



Volume 1-5 Withlacoochee 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 1985 (350,000 sheltered), as Hurricane Elena threatened the Gulf Coasts of Florida, Mississippi, and Alabama. In 2005 when hurricanes threatened the Gulf Coast, Red Cross disaster relief workers and local governments were preparing hundreds of evacuation shelters. The organization 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).

Pre-storm evacuation shelter demand has significantly decreased in many 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 2008 for the Statewide Regional Evacuation Study Program, part of that message is getting across to residents. The 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 will also be a key factor.

B. Hotel Availability

In the Withlacoochee Region there are a total of 10,777 hotel/motel rooms (April 2006). 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.

Citrus, Hernando, and Levy Counties all have hotels vulnerable to storm surge (see Table V-1 below). However, hotel inventory in surge is only 14% of the total regional hotel inventory. Despite the small proportion of hotel inventory in surge, approximately 60% is very vulnerable, (located in the Tropical Storm surge area).

Some of the Tourist and Visitors Bureaus in major metropolitan areas currently have a mechanism in place to track available units throughout a regional evacuation. This capability is essential to assist those evacuees looking for hotel/motel units. (Although it should be 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 hotel/motel 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 Availability in Hurricane Evacuation Scenarios

Storm Surge Area (Category)	Citrus Room Availability	Hernando Room Availability	Levy Room Availability	Regional Room Availability
TS	695	25	165	885
1	108	1	16	125
2	16		115	131
3	77	1	59	137
4	9	72		81
5		126	7	133

Source: Florida Dept. of Professional and Business Regulations, 2007

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 has the potential to be significant in the Withlacoochee 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 in 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 American Red Cross leadership, has prepared criteria for the selection of shelters and printed as *ARC 4496, July 1992*.

In the experience of the Red Cross and emergency management officials, the majority of people evacuating because of a hurricane threat generally provide for themselves and seek hotels or motels or stay 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. The National Hurricane Center SLOSH model for the Withlacoochee Region is very helpful in determining the potential level of surge inundation in this area. Within ARC 4496, the guidelines state the following:

- *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 on Tables V-8A through V-8E. The magnitude of the storm surge values shown in each hurricane category column on 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, should be reviewed. FIRMs should also be reviewed in locating shelters in inland areas. 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 on the tables along with the storm surge analysis. While locating facilities outside of the 100-year floodplain is a priority, this can be difficult in the Withlacoochee region. 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 into account wind hazards. 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 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. State and County 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. The 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 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.*
- *Service delivery units must work with local emergency management officials to determine if hazardous materials present are a concern for potential hurricane evacuation shelters.*

Those (Section 302) facilities with extremely hazardous materials on-site have been identified in relation to schools and hospitals. This information is contained in the Critical Facilities Inventory database.

C. 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.
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, such as the addition of window protection in the planning stages, to make for a more useful hurricane evacuation shelter site.

D. 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 these decisions are made carefully by a team including representatives from county emergency management agencies, the local chapter of the American Red Cross, 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 checked 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 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 as 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 these are used in the community.*

E. Special Needs Shelters

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

The State of Florida Division of Emergency Management, Department of Health, local emergency management agencies, 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.¹



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, caregivers 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.

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

- 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

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. This would include transportation disadvantaged residents who need transportation assistance only.

Residents who feel they may qualify are instructed to complete a Special Needs Evaluation form.

[Citrus County Special Needs Evaluation form](#)

[Hernando County Special Needs Evaluation form](#)

[Levy County Special Needs Evaluation form](#)

[Marion County Special Needs Evaluation form](#)

[Sumter County Special Needs Evaluation form](#)

The forms should be mailed, e-mailed or faxed to the county office designated to maintain the special needs registration list.

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 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. Please note that special needs shelters can not accept bedbound patients.

