



VOLUME 1-7

**STATEWIDE REGIONAL
EVACUATION STUDY PROGRAM**

CENTRAL FLORIDA REGION

TECHNICAL DATA REPORT

CHAPTER III

BEHAVIORAL ANALYSIS SUMMARY





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TABLE OF CONTENTS

CHAPTER III

BEHAVIORAL ANALYSIS SUMMARY	III-1
A. Background	III-1
B. Methodology	III-2
1. Survey Methodology	III-2
2. Deriving Behavioral Assumptions.....	III-3
C. Summary of Behavioral Results	III-4
1. Overview	III-4
a. Storm Events.....	III-4
b. Regional Characteristics.....	III-5
D. Key Survey Findings for the Central Florida Region.....	III-8
1. Information and Awareness.....	III-8
2. Evacuation Intent	III-9
3. Evacuation Destination.....	III-11
4. Obstacles to Evacuation	III-13
E. Evacuation Scenarios.....	III-14
1. Storm Characteristics	III-14
a. Storm Severity.....	III-14
b. Landfalling, Paralleling, and Exiting Storm Paths.....	III-15
2. Evacuation Timing	III-16
a. Long and Short Response	III-16
b. Staged Evacuation	III-16
c. Reverse Lane Flow	III-16
F. Evacuation Behavior for Other Hazards	III-18
1. Wildfire.....	III-18
2. Freshwater Flooding	III-19
3. Hazardous Materials Spill.....	III-20
4. Nuclear Power Plant Incident.....	III-21
G. Planning Assumptions.....	III-22

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page</u>
Table III-1	Sample Sizes for Counties in the Central Florida Region	III-3
Table III-2a	Perceived Vulnerability	III-8
Table III-2b	Perceived Vulnerability	III-9
Table III-2c	Perceived Vulnerability	III-9
Table III-3	Residents That Say They Will Follow Mandatory Evacuation Notices	III-10
Table III-4	The Percentages of All Households That Evacuated and the Most Popular Types of Destinations	III-10
Table III-5	Residents That Say They Intend to Evacuate Their Homes Even When the Evacuation Notice Does Not Apply Directly to Them	III-11
Table III-6	Household Members Need Assistance to Evacuate	III-13

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page</u>
Figure III-1	Evacuation Destinations by Type	III-12
Figure III-2	Evacuation Destinations by Location	III-12

LIST OF APPENDICES

Appendix IIIA	DeSoto County Planning Assumptions	IIIA-1
Appendix IIIB	Hardee County Planning Assumptions	IIIB-1
Appendix IIIC	Highlands County Planning Assumptions	IIIC-1
Appendix IIID	Okeechobee County Planning Assumptions.....	IIID-1
Appendix IIIE	Polk County Planning Assumptions.....	IIIE-1

CHAPTER III

BEHAVIORAL ANALYSIS SUMMARY

A. Background

For planners and emergency managers, one of the most elusive components of evacuation planning is anticipation of the behavior of our population. The behavioral analysis is one of the most important tasks in preparing evacuation plans. It includes the development of the necessary assumptions regarding the manner in which evacuees in and around the threatened area will react to the hurricane threat. Behavioral assumptions based on professional analysis of survey results are the final output of the behavioral component of this study. These assumptions regarding human behavior in an emergency situation become a critical tool in shelter planning, transportation modeling, evacuation decision-making, and public information efforts.

The public responses having the greatest impact upon an evacuation are listed below. These tendencies and choices of potential evacuees must be quantified in the behavioral analysis:

1. **Evacuation Rates** - The percentage of population in evacuated and non-evacuated areas that will evacuate during a threat;
2. **Evacuation Timing** - When the evacuation population would leave their residences in response to a hurricane warning, watch, a given evacuation order or recommendation, and landfall;
3. **Vehicle Use** - The number of vehicles that evacuating households would use for evacuation;
4. **Type of Refuge** - The percentage of evacuees that will seek public shelter and other types of refuge such as the homes of friends and relatives, motel/hotels and other locations such as churches, workplaces, and second homes;
5. **Evacuation Destinations** - The location an evacuee travels to in the event of an evacuation. These destinations can include public shelters, homes of friends/relatives, hotels/motels, and destinations out of the region;
6. **Response by Vacationers** - The evacuation response by vacationers, including R.V. park visitors, encompassing evacuation rate, timing, public shelter use, and vehicle use.

Final behavioral assumptions for each county in the region are included near the end of this summary. Further discussion and a detailed explanation of the analysis used to derive primary behavioral assumptions are included in Volume 2 of the Regional Evacuation Study.

B. Methodology

1. Survey Methodology

To begin the behavioral analysis for the Statewide Regional Evacuation Study program, new behavioral data was compiled from telephone responses to a survey instrument developed for the study by each regional planning council with input from local emergency managers. The wording of survey questions was further refined by Dr. Earl J. Baker of Hazards Management Group. Kerr-Downs Research Inc. administered the survey instrument via telephone interviews and assembled the results for each region as Volume 3 of the Statewide Regional Evacuation Study. Volume 3 constitutes a compiled and complete listing of survey results and regional findings from the 2007-2008 survey of Florida residents. Further analysis and planning assumptions were developed from the survey results by Hazards Management Group.

The primary aim of the survey was to provide data to assist in deriving evacuation related behavioral assumptions for transportation and shelter analyses. The main focus of the survey was hurricane evacuation, but questions were also asked about evacuation due to freshwater flooding, wildfires, hazardous material accidents, and nuclear power plant accidents. The survey instrument included questions that are important in developing accurate behavioral assumptions for transportation and shelter planning but also incorporated questions deemed useful by county emergency management officials. Meetings were held with county and regional planning council representatives to discuss the questionnaire and related survey issues.

In each non-coastal county of the state, 150 interviews were conducted randomly by telephone. In each coastal county of the state 400 interviews were conducted. There are no coastal counties in the Central Florida Region therefore all of our counties had 150 interview participants.

It is important to note that prior to the development of this study none of our counties operated under a set of evacuation zones. Instead, evacuation guidance was issued to those who lived in "sub-standard" housing, in areas that are prone to flooding, those with "special needs" and to those who "just don't feel safe where they live". Interviews were allocated equally among all citizens throughout their respective counties.

In order to ensure that respondents resided within the county and in areas of interest, addresses were selected first and then matched with telephone numbers. Only residences with landline telephones were called, as sampling was conducted by address. An overview of the survey sample and aggregation of responses is included in **Table III-1**.

Table III-1
Sample Sizes For Counties In The Central Florida Region

	Site-Built Homes	Mobile Homes	Total Homes
DeSoto (Non-coastal)	90	57	147
Hardee (Non-coastal)	110	34	144
Highlands (Non-coastal)	109	40	149
Okeechobee (Non-coastal)	82	65	147
Polk (Non-coastal)	114	36	150
TOTAL	505	232	737

For hazards other than hurricanes, sample sizes are smaller. In most counties, one-third of the respondents were asked about freshwater flooding or wildfires or hazardous materials accidents. Data for these hazards is contained in this Chapter.

For counties within the emergency planning zone for a nuclear power plant, one-fourth of the respondents were asked about one of the previously listed hazards or about nuclear power plants. There are no nuclear power plants within the Central Florida Region.

