



# **VOLUME 1-7**

## **STATEWIDE REGIONAL EVACUATION STUDY PROGRAM**

### **CENTRAL FLORIDA REGION**

### **TECHNICAL DATA REPORT**

#### **CHAPTER V**

#### **REGIONAL SHELTER ANALYSIS**





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# CHAPTER V

## REGIONAL SHELTER ANALYSIS

### A. Overview



An essential element of any evacuation plan is the ability to shelter the relocated residents throughout the duration of the event. Evacuees will seek several alternative forms of shelter at various distances from their origin. These alternatives may include a local public shelter, a hotel or motel, a friend or relative's home, and destinations in an adjacent county or outside of the region. Shelter destination tendencies of potential evacuees must be identified for two major reasons. First, so that adequate public shelter facilities can be provided for the numbers of evacuees expected to seek them. Secondly, the shelter analysis is needed to more accurately simulate the expected destination assignments and vehicle volume movement in the quantification of evacuation times.

Shelter preparedness is a very crucial element in the Statewide Regional Evacuation Study (SRES) because of the vast numbers of evacuees and the potential number of vulnerable residents seeking shelter. While other types of hazards (flooding, wildfire, hazardous materials and terrorism/civil disturbances) may result in the need for mass care and shelter operations, the event which is both the most probable and potentially most challenging is an approaching hurricane.

Historically, major disasters result in large-scale shelter operations. For example, operations during the Hurricane Andrew evacuation in August 1992 resulted in the largest county shelter operation in US history (approximately 200,000 sheltered). One of the largest regional evacuation shelter operations in the U.S. occurred in the Tampa Bay region in response to Hurricane Elena in 1985 (350,000 sheltered). In 2005, when hurricanes threatened the Gulf Coast, Red Cross disaster relief workers and local governments prepared hundreds of evacuation shelters. The Red Cross pre-positioned supplies, including kitchens, prepackaged meals and emergency response vehicles (ERVs). Nearly 500,000 evacuees of Hurricanes Katrina, Rita and Wilma stayed in Red Cross shelters ([www.redcross.org](http://www.redcross.org)).

Historically, pre-storm evacuation shelter demand has significantly decreased in Central Florida as well as other areas. Public education in Florida has stressed to evacuees that the choice to go to a public shelter should not be the first choice in destinations. Other options – especially the homes of friends and relatives and hotel/motels in non-evacuation zones – provide a more comfortable alternative for most residents. According to the behavioral surveys conducted in 2006 and those in 2008 for the Statewide Regional Evacuation Study Program, that message is getting across to residents. The vast majority of evacuees go to the homes of friends or relatives (50 – 65%). Approximately 5% - 20% will seek a hotel or motel for refuge depending on age, income and other demographic characteristics. Hotel availability is also a key factor.

## B. Hotel Availability

In the Central Florida Region, there are a total of 8,000 hotel, motel and bed & breakfast rooms (2008). These facilities are identified in the Critical Facility Inventory database and their locations within vulnerable areas (tropical storms and hurricanes, flood zone, wildfire and hazardous materials) are identified.

Since our region is completely inland we have little to worry about concerning the loss of room space regardless of the evacuation scenario, with the exception of Okeechobee County. Virtually all of DeSoto, Hardee, Highlands and Polk County room assets will be available for use by local evacuee or displaced persons from the coastal counties. In Okeechobee County, approximately 50% of their room assets could be compromised in a major storm surge (Category C or above) (See **Table V-1** below).

Currently, some of the Tourist and Visitors Bureaus in major metropolitan areas have a mechanism in place to track available units throughout a regional evacuation. This capability is essential to assist those evacuees looking for rooms; although it is strongly recommended that families seeking accommodations make those reservations before they begin their evacuation trip. In a major evacuation, the State Tourism and Development Council will seek to consolidate and augment this local information in real time. The second major challenge is to then communicate room availability within the region and the state to evacuees locally as well as those on the road. This may reduce the trip of those searching for hotel/motels in the vicinity; thereby hopefully reducing the evacuation congestion and clearance times.

**Table V-1**  
**Hotel and Motel and Bed & Breakfast**  
**Availability in Hurricane Evacuation Scenarios**

Storm Surge Area (Category)	DeSoto Room Availability	Hardee Room Availability	Highlands Room Availability	Okeechobee Room Availability	Polk Room Availability	Regional Room Availability
A	X	N/A	X	200	N/A	200
B	X	N/A	X	X	N/A	X
C	X	N/A	X	X	N/A	X
D	X	N/A	X	X	N/A	X
E	X	N/A	X	X	N/A	X
NONE	203	112	1,112	267	6,106	7,800
					<b>TOTAL:</b>	<b>8,000</b>

Source: Florida Department of Professional and Business Regulations 2008 and the Yellow Pages online.

(X) denotes there the storm a surge area does not exist or does not extend into populated areas.  
N/A denotes that there are no evacuation zones based on storm surge areas in the specified county.

## C. Providing Public Shelter

Although there are other options for most evacuees, there will always be a demand for public shelter. The demand for public shelter can potentially be significant in the Central Florida Region because of the magnitude of the evacuation population, the demographics of the population and limited ability to evacuate out of the region.

Public shelter demand is the result of several factors:

- Evacuees may not have friends or relatives in a safe location.
- Evacuees may not have the means to evacuate to a hotel/motel or out of the region.
- Evacuees may not be able to locate vacant hotel/motel rooms outside of evacuation zones in the region. (Space is limited and demand will be high.)
- Evacuees may not plan ahead or understand their options.
- Some evacuees choose public shelter because they feel it is safer there than their home.
- Some evacuees may wish to be with others.
- Evacuees may not evacuate in a timely fashion or may get stuck in evacuation traffic and may have to seek public shelter at the last minute as a last resort.

## D. Criteria for Hurricane Evacuation Shelter Selection

Shelter selection involves a number of factors - structural and non-structural - and requires close coordination with local officials responsible for public safety. Technical information contained in evacuation studies, storm surge and flood mapping, and other data can now be used to make informed decisions about the suitability of shelters. Accordingly, an interagency group under the leadership of the American Red Cross, has prepared criteria for the selection of shelters and printed as *ARC 4496, July 1992*.

In the experience of Red Cross and emergency management officials, the majority of people evacuating because of a hurricane threat generally provide for themselves seeking hotels or motels or staying with friends and relatives. However, for those who do seek public shelter, safety from hazards associated with hurricanes is paramount. These hazards include surge inundation, rainfall flooding, high winds, and hazardous materials.

Recommended guidelines for each of these hazards follow:

### 1. Storm Surge Inundation

In general, hurricane evacuation shelters should not be located in areas vulnerable to hurricane surge inundation. This is not an issue within the Central Florida Region. The only areas that could possibly be affected by storm surge are the extreme Southwest corner of DeSoto County and along the shoreline of Lake Okeechobee. For DeSoto County this is not an issue as the area of concern is very sparsely populated. The current plans are to artificially control the depth of Lake Okeechobee to reduce the possibility of storm surge. Within ARC 4496, the guidelines state the following when considering the placement of evacuation shelters:

- *Carefully review inundation maps in order to locate all hurricane evacuation shelters outside Category 4 storm surge inundation zones, if possible.*
- *Avoid buildings subject to isolation by surge inundation in favor of equally suitable buildings not subject to isolation. Confirm that ground elevations for all potential shelter facilities and access routes obtained from topographic maps are accurate.*
- *Do not locate hurricane evacuation shelters on barrier islands.*

To determine whether particular public shelter structures are vulnerable to future potential storm surge, an analysis of each structure's elevation and geographic location in relation to surge was conducted utilizing the SLOSH model.

The results of this analysis for each county are presented in **Tables V-8A – V-8E**. The magnitude of the storm surge values shown in each hurricane category column in the Tables are in relation to mean sea level. They represent the

predicted maximum height of surge from that particular category of hurricane on the Saffir-Simpson Scale. Additionally, the surge height values were increased by one-foot for the expected tidal anomaly as well as a one-foot addition for a potential high astronomical tide (total 2 feet).

Although most sites were not projected to receive storm surge flooding under any evacuation scenario, in some areas, because of potential shelter shortage, shelters remain on primary shelter inventories even though they will not be utilized in the most severe of storms (evacuation levels D and E).

