



# **VOLUME 1-7**

## **STATEWIDE REGIONAL EVACUATION STUDY PROGRAM**

### **CENTRAL FLORIDA REGION**

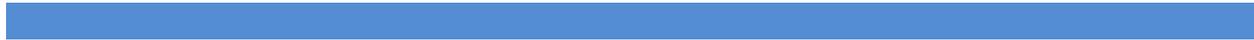
#### **TECHNICAL DATA REPORT**

#### **GLOSSARY**





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## Glossary Introduction

The methodology for determining evacuation clearance times for growth management and emergency management purposes were agreed upon by both the Department of Community Affairs and the Division of Emergency Management. The methodology included four planning assumptions which were reviewed and discussed in detail. The planning assumptions establish the appropriate evacuation population, shadow evacuation, vehicle usage and response rate to use in the baseline scenario. The planning assumptions are based on statutory authority and extensive behavioral analysis completed for this study. The resulting clearance times are applied in growth management decision making and will help guide future decisions on comprehensive plan amendments in the coastal areas of the State.

Based on the planning assumptions, the baseline scenario stipulates that one hundred percent (100%) of the population in an evacuation zone is used when calculating the clearance times for growth management purposes. This percentage is based on Section 163.3178(2)(d), Florida Statutes. Additionally, the concept of shadow evacuation is an important factor to consider when calculating clearance times and is utilized in the baseline scenario. The percentage of shadow evacuation used varies by region and is determined by the behavioral analysis conducted for each region. The complete information can be found in *Volume 2: Regional Behavioral Analysis*, prepared by Dr. Jay Baker. A summary of this information can also be found in *Volume 1: Chapter III – Behavioral Analysis Summary*.

Vehicle usage rates are based upon the behavioral analysis conducted as part of the Statewide Regional Evacuation Study Program. This analysis takes into consideration the different characteristics throughout the state with regard to the numbers of vehicles people might use during an evacuation. These usage rates vary by region, based on the behavioral analysis. Finally, a 12-hour evacuation response curve is used as the evacuation response rate. There is no statutory basis for selecting a particular evacuation response rate; however the use of the 12-hour response curve is consistent with emergency planning practices currently used by county emergency managers across the state. It is a reasonable approximation of evacuation responses over a range of scenarios.

In part, the planning assumptions are definitions to key terminology used in both growth management and emergency management applications. All terms were reviewed in relation to **Rules 9J-2 and 9J-5, Florida Administrative Code and Chapters 163 and 186, Florida Statutes**. If a term has been defined by a statute or rule, the definition is utilized. A portion of the terms are widely accepted planning or emergency management terms not documented previously. This glossary allows these terms to be formally defined through the Statewide Regional Evacuation Study. Finally, some terms are defined "for purposes of this study", which recognizes that other definitions may exist that are applicable in other scenarios.

# Glossary

## ***Alternate Hazards***

For purposes of this study, alternate hazards are those hazards other than hurricanes that may initiate a regional or multi-jurisdictional evacuation.

## ***Clearance Time***

The time necessary to safely evacuate vulnerable residents and visitors to a "point of safety" within the region based on a specific hazard, behavioral assumptions and evacuation scenario. Usually used with a specific or implied clarifying term (i.e. in-county clearance time).

## ***Clearance Time, County (County Clearance Time)***

This is the time used by Emergency Managers to determine when to recommend evacuation orders. The time required to evacuate all persons wishing to evacuate, in the event of a specific hazard (i.e. Category 3 Hurricane County Clearance Time). This is calculated from the time the county evacuation order is given until the last evacuee vehicle exits the county. This calculation includes the population-at-risk, shadow evacuees, as well as the evacuees from other counties anticipated to pass through the county (through vehicles). Additionally, clearance time begins when the evacuation order is given and ends when the last vehicle reaches a local shelter or the county line on the way to inland shelter. The clearance time is developed to include the time required for evacuees to secure their homes and prepare to leave, the time spent by all vehicles traveling along the evacuation route network and the additional time spent on the road caused by traffic and road congestion. Clearance time does not relate to the time any one vehicle spends traveling along the evacuation route network. It also does not guarantee vehicles will safely reach their destination once outside the county.

