

Economic Analysis and Disaster Resiliency Study

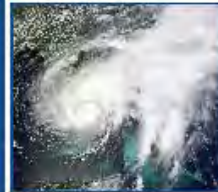
Central Florida Regional Planning Council

Pat Steed and Jennifer Codo-Salisbury

October 10th, 2011



Economic Analysis & Disaster Resiliency Study



Central Florida Regional Planning Council

www.cfrpc.org



ECONOMIC DEVELOPMENT ADMINISTRATION (EDA)
SECOND SUPPLEMENTAL APPROPRIATIONS DISASTER RELIEF OPPORTUNITY GRANT

Prepared By:

The Central Florida Regional Planning Council
for the Economic Development Administration



Grant Funding

Second Supplemental Appropriations Disaster Relief Opportunity Grant



E•D•A

U.S. ECONOMIC DEVELOPMENT ADMINISTRATION

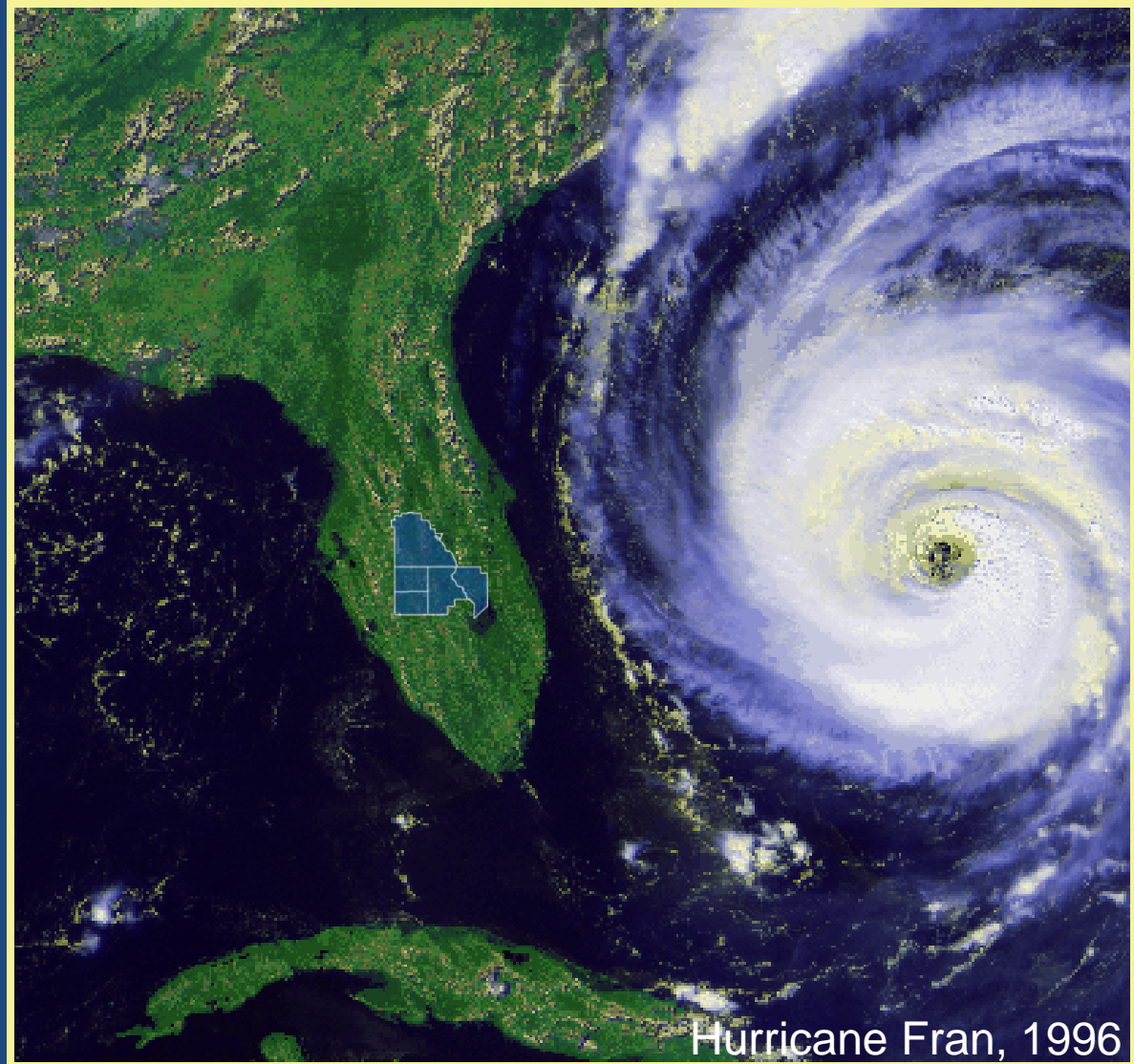
**Economic Development
Administration**



**Matching funds by the
CFRPC**

About the CFRPC

- Location
- Jurisdictions
- Constituents

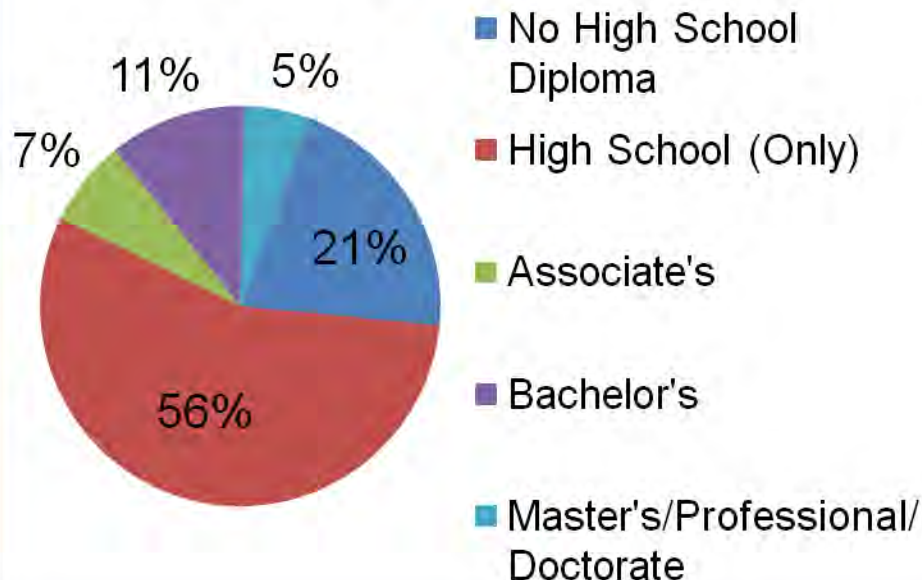


Hurricane Fran, 1996

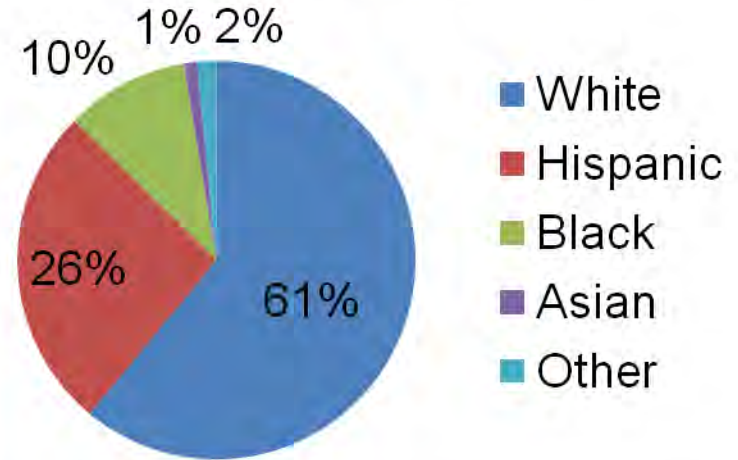
Demographic Snapshot: 5 Counties

Population (2010):	803,470
Change in Population, 2000 to 2010	+20.6%
Percent of Population Aged 65+ (2010):	19.5%

Education (Adults 25+)



Race and Ethnicity



Unemployment (2010):	11.9%
Median Household Income:	\$38,536
% of Population in Poverty:	18.6%