## 2. Freshwater Flooding

While it is not historically considered life-threatening, rainfall flooding should be considered in the hurricane evacuation shelter selection process. Riverine inundation areas shown on Flood Insurance Rate Maps (FIRMs), as prepared by the National Flood Insurance Program (NFIP), should be reviewed. FIRMs should also be reviewed in locating shelters in inland areas. Once again, ARC Guidelines state:

- *Avoid, where possible, hurricane evacuation shelters within the 100-year floodplain.*
- *Avoid hurricane evacuation shelters in areas likely to be isolated due to riverine inundation of roadways.*
- *Make sure a hurricane evacuation shelter's first floor elevation is equal to or higher than that of the base flood elevation level for the FIRM area.*
- *Consider the proximity of shelters to any dams and reservoirs to assess flow upon failure of containment following hurricane-related flooding.*

The appropriate flood plain designation is identified in the tables along with the storm surge analysis. Locating facilities outside of the 100-year floodplain is a priority in the Central Florida Region. There is sufficient area within all five counties to accomplish this for all primary shelters. Therefore, measures such as documenting the elevation of the first floor above the base flood elevation (BFE), meeting NFIP regulations and the provision of adequate emergency supplies sufficient to meet the immediate response needs until flood waters recede, etc. are ensured. Please note: The ARC 4496 guidelines also recommend avoiding the 500-year floodplain.

## 3. Wind Hazards Vulnerability

Consideration of any facility for use as a hurricane evacuation shelter must take wind hazards into account. Both design and construction problems may preclude a facility from being used as a shelter. Structural considerations identified in ARC 4496 include:

*Avoid uncertified buildings of the following types:*

- *Buildings with long or open roof spans, i.e. gymnasiums and cafeterias*
- *Un-reinforced masonry buildings*
- *Pre-engineered (steel pre-fabricated) buildings built before the mid-1980s*
- *Buildings that will be exposed to the full force of hurricane winds*
- *Buildings with flat or lightweight roofs*

*Give preference to the following:*

- *Buildings with steep-pitched, hipped roofs; or with heavy concrete roofs*
- *Buildings more than one story high (if lower stories are used for shelter)*
- *Buildings in sheltered areas, but not subject to "lay down" hazards*
- *Buildings whose access routes are not tree-lined, nor subject to flooding*

The State of Florida has an aggressive survey program for all structures considered for public shelter use. The State and/or County governments work with local school boards and emergency management agencies to identify structures for retrofit and to implement the requirements of the Enhanced Hurricane Protection Areas (EHPA) in new school construction. These requirements and retrofit projects have dramatically increased the public shelter capacity in the region since 2000.

#### **4. Hazardous Materials**

The possible impact from a spill or release of hazardous materials should be taken into account when considering any potential hurricane evacuation shelter. All facilities manufacturing, using, or storing hazardous materials (in reportable quantities) are required to submit Material Safety Data Sheets (emergency and hazardous chemical inventory forms) to the Local Emergency Planning Committee (LEPC) and the local fire department. These sources can assist in determining the suitability of a potential hurricane evacuation shelter or in determining precautionary zones (safe distances) for facilities near potential shelters that manufacture, use, or store hazardous materials.

- *Facilities that store certain types or quantities of hazardous materials may be inappropriate for use as hurricane evacuation shelters.*
- *Hurricane evacuation shelters should not be located within the ten-mile Emergency Planning Zone (EPA) of a nuclear power plant (not appropriate in the Central Florida Region).*
- *Service delivery units must work with local emergency management officials to determine if hazardous materials present are a concern for potential hurricane evacuation shelters.*

In each County Hurricane Implementation Guide (see Annex A, B, C, D and E), those Section 302 facilities with extremely hazardous materials on-site have been identified in relation to schools and hospitals. This information is also contained in the Critical Facilities Inventory database (Volume 1, Chapter IV).

## E. Hurricane Evacuation Shelter Selection Process

General procedures for investigating the suitability of a building or facility for use as a hurricane evacuation shelter are as follows:

1. Identify potential sites. Evacuation and transportation route models must be considered.
2. Complete a risk assessment for each potential site. Gather all pertinent data from the SLOSH model (storm surge), FIRM (flood hazard), facility base elevation, hazardous materials information, and previous studies concerning each building's suitability.
3. Inspect the facility and complete a *Red Cross Facility Survey Form* and a *Self-Inspection Work Sheet/Off-Premises Liability Checklist*, in accordance with ARC 3031. Note all potential liabilities and the type of construction. Consider the facility as a whole -- one weak section may seriously jeopardize the integrity of the building.
4. Have a structural engineer review the facility and rate its suitability to the best of their ability.
5. Ensure that an exhaustive search for shelter space has been completed. Work with local emergency management officials and others to identify additional potential sites.
6. Review, on a regular basis, all approved hurricane evacuation shelters. Facility improvements, additions, or deterioration may change the suitability of a selected facility as a hurricane evacuation shelter. Facility enhancements may also enable previously rejected facilities to be used as hurricane evacuation shelters.
7. If possible, work with officials, facility managers, and school districts on mitigation opportunities. Continue to advocate that the building program for new public buildings, such as schools, should include provisions to make them more resilient to possible wind damage. It may also be possible to suggest a minor modification of a municipal, community, or school building in the planning stages to allow for a more useful hurricane evacuation shelter site, such as the addition of window protection.

## F. Least-Risk Decision Making

Safety is the primary consideration in providing hurricane evacuation shelters. When anticipated demands for hurricane evacuation shelter spaces exceed suitable capacity as defined by the preceding criteria, there may be a need to utilize *marginal* facilities. It is critical that decisions are made carefully by a team including representatives from county emergency management agencies, the local chapter of the American Red Cross, the county school board and engineering professionals.

### 1. The Selection Process

The process should include the following considerations:

- All hurricane evacuation shelters should be located outside of storm surge inundation areas. Certain exceptions may be necessary, but only if there is a high degree of confidence that the level of wind, rain, and surge activities will not surpass established shelter safety margins.
- When a potential hurricane evacuation shelter is located in a flood zone, it is important to consider its viability. By comparing elevations of sites with FIRMs, one can determine if the shelter and a major means of egress are in any danger of flooding. It is essential that elevations be carefully confirmed to avoid unnecessary problems.
- In the absence of certification or ranking by a structural engineer, any building selected for use as a hurricane evacuation shelter must be in compliance with all local building and fire codes.
- The Red Cross and the State of Florida use the planning guideline of 20 square feet of space per shelter resident. During hurricane conditions, on a short-term basis, shelter space requirements may be reduced. Ideally, this requirement should be determined using no less than 20 square feet per person; however, some counties use 10-15 square feet as the standard. Before and after the hurricane strike, evacuees will be allowed to use gymnasiums, auditoriums, etc. However, once a hurricane is affecting the area, all evacuees will be moved to safer areas of the shelter. For the duration of the storm, 8-10 hours, the 10-15 square foot per person may have to be adequate until additional shelter space becomes available. In addition, sufficient space must be set aside for registration, health services, and safety and fire considerations. On a long-term recovery basis, shelter space requirements should follow guidelines established in ARC 3031, *Mass Care: Preparedness and Operations*.

## 2. Interior Building Safety Criteria During Hurricane Conditions

Based on storm data such as the arrival of tropical-force winds (sustained 40 mph winds), a notification procedure developed with local emergency managers, is implemented with regard to when to move the shelter population to pre-determined safer areas within the facility. The following guidelines are considered:

- *Do not use rooms attached to, or immediately adjacent to, un-reinforced masonry walls or buildings.*
- *Do not use gymnasiums, auditoriums, or other large open areas with long roof spans during hurricane conditions.*
- *Avoid areas near glass, unless the glass surface is protected by an adequate shutter. Assume that windows and roof will be damaged and plan accordingly.*
- *Use Interior corridors or rooms.*
- *In multi-story buildings, use only the lower floors and avoid corner rooms. Avoid basements if there is any chance of flooding.*
- *Avoid any wall section that has portable or modular classrooms in close proximity, if portable or modular structures are used in the community.*

## G. Special Needs Shelters



A special needs shelter is a temporary emergency facility capable of providing care to residents whose medical condition is such that it exceeds the capabilities of the Red Cross Shelter, but is not severe enough to require hospitalization. Health Department doctors and nurses support these shelters.

The State of Florida Division of Emergency Management, Department of Health, local emergency management agencies, and health care agencies have worked together over the last decade to establish Special Needs Shelter standards, protocols and

technical assistance that can be integrated into the Florida Emergency Management System.<sup>1</sup>

The mission is to develop a standardized, comprehensive, county and regional approach to Special Needs Shelter operation that ensures continuity in services and quality care to clients, care givers and staff during their stay in a Special Needs Shelter.