2. Deriving Behavioral Assumptions

Since each evacuation scenario is different and entirely unique, behavioral analysis for evacuation is predictive. The final products of behavioral analyses are basic assumptions that form the best available predictive information regarding likely human behavior. Regardless of how detailed, formal, or quantitative an evacuation plan appears, it contains assumptions about behaviors such as those discussed throughout this study. Every time a clearance time is calculated to determine the length of time required to complete an evacuation under a defined scenario, the model simulations include quantitative assumptions regarding behavioral factors. Behavioral assumptions are also employed in an effort to predict the needed capacity of shelters to house an unknown number of residents that will evacuate to a public shelter. Behavioral assumptions will change over time based on the level of public education regarding evacuation or the level of evacuation experience of a population. The issue is not whether such assumptions are or should be made; but what the assumptions should be.

There is no simple one-rule-fits-all technique for deriving behavioral assumptions for planning. The best solution is to employ the best available mix of indicators, relying most heavily on the best information available for each behavior and scenario in question.

A detailed listing and discussion of behavioral assumptions is included in Volume 2 of this Statewide Regional Evacuation Study series. However, a few of the most fundamental and critical assumptions are included at the end of this summary.

C. Summary of Behavioral Results

1. Overview

a. Storm Events

The behavioral survey for the Statewide Regional Evacuation Study focused on the storm events of 2004 - 2005. Due to the varied impact area from the storm events, each of the 11 regional planning councils chose which storms the survey for their region would be based on. Most of the State of Florida was affected by Hurricanes Charley, Frances and Jeanne, in 2004, but other major storms in recent history such as Ivan (2004) and Wilma (2005) dealt regional impacts to other parts of the state. Allowing regions to choose which storm event to focus on lends greater confidence to the entire study. The relative value of survey results are strongly influenced by evacuation survey responses based on actual experience. Survey results from the Central Florida Region focus on experiences gained from Charley, Frances and Jeanne.

The first, Hurricane Charley, was a fast-moving Category 4 storm that unexpectedly changed direction after leaving Cuba at 2:00 a.m. on Friday, August 13. Charley made landfall near Fort Myers at 4:00 p.m. on the 13th, and left the state through Daytona Beach at approximately 11:00 p.m. that same night. Immediately prior to Hurricane Charley's unexpected turn toward Ft. Myers, residents in the Central Florida Region anticipated an indirect impact. The eye of this storm was small, which created a relatively narrow swath of wind damage along the track. Charley traveled from south to north through DeSoto, Hardee and Polk Counties delivering hurricane force winds. Charley had a significant impact in Highlands County and a lesser impact on Okeechobee County, with tropical storm force winds. Still, evacuation of low-lying areas and mobile homes was ordered throughout the region.

The second, Hurricane Frances, took a more direct path along the northern Caribbean Islands and came ashore in Stuart, Florida, as a Category 2 storm. The eye of this storm was much larger, with a larger area of wind damage. Residents in the region expected a decreased impact, since the hurricane had travelled across the state. Predictions of the hurricane's path proved accurate and hurricane-force winds from Frances affected the northern half of the Central Florida Region. Evacuation orders were issued within all five counties.

The final hurricane of the 2004 season was a bit of a wanderer. Hurricane Jeanne hit the northern coasts of many of the Caribbean Islands before turning north at the Turks and Caicos Islands, and appeared to be headed off into the Atlantic. However, it looped around and doubled back to head straight for Florida, again making landfall in Stuart, this time as a Category 3 storm. Jeanne and Frances followed similar paths across the

state. Impacts to the Central Florida Region were also similar, with Jeanne being the more powerful of the two. Residents in the region were experienced but weary by this time, and knew what to expect. Again, evacuation orders were issued for all five counties in the region. A comparison of the Frances and Jeanne storm events may illustrate changes in behavior learned from previous storm experience as the two scenarios were somewhat similar.

Compared to other parts of Florida, the Central Florida Region was less impacted. Therefore, evacuation rates resulting from the storm events are, understandably, lower than high impact areas. However, evacuation orders were issued, flooding was widespread, many trees were blown down, and extended power outages were common, particularly in DeSoto and Hardee Counties. The effects of the three storms changed our collective attitudes about hurricanes statewide. The municipality nearest to the intersection of all three storms was Bartow. Additional information on these three hurricanes (and more) can be found in Chapter II (Hazards Analysis) of this Technical Data Report.

b. Regional Characteristics

The Central Florida Region contains the five counties of DeSoto, Hardee, Highlands, Okeechobee, and Polk. None of the counties have coastal areas, however southwest DeSoto County is part of the Charlotte Harbor Estuary and the mouth of the Peace River. There are no high hazard coastal zones in the Central Florida Region.

Polk County is the most populated with 565,049 citizens (2006 est.). Hardee County is the least populated with 27,187 citizens (2006 est.).

The following chart displays the 2006 population estimates for the five Central Florida counties and their unincorporated areas.

2006 Central Florida Population Estimates

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

The region's total population is 760,737 persons, which is 4.15% of the State's total population.

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 county's central region.

The main population center in Okeechobee County is located on the north side of Lake Okeechobee in the City of Okeechobee.

The densest population centers in Polk County are located in and around the City of Lakeland, the northeast region, and along many of the east-west and north-south Federal and State highway corridors.

Polk County is the largest in the region (2,010 square miles). The smallest county is Hardee County (638.3 square miles). The average uniformed population density is 144 people per square mile.

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

Please note 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 agriculture 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.

Additional information regarding flood-prone areas is shown in Chapter II of the Technical Data Report, the Regional Hazards Analysis. This information is found in Section C, and is depicted on the 100-year Floodplain Map (**Figure II-16**) with additional data contained in **Table II-11**, Flood Plain Acreage by County.

D. Key Survey Findings for the Central Florida Region

1. Information and Awareness

One of the most valuable pieces of information to emergency managers is to understand how people are accessing information about evacuation, and if they understand it. Previous surveys have repeatedly shown that most people look to their television for evacuation notices.

More than 6 out of 10 Central Florida residents (62%) have access to the Internet. However, only 1 in 5 residents with Internet access (20%) claim to have visited their county's website to search for information about hurricanes.

The counties in our region did not have hurricane evacuation zones prior to this study. In other regions, those with existing evacuation zones, the citizens were asked if they knew their evacuation zone. Since our counties did not have evacuation zones, our Emergency Management Directors felt it was more relevant to know the perceived vulnerability for various hurricane categories. Therefore, we have substituted Perceived Vulnerability Tables for Evacuation Zone Tables in our Region.

Understanding the fact that the Central Florida Region is completely made up of inland counties, it is interesting to note the perceived vulnerability felt by our residents. Region wide, 64% of our residents perceive they are safe from wind and water in a Category 2 Hurricane, 52% in a Category 3 Hurricane and 34% in a Category 4 Hurricane. When you compare these numbers with those who perceive they will be in danger (20% in a Category 2, 27% in a Category 3 and 36% in a Category 4 Hurricane) it is easy to see there is a significant percentile of our population who don't know whether or not they would be at risk.