A History of Hurricanes

- Hurricanes are a part of life in Florida

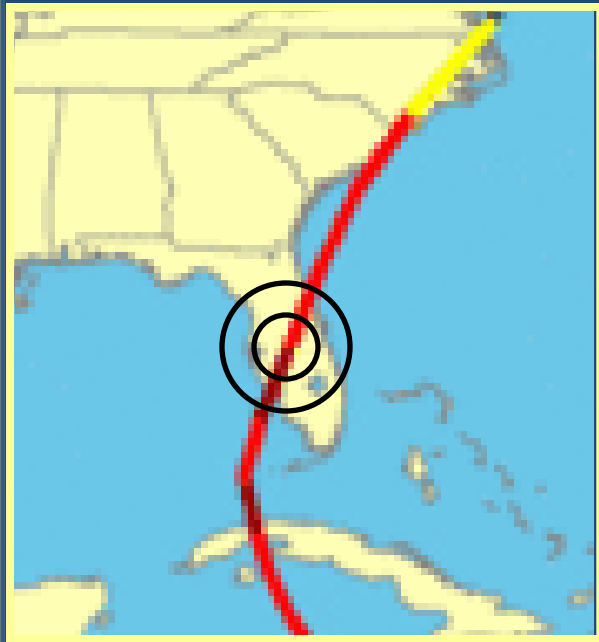


Hurricane Intensities

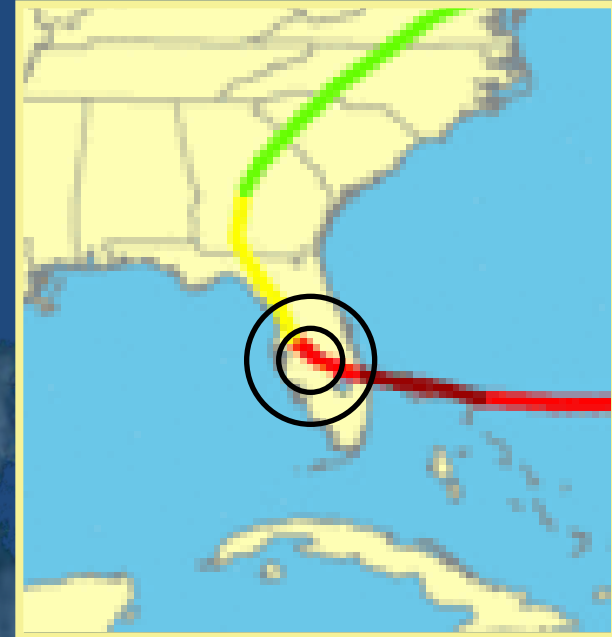
Category		Winds (mph)	Damage to...	Tornado Force (approx.)
1		74-95	Mobile homes; flooding in low-lying areas.	EF-0
2		96-110	Mobile homes, windows, piers and marinas; Trees down.	EF-1
Major Hurricanes	3	111-130	Structural damage to buildings; Mobile homes destroyed; Signs down; Serious coastal flooding; Large trees uprooted.	EF-2
	4	131-155	Complete roof failure on homes; Major beach erosion and destruction of coastal structures.	EF-3
	5	>155	All windows and doors; Major/complete destruction of coastal structures, residences, industrial buildings, mobile homes.	EF-4 EF-5

2004 Hurricanes - Central Florida

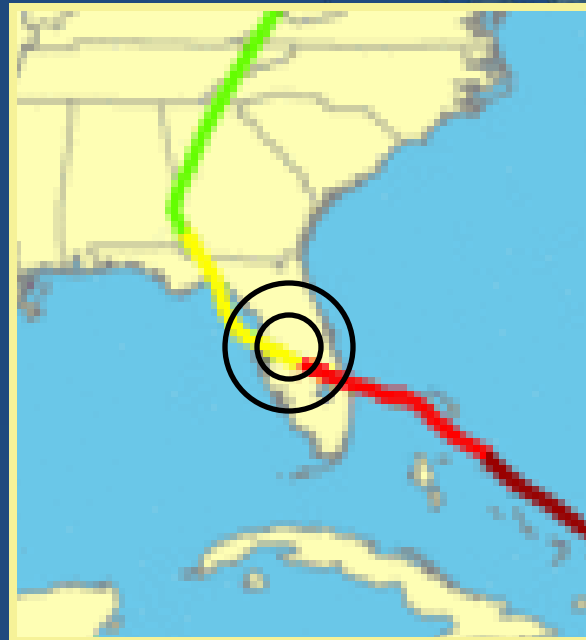
Charlie
(Aug 2004)



Jeanne
(Sept 2004)



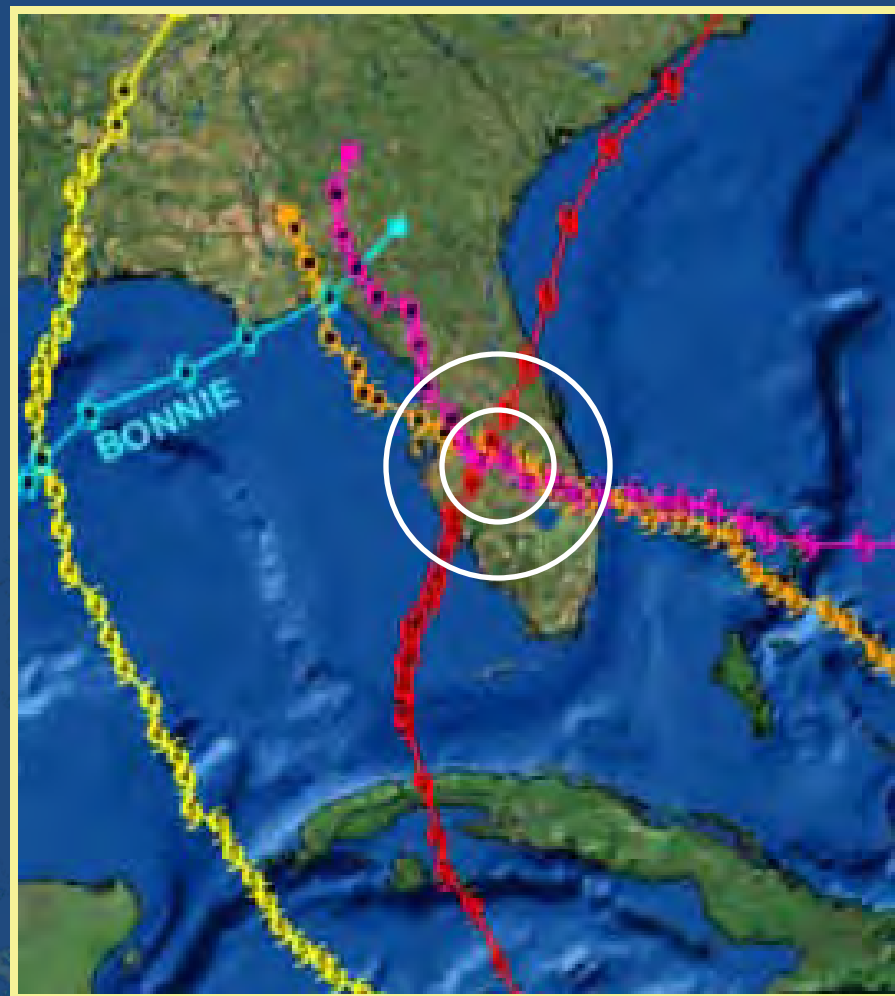
Frances
(Aug-Sept 2004)