- They require daily assessment of a (stable) medical condition by professional nursing personnel or other similar conditions.
- They have a respiratory condition which requires special equipment such as monitors or oxygen. Counties may have a limit to the number of liters of oxygen at shelters.
- They have a terminal illness but are ambulatory and in need of professional assistance in administering heavy doses of pain medicine (HOSPICE).
- In some counties, individuals will receive notification 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.
- Bedridden patients
- Individuals with a tracheotomy that requires frequent suctioning
- Individuals on a ventilator

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 supplies, 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 (Special Needs Shelter) Selection²

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 Special Needs Shelter.

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 (Special Needs Shelter) 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 Special Needs Shelter facility must also meet all Florida Building Code (FBC) and Americans with Disabilities Act (ADA) accessibility requirements.

² Created: 10/14/05

Revised: 11/16/05; 01/20/06

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b. Special Needs Shelter Occupancy Period

For planning purposes it is assumed that the Special Needs Shelter 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 Special Needs Shelter may be occupied for 12 hours in advance of arrival of hurricane force winds.

c. Special Needs Shelter Structural Requirements

Special Needs Shelter 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

Each Special Needs Shelter should have at least two (2) major means of access for emergency vehicles. The additional need for access is due to the potential for medical emergencies associated with the fragile health conditions of the Special Needs Shelter client population. The Special Needs Shelter 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 Special Needs Shelter 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 Special Needs Shelter 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 Special Needs Shelter will be open for a minimum of 72 hours during and post impact by a major hurricane, the Special Needs Shelter 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 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 Special Needs Shelter operation. Due to the fragile health and medical condition of the Special Needs Shelter clients, it is imperative that the Special Needs Shelter 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 caregivers. The absence of air conditioning can result in the deterioration of the Special Needs Shelter 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 backup 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 Special Needs Shelter 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 manufacturer if more frequent. Sites on facility grounds (i.e., lift stations) should have quick connects (as appropriate) to provide for utilization of backup 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 Special Needs Shelter occupancy. Additional consideration for clients with special dietary/metabolic health issues should be factored into food service planning; however it is very difficult to predict all the different types of dietary restrictions. Residents are told to bring their own food supply if they have a special or restrictive diet.

(3) **Supplemental Space Allocations.** Additional space allocations should be considered for the following:

- Safe play areas for children.
- Special Needs Shelter 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.
- Special Needs Shelter clients with service animals may need to be provided a separate area or away from the general Special Needs Shelter client population.
- Quarantine areas for clients requiring isolation precautions. Respiratory isolation areas to be designated and assigned at each Special Needs Shelter 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 Special Needs Shelter 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. Typically, the older the overall population of the county/region, the older the shelter population and greater the demand for public shelter. Historically, the demographics of the general and special needs shelter populations have been 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. The differences in age and percentage with disabilities will impact the potential demand for special needs shelter.

Table V-2
Population Demographics Affecting Special Needs Shelter Demand

Jurisdiction	Percentage 65+ 2010 ³	Percentage 65+ 2015 ⁴	Percentage with Disabilities ⁵	Percentage with Disabilities age 65 +	Percentage with Disabilities age 75+
Citrus	32.33%	34.14%	28.32%	37.63%	48.52%
Hernando	28.85%	30.49%	27.23%	39.99%	49.76%
Levy	19.62%	21.61%	27.95%	48.68%	63.23%
Marion	24.2%	25.87%	25.90%	39.51%	49.85%
Sumter	32.04%	33.35%	27.93%	37.53%	52.96%
Region	27.38%	29.06%	26.97%	39.37%	50.22%

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:

³ EDR1a

⁴ EDR1a

⁵ 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.

- 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?
- 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. In site-built homes the needs were lower in category 1 evacuation areas than in other evacuation zones.

Table V-3

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

Type of Housing	Evacuation Zone						
	Cat 1	Cat 2	Cat 3	Cat 4-5	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
All Housing	5.0	5.8	7.4	6.3	6.3	6.9	6.1

(2) Households Registered as Having Special Needs

Approximately 2.2% of the surveyed households indicated that anyone 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

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

Type of Housing	Evacuation Zone						
	Cat 1	Cat 2	Cat 3	Cat 4-5	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
All Housing	1.9	2.0	1.7	2.7	2.2	2.6	2.2

(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

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)

Type of Housing	Evacuation Zone						
	Cat 1	Cat 2	Cat 3	Cat 4-5	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
All Housing	1.6	1.7	1.9	1.9	2.3	2.4	2.0

(4) Households with Special Needs Using Public Shelters

One of the questions 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 BOTH that they would 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 mobile homes the spatial trend was less consistent but the rate was greater inland of the category 1 and 2 zones.

