2022

Statewide Emergency Shelter Plan

DIVISION OF EMERGENCY MANAGEMENT
FDEM
OFFICE OF THE GOVERNOR

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EXECUTIVE SUMMARY

Pursuant to section 1013.372(2) and section 252.385(2)(b), Florida Statutes (F.S.) the Florida Division of Emergency Management (Division) is responsible for preparing a *Statewide Emergency Shelter Plan* (SESP). The SESP serves as a guide to determine the need for new school facilities to be designed and built as hurricane evacuation shelters. The SESP is submitted to the Governor and Cabinet for approval by January 31 of each even-numbered year. The SESP identifies the general location and square footage of existing General Population and Special Needs shelter space, by Regional Planning Council (RPC) region, and projected space needs during the next five (5) years. The SESP also includes information on the availability of shelters capable of accommodating pets.

Beginning with publication of the 2006 SESP, the Division monitors the status of the statewide inventory of Special Needs shelters. Historically, Special Needs included the total population hurricane evacuation shelter demand estimates and hurricane evacuation shelter capacities. The Division was asked to separate the two shelter types and monitor progress toward improvement, following the 2004 hurricane season in which revealed the need to improve Special Needs shelters. Special Needs shelter requirements differ from General Population shelters improvement needs, as they require the provision of standby electric power supported air-conditioning and additional space per client to accommodate for caregivers and medical equipment.

Based on currently available information, two (2) RPC regions continue to have a deficit of General Population shelter space and three (3) RPC regions continue to have a deficit of Special Needs shelter space through 2027. The projections do not assume addition of new space to regional inventories through 2027. Addition of new shelter facilities, retrofitting of existing facilities to meet the criteria required per ARC *Hurricane Evacuation Shelter Selection Standards* (HESSS) and/or local designation of new space will help offset damaged/functionally obsolescent buildings and increased demand as a result of population growth, significantly reducing or eliminating projected deficits.

Table EX-1 provides a summary of the projected regional hurricane evacuation shelter space demands for 2022 and 2027, the quantity of recognized hurricane evacuation shelter spaces per region as of Fiscal Year 2020-2021 and tracking of deficient or sufficient capacity of spaces per region. All RPC regions are deficient when the Public Health Emergency provisions for social distancing space, an increase in General Population shelter space from 20 Sq. Ft. to 60 Sq. Ft. per client, are applied per American Red Cross Doctrine Bulletin - Pre-Landfall Congregate Shelter Operations in a COVID-19 Pandemic.

Table Ex-1 (RPC Regional Demand and Status)

2022 Estimated Total Shelter Demand		RPC Region / Status for 2022	2027 Estimated Total Shelter Demand		RPC Region / Status for 2027
SPACES	SQFT		SPACES	SQFT	
39,908	914,120	1 / Sufficient	40,463	926,820	1 / Sufficient
16,576	412,320	2 / Sufficient	16,986	422,448	2 / Sufficient
40,375	900,660	3 / Sufficient	40,619	906,053	3 / Sufficient
78,175	1,785,660	4 / Sufficient	78,585	1,797,135	4 / Sufficient
134,659	3,002,900	5 / Sufficient	135,558	3,022,806	5 / Sufficient
47,078	1,114,520	6 / Deficient	47,747	1,130,669	6 / Deficient
173,705	3,827,060	7 / Sufficient	174,862	3,857,119	7 / Sufficient
102,072	2,389,280	8 / Sufficient	102,681	2,403,531	8 / Sufficient
63,906	1,390,560	9 / Sufficient	64,927	1,413,104	9 / Sufficient
156,871	3,315,620	10 / Deficient	158,472	3,354,087	10 / Deficient

Public facilities 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
- 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 Category 4 or 5 (D or E) storm surge zones; coastal or inland flooding isolation;
- Presence of or proximity to certain hazardous materials, low evacuation demand;
- Size: e.g., facilities with less than 2,000 Sq. Ft. 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 the 2022 SESP, the Division coordinated with Florida Department of Education (DOE) 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, DOE reported a finding of 100 percent compliance in the regions where the requirement applies, and new facilities were built where DOE had tracking awareness. DOE does not have authority over all school facility build-outs as it did at one time.

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. For ease of reference, 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 SESP. In June 2018, ARC 4496 was replaced by HESSS. There are no substantive hurricane safety changes between ARC 4496 and its replacement HESSS. To accomplish this, the Division implemented a multifaceted program. This program includes:

- Survey of existing buildings, both public and private, to identify suitable shelter capacity;

- Where cost effective and productive, support mitigation and retrofitting of existing facilities to increase shelter capacity;
- Construction of new facilities to meet the public shelter design criteria;
- Shelter demand reduction through improved hurricane hazard models and behavioral studies.

While regional deficits still remain, Florida's deficit of General Population hurricane evacuation shelter space was eliminated on a statewide aggregate basis. However, there is still a deficit of safe Special Needs hurricane evacuation shelter space. The Division's hurricane evacuation shelter survey and retrofit program identified, created, or otherwise documented 615,829 hurricane evacuation shelter spaces that meet ARC HESSS guidelines. Public school new EHPA construction programs have created an additional 461,715 hurricane evacuation shelter spaces. Therefore, by the 2022 Atlantic hurricane season, Florida will have a total of about 1,077,544 shelter spaces equating to 21,550,880 Sq. Ft. in buildings that meet ARC HESSS guidelines at 20 Sq. Ft. per client. The public shelter demand resulting from hurricane evacuation has significantly been reduced over the past 20 years due to improvements in public education and information and more accurate storm surge/evacuation zone modeling with the use of the Light Detection and Ranging (LiDAR). Since 2010, the Statewide Regional Evacuation Studies (SRES) Program resulted in a statewide aggregate hurricane evacuation shelter space demand reduction. A new behavioral study completed in 2021 found more reduction in demand for public shelter space statewide. Florida's safe hurricane evacuation shelter space demand for 2022 is 861,460 at 20 Sq. Ft. per client space which equates to 17,229,200 Sq. Ft. of needed space.

With publication of this 2022 SESP, Florida has 45 counties with sufficient capacity of General Population hurricane evacuation shelter space. There are 36 counties with sufficient capacity of Special Needs hurricane evacuation shelter space. Fewer counties have deficits of public shelter space in 2022 than in 2020 under normal evacuation situations. However, since publication of the 2020 SESP, the nation has experienced a Public Health Emergency. When factoring in the additional space for social distancing during a Public Health Emergency, no county or region has sufficient space. In order to provide for 861,460 spaces in accordance with the American Red Cross recommended 60 Sq. Ft. per person, Florida requires 51,687,600 Sq. Ft. of shelter space. The space required during a Public Health Emergency is deficient by 30,050,260 Sq. Ft. or approximately 58 percent.