2004 Hurricanes in Central Florida

Aug-Sept, 2004

- **Charley**
- **Frances**
- **Jeanne**



Selected Florida Hurricanes and damages

CFRPC counties suffered three major hurricanes in quick succession

Hurricane	Date	Category	Landfall in Florida	Damage
Andrew	24-Aug-92	4	Miami region	\$27 billion
Charley	13-Aug-04	4	Punta Gorda region	\$15 billion
Frances	4-Sep-04	4	Port St. Lucie region	\$9 billion
Ivan	16-Sep-04	5	Pensacola region	\$14 billion
Jeanne	25-Sep-04	3	Port St. Lucie region	\$7 billion
Dennis	10-Jul-05	3	Pensacola	\$1.2 billion
Wilma	24-Oct-05	5	Key West and Miami area	\$12 billion

Source: National Hurricane Center, Risk Management Solutions

Overview

- I. Study Purpose
- II. Study Phases
 - Data and Analysis
- III. Conclusions
- IV. Appendices



Study Purpose

- Documents existing conditions in five-county region (CFRPC)
- Investigates regional economic impacts of a catastrophic event
- May be used by local governments to improve preparedness and decision-making for future catastrophic events

Phases of Study

Phase 1: Data Inventory and Existing Conditions

- Population
- Land Area and Land Use
- Residential Structures by Decade Built
- Employment by Industry
- Critical Infrastructure
- Staging Areas for Reconstruction Activities

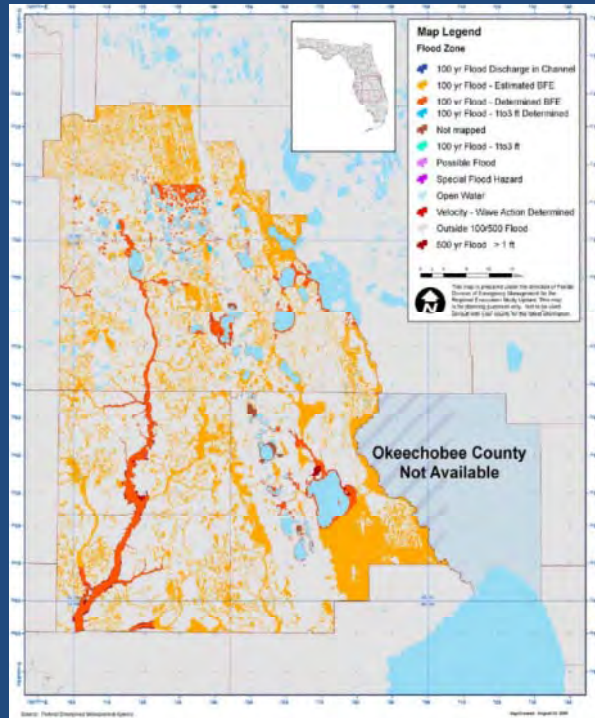
Phase 2: Economic Analysis of a Catastrophic Event

