

North Central Florida Region Statewide Regional Evacuation Study Program

**For
Alachua, Bradford, Columbia, Dixie, Gilchrist, Hamilton,
Lafayette, Madison, Suwannee, Taylor and Union Counties**

Prepared by:
North Central Florida Regional Planning Council
for the
Florida Department of Community Affairs
Division of Emergency Management



North Central Florida Regional Planning Council

The North Central Florida Regional Planning Council (NCFRPC or Region 3), is one of 11 regional planning councils in Florida established under the authority of Chapter 186, Florida statutes. It has been in operation since 1968 assisting public, private, and institutional sectors in its eleven-county region to address regional scale issues. The North Central Florida Regional Planning Council offers services to the counties of Alachua, Bradford, Columbia, Dixie, Gilchrist, Hamilton, Lafayette, Madison, Suwannee, Taylor and Union and their municipalities.

The Council is comprised of local government elected officials and private citizen representatives within the region.

There are two distinct components of the RPC:

- The RPC'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.

Contributing Staff

Executive Director - Scott R. Koons, AICP

Dwayne Mundy, Public Safety and Regulatory Compliance Program Director (Study Manager)

Michael DePalma, Associate Planner (GIS)

Carol Laine, Executive Assistant to the Executive Director

Jean Strong, Secretary II

Kevin Parrish, Information Technology & Property Management Director

Tony Marshall, Finance Director

Janice Carpenter, Senior Accounting Clerk

Ursula Garfield, Part-Time Intern



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The Statewide Regional Evacuation Study Program was completed by regional planning council staff in all eleven regions of the State. Oversight was provided by a small group, in order to facilitate an overall review of the program. Subject matter expertise was provided by section leads for the major portions of the Study. It was these leaders who ensured that the accepted methodology was utilized across the State and that each section was completed in a consistent manner.

State Oversight Group

Gwen Keenan, Chief, Preparedness Bureau, Florida Division of Emergency Management

Donald Kunish, Deputy Chief, Preparedness Bureau, Florida Division of Emergency Management

Sandy Meyer, Manager, Hurricane Program, Florida Division of Emergency Management

Brian Richardson, Manager, Natural Hazards Section, Florida Division of Emergency Management

Jeffrey Alexander, Director, Emergency Preparedness Programs, Northeast Florida Regional Council

Statewide Section Leads

Betti Johnson, Principal Planner, Tampa Bay Regional Planning Council - Analyses

Marshall Flynn, Information Systems/GIS Manager, Tampa Bay Regional Planning Council - GIS

Bruce Day, Planning Director, Withlacoochee Regional Planning Council - Behavioral

Richard Ogburn, Asst. to the Director, Research & Budget, South Florida Regional Planning Council - Demographics and Population

Beth Payne, Senior Regional Planner, Northeast Florida Regional Council - Statewide Planning & Coordination

Ed Ward, District 2 Emergency Coordination Officer - Florida Department of Transportation (FDOT) Liaison

Julie Dennis, Planning Analyst - Department of Community Affairs, Division of Community Planning Liaison

In addition, sincere thanks for all those staff members, both past and present, of the Florida Division of Emergency Management (FDEM), whose contributions of time, interest and knowledge in all aspects of this project have made it a success.

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Regional Planning Council Staff; Federal Emergency Management Agency; NOAA; Florida Division of Emergency Management; Department of Community Affairs – Division of Community Planning; Florida Emergency Preparedness Association; Kerr & Downs Research; Dr. Earl Jay Baker - Hazards Management Group; Gainesville Area MTPO; Florida Department of Transportation; Wilbur Smith Associates; National Weather Service – local Office; and the all county emergency management staff in the region.

Florida Division of Emergency Management

David Halstead, Director
Sandy Meyer, Hurricane Program Manager
Richard Butgereit, GIS Manager



Northeast Florida Regional Council

Jeffrey Alexander, Statewide Program Manager

Florida Emergency Preparedness Association

For their support in this statewide effort



County Emergency Management Staff

David Donnelly, Alachua County
Brian Johns, Bradford County
Ronnie McCardle and Shayne Morgan, Columbia County
Tim Alexander and Scott Garner, Dixie County
Ron Mills and Ron McQueen, Gilchrist County
Henry Land, Hamilton County
Alton Scott and Donnie Land, Lafayette County
Tom Cisco, Madison County
Kimberly Thomas, Suwannee County
Jeffery Manning and Dustin Hinkel, Taylor County
Doug York, Union County



List of Volumes

Volume 1 – Technical Data Report

The *Technical Data Report (TDR)* is the primary document of the Statewide Regional Evacuation Study Program. The TDR contains the summary analysis of all other supporting research, survey data and modeling.