Table III-2a
Perceived Vulnerability

Evacuation Zone	Safe from Wind and Water in a Category 2 Hurricane
Central Florida Region	64%
DeSoto County	59%
Hardee County	63%
Highlands County	62%
Okeechobee County	58%
Polk County	80%

**Table III-2b
Perceived Vulnerability**

Evacuation Zone	Safe from Wind and Water in a Category 3 Hurricane
Central Florida Region	51%
DeSoto County	52%
Hardee County	55%
Highlands County	46%
Okeechobee County	56%
Polk County	48%

**Table III-2c
Perceived Vulnerability**

Evacuation Zone	Safe from Wind and Water in a Category 4 Hurricane
Central Florida Region	34%
DeSoto County	26%
Hardee County	37%
Highlands County	34%
Okeechobee County	39%
Polk County	33%

The previous finding may indicate a lack of understanding relative to the potential risks involved with water inundation, which may be caused by either fresh water flooding simply due to high levels of rainfall or by other situations that may lead to flooding (overtopping or breach of the Herbert Hoover Dike in Okeechobee County and/or storm surge traveling north along the Peace River into DeSoto County). This lack of understanding illustrates the need for dissemination of public information and continued education of the citizens who live in the region.

2. Evacuation Intent

The percentage of citizens who say they will follow mandatory evacuation notices varies depending on the strength of the storm. It makes sense that compliance with orders for evacuation increases linearly as hurricanes strengthen from Category 1 or 2, to 3 to 5. However, percentages of respondents that claim their intent to evacuate are consistently higher than actual evacuation rates, especially when respondents were asked whether they intend to comply with evacuation orders. Due to the hypothetical nature of responses, the trend is pointed out but actual numbers are not provided in this summary.

**Table III-3
Residents That Say They Will Follow
Mandatory Evacuation Notices**

Evacuation Zone	Category 1 and 2 Hurricane	Category 3 Hurricane	Category 5 Hurricane
Central Florida Region	42%	57%	75%
DeSoto	50%	54%	65%
Hardee	47%	63%	79%
Highlands	31%	49%	62%
Okeechobee	41%	61%	87%
Polk	41%	60%	82%

**Table III-4
The Percentages of All Households That Evacuated and the
Most Popular Types of Destinations**

Storm	Evacuated	Neighborhood	County	Elsewhere in Florida	Outside Florida
Charley	22%	12%	6%	3%	1%
Frances	21%	11%	4%	3%	3%
Jeanne	17%	9%	3%	3%	2%

Hurricanes Charley, Frances and Jeanne impacted the Central Florida Region as low-medium to high intensity storms, depending on which portion of the storm track you were on. Therefore, the evacuation participation rates are lower than other locations in Florida that were impacted more severely. From a historical point of view, it is important to note that previous to the storms of 2004 the Central Florida Region was not impacted by a major storm since Hurricane Donna (1960).

As discussed earlier, survey results for hypothetical situations are not consistent with real behavior. Evacuation rates are further analyzed and organized by county, for Hurricanes Charley, Frances and Jeanne, and are included with the analysis in Volume 2 (Behavioral Analysis). The raw behavioral survey results and survey questionnaire are included in Volume 3 - Behavioral Survey Report.

Significant percentages of residents say they intend to evacuate their homes even when the evacuation notice does not apply directly to them. The term "shadow evacuation" applies to those residents that evacuate without having been told to evacuate. Shadow evacuation occurs for a wide variety of reasons and is difficult to quantify. Nevertheless, assumptions for shadow evacuation rates must be made to assess and model evacuation traffic patterns. It is understandable that shadow evacuation rates increase as storm strength increases. The survey results shown below illustrate that shadow evacuation rates will be higher as the strength of the approaching storm increases.

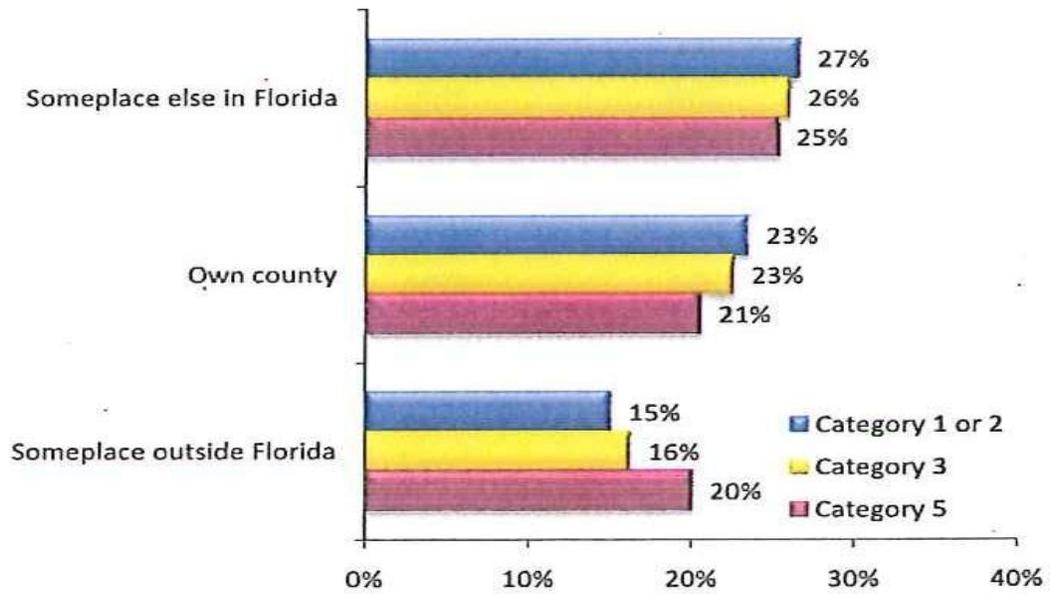
Table III-5
Residents That Say They Intend to Evacuate Their Homes
Even When the Evacuation Notice
Does Not Apply Directly to Them

Evacuation Zone	Evacuation Notice for Category 1 or 2 Hurricane	Evacuation Notice for Category 3 Hurricane	Evacuation Notice for Category 5 Hurricane
Central Florida Region	42%	57%	75%
DeSoto	50%	54%	65%
Hardee	47%	63%	79%
Highlands	31%	49%	62%
Okeechobee	41%	61%	87%
Polk	41%	60%	82%

3. Evacuation Destination

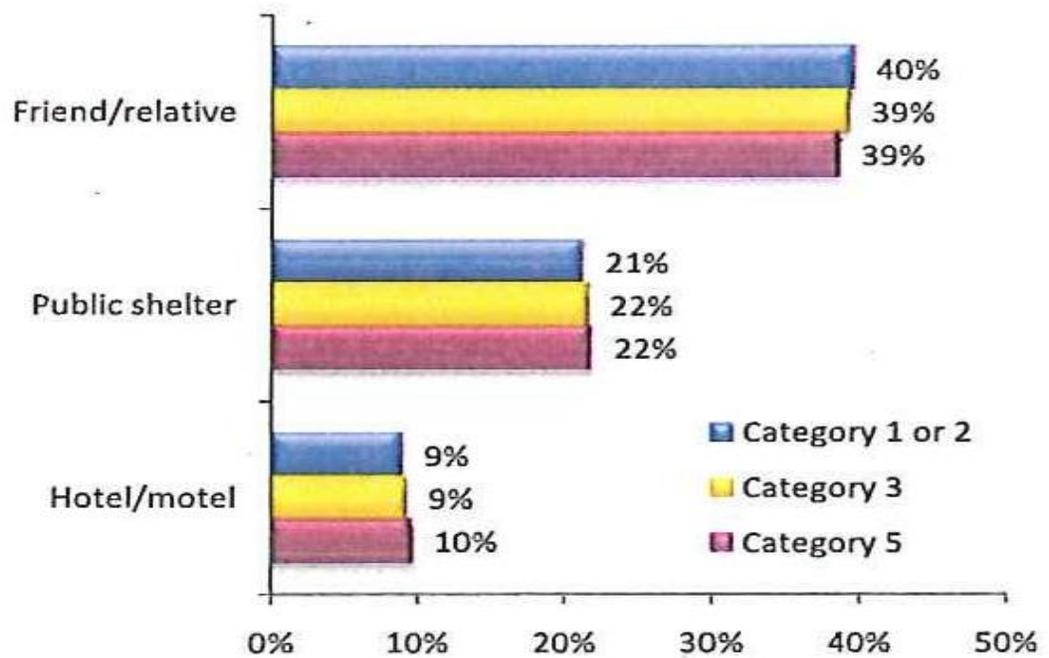
Regardless of the hurricane strength, the majority of residents of the Central Florida Region intend to go to friends or relatives if they evacuate. Behavioral survey results indicated that approximately 39% of evacuees intend to find safety in the households of friends and family. Most residents intend to evacuate to other places in Florida regardless of hurricane strength. The percentages of residents who intend to evacuate outside Florida increase considerably as hurricanes strengthen to Category 5. Most residents who intend to evacuate outside Florida will go to Georgia. Specific information regarding evacuation destinations are shown in the following two figures.

