HURRICANES AND HISTORIC HOUSE MUSEUMS:
DISCOVERING THE ESSENTIAL GUIDELINES IN A HISTORIC HOUSE MUSEUM DISASTER PLAN

By

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To my family and friends—without whose constant love and support, none of this would have been possible.
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Hurricanes and Historic House Museums: Discovering the Essential Guidelines in a Historic House Museum Disaster Plan

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Disaster preparedness plans play a significant role in protecting historic structures during a hurricane situation. In recent years an increasing number of hurricanes and tropical storms hit Florida, as well as the United States’ Atlantic and Gulf Coasts. During the past five years storms such as Katrina and Ivan decimated coastal cities and towns. Such destruction cost people their livelihoods, their homes, and, in the worst cases, their lives. In the museum and historic preservation communities, the toll of these storms has been particularly significant. As a result of hurricanes, every state along the eastern coast from Texas, Louisiana, Mississippi, and Alabama, to Florida, Georgia, North Carolina and South Carolina lost historical structures.

Informal accounts suggested that museum size and funding had a major impact on hurricane disaster preparedness procedures that each institution employs. One goal behind this research was to discover how size variables influenced the disaster preparedness plans of museums. These variables included physical size of the property, size of historic house, value of collection in historic house, number of historic buildings on property, the budget size of the museum, amount of improvements on the historic house, total number of museum staff members, number of historic house staff members, and number of staff members for disaster plan
execution. A second goal was to propose common guidelines that could be used for historic house museums of a variety of sizes.
CHAPTER 1
INTRODUCTION

Climatic change in recent decades has made comprehensive disaster preparedness plans a must-have for historic house museums, especially in the Gulf Coast and Atlantic Regions. Holland and Webster in their 2007 study on heightened tropical cyclone activity concluded that “the recent upsurge in tropical cyclone frequency is due in part to greenhouse warming and this is most likely the dominant effect” (p. 23). They also explained that the size or proportion of hurricanes is caused by cyclical climatic behavior, this accounts for the notably strong storms mentioned in history (Holland & Webster, 2007). Some of these storms include the 1900 Galveston hurricane, commonly called Isaac’s Storm (Larson, 1999) and the strongest recorded hurricane to hit the United States, the 1935 Labor Day Storm. This hurricane struck the Florida Keys and killed over four hundred people (Leatherman & Williams, 2008). In August 1969, Hurricane Camille, a category five storm with wind speed close to 200 mph, impacted Louisiana and Mississippi (Bechtel, 2006). During the week of September 17–23, 1989, Hurricane Hugo—one of the most devastating storms up to that time—took roofs off historic buildings and broke windows, allowing water damage from flood waters and rain (Nelson, 1991). It is believed that Hugo’s winds, rains, and floods “damaged at least an estimated 7,000 irreplaceable resources and caused hundreds of millions of dollars in losses to historic places” (Nelson, 1991, p. 38). With tropical cyclone strength as a major issue throughout history, modern climatic change has made hurricanes more frequent.

The recent surge in the number of Atlantic storms, studied by Holland and Webster, was apparent in the 2004, 2005 and 2008 hurricane seasons. The 2004 Atlantic Hurricane Season included fifteen tropical storms and nine hurricanes. Six of those nine hurricanes were considered major storms (NOAA, 2008). The increased frequency of these large storms, due to
climatic change, impacted the southern and eastern United States. This impact was not only seen in loss of life but in loss of property. The storms caused billions of dollars in damage to populated areas. During that 2004 season, Central Florida experienced severe flooding and damage totaling over $42 billion as hurricanes Charley, Frances, Ivan, and then Jeanne ripped through the state (Bechtel, 2006). The next year, 2005, surpassed the 1969 record of twelve hurricanes with twenty-seven named storms, fifteen of which attained hurricane status (NOAA, 2006). Hurricanes Dennis, Emily, Katrina, Rita, and Wilma, all rated at least a Category Four, impacted the states surrounding the Gulf of Mexico (Bechtel, 2006). Four of those seven major hurricanes reached Category Five status, the highest number of such category hurricanes ever seen in one season (NOAA, 2006). The most destructive of these storms, Hurricane Katrina, impacted the southern tip of Florida and went on, as a category three storm at landfall, to demolish New Orleans, Louisiana (Figure 1-1).

Figure 1-1. Oblique satellite view of Hurricane Katrina. Retrieved on February 25, 2009 from http://serc.carleton.edu/details/images/5862.html. This item is in the public domain and may be reused freely without restriction.
Hurricane Katrina caused over $100 billion total losses and over $34 billion insured losses (NOAA, 2006). During the 2008 hurricane season, Hurricane Ike flooded Galveston’s historic district with seven feet of water (Brice, A., Callebs, S., Dornin, R. et al., 2008). Florida, in particular, has been affected by more storms than any other state in the United States, with North Carolina coming in at a close second (United States Environmental Protection Agency, 1998).

With all of this chaos and destruction, it is imperative that our most treasured resources and historic places have adequate disaster plans. Experts alert us that “by preparing for the certainty of the next potentially disastrous natural event – whether hurricane, earthquake, tornado, flood, or fire – we may be able to save irreplaceable sites, objects and even whole communities” (Nelson, 1991, p. 6).

**Hurricane and Disaster Relation**

Hurricanes are specific types of disasters that widely affect the southern and eastern United States. The National Oceanic and Atmospheric Administration (NOAA) define hurricanes as Atlantic cyclones that usually begin off the coast of northern Africa. These cyclones then proceed west towards North and South America. Hurricanes include massive amounts of rain and high winds that can cause damage and chaos when they hit inhabited areas (NOAA, 2006).

When a storm is noted and approaching, the National Hurricane Center (NHC) gives the storm a pre-approved name and issues watches and warnings to the public. When hurricane-force winds are possible within thirty-six hours, a hurricane watch is called. That watch is upgraded to a warning when hurricane-force winds are expected within twenty-four hours. These watches and warnings are meant to avoid possible disasters by giving individuals, families, businesses and governments a time frame in which to prepare for a storm situation. The categories 1–5 are from the damage potential scale developed by Herbert Saffir, an engineer from Florida, and Robert Simpson, director of the NHC. This scale serves as a general guide to what force winds to
expect in the storm as well as expected damage (Leatherman & Williams, 2008). The increasing frequency of hurricanes, such as in the aforementioned 2004, 2005 and 2008 Atlantic Hurricane seasons as reported by NOAA, should signal that the building standards need reviewing. Like newer buildings, historic structures need preparation to withstand additional wind and water forces.

The concept of ‘disaster’ has an array of different meanings and definitions. McDonald (2003) in Introduction to Natural and Man-made Disasters and Their Effects on Buildings states, “a disaster can be defined as an event, either natural or man-made, which has the ability to destroy life, natural landscape and man-made infrastructure” (p. 6). A second concept of disaster, from the Oxford Dictionary, is mentioned by McDonald (2003): “a sudden or great misfortune, calamity, great failure, ill starred event... which gives an indication of how we perceive disaster: unpredictable, outside our control, and overpowering; an event, controlled by the stats and gods!” (p. 1). Hurricanes, tornados, earthquakes, volcanic eruptions, and other natural phenomena are not considered disasters when they strike relatively uninhabited parts of the earth. It is when these events affect populated areas that they are deemed disasters. McDonald (2003) comments, “The same event, in different circumstances, could be a source of scientific data or a deadly catastrophe. It all depends on where it took place and how it was perceived” (p. 6). Spennemann and Look in Disaster Management Programs for Historic Sites agree that, “Natural phenomena are considered disasters only when they adversely affect lives and property” (1998, p. iii). The concept of disaster then depends on human perception of the effects a natural event causes.

**Impact on House Museums**

The Historic Preservation community has organized programs to aid historic sites and their administrations in coping with natural disasters. There are volumes of literature explaining
disasters, historic building restoration steps, and actions to be taken before, during and after calamity strikes. In response to the literature and continuing damage, conferences are held on all levels – by international, national and local historical groups – to discuss the natural events of the past year. The conferences also cover new techniques and technological advances in disaster emergency planning, mitigation and recovery. However, as disasters become more frequent in our ever-changing worldwide climate, disaster preparedness plans emerge as essential components in the effort to safeguard the treasures from our global past.

Historic sites are tourist attractions that bring revenue to local areas. In the event of a direct strike, the repair costs of these structures strain state and local governments that provide funding for cultural venues.

A lack of preparedness can lead to the inadvertent loss of or increased damage to historic resources. Insufficient damage assessments, unsuitable debris management, inappropriate repair, and limited input from knowledgeable state and local preservation professionals all contribute to the problem (1000 Friends of Florida, 2008, p. 3).

Hurricane preparedness is defined by the 2005 Heritage Preservation report, Before and After Disasters: Federal Funding for Cultural Institutions, as “being ready to handle disasters and emergencies. Risk assessments, disaster planning, adequate supplies, trained staff, and community partnerships all contribute to disaster preparedness” (p. 3). Mitigation, mentioned in the same report, is described as “the process of preventing or minimizing the losses and damages that emergencies can cause” (Heritage Preservation, 2005, p. 3). Often, smaller museums do not have the funding and staff for a major undertaking of disaster preparation or mitigation. Knowing which essential guidelines a plan should contain would aid in safeguarding these small but significant historical treasures.

Historic house museums are historic structures that formerly served as residences and have since been adapted to use as history museums. According to Hardesty and Little (2000), a
Historic structure is listed on the National Register of Historic Places (NRHP) to further define its significant historical value to the local community. The Register, founded by the National Historic Preservation Act, lists historic properties considered to be important to the national heritage of the United States. The properties may be of archaeological, historic, architectural, engineering, or cultural value (Hardesty & Little, 2000). As museums, these properties are important education tools in studying the daily lives of people in the past.

Historic house museums are specifically important to research and preservation because houses, more than any other structure, exhibit the “human side of history” (Hupp & Stewart, 1995, Preface). These past homes, preserved to their periods of historical significance, are beneficial to the education of people today. They provide insight about past design styles, everyday tasks and duties, and relationships of the people who lived in the structure. Learning about these tasks gives modern individuals valuable knowledge about class structure, society, human nature, and important events throughout history. According to Hupp and Stewart (1995), “looking at houses – examining the size and materials and amount of ornamentation – also is a way of tracing a region’s growth and sophistication” (p.1). House museums reduce the loss of historic interiors by maintaining and preserving the artifacts within and providing a safe environment for educational interaction with history.

Part of the public appeal historic house museums have is their ability to reflect historical interior design styles. These styles reflect the time period, social status and personal preference of historic figures. Changing these interiors for the sake of modernizing disrupts the historical integrity and educational value of these structures: “alterations or modifications to original character and fabric will most likely degrade the intrinsic value of the object and will probably lower the economic value of the object” (Siekkinen, 1998, p. 45). Thus, retrofitting them for
storm protection can oftentimes impact the historical value of the structure if care is not taken in the planning and execution of these upgrades.

**Summary**

Climate change has increased the frequency of natural phenomena. In Florida, the most common of these are hurricanes, which annually visit the state between the months of June and November. Unfortunately, these tropical cyclones can potentially cause billions of dollars in property damage and, in the worst-case scenarios, severe loss of life. In doing so, these natural occurrences go from being scientific wonders to being natural disasters. To safeguard against storm damage, preparedness procedures are enacted before a storm makes landfall. Where historic house museums are concerned, their destruction impacts the local economy and historical fabric. To keep the past intact, planning for these situations is essential. Therefore, the examination of disaster preparedness plans for these museums is paramount. One goal behind this research is to discover how different variables affect hurricane preparedness procedures the institutions employ. An additional goal is to identify a common set of guidelines that could be used by museums of a variety of sizes in creating disaster plans or updating existing disaster plans.
CHAPTER 2
LITERATURE REVIEW

The following review of the most applicable literature on hurricane preparedness planning and historic preservation topics provides a background for the issues raised in this research study. The first section explains why historic residential structures are essential by exploring the connection between individuals and the concept of home, and how nostalgia becomes attachment. Following sections look at historic house museums, historic preservation, and the resources they have at their disposal. The final section expounds on disaster mitigation and what is currently being done to prepare historic house museums for impending hurricane disaster scenarios.

Sense of Place: Identity, Attachment and Significance

People develop connections to certain places, including historic areas, structures, and landmarks, for a variety of reasons. These reasons incorporate associated memories and an individual’s identity to a physical place, which forms a type of nostalgia. According to environmental psychologist David Kopec (2006) a major instigator for a sense of nostalgia in people is when destruction occurs. Destruction can include damage to the historic structure, interior furnishings, or material finishes. Such things cannot often be replaced, which can then lead to modifications of the building or complete structure removal. Affected people develop nostalgic feelings for what the place or structure was like before the destruction occurred. These nostalgic feelings can then develop into a form of place attachment or ‘sense of place’ (p. 63). A true ‘sense of place’ occurs when people associate feelings of comfort and safety with a specific location. This association leads to a sense of belonging, culturally and personally, to a certain place, area, community or building.
Emotional attachment must be present for a ‘sense of place’ to form. Places with which people attach become a part of their cultural identity (Kopec, 2006). According to Kopec these places would include any location where individuals spent much time, or to which they associated strong feelings. Likely locations include a person’s residence, school, work, local store or hangout: “In short, a person’s history combines with a setting to form a sense of place” (Kopec, 2006, p. 62.). In House Thinking, Winifred Gallagher, says that in the modern discipline of environmental psychology, human behavior is connected to an individual’s surrounding, “so much so that it’s inaccurate to talk about a person outside his or her context” (2006, p. xvii). She extols the home as the most important of these locations. Home, according to Gallagher (2006), is what “helps knit up our changing selves into a coherent identity, connect our past to our present and future, organize our days, and carry us forward on ... the smooth current of domestic joy” (p. xix). Gallagher explains the history of houses and how the modern concept of home came about. Through the text she explores the home setting, room-by-room, explaining how this environment has such a profound impact on human identity.

This combining of history and place into a person’s identity highlights the need to preserve and protect landmarks, especially historical house museums. Historic buildings and their interiors are valuable learning tools, holding memories of the past in a tangible form. Kopec (2006) explains that a perceived sense of belonging provides a reason for why places are significant to people. When memories and feelings are associated with a location, it permanently ties that place to a sense of ‘self-identity’. For no setting does this hold truer than for a home, “The home environment can be considered in terms of its capacity to nurture and sustain psychological and social processes” (Kopec, 2006, p. 130). A person’s identity is closely tied to the place where he or she spends the most time, specifically their home. A house does not equal
a home. In his *Environmental Psychology* (2002) Robert Gifford explains, “A house is not a home. A house (or apartment, condo, tipi, or, in general, any residence) is a physical structure. Home is the rich set of evolving cultural, demographic, and psychological meanings we attach to that physical structure.” (p. 236). “Home” is then a psychological concept. In this way, historic homes, especially ones that feature original furnishings and personal objects, provide illustrations of past bonds with the individuals who inhabited it. If possible, these exhibits can model personalization by showing which objects were included in the house by the original owners. Also, when these house museums are located in a certain regions they can also become a place of attachment for modern visitors as well. They tie into the community identity, the cultural past of that area, and the museum guest.

**Historic House Museums**

Home, as a concept, can have a myriad of meanings ranging from attachment to a specific house or domicile, feeling patriotic about a country, and identifying oneself as a member of the global community. For the United States specifically, according to Butler (2002), all of the nation’s historic structures feed into the national sense of identity, whether intact or destroyed but documented. These structures support feelings of nostalgia and patriotism so well that various agencies, organizations, community groups, public institutions, state and local governments, and individuals have actively pursued the preservation of sites deemed important. The preservation of these buildings and structures often extend to the furnishings and finishes. Butler continues with stating “the furnishings used in these sites were often simple, although the saviors frequently sought to re-create the character of the interiors, usually through collections associated with the original owners and the house” (Butler, 2002, p. 20). These collections are examples of what, in the past, made the house or structure into a home for the people who inhabited it.
As stated by Butler (2002), a historic house museum, like other types of museum still has to conform to the American Association of Museums’ (AAM) code of ethics. The common trait of all museums for the AAM is their “unique contribution to the public by collecting, preserving and interpreting the things of this world” (American Association of Museums, 2008). In addition, though, a historic house museum “centers on the maintenance, care and interpretation of either a single, historic residential structure or a complex of structures associated with and including a single residence that serves as the primary focus” (Butler, 2002, p. 18). House museums often include artistic and traditional components and more house museums are entering the museum community each year. From 1960 to 2002 over six thousand new house museums were organized though frequently, house museums soon fail (Butler, 2002). Each new house museum adds to the trove of historical monuments and landmarks that comprises the nation’s wealth of historical places. Butler (2002) extols house museums as important cultural institutions:

The development of the house museum as an institution crosses many traditional cultural, intellectual, and institutional boundaries. It encompasses issues in the traditional history and decorative arts museum; the historic preservation movement; the development of formal museum training programs; the role of government in museums and society; concepts of popular education for children and for general audiences; gender roles among museum volunteers and professionals; the role of volunteerism and, in particular, “patriotic” organizations in society; and the place of collectors and antique dealers in establishing and maintaining these institutions (Butler, 2002, p. 18).

With such a significant task before historic house museums it is imperative to explore the reasons why and how as a nation, or even a global community, initiatives can begin to safeguard the past.

Historic house museums arise when the community they sit in deems the former residences to be of great cultural, historical or social importance to the people of that community. Highlighting the special character of these sites, ‘DEM HIST, the International Council on
Museums’ International Committee for Historic House Museums, in its 1997 Geneva Convention, identified a historic house museum as the following:

The historic buildings, formerly inhabited, now open to the public, showing their original furniture and their collections of historic, cultural, national artifacts, preserving the spirit of their illustrious owners and strictly linked with the historic memory of a community, would be considered a special category of Museums (DEMHIST, 1997).

