



# FLORIDA STATEWIDE REGIONAL EVACUATION STUDY PROGRAM



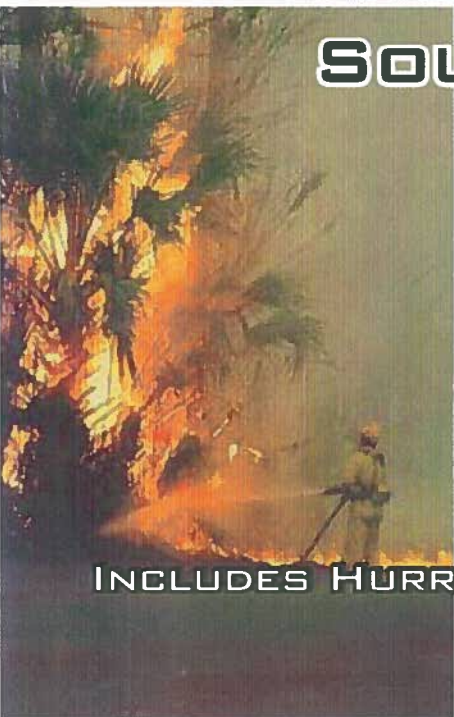
## REGIONAL BEHAVIORAL SURVEY REPORT



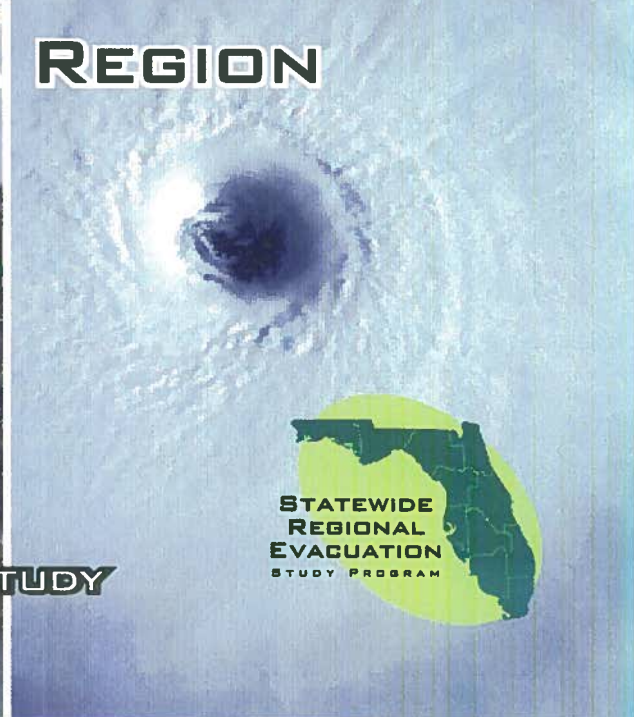
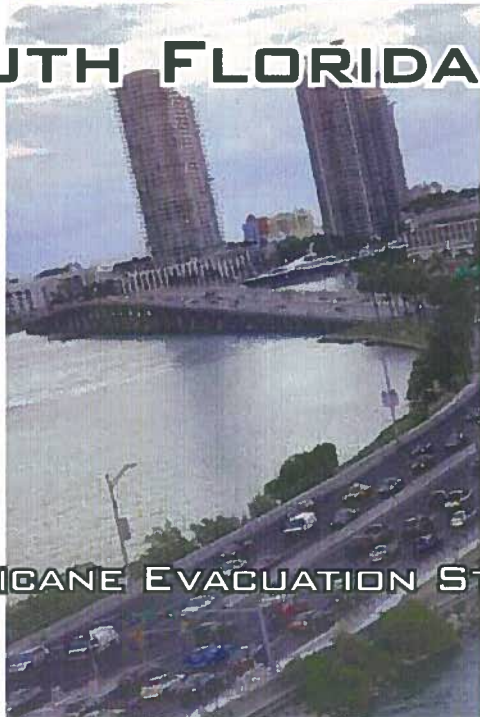
## VOLUME 3-1 1

FLORIDA DIVISION OF  
EMERGENCY MANAGEMENT

SOUTH FLORIDA  
REGIONAL PLANNING COUNCIL



## SOUTH FLORIDA REGION



STATEWIDE  
REGIONAL  
EVACUATION  
STUDY PROGRAM

INCLUDES HURRICANE EVACUATION STUDY

## Introduction & Methods

This document presents regional findings from a 2007-2008 survey of Florida residents conducted as part of the Statewide Regional Evacuation Study. The primary aim of the survey was to provide data to assist in deriving evacuation 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 included questions that are important in developing accurate behavioral projections 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. The interviews were allocated among aggregations of hurricane evacuation zones (e.g., category 1-2) in the respective counties. The aggregation of zones and allocations of interviews among the zones were determined after input from county and regional representatives and varied among counties and regions. Selections were also made in order to reflect aggregations of zones currently used operationally and in public information materials by counties and to provide appropriate distributions of data that would be necessary to derive behavioral projections as required by the Statewide Regional Evacuation Study. In order to ensure that respondents resided in the evacuation zones of interest, addresses were selected first, and then telephone number at those addresses. By necessity only residences with land-line telephones were called, as sampling was conducted by address.

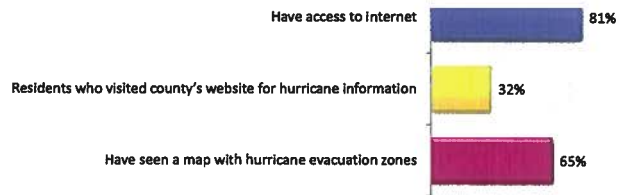
For non-coastal counties, tables in this document report survey findings for the county without geographical breakdowns. For coastal counties, tables summarize survey findings in several ways geographically. For the region and for each county, results for all evacuation zones are aggregated, without weighting the zones to reflect actual populations in each zone. Results are also presented by evacuation zone for the region, and the regional aggregations for zones are also not weighted to reflect actual population variations among counties. Finally, results are presented for each evacuation zone within each county. In one respect this is the most accurate level of reporting, because findings are not being mixed with those for other locations. However, this is also the reporting level with the smallest number of respondents, and statistical reliability is poorer for smaller samples. For every coastal county and for every region with coastal counties, tables report findings for six evacuation zones (category 1, 2, 3, 4, and 5 surge-related evacuation zones, plus non-surge zones). In locations where zones were aggregated the tables show the same data for each zone separately (for cat 1 and 2, for example). This is done to achieve uniformity of tables among counties and regions, but tables should not be misconstrued to infer that sample sizes apply to each zone separately. Tables are formatted to make clear instances where sample sizes are “shared” among zones.

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 material accidents. In 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.

**Information about Hurricanes**

Four out of five South Florida region residents (81%) have access to the Internet. One in three of these individuals (32%) claims to have visited their county’s website to search for information about hurricanes. Two out of three residents (65%) in the South Florida region maintain they have seen a map of their county showing areas that need to evacuate in case of hurricanes.

*Information about Hurricanes*



**Awareness of Evacuation Zones**

Over half of the residents (53%) in the coastal counties in the South Florida region believe they live in an evacuation zone. Knowledge about one’s evacuation zone is as shown below:

Evacuation zone	Know evacuation zone in which one lives
Category 1	72%
Category 2	41%
Category 3	20%
Category 4	23%
Category 5	23%

**Perceived Danger from Hurricanes**

Percentages of residents in the South Florida region who believe hurricanes of varying strengths pose safety risks for flooding of their homes increase exponentially with the strength of hurricanes:

Evacuation zone	Category 2 hurricane	Category 3 hurricane	Category 4 hurricane
Category 1	35%	57%	75%
Category 2	28%	51%	71%
Category 3	24%	45%	65%
Category 4	28%	42%	59%
Category 5	28%	42%	59%
Non-Surge	19%	23%	49%

Percentages of residents who believe it is safe to stay in their homes if hurricanes pass directly over them decrease dramatically as hurricanes strengthen from a category 2 to 3 to 4:

Evacuation zone	Category 2 hurricane	Category 3 hurricane	Category 4 hurricane
Category 1	66%	38%	18%
Category 2	70%	34%	16%
Category 3	71%	35%	18%
Category 4	70%	44%	20%
Category 5	70%	44%	20%
Non-Surge	80%	62%	30%

## 2. Executive Summary

### Emergency Management Officials

Percentages of residents who feel that Emergency Management officials will issue evacuation notices saying resident should leave their homes to seek safer locations increase significantly as storm strength increases.

