
0 1 2 4

Miles

December 2010

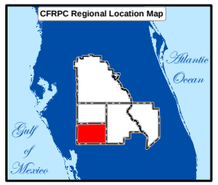
Source: Florida Department of Transportation District 1 (2008), DeSoto County Property Appraiser

DeSoto County - Non-Residential Structures by Decade Built



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

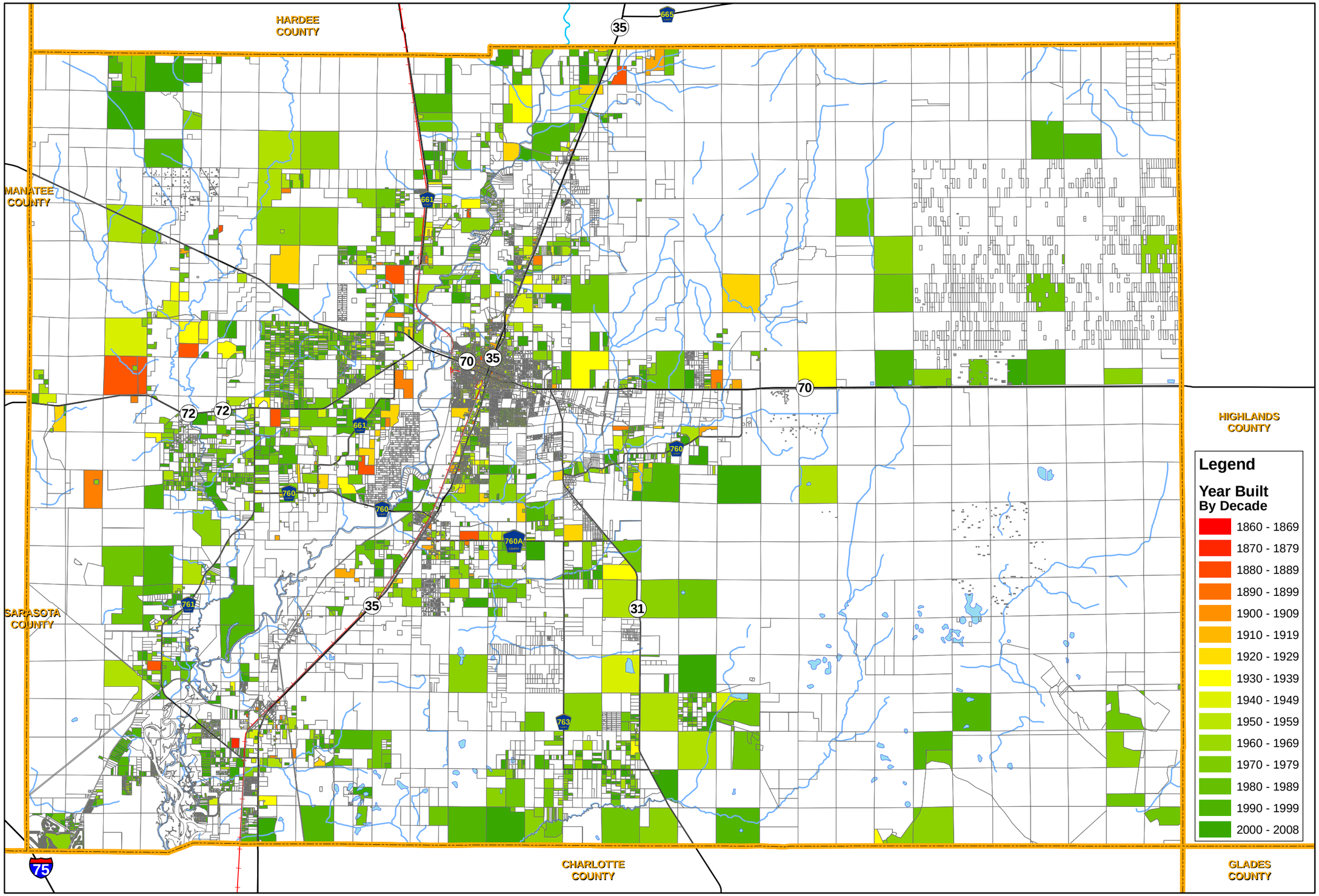
0 1 2 4

Miles

December 2010

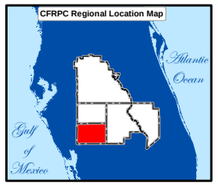
Source: Florida Department of Transportation District 1 (2008), DeSoto County Property Appraiser

DeSoto County - Structures by Decade Built - By Parcel Record



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Parcels
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

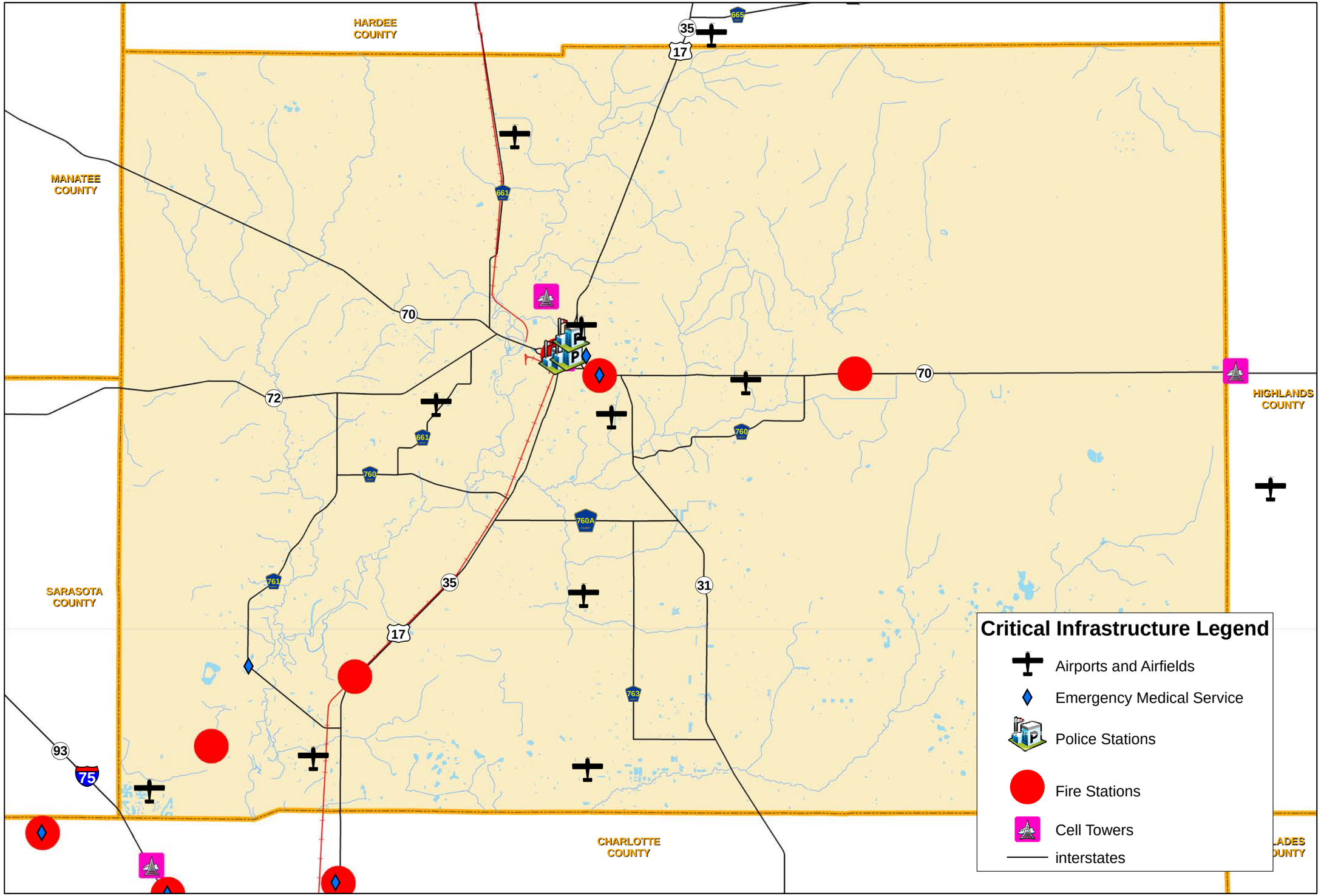
0 1 2 4

Miles

December 2010

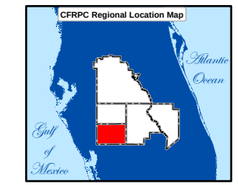
Source: Florida Department of Transportation District 1 (2008), DeSoto County Property Appraiser

DeSoto County - Critical Infrastructure



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

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N

0 1 2 4
Miles

December 2010

Source:
Federal Communications Commission
University of Florida GeoPlan Center
National Fire Department Census (United States Department of Homeland Security)
Federal Rail Administration
Florida Department of Transportation
Florida Department of Emergency Management

HARDEE COUNTY APPENDIX

Population and Critical Facilities

Maps

Overall County (Base)
Traffic Analysis Zones
Residential Structures by Decade Built
Non-Residential Structures by Decade Built
Structures by Decade Built by Parcel Record
Critical Infrastructure

HARDEE COUNTY APPENDIX
POPULATION AND CRITICAL FACILITIES

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A. Introduction

This appendix provides a County Economic Profile, Vulnerability Profile and a more detailed vulnerability analysis of critical facilities and corresponding maps for Hardee County.

B. County Profile

The data contained herein is provided to capture a profile of Hardee County including geographic and economic characteristics. In addition, many of the critical infrastructure partners including private sector and public utilities are identified.

Hardee County Profile

Visit eFlorida.com to learn more.

GEOGRAPHY

County Seat:	Wauchula
Nearest MSA:	Lakeland-Winter Haven MSA
Time Zone:	Eastern
Local Area Code(s):	(863)
Largest Cities:	Wauchula Bowling Green Zolfo Springs

Miles* To:	
Tallahassee	252
Orlando	70
Tampa	48
Jacksonville	192
Miami	162
Atlanta	455
Chicago	1,041
Dallas	966
New York	1,012

*Miles are calculated from county seat

POPULATION

	Hardee	Florida
1980:	20,357	9,746,961
1990:	19,499	12,938,071
2008:	28,888	18,328,340
2015(p):	28,900	20,055,900
2030(p):	30,700	23,979,000

* (p) Denotes Projected Population

CLIMATE

Average Temperature	High	Low
January:	73	49
July:	93	72

Florida Mean Annual Precipitation.....53
Average Annual Rain Days.....112

PER CAPITA PERSONAL INCOME

	Hardee	Florida
2005	$18,894	$34,709
2006	$19,830	$37,099
2007	$20,388	$38,417

MIGRATION

(2008)	
In-Migration	1,067
Out-Migration	1,219
Net-Migration	-152

* Estimates based on IRS Statistics of Income data

LABOR FORCE

(2009)	
Labor Force	11,595
Labor Force % of County Population	40.1
Number in County Unemployed	1,281
Unemployment Rate	11.0%

* Monthly labor force data are available from the Florida Agency for Workforce Innovation.

MEDIA

Local Radio Stations:

WZZS
WAUC

Local Television Stations:

none listed

Locally Printed Newspapers:

Herald Advocate

FINANCIAL INSTITUTIONS

Number of Banks:	4
Number of Savings and Loans:	0
Number of Credit Unions:	1

STATE AND LOCAL TAXATION

COUNTY

Countywide Ad Valorem Millage Rates:

Government	5.3585
Schools	7.5130
Special	0.3776
Total	13.2491

Ad Valorem Tax Exemption:	Yes
Retail Sales Tax (Local Option)	1.00
Federal Enterprise Zone	No
State Enterprise Zone	EZ-2501

STATE

Corporate Income Tax	5.5%
Personal Income Tax	0.0%
Retail Sales Tax	6.0%

EMPLOYMENT BY INDUSTRY

(2008)	Hardee	Florida
Average Annual Employment	8,162	7,945,162
Natural Resources & Mining	25.5%	1.2%
Construction	3.1%	6.5%
Trade, Transportation and Utilities	13.9%	20.5%
Manufacturing	3.2%	4.7%
Information	0.9%	2.0%
Other Services	1.6%	3.2%
Public Administration	11.5%	5.9%
Unclassified	N/D	
Leisure & Hospitality	4.9%	11.9%
Education & Health Services	15.3%	19.4%
Professional & Business Services	2.9%	14.4%
Financial Activities	3.7%	6.6%

Average Annual Wage

(2008)	
All Industries	$28,430
Construction	$28,232
Education & Health Services	$27,753
Financial Activities	$35,571
Information	$48,979
Leisure & Hospitality	$12,904
Manufacturing	$26,015
Natural Resources & Mining	$18,744
Other Services	$16,922
Professional & Business Services	$25,826
Public Administration	$35,530
Trade, Transportation and Utilities	$29,002
Unclassified	N/D

*N/D = No Data

EXISTING EMPLOYMENT

Major Private Sector Employers

Florida Institute for Neurological Rehabilitation
Business Line: Healthcare
Number of Employees.....550

Wal-Mart
Business Line: Retail
Number of Employees.....288

Mosaic
Business Line: Phosphate
Number of Employees.....277

C.F. Industries
Business Line: Phosphate
Number of Employees.....175

Peace River Electric Cooperative
Business Line: Electric Service
Number of Employees.....137

Wauchula State Bank
Business Line: Banking
Number of Employees.....121

Florida Hospital Heartland Division
Business Line: Healthcare
Number of Employees.....111

Old Castle Mulch
Business Line: Manufacturing
Number of Employees..... 60

Pacer Marine
Business Line: Manufacturing
Number of Employees.....60

First National Bank
Business Line: Banking
Number of Employees 38

TRANSPORTATION

Federal Interstates	None
Federal Highways	US-17
State Highways	SR 62
	SR-64
	SR-64A
	SR 66
Railroads	CSX

Nearest Airport with Scheduled Commercial Airline Service:	Sarasota/Bradenton International Airport
# Runways	2
Longest Paved Runway (ft.)	7,001
General Aviation Airports	Wauchula Municipal Airport
Local Deep Water Port	Manatee County Port Authority
Miles to Closest Port	25

COMMERCIAL/INDUSTRIAL SERVICES

Electric Companies:
- TECO
- Peace River Electric
- Seminole Electric
- Wauchula City Electric
- Vandolah Power Station

Natural Gas Companies:
- Coker Fuel
- Florida Natural Gas
- Suburban Propane

Telephone Companies:
- AT&T
- Embarq

Water & Sewer Companies:
- City of Bowling Green
- City of Wauchula
- Town of Zolfo Springs
- Hardee County Utility Department

Existing Industrial Zoned Land	Yes
Number of Acres	1,000
Largest Available Contiguous Parcel	200
Industrial Parks	Yes
Number of Acres	200
Largest Available Contiguous Parcel	160
Foreign Trade Zones	No
Zone Number(s)	

EDUCATION

	Public Schools
Elementary:	5
Secondary:	2
Total:	7

*Source: Hardee County School District

Private Schools Available: Yes

POST SECONDARY EDUCATION SERVING THE COUNTY:

Colleges/Universities:
- University of South Florida
- Florida Southern College
- Warner Southern College
- Webber International University

Junior/Community Colleges:
- South Florida Community College

Vocational/Technical Schools:
- South Florida Community College

Other Schools:
- Faith Evangelist Christian School
- Pioneer Career Academy
- Maranatha Baptist

QUALITY OF LIFE

Cost of Living
Price Level Index, (2007)
Florida State Average = 100

	Sample
Total	90.77
Food	100.38
Housing	82.38
Medical Care	93.48
Personal Goods and Services	93.78
Transportation	98.83

Source: Enterprise Florida, Inc.
800 North Magnolia Avenue, Suite 1100
Orlando, Florida 32803
Phone: (407) 956-5600
Fax: (407) 956-5599
World Wide Web:
http://www.eflorida.com

Medical Services:
- Eye Clinic
- Florida Hospital
- Florida Institute for Neurological Rehabilitation
- Hardee Health Department
- Walk-In Clinics

Recreational Opportunities:
- Florida Cracker trail
- Hardee Lake Park
- One 9-hole & two 18-hole golf courses
- Payne Creek Historical State Park
- Peace River Activities
- Pioneer Park
- Solomon's Castle

Historical Points Of Interest:
- Main Street
- Payne Creek Historical State Park
- Pioneer Museum

Cultural Events/Festivals:
- County Fair
- Grillin' & Chillin'
- Heartland Chorale
- Nature Fest
- Pioneer Park Days
- The Cracker Heritage Festival
- The Story of Jesus

C. County Vulnerable Population Profile

Hardee County Vulnerable Population Profile

Demographic Indicators

2009 County Population Estimate[1] -27,703
65-84 Population[1] - 3,213
85+ Population[1] - 533
Live Births (3yr count)[1] - 1,510
% of Population 65+ - 14%

Economic Indicators

Population Below Poverty[1] - 6,698
Food Stamp Recipients[7] - 4,133
WIC Enrollment[1] - 2,381
Average Monthly Medicaid Enrollment[1] - 5,181
Uninsured (Under 65)[1] - 7,271

Vulnerability Indicators

Population with 1 or more disabilities[2] - 5,655
% of Population with 1 or more disabilities - 20%
Elders Living Alone[8] - 1,005
Estimated Homeless[7] - 835
Children in Foster Care[7] - 41
Developmentally Disabled[4] - 168
Seriously Mentally Ill Adults[7] - 1,099
Brain &/or Spinal Cord Injured Clients[5] - 1
Estimated Oxygen Dependent Clients - 322
Elders with Dementia[8] - 679
CMS Clients[6] - 90
Dialysis Clients[3] - 40
Seriously Emotionally Disturbed Children[7] - 575

Data Sources

[1] Department of Health Office of Planning, Data Analysis and Evaluation
[2] US Census Data
[3] Florida End Stage Renal Disease Network
[4] Agency for Persons with Disabilities
[5] Department of Health Brain and Spinal Cord Injury Program
[6] Department of Health Division of Children's Medical Services
[7] Department of Children and Families
[8] Department of Elder Affairs

Source: Florida Department of Health, 2010

D. Critical Facility Vulnerability Analysis

Specific attention was paid to health care facilities such as hospitals and nursing homes; emergency response agencies, hazardous materials, mobile home parks, schools and colleges and community centers. Each facility has the name, location, latitude/longitude coordinates, description, critical code and results of the 2010 surge analysis (completed as part of the Florida Statewide Regional Evacuation Study for the Central Florida Region) based on the most accurate topographic data and the SLOSH model.

The Critical Facility Inventory (database) includes a comprehensive list of critical facilities identified by the State and County Emergency Management Agencies. This inventory is not published as part of the report. However, selected facilities which may require evacuation or mitigation are identified in the tables and maps which follow. The tables indicate vulnerability from storm surge (based on the SLOSH model), freshwater flooding (based on the FEMA Flood Maps) and wildfire (Wildfire Interface/Levels of Concern).

Table 1
Hardee County Health Care Vulnerability Assessment

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Assisted Living Facility	Teach	3858 W Main Street	Wauchula	33873	108	N/A	N/A	Out	N
Assisted Living Facility	Winner Ranch	1531 Johns Road	Wauchula	33873	111	N/A	N/A	Out	Y
Assisted Living Facility	Aces	124 Dink Albritton	Wauchula	33873	110	N/A	N/A	Out	N
Assisted Living Facility	Southern Oaks Retirement Center	157 Will Duke Road	Wauchula	33873	71	N/A	N/A	Out	N
Assisted Living Facility	Resthaven of Hardee County, Inc.	298 Resthaven Road	Zolfo Springs	33890	124	N/A	N/A	Out	N
Hospital	Florida Hospital Wauchula	533 West Carlton Street	Wauchula	33873	99	N/A	N/A	Out	Y
Clinical Laboratory	Florida Hospital Wauchula Laboratory	533 West Carlton Street	Wauchula	33873	99	N/A	N/A	Out	Y
Clinical Laboratory	Just For Her	417 Carlton Street	Wauchula	33873	107	N/A	N/A	Out	Y
Clinical Laboratory	Pioneer Medical Center LLP	515 Carlton Street	Wauchula	33873	106	N/A	N/A	Out	Y
Clinical Laboratory	Central Florida Health Care – Wauchula	204 E Palmetto St	Wauchula	33873	110	N/A	N/A	Out	N
Clinical Laboratory	Hardee County Health Department	115 K D Revell Road	Wauchula	33873	102	N/A	N/A	Out	Y
Transitional Living Facility	Florida Institute for Neurologic Rehab, Inc.	1962 Vandolah Road	Wauchula	33873	104	N/A	N/A	Out	N
Transitional Living Facility	Florida Institute For Neurologic Rehabilitation	204 Bay Street	Wauchula	33873	105	N/A	N/A	Out	Y
Skilled Nursing Facility	Finr lii, LLC	1962 Vandolah Road	Wauchula	33873	104	N/A	N/A	Out	N
Skilled Nursing Facility	Hardee Manor Healthcare Center	401 Orange Place	Wauchula	33873	102	N/A	N/A	Out	Y

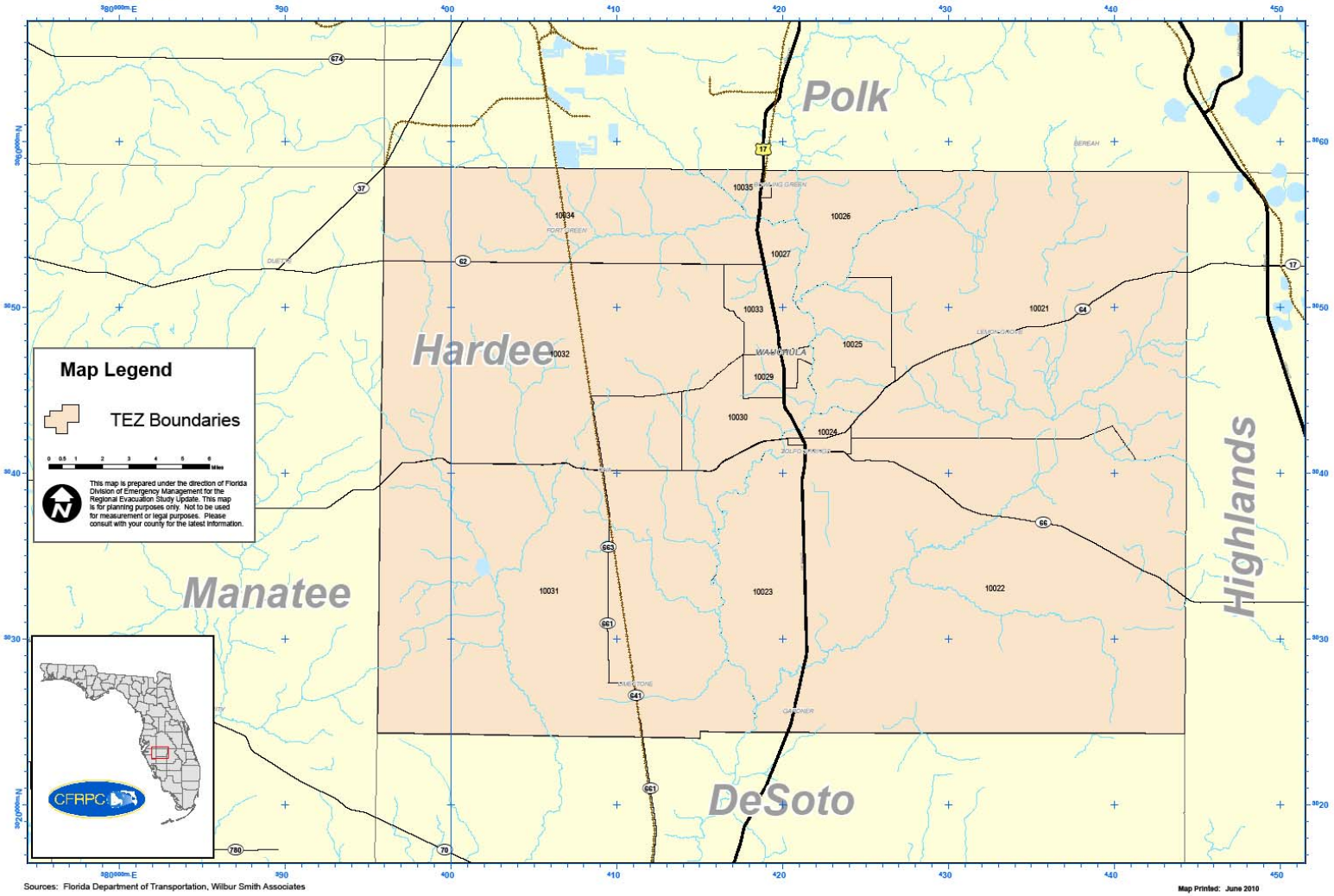
FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Adult Family Care Home	Juanita Wright	1210 Weston Court	Wauchula	33873	77	N/A	N/A	Out	N

Table 2
Hardee County Other Critical Facilities Vulnerability Assessment

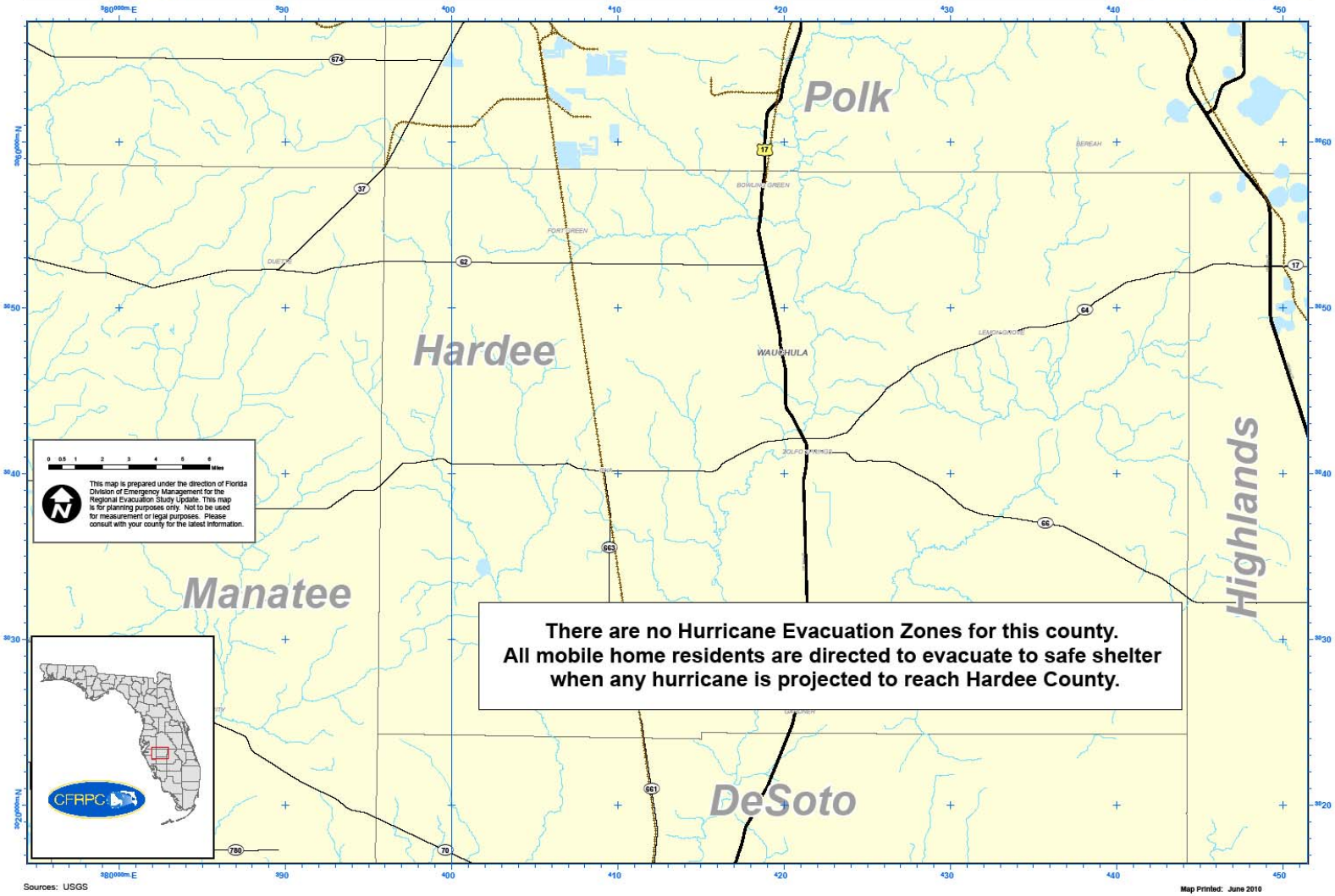
FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Radio Tower	W299AU		Zolfo Springs	33890	87	N/A	N/A	Out	Y
Radio Tower	W229AV		Wauchula	33873	63	N/A	N/A	100	N
Radio Tower	W276BS		Wauchula	33873	109	N/A	N/A	Out	N
Radio Tower	WAUC		Wauchula	33873	66	N/A	N/A	100	N
Radio Tower	WWWP-LP		Wauchula	33873	101	N/A	N/A	Out	Y
Call Center	WZZS		Zolfo Springs	33890	55	N/A	N/A	Out	Y
Fire Station	Hardee County Fire/Rescue	149 K D Revell Road	Wauchula	33873	98	N/A	N/A	Out	Y
Fire Station	Hardee County Fire/Rescue (Bowling Green)	620 Main Street West	Bowling Green	33834	111	N/A	N/A	Out	Y
Fire Station	Hardee County Fire/Rescue (Zolfo Springs)	104 Fifth Street West	Zolfo Springs	33890	92	N/A	N/A	Out	Y
Law Enforcement	Hardee County Sheriff's Dept HQ	900 East Summit Street	Wauchula	33873	69	N/A	N/A	Out	Y
Law Enforcement	Bowling Green Police Dept HQ	104 Main Street East	Bowling Green	33834	116	N/A	N/A	Out	Y
Law Enforcement	Wauchula Police Dept HQ	128 South 7th Avenue	Wauchula	33873	112	N/A	N/A	Out	N
Law Enforcement	Zolfo Springs Police Dept HQ	104 Fifth Street West	Zolfo Springs	33890	92	N/A	N/A	Out	Y
Electric Power Plant	Hardee Power Station		Fort Green	33834	116	N/A	N/A	Out	N
Electric Power Plant	Payne Creek		Bowling Green		121	N/A	N/A	Out	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Airport	Wauchula Municipal		Wauchula	33873	55	N/A	N/A	100	N
Airport	Crews Homestead Ranch		Avon Park		86	N/A	N/A	Out	N
Airport	Gardner		Gardner		75	N/A	N/A	Out	N
Airport	Griffins Peace River Ranch		Zolfo Springs	33890	65	N/A	N/A	Out	N

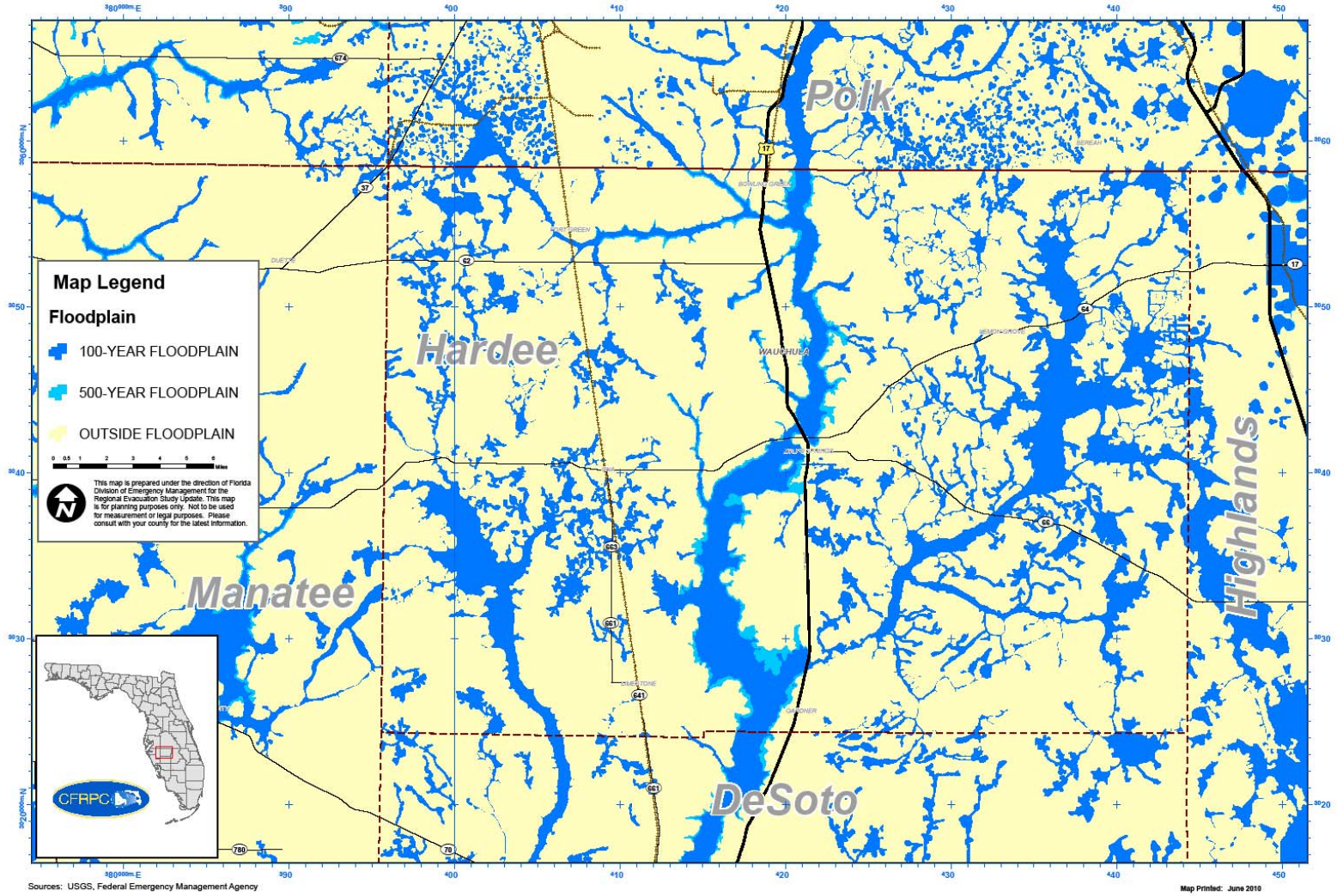
Map 1
Hardee County Traffic Evacuation Zones



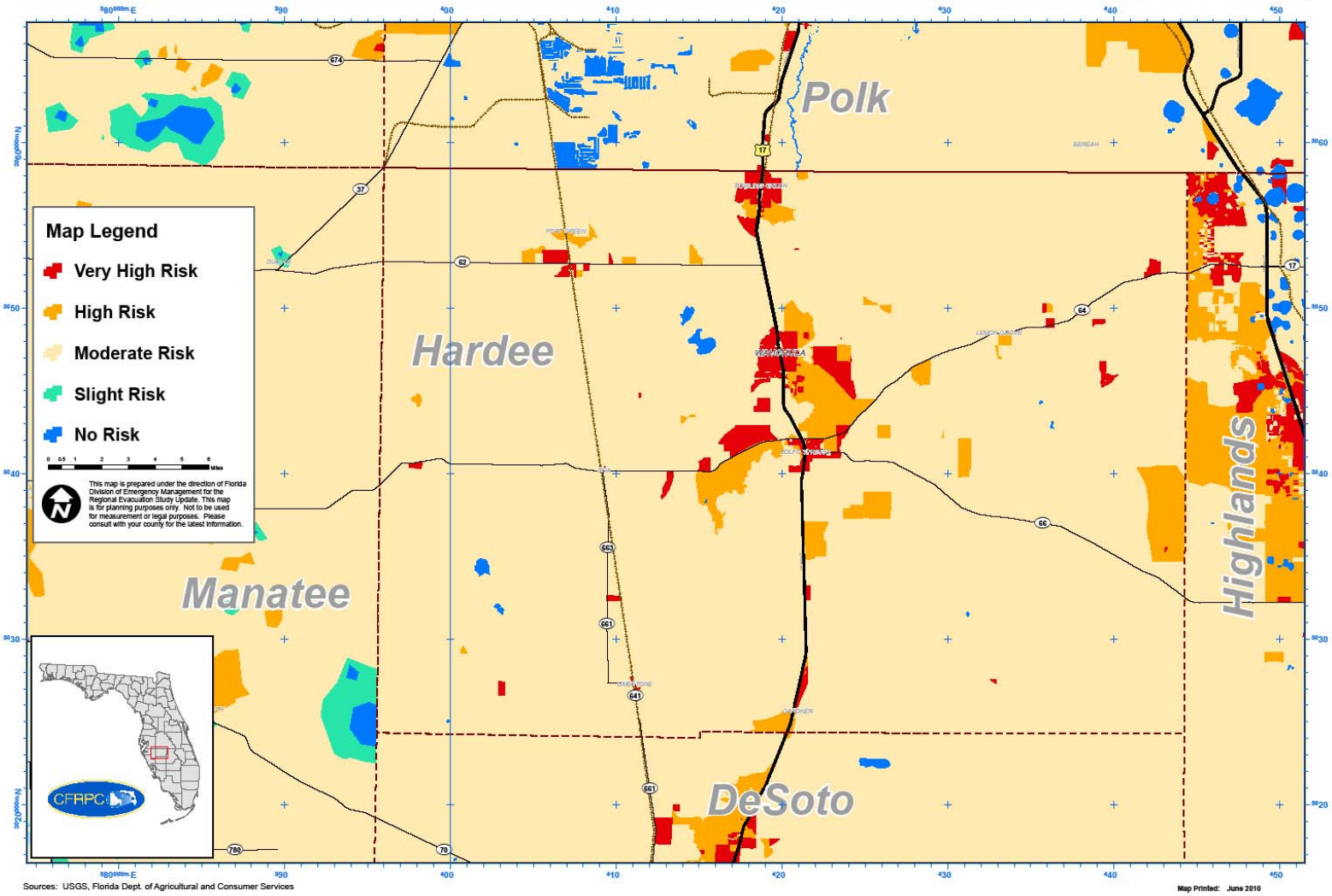
Map 2
Hardee County Hurricane Evacuation Zones



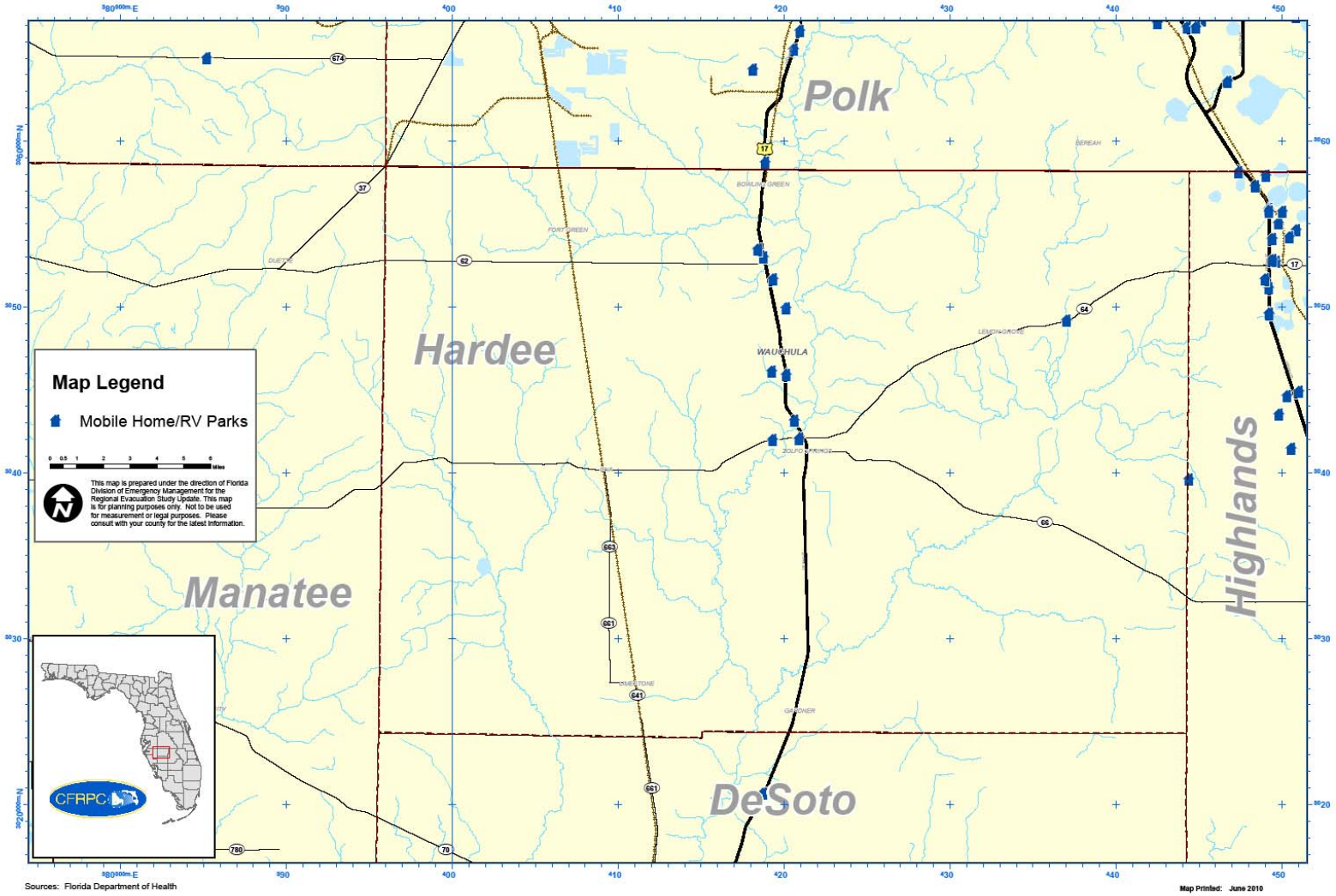
Map 3
Hardee County FEMA FIRM Floodplains



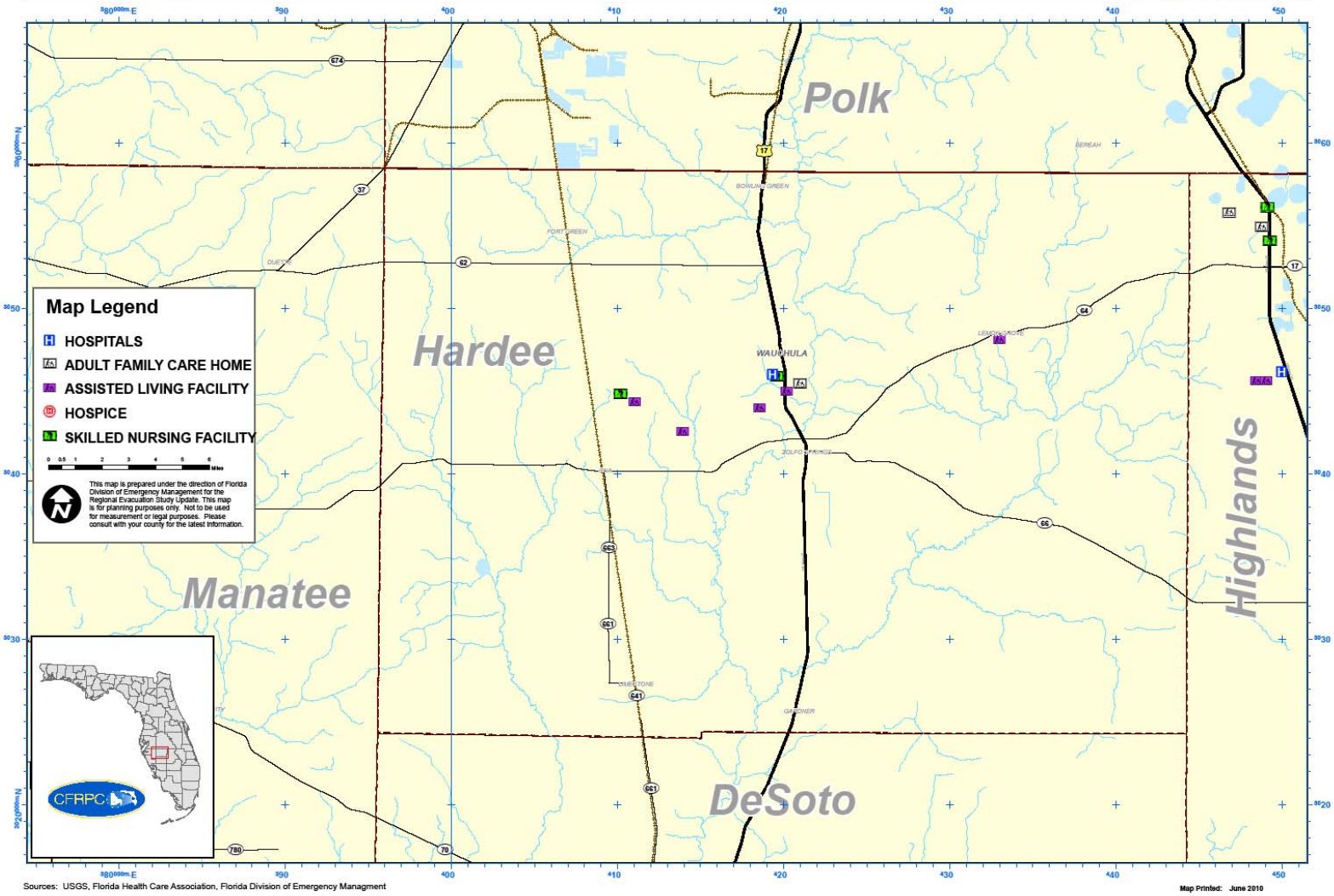
Map 4
Hardee County Wildland-Urban Interface Fire Risk