Interpreting Historic House Museums (Donnelly, 2002) contains ideas on the need for house museums, their connection to the audience, design and establishment certifications and statutes, funding, content furnishing planning and interpretation period setting, interior and exterior design to restore the property, and the marrying of access and historic preservation. Historic house museums are indeed an adaptive reuse of these historic buildings, turning what was once a home into a museum showcase. This text does not include any insights on how potential emergency situations should be handled within a historic house museum, concentrating only on interpretation, design, and regulations pertaining to house museums. However, this and other sources covering historic house museum operations are useful in identifying the different issues that surround this type of museums and provide insight as to factors that may need consideration for their emergency preparedness and recovery efforts.

Historic house museums have the unique mission to preserve history as intact as possible. Fixtures, furnishings, artifacts and materials, together in their original context, allow for an in-depth look into the lives and social ideals of earlier people. Look and Spennemann (1998) are concerned with the preservation of what they term ‘historic fabric’, or the original materials and objects within an older building. They comment that losing any of this historic material can cause unfixable damage to these buildings.

The loss of any historic fabric is deplorable as it is irreplaceable in its own right, as any loss of original fabric will reduce the historical integrity of a structure. It can be repaired but, once damage occurs, the resource is never the same again. (Look & Spennemann, 1998, p. 184).
Since original materials most often cannot be replaced and, in the best of circumstances, can only be replicated using modern means, their loss creates a serious conundrum for preservationists. Historic house museums provide a glimpse into society’s past. These museums, if intact, can provide information on the home-life of past people—how they lived, worked, and organized the world around them. In his groundbreaking text, Keeping Time, William Murtagh touches on the relationship between interiors and preservation. He mentions, “Excluding museum curators, the professional group with perhaps the most direct connection with the historic room is the American Society of Interior Designers. Historically, the relationship between designers and preservationists has been an uneasy one at best” (Murtagh, 2006, p. 69). While interior designers and decorators have an inclination for disregarding the history of a building when redesigning, preservationists have a propensity for concentrating on the exterior of a historic building and addressing the interior as an afterthought (Murtagh, 2006). Time has begun to change the way historic buildings are being handled. Murtagh (2006) makes this clear as, “In recent years, both the historic room and the historic-house museum (as well as historic interiors in active use) have benefited from a greater appreciation of scholarship on the part of preservationists and a greater sense of responsibility on the part of interior designers” (p. 71).

Historic Preservation

Historic buildings are an integral part of the fabric of society. They are tangible, three-dimensional history lessons that should be preserved for future posterity. It is difficult to protect these buildings in the face of new development, technology and growing populations. Unfortunately, as explained by the National Trust for Historic Preservation:

When historic buildings and neighborhoods are torn down or allowed to deteriorate, a part of our past disappears forever. When that happens, we lose history that helps us know who we are, and we lose opportunities to live and work in the kinds of interesting and attractive surroundings that older buildings can provide. (National Trust for Historic Preservation, 2008, Website).
Preservationists are often seen as standing in the way of progress and restricting needed growth (Tyler, 2000). What is not often realized is that preservation organizations and individuals have an overwhelming task in protecting everyone’s heritage.

Recently, as mentioned above, the movement to safeguard the past has prompted preservation organizations to hold conferences for discussing preservation techniques to cope with natural disaster. History, Heritage and Hurricanes was the title for the 2008 Florida Trust for Historic Preservation 30th Annual Statewide Preservation Conference (Florida Trust for Historic Preservation, 2008). The MayDay initiative, created in 2006 by The Society of American Archivists (SAA), is an annual conference to discuss the natural events of the past year along with new techniques in planning and recovery (Heritage Preservation, 2008). In 2007, the Heritage Emergency National Task Force, allied with SAA to help include more types of institutions, museums and historic preservation organizations (Heritage Preservation, 2008).

**Museum Funding**

Museums receive monetary resources through a variety of means. Two common sources of funding are entrance fees and memberships, with the largest amount of money for museum operation coming from private contributions (American Association of Museums, 2008). Other resources, such as grants, are available on international, national, state, and local levels. The World Monuments Fund offers funding for internationally important endangered sites. Some national awarding agencies include: The National Park Service, The National Endowment for the Humanities, The United States Department of the Interior, the Federal Emergency Management Agency, The J. Paul Getty Trust, and The Institute of Museum and Library Services. The National Park Service administers the grants provided through the Save America’s Treasures program. This is an important grant initiative designed to protect historical structures along with cultural collections and documents considered of national importance:
Established by Executive Order in February 1998, Save America's Treasures was originally founded as the centerpiece of the White House National Millennium Commemoration and as a public-private partnership that included the White House, the National Park Service and the National Trust for Historic Preservation. Dedicated to the preservation and celebration of America's priceless historic legacy, Save America's Treasures works to recognize and rescue the enduring symbols of American tradition that define us as a nation. (Save America’s Treasures, 2008, Website).

There are also state and local grants; the Florida Division of Historic Resources, a branch of the Florida Department of State, provides matching grants and special category grants to eligible historic sites. A local grant example for Sarasota County is the John Ringling Towers Historic Preservation Grant administered by the Sarasota County Arts Council. This grant is awarded to non-profit organizations in Sarasota County for historic rehabilitation (Sarasota County Arts Council, 2009). Grants are awarded through an application process and are therefore not a reliable source of long-term or regular funding. Entrance sales, memberships, government contributions and private donations are more consistent (American Association of Museums, 2008).

**Resources for Disaster and Museum Management**

As with funding, there are numerous resources for museum and disaster management information. The following section explores a selection of such resources and what each has to offer; an extended list of resources is available in Appendix C.

**International**

The United Nations Educational, Scientific, and Cultural Organization (UNESCO), supplies information about cultural endeavors and a handbook for museum operation. In its natural science section are general guides to preparedness and mitigation in the form of multimedia applets and downloadable brochures. The site does not offer concrete steps to be followed during a disaster situation. The International Centre for the Study of the Preservation and Restoration of Cultural Property, (ICCROM), has a risk preparedness manual by Herb Stovel
which provides direction for building a disaster plan. This direction consists of general
guidelines gleaned from a study performed by ICCROM on actions needed to prepare and
recover from a disaster.

**National**

The United States Department of the Interior, through the Secretary of the Interior’s
website, provides mitigation directions and Standards for the Treatment of Historic Properties to
be followed by keepers of historic sites and buildings. In addition to post-disaster funding, the
Federal Emergency Management Agency (FEMA) provides disaster information, maps for each
type of North American Disaster, response and recovery information. Preparation information is
provided to minimize losses and protect individual families. Individuals can apply for financial
assistance after a disaster along with resources for coping with the circumstances. FEMA also
provides community resources and relief.

The American Association of Museums (AAM), in addition to their code of ethics and best
practices for museums, offer standards on disaster and risk management. A segment of this
document provides a disclaimer for museums housed in historic structures. The AAM states that
“museums housed in historic structures should balance the preservation needs of the building
with actions necessary to mitigate risk to people and to the collections housed within the building
(American Association of Museums, 2007, p. 3). The association does not, however, propose any
specific directions to this effect maintaining that risk management decisions should suit a
museum’s specific conditions. The AAM also states that, if necessary, the museum should be
capable of explaining why its particular risk management decisions were made. For all
museums, the AAM requires the staff have an emergency preparedness plan documented. This
plan should identify and provide directions for handling the risks most applicable to the
museum’s situation. These directions should include evacuation plans for people, task
delegation, protecting collections, evacuating collections and recovering collections. The association recommends training staff and practicing these plans (American Association of Museums, 2007).

**State**

There are several resources at the state level. For instance, the state of Florida has organizations such as 1000 Friends of Florida, a not-for-profit organization for growth management in Florida. 1000 Friends of Florida offers the publication Disaster Mitigation for Historic Structures: Protection Strategies to “improve the integration of historic preservation and disaster preparedness” (1000, Friends of Florida, 2008, p. 1). The manual has overviews, goals, case studies, guidelines and mitigation options for historic buildings facing a disaster. It gives contact information for local Florida governments and is a source of technical information. It does not, however, provide information or actions aimed at the immediate preparation of an historic structure for a storm situation. A second manual, Disaster Planning for Florida’s Historic Resources, With Case Studies, explains emergency management programs on the national, state and local levels. It identifies hurricane effects, various agency and state requirements, funding and issues with disaster planning, and resources. The manual gives general guidelines for creating a response network, inventories, and mitigation strategies. It illustrates these issues with community case studies exploring how sites have coped with different disaster planning experiences. There are no specific steps for disaster mitigation listed in the manual.

Another resource in the state of Florida is The Florida Trust for Historic Preservation provides resources and information on Florida heritage sites. The Trust issues preservation awards, lists endangered locations on its website, and provides further resources and historical structure codes. It offers no information about museum management or disaster preparedness.
Its mission is to promote preservation in Florida through education, support and property stewardship. The Florida Department of State, Division of Historical Resources website also provides similar material. The Division is divided into bureaus for Preservation, Archaeology, Museum, Publications and Grants. Thus the information included on the website covers reviews, preservation services, publications, management standards, and funding information for all of these museum and historical fields. Also provided is a link to a preservation law and regulation website for historic structure owners.

Local

At the local level are practical resources, usually offered by a county or city for specific air purposes. For example, Sarasota County in Florida offers information for an All Hazards Emergency Service on the county website. This site offers evacuation plans and preparation steps for all types of emergency situations. Advice segments are divided by emergency type, along with individual sections for family, business, neighborhood, and senior citizen preparation. Included on the site is information on disaster kits, contact information for local government, and phone numbers of relief agencies. For businesses, a guide to making a disaster plan is available for download. This business guide provides links to sample business disaster plans from disaster preparation sites such as ReadyBusiness.gov, the Institute for Business and Home Safety, the Disaster Contractors Network, FloridaDisaster.org, and FldisasterKit.com. Another local resource for Sarasota County is The Sarasota Alliance for Historic Preservation, which works to preserve and protect historic places around Sarasota.

Disaster Mitigation

Disasters and Disaster-Related Damage

As noticed in recent years, disasters have been increasing in frequency and strength (Leatherman & Williams, 2008). While forces of nature cannot be controlled, plans can be
implemented to mitigate damage from these natural phenomena and prepare humans to deal with the outcomes of disasters (Spennemann & Look, 1998). According to McDonald (2003) in Introduction to Natural and Man-made Disasters and Their Effects on Buildings, each disaster occurrence provides new understanding about how our built environment can be better engineered to withstand natural elements and extreme conditions. This understanding comes by finding out why and how structures fail under certain circumstances:

A better understanding of how buildings fail in these extreme conditions can enable research and technology to make buildings and other structures safer, more reliable and secure. Governments, architects, engineers, and other allied professions are joining efforts at all levels to examine vulnerabilities of structures, exploring all available avenues with the help of technology in order to identify possible changes in design control mechanisms, improvements on building standards and control standards. (McDonald, 2003, p. 6).

Improved standards for new structures, along with innovative ways to preserve historic buildings, emerge from the information learned after each disaster scenario. McDonald’s text provides explanation on the mechanics and effects of various natural and man-made disasters. A section on historic building destruction establishes specific vulnerability issues in regards to each type of disaster. This section also identifies general ideas for preparedness, mitigation and management. The appendices hold factsheets giving directions on what to do to ensure human safety in these disaster situations. The text mentions that historic buildings should be maintained, documented, and have written disaster plans, but gives no specific steps to take in safeguarding the historic structure or contents in the event of a disaster.

Flooding, tornados, strong winds, and tidal waves in coastal areas generally accompany hurricanes. These storms can last anywhere from eight to twelve days, moving through the Atlantic and over parts of North America and South America. The Atlantic Hurricane Season is defined as the six-month period from the first of June to the thirtieth of November (Stubbs, 1990). Because of high wind speeds, debris, and potential flooding during a hurricane, buildings
are extremely vulnerable to damage. While the reviewed literature addresses the mechanics and frequencies of disasters and storms, it fails to provide adequate information on managing the destruction they cause.

Most damage from hurricanes comes from wind and water; afterwards buildings can become infested with mold. “Circular high speed wind systems (cyclones/typhoons/hurricanes, tropical storms and tornados) wreak havoc on historic and archaeological sites. The associated rain causes flooding of low-lying places and urban areas” (Spennemann & Look, 1991, p. 4). Water damage is usually caused by floodwaters entering the building or rainwater through a faulty roof system. According to Feilden, “The hazard of rainfall penetrating a building and causing the structure and contents to decay must not be forgotten – although it is entirely preventable by good design and regular maintenance” (Feilden, 1986, p. 17). Thus, good maintenance and restoration of the exterior of historic house museums can prevent much of the interior damage that could occur during a hurricane.

In the fields of design and historic preservation, disaster is a term that invokes thoughts of fear and the need for considerable planning. Disasters can happen all over the world and at any time, in Protecting the Past from Natural Disasters, Nelson (1991) examines two natural disasters: Hurricane Hugo and the Loma Prieta earthquake. According to Nelson, “the question is not if, but when and where, disaster will strike next” (1991, p. 36). He lists common disaster damage from different natural causes including tornados, floods, fire, hurricanes, and earthquakes. Common hurricane-caused building damage includes failing roofs, structural elements, windows, walls and doors from wind and rain, rising waters entering the building from storm surge or rain, moisture and mildew damage, outer building elements and embellishments being torn off, projectile damage from wind-driven objects, even landscape flooding (Nelson,
Natural disaster impacts on historic structures and failures of buildings which were not secured properly for hurricane preparedness are touched on as key issues preservationists and designers face. Also, neither Nelson nor Stubbs refers to the effects of a hurricane on the interior components of a building such as the various artifacts inside, the wall coverings, the floor finishes, or the ceiling conditions.

**Preparation and Planning**

Aside from defining disasters and their effects, *Protecting the Past from Natural Disasters*, contains insight on human ability to mitigate damage from natural disasters, with or without advance notification. The text highlights how preparation aides in preserving history and human life and rebuilding after a natural disaster. He affirms that the best way to mitigate damage in a disaster event is to employ planning before the situation arises. Nelson (1991) gives two goals of disaster planning, “(1) a contingency plan, designed to take effect when an unforeseen event strikes or is imminent, and (2) longer-term mitigating actions undertaken to minimize the impact of an anticipate event” (p. 65). In brief, this means each historic site needs an emergency plan that can be enacted quickly in the face of impending disaster conditions coupled with a maintenance plan. This historic house maintenance plan would govern the daily operation of the museum. With these procedures in place, “it is possible to protect many, if not most, of our historic places from disasters” (Nelson, 1991, p. 36). Nelson provides a systematic pre-disaster planning process model, planning contacts and resources, planning tips, an example plan, and a damage assessment form. He mentions nothing about the impact of staff size and funding on implementing his planning tips.

While the human aspect of a disaster event takes precedence over any material damage, planning can provide steps and procedures to alleviate confusion in an emergency situation:
The human costs of natural disasters are tremendous. Disorientation and severe emotional stress impair even the most calm and rational of decision makers, often leading to hasty actions that may do further harm to historic places. Planning in advance, for different types of natural events and threats, offers the only sure way of keeping to a minimum the destructive effects of disasters. Without planning, effective solutions for protecting the past from natural disasters will not be developed. (Walter, 1991, p. 6)

Planning procedures and preparedness can aid a museum, as well as any other organization, in safeguarding human lives. The faster humans are organized in an emergency, the quicker plans can move toward saving the cultural and architectural treasures that make up historic landmarks.

In addition, as Walter (1991) mentions, the steps taken to protect the historic landmarks will, in due course, also provide human safety measures:

The first step in emergency preparedness has always been focused rightly on protecting life. But we must ask what additional steps can be taken to protect our cultural and historic landmarks, the features and characteristics that make America’s communities special places in which to live, grow, and prosper. It is likely that those steps will in the process also promote public safety, by making much more secure the buildings in and around which we spend so much of our time. (Walter, 1991, p. 6)

The report by Heritage Preservation, Before and After Disasters: Federal Funding for Cultural Institution, drafted as an outline for obtaining emergency disaster funding from various government agencies, includes a few steps for disaster mitigation. This literature reveals that most disaster efforts are concentrated on clean-up instead of mitigation, as evidenced by the statement that “In the past 10 years, the hazard management community has made great strides in shifting the perspective of communities from post-disaster clean-up to adopting pre-disaster mitigation strategies” (National Science and Technology Council, 2003, p.21). The key to the mitigation of disaster is proper planning and organization. This requires a certain amount of preparation before a disaster ever happens. Hunter (1994) in his article Museum disaster preparedness planning notes that “recovery procedures may not have to be fully executed if pre-
disaster mitigation is carried out successfully” (p. 252). Thus, steps toward preparedness are recommended for any historic house museum.

Preparation is crucial in withstanding hurricane damage, though numerous texts and studies focus on recovery efforts. Buildings prepared beforehand are often spared the expense of rebuilding. According to Gifford (2002) “the value of preparation is shown by the outcome of a study done on building damage caused by hurricanes in Texas and North Carolina. About 70 percent of the damage was the result of poor building code enforcement” (p. 397). Preparation, consisting of following building codes and performing regular maintenance, is essential for the protection of the building exterior, structure, interior finishes, and collections in a historic house museum.

In Assessing Damages, Barclay Jones (1986) explains, “the vulnerability of objects to damage by the various aspects of hurricanes is to a large extent a function of the vulnerability of the structure in which they are housed” (p. 115). The objects Jones refers to encompass all items located in a building. Concerning historic house museums, these items include, but are not limited to: period or original artifacts, furniture, non-structural adornments, frescos, and artwork. If the structures that house these items are compromised, then attention is immediately divided between salvaging and repairing interior elements as well as structural restoration. This article stresses protection of structural and exterior elements but lacks information on steps to safeguard interior spaces when a building envelope is compromised.

Most plans and texts encourage immediate action from a disaster response team, but caution that documentation of the damage is essential. To obtain adequate governmental funding and insurance claims, Before and After Disasters advises to “begin cleanup and salvage as soon as possible. Don’t wait for the insurance agent or adjuster, but remember to fully document the
damage before recovery efforts begin” (Heritage Preservation, 2005, p.21). In Emergency Treatment of Materials, Upton and Pearson (1994) emphasize that post-disaster recovery often requires specialists to properly conserve damaged materials. They provide general rules for treating different materials when expert conservators are not available. Having mitigation plans and pre-disaster measures in place is advised in their article:

In preparation for an emergency it is most important to have a well prepared and practiced disaster plan available and experience has shown that, following a disaster, shock and the personal losses by staff often delay or prevent the necessary remedial action being taken in time. Advance preparation for a disaster is therefore the best way to reduce its effects. (Upton & Pearson, 1994, p. 264).

