PRE-DISASTER PLANNING AT FLORIDA COMMUNITY COLLEGES: A COMPARISON OF FEMA GUIDELINES TO PROCESSES AND PRACTICES

by

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This dissertation was prepared under the direction of the candidate's dissertation advisors, Dr. Deborah L. Floyd, Department of Educational Leadership and Research Methodology, and Dr. Patricia Maslin-Ostrowski, Department of Educational Leadership and Research Methodology, and has been approved by the members of his supervisory committee. It was submitted to the faculty of the College of Education and was accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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ABSTRACT

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The purpose of this study was to explore and describe the pre-disaster planning processes and practices used by Florida's community college administrators as of December 2008. FEMA's Building a Disaster Resistant University (DRU) model was the conceptual lens for this study. A mixed methods research design included 15 surveys completed by Florida community college business officers and six semi-structured interviews with staff most involved in pre-disaster planning. Data were compared to DRU guidelines to establish whether processes and practices were congruent with the DRU.

Six quantitative findings were reported in this study. First, 5 of 14 (35.7%) survey respondents appointed a project manager; second, 14 of 15 respondents (93.3%) conducted a risk assessment; third, 13 of 15 (87%) respondents reported contacting 2 to14 stakeholders; fourth, 14 of 15 (93.3%) survey respondents conducted an inventory of

buildings and infrastructure assets; fifth, majority of survey respondents (87.7%) reported they identified mitigation goals and objectives; sixth, 8 of 14 (57.1%) respondents' president formally adopted the pre-disaster mitigation plan. Qualitative findings were, first, wide internal and external stakeholder representation was organized; second, advisory committees have no mission statement; third, one site identified hazards by consulting with stakeholders, but neither one could provide a list of hazards; fourth, sites used only half of the DRU's building inventory items; fifth, recording and mapping of infrastructure (i.e., utilities) are evolved at one site, while both sites backup administrative systems; sixth, neither site considered several hazard profile formula variables recommended by the DRU; seventh, Beta's internal and external stakeholders conduct a rigorous vetting process, which allows it to establish a prioritized list of mitigation goals and objectives; eighth, neither site uses an adequate formula for benefit-cost analysis and no consultant has been hired to do so; ninth, only one participant could articulate how the mission guided mitigation action prioritization; tenth, key internal and external stakeholders adopted mitigation actions; eleventh, no plan for measuring mitigation action efficacy exists; and twelfth, mitigation action successes are communicated to internal stakeholders, but not external stakeholders making it difficult to achieve plan momentum and funding. Recommendations are provided for community college administrators.

DEDICATION

To Pat and Mike, two of my siblings and friends, who through their challenges inspire me to overcome my own.

PRE-DISASTER PLANNING AT FLORIDA COMMUNITY COLLEGES:

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LIST OF TABLES

CHAPTER 1

INTRODUCTION

The terrorist attacks of September 11, 2001, started in motion a reevaluation of pre-disaster planning efforts both inside and outside of higher education, including all levels of government and healthcare in the United States and community colleges in the state of Florida. These reevaluations were in response to newly developed and mandated federal incident management systems and state emergency management plans. The United States Federal Emergency Management Agency (FEMA) released the Disaster Resistant University (DRU), a pre-disaster planning process in August 2003, which is designed to guide institutions of higher education that are either beginning a pre-disaster plan, or taking steps to increase their disaster-resistance (FEMA, 2003). The DRU is the result of a collaborative effort undertaken by six universities that have long histories of engaging in pre-disaster planning. It is designed to aid institutions of higher education in the implementation of a 4-phase plan, which includes the organization of resources, hazard identification and assessment of risk, mitigation plan development, and the adoption and implementation of the mitigation plan. None of the federal, state or other pre-disaster systems, plans, assessments, or models focuses on these phases of pre-disaster planning like the DRU.

Statement of the Problem

As community based institutions, primarily commuter in nature, community colleges are likely exposed to natural and manmade disasters similar to those in the communities they serve (D. Floyd, personal communication, March 27, 2006). For instance, in Florida, the 2004 hurricane season alone unleashed four hurricanes that made landfall in Florida, testing the disaster planning of any institution of higher education in the hurricanes' path and causing $26 million dollars in damage to the Florida community college system (Florida Community Colleges Risk Management Consortium [FCCRMC], 2004). The subsequent assault on Florida's community colleges by the 2005 hurricane season resulted in nearly $11.5 million dollars in damages (FCCRMC, 2006). These costs and the fact that no study has ever investigated the pre-disaster planning process employed by Florida's community colleges, combine to support the idea that the existing gap in scholarly literature should be filled. Given the state of Florida's investment in and reliance upon the community college system for workforce education and economic development, conducting this study takes on even more significance. Likewise, prudence suggests that FEMA's DRU model, its most comprehensive and all hazards model, designed to guide pre-disaster planning in higher education, be used to explore the pre-disaster planning process used by Florida's community colleges to reduce or eliminate the impact natural and manmade disasters can have on institutions today. FEMA encourages the sharing of information among institutions because pre-disaster planning in higher education is so new (FEMA, 2003). Therefore, this study responded to FEMA's call to share pre-disaster planning information amongst institutions of higher education and in particular community colleges, where today there has not been a comprehensive

exploration and description of the process. This study provides insights into pre-disaster planning where little research exists and where it is greatly needed.

Role of the Researcher

The Florida home in which my family resides is situated approximately five miles from both the apartment of some of the terrorists who crashed planes into the Word Trade Center in New York and the site of the first anthrax attack in the U.S. Other terrorists involved in the September 11th attack on the U.S. learned how to fly a jet at the Opa Locka Airport located less than a mile from St. Thomas University where I am employed. Two of the four hurricanes that made landfall in Florida in the fall of 2004 caused more than $10,000 in damage to our home; the 2005 hurricanes levied $1,000 in damages. Prior to the hurricanes and before departing campus for the safety of my home I worked with the university president and fellow staff members to assure that students were evacuated from our residence halls and were transported to a hurricane shelter. A dozen years earlier, the largest hurricane to hit the U.S. devastated or significantly damaged the homes of 200 fellow faculty and staff members employed at Florida International University in Miami. I witnessed their struggles to recover from the damage of a natural disaster and worked hand-in-hand with other volunteers to aid the process, supplying basic needs through grassroots efforts. These disasters and personal experiences have drawn my personal and professional attention and serve as the backdrop to my research interest in pre-disaster planning.

Rationale for the Study

Historically, community colleges in the United States have been founded, in part, as open access institutions, admitting all community members while providing academic

programs tied to the regions they serve (American Association of Community Colleges [AACC], 2007). In the past 9 years, however, their missions have been exposed to an evolving threat environment (Homeland Security National Preparedness Task Force, 2006). Confronted with the terrorist attacks on 9/11, the natural disasters in 2004 and 2005 in Florida and the Gulf of Mexico and the 32 murders at Virginia Tech on April 16, 2007, institutions are now inextricably duty-bound to develop an understanding of the importance of pre-disaster planning as a way to protect life, property, functions and the institutional mission. At no time in the history of U.S. higher education, or in Florida, has the need been greater for a study like the one conducted here.

If the terrorist attacks of 9/11 and the hurricanes of 2004 and 2005 were not enough to increase the awareness of the need to conduct pre-disaster planning on Florida community college campuses, the massacre of 32 students and faculty at Virginia Tech compelled federal and state government leaders, including President George W. Bush, Florida's Governor, Charlie Crist, and Florida community college leaders to act.

Their actions subsequent to the Virginia Tech massacre support their understanding of both the need to assess the level of pre-disaster planning on campuses and the need to conduct pre-disaster planning. Their actions resulted in the development and creation of campus safety related reports, task forces, summits, conferences and studies, some of which directly support the rationale for this study. Specifically, a report submitted to President Bush (United States Department of Health and Human Services [USDHHS], 2007) identified the important issues arising from the Virginia Tech massacre. A key finding and recommendation was that the federal government should work with states to, in part, enhance, increase, coordinate, and distribute information and

practices on threat assessments and pre-disaster planning for U.S. institutions of higher education. The Disaster Resistant University model (FEMA, 2003), which provides the conceptual lens for this study includes the need to conduct such an assessment. Another recommendation in the report to President Bush is that more needs to be done to disseminate best practices (USDHHS, 2007). The study includes interviews with a sample of pre-disaster planning leaders, or community college administrators who were identified as being at the top of their game in pre-disaster planning. Publication of the study and its findings in Dissertation Abstracts International (DAI) will increase the dissemination of best practices. Future presentations and articles related to this study are anticipated given how fresh the topic is to the field of higher education and the need for related information by Florida community college administrators and others.

A state of Florida Gubernatorial Task Force for University Campus Safety (Department of Children and Families [DCF], 2007) proposed 63 recommendations for enhancing safety and security on Florida university campuses, community colleges and independent colleges and universities. Like both the federal report (USDHHS, 2007) and the Disaster Resistant University model, the Gubernatorial Task Force also recommended that community colleges conduct an assessment of their infrastructure. Another one of its recommendations, similar to one found in the DRU model (FEMA, 2003), is the development of emergency management plans with local responders and the need to provide them a copy of the plan (United States Department of Health and Human Services, June 13, 2007). The similarities found in the recommendations made by federal and state governments and their likeness to the Disaster Resistant University model provide further support of the need for this study.

The Gubernatorial Task Force recommended the State University System Chancellor, along with all presidents of Florida colleges and universities, encourage their accrediting agency, the Southern Association of Colleges and Schools (SACS), to bolster accreditation standards by developing and including improved safety and security standards in the process of accreditation (DCF, 2007).

This study is the first of its kind to inform Florida community college administrators of the current status of pre-disaster planning on a sample of their campuses and it will help them to understand the issues they will confront as they strive to enhance their pre-disaster planning.

Prior to data collection for this study, no study was found in the literature that explores and describes the process of pre-disaster planning in community colleges. This void, coupled with the impact that recent disasters have had on the higher education community and Florida's 28 community colleges, serve to elucidate the need for this study. Findings of this study will help Florida community college leaders gain a better understanding of what they can do to reduce or eliminate disasters on their campuses. Given recent and deadly disasters on U.S. campuses like the massacre of 32 students and faculty at Virginia Tech on April 16, 2007, the shootings at Northern Illinois University February 14, 2008, and more recently, the killing of three faculty members at the University of Alabama-Huntsville (Carlson, 2010), there is no better time for a study like this one.

The rationale for this study received additional support when safety and security issues raised by the Virginia Tech massacre compelled administrators from all Florida community colleges to gather at St. Petersburg College June 25-26, 2007 to identify best

practices as part of the Florida Community College Campus Security Summit (St. Petersburg College, 2007). One of the many best practices recommended time and again by participants was the need to appoint a campus safety czar. This recommendation is consistent with the Disaster Resistant University model (FEMA, 2003), which recommends the appointment of a project coordinator or the hiring of a consultant for the all-hazards pre-disaster planning initiative. Summit participants recommended dozens of other best practices in the categories of prevention, intervention, response and aftermath (see the agenda on the St. Petersburg College web site for a complete overview.)

Costs associated with disasters at Florida's community colleges bring still more support for the rationale for this study. The $26 million dollars in damages incurred by Florida's community college system during the 2004 hurricane season is but one example (Orlando Business Journal, 2004). In 2005, Hurricane Katrina damaged community colleges in Louisiana, Mississippi, and Alabama. Mississippi Gulf Coast Community College, which serves 10,500 students was one of the hardest hit leaving half of the Perkinston campus' buildings damaged and two residence halls badly damaged (Mangan, 2005).

Damages paid by insurance carriers for losses resulting from the terrorist attacks on the World Trade Center were estimated to be $50 billion dollars (United States General Accounting Office [USGAO], 2002). The cost of the anthrax attacks to the U.S. Post Office alone was estimated to be in the billions according to Postmaster General John Potter (British Broadcasting Corporation [BBC], 2001). Disasters are expensive, whether natural or manmade and the cost, especially when disaster is unexpected and when little planning has occurred, can disrupt the overall function of the institution and

deter it from achieving its mission and goals. It is prudent and much less expensive to conduct pre-disaster planning to reduce and eliminate the effects of natural or man-made disasters (FEMA, 2003), rather than to allow them to occur unabated. Findings reported in this study will guide administrators of Florida community colleges as they prepare to reduce or prevent the effects of disasters on their campuses, providing increased safety and security and reducing costs related to response and recovery.

Purpose of the Study

The purpose of this mixed method study was to explore and describe the pre-disaster planning process used by Florida's community college administrators as of December 2008. The identification of pre-disaster planning practices employed by community college leaders in the state of Florida will inform the future practice of their counterparts, enabling them to better protect life, property, infrastructure, and the functioning of their campuses. The model used as a framework is the Building a Disaster Resistant University (DRU). The purpose of creating the DRU was to persuade colleges and universities to pursue pre-disaster planning with serious intent and to demonstrate their intent by creating a pre-disaster plan aimed at reducing and eliminating their exposure to disasters (FEMA, 2003). Leaders amongst Florida's community colleges were surveyed and interviewed, so that I could explore and describe their state of pre-disaster planning as compared to DRU guidelines.

Methodology

The mixed-methods research design included a survey and semi-structured interviews. A seven-item survey was emailed to Florida's 28 community college Business Officers for the purpose of generating a score that identified two pre-disaster

planning leaders amongst Florida's community colleges. The three staff most involved in pre-disaster planning at each of the two community colleges agreed to participate in semi-structured interviews. Interviews were used to explore and describe the pre-disaster planning process at the two community colleges.

Conceptual Lens for the Study

The conceptual lens for this study was the DRU model developed by FEMA and six universities long involved in pre-disaster planning. FEMA (2003) holds that the DRU model can be an effective pre-disaster planning tool for any type or size of educational institution, which explains why the model was used to guide this study.

The pre-disaster planning experiences of FEMA and the six contributing universities are significant to the future of pre-disaster planning in higher education. The DRU model offers a comprehensive four-phased approach to pre-disaster planning providing Florida's community colleges with many concepts and insights helpful in the planning process. The 4-phases of the DRU include: the organization of internal and external resources, hazard identification and risk assessment, mitigation plan development, and the adoption and implementation of the mitigation plan. The DRU has created a major shift in the availability of pre-disaster planning guidance in the post 9/11 era and guided this study.

Research Questions

Four questions guided this research, each one corresponding with the four phases of pre-disaster planning put forward by FEMA's Disaster Resistant University model. The DRU model was used to explore and describe whether or how closely Florida

community college leaders in pre-disaster planning are following the planning process guidelines offered by the DRU.

Phase I: Organizing resources. What internal and external stakeholders and resources have been organized to aid the community college in its pre-disaster planning and has a mission statement been developed for the advisory committee as recommended by DRU guidelines?

Phase II: Hazard identification and risk assessment. Who has assisted the community college in identifying a list of natural and manmade hazards and what assets have been inventoried (i.e., buildings, contents and infrastructure) allowing hazards to be profiled (i.e., disaster scenarios developed to estimate impact) as compared to DRU guidelines.

Phase III: Mitigation plan development. Who assisted the community college in developing and prioritizing mitigation plan goals and objectives and was the institution's mission and/or a process or formula for prioritization used and how do its efforts compare to DRU guidelines?

Phase IV: Adoption and implementation. Which internal and external stakeholders formally adopted the mitigation plan and how was the efficacy of mitigation actions measured and successes published as compared to DRU guidelines?

The above research questions allowed me to explore and describe the pre-disaster planning process used by pre-disaster planning leaders to reduce and/or prevent the impact natural and manmade disasters had on their community college campuses after the terrorist attacks of 9/11, the hurricanes of 2004-05, and the Virginia Tech massacre.

Limitations

Like all research, this study has limitations. First, the DRU is not presented here as the most comprehensive pre-disaster planning guide, so the practitioner should bear in mind that hiring an expert and drawing upon additional technical information may yield further enhancements to his/her community college's pre-disaster planning (FEMA, 2003). Authors of the DRU note that, "The planning process for your campus will be as individual as your institution" (FEMA, 2003, p. 3). Second, the acceptance of a budget estimate for funding pre-disaster planning projects is a limitation of this study. The pre-disaster planning leadership survey asks Business Officers, "To the best of your knowledge, please list the total amount of expenses incurred by the community college for pre-disaster planning in the four below categories and budget years." Exact values were not reported, which may have impacted the community colleges that were identified as pre-disaster planning leaders. The above approach was taken because the survey was drafted with the assistance of four Business Officers employed by Florida community colleges. They revealed that invoices would need to be manually searched requiring several staff to review files for more than a week, at some community colleges, for the values requested. No general ledger codes existed for these values at the time the survey was administered, which would have made locating them much easier. Third, my decision to conduct the study relying on a mixed-methods research design could make the generalizability of findings difficult. As noted by Miles and Huberman (1994), however, a multiple-case sample helps to add confidence to findings. Fourth, official documents either unavailable or not provided for analysis by participants consequently limited the amount of data collected and required me to rely primarily on interview data. I believe

the within-case sample is complex enough that despite the three participants interviewed at each college site the interview data is rich. Fifth, the vast number of pre-disaster planning guidelines noted in the DRU made it difficult to include ample research questions in this study to address each important component. Sixth, the inclusion of semi-structured interviews as part of the study design may have resulted in the collection of data that is socially desirable in nature and that may include participant biases that are unknown to me. I attempted to reduce the collection of this type of data by becoming familiar with the research of Kennedy (1984) and Gordon (1956). The methodology section includes an overview of Kennedy's 1984 assessment of the validity of qualitative data, which offers four threats to naturalistic investigative procedures. In addition, Gordon's 1956 work describes seven other problems confronted by the interviewer as he/she attempts to collect valid data. Seventh, survey data was collected in June and July, 2008 and interviews were conducted in December, 2008. If the data were collected today, the findings and conclusions may be different from those presented in this study.

Significance of the Study

This study is significant because FEMA has encouraged institutions of higher education to share their pre-disaster planning efforts with other institutions because the topic is so new to the field (FEMA, 2003). The study responds, in part, to FEMA's call for information sharing by researching and reporting findings on pre-disaster planning efforts currently underway at Florida's community colleges.

Second, The President's Commission on Campus Safety (USDHHS, 2007) recommended in its report to President Bush that more needs to be done to disseminate

best practices. This study is significant because its report of findings will meet the challenge put forth by the President's Commission on Campus Safety.

Third, the President's Commission on Campus Safety clearly called for a study like this one when it recommended that the federal government work with states to, in part, enhance, increase, coordinate and distribute information and practices on threat assessments and pre-disaster planning for U.S. institutions of higher education (USDHHS, 2007). The Disaster Resistant University model (FEMA, 2003), which provides the conceptual lens for this study recommends that institutions conduct such a hazard assessment as part of their pre-disaster planning.

Fourth, this study is particularly significant because at the time data were collected, no study in the literature explored and described the process of pre-disaster planning.

Fifth, the void in the literature coupled with the impact that recent disasters have had on the higher education community and Florida's 28 community colleges, serve to elucidate the need for this study. Given several recent and deadly disasters on U.S. campuses like the massacre at Virginia Tech April 16, 2007, the shootings at Northern Illinois University February 14, 2008, the 9/11 terrorist attacks, the 2004 Florida hurricane season and Hurricanes Katrina, Rita, and Wilma occurring in 2005, the significance and timing of this study cannot be overstated.

Sixth, study findings will help Florida community college leaders gain a better understanding of the pre-disaster planning process and what they can do to reduce and/or prevent disasters on their campuses. Ultimately, study findings may be used to inform the

future practice of pre-disaster planning at community colleges throughout the state of Florida.

Seventh, this study provides useful information for Florida legislators as they consider how the state can further lead efforts to improve pre-disaster planning to better protect life, property and the functioning of community college campuses. Legislators may feel compelled or pressured to increase state funding or to further identify federal funding for pre-disaster planning projects identified by community colleges in Florida. Congress awarded funding to the U.S. Department of Education in 2008 for Emergency Management in Higher Education grants, which included awards to two Florida State Colleges including Daytona State College and Broward College.

Definitions

Asset Inventory – an inventory of assets that can be affected by hazards to which an institution is vulnerable (FEMA, 2003).

Building a Disaster Resistant University (DRU) (FEMA, 2003) – a four phase set of guidelines recommended for use by colleges and universities to reduce or eliminate the effects that natural or man-made disasters may cause to life, property and function of the institution.

Campus Preparedness Assessment (CPA) **–** offers guidelines to colleges and universities as they endeavor to reduce the risk of terrorist activity on their campuses.

Community College – part of a 28-college system in Florida that awards 2-year degrees, except in a limited number of cases where they have been granted approval to award 4-year degrees and are known as state colleges.

Comprehensive Emergency Management Plan (CEMP) **–** a framework by which the state of Florida prepares for, responds to, recovers from and mitigates disasters that could impact citizens of the state.

The Disaster Resistant University (DRU) (FEMA, 2003) – a 4-phase set of guidelines recommended for use by colleges and universities to reduce or eliminate the effects that natural or manmade disasters may cause to life, property and function of the institution.

First-responder – the first local or "nongovernmental police, fire" or emergency medical care personnel trained to protect and preserve "life, property, evidence and the environment" (National Response Plan, 2004, p. 65).

Hazard - a natural or man-made disaster to which a community college has established it may be vulnerable (FEMA, 2003).

Hazard Identification and Risk Assessment – the identification of an institution's natural and man-made hazards and an assessment of its vulnerability to them, which incorporates an asset inventory and disaster scenarios (i.e., hazard profiles) (FEMA, 2003).

Hazard Mitigation Plan **–** a plan that uses the hazard identification and risk assessment studies to establish mitigation action priorities (FEMA, 2003).

Hazard Profile – also referred to as a disaster scenario in this study—a term which is a measure of a disaster's impact on life, property and function at an institution (FEMA, 2003).

Homeland Security Act of 2002 **–** enacted November 25, 2002, it is intended to prevent acts of terrorism in the U.S., reduce vulnerability to such attacks, minimize

damage and aid in the recovery of terrorist attacks, administer functions of organizations within the department, and serve as the conduit for planning related to natural and manmade events, ensure that functions of organizations within the department whose mission is homeland security are not diminished or marginalized, assure that departmental actions do not compromise the economic security of the nation and break any relationships where drug trafficking is used to support terrorism (H. Res. 5005, 2002).

Homeland Security Comprehensive Assessment Model (HLS-CAM) - a methodology adopted by Florida's Domestic Security Oversight Board (FDSOB) for assessing the vulnerability of critical infrastructure like schools, industrial plants, stadiums and airports (FDSOB, 2004).

The National Incident Management System (NIMS) - a 152-page document designed to provide a consistent approach to incident management nationwide, including the management of all hazards, across all jurisdictional levels and disciplines (NIMS, 2007), which was developed in response to Homeland Security Presidential Directive-5 (HSPD-5) and released for adoption by federal agencies on March 1, 2004.

National Response Framework (NRF) – the revised and retitled National Response Plan, an all hazards, national framework that provides guiding principles for domestic response partners for small emergencies and major disasters (NRF, 2008b).

National Response Plan (NRP) – a framework under which federal, state, local and tribal governments, the private sector and nongovernmental organizations can interact

in the management of "incident prevention, preparedness, response and recovery" (NRP, 2004)

Pre-disaster Planning - a planning process undertaken by an organization to significantly reduce or eliminate its vulnerability to natural and man-made disasters, resulting in the organization creating, adopting, and implementing a hazard mitigation plan (FEMA, 2003). The planning process includes the identification and ranking of hazards, the profiling of hazard events, an inventory of assets, and the development and adoption of a mitigation plan. This definition does not include, for example, the preparations in which an organization might engage during the 4-5 days prior to a disaster (e.g., hurricane), nor does this term include post-disaster response and recovery.

Pre-disaster Planning Leaders **–** a designation given to 2 of the 28 community colleges in the state of Florida for having the highest pre-disaster planning leader survey score.

Virginia Tech Massacre – a murderous rampage April 16, 2007 by Virginia Tech student, Seung Hui Cho, which resulted in the death of 32 students and faculty at the Blacksburg, Virginia campus.

Vulnerability Assessment – a process of identifying the natural and man-made disasters to which an institution is vulnerable, and the extent of its vulnerability.