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 the 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* (SESP) is prepared and submitted to the Governor and Cabinet for approval. The SESP provides information on existing and needed hurricane evacuation shelter square footage. 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 2022 SESP, when approved, will determine which Regional Planning Council (RPC) areas have a higher demand than capacity. In those RPCs, Boards are required to construct new educational facilities to comply with the public shelter design criteria. The SESP must address:

- The general location and square footage of existing General Population and Special Needs shelters by RPC region;
- The general location and square footage of projected General Population and Special Needs shelters by RPC regional need for the next five years;
- The types of facilities that should comply with the public shelter design criteria; the impact of a concurrent Public Health Emergency on sheltering;
- Identify counties with shelters that accept pets. The SESP recommends a source of funding for the additional cost of constructing public hurricane evacuation shelters in those public facilities.

Included in the SESP is 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 2022 SESP 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.

As a result, the Legislature added statutes intended to eliminate Florida's deficit of safe public hurricane evacuation shelter space in every region of the State.

Chapter 1013 of the Florida Statutes directs the Florida Department of Education (DOE) to develop standards for a public shelter design criteria in consultation with boards, county emergency management offices, and the Division. Thus, new educational facilities can serve as public shelters for emergency management purposes. DOE contracted with the University of Florida, School of Building Construction, to prepare the public shelter design criteria. The university advisory committee consisted of members from federal, state and local emergency management agencies, architects, engineers, academia, district school boards and the American Red Cross (ARC). The goal was to provide a safe and self-sufficient facility through cost-effective designs and construction methods.

The process began in 1994 and was adopted into State Requirements for Educational Facilities 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. The resulting design criteria includes structural enhancements, potable water and sanitary requirements, provisions for standby emergency power, and other considerations that improve survivability and shelter management operations.

The public shelter program lessons learned from Hurricane Andrew were reiterated in 2016 when, after 11 years of relative quiet, hurricanes began making landfall again in Florida. For example, in 2017 evacuations were ordered in 54 out of Florida's 67 counties in advance of Hurricane Irma and more than 6.8 million people evacuated. General Population shelters housed 321,746 people and Special Needs shelters housed 18,227 clients. All of Florida's shelters were considered pet-friendly for this event resulting in 21,667 pets sheltering across the state.

1.3 Statutory Considerations

Statutory authorities are in place for implementation of the public shelter design criteria. The following statutes 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. 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, boards will participate in emergency management by providing facilities, personnel, equipment and vehicles upon request.

Public schools are the primary source of evacuation shelters, currently accounting for more than 97 percent of statewide hurricane evacuation shelter space. 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.

(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 emergency shelter plan must project, for each of the next 5 years, the hurricane shelter needs of the state, including periods of time during which a concurrent public health emergency may necessitate more space for each individual to accommodate physical distancing. In addition to information on the general shelter needs throughout this state, the plan must identify the general location and square footage of special needs shelters, by regional planning council region. The plan must 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.

During the 2021 Legislative Session, SB 2006 revised 252.385 (2) (b) to include tracking shelter space in case of a Public Health Emergency. The statute, as published, reads "The emergency shelter plan must address the hurricane shelter needs of the state, including during times of a concurrent Public Health Emergency that necessitates more space for each individual in such shelters to accommodate physical distancing." This 2022 SESP fulfills the directive in Chapter 3 (see Figure 3-4) and Chapter 6.

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 SESP. The public hurricane evacuation shelter capacities listed as "suitable" in this SESP are recognized by the Division as meeting ARC HESSS hurricane safety criteria.

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. Appendix A identifies the statewide inventory of facilities that have been built or retrofitted to meet ARC HESSS. Some schools will meet ARC HESSS, but storm surge or flooding inundation may preclude addition to the statewide inventory.

In addition to the ARC HESSS minimum standards, local emergency managers consider other factors when activating emergency sheltering capabilities. Factors such as: type of incident requiring shelter, 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 and more. When demand exceeds available ARC HESSS shelter space capacity, local emergency managers may activate other facilities that afford the best available protection and features.

Section 252.385(2)(b), F.S. requires the SESP to include information on the general location and square footage of both existing and future needed Special Needs shelter space by Regional Planning Council (RPC) region. The Florida Department of Health is required to assist

in determining need and adequacy of facilities for Special Needs. The SESP is also required to provide information on the availability of public Pet-Friendly Shelters.

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 DOE 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 RPC 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. State universities 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 within an RPC 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 Special Needs shelters. The Florida Department of Health (through county health departments) is assigned the duty to assist with managing the medical service needs of the clients.

The Division recommends Special Needs hurricane evacuation shelters designated by local emergency management agencies should meet the ARC HESSS hurricane safety criteria, and are 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, *Florida Building Code—Building*. 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 ensures that new educational facilities meet or exceed applicable national design and construction standards, guidelines and "best practices." The EHPA has 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 facility owners, planners and designers incorporate the American Red Cross' HESSS (formerly ARC 4496) for an EHPA during the planning and design process. ARC HESSS is the minimum hurricane evacuation shelter safety guideline used by the Division.

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.

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

Evacuation Zones: The 2010 Statewide Regional Evacuation Studies (SRES) introduced 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. It should be noted that counties may add areas to local evacuation zones so that there is not an exact correlation.

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 ease of communication 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 may be subject to evacuation during land-falling major hurricanes, as well as paralleling and exiting major hurricanes.

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 and are not immediately exempted from the requirements under 1013.372, F.S. 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 within 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).

Many educational facilities use or store hazardous materials 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. These are not 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 Florida Department of Management Services owned or leased facilities and requires that the facility have a minimum of 2,000 Sq. Ft. 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 Sq. Ft. of net floor area. At 20 Sq. Ft. 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 Sq. Ft. 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—Building* 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 When There is 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 2022 SESP, which guides exemption decisions over a five-year planning period. As can be seen in Figure 2-1, eight (8) RPC regions have sufficient capacity of General Population hurricane evacuation shelter space as of this writing, which includes RPC regions: Emerald Coast, Apalachee, North Central Florida, Northeast Florida, East Central Florida, Central Florida, Tampa Bay, and Treasure Coast. Based upon currently available information, a sufficient capacity of spaces will continue in the regions through 2027. As can be seen in Figure 2-2, seven (7) RPC regions have sufficient capacity of hurricane evacuation shelter space for Special Needs in 2022. Therefore, three (3) RPC have deficits of Special Needs hurricane evacuation shelter space, which are Apalachee, Central Florida and Southwest Florida. The Special Needs shelter space deficits are projected to continue into 2027 if no new space is added to the inventory.