Despite this emphasis, their article does not provide specific directions to make a pre-disaster plan or mitigation steps for disaster effects on historic house museum interiors.

Protecting Historic Architecture and Museum Collections from Natural Disaster (Jones, 1986) is a collection of articles explaining the need for disaster preparedness. Steps are listed for mitigating damages caused to museums, collections and historic structures by natural disasters. Though most of the articles concentrate on the damages caused by earthquakes, all disasters are discussed. Key ideas presented include saving objects and collections, dealing with object loss, getting assistance and coping with emergency situations. A key issue of defending collections and interiors from damage is protecting the building structure. In the article Reducing Vulnerability, Green (1986) aptly states: “One can protect a building without being concerned about contents, but the reverse is not necessarily true; the protection of contents requires that the building at least survive” (p. 191). Here again, literature strongly suggests that proper structural restoration and maintenance is required.

Pre-made Disaster Plans

Texts, like Steal this Handbook! (Demeroukas et al., 2001), contain templates or step-by-step directions for writing museum and collection emergency preparedness plans. Written for
small to mid-size museums, this text includes several possible disaster situations: from bomb threats and nuclear explosions to power loss and security. The book consists of three sections: emergency preparedness standards, emergency procedures, and emergency cleanup procedures. Each section contains assorted steps for museum collection preparation and a template plan for every disaster type. Covered for each disaster are steps to reduce damage or develop a plan of action. Specific steps to preserve interior objects are given in this literature, including such procedures as boxing and moving objects to a safe location. For exterior protection the text recommends boarding windows and doors or using shutters. The ‘cleanup procedures’ are given by item, dealing with collections, historic buildings, and non-historic buildings (Demeroukas et al, 2001). The appendices include sample forms for contact trees, location guides, press releases, incident reports, maintenance checklists and evacuation procedures. While there are cleanup procedures for historic buildings, there are no detailed preparedness measures or emergency procedures specific to these structures.

The International Federation of Library Associations and Institutions has a pamphlet, Disaster Planning: Prevention, Preparedness, Response, Recovery, providing basic steps in disaster planning. The document lists natural and manmade disaster causes, disasters effects on archival and library materials, and disaster planning tips. The purpose of this pamphlet is to serve as a guide for writing a disaster plan. According to this guide, a disaster plan consists of four phases: prevention, preparedness, response and recovery. Each phase contains steps to be followed. This pamphlet emphasizes the need for a written plan, supplies, a trained disaster team of staff members, and current documentation of important information. Since it is specifically for library use, it provides little advice for protecting structural elements or historical artifacts.
Ready Business, an online preparedness tool launched by the U.S. Department of Homeland Security offers a sample business emergency plan. This fill-in-the-blank plan includes emergency aid contacts, a command tree for plan implementation, a list of suppliers and contractors, shelter locations, an evacuation plan, tips on safeguarding business information, protection measures for electronic resources, and employee contact information. Its purpose is to be a basic plan for business operations during an emergency situation.

Summary

This significant literature outlines the importance of historic house museums, the necessity for disaster planning, and the design of present disaster plans. The following findings and key issues surfaced in the course of this literature review:

- Places can become a part of a person’s cultural identity (c.f. Kopec, 2006).
- The strongest bonds are created between individuals and their homes (c.f. Kopec, 2006, Gallagher, 2006, Gifford, 2002). Historic homes are examples of past place attachment (c.f. Donnelly, 2002).
- Historic house museums can create a connection for modern visitors because they tie into the community identity (c.f. Donnelly, 2002).
- Historic structures feed into the national sense of identity (c.f. Butler, 2002).
- Historic house museums have the difficult task of preserving history as intact as possible because they provide a window into a society’s past (c.f. Look & Spennemann, 1998). Historic house museums that contain original fixtures, finishes, furnishing and objects are preserved examples of past interior design styles (c.f. Look & Spennemann, 1998).
- Historic house museums are three-dimensional, tangible history lessons that should be preserved for future posterity. When such structures or places are demolished or destroyed, part of history is lost forever (c.f. National Trust for Historic Preservation, 2008).
- Conferences have been held on preservation techniques to safeguard historic structures. In these conferences, new procedures and past failures are discussed to learn how to better cope with disasters (c.f. Florida Trust for Historic Preservation, 2008, Heritage Preservation, 2008).
• It is difficult to obtain funding for a museum. Some money comes from entrance fees and memberships with most of the money coming from private contributions. Grants are also relied upon for museum funding (c.f. American Association of Museums).

• Funding and disaster management resources are available at the international, national, state and local levels (c.f. The National Park Service, 2008; The National Endowment for the Humanities, 2008; The United States Department of the Interior, 2008; The Institute of Museum and Library Services, 2008; Federal Emergency Management Agency, 2008; Florida Division of Historic Resources, 2008).

• Having a written emergency preparedness plan, specific to a museum’s particular circumstances is imperative. The plan should include steps concerning the evacuation of people, and collections, protection and recovery of collections and task delegation. Staff should be trained and practice this plan (c.f. American Association of Museums, 2007).

• Museums in historic buildings should reconcile the preservation of the building with the protection of the collection in an emergency plan tailored to their specific conditions. They should be able to support the legitimacy of their choices (c.f. American Association of Museums, 2007).

• Disasters have been increasing in frequency and strength (c.f. Leatherman & Williams, 2008).

• Hurricanes are specific types of disasters that affect the Gulf and Atlantic Coasts from June to November each year (c.f. Stubbs, 1990).

• Disaster planning is generally divided into procedures to mitigate damage by preparing for the hurricane situation, procedures to respond during the storm, and procedures to recover after the storm has passed (c.f. Nelson, 1991; International Federation of Library Associations and Institutions, 2008).

• Pre-made plans, such as Steal this Handbook provide templates and directions for writing a museum disaster or emergency plan (c.f. Demeroukas et al, 2001).

• Preparation manuals contain specific procedures to use as guides in creating disaster preparedness plans (c.f. Demeroukas et al, 2001).
CHAPTER 3
RESEARCH METHODS

Research Questions and Hypotheses

This exploratory study looked at the composition, basis and implementation of written hurricane disaster preparedness plans to find out how resources available to historic house museums affected their disaster preparation steps. Initial questions that arose from plan examination touched on the impact size, funding, and number of staff have on the disaster preparedness plans: How does the amount or availability of monetary funding influence hurricane disaster preparedness plans? How does museum size affect disaster planning? Size variables in the cases of the two museums examined included physical size of the property, number of buildings in the museum complex, physical size of the historic house(s), value of collection in historic house, museum budget size, amount of property improvement, total number of staff members, number of staff members for the historic house, and number of staff members assigned to disaster plan implementation.

The cross-case analysis of the two case studies aimed at discovering essential guidelines to aid historic house museums of different sizes in creating or revising their own disaster preparedness plans. This comparative assessment of examined disaster plans led to formulation of the core study questions: Are there essential guidelines common to both large-scale house museums and small-scale house museums? If essential guidelines are identified, which ones should an optimal standardized plan contain to include all basic procedures required in a disaster situation? Finally, could this plan be customized to suit the specific needs of any size museum?

The American Association of Museums (AAM) requires all accredited museums to possess a written disaster preparedness plan with certain criteria. Criteria include directions that are museum and collection specific, people evacuation plan, inclusion of all possible threats,
collection protection measures, and responsibility allocation. The staff must be trained, facilities
inspected, and plans practiced (American Association of Museums, 2008). Thus, an assumption
underlying this study is that these museum complexes, both having historic house museums on
property and both being accredited by the AAM, follow similar guidelines in hurricane
preparedness based on property type, regardless of funding, staff, size, and collection value.
Therefore, staff, funding, and physical size affect the distribution and types of actions, as each
museum relies on the resources it has available to accomplish the same task of preparing its site
for a storm while collection value affects the prioritizing scheme of the plans.

**Case Study Strategy**

This is a qualitative, multiple case study of the written disaster plan documents of two
Sarasota historic house museums concerning their composition, their basis, their implementation,
and the effects funding, staff and museum attributes have on them. Robert Y in (2003) defines a
case study as an “empirical inquiry that investigates a contemporary phenomenon within its real-
life context especially when the boundaries between phenomenon and context are not clearly
evident” (p. 13). Thus, the purpose of employing case studies for research is to find information
on “individual, group, organizational, social, political, and related phenomena” (Y in, 2003, p. 1).
Its value as a research strategy is in providing a method for the researcher to collect holistic and
characteristic data within the subjects’ original context. According to Y in, ‘how’ or ‘why’
questions lend themselves to exploratory research. For exploratory studies the favored research
approaches are case studies, experiments or histories. Of these three approach types, the case
study technique is more desirable when looking at contemporary events, specifically those in
which the subjects’ behavior cannot be manipulated for study. A research plan is considered to
possess a multiple-case design when more than one complete case study is completed and
evaluated. Single case study design is chosen to represent critical cases, extreme or unique
cases, representative or typical cases, or when the case serves a revelatory or longitudinal purpose. In contrast, a multiple case study is performed to demonstrate replication. Multiple case studies follow replication, not sampling, logic meaning that the cases are expected to replicate a significant finding (Yin, 2003).

The exploratory nature of this research allows for the comparison of two case studies that can elicit preliminary findings susceptible of being corroborated later via lengthier multiple case studies. This study followed Robert Yin’s methodology, generally considered the benchmark for case study research. Participants were selected to predict “contrasting results for predictable reasons”, an approach known as a theoretical replication (Yin, 2003, p. 47). The aim is that discoveries in all of the case studies support the proposed contrasts. As maintained by Yin (2003), this support adds to the validity of the research more than solely relying on the results of a single case study. During the comparison of completed case studies, replication results must be discussed to provide the reasons behind the predicted outcomes (Yin, 2003).

Scope of the Study

The research concentrated on actions contained within each plan along with the particulars of plan implementation for two house museums in the coastal area of Sarasota Florida. The study was limited to examination of current disaster plan documents, observations of the physical museum profile, interview and survey responses and concept diagramming. Inquiry was made into what foundation articles, documents, or individuals were drawn from in plan writing. This multiple-case study analyzed the hurricane plans from two house museums of different scales: small versus large. The terms ‘small’ and ‘large’ did not only denote physical size but how much staff, resources, and funding were available to the participating museums. There is no agreement on what constitutes a small museum with the American Association of Museums and the Institute of Museum and Library Services offering varying opinions. The former makes the
cutoff at a budget of less than $250,000 and the latter with a cutoff of less than $350,000 (Chew, 2002). In each case, budget is the only characteristic defining a museum as large or small.

According to the American Association of State and Local History (2005), though these miniscule budget amounts are usually the defining factors, other qualities, such as size, collection, and staff can also categorize a museum as being small. For this study, several of these attributes were taken into consideration including property and building size, budget size, collection value, and number of staff members. In respect to this research a “small’ museum possessed a budget under $999,999, less than thirty full-time staff members and a less valuable, donated collection while a ‘large’ museum had a budget of $1 million or more, more than thirty full-time staff members, with a more valuable, original collection. Both historic house museum complexes were located in the same coastal region/geographical area, Sarasota County, Florida, so as to have been hit or damaged by the same hurricanes and subjected to similar weather and climatic conditions.

**Disaster Preparedness Plan Case Studies**

The cases in this study looked at the influence monetary funding amounts or availability had on hurricane disaster preparedness plans and how museum size affected disaster planning. During data collection, the participating museums’ curators were contacted for information. Of the museum staff members that could have given information on their institutional disaster preparedness plans, the curators were selected to be respondents. They were chosen because of their position as historic house caretakers. This gave them hands-on interaction and specific knowledge about the interiors and exteriors of the structures. Their responses provided in-depth information but subjected the research schedule to the availability of the curators and museum access. After an initial site visit to gain precursory information about the museum’s site, facilities, and collection, examination of the museum’s hurricane plan was requested. The
curators were then asked to respond to a short survey about their institution’s demographics and the steps in its hurricane preparedness plan. An interview was conducted to clarify survey answers and garner additional information. The information was divided into museum profiling characteristics, property improvements, plan implementation information, plan basis, and the current written disaster plan content analysis. This data was analyzed to find out how the size variables influenced the disaster preparedness plans and find guidelines within the written plan documents. The data from both case studies were compared to obtain cross-case conclusions on how budget and museum size affected each museum’s guidelines.

**Participants**

Two case studies were included in this research with each museum an individual case study. The participating museums were Historic Spanish Point, located in Osprey, Florida and The John and Mable Ringling Museum of Art: The Cà d’Zan Mansion located in Sarasota, Florida. These participating museums were chosen under the following considerations: both are historic site museum complexes incorporating one or more historic houses. The museums are both are located in West Central Florida, specifically in Sarasota County, thus their geographic proximity subjects them to similar environmental conditions and climatic situations. They exhibit differences in governance types, budget size, property area, building size and number of staff. Both museums have written disaster plans which makes content examination possible and were willing to participate in the study, which makes them accessible for research. The study was conducted outside of hurricane season so as not to interfere with hurricane preparation at the museums and to facilitate a higher response rate.

**Process**

The sources of information for each study included primary source research, involving human respondents, and secondary source research, consisting of the physical museum settings
and plan documents. The specific research strategies employed in this study included site visits, diagramming, content analysis of written material, questionnaires and protocol-driven structured interviews with the historic house curators. The following sections provide additional detail on how these methods were utilized to gain information about the participants and their hurricane disaster preparedness plans.

**Site visits**

The first stage of data collection involved initial site visits to obtain direct experiential information about each museum. During each site visit, photographs were taken to document the physical setting of the museum complexes and historic house structures. These photographs were useful when analyzing the disaster plans. They provided visual illustrations of concepts and locations mentioned in the written plan documents. Also, an initial walk-through of each historic house museum was conducted. Becoming familiar with the structures in the plan was imperative for understanding the steps and procedures these documents outline. All of this provided information on the physical size of the museum to ascertain its impact on the hurricane disaster preparedness plan. Data about retrofitting and rehabilitation of the historic houses was also documented during these site visits. During a site visit at the Ringling Museum of Art in November 2008, the Cà d’Zan Mansion curator provided a tour of the structure while explaining their hurricane steps in each space. Docents provided information about their experience at the mansion. At Historic Spanish Point in February 2009, a walk-through of each accessible historic house was performed. Docents were able to point out where the buildings had been retrofitted.

**Diagramming**

To better understand the disaster preparedness processes of the participant museums – steps, actions and their order – flowcharts were produced. A flow chart is a graphical representation of a process or program. It is a method of documenting a process flow, commonly
These diagrams use standard symbols, labeled for each step or action in the process. A standard flow or direction is always followed, either top to bottom or left to right, depending on the chart. For this research, flow charts were used in diagramming the current plan action processes to illustrate how the plans currently work. After the content analysis was performed, more flow charts were created to illustrate the processes as adapted from the content analysis results. In the cross-case examination, the commonality and difference analysis of the museum disaster preparedness processes was translated into this type of graphic representation. This diagramming aided in understanding the relationships between the plan actions, then again with the influence museum data had on the plan processes. The flow charts in this study used eight standard symbols (Figure 3-1).

![Figure 3-1. Flow chart legend.](image)

The symbols used for the flow charts in this study included terminator points, which are the start and stop points in the processes. The rectangular process shapes, with pointed corners, illustrated actions. The process symbols with rounded corners denoted an action that was an alternate option to the normal process. Document shapes signified when the illustrated step was
a document instead of an action. Data symbols represented profiling information collected on the museums. Routine symbols served to mark where a sub-process was performed. These sub-processes were then documented within a separate flow chart. Delay symbols designated time-oriented waiting periods. Circular connector symbols were used when processes were closely related.

**Content analysis of written plans**

Secondary source research, in the form of a content analysis of disaster policies was a fundamental part of the case study. Careful examination of these documents enhanced the knowledge of actions and procedures concerning the hurricane disaster situations used at each museum. In *A Practical Guide to Behavior Research*, Sommer & Sommer (2002) defined content analysis as “a technique for systematically describing the form [i.e. structure] and content of written or spoken material” (p. 177). Content consists of any “specific topics or themes in the material” while “structure refers to form” (Sommer & Sommer, 2002, p. 178). During the data collection from the disaster plans, an inquiry was made into the base reference sources consulted for each plan. Base sources included any pre-made plans, disaster planning reference books, or advisors. The structure of each written plan provided information on the accessibility and ease-of-use of the plans while the content showed specific actions for disaster preparedness and mitigation. The content analysis in this study also looked for reoccurring themes in each disaster plan. This document examination data was used to formulate survey and interview questions. The comparison of content analyses of the two documents during the final cross-case examination highlighted the commonalities and differences in the essential guidelines of the plans.
Questionnaires

In next phase of data collection questionnaires were administered to the respondents for the historic house museums to inquire about museum demographics and the general context for each disaster preparedness plan. The first part of these surveys inquired about characteristics to aid in fitting each museum to an economic and size profile. The categories were based on the latest available American Association of Museums Accreditation Program annual statistics (AAM, 2008) which included self-reported data from accredited and applicant museums. These statistics offer categories for various types of museums consisting of budget size, governance type, number of staff, and geographic distribution by region. These categories were modified to fit the objectives for this study, namely to obtain economic profiling data for each institution. The second half of the survey questions aimed to garner information on the hurricane disaster plan for each of the museums (Appendix A). Topics included the time frame for plan implementation, plan document revision frequency, plan document content, structural maintenance for hurricane sustainability, and individuals involved in the planning process. This information was used to further understand the mechanics and implementation behind the plan and answer any questions that arose during the document content analysis. Both museums returned the completed questionnaires.