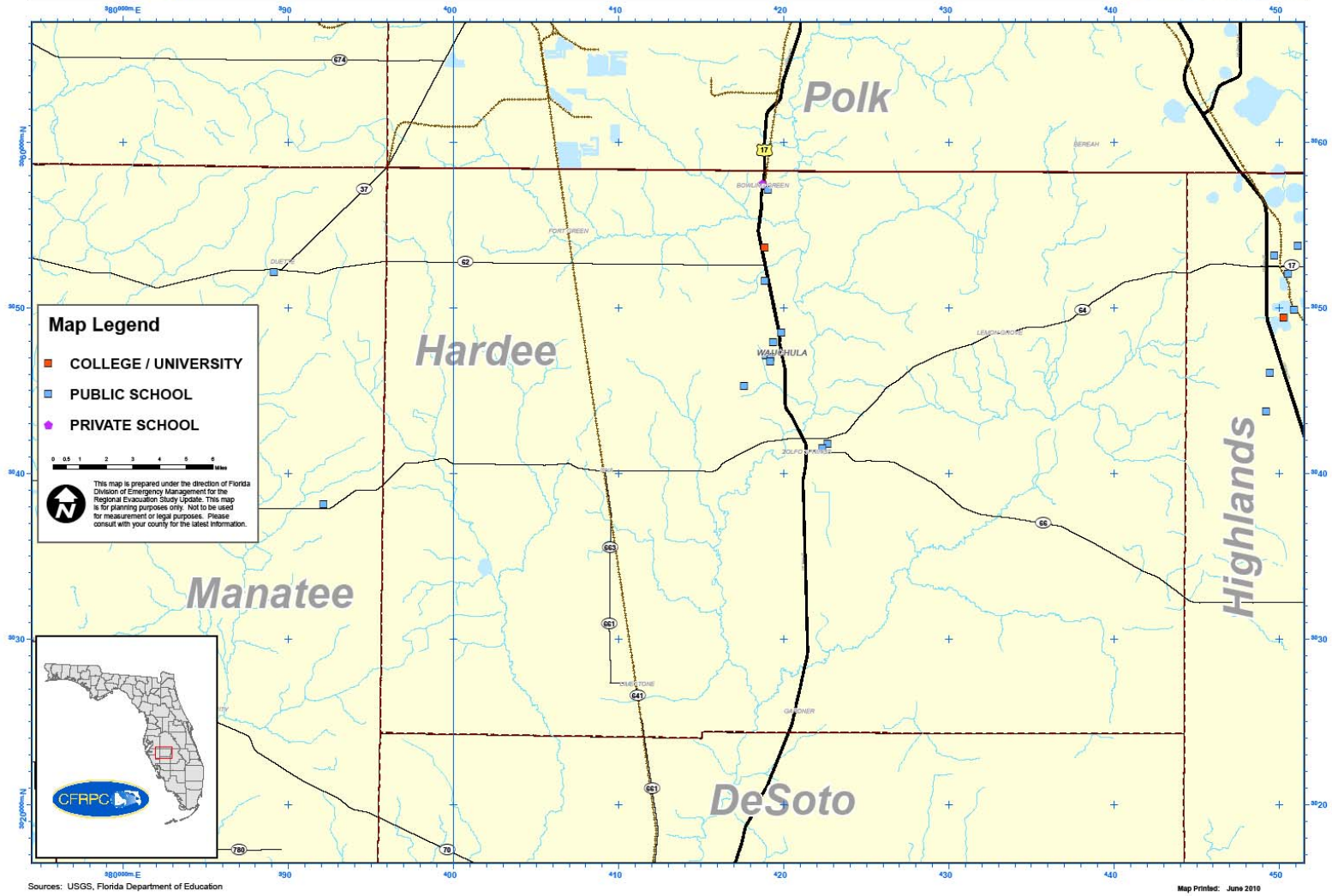
Map 5
Hardee County Mobile Home and RV Parks



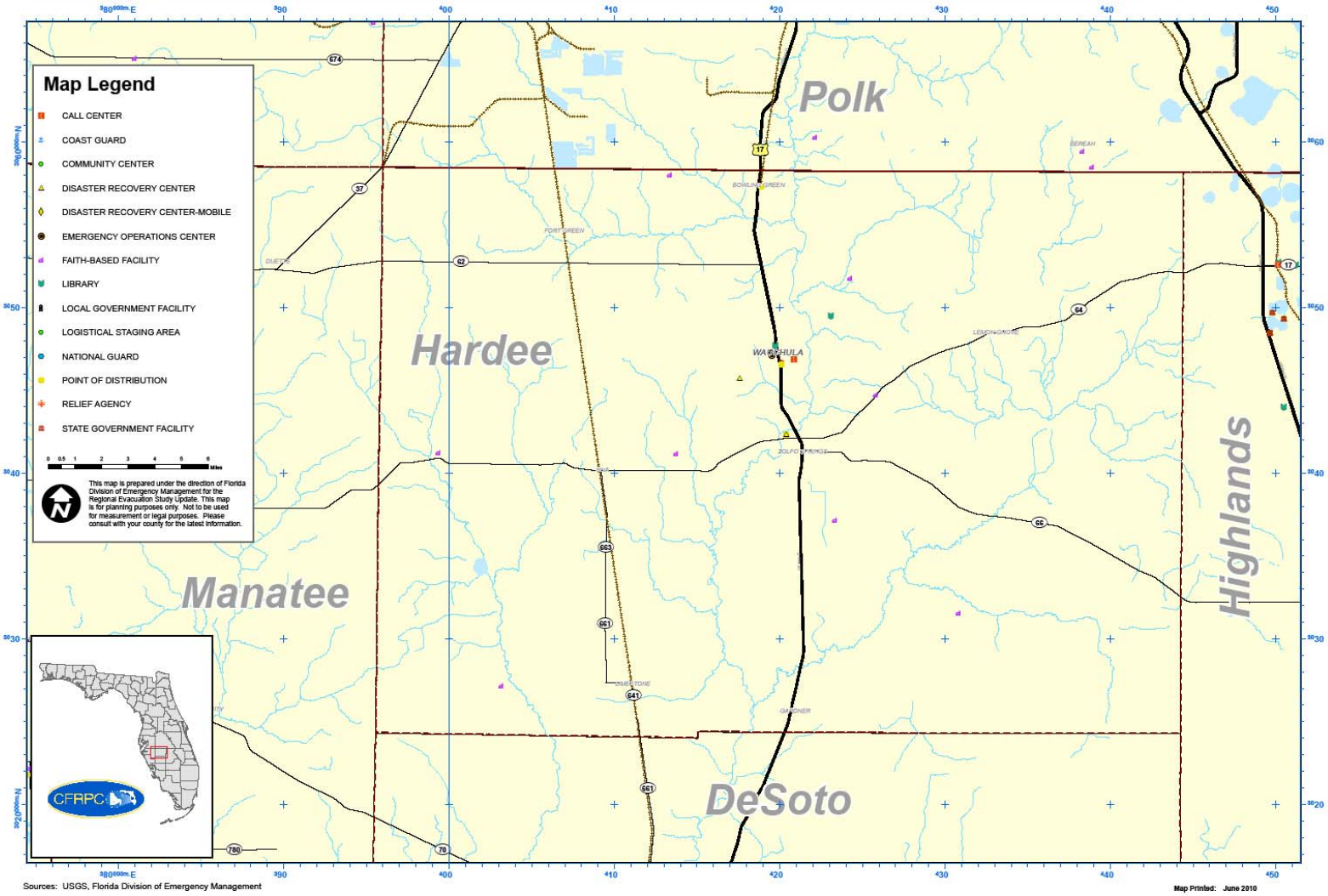
Map 6
Hardee County Health Care Facilities



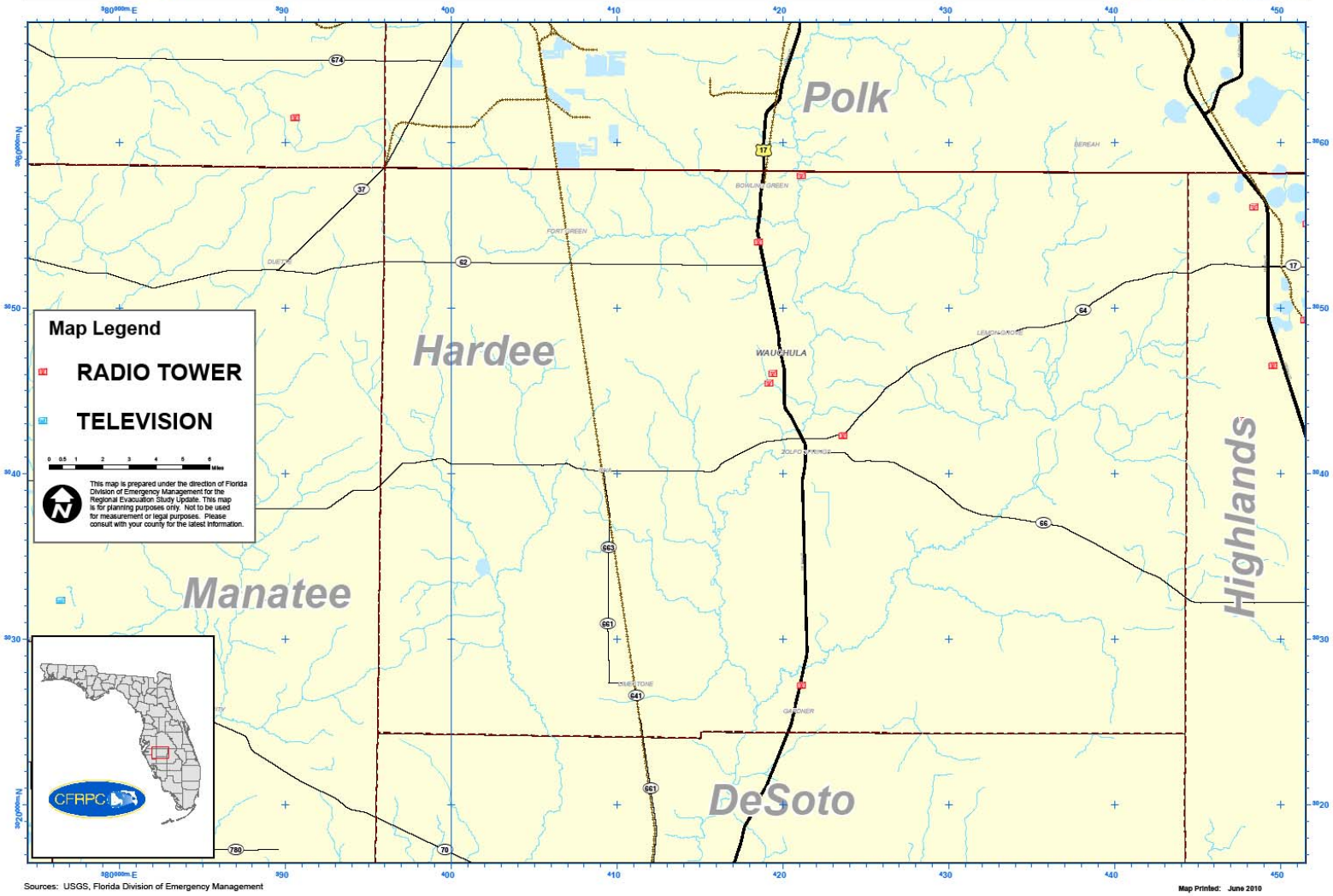
Map 7
Hardee County Schools and Universities



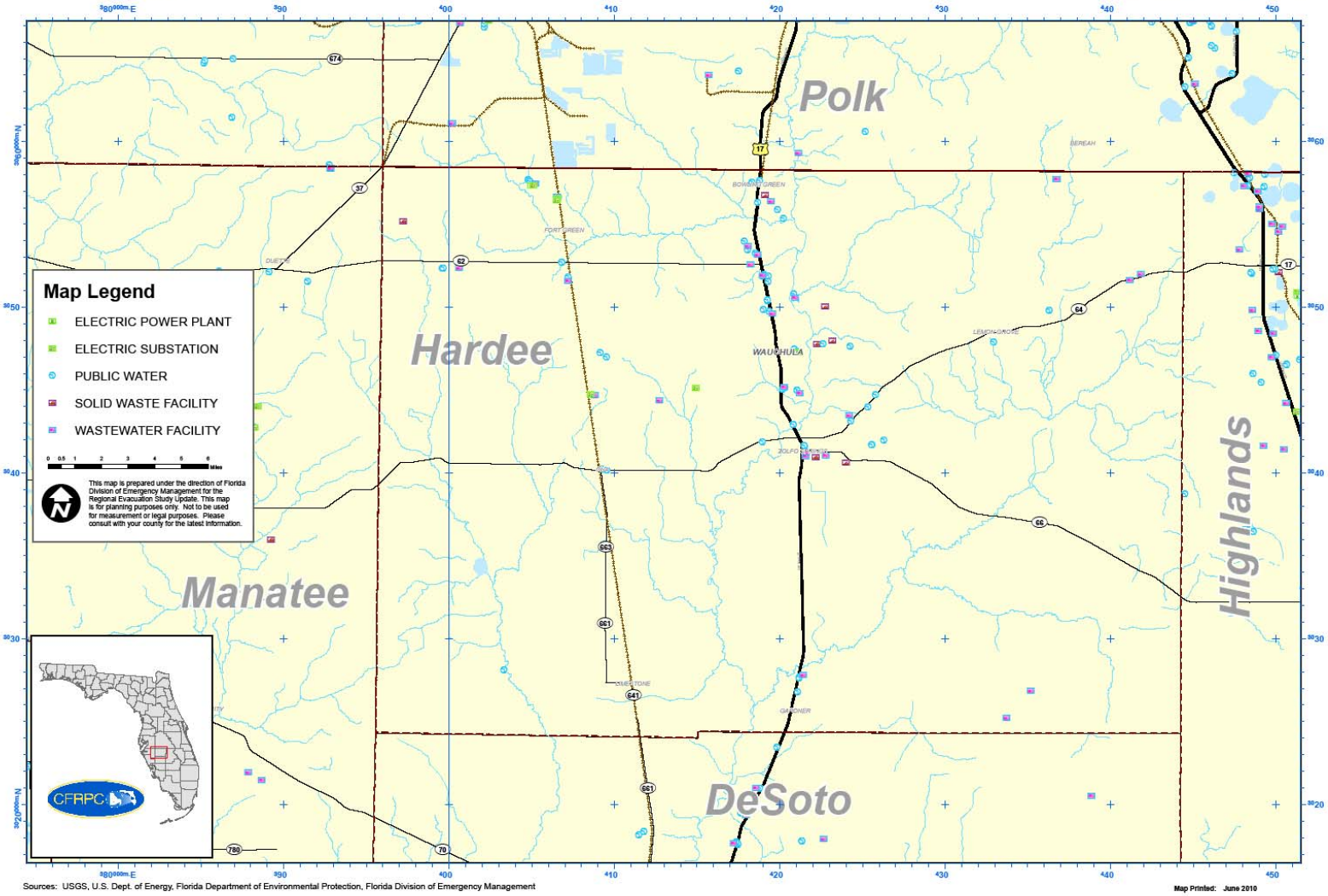
Map 8
Hardee County EOCs, Logistical and Military Resources, PODs



Map 9
Hardee County Communications Resources



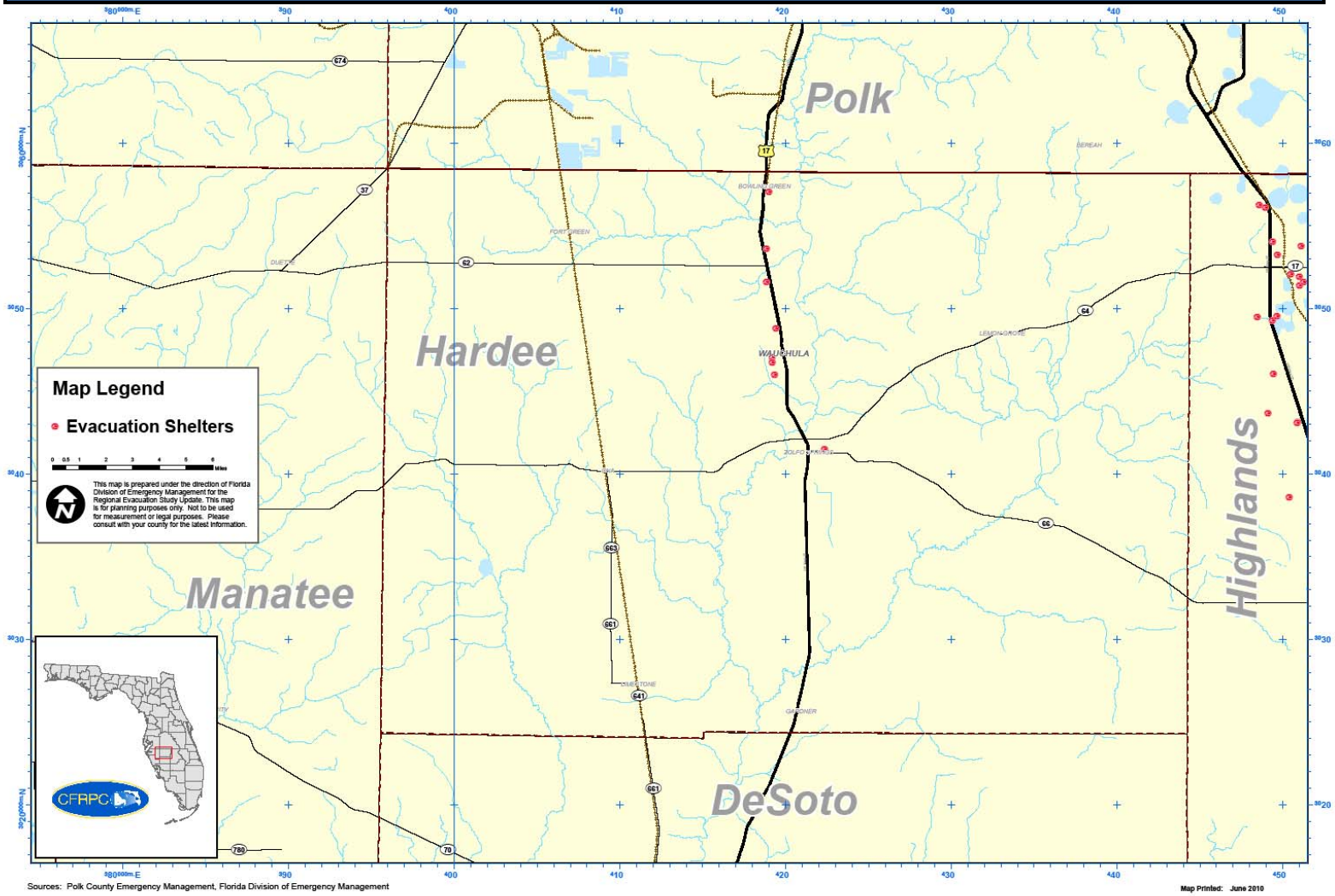
Map 10
Hardee County Critical Infrastructure (Water, Wastewater, Landfills, etc.)



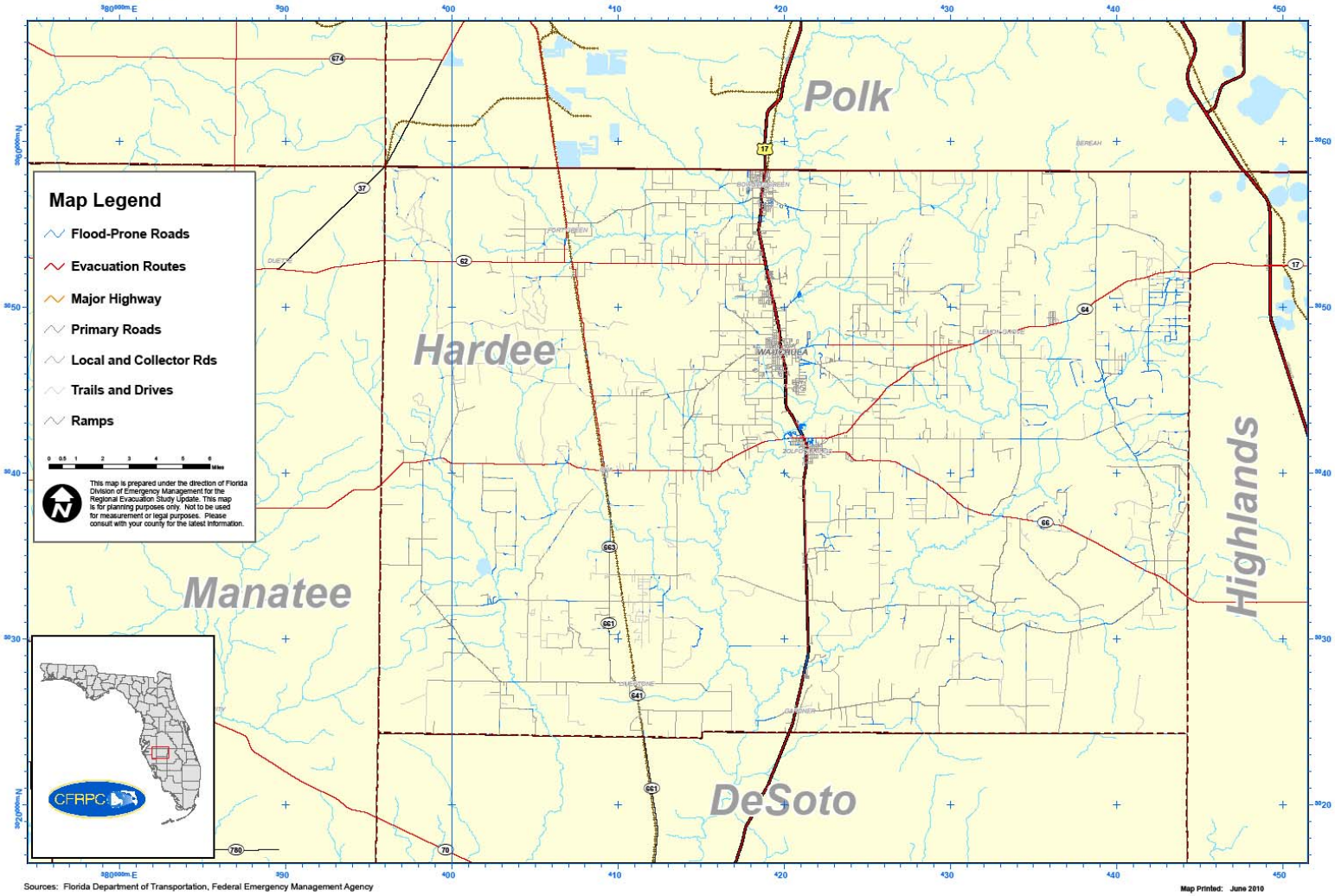
Sources: USGS, U.S. Dept. of Energy, Florida Department of Environmental Protection, Florida Division of Emergency Management

Map Printed: June 2010

Map 11
Hardee County Public Evacuation Shelters 2010



Map 12
Hardee County Roads Vulnerable to Freshwater Flooding



HARDEE COUNTY MAPS

Overall County (Base)

Traffic Analysis Zones

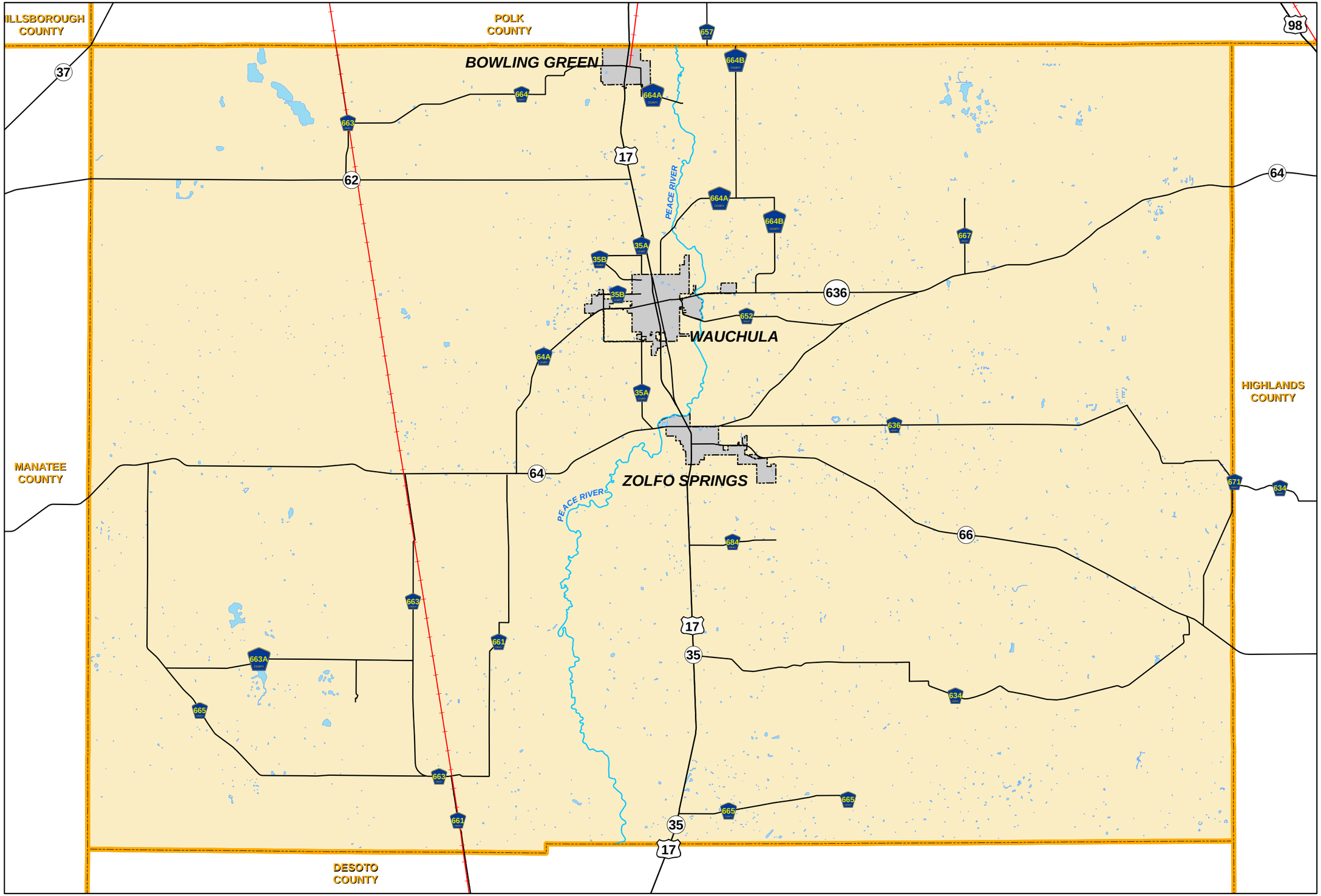
Residential Structures by Decade Built

Non-Residential Structures by Decade Built

Structures by Decade Built by Parcel Record

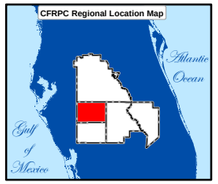
Critical Infrastructure

Hardee County - Base Map



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- Municipalities
- County Boundaries



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Central Florida
Disaster Resiliency Study

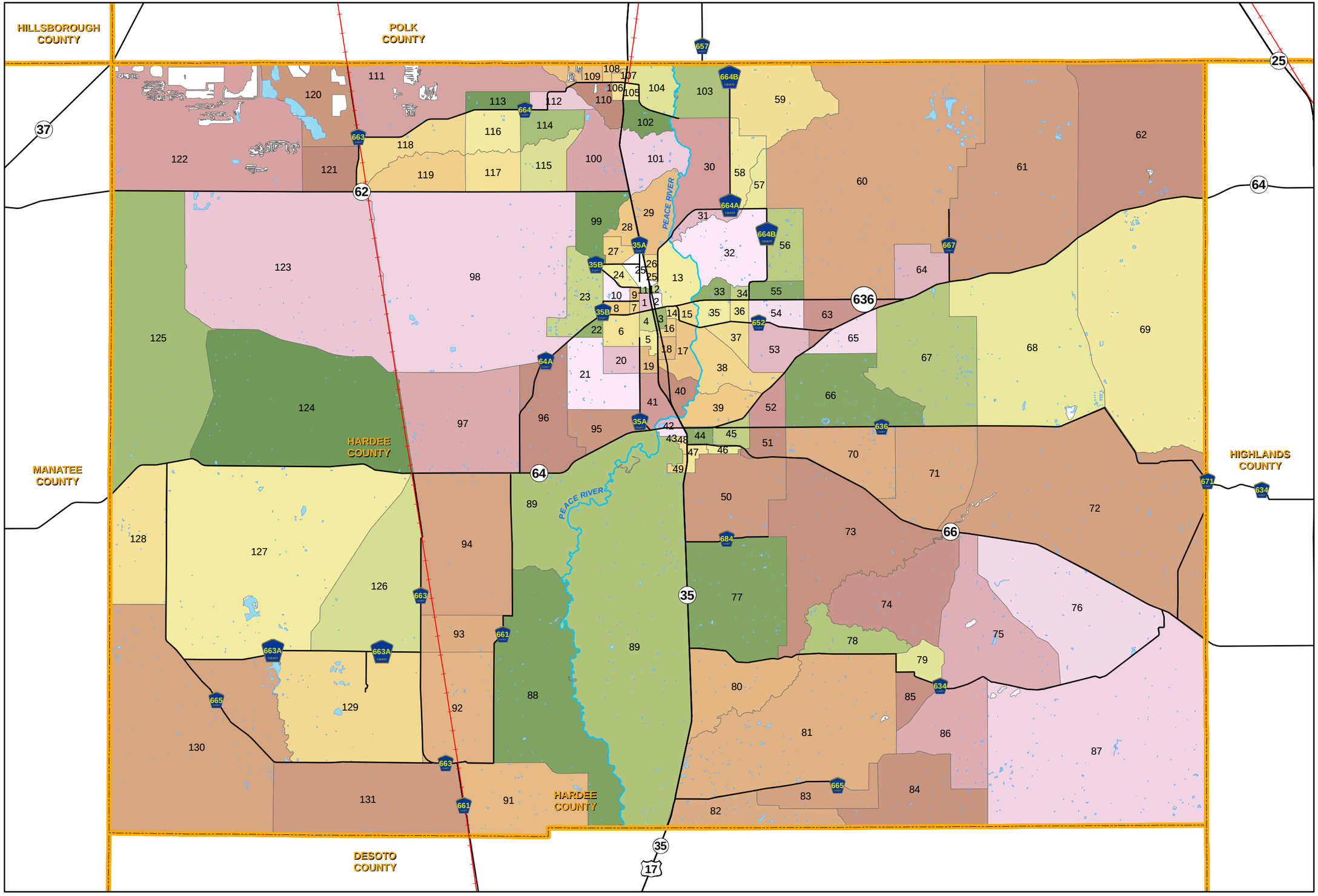
N

0 1 2 4
Miles

December 2010

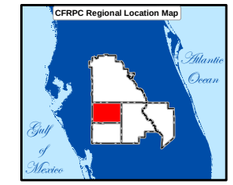
Source:
Hardee County Property Appraiser
Florida Department of Transportation
Central Florida Regional Planning Council

Hardee County - Traffic Analysis Zones (TAZ)



Legend

- 32 TAZ Numbers
- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



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Central Florida Disaster Resiliency Study

N

0 1 2 4

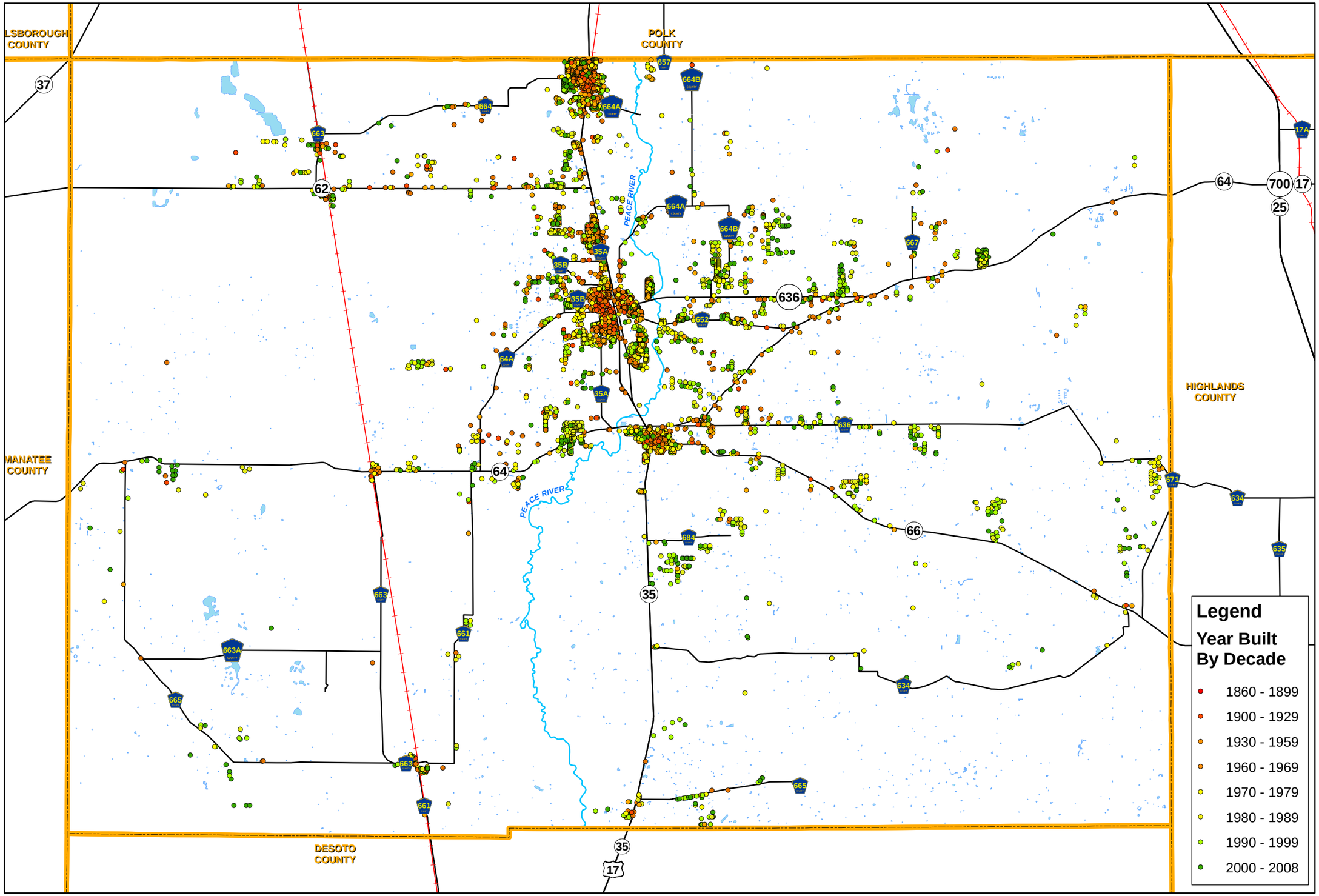
Miles

December 2010

Source: Florida Department of Transportation District 1 (2008)

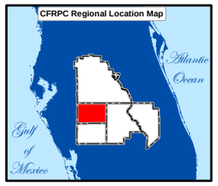
There are a total of 131 TAZs in Hardee County

Hardee County - Residential Structures by Decade Built



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

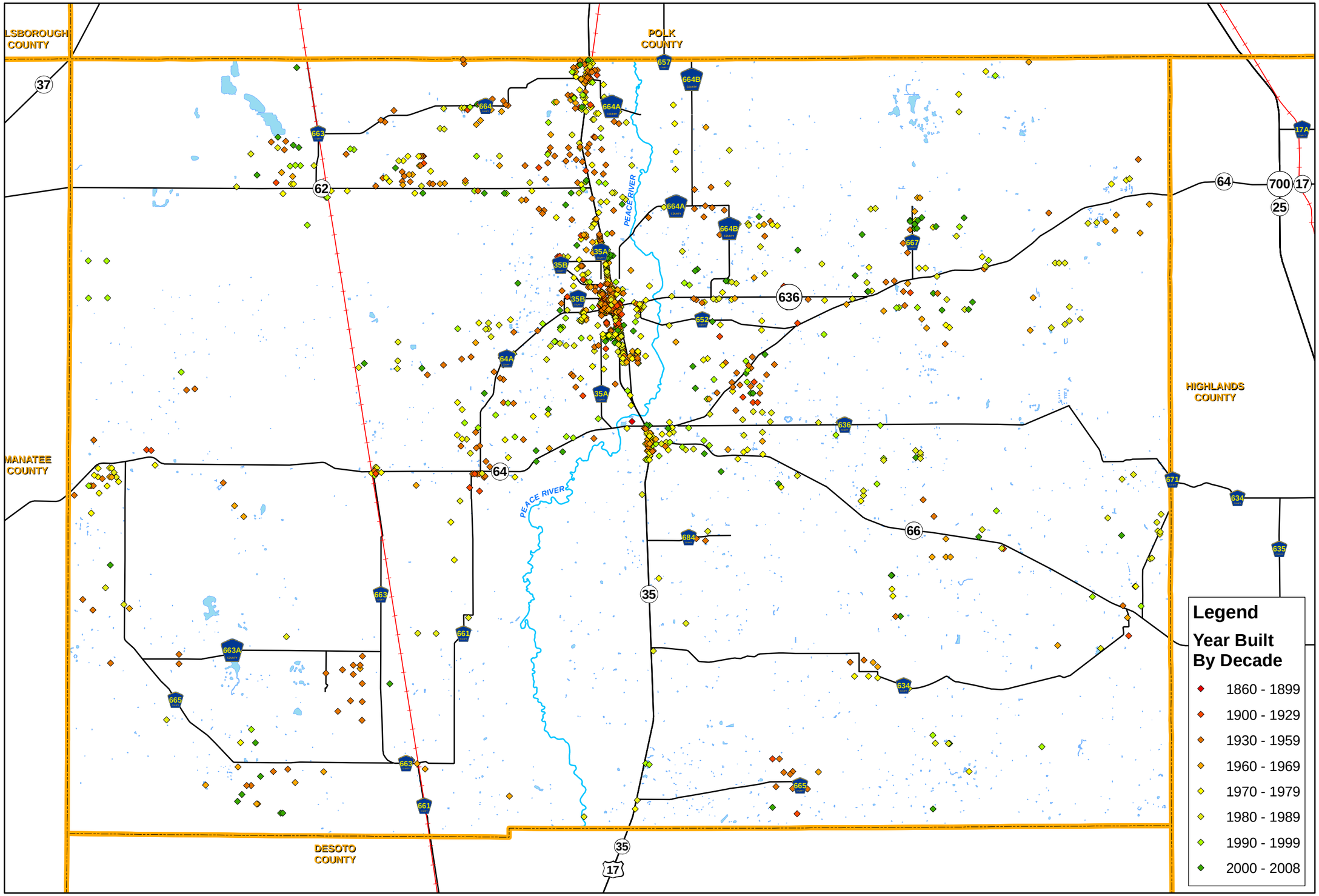
0 1 2 4

Miles

December 2010

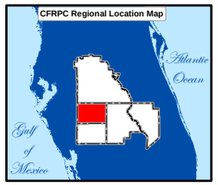
Source: Florida Department of Transportation District 1 (2008), Hardee County Property Appraiser

Hardee County - Non-Residential Structures by Decade Built



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

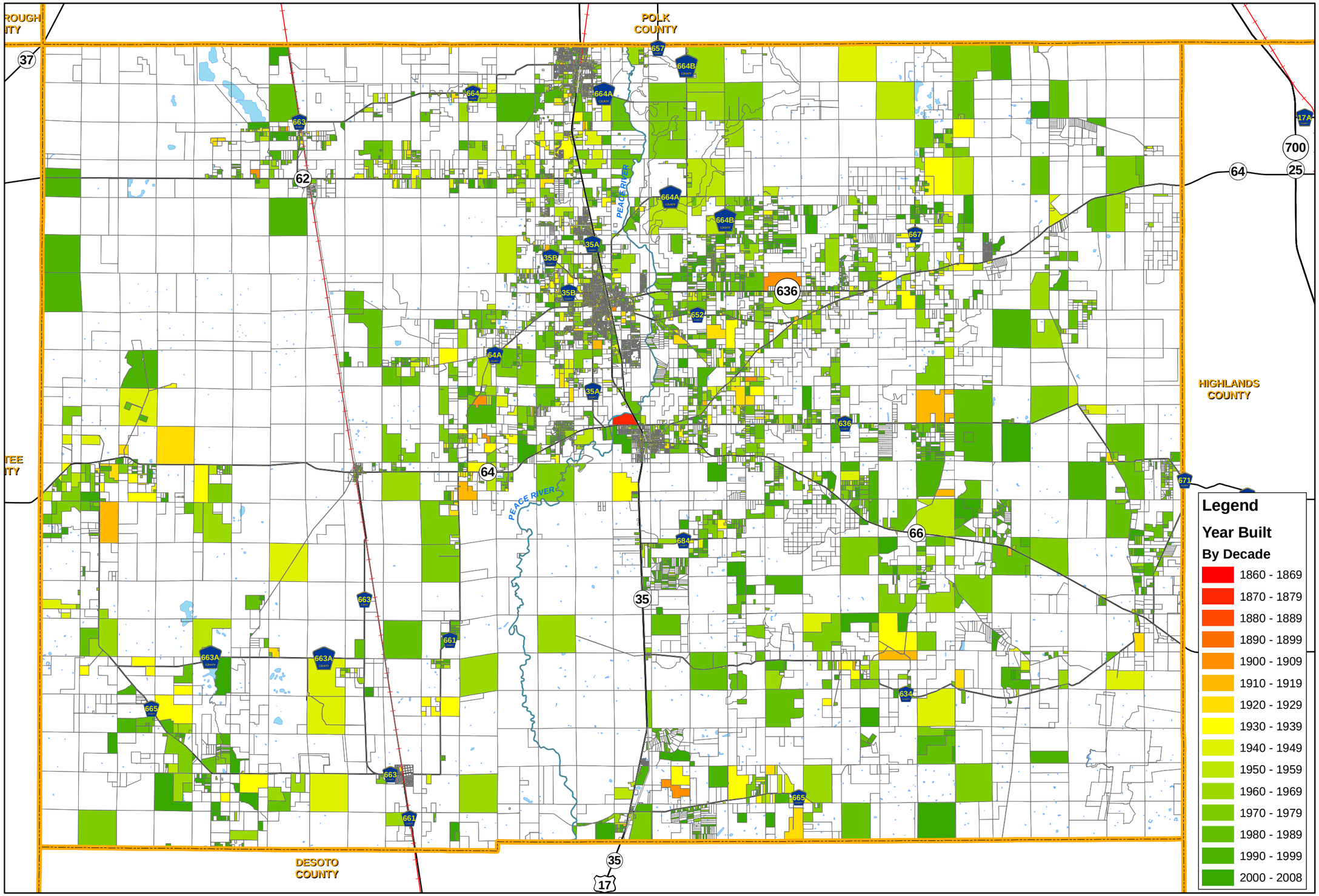
0 1 2 4

Miles

December 2010

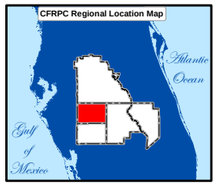
Source: Florida Department of Transportation District 1 (2008), Hardee County Property Appraiser

Hardee County - Structures by Decade Built - By Parcel Record



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Parcels
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

0 1 2 4

Miles

December 2010

Source: Florida Department of Transportation District 1 (2008), Hardee County Property Appraiser

HIGHLANDS COUNTY APPENDIX

Population and Critical Facilities

Maps

Overall County (Base)
Traffic Analysis Zones
Residential Structures by Decade Built
Non-Residential Structures by Decade Built
Structures by Decade Built by Parcel Record
Critical Infrastructure

HIGHLANDS COUNTY APPENDIX
POPULATION AND CRITICAL FACILITIES

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A. Introduction

This appendix provides a County Economic Profile, Vulnerability Profile and a more detailed vulnerability analysis of critical facilities and corresponding maps for Highlands County.

B. County Profile

The data contained herein is provided to capture a profile of Highlands County including geographic and economic characteristics. In addition, many of the critical infrastructure partners including private sector and public utilities are identified.

Highlands County Profile

Visit eFlorida.com to learn more.

GEOGRAPHY

County Seat:	Sebring
Nearest MSA:	Lakeland-Winter Haven MSA
Time Zone:	Eastern
Local Area Code(s):	(863)
Largest Cities:	Sebring Avon Park Lake Placid

Miles* To:	
Tallahassee	271
Orlando	69
Tampa	72
Jacksonville	197
Miami	140
Atlanta	468
Chicago	1,056
Dallas	987
New York	1,005

*Miles are calculated from county seat

POPULATION

	Highlands	Florida
1980:	47,526	9,746,961
1990:	68,432	12,938,071
2008:	100,011	18,328,340
2015(p):	108,600	20,055,900
2030(p):	130,700	23,979,000

* (p) Denotes Projected Population

CLIMATE

Average Temperature	High	Low
January:	73	49
July:	93	72

Florida Mean Annual Precipitation.....53
Average Annual Rain Days.....112

PER CAPITA PERSONAL INCOME

	Highlands	Florida
2005	$23,653	$34,709
2006	$25,036	$37,099
2007	$25,717	$38,417

MIGRATION

(2008)	
In-Migration	4,769
Out-Migration	4,295
Net-Migration	474

* Estimates based on IRS Statistics of Income data

LABOR FORCE

(2009)	
Labor Force	40,390
Labor Force % of County Population	40.4
Number in County Unemployed	4,465
Unemployment Rate	11.1%

* Monthly labor force data are available from the Florida Agency for Workforce Innovation.