Figure III-1
Evacuation Destinations by Type



About 9% of evacuees plan to go to a motel. Survey responses indicate that approximately 22% of evacuees intend to go to public shelters; however, actual shelter records typically reveal a much lower number.

Figure III-2
Evacuation Destinations by Location



When our citizens were asked where they would evacuate to it is important to note that there was only a small difference, regardless of hurricane category, between those who intended to evacuate to somewhere other than their own county (26%) as compared to those who would remain in their own county (23%). Those who intended to leave the state increased as the hurricane category increase as most would expect.

Additional evacuation destination information is provided for each county in the Planning Assumptions Tables at the end of this behavioral summary. More specific information regarding the analysis that was used to derive the planning assumptions is found in Volume 2 - Behavioral Analysis. The behavioral survey results and survey questionnaire specifically detailing destination information are included in Volume 3 - Behavioral Survey Report.

4. Obstacles to Evacuation

Approximately 4% of Central Florida residents said they have no vehicle in their household that could be used for evacuation. Twelve percent of households contain an individual who requires assistance during evacuation. Over half of these households (60%) have an individual who is disabled, has a medical condition or requires some other type of special assistance beyond transportation assistance. Twenty-eight percent of these households (3% of all households) will require assistance from an outside agency. Region wide, almost half (49%) have registered with their county as needing special assistance. Therefore, the data indicates a need to continue public education and distribution of materials for evacuation to highlight special needs issues and encourage those that need evacuation assistance to register with the county.

Table III-6
Household Members Need Assistance to Evacuate

Evacuation Zone	Number	Yes	No	Not Sure
Central Florida Region	750	12%	87%	1%
DeSoto County	150	19%	81%	0%
Hardee County	150	12%	85%	3%
Highlands County	150	8%	92%	0%
Okeechobee County	150	14%	85%	1%
Polk County	150	6%	93%	1%

Over half of the residents in the Central Florida region (54%) have pets; 66% of these residents plan to take their pets with them if they evacuate. Most residents with pets (91%) are aware that public shelters will not accept pets, and 7% of these residents claim they will not evacuate because of this fact.

Information on the location of pet friendly shelters should be disseminated with other public education materials. Pet owners need to include pets in their evacuation plans by actively seeking information on rules and procedures for sheltering pets.

E. Evacuation Scenarios

Evacuation behavior can be affected by a variety of external factors as illustrated throughout the behavioral survey results. Several of the most significant factors and likely behavioral responses are discussed in this section.

1. Storm Characteristics

a. Storm Severity

The 2007-2008 behavioral survey results for the Central Florida Region consistently show a marked difference in responses associated with hypothetical severe storms (Category 4 and Category 5). We should not be surprised by these results; higher evacuation participation rates make sense. In fact, responses to questions regarding severe storms shown above in **Table III-3** indicate that approximately 75% of the population intends to evacuate during a Category 5 storm event, if ordered.

Storm severity also plays a significant role in evacuation destination especially with regard to out-of-county travel. Conclusions derived from Hurricanes Charley, Frances and Jeanne participation rates cannot accurately predict the evacuation scenario for a large, highly destructive major storm. In Florida, evacuation during Hurricane Floyd is one of the best examples of multi-regional, multi-state evacuation caused by a large hurricane. The setting for Hurricane Floyd in 1999 should be taken into account when attempting to understand the reaction of the populous.

Floyd was a strong Category 4 storm that had moved on a path directly toward South Florida for several days. The storm was ominous, but forecasters guardedly predicted that Floyd would veer off into the Atlantic avoiding Florida. The storm continued to advance with huge press coverage and did not turn until finally, at the last safe distance, the storm altered its course and skirted the State. Floyd also made landfall in North Carolina as a Category 2 storm, causing major damage along the Eastern Seaboard and initiating what Time Magazine described as the largest evacuation in history. The point here is to demonstrate how public response can be affected by an extreme storm.

Evacuation rates in non-coastal counties during Floyd ranged from 12% in the East Central Florida region to 49% in the Charleston, SC region. The average non-coastal county evacuation rate for all 11 regions studied was about 24%. While Floyd was a major storm, every storm is different. However, because of the scale of the Floyd evacuation, the chance of recurrence must be recognized. Results for coastal and non-coastal county evacuation need to be continually evaluated and validated by behavioral studies from other storms.

In summary, the Hurricane Floyd Assessment clearly showed that, in a major storm, people will get in their car and leave their home county. In fact, the 7,000 surveys from the Hurricane Floyd Assessment inferred that 75% of the nearly 3 million evacuees left their county.

As stated throughout this study, every storm presents a unique and different scenario. However, storm severity has consistently been shown to be a significant factor in making the decision to evacuate. Multi-region clearance times are provided in Volume 4 (Transportation Analysis).

b. Landfalling, Paralleling, and Exiting Storm Paths

Storm path can have a significant effect on any evacuation scenario especially with respect to out-of-county evacuation destinations. A comparison of these three storm path scenarios serves as a reminder that every storm is different. Therefore, studies such as this one cannot predict operational decision making. However, a general discussion of potential scenarios can provide useful information to emergency managers for decision making.

- (1) Landfalling storms are storms that impact the coastline directly. Generally, landfalling storms precipitate the highest surge values and most destructive winds. With regard to evacuation, landfalling storms allow for more alternative evacuation destinations. For example, a storm making landfall in the Central Florida region would allow for evacuating populations to find safe destinations to the north or south of the storm path.
- (2) Paralleling storms, like the name suggests, typically travel along the coastline. On the Gulf Coast of Florida, paralleling storms are potentially more destructive than on the Atlantic coast due to the counterclockwise spin of a tropical cyclone. Evacuation patterns are typically to the north and away from the storm path.
- (3) Exiting storms, as the name also suggests, are storms that have made landfall and, after having travelled across land, are heading back to sea. In Florida, that typically means across the peninsula. Relative surge values and wind speeds are typically lower for exiting storms. However, Hurricanes Charley, Frances and Jeanne in 2004 demonstrated that evacuation of vulnerable areas during an exiting storm is often warranted due to the unpredictable nature of storm events. Each of the three storms created a different scenario with unique characteristics. Therefore, operational decisions cannot be made in advance. Discussion of storm scenarios only provides a theoretical frame of reference.