- By Region
- By County

Phase 1: Comprehensive Inventory

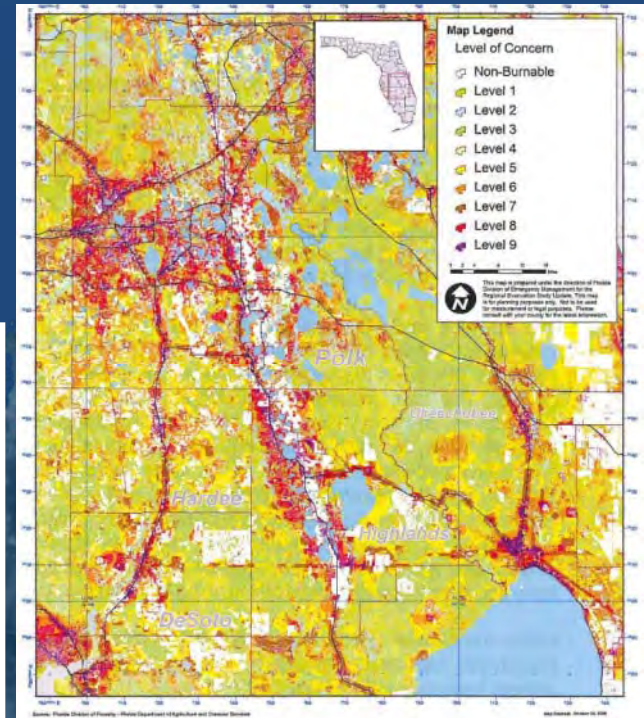
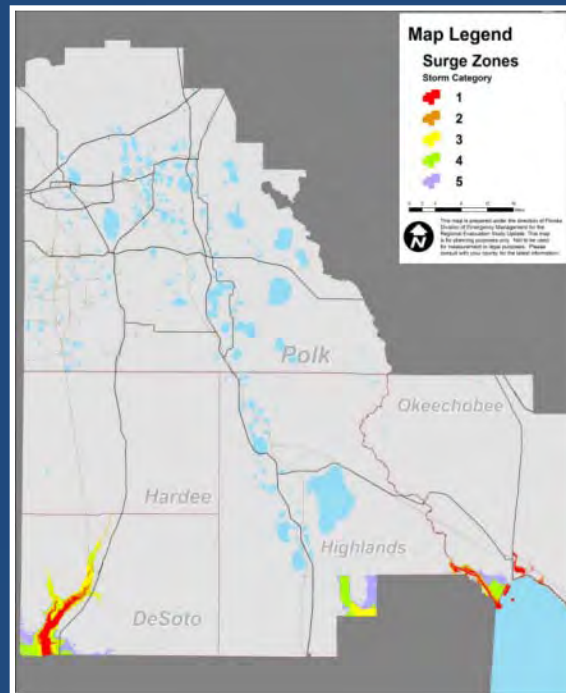
- Natural conditions and vulnerabilities
- Population and demographics
- Critical infrastructure
- Staging areas
- Residential structures inventory
- Repetitive loss properties
- Employment by industry