Table V-6

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

Type of Housing	Evacuation Zone						
	Cat 1	Cat 2	Cat 3	Cat 4-5	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
All Housing	.8	.9	1.8	1.5	1.5	2.2	1.4
Citrus County							1.8%
Hernando County							1.5%
Levy County							1.8%
Marion County							2.0%
Sumter County							1.3%

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 2005⁶ 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

⁶ ***2005 Special Needs Shelter Report***, June 2005, DEM and DOH

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 that in the 2004 and 2005 shelter operations from 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 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
(2010 Operational Scenarios)**

County	Number of Registrants (Medical)	Planning Percentage <small>(Assumed 25% Respondents indicating need)</small>	Existing Capacity (2009)	EVACUATION SCENARIO <small>(Demand based on percentage of evacuation population in Base Scenarios)</small>				
				A	B	C	D	E
Citrus	409	0.45%	191	21	22	31	51	56
Hernando	914	0.38%	1,057	23	24	27	37	43
Levy	25	0.45%	136	15	16	17	18	19
Marion	964	0.5%	803	75	86	96	107	107
Sumter	650	0.33%	105	27	31	35	38	42
Region	2,962		2,292	161	179	206	251	267

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 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 the 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."

While the courts interpreted the requirement for “continuity of care” to be provided by the home health agencies in disasters as the time contracted prior to the event, i.e., 2-4 hours a week, it was a step forward.

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

F. Pets and Evacuees

1. Pet Issues are People Issues

- Fifty-eight percent 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.

G. Shelter Inventories

Shelter capacities have fluctuated, as all of the shelter inventory in the region had not been surveyed at the time of the Regional Hurricane Evacuation Study update in 2004. Most of the shelters in the region that have been surveyed have “lost” much of their shelter capacity. For example, in the Tampa Bay Region, Pasco County had been surveyed in 2000 to determine wind vulnerability and compliance with ARC 4496 and ASCEI. As a result, the shelter capacity in Pasco County decreased from approximately 25,000 people to a mere 5,820. In response, both the State of Florida and the counties aggressively sought funding to retrofit existing facilities as well as to monitor new construction/ design to reach the current inventories. 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 are estimates. Shelter inventories change annually as facilities are added or drop 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 and an estimated 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 Citrus County Shelter Inventory and Surge Analysis

NAME	ADDRESS	CITY	RISK CAP @ 20 sq ft	Sp Needs Cap @60 sq ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-fire
Academy Of Environ. Sciences	12695 W Fort Island Trail	Crystal River			No	SD	School	2	A	✓	
Beverly Hills Lions Club	72 Beverly Hills Center	Beverly Hills	350		No	ARC	School				✓
Citrus County Renaissance Center	3620 W. Educational Path	Inverness		91	No	DOH	Community Ctr				✓
Citrus County Superintendent's Office	1007 W Main St	Inverness			No	SD	School				
Citrus High School	600 West Highland Blvd	Inverness	501		No	SD	School				
Citrus Springs Elementary	3570 West Century Blvd	Citrus Springs	1,500		No	SD	School				✓
Citrus Springs Middle	150 W Citrus Springs Blvd	Citrus Springs	1,449		No	ARC	School				✓
Crest School	260 S Panther Pride Dr	Lecanto	1,271		No	SD	School				✓
Crystal River High School	1205 Ne 8th Ave	Crystal River			No	SD	School	TS	A	✓	
Crystal River Middle School	344 Ne Crystal Street	Crystal River			No	SD	School	1	A	✓	✓
Crystal River Primary School	947 Ne 6th St	Crystal River			No	SD	School	TS	A	✓	✓
Cypress Creek Academy	2855 W Woodland Ridge Dr	Lecanto			No	SD	School				
East Citrus Community Center	9907 E Gulf To Lake Hwy	Inverness			No	ARC	Community Ctr			✓	✓
First Assembly Church	4201 South Pleasant Grove Road	Inverness	800		No	ARC	Church				✓
First Baptist Church	8545 E Magnolia	Floral City	400		No	ARC	Church				✓
First Baptist Of Inverness	123 S Seminole Avenue	Inverness	200		No	ARC	Church				✓
First Christian Church	1005 Hillside Court	Inverness	400		No	ARC	Church				✓
First Lutheran Church	1900 W Highway 44	Inverness	400		No	ARC	Church				
First Presbyterian Church	206 Washington Avenue	Inverness	400		No	ARC	Church				✓
First United Methodist	8631 West Bradshaw Blvd	Homosassa			No	ARC	Church	1	A	✓	✓
Floral City Community Center	8370 E. Orange Avenue	Floral City	200		No	ARC	Community Ctr				✓
Floral City Elementary	8457 E Marvin Street	Floral City	543		No	ARC	School				✓

