2020

Statewide Emergency Shelter Plan

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EXECUTIVE SUMMARY

Pursuant to section 1013.372(2) and section 252.385(2)(b), Florida Statutes (F.S.) the Division of Emergency Management (Division) is responsible for preparing a *Statewide Emergency Shelter Plan* (the Plan). The Plan serves as a guide to determine need for new school facilities to be designed and built as hurricane evacuation shelters. The Plan is submitted to the Governor and Cabinet for approval by January 31 of each even-numbered year. The Plan identifies the general location and square footage of existing general population (GP) and special needs shelter (SpNS) space, by Regional Planning Council (RPC) region, and needed space during the next five (5) years. The Plan also includes information on the availability of shelters that accept pets. In accordance with the statute, the Plan must:

- Identify the general location and square footage of existing shelters by RPC regions;
- Identify the general location and square footage of needed shelters by RPC regions for the next five years;
- Identify the types of facilities which should be constructed to comply with the public shelter design criteria; and
- Recommend an appropriate and available source of funding for the additional cost of constructing emergency shelters within those public facilities.

With publication of the 2006 Plan, the Division monitors the status of the statewide inventory of SpNS. Historically, SpNS includes the total population hurricane evacuation shelter demand estimates and hurricane evacuation shelter capacities. Given the findings from the 2004 hurricane season, about half of the designated SpNS were located in facilities that did not meet the same minimum hurricane safety criteria as GP shelters, the Division was asked to separate the two shelter types and monitor progress towards improvement. SpNS improvements included hurricane safety, client shelter space capacity and provision of standby electric power supported air-conditioning.

Table EX-1 provides a summary of the projected regional hurricane evacuation shelter space demands for 2020 and 2025, the quantity of recognized hurricane evacuation shelter spaces per region as of October, 2019, and if there is either a deficit or sufficient capacity of spaces per region. At this time, seven (7) RPC regions have sufficient capacity of GP hurricane evacuation shelter space in 2020. Therefore, three (3) RPC have deficits of GP hurricane evacuation shelter space: Central Florida/Region 6, Tampa Bay/Region 7 and Southwest Florida/Region 8. Five (5) of the 10 RPC regions have a deficit of SpNS space in 2020: Apalachee/Region 2, Northeast Florida/Region 4, East Central Florida/Region 5, Central Florida/Region 6, and Southwest Florida/Region 8.

Table EX-1.

Regional Summaries of Hurricane Evacuation Shelter Space Demands, Space Capacity and Deficit / Sufficient Capacities for 2020 though 2025

General Population and Special Needs Shelters

RPC Region	RPC Region Name	General Population Shelter Demand and Capacities					Special Needs Shelter Demand and Capacities				
		2020 Maximum Shelter Demand, spaces	2025 Maximum Shelter Demand, spaces	2020 Risk Shelter Capacity, spaces	2020 Shelter Deficits / Sufficient Capacity, spaces	2025 Shelter Deficits / Sufficient Capacity, spaces	2020 Maximum Shelter Demand, clients	2025 Maximum Shelter Demand, clients	2020 Risk Shelter Capacity, clients	2020 Shelter Deficits / Sufficient Capacity, clients	2025 Shelter Deficits / Sufficient Capacity, clients
1	West Florida (WF)	33,253	33,718	78,953	45,700	45,235	2,899	2,939	3,490	591	551
2	Apalachee (APAL)	12,861	13,090	36,783	23,922	23,693	2,020	2,070	829	(1,191)	(1,241)
3	North Central Florida (NCF)	52,316	52,630	61,851	9,535	9,221	2,329	2,342	2,915	586	573
4	Northeast Florida (NEF)	85,647	86,444	96,234	10,587	9,790	5,554	5,636	4,814	(740)	(822)
5	East Central Florida (ECF)	155,001	156,052	203,644	48,643	47,592	7,743	7,791	6,470	(1,273)	(1,321)
6	Central Florida (CF)	66,478	67,478	55,986	(10,492)	(11,492)	4,324	4,393	1,507	(2,817)	(2,886)
7	Tampa Bay (TB)	174,867	177,669	160,553	(14,314)	(17,116)	8,824	8,997	9,299	475	302
8	Southwest Florida (SWF)	148,168	148,987	40,377	(107,791)	(108,610)	8,696	8,748	2,228	(6,468)	(6,520)
9	Treasure Coast (TC)	48,723	49,538	141,447	92,724	91,909	2,811	2,864	3,963	1,152	1,099
10	South Florida (SF)	128,744	130,541	144,219	15,475	13,678	4,455	4,616	5,001	546	385
	TOTAL	**906,058**	**916,147**	**1,020,047**	**113,989**	**103,900**	**49,655**	**50,396**	**40,516**	**(9,139)**	**(9,880)**

Based on currently available information, RPC regions 6, 7 and 8 continue to have a deficit of GP space through 2025. The current SpNS regional hurricane evacuation shelter space deficit in RPC regions 2, 4, 5, 6 and 8 is projected to continue through 2025. The projections do not assume addition of new space to regional inventories through 2025. Addition of new shelter facilities and/or local designation of new space will significantly reduce or eliminate the projected deficits.

The SpNS regional situation is much improved over the 2018 Plan. For 2018 Plan, only one RPC region, 10-South Florida, was recognized as having sufficient SpNS space capacity. Five (5) RPC regions are recognized as having sufficient SpNS space capacity for 2020.

Public facilities that should be constructed to comply with public shelter design criteria include all facilities that are subject to be used as public hurricane evacuation shelters under the authority of section 252.385(4)(a), F.S.; that is, public schools, postsecondary education (community or state colleges and universities), and certain other facilities owned or leased by state and local governments. When appropriately located, designed and constructed the following types of facilities are considered suitable for use as public hurricane evacuation shelters:

> Community and civic centers, meeting halls, gymnasiums, auditoriums, cafeterias and dining areas, open floor multipurpose facilities, exhibition halls, sports arenas, field houses, conference and training centers, certain classroom facilities, and other public assembly facilities.

The types of facilities not appropriate for use as public shelters have the following conditions:

- Location: e.g., facilities within Category 1, 2 or 3 (or A, B or C) hurricane evacuation zones and possibly Category 4 or 5 (D or E); coastal or inland flooding isolation; and, presence of or proximity to certain hazardous materials, low evacuation demand;
- Size: e.g., facilities with less than 2,000 square feet of net floor area; or,
- Other characteristics: e.g., incompatibility of facility's normal use or availability with mass care function; and, long-range planning considerations.

During development of this Plan, the Division coordinated with Department of Education staff to estimate the compliance rate of school districts adhering to the statutory and code requirements of the public shelter design criteria. In 2001, the State Auditor General found that, of the new schools reviewed, only 65 percent appeared to comply with the public shelter design criteria. Between 2001 and 2009 the Division observed a similar compliance rate of 65 percent. However, from 2010 – 2016 compliance with the law improved to about 80 percent. For the most recent available data, Fiscal Year 2017-2018, the Department of Education reported a finding of 100 percent compliance in the regions where the requirement applies and new facilities were built.

District school boards generally reported that the construction cost premium for incorporating the criteria is approximately three (3) to nine (9) percent. This is a significant cost that must be borne by state and local agencies. Therefore, section 1013.372(2), F.S. requires that

the Division recommend an appropriate and available source of funding for the additional cost of constructing emergency shelters. The Division recommends the use of existing capital outlay funds as source of funding.

The Division has statutory duty and authority to administer a statewide program to eliminate the deficit of "safe" hurricane evacuation shelter space. The Division recognized the American Red Cross (ARC) *Standards for Hurricane Evacuation Shelter Selection* (ARC 4496) as the minimum hurricane evacuation shelter survey criteria. At a minimum, a surveyed (or reported) facility must meet ARC 4496 to be described as "safe," "suitable" or "appropriate" in this Plan. In June 2018, ARC 4496 was replaced by ARC *Hurricane Evacuation Shelter Selection Standards* (HESSS). There are no substantive hurricane safety changes between ARC 4496 and its replacement HESSS.

To accomplish this duty, the Division implemented a multifaceted program. This program includes: 1) survey of existing buildings, both public and private, to identify suitable shelter capacity; 2) where cost effective and productive, support mitigation and retrofitting of existing facilities to increase shelter capacity; 3) construction of new facilities to meet the public shelter design criteria; 4) shelter demand reduction through improved hurricane hazard models and behavioral studies; and, 5) improve public information/education to reduce unnecessary "shadow" evacuations.

While regional deficits do remain, Florida's deficit of GP hurricane evacuation shelter space has been eliminated on a statewide aggregate basis. However, a deficit of safe SpNS hurricane evacuation shelter space persists. The Division's hurricane evacuation shelter survey and retrofit program identified, created or otherwise documented 588,800 hurricane evacuation shelter spaces that meet ARC HESSS guidelines. Public school new construction programs have created an additional 471,700 hurricane evacuation shelter spaces. Therefore, by the 2020 hurricane season, Florida will have a total of about 1,060,500 shelter spaces that meet ARC HESSS guidelines. The perceived public shelter demand resulting from hurricane evacuation has significantly been reduced over the past 16 years due to improvements in public education and information, and more accurate storm surge/evacuation zone modeling with the use of the LiDAR (Light Detection and Ranging). Since 2010 the Statewide Regional Evacuation Studies (SRES) Program resulted in a statewide aggregate hurricane evacuation shelter space demand reduction. Florida's safe hurricane evacuation shelter space demand for 2020 is 955,700.

With publication of this Plan, Florida has 39 counties with sufficient capacity of GP hurricane evacuation shelter space. The counties with sufficient GP space include: Alachua, Baker, Bay, Brevard, Broward, Calhoun, Columbia, Dixie, Escambia, Flagler, Gadsden, Gilchrist, Glades, Hamilton, Hardee, Hendry, Hillsborough, Holmes, Indian River, Jackson, Jefferson, Leon, Levy, Liberty, Madison, Martin, Okaloosa, Orange, Osceola, Palm Beach, Saint Johns, Saint Lucie, Santa Rosa, Seminole, Suwannee, Taylor, Union, Walton, and Washington.

There are 33 counties with sufficient capacity of SpNS hurricane evacuation shelter space. The counties with a sufficient capacity of SpNS space include: Alachua, Baker, Brevard, Broward, Citrus, Clay, Columbia, DeSoto, Escambia, Gilchrist, Glades, Hamilton, Hardee, Hernando, Hillsborough, Holmes, Lafayette, Leon, Levy, Liberty, Madison, Manatee, Martin, Miami-Dade, Osceola, Pasco, Putnam, Saint Lucie, Santa Rosa, Seminole, Sumter, Union and Walton.

As Florida's hurricane vulnerable population continues to grow, it is vitally important that construction of hurricane evacuation shelters and retrofit of existing buildings be considered a priority. Florida's goal is to eliminate the hurricane evacuation shelter space deficit in every region of the state. Florida must incorporate public shelter design criteria into new construction, retrofit suitable existing buildings, and continue use of improved hurricane evacuation studies and new technologies. The overall result of full implementation of the Division's hurricane evacuation shelter deficit elimination strategy is a greater level of preparedness, resiliency, a more efficient response to incidents and a greater ability to meet the needs of disaster survivors.

1.0 INTRODUCTION

1.1 Purpose of Statewide Emergency Shelter Plan

Pursuant to section 1013.372(2), and section 252.385(2)(b), Florida Statutes (F.S.) the *Statewide Emergency Shelter Plan* (Plan) is prepared and submitted to the Governor and Cabinet for approval. The Plan provides information on existing and needed hurricane evacuation shelter space requirements. This information is used by district school boards, college boards of trustees, university boards of trustees and emergency management agencies in planning for the construction of new educational facilities to comply with the public shelter design criteria. "Board," unless otherwise specified, means a district school board, a college board of trustees, and a university board of trustees.

The Plan, approved, will determine which regions (and respective counties) are required to construct new educational facilities to comply with the public shelter design criteria. The Plan includes: the general location and square footage of existing general population (GP) and special needs shelters (SpNS) by Regional Planning Council (RPC) region; the general location and square footage of needed GP and SpNS by RPC region for the next five years; the types of facilities that should comply with the public shelter design criteria; and recommends an appropriate and available source of funding for the additional cost of constructing public hurricane evacuation shelters in those public facilities.

Since promulgation of the public shelter design criteria in 1997, the Division has received requests for guidance on certain aspects of the criteria. Therefore, this Plan includes limited advisory guidance by the Division on subjects relating to implementation of the criteria; such as, explanation of exemption criteria, calculation of shelter space capacity, etc. The guidance is not intended to be a comprehensive commentary of the criteria, but is limited to subjects pertinent to the most frequently asked questions. This Plan includes a brief progress summary of statewide hurricane evacuation shelter space deficit elimination.

1.2 Background and Chronology

On August 24, 1992, Hurricane Andrew made landfall in South Florida as a Category 5 hurricane. Winds in excess of 160 miles per hour spread inland, causing catastrophic damage in Miami-Dade County and other inland south Florida areas. It was estimated that 750,000 persons were ordered to evacuate coastal areas, inland flood prone areas and manufactured homes. In some cases, spontaneous (or “shadow”) evacuation of persons outside of areas ordered to evacuate also occurred. Though many evacuees sought shelter in motels or the homes of family and friends, many sought safety in public shelter facilities in the affected area, and in communities along evacuation routes throughout the state. This unprecedented relocation of Florida’s residents and visitors in the face of an impending natural disaster stretched the resources of State, local, and private agencies to provide public shelter.

Post-disaster evaluations of evacuation and sheltering operations by the *Governor's Disaster Planning and Response Review Committee*, also known as the "Lewis Commission," identified the lack of adequate and appropriate public shelter space as a critical planning issue. The Lewis Commission Report served as the driving force behind the adoption of Chapter 93-211, Laws of Florida, and subsequent revisions to Chapters 235, 240 and 252, Florida Statutes. The educational facilities sections of Chapters 235 and 240 have been superseded by Chapter 1013. Based on those revisions, the Legislature stated its intent that Florida eliminate its deficit of safe public hurricane evacuation shelter space in every region of the State.

The statute directed the Department of Education to develop standards for a public shelter design criteria in consultation with boards, county emergency management offices, and the Division. The new criteria were designed to ensure that appropriate new educational facilities can serve as public shelters for emergency management purposes. The Department of Education entered into a contract with the University of Florida, School of Building Construction, to prepare the public shelter design criteria. The university assembled an advisory committee consisting of members from Federal, State and local emergency management agencies, architects, engineers, academia, district school boards and the American Red Cross (ARC). The task before the advisory committee was to develop criteria that balanced the need to provide a safe and self-sufficient facility with the need for cost-effective designs and construction methods.

The product is a set of comprehensive design criteria that includes structural enhancements, potable water and sanitary requirements, provisions for standby emergency power, and other considerations that improve survivability and shelter management operations. The promulgation process began in 1994, and was adopted into SREF on April 28, 1997. Subsequently, the criteria was incorporated into Chapter 423 of the Florida Building Code, which became effective March 1, 2002, and then Chapter 453 of the 5th Edition (2014) on June 30, 2015. This provided a seamless continuation of the criteria for new school construction projects. The public shelter design criteria code provisions in effect at the time of publication of this Plan can be seen in Appendix B.