Natural Conditions Inventory



Flooding

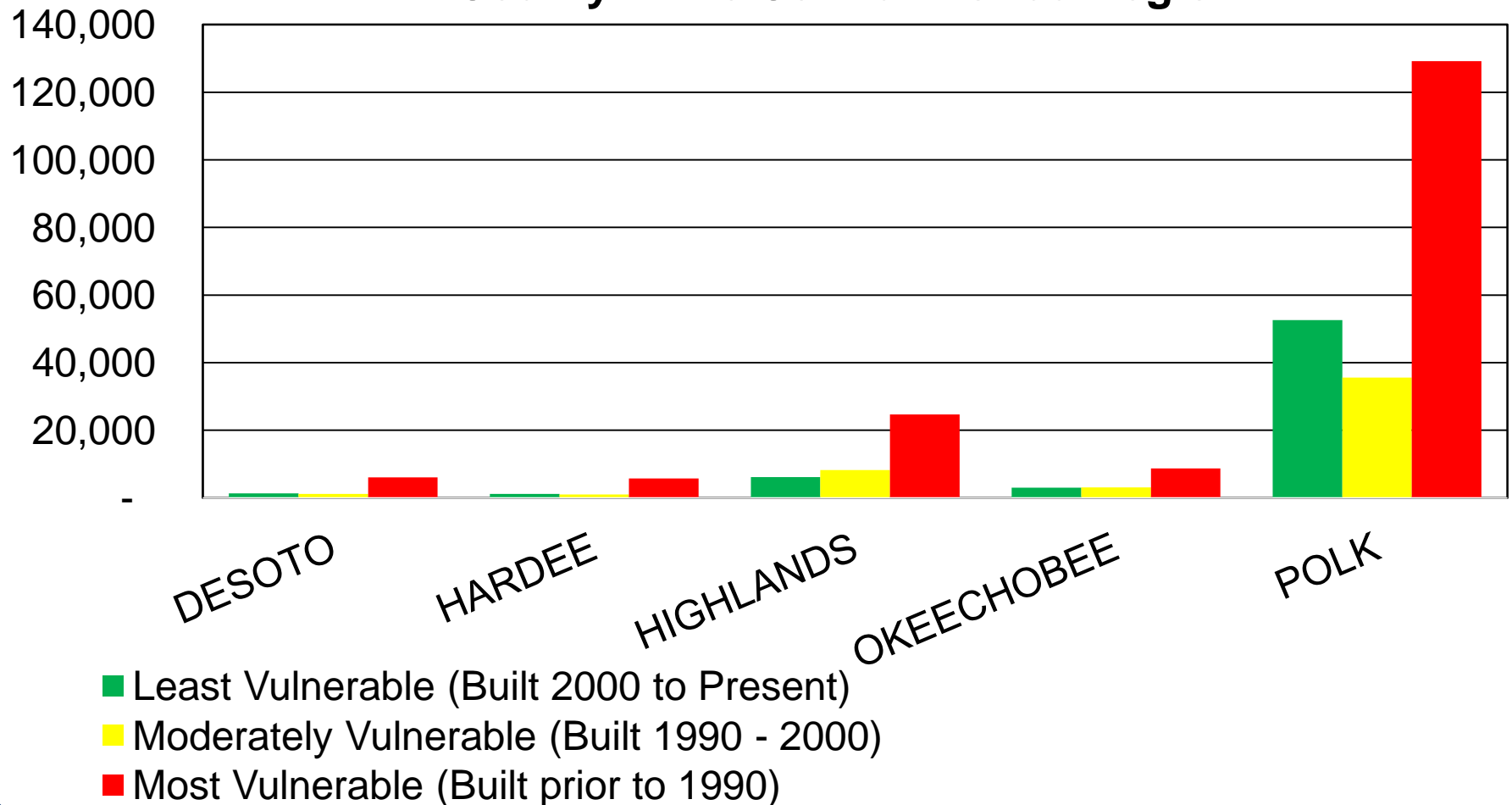
Storm surge



Wildfire

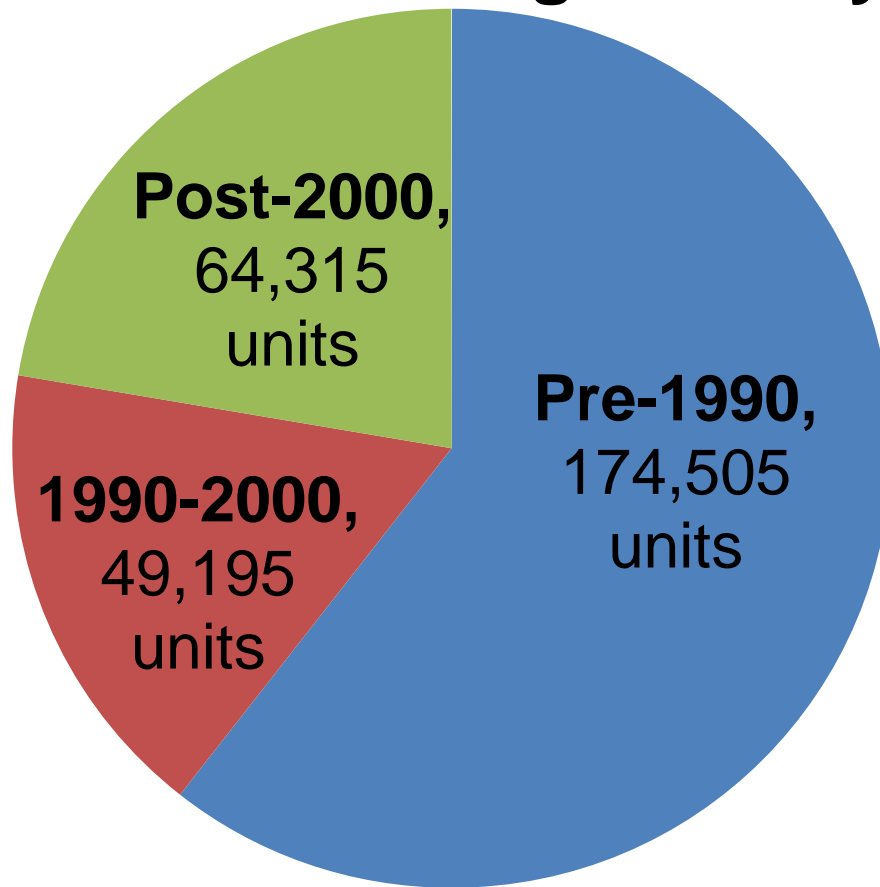
Building Code Legacy

Estimated Wind Vulnerability of Housing Stock by County in the Central Florida Region