## ***Clearance Time, In-County***

The time required from the point an evacuation order is given until the last evacuee can either leave the evacuation zone or arrive at safe shelter within the county. This does not include those evacuees leaving the county on their own.

## ***Clearance Time, Out-Of-County***

The time necessary to safely evacuate vulnerable residents and visitors to a "point of safety" within the county based on a specific hazard, behavioral assumptions and evacuation scenario. Calculated from the point an evacuation order is given to the point in time when the last vehicle assigned an external destination exits the county.

***Clearance Time, To-Shelter***

The time necessary to safely evacuate vulnerable residents and visitors to a "point of safety" within the county based on a specific hazard, behavioral assumptions and evacuation scenario. Calculated from the point in time when the evacuation order is given to the point in time when the last vehicle reaches a point of safety within the county. This scenario assumes there is sufficient shelter (friend, relative, public shelter, hotel/motel) capacity within the county.

***Coastal High Hazard Area (CHHA)***

Per State Statute Chapter 163, for purposes of this study, the CHHA is illustrated in the Regional Storm Tide Atlas of this study.

***County Evacuation Time***

A general term used to: 1) refer to the time it takes an individual to evacuate a county once ordered; 2) mobilization time, queuing or delay time; and 3) any pre-landfall hazards time.

***Critical Facilities***

Those facilities identified by the county emergency management as critical to life safety, governmental operations, or economic recovery. These facilities may include critical infrastructure or key assets.

***Critical Infrastructure***

Those infrastructure facilities that meet the federal definition of key assets or critical infrastructure. These assets, if lost, could have regional, statewide, or national impacts.

***Critical Roadway Segment***

Roadway segments with the highest evacuation vehicles to service volume ratio.

***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 outside of the region.

***Evacuation Route***

For purposes of this study, these are routes designated by county emergency management officials, or state emergency management officials, or those identified by standardized statewide directional signs by the Florida Department of Transportation, or are identified in the regional evacuation study for movement of persons to safety in the event of an ordered evacuation.

***Evacuation Route Assignments***

Route assignments provide specific geographic areas with predetermined paths away from the coast. During traffic modeling, these route assignments are designed to ensure that all evacuation route roadway capacity is utilized to the fullest.

***Evacuation Time***

A general term used to refer to: 1) the mobilization time; 2) The time it takes an individual to evacuate once ordered; 3) queuing or delay time; and 4) any pre-landfall hazards time, if appropriate.

***Evacuation Time to Shelter***

A general term used to refer to: 1) clearance time to shelter plus; 2) the time it takes an individual to evacuate once ordered; and 3) pre-landfall hazards time.

***Evacuation Timing Curves***

A response curve indicating the cumulative percentage of eventual evacuees who had departed by various times during the threat.

***Future Land Use Map (FLUM)***

A depiction of proposed general distribution, location and extent of the land for residential uses, commercial uses, industry, agriculture, recreation, conservation, education, public buildings and grounds, other public facilities and other categories of public and private uses of land found in the Future Land Use Element of the local comprehensive plan.

***High Hazard Hurricane Evacuation Area***

The areas identified in the most current regional hurricane evacuation study as requiring evacuation during a Category 1 hurricane event. \**Source: 9J-2.0256, F.A.C.*

\* The Department of Community Affairs has consistently found that this rule cannot be interpreted to mean that land within the CHHA can be filled in order to elevate the property outside of this designation [*Department of Community Affairs vs. City of Jacksonville. DOAH Case Nos. 07-3539GM, 08-4193GM (2008)*].

***Hurricane Evacuation Plan***

An operational plan developed by an emergency management agency to safely warn and evacuate the hurricane population-at-risk, including special needs populations, to reduce county clearance times, provide for shelter and mass care during the event, and re-entry when conditions are deemed safe to return.

***Hurricane Evacuation Route***

An evacuation route identified for use specifically for hurricane hazards.