It is important to note that while the Central Region has no coastline, the effects of landfalling, paralleling and exiting storms, and their associated evacuations will have a significant impact on any evacuation or sheltering plan for our Region.

2. Evacuation Timing

a. Long and Short Response

The timeframe in which people respond to an evacuation order varies. The terms "*long response*" and "*short response*" refer to the time it takes for evacuees to mobilize following an evacuation notice. Evacuation studies typically express the temporal nature of evacuation response in a "response curve" that is derived from response curves documented in actual evacuation. Traffic modelers, in turn, load the response curve into the model to calculate evacuating traffic counts and predict potentials for traffic congestion during a future evacuation event.

The most significant factor affecting a long or short response is the urgency of the evacuation order. Response curves are also affected by the media. If a storm changes course unexpectedly or intensifies, it usually becomes necessary to hasten evacuation. Urgency is sometimes inherent due to the relatively inaccurate science of hurricane forecasting.

b. Staged Evacuation

In urban areas, or in areas with large at-risk populations, staged evacuation is a tool to allow for a more orderly evacuation. In this scenario, specific areas are given a time window in which to evacuate based on the capacity of the roadway to accommodate the expected flow. Staged evacuation is commonly used in the Florida Keys due to the roadway characteristics that link this densely populated string of islands. The effectiveness of staged evacuation relies on accurate behavioral assumptions.

c. Reverse Lane Flow

Reverse lane flow is an evacuation scenario where authorities change the direction of highway lanes to direct all lanes to flow in the same direction. The purpose is to hasten the evacuation of people during a major disaster. When a major hurricane is expected to make landfall, the Highway Patrol will implement reverse lane flow upon an Executive Order from the Governor.

Currently, only a few highway segments are designated for potential reverse lane flow operations:

- I-10 West from Jacksonville
- I-4 East from Tampa
- I-75 North from Tampa
- State Road 528 West out of Brevard County
- Florida Turnpike North from Ft. Pierce
- Alligator Alley (I-75) West from Ft. Lauderdale
- Alligator Alley (I-75) East from Naples
- I-75 Shoulder Plan in Charlotte County

The listed highway segments relate to the likely evacuation routes that a significant number of residents living in Florida's largest metropolitan areas would travel in an evacuation scenario.

In situations where evacuation timing is critical and a few additional hours are needed for evacuation, reverse lane flow will speed up the evacuation of residents and tourists. However, reverse lane flow operations are counter-intuitive to the driving public and are only proposed to be implemented during daylight hours. Substantial numbers of public safety man hours are needed to implement the traffic redirection at each interchange. Yet for all the preparation and man-hour resources needed for implementation, modeling efforts predict only a 33% increase in roadway capacity. Therefore, the applicability of reverse lane flow is limited to specific scenarios where the Governor recognizes the urgency for a temporary increase in evacuation route capacity.

F. Evacuation Behavior for Other Hazards

The behavioral survey administered for the Statewide Regional Evacuation Study Program included several questions regarding other disasters that may precipitate evacuation orders. Survey respondents were asked questions about their awareness of vulnerability and willingness to follow evacuation orders, if issued. The following behavioral information is gathered from Volume 3 - Behavioral Survey Report.

Survey findings included here regarding other evacuation-related hazards represent an initial investigation into potential behaviors associated with the hazards examined below. These findings have not been validated through comparison and correlation with similar studies. Therefore, these findings should be considered a starting point for future investigations and analyses.

1. Wildfire

The following questions were part of the survey. Responses and further discussion are detailed below the question.

1. *Do you believe that your home might ever be threatened by a wildfire?*

Only three in ten residents of the Central Florida Region (30%) believe that their area may be threatened by wildfire at some point in the future. This feeling is less prevalent in Okeechobee County (23%) and most prevalent in DeSoto County (40%).

2. *If a wildfire threatened your community and public safety officials ordered you to evacuate, would you?*

Nearly nine out of ten residents of the Central Florida Region (86%) claim they intend to evacuate if ordered to do so by public safety officials because of wildfire threats. Intent to evacuate if ordered to do so is lowest in Hardee County (69%) and highest in Polk County (97%) with Highlands County close behind (93%).

3. *Where would you go if you evacuated because of a wildfire?*

One in ten residents (10%) intends to go to public shelters if there is a need to evacuate because of wildfires. A plurality of residents (44%) intends to evacuate to friends and relatives, while less than two in ten (16%) plan to go to a hotel/motel.

Responses to this question vary widely across counties. For example, 35% of Polk County residents say they intend to evacuate to a hotel/motel, while fewer DeSoto (8%) and Hardee (6%) residents intend to do so. The vast majority of all respondents intended to evacuate to the home of a friend or family.

4. *Since you've been living in this location, have you ever evacuated your home because of a wildfire?*

Only 1% of residents in the Central Florida Region say they have experienced a wildfire while living in this area. Respondents listed 2004, 2005, and 2006 as years where there were incidents of evacuation due to wildfire. Polk County had the highest reported evacuations (3%) while DeSoto and Hardee Counties had none (0%).

2. Freshwater Flooding

Freshwater flooding in the Central Florida Region can occur for a variety of reasons including dam failure, riverine flooding, and seasonal flooding from rainfall events. Please refer to the Hazards Analysis Chapter (Chapter II) of this Technical Data Report for specific description of vulnerabilities. The questions below do not refer to any specific flooding scenario or situation.

1. *Do you believe that your home might ever be threatened by freshwater flooding?*

One in four residents (25%) of the Central Florida Region say their home(s) might be threatened by freshwater flooding at some point. Okeechobee County (31%) and Hardee County (28%) residents are more likely to claim their homes might eventually be threatened by freshwater flooding, while comparatively few Highlands County residents (11%) make this claim.

2. *If freshwater flooding threatened your community and public safety officials ordered you to evacuate, would you?*

Almost eight in ten residents in the Central Florida Region (77%) maintain they will evacuate their homes if ordered to do so by public safety officials because of freshwater flooding. This percentage is considerably lower than the 86% of residents who claim they will evacuate because of wildfires. Okeechobee (86%) and Highlands (84%) County residents are more likely to intend to evacuate because of freshwater flooding. Only 68% of Hardee County residents say they will evacuate if ordered to do so because of freshwater flooding even though they had one of the highest (28%) concerns that their homes would be flooded.

3. *Where would you go if you evacuated because of freshwater flooding?*

A large predominance of our residents (38%) intends to evacuate to friends or relatives if ordered to evacuate by public officials as a result of freshwater flooding. More than one in ten residents (13%) stated that they will go to hotels/motels, while slightly more (15%) will go to public shelters. Residents of Highlands (26%) and Okeechobee (22%) counties

are more likely to seek out public shelters. It is interesting to note that Okeechobee County also has the second highest intent to stay with family and friends (39%) while Polk County has the highest rate (52%).

4. *Since you've been living in this location, have you ever evacuated your home because of freshwater flooding?*

There were no reported situations where residents had to evacuate their homes due to freshwater flooding. Extreme caution should be used when this data is considered for emergency planning and/or evacuation planning. Anecdotal accounts by several of our region's Emergency Management Directors reveal that there have been numerous events of evacuation due to freshwater flooding.