The public shelter program lessons learned from Hurricane Andrew were reiterated during the 2004 and 2005 hurricane seasons. During these two seasons, approximately 15 million people in Florida were under evacuation orders due to eight (8) hurricanes and two (2) tropical storms. Nearly every county in Florida was under hurricane or inland high wind warnings at some time, prompting mandatory evacuation orders for their coastal storm surge, inland flood vulnerable and manufactured home residents. More than 1,200 shelters opened and safely protected about 300,000 evacuees. In preparation for Hurricane Irma in 2017, evacuations were ordered in 54 out of Florida's 67 counties. The orders affected more than 6.8 million vulnerable citizens. The evacuations resulted in 321,746 people being sheltered in general population shelters, 18,227 people in special needs shelters, and 21,667 pets in Pet Friendly Shelter (PFS).

1.3 Statutory Considerations

There are several statutory authorities applicable for implementation of the public shelter design criteria. The following statutes are selected to provide context for decisions relating to planning and exemption of educational facilities.

252.38 Emergency management powers of political subdivisions.--Safeguarding the life and property of its citizens is an innate responsibility of the governing body of each political subdivision of the state.

(1) COUNTIES.--

(d) During a declared state or local emergency and upon the request of the director of a local emergency management agency, the district school board or school boards in the affected area shall participate in emergency management by providing facilities and necessary personnel to staff such facilities. Each school board providing transportation assistance in an emergency evacuation shall coordinate the use of its vehicles and personnel with the local emergency management agency.

Section 252.38, F.S. provides that "Safeguarding the life and property of its citizens is an innate responsibility of the governing body of each political subdivision of the state." This places the duty for evacuating and sheltering at-risk citizens during an emergency or disaster upon county governing boards (i.e., Board of County Commissioners). To expand and expedite locally available resources to meet an emergency need, the Legislature directed that during a declared state or local emergency, district boards will upon request participate in emergency management by providing facilities, personnel, equipment and vehicles.

District public schools are the primary source of public shelter during tropical weather related emergencies, currently accounting for about 97 percent of statewide hurricane evacuation shelter space. Public schools will be used as hurricane evacuation shelters, and often staffed by district personnel. However, not all existing school facilities are appropriately designed, located and recognized as meeting hurricane shelter safety criteria. Therefore, it is critical that new school facilities be appropriately designed and located to serve the required emergency function.

252.385 Public shelter space.--
(1) It is the intent of the Legislature that this state not have a deficit of safe public hurricane evacuation shelter space in any region of the state by 1998 and thereafter.

(2)(a) The division shall administer a program to survey existing schools, universities, community colleges, and other state-owned, municipally owned, and county-owned public buildings and any private facility that the owner, in writing, agrees to provide for use as a public hurricane evacuation shelter to identify those that are appropriately designed and located to serve as such shelters. The owners of the facilities must be given the opportunity to participate in the surveys. The state university boards of trustees, district school boards, community college boards of trustees, and the Department of Education are responsible for coordinating and implementing the survey of public schools, universities, and community colleges with the division or the local emergency management agency.

252.385 Public shelter space.— (continued)

(2)(b) By January 31 of each even-numbered year, the division shall prepare and submit a statewide emergency shelter plan to the Governor and Cabinet for approval, subject to the requirements for approval in s. 1013.37(2). The plan shall identify the general location and square footage of special needs shelters, by regional planning council region, during the next 5 years. The plan shall also include information on the availability of shelters that accept pets. The Department of Health shall assist the division in determining the estimated need for special needs shelter space and the adequacy of facilities to meet the needs of persons with special needs based on information from the registries of persons with special needs and other information.

(4)(a) Public facilities, including schools, postsecondary education facilities, and other facilities owned or leased by the state or local governments, but excluding hospitals, hospice care facilities, assisted living facilities, and nursing homes, which are suitable for use as public hurricane evacuation shelters shall be made available at the request of the local emergency management agencies. The local emergency management agency shall coordinate with these entities to ensure that designated facilities are ready to activate prior to a specific hurricane or disaster. Such agencies shall coordinate with the appropriate school board, university, community college, state agency, or local governing board when requesting the use of such facilities as public hurricane evacuation shelters.

Section 252.385, F.S. states the intent of the Legislature to eliminate the deficit of "safe" public hurricane evacuation shelter space. The Division was given both the duty and authority to administer a statewide program to survey public facilities and identify those that are appropriately designed and located to serve as public shelters. To ensure consistency with state and national standards, codes, guidelines and "best practices," the Division recognized ARC HESSS (formerly ARC 4496) as the minimum hurricane evacuation shelter safety criteria. Therefore, at a minimum, meeting the intent of ARC HESSS is a required condition for a public facility to be described as "safe," "suitable" or "appropriate" for recognition in this Plan. The public hurricane evacuation shelter capacities listed as "suitable" in this Plan are recognized by the Division as meeting ARC HESSS hurricane safety criteria.

Appendix A identifies the statewide inventory of facilities recognized as meeting the intent of ARC HESSS in their pre-survey existing condition (i.e., "as-is"), facilities that have been retrofitted to meet ARC HESSS, and facilities that are constructed to meet ARC HESSS. New school facilities reported by district school boards and local emergency management agencies as having been constructed to the public shelter design criteria are generally recognized by the Division to meet ARC HESSS, though storm surge flooding hazards may limit recognition in some cases to exiting storm tracks only.

The Division does not certify, approve or designate hurricane evacuation shelters. Through its survey program, the Division provides data and assistance to local emergency managers, who then use the ARC HESSS criteria as one factor in the selection of public shelters. In addition to the ARC HESSS ranking, local emergency managers consider other factors in the selection process, such as, type of incident requiring shelter (known or perceived hazards and risks); location; available staffing, equipment and material resources; internal/external movement

circulation; availability of adequate toilets and sanitation; feeding capabilities; standby or emergency electric power capability; types of spaces available and their configuration and contents; type and condition of roof covering; etc. When demand exceeds available ARC HESSS shelter space capacity, local emergency managers may select other facilities that afford the best available protection and features.

Section 252.385(2)(b), F.S. requires the Plan to include information on the general location and square footage of both existing and future needed special needs shelter (SpNS) space by Regional Planning Council (RPC) region. The Department of Health is required to assist in determining need and adequacy of facilities for SpNS. The Plan is also required to provide information on the availability of public PFS.

Section 252.385(4)(a), F.S. makes available all suitable public facilities owned or leased by state or local government agencies upon request of the applicable local emergency management agency. This broadens the types of facilities that can be used by emergency management officials in a declared emergency, and is consistent with the Division's authority to survey all appropriate public facilities for use as public hurricane evacuation shelters.

1013.372 Education facilities as emergency shelters.—

(1) The Department of Education shall, in consultation with boards and county and state emergency management offices, include within the standards to be developed under this subsection public shelter design criteria to be incorporated into the Florida Building Code. The new criteria must be designed to ensure that appropriate new educational facilities can serve as public shelters for emergency management purposes. A facility, or an appropriate area within a facility, for which a design contract is entered into after the effective date of the inclusion of the public shelter criteria in the code must be built in compliance with the amended code unless the facility or a part of it is exempted from using the new shelter criteria due to its location, size, or other characteristics by the applicable board with the concurrence of the applicable local emergency management agency or the Division of Emergency Management. Any educational facility located or proposed to be located in an identified category 1, 2, or 3 evacuation zone is not subject to the requirements of this subsection. If the regional planning council region in which the county is located does not have a hurricane evacuation shelter deficit, as determined by the Division of Emergency Management, educational facilities within the planning council region are not required to incorporate the public shelter criteria.

As directed by law, the Department of Education is required to develop criteria, in consultation with district boards and state and local emergency management offices, to ensure that appropriate new educational facilities can serve as public shelters for emergency management purposes. The criteria are required to be incorporated into the Florida Building Code (i.e., section 453.25, *Florida Building Code--Building*), and all new facilities for which a design contract is entered into after incorporation of the criteria into the code must be built in compliance with the criteria. The public shelter design criteria are applicable to both district school board and community or state college facilities, and became effective on April 28, 1997. These criteria are codified into the *Florida Building Code--Building* on March 1, 2002.

Section 1013.372(1), F.S. allows a board to exempt a facility from the criteria if the location, size or other characteristics is inappropriate for use as a public shelter. A facility that is

located, or proposed to be located, in a Regional Planning Council region that is determined by the Division to have a sufficient capacity of hurricane evacuation shelter space may also be exempted. It is unlawful and a violation of the Florida Building Code for a board to exempt a new educational facility from the criteria without the written concurrence of the applicable local emergency management agency or the Division.

1013.74 University authorization for fixed capital outlay projects.—

(4) The university board of trustees shall, in consultation with local and state emergency management agencies, assess existing facilities to identify the extent to which each campus has public hurricane evacuation shelter space. The board shall submit to the Governor and the Legislature by August 1 of each year a 5-year capital improvements program that identifies new or retrofitted facilities that will incorporate enhanced hurricane resistance standards and that can be used as public hurricane evacuation shelters. Enhanced hurricane resistance standards include fixed passive protection for window and door applications to provide mitigation protection, security protection with egress, and energy efficiencies that meet standards required in the 130-mile-per-hour wind zone areas. The board must also submit proposed facility retrofit projects to the Division of Emergency Management for assessment and inclusion in the annual report prepared in accordance with s. 252.385(3). Until a regional planning council region in which a campus is located has sufficient public hurricane evacuation shelter space, any campus building for which a design contract is entered into subsequent to July 1, 2001, and which has been identified by the board, with the concurrence of the local emergency management agency or the Division of Emergency Management, to be appropriate for use as a public hurricane evacuation shelter, must be constructed in accordance with public shelter standards.

Section 1013.74(4), F.S., provide state university boards of trustees statutory duties similar as those of district public schools and community or state colleges. State universities, in consultation with state and local emergency management agencies, are directed to assess existing facilities to identify the extent to which each campus has public hurricane evacuation shelter space.

Each campus is responsible for developing a five-year capital improvements program that identifies potential new and retrofitted facilities that can be used as public hurricane evacuation shelters. All campus buildings for which a design contract is entered into after July 1, 2001 are required to be constructed to the standard.

The statute indicates that a university board of trustees may exempt a facility from the criteria with the concurrence of the applicable local emergency management agency or the Division. A facility that is proposed to be located in a Regional Planning Council region that is determined by the Division to have a sufficient capacity of hurricane evacuation shelter space may also be exempted. As with district school boards and Community Colleges, it is unlawful for a university board of trustees to exempt a new campus facility without the written concurrence of the applicable local emergency management agency or the Division.

381.0303 Special Needs Shelters. --

(2)(d) Local emergency management agencies shall be responsible for the designation and operation of special needs shelters during times of emergency or disaster and the closure of the facilities following an emergency or disaster. The local health department and emergency management agency shall coordinate these efforts to ensure the appropriate designation and operation of special needs shelters. County health departments shall assist the local emergency management agency with regard to the management of medical services in special needs shelters.

Section 381.0303(2)(d), F.S. requires local emergency management agencies to designate public SpNS. The Department of Health (through County Health Departments) is assigned the duty to assist with managing the medical service needs of the clients.

The Division strongly recommends that as with GP public hurricane evacuation shelters, SpNS hurricane evacuation shelters designated by local emergency management agencies should at a minimum meet the ARC HESSS hurricane safety criteria, and designed and constructed to higher performance codes and standards; such as the Public Shelter Design Criteria or the International Code Council's storm shelter standard (ICC 500).

2.0 EDUCATIONAL FACILITIES AS EMERGENCY SHELTERS

The Public Shelter Design Criteria, which are also known as Enhanced Hurricane Protection Area (EHPA), were designed to ensure that appropriate new educational facilities can serve as public shelters for emergency management purposes. The EHPA code provisions can be found in section 453.25, *2017 Florida Building Code—Building, 6th Edition*. Public educational facilities primarily serve an educational purpose. During a declared state of emergency these facilities may function as public shelters. The public shelter function is a lawfully authorized function. During a declared state or local emergency public shelter functions can supersede normal educational functions. Therefore, consideration of the emergency management purpose is a critical component in the design of new educational facilities. The following will provide advisory guidance for implementing the criteria.

2.1 Public Shelter Design Criteria

The EHPA ensure that new educational facilities meet or exceed applicable national design and construction standards, guidelines and "best practices." The EHPA have been designed to significantly enhance occupant safety and building integrity. One of the main objectives of the EHPA is to ensure that these facilities continue to serve the public after exposure to a major hurricane.

It is highly recommended that during the design process that facility owners, planners and designers incorporate the American Red Cross' HESSS (formerly ARC 4496) in the planning process for an EHPA. ARC HESSS is the minimum hurricane evacuation shelter safety guideline used by the Division, American Red Cross and some local emergency management officials for surveying and ranking public hurricane evacuation shelters.

ARC HESSS requires that public hurricane evacuation shelters be designed, constructed and capable of withstanding wind loads according to the American Society of Civil Engineers Standard 7, *Minimum Design Loads for Buildings and Other Structures* (ASCE 7). The Division endorses this recommendation.

SpNS should meet the same hurricane safety criteria as GP shelters (ARC HESSS and other state and national public shelter criteria). Following the 2004 hurricane season, the Division and Department of Health, in consultation with the Executive Office of the Governor, issued a memorandum stating an expectation that SpNS be located in facilities that at a minimum meet the ARC HESSS hurricane safety criteria, that SpNS client occupied areas have standby power supported air-conditioning, and that client shelter spaces be based on 60 square feet per client (instead of the 20 square feet used for GP shelter spaces). As with Assisted Living Facility air-conditioning requirements, the air temperature of SpNS client spaces should not exceed 81 degrees Fahrenheit (°F). The 60 square feet of space includes an allowance for care-givers and medical equipment.

2.2 Exemption Criteria

All new educational facilities must be designed and constructed to comply with the EHPA criteria unless specifically exempted by the board with written concurrence of the applicable local emergency management agency or the Division. See section 1013.372, F.S.

It is unlawful and a violation of the Florida Building Code for a board to exempt a new educational facility from the criteria without the written concurrence of the applicable local emergency management agency or the Division.

The fact that the EHPA criteria may increase the cost of construction of a facility, by itself, is not a factor that will be considered for an exemption by the Division. Cost of construction may only be considered as one of a number of factors when selecting which new facilities are to be designed and constructed to meet the EHPA criteria. Selection may be based upon cost-effectiveness, greatest provision of shelter space, and other factors that enhance shelter usefulness.

The EHPA requirement applies to any building construction project that is "new construction," as defined in section 1013.01(14), F.S. and section 453.5.8, *Florida Building Code—Building*. That is, any construction of a building or unit of a building in which the entire work is new, or an entirely new addition connected to an existing building. This includes replacement buildings and new buildings and additions constructed on existing campuses. The EHPA requirement also applies to reuse and prototype plans, since they are required to be code updated with each new project.

The EHPA requirement is not limited to rooms or spaces defined as "core facilities" in section 1013.01(5), F.S. The statutory definition is intended for educational facilities purposes, and defines "core facilities" to be media centers, cafeterias, toilet facilities and circulation space (e.g., corridors, lobbies, etc.) section 1013.372(1), F.S. states that "A facility, or an appropriate area within a facility…must be built in compliance with the (EHPA criteria) unless the facility or a part of it is exempted…" The statute does not limit EHPA's to "core facilities," but permits use of an entire facility, or appropriate areas within a facility.

Both Florida Statutes and the Florida Building Code provide factors to consider in exempting an educational facility from complying with the criteria. ARC HESSS may also provide supplemental guidance to consider in the exemption process. The following subsections provide advisory guidance when considering an exemption request.