NAME	ADDRESS	CITY	RISK CAP @ 20 sq ft	Sp Needs Cap @60 sq ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-fire
Forest Ridge Elementary	2927 North Forest Ridge	Hernando	2,800		No	ARC	School				✓
Hernando Elementary	2353 N Croft Avenue	Hernando	600		No	SD	School				✓
Highlands Emergency Center	4325 S Little Al Point	Inverness	400		No	ARC					✓
Homosassa Elementary	10935 W Yulee Dr	Homosassa			No	SD	School	TS	A	✓	✓
Hope Evangelical Lutheran	9425 N Citrus Springs Blvd	Citrus Springs	150		No	ARC	Church				✓
Inverness Middle School	1950 North Us Highway 41	Inverness	2,157		No	SD	School				✓
Inverness Primary School	206 South Lime Avenue	Inverness	1,299		No	SD	School				
Lecanto High School	3810 W Education Path	Lecanto	3,400		No	ARC	School				✓
Lecanto Middle School	3800 W Education Path	Lecanto		100	No	DOH	School				✓
Lecanto Primary School	3790 W Education Path	Lecanto	1,869		No	ARC	School				✓
Main Street Baptist Church	960 S Highway 41	Inverness	400		No	ARC	Church				
Marine Science Station	12646 W Fort Island Tr	Crystal River			No	SD	School	TS	A	✓	✓
Our Lady Of Fatima	550 S Highway 41	Inverness	400		No	ARC	Church				✓
Pleasant Grove Elementary	630 Pleasant Grove Road	Inverness	600		No	ARC	School				✓
Riverside Christian Church	7771 N Carl G. Rose Hwy	Hernando	100		No	ARC	Church			500	✓
Rock Crusher Elementary	814 S Rock Crusher Road	Crystal River	1,500		No	ARC	School	3	B		✓
St. Elizabeth Seton Hall	1180 Country Club B	Dunnellon	450		No	ARC	Church				✓
St. Margaret Episcopal	114 N Osceola Avenue	Inverness	100		No	ARC	Church				✓
V.F.W. Leroy Rokks	1930 S Highway 200	Hernando	200		No	ARC	Community Ctr				✓
Withlacoochee VoTech	1201 W Main Hwy 44 West	Inverness	2,075		No	DOH	School				
TOTAL			4,750	191							

Those shaded in green may not be used in higher intensity storms.

Those shaded in orange are special needs shelters.

Those in bold type are included in the total. Other shelters are not included in the total because they are either secondary or may not be ARC 4496 compliant.

