



# Is Safety First?

**Evacuation Planning: Will the public's right to safety prevail?**

An analysis of the Monroe County Clearance Time assumptions and the resulting MOU.

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# MOU - the assumptions

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- \* The task of the Monroe County Hurricane Evacuation Clearance Time Working Group is to define “...the input variables and assumptions, including regional considerations, for utilizing the Florida Keys Hurricane Evacuation Model or other models acceptable to DEO in order to accurately depict and to project evacuation clearance times for the population of the Florida Keys as provided for in Rules 28-19, 28-18 and 28-20, Florida Administrative Code.” *The results will be compared to the statutory limit of 24 hours.*
- \* *Some would reverse the process, starting with a 24-hour-or-less clearance time, then defining the inputs and assumptions to achieve that time.*
- \* Among the variables are a) The available evacuation time, b) The percentage of dwelling units to be included, c) The intensity of the assumed hurricane, d) The Clearance Time limit and e) Inclusion or exclusion of regional influences.
- \* *Although this defines a hypothetical hurricane evacuation, it most importantly defines how many more evacuees will be added to future, **actual** evacuations.*
- \* Questions about the propriety of the assumptions are discussed here.

# The Questions:

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- ❖ We assume we will have 48 hours in which to execute a two-phased evacuation. Is the 48-hour assumption supportable?
- ❖ Is it prudent to exclude 100% of tourists because they will evacuate 48 hours prior?
- ❖ What percentage of the total number of dwelling units should be included?
- ❖ Is a regional evacuation likely?
- ❖ Are our elected officials following a “Safety First” policy?
- ❖ Will the MOU agreements make us safer, or less safe?

# Is there science to support the 48-hour assumption?

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- ❖ *"The science of weather forecasting, including track, intensification, wind field and storm surge does not support the assumption that Monroe County will always have 48 hours in which to carry out a phased evacuation."* Jonathan Rizzo, Warning Coordination Meteorologist at the National Weather Service, Key West
- ❖ *"While Average Track Errors for Atlantic hurricanes have been cut in half over the past 15 years, there has been virtually no change in average intensity forecast errors over that period. Rapid intensification is particularly difficult to forecast. Accurate forecasts of storm surge 48 hours in advance are complicated by a lack of ability to forecast changes in storm structure and size, where almost no forecast skill exists. The structure or distribution of a storm's wind field is one of several critical factors in determining the amount of surge that a particular location will experience."* James Franklin, Branch Chief of the National Hurricane Center Hurricane Specialist Unit
- ❖ *"Hurricanes Wilma, Rita, Ivan and Dennis all intensified from tropical storm to evacuation-inducing Category 3+ strength in less than 24 hours - and none of those intensifications were forecast."* Andrew Devanas, Science and Operations Officer, National Weather Service, Key West
- ❖ *"Hurricane Charley intensified from Category 2 (110 mph) to Category 4 (145 mph) in 5 hours' time prior to landfall on the southwest Florida coastline."* Jonathan Rizzo, Warning Coordination Meteorologist, National Weather Service
- ❖ *"In the span of just 24 hours, Wilma had intensified from a 60-kt tropical storm to a 150-kt category 5 hurricane, an unprecedented event for an Atlantic tropical cyclone. It is fortunate that this ultra-rapid strengthening took place over open waters, apparently void of ships, and not just prior to a landfall."* Richard J. Pasch, Eric S. Blake, Hugh D. Cobb III and David P. Roberts, National Hurricane Center

# Is it prudent to exclude tourists from the clearance-time calculation because we assume they evacuate 48 hours ahead?

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*The authorities listed below stated this in the 2001 Florida Keys Evacuation Study:*

*“For the purposes of this study, **traffic generated by hotels and other tourist units were included** in determining clearance times, rather than discounted because they will be required to evacuate early... According to the Director of Emergency Management Operations for Monroe County, and others, **not all hurricanes approaching the Keys will be ‘considerate’ enough to provide ample warning for advanced tourist evacuation.**”*