### 1. Florida Statutes Related to Special Needs Shelters

- a. [F.S. Ch. 252.355](#) - Registry of persons with special needs; notice.
- b. [F.S. Ch. 252.356](#) - Emergency and disaster planning provisions to assist persons with disabilities or limitations.
- c. [F.S. Ch. 381.0303](#) - Healthcare Practitioner Recruitment for Special Needs Shelters.
- d. [FAC 64-3](#) - Florida Administrative Code related to Special Needs Shelter tools.

### 2. Special Needs Registration

In order to accommodate residents who need evacuation assistance to a Special Needs Shelter, **it is most important that they register prior to June 1st in advance of hurricane season.** This will help in determining which shelter they should go to and what, if any assistance they require to evacuate.

Residents who feel they may qualify are instructed to complete a Special Needs Evaluation form. The forms should be mailed or faxed to the county office designated to maintain the special needs registration list.

<sup>1</sup> <http://www.doh.state.fl.us/PHNursing/SpNS/SpecialNeedsShelter.html>

When residents fill out a registration form, the County Health Department determines if the special needs shelter is the most appropriate level of care and advises the resident directly or through the local emergency management or fire department.

### 3. Special Needs Population Criteria

#### a. The individual meets the medical criteria for assignment to the Special Needs Shelters if:

- They are unable to administer their own frequently required or daily injectable medicines.
- They require daily or more frequent dressing changes because of moderate or copious drainage from ulcers, fistulas, or other similar problems.
- They need assistance with ostomy management, dialysis, and indwelling catheters of any kind.
- Activities of daily living are so restricted by immobility that others provide assistance to meet their basic needs and those people are unavailable at this time.
- They require daily assessment of unstable medical condition by professional nursing personnel, or other similar conditions.
- They have a respiratory condition, which requires special equipment such as monitors or oxygen.
- They have a terminal illness but are ambulatory and in need of professional assistance in administering heavy doses of pain medicine (HOSPICE).
- They have received a letter by the County Health Department, assigning them to a Special Needs Shelter. ***People assigned to the Special Needs Shelter will need to take any medication, equipment or articles of comfort they routinely use.***
- They are elderly, homebound or alone and need assistance in relocating to a shelter.

**b. The following people SHOULD NOT go to a special needs shelter:**

**Unless otherwise stated, they should go to a hospital:**

- Pregnant woman within six weeks of estimated day of delivery, or who are in labor.
- Individuals suffering from acute infection or infestation.
- Those having an immediate medical or emergency condition.

**c. When evacuating to a shelter, evacuees are told to bring the following:**

- **All Required Medications And Medical Support Equipment:** Wheel chair/walker, oxygen, dressings, feeding equipment, ostomy, etc. Any specific medication or care instructions. Name, phone number of physician/home health agency/hospital where they receive care.
- **Special Dietary Needs:** Only regular meals will be provided.
- **Sleeping Gear:** Pillows, blankets, portable cot or air mattress, folding chairs.
- **Important Papers:** Insurance papers, doctors orders.
- **Identification:** With photo and current address.
- **Cash:** Check cashing/credit card services may not be available for several days after the storm. However, please remember that there will be nowhere to secure money or valuables at the shelter.
- **Comfort items:** Personal hygiene items, snacks, small games, cards etc.
- **Extra Items:** An extra set of comfortable clothing and a few extra sets of underwear, socks, towel, washcloths, soap, toothbrush and adult diapers.

**4. Transportation Assistance for Special Needs**

Once enrolled, residents with medical special needs are the first to be evacuated. Timing is crucial during the first phases of an emergency and plays a critical role in assuring they get out long before disaster strikes. The type of evacuation transportation assistance is determined when the resident is registered.

## 5. Standards for Hurricane Evacuation and Disaster Event Special Needs Shelter (SpNS) Selection<sup>2</sup>

Facilities selected as special needs shelters should meet additional structural criteria as well as shelter management standards. New legislation has identified special criteria for Special Needs Shelters which prove to be a challenge for local governments. In addition to meeting the ARC 4496 hurricane safety criteria, Special Needs Shelters should have emergency power supported air-conditioning and have capacities based upon 60 square feet per client. The State Division of Emergency Management and local agencies are working together to address the challenges of the transition to meeting these expectations as well as the resolving problems related to SpNS.

### a. Special Needs Shelter Design Criteria

Department of Health (DOH) guidance for design and selection of facilities to be used as a Special Needs Shelters (SpNS) in a hurricane/disaster event shall be consistent with the American Red Cross publication "MASS CARE—Preparedness and Operations (ARC 3041)" and "Mass Care Facility Form 6564". The SpNS facility must also meet all Florida Building Code (FBC) and American's with Disabilities Act (ADA) accessibility requirements.

### b. Special Needs Shelter Occupancy Period

For planning purposes, it is assumed that the SpNS will be occupied at its maximum occupant capacity for, at a minimum, a continuous seventy-two (72) hour period during and post impact by a major hurricane (i.e., Category 3 or higher). It should also be assumed that the SpNS may be occupied for 12 hours in advance of arrival of hurricane force winds.

### c. Special Needs Shelter Structural Requirements

SpNS Structural Requirements shall at a minimum be consistent with the American Red Cross publication "*Standards for Hurricane Evacuation Shelter Selection (ARC 4496)*". Preference shall be given to school facilities designed, constructed and inspected to comply with the public shelter design criteria, *Enhanced Hurricane Protection Area (EHPA)* requirements as set forth in section 423.25, Florida Building Code.

### d. Location and Site Requirements- Emergency Access

At a minimum, each SpNS should have at least two (2) major means of access for emergency vehicles. The additional need for access is due to

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<sup>2</sup> Created: 10/14/05  
Revised: 11/16/05; 01/20/06  
J:\HPHN\SpNS\Mitigation\SpNS Facilities\SpNS Facility Standards\SpNS-FacilityStds-01.20.06.doc

the potential for medical emergencies associated with the fragile health conditions of the SpNS client population. The SpNS openings provide a means of emergency access and/or evacuation. These openings should be well supervised to monitor for safety and/or security threat to the SpNS occupants. All occupants of the building should be within a reasonable distance from these access/exit points, providing a choice in direction of escape in case of fire. All exits should be clearly marked and visible.

**e. Special Needs Shelter Capacity**

Calculations to determine the capacity of a SpNS are identical to the EHPA calculations, except that the number of square feet required for each occupant is 60 square feet.

**f. Plumbing and Sanitation**

**(1) Potable Water.** Given the planning assumption that the SpNS will be open for a minimum of 72 hours during and post impact by a major hurricane, the SpNS should have a minimum of five (5) gallons of potable water per person per day for all uses (i.e., drinking water, hygiene, food preparation, etc.).

**(2) Toilets, Sinks, Showers, Waste Water and Garbage Disposal.** Requirement criteria remain equal to ARC 3041 and EHPA requirements, with the exception of the waste water reservoir capacity and garbage disposal plan which shall be based on a 72-hour design occupant capacity.

**(3) Electrical and Emergency Power Systems.** It should be assumed that utility power outages will occur and may continue for the duration of SpNS operation. Due to the fragile health and medical condition of the SpNS clients, it is imperative that the SpNS have back-up emergency electric power system.

- The emergency electric power system shall be capable of supporting life safety, branch outlet and lighting circuits, air conditioning and other systems that are critical to the well-being of the clients, staff and care-givers. The absence of air conditioning can result in the deterioration of the SpNS client's health status. Clients with chronic lung disease deteriorate at a rapid pace as the increase of temperature leads to increased breathing difficulty.
- The power grid and back up emergency electric power capability must also be sufficient to power receptacles utilized to run oxygen concentrators, oxygen nebulizers and other medical equipment. (Note: Oxygen

concentrators draw an average of 3.5-5.5 amps per unit. Nebulizers are used intermittently and have a negligible power draw.) Additional lighting (fixed or mobile) may be needed for providing client care (i.e., wound care, dressing change, etc.) and should be considered when determining power capacity.

- Appropriately trained and equipped personnel should be present and on site at all times during the SpNS occupancy to operate, maintain and repair the generator(s). Sufficient supplies chosen by appropriately trained personnel must be available to route the power to where it is needed, (i.e., extension cords of adequate size, plug strips, tape to secure cords to the floor, etc.).
- Sufficient fuel stores should be available for 72-96 hours of continuous generator use at full load.
- Generators should be tested after each significant incident and on a monthly basis, or as recommended by the manufacturer if more frequent. Sites on facility grounds (i.e. lift stations) should have quick connects, as appropriate, to provide for utilization of back-up power generation equipment.