ARC = American Red Cross

DOH = County Health Department

SD = County School District

Table V-8B Hernando County Shelter Inventory and Surge Analysis

Name	Address	City	Risk Cap @ 20 Sq Ft	Sp Needs Cap @60 Sq Ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-Fire
Brooksville Assembly Of God	20366 Cortez Blvd	Brooksville			No	ARC	Church				
Brooksville Elementary	885 North Broad Street	Brooksville	951		No	SD	School				
Campers Holiday	2092 Culbreath Rd	Brooksville			No	ARC	Club				
Central High School	14075 Ken Austin Parkway	Brooksville	862		No	ARC	School				
Challenger K-12	13400 Elgin Blvd	Spring Hill	2,750	666	No	DOH	School				
Explorer K-8	10252 Northcliffe Ave.	Spring Hill	2,750		No	SD	School				
Chocachatti Elementary	4135 California Street	Brooksville	718		No	SD	School				
Christ Lutheran Church	475 North Avenue West	Brooksville	129		No	ARC	Church				
Clover Leaf Heather House	900 N Broad St	Brooksville			No		Club				
Dav Cada - Haddon #67	16314 Cortez Blvd	Brooksville			No		Club				
Deltona Elementary	2055 Deltona Blvd	Spring Hill	696		No	SD	School				
Eastside Elementary School	2715 Roper Drive	Spring Hill	890		No	SD	School				
Eden Baptist Church	22308 Lake Lindsey Rd	Brooksville			No	ARC	Church				✓
First United Methodist	18 South Broad Street	Brooksville	157		No	ARC	Church				
Fox Chapel Middle	9412 Fox Chapel Lane	Spring Hill	303		No	SD	School	5	E		✓
Springstead High	3300 Mariner Blvd	Brooksville	164		No	SD	School				✓
Grace Presbyterian	8375 Spring Hill Dr	Spring Hill			No	ARC	Church				
Hernando High	700 Bell Avenue	Brooksville	126		No	SD	School				
J.D. Floyd Elementary	3139 Dumont Avenue	Springhill	280		No	SD	School				✓
Knights Of Columbus	10470 Spring Hill Drive	Springhill	223		No	ARC	Community Ctr				
Loyal Order Of Moose #521	5214 Mariner Blvd	Spring Hill			No	ARC	Club				
Masarytown Community Center	539 Lincoln Avenue	Masarytown	191		No	ARC	Community Ctr			500	
Moton School Center	7175 Emerson Rd.	Brooksville	557		No	SD	School				✓
Nature Coast Tech High	4057 California Street	Brooksville	779		No	SD	School				✓
Parrot Middle School	19220 Youth Dr	Brooksville	399		Yes	SD	School				✓

Name	Address	City	Risk Cap @ 20 Sq Ft	Sp Needs Cap @60 Sq Ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-Fire
Pasco/Hernando Community College	11415 Ponce De Leon Blvd	Brooksville	55		No	ARC	School				✓
Pinegrove Elementary	14411 Ken Austin Parkway	Brooksville	719		No	SD	School				✓
Powell Middle School			844		No	SD	School				✓
Praise Celebration Tabernacle	11241 Ponce De Leon Blvd	Brooksville			No	ARC	Church				✓
Ridge Manor Community Center	34240 Cortez Blvd	Ridge Manor	107		No	ARC	Community Ctr				✓
Spring Hill Elementary	6000 Roble Avenue	Springhill	467		No	SD	School				✓
Suncoast Elementary School	11135 Quality Drive	Springhill	338		No	ARC	School				
Suncoast Entertainment	10451 Countyline Rd	Springhill			No		Club				
Westside Elementary School	5400 Applegate Drive	Springhill	399		No	ARC	School	5	E		✓
Total			10,193	1,057							

Those shaded in green may not be used in higher intensity storms.

Those shaded in orange are special needs shelters.

Those in bold type are included in the total. Other shelters are not included in the total because they are either secondary or may not be ARC 4496 compliant.