◆ **Billy Wagner**, Director of Monroe County Emergency Management Operations

◆ **Javier Gonzalez**, Florida Department of Transportation

◆ **Royce Tipton**, US Army Corps of Engineers

◆ **Nora Williams**, Monroe County Commissioner

◆ **Terry Rice**, FIU, Former Army Corps of Engineers District Commander

◆ **Bob Collins**, Florida Division of Emergency Management

◆ **Frank Koutnik**, Florida Division of Emergency Management

◆ **David Rivera**, Vanasse-Hangen-Brustlin

◆ **Brian Fowler**, Vanasse-Hangen-Brustlin

◆ **Craig Miller**, Miller Consulting

◆ **Joaquin Vargas**, Miller Consulting

# Should citizens who live in mobile homes be considered permanent residents?

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- ❖ Existing Clearance Time calculations exclude all mobile home residents
- ❖ Florida Statute 380.0552: “...Adoption of goals, objectives, and policies to protect public safety and welfare in the event of a natural disaster by maintaining a hurricane evacuation clearance time for **permanent residents** of no more than 24 hours. The hurricane evacuation clearance time shall be determined by a hurricane evacuation study conducted in accordance with a professionally accepted methodology and approved by the state land planning agency.”
- ❖ Mobile home property owners have vested rights to build site-built homes and are no less permanent than other residents.

# Will second homes generate evacuation traffic?

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- ❖ No evacuation traffic from “vacant” homes is included in our Clearance Time calculations, which is clearly incorrect
- ❖ There are 20,135 site-built and mobile home units considered “vacant” according to the census
- ❖ 15,101 of them (75%) are for “seasonal, recreational or occasional use.” (IC-12, Vol 1-11 South Florida)
- ❖ Full-time occupancy could add significant “permanent” residents and clearance time increases, even if there were NO new allocations.
- ❖ What percentage of “vacant” homes should be included?

# What portion of total dwelling units is appropriate?

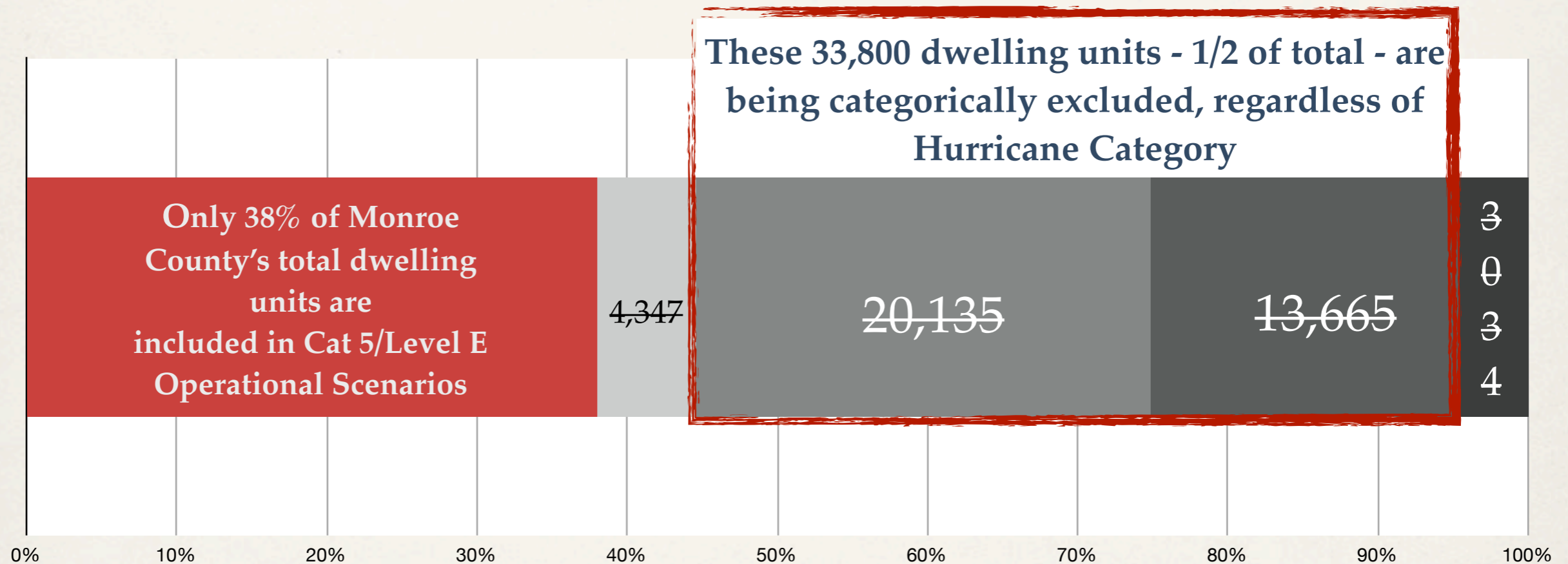
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- **Of 66,429 total dwelling units, only 38% (25,248) are included in a Cat 5/Level E Clearance Time calculation** (Only site-built, occupied, participating homes are included in calculations).
- **4,347** mobile home units **are excluded from the clearance time** based on the 48-hour assumption
- **20,135** “vacant” site-built and mobile homes **are excluded** based on census info
- All Hotel/Motel units - **13,665** - **are excluded** from the clearance time based on the 48-hour assumption
- **3,034 site-built and mobile homes are excluded** because they are expected not to “participate.”