Building Code Legacy

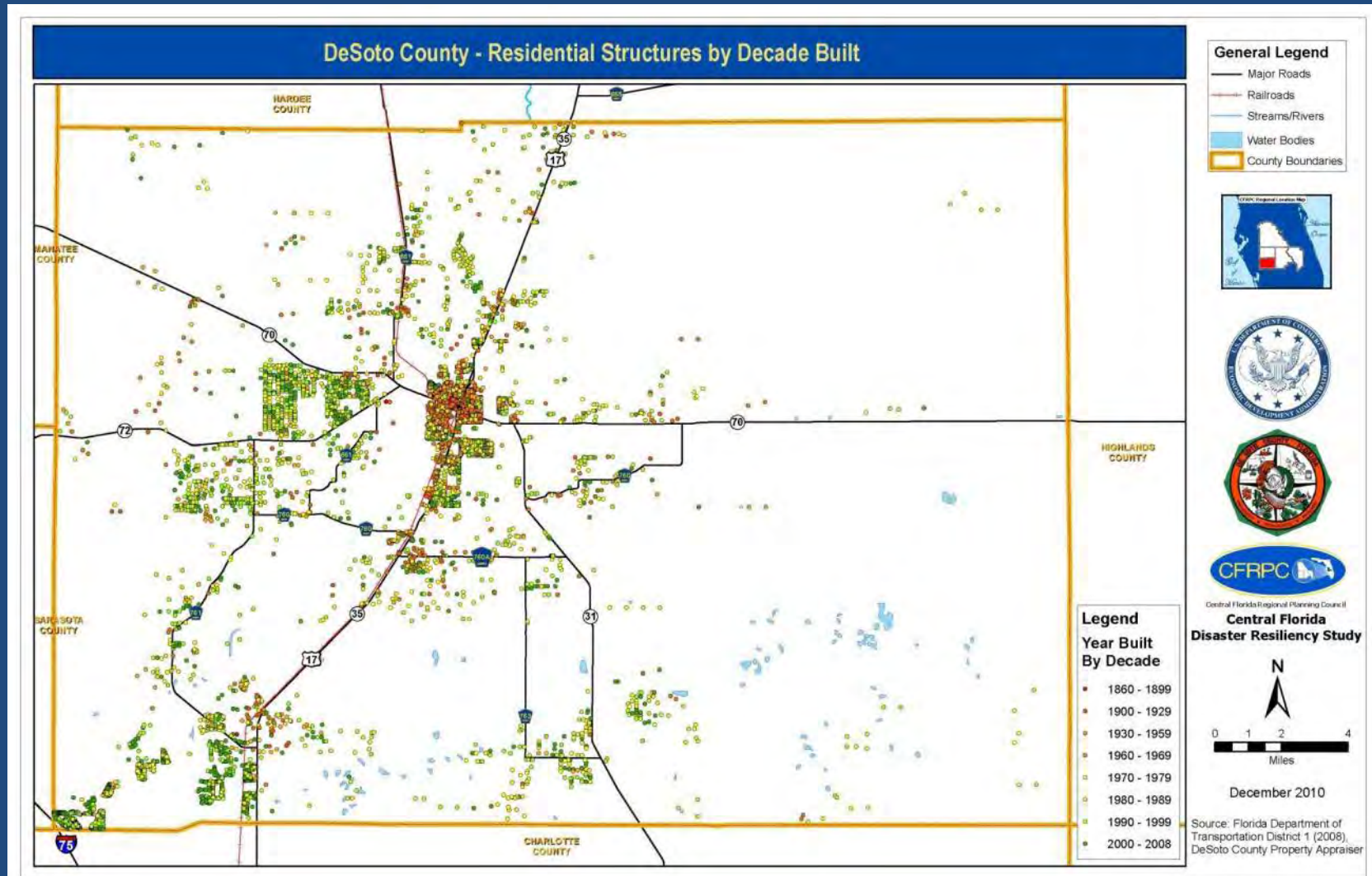
Housing Units by Decade Built



Housing Stock Wind Vulnerability

- Most vulnerable
- Moderate
- Least vulnerable

Residential Structures by Decade Built



Population and Housing

- Demographics
 - Population
 - Race/Ethnicity
 - Language
 - Age
 - Disability
 - Labor force
 - Poverty status
- Housing:
 - Single-family
 - Multi-family
 - Group housing
 - Seasonal
 - By decade built
 - Occupancy
 - Household statistics

Regional Employment Snapshot

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

2008 (%)	Industries (aggregated by proportional employment share)
20%	Construction, Manufacturing, Accommodation and Food Services
35%	Retail, Health Care, Administrative and Waste Services
44%	All Other Industries