ARC = American Red Cross

DOH = County Health Department

SD = County School District

TABLE V-8C Levy County Shelter Inventory and Surge Analysis

Name	Address	City	Risk Cap. @ 20 Sq Ft	Sp Needs Cap @60sq Ft.	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-Fire
Bronson Elementary	400 Ishie Ave	Bronson	4,343	136	No	DOH	School				✓
Bronson MS/HS	8691 Ne 90th Str	Bronson	276		No	SD	School				✓
Cedar Key School	951 Whiddon Avenue	Cedar Key	38		No	SD	School	2	A	✓	
Chiefland Elementary	1205 Nw 4th Avenue	Chiefland	1,687		No	SD	School			✓	✓
Chiefland High	808 N. Main Street	Chiefland	2,201		No	SD	School			✓	✓
Chiefland Middle	118 Nw 4th Drive	Chiefland	944		No	SD	School			✓	✓
Bullock Elementary	130 SW 3rd St.	Williston	1,853		No	SD	School				
First Baptist- Williston	339 E Noble Ave	Williston			No	ARC	Church			✓	
Otter Creek Baptist	171 Sw 3rd St	Otter Creek			No	ARC	Church		E		✓
Rosewood Baptist Church	6331 Sw 98th Ter	Cedar Key			No	ARC	Church	3	B	✓	
Williston Elementary	801 South Main Street	Williston	2,271		No	SD	School				
Williston High	427 West Noble Ave	Williston	3,738		No	SD	School			✓	
Williston Middle	20550 Ne 3rd Avenue	Williston	1,965		No	SD	School				
Yankeetown School	4500 Hwy 40 West	Yankeetown	229		No	SD	School	2	A	✓	
Total			19,278	136							

Those shaded in green may not be used in higher intensity storms.

Those shaded in orange are special needs shelters.

Those in bold type are included in the total. Other shelters are not included in the total because they are either secondary or may not be ARC 4496 compliant.

ARC = American Red Cross

DOH = County Health Department

SD = County School District

TABLE V-8D Marion County Shelter Inventory and Surge Analysis

Name	Address	City	Risk Cap @ 20 Sq Ft	Sp Needs Cap @60 Sq Ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-Fire
Bellevue High School	10400 Se 36th Avenue	Bellevue	1,454	641	No	DOH	School				✓
Bellevue Middle School	10500 Se 36th Avenue	Bellevue	1,437		No	SD	School				✓
Cedar Creek Baptist Church	15455 Ne Hwy 314	Silver Springs			No	ARC	Church				✓
Center Of Hope	320 Nw 1st Avenue	Ocala	100		No	ARC	Church				
Central Florida Community College	3001 Sw College Road	Ocala	400		No	ARC	School				✓
Christ The King Catholic	14015 Hwy 301	Citra			No	ARC	Church				
Dunnellon High School	10055 Sw 180th Ave	Dunnellon	585		No	SD	School				
First Baptist Of Bellevue	6107 Se Agnew Road	Bellevue	180		No	ARC	Church				
First Baptist Of Dunnellon	20831 Powell Rd	Dunnellon			No	ARC	Church				✓
First Baptist Of Ocala	2801 Se Maricamp Rd	Ocala			No	ARC	Church				
First United Methodist	1126 E. Silver Springs Blvd	Ocala			No	ARC	Church				
Forest Assembly Of God Church - Forest Corners	17530 E Hwy 40	Silver Springs			No	ARC	Church				✓
Forest Baptist- Hog Valley	23240 Ne 153rd Avenue	Ft. McCoy			No	ARC	Church				✓
Forest High School	5000 Se Maricamp	Ocala	2,050		No	SD	School				
Fort King Middle School	545 Ne 17th Avenue	Ocala	500		No	SD	School				
Fort McCoy ES/MS	16160 N Highway 315	Fort McCoy	797		No	SD	School				
Hammett Elementary	4397 Sw 95th Street	Ocala	1,361		No	SD	School				✓
Hog Valley VFW	23621 Ne 160th Avenue Road	Hog Valley			No	ARC	Club				✓
Horizon Academy Middle	365 Marion Oaks Drive	Ocala	923		No	SD	School				✓
Madison Elementary	1239 Nw 4th Street	Ocala	286		No	SD	School				
New Covenant Four Square Church Bellevue	11764 S Hwy 301	Bellevue			No	ARC	Church				
Oakcrest Baptist Church	1109 Ne 28th Street	Ocala	280		No	ARC	Church				
Ocala City Auditorium	836 Ne Sanchez Avenue	Ocala	200		No	ARC	Community Ctr				