Volume 2 – Regional Behavioral Analysis

The *Regional Behavioral Analysis* was produced by the behavioral specialist Dr. Earl J. Baker, Hazards Management Group. The report includes a summary of the behavioral survey data and analysis which includes the regional behavioral assumptions incorporated in the calculation of evacuation population, evacuation participation rate (transportation analysis) and anticipated shelter demand.

Volume 3 – Regional Behavioral Survey Report

The *Regional Behavioral Survey Report*, produced by Kerr and Downs, Inc., provides the survey data from the more than 2500 behavioral surveys conducted in 2009 as part of the SRES Program.

Volume 4 – Evacuation Transportation Analysis

The *Regional Evacuation Transportation Analysis* is produced by the evacuation transportation team at Wilbur Smith and Associates. It includes a summary description of the evacuation transportation model, study methodologies and assumptions and growth management impacts assessments on evacuation. The report includes the evacuation clearance times for the counties and the region for 2010 and 2015 under different planning and operational scenarios.

Volume 5 – Evacuation Transportation Supplemental Data Report

The Supplemental Report, prepared by Wilbur Smith and Associates contains the model run inputs and outputs and serves as the source data for the *Evacuation Transportation Analysis*.

Volume 6 – Emergency Management Evacuation Tool Kit

The *Emergency Management Tool Kit* includes locally-selected data pertinent to the county emergency management agency. It is meant to be used as a quick reference guide for operations.

Volume 7 – Storm Tide Atlas

The Storm Tide Atlas provides the storm tide boundaries based on the new SLOSH Analysis including the boundaries of the Coastal High Hazard Area (CHHA). It is provided in several formats including GIS files, PDF files and printed copy. There is one Book for each county in the region which has a potential for storm tide flooding.

Volume 8 – Methodology of Evacuation Transportation Modeling for the Statewide Regional Evacuation Study Program, 2010

This volume provides a detailed description of the methodologies, model assumptions and the Transportation Interface for Modeling Evacuations (TIME) developed and utilized in the Statewide Regional Evacuation Study Program.

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Preface

A. About the Region

North Central Florida is the second largest of the eleven planning regions in the State of Florida, with a total area of almost 4.5 million acres (7,000 square miles). It is bounded on the east by the Northeast Region, on the north by Georgia and west by the Gulf of Mexico, and on the south by the Withlacoochee Region.

The region is home to an estimated resident population slightly over a half million in 2010, with about half living in Alachua County. The City of Gainesville is home to approximately one quarter of the region's residents and the University of Florida.

North Central Florida is one of the least populous regions in Florida (2.7% of the total), it also experienced some of the least absolute growth in the State over the past ten years.

The region includes the following inland Counties: Alachua, Bradford, Columbia, Gilchrist, Hamilton, Lafayette, Madison, Suwannee and Union. Dixie and Taylor Counties comprise the coastal counties and they are sparsely populated with a total of 0.2% of the State's population. Natural resources abound in the Region.

The majority of the coastal area of North Central Florida is set aside as conservation. There is interest in developing the coastal counties in one of the largest stretches of undeveloped. Sensitive environmental areas include the Suwannee and Santa Fe Rivers, areas with a high recharge rate to the Floridan Aquifer, and the Gulf of Mexico. Land use patterns include urban development centered around municipalities with a majority of the area classified as rural. Groundwater is the almost exclusive source of potable water.

The transportation of system consist of primarily highway and rail systems. Interstate Highways 10 and 75 provide ground transportation to south Florida, Jacksonville, Tallahassee, and Atlanta. U.S. Highway 27 connects Gainesville and Perry and continues to Tallahassee. U.S. 90 follows a route parallel to Interstate 10 and U.S. 98 parallels the Gulf coast. U.S. 301 is a major north-south highway through the eastern portion of the region, providing access between the Gainesville and Jacksonville areas.



State roads 51 and 349 connect Live Oak with the Gulf coast. State Road 100 passes through Lake City and Starke in its route to the Atlantic Ocean. Overall, the regional road network consists of 1,101 miles of rural and 130 miles of urban roadways. Included in this are 177 miles of interstate highways and 1,054 miles of state and county roads and highways.