Evacuation zone	Category 2 hurricane	Category 3 hurricane	Category 4 hurricane
Category 1	72%	89%	93%
Category 2	56%	87%	91%
Category 3	49%	83%	91%
Category 4	49%	69%	91%
Category 5	49%	69%	91%
Non-Surge	41%	65%	82%

### Evacuation Intent

Percentages of citizens who say they will follow mandatory evacuation notices increase linearly as hurricanes strengthen from a category 1 or 2 to 3 to 5.

Evacuation zone	Category 1 or 2 hurricane	Category 3 hurricane	Category 5 hurricane
Category 1	61%	79%	89%
Category 2	71%	90%	92%
Category 3	67%	91%	92%
Category 4	65%	86%	88%
Category 5	65%	86%	88%
Non-Surge	77%	86%	93%

### Shadow Evacuations

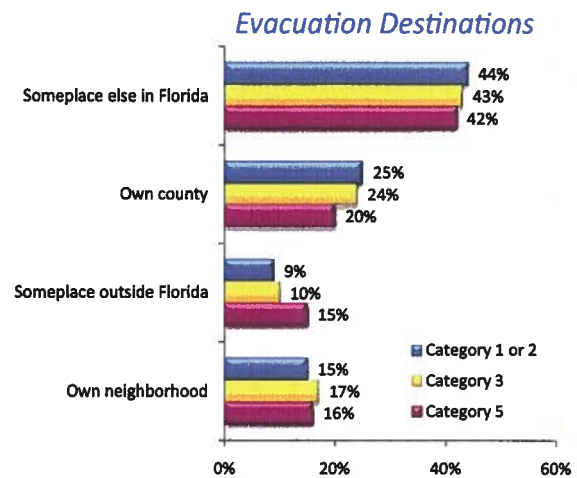
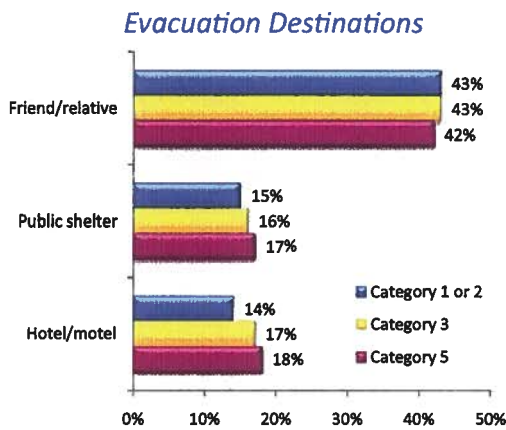
Significant percentages of residents say they intend to evacuate their homes even when the evacuation notice does not apply directly to them. Shadow evacuations increase as storm strength increases.

Evacuation zone	Evacuation notice for zones 1 and 2	Evacuation notice for zones 1, 2, and 3	Evacuation notice for zones 1, 2, 3, 4, & 5
Category 1	58%	71%	90%
Category 2	77%	86%	96%
Category 3	65%	90%	98%
Category 4	60%	79%	96%
Category 5	60%	79%	96%
Non-Surge	52%	83%	92%

**Evacuation Destination**

Regardless of the hurricane strength, pluralities of residents in the South Florida region intend to go to friends or relatives if they evacuate. Minor changes in evacuation destinations occur as hurricanes strengthen.

Most residents intend to evacuate to other places in Florida regardless of hurricane strength. Percentages of residents who intend to evacuate outside Florida increase considerably as hurricanes strengthen to a category 5. Most residents who intend to evacuate outside Florida will go to Georgia.



**Hurricane Planning**

Three out of five households (60%) have definite plans for deciding to evacuate and where to go. The typical household plans to take one vehicle (1.3) during an evacuation. Less than one in ten households (5%) plan to take a motor home, pull a trailer, boat, etc., when they evacuate.

**Issues Impacting Evacuation**

Two in five residents (38%) in the South Florida region have pets: 87% of these residents plan to take their pets with them if they evacuate. Most residents with pets (85%) are aware that public shelters will not accept pets inside, and 5% of these residents claim they will not evacuate because of this.

Seven percent of households contain an individual who requires assistance during evacuation. Over half of these households (53%; 4% of all households) have an individual who is disabled, has a medical condition or requires some other type of special assistance beyond transportation assistance. Twelve percent of these households (1% of all households) will require assistance from an outside agency. Only three in ten households (28%) that require special assistance have registered with their county as needing special assistance.

## 2. Executive Summary

### Past Hurricanes

Percentages of residents reporting they were home for recent hurricanes are shown below:

37%	Hurricane Andrew
64%	Hurricane Frances
52%	Hurricane Georges
76%	Hurricane Ivan
66%	Hurricane Jeanne
77%	Hurricane Wilma

Percentages of all households that evacuated and the most popular types of destinations are shown below:

Hurricane	Evacuated	Neighbor- hood	County	Florida	Outside Florida
Hurricane Andrew	34%	4%	16%	11%	2%
Hurricane Frances	14%	3%	4%	7%	1%
Hurricane Georges	38%	1%	6%	29%	2%
Hurricane Ivan	28%	<1%	3%	21%	3%
Hurricane Jeanne	10%	0%	4%	4%	2%
Hurricane Wilma	15%	1%	3%	10%	1%

Hurricane	Went to public shelter	Went to friend/relative	Went to hotel/motel
Hurricane Andrew	6%	20%	5%
Hurricane Frances	1%	8%	3%
Hurricane Georges	1%	28%	6%
Hurricane Ivan	0%	18%	6%
Hurricane Jeanne	<1%	9%	<1%
Hurricane Wilma	<1%	11%	3%

Percentages of households who thought evacuation notices for past hurricanes were mandatory or voluntary are shown below:

Hurricane	Mandatory	Voluntary
Hurricane Andrew	49%	37%
Hurricane Frances	25%	63%
Hurricane Georges	22%	62%
Hurricane Ivan	47%	28%
Hurricane Jeanne	38%	39%
Hurricane Wilma	36%	47%

Suppose that officials decided that the storm could strengthen and become a category 5 hurricane. If they issued a mandatory evacuation notice saying you should leave your home and go someplace safer, would you leave your home to go someplace safer?

Over nine out of ten residents (91%) would follow Emergency Management officials' orders to evacuate in the event of a category 5 hurricane. Responses varied only slightly across evacuation zones with a high of 93% in non-surge zones and a low of 88% in evacuation zones 4 and 5.

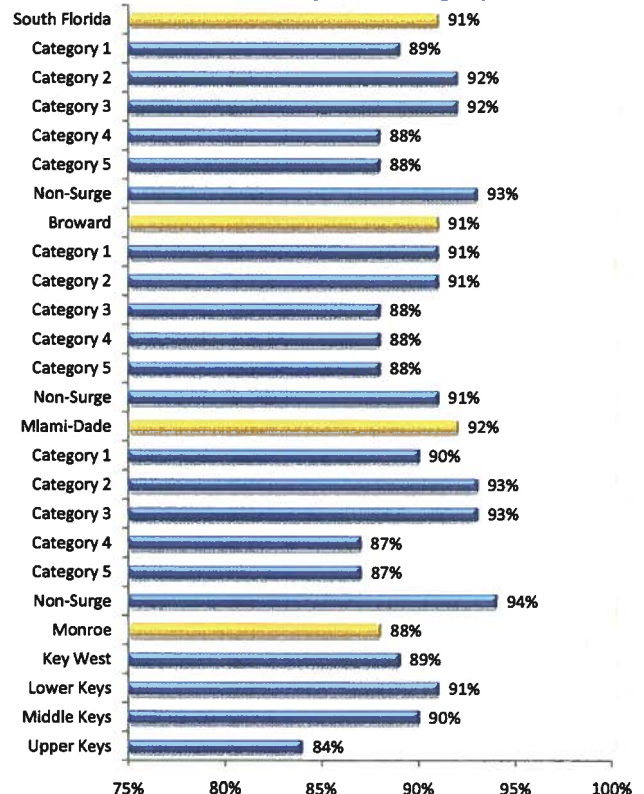
County-Level Results

At least 88% of residents in all counties will leave home if Emergency Management officials issue mandatory evacuation notices.