Structure of the Study

Chapter 2 of the study presents literature on disaster research in higher education, perspectives on healthcare disaster planning, a history of U.S. civil defense, academic international programs, the legislative milieu and a review of various systems, plans,

assessments and models. Chapter 3 describes the methodology used to answer the research questions presented in Chapter 1. Chapter 4 presents findings from the quantitative data and Chapters 5 through 8 reveal findings and an across-case analysis from the qualitative data. Chapter 9 offers a discussion of findings along with conclusions and recommendations for practice, policy, and research.

CHAPTER 2

RELATED LITERATURE

Self-preservation, in part, led pre-disaster planning efforts in higher education and elsewhere after the terrorist attacks of 9/11, the 2004 hurricane season and more recently, Hurricanes Katrina (August 25, 2005 in Florida and August 29th in Louisiana, Mississippi, Alabama), Rita (September 24, 2005) and Wilma (October 24, 2005), (National Oceanic & Atmospheric Administration) [NOAA], 2005). If higher education administrators' concerns about pre-disaster planning were not heightened by these events, they most certainly were on April 16, 2007 when a mentally ill student at Virginia Tech University shot and killed 32 students and faculty on campus before turning the gun on himself.

Research on pre-disaster planning at community colleges is at best, minimal, and a study that addresses the topic ought to present the reader with a background of who has led the effort in higher education. A review of such efforts follows. Further, the history of U.S. civil defense and preparedness dates back to World War I, dictating that it should be included in the review of the literature. Pre-disaster planning initiatives and accreditation standards in healthcare preceded the efforts underway in higher education. A description of these efforts provides a broader perspective to pre-disaster planning and lend credence to similar efforts in higher education across the U.S. and in Florida.

Another important driving force influencing pre-disaster planning at Florida's community colleges was and is the legislative milieu. A review of federal and state legislation helped focus the importance of pre-disaster planning at Florida's community colleges and described the emergency management and pre-disaster planning systems, plans, assessments, and models that have been subsequently written.

Findings from a recent survey conducted by the AACC (2006b) have been included, outlining the progress community colleges have made in their efforts to partner with local, state and federal agencies.

Disaster Research in Higher Education

Disaster planning in higher education has occurred mostly due to the efforts of librarians and information technology administrators. Research on disaster planning in higher education is limited, as noted by a lone mixed-methods study on hurricanes by Farber (1982).

Research on disaster mitigation planning in higher education is limited and what does exist was conducted in large part by librarians and information technology administrators. These two groups are in many ways the curators of higher education. Librarians maintain the books, journal articles, manuscripts, and reports produced by researchers, which support the work of the professoriate. Information technology administrators oversee the preservation of electronic records of students, including admissions, academic and financial records. The role of librarians and information technology administrators as curators requires a vigilance that must see them through the most threatening natural and man-made disasters. The importance of the information they

keep clearly explains why they have served as leaders in higher education in the area of pre-disaster planning.

Few studies focusing on disasters at institutions of higher education were identified in the literature. Farber (1982) conducted a mixed-methods study of the decision-making that occurred after the hurricanes that severely damaged two Pennsylvania colleges. Seiler (2003) conducted a historical analysis of the Labor Day hurricane of 1935 and described how the action or inaction of administrators of the Florida Emergency Relief Agency Veterans' Work Camp resulted in the death of 258 and the injury of 100 or so of the 400 transients who remained in the work camps when the hurricane struck the upper Florida Keys. Although both the Farber and Seiler studies focused on hurricane-related disasters, neither one remotely resembles the study conducted here.

History of U.S. Civil Defense and Preparedness

The history of civil defense and preparedness (Homeland Security National Preparedness Task Force, 2006) provides an overview of who served as the role model for the U.S. initially and why we adopted various approaches like self-help, mass evacuation, sheltering, and equivalent survivability. Why federal funding wavered between protecting against natural disasters and nuclear warfare provides useful insights and perspectives on why, ultimately, the Federal Emergency Management Agency was created. A review of terrorist events at home and abroad provides a window to see why the Department of Homeland Security was created and the immediate test it confronted when Hurricane Katrina struck the Gulf Coast. This section concludes by presenting why our history of civil defense and preparedness has evolved to its present state.

Civil defense in World War I. World War I gave rise to German aerial bombardments of France, Belgium, Poland, and England (Strategic Bombing in World War I – Germany, cited in Homeland Security National Preparedness Task Force, 2006). British citizens were pretty much left to their own devices, most often seeking refuge in underground subways. Their example is one that would not be lost on other countries in future years of warfare. World War I made it clear that civil defense was very important in combating the effects of manmade attacks, and later it would become clear that the same is true of natural and technological disasters.

The year before the United States entered World War I, President Roosevelt formed the Council of National Defense, which advised him on the coordination of resources and industries supporting the nation's defense efforts and the kindling of morale in the civilian population (Records of the Council of National Defense, as cited in Homeland Security National Preparedness Task Force, 2006). When the U.S. entered World War I in 1917, the federal government encouraged governors to create local defense councils. The focus of local councils was the mobilization, then demobilization of the war, rather than the protection of resources important to civilians. The Council on National Defense concluded its efforts in 1921, but reignited them at the start of WW II in Europe in 1940. Bombing attacks in Europe were of concern to U.S. officials and citizens, which increased their sense of vulnerability and resulted in the creation of the Office of Civilian Defense (OCD) in 1941. Its focus on non-protective services and broad reaching programs brought some public officials to call it "pink" (p. 6). Prior to its abolishment by President Truman in 1945, the OCD was credited, for example, with developing plans including civil defense, drills for air raids and the stockpiling of sand

bags (Office of Civilian Defense, as cited in Homeland Security National Preparedness Task Force, 2006).

U.S. transitions to local self-help. The notion of "self-help" was introduced by Major General Harold Bull who led the War Department's Civil Defense Board in 1947 (Kerr, 1983, as cited in Homeland Security National Preparedness Task Force, 2006). Local self-help took on increased meaning when U.S. relations with the Soviets became strained. A successful nuclear weapons test by the Soviets in 1949 balanced the nuclear scale. In response, The National Security Resources Board released the Blue Book, a proposal outlining functions for civil defense across all levels of government (Kerr, 1983, as cited in Homeland Security National Preparedness Task Force, 2006). President Truman agreed with many of its recommendations, especially that civil defense is a responsibility of governments at state and local levels (Blanchard, 1986, as cited in Homeland Security National Preparedness Task Force, 2006).

In 1950, the Federal Civilian Defense Administration (FCDA) was created and tasked to guide civil defense efforts of states (Kerr, 1983, as cited in Homeland Security National Preparedness Task Force, 2006). Concerns about a garrison state were minimized with an approach to civil defense that highlighted decentralization, local control, and volunteerism. One of FCDA's most widely known efforts was a children's education campaign, which included the film Duck and Cover, the first film to be approved by the National Education Association (CONELRAD, 1952). Millions of children saw the film, which aired in February 1952, teaching them how to respond if they saw an atomic bomb flash (Homeland Security National Preparedness Task Force, 2006).

U.S. funding wavers between mass evacuation and sheltering. The Truman Administration viewed the development of shelter designs a worthwhile cause, but pulled-up short on funding related to construction of shelters (Blanchard, 1986, as cited in Homeland Security National Preparedness Task Force, 2006). Fusion nuclear weapons tested by the Soviets and U.S. were deemed so destructive that in spite of sheltering, affected areas still would be gravely impacted by the blast. Although mass evacuation would become the prominent focus of civil defense funding, it was viewed as being highly dependent on ample warning (Kerr, 1983, as cited in Homeland Security National Preparedness Task Force, 2006). Sheltering quickly returned to the attention of the government and the public when a wind shift occurred during the 1954 testing of a thermonuclear bomb in the Marshall Islands, leaving crew members of a Japanese fishing vessel with sever radiation sickness and injuring staff that conducted the test (Public Broadcasting Station [PBS] Special, n.d.). Protagonists of the scrapped sheltering program termed the decision to focus on mass evacuation "a cheap substitute for atomic shelter" (Kerr, 1983, as cited in Homeland Security National Preparedness Task Force, 2006, p. 10). Despite the findings of three committees (Kerr, 1983, as cited in Homeland Security National Preparedness Task Force, 2006), all supporting sheltering as a deterrent, the FCDA was dissolved by President Eisenhower (Grossman, 2001, as cited in Homeland Security, 2006).

Sheltering was resurrected by President Kennedy in response to the Berlin crisis in 1961 (Kerr, 1983, as cited in Homeland Security National Preparedness Task Force, 2006) and Congress funded $200 million for the project, which incorporated the use of existing buildings to keep costs down (Blanchard, 1986, as cited in Homeland Security

National Preparedness Task Force, 2006), a major concern of earlier opponents of sheltering. Kennedy's assassination in 1963 resulted in significant reductions in civil defense spending (Homeland Security National Preparedness Task Force, 2006). Spending was also impacted by the Secretary of Defense McNamara's effective promulgation of the idea of "mutual assured destruction" (MAD) (McNamara, 1967, as cited in Homeland Security, 2006, p. 13). Essentially, it meant that the U.S. and Soviet Union's ability to annihilate each other served as a "deterrent to offensive action" (p. 13).

Funding natural disasters versus equivalent survivability. Subsequent natural disasters and the Vietnam War (Blanchard, 1986, as cited in Homeland Security National Preparedness Task Force, 2006) helped push funding further away from civil defense. Combined with Hurricane Camille in 1969 (Steinberg, 2000, as cited in Homeland Security National Preparedness Task Force, 2006) and President Nixon's belief that further civil defense preparedness would jeopardize advances made in SALT 1, federal funding was turned toward natural disasters preparedness (Blanchard, 1986, as cited in Homeland Security National Preparedness Task Force, 2006). Unfortunately, 100 new and old federal agencies were tasked with addressing disaster relief, creating a perception of ineffectiveness (Federal Emergency Management & Homeland Security: Historical Developments, as cited in Homeland Security National Preparedness Task Force, 2006) and funding also remained low, similar to levels seen in the years preceding the Kennedy Administration (Homeland Security National Preparedness Task Force, 2006).

Low funding levels persisted until the 1980s, even when U.S. intelligence established that Soviet spending on civil defense in 1977 had reached one billion dollars a year (Hodge, 1977, as cited in Homeland Security National Preparedness Task Force,

2006). The U.S. civil defense program was labeled a charade when the Congressional Research Service completed its evaluation in 1976 (Wolfe, 1979, as cited in Homeland Security National Preparedness Task Force, 2006). By 1978, the Carter Administration announced that it was unnecessary for the U.S. to seek "equivalent survivability" (Lanouette, 1978, as cited in Homeland Security National Preparedness Task Force, 2006, p. 18) with the Soviets.

Disasters launch Federal Emergency Management Agency. The unfolding of the nation's largest nuclear accident involving civilians at Three Mile Island in 1979 showed how ill prepared the federal government was in its response and the need for increased effectiveness in the coordination and planning of disaster recovery (Haddow, 2003), as cited in Homeland Security National Preparedness Task Force, 2006). This event was partially responsible for the establishment of FEMA on July 20, 1979, which was intended to coordinate disaster relief efforts at the federal level, but funding remained limited (Homeland Security National Preparedness Task Force, 2006). Finally, in 1981 Congress allowed civil defense funds to be used for both natural disasters and enemy attacks in the U.S. (Blanchard, 1986, as cited in Homeland Security National Preparedness Task Force, 2006). This amendment to the 1950 Civil Defense Act did note that natural disasters were not to detract from military attack programs.

The lack of appropriate funding became clear when three disasters occurred within one year - the Exxon Valdez oil spill in the Gulf of Alaska in March 1989, the Loma Prieta earthquake in California, and Hurricane Hugo in September 1989 that caused major damage in the Virgin Islands, Puerto Rico, and South Carolina. FEMA's poor response capabilities helped launch the development of the Federal Response Plan

(USGAO, 1993, as cited in Homeland Security National Preparedness Task Force, 2006) that included the Incident Command System, increasing its ability to guide the effort of nearly 30 federal agencies and the Red Cross as they supported governments at the state and local level. In 1992, passage of the National Security Act directed FEMA to create a multi-hazard plan for Emergency Management (National Security Directive 66, 1992, as cited in Homeland Security, 2006). President Clinton increased the status of FEMA by appointing James Lee Witt as Director, but at the Presidential Cabinet level. The all-hazards approach that guided FEMA's efforts allowed no room for proponents of civil defense to criticize its purpose. Further bolstering its all-hazards approach to disaster preparedness was the removal of national security programs from within FEMA and the reassignment of 100+ staff that focused on security and defense (Roberts, 2004, as cited in Homeland Security National Preparedness Task Force, 2006).

U.S. response to weapons of mass destruction at home and abroad. Several terrorist events at home and around the world had a profound impact on U.S. preparedness policy. These events included the release of sarin nerve gas on subways in Tokyo, the bombings of the Alfred P. Murrah Federal Building in Oklahoma City and the Khobar Towers in Saudi Arabia (Rubin, n.d., as cited in Homeland Security National Preparedness Task Force, 2006). The impact was seen in the passage of the Defense Against Weapons of Mass Destruction Act in 1997, which provided governments at all levels, with training and advice on how to respond to such weapons when used on Americans (Rubin, n.d., as cited in Homeland Security National Preparedness Task Force, 2006). Similarly, in 1998 President Clinton established the Office of the National Coordinator for Security, Infrastructure, Protection, and Counter-Terrorism with the

Executive office. It focused on coordinating "counter-terrorism policy, preparedness, and consequence management" (Combating Terrorism, as cited in Homeland Security National Preparedness Task Force 2006, p. 24).

Creation of the Department of Homeland Security. The U.S. Commission on National Security in the 21st Century recommended the establishment of the Homeland Security Agency at the Cabinet level, and it was introduced as legislation on March 29, 2001 (RAND, n.d., as cited in Homeland Security, 2006, p. 24). An executive order established the office of Homeland Security in October, 2001 (Executive Order (2001), as cited in Homeland Security National Preparedness Task Force, 2006), reflecting agreement by most within the federal government that security within the homeland "required a major reassessment, increased funding, and administrative reorganizations" (p. 25). After 9/11 and throughout 2002 and 2003 a number of steps were taken by the federal government to promote education, volunteer service, better communication with the public, and a national strategy. This was followed by one of the largest reorganizations of federal government since the establishment of the Department of Defense in the 1940s. The Homeland Security Act of 2002 created the Department of Homeland Security, which absorbed nearly 200,000 staff and 22 agencies of the federal government, as well as a $37 billion dollar budget (Brookings Institution, 2002, as cited in Homeland Security, 2006). Issues related to the security of our ports, transportation and borders were given priority, evidenced by increases in airport screeners, air marshals, and container security (U.S. Department of Homeland Security, 2004, as cited in Homeland Security National Preparedness Task Force, 2006). The HLS Act also called for the creation of the National Response Plan (NRP) and the National Incident

Management System (NIMS), which replaced the Federal Response Plan (FRP) and provided a structure for managing all hazards, respectively.

DHS's refocus tested by Hurricane Katrina. Homeland Security Director, Tom Ridge, was succeeded by Michael Chertoff in February 2005. Almost immediately, Chertoff launched a review of the organization's structure, along with its operations and policies. The review identified six areas in need of attention, which included,

> "Increase preparedness with a focus on catastrophic events; strengthen border security and interior enforcement and reform immigration processes; harden transportation security without sacrificing mobility; enhance information sharing with our U.S. government and private sector partners; improve DHS financial, human resource, procurement and information technology management; and realign the DHS organization to maximize mission performance." (p. 28)

The recommended addition of the Directorate of Preparedness was designed to bring a more integrated approach to preparedness activities. Preparedness and the NRP were tested when the Gulf Coast was struck by Hurricane Katrina on August 29, 2005. Unfortunately, training for the NRP was limited and coordination between all levels of government response received critical evaluations from the White House and Congress. A review of preparedness for catastrophic events nationwide was ordered by President Bush and in June 2006 results were made public. The review stressed the importance of governments at the state and local levels, emphasizing their need to be the initial line of defense for disasters and attacks. The report added that "leadership and coordination" (p. 28) at the federal level is important and would continue. Areas of major concern included, (a) no all-hazards approach to catastrophic events exists in the U.S.; (b)

antiquated processes for planning are used, as well as older products and tools; and (c) coordination is inadequate.

Growth of civil defense and preparedness. New presidential administrations account for only part of the policy changes in civil defense and preparedness. Additional changes have occurred due to an "evolving threat environment" and never before seen destruction from natural disasters (Homeland Security National Preparedness Task Force, 2006, p. 29). Together, these factors have expanded civil defense efforts beyond the protection of family, citizens, and infrastructure. Today, civil defense and preparedness also include complex and concerted efforts amongst emergency management professionals, as well as local, state, and national governments. There is no better example of this than the roll out of the National Incident Management System (NIMS, 2004), which must be adopted by federal agencies and states. A more complete treatment of NIMS is presented under the section Systems, Plans, Assessments, and Models.

Healthcare Disaster Planning

The presentation of disaster planning in healthcare organizations helps give credence to why higher education institutions need to be similarly engaged. Several issues are discussed related to healthcare and higher education, including the existence of accreditation standards or plans for them, the need for funding and the difficulty in securing it, the need to conduct hazard vulnerability assessments and to collaborate with the community, concluding with the need for an incident command system and how NIMS compliance can impact funding.

Hospital emergency management plans and exercises thereof have existed for years (Rubin, 2004, as cited in Grier, 2004), chiefly due to accreditation requirements put

forth by The Joint Commission, previously The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) in 2001. According to its latest annual survey in 2005, all 5,756 members' (American Hospital Association [AHA], 2007a) compliance with accreditation standards requires attention to each component of emergency management, including "mitigation, preparedness, response and recovery" (Grier, 2004, p. 136). Further, accredited hospitals must approach emergency management from an all hazards perspective, in partnership with the greater community.

Funding for healthcare disaster planning. The problem hospitals confront as they prepare their facilities for disasters has been, and remains, inadequate funding levels. In fact, Rudman, Clarke, and Metzl's report (2003, as cited in Hanfling, Schafer, & Armstrong, 2004) to the Council on Foreign Relations estimated that $29.6 billion was needed to fund preparedness efforts of healthcare facilities between 2004 and 2008. The Department of Homeland Security highly criticized the estimate, referring to it as an effort to purchase gold-plated phones (Press Conference, Council on Foreign Relations, 2003, as cited in Hanfling, et al., 2004).

Hazard vulnerability assessments in healthcare. Like the Disaster Resistant University model (FEMA, 2003) that provides the conceptual lens for this study, hospital disaster planning must include a hazard vulnerability assessment (HVA) to establish a prioritized list of hazards that are likely to affect the organization (JCAHO, 2001, as cited in Grier, 2004). Once hazards are identified, both hospitals and institutions of higher education are able to determine how their facilities may be affected. The frequency of performing HVAs is presumed to be far greater at hospitals than higher education institutions. This is primarily because the Joint Commission requires that hospitals

conduct HVAs as part of their emergency management plan in order to achieve accreditation (Joint Commission, 2007). Although higher education institutions in Florida have a strong accrediting body, The Southern Association of Colleges and Schools (SACS), Florida institutions including community colleges are not required to perform HVAs in order to achieve accreditation. SACS requires only that those institutions "take reasonable steps to provide a healthy, safe, and secure environment for all members of the campus community" (Commission on Colleges, SACS, 2007, p. 14). SACS does not specifically require institutions to have an emergency management plan or a hazard vulnerability assessment, which could reduce or prevent disasters at institutions.

Thirty-three student and faculty deaths at Virginia Tech University April 16, 2007, prompted a State of Florida Gubernatorial Task Force for University Campus Safety to propose 63 recommendations for enhancing safety and security. One of the recommendations calls for the State University System Chancellor, along with all Florida college and university presidents to encourage SACS to bolster accreditation standards by developing and including improved safety and security standards in the process of accreditation (Gubernatorial Task Force for University Campus Safety, 2007). Aiding this discussion already is Florida Senate Bill (SB) 124, which modified Florida Statute 943.0311 in 2004, empowering the Florida Department of Law Enforcement to begin training State of Florida agencies, including community colleges, to complete a vulnerability assessment using the Homeland Security Comprehensive Assessment Model (HLS-CAMS). SACS accredits higher education institutions in several other states besides Florida, so any strides it can make in mandating that vulnerability assessments be conducted would be viewed positively by most observers.

Collaborative efforts in healthcare. In the post-9/11 era, JCAHO required hospitals in adjacent communities to create a process whereby information about incident command and emergency management could be shared (JCAHO, 2001c, as cited in Grier, 2004). This standard of requiring collaboration between hospitals tasks them with a "dual responsibility" (Faulkner Information Service, 2006, p. 1). Not only must hospitals prepare for disasters that can impact internal operations, but also disasters that affect the greater community.

The heightened need for collaboration between hospitals, their local communities and state and federal governments occurred when Homeland Security Presidential Directive 5 (HSPD-5) and the Health Resources and Services Administration (HRSA) mandated that hospitals receiving federal preparedness and response funds need to fully implement the National Incident Management System (NIMS) by September 30, 2008 (NIMS, 2007). This mandate assured that hospitals use the same terms and command structure widely used by first responders, such as police, fire and all levels of government as they prepare for, mitigate, "respond to and recover from" natural and manmade disasters (AHA, 2007b).

In a similar move, The Joint Commission requires that hospitals develop and maintain a command structure that parallels the greater community's structure (Joint Commission, 2007). Hospitals' compliance with its mandate has been ushered along by the fact that hospitals must comply with The Joint Commission's accreditation standards in order to receive federal preparedness and response funds. For example, hospitals must meet the NIMS mandate by adopting the Hospital Incident Command System (HICS IV) or other command system (J. Gervais, personal communication, June 18, 2007) assuring

that common terminology and a command structure parallels that of the greater community. In addition, the adoption of such a command system makes hospitals eligible for Medicaid and Medicare reimbursement through the federal government (PortBlue Corporation, 2007). Further, hospitals that received federal contracts, grants or cooperative agreements for preparedness and response in 2006 were required to comply with 4 of the 17 NIMS compliance elements by September 30, 2007 (see AHA, 2007b for a complete description). Hospitals receiving the same type of federal funding in 2007 were required to fully implement NIMS by September 30, 2008 (AHA, 2007b). The Joint Commission approved revisions for hospital emergency management in June 2007, which are effective January 2008 (J. Gervais, personal communication, June 18, 2007. Since then, the topic of hospital emergency management as it is related to accreditation has been further elevated by being given its own accreditation compliance chapter, which addresses 13 elements of performance (Huser, 2008).

Florida community colleges - The impact of collaboration. Community colleges in Florida are not mandated by SACS to collaborate with the community at large before, during, or after a disaster. However, their missions and traditions of open access and response to community needs (AACC, 2006b) drive them to do so. For example, members of the AACC have long led the nation in the education of first responders. Nearly “80% of firefighters, law enforcement officers and EMTs” (AACC, 2006a) receive their education at community colleges, more than all other categories of educational institutions in the United States combined. The fact that AACC has not led the development of a pre-disaster planning model may be, more than anything, a

reflection of its rich history of developing and enhancing academic programs to meet the needs of its 1,195 members' communities.

Numerous examples of collaborations with local, regional, and national bodies were revealed in a report, First Responders: Community Colleges on the Front Line of Security a study conducted by the AACC. In fact, nearly 50% of respondents "indicated that they were actively coordinating homeland security efforts with municipal or county agencies" (p. 4). National partnerships exist, for example, between St. Petersburg College in Florida and the U.S. Department of Defense, the Department of Homeland Security, Florida's National Guard and the Office of Domestic Preparedness. In addition, its National Terrorism Preparedness Institute, which is funded by the federal government, is expected to have an impact that is national in scope. Seminole Community College in Florida is among the more than one-third of all colleges responding to the survey that are designated as vaccination sites; six Florida community colleges served as disaster relief sites in 2004. Further still, the Florida Community College Risk Management Consortium (FCCRMC) established plans for shelters and evacuation sites for natural disasters, and they were pressed into service extensively during the four hurricanes that ravaged Florida in 2004. Findings from AACC's survey (2006b) illustrated the breadth of the collaborations underway at community colleges nationwide and in Florida. Since 9/11 and the 2004 and 2005 hurricane seasons, community colleges have collaborated widely with their local communities, state, and federal governments to prepare for, respond to and recover from natural and manmade disasters.