Name	Address	City	Risk Cap @ 20 Sq Ft	Sp Needs Cap @60 Sq Ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-Fire
Ocala West United Methodist Church	9330 Sw 105th Street	Ocala			No	ARC	Church				✓
Ocklawaha Bridge Baptist	14100 E Hwy 40	Silver Springs			No	ARC	Church				✓
Ocklawaha United Methodist	13333 E Hwy 25	Ocklawaha			No	ARC	Church				✓
Our Lady Of The Springs	4047 Ne 21st Street	Ocala			No	ARC	Church				✓
Queen Of Peace Catholic	6455 Sw Sr 200	Ocala	300		No	ARC	Church				✓
Saddlewood Elementary	3700 Sw 43rd Court	Ocala	269		No	SD	School				✓
Salvation Army Chapel	320 Nw 1st Avenue	Ocala			No	ARC	Church				
St. John The Baptist Catholic Church - Dunnellon	7525 Us 41n	Dunnellon			No	ARC	Church				
St. John United Methodist	12390 West Hwy 328	Ocala			No	ARC	Church				✓
St. Jude Catholic Community Church	443 Marion Oaks Drive	Ocala	70		No	ARC	Church				✓
St. Marks United Methodist Church Ocala	1839 Ne 8th Road	Ocala			No	ARC	Church				
St. Matthew's Lutheran	3453 Ne Silver Springs Boulevard	Ocala			No	ARC	Church				
St. Patrick's Episcopal	3803 Ne 7th Street	Ocala			No	ARC	Church				
Trinity Lutheran Church	4001 Ne 25th Avenue	Ocala			No	ARC	Church				✓
Vanguard High School	7 Nw 28th Street	Ocala	2,486		Yes	SD	School				
VFW Lodge #4209	4805 Ne 36th Avenue	Ocala			No	ARC	Club				
Weirsdale Presbyterian	16305 Se 137th Court	Weirsdale			No	ARC	Church				
Westport High School	3733 Sw 80th Avenue	Ocala	563		No	SD	School				
Westport Middle School	3733 Sw 80th Avenue	Ocala	183	162	No	DOH	School				
Total			12,394	803							

Those shaded in green may not be used in higher intensity storms.

Those shaded in orange are special needs shelters.

Those in bold type are included in the total. Other shelters are not included in the total because they are either secondary or may not be ARC 4496 compliant.

ARC = American Red Cross

DOH = County Health Department

SD = County School District

TABLE V-8E Sumter County Shelter Inventory and Surge Analysis

Name	Address	City	Risk Cap @ 20 Sq Ft	Sp Needs Cap @ 60 Sq Ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surge	Evac Zone	Flood	Wild-Fire
Arbor Village Nursing Home	490 South Oldwire Road	Wildwood		30	No	DOH	Nursing Home				
Bushnell Elementary	218 W Flannery	Bushnell	125		No	SD	School				✓
Bushnell Community Center	407 E Belt Ave	Bushnell	100		No	ARC	Community Ctr				✓
Croom Road Baptist Church	12016 Cr 681	Webster	100		No	ARC	Church				✓
Dav Building	Cr 489	Lk Panasoffkee	200		No	ARC	Community Ctr				
First Baptist Of Oxford	4060 Cr 108	Oxford	250		No	ARC	Church				
Grant Lake Baptist Church	1444 Cr 478 A	Webster	140		No	ARC	Church				
Lake Panasoffkee United Methodist Church	589 North Cr 470	Lk Panasoffkee	100		No	ARC	Church				✓
Lake Panasoffkee First Baptist Church	802 Cr 470	Lk Panasoffkee	100		No	ARC	Church				
Lake Panasoffkee Elementary	790 Cr 482 North	Lk Panasoffkee	100		No	SD	School				✓
North Sumter Intermediate School	300 East Huey Street	Wildwood	150		No	SD	School				✓
North Sumter Primary	104 North Warfield Street	Wildwood	178		No	SD	School				✓
Osprey Point Nursing Center	1104 N. Main Street	Bushnell		15	No	DOH	Nursing Home				✓
South Sumter High	7060 N Main St/Sr 475	Bushnell	450	30	No	DOH/SD	School				
South Sumter Middle	733 Nw 10th Avenue	Webster	250		No	SD	School				
The Villages Charter High	251 Buffalo Trail	The Villages			No	SD	School				
VFW	Cr 476b	Nobleton	100		No	ARC	Community Ctr			✓	✓
Villages Middle School	450 Village Campus/ Cr 466	Villages	200		No	SD	School				
Webster Elementary	349 South Market Blvd	Webster	138		No	SD	School				✓
Wildwood Community Center	700 Huey Street	Wildwood	81	30	No	DOH/SD	Community Ctr				✓
Wildwood High School	700 Huey Street	Wildwood	450		No	SD	School				