Would Leave Home if Mandatory Evacuation Notice is Given for a Category 5 Hurricane

	n	Yes	No	Don't know/depends
<b>South Florida</b>	<b>1,200</b>	<b>91%</b>	<b>7%</b>	<b>2%</b>
Category 1	625	89%	8%	3%
Category 2	125	92%	7%	1%
Category 3	83	92%	7%	2%
Category 4	58	88%	7%	5%
Category 5	59	88%	7%	5%
Non-Surge	250	93%	6%	1%
<b>Broward</b>	<b>400</b>	<b>91%</b>	<b>7%</b>	<b>2%</b>
Category 1	150	91%	8%	1%
Category 2		91%	8%	1%
Category 3		88%	7%	4%
Category 4	100	88%	7%	4%
Category 5		88%	7%	4%
Non-Surge	150	91%	6%	2%
<b>Miami-Dade</b>	<b>400</b>	<b>92%</b>	<b>6%</b>	<b>2%</b>
Category 1	150	90%	7%	2%
Category 2	100	93%	6%	1%
Category 3		93%	6%	1%
Category 4	50	87%	7%	7%
Category 5		87%	7%	7%
Non-Surge	100	94%	5%	1%
<b>Monroe</b>	<b>400</b>	<b>88%</b>	<b>8%</b>	<b>4%</b>
Key West	100	89%	9%	3%
Lower Keys	100	91%	6%	3%
Middle Keys	100	90%	7%	3%
Upper Keys	100	84%	8%	8%

Would Leave Home if Mandatory Evacuation Notice is Given for a Category 5 Hurricane



## 6. Evacuation Plans

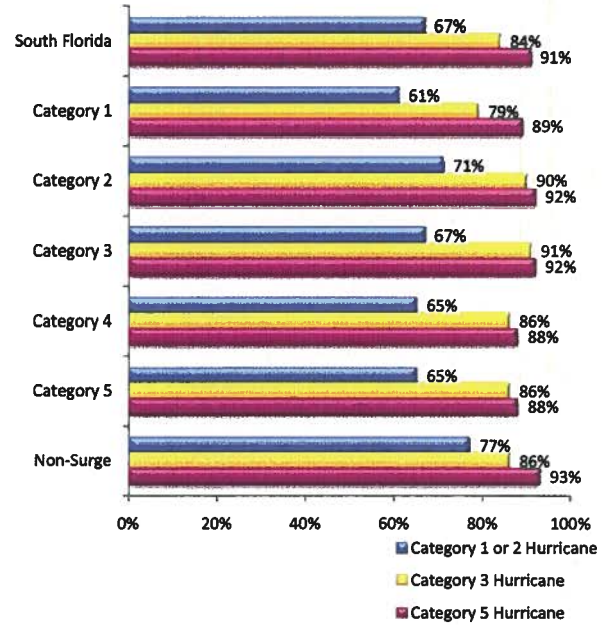
Percentages of residents who say they will follow evacuation orders increase linearly as storm strength increases:

- 67% Category 1 or 2 hurricane
- 84% Category 3 hurricane
- 91% Category 5 hurricane

### *Intention to Evacuate if Ordered*

	Category 1 or 2 Hurricane	Category 3 Hurricane	Category 5 Hurricane
<b>South Florida</b>	<b>67%</b>	<b>84%</b>	<b>91%</b>
Category 1	61%	79%	89%
Category 2	71%	90%	92%
Category 3	67%	91%	92%
Category 4	65%	86%	88%
Category 5	65%	86%	88%
Non-Surge	77%	86%	93%

### *Intention to Evacuate if Ordered*



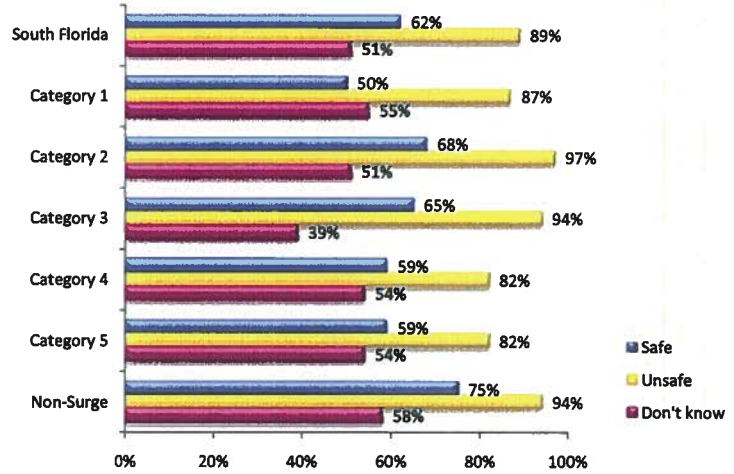


Six out of ten residents (62%) who feel safe in their homes during a category 1 or 2 hurricane plan to evacuate if ordered to do so, while 74% and 76% of residents who feel safe in category 3 and 5 hurricanes, respectively, will evacuate as well. Higher percentages of residents who feel unsafe in their homes during various strength hurricanes (89% to 96%) plan to evacuate as the table below shows.

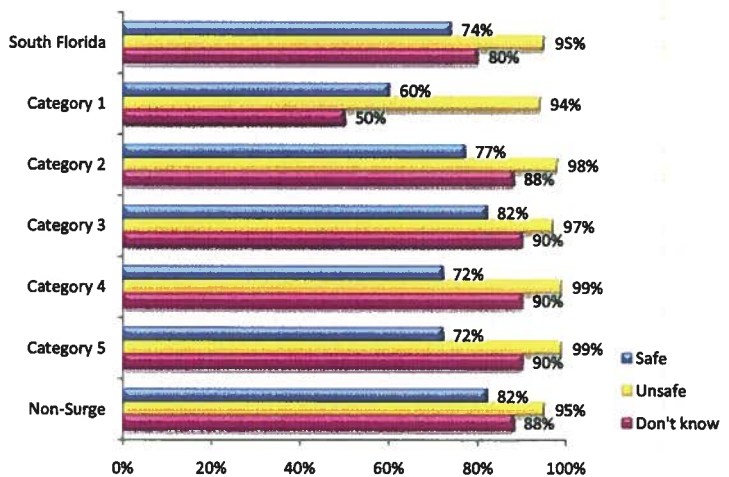
*Evacuation Rates Depending on Perceived Vulnerability by Storm Scenario*

	Safe	Unsafe	Don't know
<b>Category 1 or 2 Hurricane</b>			
South Florida	62%	89%	51%
Category 1	50%	87%	55%
Category 2	68%	97%	51%
Category 3	65%	94%	39%
Category 4	59%	82%	54%
Category 5	59%	82%	54%
Non-Surge	75%	94%	58%
<b>Category 3 Hurricane</b>			
South Florida	74%	95%	80%
Category 1	60%	94%	50%
Category 2	77%	98%	88%
Category 3	82%	97%	90%
Category 4	72%	99%	90%
Category 5	72%	99%	90%
Non-Surge	82%	95%	88%
<b>Category 5 Hurricane</b>			
South Florida	76%	96%	82%
Category 1	72%	95%	64%
Category 2	71%	97%	88%
Category 3	62%	99%	90%
Category 4	48%	98%	93%
Category 5	48%	98%	93%
Non-Surge	85%	97%	94%

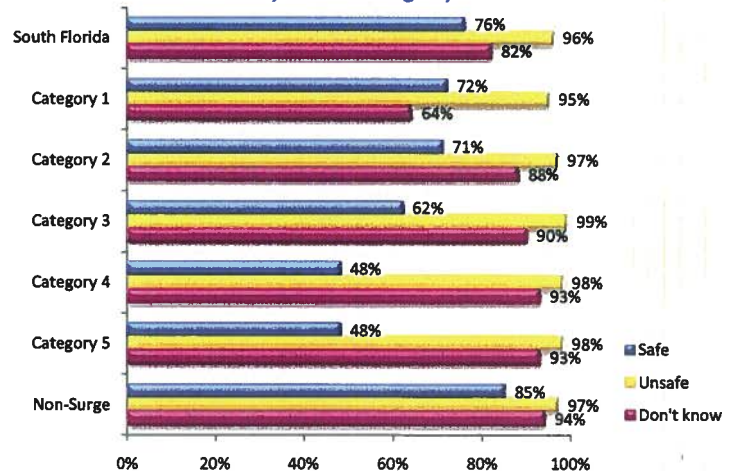
*Evacuation Rates Depending on Perceived Vulnerability in a Category 1 or 2 Hurricane*