MEDIA

Local Radio Stations:

WW07 99.1 FM
WWLL 105.7 FM
WWTK 730 AM
WITS 1340 AM
WAYP 1390 AM

Local Television Stations:

Trianon Broadcast Company

Locally Printed Newspapers:

Lake Placid Journal
The News-Sun
Highlands Today/Tampa Tribune

FINANCIAL INSTITUTIONS

Number of Banks:	36
Number of Savings and Loans:	0
Number of Credit Unions:	3

STATE AND LOCAL TAXATION

COUNTY

Countywide Ad Valorem Millage Rates:

Government	4.8730
Schools	8.0610
Special	1.5551
Total	14.4891

Ad Valorem Tax Exemption:	Yes
Retail Sales Tax (Local Option)	1.00
Federal Enterprise Zone	No
State Enterprise Zone	EZ-2801

STATE

Corporate Income Tax	5.5%
Personal Income Tax	0.0%
Retail Sales Tax	6.0%

EMPLOYMENT BY INDUSTRY

(2008)	Highlands	Florida
Average Annual Employment	28,912	7,945,162
Natural Resources & Mining	16.3%	1.2%
Construction	5.8%	6.5%
Trade, Transportation and Utilities	19.4%	20.5%
Manufacturing	2.2%	4.7%
Information	0.8%	2.0%
Other Services	2.4%	3.2%
Public Administration	6.1%	5.9%
Unclassified	N/D	
Leisure & Hospitality	9.8%	11.9%
Education & Health Services	24.5%	19.4%
Professional & Business Services	9.3%	14.4%
Financial Activities	3.3%	6.6%

Average Annual Wage

(2008)	
All Industries	$27,691
Construction	$28,134
Education & Health Services	$36,073
Financial Activities	$35,041
Information	$41,117
Leisure & Hospitality	$14,881
Manufacturing	$30,727
Natural Resources & Mining	$20,608
Other Services	$21,889
Professional & Business Services	$25,542
Public Administration	$38,701
Trade, Transportation and Utilities	$25,477
Unclassified	N/D

*N/D = No Data

EXISTING EMPLOYMENT

Major Private Sector Employers

Florida Hospital Heartland Division
Business Line: Healthcare
Number of Employees.....1,300

Highlands Regional Medical Center
Business Line: Healthcare
Number of Employees.....500

Cross Country Automotive Services
Business Line: Roadside Assistance Call Center
Number of Employees.....500

Wal-Mart Sebring
Business Line: Department Store
Number of Employees.....450

Medical Data Systems
Business Line: Collection Assistance
Number of Employees.....387

Delray Plants/Highlands Greenhouse
Business Line: Ornamental Plants
Number of Employees.....350

Lake Placid Healthcare
Business Line: Assisted Living
Number of Employees.....290

Alan Jay Network
Business Line: Automobile Dealership
Number of Employees.....290

Palms of Sebring Assisted Living
Business Line: Assisted Living
Number of Employees..... 264

Lowes
Business Line: Home Improvement Store
Number of Employees 125

TRANSPORTATION

Federal Interstates	None
Federal Highways	US-27
State Highways	SR 66
	SR 64
	SR-98
	SR 70
Railroads	CSX
	Amtrak

Nearest Airport with Scheduled Commercial Airline Service:	Orlando International Airport
# Runways	790
Longest Paved Runway (ft.)	12,000
General Aviation Airports	Sebring Regional
	Avon Park Regional
	Lake Placid
Local Deep Water Port	Port of Tampa
Miles to Closest Port	70

COMMERCIAL/INDUSTRIAL SERVICES

Electric Companies:
Progress Energy
Natural Gas Companies:
Coker Fuel
Sebring Gas Systems
TECO Peoples Gas Company
Telephone Companies:
Embarq
Water & Sewer Companies:
Municipalities

Existing Industrial Zoned Land	Yes
Number of Acres	2,070
Largest Available Contiguous Parcel	180
Industrial Parks	Yes
Number of Acres	812
Largest Available Contiguous Parcel	180
Foreign Trade Zones	Yes
Zone Number(s)	215

EDUCATION

	Public Schools*
Elementary:	9
Secondary:	7
Totals:	16

*Source: Highlands County School District

Private Schools Available: Yes

POST SECONDARY EDUCATION SERVING THE COUNTY:

Colleges/Universities:
Warner Southern College
Webber College
Florida Southern College
Junior/Community Colleges:
South Florida Community College
Vocational/Technical Schools:
South Florida Community College
Indian River Community College
Ridge Technical School
Other Schools:
None

QUALITY OF LIFE

Cost of Living
Price Level Index, (2007)
Florida State Average = 100

	Sample
Total	91.02
Food	97.00
Housing	82.00
Medical Care	90.00
Personal Goods and Services	96.00
Transportation	99.00

Source: Enterprise Florida, Inc.
800 North Magnolia Avenue, Suite 1100
Orlando, Florida 32803
Phone: (407) 956-5600
Fax: (407) 956-5599
World Wide Web: http://www.eflorida.com

Medical Services:
Florida Hospital Heartland
Florida Hospital Lake Placid
Highlands Regional Medical Center
Recreational Opportunities:
BMX Track
County Parks
Golf Courses
Highlands Hammock & Lake June Scrub State Parks
Lakes
Public Boat Landings
Tennis Courts
Historical Points Of Interest:
Avon Park Depot Museum
Civilian Conservation Corps Museum
Lake Placid Historical Museum
Military Sea Services Museum
Sebring International Raceway
Cultural Events/Festivals:
Arts & Heritage Festival, Sebring, January
Avon Park Springtime on the Mall Festival, March
Highlands Fine Art Festival, Sebring, November
Lake Placid Caladium Festival, August

C. County Vulnerable Population Profile

Highlands County Vulnerable Population Profile

Demographic Indicators

2009 County Population Estimate[1] -100,743
65-84 Population[1] - 27,182
85+ Population[1] - 5,011
Live Births (3yr count)[1] - 3,196
% of Population 65+ - 32%

Economic Indicators

Population Below Poverty[1] - 14,813
Food Stamp Recipients[7] - 10,088
WIC Enrollment[1] - 3,803
Average Monthly Medicaid Enrollment[1] - 15,875
Uninsured (Under 65)[1] - 11,850

Vulnerability Indicators

Population with 1 or more disabilities[2] - 22,763
% of Population with 1 or more disabilities - 23%
Elders Living Alone[8] - 8,070
Estimated Homeless[7] - 912
Children in Foster Care[7] - 115
Developmentally Disabled[4] - 313
Seriously Mentally Ill Adults[7] - 4,367
Brain &/or Spinal Cord Injured Clients[5] - 10
Estimated Oxygen Dependent Clients - 2,769
Elders with Dementia[8] - 6,023
CMS Clients[6] - 326
Dialysis Clients[3] - 118
Seriously Emotionally Disturbed Children[7] - 1,477

Data Sources

[1] Department of Health Office of Planning, Data Analysis and Evaluation
[2] US Census Data
[3] Florida End Stage Renal Disease Network
[4] Agency for Persons with Disabilities
[5] Department of Health Brain and Spinal Cord Injury Program
[6] Department of Health Division of Children's Medical Services
[7] Department of Children and Families
[8] Department of Elder Affairs

Source: Florida Department of Health, 2010

D. Critical Facility Vulnerability Analysis

Specific attention was paid to health care facilities such as hospitals and nursing homes; emergency response agencies, hazardous materials, mobile home parks, schools and colleges and community centers. Each facility has the name, location, latitude/longitude coordinates, description, critical code and results of the 2010 surge analysis (completed as part of the Florida Statewide Regional Evacuation Study for the Central Florida Region) based on the most accurate topographic data and the SLOSH model.

The Critical Facility Inventory (database) includes a comprehensive list of critical facilities identified by the State and County Emergency Management Agencies. This inventory is not published as part of the report. However, selected facilities which may require evacuation or mitigation are identified in the tables and maps which follow. The tables indicate vulnerability from storm surge (based on the SLOSH model), freshwater flooding (based on the FEMA Flood Maps) and wildfire (Wildfire Interface/Levels of Concern).

Table 1
Highlands County Health Care Vulnerability Assessment

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE (Lake = 16 ft)	SURGE (Lake = 20 ft)	EVAC ZONE	FLOOD	FIRE
Assisted Living Facility	Rosewood Senior Care Villas	517 US 27 North	Lake Placid	33852	141	0	0	X	Out	N
Assisted Living Facility	Wildspring	2619 Lake Josephine Drive	Sebring	33875	117	0	0	X	Out	N
Assisted Living Facility	Sim Lodge	4111 Nigeria Road	Sebring	33875	102	0	0	X	Out	Y
Assisted Living Facility	Sunny Hills	3600 Commerce Center Drive	Sebring	33870	103	0	0	X	Out	N
Assisted Living Facility	Highlands Village	2301 US 27 South	Sebring	33870	105	0	0	X	Out	Y
Assisted Living Facility	The Palms of Sebring	725 South Pine Street	Sebring	33870	129	0	0	X	Out	N
Assisted Living Facility	Magnolia Retirement Home, Inc.	149 Magnolia Avenue	Sebring	33870	132	0	0	X	Out	N
Assisted Living Facility	Harmony House	1205 Hotiyee Avenue	Sebring	33870	109	0	0	X	Out	N
Assisted Living Facility	Maranatha Manor	54 Maranatha Boulevard	Sebring	33870	108	0	0	X	Out	N
Assisted Living Facility	Fairway Pines at Sun N Lake	5959 Sun N Lake Boulevard	Sebring	33872	158	0	0	X	Out	Y
Assisted Living Facility	Crown Pointe of Sebring	5005 Sun N Lake Boulevard	Sebring	33872	161	0	0	X	Out	Y
Ambulatory Surgical Center	Surgical Center of Central FL	3601 South Highland Avenue	Sebring	33870	107	0	0	X	Out	N
Ambulatory Surgical Center	The Surgery & Endoscopy Center	3201 Physicians Way	Sebring	33875	118	0	0	X	Out	N
Ambulatory Surgical Center	Eye Surgery & Laser Center of Sebring, LLP	5030 US Highway 27 North	Sebring	33852	140	0	0	X	Out	Y
End-Stage Renal Disease	Renal Care of Sebring	40 Medical Center Ave	Sebring	33870	110	0	0	X	Out	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE (Lake = 16 ft)	SURGE (Lake = 20 ft)	EVAC ZONE	FLOOD	FIRE
End-Stage Renal Disease	BMA of Avon Park	4833 Sun N Lake Boulevard	Sebring	33872	161	0	0	X	Out	Y
End-Stage Renal Disease	Highlands Dialysis Center	4245 Sun N Lake Boulevard	Sebring	33872	145	0	0	X	Out	N
Hospital	Florida Hospital Lake Placid	1210 US 27 North	Lake Placid	33852	133	0	0	X	Out	N
Hospital	Highlands Regional Medical Center	3600 South Highlands Avenue	Sebring	33870	106	0	0	X	Out	N
Hospital	Florida Hospital Heartland Medical Center	4200 Sun N Lake Boulevard	Sebring	33872	144	0	0	X	Out	N
Intermediate Care Facility	Florida Mentor	55 East College Drive	Avon Park	33825	119	0	0	X	100	N
Clinical Laboratory	Highlands County Health Department	106 North Main Street	Lake Placid	33852	150	0	0	X	Out	N
Clinical Laboratory	Family Medical Group PA	105 Tomoka Boulevard South	Lake Placid	33852	131	0	0	X	Out	N
Clinical Laboratory	Florida Hospital Lake Placid Clinical/Blood Gas	1210 US 27 North	Lake Placid	33852	133	0	0	X	Out	N
Clinical Laboratory	Highlands Regional Medical Center	3600 South Highlands Avenue	Sebring	33870	106	0	0	X	Out	N
Clinical Laboratory	Thakkar Patel & Diaz MDs LC	3581 South Highlands Avenue	Sebring	33870	107	0	0	X	Out	N
Clinical Laboratory	Cypress Medical Associates	3838 US Highway 27 South, Suite 3	Sebring	33870	101	0	0	X	Out	N
Clinical Laboratory	Kevin Lee MD	3435 South Highlands Avenue	Sebring	33870	109	0	0	X	Out	N
Clinical Laboratory	Family Medical Group PA	3420 US 27 North	Sebring	33852	145	0	0	X	Out	N
Clinical Laboratory	Highlands Clinical Laboratory Corp.	4409 Sun N Lake Boulevard	Sebring	33872	159	0	0	X	Out	N
Clinical Laboratory	Amit I Shah MD PA	4420 Sun N Lake Boulevard	Sebring	33872	159	0	0	X	Out	N
Clinical Laboratory	Florida Hospital Heartland Clinical Lab	4200 Sun N Lake Boulevard	Sebring	33872	144	0	0	X	Out	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE (Lake = 16 ft)	SURGE (Lake = 20 ft)	EVAC ZONE	FLOOD	FIRE
Clinical Laboratory	Florida Hospital Heartland Blood Gas Lab	4200 Sun N Lake Boulevard	Sebring	33872	144	0	0	X	Out	N
Clinical Laboratory	Kye C Pahk MD	6801 US 27 North, Suite C-2	Sebring	33870	143	0	0	X	Out	N
Clinical Laboratory	Central Florida Health Care	950 County Road 17A West #A	Avon Park	33825	122	0	0	X	Out	N
Skilled Nursing Facility	Lake Placid Health Care Center	125 Tomoka Boulevard South	Lake Placid	33852	116	0	0	X	Out	N
Skilled Nursing Facility	Kenilworth Care & Rehabilitation Center	3011 Kenilworth Boulevard	Sebring	33870	120	0	0	X	Out	N
Skilled Nursing Facility	Kenilworth Care & Rehabilitation Center	3011 Kenilworth Boulevard	Sebring	33870	122	0	0	X	Out	N
Skilled Nursing Facility	The Palms of Sebring	725 South Pine Street	Sebring	33870	129	0	0	X	Out	N
Skilled Nursing Facility	Oaks at Avon	1010 US 27 North	Avon Park	33825	137	0	0	X	Out	N
Skilled Nursing Facility	Royal Care of Avon Park	1213 West Stratford Road	Avon Park	33825	114	0	0	X	Out	N
Adult Family Care Home	Ronal Butendieck	1780 West Stryker Road	Avon Park	33825	127	0	0	X	Out	N
Adult Family Care Home	Rosemary McMillan	2325 West Camelot Road	Avon Park	33825	139	0	0	X	Out	Y

Table 2
Highlands County Other Critical Facilities Vulnerability Assessment

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE (Lake = 16 ft)	SURGE (Lake = 20 ft)	EVAC ZONE	FLOOD	FIRE
Radio Tower	162.59		Avon Park	33825	126	0	0	X	Out	N
Radio Tower	971010MB		Sebring		84	0	0	X	Out	N
Radio Tower	W207AY		Sebring		145	0	0	X	Out	N
Radio Tower	W208AR		Lake Placid	33852	139	0	0	X	Out	N
Radio Tower	W214BA		Sebring		105	0	0	X	Out	N
Radio Tower	W284BO		Lake Placid	33852	98	0	0	X	Out	N
Radio Tower	WAPQ-LP		Avon Park	33825	122	0	0	X	Out	N
Radio Tower	WAVP		Avon Park	33825	139	0	0	X	Out	N
Radio Tower	WGSE-LP		Sebring		125	0	0	X	Out	Y
Radio Tower	WITS				102	0	0	X	Out	N
Radio Tower	WJCM				113	0	0	X	Out	N
Radio Tower	WVDV-LP				147	0	0	X	Out	N
Radio Tower	WWLL				118	0	0	X	Out	N
Radio Tower	WWMA-LP		Avon Park	33825	121	0	0	X	Out	N
Radio Tower	WWOJ				145	0	0	X	Out	N

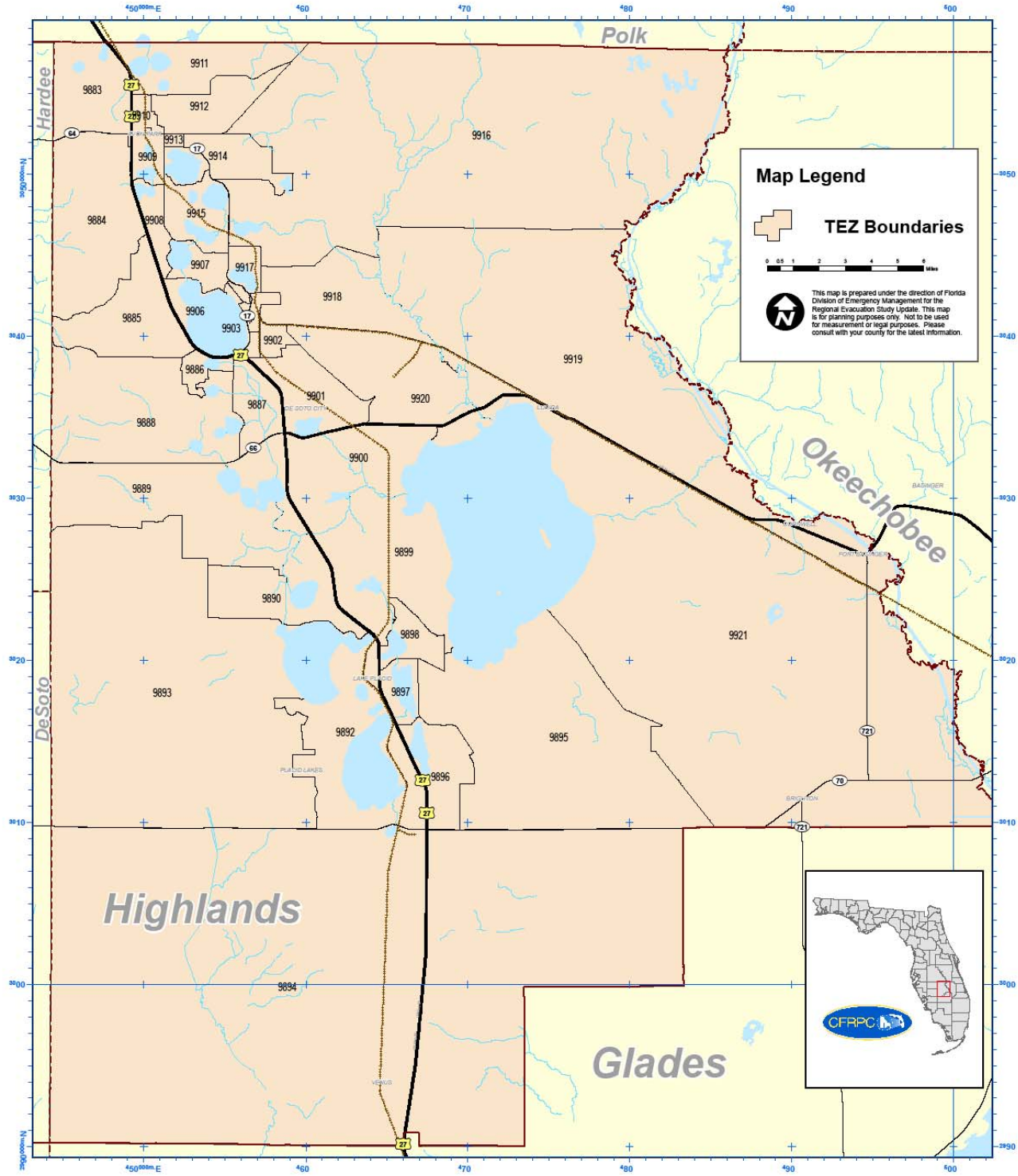
FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE (Lake = 16 ft)	SURGE (Lake = 20 ft)	EVAC ZONE	FLOOD	FIRE
Radio Tower	WWTK		Lake Placid	33852	82	0	0	X	Out	N
Radio Tower	WXK83 162.5		Sebring	33875	115	0	0	X	Out	Y
Call Center	Avon Park Police Dept HQ	304 West Pleasant Street	Avon Park	33825	149	0	0	X	Out	N
Call Center	Highlands County EMS	4500 George Boulevard	Sebring	33875	96	0	0	X	Out	N
Call Center	Highlands County Sheriff's Dept HQ	434 Fernleaf Avenue	Sebring	33870	138	0	0	X	Out	N
Call Center	Sebring Police Dept HQ	307 North Ridgewood Drive	Sebring	33870	128	0	0	X	Out	N
Emergency Medical Service	Highlands County EMS	4500 George Boulevard	Sebring	33875	96	0	0	X	Out	N
Fire Station	Avon Park Fire Dept Station 5	98 South Delaney Avenue	Avon Park	33825	130	0	0	X	Out	N
Fire Station	DeSoto City Fire Dept Station 17	909 Lemon Avenue	Sebring	33870	148	0	0	X	Out	N
Fire Station	DeSoto City Fire Dept Station 17	450 School Street	Sebring	33870	129	0	0	X	Out	N
Fire Station	DeSoto City Fire Dept Station 18	4612 DeSoto Road	Sebring	33870	109	0	0	X	Out	N
Fire Station	DeSoto City Fire Dept Station 19	6800 West George Boulevard	Sebring	33875	94	0	0	X	Out	N
Fire Station	DeSoto City Fire Dept Station 22	T-Hangar 24 Hendricks Way	Sebring	33870	61	0	0	X	Out	N
Fire Station	Highland Lakes Volunteer Fire Dept Station 1	2840 North Highlands Boulevard	Avon Park	33825	134	0	0	X	Out	N
Fire Station	Highland Lakes Volunteer Fire Dept Station 2	2450 County Road 64 East	Avon Park	33825	109	0	0	X	Out	N
Fire Station	Highlands Park Volunteer Fire Dept Station 33	1317 Columbus Street	Lake Placid	33852	95	0	0	X	Out	N
Fire Station	Lake Placid Volunteer Rescue Station 36	12 West Interlake Boulevard	Lake Placid	33852	139	0	0	X	Out	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE (Lake = 16 ft)	SURGE (Lake = 20 ft)	EVAC ZONE	FLOOD	FIRE
Fire Station	Leisure Lakes Volunteer Fire Dept Station 29	3028 Miller Avenue	Lake Placid	33852	84	0	0	X	Out	Y
Fire Station	Leisure Lakes Volunteer Fire Dept Station 30	1231 Lake Josephine Drive	Sebring	33875	78	0	0	X	Out	Y
Fire Station	Lorida Volunteer Fire Dept Station 24	1172 US Highway 98	Lorida	33857	44	0	0	X	Out	N
Fire Station	Lorida Volunteer Fire Dept Station 24	1172 US Highway 98	Lorida	33857	47	0	0	X	Out	N
Fire Station	Lorida Volunteer Fire Dept Station 25	D2-A Boon Dock Road	Lorida	33857	39	0	0	X	Out	N
Fire Station	Placid Lakes Volunteer Fire Dept	300 Washington Boulevard	Lake Placid	33852	98	0	0	X	100	Y
Fire Station	Sebring Fire Dept Station 14	301 North Mango Street	Sebring	33870	132	0	0	X	Out	N
Fire Station	Sebring Fire Dept Station 2	1037 US Highway 27 South	Sebring	33870	104	0	0	X	Out	Y
Fire Station	Sun N Lakes North Fire Dept Station 7	5306 Sun N Lake Boulevard	Sebring	33872	161	0	0	X	Out	Y
Fire Station	Sun N Lakes South Volunteer Fire Dept Station 41	460 Sun N Lake Boulevard	Lake Placid	33852	94	0	0	X	Out	N
Fire Station	Sun N Lake Volunteer Fire Dept	185 Polk Street	Lake Placid	33852	120	0	0	X	Out	N
Fire Station	Venus Volunteer Fire Dept Station 45	45 Venus Clubhouse Road	Venus	33960	92	0	0	X	Out	N
Fire Station	West Sebring Volunteer Fire Dept Station 10	3802 Hammock Road	Sebring	33872	139	0	0	X	Out	Y
Fire Station	West Sebring Volunteer Fire Dept Station 9	2300 Longview Court	Sebring	33870	124	0	0	X	Out	N
Fire Station	West Sebring Volunteer Fire Dept		Sebring	33870	111	0	0	X	Out	Y
Law Enforcement	Avon Park Police Dept HQ	304 West Pleasant Street	Avon Park	33825	149	0	0	X	Out	N
Law Enforcement	FDLE Substation Sebring Field Office	6430 US 27 South	Sebring	33870	142	0	0	X	Out	Y

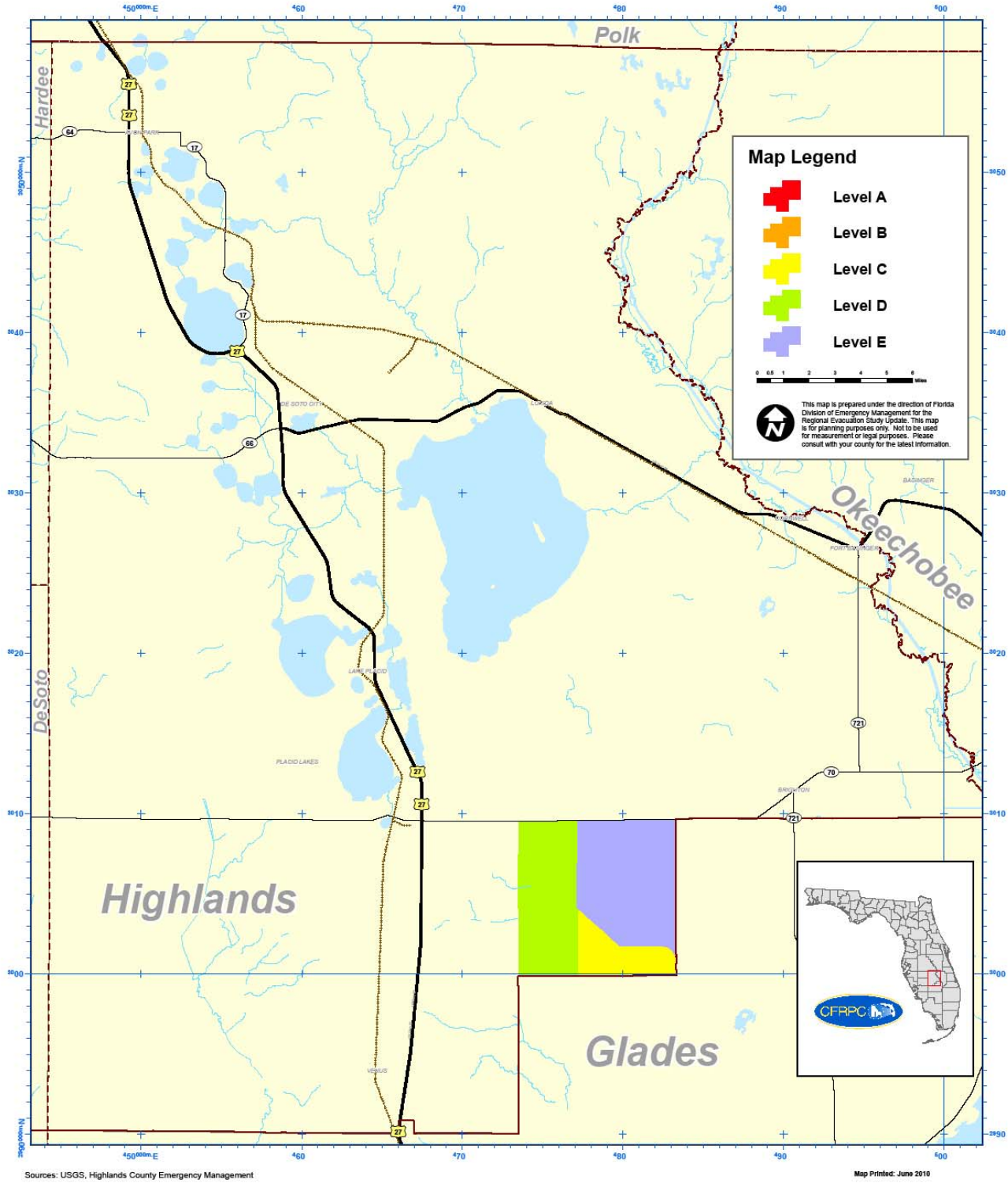
FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE (Lake = 16 ft)	SURGE (Lake = 20 ft)	EVAC ZONE	FLOOD	FIRE
Law Enforcement	Florida Highway Patrol Troop F	1174 US 27 North	Lake Placid	33852	122	0	0	X	Out	N
Law Enforcement	Highlands County Sheriff's Dept Avon Park Substation	818 South Delaney Avenue	Avon Park	33825	136	0	0	X	Out	N
Law Enforcement	Highlands County Sheriff's Dept Criminal Division	590 South Commerce Avenue	Sebring	33870	134	0	0	X	Out	N
Law Enforcement	Highlands County Sheriff's Dept HQ	434 Fernleaf Avenue	Sebring	33870	138	0	0	X	Out	N
Law Enforcement	Lake Placid Police Dept HQ	8 North Oak Street	Lake Placid	33852	125	0	0	X	Out	N
Law Enforcement	Sebring Police Dept HQ	307 North Ridgewood Drive	Sebring	33870	128	0	0	X	Out	N
Emergency Operations Center	Highlands County EOC	6850 West George Boulevard	Sebring	33875	90	0	0	X	Out	N
Fuel Facility – DOT	Sebring Sub-yard	4722 Kenilworth Boulevard	Sebring	33870	127	0	0	X	Out	N
Electric Power Plant	Avon Park		Avon Park	33825	119	0	0	X	Out	N
Electric Power Plant	Dinner Lake		Sebring	33870	111	0	0	X	Out	N
Electric Power Plant	Phillips (FL)		Lorida	33870	65	0	0	X	Out	N
Airport	Avon Park Municipal	1545 SR 64 West	Avon Park	33825	154	0	0	X	Out	N
Airport	Griffin Blue Head Ranch	444 Clark Road	Lake Placid	33852	74	0	0	X	100	N
Airport	J.H. Hendrie Farms				124	0	0	X	Out	N
Airport	Kings Port				149	0	0	X	Out	N
Airport	Lake Persimmon Airstrip	Lake Francis Road	Lake Placid	33852	80	0	0	X	Out	Y
Airport	Placid Lakes	215 Seneca Road	Sebring	33872	129	0	0	X	Out	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE (Lake = 16 ft)	SURGE (Lake = 20 ft)	EVAC ZONE	FLOOD	FIRE
Airport	Sebring Regional	128 Authority Lane	Sebring	33872	59	0	0	X	Out	N
Airport	Sunshine Ranchettes		Sebring		105	0	0	X	Out	N
Airport	Vince's Condo Association		Lake Placid	33852	115	0	0	X	Out	N
Heliport/Helipad	Florida Hospital-Sebring	4200 Sun N Lake Boulevard	Sebring	33872	152	0	0	X	Out	N
Heliport/Helipad	Highlands Regional Medical Center	3600 South Highlands Avenue	Sebring	33870	106	0	0	X	Out	Y
Heliport/Helipad	Florida Hospital Lake Placid	1210 US 27 North	Lake Placid	33852	109	0	0	X	Out	N
Seaplane Base	Lake Josephine		Sebring		70	0	0	X	100	N
Television Tower	W23CN		Sebring		110	0	0	X	Out	Y
Television Tower	W60CE		Sebring		82	0	0	X	Out	N
Television Tower	W60CE		Sebring		84	0	0	X	Out	N
Television Tower	WHRT-CA		Sebring		113	0	0	X	Out	N

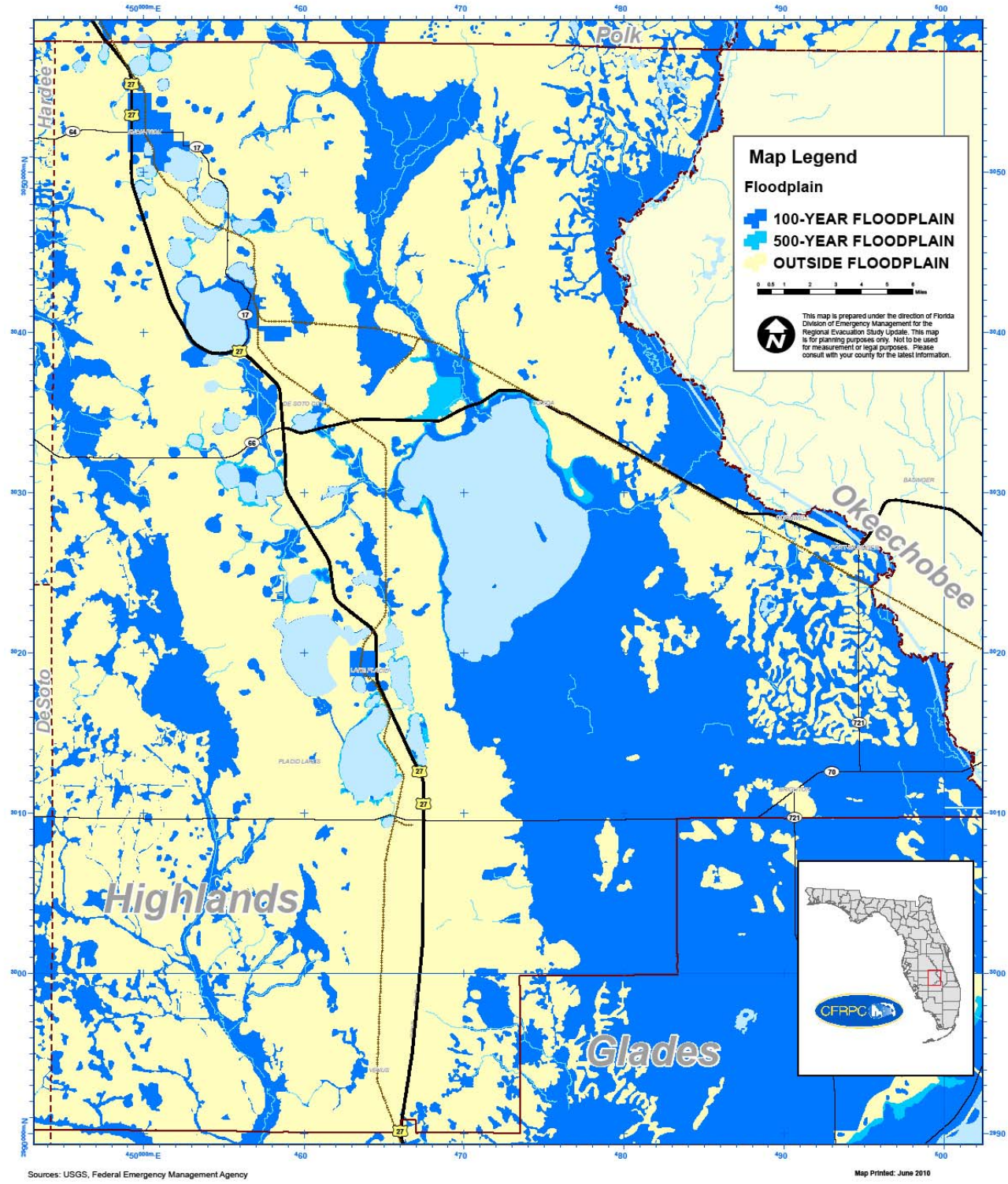
Map 1
Highlands County Traffic Evacuation Zones



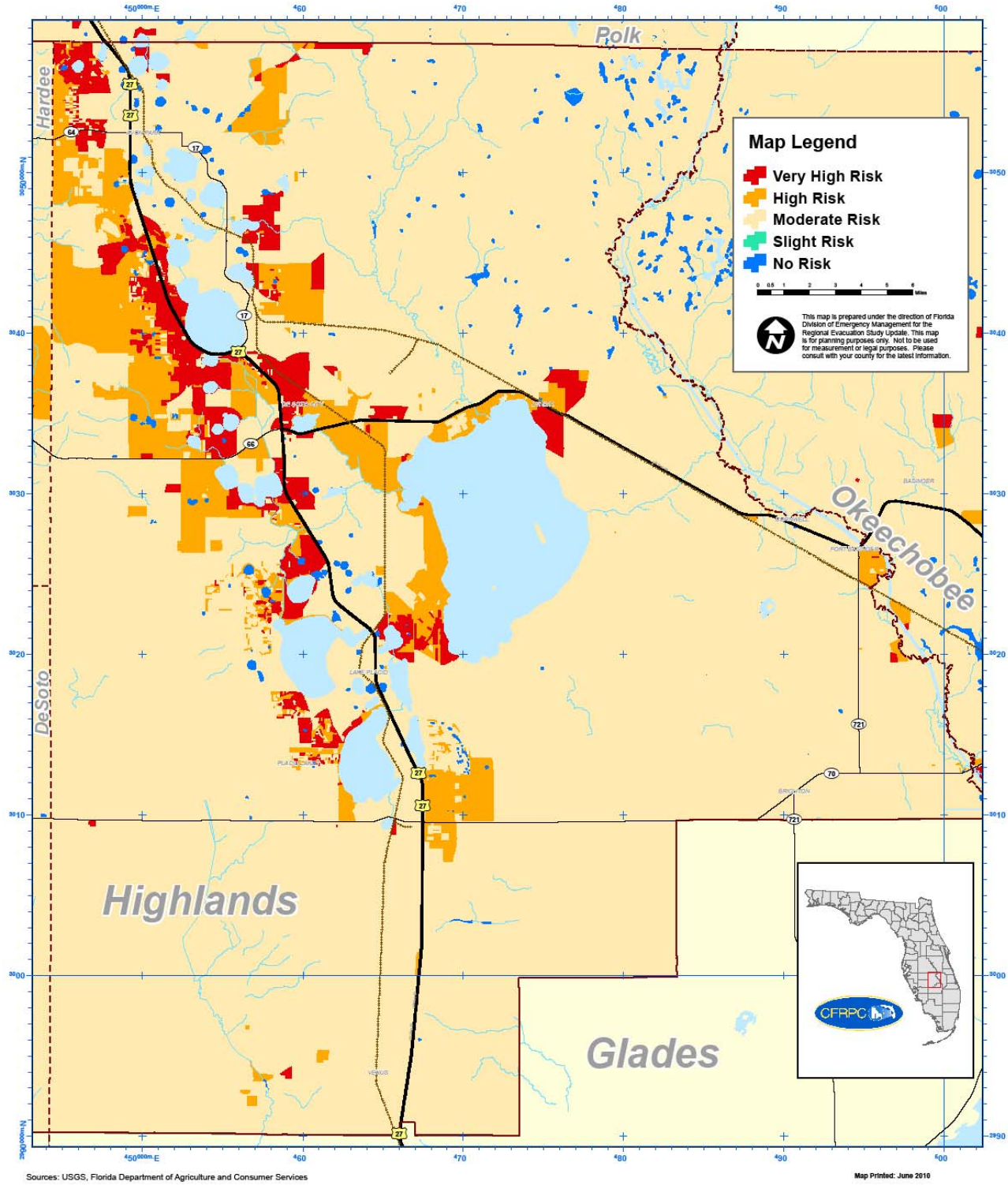
Map 2
Highlands County Hurricane Evacuation Zones



Map 3
Highlands County FEMA FIRM Floodplains



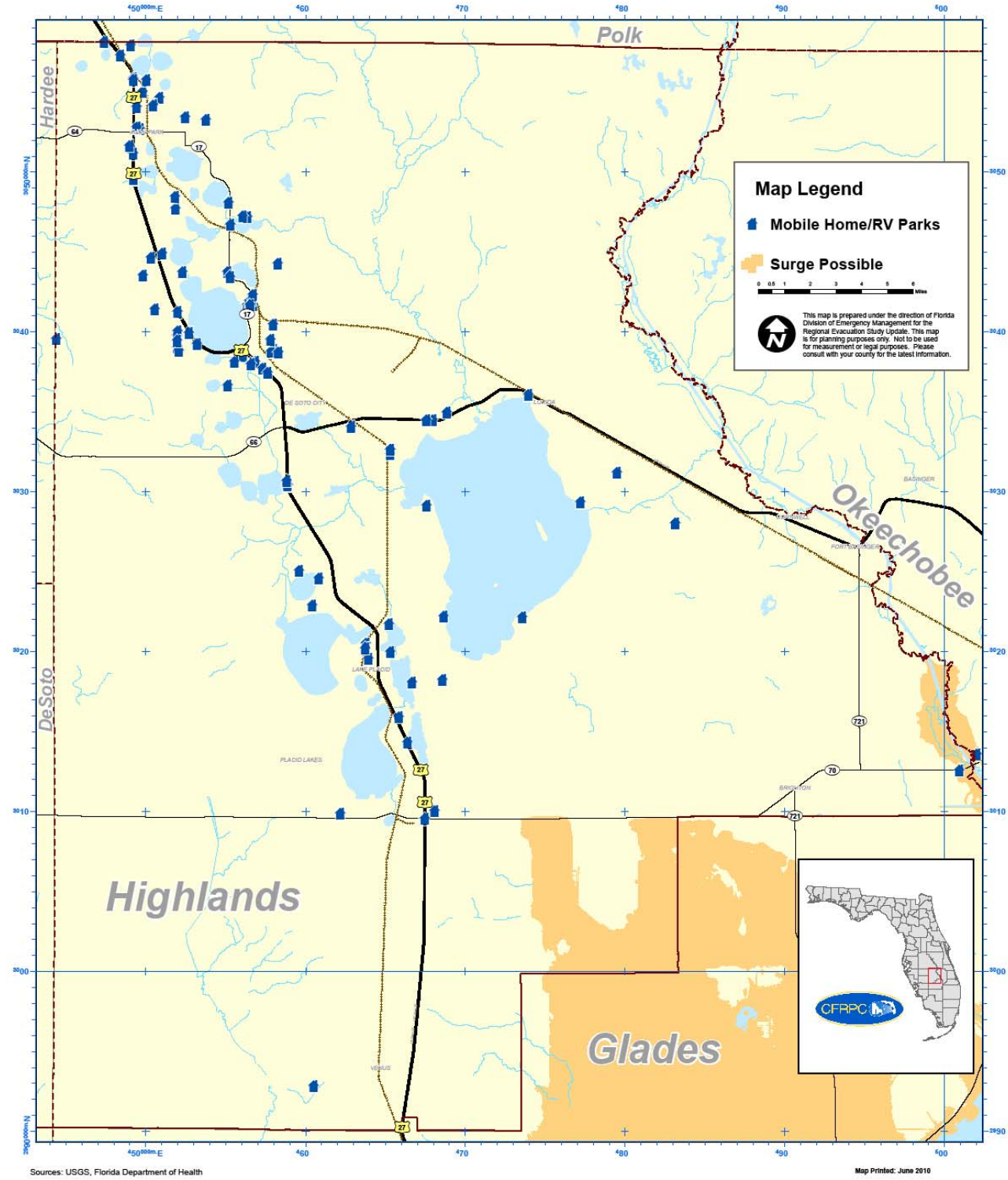
Map 4
Highlands County Wildland-Urban Interface Fire Risk



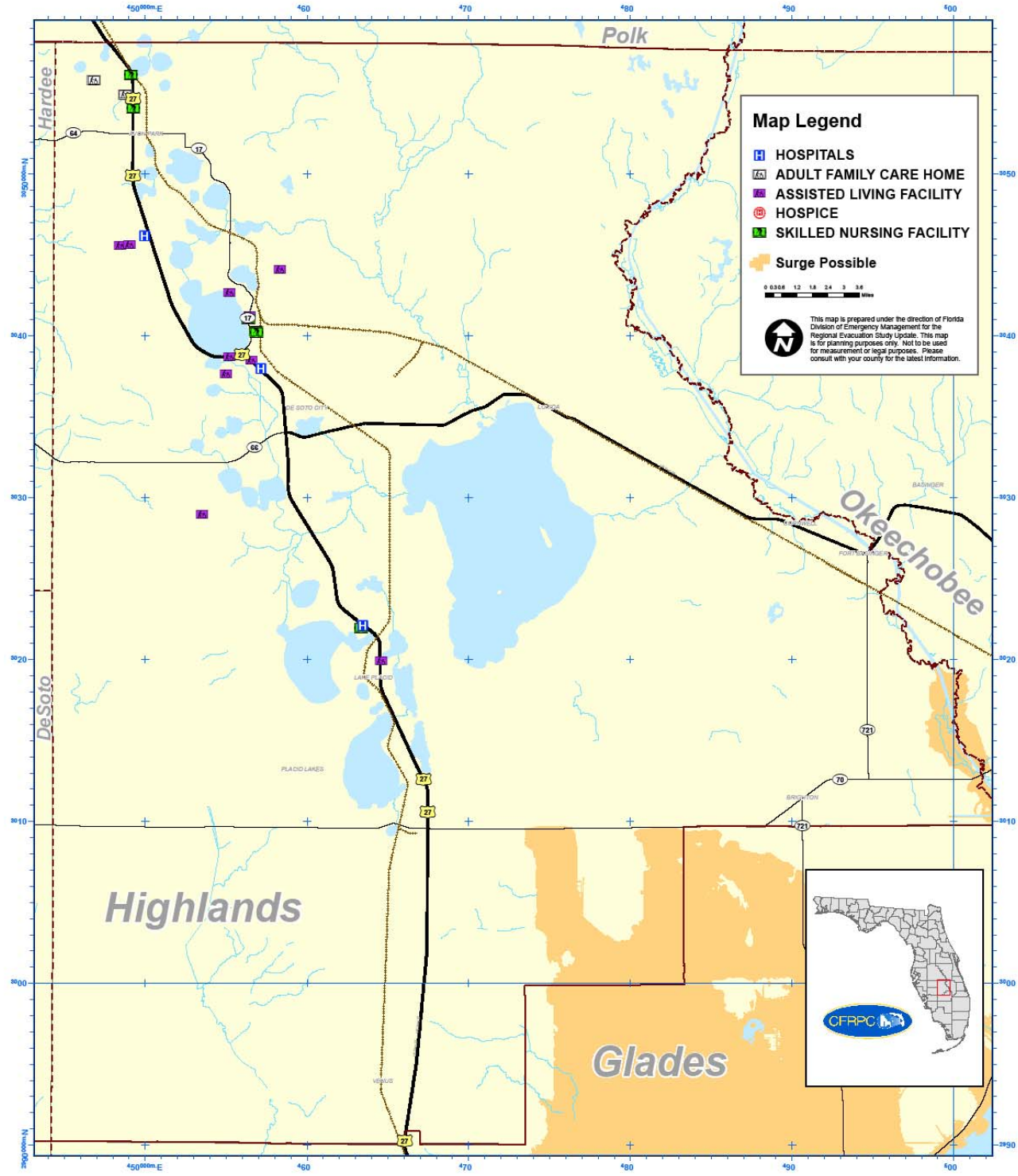
Sources: USGS, Florida Department of Agriculture and Consumer Services

Map Printed: June 2010

Map 5
Highlands County Mobile Home and RV Parks



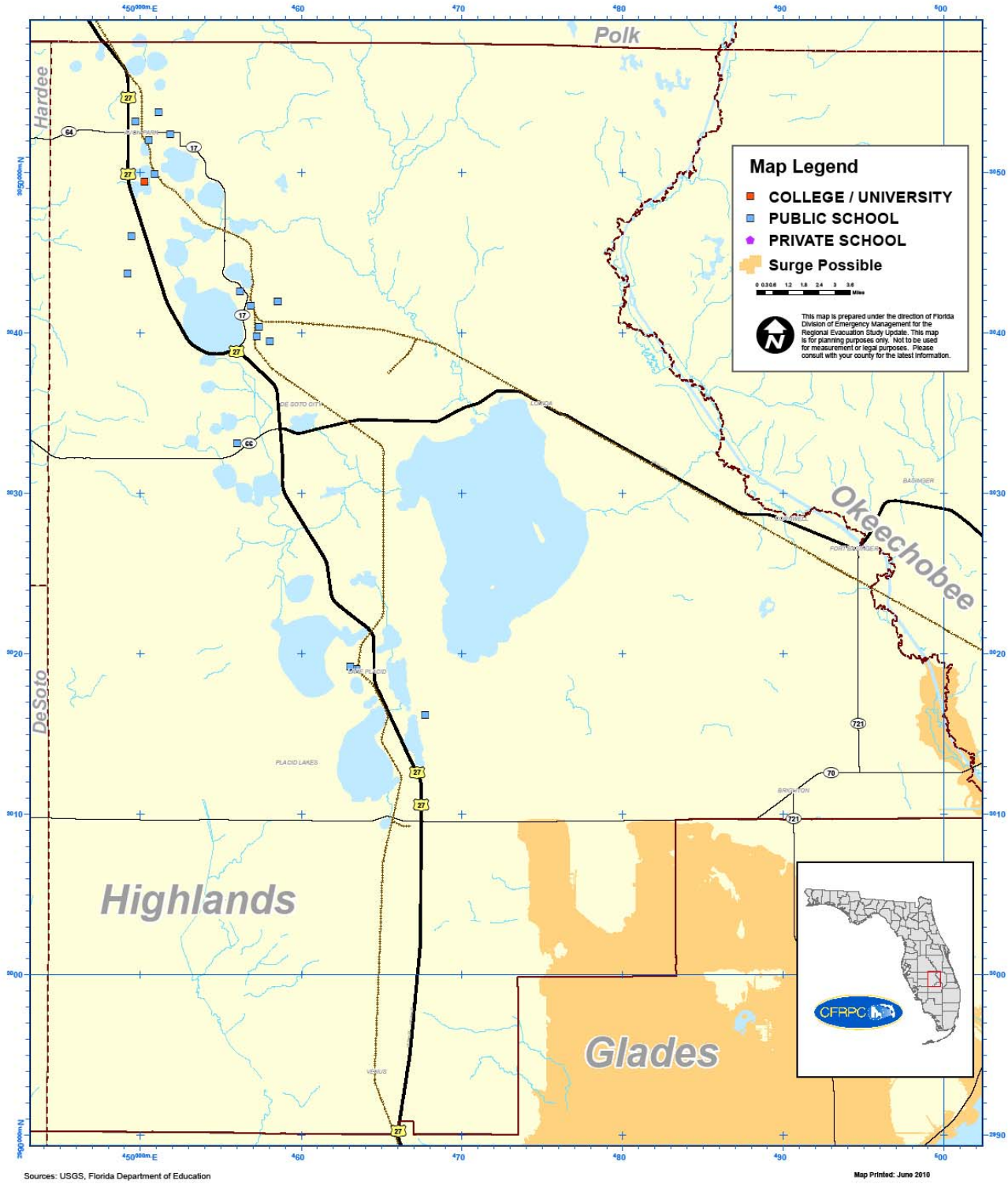
Map 6
Highlands County Health Care Facilities



Sources: USGS, Florida Health Care Association, Florida Division of Emergency Management