NIMS compliance and Florida community colleges. The National Incident Management System (NIMS) was created by the Secretary for Homeland Security to

provide direction and oversight of NIMS as well as system maintenance and refinement (NIMS, 2007). The NIMS does not require all colleges or universities to comply with NIMS and the Incident Command System (ICS), but rather it "highly recommends" (p. 9) they do so. In addition, if a college or university has sworn law enforcement that would interact with community emergency response personnel, they are required to complete at least four free, online training courses, two of which inform participants about the ICS, and the other courses focus on the National Response Plan (NRP) and the National Incident Management System (NIMS, 2007). Presently, only 4 of 28 community colleges in Florida have police departments, including Santa Fe Community College, Tallahassee Community College, Pensacola Community College and Miami-Dade College (D. Johnston, personal communication April, 12, 2007). Chief Johnston, Santa Fe Community College, in Florida, also noted that several other community colleges are considering adding law enforcement personnel to their campuses. The state of Florida adopted NIMS in April, 2004, and although the Boards of some community colleges have adopted NIMS, the state of Florida has yet to require its 28 community colleges to do so.

Academic Programs in Disaster Planning – An International Perspective

U.S. leadership in the development of academic disaster studies programs is clear as shown by an overview of the growth of these programs over 12 years and how other countries compare. Further, how long U.S. programs have been in existence as well as the number of faculty with Ph.D.'s is also presented, concluding with a supplemental explanation of how these facts help support the rationale for this study.

Global leadership in the development of academic disaster studies programs has been provided by U.S. institutions of higher education for the past 30 (May, 2003) to 40

years (Britton, 2004). Consequently, U.S. leadership has greatly influenced disaster research thought, concepts and emergency management practices. The earliest such program dates back to 1963 when The Ohio State University established the Disaster Research Center (Britton, 2004, p. 1). The number of U.S. undergraduate and graduate academic programs related to emergency management far exceeds countries like New Zealand, which has three, and Japan and Canada (May, 2003), where each have one. Blanchard's (2003) presentation at the FEMA Higher Education Conference noted continued growth in U.S. academic programs from 1995 when a mere five programs existed, to 2001 (72 programs), to 2002 (78 programs) and 2003 (96 programs). Cwiak's (2007) survey of higher education institutions offering emergency management programs found that 100 such programs were in existence as of March 14, 2007. Nearly three-quarters (74%) of these programs have been in existence for 5, or fewer years and of these, 25% have been in existence for less than 1 year. Coupled with the number of new faculty hires credentialed with the PhD (13%), these findings suggest that more research is needed across all areas of emergency management, including the research questions proposed by this study.

Legislative Milieu

Pre-disaster planning across the United States has been driven by many factors, including U.S. Presidential Directives, federal laws and codes, state laws and statutes, and the work of federal agencies and non-profit organizations. These legislative actions and other efforts have created the milieu in which Florida's community colleges operate. In some cases, these actions and efforts have launched the development of systems, plans, assessments, and models to assess vulnerabilities to disasters (e.g., the National Domestic

Preparedness Coalition, 2002), to mitigate disasters before they occur (e.g., FEMA's Disaster Resistant University planning model, 2003), or to aid in the response and recovery after a disaster (e.g., NIMS, 2004; NRP, 2004; the State of Florida's Comprehensive Emergency Management Plan, 2004). The pre-disaster planning model that is used to explore the research question is the Building a Disaster Resistant University planning model (DRU, FEMA, 2003) because it is specifically designed to aid colleges and universities in their pre-disaster planning and presents a comprehensive approach to planning via its four-phases. An overview of each system, plan, assessment, and model helped identify where literature has focused and where the gap in literature exists, ultimately explaining why it was important for this study to be conducted.

Legislation's impact on pre-disaster planning in higher education. In the wake of 9/11, the U.S. House and Senate enacted the Homeland Security Act (HLS) of 2002 (H. Res. 5005, 2002) on November 25th, which essentially put into motion the first of many actions to protect the United States against terrorism and other disasters. President G.W. Bush, for example, authored several homeland security presidential directives while Congress, through the HLS Act, directed the development of the NIMS and NRP. By itself, the 187-page HLS Act is intended to prevent acts of terrorism in the U.S., reduce vulnerability to such attacks, minimize damage, and aid in the recovery of terrorist attacks. It is further intended to administer functions of organizations within the department and serve as the conduit for planning related to natural and manmade events, ensure that functions of organizations within the department whose missions are homeland security, are not diminished or marginalized, assure that departmental actions do not compromise the economic security of the nation and break any relationships where

drug trafficking is used to support terrorism (H. Res. 5005, 2002). The HLS Act is not a pre-disaster planning model like the DRU, rather it is a call, in part, for the development of the NIMS and the NRP, the purpose of which is outlined later.

Title I of the HLS Act called for the establishment of the Department of Homeland Security, which subsumed several government agencies and 180,000 staff (Department of Homeland Security, 2008). Title I also created a Deputy Secretary for HLS and five Under Secretaries, one for each of HLS's major functions, including Information Analysis and Infrastructure Protection; Science and Technology in Support of Homeland Security; Directorate for Border and Transportation Security; Emergency Preparedness and Response; Treatment of Charitable Trusts for Members of the Armed Forces of the United States; and Other Governmental Organizations and; Management.

On its face Title V, Section 502, Emergency Preparedness and Response, appears to have some relationship to the Disaster Resistant University planning model, but in reality it does not. Its seven paragraphs call for the HLS Department to: (a) ensure that emergency response providers are prepared for terrorist attacks, disasters and emergencies; (b) establish standards and certify their attainment as they relate to the Nuclear Incident Response Team and conduct exercises and training and evaluate performance while appropriately funding the Department of Energy & Environmental Protection Agency's planning for homeland security, equipment and exercises and training (H. Res. 5005, 2002, p. 78); (c) in the event of a terrorist attack or major disaster, lead the response of the federal government, including management of these events; direct the Domestic Emergency Support Team, the Strategic National Stockpile, the National Disaster Medical System, and when part of HLS – the Nuclear Incident

Response Team; provide oversight to the Metropolitan Medical Response Team and coordinate resources of the federal government in response to terrorist attacks or disasters; (d) aid the federal government in its recovery from a terrorist attack or disaster; (e) create a national incident management system with the assistance of personnel from federal, state and local governments, agencies and authorities to respond to terrorist attacks and disasters; (f) develop a single, harmonized national response plan from existing emergency response plans of the federal government; and (g) help ensure that emergency response providers acquire communications technology enabling them to coordinate with a nationwide, inter-operative communications plan.

Paragraphs five and six of Title V direct the newly established Department of Homeland Security to create a nationwide incident management system and a response plan. The need for an incident management system and response plan were reiterated by Homeland Security Presidential Directive– 5 (Bush, 2003), directing the Department of Homeland Security to create the NIMS and the NRP. The NIMS and NRP, now in existence, are significant on a national level and are designed to aid the nation in its response to and management of disasters. An overview of the NIMS and the NRP describes their relevance to the DRU and how each one is or is not related to it.

A complete description of the HLS Acts other titles is unnecessary for this study. Although each one adds to the United States' overall safety and security against terrorism, their purpose is unrelated to this study. For example, Title IX calls, in part, for the arming of pilots against terrorism, which includes deputizing volunteer pilots and arming them with non-lethal weapons, training to recognize suspicious behavior and to defend themselves against attackers.

Systems, Plans, Assessments, and Models

The Department of Homeland Security (DHS) was involved in the development of all four systems, plans, assessments and models described in this study, including the NIMS (2003), the NRP (2004), the DRU model (FEMA, 2003) and the Campus Preparedness Assessment (International Association of Campus Law Enforcement Administrators [IACLEA], 2005). The NIMS and NRP are companion documents and products of Homeland Security Presidential Directive (HSPD) – 5 (Bush, 2003). The DRU was created by FEMA (2003), a DHS agency, and six higher education institutions long involved in disaster planning. The fourth document, The Campus Preparedness Assessment (IACLEA, 2005), was created through a partnership with DHS and several other organizations noted below. A rationale of why the DRU serves as the conceptual lens for this study is presented.

The National Incident Management System (NIMS). The NIMS is part of a presidential directive and is intended to enable emergency managers to seamlessly work together across all jurisdictions, disciplines and hazards.

The HLS Act and HSPD-5 tasked the Secretary of Homeland Security with creating and administering NIMS (2004). Since then, the NIMS has developed into a compilation of incident management and emergency response best practices. The NIMS, a 152-page document, was designed to provide a consistent approach to incident management nationwide, including the management of all hazards, across all jurisdictional levels and all disciplines. The NIMS enables all jurisdictions to collaborate efficiently and effectively through a common “set of doctrine, concepts, principles, terminology, and organizational processes” (p. ix). The document must be incorporated

by the departments and agencies of the federal government that in turn may distribute federal preparedness funding only to state and local organizations that have adopted the NIMS.

The National Response Plan (NRP). Like the NIMS, the National Response Plan (NRP, 2004) is part of Homeland Security Presidential Directive (HSPD) – 5 (Bush, 2003) and was released in December 2004 by Tom Ridge, who was then serving as Secretary of the Department of Homeland Security. The NIMS and NRP are companion documents, integrating resources and capabilities of governmental, non-governmental and private sector entities into an interconnected, highly coordinated and seamless framework for managing incidents occurring domestically (Quick Reference Guide, 2006).

The NRP presupposes that hazards of all types are managed initially by local first-responders, but it provides a structure under which the federal government can interface with state, local, tribal, private sector and nongovernmental organizations when local resources are stretched to the limit. The NRP assures effective action through predetermined "structures, processes, and protocols" (NRP, 2004, p. 5), ultimately preventing or limiting the impact of terrorism, natural and technological disasters. The NRP accomplishes this by combining the top practices and procedures from all disciplines, including, homeland security, law enforcement, fire, emergency medical, hazardous materials, public works and health (NRP, 2004).

Hazard events extend a great distance beyond a local area and oblige the Secretary of the Department of Homeland Security (DHS) to manage the incident. In so doing, the Secretary is guided by the capabilities, resources, predetermined

responsibilities, protocols, and operational processes described in the NRP. In most cases, however, it is unlikely that a hazard event will be coordinated by DHS, but by local incident commanders whom are familiar with their roles and responsibilities.

In combination with the NIMS, the NRP lays the track upon which the hazard event can run its complete lifecycle. The NRP provides a structure for the coordination of disaster events and serves as the primary plan over other plans that may be invoked to prevent, prepare for, respond to and recover from all hazards.

Building a disaster resistant university planning model. The Building a Disaster Resistant University (DRU) model is a 4-phase pre-disaster planning guide for universities and colleges, which guides them through the process of reducing or preventing the effects of disasters at their institutions.

The DRU was developed by FEMA (2003) and six universities long involved in disaster planning. The 4-phase DRU model reflects their combined knowledge of disasters and hazard mitigation planning and is intended to provide planning guidance and to serve as a how-to guide to institutions of higher education, whether they are new to disaster planning, or have some experience. Institutions contributing to the development of the 55-page DRU model are: Tulane University; University of Alaska – Fairbanks; University of California, Berkeley; University of Miami; University of North Carolina at Wilmington; and the University of Washington. Disaster damages incurred by these and other institutions have peaked the interest of more fortunate institutions that realize they could be likewise confronted with losses to their teaching, research, and service functions. Aside from the rationale for this study, which was presented earlier, Florida community college revenues in 2004-05 were $4,186,702,000 (E. Condry,

personal communication, January 5, 2007), which supports the idea that disaster planning should be taken seriously, so that at least the infrastructure of Florida's community colleges is protected. The four phases of the DRU are: organizing resources; hazard identification and risk assessment; developing the mitigation plan and; adoption and implementation of the plan (FEMA, 2003).

Phase I: Organizing resources. Phase I of the DRU (p. 5-18) focuses on identifying the institutions internal and external resources, which include human, funding, and information resources. For example, it is important that the institution's top leaders be pursued for their commitment and input, like the president or provost and the business officer. Input from stakeholders within and outside of the institution is essential, including community infrastructure representatives, vendors, state and federal agencies, and emergency management officers. Units internal to the institution that may lend expertise in the resource identification effort include institutional research, university development, public relations/marketing, and public service/outreach, and auxiliary services. In addition, public safety, environmental health and safety, and risk management staff should be included in the disaster planning conversation because of their experience with a variety of disasters. Academic Affairs committees and select faculty members likewise should be consulted because some are particularly interested in the continuity of instruction, research, and service. Student Services provides a variety of essential services to students. Although students may be difficult to reach, it is nonetheless important to canvas students, student organizations/committees, and alumni for their participation.

Identifying resources external to the campus is key because of the potential for eliminating redundancies and the possibility of receiving monetary and technical assistance. Relationships must be built with local government, not only because of the statutory authority they may have over the institution, but because of information they may have that can reduce risks, thereby aiding one another, especially during response and recovery. Working with community planners can bring information related to local demographics, the economy and contacts to the institution. Special districts may provide important flood control, fire suppression and information related to hazards. Support from infrastructure providers, including electric, gas water, sewer, and phone service is vital, resulting in reduced service interruptions and fewer lost research specimens and other materials. An institution's effort to protect housing, whether rented or owned, gives students much less to think about in the aftermath of a disaster. Consultation with transportation officials can bring important information related to evacuation to those who need it.

Developing relationships with numerous state agencies, including emergency management, geological services, water conservation, and environmental planning could result in their awarding funds for planning and technical assistance. State agencies that distribute federal funding can be contacted with the assistance of officials from the local emergency management office. These officials can serve as a liaison between the institution and the state hazard mitigation officer and the office of emergency management.

FEMA is the lead federal agency implementing the Disaster Mitigation Act of 2000, but many other federal disaster assistance programs exist. Knowledge of these

programs could result in “funding for hazard mitigation actions and/or restoration, or replacement of facilities at your institution following a disaster” (FEMA, 2003, p. 15). It was useful to explore funding available from the Pre-Disaster Mitigation Program (PDM), along with the Stafford Disaster Relief and Emergency Assistance Act’s Hazard Mitigation Grant Program (HMGP), the Individual and Family Grant Program and the Public Assistance Program (PA). Useful resources from federal agencies can also be secured, including agencies like the National Oceanic and Atmospheric Administration, National Weather Service, and the Departments of Education, Energy, and Housing and Urban Development.

The link that community colleges have to their communities supports the need to be particularly mindful of private sector entities that may lend support to the pre-disaster planning initiative. Essentially, private entities may offer technical or financial support to an institution as it strives to mitigate disasters effecting the institution. By so doing, both the private entity and the institution stand to gain. For example, a food service contractor may have an interest in hardening a building that is home to the cafeteria. If an institution remains functional it contributes to the vitality of the community, maintaining the symbiotic relationship that has kept the economic engine running in the local community.

Five additional elements important to this phase include the formation of an advisory committee, selection of a project manager or consultant to lead the institution’s disaster planning efforts, institutional commitment, disaster plan endorsement by leadership, as well as the establishment of a timeline for each of the four phases of the DRU. Specifically, FEMA recommends that the timeline include both an informal and formal first meeting, the creation of a mission statement, and a plan for communication.

Phase II: Hazard identification and risk assessment. The identification of hazards is a key element of phase II of the Disaster Resistant University model and is comprised of four stages (p. 21-27): (a) the identification of hazards; (b) profiling hazard events; (c) inventorying assets and, (d) estimating losses. Whether an all-hazards or single-point risk assessment should guide the advisory committee's work will be determined once they identify which hazards the institution will focus upon. Natural and manmade hazards must be considered for inclusion in any risk assessment. FEMA has developed a list of both natural disasters and two categories of manmade events, which are included in the definitions section of this study. The identification of hazards to which an institution is most vulnerable can be aided in several ways: by consulting with local emergency managers and communities adjacent to campus; by reviewing historical archives, local publications, recently revised reports or plans, and internet sites; and by speaking with the Regional Office of FEMA.

Phase II: Step II–Profiling hazard events. Identifying the extent of damage a particular hazard event may have upon an institution is the focus of step II. Authors of the Disaster Resistant University (FEMA, 2003) suggest an institution pay close attention to the hazards to which they are most vulnerable, or to those hazards that are most likely to occur. Generally, it is recognized in the hazard mitigation field that protecting an institution from every possible hazard event is not only extremely difficult, if not impossible, but could be cost prohibitive as well. Identifying which hazards are most likely allows the institution to establish which assets are vulnerable.

Creating a campus base map is an effective way to proceed with profiling hazards as it helps to solidify the institution's assets that are vulnerable. For example, the

inclusion of a floodway or wildfire hazard area on the map clearly shows which facilities may require mitigation efforts. Likewise, it is important to include on the map assets that are needed in the normal operation of the institution (e.g., on and off campus classroom buildings and food service operations), and materials that are hazardous or unique (e.g., chemicals and archives), as well as facilities important during and after a disaster (e.g., shelters, police, and fire). An electronic base map can serve as the mechanism by which important information is recorded and archived for future use and revisions.

Phase II: Step III–Asset inventory. Once hazards have been identified and mapped the institution can begin the process of establishing which assets may be affected by a single or multiple events. An assets value needs to be determined and in the event it is lost, its impact on the institution's operations. Specific building characteristics must be recorded (e.g., size, construction type, replacement cost, value of contents, occupancy, use for research/teaching/ administration; and collections/archives and the condition and vulnerability of the institution's infrastructure including water, electric, internet and backup systems must be documented. An assessment must also be conducted of all administrative systems like accounts payable and payroll to determine if they are adequately protected and backed-up, or whether additional protections are needed.

Phase II: Step IV–Loss estimates. Estimating human, building, and infrastructure losses from various hazards will help an institution develop a persuasive case for needed mitigation. Other loss estimates worthy of quantification include instructional time and equipment used for research, subjects, and data, if they exist at the institution. Losses incurred by a community, as a consequence of hazards can also be quantified, including faculty/staff income and institutional and student expenditures.

Presentation of such figures to local mitigation strategy officials can serve as a compelling argument for needed mitigation.

Phase III: Mitigation plan development Priority goals and objectives of the mitigation plan become clearer when findings of the hazard identification and risk assessment study are viewed against the backdrop of the institutional mission. The reality is that hazard mitigation funding is not unlimited and an institution must make choices about which natural and manmade disasters upon which it will focus. Yet, the process of prioritizing goals and objectives should be conducted without cost in mind, but rather with an eye on which hazards and vulnerabilities are of most concern to the institution's mission of teaching, research, and service. Funding secured at a later date is unlikely to cover all mitigation goals at once, so creating a list of priorities is critical. At this stage it may be helpful to remember that actions taken to decrease vulnerabilities from one hazard may consequently reduce vulnerabilities to other hazards.

Mitigation actions can be placed into a half dozen broad categories, including: prevention (e.g., zoning, erosion control); property protection (e.g., hurricane shutters and flood insurance); public education and awareness (e.g., community outreach and disaster information centers); natural resource protection (preservation of wetlands); emergency services (e.g., hazard warning systems and emergency response capabilities); and structural projects (e.g., retaining walls and storm sewers). Options for mitigating hazards are extensive and can be explored by brainstorming, consulting experts, exploring lessons learned by other institutions, and reviewing the literature. Exchanging information with other institutions will strengthen the knowledge base in an area that is new to higher education.

The prioritization of mitigation actions can be managed in a variety of ways, the most common of which is to conduct a benefit-cost analysis, so an institution can compare numerous projects across several hazards. FEMA (2003) offers the following benefit-cost analysis formula: (a) identify costs associated with a mitigation action; (b) calculate the reduced risk in dollars; (c) estimate the frequency of the hazard and; (d) calculate future benefits in today's dollars by multiplying the monetary value resulting from the reduced risk by the probability it will occur, multiplied by the action's life span. Stakeholders should be aware of how priorities were established and should have been given the opportunity to provide input.

Priorities in the mitigation plan must be funded and a funding source identified, along with a lead person for each action and a beginning and ending date. FEMA (2003) suggests that hazard mitigation plans be comprised of five sections: Executive Summary; Goals and Objectives; Hazard Identification and Risk Assessment; Mitigation Strategy: and Implementation and Plan Maintenance. See FEMA's complete hazard mitigation plan outline in Appendix A.

Phase IV: Adoption and implementation. The adoption and implementation steps of the disaster mitigation plan are uniquely different and vary greatly in complexity (FEMA, 2003). Assuring the adoption of the plan by various stakeholders generally is achieved quickly. However, implementation of the plan is a much more lengthy process.

The success of the disaster mitigation plan relies on its formal adoption by many stakeholders, not the least of which is the president or chancellor. Once adoption is secured at this level, approval of the Board of Trustees and any other body that normally grants approvals should be sought, especially given their ability to approve or disapprove

resource allocations for staffing and construction, for example. The advisory committee may wish to consider drafting an agreement with the institution's business officer and her related units, whereby they establish their commitment to disaster mitigation principles and strategies in the plan. Similarly, it is essential that a commitment to disaster mitigation plan strategies be obtained from public safety and environmental health and safety. FEMA encouraged institutions to consider securing endorsements from additional business and student affairs units including auxiliary services, risk management and admissions who can, in particular, convey to prospective students that the campus is safe.

The chief academic officer's endorsement of the plan as well as any other college's or department's approval is essential as the institution moves forward to secure plan adoption. Of particular importance may be the endorsement of academic units that store materials that are hazardous or that may conduct animal research. Student safety likely appears somewhere in the plan, so working with student groups will not only help to secure their endorsement, but may help to enhance implementation. Student government or other student groups, for example, may have access to funds that can support goals and objectives in the disaster mitigation plan.

Securing the adoption of the plan by various off-campus stakeholders formalizes relationships upon which the institution may significantly rely in the face of a disaster. Even prior to a disaster, establishing a relationship with local emergency managers is important. Local emergency managers who know of and endorse the institution's plan are then empowered to recommend that the institution be funded for disaster mitigation projects. First-responders should also be asked to endorse the plan because their ability to access the campus may be impacted by the plan. Endorsement of the plan by local

political leaders demonstrates to the community that the institution has been purposeful in its efforts to sustain the community. The adoption of the plan by private industry (e.g., vendors) could result in the donation of goods and services that help to meet plan goals and objectives. Similarly, vendors who were involved in the planning process may be able to assist the institution to procure funding from other sources, or help with fund raising.

As internal and external stakeholders are encouraged to adopt the plan, the advisory committee and coordinator can begin implementation of the plan. A strategy for implementation will likely take the form of a prioritized list of mitigation actions. Each action will effect a particular unit and so, it must be determined who in the unit will implement the action. Can existing resources be used to implement the mitigation action, or will resources outside of the unit and institution be required? How will mitigation action effectiveness be measured and how often?

Existing resources are often enough to satisfy the funding requirements of a mitigation action. Yet, well established relationships with senior administrators can aid the advisory committee and coordinator in securing more funds. Outside funding can be obtained by institutions who are members of a system, especially if it has kept the system up-to-date on the status of its disaster mitigation planning process. Other outside funding sources include local, state, and federal government. Although local government may not, at times, be able to directly fund an institution, it can provide the necessary support needed for the institution to obtain state funding. State government officials serve as the pipeline for FEMA dollars, as well as an important information source about the availability of mitigation funding and any priorities. Information about federal disaster

mitigation funding is available from officials at the FEMA Regional Office. Stakeholders in the private sector who have participated in the planning process may support, or know of others who might support an institution's mitigation efforts. A review of private organizations or foundations locally, regionally and nationally ought to be undertaken to ferret out possibilities, while friends of the university should be considered as possible supporters of the mitigation plan.