*Evacuation Rates Depending on Perceived Vulnerability in a Category 3 Hurricane*



*Evacuation Rates Depending on Perceived Vulnerability in a Category 5 Hurricane*



## 6. Evacuation Plans

*Suppose officials DID issue a mandatory evacuation notice saying everyone living in category 1 OR 2 evacuation zones and everyone in mobile homes had to leave. Would you leave to go someplace safer?*  
Residents of the South Florida region were read the following question:

Suppose that officials DID issue a mandatory evacuation notice saying that everyone living in areas that would be affected by flooding in a category 1 OR 2 hurricane and everyone living in mobile homes or manufactured housing in your county must evacuate their homes and go to a safer location. In that case, would you leave your home to go someplace safer?

The purpose of this question is to gauge shadow evacuation. Nearly six in ten South Florida region residents (57%) who live outside the mandatory evacuation area say they intend to evacuate if officials issue a mandatory evacuation notice for that everyone living in areas that would be affected by flooding in a category 1 or 2 hurricane and everyone living in mobile homes or manufactured housing in the entire region. Even 52% of residents living in non-surge zones of coastal counties in the South Florida region say they intend to evacuate under these circumstances.

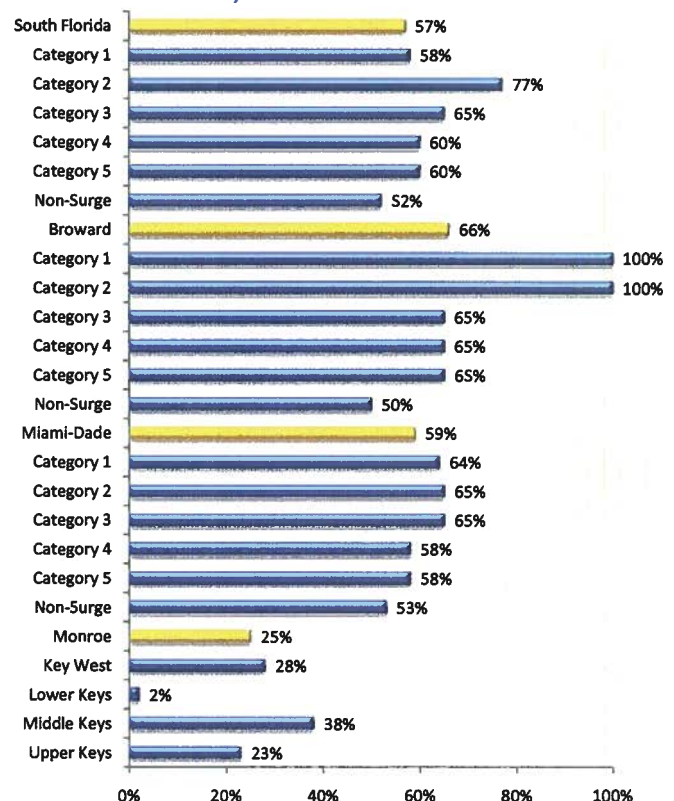
### County-Level Results

As this type of evacuation notice would include all of Monroe County, shadow evacuation is lowest in non-surge zones in Miami-Dade County (53%) and Broward County (50%) in the event of a mandatory evacuation notice for people living in evacuation zones 1 and 2 and in mobile homes.

### *Would Leave Home if Mandatory Evacuation Notice is Given for Everyone Living in Category 1 OR 2 Evacuation Zones and Everyone in Mobile Homes*

	n	Yes	No	Don't know/ depends
<b>South Florida</b>	<b>239</b>	<b>57%</b>	<b>40%</b>	<b>3%</b>
Category 1	86	58%	41%	2%
Category 2	21	77%	21%	2%
Category 3	21	65%	32%	2%
Category 4	22	60%	36%	4%
Category 5	29	60%	36%	4%
Non-Surge	60	52%	45%	4%
<b>Broward</b>	<b>70</b>	<b>66%</b>	<b>31%</b>	<b>3%</b>
Category 1		100%	0%	0%
Category 2	10	100%	0%	0%
Category 3		65%	32%	2%
Category 4	30	65%	32%	2%
Category 5		65%	32%	2%
Non-Surge	30	50%	44%	5%
<b>Miami-Dade</b>	<b>109</b>	<b>59%</b>	<b>39%</b>	<b>3%</b>
Category 1	19	64%	36%	0%
Category 2		65%	32%	2%
Category 3	30	65%	32%	2%
Category 4		58%	37%	4%
Category 5	30	58%	37%	4%
Non-Surge	30	53%	45%	3%
<b>Monroe</b>	<b>60</b>	<b>25%</b>	<b>70%</b>	<b>5%</b>
Key West	30	28%	72%	1%
Lower Keys	10	2%	83%	15%
Middle Keys	10	38%	62%	0%
Upper Keys	10	23%	65%	12%

### *Would Leave Home if Mandatory Evacuation Notice is Given for Everyone Living in Category 1 OR 2 Evacuation Zones and Everyone in Mobile Homes*



*Suppose officials DID issue a mandatory evacuation notice saying everyone living in category 1, 2, or 3 evacuation zones and everyone in mobile homes had to leave. Would you leave to go someplace safer?*  
Residents of the South Florida region were read the following question:

Suppose that officials DID issue a mandatory evacuation notice saying that everyone living in areas that would be affected by flooding in a category 1, 2 or 3 hurricane and everyone living in mobile homes or manufactured housing in your county must evacuate their homes and go to a safer location. In that case, would you leave your home to go someplace safer?

Four out of five residents (81%) in the South Florida region who live in evacuation zones 4 and 5 or in non-surge zones intend to evacuate when faced with the threat of a category 3 hurricane even though the evacuation notice does not pertain to them. This type of evacuation notice would include all of Monroe County.

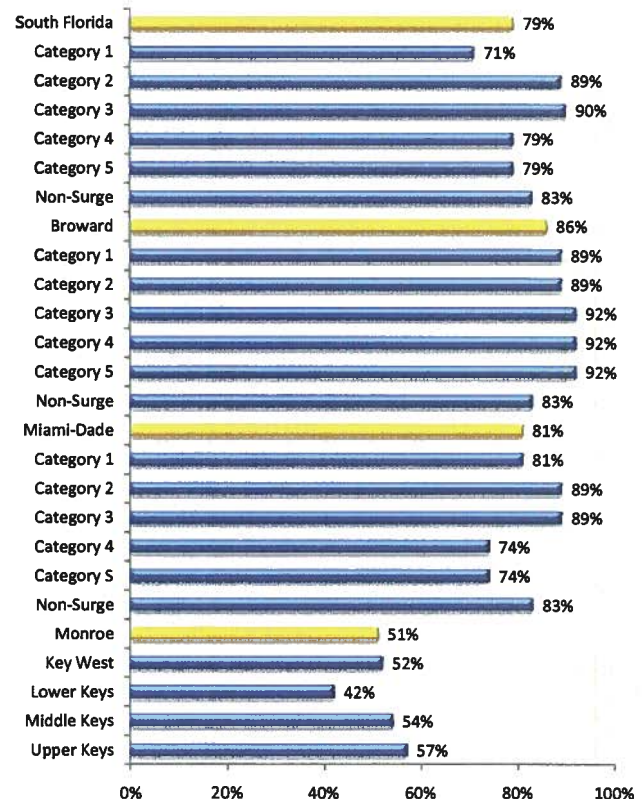
**County-Level Results**

As this type of evacuation notice would include all of Monroe County, shadow evacuation is lowest in evacuation zones 4 and 5 in Miami-Dade County (74%) in the event of a mandatory evacuation notice for people living in evacuation zones 1 through 3 and in mobile homes.