***Hurricane Shelter Space***

Hurricane Shelter Space is, at a minimum, an area of twenty square feet per person located within a hurricane shelter. *Source: Rule 9J-2.0256, F.A.C.*

***Hurricane Vulnerability Zone***

The Hurricane Vulnerability Zone is the area delineated by a regional hurricane evacuation study as requiring evacuation in the event of a 100-year or Category 3 hurricane event. *Source: 9J-2.0256, F.A.C.*

***Inland Shelter Study/Plan***

Inland Shelter Study/Plan is a study produced by the Division of Emergency Management and the state's regional planning councils which detail regional public hurricane shelter availability according to various simulated regional hurricane events. *Source: Rule 9J-2.0256, F.A.C.*

***LIDAR (Light Detection and Ranging)***

An optical remote sensing technology that measures properties of scattered light to find the range and/or other information on a distant target. The prevalent method to determine distance to an object or surface is to use laser pulses. Like the similar radar technology, which uses radio waves instead of light, the range to an object is determined by measuring the time delay between transmission of a pulse and detection of the reflected signal.

***Local Comprehensive Emergency Management Plan***

Those plans developed by a county according to the provisions of Chapters 9G-6 and 9G-7, Florida Administrative Code, under the authority provided in Section 252.38, Florida Statutes. *Source: 9J-2.0256, F.A.C.*

***MEOWS (Maximum Envelope of Water)***

The plotted maximum surge heights for a given storm category and track.

***MOMS (Maximums of the Maximums)***

The MOMs represent the maximum surge expected to occur at any given location, regardless of the storm track or direction of the hurricane.

***Mitigation of Hurricane Impacts******(9J-2.0256 (5) Hurricane Preparedness Policy Rule)***

Due to the extreme vulnerability of the State of Florida to the impacts of hurricanes, the Department of Community Affairs considers public hurricane shelters and hurricane evacuation routes as important public facilities that are required to ensure the health, safety, and welfare of the residents of the state. In order to implement this policy, it is the intent of the Department of Community Affairs to set forth in this rule hurricane preparedness conditions which, if included in a DRI development order and which ensure that the development's anticipated regional hurricane preparedness impacts are mitigated in a timely manner, would be deemed by the Department of Community Affairs to comply with the requirements of subparagraph 380.06(15)(e)e., Florida Statutes. Such conditions would therefore not be the basis for the appeal of the development order by the Department of Community Affairs on issues related to hurricane preparedness. The Department of Community Affairs will review mitigative measures for all ADA proposals and DRI development orders that are determined to have a substantial impact on regional hurricane preparedness, based on the criteria identified in subsection (4) above.

Pursuant to subparagraph 380.06(15)(e)2., Florida Statutes, a DRI development order issued by a local government must make adequate provisions for the public facilities needed to accommodate the impacts of the proposed development. Any single or combination of mitigative techniques detailed in paragraph (a) below must provide for mitigation equivalent to the proposed development's anticipated hurricane preparedness impacts. However, nothing contained herein shall preclude the local government from including hurricane preparedness conditions in a development order that are more stringent than those detailed in paragraph (a) below.

- (a) Techniques which shall be used singly or in concert pursuant to the provisions of subsection (5) above to mitigate the anticipated impact of a proposed development on public hurricane shelter availability are:
1. Donation of land for public facilities or donation of the use of private structures to be used as primary public hurricane shelters. However, the site or private structure shall be located in an area outside of the identified high hazard hurricane evacuation area. The facility shall be constructed in such a way as to ensure its usefulness and use as a primary public hurricane shelter to offset, at a minimum, the impacts of the approved DRI development. In order to use this mitigation option, the developer must provide reasonable assurance from the local political subdivision and from local emergency management officials regarding the ability of the donation to reduce hurricane shelter impacts.
  2. Provision of payments in lieu of donation of land for the upgrading of existing primary and secondary hurricane shelters located outside the identified hurricane vulnerability zone so as to increase the county's primary public hurricane shelter space availability equal to the proposed development's anticipated public hurricane shelter space demand. Upgrading for purposes of this rule shall include the addition of hurricane storm shutters to facilities, provision of electric generators, provision of potable water storage capability, and other items which may be appropriate for a public hurricane shelter. In order to use this mitigation option, the developer must provide reasonable assurance from the local political subdivision and from local emergency management officials regarding the provision's ability to reduce the development's hurricane shelter impacts.