Monitoring and evaluation of the disaster mitigation plan. Setting a schedule to monitor and evaluate the mitigation plan and necessary actions is a new beginning, rather than an ending to the mitigation planning process. Many factors can impact the plan, so it is important that it be reviewed at least annually. For example, staff leave, join, and change roles in institutions, organizational structures are modified, priorities revisited, and new hazards may now threaten the institution. Each one of these factors can dampen the momentum of the mitigation planning process. Further, the evaluation process may establish that additional stakeholders and endorsements are now appropriate. Whether plan changes are major or minor they need to be communicated to senior staff members. The advisory committee and coordinator can sustain needed momentum by assuring that a broad group of stakeholders have been included in the planning process and that the community has been kept abreast of successes.

The campus preparedness assessment. The Campus Preparedness Assessment (CPA) was developed in collaboration with stakeholders to guide higher education administrators in preparing to protect their institutions against disaster.

The September 2005 release of the CPA, a 55-page process document, was the result of a partnership between The U.S. Department of Homeland Security, The Texas

A&M University System, Texas Engineering Extension Service (TEEX), The National Emergency Response and Rescue Training Center (NERRTC) (A member of the National Domestic Preparedness Consortium), and the International Association of Campus Law Enforcement Administrators (IACLEA). The CPA process offers guidelines to colleges and universities as they endeavor to reduce the risk of terrorist activity on their campuses. Despite IACLEA's efforts to publicize the CPA to colleges and universities by distributing it at conferences and making it available online, "little feedback" about the assessment has been received, which is a concern that will drive future efforts to secure users' assessments of the guidelines (C. Blake, personal communication, August 28, 2007 and April 26, 2006). The CPA and DRU are similar in that each one provides guidelines on how to identify hazards/threats, how to assess vulnerabilities to campus assets, and how to prepare a mitigation plan. Only the DRU provides guidelines on how a campus should adopt and implement the mitigation plan. This distinction makes the DRU a more comprehensive model than the CPA and thus the reason the DRU guided this study of pre-disaster planning at Florida's community colleges.

American Association of Community Colleges

This section presents the reader with an overview of the types of partnerships community colleges have forged with their communities.

AACC is the leading professional association for community colleges in the United States and findings from its report (AACC, 2006b) found that a number of community colleges have partnered with local, state, and federal agencies to conduct disaster planning. These partnerships have resulted in community colleges serving as

sites for evacuations, vaccinations, nuclear decontaminations, and emergency command centers in the community. Partnerships like these are good for the communities and regions served by the community colleges, yet alone they do not address the broad scope of pre-disaster planning on community college campuses, which is the focus of this study. Although some of the 28 community colleges have transitioned to state colleges, neither of the two institutions where interviews were conducted in this study have done so.

Recent developments.

Hazard mitigation and disaster preparedness planning at American Coastal University: Seeking the disaster resistant university. Osburn's (2008) doctoral dissertation utilized a qualitative methodology for a single case study to evaluate a university's hazard mitigation planning and disaster preparedness efforts using FEMA's DRU (2003) and selected work from disaster researcher, E.L. Quarantelli. Participants were selected for their involvement in and familiarity with hazard mitigation planning and disaster preparedness. Osburn collected data using a questionnaire comprised of 92 questions, 12 field interviews comprised of 12 questions along with an analysis of official documents to identify findings and conclusions.

Action guide for emergency management in higher education. The Action Guide for Emergency Management in Higher Education (Hill, 2009) is a resource for all types of institutions and uses 9 key underpinnings, 2 of which are outcroppings from The Building a Disaster Resistant University (FEMA, 2003) model, which served as the conceptual lens for this study. More specifically, the 2 principles are the involvement of key leadership in emergency management and the development of partnerships and

collaborations. The Action Guide's purpose is beyond that of the DRU and addresses, for example, the four phases of emergency management and the necessity of conducting emergency exercises. The Action Guide is a helpful resource, improving the emergency management approach taken by higher education institutions by means of a much broader approach.

CHAPTER 3

METHODOLOGY

Mixed Methods Research Design

A mixed-methods research design was used to conduct this study relying first on a seven-item survey of Florida's 28 community college Business Officers, which was developed with the advice and council of three of them. Each item was scored and all seven were summed, revealing the two highest survey scores, which determined the community colleges that were selected to participate in the study. Business Officers at these two community colleges identified which administrators were most involved in pre-disaster planning and six semi-structured interviews helped me to explore and describe the pre-disaster planning processes and practices they used as of December 2008. The exploration and description of their processes and practices was compared to the DRU and the findings were used to inform the future practice of their counterparts, enabling them to better protect life, property, infrastructure, and the functioning of their campuses.

The four research questions are:

1. What internal and external stakeholders and resources have been organized to aid the community college in its pre-disaster planning and has a mission statement been developed for the advisory committee as recommended by DRU guidelines?

2. Who has assisted the community college in identifying a list of natural and manmade hazards and what assets have been inventoried (i.e., buildings, contents and infrastructure) allowing hazards to be profiled (i.e., disaster scenarios developed to estimate impact) as compared to DRU guidelines.
3. Who assisted the community college in developing and prioritizing mitigation plan goals and objectives and was the institution's mission and/or a process or formula for prioritization used and how do its efforts compare to DRU guidelines?
4. Which internal and external stakeholders formally adopted the mitigation plan and how was the efficacy of mitigation actions measured and successes published as compared to DRU guidelines?

The use of a mixed-methods research design enables one method to inform the other (Greene, Caracelli, & Graham, 1989, cited in Miles & Huberman, 1994), as in this study the survey established which community colleges and their administrators were to be interviewed. Further still, Firestone (1987, cited in Miles & Huberman, 1994) described quantitative studies as persuading the reader less through the researcher's judgments and more through recognized procedures, whereas qualitative studies persuade the reader through strong description, rather than abstractions. These two research methods complement each other and present data triangulation opportunities, allowing me to tell the stories that emerged better and draw generalizations more confidently.

Furthering the rationale for a mixed-methods design is the fact that my efforts and others have shown that collecting survey data related to pre-disaster planning on college and university campuses after the 9/11 terrorist attacks has met opposition. In addition,

Florida statute section 119.07 (Florida Inter-Disciplinary Education Alliance [I.D.E.A.], 2003) exempts from inspection the "security system plans" of all public and private facilities. The security systems plan exemption (s. 119.071 (3)(a)2) "to the constitutional right of access under Florida's public records law" was reviewed and reenacted during the 2006 legislative session (B. Petersen, personal communication, June 4, 2007).

The International Association of Campus Law Enforcement Administrators reported (T. Vitale, personal communication, February 1, 2005) that its attempt to survey members about campus security changes received a minimal response rate. Further illustrative of my inability to collect such data on college and university campuses is when I contacted Yale University's Police Chief (J. Perrotti, personal communication, January 4, 2005) to learn what campus security changes had been made since the explosion in the Alumni Room of its Law School. The Chief could only refer me to the Connecticut Attorney General's Office for information related to the bombing.

Another instance illustrating the difficulty of compiling information, this time related to local comprehensive emergency response plans, is the Sunshine Week 2007 National Information Audit of Comprehensive Emergency Response Plans (CERP) (Sunshine Week National Information Audit, 2007). Four-hundred and four requests for copies of the CERP were made by journalists, student journalists, and members of various chapters of the League for Women Voters, from public officials and others who house it. Nationally, more than a third of officials refused to release the plan and 20% released only a part of the plan. Of the nine Florida officials who were asked to provide the CERP, six complied and three gave only partial reports. A Sunshine Week Panel presented these and other findings at the FEMA 10th Annual Emergency Management

Higher Education Conference June 6, 2007 (FEMA / Department of Homeland Security, 2007).

Based upon the inability of the researcher and others to obtain survey data, or information via telephone, or email and a Florida statute that protects threat assessments and other information from review (I.D.E.A., 2003, p. 19), it was clear that conducting this study with a purely quantitative research design would not produce the necessary data. Consequently, the study required a mixed-methods design, which better enabled me to collect data that addressed the research questions. Study findings are reported in a way that maintains the confidentiality of individual participants.

Social Desirability

A mixed-methods design incorporates both quantitative and qualitative research methodologies and questions employed under either methodology can elicit answers that are biased or socially desirable. Kennedy addressed the potential impact of the qualitative method on the validity of a study, suggesting that the collection of socially desirable data can occur unknowingly (Kennedy, 1984). The issue of validity is addressed, in part, by presenting how and why the collection of socially desirable data might occur during interviews. Kennedy (1984) and Gordon (1956) present a variety of issues that could result in the collection of data that is socially desirable. The use of participant interviews made Kennedy (1984) and Gordon's (1956) research observations and insights useful as I collected data in this mixed-methods study.

Participants in the study were interviewed by me and may have felt compelled to respond in a manner described by Kennedy (1984) as socially desirable. A socially desirable response may be prompted for a variety of reasons. For example, Kennedy

(1984) described two types of social desirability related to participant interviews in her qualitative study of exemplary school districts. Her study investigated the link between evaluation and testing efforts and managerial and instructional improvements. Kennedy's (1984) research design included participant interviews that relied on verbal testimony, which led to concerns about the participants' socially desirable responses, as well as their insightfulness, eloquence, and openness. Separately, Kennedy (1984) expressed concern about the ambiguity in participants' language including poor use of metaphors, innuendos, and sentences that were incomplete. These same concerns applied to participant interviews conducted in my study. What participants report in semi-structured interviews cannot be accepted as completely valid, especially if the interviewer fails to ask appropriate follow up questions to clarify the participants' responses, resulting in the collection of data that may be less than valid. An awareness of the issues raised by Kennedy (1984) and Gordon (1956) helped guide me through this study limitation.

Gordon's (1956) work at the University of Chicago as an assistant field supervisor for the National Opinion Research Center's Disaster Study Project led him to describe seven other problems confronted by the interviewer as he/she attempts to collect valid data. The intention in presenting these problems is that knowledge of them has helped me collect what Gordon has termed information that has "depth," rather than purely socially desirable information. For example, the participant may withhold information because of a perceived threat to his/her self-esteem. In its most acute form, the participant not only hides the information from the interviewer, but also from himself/herself (p. 159). Interviewers who reassure the participant of their neutral stance on a topic may lead the participant to catharsis. The interviewer's liberal guarantees of the participants'

anonymity encouraged them to disclose information that had depth. Additional problems about which Gordon suggests the interviewer be cognizant to best assure the collection of valid data include, levels of: forgetfulness; generalizations; subjectivity; unconscious or conscious experience; trauma; etiquette; and the time period (chronology) from which the experience is interpreted. In this study, participants appeared at times to forget what year an event or action occurred, and stated what appeared to be generalizations, but attempted to offer more detailed data when I probed further.

Sampling Plan

Survey sample.

Part I: quantitative sample. The sample that received the pre-disaster planning leader survey (Appendix B) in June 2008 was comprised of only the 28 Florida community college Business Officers on record with the Division of Community Colleges, Florida Department of Education (personal communication, Jo Conte, June 13, 2008); 15 of 28 subjects responded (54%). The survey sample was selected because I believed subjects would be most capable of responding to the survey items. For example, subjects provided financial data related to damages after the hurricane seasons of 2004 & 2005 as requested by the Florida Community College Risk Management Consortium and, based upon my nearly 20 years of experience in higher education it was generally believed that these subjects and the administrative units reporting to the them were highly involved in pre-disaster planning (e.g., facilities management, environmental health and safety, risk management and public safety) and the 28 subjects would be able to respond best to the survey. Prior to me sending the survey, Dr. Carol Probstfeld, Vice President - Business & Administrative Services of Manatee Community College and Chair of the

Council on Business Affairs for the Florida Association of Community Colleges, sent me a signed letter (Appendix C) indicating her willingness to cooperate with the study. She then emailed the survey sample a letter (Appendix D) supporting my study, encouraging the sample to complete the survey, while noting its potential for informing the future of pre-disaster planning at Florida's community colleges. Forty-eight hours later, I sent the sample the web links for the survey and consent form (Appendix E). The sample again received an email with the web links two and four weeks later and finally a telephone call by an independent third party to remind the sample to complete the survey by July 18, 2008. The names of the respondents and non-respondents were not shared with Dr. Probstfeld, dismissing any concerns the sample may have had about repercussions for not completing the survey, or their job security.

Interview sample.

Part II: qualitative sample. The second part of this research study involved semi-structured, open-ended interviews with a sample selected by the Business Officers at the two community colleges who had the top pre-disaster planning leadership scores. Survey item six asked the Business Officers to list five staff who are most to least involved in pre-disaster planning. It was assumed that the Business Officer was able to rank order the top five administrative staff. The identification of five administrative staff gave me some flexibility in the event one or more staff departed the community college. The names of respondents that did not consent to participate in the study were not shared with their Business Officer, dismissing any concerns they may have had about job security. The three top ranked administrative staff served as within-case participants for each of the two colleges, resulting in a total of six cross-case interviews with key informants at the

campus where he/she was employed. Miles and Huberman (1994) have quite aptly described the within and across case sampling method as allowing the researcher to put "flesh on the bones of general constructs and their relationships (p. 27)." Florida community college administrative staff identified by Business Officers were interviewed, so that I could explore and describe how they had attempted to reduce or eliminate the impact natural and manmade disasters have had on their institutions and whether and how closely their practices met the guidelines of the DRU.

Data Collection

Part I: quantitative data. Approval for conducting this study was granted by Florida Atlantic University's Institutional Review Board. Snap Surveys Software was utilized to place the 7-item pre-disaster planning leader survey online and to collect data. A web link for the survey was emailed to the sample using the email address on file with the State Division of Community Colleges, Florida Department of Education. The Snap Surveys Software was used to manage the reminder emails sent to the sample and to track who completed the survey, thereby permitting me to follow up with the two respondents that had the highest pre-disaster planning leader score and who would serve as sites for the interviews. A letter of informed consent preceded the survey and respondents were asked to acknowledge their consent before being given access to the survey.

Part II: qualitative data. "Lone ranger" (Bogdan & Biklen, 2003, p. 71) research relied upon semi-structured, open-ended, one-on-one interviews conducted with six administrative staff on the campuses where they work, extending in length from 75 minutes to 2 hours. Participants were emailed a consent form prior to the interview (Appendix F) and asked to return the signed document to me before I visited their

community college. An interview guide (Appendix G) was used to explore the four research questions. Audio tapes from participant interviews were transcribed verbatim, stored in a locked filing cabinet, and will be destroyed within one month after I have successfully defended the doctoral dissertation. The two community colleges where participants were interviewed are known only by the dissertation committee and me. The names of the community colleges where data was collected were omitted and pseudonyms were given to maintain confidentiality. The community colleges' geographic regions and city locations were not reported in study findings. Similarly, administrative staff names were not reported in the study and specific titles were sanitized to maintain confidentiality. I believe that reporting data without revealing the identity of the participants and colleges increased the collection of data that was not socially desirable, and accurately reflected the status of pre-disaster planning at each institution. In addition and perhaps more importantly, administrators knew that the information they shared about their institution would not compromise its safety when reported in this study.

Document Analysis

Participants interviewed for the study were asked to provide official documents where appropriate for analysis (Appendix H), if they existed and if the institution was amenable to providing a copy to me. Each document chosen for this study was selected because of its potential to support or refute data in participant interviews and official documents. For example, if the participant being interviewed affirmed that a mission statement had been drafted by its pre-disaster planning advisory committee, a copy of the mission statement was requested in an effort to corroborate the assertion. Florida statute 119.071 exempts from inspection "security system plans," but no administrative staff

interviewed for the study explicitly cited the statute and refused to provide official documents.

Data Analysis

Part I: quantitative data analysis. The purpose of the pre-disaster planning leadership survey was to neither test hypotheses nor conduct inferential tests. Survey data were scored using a seven-item scoring methodology (Appendix I) and all seven items in the survey were summed, producing a ranking of the community colleges. The two top-ranked community colleges (i.e., Alpha and Beta) served as the sites for the interviews. Narrative data is reported without using the name of the community college, administrator or his/her specific job title. (See Appendix J for a matrix of research questions by data collection technique). The Statistical Package for the Social Sciences [SPSS] (SPSS 15.0) and Microsoft Excel were used to analyze data and to produce summative information. Individual survey item scores for each respondent were summed by me using a calculator to produce a total score. Frequencies, means and standard deviations are reported where appropriate for continuous and dichotomous responses. More specifically, survey items 1a, 2a, 3a, 3b, 3c, 5a and 7 generated dichotomous responses and a frequency was calculated for each item. As noted earlier in this chapter, a scoring methodology was used to calculate the pre-disaster planning leader score (i.e., total number of points) awarded to each community college. A frequency and mean for total scores is also reported.

Responses to survey items 1b-1p (i.e., county agencies, state agencies and other organizations) and 6a (i.e., title of administrative staff member) are presented in lists. For example, Alpha's report of agencies and organizations in item 1b – 1p are coded to match

it (e.g., Alpha County Sheriff's Office). Responses to item 6b included salary levels of staff and 6c included the percentage of time focused on pre-disaster planning. A salary mean weighted by time spent on pre-disaster planning is reported. Summative information for survey items 2b and 2c was not reported because only one response was received. Reporting a frequency and mean for survey item 5b (i.e., in which budget year was he/she appointed) was not necessary due to the limited number of responses (5). Five distinct years were reported by respondents and each year is noted in Chapter 4.

Responses to survey item 4a, 4b, 4c and 4d were normalized by establishing a per student value. For example, each of the four years the community college reported an expense for a budget category (i.e., internal reallocations, state grant(s), federal grant(s) and/or restricted funding), the amount was divided by the annual unduplicated student headcount enrollment for the previous year (Department of Education – Florida Community College System, 2005).

Part II: qualitative data analysis. The purpose of the qualitative data analysis was to learn whether and how closely pre-disaster planning practices at Florida community colleges met the guidelines recommended in the DRU. The within-case analysis of interview transcripts, official documents and field notes enabled me to validate data across data collection methods (Bogdan & Biklen, 2003) and the cross-case analysis provided insight into whether and how closely pre-disaster planning practices at Florida community colleges met the guidelines recommended in the DRU. Discrepancies in data between either administrative staff at a community college or a participant's own data revealed important findings about the reality of pre-disaster planning at the community college. My analysis of the medley of participants' experiences allowed me

to triangulate data and to present their simultaneous realities, however refracted (Denzin & Lincoln, 2008). At times, the triangulation of data is redundant and at other times skeptical (Stake, 2006).

The practice of lone ranger research (Bogdan & Biklen, 2003) led to an interim analysis resulting in the summarizing and sense making of more than 400 pages of interview transcripts, official documents, and field notes and is reported in Chapters 5 to 8. This process included what Miles and Huberman (1994) have termed data reduction, a process of data selection, focusing, simplification, abstracting, and transformation. It was possible to compare cross-case data because of the use of like codes and formats for reporting data. Further data analysis resulted in the emergence of themes and patterns, which aided in the organization and reporting of findings that inform Florida community college administrators in their future practice of pre-disaster planning.

Participants' names are not written on field notes or interview transcripts, but there is a code identifying the community college and participant. The pronoun she is used when referring to all participants in an effort to maintain the participants' anonymity. No participant stated an unwillingness to provide requested documents due to Florida Statute 119.071, which exempts from inspection "security system plans" (I.D.E.A., 2003). All research documents were stored in a locked file cabinet. The codes assigned to each participant and community college were maintained on a master code list and stored in a locked filing cabinet drawer separate from the field notes and interview transcripts.

Member checking (Creswell, 2003) was incorporated into the data analysis to assure the highest level of internal validity by allowing participants to check for

inaccuracies in data transcriptions or to provide clarification. Four of six participants returned their interview transcripts to me, but only two noted minor revisions in spelling. Quotes from interviews and documents were used without identifying participants' names, specific positions, region of the state, building names, or any other identifiable information.

CHAPTER 4

FINDINGS - SURVEY RESULTS

The purpose of this study was to explore and describe the pre-disaster planning processes or practices used by Florida community college administrators as they engaged in planning to reduce or eliminate the impact of disasters on their campuses after the terrorist attacks of 9/11, the 2004-05 hurricanes and the Virginia Tech massacre. The guidelines for pre-disaster planning noted in the DRU served as the conceptual lens for this study, providing me a base of comparison to actions taken by the sample. Study findings from the survey are presented in chapter four, and these findings informed whom I would interview and permitted triangulation with data from the qualitative study. Qualitative findings from interviews are paired with data from official documents and field notes as well as related findings from the survey and are presented in Chapters 5 through 8.

Part 1: Survey Findings

Part I data collection began in the summer of 2008 when all 28 Florida community college Business Officers received an email asking them to complete an online survey consisting of seven items. Each item reflected a guideline of the Disaster Resistant University pre-disaster planning model, which provides the conceptual lens for this study. The survey was administered in an effort to identify the two pre-disaster planning leaders amongst Florida's community colleges whose pre-disaster planning

processes and practices are most closely aligned to the DRU. Fifteen of 28 respondents (54%) completed the survey and the mean survey score was 5.82 points out of a possible 14.98. The top two respondents, Alpha and Beta Community Colleges, each scored 8 points.

Table 1

Frequency of Scores of Pre-disaster Planning Leadership Survey

		Frequency	%	Cumulative %
Valid	4	4	26.7	26.7
	5	2	13.3	40.0
	6	3	20.0	60.0
	6.35	1	6.7	66.7
	7	3	20.0	86.7
	8	2	13.3	100.0
	Total	15	100.0	

Conducted Risk Assessment of All Hazards and Who Assisted

Fourteen of 15 respondents (93.3%) including the two top ranked community colleges answered “yes” when asked whether they had conducted a risk assessment to identify all natural and manmade hazards to which it is most vulnerable. When asked whether they had contacted external stakeholders for assistance in identifying campus vulnerabilities, 13 respondents (87%) reported contacting between 2 and 14 stakeholders for a total of 84 requests for assistance, including 44 county, 18 state, and 22 other agencies. The remaining two respondents contacted no external stakeholders for assistance. Some respondents either inadvertently or incorrectly reported 13 agencies in the wrong category (e.g., a city agency in the county category; a national agency in the

state category; and a county agency under the other category). Data appear as reported by each respondent (Table 2) with the exception of typographical errors.

Table 2

Stakeholders Contacted for Risk Assessment

Community College	County Agencies	State Agencies	Other Agencies
Alpha	Alpha County Local Mitigation Strategy Committee	Florida Division of Emergency Management (hurricane assessment)	Florida Department of Education, Division of Community Colleges
	Alpha County EOC	NOAA Weather Services	Florida Community Colleges Risk Management Consortium
	Alpha County (II) EOC		Lots of magazines, sales brochures, etc.
	Alpha County (III) EOC		
	Alpha County Sheriff's Office		
Beta	Beta County EOC	-	Beta County Sheriff's Office
	Beta County (II) EOC		Florida Community College Risk Management Consortium
	Beta County (III) EOC		
	Beta County Sheriff's Office		
	Beta County (II) Sheriff's Office		
Gamma	Gamma County Emergency Operations	-	-

(table continues)

Table 2 *(continued)*

Community College	County Agencies	State Agencies	Other Agencies
	Gamma County (II) Emergency Operations		
Delta	Delta Emergency Management Delta Sheriff Delta Police Department Delta Health Department	DOE	Hospital
Epsilon	-		-
Zeta	Zeta County Sheriff Zeta County Emergency Management Zeta Regional Medical Center Zeta Hospital Zeta Police Department		University of Zeta Florida
Eta	Eta County Sherriff's Office EOC's in Eta County (I), Eta County (II), Eta County (III), Eta County (IV)	-	Florida Community College Risk Management Consortium FEMA NIMS

(table continues)

Table 2 *(continued)*

Community College	County Agencies	State Agencies	Other Agencies
Theta	Theta County Emergency Operations Center Theta County Sheriff's Department	Florida Department of Law Enforcement	
Iota	-	-	-
Kappa	Kappa Sheriff Dept. Kappa Emergency Mgt. Services Kappa County	Dept. of Education Dept. of Mgmt. Services Florida Community Colleges Risk Mgt. Consortium	Local Police Depts. City of Kappa Local Fire Depts.
Lambda	Lambda County Emergency Management Lambda County Sheriff Lambda County (II) Sheriff	State Department of Emergency Management	City of Lambda Police City of Lambda (II) Police
Mu	Mu County Emergency Response Mu County (II) Emergency Response	-	IACLEA
Nu	Nu County Office of Emergency Management	FDLE HLS-CAM	RDSTF - Region Nu

(table continues)

Table 2 *(continued)*

Community College	County Agencies	State Agencies	Other Agencies
Xi	Xi County Sheriff's Office, Division of Emergency Management	Department of Community Affairs, Division of Emergency Management	Xi, Inc.
	City of Xi, Office of Emergency Management	Department of Environmental Protection, Bureau of Emergency Response, and Bureau of Solid Waste	Xi Area Chapter, American Red Cross
	City of Xi Fire Department	Department of Law Enforcement	Florida Community Colleges Risk Management Consortium
	Xi Regional Planning Council	Department of Education, Office of Educational Facilities, and Division of Community Colleges	Florida Community Colleges Campus Security Summit
	District Xi Local Emergency Planning Committee	Xi State University Dept. of Env. Health & Safety, and Florida Xi University (II) Dept. of Environmental. Health & Safety	
Omicron	Omicron County Emergency Management Agency	FDLE HLSCAM Homeland Security Comprehensive Assessment Model	Florida Risk Management Consortium
	Omicron County Sheriff's Office		

Twenty-two of the stakeholders (26%) contacted by respondents for help in identifying campus vulnerabilities were emergency operation centers (13), emergency management offices (7) or emergency response offices (2). The two top scoring

respondents (i.e., pre-disaster planning leaders) overall each contacted three of these stakeholders. Other respondents did not contact any of these stakeholders, which is troubling given The Department of Homeland Security's emphasis on incidents being managed at the local level (NRF, 2008a). One possible explanation is the respondents employed sworn law enforcement officers with the ability to conduct assessments. In the case of these three respondents this explanation is not plausible because they do not have sworn officers (personal communication, Daryl Johnston, April 12, 2007).