*Would Leave Home if Mandatory Evacuation Notice is Given for Everyone Living in Category 1, 2, or 3 Evacuation Zones and Everyone in Mobile Homes*

	n	Yes	No	Don't know/ depends
<b>South Florida</b>	<b>239</b>	<b>79%</b>	<b>13%</b>	<b>8%</b>
Category 1	86	71%	22%	8%
Category 2	21	89%	9%	2%
Category 3	21	90%	8%	2%
Category 4	22	79%	5%	16%
Category 5	29	79%	5%	16%
Non-Surge	60	83%	11%	6%
<b>Broward</b>	<b>70</b>	<b>86%</b>	<b>7%</b>	<b>6%</b>
Category 1	10	89%	11%	0%
Category 2	10	89%	11%	0%
Category 3	30	92%	8%	0%
Category 4	30	92%	8%	0%
Category 5	30	92%	8%	0%
Non-Surge	30	83%	5%	11%
<b>Miami-Dade</b>	<b>109</b>	<b>81%</b>	<b>9%</b>	<b>10%</b>
Category 1	19	81%	3%	16%
Category 2	30	89%	8%	3%
Category 3	30	89%	8%	3%
Category 4	30	74%	4%	22%
Category 5	30	74%	4%	22%
Non-Surge	30	83%	16%	2%
<b>Monroe</b>	<b>60</b>	<b>51%</b>	<b>44%</b>	<b>5%</b>
Key West	30	52%	45%	3%
Lower Keys	10	42%	43%	15%
Middle Keys	10	54%	46%	0%
Upper Keys	10	57%	37%	7%

*Would Leave Home if Mandatory Evacuation Notice is Given for Everyone Living in Category 1, 2, or 3 Evacuation Zones and Everyone in Mobile Homes*



## 6. Evacuation Plans

*Suppose officials DID issue a mandatory evacuation notice saying everyone living in category 1, 2, 3, 4, or 5 evacuation zones and everyone in mobile homes had to leave. Would you leave to go someplace safer?*

Residents of the South Florida region were read the following question:

Suppose that officials DID issue a mandatory evacuation notice saying that everyone living in areas that would be affected by flooding in a category 1, 2, 3, 4, or 5 hurricane and everyone living in mobile homes or manufactured housing in your county must evacuate their homes and go to a safer location. In that case, would you leave your home to go someplace safer?

Over nine in ten residents (93%) in the South Florida Region who live in non-surge zones intend to evacuate when faced with the threat of a category 5 hurricane even though the evacuation notice does not pertain to them. This type of evacuation notice would include all of Monroe County.

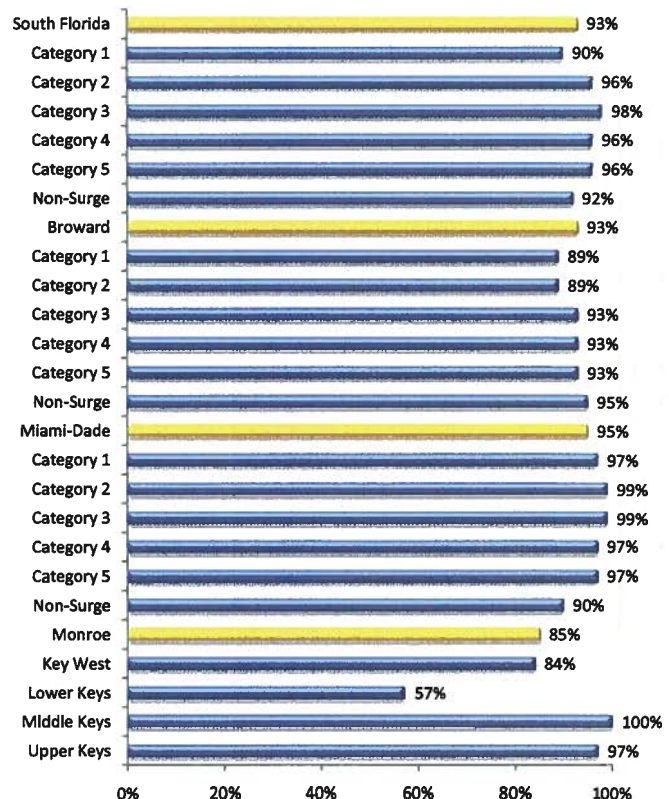
### County-Level Results

As this type of evacuation notice would include all of Monroe County, shadow evacuation is highest in Broward County (95%), while shadow evacuation by residents in non-surge zones is lowest in Miami-Dade County (90%).

### *Would Leave Home if Mandatory Evacuation Notice is Given for Everyone Living in Category 1, 2, 3, 4, or 5 Evacuation Zones and Everyone in Mobile Homes*

	n	Yes	No	Don't know/ depends
<b>South Florida</b>	<b>238</b>	<b>93%</b>	<b>5%</b>	<b>2%</b>
Category 1	85	90%	6%	4%
Category 2	21	96%	4%	0%
Category 3	21	98%	2%	0%
Category 4	22	96%	4%	0%
Category 5	29	96%	4%	0%
Non-Surge	60	92%	6%	2%
<b>Broward</b>	<b>70</b>	<b>93%</b>	<b>6%</b>	<b>1%</b>
Category 1	10	89%	11%	0%
Category 2	10	89%	11%	0%
Category 3	30	93%	7%	0%
Category 4	30	93%	7%	0%
Category 5	30	93%	7%	0%
Non-Surge	30	95%	3%	2%
<b>Miami-Dade</b>	<b>108</b>	<b>95%</b>	<b>4%</b>	<b>1%</b>
Category 1	18	97%	3%	0%
Category 2	30	99%	0%	0%
Category 3	30	99%	0%	0%
Category 4	30	97%	3%	0%
Category 5	30	97%	3%	0%
Non-Surge	30	90%	7%	2%
<b>Monroe</b>	<b>60</b>	<b>85%</b>	<b>5%</b>	<b>10%</b>
Key West	30	84%	10%	6%
Lower Keys	10	57%	0%	43%
Middle Keys	10	100%	0%	0%
Upper Keys	10	97%	3%	0%

### *Would Leave Home if Mandatory Evacuation Notice is Given for Everyone Living in Category 1, 2, 3, 4, or 5 Evacuation Zones and Everyone in Mobile Homes*



**Evacuation Rates Based on Perceived Vulnerability**

The tables on this and the subsequent page show the percentages of residents who say they will evacuate based on various warnings from Emergency Management officials and based on their perceptions of whether or not they would be safe remaining in their homes.

**At risk zones – evacuation zones 1 & 2 + mobile homes**

Nearly six out of ten residents (57%) living in the South Florida region plan to evacuate based on a mandatory evacuation notice for evacuation zones 1 and 2 + mobile homes. Propensity for evacuating under these conditions varies somewhat across evacuation zones 3 through 5 and non-surge zones ranging from a low of 52% in non-surge zones to a high of 65% in evacuation zone 3.

**At risk zones – evacuation zones 1, 2 & 3 + mobile homes**

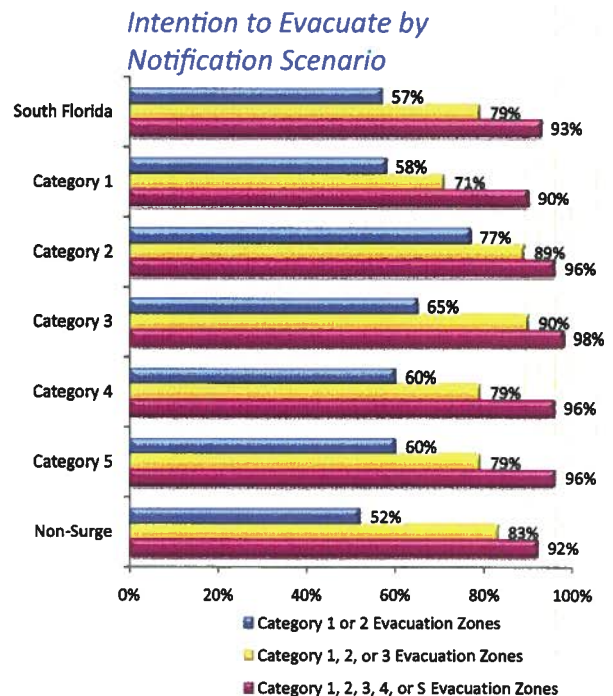
Eight out of ten residents (79%) living in the South Florida region plan to evacuate based on a mandatory evacuation notice for evacuation zones 1, 2, and 3 + mobile homes. Propensity for evacuating under these conditions is rather stable across evacuation zones 4 and 5 (79%) and non-surge zones (83%).