**g. Emergency Management Considerations**

- (1) Posting Special Needs Shelter Floor Plan.** A copy of the floor plan must be posted for planning purposes.
- (2) Food Service Planning** should provide for the assumption of a minimum of 72 hours for SpNS occupancy. Additional consideration for clients with special dietary/metabolic health issues should be factored into food service planning. Vector risks should be minimized.
- (3) Supplemental Space Allocations.** Additional space allocations should be considered for the following:
  - Safe play areas for children.
  - SpNS clients with ambulatory difficulties may need additional space for assistive devices (i.e., wheelchairs and walkers). These clients may also need to be provided space allocation on the ground floor or in areas free from level changes.

- SpNS clients with service animals may need to be provided an area separate or away from the general SpNS client population.
- Quarantine areas for clients requiring isolation precautions. Respiratory isolation areas are to be designated and assigned at each SpNS prior to occupancy by appropriately trained/experienced personnel.
- Appropriate space should be provided for the safe storage and movement of compressed gasses (i.e., oxygen tanks, liquid oxygen) or other SpNS equipment and supplies.

## **6. Estimating Special Needs Shelter Demand**

Estimating the demand for special needs shelter space is challenging for state and local emergency management officials. Certain key assumptions must be made and complexities addressed:

### **a. County and Regional Profiles**

The demographics of the county and region must be considered, especially age, disability and income. The older the overall population of the county/region, the older the shelter population will be. Historically, the demographics of the general and special needs shelter populations will be skewed based on age, disability and income. Therefore, the shelter populations may reflect trends but will not match the overall demographic profile of the county or region. Both the general shelter population and more definitively, the special needs population, will tend to be much older, with more disabilities and with fewer financial resources.

Below is a table which reflects the demographics of the county and region (See Chapter I Population and Demographics). Please note the differences between counties in the region.

**Table V-2  
Population Demographics Affecting Special Needs Shelter Demand**

Jurisdiction	Percentage 65+ 2010 <sup>3</sup>	Percentage 65+ 2015 <sup>4</sup>	Percentage with Disabilities <sup>5</sup>	Percentage with Disabilities Age 65 +	Percentage with Disabilities Age 75+	Percentage Over 65 Below Poverty Level
DeSoto	19.24	20.49	17.9	40.1	40.1	13.6
Hardee	13.26	13.91	20.5	48.5	48.5	20.7
Highlands	32.21	33.42	18.7	38.9	38.9	8.6
Okeechobee	17.48	18.30	17.6	47.5	47.5	10.7
Polk	18.45	20.01	17.2	41.4	41.4	8.2
Region	20.02	21.45	17.6	41.4	41.4	

**b. Special Needs Population Data from the Behavioral Survey**

The behavioral survey of Florida residents completed as part of the Statewide Regional Evacuation Study contained four questions designed to elicit information regarding the prevalence of “special needs” households:

- In an evacuation, would you or anyone in your household require assistance in order to evacuate?
- Would the person just need transportation, or do they have a disability or medical problem that would require special assistance?

<sup>3</sup> EDR1a

<sup>4</sup> EDR1a

<sup>5</sup> (2000 Census) (DP-2 & SF-3: P119, P41) The data on disability status were derived from answers to two long-form questionnaire items. The first was a two-part question that asked about the existence of the following long-lasting conditions: (a) blindness, deafness, or a severe vision or hearing impairment (sensory disability) and (b) a condition that substantially limits one or more basic physical activities, such as walking, climbing stairs, reaching, lifting, or carrying (physical disability). This question was asked of a sample of the population 5 years old and over. The second was a four-part question that asked if the individual had a physical, mental, or emotional condition lasting 6 months or more that made it difficult to perform certain activities. The four activity categories were: (a) learning, remembering, or concentrating (mental disability); (b) dressing, bathing, or getting around inside the home (self-care disability); (c) going outside the home alone to shop or visit a doctor’s office (going outside the home disability); and (d) working at a job or business (employment disability). Categories (a) and (b) were asked of a sample of the population 5 years old and over; (c) and (d) were asked of a sample of the population 16 years old and over. For data products that use a disability status indicator, individuals were classified as having a disability if any of the following three conditions were true: (1) they were 5 years old and over and had a response of “yes” to a sensory, physical, mental or self-care disability; (2) they were 16 years old and over and had a response of “yes” to going outside the home disability; or (3) they were 16 to 64 years old and had a response of “yes” to employment disability.

- Would that assistance be provided by someone within your household, by an outside agency, or by a friend or relative outside your household?
- Is that person registered with the County as a person who would have special needs during a hurricane evacuation?

Responses to all four questions are reported in the Statewide Regional Evacuation Study Behavioral Survey Reports for each planning region of Florida. In those reports responses are shown by region, county, evacuation zone, and housing type. The tables below show responses for the entire statewide sample. However, the responses do not constitute a statewide random sample of households. In every coastal county, regardless of population, 400 interviews were completed. In every non-coastal county 150 interviews were completed. Therefore smaller counties were “over-represented” statistically when the data is aggregated statewide.

**(1) Households with Special Needs**

Statewide, 6.1% of the interviewees said that someone in their home had a disability or medical problem that would require special assistance beyond requiring just transportation (**Table V-3**). The figure included people with those needs but who also needed transportation. Those needs were greater in mobile homes than in site-built homes. For site-built homes the needs were lower in Category 1 evacuation areas than in other evacuation zones.

**Table V-3  
Households with Special Needs**

Type of Housing	Evacuation Zone						
	Cat A	Cat B	Cat C	Cat D-E	Coastal Non-Surge	Non-Coastal	All Zones
Site Built Homes	4.4	6.3	6.0	6.1	5.9	6.5	5.6
Mobile Homes	8.7	6.3	13.9	8.1	8.1	8.2	8.6
<b>All Housing</b>	5.0	5.8	7.4	6.3	6.3	6.9	<b>6.1</b>

*Percentage of households having someone with a disability or medical condition requiring assistance in order to evacuate (by evacuation zone and housing).*

**(2) Households Registered as Having Special Needs**

Approximately 2.2% of the surveyed households indicated that someone in the home was registered with their county as a person with special needs in a hurricane evacuation (**Table V-4**). The figure was higher for mobile home residents than site-built residents, but there was no clear trend with respect to evacuation

zone. However, from the list of registrants with the county emergency management agencies or county departments of health, there are less than 1% of the general population registered for special needs and transportation assistance. In fact, the actual number of registrants is less than 24% of the number answering that they are registered as a person with (medical) special needs.

**Table V-4  
Households Registered as Having Special Needs**

Type of Housing	Evacuation Zone						
	Cat A	Cat B	Cat C	Cat D-E	Coastal Non-Surge	Non-Coastal	All Zones
Site Built Homes	1.6	2.1	1.3	2.5	1.8	2.5	2.0
Mobile Homes	3.6	1.9	3.7	4.0	4.1	3.0	3.3
<b>All Housing</b>	1.9	2.0	1.7	2.7	2.2	2.6	<b>2.2</b>

*Percentage of households having someone with a disability or medical condition requiring assistance in order to evacuate **AND** registered with the county as special needs (by evacuation zone and housing).*

**(3) Households Needing Agency Assistance**

Two percent of all households said that assistance from an agency (rather than assistance from a friend or relative) would be needed to help a person with a disability or medical problem evacuate (**Table V-5**). Some respondents said they didn't know who would provide the assistance. Both calculations were higher for mobile homes than for site-built homes.

**Table V-5  
Households Needing Agency Assistance**

Type of Housing	Evacuation Zone						
	Cat A	Cat B	Cat C	Cat D-E	Coastal Non-Surge	Non-Coastal	All Zones
Site Built Homes	1.4	1.8	1.6	1.8	2.0	2.5	1.9
Mobile Homes	3.2	1.3	3.3	3.0	3.9	2.2	2.7
<b>All Housing</b>	1.6	1.7	1.9	1.9	2.3	2.4	<b>2.0</b>

*Percentage of households having someone with a disability or medical condition requiring assistance in order to evacuate **AND** requiring assistance from an agency (by evacuation zone and housing).*

**(4) Households with Special Needs Using Public Shelters**

One of the questions in the Kerr & Downs study asked specifically about special needs sheltering. However, all respondents were asked if they would go to a public shelter when they evacuated. 1.4% of the interviewees said they would BOTH evacuate to a

public shelter AND that they had someone in the home with a disability or medical problem who would require evacuation assistance. Residents in mobile homes were twice as likely as residents in site-built homes to reply affirmatively to both questions. Among those in site-built homes the rate increased as evacuation zones progressed inland. Among people in mobile homes the spatial trend was less consistent but the rate was greater inland of the Category 1 and 2 Zones.