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

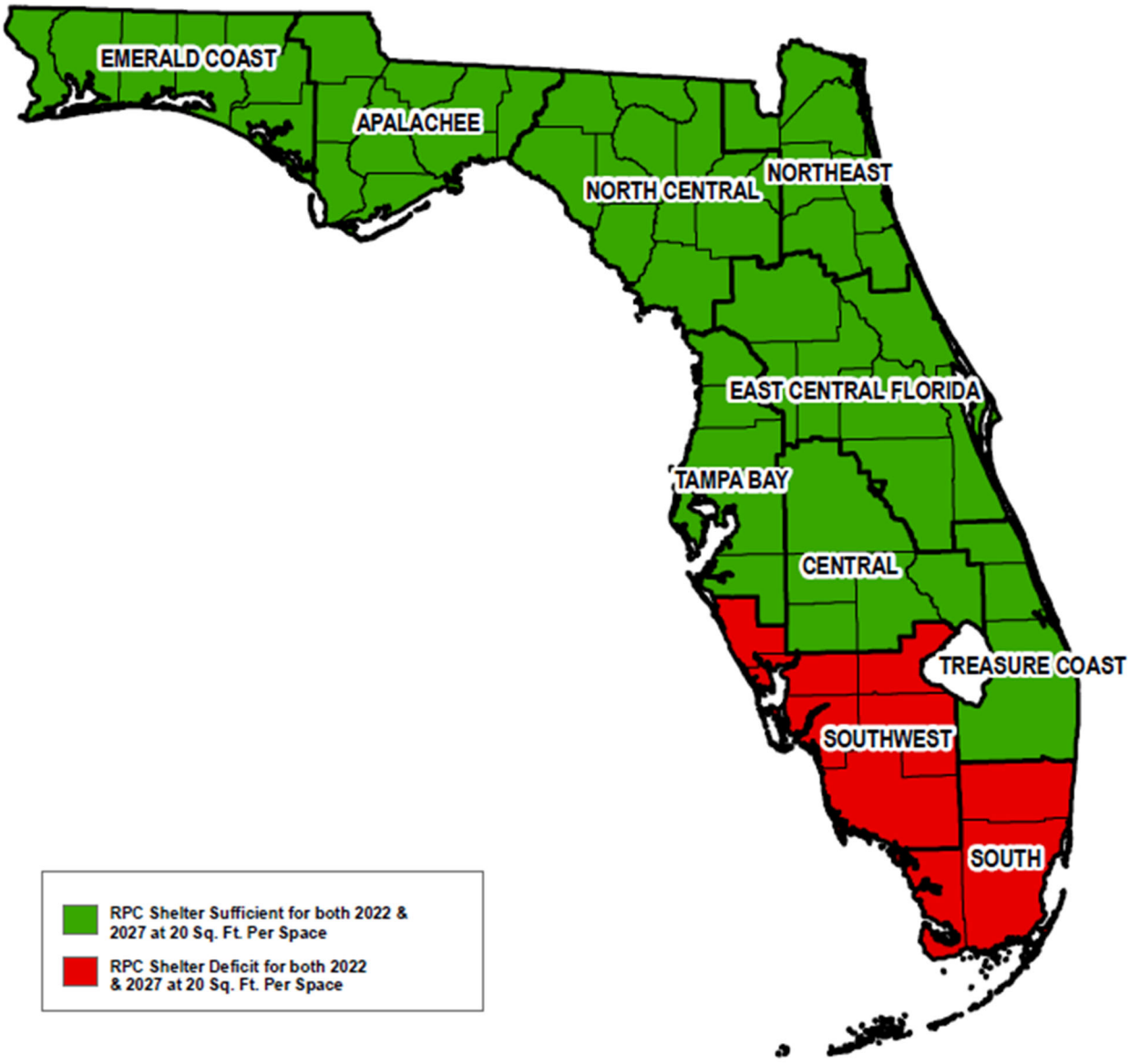
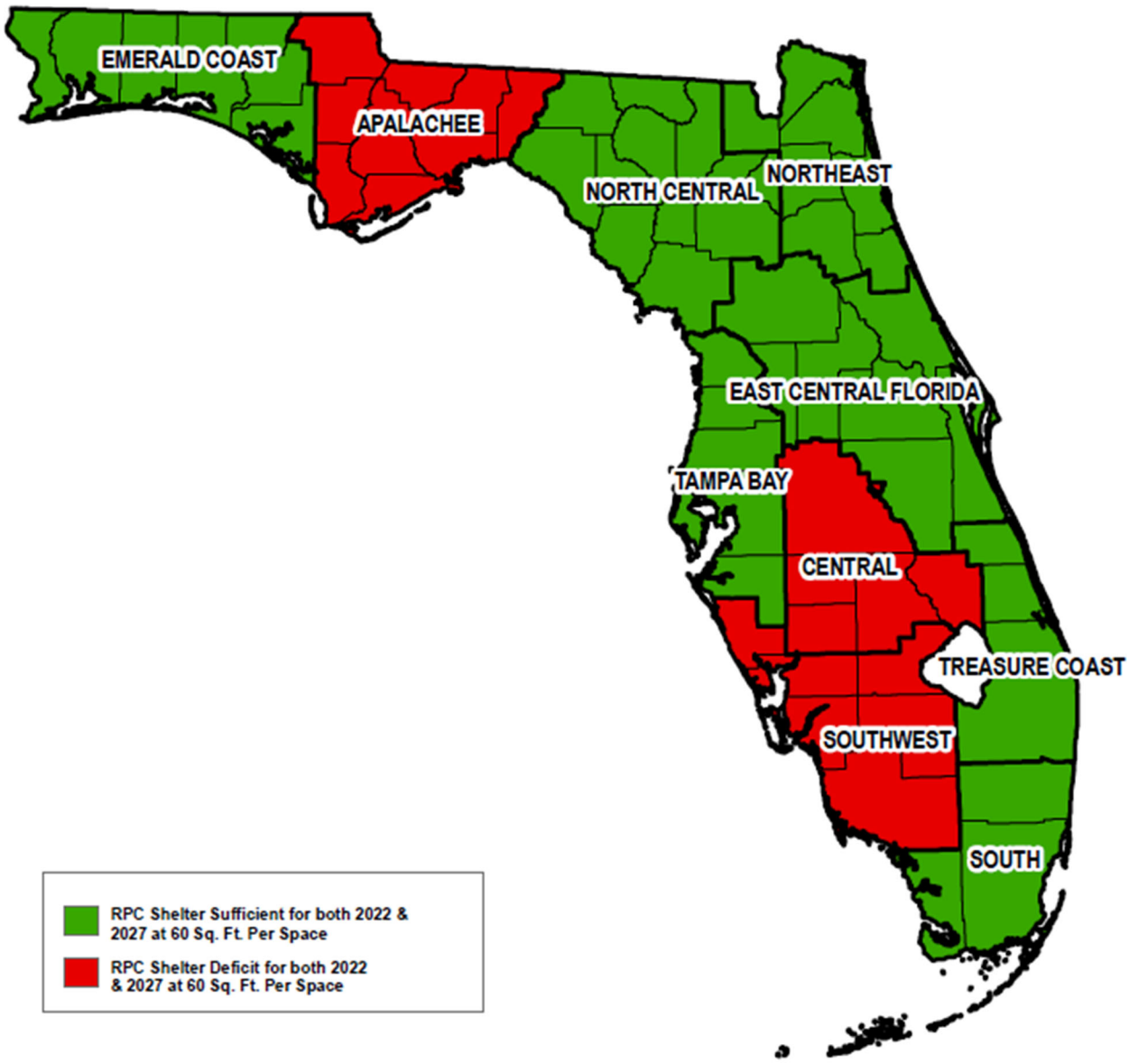


Figure 2-2. Regional Hurricane Evacuation Shelter Space Deficit / Sufficient Status of Special Needs Shelters



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:

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

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

50 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.