**At risk zones – evacuation zones 1 through 5 + mobile homes**

Over nine out of ten residents (93%) living in non-surge areas in the South Florida region plan to evacuate based on a mandatory evacuation notice for evacuation zones 1 through 5 + mobile homes.

*Intention to Evacuate by Notification Scenario*

	Category 1 or 2 evacuation zones	Category 1, 2, or 3 evacuation zones	Category 1, 2, 3, 4, or 5 evacuation zones
<b>South Florida</b>	<b>57%</b>	<b>79%</b>	<b>93%</b>
Category 1	58%	71%	90%
Category 2	77%	89%	96%
Category 3	65%	90%	98%
Category 4	60%	79%	96%
Category 5	60%	79%	96%
Non-Surge	52%	83%	92%



## 6. Evacuation Plans

### At risk zones – evacuation zones 1 & 2 + mobile homes

After an evacuation notice for evacuation zones 1 and 2, and mobile homes, nearly half of residents (48%) living in the South Florida region who feel safe in their homes plan to evacuate. Conversely, after a mandatory evacuation notice for evacuation zones 1 and 2, and mobile homes, 95% of residents in the South Florida region who do not feel safe in their homes plan to evacuate.

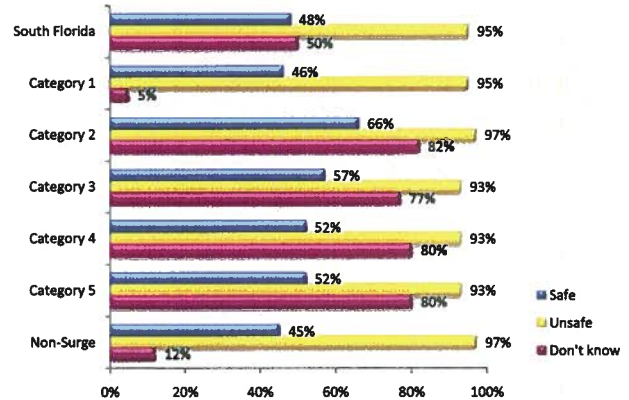
### At risk zones – evacuation zones 1, 2 & 3 + mobile homes

After an evacuation notice for evacuation zones 1, 2, 3, and mobile homes, seven out of ten residents (70%) living in the South Florida region who feel safe in their homes plan to evacuate. Conversely, after a mandatory evacuation notice for evacuation zones 1, 2, 3, and mobile homes, 94% of residents in the South Florida region who do not feel safe in their homes plan to evacuate.

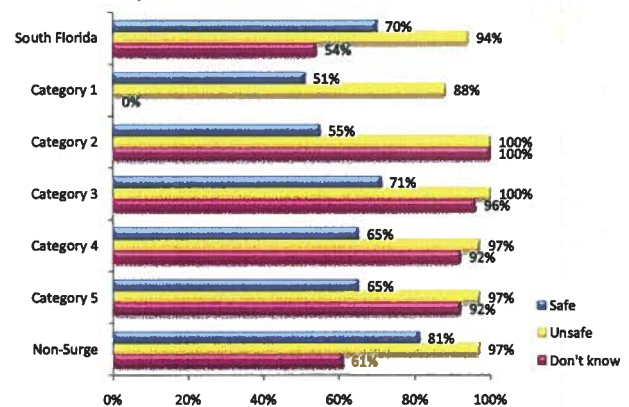
### At risk zones – evacuation zones 1 through 5 + mobile homes

After an evacuation notice for evacuation zones 1 through 5, and mobile homes, over eight in ten residents (82%) living in the South Florida region who feel safe in their homes plan to evacuate. Conversely, after a mandatory evacuation notice for evacuation zones 1 through 5, and mobile homes, 98% of residents in the South Florida region who do not feel safe in their homes plan to evacuate.

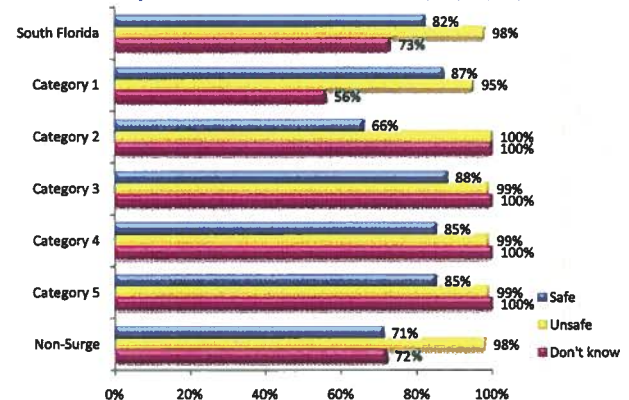
*Shadow Evacuation Rates Depending on Perceived Vulnerability in Evacuation Zones 1 and 2*



*Shadow Evacuation Rates Depending on Perceived Vulnerability in Evacuation Zones 1, 2, and 3*



*Shadow Evacuation Rates Depending on Perceived Vulnerability in Evacuation Zones 1, 2, 3, 4, and 5*



*Shadow Evacuation Rates Depending on Perceived Vulnerability by Storm Scenario*

	Safe	Unsafe	Don't know
<b>Category 1 or 2 Hurricane</b>			
South Florida	48%	95%	50%
Category 1	46%	95%	5%
Category 2	66%	97%	82%
Category 3	57%	93%	77%
Category 4	52%	93%	80%
Category 5	52%	93%	80%
Non-Surge	45%	97%	12%
<b>Category 3 Hurricane</b>			
South Florida	70%	94%	54%
Category 1	51%	88%	0%
Category 2	55%	100%	100%
Category 3	71%	100%	96%
Category 4	65%	97%	92%
Category 5	65%	97%	92%
Non-Surge	81%	97%	61%
<b>Category 5 Hurricane</b>			
South Florida	82%	98%	73%
Category 1	87%	95%	56%
Category 2	66%	100%	100%
Category 3	88%	99%	100%
Category 4	85%	99%	100%
Category 5	85%	99%	100%
Non-Surge	71%	98%	72%



**Volume 1-11  
Technical Data Report  
South Florida Region**

**Appendix IIIC**

**Monroe County Planning Assumptions**



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## List of Tables

<u>Table</u>	<u>Title</u>	<u>Page</u>
IIIC-1	Evacuation Rates for Residents Living in Site-Built Homes .....	IIIC-1
IIIC-2	Out-of-County Trip Rates for Residents Living in Site-Built Homes.....	IIIC-1
IIIC-3	Vehicle Use Rates for Residents Living in Site-Built Homes .....	IIIC-1
IIIC-4	Public Shelter Use Rates for Residents Living in Site-Built Homes.....	IIIC-2
IIIC-5	Friend / Relative Refuge Use Rates for Residents Living in Site-Built Homes .....	IIIC-2
IIIC-6	Hotel / Motel Refuge Use Rates for Residents Living in Site-Built Homes .....	IIIC-2
IIIC-7	Other Refuge Use Rates for Residents Living in Site-Built Homes .....	IIIC-3
IIIC-8	Evacuation Rates for Residents Living in Mobile and Manufactured Homes .....	IIIC-3
IIIC-9	Out-of-County Trip Rates for Residents Living in Mobile and Manufactured Homes .....	IIIC-3
IIIC-10	Vehicle Use Rates for Residents Living in Mobile and Manufactured Homes .....	IIIC-4
IIIC-11	Public Shelter Use Rates for Residents Living in Mobile and Manufactured Homes .....	IIIC-4
IIIC-12	Friend / Relative Refuge Use Rates for Residents Living in Mobile and Manufactured Homes .....	IIIC-4
IIIC-13	Hotel / Motel Refuge Use Rates for Residents Living in Mobile and Manufactured Homes .....	IIIC-5
IIIC-14	Other Refuge Use Rates for Residents Living in Mobile and Manufactured Homes .....	IIIC-5