3. Hazardous Materials Spill

1. *Do you believe that your home might ever be threatened by a hazardous material accident?*

One in five residents of the Central Florida Region (20%) believes they will be threatened by a hazardous material accident. Concern for this type of accident peaks in DeSoto County (37%) and is lowest in Polk County (6%).

2. *If a hazardous material accident threatened your community and public safety officials ordered you to evacuate, would you?*

While a relative few residents (20%) believe that they are threatened by a future hazardous material accident, a very high percentage (91%) say they intend to evacuate their homes if public safety officials ask them to do so in response to this type of accident. Residents living in Okeechobee County (72%) are least likely to evacuate. Intention to evacuate in response to hazardous material accidents if told to do so by public safety officials peaks in Highlands County (97%) with all other counties within the Region above 90%.

3. *Where would you go if you evacuated because of a hazardous material accident?*

A large number of residents (44%) intend to stay with friends or relatives. Public shelter use peaks in DeSoto County (26%) and has little appeal in Hardee and Okeechobee Counties (both at 8%).

4. *Since you've been living in this location, have you ever evacuated your home because of a hazardous material accident?*

There were no reported home evacuations due to a hazardous material accident in the Central Florida.

5. *Suppose there was a hazardous material accident but public safety officials advised you to close your windows and doors, turn off your air conditioner, and stay indoors rather than trying to evacuate. Would you stay indoors rather than trying to evacuate?*

Four out of five residents in the Central Florida Region (82%) claim they will follow public safety officials' instructions to stay indoors rather than trying to evacuate. Willingness to stay indoors following a hazardous material accident is highest in Okeechobee County (91%) and lowest in DeSoto County (72%).

4. Nuclear Power Plant Incident

There are no nuclear power plants within the Central Florida Region.

1. *Do you believe that your home might ever be threatened by radiation released as a result of an accident at a Nuclear Power Plant?*

Not applicable.

2. *If an accident at a River Nuclear Power Plant threatened your community and public safety officials ordered you to evacuate, would you?*

Not applicable.

3. *Where would you go if you DID evacuate because of an accident at a Nuclear Power Plant?*

Not applicable.

4. *Are you located within the 10-mile emergency planning zone for a Nuclear Power Plant?*

Not applicable.

5. *Do you have a brochure or other information telling you what you should do in case of an accident at a Nuclear Power Plant?*

Not applicable.

6. *Suppose there was an accident at a Nuclear Power Plant but public safety officials advised you to close your windows and doors, turn off your air conditioner, and stay indoors rather than trying to evacuate. Would you stay indoors rather than trying to evacuate?*

Not applicable.

G. Planning Assumptions

Planning assumptions for evacuation behavior form the final product of behavioral analysis and are subsequently used as inputs for the transportation modeling effort. Reasonable and accurate assumptions are an important element of any modeling process. Planning assumptions for the Statewide Regional Evacuation Study Program are derived using professional analysis of statewide survey results with a cross comparison of previous behavioral analyses. Confidence levels are attached to consistent findings and known behavioral trends. Statistical anomalies that emerge from survey results are analyzed and may be disregarded to the extent that they fall outside professionally accepted behavioral norms.

An abbreviated set of planning assumptions for each of the counties in the Central Florida Region is listed below. A complete listing of the planning assumptions including the background files and methodology statement is included in Volume 2.

To support the behavioral analysis for residents, telephone interviews were conducted by Kerr & Downs Research with 750 residents of the Central Florida Region – 150 in each county. Sample sizes, also broken down according to whether the respondent lived in a site-built home or a mobile home (including manufactured homes), are shown in **Table III-1**. The total **Table III-1** excludes respondents whose residence could not be identified as site-built or mobile home.

There is no simple one-rule-fits-all technique for deriving behavioral assumptions for planning. The best solution is to employ the best available mix of indicators, relying most heavily on the best information available for each behavior and scenario in question.

VOLUME 1-7

STATEWIDE REGIONAL EVACUATION STUDY PROGRAM

CENTRAL FLORIDA REGION TECHNICAL DATA REPORT

CHAPTER III BEHAVIORAL ANALYSIS SUMMARY

APPENDIX IIIA DESOTO COUNTY PLANNING ASSUMPTIONS



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APPENDIX IIIA

DESOTO COUNTY PLANNING ASSUMPTIONS

<u>Table</u>	<u>Title</u>	<u>Page</u>
Table IIIA-1	DeSoto Evacuation Rates (%)	IIIA-4
Table IIIA-2	DeSoto Out-of-County Trip Rates (%).....	IIIA-4
Table IIIA-3	DeSoto Public Shelter Use Rates (%).....	IIIA-4
Table IIIA-4	DeSoto Friend/Family Use Rates.....	IIIA-5
Table IIIA-5	DeSoto Hotel/Motel Use Rates	IIIA-5
Table IIIA-6	DeSoto Other Refuge Use Rates.....	IIIA-5

Appendix IIIA DeSoto County Planning Assumptions

**Table IIIA-1
DeSoto Evacuation Rates (%)**

DeSoto County evacuation rates for residents living in site-built homes and mobile or manufactured homes

DeSoto Evacuation Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	5	10	15	20	25
Mobile and Manufactured Homes	40	60	70	80	90

Evacuation rate indicates the percent of residents who will leave their homes to go someplace safer in each storm threat scenario. Figures assume that evacuation will be recommended for mobile and manufactured homes. Figures also assume that the actual storm track passes very close to the area being evacuated.

**Table IIIA-2
DeSoto Out-of-County Trip Rates (%)**

DeSoto County out-of-county trip rates for residents living in site-built homes and mobile or manufactured homes

DeSoto Out-of-County Trip Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	40	40	40	45	45
Mobile and Manufactured Homes	25	25	25	25	30

Out-of-county trip rate indicates the percent of evacuees who will seek refuge outside their own county of residence.

**Table IIIA-3
DeSoto Public Shelter Use Rates**

DeSoto County public shelter use rates for residents living in site-built homes and mobile or manufactured homes

DeSoto Public Shelter Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	20	20	20	20	20
Mobile and Manufactured Homes	30	30	30	30	30

Public shelter use rate indicates the percent of evacuees who will seek refuge in public shelters, in each storm threat scenario.

Table IIIA-4
DeSoto Friend/Family Use Rates
 DeSoto County friend/relative refuge use rates for residents living in site-built homes and mobile or manufactured homes

DeSoto Friend/Family Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	60	60	60	60	60
Mobile and Manufactured Homes	50	50	50	50	50

Friend/relative use rate indicates the percent of evacuees who will seek refuge at the homes of friends and relatives, in each storm threat scenario.

Table IIIA-5
DeSoto Hotel/Motel Use Rates
 DeSoto County hotel/motel refuge use rates for residents living in site-built homes and mobile or manufactured homes

DeSoto Hotel/Motel Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	5	5	5	5	5
Mobile and Manufactured Homes	10	10	10	10	10

Hotel/motel use rate indicates the percent of evacuees who will seek refuge in hotels and motels, in each storm threat scenario.

Table IIIA-6
DeSoto Other Refuge Use Rates
 DeSoto County other refuge use rates for residents living in site-built homes and mobile or manufactured homes

DeSoto Other Refuge Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	15	15	15	15	15
Mobile and Manufactured Homes	10	10	10	10	10

Other refuge rate indicates the percent of evacuees from each zone who will seek refuge in locations such as churches, second homes, and workplaces, in each storm threat scenario.