3. Provision of onsite shelter where the proposed shelter would be located outside of the identified hurricane vulnerability zone and the project includes a community center or other facility suitable for use as hurricane shelter and provides, at a minimum, shelter space available and equal to the proposed development's anticipated hurricane shelter space demand. Examples of community facilities include, but would not be limited to, clubhouses and recreation centers. All community facilities that are to be used as hurricane shelters under this mitigation option must be equipped with appropriate items as identified in subsection (2) above, and must be approved by local emergency management officials.
4. Provision of funds to be used for the purpose of training public hurricane shelter managers through a program provided by the local chapter of the American Red Cross, local emergency management officials, or the Department of Community Affairs. In order to use this mitigation option, the developer must provide reasonable assurance from local emergency management officials and the local chapter of the American Red Cross regarding the provision's ability to reduce the development's hurricane shelter impacts. \**Source: 9J-2.0256, F.A.C.*

\* Please note this is an excerpt of *9J-2.0256 (5), F.A.C. only. For complete references and rule, please see the statute in its entirety, 9J-2.0256, F.A.C.*

### **Mobile Home**

Mobile home means a structure, transportable in one or more sections, which is 8 body feet or more in width and which is built on an integral chassis and designed to be used as a dwelling when connected to the required utilities and includes the plumbing, heating, air-conditioning, and electrical systems contained therein. For tax purposes, the length of a mobile home is the distance from the exterior of the wall nearest to the drawbar and coupling mechanism to the exterior of the wall at the opposite end of the home where such walls enclose living or other interior space. Such distance includes expandable rooms, but excludes bay windows, porches, drawbars, couplings, hitches, wall and roof extensions, or other attachments that do not enclose interior space. In the event that the mobile home owner has no proof of the length of the drawbar, coupling, or hitch, then the tax collector may in his or her discretion either inspect the home to determine the actual length or may assume 4 feet to be the length of the drawbar, coupling, or hitch. *Source: Section 320.01, Florida Statutes.*

### **On-Site Shelter**

Sheltering within a development site.

### **Other Shelter**

Shelters that do not qualify as primary shelters.

**Park Trailer**

The park trailer is a transportable unit which has a body width not exceeding 14 feet and which is built on a single chassis and is designed to provide seasonal or temporary living quarters when connected to utilities necessary for operation of installed fixtures and appliances. The total area of the unit in a setup mode, when measured from the exterior surface of the exterior stud walls at the level of maximum dimensions, not including any bay window, does not exceed 400 square feet when constructed to ANSI A-119.5 standards, and 500 square feet when constructed to United States Department of Housing and Urban Development Standards. The length of a park trailer means the distance from the exterior of the front of the body (nearest to the drawbar and coupling mechanism) to the exterior of the rear of the body (at the opposite end of the body), including any protrusions. *Source: Section 320.01, Florida Statutes.*

**Phased Evacuation**

A staged evacuation, under which only a portion of the vulnerable population is evacuated at a time.

**Point of Safety (Place of Safety)**

A destination, determined by the evacuee, outside of the evacuation zone where the evacuee perceives he or she is safe.

**Primary Shelter (Primary Public Hurricane Shelter)**

A structure designated by local emergency management officials as a place for shelter during a hurricane event which they can open. Primary public shelters include only those structures which are located outside of the high hazard hurricane evacuation area and which have been designated as American Red Cross 4496 compliant. *Source: 9J-2.0256, F.A.C.*

**Recreational Vehicle**

A recreational vehicle-type unit primarily designed as temporary living quarters for recreational, camping, or travel use, which either has its own motive power or is mounted on or drawn by another vehicle. *Source: Section 320.01, Florida Statutes.*

**Region**

For purposes of this study, a region is one of the comprehensive planning regions as established by the State of Florida Chief Planning Officer (Governor). These are also the regional planning council districts.