**Table V-6  
Households with Special Needs Using Public Shelters**

Type of Housing	Evacuation Zone						
	Cat A	Cat B	Cat C	Cat D-E	Coastal Non-Surge	Non-Coastal	All Zones
Site Built Homes	.7	.8	1.5	1.3	1.4	1.9	1.2
Mobile Homes	1.4	1.3	3.7	3.0	2.0	3.2	2.5
<b>All Housing</b>	.8	.9	1.8	1.5	1.5	2.2	<b>1.4</b>
DeSoto County							4.0
Hardee County							4.0
Highlands County							3.3
Okeechobee County							4.7
Polk County							3.3

*Percentage of households having someone with a disability or medical condition requiring assistance in order to evacuate **AND** which intends to evacuate to a public shelter.*

It is difficult to determine the most appropriate way to use these survey results. While the study provided an estimate of demand for special needs shelter for the first time based on a statewide survey, there are concerns:

- The general public interviewed in the statewide survey does not understand the complexities of the concept of “special needs” as used in emergency shelter planning. While residents may have medical needs, they would need to be screened in order to determine the most appropriate type and level of care. For example, a hospital, nursing home, ALF, etc., may be a more appropriate setting.
- Historically, respondents over-estimate the demand for any public shelter option.
- Demand will vary by storm severity and evacuation rates.
- Demand will be higher based on housing type (MH), age and income.
- The number of respondents to these questions was very low at the county level.

## 7. Other Considerations

A report was generated after the 2004 and 2005<sup>6</sup> hurricane seasons which identified that a significant portion of the registered special needs populations found alternative shelter and/or elected not to go to the special needs shelter during the event. This trend has been identified in many recent evacuations. The report stated that "the statewide total of registrants is about 38,500, but local emergency managers estimate that only about 14,000 clients will actually seek public Special Needs Shelters. In 2004 the DOH's maximum census (summation of all individual counties' highest single day totals, plus the Orlando super shelter and a SWF regional shelter) was 6,364 or about half of local emergency managers' best estimate of demand."

However, when an event threatens, local emergency management agencies and the Department of Health are typically flooded with additional requests for special needs shelter and transportation. This puts an additional burden on emergency management and responders to follow up with these clients to determine the most appropriate level of care and shelter option. Complicating the situation is the availability of appropriate space in assisted living facilities, skilled nursing facilities and hospitals immediately prior to the event. In prior (Frances and Jeanne) evacuations, the Governor issued an executive order waiving occupancy limits in those facilities in order to provide for continuity of care for those residents who require a higher level of care. This is a critically important element in special needs planning.

What was not reflected in the 2005 report or the table below was the impact of special needs population in the general shelter population. Depending on the demographics in the community, a significant portion of the general shelter population may have or develop, as the event proceeds and stress levels increase, serious health issues.

It is estimated in the 2004 and 2005 shelter operations 30-60% of the general shelter population either arrived at the shelter with conditions which warranted a higher level of health care or developed health issues which warranted care associated with a Special Needs Shelter or higher levels of care. There were reports of school principals administering oxygen, monitoring health issues and even changing adult diapers. For the most part, many of these citizens had driven themselves to the shelter and found their health deteriorate given the stress of the event and shelter environment. This situation is not unique to the 2004 or 2005 hurricane season. It has been documented in many other historical events. In addition the DOH reported that many caregivers began to experience health issues as the event progressed.

It was noted that while people may be able to care for themselves or their spouse in their home, combine a stressful evacuation, shelter environment (cots

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<sup>6</sup> 2005 *Special Needs Shelter Report*, June 2005, DEM and DOH.

or air mattresses, lack of privacy, etc.) and storm conditions and the situation can become traumatic.

These issues may be mitigated through a continued push to pre-register special needs clients through an aggressive outreach program in the community. Coordination with local home health agencies and health care professionals has reduced this impact, but it remains an issue.

As indicated earlier, each county emergency management agency is responsible for maintaining the registry of persons with special needs. The names on those lists are protected. However, the number of registrants is available and reflects a starting point for determining demand within the county. It should be noted that the registry is fluid. It varies day to day, as does the clientele receiving home health care. It also varies by month, as many special needs clients are seasonal residents.

Demographics within the community as well as hazard vulnerability, available health care resources, the extent and duration of power outages and presence of extended family support all impact the potential demand for Special Needs Shelter capacity. The table below identifies the current (July 2009) registrants, current shelter capacities and estimate of demand based on the survey findings, balanced with knowledge of the county demographics and evacuee options.

**Table V-7  
Special Needs Shelter Demand Guidance<sup>7</sup>  
(2010 Base Scenarios)**

County	Number of Registrants (Medical)	Planning Percentage	Existing Capacity (2010)	EVACUATION SCENARIO (Demand Based On Percentage Of Evacuation Population In Base Scenarios)				
				A	B	C	D	E
DeSoto	82	2.7	190	411	442	490	548	571
Hardee	100	2	93	228	228	247	265	284
Highlands	22	.7	171	162	162	187	237	262
Okeechobee	50	3.3	50	783	958	1,271	1,271	1,271
Polk *	2,773	1.3	533/934	1,182	1,471	1,760	2,049	2,338
Region *	3,027	762	1,037/1,438	2,766	3,261	3,955	4,370	4,726

\* Polk County Existing Capacity is based on 60 Sq. Ft. per person for normal conditions and 35 Sq. Ft. per person for use under a worst case scenario based on their known deficit in Special Needs Sheltering.

The Evacuation Scenario Demand (columns A-E) in **Table V-7** were calculated based on the following: The Planning Percentage was provided by Dr. Jay Baker in his Summary of Special Needs Population Data (dated August 12, 2009) and is based on the definition of "Special Needs Shelter Needed". That definition is as

<sup>7</sup> For Planning Purposes Only.

follows: "Percentage of households having someone with a disability or medical condition requiring assistance in order to evacuate **AND** intends to evacuate to a public shelter." This percentage is then multiplied against the total evacuating population by base scenario, as found in **Table IV-7**. These numbers should be used FOR PLANNING PURPOSES ONLY, as they are a direct reflection of the behavioral analysis associated with this Study. These numbers may reflect a lack of registration among the population for the special needs program in that they identified themselves in the behavioral study, but have not registered with the county health department.

You will note that based upon known, registered, special needs population, DeSoto, Highlands and Okeechobee Counties are equal to, or less than, their existing capacity, and Hardee County only slightly exceeds its existing capacity. Currently, Polk County has a significant deficit in Special Needs Capacity.

Obviously, most counties are transitioning toward the new requirements for Special Needs Shelters, including the space requirement of 60 sq. ft. per person, and the emergency-power-supported air conditioning. As indicated, additional space must be provided for caregivers, family members, pets, medical equipment and supplies. Relocation of special needs clients across long distances is dangerous as well as taxing on local resources. Therefore, if there is not sufficient capacity within a county, a regional solution must be sought.

## **8. Public Private Partnerships**

It was hoped that legislation in 2006 would bring more support to local efforts to meet the challenges of addressing special needs in the community. Home health care agencies which provide care to special needs populations throughout the region have been tasked to provide continuity of care during disasters. It is hoped that this requirement will (1) provide earlier registration/evaluation of special needs populations; (2) provide additional support for Departments of Health staff in the special needs shelters; and (3) provide an overall benefit through private-public partnerships to ensure no one is "left behind".

The courts have interpreted the requirement for "continuity of care" to mean care which shall be provided by home health agencies during disasters, in the same manner as the time contracted prior to the event (i.e., 2-4 hours per week).

The legislation also recommended the identification of pediatric and other special units, the provision of funding for retrofit and generators at designated special needs shelters where required, and the coalition of a host of state, local and private sector agencies to address the needs of their clients in a disaster situation.