60 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.

70 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.

80 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

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 a written exemption 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, DOE and local emergency management officials, continue efforts to ensure compliance with the provisions of the law. Subsequently, the DOE 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 DOE 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 DOE, 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 SESP to incorporate guidance to assist local school boards and emergency managers with implementing the criteria. The Division and DOE 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 SESPs 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 2022 SESP, the Division again collaborated with the DOE to compile a list of new EHPA school buildings. The Division reviewed a comprehensive county update from DOE of facilities that received additional funding for hardening for shelter use. Some of the buildings included the EHPA criteria. The DOE did not fund any building projects where the requirement would apply in the previous cycle, therefore no district was non-compliant.

Universities and community or state colleges were not included primarily due to the fact that the data is limited to K-12. Universities and colleges only account for about two (2) percent of recognized hurricane evacuation shelter space.

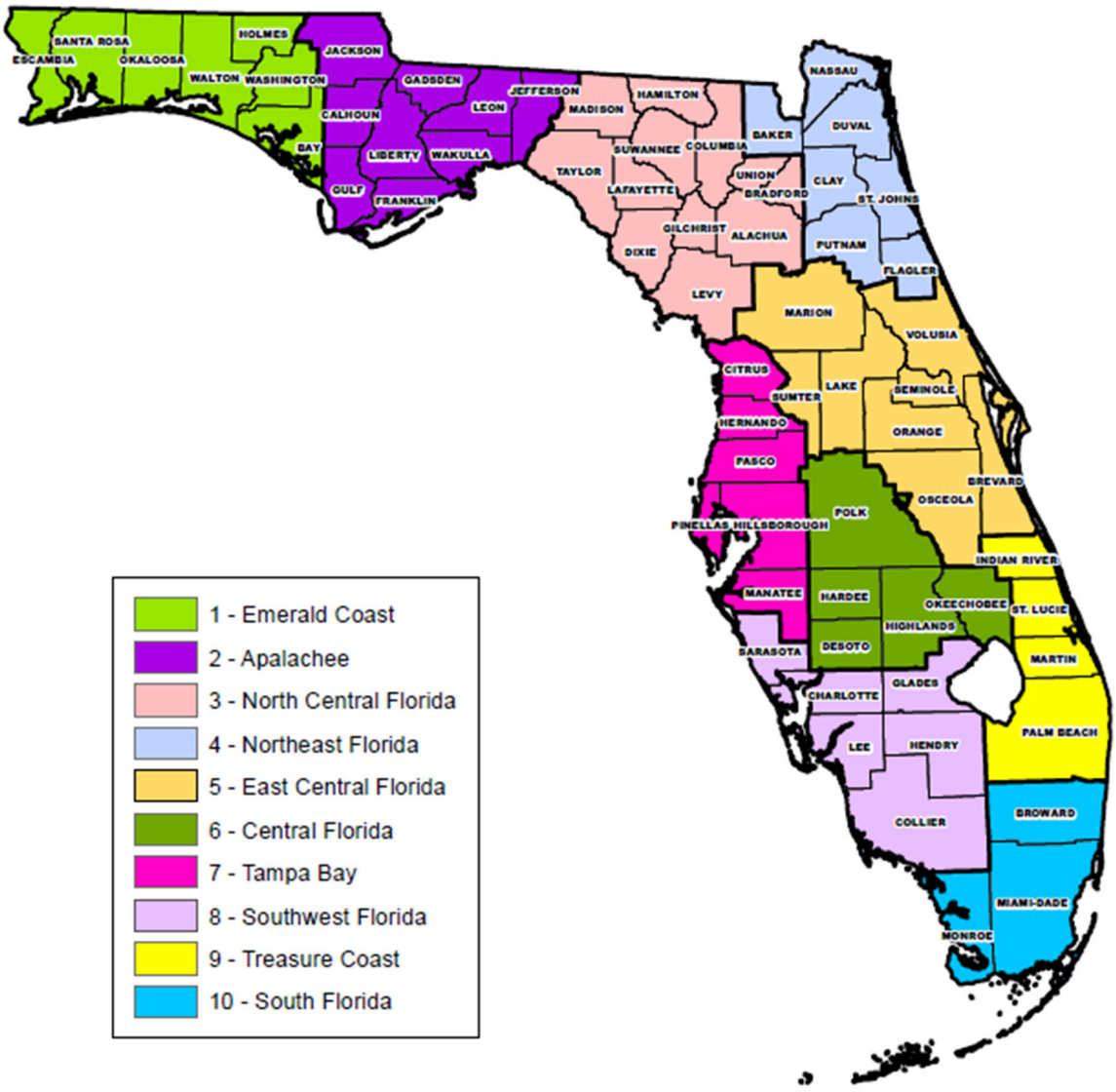
The Division will continue to coordinate with the DOE and local emergency managers to monitor compliance.

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 (BEBR), and coordination with county emergency management agencies was utilized for estimating the projections in the 2022 SESP. The overall population projected in the 2022 SESP is 20,481,201. County emergency management agencies are seeking similar trends for planning purposes but they have the advantage of being more familiar with local issues in their jurisdiction.

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 based on maximum evacuation worst case scenario. Appendix E illustrates the demands and results in spaces and square footage for general populations and for persons with special needs.

Shelter Demand Sources/Results by County. The 2022 through 2027 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 of vulnerable populations, estimated percent of vulnerable populations expected to seek public shelter, and other sources are shown in Appendix E.

Determining County Shelter Capacities. County shelter capacity data for all 67 counties were updated by local emergency management agencies through 2021. 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 SESP. For each shelter, a net square footage for the building was derived from the DOE's FISH database, including only those room types listed in Appendix D of this SESP. 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 Sq. Ft. per person for General Population risk shelters and 60 Sq. Ft. per client for Special Needs risk shelters. These are the square footages and capacities used to calculate the hurricane evacuation shelter space deficit reduction in this SESP. Appendix D describes in detail the Hurricane Evacuation Shelter Space calculation methods used

in this SESP. 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 several factors. Strength of storm, time since most recent significant disaster and previous experience with tropical weather are 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.

In the 2020 SESP, most of the behavioral analyses in the state were prepared on a regional basis by Hazards Management Group and therefore a consistent benchmark relative to the survey methodologies and statistical applications. The public shelter use percentages in the behavioral section of the 2010 regional hurricane evacuation study were combined with local income characteristics in the hurricane risk area to calculate shelter demand numbers.