2.2.1 Location

In general, there are five factors to be considered when making an exemption request due to location: 1) location of the proposed EHPA site within an identified Category 1, 2 or 3 (or A, B or C) storm surge evacuation zone; 2) location subject to hurricane-related rainfall or storm surge flooding or isolation; 3) location on a coastal barrier island; 4) location within the evacuation zone of facilities that manufacture, use or store certain types and quantities of hazardous materials; and 5) low evacuation demand.

Category 1, 2 or 3 Evacuation Zone: The 2010 Statewide Regional Evacuation Studies (SRES) introduce alphabetic Evacuation Zones (A-E) across the State. For planning purposes, reference to areas to be evacuated from a Category 1 hurricane is Evacuation Zone A, reference to areas to be evacuated in advance of a Category 2 hurricane is Evacuation Zone B, and reference to areas to be evacuated from a Category 3 hurricane is Evacuation Zone C. Similarly, references to evacuation areas from Category 4 or 5 hurricanes are Evacuation Zones D or E respectively.

New educational facilities located or proposed to be located in an identified Category 1, 2 or 3 (or A, B or C) hurricane evacuation zone are exempt from the EHPA criteria. "Evacuation Zones" are areas designated to be evacuated for particular hurricane scenarios to protect an at-risk population from flooding. Evacuation zones are developed taking into consideration all populated areas having a significant risk of flooding, areas not subject to flooding but may be cut-off or completely surrounded or isolated by flooded areas, and the need to be easily communicated to the public.

Evacuation zones are applicable to coastal counties, and possibly counties adjacent to Lake Okeechobee. Evacuation zones include areas that are subject to storm surge inundation, as predicted by the National Weather Service's Sea, Lake and Overland Surges from Hurricanes (SLOSH) model. Hurricane evacuation zones A, B and C are subject to evacuation during land-falling major hurricanes, as well as paralleling and exiting major hurricanes.

Based upon the storm track heading with respect to coastline (i.e., land-falling, paralleling or exiting), Category 4 and 5 (or D and E) hurricane evacuation zones may not be inundated by storm surge. Therefore, new educational facilities proposed to be located in D and E evacuation zones are not statutorily exempt from the EHPA criteria.

Also, to facilitate communication of evacuation orders to the public during an emergency, hurricane evacuation zones are typically established using geographic, jurisdictional or transportation/utility boundaries and landmarks that are known and readily identified by the local population. Therefore, hurricane evacuation zone boundaries may extend further inland than the SLOSH model predicted inundation areas. New educational facilities proposed to be located in an evacuation zones D and E may in fact be outside of the SLOSH predicted inundation areas. EHPA's located in D and E hurricane evacuation zones may provide emergency managers with additional sheltering options.

Category 4 and 5-related exemption decisions will be dependent upon the magnitude of the county and regional hurricane evacuation shelter space deficit, local logistical support capabilities and the availability of suitable alternatives (either in-place, or within the framework of a five-year plan.)

Rainfall or storm surge flooding or isolation: New educational facilities proposed to be located in areas subject to flooding or isolation due to rainfall or storm surge related flooding may be inappropriate for use as public hurricane evacuation shelters. Rainfall flooding includes closed-basin ponding, riverine and containment failure of dams and reservoirs. Extended-periods of isolation of a shelter population presents logistical challenges for emergency managers and mass care support agencies, which normally prefer equally suitable buildings not subject to flooding or isolation. The challenges include staff rotation, resupply of food, water and other consumables, emergency medical assistance, sanitation, security concerns, communication, etc. Flooding and isolation-related exemption decisions will be dependent upon the magnitude of the county and regional hurricane evacuation shelter space deficit, design and construction standards of the facility, shelter floor elevation, local logistical support capabilities and the availability of appropriate alternatives (either in-place, or within the framework of a five-year plan.)

Coastal Barrier Island: Coastal barrier islands are often less than two (2) miles wide with very low ground elevations above mean sea level (AMSL). As such, they are exceptionally at-risk to storm surge flood inundation, isolation, and exposure to the full force of hurricane winds. ARC HESSS also states that hurricane evacuation shelters must not to be located on barrier islands. Therefore, facilities on coastal barrier islands are often subject to an exemption from the EHPA criteria. Coastal barrier island exemption decisions will be dependent upon the magnitude of the county and regional hurricane evacuation shelter space deficit, shelter floor elevation, local logistical support capabilities and the availability of appropriate alternatives (either in-place, or within the framework of a five-year plan.) The Division uses section 161.54(2), F.S., to provide a definition for coastal barrier islands.

Hazardous Materials: Location of a proposed new educational facility within the Vulnerability Zone (VZ) of facilities that manufacture, use or store certain types and quantities of hazardous materials may make it unsuitable for use as public hurricane evacuation shelter. Just as with flooding isolation concerns, the possible impact of a hazardous materials spill or release presents public safety and logistical challenges to emergency managers and mass care support agencies. In addition to the challenges listed for flooding isolation, hazardous materials emergencies include detecting and warning of a hazard, and implementing shelter-in-place or evacuation actions. However, most facilities with reportable quantities of hazardous materials are considered a low risk of hurricane-related spill or release due to presence of mitigation measures (e.g., limited quantities of materials, hardening of containment structures, etc.)

Hazardous materials-related exemption decisions will be dependent upon the potential for and probable impact of a hurricane-related spill or release, potential hurricane evacuation shelter's distance from hazardous materials facility, guidance from Local Emergency Planning Committee (LEPC) and local fire department, magnitude of the county and regional hurricane evacuation shelter space deficit, detection and warning capabilities, local logistical support

capabilities and the availability of appropriate alternatives (either in-place, or within the framework of a five-year plan.)

It should be noted that many educational facilities use or store hazardous materials that are used for janitorial services and maintenance, vocational or laboratory uses, refrigeration, water treatment, etc. Such materials are normally very limited in quantity, and suitably stored or protected, and therefore rarely a significant consideration for an exemption. The Division recommends consultation with the applicable LEPC and local fire department to determine appropriate precautionary measures.

Low Evacuation Demand: New educational facilities proposed to be located in areas with low evacuation demand may be considered for an EHPA exemption. Emergency managers and other mass care providers prefer to locate hurricane evacuation shelters in close proximity to the evacuees they will serve. Therefore, the emergency management agency may reduce the EHPA floor area square footage requirement to meet local evacuation demand needs, or possibly exempt the entire facility if a suitable alternative is available. Low evacuation demand exemption decisions will be dependent upon the magnitude of the county and regional hurricane evacuation shelter space deficit, local shelter demand needs and the availability of appropriate alternatives (either in-place, or within the framework of a five-year plan.)

2.2.2 Size

The required size of a hurricane evacuation shelter is dependent upon local circumstances. To effectively utilize available resources and operational plans (e.g., staffing, feeding, security, etc.), a hurricane evacuation shelter located in an area with low evacuation demand can be significantly smaller than a facility located near a highly populated hurricane evacuation zone. Public hurricane evacuation shelters can range from as small as about 50 spaces to mega-shelters as large as several thousand spaces.

Section 252.385(4)(b), F.S. can serve as a guide when establishing a minimum size criterion for public hurricane evacuation shelters. This statute applies to suitable Department of Management Services owned or leased facilities, and requires that the facility have a minimum of 2,000 square feet of net floor area. The required minimum net floor area can be in a single room, or a combination of rooms each having a minimum of 400 square feet of net floor area. At 20 square feet per shelter space, this translates into a minimum capacity of about 100 spaces.

Therefore, to be consistent with Section 252.385(4)(b), F.S. the Division generally considers new educational facilities with less than 2,000 square feet of net floor area to be small enough for an exemption.

2.2.3 Other Considerations

"Other Considerations" means any factor determined to make the facility inappropriate for use as a public hurricane evacuation shelter. This will generally be related to incompatibility of a facility's normal function or availability with public shelter operations.

As examples, the following types of spaces are normally excluded during calculation of net usable occupant capacity of a hurricane evacuation shelter, and are therefore often avoided by emergency managers when selecting shelters:

> Mechanical, plumbing, electrical, telephone and communication equipment rooms, storage rooms and closets, exterior/outside circulation and corridors, restrooms, shower and dressing areas, kitchen and food preparation and serving rooms, science labs, computer and information technology labs, vocational and industrial technology labs and shops, library and media rooms, exercise rooms with fixed equipment, administrative office and support areas, data and word processing rooms and areas, record vaults, mail rooms, custodial rooms and work areas, medical clinic and first aid rooms, residential and dormitory rooms, radio or television broadcast facilities, attics and crawl spaces.

New educational facilities that are designed exclusively to serve these functions may be exempted from complying with the EHPA criteria.

Other considerations may also include local strategies and long-range plans. As an example, to reduce costs and maximize hurricane evacuation shelter usefulness, a board and local emergency management agency may agree (in writing) that 100 percent of the floor area of new high schools will be constructed to the EHPA criteria, instead of the minimum of 50 percent, in exchange for reducing or eliminating EHPA requirements for middle and elementary schools. The proposed plan eliminates the county hurricane evacuation shelter space deficit, plus creates additional space toward reducing the regional deficit, within about five years. Thus the long-range plan achieves statutory intent, and exemptions for applicable middle and elementary schools are appropriate.

2.2.4 Alterations, Maintenance or Repair of Existing Buildings

Florida Statutes and the Florida Building Code both state that the EHPA criteria apply to "new educational facilities." Therefore, renovations, remodeling, maintenance and repair of existing buildings, as defined in section 1013.01, F.S. and section 453.5, *Florida Building Code--Building*, are exempt from compliance with the EHPA criteria.

2.2.5 No Regional Deficit of "Safe" Hurricane Evacuation Shelter Space

Section 1013.372, F.S. states that new educational facilities proposed to be located in an RPC region that does not have a hurricane evacuation shelter space deficit are not required to incorporate the EHPA criteria. The hurricane evacuation shelter space deficit determination is established by biennial publication and approval of this Plan, which guides exemption decisions over a five year planning period. As can be seen in Figure 2-1, seven (7) RPC regions have sufficient capacity of GP hurricane evacuation shelter space in 2020, which includes RPC regions: 1, 2, 3, 4, 5, 9 and 10. Based upon currently available information, a sufficient capacity of spaces will continue in the regions through 2025. As can be seen in Figure 2-2 there is sufficient capacity of SpNS hurricane evacuation shelter spaces in only five (5) regions: 1, 3, 7, 9 and 10. The SpNS space deficits are projected to continue into 2025 if no new space is added to the inventory.

Figure 2-1. Regional Hurricane Evacuation Shelter Space Deficit / Sufficient Status of General Population Shelters

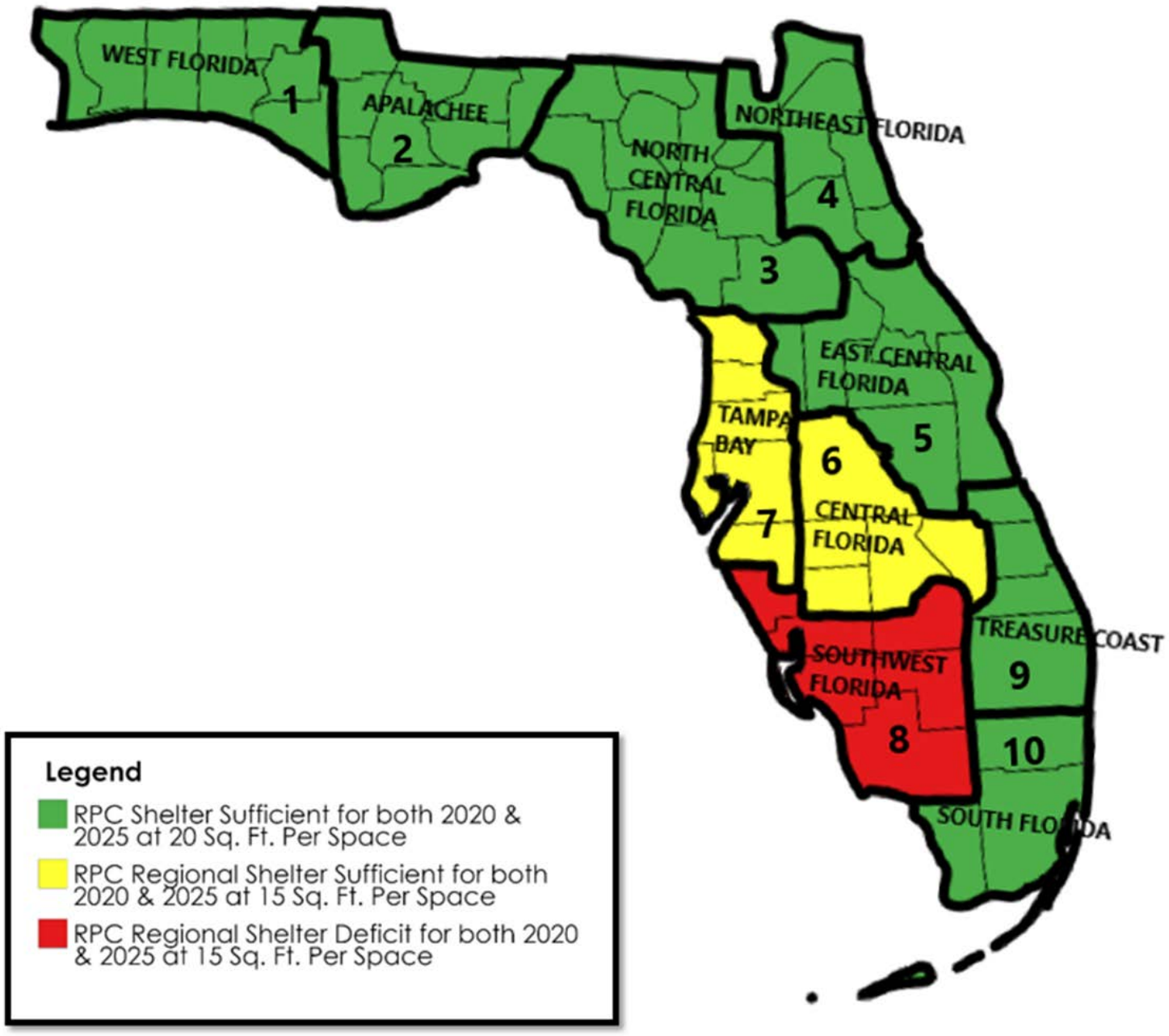
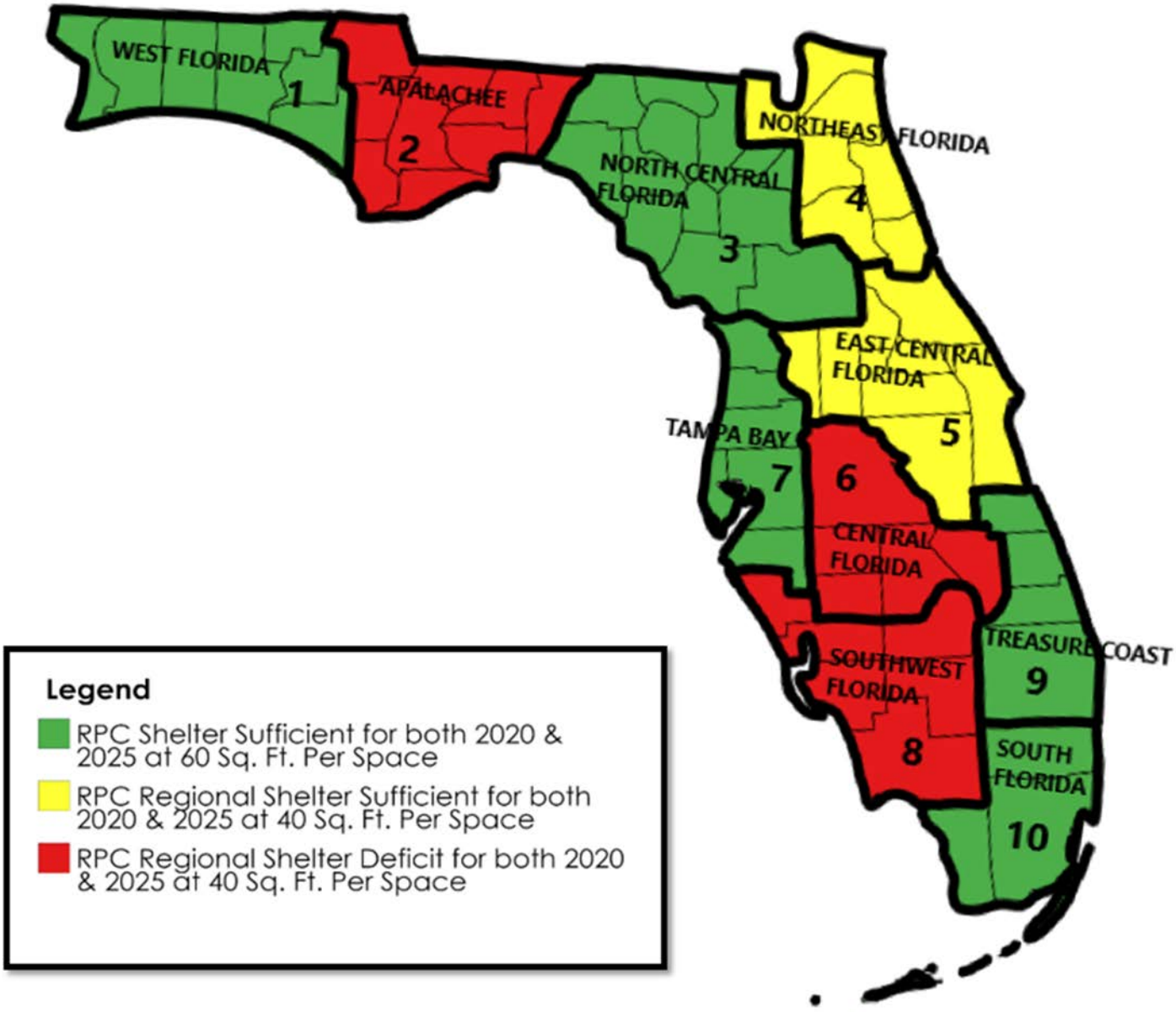