# Is it reasonable that our “Official” Clearance Time includes only **38%** of the total dwelling units?

## Dwelling Units Excluded from Operational Clearance Times - Cat 5/Level E (2010)



- 25,248 Occupied, Participating, Site-Built Homes
- 4,347 Occupied, Participating Mobile Homes EXCLUDED
- 20,135 Site-Built & Mobile Vacant EXCLUDED
- 13,665 Hotel/Motel Units EXCLUDED
- 3,034 Site Built & Mobile Home, Non Participating

# Don't forget reductions for occupancy and participation rates

Friday, April 20, 2012

## 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 [44,630 x 63% x 90% = 25,248 = 23 hours]	19 hours	21 hours	23 hours

- ❖ Actual number of dwelling units in Cat 5 / Level E calculation:
- ❖ **44,630** x 62.86% occupied = 28,053 x 90% participation = **25,248** site-built, occupied, participating dwelling units
- ❖ **38%** of total dwelling units = 23 hours
- ❖ **All Clearance Times have been reduced by similar “occupancy” and “participation” factors**

# Should Monroe County's "Official" Clearance Time be the Regional Evacuation?

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- ❖ Rule 28-20.140 (5)(a), Florida Administrative Code, states that, "...The memorandum of understanding shall stipulate...the input variables and assumptions, **including regional considerations**...to accurately depict evacuation clearance times..."
- ❖ *"It is unlikely that one county will be evacuating by itself for a major hurricane."*  
Jeff Alexander, Northeast Regional Planning Council
- ❖ There are two ways that "regional considerations" could be reflected in our "Official" Clearance Time: By using the TIME model "Regional Evacuation" time, or the "Out of County" clearance time product for a multi-county evacuation scenario.

# Is public safety properly served by these current **combined** assumptions?

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- ❖ 48 hours will be available, **and**
- ❖ ... all tourists will always be evacuated, **and**
- ❖ ... all mobile homes residents will always be evacuated, **and**
- ❖ ... there is no evacuation traffic generated by “vacant” homes, **and**
- ❖ ... only Monroe County will evacuate (Miami-Dade will not)?

# Please consider...

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- ❖ ...that forecasting tools are inadequate to reliably evacuate tourists 48 hours ahead. History tells us that sometimes 24 hours is insufficient
- ❖ ...that mobile-home residents are as permanent as any site-built residents
- ❖ ...that many “vacant” dwelling units will generate evacuation traffic because they are second homes in need of hurricane preparation by mainland owners, or simply because they are occupied as “seasonal, recreational or occasional” units
- ❖ ...full-time occupancy of these “vacant” dwelling units would deliver more “permanent” residents and evacuation degradation, even if there were no new allocations.
- ❖ ...a regional evacuation is likely
- ❖ ...relaxing the safety standard from 24 to 30 hours increases risk because it would add significantly more people to actual evacuations.

The following **reasonable assumptions** should be, but are not included in the draft MOU:

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- ❖ Include Tourists
- ❖ Include Mobile Home residents
- ❖ Include 25% of “vacant” site-built and mobile homes
- ❖ Use the “Out of County” product for an evacuation that includes Miami-Dade and Broward counties
- ❖ Maintain the 24-hour Limit dictated by Florida Statutes, Section 163.3178(9) and 380.0552(9)(a)(2)

# Are our elected officials following a “Safety First” policy?

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- ❖ The history of Monroe County’s Clearance Time has been that **whenever the Clearance Time “goal line” has been approached, the “goal line” has been moved.**
- ❖ In 2004, DCA Secretary Cohen convened a task force to “reduce the Monroe County clearance time.” The result was Comp Plan Policy 216.1.8, which codified the established Emergency Management practice of phased evacuations. This was considered by the task force “...the quickest and most effective means of significantly reducing the clearance time...” No kidding! They instantaneously shaved six hours, at no cost, *by removing 1/3 of the population from the calculation.*
- ❖ **Was safety increased?**
- ❖ **Will *your* policy decision continue this pattern of subordinating safety?**
- ❖ **Safety should be *First***

# Is Safety First?

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With regard to policy changes, the test is,

**“Is the new policy safer than current policy?”**

If *YOU* won't place safety first,

***WHO WILL?***

***WHEN?***