Interviews

Another research step entailed structured interviews with the respondents at both house museums (Appendix B). The interviews’ purpose was to answer any questions that surfaced during the survey analysis stage and discuss the disaster preparedness plans. These interviews were made up of predetermined, open-ended questions. Questions revealed which procedures have worked and which the staff believes should be changed. Maintenance and property improvements were discussed along with possible hurricane effects on the historic buildings.
Other questions broached topics including methods and schedule followed in the disaster plan along with revisions done to the written documents. The interview was also used to confirm information on the foundations of the plan: the refinement of prior plans, the aid of consultants in plan conception, or the use of a basic emergency plan or outline. Information on retrofitting the structures and past building damage was also garnered.

**Chain of evidence**

These case studies included multiple sources of evidence from individuals, observations and documents. Therefore, as indicated by Yin (2003) a ‘chain of evidence’ was established and data was cross-referenced. To secure this chain of evidence, all documents, interviews and information were carefully documented and cited. Also, the time, place, and date of collection was noted along with the source of the data. Cross-referencing of data in the analysis phase provided insight on the inception, format, and feasibility of use for these disaster plans.

**Ethical Considerations: IRB Explanation and Exemption**

The University of Florida Institutional Review Board (IRB) presides over research conducted by students and faculty involving human subjects. Its purpose is to “ensure that their welfare and rights are protected as mandated by federal regulations” (UF IRB, 2008, Website). IRB material for this research, including informed consent forms, protocol form, survey and interview questions, was submitted to the University of Florida IRB 02 office. That review determined to exempt this study from IRB approval on the grounds that the examined subjects were the historic house museums and their hurricane preparedness plans. No personal information about the staff was collected thus this study would not constitute an invasion of their privacy.
Summary

This study is a qualitative, multiple case study of current hurricane disaster preparedness methods from two Sarasota historic house museums. The identified participants are The John and Mable Ringling Museum of Art’s Cà d’Zan Mansion and Historic Spanish Point. These participants exhibited similar and contrasting features. They were chosen as case studies to provide contrasting results that might confirm predicted reasons. The case study results aimed at finding how and why variables such as funding and size affected hurricane preparedness plans. A second goal was to discover essential guidelines to aid historic house museum staff members in writing or updating their own disaster plan. The research utilized multiple methods of data collection and established a chain of evidence to achieve maximum validity. These methods consisted of observational site visits, concept diagramming, document content analysis, questionnaires and interviews. The curators of these participating museums contributed information and responses to the questionnaires and interviews. After both cases studies were completed, a cross-case analysis was performed to identify essential guidelines for hurricane preparation.
CHAPTER 4
RESULTS

The site visit observations, concept diagramming, disaster plan content analysis, surveys and interviews at Historic Spanish Point and the John and Mable Ringling Museum of Art provided information on the building preparation methods and disaster plan composition in respect to the museums’ size differences. A cross-case examination was employed to explore for common actions that both museums used to prepare and protect their structure against hurricane damage. These commonalities were drawn on to investigate the possibility of forming a standardized, but customizable, plan that smaller house museums could utilize against future storm scenarios.

The John and Mable Ringling Museum of Art: Cà d’Zan Mansion

Museum Profile

The John and Mable Museum of Art is located in Sarasota, Florida. The Cà d’Zan Mansion, the historic house in the museum complex, was governed by the Florida Department of State until 2000 (Groft & Weeks, 2004). The entire museum is now operated by Florida State University and the Ringling Center for the Cultural Arts (John and Mable Ringling Museum of Art, 2008). It is accredited by the American Association of Museums (AAM) and was listed on the National Register of Historic Places in 1982 as the “Caples’—Ringlings’ Estates Historic District” (National Register Information System, 2008).

The structures on the sixty-six acre museum property include the Cà d’Zan Mansion, the Caretaker’s Cottage, the Circus Museum, the Circus Museum’s Tibbals Learning Center, the Banyan Café, the Art Museum (Figures 4-1, 4-2, and 4-3), the Visitor’s Pavilion, the Cà d’Zan Gatehouse, and the Education Conservation Complex Art Library. The Ringling Center for the Cultural Arts incorporates the Ringling Museums, the Asolo Center for the Performing Arts and
the Florida State University/ Sarasota Dance School. These structures are also located in the complex (FSU Ringling Center for the Cultural Arts, 2004).

According to the Review of State-Owned Cultural Properties by the Florida Legislature Office of Program Policy Analysis and Government Accountability, during the 1995-1996 fiscal year the museum’s operating cost was $6.5 million. It was supported by two million dollars in state funds with the rest of the monetary provisions coming from admission proceeds, concession sales, membership fees, gifts and investments. The state also contributed $1.3 million for mansion restoration. In the 1996-1997 fiscal year, the State of Florida gave the museum $3.7 million divided into $1.8 million for staff salaries and benefits, $1.2 million for renovations, $200,000 for the Ringling Art Acquisition, Restoration, and Conservation Trust Fund, and $548,597 in two grants from the Department of State. During the five years leading up to 1997, the Ringling Museum was given $12.6 million by the State of Florida (Florida Legislature, Report No. 96-71, 1997). The monetary funding requested for each year by the mansion staff depends on the type of projects that are planned. In 2008, $100,000 was awarded for that year’s planned mansion endeavors and FEMA awarded $300,000 for dock repairs. For the entire museum there are over two hundred full-time staff members. Between six and ten of those full-time staff are assigned solely to the Cà d’Zan Mansion (McCarty, R., personal communication, March 27, 2009). These budget and size characteristics qualified The John and Mable Ringling Museum of Art to be designated as a large museum for this study.

Built for John and Mable Ringling, the Cà d’Zan Mansion was finished in 1926 and is situated on Sarasota Bay. This mansion presented a unique research opportunity because it contains original Ringling familial objects. John and Mable Ringling bought many of the items from the estates of Vincent Astor and Jay Gould (Hupp & Stewart, 1995). Included with these
elaborate, original furnishings are frescos and murals that have been preserved as part of the museum’s collection (Hupp & Stewart, 1995). The mansion of forty-one rooms and fifteen baths has a square footage exceeding 36,000 square feet. The exterior terrace overlooking Sarasota Bay is 8,000 square feet (Scalera, 2006). Since the terrace abuts the waterfront, a potential situation of floodwater infiltration of the mansion arises (Figure 4-4). Because of the immense monetary and historical value of the original artifacts, art, and frescos painted and adhered to the structure, the Cà d’Zan senior staff have organized and implemented their own specialized hurricane plan.

**Property Improvements: Retrofitting and Habitat Alterations**

Restoration on the Cà d’Zan Mansion began in 1993. Made possible by State grants and private donations, it “evolved into a six year, $15 million dollar project” (Scalera, 2006, p. v). The restoration included three phases during which the structure, mechanical systems, and furnishings were repaired and refurbished. In 1999, the Ringling Museum of Art was awarded a federal Save America’s Treasures grant in the amount of $353,147 to “conserve the fine art and the decorative surface finishes of interior rooms” in the mansion (Save America’s Treasures, 2008). Some non-historical additions were made to the structure including acrylic panels over the courtyard skylight. These panels were installed to protect the original stained glass from sun fading and projectile damage (Figures 4-5 and 4-6).

The tile roofing systems on the mansion and cottage were replaced during restoration with new systems, engineered and designed to survive winds over 140 miles-per-hour (Tomasino & Associates, 2002). In addition to the restoration, the mansion received upgrades specifically for protection from the elements. In 2008, a film developed by the 3-M company was applied to the mansion windows. This film provides ninety-nine percent UV ray protection while strengthening the panes and preventing shattering. That same year, a ninety-five-feet tall
Norfolk Pine tree that had previously stood in front of the mansion was removed. It posed a threat since it could have fallen and damaged the structure during storm-force winds. The tree had held a lightning rod, which was subsequently placed atop the Cà d’Zan tower. The mansion undergoes continual maintenance and restoration of minor issues because, “if a building is not maintained, the disaster plan is useless” (McCarty, R., personal communication, November 3, 2008). This maintenance encompasses such repairs as grout touch-up, as needed, for the exterior terra cotta embellishments. Past storm damage that has caused the need for restoration or repairs often included water damage. During one storm, water pooling on the second story balcony made its way through the doors. It moved through the floor and caused damage to the ballroom ceiling. A different water damage incident, in the 1980s, involved the flooding of the mansion basement. In yet another storm, marble from the lower dock was torn off. This dock was restored in 2008.

**Plan Implementation**

The Ringling Museum of Art has a chain of command for hurricane plan implementation. At the top is an all-campus Emergency Coordinator followed by the Senior Management Leader, and then the Team Leader. Under the Team Leader are Team Coordinators for each building on campus. Every Team Coordinator has his or her team of staff members to oversee. The museum works in conjunction with Sarasota County officials to prepare for a disaster, closing the complex as public buildings are mandated closed. As the county reopens, so does the museum. The museum’s chief of security watches these Sarasota County actions, and then issues orders to the museum teams. After this county direction is received, the teams prepare the museum structures for an impending storm in accordance with a priority listing where the Cà d’Zan mansion is the first building addressed because of its waterfront location. To prepare the museum for a disaster it takes three days. The buildings are prepared A command center is
established in the Education Building to organize and keep track of all preparation teams, which all carry radios to call back to this central bank. Before each hurricane season, trial runs are performed by the preparation teams to confirm the proper working of the chain of command and the plan execution. Emergency supplies are refilled or replaced every year, including such things as sandbags and flashlights.

The mansion’s disaster team takes two days to complete the plan steps. Within the first day the mansion is prepared and the second day is used to work on the final touches. The individuals in charge of Cà d’Zan plan implementation are as follows, listed by title: Curator of Cà d’Zan Mansion, Registrar, Assistant Registrar, Conservator, and Assistant Conservator. If heavier items need to be moved two additional Building Services personnel are requested to aid. The curator limits the number of individuals who can help to maintain control of the situation. Too many people helping can confuse the process and items may be misplaced. Volunteers are never used at the mansion. The museum has a large enough staff and prefers to rely on employees since only highly trained staff members are allowed to handle the collection objects. The registrar staff members fill out move sheets for each object as it is relocated. The team proceeds room-by-room, beginning in the central court then working their way outward and upstairs. In the court, carpets are rolled up and furniture pushed to the middle of the room. Blankets are placed under the piano and it is moved away from the windows. Everything is covered with plastic to prevent water damage, though there has been no water intrusion since the addition of the acrylic panels. These types of actions are performed in every space within the mansion.

Since it has gone through extensive restoration, the structure would survive a storm but these steps must be taken to protect the objects within. There exist objects too large to be moved
and others that are too fragile. Moving these objects could subject them to damage. These types of objects, such as the ballroom furniture, are pushed toward the interior walls or to the center of the rooms. Priority choices are made by the curator of which items to move to an upstairs vault, with paintings and exposed small objects being first. Some objects, because of the number of them or their size, are secured where they are because their relocation would be too time-consuming. The venetian blinds on most of the 180 windows in the mansion are closed to stop projectiles from entering. The outside of the mansion is never boarded up – a common safeguarding strategy – because drilling holes in the façade to hang the boards would affect the structure’s historical integrity. The grounds department moves or ties down all exterior objects to prevent projectiles. Items such as the terrace umbrellas and stands are moved to storage areas offsite. The mansion doors and Art Museum basement openings are sandbagged to prevent water intrusion. After the mansion is secured, the same team moves on to prepare the Art Museum. This prioritizing, moving, and preparing process is repeated in the Art Museum. After the last phase of preparation is completed, staff members are required to leave the museum campus. Because of the mansion’s proximity to Sarasota Bay, the only person permitted into the building after the execution of the last plan phase is the curator. Due to county procedure, the museum grounds may close after or reopen before the mansion is completely secured. Even so, visitors are not allowed into the mansion during the Yellow, Red, or Recovery phases because of security reasons – keeping track of Ringling familial collection pieces is a top priority. During the movement of items, visitors walking through the building have the potential of causing staff members to lose track of object placement (McCarty, R., personal communication, March 27, 2008).
To summarize, when a storm is approaching the museum closes as per Sarasota County direction. Emergency teams are contacted who perform the Yellow and Red phases of the disaster plan – moving items and protecting the building. Furniture is repositioned away from windows and everything is covered in plastic. Employees are then evacuated from the premises until the storm has passed. Once the storm is over, employees return to the site and put the objects and furniture back into their original positions. The museum is then reopened to visitors, achieving normal operations (Figure 4-7).

Plan Basis and Revisions

The Cà d’Zan mansion plan was first written in 1980 and has been revised every April with new furniture or item locations. Since pieces are not often moved within the mansion, the plan has not varied much since creation. The mansion curator wrote the disaster plan to safeguard the objects within in a hurricane scenario. Every other building in the complex also has an individual plan, written by the person in charge of that structure. The museum plan has been compared to plans of other historic house museums. Many other museums have a similar water-front situation and necessary or new techniques are shared with them, creating a form of validation system. Members of the American Association of Museums, such as the Ringling Museum of Art, help one another with disaster plan information. (McCarty, R., personal communication, March 27, 2009).

Current Hurricane Plan

Structure

The information attained during the initial disaster plan analysis revealed that the mansion plan was relatively simple. It is incorporated into the John and Mable Ringling Museum of Art plan along with individual plan processes for each of the campus structures. The plans together form a whole cohesive protocol for the entire museum. This comprehensive hurricane plan was
written specifically to protect the complex against tropical cyclone damage. There are no other disaster or emergency situations covered by this document. This hurricane plan contains sensitive information about object locations, security measures and sensitive employee information; therefore, it is confidential. For this reason, the plan is only accessible to senior staff members and those involved in plan implementation. The Chief of Security, disaster team members, and each head of building has his or her own copy of the museum’s hurricane plan. The plan binder also contains a structuring table so that staff members know whom they are reporting to during a natural disaster situation. Within the museum plan there is a priority method in addressing the buildings. Each building has its own preparation process incorporating emergency strategies along with a list of team members and checklists of measures to be taken. Included with the plans is an employee contact tree that outlines the chain-of-command for the entire complex. Salvage operations and a vital records plan are provided in case recovery processes are needed to secure the site after a storm scenario (Figure 4-8).

**Content summary**

The mansion hurricane emergency plan includes a contact tree of individuals to be called in the event of a hurricane situation. To supplement the contact tree are employee emergency contact forms with phone and address information along with an alternate individual to call in a crisis. Following this is a sandbagging map, two separate checklists, the hurricane plan steps, relocation logs, location floor plans, and mansion security measures. One checklist is for the threat of wind and rain, the other for a storm surge threat. The plan is broken down into steps by phases. The first phase is a preparation phase, to be implemented before a storm arrives. This phase involves informing the staff of the situation and initial actions such as sandbagging the building. The second phase is called a ‘yellow alert’ phase. This phase outlines the room-by-room requirements including the moving of furniture and artifacts away from windows, leaving
heavier items in their respective rooms and relocating more expensive and smaller items to the vault or playroom on the third level. The ‘red alert’ phase is aimed at human safety. This phase is executed during the storm’s imminent approach to make sure visitors and all non-essential staff members are off the premises and that essential staff members are in safe locations. The last phase is the ‘recovery phase’ for implementation after the storm has passed. During the last phase site access is regained, items are returned to their original locations and the museum is opened to resume normal operations (Figure 4-9).

The hurricane plan is divided into actions by room. In preparation for a storm situation most interior items are relocated to a designated safe place (Figure 4-10). Anything that cannot be relocated is moved away from the windows and covered in plastic, such as the credenza in Figure 4-11. Anything breakable that could be knocked down during a storm is placed as low in the room as possible, off of stands, tables or shelves and onto the floor or the carpet.

Since the Cà d’Zan Mansion sits directly on Sarasota Bay, the threat of flood always accompanies a hurricane. Storm surges can easily get high enough to breach the exterior patio. The sandbagging map indicates where sandbags should be placed, and the number of bags that should be used in each location. Water damage is a big threat, so steps are taken to prevent water from getting to any items in the mansion. Plastic is employed to cover objects to help protect them from water damage in case the structural envelope is opened. Smaller objects and important art is relocated to a storage area on the third level that has no window access. This prevents water from outside damaging the objects.

Content Analysis
Categories

The content analysis of the hurricane preparedness plan looked for any reoccurring themes in the steps and actions within the document. This content analysis showed that the practical
actions and information contained in the plan fit into six categories. The categories related to the key action or verbs contained in the different steps or instructions and have been designated as: Supply, Recover, Communicate, Relocate, Organize, and Secure. These were underlying action-driven guidelines different from the traditional sections of mitigation, response and recovery into which the plan is currently divided.

The Supply category incorporated any mention of supplies, or readying specialized equipment for the disaster situation. These supplies included emergency equipment, temperature and humidity monitors, fans dehumidifiers, and wet vacuums. Assessing damage, salvaging measures, monitoring instructions and after-storm documentation were grouped under the Recover category. To recover after a storm, objects and furniture have to be returned to their proper locations and normal operations restored. Actions that directed communication fell into the Communicate category. These were any types of actions or material related to contacting employees, giving directions, providing access to plan, informing public and staff, reviewing procedures, notifying agencies or security, or coordinating activities.

The category Relocate identified any steps taken to move artifacts, art and furniture or evacuate people and personnel. In the event of a disaster situation, all visitors and non-essential personnel are evacuated from the site, furniture and artwork are relocated, and items are moved away from windows and doors. All organizational actions and items were assigned to the Organize category. These consisted of documentation, maps, floor plans, contact trees, checklists, relocation/move sheets, tabs, phases, and progression methods. Finally, all measures for covering items, anchoring large furniture or objects, fortifying openings or sandbagging doorways were grouped under the Secure category. Closing all windows, doors, and blinds are also included in this grouping. Table 4-1 aids in illustrating what actions fell into each category.
Most of the actions occupied the Secure category, which incorporated 23.26% of the total plan actions. The Organize category had the second most actions at 20.4%. Relocate and Communicate, came next and were almost equal in number of actions, having 17.98% and 17.13% respectively. Recover, 17.98%, and Supply, 9.39%, had the least amount of actions. The content analysis percentage distribution of actions to essential guideline categories is shown in Figure 4-12.