Map Printed: June 2010

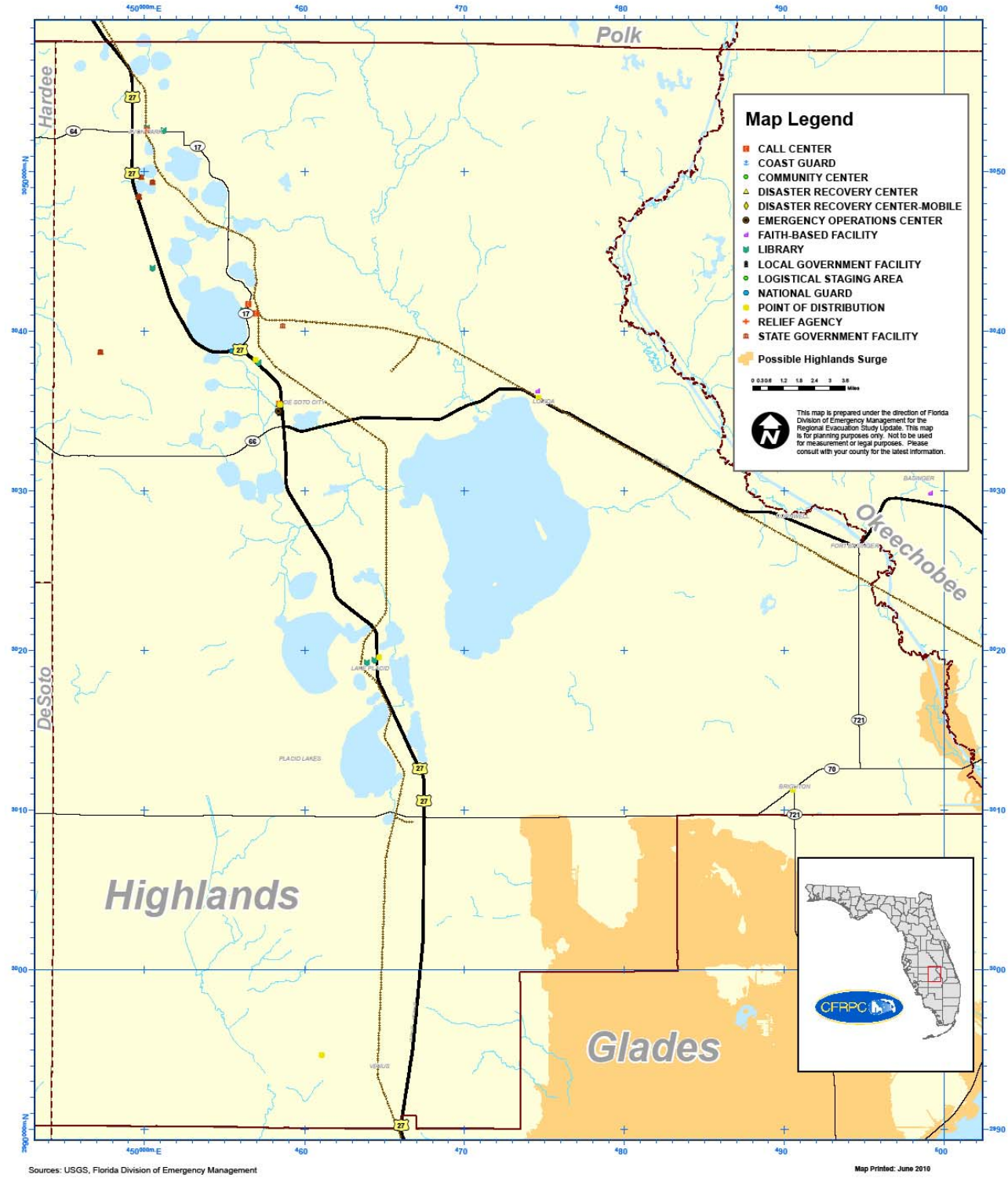
Map 7
Highlands County Schools and Universities



Sources: USGS, Florida Department of Education

Map Printed: June 2010

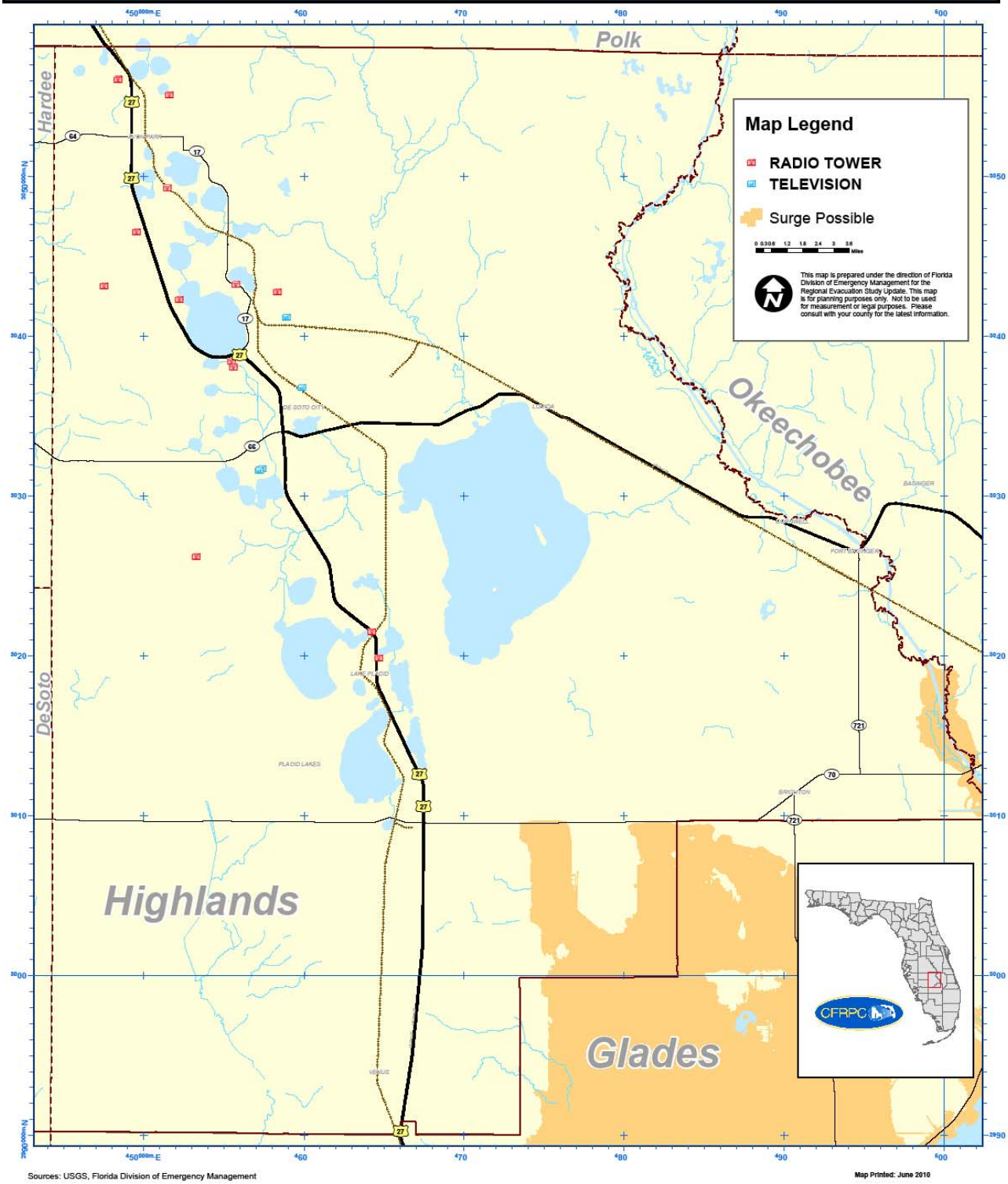
Map 8
Highlands County EOCs, Logistical and Military Resources, PODs



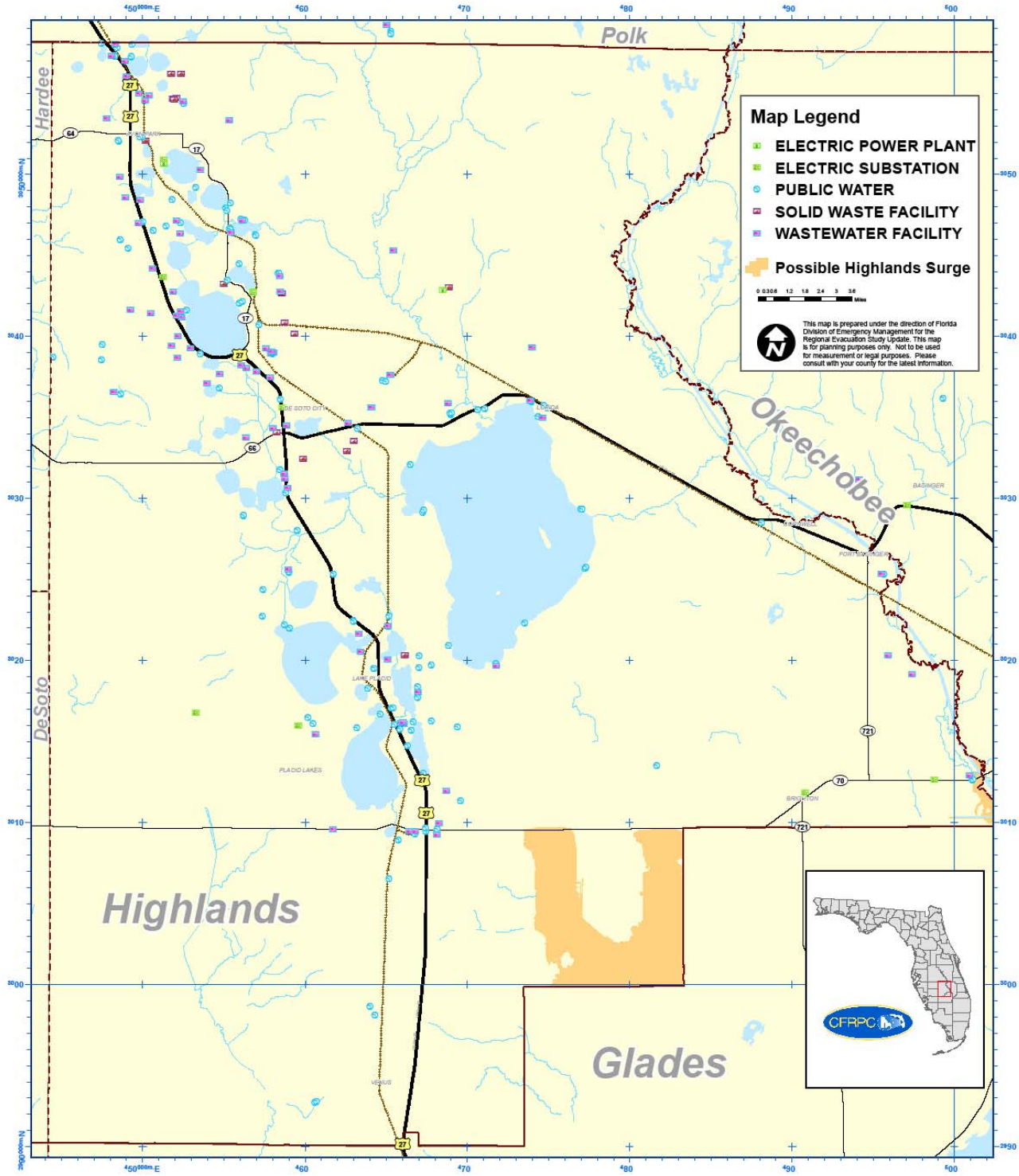
Sources: USGS, Florida Division of Emergency Management

Map Printed: June 2010

Map 9
Highlands County Communications Resources



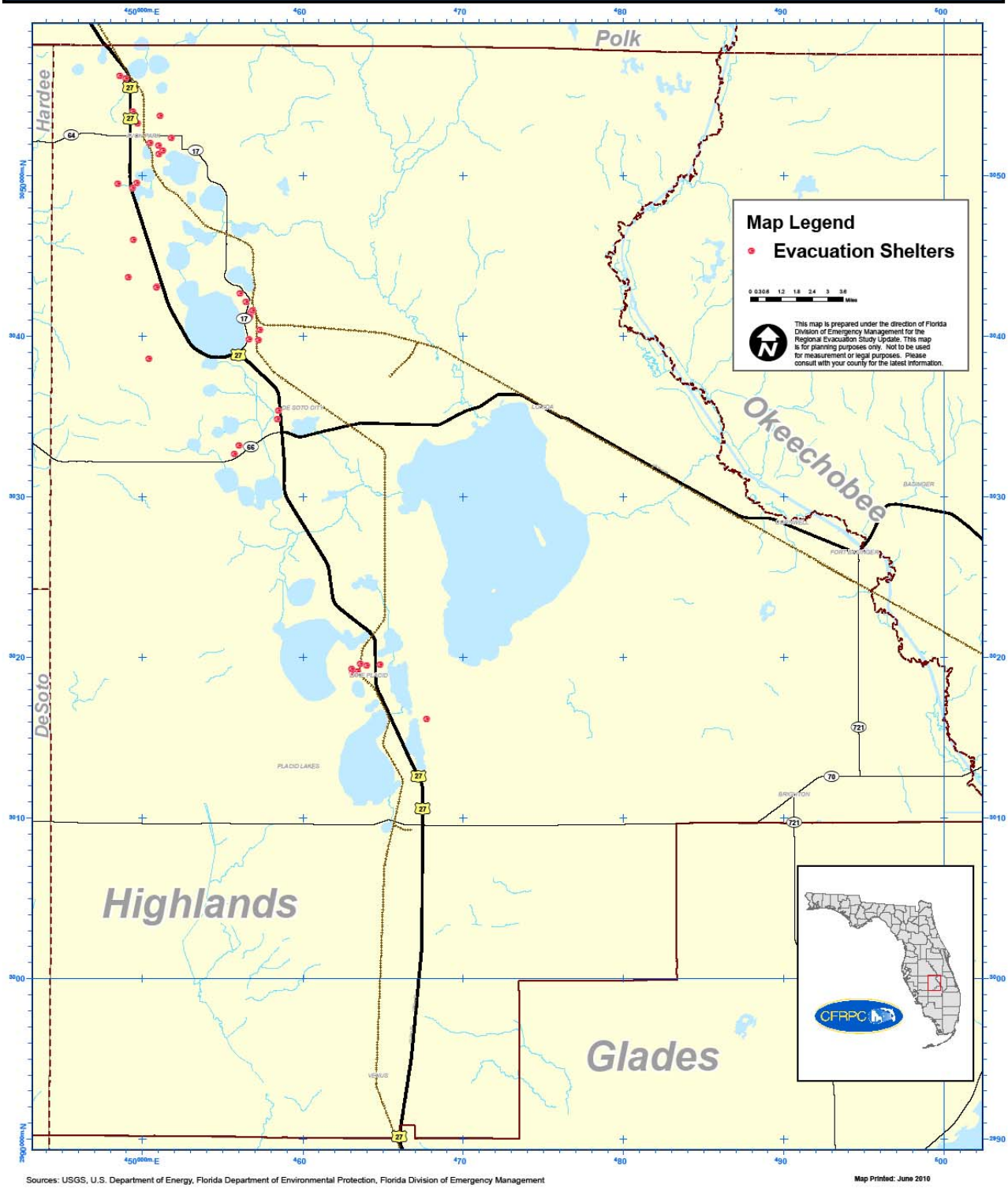
Map 10
Highlands County Critical Infrastructure (Water, Wastewater, Landfills, etc.)



Sources: USGS, U.S. Department of Energy, Florida Department of Environmental Protection, Florida Division of Emergency Management

Map Printed: June 2010

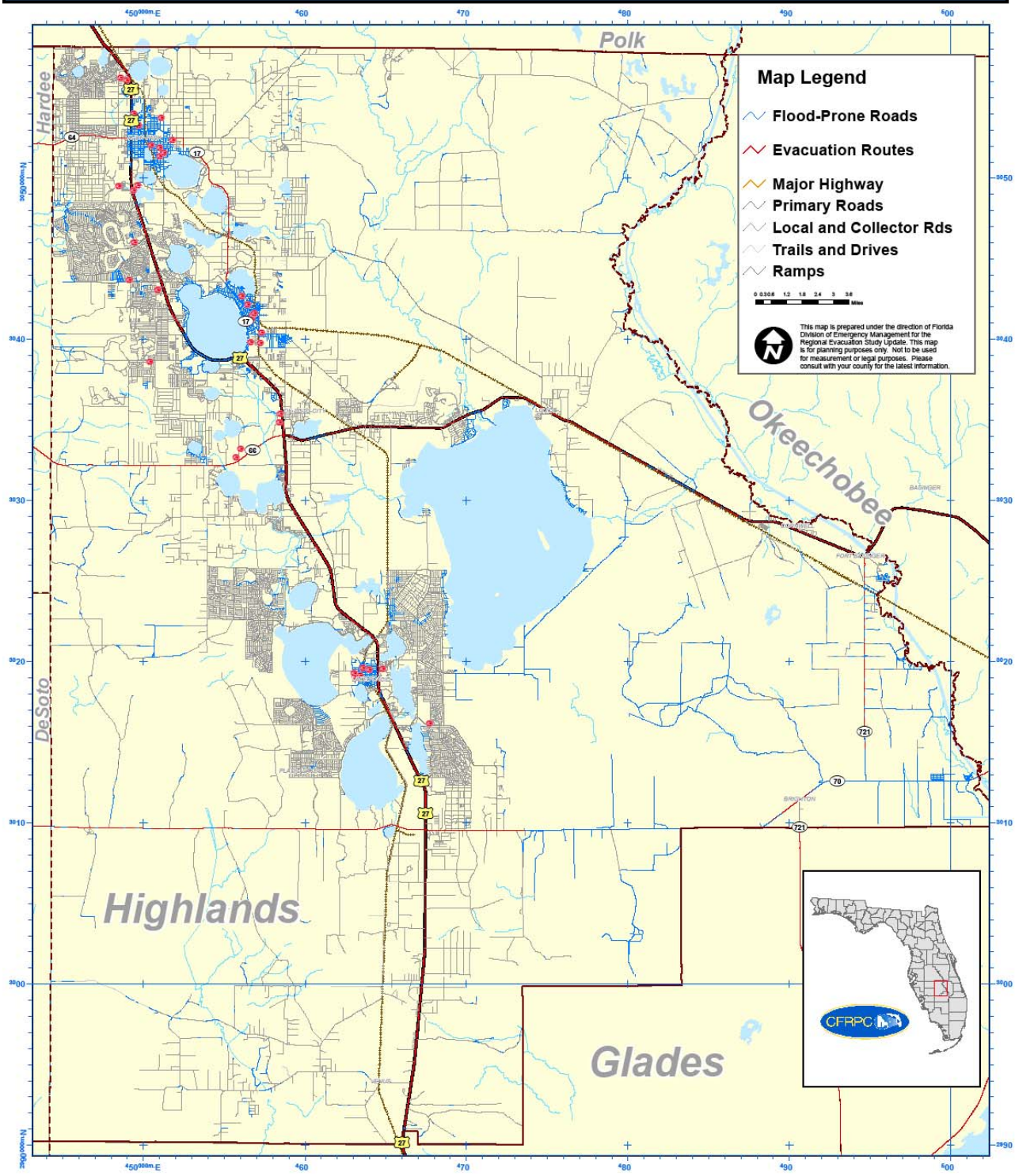
Map 11
Highlands County Public Evacuation Shelters 2010



Sources: USGS, U.S. Department of Energy, Florida Department of Environmental Protection, Florida Division of Emergency Management

Map Printed: June 2010

Map 12
Highlands County Roads Vulnerable to Freshwater Flooding



Sources: USGS, U.S. Department of Energy, Florida Department of Environmental Protection, Florida Division of Emergency Management

Map Printed: June 2010

HIGHLANDS COUNTY MAPS

Overall County (Base)

Traffic Analysis Zones

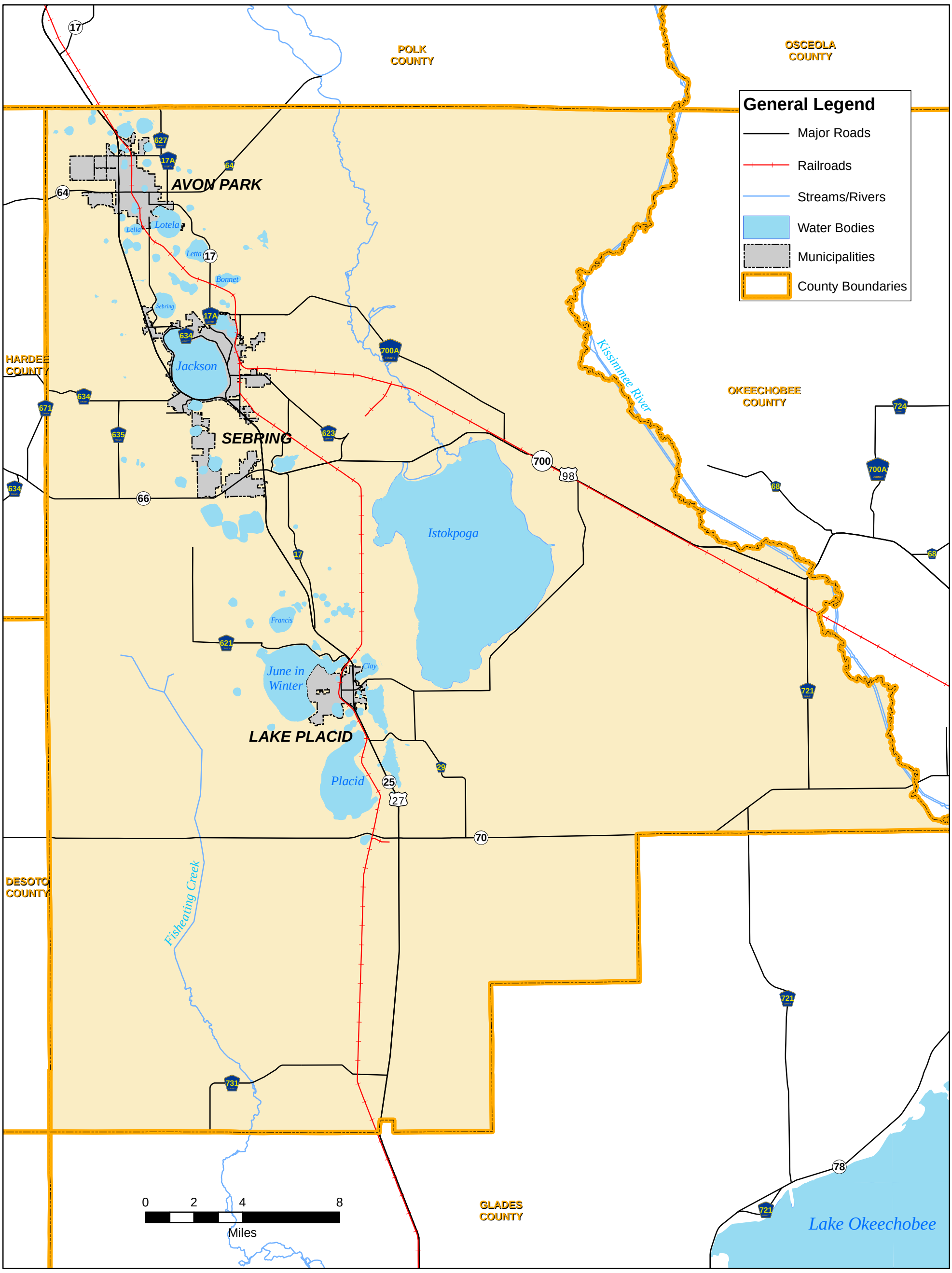
Residential Structures by Decade Built

Non-Residential Structures by Decade Built

Structures by Decade Built by Parcel Record

Critical Infrastructure

Highlands County - Base Map

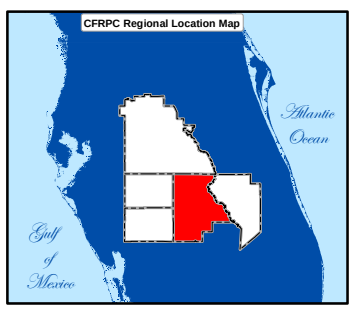


Source:
Highlands County Property Appraiser
Florida Department of Transportation
Central Florida Regional Planning Council

December 2010

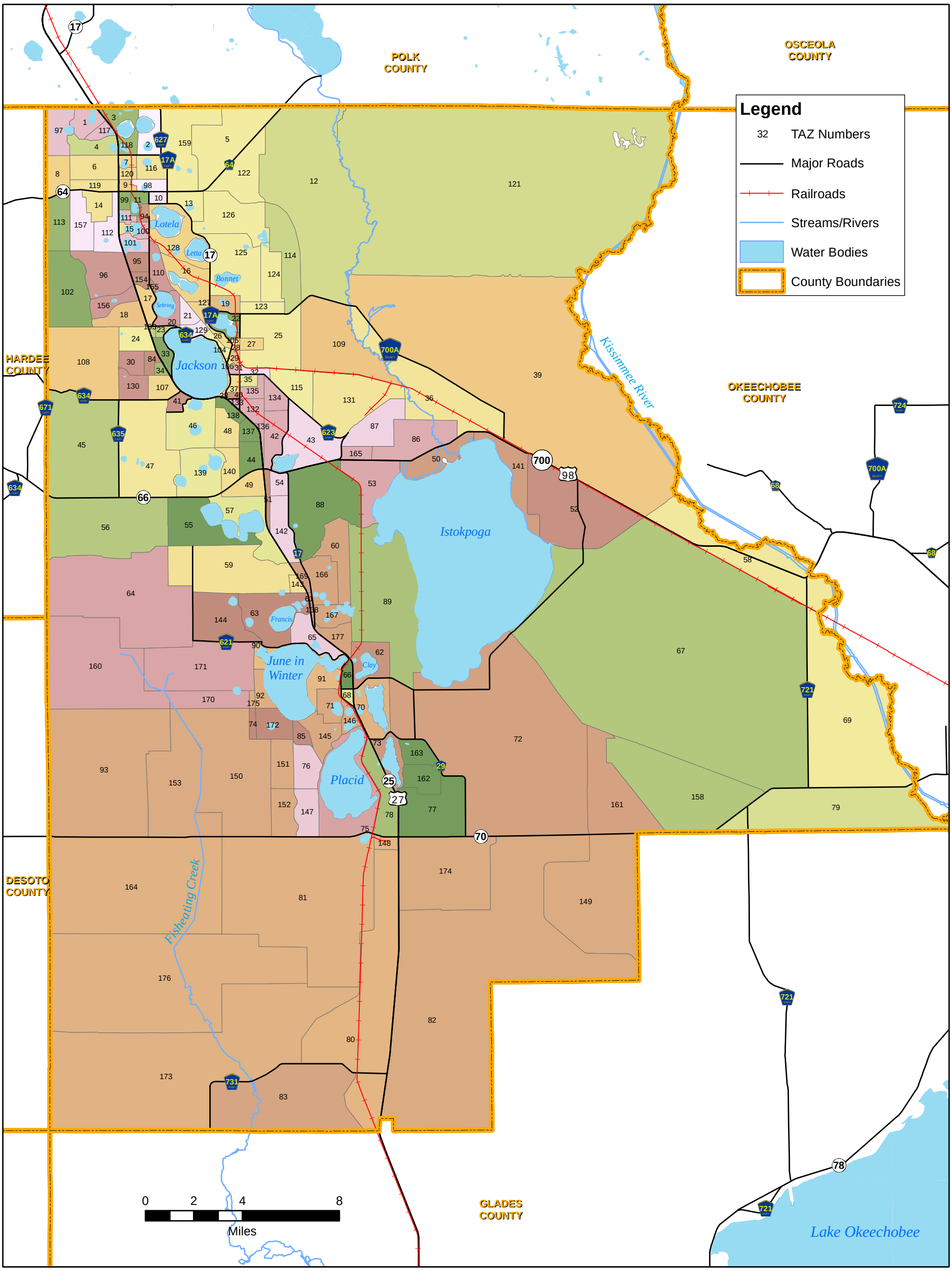
Central Florida Regional Planning Council

Central Florida
Disaster Resiliency Study



N

Highlands County - Traffic Analysis Zones (TAZ)



There are a total of 177 TAZs in Highlands County

Source: Florida Department of Transportation District 1 (2008)

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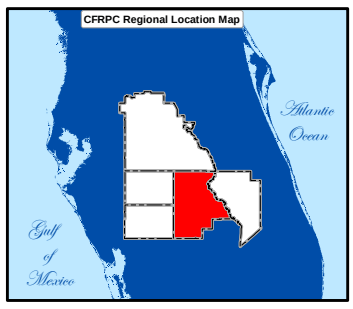
Central Florida Disaster Resiliency Study



N

Highlands County - Residential Structures by Decade Built

POLK COUNTY

OSCEOLA COUNTY

HARDEE COUNTY

OKEECHOBEE COUNTY

DESOTO COUNTY

GLADES COUNTY

Jackson

Istokpoga

June in Winter

Placid

Kissimmee River

Fisheating Creek

Lake Okeechobee

Legend

Year Built By Decade

- 1860 - 1899
- 1900 - 1929
- 1930 - 1959
- 1960 - 1969
- 1970 - 1979
- 1980 - 1989
- 1990 - 1999
- 2000 - 2008

General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries

0 2 4 8

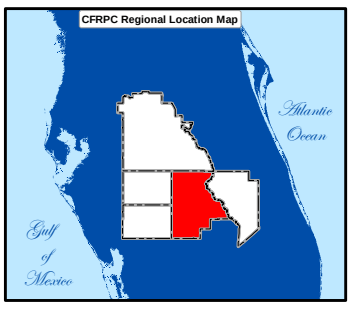
Miles

Source: Florida Department of Transportation District 1 (2008), Highlands County Property Appraiser

December 2010

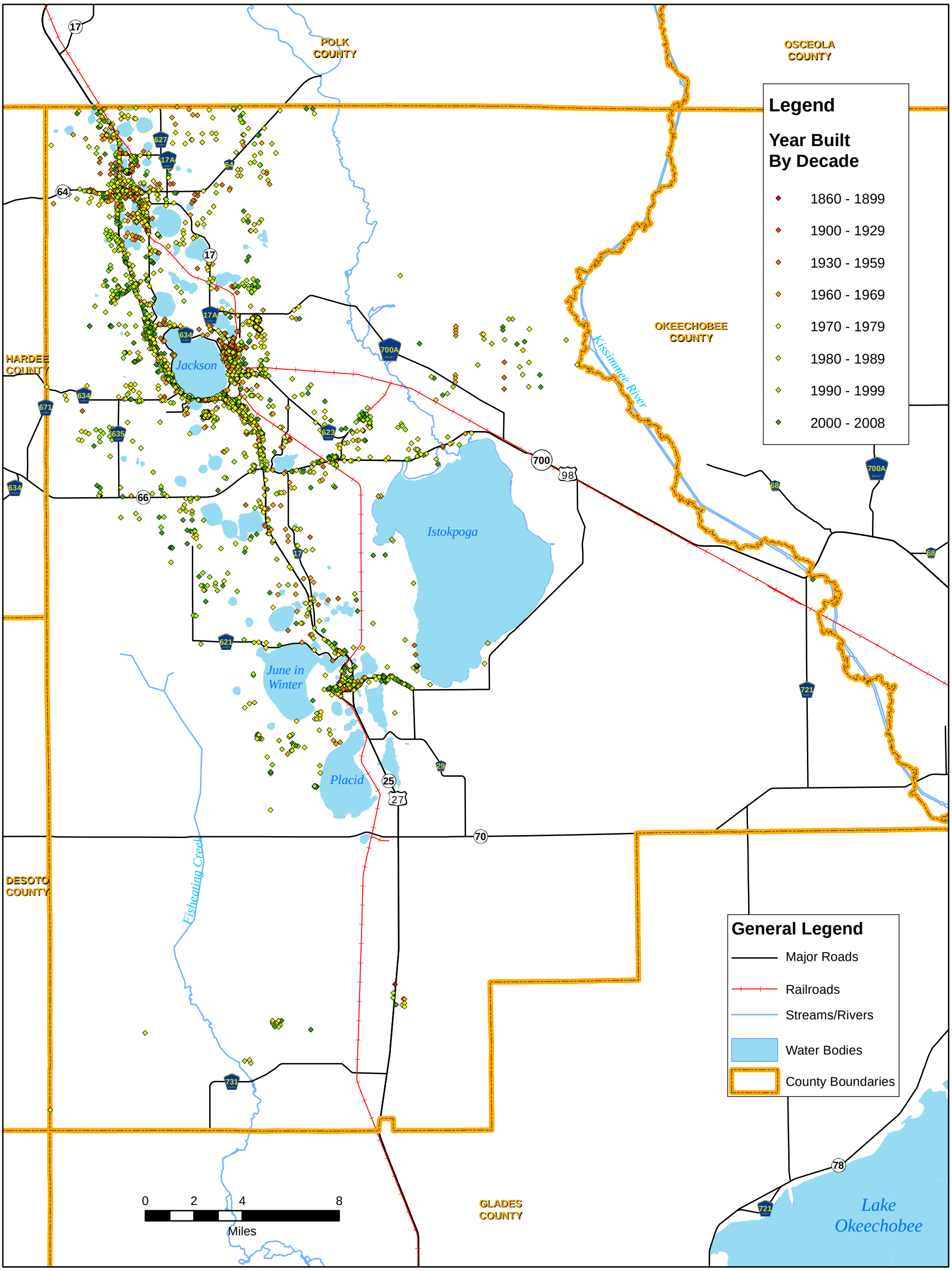
Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study



N

Highlands County - Non-Residential Structures by Decade Built



Source: Florida Department of Transportation District 1 (2008), Highlands County Property Appraiser

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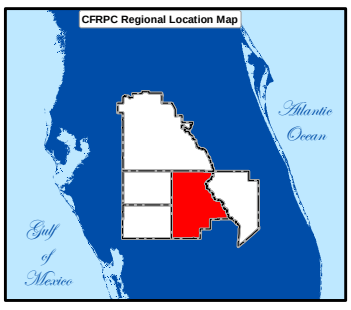
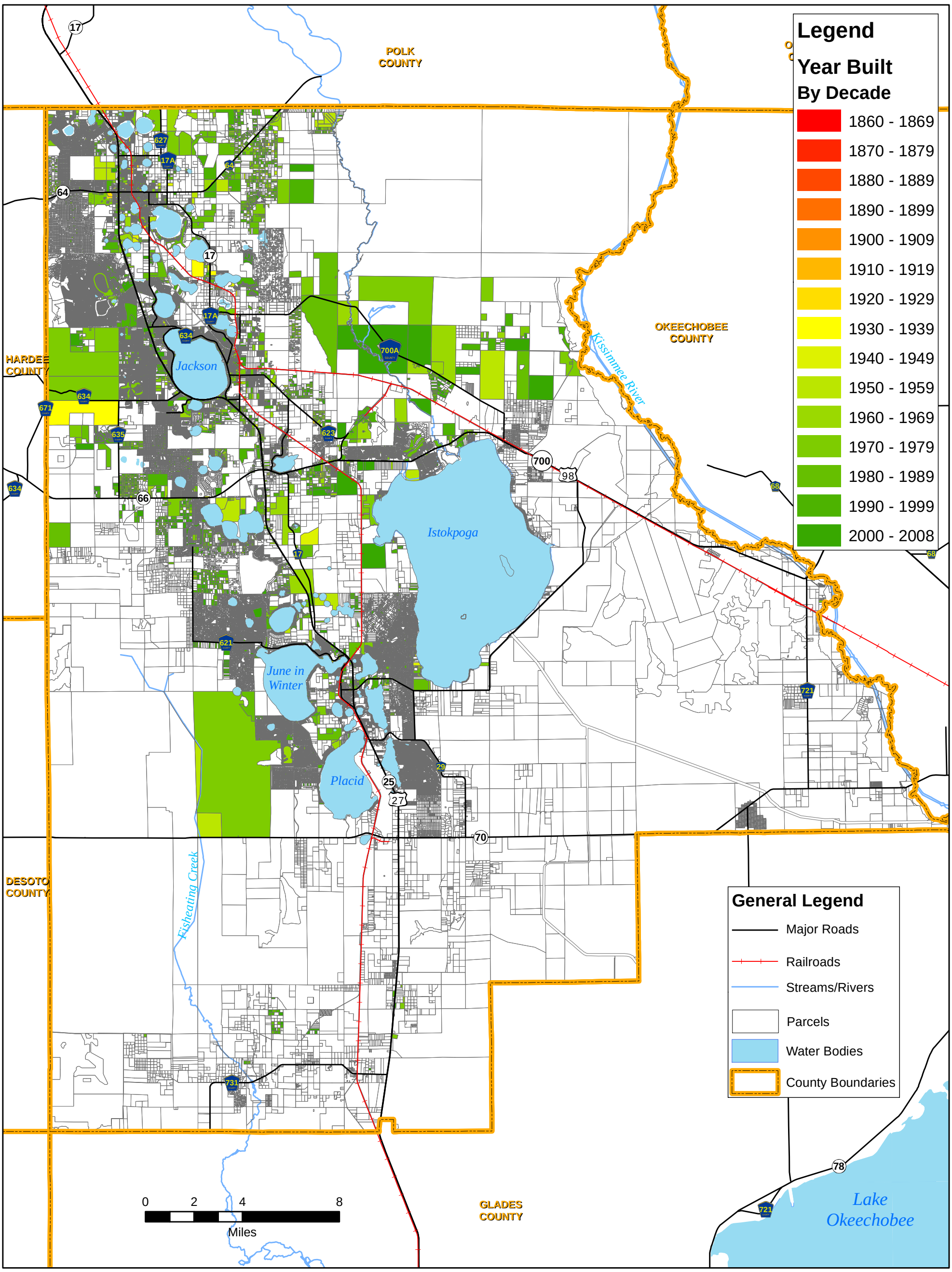
Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study



N

Highlands County - Structures by Decade Built - By Parcel Record



Source: Florida Department of Transportation District 1 (2008), Highlands County Property Appraiser

December 2010

Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

Highlands County - Critical Infrastructure

POLK COUNTY
OSCEOLA COUNTY
HARDEE COUNTY
OKEECHOBEE COUNTY
DESOTO COUNTY
GLADES COUNTY

Lelia
Lotela
Letta
Bonnet
Sebring
Jackson
Istokpoga
Francis
June in Winter
Clay
Placid
Kissimmee River
Fisheating Creek

General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries

Critical Infrastructure Legend

- Airports and Airfields
- Emergency Medical Service
- Police Stations
- Fire Stations
- Cell Towers

0 2 4 8
Miles

N

Source:
Federal Communications Commission
University of Florida GeoPlan Center
National Fire Department Census (United States Department of Homeland Security)
Federal Rail Administration
Florida Department of Transportation
Florida Department of Emergency Management

December 2010

Central Florida Regional Planning Council

Central Florida
Disaster Resiliency Study

CFRPC Regional Location Map

OKEECHOBEE COUNTY APPENDIX

Population and Critical Facilities

Maps

Overall County (Base)
Traffic Analysis Zones
Residential Structures by Decade Built
Non-Residential Structures by Decade Built
Structures by Decade Built by Parcel Record
Critical Infrastructure

OKEECHOBEE COUNTY APPENDIX
POPULATION AND CRITICAL FACILITIES

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B. County Profile 3
C. County Vulnerable Population Profile 7
D. Critical Facility Vulnerability Analysis 8

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A. Introduction

This appendix provides a County Economic Profile, Vulnerability Profile and a more detailed vulnerability analysis of critical facilities and corresponding maps for Okeechobee County.

B. County Profile

The data contained herein is provided to capture a profile of Okeechobee County including geographic and economic characteristics. In addition, many of the critical infrastructure partners including private sector and public utilities are identified.

Okeechobee County Profile

Visit eFlorida.com to learn more.

GEOGRAPHY

County Seat:	Okeechobee
Nearest MSA:	Fort Pierce-Port St. Lucie
Time Zone:	Eastern
Local Area Code(s):	(863)
Largest Cities:	Okeechobee

Miles* To:	
Tallahassee	305
Orlando	93
Tampa	112
Jacksonville	218
Miami	111
Atlanta	499
Chicago	1,081
Dallas	1,031
New York	1,010

*Miles are calculated from county seat

POPULATION

	Okeechobee	Florida
1980:	20,264	9,746,961
1990:	29,627	12,938,071
2008:	40,358	18,328,340
2015(p):	42,600	20,055,900
2030(p):	48,200	23,979,000

* (p) Denotes Projected Population

CLIMATE

Average Temperature	High	Low
January:	73	49
July:	93	72

Florida Mean Annual Precipitation.....53
Average Annual Rain Days.....127

PER CAPITA PERSONAL INCOME

	Okeechobee	Florida
2005	$21,440	$34,709
2006	$22,830	$37,099
2007	$23,784	$38,417

MIGRATION

(2008)	
In-Migration	1,707
Out-Migration	1,851
Net-Migration	-144

* Estimates based on IRS Statistics of Income data

LABOR FORCE

(2009)	
Labor Force	18,251
Labor Force % of County Population	45.2
Number in County Unemployed	2,196
Unemployment Rate	12.0%

* Monthly labor force data are available from the Florida Agency for Workforce Innovation.

MEDIA

Local Radio Stations:

WOKC 1570 AM

Local Television Stations:

none listed

Locally Printed Newspapers:

Okeechobee News
Okeechobee Times

FINANCIAL INSTITUTIONS

Number of Banks:	7
Number of Savings and Loans:	2
Number of Credit Unions:	1

STATE AND LOCAL TAXATION

COUNTY

Countywide Ad Valorem Millage Rates:

Government	5.8043
Schools	7.7770
Special	1.0816
Total	14.6629

Ad Valorem Tax Exemption:	Yes
Retail Sales Tax (Local Option)	1.00
Federal Enterprise Zone	No
State Enterprise Zone	EZ-4701

STATE

Corporate Income Tax	5.5%
Personal Income Tax	0.0%
Retail Sales Tax	6.0%

EMPLOYMENT BY INDUSTRY

(2008)	Okeechobee	Florida
Average Annual Employment	10,406	7,945,162
Natural Resources & Mining	11.4%	1.2%
Construction	8.1%	6.5%
Trade, Transportation and Utilities	20.6%	20.5%
Manufacturing	2.5%	4.7%
Information	1.0%	2.0%
Other Services	2.3%	3.2%
Public Administration	9.5%	5.9%
Unclassified	N/D	
Leisure & Hospitality	9.7%	11.9%
Education & Health Services	15.7%	19.4%
Professional & Business Services	6.9%	14.4%
Financial Activities	3.1%	6.6%

Average Annual Wage

(2008)	
All Industries	$30,293
Construction	$29,952
Education & Health Services	$34,412
Financial Activities	$34,079
Information	$37,902
Leisure & Hospitality	$14,738
Manufacturing	$36,218
Natural Resources & Mining	$25,666
Other Services	$25,397
Professional & Business Services	$35,167
Public Administration	$36,861
Trade, Transportation and Utilities	$27,844
Unclassified	N/D

*N/D = No Data

EXISTING EMPLOYMENT

Major Private Sector Employers

Columbia Raulerson Hospital
Business Line: Healthcare
Number of Employees.....365

Walpole, Inc.
Business Line: Trucking
Number of Employees.....300

Larson Dairy, Inc.
Business Line: Milk Producer
Number of Employees.....225

McArthur Farms, Inc.
Business Line: Milk Producer
Number of Employees.....160

Okeechobee Healthcare
Business Line: Healthcare
Number of Employees.....140

Bank of America
Business Line: Banking
Number of Employees..... 93

Advanced Panch Technologies, Inc.
Business Line: Prefab Buildings
Number of Employees..... 70

TRANSPORTATION

Federal Interstates	None
Federal Highways	US-98 US 441
State Highways	SR 70 SR-710 FL Turnpike
Railroads	CSX Amtrak

Nearest Airport with Scheduled Commercial Airline Service:	Palm Beach International
# Runways	3
Longest Paved Runway (ft.)	7,989
General Aviation Airports	Okeechobee County
Local Deep Water Port	Port of Ft. Pierce Port of Palm Beach
Miles to Closest Port	35

COMMERCIAL/INDUSTRIAL SERVICES

Electric Companies:
Florida Power Corporation
Glades Electric Co-Op, Inc.
Florida Power & Light
Natural Gas Companies:
None
Telephone Companies:
Embarq
Water & Sewer Companies:
Okeechobee Utility Authority

Existing Industrial Zoned Land	Yes
Number of Acres	450
Largest Available Contiguous Parcel	350
Industrial Parks	Yes
Number of Acres	100
Largest Available Contiguous Parcel	21
Foreign Trade Zones	No
Zone Number(s)	

EDUCATION

	Public Schools*
Elementary:	5
Secondary:	4
Totals:	9

*Source: Okeechobee County School District

Private Schools Available: No

POST SECONDARY EDUCATION SERVING THE COUNTY:

Colleges/Universities:
Indian River State College
Florida Atlantic University
Junior/Community Colleges:
None
Vocational/Technical Schools:
Dixon Hendry Center
Other Schools:
None

QUALITY OF LIFE

Cost of Living
Price Level Index, (2007)
Florida State Average = 100

	Sample
Total	91.72
Food	103.67
Housing	81.17
Medical Care	103.63
Personal Goods and Services	97.61
Transportation	98.05

Medical Services:
Columbia Raulerson Hospital
Okeechobee Health Care
Recreational Opportunities:
Biking
Birding
Boating
Fishing
Hunting
Historical Points Of Interest:
County Courthouse
Okeechobee Battlefield
Cultural Events/Festivals:
Arts & Crafts Fair
County Fair
Lighted Christmas Parade
Rodeo
Speckled Perch Fedstival

Source: Enterprise Florida, Inc.
800 North Magnolia Avenue, Suite 1100
Orlando, Florida 32803
Phone: (407) 956-5600
Fax: (407) 956-5599
World Wide Web: http://www.eflorida.com

C. County Vulnerable Population Profile

Okeechobee County Vulnerable Population Profile

Demographic Indicators

2009 County Population Estimate[1] -39,419
65-84 Population[1] - 5,901
85+ Population[1] - 890
Live Births (3yr count)[1] - 1,852
% of Population 65+ - 17%

Economic Indicators

Population Below Poverty[1] - 6,221
Food Stamp Recipients[7] - 4,771
WIC Enrollment[1] - 1,934
Average Monthly Medicaid Enrollment[1] - 4,238
Uninsured (Under 65)[1] - 8,186

Vulnerability Indicators

Population with 1 or more disabilities[2] - 8,639
% of Population with 1 or more disabilities - 22%
Elders Living Alone[8] - 1,838
Estimated Homeless[7] - 112
Children in Foster Care[7] - 89
Developmentally Disabled[4] - 123
Seriously Mentally Ill Adults[7] - 1,581
Brain &/or Spinal Cord Injured Clients[5] - 6
Estimated Oxygen Dependent Clients - 584
Elders with Dementia[8] - 1,154
CMS Clients[6] - 260
Dialysis Clients[3] - 43
Seriously Emotionally Disturbed Children[7] - 773

Data Sources

[1] Department of Health Office of Planning, Data Analysis and Evaluation
[2] US Census Data
[3] Florida End Stage Renal Disease Network
[4] Agency for Persons with Disabilities
[5] Department of Health Brain and Spinal Cord Injury Program
[6] Department of Health Division of Children's Medical Services
[7] Department of Children and Families
[8] Department of Elder Affairs

Source: Florida Department of Health, 2010

D. Critical Facility Vulnerability Analysis

Specific attention was paid to health care facilities such as hospitals and nursing homes; emergency response agencies, hazardous materials, mobile home parks, schools and colleges and community centers. Each facility has the name, location, latitude/longitude coordinates, description, critical code and results of the 2010 surge analysis (completed as part of the Florida Statewide Regional Evacuation Study for the Central Florida Region) based on the most accurate topographic data and the SLOSH model.