**Regional Clearance Time**

The time necessary to safely evacuate vulnerable residents and visitors to a "point of safety" within the Regional Planning Council (RPC) region based on a specific hazard, behavioral assumptions and evacuation scenario. Calculated from the point in time when the evacuation order is given to the point in time when the last vehicle assigned an external destination exits the region.

**Regional Evacuation Routes**

1) For purposes of this study, these are evacuation routes, roadways and roadway segments identified in this study as routes used to interconnect county designated evacuation routes, or routes used to interconnect evacuation routes between study regions. 2) Major highways that are part of the regional and statewide network including primary (interstates and turnpikes), secondary (major arterials), and certain local roadways (minor arterials) which provide significant evacuation transportation capacity to move vulnerable populations to points of safety. Official Regional Evacuation Routes are determined by county emergency management agencies, in coordination with the Florida Department of Transportation (FDOT) and RPCs.

### ***Regional Evacuation Transportation Network***

The transportation network used in this study to analyze the movement of traffic during ordered evacuations, and used to calculate the various clearance times.

### ***Regional Hurricane Evacuation Study***

***(Hurricane Evacuation Study, Regional Evacuation Study, Regional Hurricane Evacuation Plan)***

A study produced by the Department of Community Affairs, the State Division of Emergency Management the state's regional planning councils, the US Army Corps of Engineers, or the Federal Emergency Management Agency, which detail regional hurricane evacuation clearance times and public hurricane shelter availability according to various simulated regional hurricane events. *Source: 9J-2.0256, F.A.C.*

### ***Reverse Lane Operations (previously referred to as Contra Flow Routes)***

Lane Reversals alter the normal flow of traffic, which are considered a potential remedy to reduce congestion during evacuation and/or emergency conditions by increasing the directional flow of traffic.

### ***Secondary Public Hurricane Shelter***

A structure designated by local emergency management officials and the American Red Cross as a shelter during a hurricane but does not meet the criteria of a primary public hurricane shelter. *Source: 9J-2.0256, F.A.C.*

### ***Sea, Lake and Overland Surges from Hurricanes (SLOSH) Basin Data***

The bathymetric and terrestrial digital elevation models produced from the LIDAR data, utilized in the SLOSH model.

### ***Shadow Evacuation Population***

Persons not affected by an evacuation order that choose to evacuate to another location they feel is safer. This population resides outside the designated evacuation zone and lives in site-built structures. The shadow evacuation population can be significant when the risk is perceived to be great.

***Small Area Data***

The socio-economic data for the base year of 2006 and projected years of 2010 and 2015 utilized to model evacuation traffic. These data contain population and dwelling unit information that will identify where the individuals in the region reside.

***Special Hurricane Preparedness District***

A county or region that has been designated by the Department of Community Affairs for special consideration because of its unique hurricane vulnerability and preparedness situation. *Source: 9J-2.0257, F.A.C.*

***Statewide Regional Evacuation Study Program (SRESP)***

See Regional Hurricane Evacuation Study.

***Storm Surge Atlas/Storm Tide Atlas***

A series of maps that depict the potential storm surge and flooding as derived from the SLOSH model from hurricanes of five different intensities. The Category 1 storm surge zone depicts the Coastal High Hazard Area (CHHA).

***Substantial Impact on Regional Hurricane Preparedness (determination of)***

Any proposed development which exceeds the thresholds identified in paragraphs (a), (b), or (c) below, shall be determined by the Department of Community Affairs to have a substantial impact on regional hurricane preparedness.

- (a) When a development is proposed in a county where a public hurricane shelter space deficit is shown to exist according to the applicable, incorporated regional hurricane evacuation study, inland shelter study or county shelter assessment based on an adopted county peacetime emergency plan, and the proposed development's anticipated public hurricane shelter space demand will require a minimum of 200 additional spaces, or five percent of the county's public hurricane shelter space capacity, whichever is less, the proposed development will be determined by the Department to have a significant regional impact on public hurricane shelter space availability.
- (b) When a development is proposed in a county where a public hurricane shelter space surplus is shown to exist according to the applicable, incorporated regional hurricane evacuation study, inland shelter study or county shelter capacity assessment based on an adopted county peacetime emergency plan, and the proposed development's anticipated public hurricane shelter space demand is projected to move the county into a deficit situation of 200 or more spaces, the proposed development will be determined by the Department to have a significant regional impact on public hurricane shelter space availability.