In Fiscal Year 2020-2021, the statewide evacuation study was updated. It employed anonymous smart location-based services data for analysis of evacuations trends. Behavior observed from recent storms since 2016 including Hurricane's Matthew, Irma and Michael continue to show an overall reduction in potential shelter demand.

For the 2022 SESP, this data served as the basis for estimating the shelter demand for coastal and inland counties between 2022 and 2027. 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 Special Needs also utilizes information from the SRES in conjunction with a staffing study conducted by the Florida Department of Health for special needs shelter clients and historical data from hurricane seasons 2016 – 2018.

3.2 Location and Square Footage of Existing and Needed Shelters

Appendix E illustrates the demands and results in spaces and square footage for general populations and for persons with special needs by county and region.

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 General Population hurricane evacuation shelters for individual counties, and Figure 3-3 provides deficit/sufficient status for Special Needs hurricane evacuation shelters.

The color codes are keyed to individual county sheltering capability. For Figure 3-2, the green color code for General Population 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 red color code indicates insufficient floor space for the ARC short-term minimum recommendation.

For Figure 3-3, the green color code for Special Needs shelters 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, Florida Department of Health and partner agencies for Special Needs shelters. 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. Individual counties within RPC regions that are sufficient may have deficits, resulting in the continued need for additional hurricane evacuation shelter space.

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

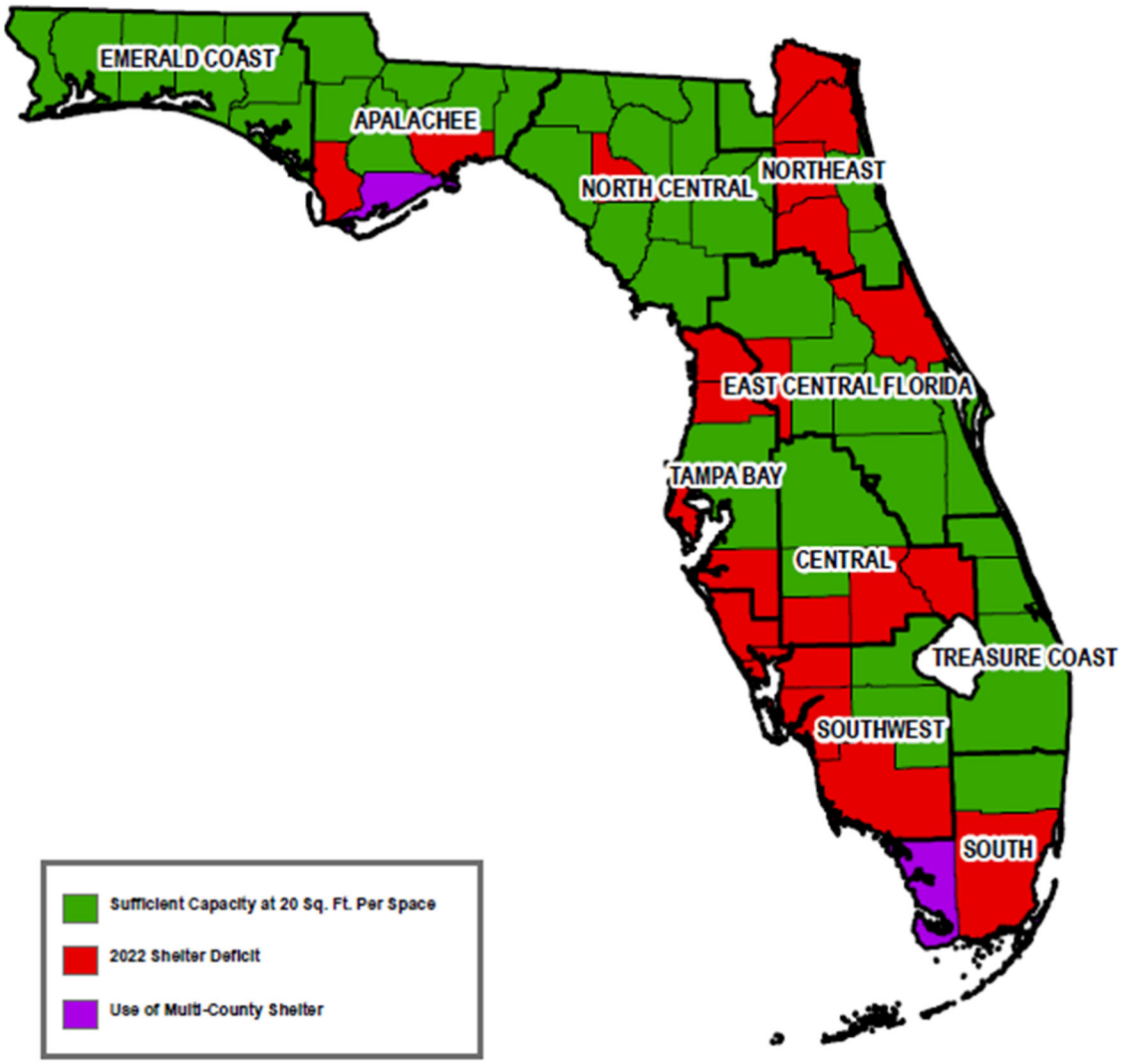
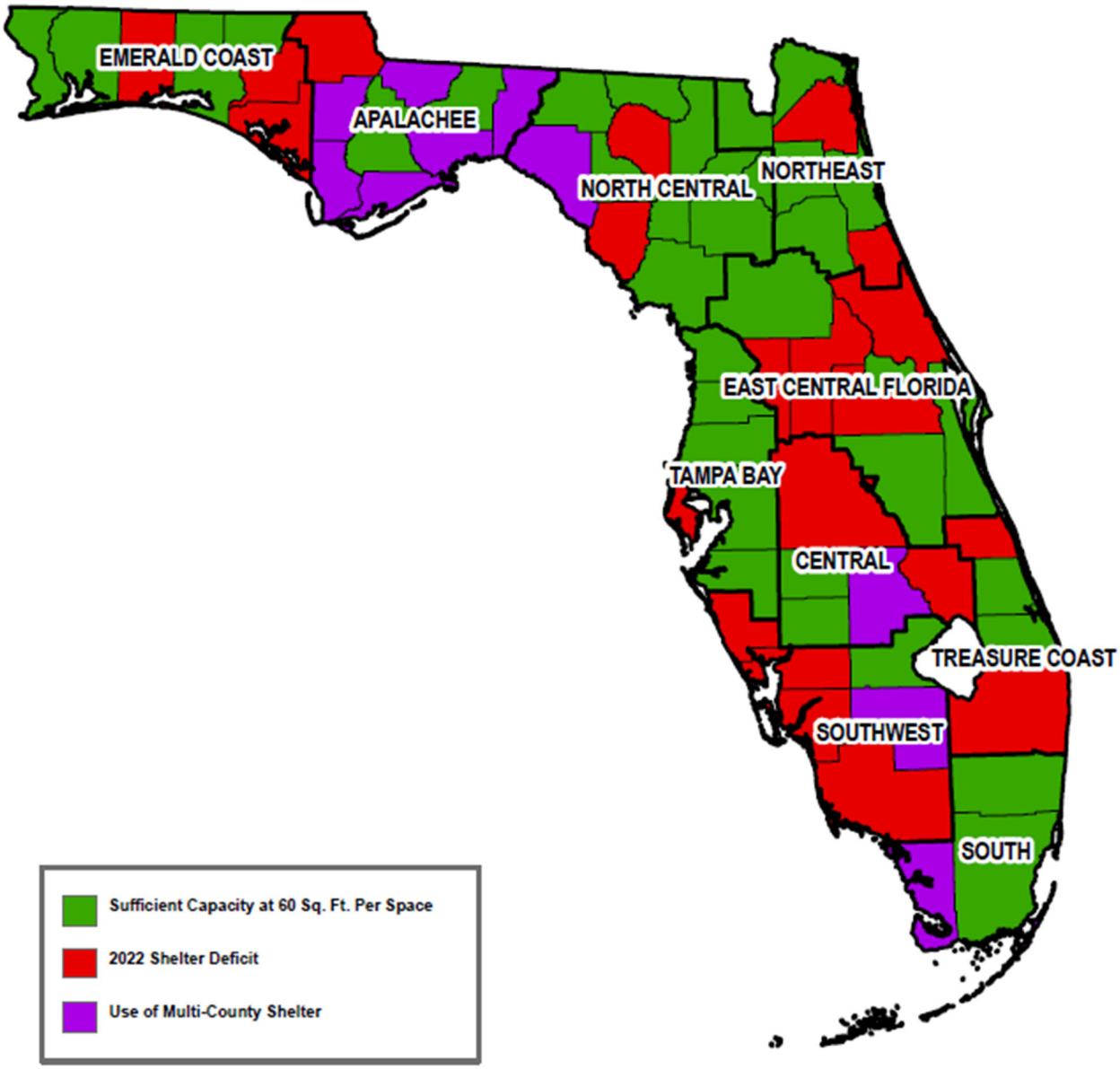