Ten respondents consulted 17 Sheriff's Offices and/or city/local Police Departments to identify campus vulnerabilities. One respondent reported contacting four law enforcement agencies and two respondents contacted three or more (i.e., one of whom contacted, in part, "police departments" making unclear the number consulted). One-third of all respondents (5) did not contact a law enforcement agency and none of them reported contracting the services of a consultant.

Five respondents (33%) reported contacting The Florida Community College Risk Management Consortium (FCCRMC) for assistance in identifying campus vulnerabilities, including the two pre-disaster planning leaders. Not all Florida community colleges are members of the FCCRMC, so the number of respondents contacting it might be higher if all respondents were members. Four respondents (27%) reported having consulted the Florida Department of Law Enforcement, two of whom reported using its Homeland Security Comprehensive Assessment Model (HLS-CAMS) to identify campus vulnerabilities. Four other respondents consulted with the Florida Department of Education, specifically noting they had worked with management services, educational facilities or the division of community colleges. Three respondents

consulted with the Florida Division of Emergency Management and two respondents consulted with local fire departments. One respondent noted it consulted with the Campus Safety Summit, likely a reference to having attended the June 2007 Summit and having used information obtained from presenters and colleagues. Still others, except the top two pre-disaster planning leaders (see Table 2), consulted once with FEMA, IACLEA, NIMS, the Regional Domestic Security Task Force (RDSTF), and the American Red Cross. Table 2 includes all county, state, and other agencies consulted by respondents to identify campus vulnerabilities.

Tables 3, 4 and 5 each show the number of times county, state, and other stakeholders were contacted by respondents, respectively.

Table 3

Number of Times Community Colleges Contacted County Agencies

Name of county agency contacted	Number of respondents contacting county agency	Number of times top 2 pre-disaster planning leaders contacted county agency
Sheriff's Office and/or city/local Police Department	14	4
County EOC	13	6
Emergency Management Services	7	0

(table continues)

Table 3 *(continued)*

Name of county agency contacted	Number of respondents contacting county agency	Number of times top 2 pre-disaster planning leaders contacted county agency
Hospital and/or Regional Medical Center	2	0
Emergency Response	2	0
Local Mitigation Strategy Committee	1	1
Health Department	1	0
The County	1	0
City Fire Department	1	0
Regional Planning Council	1	0
District Local Emergency Planning Committee	1	0

Table 4

Number of Times Community Colleges Contacted State Agencies

Name of state agency contacted	Number of respondents contacting state agency	Number of times top 2 pre-disaster planning leaders contacted state agency
Department of Education	2	0
Florida Department of Law Enforcement	2	0
FDLE HLS-CAM	2	0
Florida Division of Emergency Management (hurricane assessment)	1	1
NOAA Weather Services	1	0
Dept. of Mgmt. Services	1	0

(table continues)

Table 4 *(continued)*

Name of state agency contacted	Number of respondents contacting state agency	Number of times top 2 pre-disaster planning leaders contacted state agency
Florida Community Colleges Risk Mgt. Consortium	1	0
State Department of Emergency Management	1	0
Department of Community Affairs, Division of Emergency Management	1	0
Department of Environmental Protection, Bureau of Emergency Response, and Bureau of Solid Waste	1	0
Department of Education, Office of Educational Facilities, and Division of Community Colleges	1	0
Xi State University Dept. of Env. Health & Safety, and Florida Xi University (II) Dept. of Env. Health & Safety	1	0

Table 5

Number of Times Community Colleges Contacted Other Agencies

Name of other agency contacted	Number of respondents contacting other agency	Number of times top 2 pre-disaster planning leaders contacted other agency
Florida Community Colleges Risk Management Consortium	5	2
Beta County Sheriff's Office & Local/City Police	3	1
Florida Department of Education, Division of Community Colleges	1	1
Lots of magazines, sales brochures, etc.	1	1
Hospital	1	0
University of Zeta Florida	1	0
FEMA	1	0
NIMS	1	0
City of Kappa	1	0
Local Fire Depts.	1	0
City of Lambda (II) Police	1	0
IACLEA	1	0
RDSTF - Region Nu	1	0
Xi, Inc.	1	0
Xi Area Chapter, American Red Cross	1	0
Florida Community Colleges Campus Security Summit	1	0

Inventory of Building and Infrastructure Assets

Fourteen respondents (93.3%) reported conducting an inventory of all buildings (e.g., laboratories, classrooms, workshops, and equipment) and all infrastructure assets (e.g., payroll, accounts payable, and student records), so the institution knows what can be affected and the financial risk involved if disaster strikes.

Identification, Assignment, and Funding of Goals and Objectives

When asked whether the community college had identified goals and objectives for its pre-disaster plan, 86.7% of respondents (13) answered "yes." When asked whether they had assigned all goals and objectives to someone to assure they were achieved, 10 of 13 (76.9%) respondents that replied to the question replied "yes" and 3 (23.1%) replied "no." Respondents were asked whether all goals and objectives had been funded and 7 of 13 (53.8%) replied "yes" and 6 (46.2%) replied "no." One observation of these findings is that although the majority of goals and objectives had been identified (86.7%) and assigned (76.9%) to someone, only 53.8% reported they had been funded.

Top Three Respondents' Per Student Spending in

Four Budget Categories and Years

Respondents were asked to estimate, to the best of their knowledge, their community college's pre-disaster planning expenses in four budget categories (i.e., internal budget reallocations - excluding staff; state grants; federal grants and restricted funding). Respondents were asked to include in their total for each category and year, items like the purchase of generators, classroom door locks, communications equipment (e.g., emergency notification systems, sirens, radios for campus security), computer backups, video surveillance equipment, and shutters; excluding staff time. Each of the 4

years of data reported by a respondent in a budget category was divided by the annual unduplicated student head count (FLDOE, 2008, p. 26) from the previous year, and then all 4 years were summed. Table 6 shows the top three respondents' per student spending in four budget categories. At least one of the top two pre-disaster planning leaders appeared in three of the four budget categories. Alpha Community College appeared in three of the budget categories and Beta Community College appeared twice.

Table 6

Top Three Respondents' Per Student Spending in Four Budget Categories

Top three respondents	Internal budget reallocations	State grants	Federal grants	Restricted funding
Alpha	49.24			
Beta	39.50			
Delta	25.53			
Alpha		8.90		
Mu		3.49		
Epsilon		2.26		
Beta			11.75	
Mu			9.31	
Epsilon			2.57	
Delta				468.21
Alpha				105.73
Zeta				13.53

Note. Dollars normalized by annual unduplicated student headcount from the previous year.

Appointment of Project Manager and Year Appointed

Respondents were asked whether its community college had appointed a project manager whose work is primarily focused on pre-disaster planning. A mere 35.7% (5 of 14) appointed a Project Manager whereas 64.3% (9) had not done so. This finding is counter to a recommended guideline in the DRU model (FEMA, 2003) that a project manager/consultant be appointed or hired to oversee the development of pre-disaster mitigation planning. Five community colleges appointed project managers, all in different years, the earliest in 2000-01 while the others were appointed in 2004-05, 2005-06, 2006-07, and 2007-08. Neither of the top two pre-disaster planning leaders reported appointing a project manager whose work is focused primarily on overseeing the mitigation plan.

Salary Mean Weighted by Time Spent on Pre-disaster Planning

Respondents were asked to note the top five administrative staff members most to least involved in pre-disaster planning along with his/her salary and the percentage of time spent in pre-disaster planning excluding preparation time in which a community college might engage during the 4-5 days prior to a disaster (e.g., hurricane). A salary mean weighted by the percentage of time spent on pre-disaster planning was calculated to identify the top three pre-disaster planning leaders, which included Nu ($34,900) Delta ($22,120) and Gamma ($18,700) Community Colleges. The salary mean for all respondents (N=13) was $13,242 and the standard deviation was $8,403.

The administrative staff members identified by Business Officers as being the most involved in pre-disaster planning by rank are the President (1), Senior Vice Presidents (1), Vice Presidents (5) or Assistant Vice Presidents (2), followed by Directors (4). Four of five Vice Presidents were in Administration/Business and one was in Student

Affairs. Table 7 provides an overview of other staff members most involved in pre-disaster planning.

Table 7

Administrative Staff Member Most Involved in Pre-disaster Planning by Rank

Pseudonym	Title of Administrative Staff Member
Delta	President
Beta	Vice President for Administration & Finance
Epsilon	VP - Administration & Finance
Zeta	VP Administration/CFO
Lambda	VP for Business
Mu	VP Business
Eta	Vice President Student Affairs
Nu	AVP Safety & Security: Risk Management
Xi	Assistant Vice President Of Xi Law Enforcement Academy
Theta	Directors (multi-discipline HR, Safety/Security, IT, Facilities)
Iota	Director of Center
Omicron	Director of Facilities
Kappa	Director of Campus Safety
Gamma	Police Chief
Alpha	Coordinator of Risk Management

The administrative staff members identified by Business Officers as being the second most involved in pre-disaster planning were the Provost, Vice Presidents (6)—4 of the 6 are in Administration/Business. Ranked next was one Assistant Vice President of Facilities and 3 Directors of Facilities, followed by a Director of Business Services. Table 8 provides an overview of administrative staff members second most involved in pre-disaster planning.

Table 8

Community Colleges' Administrative Staff Member Second Most Involved in Pre-disaster Planning by Rank

Pseudonym	Title of Administrative Staff Member
Theta	Provosts
Alpha	Vice President for Administrative Services
Gamma	VP, Business Affairs
Delta	Vice President
Eta	Vice President Administration and Finance
Xi	Vice President of Information Technology and Chief Information Officer
Omicron	Vice President of Business Services
Nu	AVP Facilities
Zeta	Director of Facilities
Kappa	Director of Facilities Services
Lambda	Dir. of Facilities
Mu	Director Business Services
Beta	Manager - Public Safety
Epsilon	-
Iota	-

The administrative staff members identified by business officers as being the third most involved in pre-disaster planning were Vice Presidents (4), one Assistant Vice President, one Dean of Administrative Services and one Chief Information Officer. Table 9 provides an overview of administrative staff members third most involved in pre-disaster planning.

Table 9

Community Colleges' Administrative Staff Member Third Most Involved in Pre-disaster Planning by Rank

Pseudonym	Title of Administrative Staff Member
Gamma	VP, Instructional Affairs
Theta	Vice Presidents
Kappa	VP for Administrative Services
Xi	Vice President of Administrative Services and Chief Financial Officer
Nu	AVP Administrative Services
Delta	Dean of Administrative Services
Lambda	Chief Information Officer
Alpha	Director, Facilities
Beta	Director - College Facilities
Eta	Director of Security
Zeta	Safety/Security Manager
Mu	Chief of Campus Security
Epsilon	-
Iota	-
Omicron	-

All respondents were able to identify one administrative staff member most involved in pre-disaster planning. Yet not all respondents were able to identify five administrative staff. For example, only 13 respondents identified an administrative staff member second most involved in pre-disaster planning and only 12 respondents were able to identify a third administrative staff member most involved in pre-disaster planning. The three participants most involved were interviewed at each of the top two community colleges identified as pre-disaster planning leaders.

Formal Adoption of Pre-disaster Mitigation Plan by President

When asked whether the community college president had formally adopted the pre-disaster mitigation plan, 57.1% (8) replied “yes” and 42.9% (6) replied “no.” Both pre-disaster planning leaders reported their president had formally adopted the pre-disaster mitigation plan.

CHAPTER 5

FINDINGS – ORGANIZING RESOURCES

The survey respondents and interview participants from Alpha and Beta Community Colleges replied to 11 survey and interview questions designed to bring insight to research question one, which is broken down here into three component parts for ease of analysis and the reporting of findings. The three components are the involvement of internal stakeholders and external stakeholders in the pre-disaster planning process, and whether a mission statement has been developed for its advisory committee. Findings for each component part of research question 1 are compared across cases and to guidelines of the DRU.

Involvement of Internal Leaders

The authors of the DRU quickly call attention to the necessity of broad participation by internal and external stakeholders in the pre-disaster planning process and the application of their "commitment, knowledge, and enthusiasm" (FEMA, 2003, p. 4) to it. Neither community college stated it had conducted an inventory of potential internal stakeholders who might participate in the process. Alpha and Beta Community Colleges, however, appear to have garnered wide representation and in particular, the attention of their Presidents. Alpha's President leads the Emergency Response Team, but neither Beta's President nor Provost are reported as having the same level of "active commitment and involvement" (p. 5), which is considered crucial and recommended by

the DRU. Alpha and Beta's Vice President for Business Administration is significantly involved in the process of pre-disaster planning, which was self-reported and reported by other interview participants at the community colleges. See Table 10 for a list of internal stakeholders aiding the pre-disaster planning advisory committee.

Table 10

Internal Stakeholders Aiding Pre-disaster Planning Advisory Committee

Disaster Resistant University	Internal Stakeholders	Alpha	Beta
Recommend participation of individuals that have authority to make decisions; "active commitment and involvement" is considered crucial	President Provost Business Office	Yes-leads ERT Yes Yes	Yes Yes Yes
	Other Internal Stakeholders	ERT Members Deans, VP's Campus Director, Site Coordinator, Residential facility managers, Policy and advisory groups	Critical Incident Management Team, VP, Student Affairs, director of Marketing, Facilities, Public Safety, Others as needed
Non-DRU related; survey item 6a establishes who would be interviewed at community college	Most involved in pre-disaster planning	Coordinator Risk Management, VP Administrative Affairs Director of College Facilities	VP Finance, Administration, Directors of Public Safety and Facilities

(table continues)

Table 10 *(continued)*

Disaster Resistant University	Internal Stakeholders	Alpha	Beta
Significant experience within community college; Knows culture, personality operations	Project Manager	Coordinator Risk Management	VP Administration Finance
Students are focus of pre-disaster planning and should have input into the process	Student Stakeholders	Yes	Yes
Only academic discipline may make faculty aware of impact of disasters, yet they have much to lose	Faculty Stakeholders	Yes	No

Alpha Community College has four formally recognized teams, councils, and committees that address its pre-disaster planning issues at some level. Some groups make policy decisions, others serve in an advisory capacity, and yet others are the recipients of new policy announcements. Emergency Response Team members are most involved in pre-disaster planning and have wide representation from around the college, including the president, deans, provosts, vice presidents, campus directors, site coordinators, and the residence facility general manager. Alpha's senior administrator recognized its coordinator as leading pre-disaster planning, stating,

> I can't say enough about the importance about having someone who is responsible for ensuring that communication and information is happening. That they are

walking the campus, that they are physically looking in every nook and trying to find out what the vulnerabilities are.

Beta Community College's internal leaders who are involved in pre-disaster planning via its Critical Incident Management Team include the President, Provost, VP for Administration & Finance, VP for Student Affairs, and Directors of Marketing, Facilities and Public Safety and others as needed. Neither the President nor Provost lead the Critical Incident Management Team, but interview participants described the president's involvement in pre-disaster planning as "very involved", "involved in every aspect" and "the president has to be involved in it". Four administrators attended the Community College Campus Safety Forum in 2007 and according to one, they were, "Absolutely stunned at the number of colleges that had nothing on the shelf. I mean nothing on the shelf. No procedures, no policies, essentially nothing."

Involvement of Student Stakeholders

Study findings revealed the involvement of other internal stakeholders in the pre-disaster planning process, including students. More specifically, Alpha Community College secures the input of 100-200 students on mitigation related to safety and security issues via quarterly Student Government Association (SGA) forums with the President of the Community College. A senior administrator noted that the SGA forums are the most effective vehicles for change, and that "Safety, security, you know, is always a concern." Alpha has generated no student input at the committee level. Beta Community College, on the other hand, includes students at the committee level, which results in input on mitigation actions, but receives no input via student forums. The DRU makes no suggestion about how students provide input into the pre-disaster planning process, but

simply that they do so because they are one of the primary focuses of it (FEMA, 2003). It also recognizes the sometimes inflexible class and work schedules of students, which can impact their level of input into the process. Congruent with DRU recommendations, the practice of securing the input of student stakeholders on mitigation actions is underway at Alpha and Beta Community Colleges.

Involvement of Faculty Stakeholders

Provosts and "certain faculty" members at Alpha Community College are involved in Emergency Response Team meetings, while most learn of different actions and policies related to pre-disaster planning via faculty forums, according to two administrators. Beta Community College Faculty were not reported in any way as being actively involved in the pre-disaster planning process. Its Provost is involved in the role of spokesperson or decision-maker, but the lack of faculty input by Beta is incongruent with the DRU and potentially excludes important information that would otherwise aid the pre-disaster planning process. As the DRU suggests, only a faculty member's academic discipline may make him or her aware of the impact of disasters. Yet many faculty still have much to lose, like buildings, computers, data, notes, papers and books.

Appointment of Project Manager

Both Alpha and Beta Community Colleges replied 'no' to survey item 5a, which asked whether a project manager had been appointed whose primary focus is on pre-disaster planning. A different story was told by participants during interviews, however. In fact, all six participants stated that a project manager had indeed been identified. Interviews are a much more personal interaction in comparison to an online survey, allowing for probing in an effort to collect what Gordon (1956) has termed information

that has “depth.” Participants from neither community college were in complete agreement as to who served as the project manager. Alpha’s senior administrator identified the coordinator as the project manager as did the coordinator herself. Supporting this finding is the rank order of administrators most involved in pre-disaster planning as reported in survey item 6a, which included the Coordinator of Risk Management, the Vice President for Administrative Services, and the Director of College Facilities.

The coordinator described her role, stating,

> [The] Coordinator spends more time than anyone in the area of mitigation and disaster planning and that kind of thing.

Alpha’s stance is consistent with DRU guidelines, which suggests that a full-time project manager or consultant be hired to lead pre-disaster planning. The college chose an internal project manager, someone familiar with the culture and operation of the campus and its personalities (FEMA, 2003).

One participant had a different view of who serves as the project manager, while all participants noted that it is the president who makes the final decision on pre-disaster planning related issues. This is another example of the value of having the interviews follow the survey. This research methodology allowed multiple participants to provide a broader understanding of their stories and the pre-disaster planning practices at each site. Together, they allowed me to reconcile the senior administrator’s survey response and interview comments related to whether a project manager had been appointed. Similarly, the two data collection methods allowed me to triangulate participants’ comments and

resolve that the coordinator serves as the project manager, the existence of which is congruent with the DRU.

Like Alpha, Beta's two administrators claiming project manager status have significant experience within the community college, know its culture, personalities and operations, which is congruent with DRU guidelines. Two of the participants including the senior level administrator herself thought that she more than anyone was involved in pre-disaster planning and served as the project manager. A third participant or mid-level manager viewed herself as the project manager. She stated, "for the most part to be quite candid, it's me. I did a lot of it, as far as writing manuals and stuff like that." Like Alpha, Beta relies on an internal project manager that knows its culture, personalities, and operations (FEMA, 2003), but there is a difference of opinion as to who it is. The third and dissenting mid-level manager who felt that she was the project manager noted the following about her attendance at the Community College Campus Safety Forum in 2007 saying, "[It] kind of opened my eyes. Because I thought we were way behind the curve. Then I went to that meeting and I found out we were way ahead of the curve." Later she added,

> I was amazed that they were just getting started. In other words, when we went to that meeting, the people there were hearing all of this the first time. We already have that. We had the (inaudible) of emergency management systems. We had plans in place, we have response manuals and stuff, you know.

Beta administrators reported in survey item 6a as being the most involved in pre-disaster planning included in rank order its Vice President of Administration & Finance, the Director of Public Safety and the Director of Facilities. Both Alpha and Beta

identified a Vice President for Administration and a Director of Facilities as being amongst the top three administrators most involved in pre-disaster planning. As recommended by the DRU, Alpha and Beta's members include individuals (e.g., college president, vice president for business and finance) that have the authority to make decisions.

Involvement of External Stakeholders

Involvement of local sheriff and fire departments and local emergency managers. Both community colleges contacted their local Sheriff's Office and Beta contacted another nearby County Sheriff's Office for pre-disaster planning assistance. Neither Alpha nor Beta reported in the survey that they had contacted a fire department, but both community colleges noted in interviews that they had done so and that local fire departments and police have copies of their building schematics. Alpha's Sheriff's Office and its SWAT Team took photos of all buildings, measured distances between them and accessed underground storm water drainage systems. See Table 11 for an overview of all external stakeholders. These steps were taken in an effort to reduce Alpha's vulnerability to a shooter on campus, but Beta did not report a similar outcome from its contact with like agencies.

Table 11

External Stakeholders Aiding Pre-disaster Planning Advisory Committee

Disaster Resistant University	External Stakeholders	Alpha	Beta
Inclusion of external stakeholders in pre-disaster planning process reduces the impact of disasters, increases chances of success in mitigating damage, minimizes duplication of effort and makes available technical assistance	County Sheriff	Yes	Yes
	County Sheriff SWAT	Yes	No
	Other Sheriff	No	Yes
	Fire Departments	Yes	Yes
	County Emergency Operations Center	Yes	Yes
	Local Mitigation Strategy Committee	Yes	No
	Florida Division of Emergency Management	Yes	No
	FEMA- Florida	No	Yes

Alpha's coordinator mentioned that the sheriff's department is on campus every year.

> [They've], filmed the entire campus with still footage of all the buildings, of all the directions of the buildings, all of the different interfaces. Last year, like I said, we furnished the blue prints of all our buildings. Well, we've taken all the blue prints now and scanned them all, so when you have police officers responding to

> our campus and basically look at a building, call it up and they've got the floor prints of it. So, they know the inside, and that's shared between all our agencies and the county we're working with. They went and they got, distance from ranges, for if they had to put a sniper on a building for that. And we've got all of the tactical information already established with them, so if something does happen they can basically grab it.

The Sheriff's Office has even updated its computer capabilities in police cruisers, so that responding officers can access and review elementary level CAD drawings of facilities, including entrances and exits. In addition, two staff members noted the involvement of the fire department, "We have the fire departments that annually inspect all of our facilities." The mid-level manager reaffirmed that the fire department regularly visits campus for walk-throughs of buildings and the annual fire inspection.

Alpha and Beta each contacted their local emergency operations center and EOC's in two other counties. Alpha's relationship with an FDEM representative and the county's Local Mitigation Strategy (LMS) Committee brought funding for generators for its special needs shelters, whereas Beta has not pursued such a relationship. Beta has however, coordinated with the county and FEMA to serve as a staging area for first-responders involved in one emergency. Its mid-level manager stated,

> They would land the [first-responders]. Bus 'em to our gym. They would sleep here over night. They'd want to ship them out the next morning and were coming back through here. They did all the staging and assignments out of our gym and that was a FEMA operation, through our county guy.