B. Background

The first Regional Hurricane Evacuation and Inland Shelter Studies for the North Central Florida Region were conducted in 1985. An update to this original study was performed in 1990. These two studies were based on the SPLASH II surge model. The Army Corp of Engineers conducted the first SLOSH model runs in 1996.

The Statewide Regional Evacuation Study, which commenced in 2006, accounts for population growth and land use changes that have occurred since the last study. This study is a first time effort in creating a statewide standardized study and methodology across Florida. In addition to focusing on hurricane hazards and evacuation, the study addresses issues concerning other hazards which may warrant an evacuation, thus affecting the region. Other hazards addressed are tornadoes, freshwater flooding, and wildfires. Using the most up to shelter and state critical facility data, population data, transportation data and new behavioral survey data, the Statewide Regional Evacuation Study for the Region will replace the old study and will be used in not only emergency management planning, but transportation and land use planning as well.

C. Objective and Scope



A major hurricane making landfall reaches beyond county lines and effects even areas not directly hit by the storm. Jurisdictions and counties can share one bay or estuary which can experience drastic storm surge. Evacuation routes can bring residents from one town or county into a completely different jurisdiction or even state. Therefore, it is important for local governments to communicate across governmental lines in order to plan for the potential impacts neighboring jurisdictions may have on safely evacuating the threatened population.

The primary purpose of this study was to coordinate a statewide, regionally consistent, comprehensive and quantitative evacuation study, primarily for hurricanes. The major components of the study consisted of the following:

- Hazards Analysis - A comprehensive analysis of potential hurricane hazards in the East Central Florida Region utilizing the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model and new topographic data, Light Detection and Ranging (LiDAR).

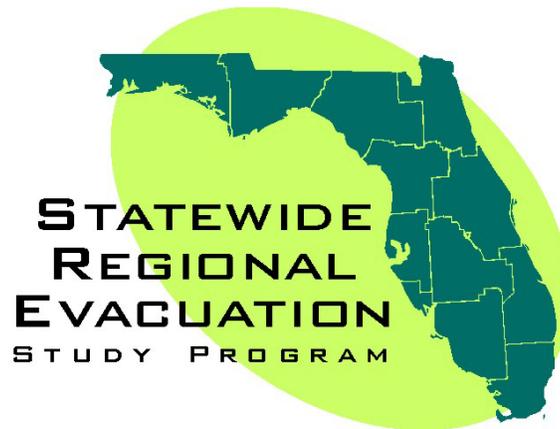
- Vulnerability Analysis – Identification of the vulnerable areas and population to hurricane, wind and flooding hazards.
- Demographic and Land Use Analysis – Describe population and demographics for the region and counties using current socioeconomic data for 2006, 2010 and 2015.
- Behavioral Analysis – A survey and analysis to determine how vulnerable evacuees may respond to a hurricane threat as well as other hazards.
- Shelter Analysis – A quantitative analysis of shelter availability, deficit, and special needs (medical and pets).
- Transportation Analysis – Development of hurricane evacuation clearance times for each county and storm scenario associated with the movement of the current and projected vulnerable population from specific evacuation areas to specific evacuation destinations for a Year 2006 base year and projected for years 2010 and 2015.
- Ensure consistency in evacuating population and routes with adjacent regions.
- Update and standardize the DEM facilities database to provide all counties with consistent, accurate and standardized emergency management data.
- Establish standardized analysis and methodology for use in deriving impacts and determining mitigation needs as required in F.S. 163.3178.

As a result of this study, an abbreviated model called “TIME” was developed that can be used by local emergency management officials, city and county planning staff, state emergency preparedness officials, and others to recalculate clearance times based upon land use and transportation system changes.

The *North Central Florida Statewide Regional Evacuation Study* is not intended to serve as the detailed operations plan for each unit of local government in the region. Rather, it is intended to provide the data needed to develop local and state plans. The implementation of any evacuation plan is a local function. Therefore, the actual deployment and assignment of manpower and equipment to carry out the evacuation is best planned for at the local level. The data provided by this report will enable the local governments of the region to update specific operating procedures for the relocation of their vulnerable populations and recovery from a hurricane strike.

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**North Central Florida Region
Statewide Regional Evacuation Study Program
Technical Data Report**



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Technical Data Report

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Glossary of Terms/Definitions

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