The Critical Facility Inventory (database) includes a comprehensive list of critical facilities identified by the State and County Emergency Management Agencies. This inventory is not published as part of the report. However, selected facilities which may require evacuation or mitigation are identified in the tables and maps which follow. The tables indicate vulnerability from storm surge (based on the SLOSH model), freshwater flooding (based on the FEMA Flood Maps) and wildfire (Wildfire Interface/Levels of Concern).

Table 1
Okeechobee County Health Care Vulnerability Assessment

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE (Lake = 16 ft)	SURGE (Lake = 20 ft)	EVAC ZONE	FLOOD	FIRE
Ambulatory Surgical Center	Surgery Center of Okeechobee, Inc.	1655 Highway 441 North	Okeechobee	34972	17	1	1	A	Out	N
End Stage Renal Disease	Renal Care Center of Okeechobee	201 SW 16th Street	Okeechobee	34974	24	0	0	C	Out	N
Hospice	Hospice of Okeechobee, Inc.	411 SE 4th Street	Okeechobee	34974	18	0	0	C	Out	N
Hospital	Raulerson Hospital	1796 Highway 441 North	Okeechobee	34972	24	0	0	C	Out	N
Clinical Laboratory	Florida Community Health Centers Lakeshore	308 NW Fifth Avenue	Okeechobee	34972	27	0	0	C	Out	N
Clinical Laboratory	Florida Community Health Center Lakeshore Pediatrics	1100 North Parrott Avenue	Okeechobee	34972	24	0	0	C	Out	N
Clinical Laboratory	Florida Community Health Centers Lake Shore	103 NE 19th Drive	Okeechobee	34972	18	4	1	A	Out	N
Clinical Laboratory	Gateway Medical Group LLC	111 NE 19th Drive	Okeechobee	34972	18	3	1	A	Out	N
Clinical Laboratory	Waters Edge Dermatology – Okeechobee	301 NE 19th Drive	Okeechobee	34972	17	2	1	A	Out	N
Clinical Laboratory	Tim Ioannides, Md LLC	1924 Highway 441 North	Okeechobee	34974	16	1	1	A	Out	N
Clinical Laboratory	Raulerson Hospital Clinical Lab	1796 Highway 441 North	Okeechobee	34972	24	0	0	C	Out	N
Skilled Nursing Facility	Okeechobee Health Care Facility	1646 Highway 441 North	Okeechobee	34972	25	0	0	C	Out	N

Table 2
Okeechobee County Other Critical Facilities Vulnerability Assessment

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE (Lake = 16 ft)	SURGE (Lake – 20 ft)	EVAC ZONE	FLOOD	FIRE
Radio Tower	W218BB		Okeechobee		20	0	0	B	Out	N
Radio Tower	W263BB		Okeechobee		30	0	0	C	Out	N
Radio Tower	WOKC		Okeechobee		17	0	0	A	Out	N
Radio Tower	WREH		Cypress Quarters		38	0	0	C	Out	N
Call Center	Okeechobee County Sheriff HQ	504 NW 4th Street	Okeechobee	34972	30	0	0	C	Out	N
Fire Station	Buckhead Ridge Community Volunteer Fire Dept Company, Inc.	678 Highway 78 West	Okeechobee	34974	16	0	0	A	Out	N
Fire Station	Okeechobee County Fire Station 1	501 NW 5th Street	Okeechobee	34972	29	0	0	C	Out	N
Fire Station	Okeechobee County Fire Station 2	3701 SE 38th Avenue	Okeechobee	34974	20	0	0	A	Out	N
Fire Station	Okeechobee County Fire Station 3	31599 US Highway 441 North	Okeechobee	34972	51	0	0	C	Out	N
Fire Station	Okeechobee County Fire Station 4	1199 NW 168th Street	Okeechobee	34972	30	0	0	C	Out	N
Fire Station	Okeechobee Fire Dept	55 SE 3rd Avenue	Okeechobee	34974	27	0	0	A	Out	N
Law Enforcement	Okeechobee County Sheriff HQ	504 NW 4th Street	Okeechobee	34972	30	0	0	C	Out	N
Law Enforcement	Okeechobee County Police Dept HQ	50 SE 2nd Avenue	Okeechobee	34974	28	0	0	A	Out	N
Emergency Operations Center	Okeechobee County Emergency Management	499 NW Fifth Avenue	Okeechobee	34972	31	0	0	C	Out	N

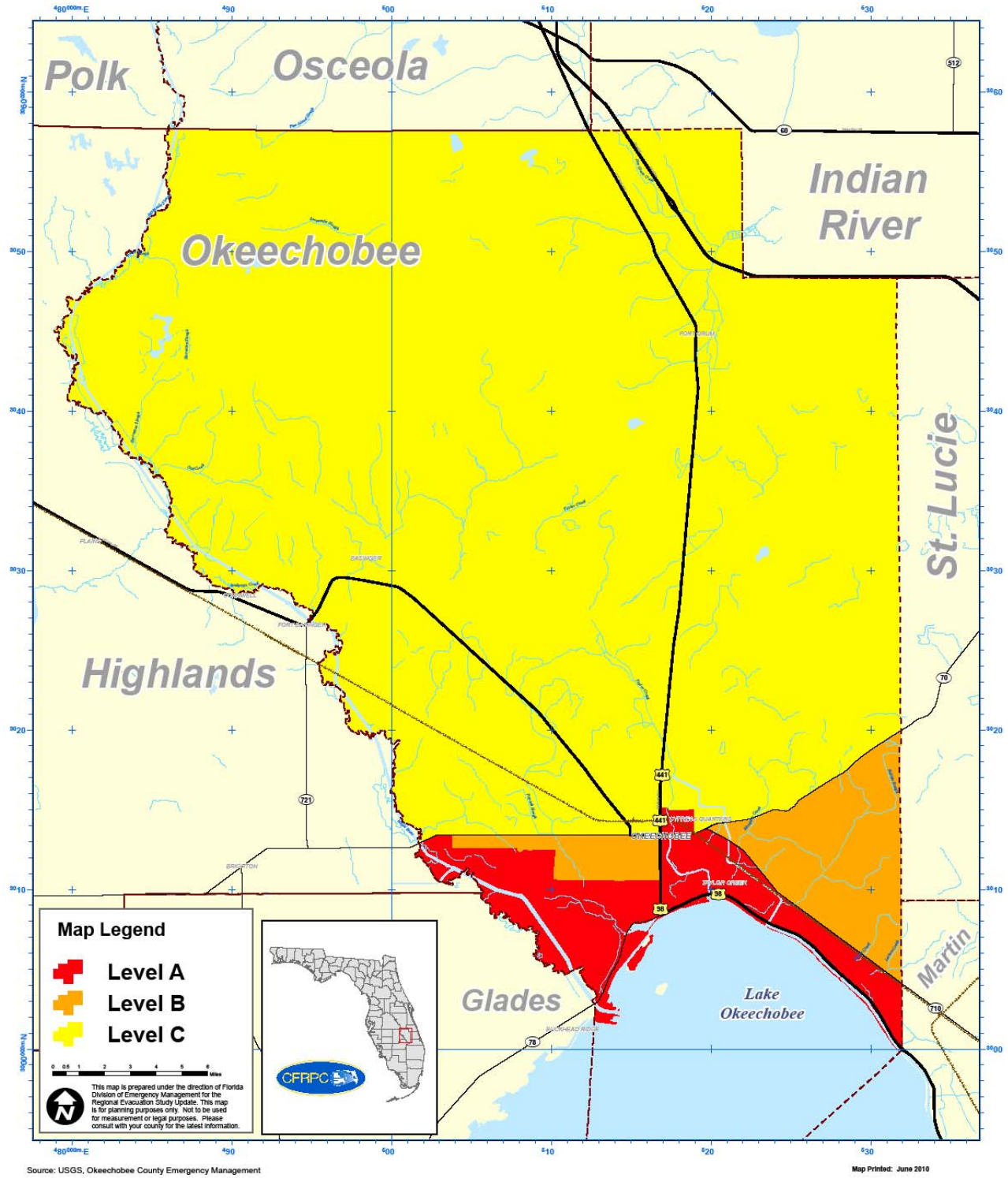
FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE (Lake = 16 ft)	SURGE (Lake – 20 ft)	EVAC ZONE	FLOOD	FIRE
Fuel Facility – DOT	Okeechobee Sub-Yard	500 NW 9th Street	Okeechobee	34972	29	0	0	C	Out	N
Airport	Baggett Airpark		Okeechobee		25	0	0	A	Out	N
Airport	Citrus Hedging Ranch		Okeechobee		60	0	0	C	Out	N
Airport	Golden Land Ranch		Okeechobee		40	0	0	C	Out	N
Airport	Indian Hammock		Fort Drum		63	0	0	C	Out	N
Airport	Okeechobee County		Okeechobee		30	0	0	C	Out	N
Airport	Paxton		Okeechobee		65	0	0	C	Out	N
Airport	Recreation Corporation		Okeechobee		64	0	0	C	Out	N
Airport	River Acres		Okeechobee		32	0	0	C	Out	N
Airport	River Oak		Okeechobee		25	0	0	A	Out	N
Airport	Sunniland Ranch		Okeechobee		60	0	0	C	Out	N
Heliport - Helipad	HCA Raulerson Hospital	1796 Highway 441 North	Okeechobee	34972	26	0	0	C	Out	N
Correctional Facility	Okeechobee Correctional Institute	16800 Highway 441 North	Okeechobee	34972	31	0	0	C	Out	N

Map 1
Okeechobee County Traffic Evacuation Zones

Source: USGS, Florida Department of Transportation, Wilbur Smith Associates

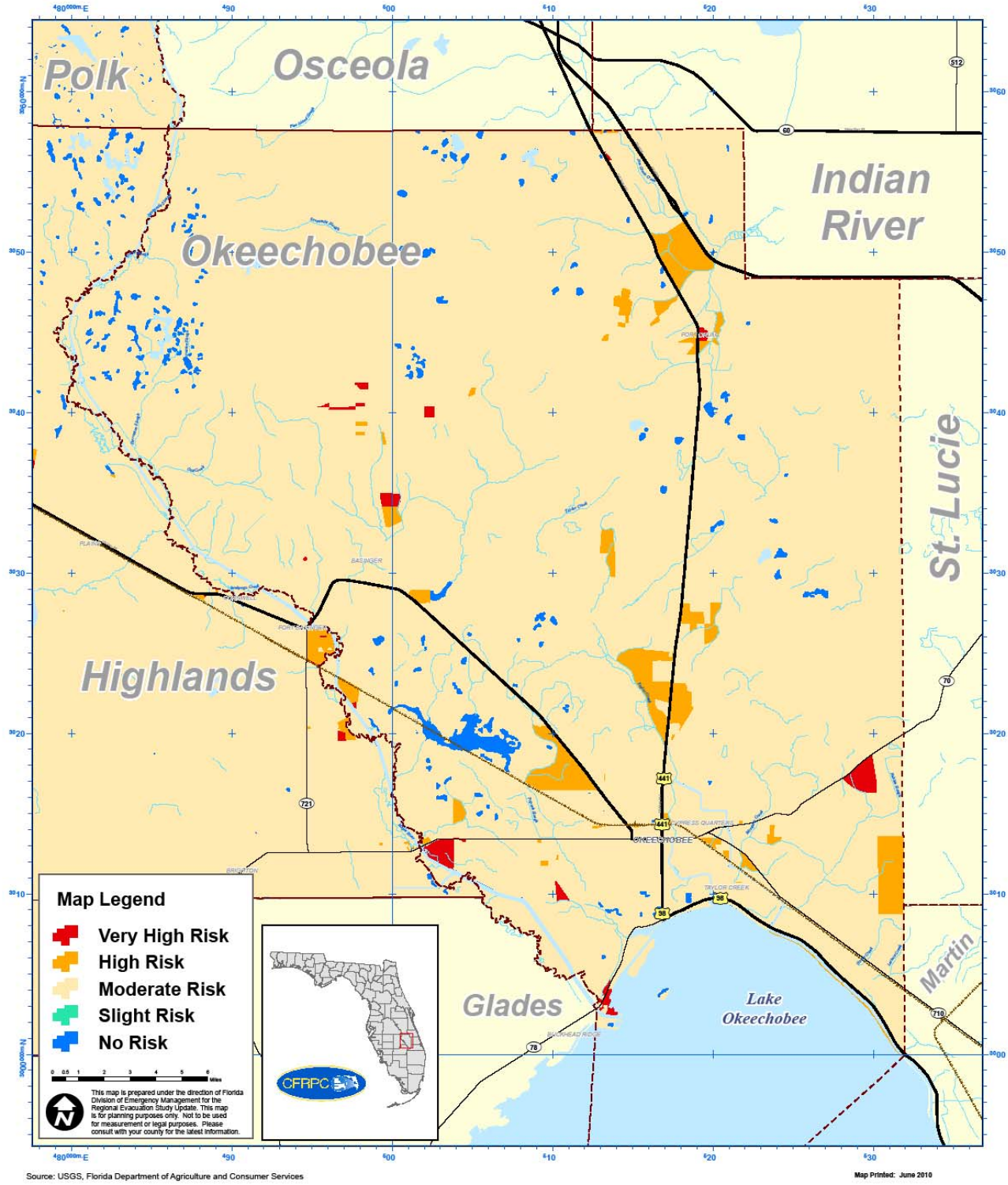
Map Printed: June 2010

Map 2
Okeechobee County Hurricane Evacuation Zones



Map 3
Okeechobee County FEMA FIRM Floodplains

Map 4
Okeechobee County Wildland-Urban Interface Fire Risk



Source: USGS, Florida Department of Agriculture and Consumer Services

Map Printed: June 2010

Map 5
Okeechobee County Mobile Home and RV Parks

Map 6
Okeechobee County Health Care Facilities

Source: USGS, Florida Healthcare Association, Florida Division of Emergency Management

Map Printed: June 2010

Map 7
Okeechobee County Schools and Universities

Source: USGS, Florida Department of Education

Map Printed: June 2010

Map 8
Okeechobee County EOCs, Logistical and Military Resources, PODs

Source: USGS, Florida Division of Emergency Management

Map Printed: June 2010

Map 9
Okeechobee County Communications Resources

Source: USGS, Florida Division of Emergency Management

Map Printed: June 2010

Map 10
Okeechobee County Critical Infrastructure (Water, Wastewater, Landfills, etc.)

Source: USGS, Florida Division of Emergency Management

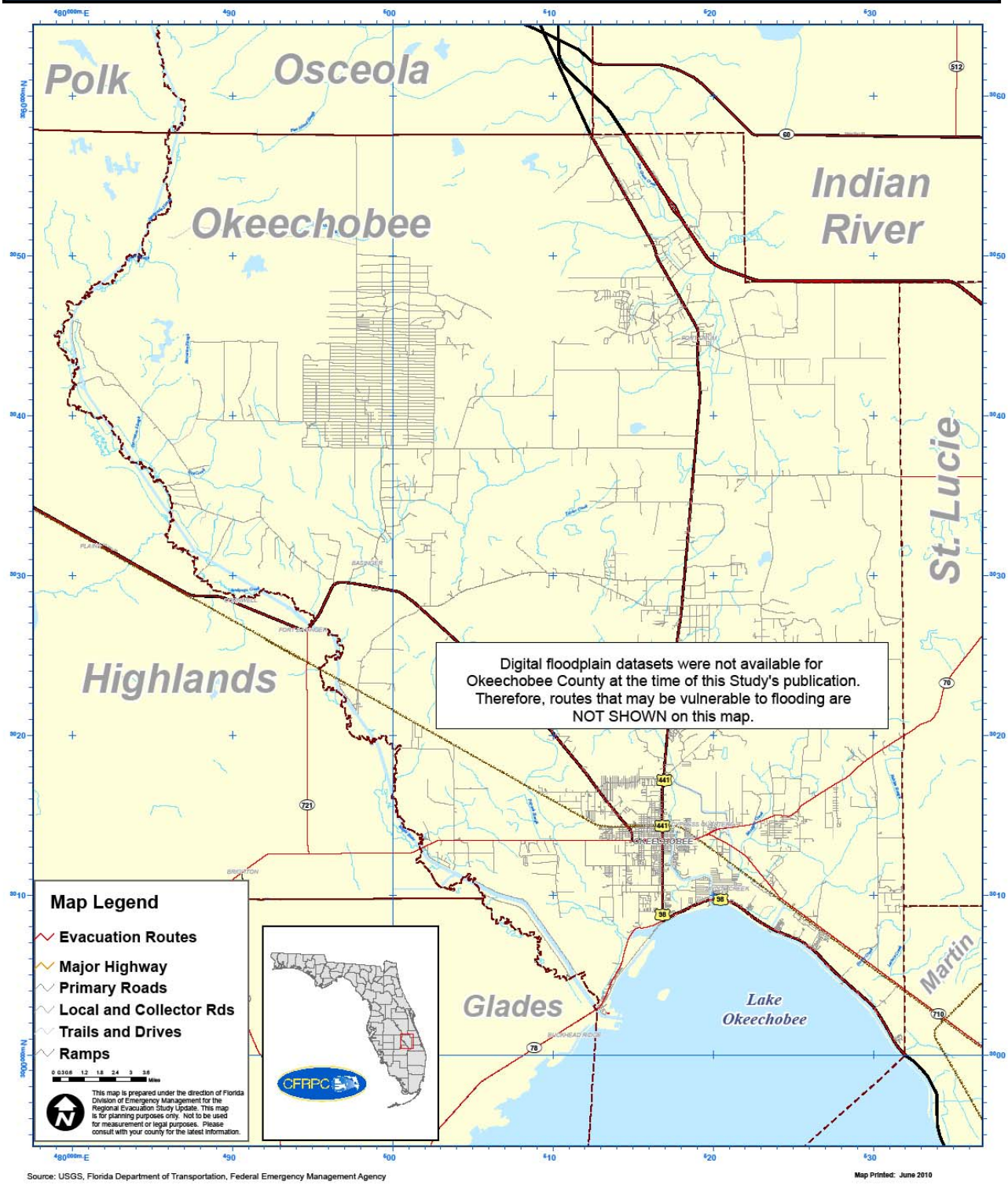
Map Printed: June 2010

Map 11
Okeechobee County Public Evacuation Shelters 2010

Source: USGS, Okeechobee County Emergency Management, Florida Division of Emergency Management

Map Printed: June 2010

Map 12
Okeechobee County Roads Vulnerable to Freshwater Flooding



OKEECHOBEE COUNTY MAPS

Overall County (Base)

Traffic Analysis Zones

Residential Structures by Decade Built

Non-Residential Structures by Decade Built

Structures by Decade Built by Parcel Record

Critical Infrastructure

Okeechobee County - Base Map

POLK COUNTY
OSCEOLA COUNTY
INDIAN RIVER COUNTY
HIGHLANDS COUNTY
ST LUCIE COUNTY
GLADES COUNTY
MARTIN COUNTY
OKEECHOBEE CITY
Kissimmee River
Lake Okeechobee

General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- Municipalities
- County Boundaries

0 2 4 8
Miles

Source:
Okeechobee County Property Appraiser
Florida Department of Transportation
Central Florida Regional Planning Council

December 2010

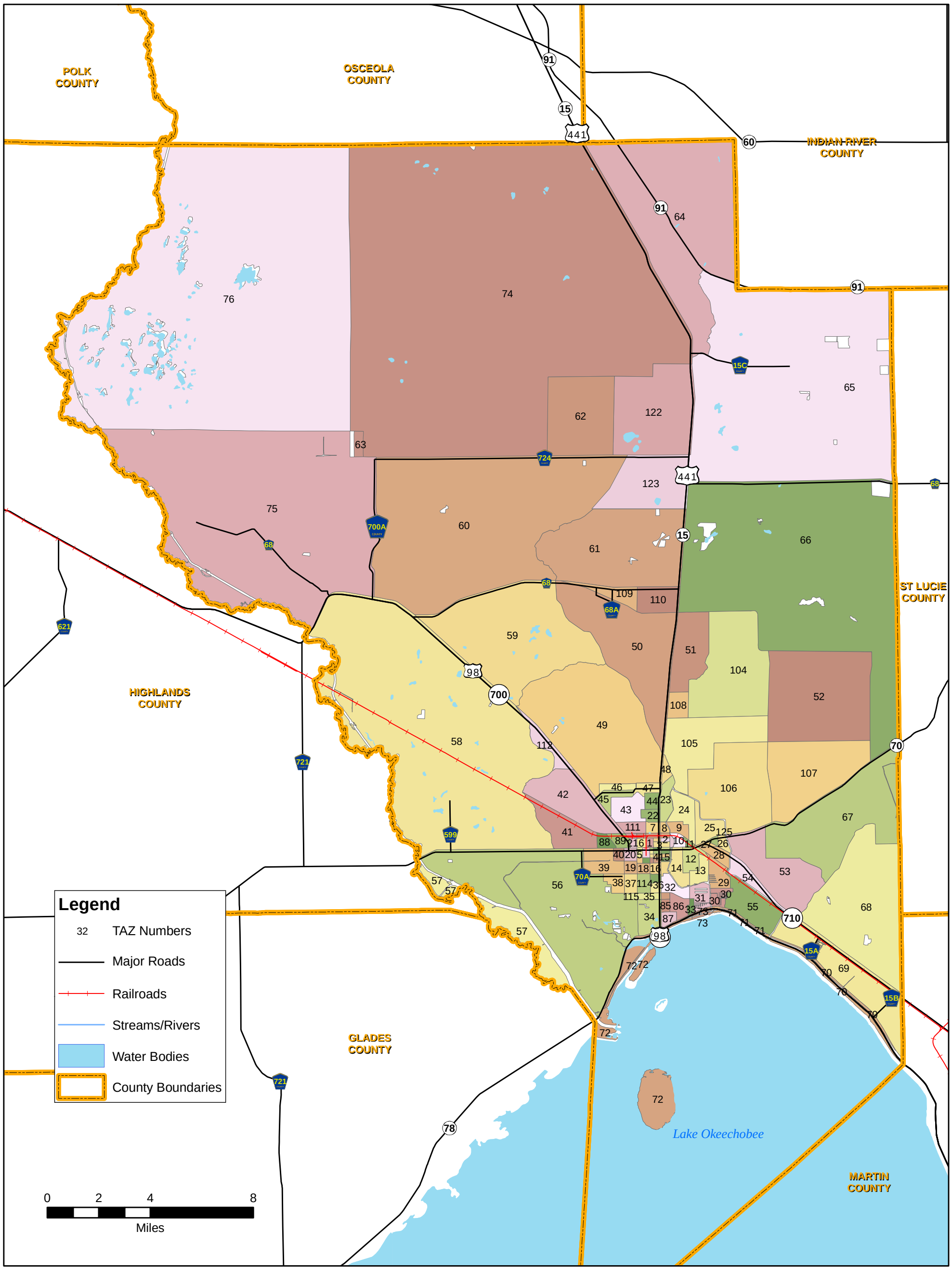
Central Florida Regional Planning Council

Central Florida
Disaster Resiliency Study

CFRPC Regional Location Map

N

Okeechobee County - Traffic Analysis Zones (TAZ)



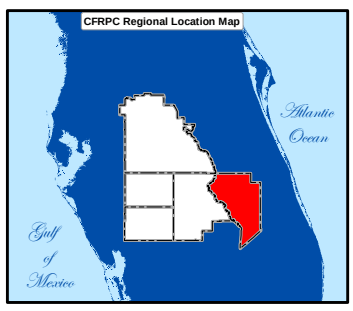
There are a total of 117 TAZs in Okeechobee County

Source:Florida Department of Transportation District 1 (2008)

December 2010

Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study



N

Okeechobee County - Residential Structures by Decade Built

POLK COUNTY
OSCEOLA COUNTY
INDIAN RIVER COUNTY
HIGHLANDS COUNTY
ST LUCIE COUNTY
GLADES COUNTY
MARTIN COUNTY
Kissimmee River
Lake Okeechobee

Legend

Year Built By Decade

- 1860 - 1899
- 1900 - 1929
- 1930 - 1959
- 1960 - 1969
- 1970 - 1979
- 1980 - 1989
- 1990 - 1999
- 2000 - 2008

General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries

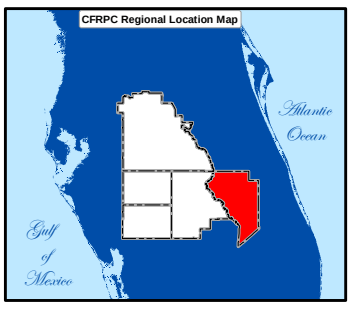
0 2 4 8
Miles

Source:
Florida Department of Transportation District 1 (2008), Okeechobee County Property Appraiser

December 2010

Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study



N

Okeechobee County - Non-Residential Structures by Decade Built

POLK COUNTY
OSCEOLA COUNTY
INDIAN RIVER COUNTY
HIGHLANDS COUNTY
ST LUCIE COUNTY
GLADES COUNTY
MARTIN COUNTY
Kissimmee River
Lake Okeechobee

Legend

Year Built By Decade

- 1860 - 1899
- 1900 - 1929
- 1930 - 1959
- 1960 - 1969
- 1970 - 1979
- 1980 - 1989
- 1990 - 1999
- 2000 - 2008

General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries

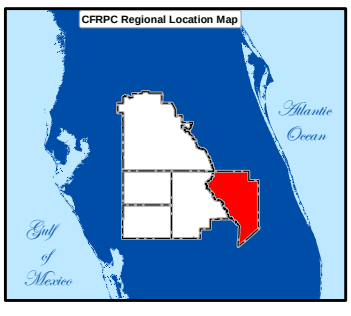
0 2 4 8
Miles

Source:
Florida Department of Transportation District 1 (2008), Okeechobee County Property Appraiser

December 2010

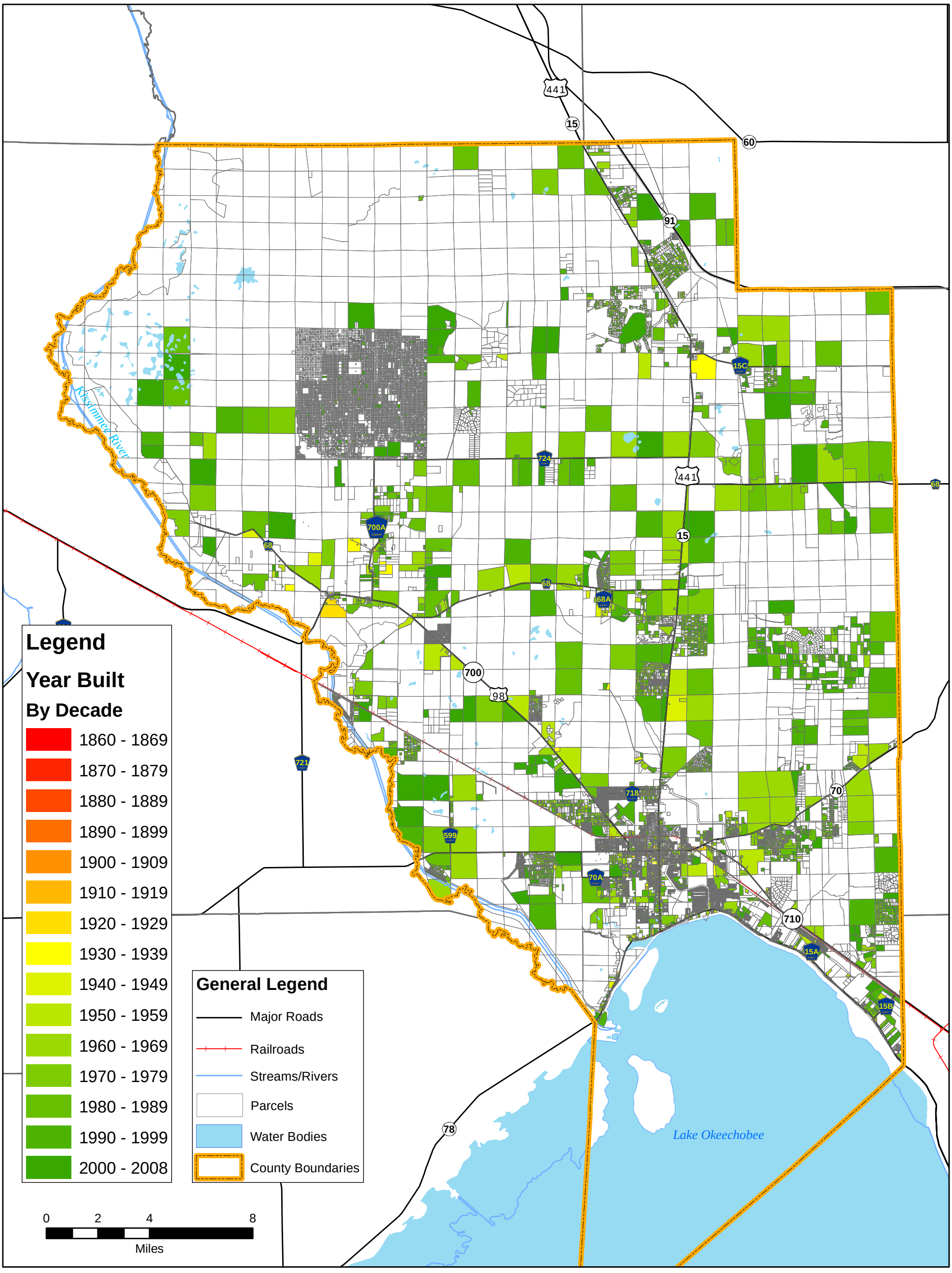
Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study



N

Okeechobee County - Structures by Decade Built - By Parcel Record

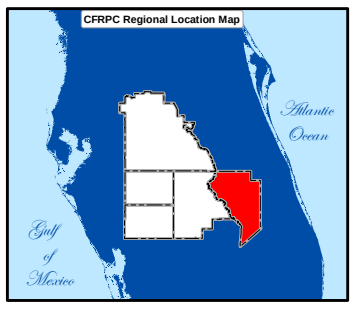


Source:
Florida Department of Transportation District 1 (2008), Okeechobee County Property Appraiser

December 2010

Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study



N

Okeechobee County - Critical Infrastructure

POLK COUNTY
OSCEOLA COUNTY
INDIAN RIVER COUNTY
HIGHLANDS COUNTY
ST LUCIE COUNTY
GLADES COUNTY
MARTIN COUNTY
Kissimmee River
Lake Okeechobee

General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries

Critical Infrastructure Legend

- Airports and Airfields
- Emergency Medical Service
- Police Stations
- Fire Stations
- Cell Towers

0 2 4 8
Miles

Source:
Federal Communications Commission
University of Florida GeoPlan Center
National Fire Department Census (United States Department of Homeland Security)
Federal Rail Administration
Florida Department of Transportation
Florida Department of Emergency Management

December 2010

Central Florida Regional Planning Council

Central Florida
Disaster Resiliency Study

CFRPC Regional Location Map

N

POLK COUNTY APPENDIX

Population and Critical Facilities

<u>Maps</u>

Overall County (Base)
Traffic Analysis Zones (Overall County)
Traffic Analysis Zones (North County)
Traffic Analysis Zones (South County)
Residential Structures by Decade Built (North County)
Residential Structures by Decade Built (South County)
Non-Residential Structures by Decade Built (North County)
Non-Residential Structures by Decade Built (South County)
Structures by Decade Built by Parcel Record (Overall County)
Structures by Decade Built by Parcel Record (North County)
Structures by Decade Built by Parcel Record (South County)
Critical Infrastructure

POLK COUNTY APPENDIX
POPULATION AND CRITICAL FACILITIES

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C. County Vulnerable Population Profile 7
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A. Introduction

This appendix provides a County Economic Profile, Vulnerability Profile and a more detailed vulnerability analysis of critical facilities and corresponding maps for Polk County.

B. County Profile

The data contained herein is provided to capture a profile of Polk County including geographic and economic characteristics. In addition, many of the critical infrastructure partners including private sector and public utilities are identified.

Polk County Profile

Visit eFlorida.com to learn more.

GEOGRAPHY

County Seat:	Bartow
Nearest MSA:	Lakeland-Winter Haven MSA
Time Zone:	Eastern
Local Area Code(s):	(863)
Largest Cities:	Lakeland Winter Haven Haines City

Miles* To:	
Tallahassee	232
Orlando	51
Tampa	42
Jacksonville	166
Miami	178
Atlanta	434
Chicago	1,021
Dallas	952
New York	990

*Miles are calculated from county seat

POPULATION

	Polk	Florida
1980:	321,652	9,746,961
1990:	405,382	12,938,071
2008:	580,594	18,328,340
2015(p):	630,100	20,055,900
2030(p):	774,300	23,979,000

* (p) Denotes Projected Population

CLIMATE

Average Temperature	High	Low
January:	70	49
July:	92	73

Florida Mean Annual Precipitation.....53
Average Annual Rain Days.....107

PER CAPITA PERSONAL INCOME

	Polk	Florida
2005	$29,468	$34,709
2006	$30,783	$37,099
2007	$31,329	$38,417

MIGRATION

(2008)	
In-Migration	31,441
Out-Migration	27,908
Net-Migration	-3,533

* Estimates based on IRS Statistics of Income data

LABOR FORCE

(2009)	
Labor Force	275,392
Labor Force % of County Population	47.4
Number in County Unemployed	31,316
Unemployment Rate	11.4%

* Monthly labor force data are available from the Florida Agency for Workforce Innovation.

MEDIA

Local Radio Stations:

WPCV 97
WWRZ FM 98.3
WWAB AM 1330
WBAR AM 1460
WIPC AM 1280
WHNR AM 1360
WSIR AM 1490
WLKF AM 1430

Local Television Stations:

none listed

Locally Printed Newspapers:

The Ledger
Winter Haven News Chief

FINANCIAL INSTITUTIONS

Number of Banks:	6
Number of Savings and Loans:	0
Number of Credit Unions:	2

STATE AND LOCAL TAXATION

COUNTY

Countywide Ad Valorem Millage Rates:

Government	4.7612
Schools	7.5170
Special	0.2130
Total	12.4912

Ad Valorem Tax Exemption:	Yes
Retail Sales Tax (Local Option)	1.00
Federal Enterprise Zone	No
State Enterprise Zone	Yes

STATE

Corporate Income Tax	5.5%
Personal Income Tax	0.0%
Retail Sales Tax	6.0%

EMPLOYMENT BY INDUSTRY

(2008)	Polk	Florida
Average Annual Employment	201,715	7,945,162
Natural Resources & Mining	3.0%	1.2%
Construction	6.3%	6.5%
Trade, Transportation and Utilities	23.4%	20.5%
Manufacturing	8.0%	4.7%
Information	1.0%	2.0%
Other Services	2.6%	3.2%
Public Administration	6.3%	5.9%
Unclassified	0.0%	0.1%
Leisure & Hospitality	8.3%	11.9%
Education & Health Services	21.0%	19.4%
Professional & Business Services	14.3%	14.4%
Financial Activities	5.8%	6.6%

Average Annual Wage

(2008)	
All Industries	$35,183
Construction	$38,319
Education & Health Services	$37,303
Financial Activities	$44,204
Information	$45,119
Leisure & Hospitality	$15,957
Manufacturing	$45,221
Natural Resources & Mining	$29,686
Other Services	$27,626
Professional & Business Services	$36,100
Public Administration	$40,164
Trade, Transportation and Utilities	$32,798
Unclassified	$33,702

*N/D = No Data

EXISTING EMPLOYMENT

Major Private Sector Employers

Publix Supermarkets
Business Line: Retail Food
Number of Employees.....9,500

Wal-Mart
Business Line: Retail General Merchandise
Number of Employees.....5,100

Lakeland Regional Medical Center
Business Line: Healthcare
Number of Employees.....4,600

MOSAIC
Business Line: Phosphate Mining
Number of Employees.....4,000

Winter Haven Hospital
Business Line: Hospital/Medical
Number of Employees.....2,500

State Farm Insurance
Business Line: Insurance
Number of Employees.....2,000

GEICO
Business Line: Insurance
Number of Employees.....2,000

Watson Clinic
Business Line: Medical
Number of Employees.....1,500

GC Services
Business Line: Call Center
Number of Employees.....1,000

Florida Natural Growers
Business Line: Citrus Processing
Number of Employees 1,000

TRANSPORTATION

Federal Interstates	I-4	**Nearest Airport with Scheduled Commercial Airline Service:**	Tampa International Airport Orlando International Airport
Federal Highways	US-27 US-98		
State Highways	SR 60, SR 17, SR 33, SR 37, SR 539, SR 540, SR 542, SR 544, SR 559	**# Runways**	9
		Longest Paved Runway (ft.)	11002
		General Aviation Airports	Lakeland Linder Regional Bartow Municipal Winter Haven Gilbert Field Lake Wales Municipal
Railroads	CSX Rail, AmTrak	**Local Deep Water Port**	Tampa Port Authority
		Miles to Closest Port	49

COMMERCIAL/INDUSTRIAL SERVICES

Electric Companies:
- Tampa Electric Company
- Lakeland Electric
- Progress Energy

Natural Gas Companies:
- TECO Peoples Gas Company
- Central Florida Gas Company

Telephone Companies:
- **Verizon**

Water & Sewer Companies:
- County/City Service

Existing Industrial Zoned Land	Yes
Number of Acres	43,000
Largest Available Contiguous Parcel	500
Industrial Parks	Yes
Number of Acres	2,500
Largest Available Contiguous Parcel	800
Foreign Trade Zones	No
Zone Number(s)	

EDUCATION

	Public Schools*
Elementary:	88
Secondary:	113
Totals:	201

*Source: Polk County School District

Private Schools Available: Yes

POST SECONDARY EDUCATION SERVING THE COUNTY:

Colleges/Universities:
- Webster University
- Florida Southern College
- Warner Southern College
- Webber International University
- University of South Florida Polytechnic
- Southeastern University
- Everest University

Junior/Community Colleges:
- Polk Community College
- Florida Technical College
- Keiser College

Vocational/Technical Schools:
- Ridge Technical Center
- Traviss Technical Center

Other Schools:
- Spurgeon Baptist Bible College

QUALITY OF LIFE

Cost of Living
Price Level Index, (2007)
Florida State Average = 100

	Sample
Total	91.56
Food	99.96
Housing	83.42
Medical Care	92.82
Personal Goods and Services	96.67
Transportation	98.89

Source: Enterprise Florida, Inc.
800 North Magnolia Avenue, Suite 1100
Orlando, Florida 32803
Phone: (407) 956-5600
Fax: (407) 956-5599
World Wide Web: http://www.eflorida.com

Medical Services:
- Bartow Memorial Hospital
- Heart of Florida Regional Medical Center
- Lake Wales Hospital
- Lakeland Regional Medical Center
- Watson Clinic
- Winter Haven Hospital

Recreational Opportunities:
- Golf Courses
- Lake Kissimmee State Park
- Pro Baseball Spring Training
- Van Fleet Bike Trail
- Youth Sports Leagues

Historical Points Of Interest:
- Bok Tower Gardens
- Cypress Gardens Adventure Park
- Homeland Heritage Park
- Lake Wales Depot Museum
- Mulberry Phosphate Museum
- Polk County Historical Library

Cultural Events/Festivals:
- Florida Citrus Festival
- Haven Art Festival
- Mayfair by the Lake

C. County Vulnerable Populations Profile

Polk County Vulnerable Population Profile

Demographic Indicators

2009 County Population Estimate[1] -596,604
65-84 Population[1] - 92,633
85+ Population[1] - 14,824
Live Births (3yr count)[1] - 24,619
% of Population 65+ - 18%

Economic Indicators

Population Below Poverty[1] - 73,743
Food Stamp Recipients[7] - 67,089
WIC Enrollment[1] - 22,072
Average Monthly Medicaid Enrollment[1] - 83,362
Uninsured (Under 65)[1] - 74,347

Vulnerability Indicators

Population with 1 or more disabilities[2] - 109,479
% of Population with 1 or more disabilities - 18%
Elders Living Alone[8] - 30,262
Estimated Homeless[7] - 973
Children in Foster Care[7] - 724
Developmentally Disabled[4] - 1,395
Seriously Mentally Ill Adults[7] - 24,132
Brain &/or Spinal Cord Injured Clients[5] - 43
Estimated Oxygen Dependent Clients - 9,241
Elders with Dementia[8] - 18,561
CMS Clients[6] - 1,897
Medical Foster Care Children[7] - 18
Dialysis Clients[3] - 616
Seriously Emotionally Disturbed Children[7] - 11,167

Data Sources

[1] Department of Health Office of Planning, Data Analysis and Evaluation
[2] US Census Data
[3] Florida End Stage Renal Disease Network
[4] Agency for Persons with Disabilities
[5] Department of Health Brain and Spinal Cord Injury Program
[6] Department of Health Division of Children's Medical Services
[7] Department of Children and Families
[8] Department of Elder Affairs

Source: Florida Department of Health, 2010

D. Critical Facility Vulnerability Analysis

Specific attention was paid to health care facilities such as hospitals and nursing homes; emergency response agencies, hazardous materials, mobile home parks, schools and colleges and community centers. Each facility has the name, location, latitude/longitude coordinates, description, critical code and results of the 2010 surge analysis (completed as part of the Florida Statewide Regional Evacuation Study for the Central Florida Region) based on the most accurate topographic data and the SLOSH model.

The Critical Facility Inventory (database) includes a comprehensive list of critical facilities identified by the State and County Emergency Management Agencies. This inventory is not published as part of the report. However, selected facilities which may require evacuation or mitigation are identified in the tables and maps which follow. The tables indicate vulnerability from storm surge (based on the SLOSH model), freshwater flooding (based on the FEMA Flood Maps) and wildfire (Wildfire Interface/Levels of Concern).