Figure 2-2. Regional Hurricane Evacuation Shelter Space Deficit / Sufficient Status of Special Needs Shelters



2.3 Exemption Process

In accordance with section 1013.372, F.S. and section 453.25, *Florida Building Code--Building*, the following procedure is recommended by the Division when requesting exemptions from the public shelter design criteria/EHPA requirement:

1. The board must notify the local emergency management agency of all educational facility construction projects that meet the definition of new construction.

2. The board must evaluate each new educational facility construction project to determine if a statutory or code specified exemption to the criteria is applicable.

3. If an exemption is not requested, the board must consult with the local emergency management agency to identify those areas of the new facilities that will maximize public shelter capacity, and meet the needs of both the educational and emergency management purpose.

4. If the board requests an exemption, the request must be prepared and submitted in writing to either the local emergency management agency or the Division. The request must identify the specific statutory or code factor(s) to be considered for the exemption, and provide appropriate supporting documentation.

5. If the local emergency management agency or the Division concurs with the exemption request, a written response stating the concurrence will exempt the new educational facility from the criteria.

6. If the local emergency management agency or the Division does not concur in writing with the exemption request, then the board must comply with the criteria.

2.4 Estimate of School District Compliance with EHPA Requirements (2017-2018)

In 2001, staff from the Auditor General's Office performed a hurricane shelter and grant management operational audit of the Department of Community Affairs. See Auditor General Report No. 02-055, dated October, 2001. In Finding No. 2 of the report, the Auditor General found that a significant number of new educational facilities, constructed by district school boards and community colleges, had not complied with the public shelter design criteria, and had not received an exemption (written) by local emergency management agencies or the Division. Given the projected deficits of public hurricane shelter space in this state, the Auditor General indicated that steps must be taken to remedy the situation.

The Auditor General recommended that the Division, in consultation with the State Legislature, Florida Department of Education and local emergency management officials, continue its efforts to ensure compliance with the provisions of the law. Subsequently, the Department of Education distributed memorandum number DPBM No. 02-42 (from Wayne V.

Pierson, dated October 31, 2001) that reiterated the necessity for compliance with the statute.

Since distribution of the Auditor General's report and the Department of Education's memorandum in 2001, the Division has taken additional steps to encourage compliance with the EHPA criteria through the emergency management community. In 2003, with the assistance of the Department of Education, the Division compiled a list of new school facilities from the Florida Inventory of School Houses (FISH) with construction years between 2000 and 2003. Unless exempted, these school facilities were lawfully required to incorporate the EHPA criteria. The lists were forwarded to local emergency managers to assist them in determining local compliance, as well as assist in identifying additional unreported shelter capacity.

The Division also annually requests hurricane shelter capacity data from local emergency management agencies that is sorted to differentiate new school EHPA's, retrofit, and "as-is" (i.e., ARC HESSS hurricane shelter facilities that are not classified as a retrofit or EHPA) shelter space. This data is used to monitor progress toward eliminating regional, county-level and statewide hurricane shelter space deficits. The data also provides a means of tracking EHPA productivity on an annual basis.

The Division substantially revised the 2004 Plan to incorporate guidance to assist local school boards and emergency managers with implementing the criteria. The Division and Department of Education also participated in presentations and workshops at conferences that included the topic of EHPA construction requirements, code compliance and implementation strategies. The conferences were attended by emergency managers and their shelter program partners, school board officials, code enforcement officials, architects and engineers (e.g., National Hurricane Conference, Governor's Hurricane Conference, Florida Emergency Preparedness Association Meetings, etc.)

From 2000 through 2009 the Division observed similar results to those of Auditor General Staff in 2000. Therefore, the 2004 through 2010 Plans reported a cumulative average of about 65 percent compliance. However, from 2010 – 2016 compliance with the law improved to about 80 percent.

In preparation for the 2020 Plan, the Division again collaborated with the Department of Education to compile a list of new EHPA school buildings from the FISH data. The 2020 Plan list of new buildings was limited to those constructed in 2017-2018 with at least 4,000 net square feet. The Department of Education reported a finding of 100 percent compliance in the regions where the requirement applies and new facilities were being built. Universities and community or state colleges were not included primarily due to the fact that FISH data is limited to K-12. Universities and colleges only account for about two (2) percent of recognized hurricane evacuation shelter space.

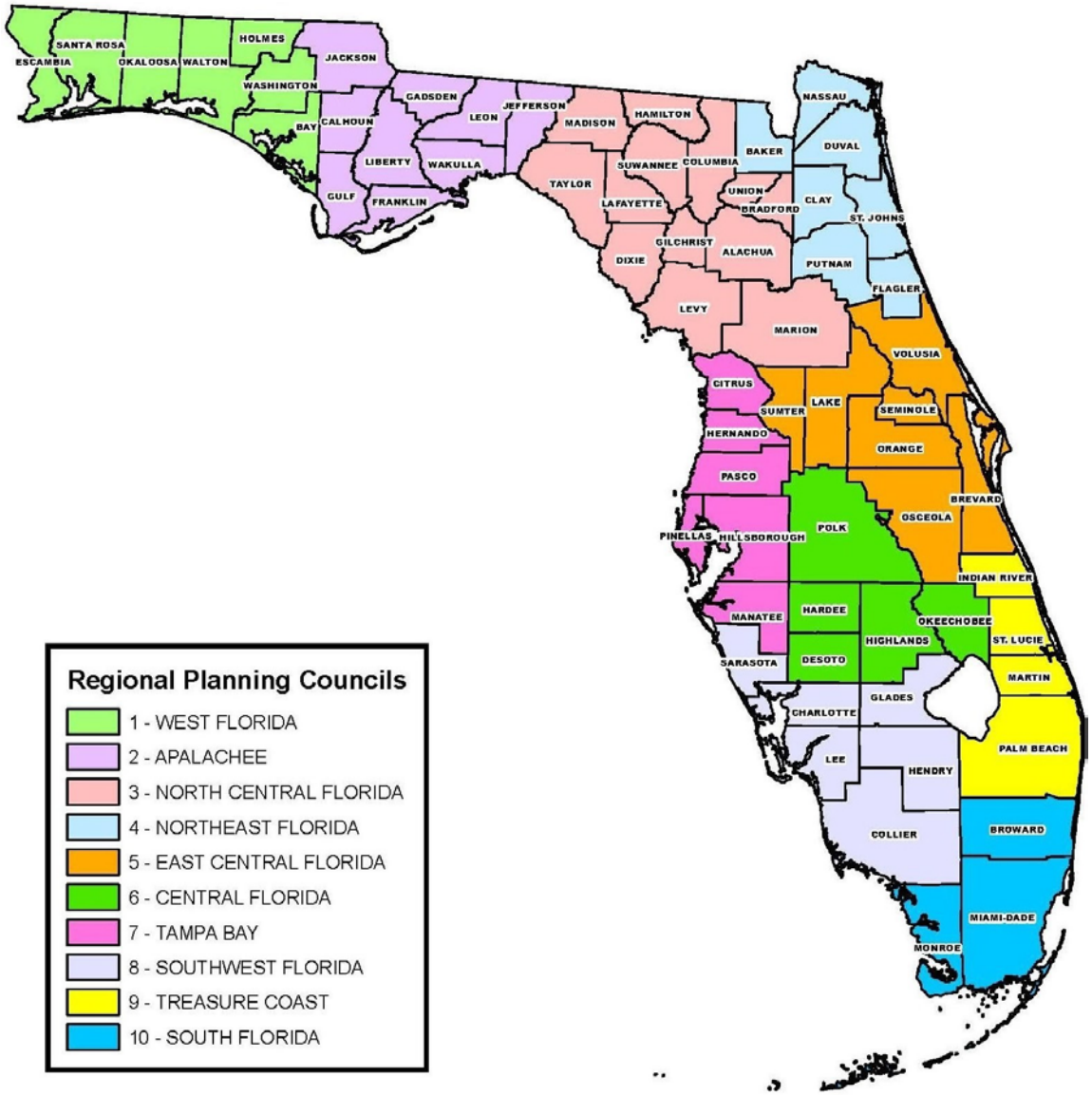
The Division will continue to coordinate with the Department of Education and local emergency managers to monitor compliance.

3.0 REGIONAL HURRICANE EVACUATION SHELTER REQUIREMENTS

The Florida Statewide Regional Evacuation Studies (SRES) were updated in 2015 and some of the peninsula studies were updated in 2017 due to new storm information from the National Hurricane Center. Data from the SRES, University of Florida Bureau and Economic and Business Research, and coordination with county emergency management agencies was utilized for estimating the projections in the 2020 SESP. The overall population projected in the 2020 SESP is 20,481,201. County emergency management provided input on their Shelter Demand Projections. County emergency management are seeking similar trends for planning purposes but they have the advantage of being more familiar with local issues in their jurisdiction. Counties which provided input are marked with an asterisk (*) in Appendix F.

The SRES regions are RPC regions. The RPC regions and their respective counties are shown in Figure 3-1 for illustration purposes.

Figure 3-1. Regional Planning Councils of Florida



3.1 Methodology for Calculating Regional and County Hurricane Evacuation Shelter Status

Location and Square Footage of Existing Shelters. The location and square footage of existing shelters can be found in Appendix A, which provides a detailed inventory of hurricane evacuation shelter locations and capacities within each region and county. The tables in Appendix A use the term "risk" shelters. Risk shelters include those shelter spaces recognized by the Division as meeting ARC HESSS hurricane safety guidelines and identified as appropriate for use during a hurricane impact. The term "risk shelter" is further defined in "Evacuation Shelter," Appendix D.

Location and Square Footage of Needed Shelters. Region/County estimates for Shelter Capacity, Shelter Demands, and Shelter Deficits/Sufficiency are provided in Table 3-1 and are based on maximum evacuation worst case scenario. Results contained in Table 3-1 for 2020 and 2025 are displayed in number of spaces. Region/County square feet estimates for 2020 and 2025, using the same maximum evacuation worst case scenario, are provided in Table 3-2.

Shelter Demand Sources/Results by County. The 2020 through 2025 county shelter demand estimates for vulnerable populations are provided for maximum evacuation scenario. Vulnerable populations are defined as populations located in storm surge vulnerable areas (coastal and inland lake or river), rainfall flood prone areas and those living in mobile or manufactured housing. Source data for these estimates, including demographics, estimated percent vulnerable populations, estimated percent of vulnerable populations expected to seek public shelter, and other sources are shown in Appendix F.

The 2020 through 2025 population estimates utilized information from the SRES and University of Florida's Bureau of Economic and Business Research (BEBR) coordination with County Emergency Managements. The Statewide Regional Evacuation Studies used the following guiding principles for the demographic analysis:

1. The best available data should be used for creating housing unit counts and population estimates, housing unit and population projections, and demographic profiles.
2. All regional studies use the April 1, 2012 BEBR of baseline for housing unit and population estimates.

Determining County Shelter Capacities. County shelter capacity data for all 67 counties were updated by local emergency management agencies through 2019. Since 1995, Florida has been implementing ARC HESSS hurricane evacuation shelter criteria and Florida's *Model Hurricane Evacuation Shelter Selection Guidelines*. Therefore, based upon subsequent results of regional and county hurricane evacuation shelter surveys, local emergency management agencies were requested to provide shelter inventory capacities based on those facilities that met the required ARC HESSS standards, and separately those facilities that did not.

Those facilities that have not been surveyed, and therefore have not been documented to meet the above standards, were designated as facilities not meeting the ARC HESSS standards. The Division has standardized a consistent methodology of calculating hurricane evacuation shelter capacities across the state for the purpose of this Plan. For each shelter, a net square footage for the building was derived from the Florida Department of Education's Florida Inventory of School Houses (FISH) database, including only those room types listed in Appendix E, Table E-2 of this Plan. Then, each room's square footage was multiplied by a usability factor based on room type.

This generated a "dormitory" or square footage area that is usable as clear shelter space. This figure was then divided by 20 square feet per person for GP risk shelters and 60 square feet per client for SpNS risk shelters. These are the square footages and capacities used to calculate the hurricane evacuation shelter space deficit reduction in this Plan.

Appendix E describes in detail the Hurricane Evacuation Shelter Space calculation methods used in this Plan.

The Division recognizes that many counties have local preferences and practices that may further limit usage of buildings. For example, one county may choose to utilize only hallways, gyms or cafeteria dining or multipurpose areas, even though the rest of the building (i.e., classrooms) also meets ARC HESSS guidelines. In some cases, the limiting factor is the number of available staff, e.g., they can staff for only 500 people in a given location, even though they have space for many more. Also the local shelter capacity at a specific building may exceed local need. In recognition of these and other variances, the Division has included a column titled "Local Planned Usage" in the individual county tables in Appendix A. However, the capacities calculated per the method in Appendix E, still exist and could, in an emergency, be utilized and therefore are counted toward elimination of the regional and county hurricane evacuation shelter space deficit.