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**Table IIIC-1: Evacuation Rate for Residents Living in Site-Built Homes – Monroe County**

Evacuation Rate (%)	Storm Threat Scenario				
Site-Built Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	40	50	70	80	90
Middle Keys	35	40	70	80	90
Lower Keys	40	45	70	80	90
Key West	35	40	70	80	90

*Evacuation rate indicates the percent of residents who will leave their homes to go some place safer from each zone in each storm threat scenario. Figures are based on the assumption that officials order evacuation for surge evacuation zones corresponding to storm category, plus all mobile homes and manufactured homes. Figures also assume that the actual storm track passes very close to the area being evacuated.*

**Table IIIC-2: Out-of-County Trip Rates for Residents Living in Site-Built Homes – Monroe County**

Out-of-County Trip Rate (%)	Storm Threat Scenario				
Site-Built Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	95	95	95	95	95
Middle Keys	95	95	95	95	95
Lower Keys	90	90	90	90	90
Key West	85	85	85	85	85

*Out-of-county trip rate indicates the percent of evacuees from each zone who will seek refuge outside their own county of residence in each storm threat scenario.*

**Table IIIC-3: Vehicle Use Rates for Residents Living in Site-Built Homes – Monroe County**

Vehicle Use Rate (%)	Storm Threat Scenario				
Site-Built Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	85	85	85	85	85
Middle Keys	80	80	80	80	80
Lower Keys	75	75	75	75	75
Key West	90	90	90	90	90

*Vehicle use rate indicates of percentage of vehicles available to the evacuating household from each zone that will be used in evacuation in each storm threat scenario.*

*Note: After the publication of Volume 2-11 – Regional Behavioral Analysis, minor adjustments were made in vehicle use rates following additional discussion with Monroe County. The rates in Table IIIC-3 reflect the vehicle use rates employed in the evacuation transportation analysis.*

**Table IIIC-4: Public Shelter Use Rates for Residents Living in Site-Built Homes – Monroe County**

Public Shelter Use Rate (%)	Storm Threat Scenario				
Site-Built Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	2	2	2	2	2
Middle Keys	2	2	2	2	2
Lower Keys	2	2	2	5	5
Key West	2	2	2	5	5

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

**Table IIIC-5: Friend / Relative Refuge Use Rates for Residents of Site-Built Homes – Monroe County**

Friend / Relative Use Rate (%)	Storm Threat Scenario				
Site-Built Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	70	70	70	75	75
Middle Keys	50	50	50	55	55
Lower Keys	60	60	60	65	65
Key West	50	50	50	55	55

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

**Table IIIC-6: Hotel / Motel Refuge Use Rates for Residents of Site-Built Homes – Monroe County**

Hotel / Motel Use Rate (%)	Storm Threat Scenario				
Site-Built Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	20	20	20	20	20
Middle Keys	25	25	25	25	25
Lower Keys	25	25	25	25	25
Key West	25	25	25	25	25

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

**Table IIIC-7: Other Refuge Use Rates for Residents of Site-Built Homes – Monroe County**

Other Refuge Use (%)	Storm Threat Scenario				
Site-Built Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	8	8	8	3	3
Middle Keys	23	23	23	18	18
Lower Keys	13	13	13	5	5
Key West	23	23	23	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.*

**Table IIIC-8: Evacuation Rate for Residents Living in Mobile and Manufactured Homes – Monroe County**

Evacuation Rate (%)	Storm Threat Scenario				
Mobile and Manufactured Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	65	75	85	90	95
Middle Keys	65	75	85	90	95
Lower Keys	65	75	85	90	95
Key West	65	75	85	90	95

*Evacuation rate indicates the percent of residents who will leave their homes to go some place safer from each zone in each storm threat scenario. Figures are based on the assumption that officials order evacuation for surge evacuation zones corresponding to storm category, plus all mobile homes and manufactured homes. Figures also assume that the actual storm track passes very close to the area being evacuated.*

**Table IIIC-9: Out-of-County Trip Rates for Residents Living in Mobile and Manufactured Homes – Monroe County**

Out-of-County Trip Rate (%)	Storm Threat Scenario				
Mobile and Manufactured Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	75	75	75	75	75
Middle Keys	75	75	75	75	75
Lower Keys	75	75	75	75	75
Key West	75	75	75	75	75

*Out-of-county trip rate indicates the percent of evacuees from each zone who will seek refuge outside their own county of residence in each storm threat scenario.*

**Table IIIC-10: Vehicle Use Rates for Residents Living In Mobile and Manufactured Homes – Monroe County**

Vehicle Use Rate (%)	Storm Threat Scenario				
Mobile and Manufactured Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	85	85	85	85	85
Middle Keys	80	80	80	80	80
Lower Keys	75	75	75	75	75
Key West	90	90	90	90	90

*Vehicle use rate indicates of percentage of vehicles available to the evacuating household from each zone that will be used in evacuation in each storm threat scenario.*

*Note: After the publication of Volume 2-11 – Regional Behavioral Analysis, minor adjustments were made in vehicle use rates following additional discussion with Monroe County. The rates in Table IIIC-10 reflect the vehicle use rates employed in the evacuation transportation analysis.*

**Table IIIC-11: Public Shelter Use Rates for Residents Living in Mobile and Manufactured Homes – Monroe County**

Public Shelter Use Rate (%)	Storm Threat Scenario				
Mobile and Manufactured Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	5	5	5	10	10
Middle Keys	5	5	5	10	10
Lower Keys	5	5	5	10	10
Key West	5	5	5	10	10

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

**Table IIIC-12: Friend / Relative Refuge Use Rates for Residents of Mobile and Manufactured Homes – Monroe County**

Friend / Relative Use Rate (%)	Storm Threat Scenario				
Mobile and Manufactured Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	70	70	70	70	70
Middle Keys	50	50	50	55	55
Lower Keys	60	60	60	65	65
Key West	50	50	50	55	55

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

**Table IIIC-13: Hotel / Motel Refuge Use Rates for Residents of Mobile and Manufactured Homes – Monroe County**

Hotel / Motel Use Rate (%)	Storm Threat Scenario				
Mobile and Manufactured Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	20	20	20	20	20
Middle Keys	25	25	25	25	25
Lower Keys	25	25	25	25	25
Key West	25	25	25	25	25

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

**Table IIIC-14: Other Refuge Use Rates for Residents of Mobile and Manufactured Homes – Monroe County**

Other Refuge Use (%)	Storm Threat Scenario				
Mobile and Manufactured Homes	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Upper Keys	5	5	5	0	0
Middle Keys	20	20	20	10	10
Lower Keys	10	10	10	0	0
Key West	20	20	20	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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**Florida Keys ACSC Hurricane Evacuation Clearance Times Summary**

		Category 3/ Level C	Category 4/ Level D	Category 5/ Level E
Participation		70%	80%	90%
1	2010 Census site-built units 44,630	19 hours	21 hours	23 hours
2	2010 Census site-built units with full allocation for 10 years (44,630 + 3,540)	19 hours & 30 Minutes	22 hours	24 hours
3	2010 Census site-built units with 50% decrease in current allocation for 10 years (44,630 + 1,780)	19 hours & 30 Minutes	21 hours & 30 minutes	23 hours & 30 minutes
4	2010 Census site-built units with 25% decrease in current allocation for 10 years (44,630 + 2,660)	19 hours & 30 Minutes	21 hours & 30 minutes	23 hours & 30 minutes
5	2010 Census site-built units with full allocation for 10 years and all mobile homes (44,630 + 3,540 + 8,134)	22 hours	24 hours & 30 minutes	27 hours
6	2010 Census site-built units with full allocation for 10 years with 1,248 mobile homes (projected conversion to site-built) (44,630 + 3,540 + 1,248)	20 hours	22 hours & 30 minutes	24 hours & 30 minutes
7	2010 Census site-built units with 50% decrease in current allocation for 10 years with 1,248 mobile homes representing the projected conversion to site-built (44,630 + 1,780 + 1,248)	19 hours & 30 Minutes	21 hours & 30 minutes	24 hours
8	2010 Census site-built units with 25% decrease in current allocation for 10 years with 1,248 mobile homes representing the projected conversion to site-built (44,630 + 2,660 + 1,248)	20 hours	22 hours	24 hours