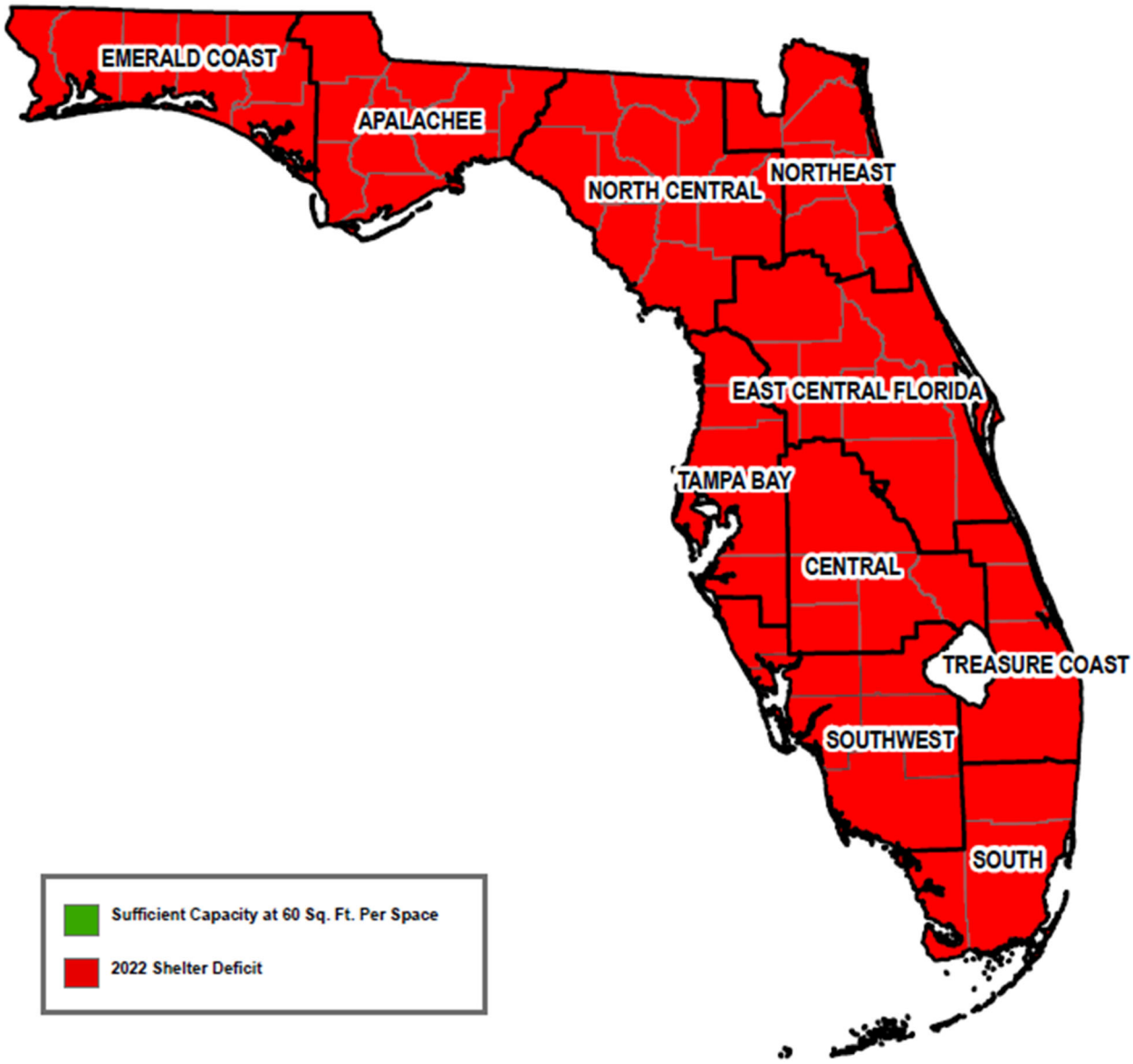
Figure 3-3. County Hurricane Evacuation Shelter Space Deficit / Sufficient Status of Special Needs Shelters



3.4 Public Health Emergency Considerations

Figure 3-4 provides the status of regions when the additional social distancing requirements are applied in the case of a concurrent Public Health Emergency. In a Public Health Emergency, the current demand for shelter space exceeds available space by 58 percent so that every region has a deficit. For more information on Public Health Emergency shelter status, please see Chapter 6.