Determining County Shelter Demand. The hurricane evacuation shelter demand percentage for each county reflects the percentage of a county's vulnerable population that is projected to seek public shelter. These percentages are based on the conclusions of the behavioral analyses conducted for each of the regional evacuation studies. The analyses utilize survey and statistical methodologies to estimate behavioral responses to various hurricane scenarios. It is important to note that results obtained by a survey do not always correlate to actual behavior. What people say they will do during a "blue sky" survey often differs from actual behavior, which is influenced by a number of factors. Strength of storm, time since most recent significant disaster, and previous experience (or lack of) with tropical weather are just a few factors that influence a person's decision to evacuate or seek shelter. Hence, shelter demand may fluctuate over time. All estimates are based on a worst case storm scenario and optimal compliance with local evacuation orders.

Most of the behavioral analyses in the state have been prepared on a regional basis by Hazards Management Group (HMG) and are therefore a consistent benchmark relative to the survey methodologies and statistical applications. The public shelter use percentages in the behavioral section of the regional hurricane evacuation study are combined with local income characteristics in the hurricane risk area (two important variables in determining public shelter use) to calculate shelter demand numbers.

For this Plan, these data served as the basis for estimating the shelter demand for coastal and inland counties between 2020 and 2025. The same methodology for projecting the vulnerable population during this period was used to calculate the estimated shelter demand figures for those years. The Shelter Demand for the Persons with Special Needs (PSN) also utilizes information from the SRES in conjunction with a staffing study conducted by the Department of Health for special needs shelter clients and historical data from hurricane seasons 2016 – 2018. County emergency management offices were consulted to confirm any adjustments made to demand numbers.

3.2 Location and Square Footage of Existing and Needed Shelters

Tables 3-1 and 3-2 provide information regarding location and shelter occupant capacity of both existing and needed hurricane evacuation shelters (i.e., risk shelters) for each of the 67 Florida counties. The tables also show which regions of the state have a deficit of hurricane evacuation shelter space.

3.3 County Hurricane Evacuation Shelter Status

Though the EHPA codes are only required by statute in regions with deficits of hurricane evacuation shelter space, individual counties within such regions do continue to have deficits. All evacuations are managed locally, and state and county emergency managers and their partners need to continue to build shelter capacity for individual counties. Figure 3-2 provides deficit/sufficient status for GP hurricane evacuation shelters for individual counties, and Figure 3-3 provides deficit/sufficient status for SpNS hurricane evacuation shelters.

The color codes are keyed to individual county sheltering capability. For Figure 3-2, the green color code for GP shelters represents sufficient capacity to provide at least 20 sq.ft. of net usable floor area per demand space, which is the minimum floor space required by the hurricane provisions of both EHPA code provisions and the ICC 500 standard. The yellow color code represents sufficient capacity to provide 15 sq.ft. net usable floor area per demand space, which is the less-than-preferred short-term minimum floor space established as part of the ARC HESSS least-risk decision making process. The red color code indicates insufficient floor space for the ARC short-term minimum recommendation.

For Figure 3-3, the green color code for SpNS represents sufficient capacity to provide at least 60 sq.ft. of net usable floor area per demand client. This is the minimum floor space recommended by the Division, Department of Health and partner agencies for SpNS. The yellow color code represents sufficient capacity to provide 40 sq.ft. of net usable floor area per demand client, which is the less-than-preferred short-term minimum used in historical plans. The red color code indicates insufficient floor space for the historical minimum recommendation.

State and local emergency managers and other public officials prefer that persons ordered to evacuate for a hurricane stay within their home county if possible, region if necessary, and not evacuate long distances. Counties with deficits are still in need of additional hurricane evacuation shelter space.

Figure 3-2. County Hurricane Evacuation Shelter Space Deficit / Sufficient Status of General Population Shelters

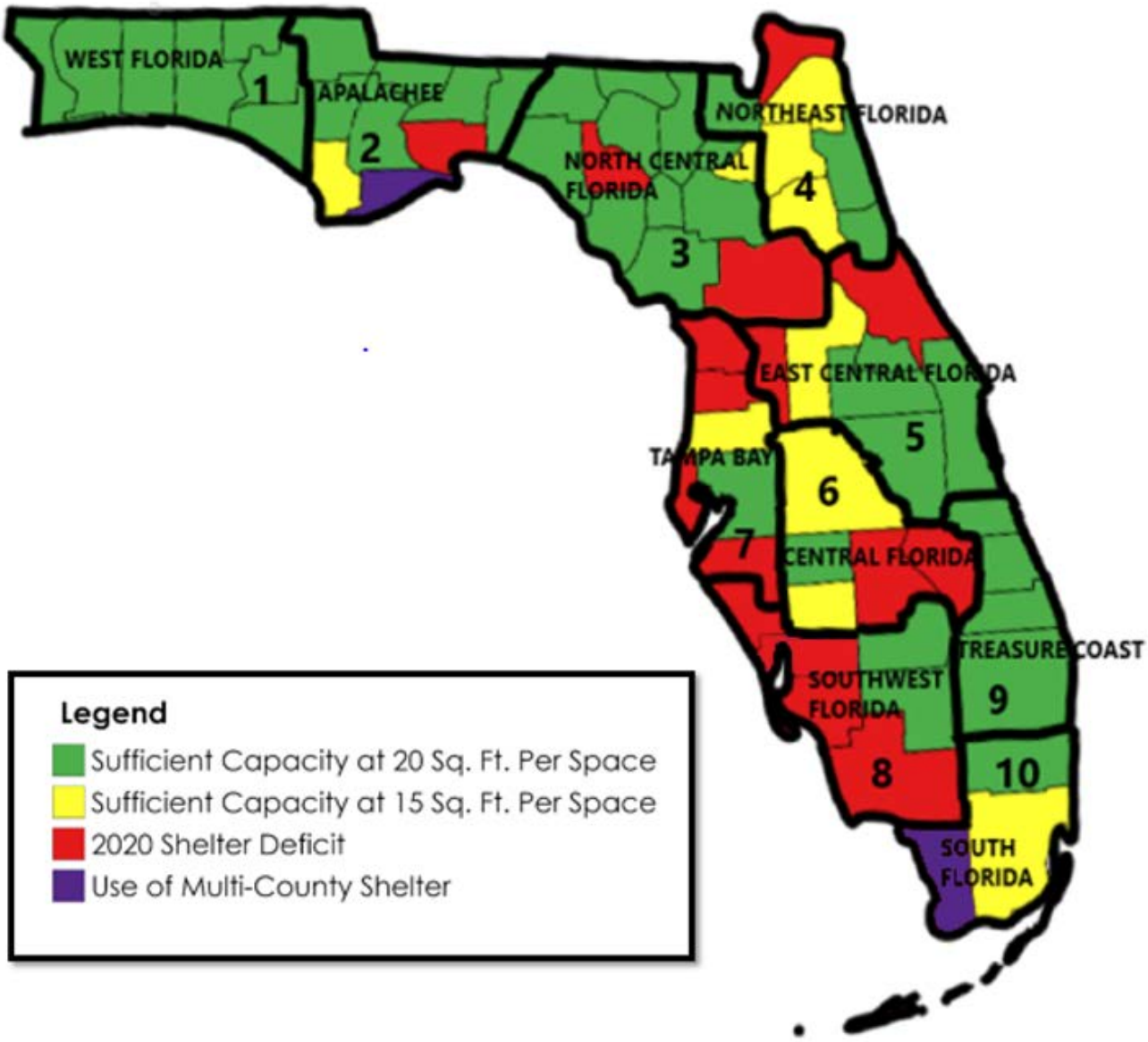
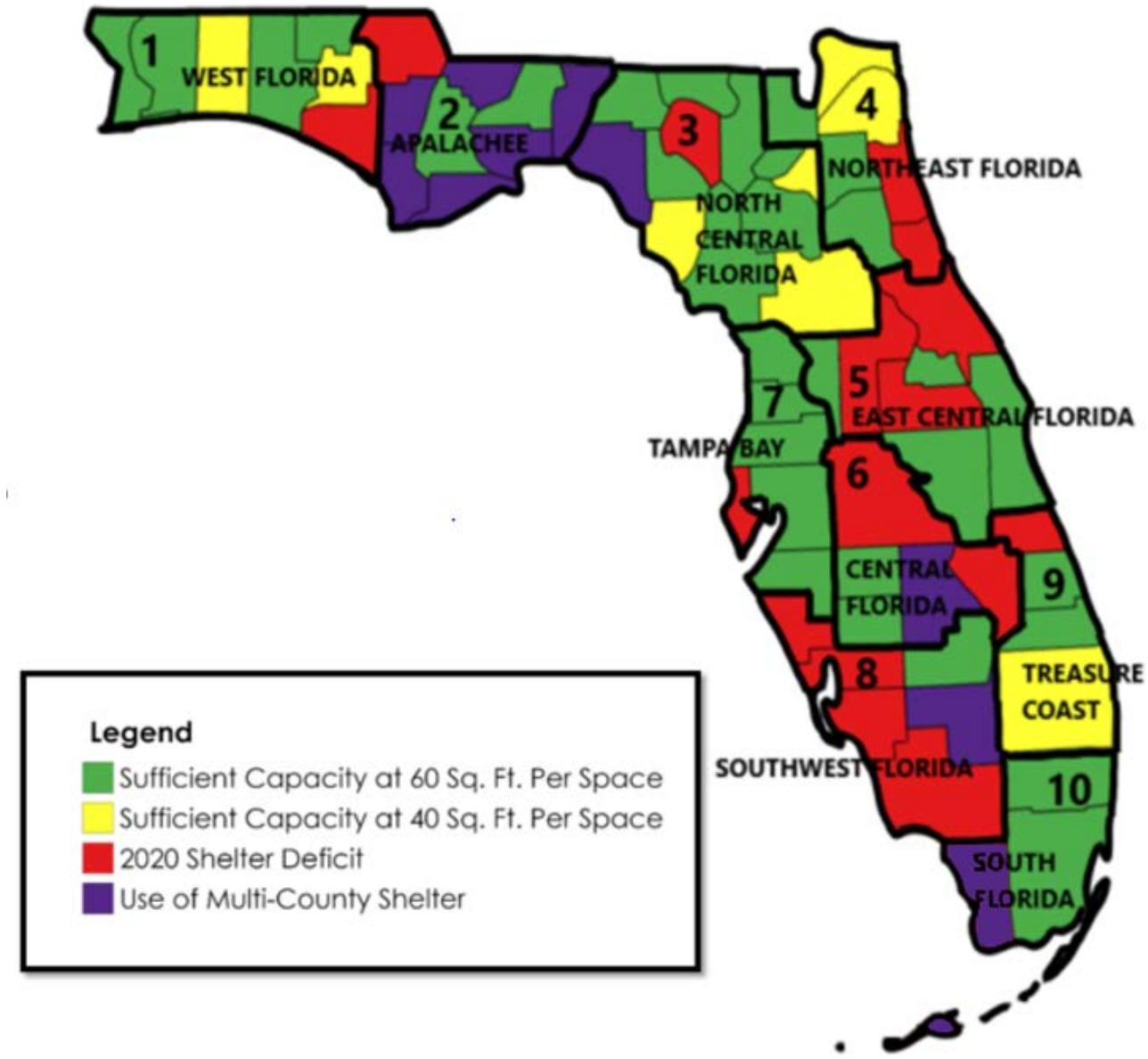


Figure 3-3. County Hurricane Evacuation Shelter Space Deficit / Sufficient Status of Special Needs Shelters



3.4 Pet-Friendly Shelter Availability

A concern noted during past hurricanes is the need to provide PFS for individuals and their household pets and service animals. Pursuant to section 252.385(2)(b), Fla. Stat., this Plan includes information on the availability of PFS that accept household pets.

The Pets Evacuation and Transportation Standards Act of 2006 (PETS Act) requires State and local emergency preparedness operational plans address the needs of individuals with household pets and service animals prior to, during, and following a major disaster or emergency. In order for State and local governments to qualify for federal disaster funding from the Federal Emergency Management Agency, they must comply with the PETS Act requirements in their disaster preparedness plans.

Statewide, 55 counties provide at least one hurricane evacuation PFS that meets minimum hurricane safety criteria (i.e., HESSS). The PFS have a total human occupant capacity of 79,841 spaces. The PFS are acknowledged in a separate column in Appendix A: "List of Hurricane Evacuation Shelters by County, Location and Capacity." Each PFS facility is marked "Yes" in the column. Two (2) counties indicate they have designated hurricane evacuation PFS, but the shelters do not meet minimum hurricane safety criteria: Bradford and Suwannee. There are eight (8) counties without designated PFS: Columbia, Gadsden, Gilchrist, Gulf, Highlands, Lafayette, Levy and Wakulla. Two (2) counties rely on a Pet Emergency Shelter Facility: Franklin and Monroe.

For clarification, "Pet-Friendly Shelter" and "Pet-friendly Evacuation Shelter" are defined as public evacuation shelters that accommodate humans and household pets in nearby facilities or in different areas of the same facility. Normally this includes setting aside separate areas within the public shelter or adjacent facilities with cages to control pets; i.e., collocated with but separated from the sheltering public. A few counties opt to cohabit pets with their owners who can then care for their own animals. Those shelters that are only for pets (not accompanied by owners) are classified as "Pet Emergency Shelter Facilities" and not included as PFS. There are two (2) counties with Pet Emergency Shelter Facilities. Figure 3-4 provides a summary of the counties with designated PFS.