Alpha has a contract with its county EOC that addresses the use of the college's facilities as shelters, and separately, the EOC has provided courtesy hazmat reviews. The coordinator reported that she has a very good relationship with the Director of the EOC. Beta reported that its county EOC and local law enforcement agency are members of its safety committee and they participate in an annual meeting on campus with the EOC's disaster planning task force and its management team.

Alpha and Beta have both made important strides in connecting with local government agencies for the purpose of pre-disaster planning. Their inclusion of the county sheriff, fire, EOC and others in their pre-disaster planning reduces the impact of disasters, increases their chances of success in mitigating damage, minimizes duplication of efforts and makes available technical assistance, all outcomes and mutual benefits noted in the DRU.

Involvement of Infrastructure and Vendor Representatives

Alpha and Beta have both benefited from their relationships with infrastructure representatives, and they have both benefited from vendor guidance. It should be noted that interview participants on both campuses had dissenting opinions about the extent of assistance received from vendors and infrastructure representatives as it relates to pre-disaster planning. For example, Alpha's coordinator stated that as far as "actual involvement with the development with our plans, they've had a little, but not to a large extent." One of Beta's participants said, "We normally don't pull them in." And later, she added that, "We usually speak more if we're going to get a direct hit, or something." The third participant reported that the college had not "gotten to that stage yet," because it doesn't have its ducks in a row. Further, she stated that pulling in infrastructure

representatives and vendors prematurely could make them look like a fool and turn everybody off. “They walk away and that’s the end of it.” See Table 12 for a List of infrastructure, vendor, and other stakeholders aiding the advisory committee.

Table 12

Infrastructure, Vendor, and Other Stakeholders Aiding Pre-disaster Planning Advisory Committee

Disaster Resistant University	Stakeholders	Alpha	Beta
Assistance from infrastructure, vendor and other stakeholders helped to survive past disasters and mitigate future disasters	Infrastructure Representatives	Yes	Yes
	Electric	Yes	Yes
	Telephone	No	Yes
	Vendor Representatives	Yes	Yes
	In kind assistance	No	No
	State FEMA	Yes	No
	Community College Mutual Aid	Yes	No
	Federal FEMA	No	Yes
	NOAA	Yes	No
	Florida Community College Risk Management Consortium	Yes	Yes
	Red Cross	Yes	No
	United Way	No	Yes

Alpha’s relationship with a community infrastructure representative, the electric company, has been helpful (e.g., “very, very positive, close relationship”), resulting in redundant power feeds to campus. Further, it has the local representative’s cell phone

number and has prearranged the early return of electric service to its residential center. Beta's relationship with infrastructure representatives from its electric and telephone companies was instrumental in its decision to spend a "small fortune" in backing up the systems. Neither Alpha nor Beta reported that vendor assistance was provided in-kind (FEMA, 2003). Alpha's contact with a variety of vendors has, on the other hand, provided several opportunities to enhance its pre-disaster planning. For example, vendor guidance related to purchases, services, and maintenance has aided Alpha with its text messaging system, emergency call buttons in parking lots, internet protocol phones, T-1 lines, roofing, and electrical issues. The vendor guidance Alpha has received has been beneficial in numerous ways, enabling it to mitigate disasters. Beta has worked with its enterprise software vendor to back up the system and, with its bank that covered payroll and other operating costs for a couple of months when the state shutdown the SBA, the state administered investment fund, allowing Beta to remain open. Assistance from infrastructure (pp. 12-13) and vendor (p. 16) stakeholders has positioned Alpha and Beta to survive past disasters and mitigate future disasters, both of which are outcomes noted in the DRU.

Involvement of State and Federal Agencies

Only Alpha has pursued a relationship with the Florida Division of Emergency Management (FDEM) for assistance with its pre-disaster planning. The involvement of state FEMA emergency managers in campus pre-disaster mitigation planning has been useful, albeit, "more challenging than what it was worth" in the aftermath of the hurricanes, noted the senior administrator. In spite of past frustrations during difficult times, recently the college further solidified its partnership with county and state

emergency managers by entering into an agreement. The agreement provides state dollars through the county's Local Mitigation Strategy (LMS) Committee. The college's relationship with a State of Florida, Division of Emergency Management (FDEM) representative, helped push funding to its special needs shelters. The state will purchase, install, and maintain "monster" generators (i.e., 3,000-gallon diesel units) for the shelters, meeting the state's mandate to provide air conditioning to individuals with special needs. Additional state funding allowed Alpha to conduct Community Emergency Response Team training (CERT) for faculty and staff.

Alpha and Beta also receive annual inspections from the Florida Community College Risk Management Consortium, and according to Alpha's senior administrator it includes, "Everything related to sanitation, cleanliness, safety, security…you know, check to make fire extinguishers are current, our fire exits. He comes down every year." Alpha reported that all Florida community colleges participate in preparing an inventory of resources that includes, laborers, the trades and materials, so that resources can be shifted around the state for response or mitigation.

Drawing upon the resources of federal agencies has not been a focus of Beta's, but it has recovered funds from FEMA that were spent on recovery; although it required a 4-year process to do so. Alpha has secured information from NOAA while attending Local Mitigation Strategy meetings within the county. Other than this example and despite The National Response Framework's call for federal agencies at all levels to, in part, develop response capabilities (NRF, 2008b) that can be drawn upon when the president issues a major disaster declaration, a relatively minimal amount of resource sharing appears to be occurring. In fact, none of the agencies mentioned by the DRU

have been contacted by either Alpha or Beta, including the "U.S. Geological Survey, National Weather Service, National Oceanic and Atmospheric Administration, and the Departments of Energy, Housing and Urban Development, Education, and Transportation" (FEMA, 2003, p. 15). This lack of resource sharing, whether related to funding or other resources is counter to DRU recommendations and could impact Alpha and Beta at any phase of emergency management, not just pre-disaster mitigation planning.

Involvement of Nonprofit Organizations

Alpha has a Red Cross-certified special needs shelter on its campus, whereas Beta has applied for funding to harden its gymnasium and positioned itself as a host shelter for individuals fleeing a storm-stricken area. There was no report of Alpha having benefited from its board member being a Red Cross board member and Alpha's senior administrator stated,

> So we're actively engaged with them, but do I think of them, if we had an emergency here would I be calling upon them? Only if I had a student or faculty/staff member who had needs that were beyond our limited resources, on a personal level. You know who had been displaced from their home.

The Red Cross's shelter certification had to occur given the fact that the state of Florida provided funding for a special needs shelter, including a massive generator for air conditioning.

Beta coordinated with the county and FEMA to serve as a staging area for first-responders after a storm and reportedly with The United Way as a Point of Distribution Site (PODS). Aside from the Red Cross and the United Way there is no report of either

Alpha or Beta being actively engaged with other non-profit agencies, like the Salvation Army or the National Voluntary Organizations Active in Disaster for a list of resources to be used in their pre-disaster planning as recommended by the DRU.

Mission Statement for Advisory Committee

Two administrators at both Alpha and Beta identified the same committee as the advisory committee for pre-disaster planning. Alpha and Beta identified the Emergency Response Team (ERT) and Critical Incident Management Team, respectively. As recommended by the DRU, Alpha's advisory committee members include individuals (e.g., president and vice president for administration) that have the authority to make decisions. Beta's advisory committee does not include the president, but does include the vice president for business and finance, a key decision-maker and others (e.g., vice president for student affairs, registrar and campus provosts) are brought in as needed.

No mission statement has been drafted by Alpha's advisory committee (i.e., Emergency Response Team), but the senior administrator noted that, "We do have a document that serves as a template of why we are meeting and what we do and what our function is and responsibilities." Her statement gives the impression that a mission-like statement exists, although it is not referred to as such. No document was available or sent to me as a follow up. A mid-level manager felt that, "There should be [a mission statement]. I'm not aware of it. It may be, but I'm not aware of it." Further, she noted that the President, "Is really good at providing mission statements and passing that out, so I'm surprised that I don't, I don't." The DRU model recommends that a mission statement be drafted by the pre-disaster mitigation planning advisory group and based upon the statements of two Alpha Community College participants it appears that a mission-like

statement may exist, but not by that name. Participants' reporting the existence of a mission-like statement suggests that their comments could have been socially desirable in nature, rather than a true picture of what exists.

Beta's senior administrator revealed that the Critical Incident Management Team has, "Some ancillary types of things that we've been working on, there's actually been collaboration with the county government and other local entities. The American Red Cross, hospitals, so on and so forth, on a pandemic plan." Despite the committee's name, its role is expanding beyond response and recovery to include pre-disaster planning. One of Beta's participants stated, "I've got to write one [mission statement] as a matter of fact." The other one simply said, "No [we don't have one]." The fact that the critical incident management team has explored pre-disaster planning (e.g., pandemic plan) suggests that if a mission statement were drafted it would include more than response and recovery issues, counter to its name.

CHAPTER 6

FINDINGS - HAZARD IDENTIFICATION AND RISK ASSESSMENT

Assistance With Identification of Hazards

Alpha and Beta reported in their survey that they had contacted nine and seven external stakeholders (see Table 13) respectively, to develop a list of natural and manmade disasters to which the community college is most vulnerable. However, Alpha and Beta's interview participants reported contacting only five internal and external stakeholders each. These differences may be explained by the fact that survey participants, working within their own timeframe, were able to draft a more comprehensive list of external stakeholders. Interview participants may not have had as much time to reflect on who assisted them simply because the pace of the interview was not entirely controlled by them. See Table 13 for an overview of stakeholders assisting with the identification of hazards.

Table 13

Stakeholders Assisting With the Identification of Natural and Man-made Hazards

Disaster Resistant University	Stakeholders	Alpha	Beta
Stakeholders who helped identify and prioritize a list of natural and man-made hazards	Local Emergency Operations Center	Yes	Yes
	Surrounding Emergency Operations Centers	Yes	Yes
	Local Mitigation Strategy Committee	Yes	No
	Internal Staff Members	Yes	No
	Florida Division of Emergency Management	Yes	No
	Focus Groups	Yes	No
	Local or community college archives/reports	No	No
	Experts like consultants/ contractors	No	Yes

In total, Alpha relied on 10 external government agencies and two internal staff members to identify hazards to which it is most vulnerable. It conducted a vulnerability assessment in February, 2005 using the Homeland Security Comprehensive Assessment Model (HLS-CAMS) provided by the Florida Department of Law Enforcement. According to a mid-level manager,

> We sent the photographs and everything else in. We had a complete vulnerability assessment. I think I have it somewhere in here. I have a copy of it. It's pretty comprehensive. You know, we did gas line identifications, power identifications. We had to provide the railroads…we had a train that's near here and that carries a

lot of chemicals and different things and had to be listed on there for the building. There was quite a bit in there.

Two other vulnerability assessments were conducted, one (e.g., chemicals and access to events) by the County Sheriff and the other (e.g., documentation of elevations and flood plains, railroads and highways used for transport of hazardous materials) by Alpha at the request of the Local Mitigation Strategy Committee.

Beta reported in its survey that seven government agencies helped identify natural and manmade hazards, but interview comments acknowledged that only five contractors had done so (i.e., for asbestos exposure, an evaluation of structural membranes, fire inspections, safety protocols and the removal of chemicals). One participant appeared to speculate that Beta's internal Crisis Management Team had identified natural and manmade hazards. Separately, she speculated that a consultant may have conducted a vulnerability assessment 6 to 8 years ago, but added, "don't hold me to it." She was confident, however, about having completed a Florida Department of Law Enforcement training herself to conduct a vulnerability assessment and completed one each of three consecutive years using the Homeland Security Comprehensive Assessment Model. She made no mention of any assistance she received when conducting the HLS-CAMS, but stated,

> I don't think we've been required to do it in the last three years. But, we, we had to do it for like three years. We, we had to upload to them, to their web site, floor plans and photos from each angle. And it had, there was a form we had to fill out for each building. It was, was a huge report.

Alpha and Beta's actions were congruent with the DRU (p. 21) in that they contacted their local EOC and two EOC's each in surrounding counties for assistance in identifying natural and man-made hazards. However, only Alpha consulted internal staff members, its Local Mitigation Strategy Committee and the Florida Division of Emergency Management for such assistance. Further, only Alpha conducted focus groups with the Advisory Committee (i.e., Emergency Response Team) and the Safety and Security committee, while only Beta consulted with five vendors to identify hazards to which it is vulnerable. Neither Alpha nor Beta consulted faculty, institutional or local archives or reports for a list of hazards to which they are vulnerable, contrary to DRU guidelines.

Asset Inventories

Alpha and Beta both replied yes to survey question 2a, confirming they had conducted inventories of all buildings and infrastructure assets, and each one indicated it had inventoried 100% of both types of assets (see Appendix B, item 2a-c). Alpha and Beta each submit a facilities inventory to the Florida Department of Education, describing each room and how space is used (e.g., classroom, lab) and the type of building construction. Alpha also uses a computerized system for tracking physical assets that have a value of more than $750 and Beta likewise conducts a property inventory. Only Beta referred to an insurance inventory, which it submits to the Florida State College Risk Management Consortium. See Table 14 for an overview of assets inventoried to allow hazards to be profiled.

Table 14

Assets Inventoried to Allow Hazards to be Profiled

(i.e., Disaster Scenarios to be Developed)

Disaster Resistant University	Buildings and Contents	Alpha	Beta
Buildings and contents inventoried by the community college	Square footage	Yes	Yes
	Type of construction and material	Yes	Yes
	Replacement value of buildings	Yes	Yes
	Value of contents	Yes	Yes
	Age of buildings	No	No
	Occupancy levels	No	No
	Building maintenance schedules	No	No
	Value of activities	No	No
	Special contents (i.e. research, recreation, special collections)	Yes	Yes

A comparison of Alpha and Beta's building and contents inventories to the DRU reveal disparities. The DRU suggests that one include several items for a complete inventory of buildings and contents, but Alpha and Beta report only half of them. They both record square footage, type of construction and materials, replacement value of buildings, and the value of contents. Only Beta tracks operations or how space is used. Neither Alpha nor Beta's interview participants specifically reported recording the age of buildings, occupancy levels, building maintenance schedules, or the value of activities, as suggested by the DRU.

Alpha's efforts to record, map and backup infrastructure assets are more evolved than Beta's. See Table 15 for an overview of asset inventories.

Table 15

Infrastructure Assets Recorded and Mapped

Disaster Resistant University	Infrastructure Asset	Alpha	Beta
Infrastructure assets inventoried by community college	Electric distribution panels	No	Yes
	Fire distribution panels	No	Yes
	Fire hydrants	No	Yes
	Gas	Yes	No
	Landlines	No	No
	Radio	No	No
	Waterlines	Yes	No
	Electric systems	Yes	No
	Waste water	No	No
	Chillers	Yes	No
	Computer system backups:		
	Payroll	Yes	Yes
	Accounts payable	Yes	Yes
	Student records	Yes	Yes
	Internet	Yes	Yes

For example, Beta reported mapping its main distribution panels for electric and fire and its fire hydrants, but not its systems for communications, water, wastewater, gas or electric. Alpha's interview participants noted that the recording and mapping of infrastructure assets included gas, power and water lines and chillers, but as far as other infrastructure assets are concerned, one participant stated, "We basically are in the course

of tracking all that", which is interpreted here as the work having not yet been completed. Alpha and Beta's participants reported that all computer systems are backed-up daily, which would include payroll, accounts payable and student records as suggested by the DRU. Neither Alpha nor Beta's interview responses supported their survey replies, which indicated they had conducted inventories on all building and infrastructure assets.

Disaster Scenarios

Neither Alpha nor Beta was able to provide a list of disaster scenarios that had been identified, so that their impact on campus could be established. Two of Alpha's participants reported that such an exercise was not conducted by the college, but one participant indicated that calculating the probability of hazards was, "a mindset for all our employees." Only Alpha had actually considered scenarios, for example, a flood and how it might impact electrical systems, flooring, and windows. Another scenario mentioned was the uplift of roofs causing wind damage or fires. This dissenting voice stated that a formula was used to calculate the probability that the hazard might occur, but made no mention of monetary losses, the calculation of which is suggested by the DRU. Beta's senior administrator asserted that it had, "done a lot of that" [i.e., used disaster scenarios to estimate damages to the campus], but the statement could not be backed up by a list of scenarios. Another participant reported, "I don't, I don't think so. Not to that detail." Its interview participants focused on hurricane preparations as reported by the senior administrator,

> When I do for example, hurricane preparations, we have an entire list of things, even if it's redundant, we go down through and we check off everything. For

example, generators, have they all been tested and operational? Twenty-four hours before a storm hitting, every vehicle at the college is to be filled with gas.

Alpha calculates a hazard's probability of occurrence, but its calculation is incomplete when compared with recommendations made by the DRU. See Table 16 for an overview of hazard profile elements used.

Table 16

Hazard Profile Elements Used

Disaster Resistant University	Disaster Scenario	Alpha	Beta
Hazards profiled (i.e. disaster scenarios) developed to establish impact on life, property and function of community college	Able to provide a list of scenarios	No	No
	Considered scenarios	Yes	Yes
	Formula used to calculate losses	Yes	No
	Considered/calculated loss of life	No	No
	Monetary losses to buildings	No	No
	Infrastructure	No	No
	Lost instructional time	No	No
	Artifacts of historical significance	No	No
	Library collection	No	No
	Equipment and related interruption or replacement costs	No	No
	Students' expenditures	No	No
	Salary and benefits of faculty and staff	No	No

The DRU's recommendation for profiling hazards suggests the inclusion of many more variables that measure loss. For example, neither Alpha nor Beta calculate loss of life and monetary losses to buildings, infrastructure, instructional time, artifacts of historical significance, library collections, equipment and related interruption or replacement costs, students' expenditures, and the salaries and benefits of faculty and staff. The ability to quantify such losses places Alpha and Beta in a much better position to receive mitigation funding from the college, county, state, and federal agencies.

CHAPTER 7

FINDINGS - MITIGATION PLAN DEVELOPMENT

Goals and Objectives

The majority of survey respondents (86.7%) reported they had identified mitigation plan goals and objectives, including both Alpha and Beta. Alpha's interview participants, however, reported having no prioritized list of mitigation goals and objectives, despite DRU's recommendation to the contrary. Beta's list is vetted annually by at least five college advisory groups and several staff and administrators before being presented to the district board of trustees for approval. See Table 17 for an overview of who develops mitigation plan goals and objectives. One of Beta's participants countered the formal approach to mitigation action prioritization saying,

> It's more informal. It's more by department. Like if you went to the business office, they'd say what's important to them as far as their piece goes. Facilities will have another idea. Public Relations will have another idea that's important.

Beta has no budget category specific to pre-disaster mitigation planning; however, related projects appear in categories like general technology, structural equipment, and energy performance.

Interview participants at both community colleges identified mitigation actions, some of which had already been completed while others were short term goals and still others long term as suggested by the DRU. Each college referred to a mitigation action

list for only hurricanes (e.g., covering computers with plastic, shutting down and redirecting networks, locking internal doors, and placement of sand bags), but offered no such list for other hazards.

Table 17

Development of Mitigation Plan Goals and Objectives

Disaster Resistant University	Goals and Objectives	Alpha	Beta
Develop goals and objectives based on the risk assessment	Prioritized list of mitigation goals and objectives	No	Yes
Internal and external stakeholders who identified and prioritized mitigation plan goals and objectives (p. 29)	Internal and external stakeholders involved in development and prioritization of mitigation plan goals and objectives	District Board of Trustees, Students, Local police and fire, FCCRMC, Vendors and consultants	Five college advisory groups, Several staff, Administration, District board of trustees, Students
Prioritize mitigation actions by using a matrix and multiple criteria or benefit-cost analysis or a consultant (p. 32)	Formula for prioritizing mitigation actions	Yes	No
	Matrix and multiple criteria	No	No
	Benefit-cost analysis	Yes	No
	Dollar savings realized from the reduced risk whenever the hazard occurs	No	No

(table continues)

Table 17 *(continued)*

Disaster Resistant University	Goals and Objectives	Alpha	Beta
	How recurrent are the benefits of the action	No	No
	Expected value of the action over its lifetime in today's dollars	No	No
	Consultant hired to prioritize mitigation actions	No	No
Community college's mission should help in prioritization of mitigation actions	Mission aids in prioritizing mitigation actions		
	Number of participants explicitly stating how mission aided in prioritization of mitigation actions	1 of 3	0 of 3
	Redundant electric and air conditioning support goal of transparency of service delivery	Yes	No
	Access to education is not impeded due to sealed roof	Yes	No

Backing up information technology systems is a practice in which both colleges engage and is recommended by the DRU; Beta has also installed generators, congruent with the DRU.

Beta identified several mitigation actions and its senior administrator stated, "Yeah, we have an ongoing one that we've had for four years in a row. And that is that

we have absolutely committed to the IT disaster recovery." For example, its technology plan for 2008-2010 specifically includes a prioritization rating, estimated cost and ongoing cost for each completed, ongoing and new initiative. College wide safety and security projects are neither listed in detail nor open for public scrutiny, rather they are verbally described to the board. Several other mitigation actions noted by Beta's interview participants include cross-training of staff on its communications plan, the installation of generators and the maintenance of a hazard materials list, locks on classroom doors, crash bars on doors, installation of an emergency notification/enhanced 911 system and surveillance cameras, the establishment of a student behavioral assessment team and the hiring of a contractor to provide student mental health services. A senior administrator described mitigation actions this way,

> Our public safety office they can interrupt you and me talking right now, they can interrupt my telephone call….[We] spent the resources on adding some additional surveillance cameras. I'd rather prevent a problem from ever occurring, than having to deal with it.

In addition, she referred to the implementation of,

> An assessment team that when staff or faculty recognize that the behavior of a student is peculiar or odd, or a lot of other definitions, we now have an emergency assessment team that will meet and review the case with that student, talk to the student, and make a determination as to whether we need to send that student for psychiatric help. We just signed a contract 2 months ago with Beta Health Services. Beta Health Services are basically mental health services, the first time we've ever had one in the history of the college.

Alpha mentioned mitigation actions including, window replacement and caulking and a planned roof inspection. The senior administrator's response to the question of whether there was a copy of a prioritized list of mitigation actions included the following statement from our interview,

> Well, it's a good question. We have for hurricane planning. I'm not sure we have for all facets other than through the program that we did when we joined the local mitigation strategy committee. The computer program asked a lot of questions, and so we went through a process to answer those at [the] time. We certainly have through our safety manual a list of responses and reactions and planning for the vulnerabilities. Yea, I'm trying to think of what I can actually hand you….We cover all of our equipment with plastic in the event of a storm….Shutdown the network….We redirect our network to another site. You know our community relations director, and all of those are definitely written, those kinds of responses, if that's what you are referring to, in terms of preparing for the event. And we've done that in the safety manual, how not just to respond, but also how to mitigate the event. I think in the safety manual it's probably the best information.

Covering electronic equipment with plastic could certainly be considered a mitigation action, as could be redirecting the network to another site to lessen the likelihood of losing communications with the college community. Mitigation actions beyond those described here were not disclosed by the participant. She finished by saying, "As far as who does what, we haven't prepared for every conceivable event in that way. Again**,** it's been May or June [2008] when we last updated it." The DRU recommends the establishment of mitigation goals and objectives, but to date few exist.

Involvement of Internal and External Stakeholders

Alpha and Beta include both internal and external stakeholders in the establishment of mitigation actions, albeit at varying levels. Mitigation recommendations are generated by students on committees and student groups, but they are not always adopted. For example, Alpha's students recommended a text messaging system for emergency alerts, but administrators elected to purchase internet protocol phones for each classroom. Beta interview participants described a mitigation prioritization process that included many internal stakeholders, much more so than Alpha who relies more on external stakeholders. In accord with the DRU, Beta relies on committees and teams to identify mitigation actions, which includes the president, vice president and executive directors, directors and coordinators. Once mitigation actions have been ferreted out, they are submitted to the board. Alpha described seeking board approval, but not in a fashion as nearly as comprehensive as Beta's. One of Alpha's participants asserted that, "We stay current. We are not behind on any of that kind of issue." Its reliance on external stakeholders exceeded that of Beta's. For example, it relied on local police and fire for inspections and walk-throughs, the Florida Community College Risk Management Consortium (FCCRMC) for safety, security and other issues, and vendors and consultants as suggested by the DRU. Alpha's participants found it difficult at times to think beyond response activities (i.e., updating a phone tree so employees can be reached after a disaster; staff reporting to work after a storm; possessing vendor cell phone numbers if a disaster occurs). Yet, it appears that external stakeholders are providing assistance in identifying mitigation actions (e.g., police and fire; FCCRMC, consultants) as recommended by the DRU.