- (c) When a development is proposed in a hurricane vulnerability zone and the proposed development's anticipated evacuation traffic will utilize twenty-five percent (25%) or more of an identified hurricane evacuation route's level of service "E" hourly directional maximum service volume based on the Florida Department of Transportation's Generalized Peak Hour/Peak Direction Level of Service Maximum Volumes presented in the Florida Highway Systems Plan Level of Service Standards and Guidelines Manual and hereby incorporated by reference, the proposed development will be determined by the Department of Community Affairs to have a significant regional impact on hurricane evacuation. *Source: 9J-2.0256, F.A.C.*

***Time Constrained Evacuation***

Events in which there is a shortened timeframe available for evacuation movements. This impacts the number of evacuees who are able to reach their desired evacuation destination.

***Time To Shelter***

The time required from the time an evacuation order is given until the last individual evacuee arrives at safe shelter.

***Traffic Evacuation Zone (TEZ)***

Sub-evacuation zones created as part of the transportation analysis, used in conjunction with traffic model assumptions to operate the model and calculate various clearance times.

***USNG (United States National Grid)***

The United States National Grid is a nonproprietary alphanumeric referencing system derived from the Military Grid Reference System (MGRS) that is being promoted to increase the interoperability of location services appliances with printed map products by providing a nationally consistent grid reference system.

# ACRONYMS

**ADA** – Americans with Disabilities Act  
**AHCA** – Agency for Health Care Administration  
**ALF** – Assisted Living Facilities  
**ARC** – American Red Cross  
**ASL** – Above Sea Level  
**BFE** – Base Flood Elevation  
**CEMP** – Comprehensive Emergency Management Plan  
**CF** – Critical Facilities  
**CHHA** – Coastal High Hazard Area  
**DCA** – Department of Community Affairs  
**DFIRM** – Digital Flood Insurance Rate Map  
**DOH** – Department of Health  
**EHPA** – Enhanced Hurricane Protection Areas  
**EOC** – Emergency Operations Center  
**FAC** – Florida Administrative Code  
**FBC** – Florida Building Code  
**FDEM** – Florida Division of Emergency Management  
**FDOT** – Florida Department of Transportation  
**FEMA** – Federal Emergency Management Agency  
**FIRM** – Flood Insurance Rate Map  
**FLASH** – Florida Alliance for Safe Homes  
**FLUM** – Future Land Use Map  
**FOUO** – For Official Use Only  
**FS** – Florida Statute  
**GIS** – Geographic Information System  
**Hazmat** – Hazardous Material  
**HAZUS** – Hazards United States  
**LEPC** – Local Emergency Planning Committee  
**LiDAR** – Light Detection and Ranging  
**LMS** – Local Mitigation Strategies  
**MEOW** – Maximum Envelope of Water  
**MOM** – Maximum of Maximums (or MEOWs)  
**MPO** – Metropolitan Planning Organization  
**MSL** – Mean Sea Level  
**NFIP** – National Flood Insurance Program  
**NGVD** – National Geodetic Vertical Datum  
**NHC** – National Hurricane Center  
**NOAA** – National Oceanic and Atmospheric Administration  
**NWS** – National Weather Service  
**POD** – Point of Distribution

**RES** – Regional Evacuation Study  
**RPC** – Regional Planning Council  
**SAD** – Small Area Data  
**SAR** – Search and Rescue  
**SEOC** – State Emergency Operations Center  
**SLOSH** – Sea, Lake and Overland Surges from Hurricanes  
**SpNS** – Special Needs Shelters  
**SRESP** – Statewide Regional Evacuation Study Program  
**TAZ** – Traffic Analysis Zones  
**TEZ** – Traffic Evacuation Zones  
**USNG** – United States National Grid  
**WFO** – Weather Field Office  
**WUI** – Wildland Urban Interface



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