Name	Address	City	Risk Cap @ 20 Sq Ft	Sp Needs Cap @60 Sq Ft	Pet Friendly	Agency Support	Function	Vulnerability			
								Surg e	Evac Zone	Flood	Wild-Fire
Wildwood Middle School	200 Cleveland Street	Wildwood	200		No	SD	School				✓
Total			2,722	105							

Those shaded in green may not be used in higher intensity storms.

Those shaded in orange are special needs shelters.

Those in bold type are included in the total. Other shelters are not included in the total because they are either secondary or may not be ARC 4496 compliant.

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

H. Public Shelter Demand

The general response model, post-hurricane behavioral surveys of residents in the Withlacoochee 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, and 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** – which are used for planning and growth management purposes assume that 100% of the population-at-risk evacuates plus a (smaller) percentage of non-vulnerable population (shadow evacuation).
- The **Operational Scenarios** used in operations use the planning assumptions determined by the behavioral analysis which 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 in the 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
Citrus	4,750	4,638	4,919	6,862	11,394	12,523
Hernando	10,193	6,120	6,196	7,123	9,729	11,326
Levy	19,278	3,439	3,497	3,669	3,937	4,327
Marion	12,394	15,085	17,172	19,257	21,342	21,342
Sumter	2,722	8,264	9,361	10,456	11,553	12,648
Region	49,337	37,546	41,145	47,367	57,955	62,166

Red Print= Deficit

Table V-9b
Public Shelter Demand for Hurricane Evacuation
Operational Scenarios 2010

County	Capacity	A	B	C	D	E
Citrus	4,750	3,252	3,617	5,454	9,973	11,855
Hernando	10,193	3,807	4,094	5,400	9,041	10,342
Levy	19,278	2,185	2,370	2,708	3,171	3,994
Marion	12,394	10,671	13,640	16,609	19,577	20,459
Sumter	2,722	6,523	8,116	9,461	11,056	12,401
Region	49,337	26,438	31,837	39,632	52,818	59,051

Red Print= Deficit

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

County	Capacity	A	B	C	D	E
Citrus	4,750	5,078	5,385	7,513	12,478	13,716
Hernando	10,193	6,812	6,897	7,929	10,832	12,608
Levy	19,278	3,768	3,831	4,018	4,314	4,740
Marion	12,394	16,626	18,966	21,308	23,650	23,652
Sumter	2,722	9,481	10,817	12,153	13,488	14,826
Region	49,337	41,765	45,896	52,921	64,762	69,542

Red Print= Deficit

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

County	Capacity	A	B	C	D	E
Citrus	4,750	3,559	3,957	5,972	10,921	12,983
Hernando	10,193	4,240	4,558	6,013	10,064	11,514
Levy	19,278	2,392	2,596	2,967	3,474	4,377
Marion	12,394	11,825	15,127	18,430	18,430	22,692
Sumter	2,722	7,565	9,450	11,057	11,057	14,552
Region	49,337	29,581	35,688	44,439	53,946	66,118

Red Print= Deficit

I. 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.