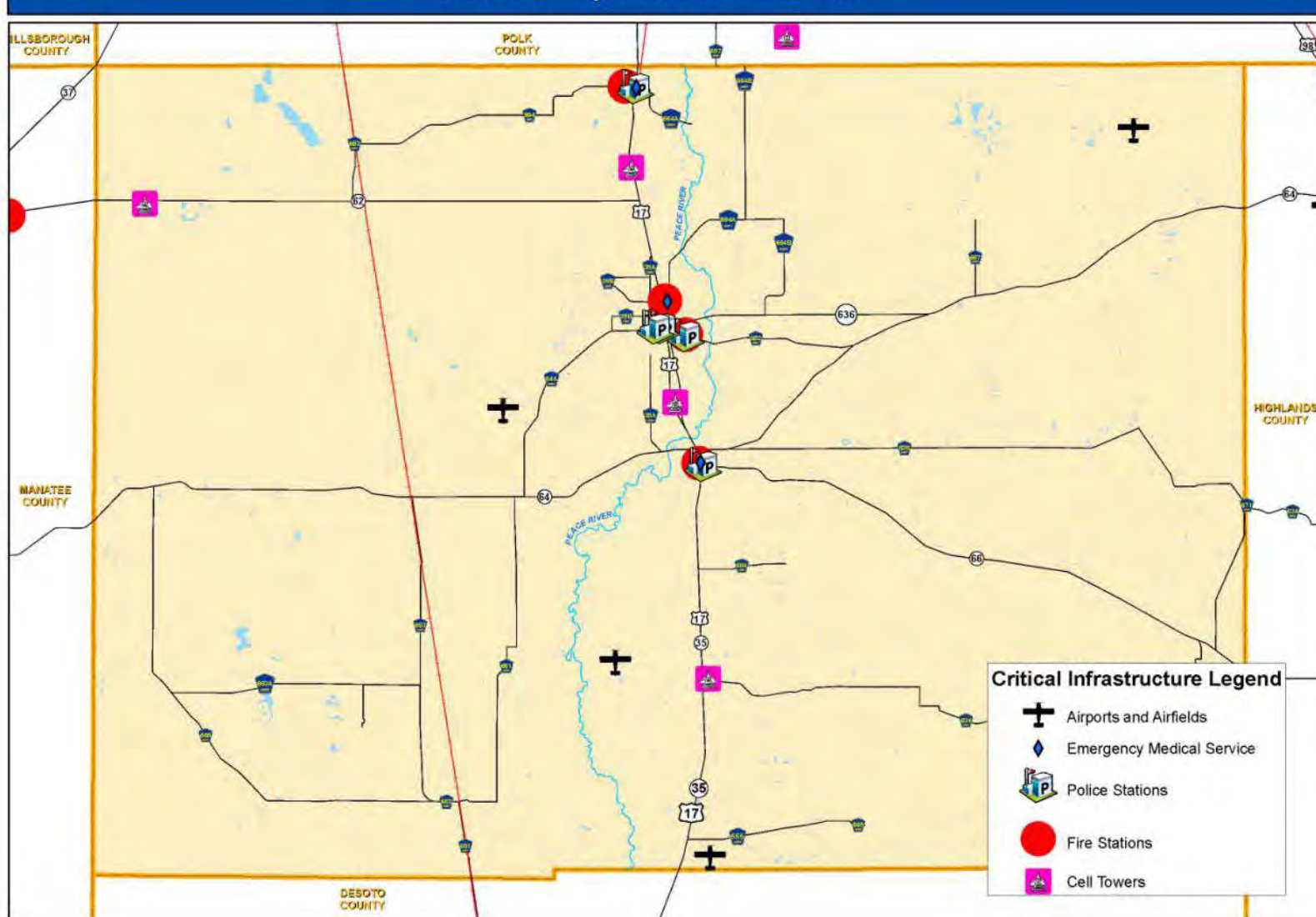
Regional Health Care Facilities

- 65 Assisted living
- 45 Long-term care
- 17 Hospitals
- 54 Home care organizations



Critical Infrastructure

Hardee County - Critical Infrastructure



General Legend

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



Central Florida Regional Planning Council

Central Florida Disaster Resiliency Study





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

Phase 2: Resiliency Modeling

Category 1-5 Hurricanes, for each of 5 counties

- Positive impacts 
 - Cleanup activity and reconstruction
 - local and federal relief spending
- Negative impacts 
 - Unemployment and loss of personal income
 - loss of population
 - reduced regional domestic product
 - reduced sales tax revenue

Types of Disasters

Modeled Hurricane Category 1 – 5

Includes effects from
all other disasters:

- Tornadoes
- Freshwater Flooding
- High Winds
- Wildfires



Model Methodology

- MEMPHIS: disaster impacts projections
- REMI PI+: economic modeling software
- Assumptions:
 - Two-hour storm event
 - Each county modeled independently
 - Bridges assumed to remain intact
 - Historic structures given regular treatment



MEMPHIS: Mapping for Emergency Management Parallel
Hazard Information System
REMI: Regional Economic Models, Inc., Policy Insight Plus

General Findings

Category 1 and 2 hurricanes



- Relatively little lasting impact
- Recovery to pre-event condition within 2 years