## H. Pets and Evacuees

### 1. Pet Issues Are People Issues

- 58% of U.S. households own animals.
- The media often reports the needs of animals, both domestic and wild, affected by disasters. Following Katrina, thousands of pets were rescued although many did not survive.
- Some people are more concerned for their animals in disasters than they are for themselves. This may impair their ability to make sensible decisions about their own safety and that of rescue workers. Examples include evacuation failures and re-entry attempts, and unsafe rescue attempts.
- Following Hurricane Katrina, some abandoned pets, hungry, disoriented and frightened became dangerous to rescue workers and returning residents. Packs of dogs – once beloved pets – had to be destroyed



In 2006, the Florida Legislature sought to address this serious concern. Chapter 252.3568, F.S. Emergency sheltering of persons with pets.--In accordance with s. 252.35, *the Division shall address strategies for the evacuation of persons with pets in the shelter component of the State Comprehensive Emergency Management Plan and shall include the requirement for similar strategies in its standards and requirements for local comprehensive emergency management plans. The Department of Agriculture and Consumer Services shall assist the Division in determining strategies regarding this activity.*

Therefore, the Division of Emergency Management has put forward the following policies:

### 2. Implementation Strategies

- Step One: Establish Policy Guidelines
- Step Two: Develop Standard Operating Guides, Procedures, and Best Practices
- Step Three: Training & Implementation

### 3. Policy Guidance to Residents

- Residents must include pets in family disaster plans.
- Take your pets with you when ordered to evacuate.
  - The best plan is to evacuate with your pets to friends and/or family.
  - Identify and promote pet friendly policies of hotels and motels during emergencies.
  - Shelters are life boats, for both you and/or your pets.
- Evacuation support should include people with pets.
  - Evacuation Routes
  - Buses
  - Special Needs
- Sheltering: No one with pets should be turned away from a shelter.
  - Options
  - Co-located Pet Friendly Shelters
  - Centralized Pet Shelters
  - Boarding facilities and animal shelters, volunteer groups
- Shelters: Service animals should never be turned away or separated from their owner.
- Animal rescue teams should be integrated in ESF 9 - Search and Rescue (SAR)
- Animal SAR teams should be typed and credentialed for the level of service of which they are capable.

## I. Shelter Inventories

At the time of the Regional Hurricane Evacuation Study update in 2000, all shelter inventories within the Central Florida Region were verified and cross referenced with the County Emergency Management Directors from each county. While there may be multiple buildings at a single address we have chosen to list these as a single facility on the inventory to prevent confusion. The total capacity numbers reflected include all facilities at the address listed.

The State of Florida and the counties have aggressively sought funding to retrofit existing facilities as well as to monitor new construction/design to ensure the current inventories meet or exceed American Red Cross (ARC) 4496 requirements. Literally, millions of mitigation dollars have been spent to protect exterior windows and doors and install generators. New school construction meeting the requirements of the Enhanced Hurricane Protection Areas (EHPA) has increased the capacity in all counties as well.

It should be noted that the shelters listed are dynamic and their capacities estimated. Shelter inventories change annually as facilities are added or dropped out for retrofit, construction or repairs. They are constantly being evaluated to ensure that the safest facilities are used. The capacities are based on useable space estimated at 20 sq. ft. per person. However, these estimates are, in fact, estimates and people never fit neatly into a 20 sq. ft. area.

**Table V-8A  
DeSoto County Shelter Inventory and Surge Analysis**

NAME	ADDRESS	CITY	Primary CAP @ 20 sq ft	Sp Needs Cap @60 sq ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-fire
DESOTO MIDDLE SCHOOL	420 EAST GIBSON STREET	ARCADIA	1,810	N/A	*NO	ARC	SCHOOL	N/A	N/A	N/A	NO
SOUTH FLORIDA COMMUNITY COLLEGE	2251 NE TURNER AVENUE	ARCADIA	N/A	190	*NO	DOH	SCHOOL	N/A	N/A	N/A	YES
<b>TOTAL</b>			<b>1,810</b>	<b>190</b>							

*Green-shaded = May not be available for Category 5 hurricane events*  
*Orange-shaded = Special Needs Shelter*

*DOH = County Health Department*  
*ARC = American Red Cross*  
*SD = County School District*

**NOTE:** \* DeSoto County has made provisions to house pets for their registered Special Needs Clients at the County Animal Control Facility. There is no general population pet friendly shelter.

**Table V-8B  
Hardee County Shelter Inventory and Surge Analysis**

NAME	ADDRESS	CITY	Primary CAP @ 20 sq ft	Sp Needs Cap @60 sq ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-fire
BOWLING GREEN ELEMENTARY SCHOOL	4530 SOUTH CHURCH STREET	BOWLING GREEN	132	N/A	NO	SD/ARC	SCHOOL	N/A	N/A	N/A	NO
HARDEE JR HIGH/ HILLTOP ELEM	2401 US 17 NORTH	WAUCHULA	4,066	N/A	NO	SD/ARC	SCHOOL	N/A	N/A	N/A	NO
NORTH WAUCHULA ELEMENTARY SCHOOL	1120 NORTH FLORIDA AVENUE	WAUCHULA	132	N/A	NO	SD/ARC	SCHOOL	N/A	N/A	N/A	NO
WAUCHULA ELEMENTARY SCHOOL	400 SOUTH FLORIDA AVENUE	WAUCHULA	287	N/A	NO	SD/ARC	SCHOOL	N/A	N/A	N/A	NO
ZOLFO SPRINGS ELEMENTARY SCHOOL	3215 SCHOOLHOUSE ROAD	ZOLFO SPRINGS	351	N/A	NO	SD/ARC	SCHOOL	N/A	N/A	N/A	NO
SOUTH FLORIDA COMMUNITY COLLEGE	2968 US 17 NORTH	BOWLING GREEN	N/A	93	NO	DOH/ COUNTY EM	SCHOOL	N/A	N/A	N/A	YES
OLD HARDEE JR HIGH SCHOOL (Main Building)*	200 SOUTH FLORIDA AVENUE	WAUCHULA	0	N/A	YES	SD/ COUNTY EM	SCHOOL	N/A	N/A	N/A	NO
<b>TOTAL</b>			<b>4,968</b>	<b>93</b>							

*Green-shaded = May not be available for Category 5 hurricane events*

*Orange-shaded = Special Needs Shelter*

*DOH = County Health Department*

*ARC = American Red Cross*

*SD = County School District*

**NOTE:** \* Old Hardee Junior High School IS NOT EHPA certified and is a refuge of last resort. It is a facility that allows household pets.

**Table V-8C  
Highlands County Shelter Inventory and Surge Analysis**

NAME	ADDRESS	CITY	Primary CAP @ 20 sq ft	Special Needs @ 60 sq ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-fire
AVON ELEMENTARY SCHOOL CAFETERIA	705 WEST WINTHROP	AVON PARK	220	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	NO
AVON PARK HIGH SCHOOL	700 EAST MAIN STREET	AVON PARK	534	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	YES
AVON PARK MIDDLE SCHOOL	401 SOUTH LAKE AVENUE	AVON PARK	512	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	YES
AVON PARK PUBLIC WORKS (backup shelter)	221 US 27 SOUTH	AVON PARK	365	N/A	NO	ARC	PUBLIC	N/A	N/A	N/A	NO
AVON PARK RECREATION	207 EAST STATE STREET	AVON PARK	554	N/A	NO	ARC	PUBLIC	N/A	N/A	N/A	NO
PARK ELEMENTARY SCHOOL	327 EAST PALMETTO	AVON PARK	229	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	NO
SOUTH FLORIDA COMMUNITY COLLEGE	600 WEST COLLEGE DRIVE	AVON PARK	265	N/A	NO	ARC	COLLEGE	N/A	N/A	N/A	NO
MEMORIAL ELEMENTARY SCHOOL CAFETERIA	867 MEMORIAL DRIVE	AVON PARK	235	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	NO
LAKE COUNTRY ELEMENTARY SCHOOL	516 COUNTY ROAD 29	LAKE PLACID	229	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	YES
LAKE PLACID ELEMENTARY SCHOOL	101 GREEN DRAGON DRIVE	LAKE PLACID	200	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	NO
LAKE PLACID HIGH SCHOOL	202 GREEN DRAGON DRIVE	LAKE PLACID	392	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	NO
LAKE PLACID MIDDLE SCHOOL	201 TANGERINE AVENUE	LAKE PLACID	356	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	NO
CRACKER TRAIL ELEMENTARY SCHOOL	8200 SPARTA ROAD	SEBRING	128	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	YES

NAME	ADDRESS	CITY	Primary CAP @ 20 sq ft	Special Needs @ 60 sq ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-fire
FRED WILD ELEMENTARY SCHOOL CAFETERIA	3550 YOUTH CARE LANE	SEBRING	220	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	YES
HILL-GUSTAT MIDDLE SCHOOL	4700 SCHUMACHER ROAD	SEBRING	557	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	YES
SEBRING HIGH SCHOOL	3514 KENILWORTH BOULEVARD	SEBRING	534	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	NO
SEBRING MIDDLE SCHOOL	500 EAST CENTER	SEBRING	343	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	NO
SUN'N LAKE ELEMENTARY SCHOOL	4515 PONCE DE LEON	SEBRING	230	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	NO
WOODLAWN ELEMENTARY SCHOOL CAFETERIA	718 FIELDER BOULEVARD	SEBRING	220	N/A	NO	SD	SCHOOL	N/A	N/A	N/A	NO
AGRI-CIVIC CENTER	4509 GEORGE BOULEVARD	SEBRING	N/A	126	NO	DOH	PUBLIC	N/A	N/A	N/A	NO
HIGHLANDS COUNTY HEALTH DEPARTMENT	7205 GEORGE BOULEVARD	SEBRING	N/A	45	NO	ARC	PUBLIC	N/A	N/A	N/A	NO
AVON PARK HOLINESS CAMP	1001 WEST LAKE ISIS AVENUE	AVON PARK	100	N/A	YES	VOLUNTEER	DORM	N/A	N/A	N/A	NO
SEBRING COUNTRY ESTATES CIVIC ASSOCIATION	3240 GRAND PRIX DRIVE	SEBRING	50	N/A	NO	VOLUNTEER	PRIVATE	N/A	N/A	N/A	NO
<b>TOTAL</b>			<b>6,473</b>	<b>171</b>							