Beta participants reported relying on external stakeholders like an information technology vendor for sustainable communications during and after a storm. On the other hand, it chose to not rely on a vendor for generators for a humidity controlled building, fearing that a vendor's inability to traverse highways in the aftermath of a storm would place its assets in jeopardy, so it installed its own generators. The senior administrator referred to a process whereby committees and teams establish mitigation actions, saying,

> We had those come in and they made presentations to [the] president's staff, all of our vice presidents, the president, the executive directors. We had a presentation made to our student government. We had a presentation made to our administrative team and we made a presentation to the board of trustees. We had…them approve the contract. But that's generally our practice. We follow that pretty consistently. So if we're doing something like that we'll go through that, that type of process.

Formula for Prioritizing Mitigation Actions

The DRU presents a half dozen criteria for ranking projects, but notes that benefit-cost analysis is most often used. Only Alpha's participants stated that it uses a benefit-cost analysis to prioritize mitigation actions. One participant made reference to a formula, but in the below quote clearly states that it has not been checked out yet by an instructor, which created some concern in my mind as to its validity. Supporting my assertion is the tentative tone used by the participant, stated here verbatim.

> We use a probability, the possibility. Of course, we identify any possible perils any risks, any perils….I have it in a formula, I have it in algebraic formula, ahm, I'll just have ahm, our instructor and she said she'd go through it and verify this,

it's a sound formula. And I can email that to you. It's got an expected, it's got an event times the expected probability in a bracket format. The probability of loss, which is really based on risk. Insurance companies do that. They assign a probability. The older you get the higher the probability to die or get sick. [Laugh.] You know. And that's what it's based on. It's common sense, it's an existing model, ahm. So it's the probability of occurrence, is all we're looking at, times the, the cost-benefit for us. And it, it clarifies and quantifies for us the amount of risk that we look, that we could be looking at. [I've used the model] forever. I'm serious, forever. I started using that, gosh, a long time ago. I mean I've used it the years I've been here. The whole time.

When the interview ended, I gave her the page of the DRU that outlined how one could conduct a benefit-cost analysis and though she indicated she would send her formula to me, not receiving it left me wondering whether her formula was not as robust as the DRU's.

Another participant noted that it is "all a matter of factoring it." Alpha's participants neither produced a list of mitigation action priorities, nor offered basic formula variables like the dollar savings realized from the reduced risk whenever the hazard occurs, how recurrent are the benefits of the action and, the expected value of the action over its lifetime (FEMA, 2003).

Beta prioritizes mitigation actions by relying on a rather extensive cross-section of internal stakeholders from across the community college as recommended by the DRU, but offered no insight about any process or formula (e.g., benefit-cost analysis)

used to establish mitigation plan priorities. According to the senior administrator, Beta Community College's capital outlay meetings include,

> We had 22 people in the room yesterday. We had faculty members, we had IT people, we had registrar, we had the director of financial aid. We had the VP for instruction. I mean we had a lot of players in the room. We have the CIO. We have the right people in the room. We have our staff and program development folks. We have our library people. We have our distance learning coordinator…. This has to go through like 5 groups to get prioritized. The technology committee will prioritize. The president's staff will prioritize. The college council prioritize it until we come down to a finished document that we can take to our board and say this is who has looked at this. These are the priorities we've established and we need your approval to move forward.

Despite the inclusion of so many staff and faculty in these meetings, no insights were offered as to how mitigation actions are prioritized. No participant identified a process or formula (e.g., cost-benefit analysis) the college had used to develop mitigation plan priorities and no consultant was hired to do so.

Mission Guiding Mitigation Actions

The senior level administrators at Alpha and Beta were eloquent about the importance of their college's mission statements being the foundation of everything they do. Only Alpha was able to articulate how one unit's goal of transparency in service delivery (e.g., redundant electric service and air conditioning) supported the mission. Establishing parallels between Alpha's mission and mitigation actions is a key component to effective mitigation planning according to the DRU. Despite the senior

administrator's eloquence about the importance of the college's mission statement, little could be garnered about how it helped to prioritize the institution's mitigation actions.

> I think it's very helpful. Our mission statement is very clear in terms of what we're about. As a result, in terms of doing an assessment, a risk assessment and cost benefit analysis, if you don't (know) what you're about, if you don't know what your focus is, you know, how could you possibly make the best decision. So, you've got to start with your mission and what are your core indicators for success. What are your primary goals as an institution?

The mid-level manager was more direct about how the mission helped prioritize the college's mitigation actions. Transparency in providing support services is the goal for the unit. One example she offered was providing a roof that does not leak and therefore does not hinder students' access to education. Another example is the redundancies that exist in systems like power, which allows the college to shift the air conditioning or chiller load from one side of campus to the other. The redundancies help maintain the unit's transparency and assure that students' access to education is not hindered.

The coordinator explained his view of how the mission statement aids mitigation prioritization, "I don't think our mission statement is specifically geared toward mitigation. It's more of an educational…. I mean it's geared to promote a safe environment for student learning, but there are no real teeth in it." His view denotes little about the impact the mission has on mitigation, but the mid-level manager sees some relationship between the mission and how it guides her unit's mitigation actions.

Beta's inability to articulate how its mission had guided its mitigation action prioritization leaves it outside the guidelines outlined by the DRU. When asked how the college's mission statement helped it prioritize mitigation actions, participants were unable to give insight into specifically how the mission guided the prioritization of actions. The overall importance of the mission was clear to the college's functioning, but not how it guided mitigation action prioritization. A senior administrator noted,

> The best way to explain it is it's pretty much the foundation for everything we do. The service is, kind of a responsibility that we take, the service mentality that we take all roles back to what is the real mission of the college and what is our ultimate responsibility to this community? So, it's kind of the foundation of what we do. You know, if we're talking about the safety of our students, the safety of our staff, the safety of our community, it all rolls back to, you know, what is our, what is the true mission of our college?

The mid-level manager offered the following,

> I don't know how to answer that. [Inaudible]. The mission or the presidents [inaudible]. Come hell or high water, we're going to open, so I think we were only shut down for a day [inaudible]. It was pretty tough. I had guys working, you know, we were cutting trees off buildings and, and they didn't have power at home or food. We had to feed out here.

Her statement implies that the college intends to do whatever is necessary to avoid interruptions to its mission, but not how the mission guides mitigation action prioritization. The other mid-level manager, replied, "I don't know [how the mission has helped in prioritizing mitigation actions]."

Beta's participants gave no clear insight into how the college's mission statement guided the prioritization of mitigation actions. The importance of the mission was clear, but no participant was able to articulate specifically how the mission had guided mitigation action prioritization, which according to the DRU is a key plan component.

CHAPTER 8

FINDINGS - ADOPTION AND IMPLEMENTATION

Adoption of Mitigation Plan

When asked in the survey whether its president had formally adopted the pre-disaster mitigation plan, both Alpha and Beta replied "yes". Appropriately, Alpha and Beta's mitigation actions are supported by their president as recommended by the DRU. Alpha has no formal mitigation plan, but its board supports the college and senior administrator's participation on the LMS Committee and its president supports the mitigation actions that are submitted to the LMS, which is the only external stakeholder involved in the mitigation process. Only Alpha collaborates with its LMS, which is noted by the DRU as having particular importance due to the way mitigation actions are often funded through the state. Alpha's senior administrator offered no support to the notion that student or other committees ought to adopt the mitigation plan as recommended by the DRU, and felt that awareness rather than adoption of the mitigation plan was sufficient. More than anything, she noted it would, "Bog things down" and, could "Take months and months to make a change effective."

The mid-level manager advised that there is a mitigation piece online, which identifies who should do what prior to a storm (e.g., cover computers with plastic), but did not offer any insight as to who had adopted mitigation actions. The survey response indicated that the president had approved the mitigation plan, but again the interviews

made clear that approval was granted for only some mitigation actions and that no plan existed.

Beta relies on five internal groups to prioritize mitigation actions before submitting them to the district board of trustees whose support is congruent with DRU guidelines. Two participants expressed some reservation about whether the district board of trustees approved the mitigation plan. When asked who approved the plan, one stated, "Through the board, well, part of the board of trustees."

The senior administrator stated,

> I'm trying to think of something that we would not put before our board. Being autonomous institutions, essentially we live or die with our district board of trustees. I mean they're our governing body. Everything runs through them. Obviously the president works for the district board of trustees. I'm not sure that answers your question. When they approved our technology plan (e.g., phones for classrooms), they approved those initiatives.

Only Beta presented documents (i.e., portions of capital outlay and technology plans) that provided evidence of which internal stakeholders had prioritized and adopted mitigation actions. Aside from the district board of trustees, no other internal or external stakeholders were mentioned as having formally adopted the mitigation plan. Separately, when the senior administrator was discussing the 2008-09 capital outlay plan she referred to an often used approval process, saying,

> So when the final (capital outlay) plan is done the plan will determine the initiatives. And you'll notice this first column [blank]. This has to go through like 5 groups to get prioritized. The technology committee will prioritize. The

president's staff will prioritize. The college council will prioritize it until we come down to a finished document that we can take to our board and say this is who has looked at this. These are the priorities we've established and we need your approval to move forward.

Despite the fact that no other stakeholders were specifically mentioned as having approved the mitigation plan, it appears plausible that mitigation initiatives for safety, security, and disaster planning are prioritized and adopted by several groups, as described by the senior administrator. The college's efforts are congruent with the DRU in that several groups prioritize and adopt the mitigation plan, like the governing board, leadership from business affairs, academic affairs, student affairs, and the student body. There was no evidence that plan adoption was occurring amongst external stakeholders like the EOC, first responders or private vendors, which is incongruent with DRU guidelines. See table 18 for an overview of stakeholders supporting and endorsing the mitigation plan.

Table 18

Stakeholders Supporting and Endorsing the Mitigation Plan

Disaster Resistant University	Who Adopted the Mitigation Plan?	Alpha	Beta
Mitigation plans should be supported and endorsed by several stakeholders	Internal Stakeholders	Yes	Yes
	President		
	District board of trustees	No	Yes
	Business Affairs Leader	Yes	Yes
	Academic Affairs Leader	No	Yes

(table continues)

Table 18 *(continued)*

Disaster Resistant University	Who Adopted the Mitigation Plan?	Alpha	Beta
	Students	No	-
	Technology committee	No	Yes
	President to college community	Yes	Yes
	College council	No	Yes
	External Stakeholders		
	Local Emergency Operations Center	No	No
	First responders	No	No
	Vendors	No	No

Measuring the Effectiveness of Mitigation Actions Implemented

Alpha's senior administrator's reference to measuring the effectiveness of mitigation actions included, **"**I can't think of anything long range where we've said, okay, every 5 years, every 10 years, we're going to do a major assessment of how these strategies worked. We haven't done that."

The mid-level manager stated that her job is basically measuring the effectiveness of mitigation actions. She reported that the college conducts an internal assessment based on the expected life cycle (e.g., for roofs, chillers, and air handlers), and if the college is, "unable to come up with a conclusive determination, then we do an external assessment. We bring in a consultant. We did that with the roof," and it was done for a traffic study. No other study participant made a similar report. "So I guess there's not a written [assessment of the effectiveness of mitigation actions]." The interview did not pursue whether a consultant provided the college a written report of its assessment, but it

remains that the college has no formal plan for measuring the effectiveness of mitigation actions, which is not surprising given that Alpha does not have a mitigation plan.

All three participants noted that no formal evaluation of mitigation action efficacy is conducted. The only report that comes close to measuring effectiveness is the mid-level manager monitoring whether roofs need attention. Its inability to make a conclusive determination of a roof's status results in the hiring of a consultant to conduct an assessment. Measuring the effectiveness of roofs in Florida is important to maintaining the integrity of buildings in a hurricane prone area and is congruent with DRU guidelines. See Table 19 for strategies for measuring mitigation action effectiveness.

Table 19

Strategy for Measuring the Effectiveness of Mitigation Actions Implemented

Disaster Resistant University	Actions Measured	Alpha	Beta
Strategy for achieving mitigation actions should be developed	Written report	No	No
	Every 5-10 years	No	No
	Specific Example Roof	Yes	No

When Beta's senior administrator was asked whether the college measures the effectiveness of mitigation actions, she replied, "The answer is yes, but not targeted at that specific thing. We do it through…institutional surveys like the Community College Survey of Student Engagement that we do. We just don't go out and assess one thing." Neither she, nor any other participant offered an example of how the college measures mitigation action effectiveness, contrary to DRU guidelines.

Communicating Successes of Mitigation Actions Implemented

Communicating mitigation action successes to internal stakeholders has not been an issue for either Alpha or Beta, but the same cannot be said for communications to external stakeholders, like local jurisdictions. In fact, no participant reported communicating successes outside of their institution, a practice that is inconsistent with DRU guidelines specifically because it hampers the long term momentum of mitigation planning. Internal communications have occurred all the way up to the district board. Alpha has no formal plan, but its safety committee communicates mitigation action successes annually to the president's council. Similarly, new building codes required costly updates to an older building, but advising its president and board of the resulting safety, ADA and fire enhancements gained their approval, justified the expense and resulted in a mitigation success. The renovations were communicated to the president and board to raise awareness that the wood frame structure was much safer. Beta's internal communications have also helped to maintain its momentum in mitigation planning, according to most participants. When asked how the college published successes of the critical incident management team, its advisory team, or mitigation action initiatives, one mid-level manager stated, "I don't think it's been published, no. You mean, will you like, find a newsletter or anything? The answer is, no, I don't think so." She confirmed that the district board of trustees is advised of such initiatives of the advisory team. Beta's senior administrator stated,

> Yea, we put out a report every year. We also, within the budget process, we report on the new initiatives. They also, all the new initiatives have to be reported, they have to give progress reports to the president and the president announces to the

college the progress we're making on a new initiative. We have some internal communications that we use too, kind of an online newsletter called the Beta Newsletter that we publish. And those things are published in there as well.

Combined, these practices keep internal stakeholders apprised of mitigation action successes, which parallels guidelines of the DRU. See Table 20 for how mitigation actions are communicated. The communication and publication of actions and initiatives are viewed by its authors as methods helpful in maintaining momentum for mitigation plan implementation.

Table 20

Communication of Mitigation Actions

Disaster Resistant University	Stakeholders	Alpha	Beta
Publicizing mitigation action plan efficacy is effective in maintaining momentum	Internal Stakeholders		
	District board of trustees	Yes	Yes
	Safety committee or Critical Incident Management Team to President's council	Yes	Yes
	Budget committee to President	Yes	Yes
	President to college community	Yes	Yes

(table continues)

Table 20 *(continued)*

Disaster Resistant University	Stakeholders	Alpha	Beta
	Newsletter	No	Yes
	External Stakeholders		
	Local Emergency Operations Center	No	No
	First responders	No	No
	Vendors	No	No

CHAPTER 9

CONCLUSIONS

Chapter 9 presents first a review of the study purpose and objectives and a table of findings followed by a discussion of findings. Second, the chapter identifies conclusions and recommendations and finishes with closing remarks.

Review of Study Purpose and Objectives

The rationale for this study is that community colleges in the United States have been increasingly exposed to an evolving threat environment including, the terrorist attacks of 9/11, the natural disasters of 2004 and 2005 in Florida and the Gulf of Mexico and the murders at Virginia Tech and Northern Illinois University. The 32 murders at Virginia Tech compelled President George W. Bush and Florida Governor Charlie Crist to take actions that resulted in campus safety reports, task forces, summits, conferences and studies, some of which presented key findings and recommendations that directly support the rationale for this study.

The intent of this study was to fill a gap in the literature on pre-disaster planning in higher education and Florida. No study was found in the higher education literature that explores and describes the process and practices of pre-disaster planning used by administrators to reduce or prevent disasters on their campuses, affirming its embryonic status. The existing void in the literature coupled with the impact and cost that recent disasters have had on the higher education community and Florida's 28 community

colleges combine to further support the rationale for this study. The purpose of this study was to inform Florida community college administrators of the current status of pre-disaster planning on a sample of their campuses, using as a base of comparison the guidelines presented in the DRU (FEMA, 2003).

Systematic quantitative and qualitative inquiry were used to explore and describe the pre-disaster planning process and practices used to reduce or prevent the impact of disasters on two campuses by community college administrators most involved in pre-disaster planning and to compare their practices to the four phases presented in the DRU (FEMA, 2003). Employing a mixed-methods research design enabled one method to inform the other (Greene, Caracelli, & Graham, 1989, cited in Miles & Huberman, 1994). In this study, the survey scores determined who would be interviewed for the qualitative study. In addition, the mixed methods approach allowed for the establishment of findings by triangulating summative survey data with the depth and breadth of qualitative data. Firestone (1987, cited in Miles & Huberman, 1994) described quantitative studies as persuading the reader less through the researcher's judgments and more through recognized procedures, whereas qualitative studies persuade the reader through strong description, rather than abstractions. Together, these two research methods have complimented each other and allowed for a better exploration and description of the processes and practices of how community college administrators have reduced and/or eliminated disasters on their campuses. Separately, my efforts and others have shown that collecting survey data related to pre-disaster planning on college and university campuses after the 9/11 terrorist attacks has met opposition, so relying solely on quantitative data was not plausible. The quantitative data collected through the survey culminated in a

survey score, which was used to rank order the community colleges. The quantitative and qualitative data were triangulated and compared to the guidelines of the DRU, resulting in insights about how administrators are attempting to decrease the impact of disasters on their campuses. It should be noted that the quantitative findings help make qualitative research findings more generalizable. This mixed methods, multi-case study leveraged data analysis to answer the four qualitative research questions, which revealed a total of 18 findings: (a) 5 of 14 (35.7%) survey respondents appointed a project manager, excluding Alpha and Beta; wide internal and external stakeholder representation was organized for the pre-disaster planning process; advisory committees have no mission statement; (b) 14 of 15 respondents (93.3%) conducted a risk assessment; one site identified hazards by consulting with several internal and external stakeholders (i.e., local and state) and both sites contacted emergency operations centers, but neither one could provide a list of hazards; 13 of 15 (87%) of respondents reported contacting between 2 and 14 stakeholders for a total of 84 requests for assistance and 22 were EOC's and 17 were Sheriff's Offices; 14 of 15 (93.3%) of survey respondents, including Alpha and Beta, reported conducting an inventory of all buildings and infrastructure assets; sites used only half of the DRU's building inventory elements making it difficult to profile hazards and adequately estimate losses although physical asset tracking meets DRU guidelines; recording and mapping of infrastructure are evolved (i.e., utilities) at one site, while both sites backup administrative systems (i.e., accounts payable, student records); neither site considered several hazard profile formula variables recommended by the DRU; (c) majority of survey respondents (87.7%), including Alpha and Beta, reported they had identified mitigation goals and objectives; Beta's numerous internal and some

external stakeholders conduct a rigorous vetting process, which allows it to establish a prioritized list of mitigation goals and objectives; neither site uses an adequate formula for benefit-cost analysis nor an identifiable prioritization process and no consultant has been hired to do so; only one participant could articulate how the mission guided mitigation action prioritization; (d) 8 of 14 (57.1%) survey respondents' presidents formally adopted the pre-disaster mitigation plan; key internal stakeholders and one very important external stakeholder adopted mitigation actions; no formal plan for measuring mitigation action efficacy exists, making it difficult to increase knowledge of hazards and reduce vulnerabilities to them; mitigation action successes are not communicated to external stakeholders making it difficult to achieve plan momentum and funding, yet internal stakeholders receive word of successes in multiple ways. There were a total of 6 quantitative and 12 qualitative findings in this study as reflected in Table 21. The discussion of findings linked to the four research questions are presented in the following section.

Table 21

Six Quantitative and 12 Qualitative Findings

4 Research Questions	6 Quantitative Findings	12 Qualitative Findings
I) What internal and external stakeholders and resources have been organized to aid the community college in its pre-disaster planning and has a mission statement been developed for the advisory committee as recommended by DRU guidelines?	I) Only 5 of 14 (35.7%) survey respondents appointed a Project Manager, excluding Alpha and Beta.	I) Wide internal and external stakeholder representation was organized for the pre-disaster planning process; all 6 interview participants reported that a Project Manager had been appointed II) Advisory Committees have no mission statement.
II) Who has assisted the community college in identifying a list of natural and manmade hazards and what assets have been inventoried (i.e., buildings, contents and infrastructure) allowing hazards to be profiled (i.e., disaster scenarios developed to estimate impact) as compared to DRU guidelines.	II) Fourteen of 15 respondents (93.3%) answered "yes" when asked whether the community college had conducted a risk assessment to identify all natural and man made hazards to which it is vulnerable.	III) site identified hazards by consulting with several internal and external stakeholders (i.e., local and state) and both sites contacted emergency operations centers, but neither one could provide a list of hazards.

(table continues)

Table 21 *(continued)*

4 Research Question	6 Quantitative Findings	12 Qualitative Findings
	III) Eighty-seven percent (87%) of respondents reported contacting between 2 and 14 stakeholders for a total of 84 requests for assistance; EOC's were contacted most often (26% of contacts made) followed by Sheriff's Offices and/or local Police Departments (20.2%)	
	IV) Ninety-three point three percent (93.3%) of respondents, including Alpha and Beta, reported conducting an inventory of all buildings and infrastructure assets, so they know what can be affected.	IV) Alpha and Beta include in their building inventories only half of the items recommended by the DRU(p. 25) making it difficult to profile hazards and adequately estimate losses.
		V) The recording and mapping of infrastructure assets (i.e., utilities) are evolved at one site, while both sites backup administrative systems (i.e., accounts payable, student records).
		VI) Neither site considered several hazard profile formula variables recommended by the DRU.

(table continues)

Table 21 *(continued)*

4 Research Question	6 Quantitative Findings	12 Qualitative Findings
III) Who assisted the community college in developing and prioritizing mitigation plan goals and objectives and was the institution's mission and/or a process or formula for prioritization used and how do its efforts compare to DRU guidelines?	V) The majority of survey respondents (86.7%), including Alpha and Beta, reported they had identified mitigation plan goals and objectives.	VII) Beta's numerous internal and some external stakeholders conduct a rigorous vetting process, which allows it to establish a prioritized list of mitigation goals and objectives.
		VIII) Neither site uses an adequate formula for benefit-cost analysis, nor an identifiable prioritization process, and no consultant has been hired to do so.
		IX) Only one participant could articulate how the mission guided mitigation action prioritization.
IV) Which internal and external stakeholders formally adopted the mitigation plan and how was the efficacy of mitigation actions measured and successes published as compared to DRU guidelines?	VI) Fifty-seven point one percent (57.1%) of survey respondents, including Alpha and Beta, answered "yes" their president had formally adopted the pre-disaster mitigation plan.	X) Key internal stakeholders and one very important external stakeholder adopted mitigation actions.

(table continues)

Table 21 *(continued)*

4 Research Question	6 Quantitative Findings	12 Qualitative Findings
		XI) No formal plan for measuring mitigation action efficacy exists, making it difficult to increase knowledge of hazards and reduce vulnerabilities to them.
		XII) Mitigation action successes are not communicated to external stakeholders making it difficult to achieve plan momentum and funding, yet internal stakeholders receive word of successes in multiple ways.