Figure 3-4. Florida Counties with Designated Pet-Friendly Shelters

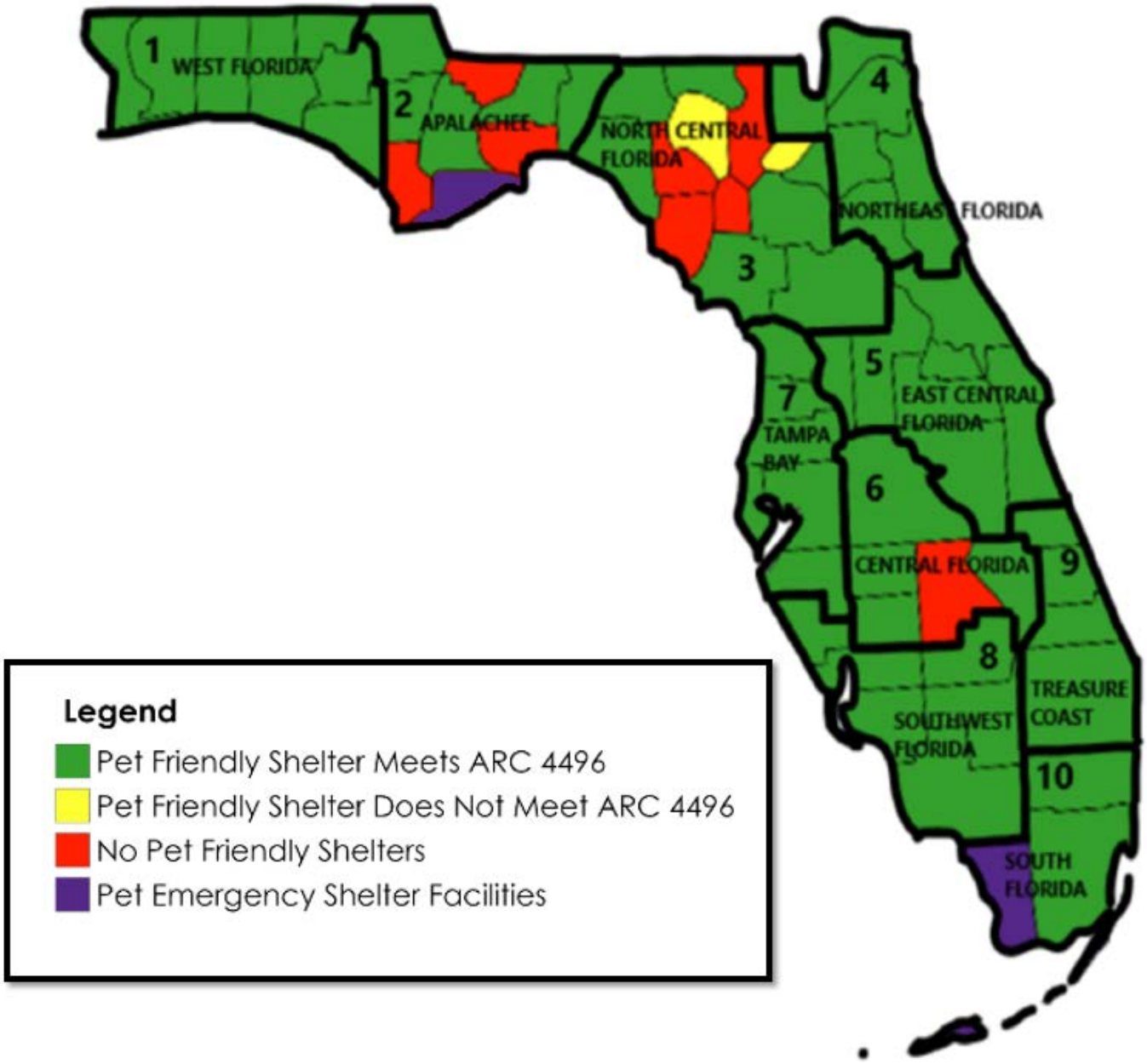


Table 3-1 (1) -- Hurricane Evacuation Shelter Location, Demand and Capacity of General Population and Special Needs Shelters											
		General Population Shelter Demand/Capacity					Special Needs Shelter Demand/Capacity				
County	RPC Region #	2020 Maximum Shelter Demand In Spaces	2025 Maximum Shelter Demand In Spaces	2020 Risk Shelter Capacity In Spaces	2020 Shelter Deficit / Sufficiency in Spaces	2025 Shelter Deficit / Sufficiency in Spaces	2020 Maximum Shelter Demand In Clients	2025 Maximum Shelter Demand In Clients	2020 Risk Shelter Capacity In Clients	2020 Shelter Deficit / Sufficiency in Clients	2025 Shelter Deficit / Sufficiency in Clients
Bay	1	6,443	6,533	10,853	4,410	4,320	1,712	1,736	329	(1,383)	(1,407)
Escambia	1	10,680	10,830	26,863	16,183	16,033	500	507	1,160	660	653
Holmes	1	991	1,005	3,096	2,105	2,091	121	123	544	423	421
Okaloosa	1	5,927	6,010	10,040	4,113	4,030	100	101	82	(18)	(19)
Santa Rosa	1	5,875	5,957	12,282	6,407	6,325	150	152	1,069	919	917
Walton	1	1,807	1,832	9,618	7,811	7,786	150	152	160	10	8
Washington	1	1,530	1,551	6,201	4,671	4,650	166	168	146	(20)	(22)
Region 1 Subtotals		**33,253**	**33,718**	**78,953**	**45,700**	**45,235**	**2,899**	**2,939**	**3,490**	**591**	**551**
Calhoun	2	1,019	1,032	3,377	2,358	2,345	91	92	0	(91)	(92)
Franklin	2	319	325	0	(319)	(325)	214	218	0	(214)	(218)
Gadsden	2	3,272	3,360	5,855	2,583	2,495	632	649	0	(632)	(649)
Gulf	2	532	542	418	(114)	(124)	15	15	0	(15)	(15)
Jackson	2	1,757	1,769	3,861	2,104	2,092	143	144	33	(110)	(111)
Jefferson	2	664	687	689	25	2	160	166	0	(160)	(166)
Leon	2	3,987	3,994	20,540	16,553	16,546	600	612	707	107	95
Liberty	2	467	495	1,620	1,153	1,125	65	69	89	24	20
Wakulla	2	844	886	423	(421)	(463)	100	105	0	(100)	(105)
Region 2 Subtotals		**12,861**	**13,090**	**36,783**	**23,922**	**23,693**	**2,020**	**2,070**	**829**	**(1,191)**	**(1,241)**
Alachua	3	11,864	11,923	13,603	1,739	1,680	600	603	641	41	38
Bradford	3	1,287	1,304	1,141	(146)	(163)	167	169	162	(5)	(7)
Columbia	3	4,661	4,716	4,790	129	74	50	51	224	174	173
Dixie	3	1,832	1,850	4,081	2,249	2,231	142	143	137	(5)	(6)
Gilchrist	3	1,123	1,131	2,979	1,856	1,848	53	53	71	18	18
Hamilton	3	1,038	1,048	1,855	817	807	76	77	76	0	(1)
Lafayette	3	609	611	111	(498)	(500)	13	13	448	435	435
Levy	3	4,184	4,203	4,866	682	663	19	19	126	107	107
Madison	3	1,259	1,268	3,665	2,406	2,397	11	11	28	17	17
Marion	3	18,166	18,257	11,694	(6,472)	(6,563)	1,000	1,005	824	(176)	(181)
Suwannee	3	3,872	3,885	4,807	935	922	92	92	47	(45)	(45)
Taylor	3	1,713	1,721	6,654	4,941	4,933	63	63	0	(63)	(63)
Union	3	708	713	1,605	897	892	43	43	131	88	88
Region 3 Subtotals		**52,316**	**52,630**	**61,851**	**9,535**	**9,221**	**2,329**	**2,342**	**2,915**	**586**	**573**

Table 3-1 (2) -- Hurricane Evacuation Shelter Location, Demand and Capacity of General Population and Special Needs Shelters											
		General Population Shelter Demand/Capacity					Special Needs Shelter Demand/Capacity				
County	RPC Region #	2020 Maximum Shelter Demand In Spaces	2025 Maximum Shelter Demand In Spaces	2020 Risk Shelter Capacity In Spaces	2020 Shelter Deficit / Sufficiency in Spaces	2025 Shelter Deficit / Sufficiency in Spaces	2020 Maximum Shelter Demand In Clients	2025 Maximum Shelter Demand In Clients	2020 Risk Shelter Capacity In Clients	2020 Shelter Deficit / Sufficiency in Clients	2025 Shelter Deficit / Sufficiency in Clients
Baker	4	2,618	2,631	3,312	694	681	79	79	79	0	0
Clay	4	11,281	11,326	10,213	(1,068)	(1,113)	250	251	369	119	118
Duval	4	40,802	41,088	33,332	(7,470)	(7,756)	3,200	3,222	2,921	(279)	(301)
Flagler	4	7,970	8,368	14,046	6,076	5,678	1,120	1,176	731	(389)	(445)
Nassau	4	5,318	5,334	3,589	(1,729)	(1,745)	208	209	152	(56)	(57)
Putnam	4	4,748	4,748	3,796	(952)	(952)	100	100	111	11	11
St Johns	4	12,910	12,949	27,946	15,036	14,997	597	599	451	(146)	(148)
Region 4 Subtotals		**85,647**	**86,444**	**96,234**	**10,587**	**9,790**	**5,554**	**5,636**	**4,814**	**(740)**	**(822)**
Brevard	5	31,469	31,563	50,197	18,728	18,634	2,090	2,096	2,811	721	715
Lake	5	24,960	25,334	24,647	(313)	(687)	829	841	137	(692)	(704)
Orange	5	27,952	28,184	35,946	7,994	7,762	2,430	2,450	1,081	(1,349)	(1,369)
Osceola	5	10,151	10,202	37,009	26,858	26,807	660	663	932	272	269
Seminole	5	11,445	11,466	31,601	20,156	20,135	750	751	828	78	77
Sumter	5	9,786	9,818	2,017	(7,769)	(7,801)	100	100	103	3	3
Volusia	5	39,238	39,485	22,227	(17,011)	(17,258)	884	890	578	(306)	(312)
Region 5 Subtotals		**155,001**	**156,052**	**203,644**	**48,643**	**47,592**	**7,743**	**7,791**	**6,470**	**(1,273)**	**(1,321)**
Desoto	6	3,159	3,244	2,530	(629)	(714)	120	123	344	224	221
Hardee	6	2,167	2,210	4,192	2,025	1,982	36	37	117	81	80
Highlands	6	11,553	11,634	7,618	(3,935)	(4,016)	285	287	0	(285)	(287)
Okeechobee	6	7,342	7,584	2,015	(5,327)	(5,569)	637	658	107	(530)	(551)
Polk	6	42,257	42,806	39,631	(2,626)	(3,175)	3,246	3,288	939	(2,307)	(2,349)
Region 6 Subtotals		**66,478**	**67,478**	**55,986**	**(10,492)**	**(11,492)**	**4,324**	**4,393**	**1,507**	**(2,817)**	**(2,886)**

Table 3-1 (3) -- Hurricane Evacuation Shelter Location, Demand and Capacity of General Population and Special Needs Shelters											
		General Population Shelter Demand/Capacity					Special Needs Shelter Demand/Capacity				
County	RPC Region #	2020 Maximum Shelter Demand In Spaces	2025 Maximum Shelter Demand In Spaces	2020 Risk Shelter Capacity In Spaces	2020 Shelter Deficit / Sufficiency in Spaces	2025 Shelter Deficit / Sufficiency in Spaces	2020 Maximum Shelter Demand In Clients	2025 Maximum Shelter Demand In Clients	2020 Risk Shelter Capacity In Clients	2020 Shelter Deficit / Sufficiency in Clients	2025 Shelter Deficit / Sufficiency in Clients
Citrus	7	13,314	13,374	5,771	(7,543)	(7,603)	69	80	211	142	131
Hernando	7	11,565	11,609	3,875	(7,690)	(7,734)	262	262	362	100	100
Hillsborough	7	52,316	52,515	77,309	24,993	24,794	2,927	2,938	3,647	720	709
Manatee	7	24,200	25,981	15,808	(8,392)	(10,173)	600	700	1,182	582	482
Pasco	7	31,294	31,569	28,123	(3,171)	(3,446)	966	975	2,152	1,186	1,177
Pinellas	7	42,178	42,621	29,667	(12,511)	(12,954)	4,000	4,042	1,745	(2,255)	(2,297)
Region 7 Subtotals		**174,867**	**177,669**	**160,553**	**(14,314)**	**(17,116)**	**8,824**	**8,997**	**9,299**	**475**	**302**
Charlotte	8	12,089	12,180	0	(12,089)	(12,180)	1,277	1,287	0	(1,277)	(1,287)
Collier	8	29,964	30,129	5,453	(24,511)	(24,676)	2,011	2,022	0	(2,011)	(2,022)
Glades	8	1,594	1,597	2,071	477	474	19	19	124	105	105
Hendry	8	3,285	3,312	4,065	780	753	204	206	0	(204)	(206)
Lee	9	71,410	71,681	13,958	(57,452)	(57,723)	3,285	3,297	1,305	(1,980)	(1,992)
Sarasota	8	29,826	30,088	14,830	(14,996)	(15,258)	1,900	1,917	799	(1,101)	(1,118)
Region 8 Subtotals		**148,168**	**148,987**	**40,377**	**(107,791)**	**(108,610)**	**8,696**	**8,748**	**2,228**	**(6,468)**	**(6,520)**
Indian River	9	5,805	5,950	14,953	9,148	9,003	501	514	47	(454)	(467)
Martin	9	5,331	5,448	19,713	14,382	14,265	400	409	2,233	1,833	1,824
Palm Beach	9	29,754	30,111	81,600	51,846	51,489	1,260	1,275	858	(402)	(417)
St. Lucie	9	7,833	8,029	25,181	17,348	17,152	650	666	825	175	159
Region 9 Subtotals		**48,723**	**49,538**	**141,447**	**92,724**	**91,909**	**2,811**	**2,864**	**3,963**	**1,152**	**1,099**
Broward	10	28,299	29,799	67,830	39,531	38,031	1,277	1,429	2,068	791	639
Miami-Dade	10	97,855	98,149	75,878	(21,977)	(22,271)	2,717	2,725	2,842	125	117
Monroe	10	2,590	2,593	511	(2,079)	(2,082)	461	462	91	(370)	(371)
Region 10 Subtotals		**128,744**	**130,541**	**144,219**	**15,475**	**13,678**	**4,455**	**4,616**	**5,001**	**546**	**385**
TOTAL		**906,058**	**916,147**	**1,020,047**	**113,989**	**103,900**	**49,655**	**50,396**	**40,516**	**(9,139)**	**(9,880)**

Table 3-2 (1) -- Hurricane Evacuation Shelter Location, Demand and Capacity of General Population and Special Needs Shelters											
		General Population Shelter Demand/Capacity					Special Needs Shelter Demand/Capacity				
County	RPC Region #	2020 Maximum Shelter Demand In Square Feet	2025 Maximum Shelter Demand In Square Feet	2020 Risk Shelter Capacity In Square Feet	2020 Shelter Deficit / Sufficiency in Square Feet	2025 Shelter Deficit / Sufficiency in Square Feet	2020 Maximum Shelter Demand In Square Feet	2025 Maximum Shelter Demand In Square Feet	2020 Risk Shelter Capacity In Square Feet	2020 Shelter Deficit / Sufficiency in Square Feet	2025 Shelter Deficit / Sufficiency in Square Feet
Bay	1	128,860	130,660	217,060	88,200	86,400	102,720	104,160	19,740	(82,980)	(84,420)
Escambia	1	213,600	216,600	537,260	323,660	320,660	30,000	30,420	69,600	39,600	39,180
Holmes	1	19,820	20,100	61,920	42,100	41,820	7,260	7,380	32,640	25,380	25,260
Okaloosa	1	118,540	120,200	200,800	82,260	80,600	6,000	6,060	4,920	(1,080)	(1,140)
Santa Rosa	1	117,500	119,140	245,640	128,140	126,500	9,000	9,120	64,140	55,140	55,020
Walton	1	36,140	36,640	192,360	156,220	155,720	9,000	9,120	9,600	600	480
Washington	1	30,600	31,020	124,020	93,420	93,000	9,960	10,080	8,760	(1,200)	(1,320)
Region 1 Subtotals		**665,060**	**674,360**	**1,579,060**	**914,000**	**904,700**	**173,940**	**176,340**	**209,400**	**35,460**	**33,060**
Calhoun	2	20,380	20,640	67,540	47,160	46,900	5,460	5,520	0	(5,460)	(5,520)
Franklin	2	6,380	6,500	0	(6,380)	(6,500)	12,840	13,080	0	(12,840)	(13,080)
Gadsden	2	65,440	67,200	117,100	51,660	49,900	37,920	38,940	0	(37,920)	(38,940)
Gulf	2	10,640	10,840	8,360	(2,280)	(2,480)	900	900	0	(900)	(900)
Jackson	2	35,140	35,380	77,220	42,080	41,840	8,580	8,640	1,980	(6,600)	(6,660)
Jefferson	2	13,280	13,740	13,780	500	40	9,600	9,960	0	(9,600)	(9,960)
Leon	2	79,740	79,880	410,800	331,060	330,920	36,000	36,720	42,420	6,420	5,700
Liberty	2	9,340	9,900	32,400	23,060	22,500	3,900	4,140	5,340	1,440	1,200
Wakulla	2	16,880	17,720	8,460	(8,420)	(9,260)	6,000	6,300	0	(6,000)	(6,300)
Region 2 Subtotals		**257,220**	**261,800**	**735,660**	**478,440**	**473,860**	**121,200**	**124,200**	**49,740**	**(71,460)**	**(74,460)**
Alachua	3	237,280	238,460	272,060	34,780	33,600	36,000	36,180	38,460	2,460	2,280
Bradford	3	25,740	26,080	22,820	(2,920)	(3,260)	10,020	10,140	9,720	(300)	(420)
Columbia	3	93,220	94,320	95,800	2,580	1,480	3,000	3,060	13,440	10,440	10,380
Dixie	3	36,640	37,000	81,620	44,980	44,620	8,520	8,580	8,220	(300)	(360)
Gilchrist	3	22,460	22,620	59,580	37,120	36,960	3,180	3,180	4,260	1,080	1,080
Hamilton	3	20,760	20,960	37,100	16,340	16,140	4,560	4,620	4,560	0	(60)
Lafayette	3	12,180	12,220	2,220	(9,960)	(10,000)	780	780	26,880	26,100	26,100
Levy	3	83,680	84,060	97,320	13,640	13,260	1,140	1,140	7,560	6,420	6,420
Madison	3	25,180	25,360	73,300	48,120	47,940	660	660	1,680	1,020	1,020
Marion	5	363,320	365,140	233,880	(129,440)	(131,260)	60,000	60,300	49,440	(10,560)	(10,860)
Suwannee	3	77,440	77,700	96,140	18,700	18,440	5,520	5,520	2,820	(2,700)	(2,700)
Taylor	3	34,260	34,420	133,080	98,820	98,660	3,780	3,780	0	(3,780)	(3,780)
Union	3	14,160	14,260	32,100	17,940	17,840	2,580	2,580	7,860	5,280	5,280
Region 3 Subtotals		**1,046,320**	**1,052,600**	**1,237,020**	**190,700**	**184,420**	**139,740**	**140,520**	**174,900**	**35,160**	**34,380**