Table 1
Polk County Health Care Vulnerability Assessment

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Assisted Living Facility	Savannah Court of Lake Wales	12 East Grove Avenue	Lake Wales	33853	128	N/A	N/A	OUT	Y
Assisted Living Facility	Savannah Court of Bartow	290 Idlewood Avenue	Bartow	33830	101	N/A	N/A	OUT	Y
Assisted Living Facility	Hawthorne Inn Lakeland	6150 Lakeland Highlands Road	Lakeland	33813	247	N/A	N/A	OUT	N
Assisted Living Facility	Sunshine & Serenity Manor	5205 Charles Lane	Lakeland	33811	136	N/A	N/A	OUT	N
Assisted Living Facility	The Meadows at Cypress Gardens	5890 Cypress Gardens Boulevard SE	Winter Haven	33884	142	N/A	N/A	OUT	N
Assisted Living Facility	Alterra Clare Bridge Cottage of Winter Haven	6120 Cypress Gardens Boulevard	Winter Haven	33884	146	N/A	N/A	OUT	N
Assisted Living Facility	Alterra Sterling House of Winter Haven	6110 Cypress Gardens Boulevard SE	Winter Haven	33884	145	N/A	N/A	OUT	N
Assisted Living Facility	Southland Suites of Lakeland	4250 Lakeland Highlands Road	Lakeland	33813	111	N/A	N/A	OUT	N
Assisted Living Facility	New Horizon Share Home	2100 West State Road 540	Winter Haven	33880	149	N/A	N/A	OUT	N
Assisted Living Facility	Park Club of Oakridge	3110 Oakbridge Boulevard East	Lakeland	33803	165	N/A	N/A	OUT	N
Assisted Living Facility	The Hawthorne Inn	625 Overlook Drive	Winter Haven	33884	133	N/A	N/A	OUT	N
Assisted Living Facility	Wedgewood of Winter Haven, Inc.	480 Avenue E Southeast	Winter Haven	33880	177	N/A	N/A	OUT	N
Assisted Living Facility	Lake Howard Heights	650 North Lake Howard Drive	Winter Haven	33881	150	N/A	N/A	OUT	N
Assisted Living Facility	Florida Presbyterian Homes, Inc.	16 Lake Hunter Drive	Lakeland	33803	171	N/A	N/A	OUT	N
Assisted Living Facility	Lake Morton Plaza	400 South Florida Avenue	Lakeland	33801	212	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Assisted Living Facility	Lake Morton Retirement Home	610 East Lime Street	Lakeland	33801	194	N/A	N/A	OUT	N
Assisted Living Facility	Spring Haven Retirement Community	1225 Havendale Boulevard NW	Winter Haven	33881	144	N/A	N/A	OUT	N
Assisted Living Facility	Lake Wire Retirement Center	315 West Peachtree Street	Lakeland	33815	204	N/A	N/A	OUT	N
Assisted Living Facility	Tender Loving Care Retirement Residence	747 Bon Air Street	Lakeland	33805	148	N/A	N/A	OUT	N
Assisted Living Facility	Summerville at Lakeland	2111 Lakeland Hills Boulevard	Lakeland	33805	171	N/A	N/A	OUT	N
Assisted Living Facility	Amonet Care Home	3434 Knights Station Road	Lakeland	33810	146	N/A	N/A	OUT	N
Assisted Living Facility	TLC Retirement Residence of Lake Alfred	350 West Haines Boulevard	Lake Alfred	33850	157	N/A	N/A	OUT	N
Assisted Living Facility	Savannah Cottage of Lakeland	605 Carpenters Way	Lakeland	33809	169	N/A	N/A	OUT	N
Assisted Living Facility	Southern Gardens	255 East Main Street	Lake Alfred	33850	180	N/A	N/A	OUT	N
Assisted Living Facility	The Villa at Carpenters	1001 Carpenter's Way	Lakeland	33809	183	N/A	N/A	OUT	N
Assisted Living Facility	Savannah Court of Haines City	301 Peninsular Drive	Haines City	33844	139	N/A	N/A	OUT	N
Assisted Living Facility	Hampton Court Independent and Assisted Living	301 South 10th Street	Haines City	33844	180	N/A	N/A	OUT	N
Assisted Living Facility	Loving Heart Home of Lakeland	815 West Daughtery Road	Lakeland	33809	169	N/A	N/A	OUT	N
Assisted Living Facility	Savannah Court of Lakeland	6550 North Socrum Loop Road	Lakeland	33809	167	N/A	N/A	OUT	N
Ambulatory Surgical Center	Nawada Plastic & Cosmetic Surgery Center	1121 First Street South	Winter Haven	33880	157	N/A	N/A	OUT	N
Ambulatory Surgical Center	Eye Surgery & Laser Center, LLC	409 Avenue K SE	Winter Haven	33880	179	N/A	N/A	OUT	N
Ambulatory Surgical Center	Center for Day Surgery	2400 Dundee Road	Winter Haven	33884	130	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Ambulatory Surgical Center	Winter Haven Ambulatory Surgical Center	325 Avenue B NW	Winter Haven	33881	170	N/A	N/A	OUT	N
Ambulatory Surgical Center	Lakeland Surgical & Diagnostic Center LLP	1315 North Florida Avenue	Lakeland	33805	203	N/A	N/A	OUT	N
Ambulatory Surgical Center	Griffin Road Campus of LSDC, LLP	919 Griffin Road	Lakeland	33805	165	N/A	N/A	OUT	N
Ambulatory Surgical Center	Central Florida Surgicenter	900 Griffin Road	Lakeland	33805	178	N/A	N/A	OUT	N
Ambulatory Surgical Center	Surgery Center of Lakeland Hills Boulevard	3340 Lakeland Hills Boulevard	Lakeland	33805	150	N/A	N/A	OUT	N
Crisis Stabilization Unit	Peace River Center Star	1255 Golfview Avenue	Bartow	33830	123	N/A	N/A	OUT	Y
End-Stage Renal Disease	Bartow Dialysis	1190 East Church Street	Bartow	33830	117	N/A	N/A	OUT	Y
End-Stage Renal Disease	Rai Care Centers – Lake Wales	1348 State Road 60 East	Lake Wales	33853	184	N/A	N/A	OUT	N
End-Stage Renal Disease	Lake Wales Dialysis	1125 Bryn Mawr Avenue	Lake Wales	33853	191	N/A	N/A	OUT	N
End-Stage Renal Disease	Lakeland South Dialysis	5050 South Florida Avenue	Lakeland	33813	208	N/A	N/A	OUT	N
End-Stage Renal Disease	Rai Care Centers – Winter Haven	400 Security Square	Winter Haven	33880	173	N/A	N/A	OUT	N
End-Stage Renal Disease	Winter Haven Dialysis	1625 Dr. Martin Luther King Drive	Winter Haven	33881	165	N/A	N/A	OUT	N
End-Stage Renal Disease	Watson Clinic Kidney Center	1550 Lakeland Hills Boulevard	Lakeland	33802	183	N/A	N/A	OUT	N
End-Stage Renal Disease	Lakeland Dialysis	515 East Bella Vista	Lakeland	33805	178	N/A	N/A	OUT	N
End-Stage Renal Disease	Rai Care Centers – Haines City	110 Patterson Road	Haines City	33844	138	N/A	N/A	OUT	N
End-Stage Renal Disease	Davenport Dialysis Center	44597 US Highway 27	Davenport	33897	178	N/A	N/A	OUT	N
Hospice	Good Shepherd Hospice	115 South Missouri Avenue	Lakeland	33815	215	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Hospital	Lake Wales Medical Center	410 South 11th Street	Lake Wales	33853	201	N/A	N/A	OUT	N
Hospital	Bartow Regional Medical Center	2200 Osprey Boulevard	Bartow	33831	108	N/A	N/A	OUT	N
Hospital	Regency Medical Center	101 Avenue O Southeast	Winter Haven	33880	165	N/A	N/A	OUT	N
Hospital	Winter haven Hospital	200 Avenue F Northeast	Winter Haven	33881	161	N/A	N/A	OUT	N
Hospital	Lakeland Regional Medical Center	1324 Lakeland Hills Boulevard	Lakeland	33805	211	N/A	N/A	OUT	N
Hospital	Heart of Florida Regional Medical Center	40100 US Highway 27 North	Davenport	33837	165	N/A	N/A	OUT	N
Intermediate Care Facility	Green Tree Court Cluster	2160 Green Tree Court	Bartow	33830	125	N/A	N/A	OUT	Y
Clinical Laboratory	Central Florida Health Care – Frostproof	109 West Wall Street	Frostproof	33843	114	N/A	N/A	OUT	N
Clinical Laboratory	Polk County Health Department – Patient Care	1225 Brice Boulevard	Bartow	33830	123	N/A	N/A	OUT	Y
Clinical Laboratory	Polk County Health Department – Bartow Clinic	2020 East Georgia Street	Bartow	33830	123	N/A	N/A	OUT	Y
Clinical Laboratory	Urology Associates of Central Florida	1120 Carlton Avenue, Suite 1500	Lake Wales	33853	189	N/A	N/A	OUT	N
Clinical Laboratory	Women's Health Center	451 South 11th Street	Lake Wales	33853	191	N/A	N/A	OUT	N
Clinical Laboratory	Central Florida Cancer Institute PA	2 State Road 60 West	Lake Wales	33853	230	N/A	N/A	OUT	N
Clinical Laboratory	Lake Wales Medical Center Clinical Laboratory	410 South 11th Street	Lake Wales	33853	201	N/A	N/A	OUT	N
Clinical Laboratory	Heart of Florida OB/GYN Associates	421 Linden Lane	Lake Wales	33853	184	N/A	N/A	OUT	N
Clinical Laboratory	Polk County Health Department – Lake Wales	305 West Central Avenue	Lake Wales	33853	129	N/A	N/A	OUT	Y
Clinical Laboratory	Watson Clinic Bartow	2250 Osprey Blvd., Suite 100	Bartow	33830	108	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Clinical Laboratory	Bartow Regional Medical Center	2200 Osprey Boulevard	Bartow	33830	107	N/A	N/A	OUT	N
Clinical Laboratory	Watson Clinic LLP Family Care Center	2140 East CR 540A	Lakeland	33805	252	N/A	N/A	OUT	N
Clinical Laboratory	Lakeland Dermatology, Inc.	202 Lake Miriam Drive, Suite 1	Lakeland	33813	205	N/A	N/A	OUT	N
Clinical Laboratory	Clark & Daughtrey PA Lakeside	4710 South Florida Avenue	Lakeland	33813	203	N/A	N/A	OUT	N
Clinical Laboratory	Lakeland Women's Health Center Inc.	4444 South Florida Avenue	Lakeland	33813	192	N/A	N/A	OUT	N
Clinical Laboratory	Robinson Family Clinic PA	4406 South Florida Ave, Suite 30	Lakeland	33813	194	N/A	N/A	OUT	N
Clinical Laboratory	Watson Clinic South Laboratory	1003 North Frontage Road	Lakeland	33803	172	N/A	N/A	OUT	N
Clinical Laboratory	Watson Clinic LLP Dermatology South Clinic	1033 North Parkway Frontage Road	Lakeland	33803	172	N/A	N/A	OUT	N
Clinical Laboratory	Nite Owl Pediatrics, Inc.	3242 South Florida Avenue	Lakeland	33803	178	N/A	N/A	OUT	N
Clinical Laboratory	Heart of Florida Ob/Gyn Associates	220 Avenue O SE	Winter Haven	33803	164	N/A	N/A	OUT	N
Clinical Laboratory	Clark & Daughtrey Medical Group, PA	2809 South Florida Avenue	Lakeland	33803	192	N/A	N/A	OUT	N
Clinical Laboratory	Regency Medical Center – Clinical Laboratory	101 Avenue O SE	Winter Haven	33880	165	N/A	N/A	OUT	N
Clinical Laboratory	Regency Medical Center – Nursing Personnel	101 Avenue O SE	Winter Haven	33880	165	N/A	N/A	OUT	N
Clinical Laboratory	Planned Parenthood of Southwest & Central Florida	2250 Edgewood Drive East	Lakeland	33803	123	N/A	N/A	OUT	N
Clinical Laboratory	Clark & Daughtrey Medical Group Women's Health	2625 South Florida Avenue	Lakeland	33803	203	N/A	N/A	OUT	N
Clinical Laboratory	Internal Medicine Group of Winter Haven	400 Avenue K SE, Suite 11	Winter Haven	33880	179	N/A	N/A	OUT	N
Clinical Laboratory	Women's Health Center	400 Avenue K SE, Suite 1A	Winter Haven	33880	179	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Clinical Laboratory	Herbert W. Acken MD	116 Bates Avenue SW	Winter Haven	33880	173	N/A	N/A	OUT	N
Clinical Laboratory	Central Florida Health Care – Dundee	916 State Road 542	Dundee	33838	125	N/A	N/A	OUT	N
Clinical Laboratory	Central Florida Dermatology and Skin Cancer	475 East Central Avenue	Winter Haven	33880	162	N/A	N/A	OUT	N
Clinical Laboratory	Bond Clinic, PA	500 East Central Avenue	Winter Haven	33880	157	N/A	N/A	OUT	N
Clinical Laboratory	Micro Path Laboratories, Inc.	2400 Dundee Road	Winter Haven	33881	130	N/A	N/A	OUT	N
Clinical Laboratory	Clark & Daughtrey Medical Group Winter Haven	430 East Central Avenue	Winter Haven	33880	164	N/A	N/A	OUT	N
Clinical Laboratory	Gessler Clinic Women's Division	450 East Central Avenue	Winter Haven	33881	161	N/A	N/A	OUT	N
Clinical Laboratory	Micro Path Laboratories, Inc.	255 3 Street NW	Winter Haven	33881	171	N/A	N/A	OUT	N
Clinical Laboratory	Winter Haven Cardiology, Inc.	350 1st Street North	Winter Haven	33881	171	N/A	N/A	OUT	N
Clinical Laboratory	Nelson A. Warner, MD, PA	429 2nd Street NW	Winter Haven	33881	170	N/A	N/A	OUT	N
Clinical Laboratory	Winter Haven Hospital Clinical laboratory	200 Avenue F NE	Winter Haven	33881	161	N/A	N/A	OUT	N
Clinical Laboratory	Gessler Clinic, PA	635 First Street N	Winter Haven	33881	164	N/A	N/A	OUT	N
Clinical Laboratory	Adult & Pediatric Dermatology of Central Florida	727 South Florida Avenue	Lakeland	33801	203	N/A	N/A	OUT	N
Clinical Laboratory	Planned Parenthood of Southwest & Central Florida	908 Spring Lake Square	Winter Haven	33881	163	N/A	N/A	OUT	N
Clinical Laboratory	Polk County Health Department – Auburndale	1805 Hobbs Road	Auburndale	33823	155	N/A	N/A	OUT	N
Clinical Laboratory	Biolife Plasma Services, LP	517 North Lake Parker Avenue	Lakeland	33801	147	N/A	N/A	OUT	N
Clinical Laboratory	Micro Path Laboratory, Inc.	1315 North Florida Avenue	Lakeland	33801	203	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Clinical Laboratory	Dermatology Associates of Central Florida	1417 Lakeland Hills Boulevard Suite 104	Lakeland	33805	179	N/A	N/A	OUT	N
Clinical Laboratory	Central Florida Women's Care	1525 Lakeland Hills Boulevard	Lakeland	33805	182	N/A	N/A	OUT	N
Clinical Laboratory	Watson Clinic Heart and Vascular Laboratory	1600 Lakeland Hills Boulevard	Lakeland	33805	186	N/A	N/A	OUT	N
Clinical Laboratory	Micro Path Laboratories, Inc.	1635 Lakeland Hills Boulevard	Lakeland	33805	183	N/A	N/A	OUT	N
Clinical Laboratory	Lakeland Ob/Gyn PA	1733 Lakeland Hills Boulevard	Lakeland	33805	180	N/A	N/A	OUT	N
Clinical Laboratory	Watson Clinic LLP Center for Cancer Care	1730 Lakeland Hills Boulevard	Lakeland	33805	179	N/A	N/A	OUT	N
Clinical Laboratory	Clark & Daughtrey Medical Group PA – Oncology	1730 Lakeland Hills Boulevard	Lakeland	33805	179	N/A	N/A	OUT	N
Clinical Laboratory	Tapia & Vilches MD PA	1745 Lakeland Hills Boulevard	Lakeland	33805	180	N/A	N/A	OUT	N
Clinical Laboratory	Lakeland Regional Medical Center Respiratory BloodNet USA – Transfusion Service	1324 Lakeland Hills Boulevard	Lakeland	33804	143	N/A	N/A	OUT	N
Clinical Laboratory	Micro Path Laboratories, Inc.	900 Griffin Road	Lakeland	33805	178	N/A	N/A	OUT	N
Clinical Laboratory	Bloodnet USA Processing lab	3200 Lakeland Hills Boulevard	Lakeland	33805	142	N/A	N/A	OUT	N
Clinical Laboratory	Polk County Health Department – Lakeland	3241 Lakeland Hills Boulevard	Lakeland	33805	139	N/A	N/A	OUT	N
Clinical Laboratory	Lakeland Regional Cancer Center	3525 Lakeland Hills Boulevard	Lakeland	33805	139	N/A	N/A	OUT	N
Clinical Laboratory	James Pruchniewski, DPM	4973 US Highway 98 North	Lakeland	33809	182	N/A	N/A	OUT	N
Clinical Laboratory	Haines City Internal Medicine	306 South 10th Street	Haines City	33844	169	N/A	N/A	OUT	N
Clinical Laboratory	Polk County Health Department – Haines City	111 North 11th Street	Haines City	33844	171	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Clinical Laboratory	B S Bedi, MD	Daughtery Road West	Lakeland	33809	169	N/A	N/A	OUT	N
Clinical Laboratory	North County Dermatology Clinic	930 Marcum Road, Suite 12	Lakeland	33809	171	N/A	N/A	OUT	N
Clinical Laboratory	Heart of Florida Ob/Gyn Associates	2221 North Boulevard W	Davenport	33837	113	N/A	N/A	OUT	N
Clinical Laboratory	Susan Ross MD	2243 North Boulevard West	Davenport	33837	113	N/A	N/A	OUT	N
Clinical Laboratory	Associates in Dermatology	2205 North Boulevard West	Davenport	33837	113	N/A	N/A	OUT	N
Clinical Laboratory	Heart of Florida Regional Medical Center	40100 US Highway 27	Davenport	33837	165	N/A	N/A	OUT	N
Clinical Laboratory	Heart of Florida Regional Medical Center	40100 US Highway 27	Davenport	33837	165	N/A	N/A	OUT	N
Clinical Laboratory	Ameripath Central Florida Heart of Florida	40100 US Highway 27	Davenport	33837	165	N/A	N/A	OUT	N
Clinical Laboratory	All About Women PLLC	2506 Sand Mine Road	Davenport	33897	184	N/A	N/A	OUT	Y
Residential Treatment Facility	Peace River Center - Stepping Stones	722 East Myrtle Street	Lakeland	33801	178	N/A	N/A	OUT	N
Residential Treatment Facility	Peace River Center - Success House	728 East Bella Vista Street	Lakeland	33805	169	N/A	N/A	OUT	N
Skilled Nursing Facility	Bartow Center	2055 East Georgia Street	Bartow	33830	125	N/A	N/A	OUT	Y
Skilled Nursing Facility	The Rohr Home	2120 Marshall Edwards Drive	Bartow	33830	122	N/A	N/A	OUT	Y
Skilled Nursing Facility	Groves Center	512 South 11th Street	Lake Wales	33853	187	N/A	N/A	OUT	N
Skilled Nursing Facility	Dove Healthcare at Lake Wales	730 North Scenic Highway	Lake Wales	33853	142	N/A	N/A	OUT	N
Skilled Nursing Facility	Highlands Lake Center	4240 Lakeland Highlands Road	Lakeland	33813	111	N/A	N/A	OUT	N
Skilled Nursing Facility	Oakbridge Healthcare Center	3110 Oakbridge Boulevard East	Lakeland	33803	165	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Skilled Nursing Facility	Palm Garden of Winter Haven	1120 Cypress Gardens Boulevard	Winter Haven	33884	153	N/A	N/A	OUT	N
Skilled Nursing Facility	Life Care Center of Winter Haven	1510 Cypress Gardens Boulevard	Winter Haven	33884	145	N/A	N/A	OUT	N
Skilled Nursing Facility	Brandywyne Health Care Center	1801 North Lake Miriam Drive	Winter Haven	33884	144	N/A	N/A	OUT	N
Skilled Nursing Facility	Florida Presbyterian Homes, Inc.	909 Lakeside Avenue	Lakeland	33803	177	N/A	N/A	OUT	N
Skilled Nursing Facility	Winter Haven Health & Rehabilitation Center	202 Avenue O NE	Winter Haven	33881	160	N/A	N/A	OUT	N
Skilled Nursing Facility	Spring Lake Rehabilitation Center	1540 5th Street NW	Winter Haven	33881	162	N/A	N/A	OUT	N
Skilled Nursing Facility	Tandem Health Care of Winter Haven	2701 Lake Alfred Road	Winter Haven	33881	150	N/A	N/A	OUT	N
Skilled Nursing Facility	Auburndale Oaks Healthcare Center	919 Old Winter Haven Road	Auburndale	33823	149	N/A	N/A	OUT	N
Skilled Nursing Facility	Lakeland Hills Center	610 East Bella Vista Drive	Lakeland	33805	175	N/A	N/A	OUT	N
Skilled Nursing Facility	Palm Terrace of Lakeland	1919 Lakeland Hills Boulevard	Lakeland	33805	174	N/A	N/A	OUT	N
Skilled Nursing Facility	Tandem Health Care at Lake Parker	2020 West Lake Parker Drive	Lakeland	33805	136	N/A	N/A	OUT	N
Skilled Nursing Facility	Valencia Hills Health and Rehabilitation	1350 Sleepy Hill Road	Lakeland	33810	202	N/A	N/A	OUT	N
Skilled Nursing Facility	Wedgewood Healthcare Center	1010 Carpenter's Way	Lakeland	33809	194	N/A	N/A	OUT	N
Skilled Nursing Facility	The Manor at Carpenters	1001 Carpenter's Way	Lakeland	33809	183	N/A	N/A	OUT	N
Skilled Nursing Facility	Haines City Health Care Center	409 South 10th Street	Haines City	33844	174	N/A	N/A	OUT	N
Skilled Nursing Facility	Tandem Health Care of Lakeland	5245 North Socrum Loop Road	Lakeland	33809	152	N/A	N/A	OUT	N
Skilled Nursing Facility	The Crossroads	206 West Orange Street	Davenport	33837	147	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Adult Family Care Home	Hattie Bell Hall	1830 East Gibbon Street	Bartow	33830	115	N/A	N/A	OUT	Y
Adult Family Care Home	Marilyn Louise Watkins	620 Baker Avenue	Bartow	33830	114	N/A	N/A	OUT	N
Adult Family Care Home	Grace L. Henderson	3170 Wren Lane	Mulberry	33860	123	N/A	N/A	OUT	N
Adult Family Care Home	Jennifer Nichole Flener	4740 Fighter Road	Bartow	3383	129	N/A	N/A	OUT	Y
Adult Family Care Home	Diane Screen	5205 Tillery Road	Lakeland	33813	134	N/A	N/A	OUT	N
Adult Family Care Home	Joan Myra Russell	167 Okaloosa Drive SE	Winter Haven	33884	174	N/A	N/A	OUT	N
Adult Family Care Home	Violet Marie Chambers	904 Lake Martha Drive NE	Winter Haven	33881	146	N/A	N/A	OUT	N
Adult Family Care Home	Emma Lee Neloms	1221 Pleasant Place	Lakeland	33801	139	N/A	N/A	OUT	Y
Adult Family Care Home	Linda May Miller	1230 Robert King High Drive	Lakeland	33805	190	N/A	N/A	OUT	N
Adult Family Care Home	Janet Wheeler-Williams	534 Lake View Drive	Poinciana	34759	98	N/A	N/A	OUT	N
Adult Family Care Home	Catherine M. White	420 El Dorado Street	Lakeland	33809	162	N/A	N/A	OUT	N
Adult Family Care Home	Grace Valenciano	1003 Hidden Drive	Lakeland	33809	132	N/A	N/A	OUT	N
Adult Family Care Home	Nelie Grimes-Hardie	317 California Boulevard	Davenport	33897	168	N/A	N/A	OUT	Y
Adult Family Care Home	Muriel Hanna	650 Brighton Drive	Davenport	33897	211	N/A	N/A	OUT	Y

Table 2
Polk County Other Critical Facilities Vulnerability Assessment

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Radio Tower	New		Auburndale		103	N/A	N/A	100	Y
Radio Tower	New		Bartow		113	N/A	N/A	OUT	N
Radio Tower	New		Auburndale		103	N/A	N/A	100	Y
Radio Tower	New		Bartow		113	N/A	N/A	OUT	N
Radio Tower	W242AK		Lakeland		182	N/A	N/A	OUT	N
Radio Tower	W244BJ		Frostproof		174	N/A	N/A	OUT	N
Radio Tower	W254AI		Auburndale		149	N/A	N/A	OUT	Y
Radio Tower	W274BB		Haines City		178	N/A	N/A	OUT	N
Radio Tower	W274BB		Haines City		178	N/A	N/A	OUT	N
Radio Tower	W275AX		Fort Meade		134	N/A	N/A	OUT	N
Radio Tower	W275AX		Fort Meade		134	N/A	N/A	OUT	N
Radio Tower	W291AG		Highland City		231	N/A	N/A	OUT	Y
Radio Tower	WHNR		Cypress Gardens		124	N/A	N/A	OUT	Y
Radio Tower	WIPC		Lake Wales		137	N/A	N/A	OUT	N
Radio Tower	WIPC		Lake Wales		137	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Radio Tower	WKES		Lakeland		116	N/A	N/A	OUT	N
Radio Tower	WKES		Lakeland		116	N/A	N/A	OUT	N
Radio Tower	WLKF		Lakeland		130	N/A	N/A	100	N
Radio Tower	WLVF		Haines City		121	N/A	N/A	100	N
Radio Tower	WLVF-FM		Haines City		178	N/A	N/A	OUT	N
Radio Tower	WONN		Lakeland		167	N/A	N/A	OUT	N
Radio Tower	WONN		Lakeland		167	N/A	N/A	OUT	N
Radio Tower	WPCV		Winter Haven		83	N/A	N/A	OUT	N
Radio Tower	WPCV		Winter Haven		84	N/A	N/A	OUT	N
Radio Tower	WQXM		Bartow		115	N/A	N/A	OUT	N
Radio Tower	WSIR		Winter Haven		132	N/A	N/A	100	N
Radio Tower	WTWB		Auburndale		152	N/A	N/A	OUT	Y
Radio Tower	WWAB		Lakeland		148	N/A	N/A	100	Y
Radio Tower	WWAB		Lakeland		148	N/A	N/A	100	Y
Radio Tower	WWBF		Bartow		95	N/A	N/A	100	N
Radio Tower	WWRZ		Fort Meade		63	N/A	N/A	100	N
Radio Tower	WWRZ		Fort Meade		63	N/A	N/A	100	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Radio Tower	WYFO		Lakeland		197	N/A	N/A	OUT	Y
Call Center	Auburndale Police Dept Headquarters	2 Bobby Green Plaza	Auburndale	33823	170	N/A	N/A	OUT	N
Call Center	Bartow Police Dept HQs	450 North Broadway Avenue	Bartow	33830	115	N/A	N/A	OUT	N
Call Center	Dundee Police Dept Headquarters	106 Center Street	Dundee	33838	160	N/A	N/A	OUT	N
Call Center	Fort Meade Police Dept Headquarters	15 NW 1st Street	Fort Meade	33841	139	N/A	N/A	OUT	Y
Call Center	Frostproof Police Dept Headquarters	2 North Lake Reedy Boulevard	Frostproof	33843	88	N/A	N/A	OUT	N
Call Center	Haines City Police Dept Headquarters	34500 US 27	Haines City	33844	133	N/A	N/A	OUT	N
Call Center	Lake Alfred Police Dept Headquarters	190 North Seminole Avenue	Lake Alfred	33850	178	N/A	N/A	OUT	N
Call Center	Lake Wales Police Dept Headquarters	133 East Tillman Avenue	Lake Wales	33853	146	N/A	N/A	OUT	N
Call Center	Lakeland Police Dept Headquarters	219 North Massachusetts Avenue	Lakeland	33801	208	N/A	N/A	OUT	N
Call Center	Mulberry Police Dept Headquarters	104 South Church Avenue	Mulberry	33860	114	N/A	N/A	OUT	N
Call Center	Polk County Emergency Operations Center – Alternate	1702 US Highway 17	Bartow	33830	127	N/A	N/A	OUT	N
Call Center	Polk County Sheriff HQs	455 North Broadway Avenue	Bartow	33830	117	N/A	N/A	OUT	N
Call Center	Winter Haven Police Dept HQs	125 North Lake Silver Drive NW	Winter Haven	33881	154	N/A	N/A	OUT	N
Emergency Medical Service	Polk County EMS Station 10-24 Lakeland North	5201 Cornell Street	Lakeland	33810	177	N/A	N/A	OUT	N
Emergency Medical Service	11/18/32 Winter Haven	229 Avenue D NW	Winter Haven	33881	171	N/A	N/A	OUT	N
Emergency Medical Service	12 Cypress Gardens	2101 Register Road	Winter Haven	33884	172	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Emergency Medical Service	13 Haines City	901 Lediwth Avenue	Haines City	33844	168	N/A	N/A	OUT	N
Emergency Medical Service	14-16 Lakeland East	1255 East Lime Street	Lakeland	33801	151	N/A	N/A	OUT	N
Emergency Medical Service	15-26 Lakeland South	3822 South Florida Avenue	Lakeland	33813	178	N/A	N/A	OUT	N
Emergency Medical Service	17-31 Lakeland West	1800 West Parker Street	Lakeland	33815	164	N/A	N/A	OUT	N
Emergency Medical Service	1-8 Bartow	1450 Pinehurst Street	Bartow	33830	127	N/A	N/A	OUT	N
Emergency Medical Service	19 Davenport	6525 CR 54	Davenport	33837	191	N/A	N/A	OUT	Y
Emergency Medical Service	2 Fort Meade	1235 North 9th Street	Fort Meade	33841	115	N/A	N/A	OUT	N
Emergency Medical Service	20 Polk City	200 Commonwealth Avenue SW	Polk City	33868	168	N/A	N/A	OUT	Y
Emergency Medical Service	21 Lakeland Southeast	3205 Winter Lake Road	Lakeland	33803	130	N/A	N/A	OUT	Y
Emergency Medical Service	22 Eagle Lake	185 3rd Street South	Eagle Lake	33839	171	N/A	N/A	OUT	N
Emergency Medical Service	23 Golfview	2902 State Highway 60 East	Lake Wales	33898	115	N/A	N/A	OUT	N
Emergency Medical Service	25 Lake Alfred	300 North Seminole Avenue	Lake Alfred	33850	179	N/A	N/A	OUT	N
Emergency Medical Service	27 Poinciana	2910 South Marigold Avenue	Poinciana	34759	64	N/A	N/A	100	Y
Emergency Medical Service	3 Lake Wales	2029 State Highway 60 West	Lake Wales	33853	129	N/A	N/A	OUT	Y
Emergency Medical Service	4 Frostproof	47 North Lake Reedy Boulevard	Frostproof	33843	97	N/A	N/A	OUT	N
Emergency Medical Service	5 Sun Air	7800 Watkins Road	Haines City	33844	81	N/A	N/A	OUT	N
Emergency Medical Service	6 Nalcrest	10399 Leisure Lane West	Nalcrest	33898	64	N/A	N/A	OUT	Y

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Emergency Medical Service	7 Mulberry	700 9th Avenue NE	Mulberry	33860	119	N/A	N/A	OUT	N
Emergency Medical Service	9-30 Auburndale	310 3rd Street	Auburndale	33823	159	N/A	N/A	OUT	N
Emergency Medical Service	Polk County Public Safety Dept EMS Div	Bartow Airport Building 250, Suite 12	Bartow	33830	126	N/A	N/A	OUT	N
Fire Station	Auburndale Fire Dept	107 Tampa Street	Auburndale	33823	170	N/A	N/A	OUT	N
Fire Station	Auburndale Fire Dept	100 Ariana Avenue	Auburndale	33823	161	N/A	N/A	OUT	N
Fire Station	Bartow Fire Station	110 East Church Street	Bartow	33830	120	N/A	N/A	OUT	N
Fire Station	Davenport Fire Dept	112 West Palmetto Street	Davenport	33837	131	N/A	N/A	100	N
Fire Station	Davenport Fire Dept	1 Allapaha Avenue	Davenport	33837	129	N/A	N/A	100	N
Fire Station	Dundee Fire Dept	118 Merrill Avenue	Dundee	33838	160	N/A	N/A	OUT	N
Fire Station	Fort Meade Fire Dept	12 North Albritton Street	Fort Meade	33841	139	N/A	N/A	OUT	Y
Fire Station	Frostproof Fire Dept Station 1	47 North Lake Reedy Boulevard	Frostproof	33843	98	N/A	N/A	OUT	N
Fire Station	Frostproof Fire Dept Station 2	304 Raymond Avenue	Frostproof	33843	153	N/A	N/A	OUT	N
Fire Station	Grenelefe Volunteer Fire Dept	49 West Lake Marion Road	Haines City	33844	72	N/A	N/A	OUT	N
Fire Station	Haines City Fire Dept	138 North 11th Street	Haines City	33844	179	N/A	N/A	OUT	N
Fire Station	Harbor Station Fire Dept	10511 Monroe Court	Harbor Station	33898	56	N/A	N/A	100	Y
Fire Station	Lake Alfred Fire Dept	185 East Pomelo Street	Lake Alfred	33850	178	N/A	N/A	OUT	N
Fire Station	Lake Hamilton Volunteer Fire Dept	75 Broadway Street	Lake Hamilton	33851	161	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Fire Station	Lake Wales Fire Dept	253 West Central Avenue	Lake Wales	33853	133	N/A	N/A	OUT	N
Fire Station	Lakeland Fire Department Station 1	775 East Rose Street	Lakeland	33801	183	N/A	N/A	100	N
Fire Station	LFD Station 2	2102 South Florida Avenue	Lakeland	33803	206	N/A	N/A	OUT	N
Fire Station	LFD Station 3	110 West Bella Vista Street	Lakeland	33805	176	N/A	N/A	OUT	N
Fire Station	LFD Station 4	215 North Brunnell Parkway	Lakeland	33815	160	N/A	N/A	OUT	Y
Fire Station	LFD Station 5	3101 Lakeland Highlands Road	Lakeland	33803	118	N/A	N/A	OUT	N
Fire Station	LDF Station 6	5050 State Highway 33 North	Lakeland	33805	142	N/A	N/A	OUT	N
Fire Station	Mulberry Fire Department	109 NW 9th Avenue	Mulberry	33860	110	N/A	N/A	OUT	N
Fire Station	Poinciana Volunteer Fire Dept Station 45	398 South Marigold Avenue	Poinciana	34758	62	N/A	N/A	100	N
Fire Station	Polk County Fire Dept Station 13 (Highland City)	4101 Clubhouse Road	Lakeland	33813	119	N/A	N/A	OUT	N
Fire Station	Polk County Fire Dept Station 17	3801 Camp Lester Road	Lake Wales	33898	59	N/A	N/A	100	N
Fire Station	Polk County Fire Dept Station 5 (Buckeye)	250 Buckeye Loop Road	Winter Haven	33881	132	N/A	N/A	OUT	N
Fire Station	Polk County Fire Dept Station 2 (Alturas)	3rd Street	Alturas	33820	172	N/A	N/A	OUT	N
Fire Station	Polk County Fire Dept Station 26 (Sun Air)	400 Watkins Road	Haines City	33844	80	N/A	N/A	OUT	N
Fire Station	Polk County Fire Dept Station 3 (Babson Park)	714 US Highway Alternate 27	Babson Park	33827	135	N/A	N/A	OUT	N
Fire Station	Polk County Fire Dept Station 33	1702 Baker Avenue	Haines City	33844	133	N/A	N/A	OUT	N
Fire Station	Polk County Fire Dept Station 34 (Solovita)	1201 Cypress Parkway	Poinciana	34759	70	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Fire Station	Polk County Fire Dept Station 4 (Bradley)	6949 Old State Highway 37 South	Bradley Junction	33835	131	N/A	N/A	OUT	N
Fire Station	Polk County Fire Dept Station 9 (Fedhaven)	700 Club Circle	Fedhaven	33854	68	N/A	N/A	OUT	Y
Fire Station	Polk County Fire Dept Station 1 – Airbase	4th Street Building 320, Bartow Airbase	Bartow	33830	126	N/A	N/A	OUT	N
Fire Station	Polk County Fire Dept Station 10 (Golfview)	2902 State Highway 60 East	Lake Wales	33898	115	N/A	N/A	OUT	N
Fire Station	Polk County Fire Dept Station 30 (West Loughman)	6525 Ronald Reagan Parkway	Davenport	33896	189	N/A	N/A	OUT	Y
Fire Station	Station 11 (Grape Hammock)	1322 Shady Lane	Lake Wales	33898	54	N/A	N/A	OUT	Y
Fire Station	Station 14 (Indian Lake Estates)	20 Hogan Lane	Indian Lake Estates	33858	84	N/A	N/A	OUT	N
Fire Station	Station 15 (Jan Phyl)	21 Coleman Road	Winter Haven	33880	146	N/A	N/A	OUT	N
Fire Station	Station 16 (Kissimmee River)	3300 North Marina Parkway	Lake Wales	33898	59	N/A	N/A	OUT	Y
Fire Station	Station 18 (Loughman)	510 Ronald Reagan Parkway	Loughman	33858	99	N/A	N/A	100	Y
Fire Station	Station 19 (Medulla)	5115 Old Highway 37	Lakeland	33811	149	N/A	N/A	OUT	N
Fire Station	Station 20	4525 Ewell Road	Lakeland	33811	124	N/A	N/A	OUT	N
Fire Station	Station 22 (Polk City)	200 North Commonwealth Avenue	Polk City	33868	168	N/A	N/A	OUT	Y
Fire Station	Station 23 (Providence)	8936 US Highway 98 North	Lakeland	33809	153	N/A	N/A	OUT	Y
Fire Station	Station 24 (Sleepy Hill)	3030 Sleepy Hill Road	Lakeland	33810	133	N/A	N/A	OUT	N
Fire Station	Station 25 (Rifle Range)	118 North Rifle Range Road	Winter haven	33880	136	N/A	N/A	OUT	N
Fire Station	Station 28 (Timberlane)	4925 Timberlane Road	Lake Wales	33898	83	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Fire Station	Station 31 (Willow Oak)	4210 Willis Road	Mulberry	33860	111	N/A	N/A	OUT	N
Fire Station	Station 32 (Eagle Lake)	185 South 3rd Street	Eagle Lake	33839	171	N/A	N/A	OUT	N
Fire Station	Station 6 (Caloosa Lake)	4618 US Highway 27 South	Lake Wales	33859	141	N/A	N/A	OUT	N
Fire Station	Station 7	2450 East Main Street	Lakeland	33801	143	N/A	N/A	OUT	N
Fire Station	Station 8 (Cypress Gardens)	2101 Register Road Southeast	Winter Haven	33884	172	N/A	N/A	OUT	N
Fire Station	Sun Air Fire Department Station 26	7800 Watkins Road	Sun Air	33844	106	N/A	N/A	OUT	Y
Fire Station	Waverly Fire Department Station 29	71 17th Street	Waverly	33877	129	N/A	N/A	OUT	N
Fire Station	Winter Haven Fire Department	551 3rd Street NW	Winter haven	33881	171	N/A	N/A	OUT	N
Fire Station	Winter Haven Fire Department Station 2	2000 Lucerne Park Drive	Winter Haven	33880	151	N/A	N/A	OUT	N
Fire Station	Winter Haven Fire Department Station 3	100 Citrus Drive	Winter Haven	33880	175	N/A	N/A	OUT	N
Law Enforcement	Auburndale Police Dept Headquarters	2 Bobby Green Plaza	Auburndale	33823	170	N/A	N/A	OUT	N
Law Enforcement	Bartow Police Department Headquarters	450 North Broadway Avenue	Bartow	33830	115	N/A	N/A	OUT	N
Law Enforcement	Davenport Police Dept Headquarters	1 South Allapaha Avenue	Davenport	33837	124	N/A	N/A	100	N
Law Enforcement	Dundee Police Dept Headquarters	106 Center Street	Dundee	33838	160	N/A	N/A	OUT	N
Law Enforcement	Eagle Lake Police Dept Headquarters	75 North 7th Street	Eagle Lake	33839	160	N/A	N/A	OUT	N
Law Enforcement	FBI Lakeland Resident Office	402 South Kentucky Avenue	Lakeland	33801	204	N/A	N/A	OUT	N
Law Enforcement	Florida Dept of Law Enforcement Lakeland Field Office	5015 South Florida Avenue	Lakeland	33813	204	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Law Enforcement	Florida Highway Patrol Troop C	3247 Lakeland Hills Boulevard	Lakeland	33805	141	N/A	N/A	OUT	N
Law Enforcement	Fort Meade Police Dept Headquarters	15 NW 1st Street	Fort Meade	33841	139	N/A	N/A	OUT	Y
Law Enforcement	Frostproof Police Dept Headquarters	2 North Lake Reedy Boulevard	Frostproof	33843	88	N/A	N/A	OUT	N
Law Enforcement	Haines City Police Dept Headquarters	35400 US 27	Haines City	33844	133	N/A	N/A	OUT	N
Law Enforcement	Lake Alfred Police Dept Headquarters	190 North Seminole Avenue	Lake Alfred	33850	178	N/A	N/A	OUT	N
Law Enforcement	Lake Hamilton Police Dept	100 Smith Avenue	Lake Hamilton	33851	159	N/A	N/A	OUT	N
Law Enforcement	Lake Wales Police Dept Headquarters	133 East Tillman Avenue	Lake Wales	33853	146	N/A	N/A	OUT	N
Law Enforcement	Lakeland Police Dept Headquarters	219 North Massachusetts Avenue	Lakeland	33801	208	N/A	N/A	OUT	N
Law Enforcement	Lakeland Police Dept Substation	829 Texas Avenue	Lakeland	33815	216	N/A	N/A	OUT	N
Law Enforcement	Mulberry Police Dept Headquarters	104 South Church Avenue	Mulberry	33860	114	N/A	N/A	OUT	N
Law Enforcement	PCSO Community Policing – Babson Park	714 Scenic Highway North	Babson Park	33827	147	N/A	N/A	OUT	N
Law Enforcement	PCSO Community Policing – Elizabeth	2130 Elizabeth Street	Lakeland	33815	153	N/A	N/A	OUT	N
Law Enforcement	PCSO Community Policing – Highland Park Manor	226 Karen Street	Lake Wales	33898	130	N/A	N/A	OUT	N
Law Enforcement	PCSO Community Policing – Loughman	6312 Old Kissimmee Road	Davenport	33896	98	N/A	N/A	100	Y
Law Enforcement	PCSO Community Policing – Sunray	15 George Street	Lakeland	33801	154	N/A	N/A	OUT	N
Law Enforcement	PCSO Community Policing – Sunshine	1234 Reynolds Road	Lakeland	33801	135	N/A	N/A	OUT	Y
Law Enforcement	PCSO Community Policing – Wabash	2128 Azalea Court	Lakeland	33815	148	N/A	N/A	OUT	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Law Enforcement	PCSO Community Policing – Willow Oak	4210 Willis Road	Auburndale	33823	111	N/A	N/A	OUT	N
Law Enforcement	Polk County Sheriff 10th Street Substation	1919 10th Street West	Lakeland	33805	185	N/A	N/A	OUT	N
Law Enforcement	PCSO Bradley Junction Substation	6940 Main Street	Bradley Junction	33860	135	N/A	N/A	OUT	N
Law Enforcement	PCSO Central District Substation	3635 Avenue G NW	Winter Haven	33880	155	N/A	N/A	OUT	N
Law Enforcement	PCSO Crystal Lake Substation	2707 US 92	Lakeland	33815	135	N/A	N/A	OUT	N
Law Enforcement	PCSO Davenport Substation	104 West James Street	Davenport	33837	120	N/A	N/A	OUT	Y
Law Enforcement	PCSO Eaton Park Substation	3119 Iowa Road	Lakeland	33803	140	N/A	N/A	OUT	Y
Law Enforcement	PCSO Florence Villa Substation	333 Avenue Y NE	Winter Haven	33881	137	N/A	N/A	OUT	N
Law Enforcement	PCSO Garden Grove Substation	5665 Cypress Gardens Boulevard	Winter Haven	33884	171	N/A	N/A	OUT	N
Law Enforcement	Polk County Sheriff HQs	455 North Broadway Avenue	Bartow	33830	117	N/A	N/A	OUT	N
Law Enforcement	PCSO Highland City Substation	5335 9th Street SE	Highland City	33813	117	N/A	N/A	OUT	N
Law Enforcement	PCSO K-Ville Substation	4155 K Ville Avenue	Auburndale	33823	112	N/A	N/A	OUT	Y
Law Enforcement	PCSO North Combee Substation	2805 Morgan Combee Road	Lakeland	33801	132	N/A	N/A	OUT	Y
Law Enforcement	PCSO Northwest District Substation	4500 US Highway 98 North	Lakeland	33809	196	N/A	N/A	OUT	N
Law Enforcement	PCSO Southeast Substation	4011 Sergeant Mary Campbell Way	Lake Wales	33859	119	N/A	N/A	OUT	N
Law Enforcement	PCSO Southwest District Substation	4120 US Highway 98 South	Lakeland	33813	130	N/A	N/A	OUT	Y
Law Enforcement	PCSO Wahneta Substation	311 4th Street E	Winter haven	33880	135	N/A	N/A	OUT	Y

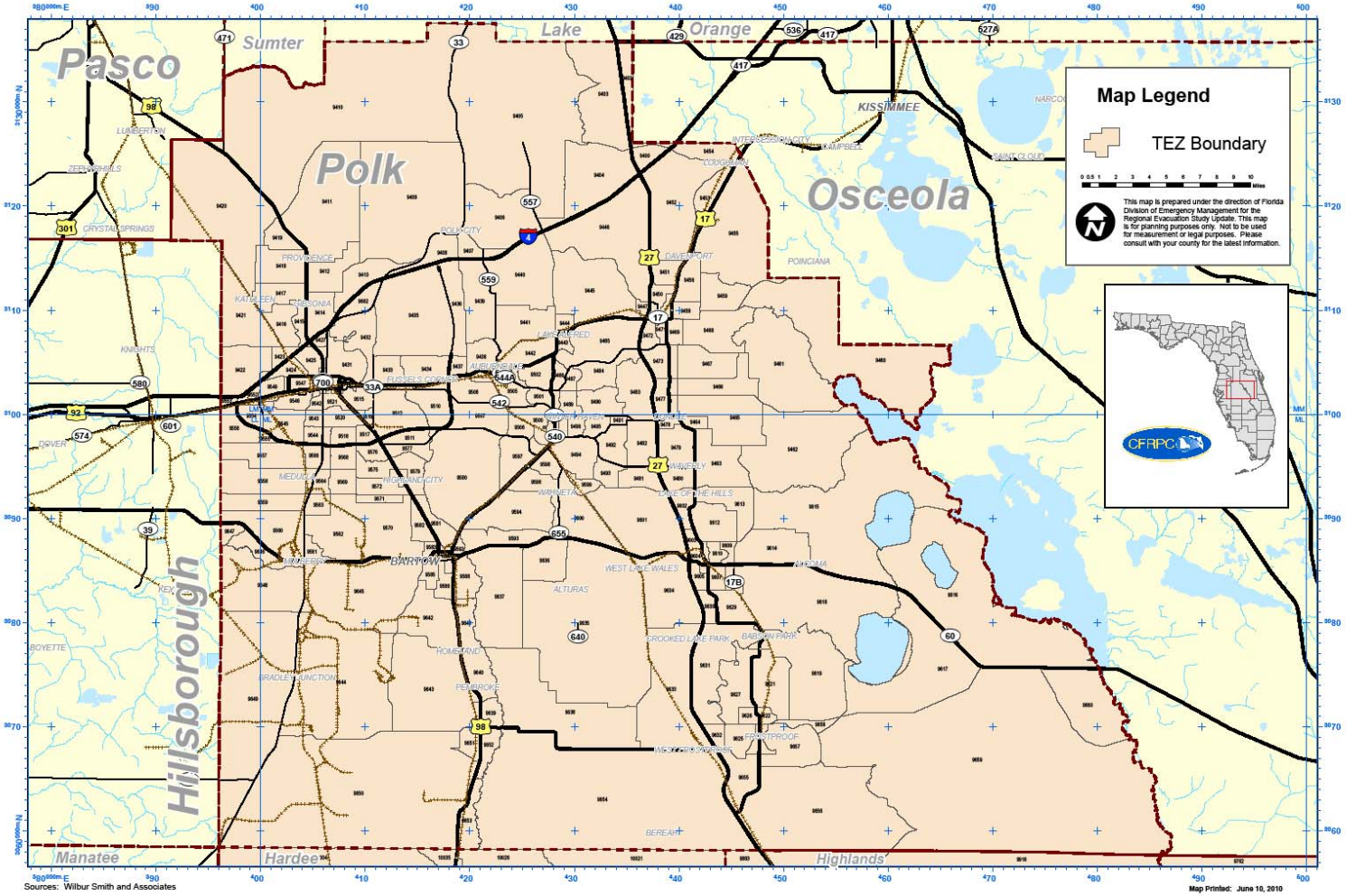
FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Law Enforcement	PCSO Southwest, Community Police	149 North Wabash Avenue	Lakeland	33815	155	N/A	N/A	OUT	N
Law Enforcement	Winter Haven Police Dept HQs	125 North Lake Silver Drive NW	Winter Haven	33881	154	N/A	N/A	OUT	N
Emergency Operations Center	Polk County Emergency Management – Emergency Operations Center	1890 Jim Keene Boulevard	Winter Haven	33880	125	N/A	N/A	OUT	Y
Emergency Operations Center	Polk County Emergency Operations Center – Alternate	1295 Brice Boulevard	Bartow	33831	126	N/A	N/A	OUT	N
Fuel Facility – DOT	Bartow Maintenance	2740 State Road 60 West	Bartow	33830	177	N/A	N/A	OUT	Y
Electric Power Plant	Auburndale Peaking Energy Center		Auburndale	33823	148	N/A	N/A	OUT	N
Electric Power Plant	Cargill Fertilizer, Inc., Bartow		Mulberry	33860	211	N/A	N/A	OUT	Y
Electric Power Plant	Cutrale Citrus Juices, USA, Inc.		Auburndale	33823	168	N/A	N/A	OUT	N
Electric Power Plant	Farmland Hydro LP		Mulberry	33860	214	N/A	N/A	OUT	Y
Electric Power Plant	Florida's Natural Growers		Lake Wales	33853	132	N/A	N/A	OUT	N
Electric Power Plant	Hines Energy Complex		Homeland	33830	165	N/A	N/A	OUT	N
Electric Power Plant	Larsen Memorial		Combee Settlement	33805	134	N/A	N/A	100	N
Electric Power Plant	Mulberry Cogeneration Facility		Homeland	33830	147	N/A	N/A	OUT	N
Electric Power Plant	New Wales		Keysville	33860	156	N/A	N/A	OUT	N
Electric Power Plant	Orange Cogeneration Facility		Bartow	33860	125	N/A	N/A	OUT	N
Electric Power Plant	Plant 3 McIntosh		Combee Settlement	33805	136	N/A	N/A	OUT	Y

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Electric Power Plant	Polk Station		Bradley Junction	33860	143	N/A	N/A	100	N
Electric Power Plant	Ridge		Fussels Corner	33880	112	N/A	N/A	100	N
Electric Power Plant	South Pierce		Bradley Junction	33841	133	N/A	N/A	OUT	N
Electric Power Plant	Tiger Bay		Fort Meade	33841	156	N/A	N/A	OUT	N
Electric Power Plant	US Agri Chemicals, Fort Meade		Fort Meade	33841	150	N/A	N/A	OUT	N
Electric Power Plant	Winston		Winston	33815	125	N/A	N/A	OUT	N
Airport	Bartow Municipal		Bartow		126	N/A	N/A	OUT	N
Airport	Burntwood Ranch		Lakeland		116	N/A	N/A	OUT	N
Airport	Flanders Field		Polk City		129	N/A	N/A	OUT	N
Airport	Green Swamp Aerodome		Lakeland		111	N/A	N/A	OUT	N
Airport	Lake Clinch Airpark		Frostproof		125	N/A	N/A	OUT	N
Airport	Lake Wales Municipal		Lake Wales		123	N/A	N/A	OUT	N
Airport	Lakeland Linder Regional		Lakeland		136	N/A	N/A	OUT	N
Airport	MacDill AFB Aux Field		Avon Park		64	N/A	N/A	OUT	N
Airport	River Ranch Resort		River Ranch		54	N/A	N/A	OUT	N
Airport	South Lakeland		Mulberry		113	N/A	N/A	OUT	N
Airport	Southerly		Dundee		91	N/A	N/A	100	N