**Model**

The weight of each category in the disaster preparedness plan was translated into a relationship model to reveal the structure of the plan as well as the relative contribution of each category to the disaster preparedness plan. The plan relationship model is shown in Figure 4-13. Organize, second largest category, and Communicate are directly tied together. Together they make up 37.53% of the actions in the plan. These two categories influence the Secure, Relocate and Recover categories. Secure and Relocate, together 41.24% of total action in plan, are closely connected and also both affect Recover as well. Each category is dependent on specific required supplies; this causes Supply to be distributed among all of the other categories in practice. This disaster plan model assures museum staff members little need for recovery time, effort, or cost in having the manpower and resources necessary to carry out a large-scale secure-and-relocate operation, thus avoiding most possible damage.

**Historic Spanish Point**

**Museum Profile**

Historic Spanish Point is located in Osprey, Florida. The site is owned and administered by the Gulf Coast Heritage Association, Inc, a private, not-for-profit organization (Historic Spanish Point, 2008). This historic museum complex has accreditation by the American Association of Museums. In 1976, it became the first site to be listed on the National Register of Historic
Places for Sarasota County (Historic Spanish Point, 2008). The heirs of Mrs. Potter Palmer donated the site in 1980 and in 1982 the area was opened to the public. (Historic Spanish Point, Annual Report 2007, 2008).

The complex, comprising 30 acres of Florida shoreline and mangroves, includes three historic houses: two pioneer homes, Guptill House (1901) (Figure 4-14) and White Cottage (1884) along with Point Cottage. Point Cottage was constructed around 1931 by Chicago socialite, Mrs. Bertha Matilda Honore Palmer, along with several additional historic structures including Mary’s Chapel and Acorn Cottage (Figure 4-15) (Historic Spanish Point, 2008).

Historic Spanish Point has a budget size of between $500,000 and $999,999 (Kocian, H., personal communication, February 6, 2009). Museum support is assisted by grant funds. The museum was the 2002-2003 recipient of a $19,954 grant awarded by the State of Florida Division of Cultural Affairs (Florida Legislature Report No.02-68, 2002). In 2007, Historic Spanish Point received numerous grants: $148, 500 from the Institute of Museum and Library Services, $31,009 from the State of Florida, Department of State, Division of Historical Resources, Historical Museums Grant-in-Aid Program, and $40,000 from Sarasota County. The museum was also awarded over $75,000 in various other grants that year (Historic Spanish Point, Annual Report 2007, 2008). There are six to fifteen full-time staff members who work at the museum with one to five of them working specifically with the historic houses (Kocian, H., personal communication, February 6, 2009). Despite having multiple structures on site, due to a modest budget and staff size Historic Spanish Point fits into the designation of a small museum for this study.

This museum presents a fascinating picture of Florida history by containing nine structures from different points in the state’s past. The scope of the museum covers prehistoric Florida,
with its enclosed Native American midden archaeological site, to pioneer times—when the state was just beginning to grow—up to the boom of the roaring 1920s with the introduction of sun-seeking people from the northern states. The structures, of immense historical value to the public for historical learning purposes, have been restored each to their specific time of historical significance. Period artifacts and furnishings have been added through collection donations and loans. Though they are not original to the inhabitants of these houses, the artifacts help illustrate how the houses might have looked and functioned in the past. The Guptill House does have a piano that belonged to the pioneers who built the house. These collections, much of which is on loan from private individuals, require extra care because of their personal value to the donors. In an effort to keep these structures and artifacts safe during a crisis situation the Historic Spanish Point staff has written and implemented an all-encompassing emergency plan.

All of the structures in Historic Spanish Point are situated within view of the waterfront, but either elevation or distance protects each from storm surge and flooding, refer to Figures 4-16 and 4-17 showing White Cottage and its relation to Little Sarasota Bay. The vegetation and mangroves that grow along the coastline of the property provide added protection. The main part of the property is situated within South Jetty Park. Figure 4-18 shows an aerial view of the museum further illustrating the relation between the property and the surrounding environment.

**Property Improvements: Retrofitting and Habitat Alterations**

Since 1982, over $4 million has been spent on learning exhibits and restoring the historic property. The houses have been restored to their period of historical significance (Historic Spanish Point, 2008, Annual Report 2007). In addition to the restoration, there are other actions taken by staff to safeguard these historic buildings. The Site Horticulturalist oversees the exterior operations. Particular attention is given to the cultural landscape of large and older trees on the site to discover weakness and possible damage. These trees have the possibility of falling
and harming the historic structures. Limbs can also fall off the trees becoming projectiles. Trimming, pruning, or removal of these plants helps to prevent storm related damage to structures or people. Also, there is a primary storage facility on site for collections, which is shuttered against storm damage. Acrylic storm windows have been added on the outside of the original windows at the Visitors Center and Guptill House to provide added protection against wind and projectiles (Kocian, H., personal communication, February 6, 2009).

Plan Implementation

Since the plan includes multiple emergency situations, plan implementation depends on the type of situation the staff encounters. Definitive direction always comes from the Executive Director. Staff follows this lead when dealing in all situations. Depending on the situation, outside resources are contacted. For example, in a medical emergency, the staff enlists the aid of local medical emergency crews; in a security situation, local police authorities are called in to help. For a natural disaster situation, since advanced warning is usually available, the museum staff performs their own site preparation measures.

To execute the disaster plan for Historic Spanish Point in a hurricane situation, it takes one to three days with six to ten staff members involved for the entire museum. The chain of command begins with the Executive Director who coordinates all preparation actions. All senior staff members have detailed responsibilities during a natural disaster preparation situation, though all staff members participate in preparation. The Administrative Assistant informs outside individuals, such as the Sheriff’s Department of the site closing while taking care of final records. The Program Director and Marketing Coordinator takes care of informing the media and tours of site closings and also securing educational resources. The visitor center administration staff secures all equipment and files for that building. All additional staff
members secure their particular working area. Volunteers if available are allowed to help under the direction of the three main staff members.

Under the direction of the Executive Director, the task performing plan actions concerning the historic structures falls to three main people. The major responsibility for the physical site, grounds, buildings, structures, and collections falls to the Site Superintendent, Site Horticulturalist and Curator. For instance, the curator secures the buildings’ interiors and collections such as the piano and period furniture in the Guptill House (Figures 4-19, 4-20, and 4-21). The site horticulturalist secures all outdoor items. If necessary, service providers, such as a tree pruning services, are called in to aid.

Before a storm, mitigating measures are taken. These measures involve continual activities to reduce hazards around the museum site. Year-round preparation measures also include training staff members on emergency procedures and making sure resources, equipment and supplies are up-to-date. When a storm has been identified, the museum continues normal operations while monitoring weather conditions, visitors are informed of the imminent situation, and staff arrange for plan implementation. Once a hurricane warning has been declared, the museum closes to the public and prepares the site. Records and equipment are secured in the offices and visitor center. In the exhibits, hanging pictures are removed from the walls and small items are boxed. Furniture is moved towards the middle of the structure, away from the windows. After these steps, the buildings are secured and all non-essential staff and volunteers leave the site. More preparation time leads to a more secure site (Figure 4-22). Once the storm has passed the staff is allowed back on site and a command center for disaster response is created. The staff performs stabilizing measures on the site and rope off affected areas for visitor safety. Any destruction to the buildings, site, or collections is documented and preliminary steps
are taken in addressing the damage. Affected artifacts and objects are removed for salvaging and stabilization. Experts and resources for preservation are called upon as needed. Relocated items are returned to their original positions. The museum then opens to the public to resume normal operations. Year-round, if a severe storm warning is issued; the museum site is closed to the public. All visitors and volunteers are requested to leave with the staff to follow after securing the site (Kocian, H., personal communication, February 6, 2009).

**Plan Basis and Revisions**

The Emergency Preparedness Plan for Historic Spanish Point was created in 1993. The senior staff at Historic Spanish Point, in conjunction with the Board of Trustees of the Gulf Coast Heritage Association, Inc., used well-known bibliographical resources from agencies, literature, and conference proceedings in making the emergency plan. Agency sources included the Federal Emergency Management Agency (FEMA) (1990), the National Park Service: U.S. Department of the Interior (1990), the National Fire Protection Association, the National Trust for Historic Preservation (1991), and the J. Paul Getty Museum Foundation (1998). Other resources include authors Carl Nelson (1991), John Hunter (1990), Arthur Flitner (1988), Hilda Bohem (1978), David Godschalk (1989), David Bower (1989) and Timothy Beatley (1989), along with the Southeastern Museum Conference (1991). The plan has been revised three times since creation: May 2000, June 2005, and March 2003. During review, all museum staff members are allowed contribution of ideas and input to the plan. The document is then examined and approved by the Executive Director and the Gulf Coast Heritage Association, Inc. Board of Directors (Kocian, H., Personal communication, 2009).
Current Disaster Plan

Structure

The hurricane preparedness plan for Historic Spanish Point is part of an overall disaster plan that encompasses all possible disasters for the entire complex. It conforms to the standard format issued by the local county government with added details to address specific site issues. Sections in the plan include: general identification of guidelines and types of emergencies, specific plans and procedures base on type of emergency and the emergency recovery plan. There are not individual plans for each building in the museum complex. The plan discusses no specific item locations or security matters so management willingly distributes copies to all museum staff members. Every staff member is given a copy of the emergency plan when he or she is hired, and new copies are distributed after each revision (Kocian, H., personal communication, February 6, 2009).

The plan begins with a mission statement and introduction explaining the objectives of the emergency plan. It then has a general process for prevention, preparation and protection. Potential hazards and security measures are identified along with the types of possible emergency situations that could impact Historic Spanish Point. Museum personnel contact information is provided. The emergency actions and procedures process is then discussed in detail giving steps for the museum staff to follow in many types of crisis. Following this is a detailed recovery process to return the museum to normal operations (Figure 4-23).

Content summary

The plan covered Medical Emergencies and Accidents, Human Activities, Natural Disasters and Industrial Disasters. Outlined in the document are medical emergencies, accidents and human activities. Tornados, hurricanes, flooding, wildfires, severe thunderstorms and lightning round out the natural disasters dealt with in the plan. Electrical power failure, chemical
spills, and fire make up the industrial disasters included. The plan is dispersed to all Historic Spanish Point staff members. This makes the plan accessible to all employees and encourages communication about plan revisions and implementation. To organize this interaction the document contains a contact table of all full-time personnel.

The emergency plan has three phases: mitigation/preparation, response, and recovery. The emergencies are discussed in detail regarding the first two phases, mitigation and response. Steps and procedures provided aid the staff in preparing for and dealing with these incidents. The following section contains measures for after an emergency has occurred. For organization a recovery schedule is provided. Each storm scenario has a unique set of recovery guidelines (Figure 4-24). Appendices included are the maritime museum preparedness measures, a glossary of terms, a bibliography with sources used in plan writing, locations of safety equipment and supplies, a list of local emergency services with contact information, and a list of local, state and national professional resources to be employed by the Historic Spanish Point staff in an emergency.

Content Analysis

Categories

The content analysis of the emergency preparedness plan searched for any repeating themes or actions within the documents. This analysis revealed that the plan information and actions fit into six categories. The primary actions or verb contained in the various plan steps or instructions was used in this categorizing. The six categories were identified as: Supply, Relocate, Secure, Recover, Communicate, and Organize. The possibility of a seventh category was examined but dismissed due to similarity of meaning in vocabulary between the extraneous actions and actions already assigned to a pre-existing category. Recommendations about safety equipment, emergency supplies, first aid and preservation equipment fall into the category.
Supply. Actions involving the movement of people or objects were grouped under the Relocate category. Some actions included were removing electric office equipment offsite, evacuation of site visitors and moving furniture and objects away from windows and doors. Under the Secure category went all actions to secure or protect the site, closing shutters and doors, covering items, storing collections items, and closing the site to the public. The Recover category encompassed damage assessments and all post-disaster actions. Assigned to this category were actions such as historic building and item reconstruction conservation and repairs. Cleaning up the site and reopening to the public were also sorted into this category. Measures in the Communicate category incorporated all actions that promoted communication, direction, notification and cooperation. Notifying staff of directions, informing visitors of the situation at hand, contacting insurance adjusters, cooperation with emergency personnel and teamwork actions were included into Communicate. The category Organize contained actions and items that aided in organization: records, maps, forms, lists, and reports. Actions mentioned included assigning tasks, having proper documentation, possessing a written plan of action, updating and revising procedures, organizing resources, itemizing responsibilities, and having contact information on hand. The actions in the Historic Spanish Point plan were concentrated in Organize with Communicate a close second. Recover came in closely behind, with Secure and Relocate being almost equal. Supply was the least filled category. Table 4-2 shows which actions were assigned to particular categories. Most of the actions occupied the Organize category, which included 23.68% of the total plan actions. The Communicate category had the second most actions at 21.43%. Recover came next with 21.05% of actions. The actions assigned to the Secure category comprised 19.92% of total plan actions. Relocate, 8.27%, and Supply, 5.64%,
had the least amount of actions. Figure 4-25, a pie chart, shows the content analysis percentage
distribution of actions to essential guideline categories.

**Model**

The percentages from each category were translated into a relationship model to coordinate
the plan structure with the relative contribution of each essential guideline category in the
disaster preparedness plan. The relationship model is illustrated in Figure 4-26. Organize, and
Communicate, the two categories with the most percentage of actions are interdependent.
Together they make up 45.11% of the actions in the plan. These affect the Secure, Relocate and
Recover categories. Secure and Relocate, together 28.19% of total action in plan, are interrelated
and both influence Recover. Recover itself concerns 21.05% of the plan actions. Supply, 5.64%,
is distributed among all of the other categories because each category requires certain supplies.
The Historic Spanish Point staff expects recovery to be necessary since, having a modest budget
and small amount of staff members, there are few monetary and personnel resources to funnel
into securing the site beforehand.
Figure 4-1. Circus Museum’s Tibbals Learning Center. Photograph by author. 3 Nov. 2008.

Figure 4-2. The Museum of Art and courtyard. Photograph by author. 3 Nov. 2008.
Figure 4-3. Banyan Café. Photograph by author. 3 Nov. 2008.

Figure 4-4. Ringling Estate aerial image showing location of the historic mansion in respect to Sarasota Bay waterfront. Modified from image retrieved on February 5, 2009 from http://maps.google.com/.
Figure 4-5. Panels over courtyard skylight to protect it from sun and projectile damage. Photograph by author. 3 Nov. 2008.

Figure 4-6. Interior view of courtyard skylight with original stained glass. Photograph by author. 3 Nov. 2008.
Figure 4-7. Cà d’Zan Mansion plan implementation.
Figure 4-8. Structure of current Ringling Museum hurricane plan.
Figure 4-9. Cà d’Zan Mansion plan content.
Figure 4-10. The smaller items of furniture, such as these arm chairs, lamps and tables would be relocated. Photograph by author. 3 Nov. 2008.

Figure 4-11. Larger items, such as this credenza would remain in place, covered in plastic or moved away from windows. Photograph by author. 3 Nov. 2008.
<table>
<thead>
<tr>
<th>Category</th>
<th>Actions assigned to category during content analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply</td>
<td>Emergency equipment</td>
</tr>
<tr>
<td></td>
<td>Temperature and humidity monitor</td>
</tr>
<tr>
<td></td>
<td>Fans, dehumidifiers, and wet vacuum</td>
</tr>
<tr>
<td>Recover</td>
<td>Assess damage</td>
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<tr>
<td></td>
<td>Restore operations</td>
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<tr>
<td></td>
<td>Return objects and furniture to proper locations</td>
</tr>
<tr>
<td>Communicate</td>
<td>Contact employees</td>
</tr>
<tr>
<td></td>
<td>Provide necessary directions</td>
</tr>
<tr>
<td></td>
<td>Inform public</td>
</tr>
<tr>
<td></td>
<td>Inform staff</td>
</tr>
<tr>
<td></td>
<td>Notify proper authorities</td>
</tr>
<tr>
<td></td>
<td>Coordinating activities</td>
</tr>
<tr>
<td></td>
<td>Reviewing procedures</td>
</tr>
<tr>
<td>Relocate</td>
<td>Evacuate public</td>
</tr>
<tr>
<td></td>
<td>Relocate artifacts, art and furniture</td>
</tr>
<tr>
<td></td>
<td>Evacuate personnel</td>
</tr>
<tr>
<td></td>
<td>Move items away from windows and doors.</td>
</tr>
<tr>
<td>Organize</td>
<td>Location floor plans</td>
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<tr>
<td></td>
<td>Sandbag maps</td>
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<tr>
<td></td>
<td>Checklists</td>
</tr>
<tr>
<td></td>
<td>Have proper documentation</td>
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<tr>
<td></td>
<td>Relocation/move sheets</td>
</tr>
<tr>
<td></td>
<td>Contact tree and employee sheets</td>
</tr>
<tr>
<td>Secure</td>
<td>Fortify openings</td>
</tr>
<tr>
<td></td>
<td>Sandbag doorways</td>
</tr>
<tr>
<td></td>
<td>Anchor large furniture and objects</td>
</tr>
<tr>
<td></td>
<td>Cover items with plastic</td>
</tr>
<tr>
<td></td>
<td>Close blinds</td>
</tr>
<tr>
<td></td>
<td>Store items away from windows</td>
</tr>
</tbody>
</table>
Figure 4-12. Plan content analysis pie chart showing percentages of total actions that fall into each guideline category.

Figure 4-13. Ringling plan content analysis categories relationship model.
Figure 4-14. Guptill house, a two-story residence built by the pioneers. Photograph by author. 6 Feb. 2009.

Figure 4-15. Acorn Cottage, built in 1935, closed to the public. Photograph by author. 6 Feb. 2009.
Figure 4-16. White Cottage. Photograph by author. 6 Feb. 2009.

Figure 4-17. White Cottage in relation to the southern waterfront of Historic Spanish Point's Peninsula. Photograph by author. 6 Feb. 2009.
Figure 4-18. Aerial image showing Historic Spanish Point location in respect to Little Sarasota Bay waterfront. Modified from image retrieved on February 5, 2009 from http://maps.google.com/.