Figure 3-4. County Hurricane Evacuation Shelter Space Deficit / Sufficient Status of Shelters During a Public Health Emergency



3.5 Pet-Friendly Shelter Availability

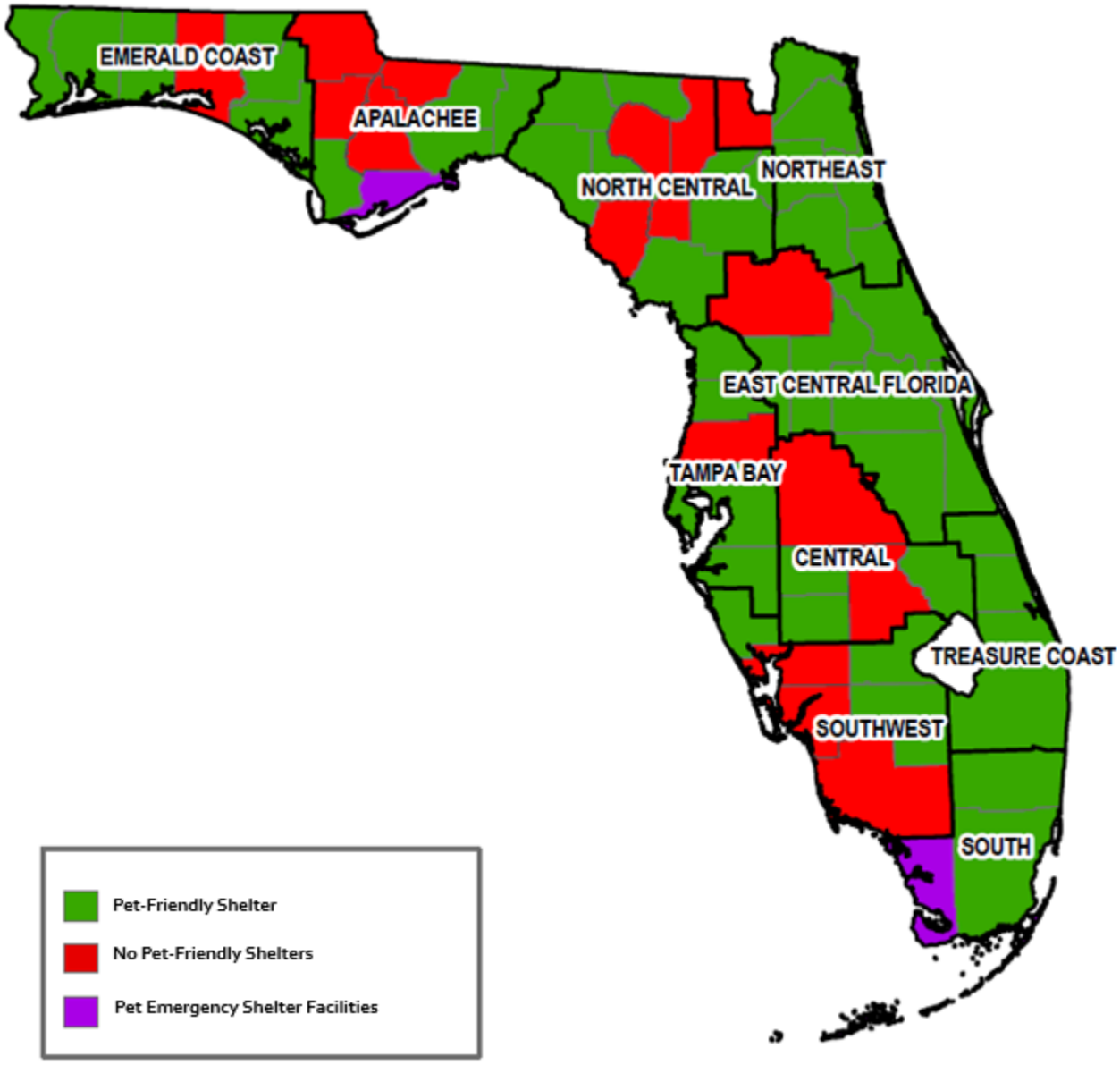
A concern noted during past hurricanes is the need to provide Pet-Friendly Shelters for individuals and their household pets and service animals. Pursuant to section 252.385(2)(b), F.S., this SESP includes information on the availability of Pet-Friendly Shelter that accept household pets.

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.

Per HB 705, if a county maintains designated shelters it must also designate a shelter that can accommodate persons with pets. Statewide, 49 counties provide at least one hurricane evacuation Pet-Friendly Shelter that meets minimum hurricane safety criteria (i.e., HESSS). The Pet-Friendly Shelter designation is found in a separate column in Appendix A: "List of Hurricane Evacuation Shelters by County, Location and Capacity." Each Pet-Friendly Shelter facility is marked "Yes" in the column. Two (2) do not have shelters and rely on a Pet Emergency Shelter Facility.

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., co-located 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 Pet-Friendly Shelter. There are two (2) counties with Pet Emergency Shelter Facilities. Figure 3-5 provides a summary of the counties having a designated Pet-Friendly Shelter.

Figure 3-5. Florida Counties with Designated Pet-Friendly Shelters



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 97 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 for client mobility 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 SESP. 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 the 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 shelter capacity. Most publically-owned facilities are not appropriate for use as shelters due to incompatible use (e.g., administrative offices, record vaults). Other types of public facilities may be appropriate, such as community or civic centers, libraries with break out 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 exceed 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 when available.

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

The Division is mandated 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.

Since 1995, through Federal, State, and local retrofitting of appropriate facilities, Florida has created a total of 510,088 public 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.

Since 1999, building hurricane evacuation shelter capacity through construction of new school facilities to the Enhanced Hurricane Protection Area (EHPA) criteria has increased. Local emergency management and school board officials have reported that 461,715 EHPA shelters spaces have been added to the statewide inventory. The application of the EHPA criteria has varied in effectiveness across the state, due to aspects allowable in school construction that are inconsistent with mass care shelter operations. Schools typically are built near where people live, and most of Florida's population lives near its oceans, making some new school construction incompatible with sheltering due to location - such as storm surge and evacuation zones. – as well as other issues. As a result, several counties report construction of relatively few (if any) EHPA spaces. To date, EHPA spaces account for about 45 percent of the state's total capacity of ARC HESSS hurricane evacuation shelter spaces. The Division's hurricane evacuation shelter survey and retrofit program together has identified, created or otherwise documented 619,822 hurricane evacuation shelter spaces that meet ARC HESSS guidelines. Public school EHPA construction programs have created an additional 461,715 hurricane evacuation shelter spaces. Therefore, Florida will have a total of 1,081,537 shelter spaces that meet ARC HESSS guidelines in 2022.

Since publication of the 2000 SESP, 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. The continuing success of retrofitting existing buildings, a robust economy that has driven the building of newer schools, changes in the building code requiring impact resistance, the ongoing shelter survey program of the Division, as well as the new scientific data continues to reduce the demand on public facilities at the regional level.