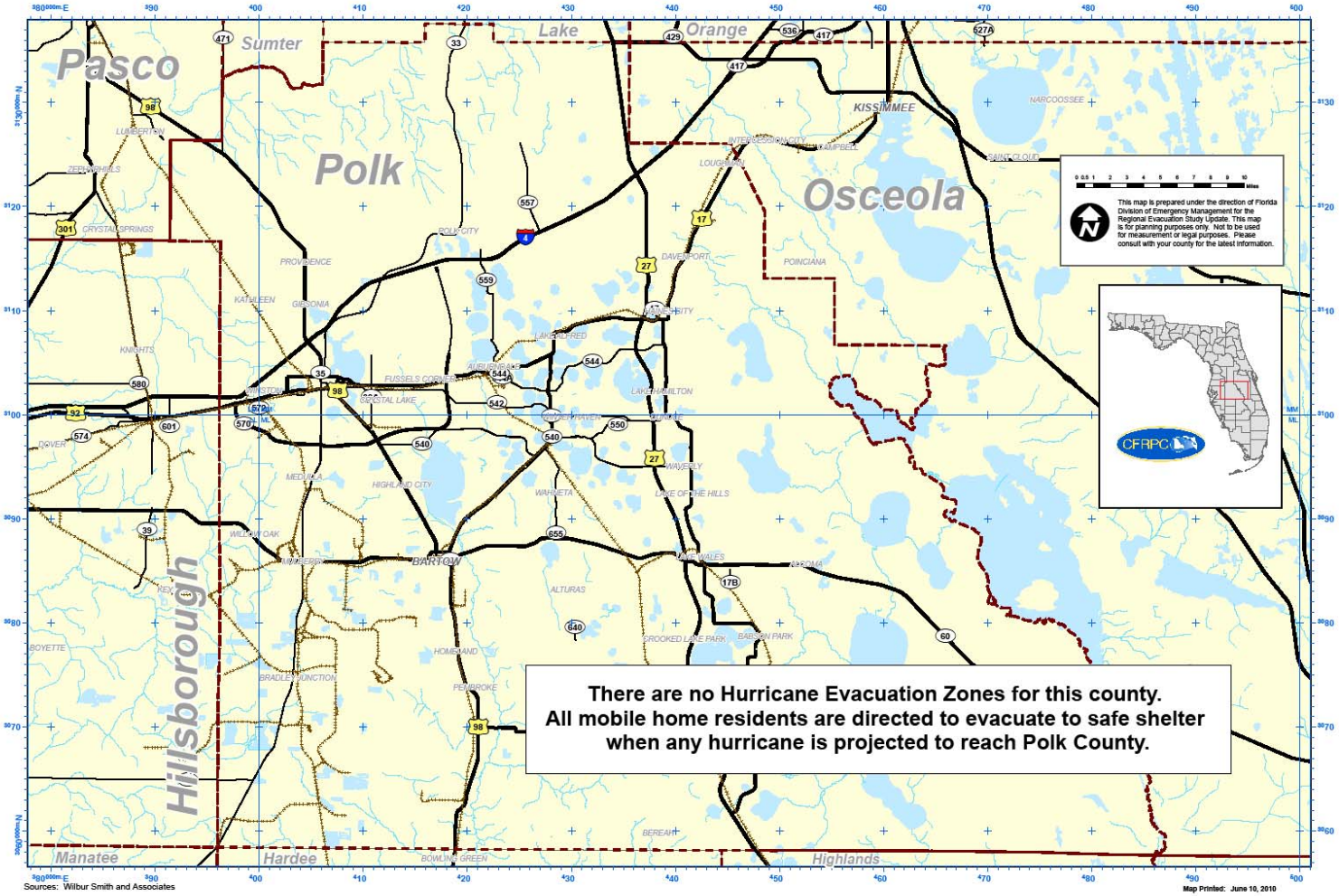
FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Airport	Tiger Lake		River Ranch		51	N/A	N/A	100	N
Airport	Walker Ranch – Private		Kissimmee		65	N/A	N/A	OUT	N
Airport	Winter Haven's Gilbert		Winter Haven		144	N/A	N/A	OUT	N
Airport	World's Greatest Aircraft Collection		Polk City		142	N/A	N/A	OUT	Y
Heliport/Helipad	Adams Executive		Winter Haven		130	N/A	N/A	100	N
Heliport/Helipad	Bartow High School		Bartow		124	N/A	N/A	OUT	Y
Heliport/Helipad	Bartow Memorial Hospital		Bartow		107	N/A	N/A	OUT	N
Heliport/Helipad	Cypress Gardens		Winter Haven		132	N/A	N/A	100	N
Heliport/Helipad	Griffin's Main Office		Frostproof		124	N/A	N/A	OUT	N
Heliport/Helipad	Heart of Florida Medical Center		Haines City		152	N/A	N/A	OUT	N
Heliport/Helipad	Lake Wales		Lake Wales		115	N/A	N/A	OUT	N
Heliport/Helipad	Lakeland Regional Medical Center		Lakeland		192	N/A	N/A	OUT	N
Heliport/Helipad	Lazy B L Ranch		Winter Haven		127	N/A	N/A	OUT	N
Heliport/Helipad	Little's		Lakeland		128	N/A	N/A	OUT	N
Heliport/Helipad	Mulberry High School		Mulberry		142	N/A	N/A	OUT	N
Heliport/Helipad	Sheriff's Helistop		Bartow		118	N/A	N/A	OUT	N
Heliport/Helipad	White Eagle		Lakeland		113	N/A	N/A	100	N

FACILITY TYPE	NAME	ADDRESS	CITY	ZIP CODE	ELEVATION	SURGE	EVAC ZONE	FLOOD	FIRE
Heliport/Helipad	Winter Haven Hospital		Winter Haven		155	N/A	N/A	OUT	N
Seaplane Base	Garner Landing		Auburndale		141	N/A	N/A	100	N
Seaplane Base	Goddard Seadrome		Frostproof		77	N/A	N/A	100	N
Seaplane Base	Jack Browns		Winter Haven		131	N/A	N/A	OUT	N
Seaplane Base	King Seaaero		Winter Haven		131	N/A	N/A	100	N
Seaplane Base	Lake Annie		Dundee		115	N/A	N/A	OUT	N
Seaplane Base	Lake Gibson		Lakeland		142	N/A	N/A	100	N
Seaplane Base	Lake Hamilton		Lake Hamilton		120	N/A	N/A	100	N
Seaplane Base	Oak Harbor		Haines City		130	N/A	N/A	100	N
Seaplane Base	Sage Seadrome		Lake Wales		52	N/A	N/A	100	N
Television	WLWA-LP		Lakeland		128	N/A	N/A	OUT	N
Television	WLWA-LP		Lakeland		148	N/A	N/A	OUT	Y
Television	WMOR-TV		Lakeland		143	N/A	N/A	100	N
Television	WMOR-TV		Lakeland		143	N/A	N/A	100	N

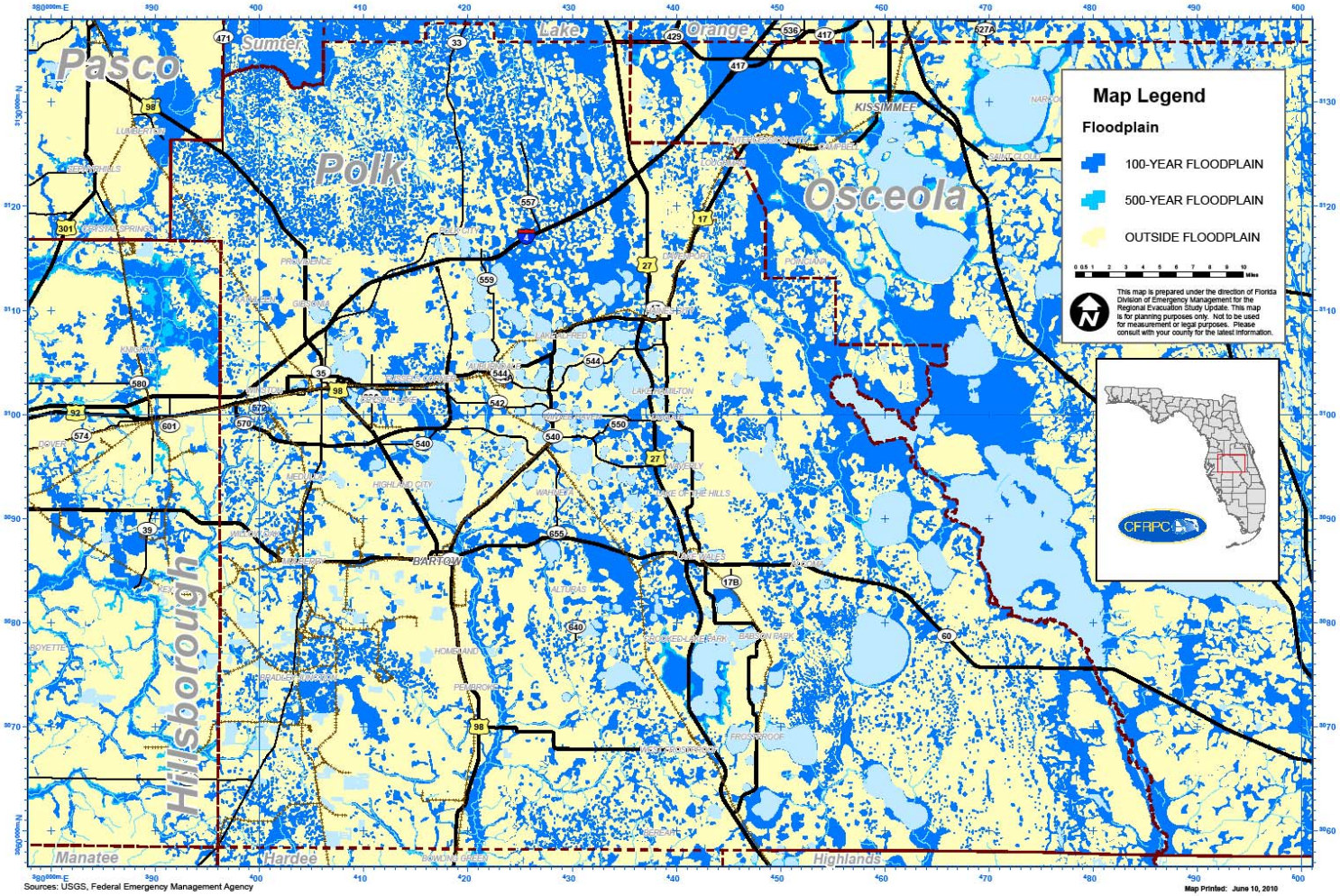
Map 1
Polk County Traffic Evacuation Zones



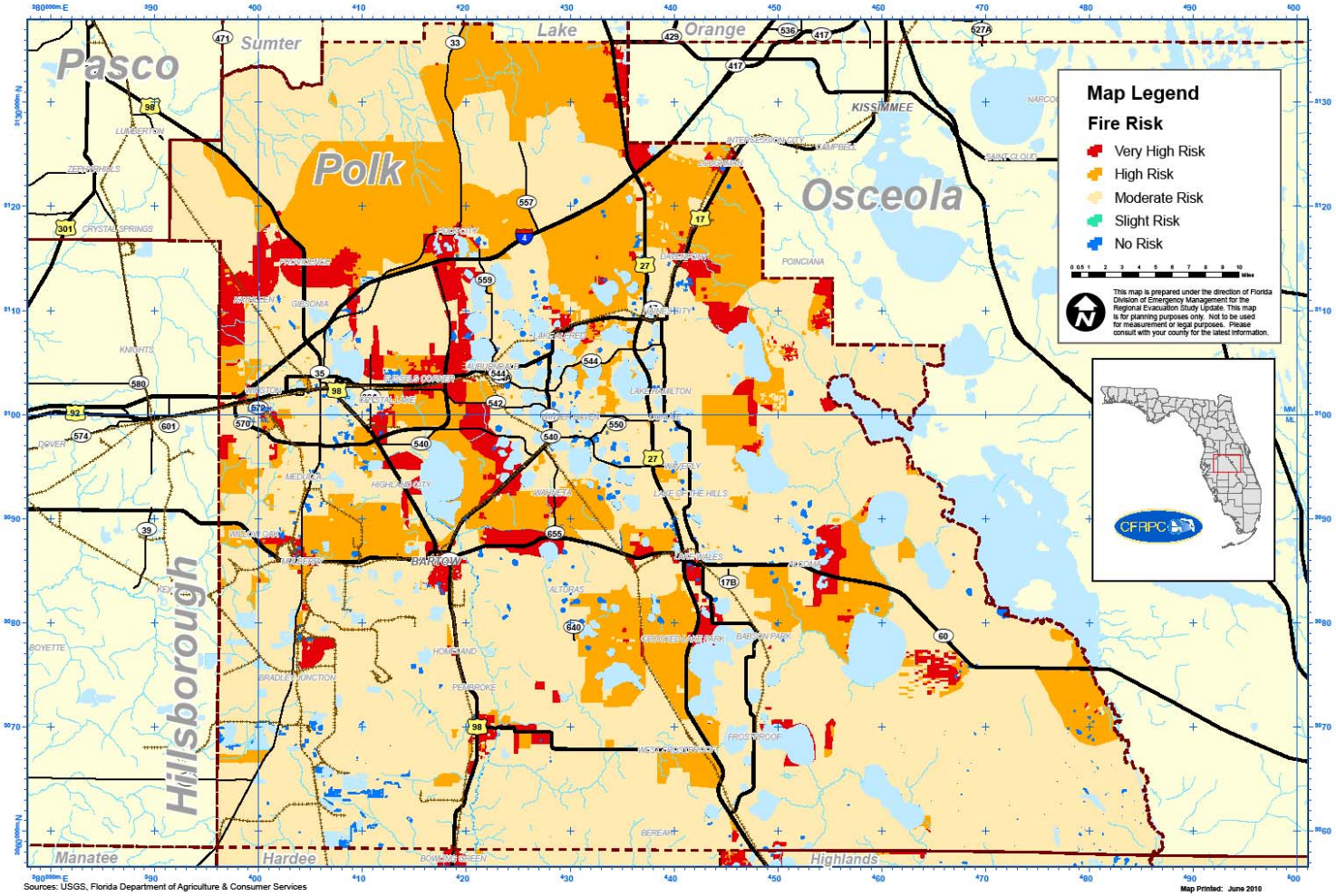
Map 2
Polk County Hurricane Evacuation Zones



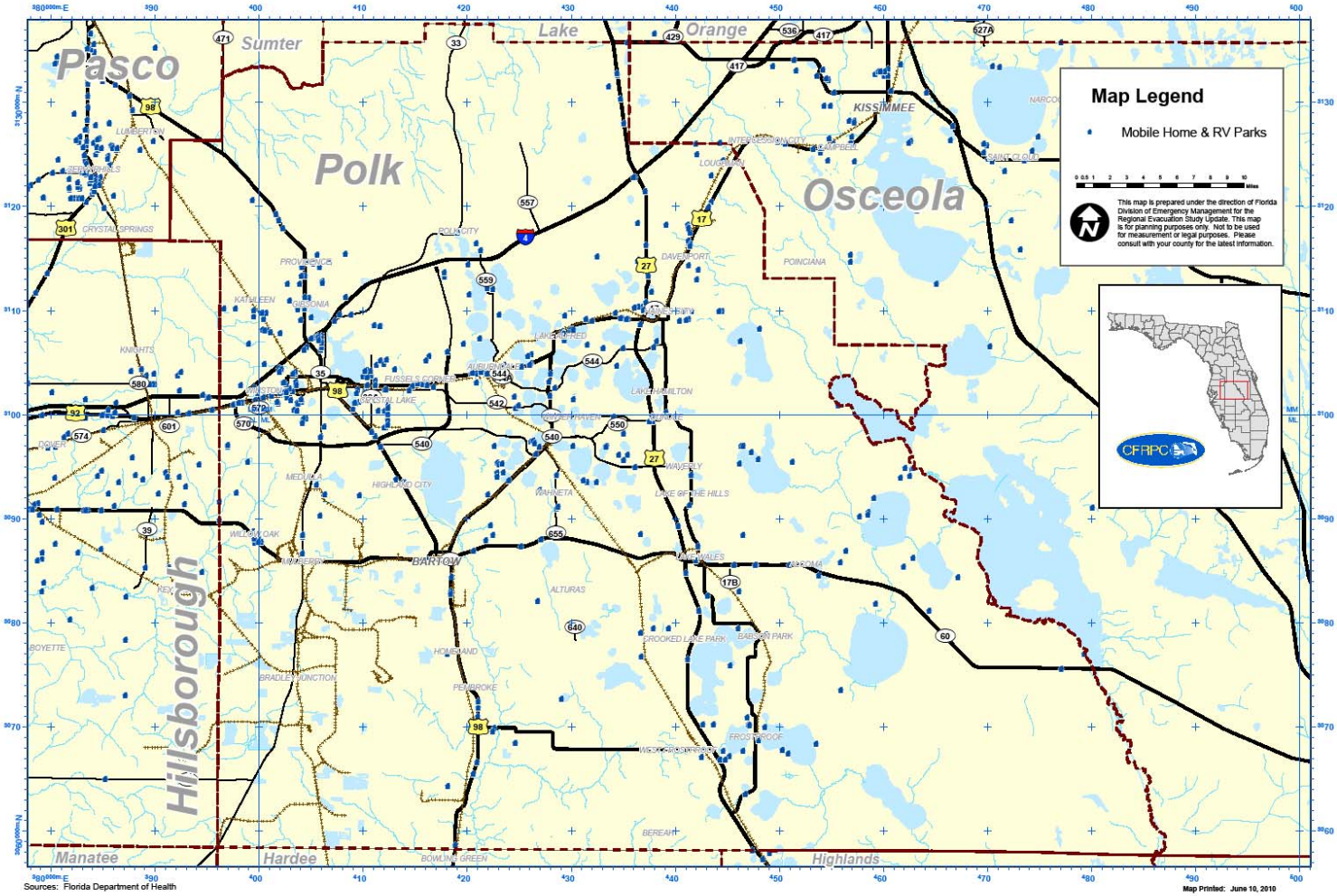
Map 3
Polk County FEMA FIRM Floodplains



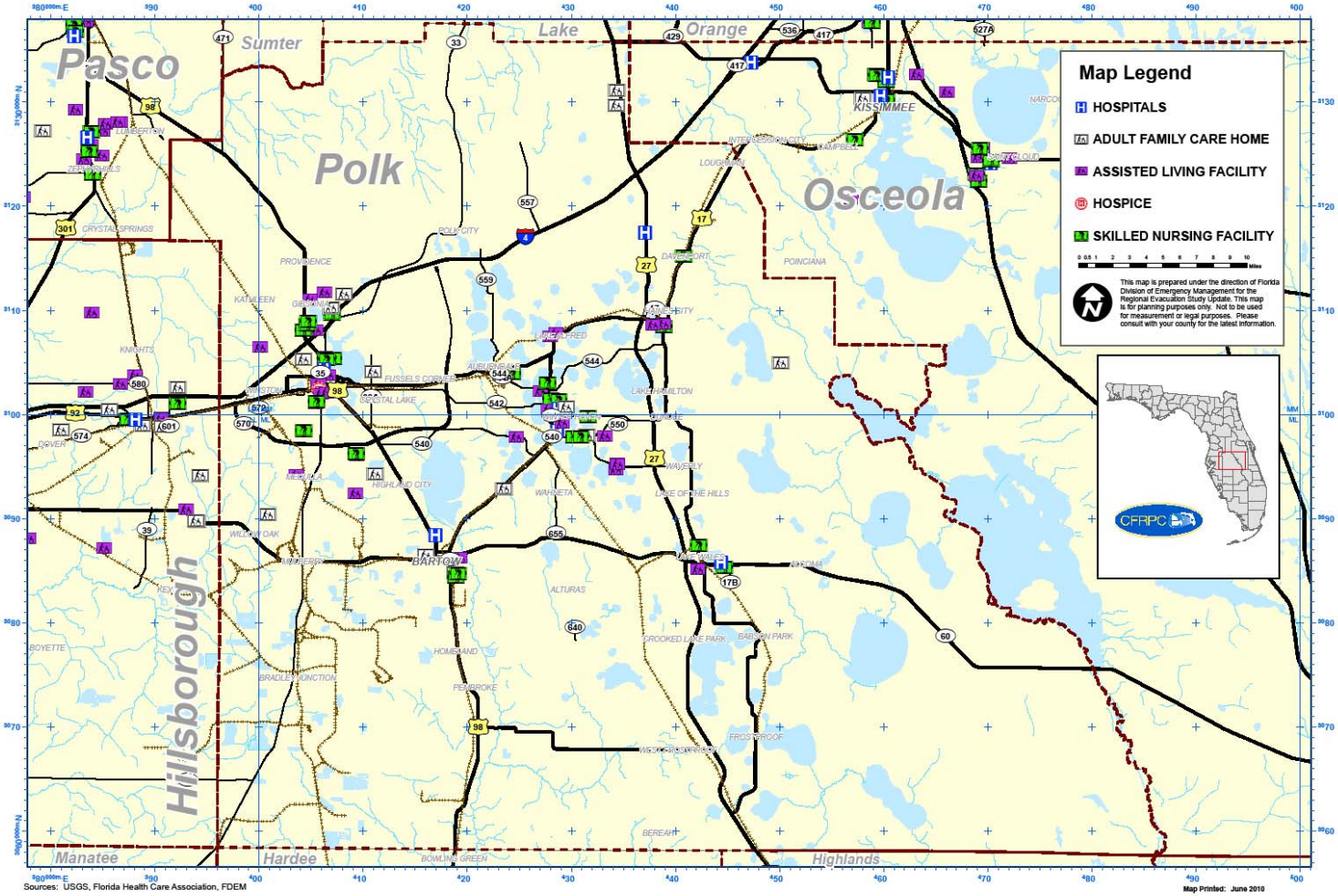
Map 4
Polk County Wildland-Urban Interface Fire Risk



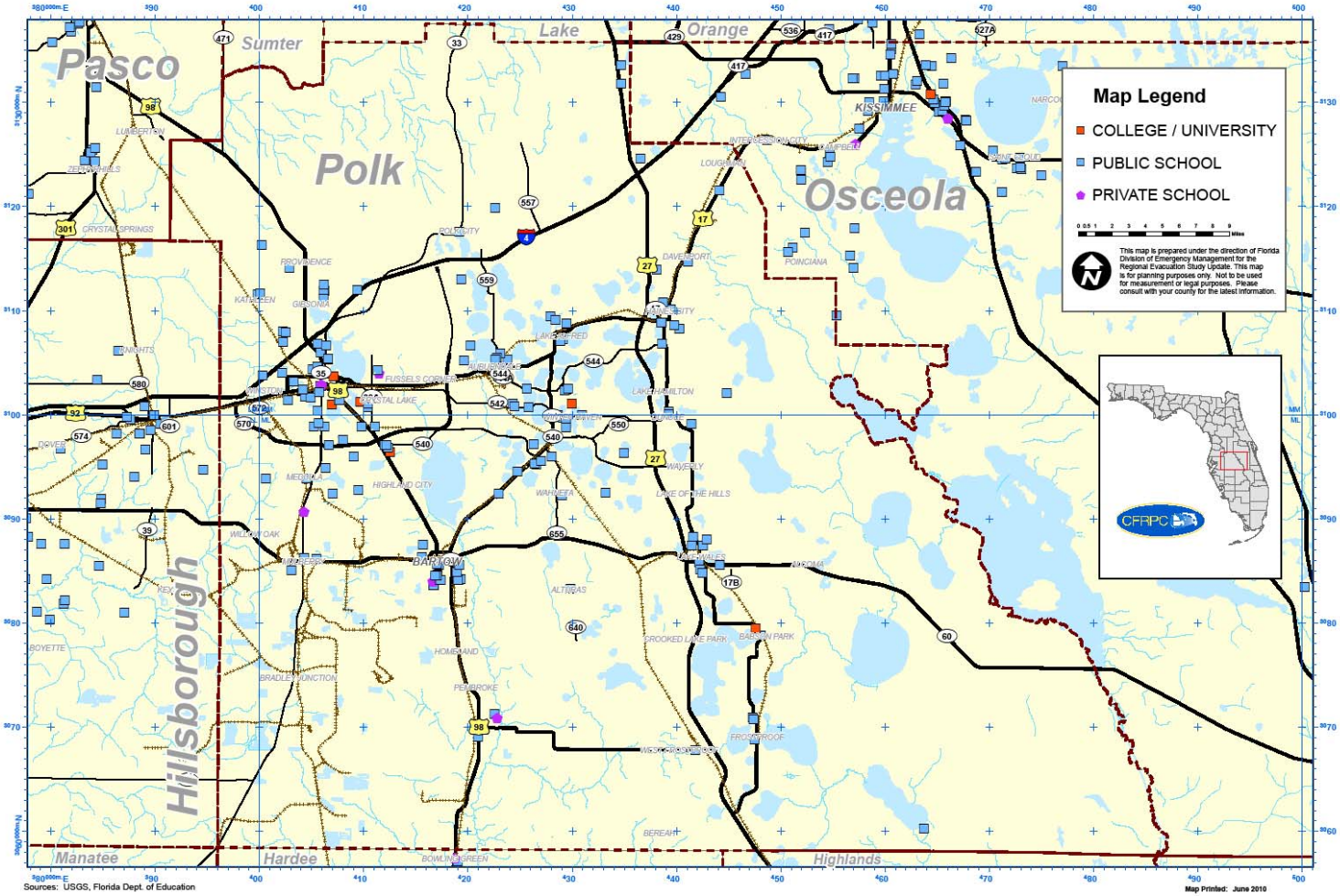
Map 5
Polk County Mobile Home and RV Parks



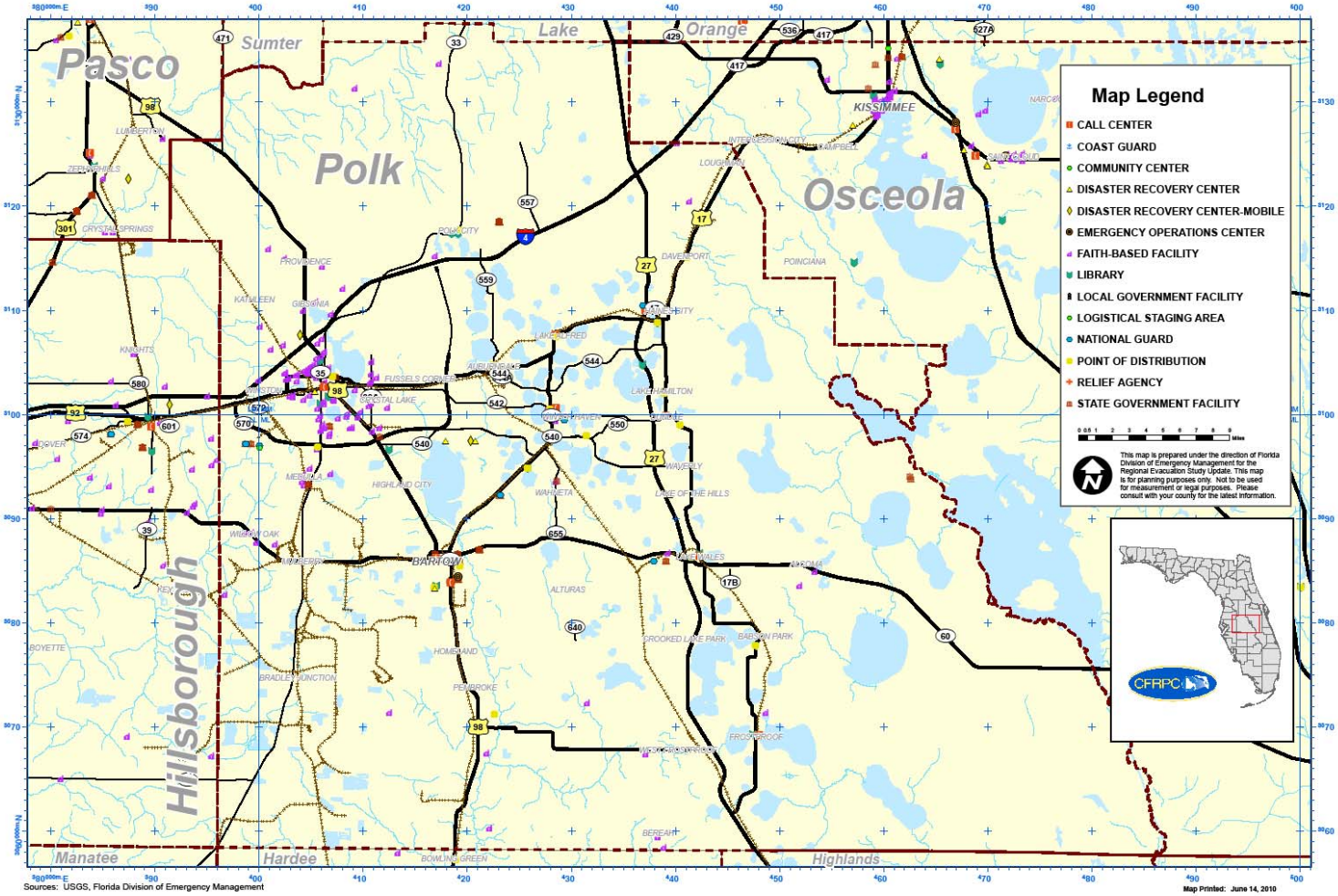
Map 6
Polk County Health Care Facilities



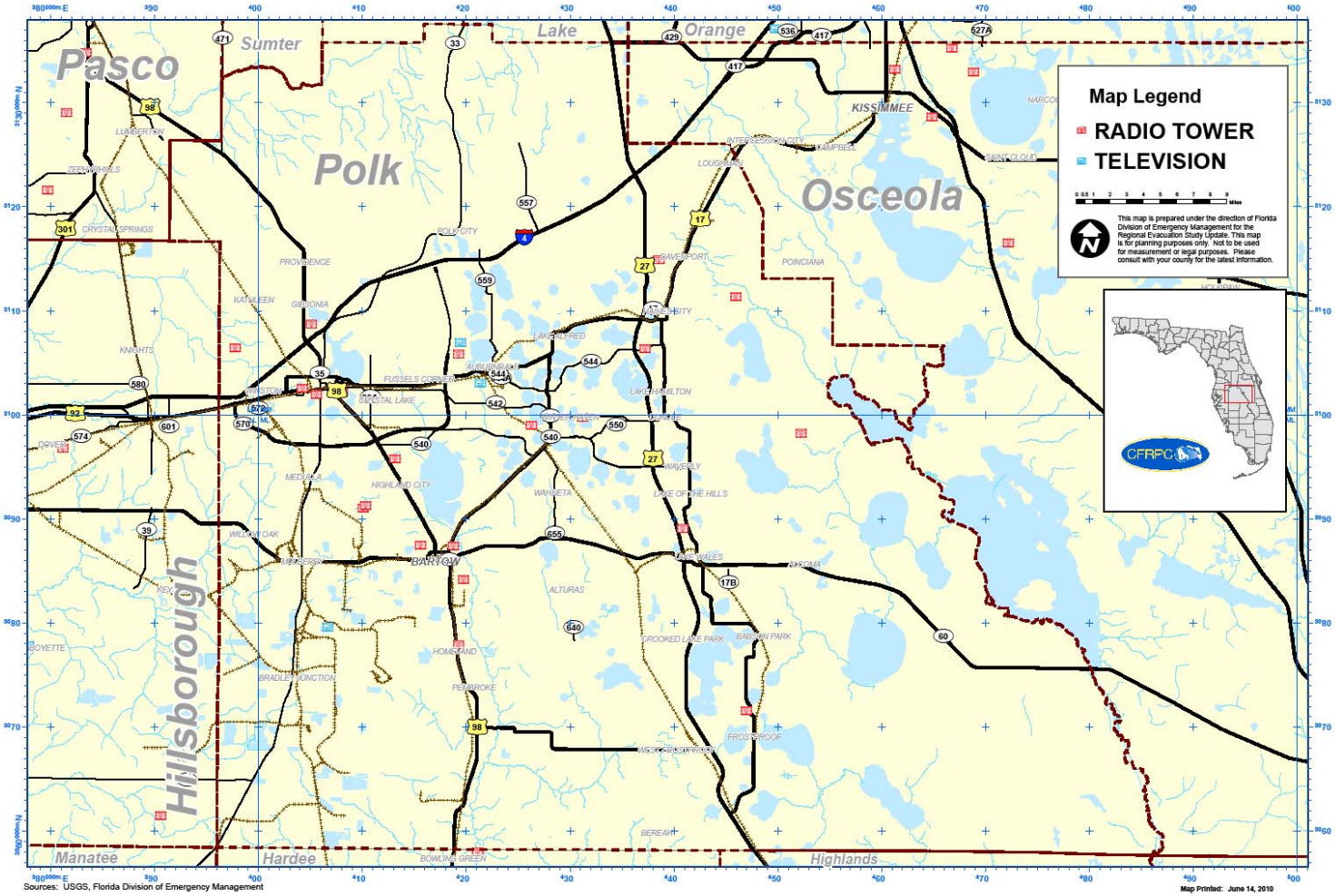
Map 7
Polk County Schools and Universities



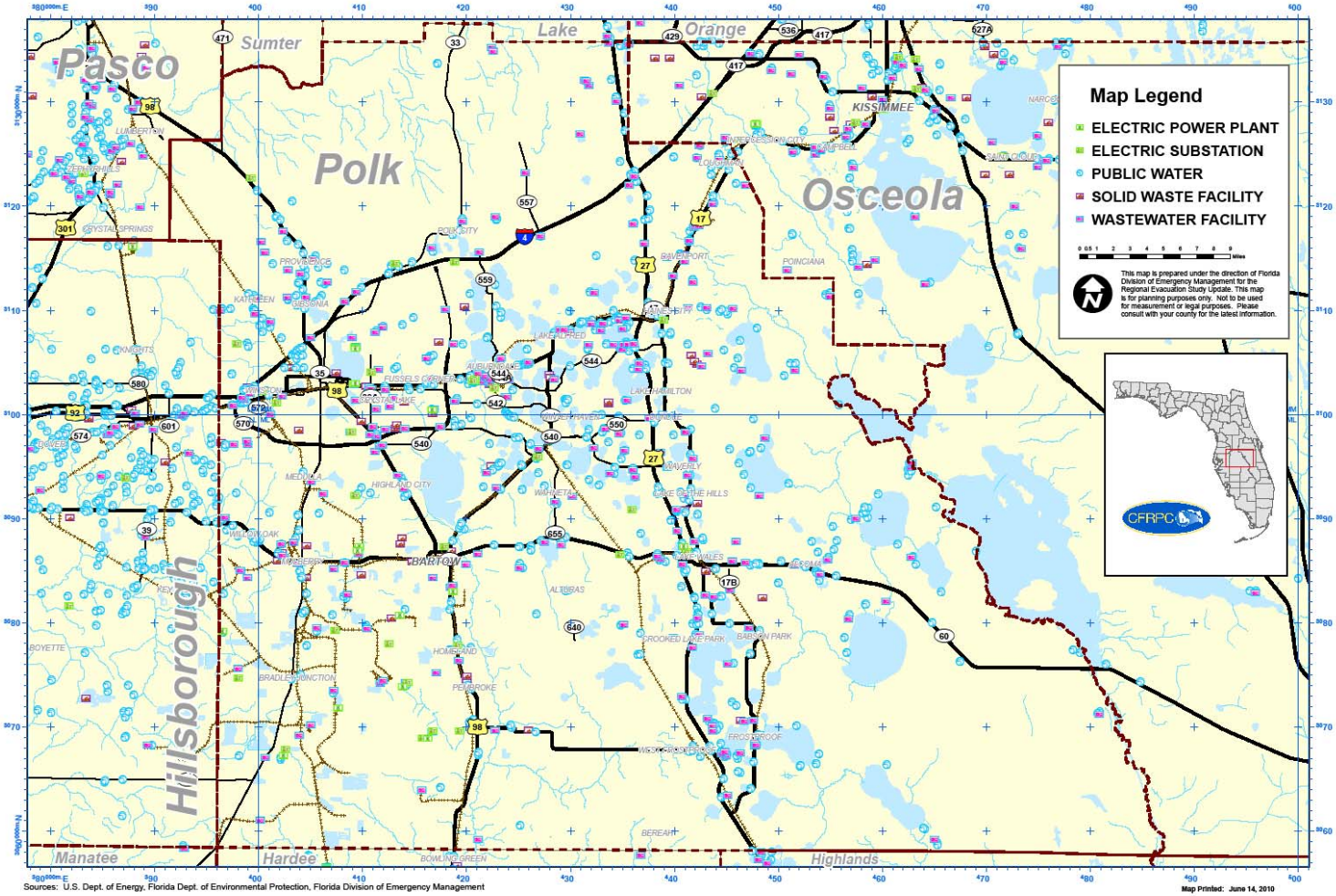
Map 8
Polk County EOCs, Logistical and Military Resources, PODs



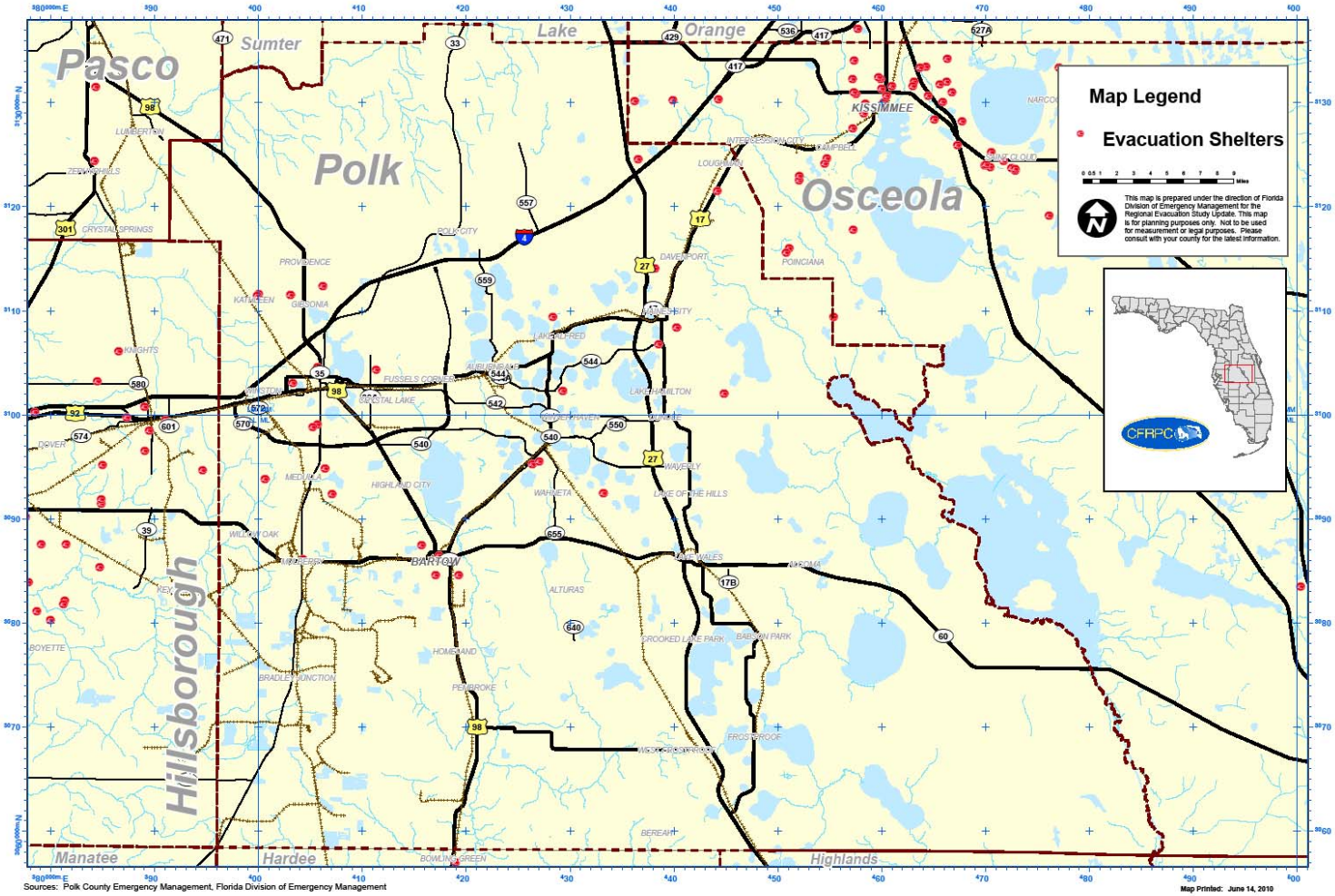
Map 9
Polk County Communications Resources



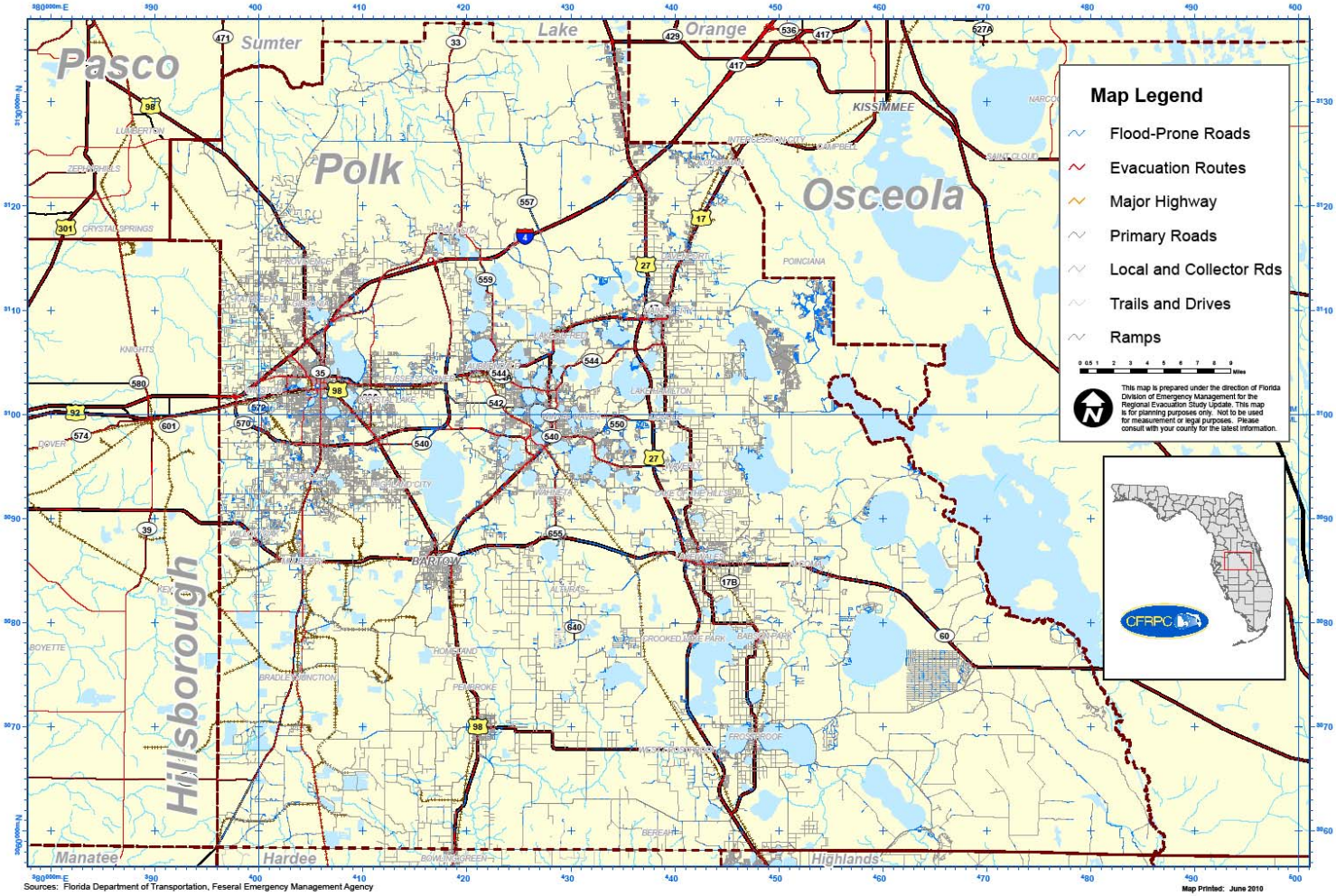
Map 10
Polk County Critical Infrastructure (Water, Wastewater, Landfills, etc.)