Figure 4-19. Piano, original to the Guptill House. Photograph by author. 6 Feb. 2009.
Figure 4-20. Period furniture in the Guptill House. Photograph by author. 6 Feb. 2009.

Figure 4-21. Period furniture in the Guptill House. Photograph by author 6 Feb. 2009.
Figure 4-22. Historic Spanish Point plan implementation.
Figure 4-23. Structure of current Historic Spanish Point hurricane plan
Figure 4-24. Historic Spanish Point plan content.
<table>
<thead>
<tr>
<th>Category</th>
<th>Actions assigned to category during content analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply</td>
<td>Safety equipment&lt;br&gt;First aid kits&lt;br&gt;Emergency supplies</td>
</tr>
<tr>
<td>Relocate</td>
<td>Remove electric office equipment offsite&lt;br&gt;Evacuation of site visitors&lt;br&gt;Moving furniture and objects away from windows and doors</td>
</tr>
<tr>
<td>Secure</td>
<td>Secure parameter of site&lt;br&gt;Cover items with plastic&lt;br&gt;Secure shutters and doors&lt;br&gt;Close site to public&lt;br&gt;Store collection items</td>
</tr>
<tr>
<td>Recover</td>
<td>Reconstruction&lt;br&gt;Conservation&lt;br&gt;Re-open to public&lt;br&gt;Repairs&lt;br&gt;Cleanup</td>
</tr>
<tr>
<td>Communicate</td>
<td>Notify staff of directions&lt;br&gt;Inform visitors of situation&lt;br&gt;Contact insurance adjuster&lt;br&gt;Cooperate with emergency services&lt;br&gt;Teamwork</td>
</tr>
<tr>
<td>Organize</td>
<td>Assign tasks&lt;br&gt;Have proper documentation&lt;br&gt;Have written plan of action&lt;br&gt;Update and revise procedures&lt;br&gt;Organize resources&lt;br&gt;Itemize responsibilities&lt;br&gt;Have contact information on hand</td>
</tr>
</tbody>
</table>
Figure 4-25. Plan content analysis pie chart showing percentages of total actions that fall into each guideline category.

Figure 4-26. Historic Spanish Point plan content analysis categories relationship model
CHAPTER 5
DISCUSSION

Cross-Case Conclusions

The presented case studies, which covered two Sarasota County historic sites, provided the basis for a comparative analysis to identify commonalities and differences between hurricane preparedness plans for small and large historic house museums. The individual case studies looked at how funding and size characteristics affected a historic house museum’s hurricane preparedness plan. The overarching goal of this cross-case analysis was to discover a set of essential guidelines in the disaster preparedness plans. These guidelines could then be used by staff members of any historic house museum, irrespective of its size, to direct the writing of an initial disaster plan or as a measure to evaluate a current disaster plan.

During the course of research, strict protocols were utilized in regard to the data collection steps and the information examination documentation. Both museums had written disaster plans, which made content examination possible, and were willing to participate in the study, which made them available research candidates. The variants in museum profile characteristics provided necessary contrast for preliminary case study results. However, there were limitations to this research and its findings. One issue that arose concerned access to the written plans. Historic Spanish Point provided a copy of its plan for analysis but, due to security concerns, the Ringling Museum of Art: Cà d’Zan plan was confidential and required on-site examination. Second, the study was limited by time constraints. The data collection was conducted outside of hurricane season so as to not interfere with disaster preparation at the museums and facilitate a higher response rate. Finally, this precursory study yielded findings that are specific to these two distinctive structures and the particular climate in which they are situated. Therefore, and consistent with the exploratory intent of this study, these results cannot yet be generalized to the
entire historic house museum population. Further studies, including multiple cases, should be performed to confirm these results to this group. These outcomes will need examination in other geographical contexts, museum settings, budget brackets, staff sizes, and museums types.

What this study found is the possibility of a new perspective regarding disaster plans. The essential guideline categories discovered in the case study content analysis are not linear progressions like the phases that currently divide the plans. These categories are processes in a dependent relationship that, when coupled with the current phases, will yield steps covering all necessary procedures during a disaster situation. The determination of dependency arose from multiple actions, contained in a single plan step, falling into separate guideline categories due to vocabulary variations. These actions were then considered dependent due to their effect on other actions in the same step. Afterwards, this dependency was translated into the graphic models illustrating the disaster preparedness plan in each case study. This research suggests a disaster preparedness plan, formatted with the linear phases and dependant categories, containing essential guidelines synthesized from both plans examined. This forms a standard plan outline that historic house museums can customize and use to create their own preparedness plan or evaluate an existing plan.

Size Variable Effects

The size variables examined during the two case studies consisted of property size, number of buildings, size of buildings, collection value, budget size, property improvement, and number of staff members. These variables were analyzed to discover how they impacted the disaster plan document, steps, and implementation.

Property size

The Ringling Museum has a sixty-six acre complex while Historic Spanish Point possesses thirty acres. Both properties incorporate nine structures. Though the buildings in the Ringling
Museum are larger, and five are historic, there is only one historic house on property. Historic Spanish Point, also with five of its buildings being historic structures, has four such houses. One of these, Guptill House, is set up as a historic house museum, a second, White Cottage, is used for exhibits and offices, the third, Point Cottage, accommodates education programs and the fourth, Acorn Cottage, is used for storing items. The Cà d’Zan Mansion has original furnishings, artwork, and objects representing great monetary and historical value. In the houses at Historic Spanish Point, a less expensive collection of period objects, donated to the museum, fill in the historical and educational gaps. The only original furnishings are a piano in the Guptill House and an organ in Mary’s Chapel, itself a reconstructed building.

The Cà d’Zan Mansion has four floors with fifty-six rooms and 36,000 square feet. This mansion is much larger than any of the historic houses at Historic Spanish Point. The largest of the structures there, Guptill House and White Cottage, only have two levels each. Historic Spanish Point also has cultural landscaping and archeological sites on property. These additional attractions split the attention of site personnel between all of the structures and the museum grounds. As a result, the Historic Spanish Point staff cannot concentrate their efforts on one building as the Cà d’Zan Mansion staff does when securing the site before a storm. This division of attention necessitates a plan that encompasses the entire Historic Spanish Point property. Because of its size, the Cà d’Zan Mansion has space to relocate the vast amount of objects in the building during a hurricane situation. This demands move sheets as a way to keep track of the many objects being relocated. The mansion also has several different rooms, requiring special directions for each space. This causes plan division according to steps by room. Because the Historic Spanish Point structures are not large enough to provide a safe storage area, the plan includes a larger concentration of directions to shift furniture and items away from windows and
doors. There are no directives to move historical items to other buildings. Instead of being divided by room, the steps in this plan are divided by emergency type to cover the small structures in any situation, and there are no specific directions for each historic house on property.

**Budget and staff**

The museum budgets have vast disparities. Ringling’s budget size stated in the case study far exceeds the Historic Spanish Point reported budget range of $500,000 to $999,999. The large Ringling budget provides for property improvements, maintenance, and building upkeep. It also affords the museum a higher number of staff members. Ringling has over two hundred staff members for the complex and six to ten for just the Cà d’Zan Mansion. This money and manpower provide ample resources to secure and prepare the museum for impending storms, including sandbagging the mansion doors to prevent water intrusion. With these financial resources alongside being maintained and prepared, the museum has little to worry about after a storm. This provides assurance that the mansion will be well preserved through the experience.

By contrast, Historic Spanish Point has only six to fifteen staff members for the entire museum. The discrepancy in funding and labor cause a shift in plan actions. Instead of relying heavily on maintenance and preparation, the staff members at Historic Spanish Point prepare to their best ability and expect post-storm recuperation measures to be necessary. A recovery schedule is supplied in the plan document to direct actions after a disaster.

This staff size difference caused variations in the disaster situation chain-of-command by influencing responsibility delegation. Where the Ringling museum is concerned, plan responsibilities are delegated through an explicit chain of command. Starting with the complex’s Emergency Coordinator, followed by a Senior Management Leader and a Team Leader, information and duties are disseminated through each building’s Team Coordinator to their team.
members. At Historic Spanish Point the Executive Director heads the emergency response operations but each staff member is responsible for securing and preparing their own assigned area. Also, Historic Spanish Point includes volunteers in their disaster team when available. The Ringling Museum uses staff members only, preferring to operate with persons already employed.

This difference in staff also affects disaster plan access. The Ringling Museum plan contained security measures causing it to be confidential and therefore not distributed to general staff outside of the mansion. Only those staff members required for implementation were granted access to the plan document. Historic Spanish Point's plan is supplied to all employees when hired because the information is not as sensitive and all employees are utilized in disaster preparation. Staff sizes, along with property sizes, also impacts the plans' content. Since the Ringling Museum of Art has many staff members to coordinate over large structures and area, each building on property has an individual disaster preparedness process. This incorporates a plan specifically for mansion disaster preparation. Whereas Historic Spanish Point, having fewer staff members and smaller buildings, possesses an all-encompassing plan document for the entire property.

Property improvements

The museum budget also affects how much and what type of property improvements can be performed to the historic house museum. The extent of these property improvements then affects the amount of preparedness necessary. At the Ringling Museum of Art, fifteen million dollars went toward restoration to the Cà d’Zan Mansion. Historic Spanish Point spent four million dollars on house restoration and educational programs combined. The Cà d’Zan Mansion staff has conducted protection-focused improvements such as the 3-M film on the windows, acrylic panels over the courtyard skylight, and a new tile roofing system. Large trees near the mansion have been removed to prevent them from causing damage during storm-force
winds. Further restorations have made a securer building envelope that demands less exterior storm preparation. The Cà d’Zan staff is assured that very little interior damage will occur because the structure is secure. This, coupled with their extensive pre-storm preparation measures, means that their recovery requirements should be minimal. Historic Spanish Point, though its buildings have been restored as well, have done less extensive restoration and protection to the buildings. For added projectile protection, The Guptill House and the Visitors Center: Osprey School at Historic Spanish Point have acrylic windows installed outside the original windows. Due to the smaller amount of these types of protection-oriented restoration measures, the museum’s staff expects the site to require more exhaustive measures post-storm to restore normal operations to the museum.

**Extraneous variables: setting, accreditation, and governance**

Some extraneous variables noted during the case studies were setting, accreditation, and governance characteristics. The participating museums are located in Sarasota County, on the Gulf Coast side of the Florida peninsula. Their geographical proximity and waterfront locations expose the structures to comparable environmental and climatic conditions such as salt water and wind. This exposure subjects the structures to deterioration and erosion on a regular basis, not only during storms, which demands regular building maintenance. The nearness to their respective bodies of water also puts them at a heightened risk for storm surge and hurricane damage. Historic Spanish Point is set in a more wooded area, but both museums have large trees that could damage the structures. These factors account for damage in a hurricane event and are what the disaster plans are intended to protect against. This explains why both museum disaster preparedness plans contain similar actions and guideline categories.

Both participants are historic site museum complexes incorporating one or more historic houses though they possess contrasting governance types. A state institution administers the
John and Mable Ringling Museum of Art, whereas a private, not-for-profit organization manages Historic Spanish Point. They have each been accredited by the American Association of Museums (AAM) and are listed on the National Register of Historic Places. These agencies offer the museums similar incentive and grant opportunities, along with being sources of preservation and conservation information. The AAM guides the museums with standards and best practices for operation. To do this, the association provides a code of ethics directing governance, collections appropriation, and programs. Remaining in good standing implies compliance with their ethical and practice requirements. Part of this compliance includes having a written emergency preparedness plan, training staff, and practicing preparation procedures. Thus, as required to be accredited by this association, each museum has developed and implemented a disaster plan. Their staff members are trained in these plans, and, over time, these documents have become more specified in accordance with the particular characteristics of the two museums.

Plan Analysis and Explanation

The content analysis performed during these case studies further defined the differences between the museums’ approaches to disaster management. This analysis, paired with inquiry about plan implementation, provided insight into the similarities and differences between plan steps of each museum disaster preparedness plan.

Disaster plans

In comparing the plan documents, evidence of the differences between them were subtler than that found regarding the museums’ size and budget variables. In both cases, the museums each have a written disaster plan in place to cope with critical emergency situations, as prescribed by the AAM. For the Historic Spanish Point disaster plan several written resources were consulted. Also, the museum encourages input from the entire staff in revising the plan. In
this manner, museum staff size has an impact on the disaster plan writing and revisions. Having fewer staff members allows Historic Spanish Point to consider the input and suggested plan improvements offered by each employee. Since each employee is responsible for his or her own work area, they present added understanding into protection methods for their specific space.

The Cà d’Zan curator wrote the plan for the mansion at the Ringling Museum. The Ringling Museum of Art has twenty times as many staff members as Historic Spanish Point. This is too great a number of employees to allow all contribution to the hurricane preparedness plan. Also, most of the Ringling employees are not concentrated in the historic mansion. There are certain staff members who are trained in the particulars of the mansion and its contents. These trained staff members are allowed participation in the plan implementation. Too many involved staff members would cause confusion in the precise documentation and moving operation required by the museum’s disaster preparedness plan.

Staff size and resources also influenced the time frame for review and revisions. With a small budget and fewer staff members, the small historic house museum complex still reviewed their plan annually. Revisions though, are only prepared as needed after a hurricane season – when a problem with the existing plan emerges. Subsequently, the Historic Spanish Point plan has only gone through three revisions. These revisions show that the staff is still improving on their original emergency preparedness plan. The Ringling Museum also reviews its plan annually and makes revisions as needed. In this case, revisions have only been made in regards to updating furniture or object information, such as location, for the Ringling mansion. This means that, thus far, the disaster preparedness processes within the document, along with the restorative procedures on the mansion, have successfully safeguarded the premises.
One difference found between the written documents concerned disaster identification. The research aimed to specifically look at hurricane preparedness plans, like that of the Ringling Museum. The discovery was that in the case of Historic Spanish Point, the hurricane preparedness plan was one section within an emergency preparedness plan encompassing all possible disasters. This provides the museum staff with an all-inclusive disaster plan. The implication of this is that some plan actions are generalized to all natural-disaster situations such as hurricanes, severe thunderstorms, severe lightning, tornados, windstorms, flooding, and wildfires. These shared actions are pre-disaster responsibilities, “closed to the public” procedures, evacuation plans, insurance information, public relations and health and safety tips. There are, however, specific recovery procedures for each natural disaster. Because of its small size, the museum attempts to efficiently use its resources through having these all-purpose actions. Also, each member of the disaster team is assigned certain responsibilities during every disaster situation, as outlined by the plan. This reduces confusion in a disaster situation by already having the necessary actions of each staff member written down. This inclusion of a broad spectrum of disasters also required an extensive list of emergency contacts lest the museum needed additional help during a disaster. Thus, appendices of the plan document include local, state, and national resources along with local emergency services and contact information.

Descriptive vocabulary used in regards to the phases that delineated each plan was found to be comparable. The Ringling plan has four phases: Preparation, Yellow Alert, Red Alert, and Recovery. This is a linear, time-oriented structure that traces steps from beginning, preventative measures, to end, recovery measures of a storm situation. The preparation phase happens before a hurricane arrives and covers staff, docent, and visitor notification measures. In the preparation
phase staff members review the plan procedures, administrative offices are secured, emergency
supply contents are verified, and a hurricane closure sign is placed at the entrance. The Yellow
and Red alert phases are enacted during a hurricane. During the Yellow alert phase object
relocation and securing occurs with staff proceeding room-by-room. Building openings, along
with blinds and curtains, are closed and low-elevation doors are sandbagged. When the Red
phase is enacted, the grounds are visually inspected and all non-essential personnel must leave
the museum site. The recovery phase takes effect after the storm has passed. Steps performed
during the Recover phase are meant to move the museum toward normal operations. These
actions include verifying site safety, contacting team leaders, logging contents and locations of
objects, assessing damage and monitoring conditions. Though the Historic Spanish Point is
initially divided along emergency type, it identifies three time-oriented phases. They are
similarly designated: Mitigation, Response, and Recovery. The Mitigation phase is the
preparation phase before an emergency situation to remove hazards on the museum property and
reduce their possible effects. The Response phase applies during a disaster situation to
immediately limit its effect on the museum buildings, collections, or people. Finally, the
Recovery phase takes place after a disaster to help return the museum to normal operations. This
includes damage repair and post-disaster restoration. During each phase, the museum staff is
notified which phase currently applies to the museum’s situation. Both museum plans have
contact information for employees within the document to aid in disseminating this information.
Table 5-1 itemizes the comparison between the museum disaster plans. After the differences and
similarities in museum statistics were compared, the content analysis results were examined to
measure the two museums along category content distribution and relationship.
Six essential guideline categories

During the content analysis, six essential guideline categories were uncovered in the plan document actions. These six categories were Supply, Recover, Relocate, Secure, Communicate, and Organize. Both museums contained the same six essential guideline categories. The difference arose in the number of actions within each category for the two museums. When it came to actions in the Organize category, the Historic Spanish Point plan had 3.28% more actions. It also had 4.3 % more Communicate and 9.21% more Recovery. On the other hand, it had 9.71% fewer Relocate actions, 3.34% fewer Secure actions, and 4.29% fewer Supply actions.

These numbers illustrate differences in the action distribution between the museums’ disaster preparedness plans. For the Ringling disaster plan, more relocating and securing actions were used but organization and communication played a large part in constructing a cohesive plan. A museum with more resources, staff and funding has the means to perform more active tasks involving protection and relocation. Demeroukas et al. (2001) discusses adopting these same steps, involving boxing and relocating objects to a secure area, to minimize damage before hurricanes. If moving objects is not possible, or if a secure area is not available, the recommendation is to wrap or pad the objects for protection, remove heavy objects from shelves and pedestals, and use humidity buffering materials to keep moisture away from the collections. The mansion hurricane preparedness plan follows this direction in safeguarding their collection. Actions performed to arrange and order the proper information needed during a disaster situation fill the Organize category. Because much work goes into preparation before the storm - Secure and Relocate- then recovery is less of an issue. If items and people are relocated to a safe place and the structure secured, then damage is not as likely. This causes the Recover category to have fewer actions than the other motion oriented categories.
Organize is an important category for the Historic Spanish Point plan, receiving the most actions during the content analysis. The Communicate category received the second highest number of actions. Thus, a smaller museum, with fewer resources and staff members, utilizes more communication and organization to better coordinate its limited efforts. It follows that Recover receives attention because not enough resources can be designated for relocating items and people before a disaster. This translates to a lack of Relocate actions within the emergency preparedness plan. Securing buildings by closing windows and doors or objects by tying down and covering with plastic takes less manpower to accomplish, therefore there is a larger Secure category. For this reason, the staff at Historic Spanish Point expects many actions to be needed for post-disaster recovery. Little attention is given to the Supply category in either plan due to the task of procuring provisions being straightforward and, in each museum examined, already accomplished.