Despite demand reduction in the new evacuation study performed in Fiscal Year 2020-2021, the impact of the recent Public Health Emergency changed evacuation shelter space recommendations. To avoid spreading the virus, more space per evacuee was needed. An additional space requirement allowed for social distancing to protect against exposure to the virus. As a result, available space capacity was reduced. All hurricane evacuation shelters require 60 Sq. Ft. per evacuee during this Public Health Emergency. Normally, General Population hurricane evacuation space capacities are calculated at the code minimum of 20 Sq. Ft. per evacuee. For special needs clients the capacity has remained at 60 Sq. Ft. per space. The required square footage increase for general populations is three times the minimum square footage standard. Evacuees included in the general population group are the vast majority of those served during a hurricane activation.

The most recent legislative session mandated the Division to track a Public Health Emergency evacuation shelter capacity. The impact of social distancing requirements on available shelter space is catastrophic during a Public Health Emergency, as it was with the recent Public Health Emergency. The capacity of each General Population hurricane evacuation shelter became one third of what it was prior to the recent Public Health Emergency in which reached pandemic proportions in March of 2020. As a result, none of the 67 counties or regions in the State of Florida have enough capacity to accommodate their general population based upon the Public Health Emergency shelter space criteria. Thus, inclusion of a Public Health Emergency calculation prepares the state for unexpected complications in evacuation space requirements, while underscoring the need for additional safe spaces.

Since 1995, Florida has made significant progress toward improving the safety and availability of public hurricane evacuation shelter space. The comprehensive strategy of surveys, retrofitting, new construction, evacuation studies and public education is the basis for the success. An expansion in storm surge/evacuation zones, aging building stock and decommissioned school buildings plus changes in planned local school room use has resulted in a decrease of nearly 20 percent of the inventory of available spaces since 2012. From these actions, the Division prepares the biennial SESP to assess the current and projected shelter space sufficiency and deficit. The chart below compares the findings of the studies conducted in the previous five publications of the SESP to the current status without the Public Health Emergency factor applied.

Table 6-1
Statewide Shelter Space Sufficient / Deficit in Evacuee Spaces

Year	General Population	Special Needs	Public Health Emergency
2012	125,205	-20,829	n/a
2014	88,601	-14,218	n/a
2016	74,567	-23,431	n/a
2018	100,027	-19,956	n/a
2020	113,989	-9,139	-37,669
2022	242,244	-1490	-446,187

The impact of social distancing requirements on available space is catastrophic with Public Health Emergency. The capacity of each General Population hurricane evacuation shelter became one third of what it was prior to the recent Public Health Emergency in which reached pandemic proportions in March of 2020. As a result, none of the 67 counties or regions in the State of Florida have enough capacity to accommodate their general population based upon the Public Health Emergency shelter space criteria. Thus, inclusion of a Public Health Emergency space deficiency calculation prepares the state for unexpected complications in evacuation space requirements, while underscoring the need for additional safe spaces.

Table 6-2
Statewide Shelter Space with Public Health Emergency Reductions Applied

Year	General Population	Special Needs
2022	-446,187	-1490

The map previously presented in Figure 3-4 demonstrates the impact for the State of Florida under Public Health Emergency shelter space criteria based on the latest available data from 2021. The map illustrates that all Florida counties have shelter space deficits as a result of reconfiguring spaces in response to the Public Health Emergency statutory requirement.

There are four main areas of concern regarding reduction of evacuation space deficit. First, capacity for the general population statewide continues to increase due to retrofitted spaces completed or under construction after 2012. Without the retrofitted spaces, the overall statewide sufficiency would fall back into deficit levels. Second, spaces for special populations such as people with pets that need to shelter or persons who are medically or electrically dependent are still in deficit in almost half the counties (31 of 67) despite retrofit additions over the same period. Third, two (2)

RPC regions had General Population shelter space deficits: Southwest Florida and South Florida. These regions also have some of the highest evacuation clearance times in the State. Further, the populations have increased significantly over time. The internal space capacity of the regions is critical for providing safe options, because it can take longer than average to travel outside of the region to find safe shelter. However, a change occurred with the new demand data analysis in 2021. Southwest Florida remains the region with the largest deficit in spaces. Although there are ongoing retrofit projects in the region, factors such as geographically large storm surge areas and few opportunities to retrofit buildings have prevented the region from attaining more space, therefore, Southwest Florida is still an area of concern. A different region with a new deficit, South Florida, was added by the current study. The statewide sufficiency itself does not reflect the need in these regions of concern. Fourth, when shelter capacity numbers are reduced by two-thirds during a concurrent Public Health Emergency, all of the state falls into deficit.

As the population of Florida continues to grow and development continues in risk-prone areas, the need for suitable hurricane evacuation facilities will continue to increase. New construction is an ideal solution but does not keep pace with the increased need for General Population shelter spaces. On the contrary, as buildings age (e.g., obsolescence or unserviceable conditions, building code changes, cladding and retrofit product deterioration) or are decommissioned due to incompatibility in ordinary use during "blue skies" mass care, the available spaces during "gray skies" shrinks. Shelter Retrofit projects augment the gaps and allows the State to more rapidly meet its needs.

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 SESP. The 2022 SESP identifies the general location and square footage of existing General Population and Special Needs shelters by RPC region, and needed General Population and Special Needs shelter space during the next five years. The SESP also includes information on the availability of shelters that accept pets. This year, the need to prepare for a concurrent Public Health Emergency is addressed in the SESP. The Florida Department of Health assisted the Division in determining the estimated need for Special Needs hurricane evacuation shelter space.

Based on currently available information, RPC regions Southwest Florida and South Florida continue to have a deficit of General Population shelter space through 2027. Special Needs regional hurricane evacuation shelter space deficits in RPC regions Apalachee, Central Florida and Southwest Florida are also projected to continue through 2027. The projections do not assume addition of new space to regional inventories through 2027. However, addition of new shelter facilities, retrofitting of existing facilities and/or local designation of new space will significantly reduce or eliminate the projected deficits.

The 2022 SESP shows that Florida on a statewide aggregate basis has eliminated the deficit General Population 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 Special Needs 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 1,077,544 spaces, more than 21.5 million Sq. Ft., of hurricane evacuation shelter space has been identified and added to the state's inventory. It was created through retrofitting of existing buildings, or through new construction (e.g., EHPA code provisions). With the new data and evacuation study completed in 2021, Florida's statewide aggregate public hurricane evacuation shelter space demand has been reduced to 861,460, or 17,229,200 Sq. Ft. of space. When the demand for shelter space is translated into the Sq. Ft. needed during a Public Health Emergency, three times the square footage is required, amounting to 51,687,600 Sq. Ft. During a Public Health Emergency, the state would experience a deficit of 26,771,240 Sq. Ft. or 446,187 shelter spaces.

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 rate maps) that could affect their recognition as meeting hurricane safety criteria. Thus, even though the aggregate statewide deficit of General Population shelter space has been eliminated in the 2022 SESP in a standard non-Public Health Emergency evacuation, a "maintenance level" of shelter space production will be necessary to avoid falling back into a deficit situation.