Map 11
Polk County Public Evacuation Shelters 2010



Map 12
Polk County Roads Vulnerable to Freshwater Flooding



POLK COUNTY MAPS

Overall County (Base)

Traffic Analysis Zones (Overall County)

Traffic Analysis Zones (North County)

Traffic Analysis Zones (South County)

Residential Structures by Decade Built (North County)

Residential Structures by Decade Built (South County)

Non-Residential Structures by Decade Built (North County)

Non-Residential Structures by Decade Built (South County)

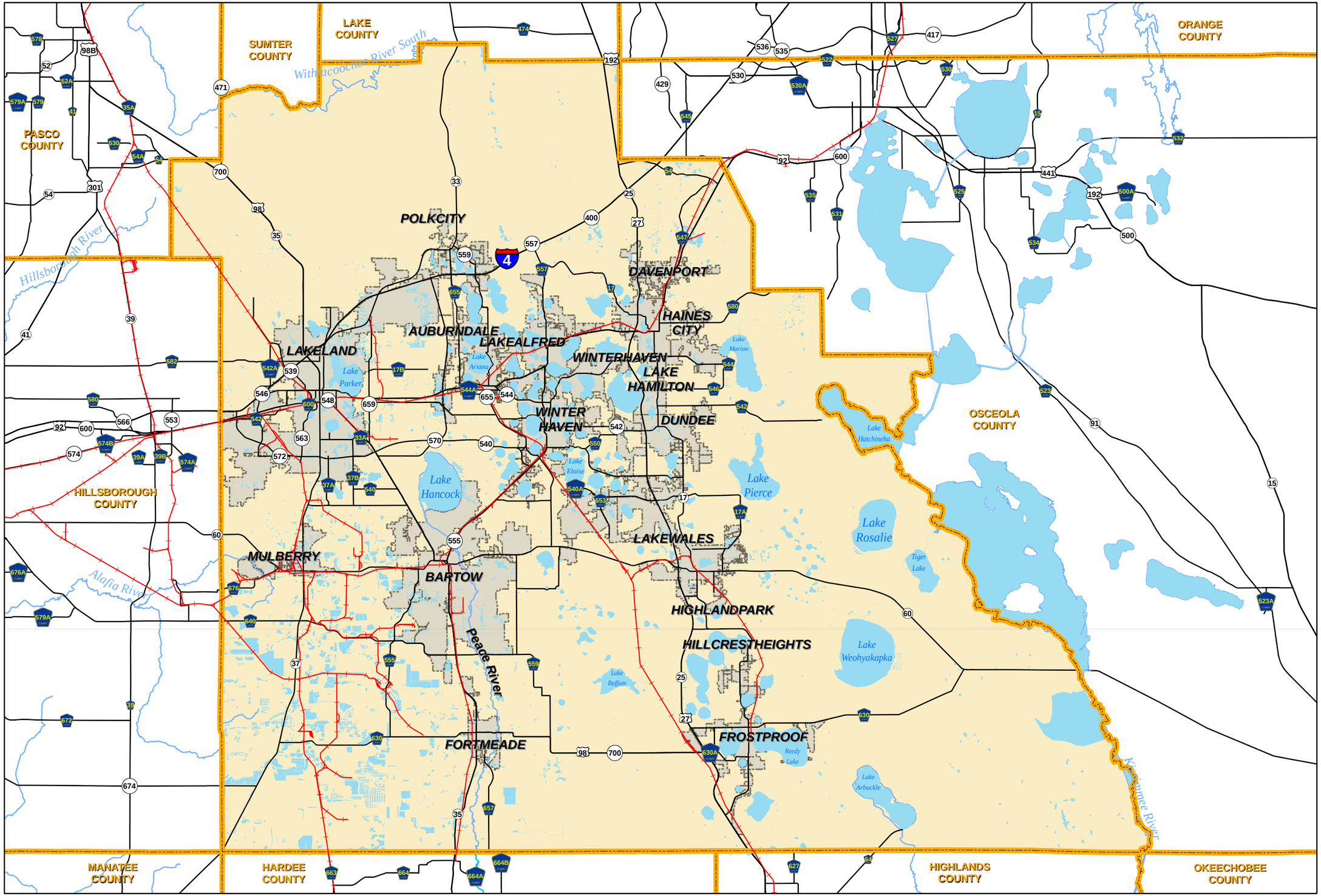
Structures by Decade Built by Parcel Record (Overall County)

Structures by Decade Built by Parcel Record (North County)

Structures by Decade Built by Parcel Record (South County)

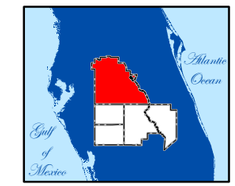
Critical Infrastructure

Polk County - Base Map



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- Municipalities
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

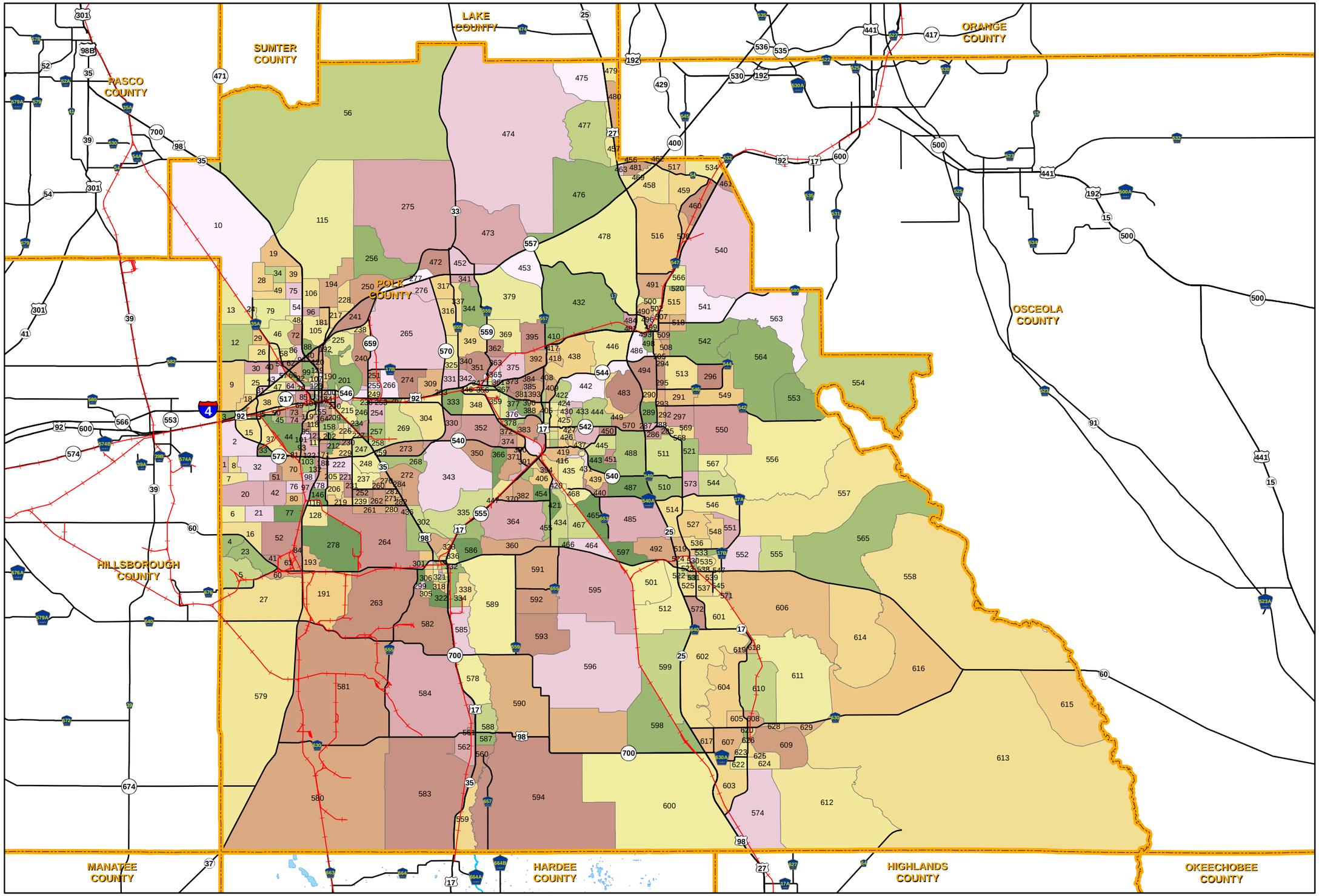
0 2 4 8

Miles

December 2010

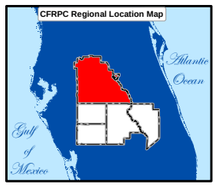
Source:
Polk County Property Appraiser
Florida Department of Transportation
Central Florida Regional Planning Council

Polk County - Traffic Analysis Zones (TAZ)



Legend

- 32 TAZ Numbers
- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

0 2 4 8

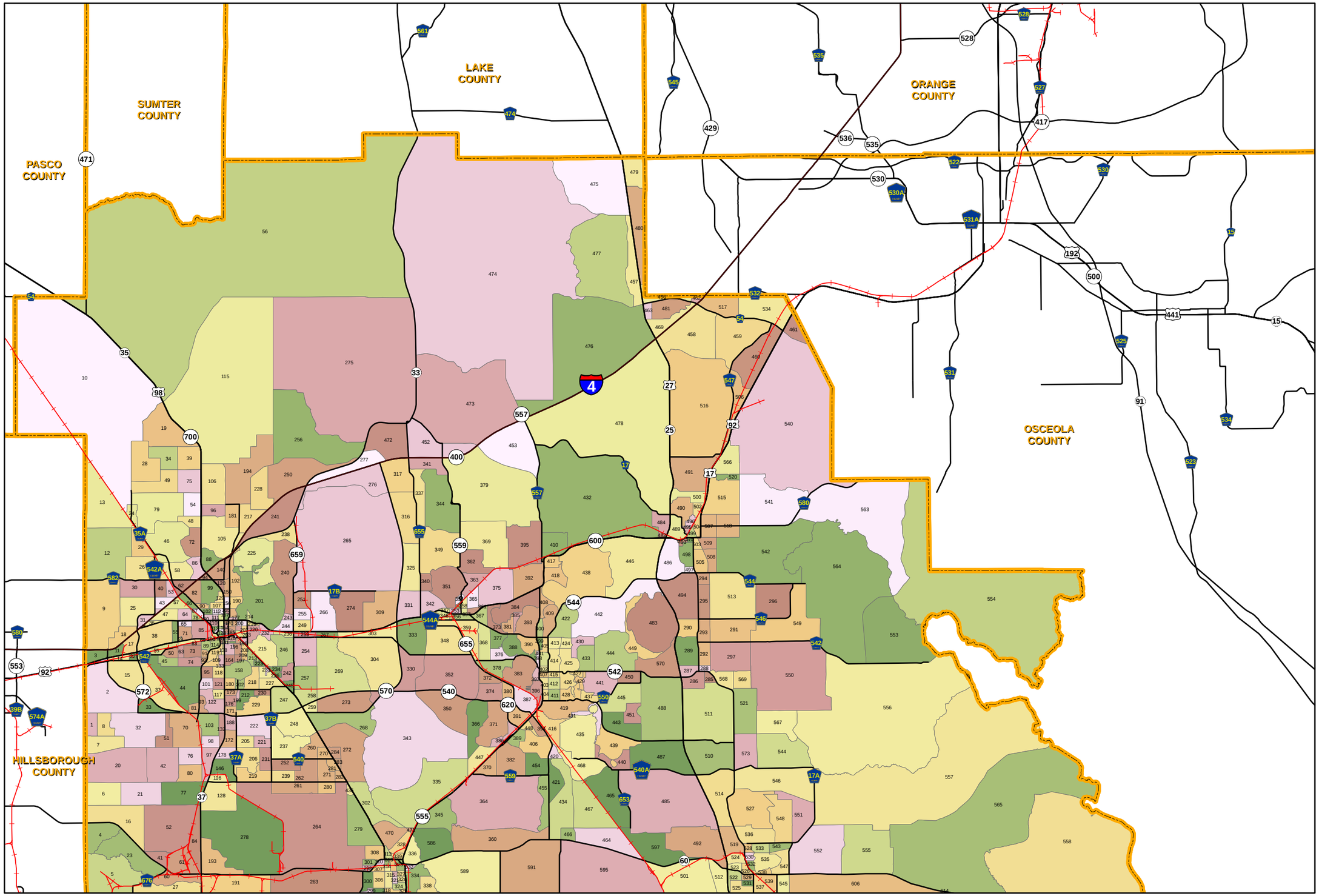
Miles

December 2010

Source:
Polk County Transportation Planning Organization (2008)

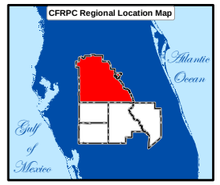
There are a total of 621 TAZs in Polk County

Polk County (North) - Traffic Analysis Zones (TAZ)



Legend

- 32 TAZ Numbers
- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida
Disaster Resiliency Study

N

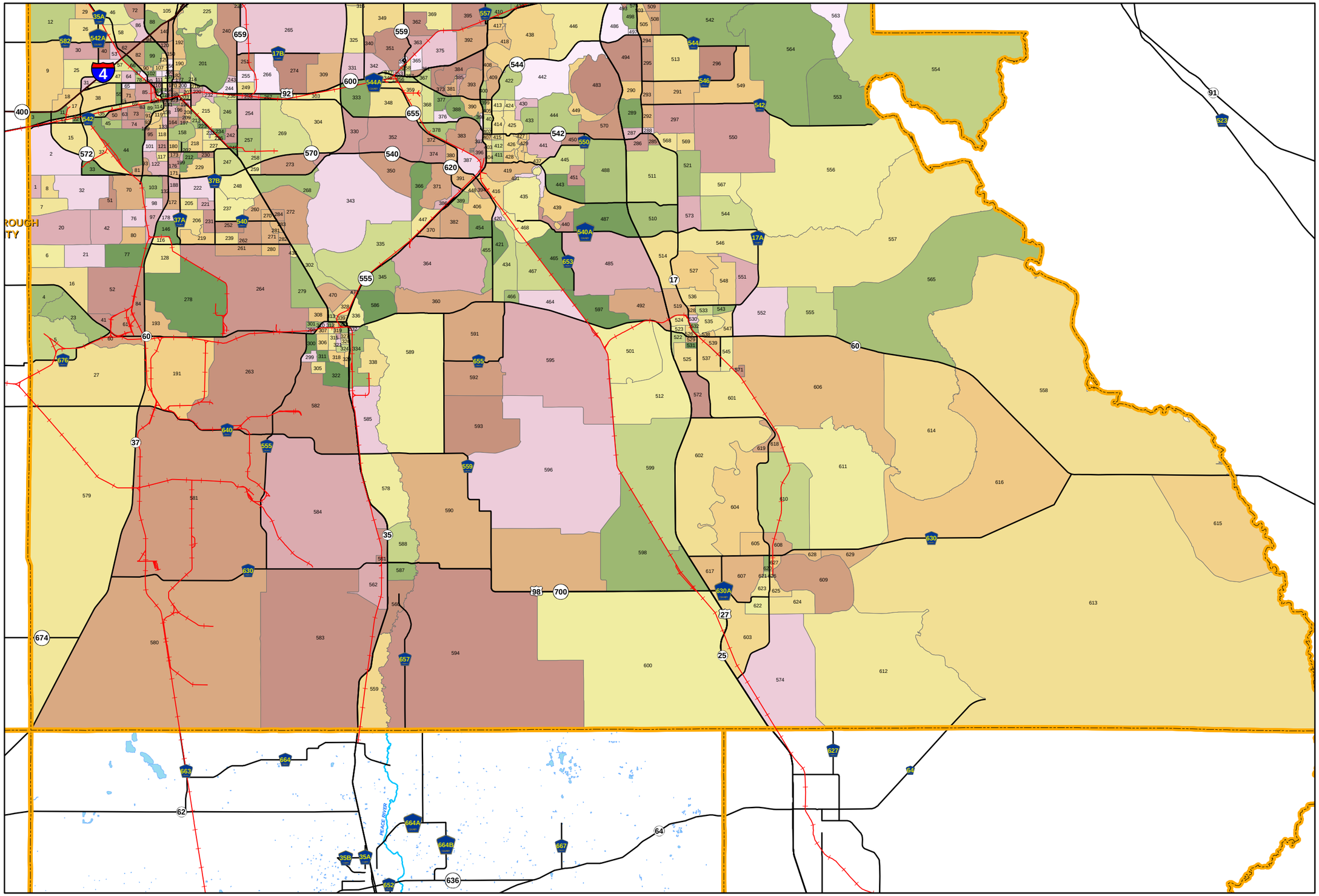
0 1.25 2.5 5
Miles

December 2010

Source:
Polk County Transportation Planning Organization (2008)

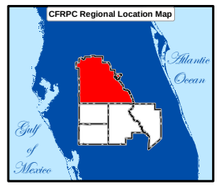
There are a total of 621 TAZs in Polk County

Polk County (South) - Traffic Analysis Zones (TAZ)



Legend

- 32 TAZ Numbers
- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida
Disaster Resiliency Study

N

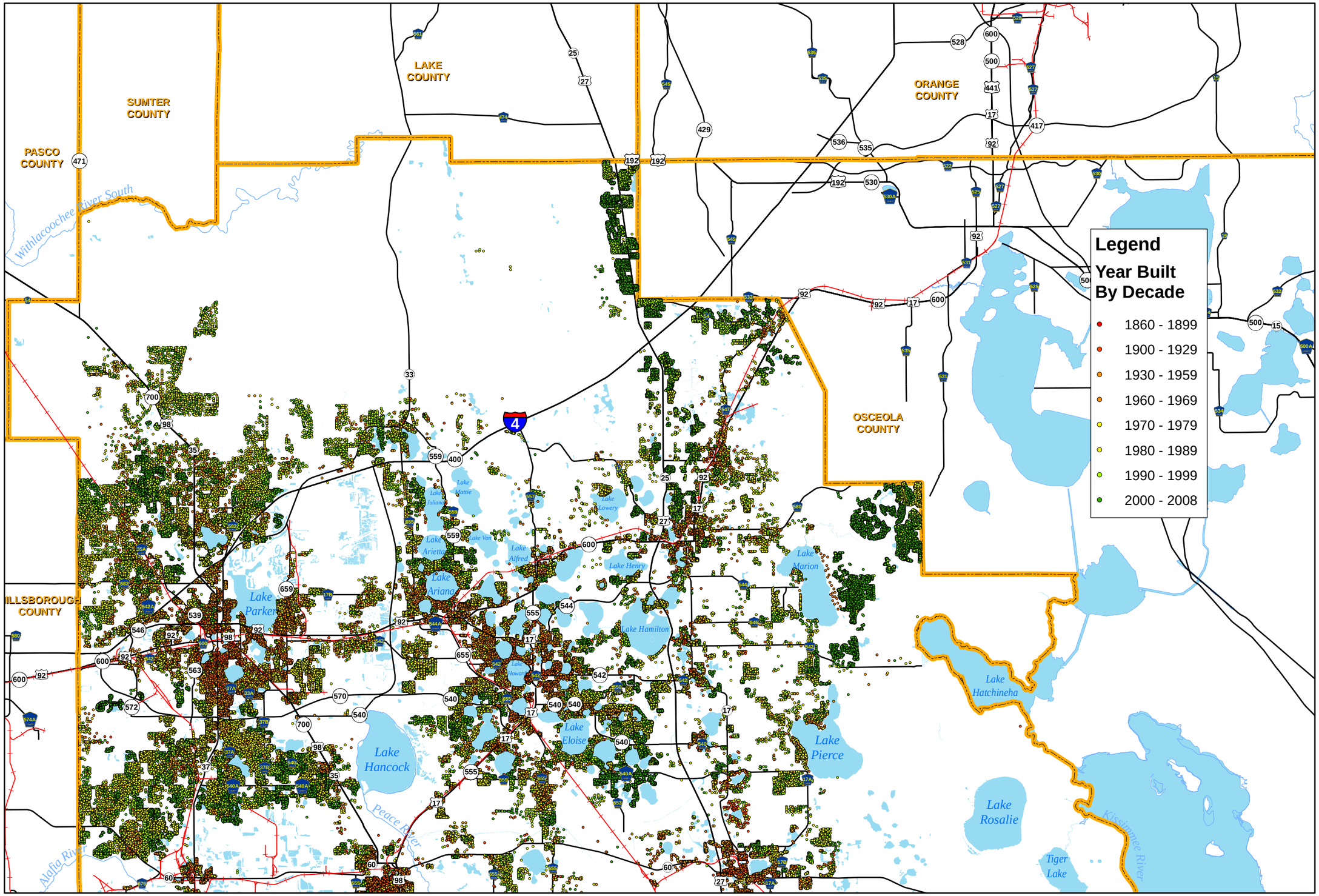
0 1.25 2.5 5
Miles

December 2010

Source:
Polk County Transportation Planning Organization (2008)

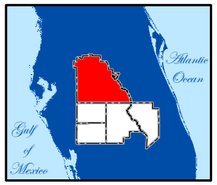
There are a total of 621 TAZs in Polk County

Polk County (North) - Residential Structures by Decade Built



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

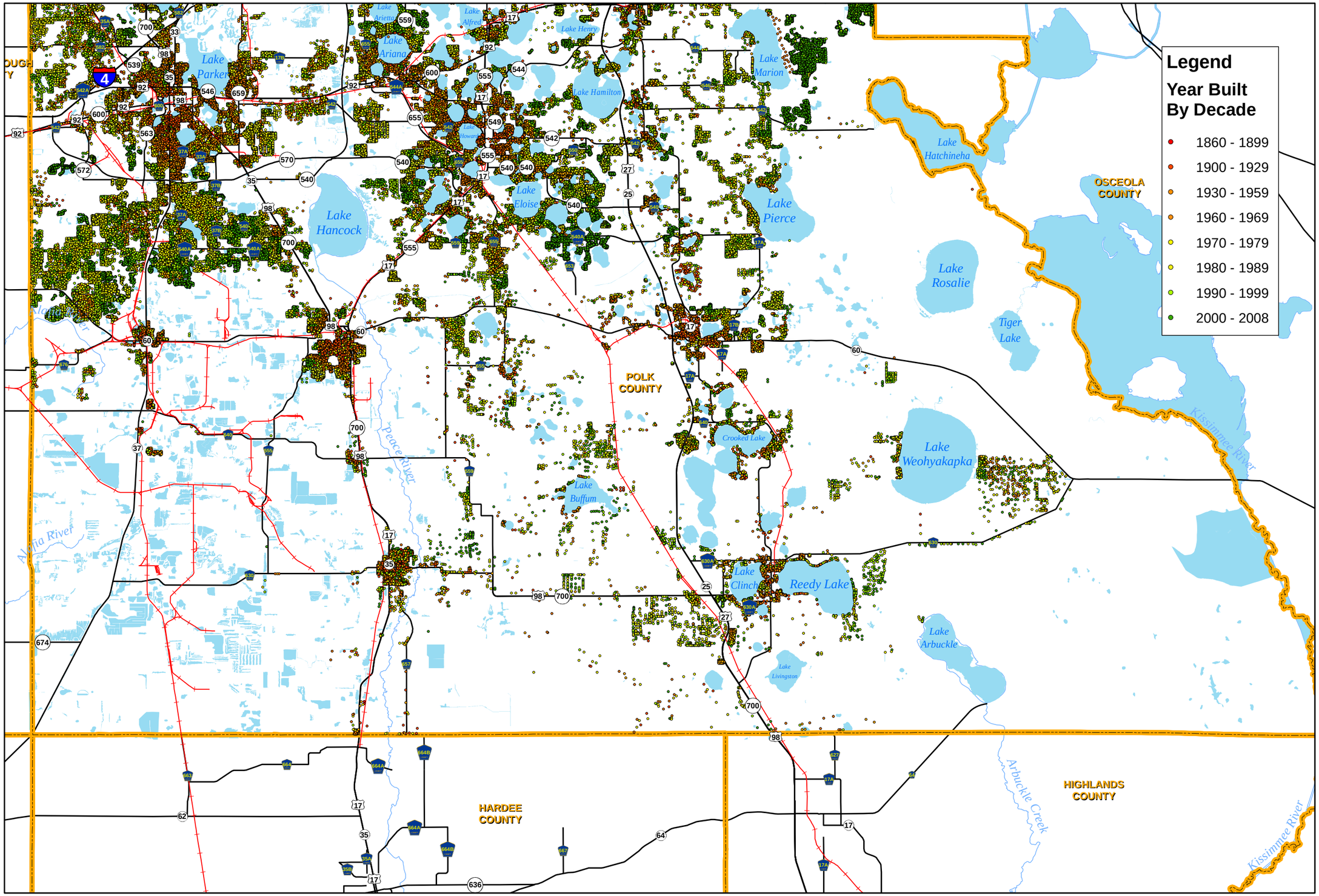
0 1.5 3 6

Miles

December 2010

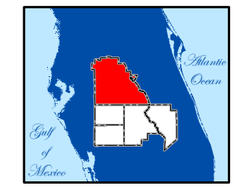
Source: Florida Department of Transportation District 1 (2008), Polk County Property Appraiser

Polk County (South) - Residential Structures by Decade Built



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

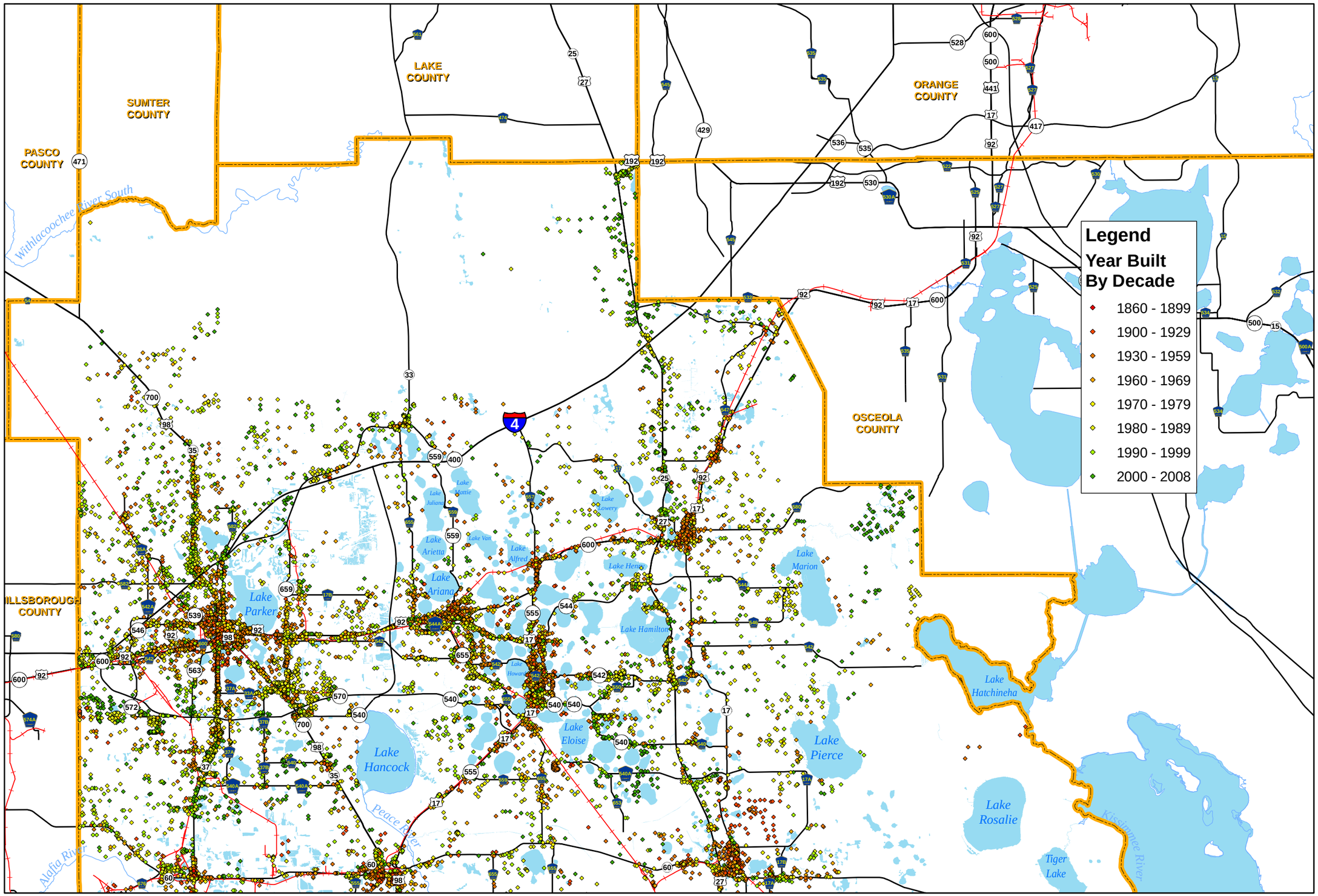
0 1.5 3 6

Miles

December 2010

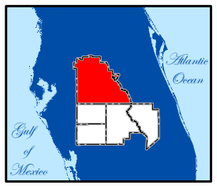
Source: Florida Department of Transportation District 1 (2008), Polk County Property Appraiser

Polk County (North) - Non-Residential Structures by Decade Built



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

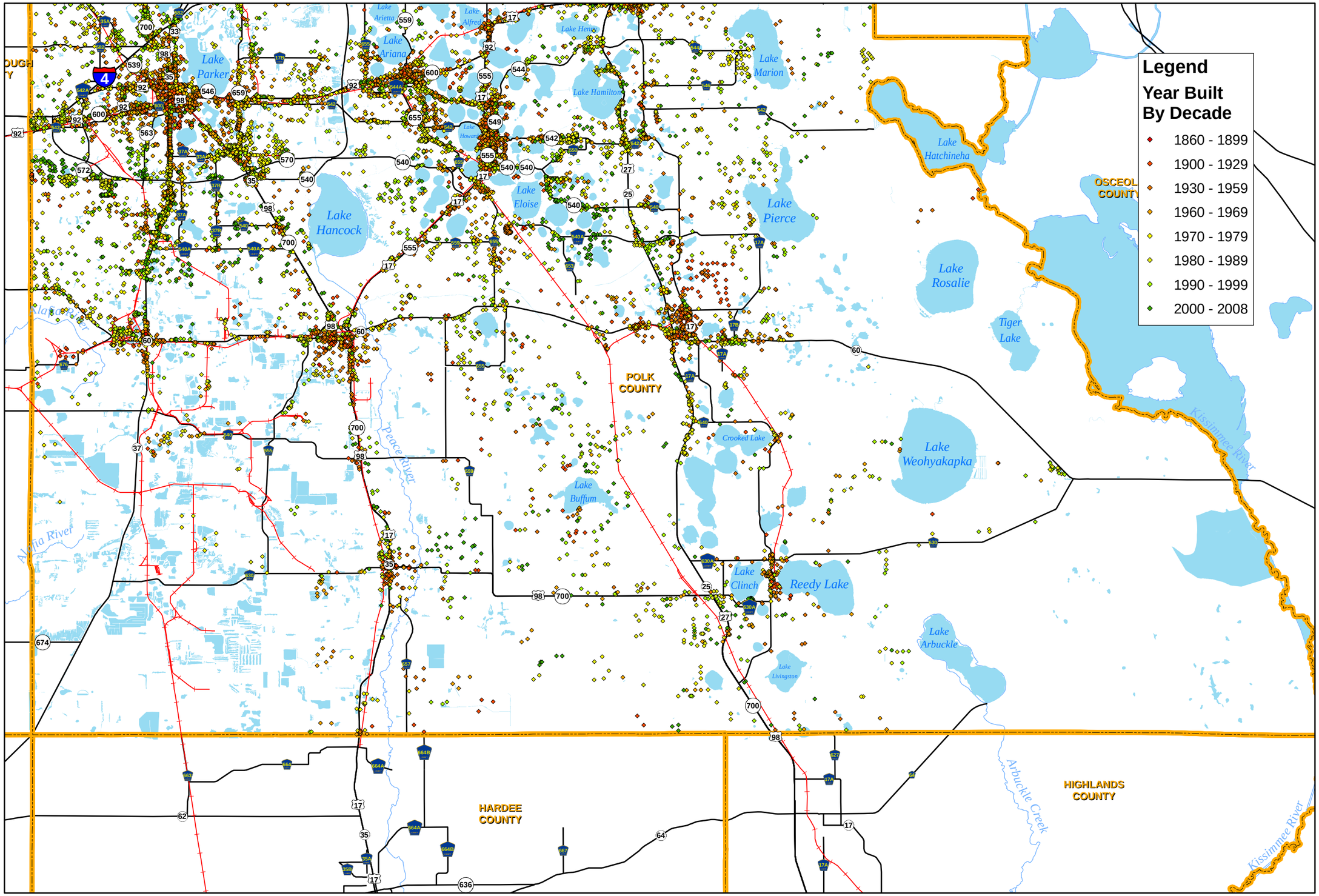
0 1.5 3 6

Miles

December 2010

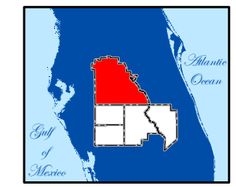
Source: Florida Department of Transportation District 1 (2008), Polk County Property Appraiser

Polk County (South) - Non-Residential Structures by Decade Built



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida
Disaster Resiliency Study

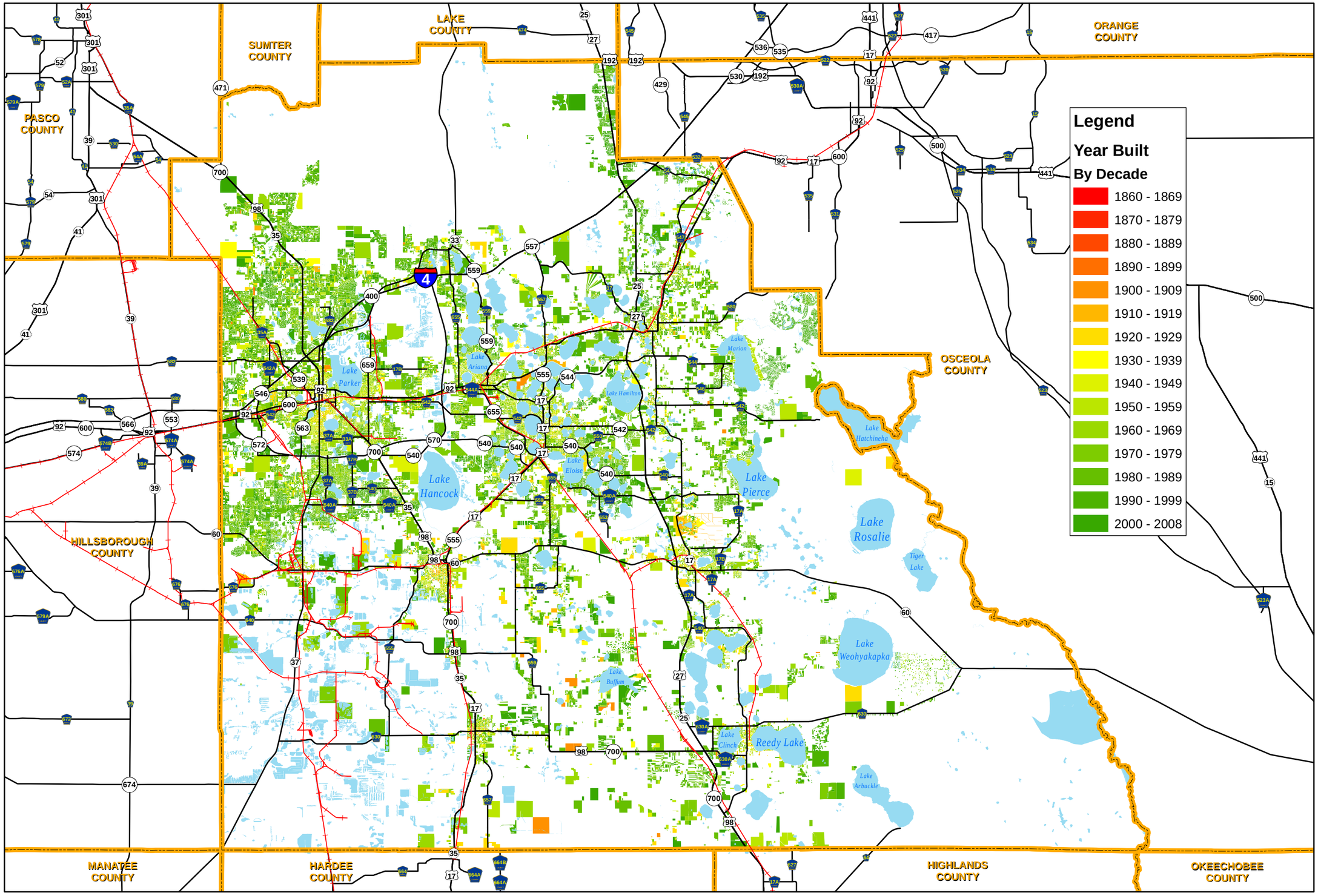
N

0 1.5 3 6
Miles

December 2010

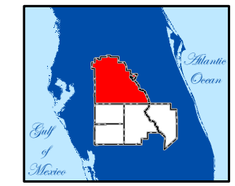
Source: Florida Department of Transportation District 1 (2008), Polk County Property Appraiser

Polk County - Structures by Decade Built - By Parcel Record



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

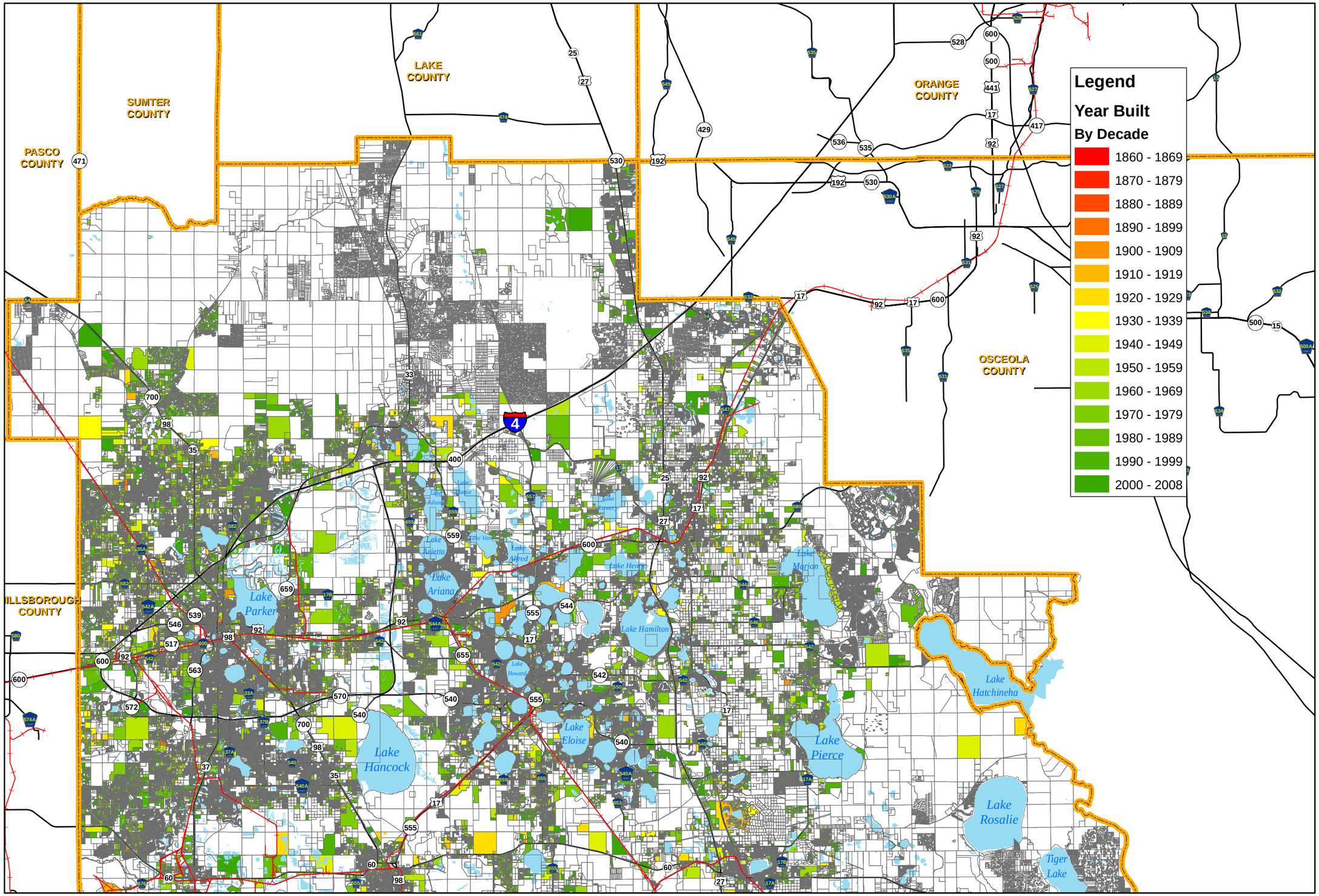
0 2 4 8

Miles

December 2010

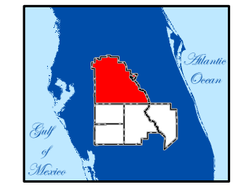
Source: Florida Department of Transportation District 1 (2008), Polk County Property Appraiser

Polk County (North) - Structures by Decade Built - By Parcel Record



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

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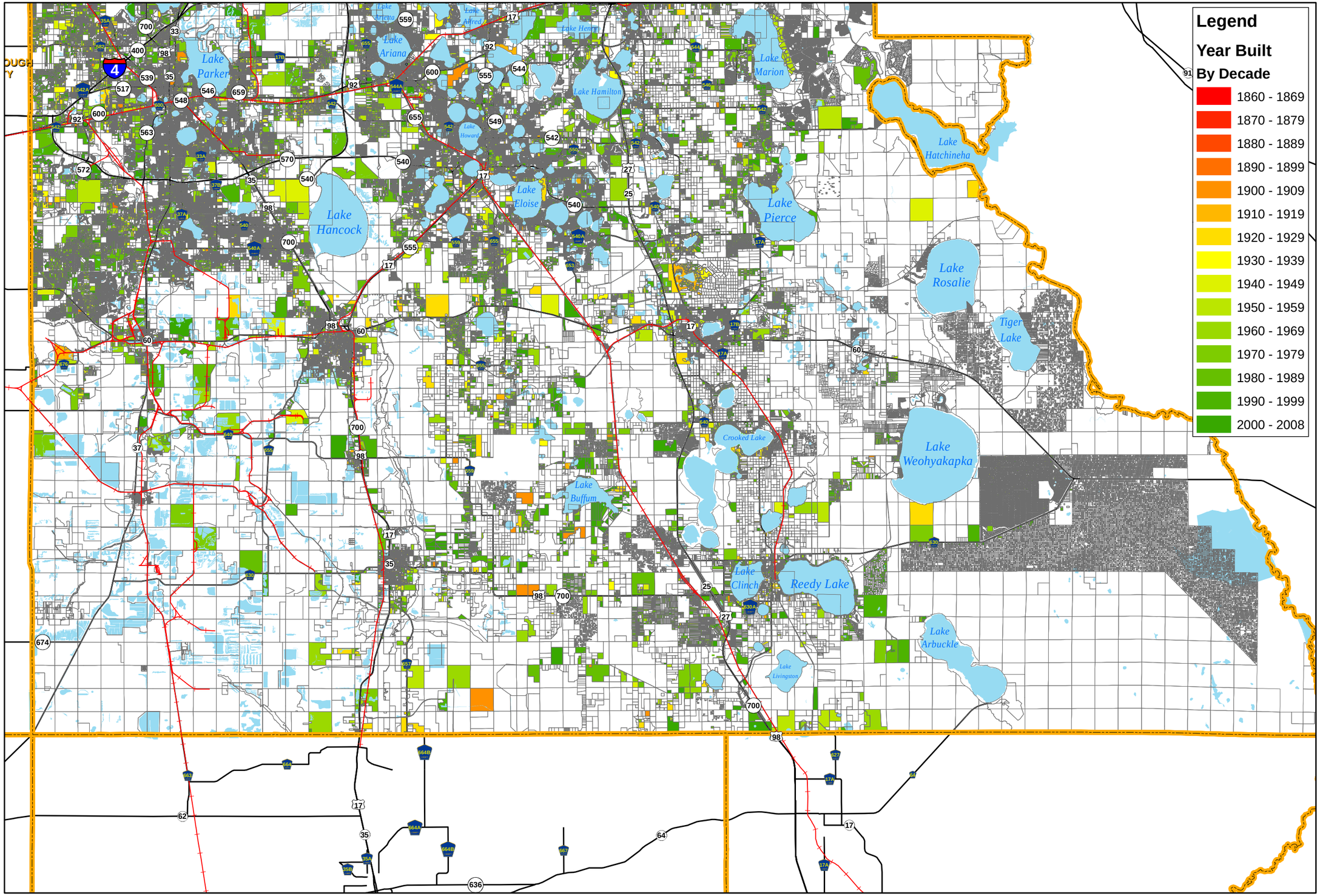
0 1.5 3 6

Miles

December 2010

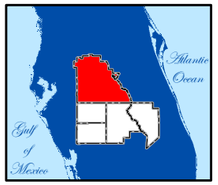
Source: Florida Department of Transportation District 1 (2008), Polk County Property Appraiser

Polk County (South) - Structures by Decade Built - By Parcel Record



General Legend

- Major Roads
- Railroads
- Streams/Rivers
- Water Bodies
- County Boundaries



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

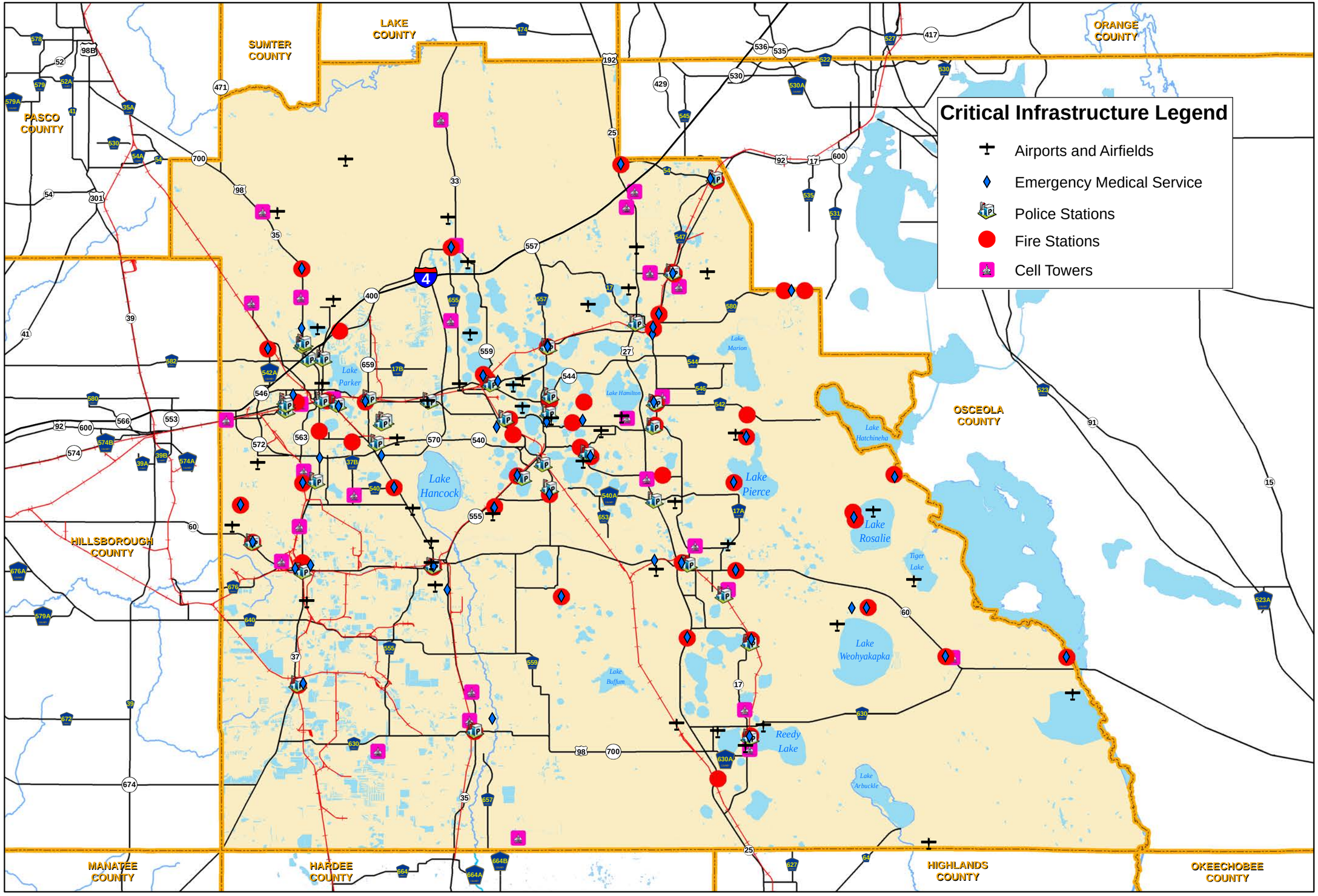
0 1.5 3 6

Miles

December 2010

Source: Florida Department of Transportation District 1 (2008), Polk County Property Appraiser

Polk County - Critical Infrastructure



General Legend

- Major Roads
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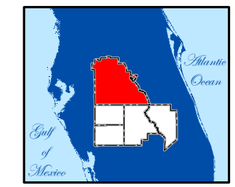

Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study

N

0 2 4 8

Miles

December 2010

Source:
Federal Communications Commission
University of Florida GeoPlan Center
National Fire Department Census (United States Department of Homeland Security)
Federal Rail Administration
Florida Department of Transportation
Florida Department of Emergency Management