Table 3-2 (2) -- Hurricane Evacuation Shelter Location, Demand and Capacity of General Population and Special Needs Shelters											
		General Population Shelter Demand/Capacity					Special Needs Shelter Demand/Capacity				
County	RPC Region #	2020 Maximum Shelter Demand In Square Feet	2025 Maximum Shelter Demand In Square Feet	2020 Risk Shelter Capacity In Square Feet	2020 Shelter Deficit / Sufficiency in Square Feet	2025 Shelter Deficit / Sufficiency in Square Feet	2020 Maximum Shelter Demand In Square Feet	2025 Maximum Shelter Demand In Square Feet	2020 Risk Shelter Capacity In Square Feet	2020 Shelter Deficit / Sufficiency in Square Feet	2025 Shelter Deficit / Sufficiency in Square Feet
Baker	4	52,360	52,620	66,240	13,880	13,620	4,740	4,740	4,740	0	0
Clay	4	225,620	226,520	204,260	(21,360)	(22,260)	15,000	15,060	22,140	7,140	7,080
Duval	4	816,040	821,760	666,640	(149,400)	(155,120)	192,000	193,320	175,260	(16,740)	(18,060)
Flagler	4	159,400	167,360	280,920	121,520	113,560	67,200	70,560	43,860	(23,340)	(26,700)
Nassau	4	106,360	106,680	71,780	(34,580)	(34,900)	12,480	12,540	9,120	(3,360)	(3,420)
Putnam	4	94,960	94,960	75,920	(19,040)	(19,040)	6,000	6,000	6,660	660	660
St Johns	4	258,200	258,980	558,920	300,720	299,940	35,820	35,940	27,060	(8,760)	(8,880)
Region 4 Subtotals		**1,712,940**	**1,728,880**	**1,924,680**	**211,740**	**195,800**	**333,240**	**338,160**	**288,840**	**(44,400)**	**(49,320)**
Brevard	5	629,380	631,260	1,003,940	374,560	372,680	125,400	125,760	168,660	43,260	42,900
Lake	5	499,200	506,680	492,940	(6,260)	(13,740)	49,740	50,460	8,220	(41,520)	(42,240)
Orange	5	559,040	563,680	718,920	159,880	155,240	145,800	147,000	64,860	(80,940)	(82,140)
Osceola	5	203,020	204,040	740,180	537,160	536,140	39,600	39,780	55,920	16,320	16,140
Seminole	5	228,900	229,320	632,020	403,120	402,700	45,000	45,060	49,680	4,680	4,620
Sumter	5	195,720	196,360	40,340	(155,380)	(156,020)	6,000	6,000	6,180	180	180
Volusia	5	784,760	789,700	444,540	(340,220)	(345,160)	53,040	53,400	34,680	(18,360)	(18,720)
Region 5 Subtotals		**3,100,020**	**3,121,040**	**4,072,880**	**972,860**	**951,840**	**464,580**	**467,460**	**388,200**	**(76,380)**	**(79,260)**
Desoto	6	63,180	64,880	50,600	(12,580)	(14,280)	7,200	7,380	20,640	13,440	13,260
Hardee	6	43,340	44,200	83,840	40,500	39,640	2,160	2,220	7,020	4,860	4,800
Highlands	6	231,060	232,680	152,360	(78,700)	(80,320)	17,100	17,220	0	(17,100)	(17,220)
Okeechobee	6	146,840	151,680	40,300	(106,540)	(111,380)	38,220	39,480	6,420	(31,800)	(33,060)
Polk	6	845,140	856,120	792,620	(52,520)	(63,500)	194,760	197,280	56,340	(138,420)	(140,940)
Region 6 Subtotals		**1,329,560**	**1,349,560**	**1,119,720**	**(209,840)**	**(229,840)**	**259,440**	**263,580**	**90,420**	**(169,020)**	**(173,160)**

Table 3-2 (3) -- Hurricane Evacuation Shelter Location, Demand and Capacity of General Population and Special Needs Shelters											
		General Population Shelter Demand/Capacity					Special Needs Shelter Demand/Capacity				
County	RPC Region #	2020 Maximum Shelter Demand In Square Feet	2025 Maximum Shelter Demand In Square Feet	2020 Risk Shelter Capacity In Square Feet	2020 Shelter Deficit / Sufficiency in Square Feet	2025 Shelter Deficit / Sufficiency in Square Feet	2020 Maximum Shelter Demand In Square Feet	2025 Maximum Shelter Demand In Square Feet	2020 Risk Shelter Capacity In Square Feet	2020 Shelter Deficit / Sufficiency in Square Feet	2025 Shelter Deficit / Sufficiency in Square Feet
Citrus	7	266,280	267,480	115,420	(150,860)	(152,060)	4,140	4,800	12,660	8,520	7,860
Hernando	7	231,300	232,180	77,500	(153,800)	(154,680)	15,720	15,720	21,720	6,000	6,000
Hillsborough	7	1,046,320	1,050,300	1,546,180	499,860	495,880	175,620	176,280	218,820	43,200	42,540
Manatee	7	484,000	519,620	316,160	(167,840)	(203,460)	36,000	42,000	70,920	34,920	28,920
Pasco	7	625,880	631,380	562,460	(63,420)	(68,920)	57,960	58,500	129,120	71,160	70,620
Pinellas	7	843,560	852,420	593,340	(250,220)	(259,080)	240,000	242,520	104,700	(135,300)	(137,820)
Region 7 Subtotals		**3,497,340**	**3,553,380**	**3,211,060**	**(286,280)**	**(342,320)**	**529,440**	**539,820**	**557,940**	**28,500**	**18,120**
Charlotte	8	241,780	243,600	0	(241,780)	(243,600)	76,620	77,220	0	(76,620)	(77,220)
Collier	8	599,280	602,580	109,060	(490,220)	(493,520)	120,660	121,320	0	(120,660)	(121,320)
Glades	8	31,880	31,940	41,420	9,540	9,480	1,140	1,140	7,440	6,300	6,300
Hendry	8	65,700	66,240	81,300	15,600	15,060	12,240	12,360	0	(12,240)	(12,360)
Lee	8	1,428,200	1,433,620	279,160	(1,149,040)	(1,154,460)	197,100	197,820	78,300	(118,800)	(119,520)
Sarasota	8	596,520	601,760	296,600	(299,920)	(305,160)	114,000	115,020	47,940	(66,060)	(67,080)
Region 8 Subtotals		**2,963,360**	**2,979,740**	**807,540**	**(2,155,820)**	**(2,172,200)**	**521,760**	**524,880**	**133,680**	**(388,080)**	**(391,200)**
Indian River	9	116,100	119,000	299,060	182,960	180,060	30,060	30,840	2,820	(27,240)	(28,020)
Martin	9	106,620	108,960	394,260	287,640	285,300	24,000	24,540	133,980	109,980	109,440
Palm Beach	9	595,080	602,220	1,632,000	1,036,920	1,029,780	75,600	76,500	51,480	(24,120)	(25,020)
St. Lucie	9	156,660	160,580	503,620	346,960	343,040	39,000	39,960	49,500	10,500	9,540
Region 9 Subtotals		**974,460**	**990,760**	**2,828,940**	**1,854,480**	**1,838,180**	**168,660**	**171,840**	**237,780**	**69,120**	**65,940**
Broward	10	565,980	595,980	1,356,600	790,620	760,620	76,620	85,740	124,080	47,460	38,340
Miami-Dade	10	1,957,100	1,962,980	1,517,560	(439,540)	(445,420)	163,020	163,500	170,520	7,500	7,020
Monroe	10	51,800	51,860	10,220	(41,580)	(41,640)	27,660	27,720	5,460	(22,200)	(22,260)
Region 10 Subtotals		**2,574,880**	**2,610,820**	**2,884,380**	**309,500**	**273,560**	**267,300**	**276,960**	**300,060**	**32,760**	**23,100**
TOTAL		**18,121,160**	**18,322,940**	**20,400,940**	**2,279,780**	**2,078,000**	**2,979,300**	**3,023,760**	**2,430,960**	**(548,340)**	**(592,800)**

4.0 TYPES OF PUBLIC FACILITIES THAT SHOULD COMPLY WITH PUBLIC SHELTER DESIGN CRITERIA

Section 252.385, F.S. directs that all appropriate public facilities are subject to being used as public hurricane evacuation shelters in a declared state or local emergency. Therefore, any appropriately located new public facility should incorporate hurricane evacuation shelter codes and standards. This includes not only public educational facilities, but also certain types of state and local government facilities. In general, facilities that are designed for public assembly, either as a primary or ancillary use, may be appropriate for use as public shelters during an emergency. At this time, only public education facilities are subject by statute to public shelter design criteria. This is primarily due to the fact that public educational facilities account for about 99 percent of current public hurricane evacuation shelter space, and relatively few other state and local facilities are appropriate for use as public shelters.

The public shelter space may be located in a single building or a campus or office center with multiple buildings, placed in a single large room or multiple medium sized rooms in close proximity to each other, or in one or more stories of multistory buildings. Preferably the buildings will have a means of inside circulation and convenient access to toilets and hand washing facilities.

To determine if a proposed new public facility should incorporate hurricane evacuation shelter criteria, regardless of non-educational function or agency of ownership, the proposed facility should be reviewed based upon the exemption criteria given in Section 2.2 of this Plan. Facilities not subject to an exemption may be appropriate for use as public hurricane evacuation shelters. The decision to incorporate emergency shelter criteria into a new public facility must be coordinated with the local emergency management agency(s) or the Division.

4.1 Public Schools and Community Colleges

District public schools (K-12) are the primary source of public hurricane evacuation shelter space in Florida, accounting for about 97 percent of current capacity. This is due to the fact that schools are widely distributed in populated areas, school facilities are designed for large assembly occupancies with many inherent mass care features (e.g., adequate quantity of toilets, dining/feeding areas, etc.), access to the facilities can be coordinated through a single local agency, etc. The types of school buildings that are potentially appropriate for use as public shelters include gymnasiums, cafeteria/dining, multipurpose, auditoriums and certain classroom buildings.

Community or state colleges account for only about one (1) percent of current public shelter capacity. Colleges are regionally distributed, and potentially located in areas with high demands for public hurricane evacuation shelter space. As with K-12 public schools, colleges are normally designed for large assembly occupancies and possess many inherent mass care features. The types of college buildings that are potentially appropriate for use as public shelters include gymnasiums, cafeterias, multipurpose facilities, auditoriums and certain classroom buildings.

4.2 Charter Schools

Charter schools have a general exemption from meeting many of the requirements of K-12 public schools under section 1002.33(16)(a), F.S. However, section 1002.33(18), F.S. requires charter schools that are not conversion schools (therefore, startup charter schools) to utilize facilities which comply with the generally applicable provisions of the Florida Building Code, but not the State Requirements for Educational Facilities. Privately owned charter school facilities are not required to be designated as emergency shelters under section 1013.372, F.S. Pursuant to section 252.385, F.S. an owner of a privately-owned charter school facility may agree in writing to use the facility as a public hurricane evacuation shelter.

4.3 State Universities

State university facilities account for only about one (1) percent of current public hurricane evacuation shelter capacity. Unlike K-12 public schools and colleges, state university campuses may not be as widely distributed, though several are potentially located in areas with high demands for public hurricane evacuation shelter space (e.g., Florida International University, University of South Florida, etc.) Main campuses and some satellite campuses may have several appropriate buildings concentrated in one (or more) proximate geographic area. This concentration of shelter spaces reduces staffing and logistical resource demands of a sheltering operation.

State university facilities are typically designed for large assembly occupancies, with many having inherent mass care features. The types of university buildings that are potentially appropriate for use as public shelters include gymnasiums, field houses and sports arenas, cafeterias or dining rooms, multipurpose facilities, auditoriums and certain classroom buildings.

State universities must consider two separate populations when developing their public shelter strategies: 1) campus staff, faculty and their families, and students (both commuters and residential); and 2) the general public. University facilities may be designated for sole use by one population, or concurrent use by both populations, at the discretion of the university board with the concurrence of local emergency management agency or the Division. Residential facilities are not normally subject to the EHPA, but incorporation of the criteria into new residential housing or dormitories (or portions thereof) will free up additional hurricane evacuation shelter space for the general public in appropriate non-residential facilities.

4.4 State and Local Public Facilities

Local public facilities account for about one (1) percent of current public hurricane evacuation shelter capacity. Given their administrative function (and essential emergency function of certain facilities) most state-owned, county-owned and municipally-owned facilities are not appropriate for use as public hurricane evacuation shelters. Administrative office and support areas, data and word processing rooms and areas, record vaults, etc., are exempt from the EHPA. However, certain other types of public facilities may be appropriate, such as community or civic centers, libraries with training or educational rooms, meeting halls, auditoriums, exhibition halls, sports arenas, conference or training centers, and other public assembly facilities.

5.0 RECOMMENDED SOURCES OF FUNDING

School districts have reported that the construction cost premium for incorporating the EHPA code provisions can range from less than one (1) to more than 20 percent, though typical cost is three (3) to nine (9) percent. For most new facilities, this translates into a construction cost premium of less than $900,000. These are not necessarily inconsequential costs that must be borne by State and local governments. Therefore, as required by section 1013.372(2), F.S. the Division suggests use of existing state capital outlay to fund the additional cost of constructing hurricane evacuation shelters in public schools.