*Green-shaded = May not be available for Category 5 hurricane events*

*Orange-shaded = Special Needs Shelter*

*Purple-shaded = Private Facilities with special agreements with Highlands County to open when requested by the Emergency Management Director*

*DOH = County Health Department*

*ARC = American Red Cross*

*SD = County School District*

**Table V-8D  
Okeechobee County Shelter Inventory and Surge Analysis**

NAME	ADDRESS	CITY	Primary CAP @ 20 sq ft	SP Needs Cap @60sq ft.	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-fire
EVERGLADES ELEMENTARY SCHOOL	3725 SE 8TH STREET	OKEECHOBEE	700	N/A	NO	SD	SCHOOL	N/A	B	C	NO
FRESHMAN CENTER AUDITORIUM	610 SW 2ND AVENUE	OKEECHOBEE	660	N/A	NO	SD	AUDITORIUM	N/A	A	N/A	NO
NEW ENDEAVOR HIGH SCHOOL	575 SW 29TH STREET	OKEECHOBEE	500	N/A	NO	SD	SCHOOL	N/A	A	A	NO
NORTH ELEMENTARY SCHOOL	3000 NW 10TH TERRACE	OKEECHOBEE	500	N/A	NO	SD	SCHOOL	N/A	C	C	NO
OKEECHOBEE HIGH SCHOOL	2800 HIGHWAY 441 NORTH	OKEECHOBEE	2,000	N/A	NO	SD	SCHOOL	N/A	C	N/A	NO
OSCEOLA MIDDLE SCHOOL	825 SW 21ST STREET	OKEECHOBEE	650	N/A	NO	ARC	SCHOOL	N/A	A	N/A	NO
SEMINOLE ELEMENTARY SCHOOL	2690 NW 42ND AVENUE	OKEECHOBEE	700	N/A	NO	SD	SCHOOL	N/A	C	A	NO
SOUTH ELEMENTARY SCHOOL	2468 SW 7TH AVENUE	OKEECHOBEE	500	N/A	NO	ARC	SCHOOL	N/A	A	A	NO
YEARLING MIDDLE SCHOOL	925 NW 23RD LANE	OKEECHOBEE	700	N/A	NO	SD	SCHOOL	N/A	C	C	NO
COUNTY HEALTH DEPARTMENT	1728 NW 9TH AVENUE	OKEECHOBEE	N/A	50	NO	DOH	PUBLIC BUILDING	N/A	C	C	NO
AMERICAN LEGION POST #64	501 SE 2ND STREET	OKEECHOBEE	200	N/A	NO	VOL	PRIVATE BUILDING	N/A	A	N/A	NO
FIRST BAPTIST CHURCH	401 SW 4TH STREET	OKEECHOBEE	65	N/A	NO	VOL	CHURCH	N/A	A	N/A	NO

NAME	ADDRESS	CITY	Primary CAP @ 20 sq ft	SP Needs Cap @60sq ft.	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-fire
FT. DRUM COMMUNITY CHURCH	32415 HIGHWAY 441 NORTH	OKEECHOBEE	80	N/A	NO	VOL	CHURCH	N/A	C	C	YES
SACRED HEART CATHOLIC CHURCH	701 SW 6TH STREET	OKEECHOBEE	500	N/A	NO	VOL	CHURCH	N/A	A	N/A	NO
<b>TOTAL</b>			<b>7,755</b>	<b>50</b>							

*Green-shaded = May not be available for Category 5 hurricane events*

*Orange-shaded = Special Needs Shelter*

*Purple-shaded = Private Facilities with special agreements with Okeechobee County to open when requested by the Emergency Management Director*

*DOH = County Health Department*

*ARC = American Red Cross*

*SD = County School District*

*Surge = 16 ft. SLOSH Model*

*Evac = Zones Determined Previously*

*Flood = A or C based on FEMA  
Entire County is a Flood Zone*

*No Data from the City of Okeechobee*

*Wildfire = Only Fort Drum is Next to Wildland Interface*

**Table V-8E**  
**Polk County Shelter Inventory and Surge Analysis**

NAME	ADDRESS	CITY	Primary CAP @ 20 sq ft	Special Needs @ 60 sq ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-fire
ALTA VISTA ELEMENTARY SCHOOL	801 SENIC HIGHWAY	HAINES CITY	432	N/A	YES	PCSO/SD	SCHOOL	N/A	N/A	N/A	NO
BARTOW SENIOR HIGH SCHOOL	1270 SOUTH BROADWAY	BARTOW	495	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
CHAIN OF LAKES ELEMENTARY SCHOOL	7001 COUNTY ROAD 653	WINTER HAVEN	2,412	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
COMBEE ELEMENTARY SCHOOL	2805 MORGAN COMBEE ROAD	LAKELAND	342	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
DR. N.E. ROBERTS ELEMENTARY SCHOOL	6600 GREEN ROAD	LAKELAND	1,723	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
GEORGE JENKINS SENIOR HIGH SCHOOL	6000 LAKELAND HIGHLANDS ROAD	LAKELAND	2,021	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
HAINES CITY SENIOR HIGH SCHOOL	2800 HORNET DRIVE	HAINES CITY	2,580	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
HIGHLANDS GROVE ELEMENTARY SCHOOL	4510 LAKELAND HIGHLANDS ROAD	LAKELAND	2,770	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
HORIZONS ELEMENTARY SCHOOL	1700 FOREST LAKE DRIVE	DAVENPORT	2,778	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
JEWETT SCHOOL OF THE ARTS	601 AVENUE T NE	WINTER HAVEN	1,197	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
KAREN M. SIEGEL ACADEMY	935 NORTH BUENA VISTA	LAKE ALFRED	78	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
KATHLEEN ELEMENTARY SCHOOL	3515 SHERETZ ROAD	LAKELAND	651	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
LAKE GIBSON SENIOR HIGH SCHOOL	7007 NORTH SOCRUM LOOP	LAKELAND	833	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
LAKE MARION CREEK SCHOOL	3055 LAKE MARIION CREEK ROAD	POINCIANA	4,296	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO

NAME	ADDRESS	CITY	Primary CAP @ 20 sq ft	Special Needs @ 60 sq ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-fire
LAKE REGION HIGH SCHOOL	1995 THUNDER ROAD	EAGLE LAKE	1,999	N/A	YES	PCSO/SD	SCHOOL	N/A	N/A	N/A	NO
LAKELAND HIGHLANDS MIDDLE SCHOOL	740 LAKE MIRIAM DRIVE	LAKELAND	557	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
LAUREL ELEMENTARY	1851LAUREL AVENUE	POINCIANA	1,219	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
LINCOLN AVENUE ACADEMY	1330 NORTH LINCOLN AVENUE	LAKELAND	445	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
LOUGHMAN OAKS ELEMENTARY SCHOOL	4600 US HIGHWAY 17/92 NORTH	DAVENPORT	343	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
MCKEEL ACADEMY	1810 WEST PARKER STREET	LAKELAND	727	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
PALMETTO ELEMENTARY	315 PALMETTO STREET	POINCIANA	1,143	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
PHILIP O'BRIEN ELEMENTARY SCHOOL	1225 EAST LIME STREET	LAKELAND	1,044	N/A	YES	PCSO/SD	SCHOOL	N/A	N/A	N/A	NO
PINEWOOD ELEMENTARY SCHOOL	1400 GILBERT STREET	EAGLE LAKE	404	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
PURCELL ELEMENTARY SCHOOL	305 FIRST AVENUE NE	MULBERRY	541	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
R. BRUCE WAGNER ELEMENTARY SCHOOL	5500 YATES ROAD	LAKELAND	1,717	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
RIDGE COMMUNITY SENIOR HIGH SCHOOL	500 W ORCHID DRIVE	DAVENPORT	6,550	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
RIDGEVIEW GLOBAL STUDIES ACADEMY	1000 DUNSON ROAD	DAVENPORT	1,250	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
ROCHELLE SCHOOL OF THE ARTS	1501 MLK AVENUE	LAKELAND	946	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
SANDHILL ELEMENTARY SCHOOL	1801 TYNER ROAD	HAINES CITY	1,250	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
SCOTT LAKE ELEMENTARY SCHOOL	1140 SR 540A	LAKELAND	432	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO

NAME	ADDRESS	CITY	Primary CAP @ 20 sq ft	Special Needs @ 60 sq ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-fire
SLEEPY HILL ELEMENTARY	2285 SLEEPY HILL ROAD	LAKELAND	2,778	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
SOUTHWEST ELEMENTARY SCHOOL	2650 SOUTHWEST AVENUE	LAKELAND	425	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
SPESSARD HOLLAND ELEMENTARY	2342 E.F. GRIFFIN ROAD	BARTOW	2,778	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
SPOOK HILL ELEMENTARY	321 DR JA SILTCHIRE AVENUE EAST	LAKE WALES	343	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
STAMBAUGH MIDDLE SCHOOL	226 NORTH MAIN STREET	AUBURNDALE	429	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
STEPHENS ELEMENTARY SCHOOL	1350 NORTH MAPLE STREET	BARTOW	402	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
TENOROC SENIOR	4905 SADDLE CREEK ROAD	LAKELAND	4,419	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
WINTER HAVEN SENIOR HIGH SCHOOL	600 6TH STREET SOUTHEAST	WINTER HAVEN	492	N/A	NO	ARC/SD	SCHOOL	N/A	N/A	N/A	NO
HAINES CITY ADULT DAY CARE	751 SCENIC HIGHWAY	HAINES CITY	N/A	65/112*	NO	EM	GOVERNMENT BUILDING	N/A	N/A	N/A	NO
LAKELAND ADULT DAY CARE	1200 SOUTHERN AVENUE	LAKELAND	N/A	75/128*	NO	EM	GOVERNMENT BUILDING	N/A	N/A	N/A	NO
POLK COUNTY HEALTH DEPT SPECIAL CARE UNIT	1255 BRICE BOULEVARD	BARTOW	N/A	349/618*	NO	EM	GOVERNMENT BUILDING	N/A	N/A	N/A	NO
<b>TOTAL</b>			<b>55,241</b>	<b>489/858</b>							

Green-shaded = May not be available for Category 5 hurricane events  
 Orange-shaded = Special Needs Shelter

DOH = County Health Department  
 ARC = American Red Cross  
 SD = County School District

\* Special needs shelter numbers are based upon 60 Sq. Ft. for normal conditions and 35 Sq. Ft. for use under a worst case scenario due to the known deficit in special needs sheltering.

## J. Public Shelter Demand

The general response model, post-hurricane behavioral surveys of residents in the Central Florida Region and past experience was used to determine public shelter demand. The number of evacuees who choose public shelter as their evacuation destination is based on demographic characteristics of the population including income and age, risk area and housing (mobile home vs. site built homes). The planning assumptions regarding anticipated shelter use were presented in the Regional Behavioral Analysis (See Chapter III, Appendices III-A, III-B, III-C, III-D, III-E), and were applied to the projected Hurricane Evacuation Population estimates.

There are several different assumptions regarding the evacuation population (See Chapter VI Evacuation Transportation Analysis):

- The **Base Scenarios** are used for planning and growth management purposes and assume that 100% of the population-at-risk evacuates plus a smaller percentage of non-vulnerable population (shadow evacuation).
- The **Operational Scenarios** are used when the planning assumptions determined by the behavioral analysis are assumed to be a more realistic set of assumptions. Although they do not reflect 100% evacuation of vulnerable residents, there is a significant percentage of shadow evacuation especially during major storm threats.

The results are presented below:

Table V-9a Public Shelter Demand for Hurricane Evacuation Base Scenarios 2010						
County	Capacity	A	B	C	D	E
DeSoto	1,810	2,551	2,710	2,953	3,608	3,730
Hardee	4,968	1,832	1,832	1,985	2,183	2,451
Highlands	6,473	5,465	5,465	5,988	7,803	8,366
Okeechobee	7,755	3,818	4,745	6,149	6,297	6,566
Polk	55,241	15,533	18,217	20,901	25,191	28,908
Region	76,247	29,199	32,969	37,976	45,082	50,021

Table V-9b Public Shelter Demand for Hurricane Evacuation Operational Scenarios 2010						
County	Capacity	A	B	C	D	E
DeSoto	1,810	0	0	0	2,651	0
Hardee	4,968	918	1,223	1,223	1,880	0
Highlands	6,473	0	3,489	4,505	6,690	6,690
Okeechobee	7,755	0	0	2,551	0	3,102
Polk	55,241	7,824	13,078	13,078	17,046	17,046
Region	76,247	8,742	17,790	21,357	28,267	26,838

Numbers in **RED** represent a shelter deficit.

**Table V-10a  
Public Shelter Demand for Hurricane Evacuation  
Base Scenarios 2015**

County	Capacity	A	B	C	D	E
DeSoto	1,810	2,721	2,914	3,204	3,952	4,090
Hardee	4,968	1,948	1,948	2,161	2,435	2,764
Highlands	6,473	5,554	5,554	6,164	8,181	8,837
Okeechobee	7,755	4,000	5,006	6,695	6,849	7,150
Polk	55,241	15,925	19,001	22,080	26,762	31,021
Region	76,247	30,148	34,423	40,304	48,179	53,862

**Table V-10b  
Public Shelter Demand for Hurricane Evacuation  
Operational Scenarios 2015**

County	Capacity	A	B	C	D	E
DeSoto	1,810	1,750	0	0	0	0
Hardee	4,968	1,034	0	1,704	1,704	1,704
Highlands	6,473	2,588	3,576	0	7,067	7,067
Okeechobee	7,755	0	2,239	0	3,284	3,715
Polk	55,241	8,216	13,862	18,224	18,224	18,224
Region	76,247	13,588	19,677	19,928	30,279	30,710

Numbers in **RED** represent a shelter deficit.

## K. Dealing with Shelter Shortfalls and Challenges

Strategies have been implemented at the state and local level to address the shelter issues for the past ten years. Some additional funding for shelter retrofit and generators for special needs shelters was allocated in 2006; however, the economic downturn has taxed federal, state and local resources.

- Public information, both before the emergency and during the evacuation, should stress that while evacuation out of the most vulnerable areas is critical, (1) residents should seek alternative types of refuge before and during the emergency if feasible; and (2) that persons on high ground offer their homes as refuge to friends/relatives in hurricane vulnerable areas.
- Impact fees for development within the Coastal High Hazard Area (CHHA) and Hurricane Vulnerability Zone (Level C), Wildfire Urban Interface and the 100-year flood zone should be used to mitigate the impacts of further development in hurricane prone areas.
- Growth management strategies should minimize development which would increase allowable density or put people with special needs (critical facilities) in designated vulnerable areas.
- Both local governments and local school boards, in cooperation with local emergency management, should ensure that new schools are sited, designed and constructed to be disaster-resistant and appropriate for shelter use. In addition, windows in existing facilities should be protected/retrofitted to mitigate damage and provide more suitable public shelter. Funding to cover additional construction costs to the school boards to upgrade to EHPA standards should be sought.
- Continue to encourage the State Legislature to fund the necessary retrofits (for both public and private facilities (particularly schools, hospitals and nursing homes) and mandate appropriate design/construction standards.
- Public outreach should stress that persons with pets prepare ahead for their pets and recognize the extremely limited capacity for pets at public shelters. Emergency management and local school boards need to continue to address this issue.
- Public outreach should stress that persons with special needs speak to their physician/health care provider and register with county emergency management if they require additional assistance.
- In a major evacuation and where necessary, the Governor's Office should, through Executive Order, waive capacity limits in assisted living facilities and nursing homes to ensure appropriate continuity of care and level of care is maintained in the region.

- It should be recognized that providing the appropriate level of care and continuity of care will take ongoing cooperation and communications between and among the public and private sector health care providers. Emergency management, the local health departments and health care providers should partner to develop the plans and shelter locations for our residents with special needs.
- Phase shelter openings. The shelter demand estimates may be high depending on the strength and projected track of the threatening hurricane as well as the response of local government and State officials. The American Red Cross chapters, local emergency management agencies and local school boards developed strategies to phase the opening of selected public shelters depending on the evacuation level and projected shelter demand.