**These scenarios are based on a 12 hour response curve and using 2010 Census occupancy rates.**

	<b>Participation</b>	<b>100%</b>
9	Existing Hotel units, 100 hotel units in Marathon, Mobile homes, Military modeled using hotel occupancy rates for July (13,665 units + 100 units + 8,134 units + 2,025 vehicles)	16 hours & 30 minutes
10	Existing Hotel units, 100 hotel units in Marathon, Mobile homes, Military modeled using hotel occupancy rates for October (13,665 units + 100 units + 8,134 units + 2,025 vehicles)	15 hours & 30 minutes
11	Existing Hotel units, 100 hotel units in Marathon, Mobile homes, Military modeled using hotel occupancy rates for November (13,665 units + 100 units + 8,134 units + 2,025 vehicles)	16 hours
12	Existing Hotel units, 100 hotel units in Marathon, Mobile homes, Military modeled using hotel occupancy rates for the hurricane season average (June through November) (13,665 units + 100 units + 8,134 units + 2,025 vehicles)	15 hours and 30 minutes
13	Hotels, Mobile homes, Military modeled using hotel occupancy rates for July with an additional 215 units in Key West (13,665 units + 100 units + 8,134 units + 2,025 vehicles + 215 units)	16 hours & 30 minutes

		Category 5/ Level E
		90%
		Participation
14	2010 Census site-built units with 50% decrease in current allocation for 10 years and all mobile homes (44,630 + 1,780 + 8,134)	26 hours & 30 minutes
15	2010 Census site-built units with 25% decrease in current allocation for 10 years and all mobile homes (44,630 + 2,660 + 8,134)	26 hours & 30 minutes
16	2010 Census Site built units, hotels, mobile homes, Military (44,630 + 13,665 units + 8,134 units + 2,025 vehicles)	35 hours & 30 minutes
17	Hotels, Military 100% participation, July occupancy (no mobiles) (13,665 units + 2,025 vehicles)	14 hours & 30 minutes
18	2010 Census Site built units, mobile homes, 500 additional units (44,630 + 8,134 + 500)	26 hours
19	2010 Census Site built units, mobile homes, 1,000 additional units (44,630 + 8,134 + 1,000)	26 hours
20	2010 Census Site built units, mobile homes, 1,500 additional units (44,630 + 8,134 + 1,500)	26 hours
21	2010 Census Site built units, mobile homes, 2,000 additional units (44,630 + 8,134 + 2,000)	26 hours
22	2010 Census Site built units, mobile homes, 2,500 additional units (44,630 + 8,134 + 2,500)	26 hours & 30 minutes
23	2010 Census site-built units, mobile homes, 3,000 additional units (44,630 + 8,134 + 3,000)	27 hours
24	2010 Census site-built units, mobile homes and vacant parcels (44,630 + 8,134 + 11,282)	30 hours & 30 minutes
25	2010 Census site-built units and mobile homes (44,630 + 8,134)	25 hours & 30 minutes
26	<b>Regional Evacuation Run</b> 2010 Census Units (Monroe 44,630) + 5 years full allocation (1,780) + 5 years of mobile homes converting to site-built (622), 2015 projections for Miami-Dade & Broward, 2015 Roadway Network	24 hours

# Florida Keys Hurricane Evacuation Data Sheet

April 30, 2012

10 year projections

12 hour response curve

2010 occupancy rates

70% participation for a Category 3 event

80% participation for a Category 4 event

90% participation for a Category 5 event

100% participation from occupied hotels and mobile homes, and the military

Data taken from the 2010 Census supplemented by the American Community Survey, utilizing 40 Traffic Evacuation Zones. The averages listed below are informational only showing the range or average instead of providing the 40 Traffic Evacuation Zones. All information is available upon request.

## Mobile Homes

<b>Total Units</b>	<b>8,134</b>
<b>Occupied units</b>	<b>4,576</b>
<b>Vacant units</b>	<b>3,558</b>
<b>Occupancy:</b>	<b>42-80%</b>
<b>Average auto use</b>	<b>1.1 cars -1.5 cars</b>
<b>Military/FKCC</b>	<b>2,125 cars</b>

## Site- built

<b>Total Units</b>	<b>44,630</b>
<b>Occupied units</b>	<b>28,053</b>
<b>Vacant units</b>	<b>16,577</b>
<b>Occupancy average</b>	<b>49-81% of units</b>
<b>Average auto use:</b>	<b>1.49 -1.5</b>

## Tourist

<b>Total Units</b>	<b>13,665</b>
<b>Occupied units</b>	<b>9,540</b>
<b>Vacant units</b>	<b>4,125</b>
<b>Occupancy</b>	<b>67-90%</b>
<b>Average auto use</b>	<b>1.1 per unit</b>
<b>Hurricane Season</b>	<b>June-November</b>

Data from Smith Travel Report

July is the highest occupancy (i.e. lobster mini-season, Hemingway Days, etc.)

## **Trends**

Conversion of 30.6 percent mobile homes to site built homes over last 20 years  
Occupancy rate has declined by 15% since the 1990 Census

## Allocation Distribution

	1990		2000		2010	
	Population	% of Total Population	Population	% of Total Population	Population	% of Total Population
Islamorada	**		6,846	8.60%	6,119	8.37%
Key Colony Beach	977	1.25%	788	0.99%	797	1.09%
Key West	24,832	31.83%	25,478	32.01%	24,649	33.72%
Layton	183	0.23%	186	0.23%	184	0.25%
Marathon	**		10,255	12.88%	8,297	11.35%
Unincorporated Monroe County	52,032	66.69%	36,036	45.28%	33,044	45.21%
Monroe County	78,024		79,589		73,090	

\*\* Not incorporated as of 1990

Source: US Census

	Vacant Parcels	% of Total Vacant Parcels
Islamorada	1,109	9.78%
Key Colony Beach	92	0.81%
Key West	84	0.74%
Layton	13	0.11%
Marathon	1,281	11.30%
Unincorporated Monroe County	8,758	77.25%
<b>Total Monroe County</b>	<b>11,337</b>	

Source: County and Municipalities supplied

Current Allocations	
Islamorada	28
Key Colony Beach	6
Key West	90
Layton	3
Marathon	30
Unincorporated Monroe County	197
<b>Total</b>	<b>354</b>

Allocations based on the % of Vacant Land	
Islamorada	35
Key Colony Beach	3
Key West	3
Layton	1 (0.41)
Marathon	40
Unincorporated Monroe County	273
<b>Total</b>	<b>355</b>

Allocations based on the % of Current Population	
Islamorada	30
Key Colony Beach	4
Key West	119
Layton	1
Marathon	40
Unincorporated Monroe County	160
<b>Total</b>	<b>354</b>

	<b>% vacant parcels</b>	<b>% Population</b>	<b>% of current allocation</b>
<b>Islamorada</b>	9.78%	8.37%	7.9%
<b>Key Colony Beach</b>	0.81%	1.09%	1.7%
<b>Key West</b>	0.74%	33.72%	25.4%
<b>Layton</b>	0.11%	0.25%	0.8%
<b>Marathon</b>	11.30%	11.35%	8.5%
<b>Unincorporated Monroe County</b>	77.25%	45.21%	55.6%

6

**Florida Keys Allocations**

**Full Allocation**

<b>Local Government</b>	<b>Allocation</b>
Islamorada	28
Key Colony Beach	6
Key West	90
Layton	3
Marathon	30
Unincorporated Monroe County	197
<b>Total</b>	<b><u>354</u></b>

**25% Reduction in Allocation**

<b>Local Government</b>	<b>Allocation</b>
Islamorada	21
Key Colony Beach	4
Key West	68
Layton	2
Marathon	23
Unincorporated Monroe County	148
<b>Total</b>	<b><u>266</u></b>

**50% Reduction in Allocation**

<b>Local Government</b>	<b>Allocation</b>
Islamorada	14
Key Colony Beach	3
Key West	45
Layton	2
Marathon	15
Unincorporated Monroe County	99
<b>Total</b>	<b><u>178</u></b>