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VOLUME 1-7

STATEWIDE REGIONAL EVACUATION STUDY PROGRAM

CENTRAL FLORIDA REGION TECHNICAL DATA REPORT

CHAPTER III BEHAVIORAL ANALYSIS SUMMARY

APPENDIX IIIB HARDEE COUNTY PLANNING ASSUMPTIONS



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APPENDIX IIIB

HARDEE COUNTY PLANNING ASSUMPTIONS

<u>Table</u>	<u>Title</u>	<u>Page</u>
Table IIIB-1	Hardee Evacuation Rates (%)	IIIB-4
Table IIIB-2	Hardee Out-of-County Trip Rates (%).....	IIIB-4
Table IIIB-3	Hardee Public Shelter Use Rates (%)	IIIB-4
Table IIIB-4	Hardee Friend/Family Use Rates	IIIB-5
Table IIIB-5	Hardee Hotel/Motel Use Rates.....	IIIB-5
Table IIIB-6	Hardee Other Refuge Use Rates	IIIB-5

Appendix IIIB Hardee County Planning Assumptions

**Table IIIB-1
Hardee Evacuation Rates (%)**

Hardee County evacuation rates for residents living in site-built homes and mobile or manufactured homes

Hardee Evacuation Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	10	10	15	20	25
Mobile and Manufactured Homes	40	60	70	80	90

Evacuation rate indicates the percent of residents who will leave their homes to go someplace safer in each storm threat scenario. Figures assume that evacuation will be recommended for mobile and manufactured homes. Figures also assume that the actual storm track passes very close to the area being evacuated.

**Table IIIB-2
Hardee Out-of-County Trip Rates (%)**

Hardee County out-of-county trip rates for residents living in site-built homes and mobile or manufactured homes

Hardee Out-of-County Trip Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	35	35	35	40	40
Mobile and Manufactured Homes	30	30	30	30	30

Out-of-county trip rate indicates the percent of evacuees who will seek refuge outside their own county of residence.

**Table IIIB-3
Hardee Public Shelter Use Rates (%)**

Hardee County public shelter use rates for residents living in site-built homes and mobile or manufactured homes

Hardee Public Shelter Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	25	25	25	25	25
Mobile and Manufactured Homes	30	30	30	30	30

Public shelter use rate indicates the percent of evacuees who will seek refuge in public shelters, in each storm threat scenario.

Table IIIB-4
Hardee Friend/Family Use Rates
 Hardee County friend/relative refuge use rates for residents living in site-built homes and mobile or manufactured homes

Hardee Public Friend/Family Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	60	60	60	60	60
Mobile and Manufactured Homes	50	50	50	50	50

Friend/relative use rate indicates the percent of evacuees who will seek refuge at the homes of friends and relatives, in each storm threat scenario.

Table IIIB-5
Hardee Hotel/Motel Use Rates
 Hardee County hotel/motel refuge use rates for residents living in site-built homes and mobile or manufactured homes

Hardee Hotel/Motel Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	5	5	5	5	5
Mobile and Manufactured Homes	10	10	10	10	10

Hotel/motel use rate indicates the percent of evacuees who will seek refuge in hotels and motels, in each storm threat scenario.

Table IIIB-6
Hardee Other Refuge Use Rates
 Hardee County other refuge use rates for residents living in site-built homes and mobile or manufactured homes

Hardee Other Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	10	10	10	10	10
Mobile and Manufactured Homes	10	10	10	10	10

Other refuge rate indicates the percent of evacuees from each zone who will seek refuge in locations such as churches, second homes, and workplaces, in each storm threat scenario.

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VOLUME 1-7

STATEWIDE REGIONAL EVACUATION STUDY PROGRAM

CENTRAL FLORIDA REGION TECHNICAL DATA REPORT

CHAPTER III

BEHAVIORAL ANALYSIS SUMMARY

APPENDIX IIIC HIGHLANDS COUNTY PLANNING ASSUMPTIONS



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APPENDIX IIIC HIGHLANDS COUNTY PLANNING ASSUMPTIONS

<u>Table</u>	<u>Title</u>	<u>Page</u>
Table IIIC-1	Highlands Evacuation Rates (%).....	IIIC-4
Table IIIC-2	Highlands Out-of-County Trip Rates (%)	IIIC-4
Table IIIC-3	Highlands Public Shelter Use Rates (%)	IIIC-4
Table IIIC-4	Highlands Friend/Family Use Rates	IIIC-5
Table IIIC-5	Highlands Hotel/Motel Use Rates	IIIC-5
Table IIIC-6	Highlands Other Refuge Use Rates	IIIC-5

Appendix IIIC Highlands County Planning Assumptions

**Table IIIC-1
Highlands Evacuation Rates (%)**
Highlands County evacuation rates for residents living in site-built homes and mobile or manufactured homes

Highlands Evacuation Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	5	5	10	20	25
Mobile and Manufactured Homes	40	60	70	80	90

Evacuation rate indicates the percent of residents who will leave their homes to go someplace safer in each storm threat scenario. Figures assume that evacuation will be recommended for mobile and manufactured homes. Figures also assume that the actual storm track passes very close to the area being evacuated.

**Table IIIC-2
Highlands Out-of-County Trip Rates (%)**
Highlands County out-of-county trip rates for residents living in site-built homes and mobile or manufactured homes

Highlands Out-of-County Trip Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	40	40	40	50	50
Mobile and Manufactured Homes	15	15	15	20	20

Out-of-county trip rate indicates the percent of evacuees who will seek refuge outside their own county of residence.

**Table IIIC-3
Highlands Public Shelter Use Rates (%)**
Highlands County public shelter use rates for residents living in site-built homes and mobile or manufactured homes

Highlands Public Shelter Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	20	20	20	20	20
Mobile and Manufactured Homes	40	40	40	40	40

Public shelter use rate indicates the percent of evacuees who will seek refuge in public shelters, in each storm threat scenario.

**Table IIIC-4
Highlands Friend/Family Use Rates**
Highlands County friend/relative refuge use rates for residents living in site-built homes and mobile or manufactured homes

Highlands Friend/Family Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	55	55	55	55	55
Mobile and Manufactured Homes	50	50	50	50	50

Friend/relative use rate indicates the percent of evacuees who will seek refuge at the homes of friends and relatives, in each storm threat scenario.

**Table IIIC-5
Highlands Hotel/Motel Use Rates**
Highlands County hotel/motel refuge use rates for residents living in site-built homes and mobile or manufactured homes

Highlands Hotel/Motel Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	10	10	10	10	10
Mobile and Manufactured Homes	10	10	10	10	10

Hotel/motel use rate indicates the percent of evacuees who will seek refuge in hotels and motels, in each storm threat scenario.

**Table IIIC-6
Highlands Other Refuge Use Rates**
Highlands County other refuge use rates for residents living in site-built homes and mobile or manufactured homes

Highlands Other Refuge Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	15	15	15	15	15
Mobile and Manufactured Homes	10	10	10	10	10

Other refuge rate indicates the percent of evacuees from each zone who will seek refuge in locations such as churches, second homes, and workplaces, in each storm threat scenario.