While the distribution numbers are dissimilar, the category relationships are comparable. In both museum disaster preparedness plans, actions from the Organize and Communicate categories coordinate the actions of the other categories. Closely tied together, these influence every other category in the plan. This means that these two categories are present throughout the plan phases. The categories requiring labor or manpower are Secure, Relocate and Recover. This requirement of human labor causes these to be motion or movement categories. Actions within these categories entail the staff members physically completing a task. The Secure and Relocate guideline categories are closely related. Actions of both types were often contained within a single step in the examined plans. The two categories, in cooperation, are required during and after a storm situation. Recover is necessary after a storm to return a museum to normal operations. This category also calls for human labor to carry out its actions. Supply is a
category used throughout the process because every other category necessitates certain supplies to effectively carry out the contained actions (Figure 5-1).

For a large museum complex incorporating a huge mansion, such as The Ringling Museum, an all-encompassing plan would inundate the staff with irrelevant information in a disaster situation. Including all possible scenarios would make the plan cumbersome and waste valuable time as the staff sifted through all of the contained information. Alternatively, a plan of this specificity could benefit smaller house museums by outlining detailed steps undertake during a disaster. Unfortunately, relocating this quantity of objects would be difficult without the proper staff and resources. In the two case studies it was found that the exact percentages of plan actions sorted into each essential guideline category depended on museum funding and staff.

These essential guideline category differences suggest that budget and size does affect disaster preparedness plans. The budget dictates the number of staff members the museum can support. The funding for restoration and continual maintenance of the historic structure also comes from within the budget. The museum’s physical size affects staff distribution. With larger buildings or a greater number of buildings, staff must be dispersed accordingly to handle their function. This pushes the limits of a museum’s human resources. The staff size and distribution impacts the amount and type of organization necessary. These two variables also influence the management of communication between staff, the public, local authorities and media on museum property. These directives are within the written disaster preparedness plan as actions, which fell into the Organize and Communicate essential guideline categories. The number and type of historic building maintenance or restoration procedures completed affects the amount of object securing and relocating actions performed by the staff. This effect is due to the assumed or expected strength of the buildings in withstanding storm projectiles, high winds or
water surge. These actions, revealed in the written document, were placed under the Secure and Relocate categories during content analysis. The actions within these categories are also influenced by the actions within the Organize and Communicate categories. Actions from these four categories then impact the Recover category actions needed after a disaster (Figure 5-2).

The small museum depends more on communication and organization whereas the large museum relies heavily on physical actions, requiring movement and manpower. The Cà d’Zan disaster team avoids possible damage and ensures a reduced amount of recovery because they possess the resources necessary for a large-scale secure and relocate operation. In opposition to this, the staff at Historic Spanish Point expects recovery to be necessary. The museum has a significantly smaller budget and fewer staff members. These variables suggest that there are fewer resources to funnel into site protection before a disaster situation at this museum. Thus, the effect of funding and size on the museums also resides in the mindset of the staff members who write, revise, and implement the plans – the Ringling Museum’s assurance of potentially little recovery versus Historic Spanish Point’s expectation of much recovery. This outlook then affects every step, section, and phase within the plan. Phases and sections that are thought to be of lesser consequence are explained in less detail. Sections of assumed higher importance are more extensive.

Recommendations: Historic House Museum Disaster Preparedness Plan

Both disaster plans are tailored to their respective museums as benefits their specificity with adjustments made to each due to monetary or personnel constraints. The six essential guideline categories arose through content analysis of plan documents in these case studies. The identified categories are useful in building a generic template to initiate a disaster preparedness plan or evaluate a current plan for a historic house museum. Thus a basic plan template and sequencing model are proposed, synthesizing actions and insights from both examined plans.
The template is action-specific, but customizable so that museums can change it to fit their specific needs. Museum size, as seen through the case studies, will determine the exact action distribution and amounts needed within each museum’s disaster preparedness plan.

**Proposed Essential Guidelines Category Sequencing Model**

The suggested model is a composite representation, blending common actions garnered from both museums’ plans. It illustrates the arrangement of each essential guideline category applied in creating a historic house museum disaster preparedness plan. In combining traits from the two plans examined, the relationships of the identified essential guideline categories were taken into consideration. The Organize and Communicate categories shared a close interaction, as seen in the direct relationship between them in both the Cà d’Zan Mansion and the Historic Spanish Point plan models. These categories are extensive because of their impact on every other category. They are vital in coordinating preparedness efforts, ensuring that all necessary documents and people are present during each plan stage.

The next three categories Secure, Relocate, and Recover are motion categories indicating they would likely require the most labor and movement. Within these categories are actions to guarantee the physical safety of people and objects. This safety would be assured due to careful planning and communication measures. For the proposed model, the contribution of actions to these categories had to be reconciled between the two examined plans, but the relationship between the categories remained constant. The Cà d’Zan Mansion plan contained numerous relocation actions due to the availability of manpower to accomplish the tasks. Historic Spanish Point, having a less abundant labor force, used substantially fewer relocation efforts. On account of its staff size and smaller budget, it relied more on salvaging and post-disaster actions. If maintenance and preparation before a storm were adequate, then minimal recovery afterwards would be needed. Nevertheless, recovery and clean-up steps should be extensively outlined in
every disaster preparedness plan. When the occasion arises, predetermined steps for recovery save a museum vital time in beginning salvage operations. The last category, Supply, is distributed among the other categories, as in the two examined plans. Supply is related to every other category but not all supplies are applicable to each. As per the examined disaster plans, a list of necessary equipment and supplies for each action, possession and easy access to the supplies and equipment, and a routine for updating them appears to be sufficient in maintaining the Supply category.

The expectation of much recovery and assurance of little recovery attitudes have been brought together in this sequencing model. Since large, well-funded historic house museums have the resources to generate their own site-specific disaster plans, this model is geared towards small to medium sized historic house museums. The amount of Secure and Relocate actions has been reconciled with the amount of Recover actions to provide more planning and preparedness prior to a disaster strike. This will lessen the amount of recovery necessary while bolstering the amount of preplanning accomplished.

The currently utilized historic house museum plan sections provide a linear progression for implementing a plan, using before, during and after time-frame designations for step implementation. Used in conjunction with these linear phases, the proposed essential guideline categories ensure that each section contains the required actions for optimal plan success. The categories identified in this study are translated into these sections and actions are grouped in the time order in which they should occur. Each section will have an Organize and Communicate and Supply subsection. The section for actions taken during a disaster will have additional subsections of Secure and Relocate. The section for after the storm will include the previous five with the addition of a Recover subsection (Figure 5-3).
Plan suggestion

The interdependency of these essential guideline categories is such that if any one category were removed, the entire process would fail. Each set of guidelines affects the others in the aforementioned sequence to facilitate proper plan implementation. To have suitable organization there has to be communication between the individuals involved in carrying out the plan. For there to be adequate communication, a chain-of-command, proper documentation and a strategy of plan execution must be organized. Organization and Communication together are applied to Relocate, Secure and Recover actions. Relocate and Secure are also tied closely together. For example, items that are moved must then be secured in their new location. To enable these five categories, the proper supplies must be present for each. To be able to recover after a disaster situation the relocation and protection actions must have been carried out thoroughly. As seen in the model, for the generic template, these six categories are maintained as subsections within the necessary time-oriented plan sections: before, during, and after a storm scenario.

Sequence

Through the suggested model, this research proposes a more thorough way to arrange the written hurricane disaster preparedness plan and actions (Tables 5-2, 5-3, and 5-4). The before section, or mitigation section, is comprised of the subsections Organize, Communicate and Supply (Table 5-2). Contained in each subsection are the steps for readying the disaster team hierarchy and museum affairs before a storm strikes. The next section occurs during the storm, identified as the response phase in the examined plans, and possesses the subsections Organize, Communicate, Relocate, Secure and Supply (Table 5-3). Similar to the first section, these subsections include steps for carrying out this phase of the plan. Some steps or items are repeated, as they pertain to both sections of the disaster plan. After the storm, the last phase goes into effect. The section for this phase contains the subsections Organize, Communicate,
Relocate, Secure, Recover, and Supply (Table 5-4). The actions in this phase are projected to return the museums to normal operations. Again, these subsections each contain certain steps, and some steps are repeated. This repetition is to illustrate that some steps occur throughout the course of plan implementation or must be performed multiple times during a storm scenario. This last group of steps readies the museum to resume normal pre-storm operations.

**Plan Actions**

These categories, as proposed in the sequencing model and plan template, are not to be confused with the before, during, and after sections. These are produced as subsections within the time-oriented sections. In each category are actions to be performed when implementing that section of the proposed disaster preparedness template. The actions are derived and synthesized from common actions in the case study plans. The following shows how specific steps and actions are divided among the essential guideline categories:

**Organize**

The Organize category guidelines should be present throughout the plan document and implementation. These guidelines aid in maintaining an order over proceedings from beginning to end in a disaster situation. Part of good organization is having needed information readily available. Quality organization starts with a written plan and a chain-of-command, as seen with both Historic Spanish Point and the Ringling Museum of Art, to arrange plan efforts so that communication and action do not lead to confusion and complications. The following are suggested essential Organize guidelines:

- Have a written plan of action for a hurricane situation. The American Association of Museums requires this to meet current risk management efforts.
- Have a predetermined plan of regularly making revisions and updating the written plan concerning who is involved and how often. Like the staff at Historic Spanish Point, after each storm situation reevaluate which steps were successful and which steps were not helpful, and then amend the plan as needed.
• A s both participant museums have shown having an employee contact tree and information sheets available and accessible aids in information dissemination. This should be kept with the disaster preparedness plan to facilitate use.

• This contact tree should also be included with a chain-of-command guide, containing a chart with the names of a designated disaster team. The roles of the disaster team will depend on the workings of the specific historic house museum. This is shown through the differences of the participant museums. Good delineation between jobs includes designating an exterior team or team member who will prepare and recover the exterior of the building(s) as well as a team or team member for the interior of the structures.

• The disaster team should have a chosen leader who directs activity throughout plan implementation. For the Ringling Museum, this was the Emergency Coordinator, for Historic Spanish Point it was the Executive Director.

• The disaster team should be comprised of knowledgeable staff members. Training in plan execution is recommended by the AAM while this type of organization promotes communication in a plan.

• Organize resources and supplies. Both museums suggest keeping a list and regular update schedule to make sure supplies are current.

• As with both museums, have required paperwork and documents pertaining to the historic house and its contents. Update inventories of artifacts and museum items regularly.

• In accordance with the Historic Spanish Point emergency plan, insurance paperwork should be current and complete.

• Also, as in the Historic Spanish Point plan, resources, including strategies for emergency funding need to be developed in case of costly damage. Consult resources or local authorities to help with these funding strategies and other possible means of support, have their contact information in the plan.

• As in the Ringling disaster plan, have step-completion checklists. Not only does this keep the steps organized, it also facilitates communication so that staff members know which actions have already been accomplished.

• Also like Ringling, have a way to keep track of moved items such as relocation sheets that give time, date, original location, new location, individual (s) who moved the item, and when it was put back into its original location.

Communicate

Another major aspect of a plan is good communication. Without communication staff members will not know what duties to perform. Both examined plans demonstrated actions from
Communicate category existing throughout the plan document and implementation. These, like the Organize guidelines, aid in directing the Secure, Relocate, and Recover categories during a disaster situation. The following are suggested essential Communicate guidelines:

- Both plans urge maintaining contact with employees throughout the plan process.
- Staff members should be aware of the disaster plan contents. Whether details are shared with all staff like Historic Spanish Point, or whether it only encompasses staff needed to perform plan duties as in the Ringling plan, depends on the specifics of the museum. Personal safety information should be made available to all staff members.
- As in each participant plan, to coordinate preparation activity the selected plan supervisor gives clear directions to the disaster team and museum staff. This dissemination of information is done prior to the disaster situation through regular meetings, bulletins, and memos. During and after a disaster situation, directions can be given through face-to-face encounters, information sheets, or phone calls, if the staff has been evacuated. This coordination is essential so that the plan is carried out in a timely manner.
- Provide training to these staff members on how to carry out the disaster plan as required by the AAM.
- The designated disaster team must know whom they report to in an emergency, for this information they should consult the disaster team designation chart located with the contact information, as can be done with either examined plan.
- To ensure timely recovery efforts, establish a rapport with the local authorities. County governments, like that of Sarasota County, have emergency management websites and response agencies. Communicate with these agencies on a regular basis through phone calls or meetings. Both the Ringling Museum and Historic Spanish Point include this directive in plan implementation.
- In an emergency, as recommended by the Historic Spanish Point plan, notify the local fire department, sheriff’s office, or emergency service.
- Arrange a museum visitor notification system to inform the public in the event of museum closure or a crisis situation. Both museums had a method of posting signs at the entrance and designating staff members to direct visitors away from the museum.
- Both museums maintain media relations because reporting on crisis situations as they happen or when a warning has been issued by local authorities helps inform the public and local officials as the museum initiates preparation actions.
Secure

Actions placed into the Secure category during content analyses are performed as a response to an impending disaster situation by Historic Spanish Point and the Ringling Museum. These types of actions are found in the last two sections of the disaster plan template, to be executed during and after a storm situation. Included are any actions garnered from the examined plans that required protecting human beings or objects from possible harm.

- Both museums specify that the first task is to ensure the protection of human life. When necessary evacuate all visitors and staff.

- Following the example of the participant museums, during a hurricane warning with storm landfall expected in the next twenty-four hours, close the entire museum to the public, as per county or local authority direction.

- Secure the parameter and site. This can either be done by a museum grounds department as in the Ringling Museum, or can be a cooperative effort of employees and volunteers as with Historic Spanish Point.

- Both plans advise security systems, locks, and alarms as concrete ways of securing the openings of a structure.

- When possible, follow the Cà d’Zan disaster team lead and provide a safe storage area for collections, away from windows and doors.

- Anchor large furniture and objects when the relocation is not feasible, as in the case of Historic Spanish Point.

- Both museums suggest covering objects and furniture with plastic or other non-porous material to prevent water damage.

- Historic Spanish Point’s plan directs the boxing of smaller items and use of material padding to prevent breakage.

- As recommended by the participating museums, whenever possible fortify openings: close building shutters, windows, and doors.

Relocate

Relocate category actions from the Ringling Museum and Historic Spanish Point disaster plans are also assigned to the last two time-oriented sections of the disaster plan template. From
the content analysis, this category incorporates any actions that require moving human beings or objects. Relocating people and objects in the face of a hurricane situation is imperative.

- To keep everyone as safe as possible the museum plans from both participants recommend that guests and visitors be cleared from the site. Pre-designated staff members should direct exiting procedures or escort visitors off site. Signs can also be used to direct exit flow as well as inform visitors of museum site closings.

- Both museums require that non-essential staff also be cleared from the site when a severe situation arises, though Historic Spanish Point utilizes most staff members in emergency plan implementation.

- The disaster plans from both museums suggest that historic furniture and collections should be moved away from windows and doors.

- Like the Cà d’Zan mansion staff, when possible, designate a safe storage area for emergency storage and transfer historic items to this location.

- Historic Spanish Point gives direction to each staff member to remove electrical office equipment from their designated work area to a safe storage space.

**Recover**

As seen in the case studies, the Recover category is assigned actions that include making repairs around the museum site, performing rehabilitation to the historic house structure, conserving individual objects, along with monitoring and collecting evidence of damage. These measures propel the museum towards resuming normal operations and are thus found only in the phase executed after a storm has passed.

- Historic Spanish Point advises the assessment of damage to site and structures while monitoring site conditions

- Both plans recommend the repair of any damage to the site. Priority should be given to the historic house structures and collections. First to be repaired are damage to roofs, broken windows or any openings in the envelope of the historic house that would allow the elements in. Afterwards other buildings or structures should be attended to. Preliminary repairs must be performed in a timely fashion to stabilize the structures and prevent further damage.

- If the museum does not have their own conservation specialists, follow the lead of Historic Spanish Point and contact conservation professionals if needed.
• Perform rehabilitation as needed. Specific damage cannot always be anticipated. This rehabilitation may involve some or much reconstruction and conservation on the historic structures, depending on the situation. These procedures should always follow the National Trust for Historic Preservation and the Secretary of Interiors guidelines.

• Collect evidence of damage. For Historic Spanish Point’s plan, this includes documenting and photographing damaged items; damage reports and evidence is necessary to file insurance claims.

• Both museums propose cleaning and clearing debris from the museum site and adjacent structures. This will also aid in promoting human safety.

• Return furniture and objects to proper locations, each museum studied did this as soon as possible in order to continue normal operations and re-open to the public.

Supply

Each participant museum makes sure to have emergency supplies available. Though Supply is a small category in each plan, it is essential. Every other category found required certain types of supplies in order to perform the actions in that grouping. Supplies needed to protect employees and guests throughout a disaster situation are crucial for human safety. As Nelson (1991) made clear in his text, human safety is the highest priority in any crisis situation.

• Historic Spanish Point’s emergency disaster plan dictated that fire extinguishers and a first aid kit should be readily available. First aid kits need to include sterile and adhesive bandages, antibiotic ointment, burn ointment, thermometer, eye washing agent, and cleansing substances.