6.0 STATEWIDE PROGRESS TOWARD ELIMINATING THE PUBLIC HURRICANE EVACUATION SHELTER SPACE DEFICIT

The Division is charged under section 252.385, F.S. to administer a statewide program to eliminate the deficit of "safe" hurricane evacuation shelter space. The Division has taken steps to implement the program. First, by conducting a survey of existing buildings, both public and private, to identify suitable shelter capacity. Second, where cost effective (and practical), support hurricane resistant retrofitting or mitigation of facilities to increase shelter capacity. Third, require construction of new educational facilities to meet the EHPA code provisions. Fourth, conduct research to clearly identify demand. And fifth, improve public information/education to reduce shelter demand from evacuees not required to evacuate or "shadow" evacuations.

Since 1995, through Federal, State, and local retrofitting of appropriate facilities, Florida has created a total of 344,500 public hurricane evacuation shelter spaces. The "Retrofitted / Mitigated Capacity Gained" column of Table 6-1 demonstrates county-by-county progress toward eliminating the hurricane evacuation shelter space deficit by retrofitting appropriate facilities to meet ARC HESSS. Retrofitted facilities account for about 32 percent of the state's total capacity of ARC HESSS hurricane evacuation shelter spaces.

The majority of this retrofit capacity has been created since 1999. Though regions and counties with the greatest deficits received priority for available retrofit funds, there has been a more widespread distribution due to the statewide nature of the deficit. Some of the retrofitted facilities have less than preferred mass care characteristics (e.g., inconveniently located toilet facilities, etc.), but the retrofit program produced a rapid improvement in the safety of Florida's hurricane evacuation shelter inventory.

The retrofit capacity created includes facilities retrofitted through the Division's Hurricane Loss Mitigation Program's Shelter Retrofit (SR) Program. Since publication of the 2018 Plan the Division has created more than 23,000 spaces through the SR program. Retrofitting is expected to be complete for another 31,000 spaces in 2020.

Since 1995 about 244,300 spaces were identified through surveys as meeting ARC HESSS guidelines ("As-Is") without further need for retrofitting. These facilities, however, do not necessarily meet all the EHPA code requirements. These As-Is or Pre-Mitigation ARC HESSS spaces account for about 23 percent of the state's total spaces.

Creation of hurricane evacuation shelter capacity through construction of new school facilities to the EHPA criteria has also increased since 1999. Local emergency management and school board officials have reported that about 471,700 EHPA shelters spaces have been created. The "EHPA Capacity Gained" column of Table 6-1 demonstrates county-by-county progress toward eliminating the hurricane evacuation shelter space deficit via EHPA construction. The application of the EHPA criteria has been inconsistent across the state, with several counties reporting construction of relatively few (if any) EHPA spaces. EHPA spaces account for about 45 percent of the state's total capacity of ARC HESSS hurricane evacuation shelter spaces.

TABLE 6-1. Hurricane Evacuation Shelter Spaces Identified Since 1995				
COUNTY	As-Is or Pre-Mitigation ARC HESSS Capacity, persons	EHPA ARC HESSS Capacity, persons	Retrofitted / Mitgated ARC HESSS Capacity, persons	Total 2020 ARC HESSS Capacity, persons
ALACHUA	2,697	1,572	9,975	14,244
BAKER	204	1,829	1,358	3,391
BAY	28	956	10,198	11,182
BRADFORD	0	0	1,303	1,303
BREVARD	7,560	13,956	31,492	53,008
BROWARD	500	69,398	0	69,898
CALHOUN	1,647	1,194	536	3,377
CHARLOTTE	0	0	0	0
CITRUS	132	1,276	4,574	5,982
CLAY	1,970	3,925	4,687	10,582
COLLIER	0	0	5,453	5,453
COLUMBIA	51	3,298	1,665	5,014
DESOTO	348	0	2,526	2,874
DIXIE	2,695	0	1,523	4,218
DUVAL	12,418	12,212	11,623	36,253
ESCAMBIA	6,033	1,656	20,334	28,023
FLAGLER	11,397	1,483	1,897	14,777
FRANKLIN	0	0	0	0
GADSDEN	448	3,672	1,735	5,855
GILCHRIST	0	0	3,050	3,050
GLADES	0	332	1,863	2,195
GULF	232	186	0	418
HAMILTON	578	1,353	0	1,931
HARDEE	415	3,894	0	4,309
HENDRY	0	0	4,065	4,065
HERNANDO	911	3,044	282	4,237
HIGHLANDS	3,085	4,143	390	7,618
HILLSBOROUGH	4,654	48,227	28,075	80,956
HOLMES	614	2,847	179	3,640
INDIAN RIVER	295	0	14,705	15,000
JACKSON	0	3,395	499	3,894
JEFFERSON	0	689	0	689
LAFAYETTE	156	0	403	559
LAKE	2,832	20,160	1,792	24,784
LEE	13,613	0	1,650	15,263
LEON	4,754	1,223	15,270	21,247
LEVY	0	354	4,638	4,992
LIBERTY	0	72	1,637	1,709
MADISON	232	0	3,461	3,693
MANATEE	3,023	5,646	8,321	16,990
MARION	1,228	7,843	3,447	12,518
MARTIN	8,165	8,908	4,873	21,946
MIAMI-DADE	66,480	9,106	3,134	78,720
MONROE	0	0	602	602
NASSAU	0	3,456	285	3,741
OKALOOSA	4,899	0	5,223	10,122
OKEECHOBEE	0	1,503	619	2,122
ORANGE	8,001	27,585	1,441	37,027
OSCEOLA	3,153	11,653	23,135	37,941
PALM BEACH	0	82,458	0	82,458
PASCO	9,407	15,010	5,858	30,275
PINELLAS	15,854	8,595	6,963	31,412
POLK	4,329	34,311	1,930	40,570
PUTNAM	31	791	3,085	3,907
SAINT JOHNS	20,964	2,983	4,450	28,397
SAINT LUCIE	948	8,804	16,254	26,006
SANTA ROSA	0	6,679	6,672	13,351
SARASOTA	7,513	6,746	1,370	15,629
SEMINOLE	2,025	3,291	27,113	32,429
SUMTER	1,090	402	628	2,120
SUWANNEE	997	3,810	47	4,854
TAYLOR	0	1,635	5,019	6,654
UNION	0	0	1,736	1,736
VOLUSIA	2,933	7,389	12,483	22,805
WAKULLA	335	88	0	423
WALTON	1,262	5,489	3,027	9,778
WASHINGTON	1,202	1,211	3,934	6,347
TOTALS	244,338	471,738	344,487	1,060,563

Through research Florida has been able to increase its understanding of shelter demand. By more accurately identifying demand the State is able to plan for anticipated need thus reducing its hurricane shelter deficit. Through the technologies applied to this effort, such as LiDAR and improved SLOSH computer models, the Division is able to more precisely determine which areas are vulnerable to hurricane storm surge. These improved techniques are the results of the 2010 SRES. In the past, studies were conducted only regionally and sporadically when funding was available. Methodologies varied to meet the needs at the time. As of 2010, all RPC regions are held to a statewide methodology statutorily mandated in section 163.3178(2)(d), F.S.

Historically, 25 percent or more of the estimated evacuating population were projected to seek safety in public shelters. Many of the post-1998 Hurricane Evacuation Studies, including the 2010 Behavioral Data from the SRES, are now indicating that fewer than 15 percent of the vulnerable population will seek public shelter.

The 2004 hurricane season provides an example of relatively low public shelter use. Though none of the storms made landfall as a Category 5 hurricane, two storms approached Florida at near Category 5 strength before making landfall as a Category 3 and 4; Hurricane Ivan and Hurricane Charley respectively. During Hurricane Ivan, an estimated 544,900 persons were under evacuation orders and only 33,472 evacuees were housed in public shelters (6 percent). During Hurricane Charley, although it rapidly intensified only a few hours before landfall, there were an estimated 2.7 million persons under evacuation orders and only 102,094 evacuees were housed in public shelters (3.75 percent).

In 2017, Hurricane Irma resulted in 54 of 67 counties ordering evacuations. Approximately 3.8 million people were under evacuation orders but the shadow evacuation raised estimates to 6.8 million evacuees. Approximately 340,000 sheltered across the state (5 percent). For 2018's Hurricane Michael, 23 counties issued evacuation orders affecting a population of more approximately 870,000. Approximately 50,000 evacuees sought safety in public hurricane evacuation shelters (5.7 percent). While these examples alone are not evidence of a decrease in demand, they do show that under many circumstances public shelter demand is much lower than historical estimates.

Since publication of the 2000 Plan, the statewide average estimated demand has fallen from about 24 percent to about eight (8) percent. The practical effect is an apparent statewide reduction in hurricane shelter space demand since 2000, which has resulted in a general decrease in the need to invest public funds to create the additional "bricks-and-mortar" shelter spaces.

The Division has also developed a public information program to compliment the other hurricane evacuation shelter deficit reduction efforts. The Division educates residents on the hazards they face and how to best deal with them. A key issue is whether or not to evacuate and, if so, to where. Education on the hazards and how they affect a community lead to residents making better-informed decisions in a crisis. That effort is being supported by public service announcements, hurricane expositions, training of local responders and volunteers, and through emergency messages during

times of crisis. This is expected to be a long-term process that will help to reduce the need for public hurricane evacuation shelter space.

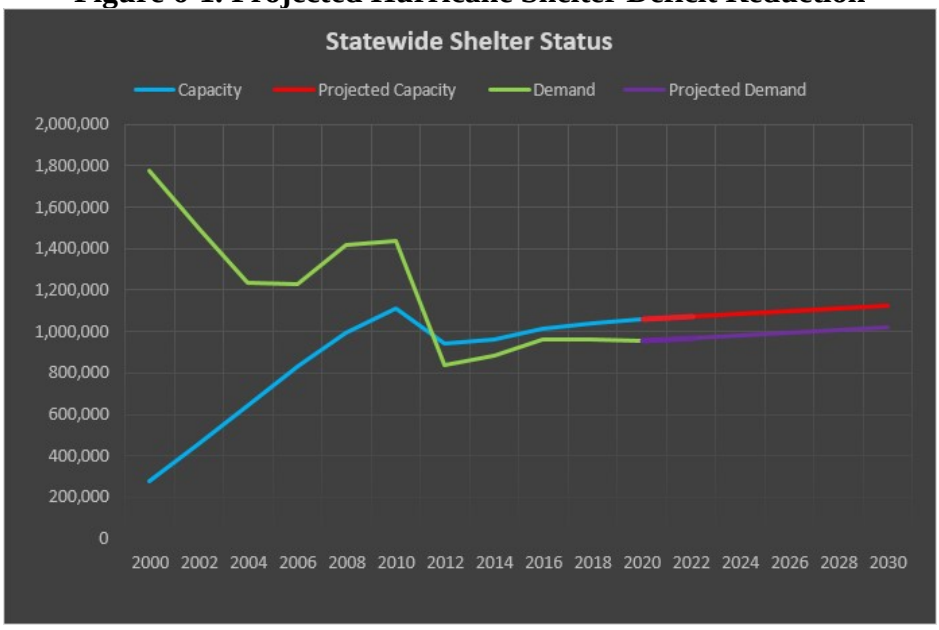
As seen in Table 6-1, since 1999 the Division's hurricane evacuation shelter survey and retrofit program has identified, created or otherwise documented 588,800 hurricane evacuation shelter spaces that meet ARC HESSS guidelines. Public school new construction programs have created an additional 471,700 hurricane evacuation shelter spaces. Therefore, Florida will have a total of 1,060,500 shelter spaces that meet ARC HESSS guidelines in 2020.

The demand for hurricane evacuation shelter space has also been significantly reduced over the past 20 years due to improvements in public information, storm hazard models and more accurate census data. Since 2000, Florida's deficit of hurricane evacuation shelter space has been eliminated on a statewide aggregate basis. However, individual regions and counties remain in a hurricane evacuation shelter space deficit.

With publication of this Plan, Florida now has 39 counties with sufficient capacity of GP hurricane evacuation shelter space. The counties with sufficient GP space include: Alachua, Baker, Bay, Brevard, Broward, Calhoun, Columbia, Dixie, Escambia, Flagler, Gadsden, Gilchrist, Glades, Hamilton, Hardee, Hendry, Hillsborough, Holmes, Indian River, Jackson, Jefferson, Leon, Levy, Liberty, Madison, Martin, Okaloosa, Orange, Osceola, Palm Beach, Saint Johns, Saint Lucie, Santa Rosa, Seminole, Suwannee, Taylor, Union, Walton, and Washington.

There are 33 counties with sufficient capacity of SpNS hurricane evacuation shelter space. The counties with a sufficient capacity of SpNS space include: Alachua, Baker, Brevard, Broward, Citrus, Clay, Columbia, DeSoto, Escambia, Gilchrist, Glades, Hamilton, Hardee, Hernando, Hillsborough, Holmes, Lafayette, Leon, Levy, Liberty, Madison, Manatee, Martin, Miami-Dade, Osceola, Pasco, Putnam, Saint Lucie, Santa Rosa, Seminole, Sumter, Union and Walton.

Figure 6-1. Projected Hurricane Shelter Deficit Reduction



7.0 CONCLUSIONS

As a result of Hurricane Andrew and the Lewis Commission Report, the State of Florida recognized the necessity of providing safe hurricane evacuation shelter space for its residents during disasters. In support of this goal, the Division, every two years, submits to the Governor and Cabinet, the *Statewide Emergency Shelter Plan.* The Plan identifies the general location and square footage of existing GP and SpNS by RPC region, and needed GP and SpNS space during the next five years. The Plan also includes information on the availability of shelters that accept pets. The Department of Health assisted the Division in determining the estimated need for SpNS hurricane evacuation shelter space.

The SpNS regional situation is much improved over the 2018 Plan. For the 2018 Plan, only one RPC region, 10-South Florida, was recognized as having sufficient SpNS space capacity. For the 2020 Plan five (5) RPC regions are recognized as having sufficient SpNS space capacity.

Based on currently available information, RPC regions 6, 7 and 8 continue to have a deficit of GP space through 2025. The current SpNS regional hurricane evacuation shelter space deficit in RPC regions 2, 4, 5, 6 and 8 is projected to continue through 2025. The projections do not assume addition of new space to regional inventories through 2025. However, addition of new shelter facilities and/or local designation of new space will significantly reduce or eliminate the projected deficits.

The 2020 Plan shows that Florida on a statewide aggregate basis has eliminated the deficit GP public hurricane evacuation shelter space. However, statewide aggregate sufficiency means that evacuees from regions, and counties, with deficits must rely on Host Shelters located outside of the risk areas. A statewide deficit of SpNS spaces continues to exist and must rely on either use of local facilities not recognized as meeting minimum hurricane safety criteria or transport to Host Shelters outside risk areas.

Since 1995 more than 1,060,500 hurricane evacuation shelter spaces have been identified, created through retrofitting of existing buildings, or through new construction (e.g., EHPA code provisions). Since 2004, Florida's statewide aggregate public hurricane evacuation shelter space demand has been reduced to 955,700. In contrast, there was an estimated hurricane evacuation shelter demand of 1,776,606 shelter spaces in 2000.

Over time, current hurricane evacuation shelter buildings may (or will) be decommissioned due to less-than-modern wind designs; structural or envelope deterioration due to age; inadequate mass care features; remodeling or reuse that's incompatible with mass care shelter operations; and, removal or deterioration of window protection products. There may also be changes in storm hazard maps (e.g., SLOSH, national flood insurance maps) that could affect their recognition as meeting hurricane safety criteria. Thus, even though the aggregate statewide deficit of GP space has been eliminated in the 2020 Plan, a "maintenance level" of shelter space production will be necessary to avoid falling back into a deficit situation.