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VOLUME 1-7
STATEWIDE REGIONAL EVACUATION
STUDY PROGRAM

CENTRAL FLORIDA REGION
TECHNICAL DATA REPORT

CHAPTER III
BEHAVIORAL ANALYSIS SUMMARY

APPENDIX IIID
OKEECHOBEE COUNTY
PLANNING ASSUMPTIONS



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APPENDIX IIID OKEECHOBEE COUNTY PLANNING ASSUMPTIONS

<u>Table</u>	<u>Title</u>	<u>Page</u>
Table IIID-1	Okeechobee Evacuation Rates (%)	IIID-4
Table IIID-2	Okeechobee Out-of-County Trip Rates (%)	IIID-4
Table IIID-3	Okeechobee Public Shelter Use Rates (%).....	IIID-4
Table IIID-4	Okeechobee Friend/Family Use Rates.....	IIID-5
Table IIID-5	Okeechobee Hotel/Motel Use Rates	IIID-5
Table IIID-6	Okeechobee Other Refuge Use Rates.....	IIID-5

Appendix IIID Okeechobee County Planning Assumptions

**Table IIID-1
Okeechobee Evacuation Rates (%)**
Okeechobee County evacuation rates for residents living in site-built homes and mobile or manufactured homes

Okeechobee Evacuation Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	10	15	20	25	30
Mobile and Manufactured Homes	45	65	75	85	90

Evacuation rate indicates the percent of residents who will leave their homes to go someplace safer in each storm threat scenario. Figures assume that evacuation will be recommended for mobile and manufactured homes. Figures also assume that the actual storm track passes very close to the area being evacuated.

**Table IIID-2
Okeechobee Out-of-County Trip Rates (%)**
Okeechobee County out-of-county trip rates for residents living in site-built homes and mobile or manufactured homes

Okeechobee Out-of-County Trip Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	40	40	40	40	40
Mobile and Manufactured Homes	20	25	30	30	35

Out-of-county trip rate indicates the percent of evacuees who will seek refuge outside their own county of residence.

**Table IIID-3
Okeechobee Public Shelter Use Rates (%)**
Okeechobee County public shelter use rates for residents living in site-built homes and mobile or manufactured homes

Okeechobee Public Shelter Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	25	25	25	25	25
Mobile and Manufactured Homes	20	20	20	20	20

Public shelter use rate indicates the percent of evacuees who will seek refuge in public shelters, in each storm threat scenario.

Table IIID-4
Okeechobee Friend/Family Use Rates
 Okeechobee County friend/relative refuge use rates for residents living in site-built homes and mobile or manufactured homes

Okeechobee Friend/Family Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	60	60	60	60	60
Mobile and Manufactured Homes	55	55	55	55	55

Friend/relative use rate indicates the percent of evacuees who will seek refuge at the homes of friends and relatives, in each storm threat scenario.

Table IIID-5
Okeechobee Hotel/Motel Use Rates
 Okeechobee County hotel/motel refuge use rates for residents living in site-built homes and mobile or manufactured homes

Okeechobee Hotel/Motel Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	5	5	5	5	5
Mobile and Manufactured Homes	10	10	10	10	10

Hotel/motel use rate indicates the percent of evacuees who will seek refuge in hotels and motels, in each storm threat scenario.

Table IIID-6
Okeechobee Other Refuge Use Rates
 Okeechobee County other refuge use rates for residents living in site-built homes and mobile or manufactured homes

Okeechobee Other Refuge Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	10	10	10	10	10
Mobile and Manufactured Homes	15	15	15	15	15

Other refuge rate indicates the percent of evacuees from each zone who will seek refuge in locations such as churches, second homes, and workplaces, in each storm threat scenario.

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VOLUME 1-7

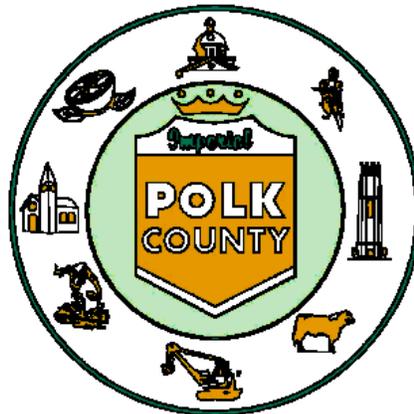
STATEWIDE REGIONAL EVACUATION STUDY PROGRAM

CENTRAL FLORIDA REGION TECHNICAL DATA REPORT

CHAPTER III

BEHAVIORAL ANALYSIS SUMMARY

APPENDIX IIIE POLK COUNTY PLANNING ASSUMPTIONS



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APPENDIX IIIE

POLK COUNTY PLANNING ASSUMPTIONS

<u>Table</u>	<u>Title</u>	<u>Page</u>
Table IIIE-1	Polk Evacuation Rates (%).....	III E-4
Table IIIE-2	Polk Out-of-County Trip Rates (%)	III E-4
Table IIIE-3	Polk Public Shelter Use Rates (%).....	III E-4
Table IIIE-4	Polk Friend/Family Use Rates	III E-5
Table IIIE-5	Polk Hotel/Motel Use Rates	III E-5
Table IIIE-6	Polk Other Refuge Use Rates.....	III E-5

Appendix III E Polk County Planning Assumptions

**Table III E-1
Polk Evacuation Rates (%)**
Polk County evacuation rates for residents living in site-built homes and mobile or manufactured homes

Polk Evacuation Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	5	10	15	20	25
Mobile and Manufactured Homes	40	60	70	80	90

Evacuation rate indicates the percent of residents who will leave their homes to go someplace safer in each storm threat scenario. Figures assume that evacuation will be recommended for mobile and manufactured homes. Figures also assume that the actual storm track passes very close to the area being evacuated.

**Table III E-2
Polk Out-of-County Trip Rates (%)**
Polk County out-of-county trip rates for residents living in site-built homes and mobile or manufactured homes

Polk Out-of-County Trip Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	40	40	40	40	40
Mobile and Manufactured Homes	30	30	30	30	35

Out-of-county trip rate indicates the percent of evacuees who will seek refuge outside their own county of residence.

**Table III E-3
Polk Public Shelter Use Rates (%)**
Polk County public shelter use rates for residents living in site-built homes and mobile or manufactured homes

Polk Public Shelter Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	15	15	15	15	15
Mobile and Manufactured Homes	20	20	20	20	20

Public shelter use rate indicates the percent of evacuees who will seek refuge in public shelters, in each storm threat scenario.

Table IIIE-4
Polk Friend/Family Use Rates
 Polk County friend/relative refuge use rates for residents living in site-built homes and mobile or manufactured homes

Polk Friend/Family Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	60	60	60	60	60
Mobile and Manufactured Homes	55	55	55	55	55

Friend/relative use rate indicates the percent of evacuees who will seek refuge at the homes of friends and relatives, in each storm threat scenario.

Table IIIE-5
Polk Hotel/Motel Use Rates
 Polk County hotel/motel refuge use rates for residents living in site-built homes and mobile or manufactured homes

Polk Hotel/Motel Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	10	10	10	10	10
Mobile and Manufactured Homes	10	10	10	10	10

Hotel/motel use rate indicates the percent of evacuees who will seek refuge in hotels and motels, in each storm threat scenario.

Table IIIE-6
Polk Other Refuge Use Rates
 Polk County other refuge use rates for residents living in site-built homes and mobile or manufactured homes

Polk Other Refuge Use Rates	Storm Threat Scenario				
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Site Built Homes	15	15	15	15	15
Mobile and Manufactured Homes	15	15	15	15	15

Other refuge rate indicates the percent of evacuees from each zone who will seek refuge in locations such as churches, second homes, and workplaces, in each storm threat scenario.

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