• Historic Spanish Point also suggested having tools to monitor and control humidity and temperature levels in the historic building. Along with this equipment, fans, dehumidifiers, thermometers, air conditioning units and wet vacuums should be on hand in case of humidity and moisture damage. For office devices, essential equipment includes surge protectors and emergency generators.

• In every building, according to Historic Spanish Point, smoke detectors and fire alarms should be installed, if possible.

• Provisions necessary for a hurricane situation at Historic Spanish Point included flashlights and batteries in case of power outages while protection supplies for staff included gloves, goggles, and earplugs.

• Both museums called for an inventory of emergency supplies should be performed regularly and supplies should be updated as needed.
Further Research

Opportunities for further analysis exist in conducting this research for a wider range of case studies. Since this is an exploratory case study to obtain preliminary findings, a more in-depth multiple case study report is needed to substantiate these findings. This would further generalize these study findings to the historic house museum population. Delving into the situations of other geographical regions would provide beneficial information on whether these hypotheses hold true for the entire historic house museum population. Even to generalize the findings to the historic house museum population in Florida, more contrasting cases would have to be completed. To broaden findings to the Eastern United States would require surveying multiple museums of different sizes from each state and analyzing their disaster preparedness plans.

This research is specific to these two historic house museums, but multiple institutions, including other types of museums and historic sites, share the issues this study examines. Conducting studies to incorporate these other types of museums or institutions would provide beneficial information on whether similar results hold carry to other populations. Other issues, such as the impact of location, plan availability, and volunteer availability should also be scrutinized. Locations to be examined include rural museums as well as urban museums along with other climate or terrain variations. If the plans were more available to employees or volunteers, museums might receive more aid by way of laborers. If a museum uses volunteers, recruitment methods may impact disaster preparation along with length of time a volunteer stays with the museum. Another study to perform would include examining the cost spent by a smaller museum on volunteer training in opposition to the cost of hiring professionals. What does this training cost entail? If it is comprised of monetary funds, time and additional work by
staff, which of these costs is more? How would this scale be determined? And which cost would spur the museum to hire professionals? What are other variables involved?

The essential guideline categories, model and template offered in this study, gives smaller museums access to the essential steps needed for a disaster preparedness plan to protect their collection and structure. These categories also leave room to allow the plan to be customized by the museum staff. Examining multiple museums in other budget categories with different staff sizes would provide information on the prevalence of the essential guideline categories found in these two case studies. This suggests that examining other variables may give different results. If this holds true, these guideline categories could be expanded to incorporate additional measures. Different variables could include museum type and other types of disaster plans. If museum type were a variable would the same essential guideline groupings arise? Do these categories apply to all hurricane preparedness plans? Do they apply to all emergency plans or to plans covering other disaster situations such as earthquakes, tornados or floods?

Exceptions to the size classifications utilized in this research could be studied. For this study, a ‘small’ museum or “large” museum was defined by budget, size, collection value, and staff size. An exception to this classification could be a museum of small physical size and few staff members but having a large budget. Another exception would be an under-funded museum of large physical size with more than thirty staff members. Would a content analysis of their plans reveal the same essential guideline groupings? What would the relative distribution of plan actions be among these categories? Individual item conservation techniques could also be examined in an endeavor to come up with more explicit guidelines. Items would be specific to the museum being studied but could possibly be grouped in categories of like items to find
guidelines for every item group. This conservation document could be added to a disaster preparedness plan or be used as reference material in dealing with property destruction.

If favorable circumstances were present, the efficacy of each disaster preparedness plan’s approach could be tested during a disaster situation. This participant observation study would accompany a longitudinal case study. During this case, the necessary information would come from observation of preparedness plan implementation before a hurricane, response during the hurricane, and then observation of recovery measures after the hurricane. Problems may arise due to interference with staff during observational analysis. Other issues inhibiting analysis would include museums being unwilling to participate because of the circumstances, the unpredictability of hurricane occurrence, or danger to the researcher because of the situation.

Because historic house museums provide a concrete link to human history, it is imperative that further research in their conservation be conducted. Particularly in the ever-growing threat of natural disasters, preserving these buildings is becoming more difficult. It is the responsibility of all individuals in the fields of design, construction, building and preservation to contribute to this safeguarding endeavor. Historic preservationists and the museum community are at the forefront of research on historic buildings, but interior designers have the most connection with the interiors of these structures (Murtagh, 2006). Though interior designers in their tendency to favor modernism and appease the personal tastes of their clients usually disregard the past, preservationists have a propensity for concentrating on the exterior. This leaves historic interiors as an afterthought (Murtagh, 2006). This study sought to avoid the loss of historic interiors due to hurricane damage by protecting the historic house museums collections through discovering essential guidelines in disaster preparedness plans and providing a general, customizable template. More cooperation between the interior design and historic preservation disciplines is
necessary in the effort to protect and preserve these historic buildings (Murtagh, 2006). Natural disasters will never cease to plague historic landmarks. The task is now at hand for both disciplines to find the best way to handle these potentially catastrophic situations.
Table 5-1. Comparison between the participating museums' disaster plans.

<table>
<thead>
<tr>
<th>Ringling Museum of Art</th>
<th>Historic Spanish Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Specific to Hurricane disaster situations.</td>
<td>• Covers all emergency situations.</td>
</tr>
<tr>
<td>• Contact tree and contact sheet for each employee</td>
<td>• Full-time personnel contact table</td>
</tr>
<tr>
<td>• Plan specifically for historic mansion preparation</td>
<td>• One plan that covers entire museum</td>
</tr>
<tr>
<td>• Checklists of steps to be completed in each building.</td>
<td>• No specific directions for each house</td>
</tr>
<tr>
<td>• Floor plans for object location</td>
<td>• Has a list of safety equipment locations.</td>
</tr>
<tr>
<td>• Sandbag maps</td>
<td>• Has a museum recovery schedule.</td>
</tr>
<tr>
<td>• Phases: Preparation, Yellow Alert, Red Alert, Recovery</td>
<td>• Phases: Mitigation/Preparation, Response, Recovery</td>
</tr>
<tr>
<td>• Divided into actions by room</td>
<td>• Divided into actions by type of emergency situation</td>
</tr>
<tr>
<td>• Relocation directions for objects, furniture and artwork.</td>
<td>• Directions to move furniture and items away from windows, but not to relocate items to another area.</td>
</tr>
<tr>
<td>• Disaster chain of command structuring table.</td>
<td>• Appendix of local, state and national professional resources.</td>
</tr>
<tr>
<td>• Security Measures</td>
<td>• Appendix of local emergency services and contact information.</td>
</tr>
<tr>
<td>• Plan is confidential</td>
<td>• Plan is supplied to all employees. It is not classified because there is no classified information.</td>
</tr>
<tr>
<td>• No volunteers, only up to 6 trained staff members exclusively for mansion preparation.</td>
<td>• Volunteers utilized, along with 6-10 staff members to prepare the entire complex, 3 of which concentrate on the historic houses</td>
</tr>
<tr>
<td>• Each building section of plan is written by a curator</td>
<td>• Plan based off of reference texts with contributions by all staff members.</td>
</tr>
</tbody>
</table>
Figure 5-1: Examined plans comparable relationship model – content analysis categories found in the plans interacted similarly.
Figure 5-2. Effects of budget and size on disaster preparedness.
Figure 5-3. Proposed sequencing model for essential preparedness guideline categories.
<table>
<thead>
<tr>
<th>Section</th>
<th>Subsection</th>
<th>Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before the storm</td>
<td>Organize</td>
<td>• Have written plan of action</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Organize resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Checklists</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Have proper documentation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contact tree and employee sheets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Assign tasks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Have proper documentation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Itemize responsibilities - chain of command</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Have contact information on hand: employee, local authorities, insurance</td>
</tr>
<tr>
<td></td>
<td>Communicate</td>
<td>• Contact employees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide necessary directions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inform staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Coordinating activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reviewing procedures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inform visitors of situation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Teamwork</td>
</tr>
<tr>
<td></td>
<td>Supply</td>
<td>• Forms and documentation for historic items</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contact sheets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Checklists</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Plan</td>
</tr>
<tr>
<td>Section</td>
<td>Subsection</td>
<td>Steps</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>During the storm</td>
<td>Organize</td>
<td>• A way to keep track of relocated items such as relocation/move sheets &lt;br&gt;• Checklists &lt;br&gt;• Have proper documentation &lt;br&gt;• Contact tree and employee sheets &lt;br&gt;• Assign tasks &lt;br&gt;• Have proper documentation &lt;br&gt;• Itemize responsibilities – chain of command &lt;br&gt;• Have contact information on hand: employee, local authorities, insurance</td>
</tr>
<tr>
<td></td>
<td>Communicate</td>
<td>• Contact employees &lt;br&gt;• Provide necessary directions &lt;br&gt;• Inform staff &lt;br&gt;• Coordinating activities &lt;br&gt;• Reviewing procedures &lt;br&gt;• Inform visitors of situation &lt;br&gt;• Teamwork</td>
</tr>
<tr>
<td></td>
<td>Relocate</td>
<td>• Relocate artifacts, art and furniture &lt;br&gt;• Evacuate personnel &lt;br&gt;• Remove electric office equipment offsite &lt;br&gt;• Evacuation of site visitors &lt;br&gt;• Moving furniture and objects away from windows and doors</td>
</tr>
<tr>
<td></td>
<td>Secure</td>
<td>• Fortify openings: Secure shutters, blinds, windows and doors &lt;br&gt;• Close site to public &lt;br&gt;• Store collection items &lt;br&gt;• Anchor large furniture and objects &lt;br&gt;• Cover items with plastic &lt;br&gt;• Store items away from windows</td>
</tr>
<tr>
<td></td>
<td>Supply</td>
<td>• Surge protectors &lt;br&gt;• First aid kit &lt;br&gt;• Personal safety equipment &lt;br&gt;• Checklists</td>
</tr>
<tr>
<td>Section</td>
<td>Subsection</td>
<td>Steps</td>
</tr>
<tr>
<td>---------------</td>
<td>------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| After the storm | Organize   | • Update and revise procedures  
• A tracking system for relocated items such as relocation/move sheets  
• Checklists  
• Have proper documentation  
• Contact tree and employee sheets  
• Assign tasks  
• Itemize responsibilities – chain of command  
• Have contact information on hand: employee, local authorities, insurance  
• Have proper documentation |
| After the storm | Communicate | • Contact employees  
• Notify proper authorities  
• Contact insurance adjuster  
• Cooperate with emergency services  
• Provide necessary directions  
• Inform staff  
• Coordinating activities  
• Reviewing procedures  
• Inform visitors of situation  
• Teamwork |
| After the storm | Relocate   | • Return objects and furniture to proper locations |
| After the storm | Secure     | • Secure parameter of site  
• Conservation |
| After the storm | Recover    | • Assess damage  
• Restore operations  
• Re-open to public  
• Reconstruction  
• Repairs  
• Cleanup |
| After the storm | Supply     | • Temperature and humidity monitors  
• Fans, dehumidifiers, and wet vacuums  
• Emergency generator  
• First aid kit  
• Personal safety equipment |
APPENDIX A
QUESTIONNAIRE

Information on Historic House Museum Demographics and Hurricane Preparedness Plan
If you have any questions regarding this survey please contact:
Jennifer Bassett       Dr. Maruja Torres-Antonini
jenibear@ufl.edu       mta@ufl.edu
(407) 443-8839         (352)392-0252
Please return this survey as an email attachment to jenibear@ufl.edu; fax to (407) 521-7210 attn.
Jennifer Bassett, or fax to (352) 392-7266 attn. Dr. Maruja Torres-Antonini

Demographic Information

1. Museum Type
   a. Historic Site Museum complex containing a Historical House.
   b. Historic House Museum (House only).
   c. Other ______________________________

2. Budget Size
   a. $350,000 and under
   b. $350,000–$499,999
   c. $500,000–$999,999
   d. $1,000,000–$2.9M
   e. $3M–$4.9M
   f. $5M–$14.9M
   g. $15M and over

3. Governance Type. Please circle which best describes your institution.
   a. County/Regional
   b. Federal
   c. Municipal
   d. State
   e. College/University
   f. Private Non-Profit
   g. Other (e.g., joint governance, trust, school district)

4. Number of Full-time staff (for the entire institution)
   a. 1–5
   b. 6–15
   c. 16–30
   d. 31–50
   e. 51–70
   f. 71–100
   g. 101–150
   h. 151–200
   i. Over 200

5. Number of Full-time staff (for the historic house only)
   a. 1–5
   b. 6–15
   c. 16–30
   d. 31–50
51–70  
f. 71–100  
g. 101–150  
h. 151–200  
i. Over 200

6. Geographic Region
   a. Panhandle  
   b. Northeast Florida  
   c. East Central Florida  
   d. West Central Florida  
   e. South Florida


Hurricane Plan Information

7. How long does it typically take (in days) to carry out the Hurricane Preparedness plan?
   a. 1–3  
   b. 3–5  
   c. 6–10  
   d. 10–14  
   e. 15 or more

8. How many people are required to perform the duties outlined in the Hurricane Preparedness plan?
   a. 1–3  
   b. 3–5  
   c. 6–10  
   d. 10–14  
   e. 15 or more

9. How often is the disaster plan for you institution revised?
   a. Semi-Annually  
   b. Annually  
   c. Other _______________

10. Is there an overall plan that encompasses the entire museum complex? If so, please briefly summarize the plan format and contents.

   -----------------------------------------------------------------------------
   -----------------------------------------------------------------------------
   -----------------------------------------------------------------------------

11. Is there an individual plan for each structure in the museum complex? If so, please briefly describe the plan format and contents.

   -----------------------------------------------------------------------------
   -----------------------------------------------------------------------------
   -----------------------------------------------------------------------------

12. Who is involved in writing the hurricane plan? (Please list all personnel positions involved).

   -----------------------------------------------------------------------------
   -----------------------------------------------------------------------------
   -----------------------------------------------------------------------------
13. Who is involved in carrying out the steps of the hurricane plan? (Please list all personnel positions involved).

________________________________________________________________
________________________________________________________________
________________________________________________________________

14. How long does it take, in days, for your institution to return to normal operations after the hurricane has passed? (e.g. allow guests to return to property).
   a. 1–3
   b. 3–5
   c. 6–10
   d. 10–14
   e. 15 or more

15. Please describe below any additional measures to maintenance or upkeep of your institution which aid in structural strength against hurricane damage (you may attach an additional page if you need more space):

________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
APPENDIX B
INTERVIEW QUESTIONS

Information on Historic House Museum Demographics and Hurricane Preparedness Plan

Interviewer Contact Information:
Jennifer Bassett       Dr. Maruja Torres-Antonini
jenibear@ufl.edu       mta@ufl.edu
(407) 443-8839         (352)392-0252

Interview Questions
1. What does the schedule of a typical day during hurricane plan implementation entail?
2. What is the longest amount of time your museum has spent implementing the hurricane plan? What is the shortest?
3. What factors influence how long plan implementation takes?
4. Which staff members take part in performing the duties outlined in the Hurricane Preparedness plan? Docsents? Full-time staff? Volunteers? Please list job titles, not individual names and include number of people.
5. When was your museum’s disaster plan last revised? When is the next revision scheduled?
6. Who takes part in making revisions to the plan? Please list job titles, not individual names.
7. How does the plan for the Historic House museum fit into the plan for the rest of the museum complex?
8. Can you elaborate on how each structure’s plan fits into the plan for the overall complex?
9. What does your institution or museum consider ‘normal operations’ to entail?
10. How quickly do ‘normal operations’ resume?
11. How does the museum operate in the meantime?
12. Please describe any additional measures to maintenance or upkeep of your institution that aids in structural strength against hurricane damage.
13. How does each aforementioned measure help sustain the structure against hurricane damage?
14. What is the most common type of damage from hurricanes sustained by the historic structure?
The following list of resources has been compiled to provide additional planning materials, funding information, and advice on disaster planning for historic house museums. The website for each resource is provided:

International
International Council of Museums (ICOM), http://icom.museum/
ICOM’s International Committee for Historic House Museums—DEM HIST, http://demhist.icomuseum/
International Centre for the Study of the Preservation and the Restoration of Cultural Property (ICCROM), http://www.iccrom.org/
International Council on Monuments and Sites (ICOMOS), http://www.icomos.org/
World Monuments Fund (WMF), http://www.wmf.org/
Conservation Information Network (CIN), http://www.bcin.ca/

National
Advisory Council on Historic Preservation (ACHP), http://www.achp.gov/
American Association for State and Local History (AASLH), http://www.aaslh.org/
American Institute for Conservation (AIC), http://aic.stanford.edu/
American Museum Association (AMA), http://www.aam-us.org/
Association for Preservation Technology, http://www.apti.org/
Conservation Center for Art and Historic Artifacts (CCAHA), http://www.ccaha.org
Conservation Online (CoOL), http://palimpsest.stanford.edu/
Federal Emergency Management Administration (FEMA), http://www.fema.gov/
Institute for Museum and Library Services (IMLS), http://www.imls.gov/
The J. Paul Getty Foundation, http://www.getty.edu/
National Park Service (NPS), http://www.nps.gov/
National Trust for Historic Preservation, http://www.preservationnation.org/
Smithsonian Institute, http://www.si.edu

State—Florida
Florida Department of State – Florida Division of Historic Resources, http://www.flheritage.com/
Florida Division of Recreation and Parks, http://www.dep.state.fl.us/parks/
Local—Sarasota
Sarasota County All Hazards Emergency Management,
http://www.scgov.net/EmergencyServices/allhazards.asp
Sarasota County Arts Council, http://www.sarasota-arts.org/


BIOGRAPHICAL SKETCH

Jennifer Bassett was born in 1983 in New Orleans, Louisiana. In 1991, she relocated to Florida with her family. At the University of Florida, she completed a Bachelor of Arts in French with a minor in history. While finishing her bachelor’s degree she applied to the University of Florida’s Master of Interior Design program. Her chief interest was to study design and historic preservation of interiors in the College of Design, Construction, and Planning. She received her Master of Interior Design from the University of Florida in 2009. Her main career interests are design and organizational consulting, but she maintains an ardent fascination with history and preservation.