Discussion of Findings

The primary emphasis of this study was to explore and describe the processes and practices employed by pre-disaster planning leaders as they strive to reduce or prevent the impact of disasters on their campus and, to inform the future practice of their counterparts, enabling them to better protect life, property, infrastructure, and the functioning of their campuses. Part I of the study employed a quantitative methodology that generated summative data and resulted in a ranking of the sample, identifying the community colleges and administrators to be interviewed, as well as data that provided opportunities for triangulation with qualitative data. Six findings emerged from the quantitative analysis**,** which helped to answer the four research questions. The rank order

showed that Alpha and Beta Community Colleges tied for the top rank with 8 points, whereas the mean survey score was 5.28 out of a possible 14.98. The quantitative study could not be entirely relied upon as the only method for data collection because of the resistance reported by others as they attempted to collect quantitative data. The qualitative research methodology assured that adequate data would be available to answer the research questions while also creating opportunities to triangulate it.

Part II, a qualitative study followed wherein there was an examination of four research questions. Each research question corresponded to a phase of the DRU and was investigated relying initially on individual, semi-structured qualitative interviews, field notes and an analysis of official documents. A cross-case analysis determined how administrators at two Florida community colleges reduced or prevented the impact of disasters on their campuses. Twelve qualitative findings emerged from the four phases of the DRU.

DRU phase I: Organizing resources. Research question one of the study examined what internal and external stakeholders and resources had been organized to aid the community college in its pre-disaster planning and whether a mission statement had been developed for the advisory committee as recommended by the DRU. Neither Alpha nor Beta conducted a stakeholder inventory, yet each one has achieved wide representation, which includes, as suggested by the DRU, top administrators like the president, provost and business officer who have the authority to make decisions. The "active commitment and involvement" of these administrators is considered crucial (p. 5). Alpha's president leads its advisory team and Beta's Vice President for Administration/Finance (i.e., business officer) is the most involved top administrator,

which helps keep pre-disaster planning at the forefront. The involvement of these administrators is also consistent with the overall survey sample, which showed that top ranked administrators are involved in pre-disaster planning (e.g., one president and six vice presidents) more than any other level of administrator. The survey sample is also meeting DRU guidelines by involving top administrators in the pre-disaster planning process.

Interviews showed that both campuses had appointed a project manager, contrary to the survey. Neither one hired a consultant to manage the process, rather both campuses employ internal project managers (i.e., coordinator of risk management and the vice president for administrative services, respectively) that have significant experience within the community college, know its culture, personalities and operations, which is congruent with DRU guidelines. The existence of project managers on each campus implies that there is an interest in effective management of the pre-disaster planning process. Yet only one community college's interest has reached a critical mass, evident in the fact that Beta has developed a prioritized list of mitigation goals and objectives. Generally, when compared to the survey sample, 64.3% of respondents had not appointed a project manager, contrary to the DRU, which implies that the majority of Florida's community colleges are not interested in the effective management of pre-disaster mitigation planning.

Aiding the project managers in the pre-disaster planning process are a number of other internal stakeholders including, deans, vice presidents, campus directors (i.e., marketing, facilities, and public safety), site coordinators, residence facility managers, policy groups, advisory groups and others as needed. In addition, students on both

campuses are involved in the process as recommended by the DRU, which notes that they are often the focus of pre-disaster planning and should have input into the process. The provost at each campus is involved in the process, but only one campus includes faculty while the other one has left out of the process the entire stakeholder group despite the fact that they have much to lose. Similarly, neither Alpha nor Beta has included in its pre-disaster planning initiatives offices that engage in institutional research, development or public service and outreach as recommended by the DRU. It is these offices that could bring further penetration into the community, securing funding and the assistance of volunteer organizations, thereby enhancing Alpha and Beta's pre-disaster planning.

The involvement of external stakeholders in the pre-disaster planning process is evident in the many collaborations occurring at both Alpha and Beta. The resulting outcomes and mutual benefits of working with the county sheriff, fire, EOC, local mitigation strategy committee, State of Florida Division of Emergency Management and others as they conduct pre-disaster planning has reduced the impact of disasters, increased the chances of success in mitigating damage, minimized duplication of efforts and made available technical assistance (FEMA, 2003).

The involvement of community infrastructure and vendor representatives in Alpha and Beta's pre-disaster planning has been useful. Their relationships with electric and telephone representatives resulted in redundant power feeds to Alpha's campus and the investment of a small fortune in backing up the systems at Beta. No participant reported that vendor assistance was provided on an in-kind basis, so seeking this type of arrangement could be beneficial. On the other hand, work with a variety of vendors has provided several opportunities for enhancing pre-disaster planning. Guidance from

infrastructure and vendor representatives has provided numerous benefits to both Alpha and Beta, resulting in their survival of past disasters and mitigation of future disasters (See Chapter 5, Involvement of Infrastructure and Vendor Representatives for a description of the numerous benefits).

The involvement of the State of Florida Division of Emergency Management in pre-disaster planning has included funding for a monster generator for a special needs shelter and funding for a Community Emergency Response Team. These funded projects are the result of the establishment of relationships between Alpha and Beta and the State of Florida, the importance of which is noted in the DRU. Non-governmental, but state-level involvement has included the Florida Community College Risk Management Consortium and its annual campus inspections. Separately, community colleges conduct an inventory of resources (i.e., laborers, trades and materials) around the state so they may be shifted between institutions for mitigation or response purposes, the type of collaboration (i.e., structure) suggested by the DRU.

Partnerships between Alpha and Beta and federal agencies is limited, despite the fact that The NRF calls for federal agencies at all levels to, in part, develop response capabilities (NRF, 2008a) that can be drawn upon when the president issues a major disaster declaration. None of the agencies mentioned by the DRU (FEMA, 2003) have been contacted by either Alpha or Beta. Two survey respondents contacted only two other federal agencies including, FEMA and NOAA, confirming that few partnerships exist amongst survey respondents.

Partnerships with nonprofit organizations like the American Red Cross and Salvation Army have resulted in the creation of shelters and the establishment of points

of distribution for commodities after storms, yet participants reported no further involvement with non-profits. The early establishment of relationships with these nonprofit organizations and others like The National Volunteers Organization Active in Disaster and United Way can position students, faculty, and staff to become recipients of their resources.

Alpha has a document that serves as a template or mission-like statement for its advisory committee, but Beta has no mission statement. Beta's advisory committee has engaged in ancillary matters in addition to response and recovery, including collaboration with the county government, American Red Cross and hospitals on a pandemic plan. Some of Beta's actions are pre-disaster planning-like in nature and despite its advisory committee's name (i.e., Critical Incident Management Team) its actions suggest that a "common understanding" (FEMA, 2003, p. 19) exists related to pre-disaster planning, providing it direction much like a mission statement.

DRU phase II: Hazard identification and risk assessment. The second research question examined who assisted the community college in identifying a list of natural and manmade hazards and what assets had been inventoried (i.e., buildings, contents, and infrastructure) allowing hazards to be profiled (i.e., disaster scenarios developed to estimate impact) as compared to DRU guidelines. First, Alpha and Beta were among the 93.3% of survey respondents who conducted a risk assessment, which is considered crucial by the DRU (FEMA 2003), primarily because the results are used to identify and prioritize mitigation actions. This aspect of pre-disaster planning is elemental to the process and importantly nearly all (14 of 15) survey respondents have identified their hazards. Alpha and Beta each contacted three Emergency Operations Centers for a list of

hazards to which they are vulnerable, but neither one reported seeking consultation with institutional or local archives or reports as recommended by the DRU. Community colleges that make initial contact with EOC's early in the process is action congruent with the DRU's recommendation, which draws attention to their importance at the local level due to the resources they can provide community colleges related to disasters. Interestingly, not only were the two top-ranked community colleges collaborating with their local EOC's, but the vast majority of the survey sample is doing so. Twenty-six percent of the external stakeholders (22 of 84) that were contacted for assistance by the survey sample were emergency operations centers, emergency management offices or emergency response offices. Coupled with Alpha and Beta's consultation with local first-responders, infrastructure and vendor representatives and the Florida Division of Emergency Management to identify hazards, the implication is that they are able to reduce the impact of disasters, increase their chances of success in mitigating damage, minimize duplication of efforts and receive technical assistance, all outcomes and mutual benefits noted in the DRU.

Ninety-three point three percent (93.3%) of the survey sample, including Alpha and Beta, conducted an inventory of all buildings and infrastructure assets, a key step in the hazard identification and risk assessment process. However, Alpha and Beta's building inventories include only half of the elements suggested by the DRU (FEMA, 2003), making it difficult to profile hazards (i.e., develop disaster scenarios) and adequately estimate losses. Physical asset tracking, on the other hand, is on par with the DRU, which is an important element in estimating losses. Utilities and administrative system backups are both integral to community college operations, similar to knowing

the value of buildings and contents. Combined, this knowledge informs Alpha and Beta about what can be affected and can help them to begin establishing ways to mitigate damage. Building inventories present the weakest link in this phase of the DRU and strengthening it is without question a prudent task to undertake and will position Alpha and Beta to complete a more effective hazard identification and risk assessment process. Project managers are in place at each community college as are advisory committees, together bringing focus and needed staffing to the process.

Only one of Alpha's participants has considered how hazard profiles (i.e., disaster scenarios) may impact the community college and she does so by using a formula to calculate the probability the hazard might occur. The formula variables recommended by DRU guidelines (FEMA, 2003) were not used by either Alpha or Beta, including loss of life, instructional time, artifacts of historical significance and salaries and benefits of faculty and staff, for example. Failure to estimate such losses decreases the likelihood of either Alpha or Beta receiving mitigation funding from the college, county, state and/or federal agencies.

DRU phase III: Mitigation plan development. The third research question examined who assisted the community college in developing and prioritizing mitigation plan goals and objectives and was the institution's mission and/or a process or formula for prioritization used as compared to DRU guidelines. Like 86.7% of survey respondents, Alpha and Beta's identification of goals and objectives is an important step toward prioritizing them (FEMA, 2003). Whereas Alpha relied primarily on external vendors and consultants to establish a prioritized list of mitigation actions, Beta relied on five internal committees and teams as well as consultants. Student forums and

committees also contributed to the process at each community college and each one reported having a list of mitigation actions for hurricanes. Beta's approach is congruent with the DRU in that it is more inclusive. Inclusion helps build into the prioritization process the concept of buy-in from stakeholders. Broad stakeholder involvement in the process of mitigation action prioritization better assures that the community college will protect its teaching and service functions, which is the primary goal of the entire effort.

The DRU recommends that a community college's mitigation action prioritization be guided by either a mission statement or benefit-cost analysis (FEMA, 2003). A benefit-cost analysis was used by Alpha, but included few variables identified by the DRU as being important. Beta included numerous internal stakeholders in the prioritization process as recommended by the DRU, but offered no insights about a process or formula was used to establish priorities. The lack of an adequate benefit-cost analysis formula or the lack of a process for establishing priorities or not using the mission statement, places Alpha and Beta in less than an enviable funding position. Hiring a consultant to assist them with mitigation action prioritization is an action that either Alpha or Beta could take to resolve the situation.

Alpha and Beta were eloquent in their descriptions of how its mission statement impacts its overall operations, but only Alpha was able to give a clear example of how it guided mitigation action prioritization. Most participants were either unable to state how the mission guided mitigation action prioritization, felt that it did not or did not know. Participants were identified by Business Officers because of their level of involvement in pre-disaster planning. Despite their high level of involvement, most participants were unable to describe how their mission guided mitigation action prioritization. The lack of

an adequate benefit-cost analysis and inability to drive mitigation action prioritization via their mission statement leaves a gap in their pre-disaster planning that needs to be filled, so they are able to maintain their teaching and service functions (FEMA, 2003).

DRU phase IV: Adoption and implementation. The fourth research question examined which internal and external stakeholders formally adopted the mitigation plan and how the efficacy of mitigation actions was measured and successes published as related to the DRU. Alpha and Beta's mitigation actions were adopted primarily by internal stakeholders, including the president and business officer, highly visible proponents whose endorsements can ensure the success of the mitigation plan (FEMA, 2003). They were among the 57.1% (8) of survey respondents whose presidents formally adopted their pre-disaster mitigation plan. Combined, survey and interview findings imply that Alpha's mitigation actions and Beta's mitigation plan could indeed be headed down the road to success given its adoption by their respective president. Alpha's submission of a couple of mitigation actions to the county's LMS Committee is the only reference to external stakeholder involvement mentioned by either community college. The LMS is a prospective, significant pool of funding, a body to which Beta needs to consider submitting its several prioritized mitigation actions for adoption. Importantly, Alpha has secured the support of its president, but could involve more internal stakeholders in the adoption of its mitigation actions and eventually its mitigation plan.

Alpha offered a few examples of how it measures the efficacy of mitigation actions, but it has no formal plan for doing so. No Beta participant offered a single measure of mitigation action efficacy. The evaluation of mitigation actions serves to increase an institution's knowledge of hazards and how it can better reduce its

vulnerability to them, a process requiring the future attention of Alpha and Beta. Reducing their vulnerabilities to hazards without measuring the effectiveness of their mitigation actions will be difficult.

A variety of methods were used to communicate mitigation action successes to internal stakeholders, but external stakeholders do not receive the same attention. Maintaining momentum or achieving the buy-in of local jurisdictions is difficult when participants make little effort to advise external stakeholders of mitigation successes. Communications to internal stakeholders are quite different. For example, Alpha and/or Beta conduct meetings, write reports, publish successes in internal newsletters and the president presents mitigation action successes to the college community and district board.

The 18 findings in this study are linked through the investigation of the processes and practices employed by community college administrators as determined by an online survey and qualitative interview questions answered by study participants.

Conclusions

The following conclusions are based on a snapshot of two sites from which data was collected in 2008, but do not suggest that changes in pre-disaster planning processes or practices have not since occurred. The two sites selected were chosen because their processes and practices were most closely aligned with the DRU (FEMA, 2003) as determined by a survey. Based on the findings, I conclude the following:

1. The conduct of a stakeholder inventory would have better assured broader participation in the pre-disaster planning process, including the involvement

of faculty and the offices of institutional research, development and public service and outreach.

2. The appointment of project managers whose work is primarily focused on pre-disaster planning aided community colleges in their ability to engage numerous stakeholders in pre-disaster planning. Nearly two-thirds (64.3%) of the survey sample appointed no project manager.
3. The involvement of external stakeholders in pre-disaster planning, especially local sheriff, fire, emergency operations centers, local mitigation strategy committee, state division of emergency management officials, state FEMA emergency managers, infrastructure and vendor representatives and the Florida State College Risk Management Consortium, significantly aided community colleges with knowledge, service, and funding; in-kind assistance from vendors should be explored.
4. Alpha, Beta and all other survey respondents have limited levels of involvement with non-profit and federal agencies, which needs to increase, aligning community colleges with their resources before and after a disaster event.
5. Pre-disaster planning advisory committees have not established missions with an adequately broad scope. Mission-like statements and initiatives other than response and recovery are useful, but a mission statement needs to charge advisory committees with pre-disaster planning.
6. The identification of natural and man-made hazards occurred on the campuses of most survey respondents (93.3%) and is best accomplished by contacting

local EOCs, internal staff members and focus groups, the local mitigation strategy committee, the Florida Division of Emergency Management and vendors. Seeking the input of faculty, institutional or local archives or reports should be part of the hazard identification process.

7. Building and contents inventories are conducted by 93.3% of the survey sample, but Alpha and Beta include only half of the components recommended by the DRU, and should record occupancy levels, building maintenance schedules and the value of activities to better profile hazards (i.e., develop disaster scenarios) and estimate losses. Infrastructure assets (e.g., utilities and administrative systems) are well recorded and mapped.
8. Community colleges must do a better job of conducting hazard profiles (i.e., disaster scenarios), so they can better protect their institutions from disaster by receiving needed mitigation funding from the college, county, state, and/or federal agencies.
9. Combining the input of numerous internal committees and teams and external stakeholders to establish mitigation goals and objectives, creates the type of buy-in that best assures a community college will protect its teaching and service functions.
10. Most survey respondents (86.7%), including employees at Alpha and Beta colleges, identified mitigation plan goals and objectives, but prioritization by Alpha and Beta requires a more robust benefit-cost formula than is presently used, or an articulated group process, or a more explicit college mission statement to guide prioritization.

11. The mitigation plan was adopted primarily by highly visible internal proponents like the president and business officer who can assure success (p. 34), and by numerous councils and committees. It is unclear why 42.9% of survey respondents' presidents have not adopted the plan. Securing the Local Mitigation Strategy Committee's adoption of the plan needs to occur at Alpha and all other survey respondents due to the prospect of significant funding.
12. Community colleges need to measure mitigation action efficacy, so they can increase their knowledge of hazards and reduce their vulnerability to them.
13. The communication of mitigation successes to internal stakeholders occurs in numerous ways, but communications to external stakeholders is not occurring, making it difficult to maintain momentum, or to achieve the buy-in of local jurisdictions who can direct funding to the community colleges.

Recommendations for Practice, Policy, and Future Research

Several of the recommendations below may be already incorporated into the pre-disaster planning processes and practices employed by Florida community colleges administrators and, if so, this is a very positive development given the evolving threat environment they face. The federal grant funding made available by the U.S. Department of Education for emergency management in higher education and the number of institutions applying for it during and after the time the data for this study were collected in 2008, speaks to the growing interest by federal, state, and local agencies and higher education institutions to improving emergency management at all phases, not just mitigation. Like the DRU, the recommendations that follow are focused on the pre-disaster mitigation planning phase of emergency management. Based on the evidence

available at the time of the study, the following are offered as recommendations for community college administrators, policy makers, and researchers:

1. Community College Administrators:
    a. Create a stakeholder inventory to assure broad participation in pre-disaster planning, thereby reducing the likelihood that the insights of important stakeholders are excluded from the process.
    b. Explore how the resources of non-profit and federal agencies can aid the community college in pre-disaster planning before, during, and after a disaster.
    c. Develop an advisory committee mission statement that includes planning and prevention/mitigation, rather than only response and recovery. Create a pre-disaster planning advisory committee name that reflects the broader scope of the mission.
    d. Develop a list of natural and man-made hazards with the additional input of faculty, institutional or local archives or reports.
    e. Expand building and contents inventories to include occupancy levels, building maintenance schedules and the value of activities to better profile hazards (i.e., develop disaster scenarios) and estimate losses.
    f. Conduct hazard profiles (i.e., develop disaster scenarios) to protect community colleges from disasters through funding from the college, county, state, and/or federal agencies.
    g. Develop mitigation goals and objectives by combining the input of internal committees and teams with external stakeholders, creating buy-in

that assures the best protection of teaching and service functions (FEMA, 2003).

h. Prioritize mitigation goals and objectives by using a robust benefit-cost formula, or a well developed group process, or a mission statement that guides prioritization.

i. Expand mitigation plan adoption to include not only highly visible proponents like the president, business officer and councils and committees, but the local mitigation strategy committee who can provide funding so the plan can be realized.

j. Measure mitigation action efficacy to increase knowledge of hazards and reduce vulnerability to them.

k. Expand communication of mitigation action successes to external stakeholders, thereby increasing plan momentum and buy-in of local jurisdictions that can direct funding to the plan.

2. Policy Makers

a. The Southern Association of Colleges and Schools (SACS) should strengthen present accreditation requirements, which require only that institutions “take reasonable steps to provide a healthy, safe, and secure environment for all members of the campus community” (Commission on Colleges, SACS, 2007, p. 14) to requiring members to conduct a hazard vulnerability assessment, develop a pre-disaster mitigation plan, and a comprehensive emergency management plan to reduce or prevent disasters at institutions.

b. Determine the extent to which the Florida Division of Emergency Management encourages Local Mitigation Strategy Committees to reach out to community colleges, so they are aware of mitigation funding, the receipt of which could limit the impact of a disaster on the community and the community college's function.

c. Determine whether the Florida Division of Emergency Management requires community colleges to measure mitigation action efficacy and whether state legislators are apprised of mitigation funding effectiveness.

3. Future Research and Researchers

a. Conduct a similar study on private institutions to determine how their pre-disaster planning compares to the DRU.

b. Conduct research to determine how Emergency Management in Higher Education (EMHE) grant recipients' pre-disaster planning compares to non-EMHE recipients.

c. Conduct research on whether and how EMHE grant recipients mentor other institutions on their pre-disaster planning.

d. Conduct similar research on a national sample.

e. Conduct an analysis of how many of Florida's Emergency Operations Centers have established relationships with Florida's 28-state-college system.

f. Conduct a comparative analysis of community colleges that have and have not appointed a project manager to establish their level of pre-disaster planning.

g. Conduct an analysis of state colleges or private higher education institutions in Florida that experience significant losses from hazards and how they could have reduced such losses.

The terrorists attacks of 9/11initially compelled me to pursue this area of research and the release of the DRU (FEMA, 2003) helped to focus it. Sadly, the hurricanes of 2004 -05 and the massacre at Virginia Tech in 2007 buttressed this research, making it quite clear that institutions of higher education need to conduct pre-disaster mitigation planning. Concurrent with data collection in 2008 were the U.S. Department of Education's first-ever grant awards for Emergency Management in Higher Education, which were secured by 17 institutions nationwide including Florida's Broward College, Daytona State College, and St. Thomas University. Grant awards to other U.S. institutions of higher education have continued each year since then, focusing in part on the need to conduct pre-disaster mitigation planning, supporting the timeliness of this research and the importance of continued research.

Knowledge of these research findings and conclusions will help administrators to enhance their pre-disaster planning by better protecting life, property, infrastructure and the functioning of their campuses and may compel these leaders and state legislators to pursue additional funding to support needed efforts. Manmade and natural disasters that have impacted institutions of higher education in Florida and the U.S. in the past decade have established the need to enhance pre-disaster mitigation planning as well as preparedness, response and recovery efforts.

APPENDIX A

Hazard Mitigation Plan Contents

Hazard Mitigation Plan Contents

Executive Summary

- Purpose
- Process followed
- Major recommendations

Goals and Objectives

- Disaster resistance and university mission

Hazard Identification and Risk Assessment

- Hazard background of institution
- Asset inventory
- Loss estimation

Mitigation strategy

- Identification of mitigation actions
- Description of prioritization methodology used (e.g., benefit-cost analysis)
- Prioritization of actions
- Timeline

Implementation and plan maintenance

- Organization and responsibility for mitigation
- Integration with local and state hazard mitigation plans
- Maintenance of plan and update schedule

APPENDIX B

Survey

Survey

Pre-disaster Planning Leadership Survey

Purpose of the study

The purpose of this study is to identify the pre-disaster planning leaders among Florida's community colleges and to explore and describe their pre-disaster planning process after the terrorist attacks of 9/11, the hurricanes of 2004-05 and the massacre at Virginia Tech. The pre-disaster planning practices of these leaders will be used to inform the practices of other community colleges in the State of Florida.

Pre-disaster planning - a process of planning undertaken by the community college to significantly reduce or eliminate its vulnerability to natural and man-made disasters (FEMA, 2003, p. iii). This definition does not include, for example, the preparations in which a community college might engage during the 4-5 days prior to a disaster (e.g., hurricane), nor does this term include post-disaster response and recovery.

1. Has the community college conducted a risk assessment, identifying all natural and manmade hazards to which it is most vulnerable?

   Yes ____ No ____

   1b. <u>If yes</u>, list the external stakeholders from whom you have obtained risk assessment assistance (i.e., to develop a list of natural and manmade disasters to which the community college is most vulnerable).

   County agencies:
   _____
   _____

   State agencies:
   _____
   _____

Others:_____
_____

2. Has the community college conducted an inventory of ALL buildings (e.g., laboratories, classrooms, workshops, equipment) and ALL infrastructure assets (e.g., payroll, accounts payable and student records), so the institution knows what can be affected and the financial risk involved if disaster strikes?

   Yes ____ No ____

   2b. If no, approximately what percentage of buildings and infrastructure assets have been inventoried?

   Buildings inventoried _____%
   (e.g., laboratories, classrooms, workshops, equipment)

   Infrastructure assets inventoried _____%
   (e.g., payroll, accounts payable and student records)

3. Has the community college identified goals and objectives for its pre-disaster plan?

   Yes ____ No ____

   3b. If yes, have ALL goals and objectives been assigned to someone to assure they are achieved?

   Yes ____ No ____

   3c. Have you determined how ALL goals and objectives will be funded?

   Yes ____ No ____

4. To the best of your knowledge, please estimate the total amount of expenses incurred by the community college for pre-disaster planning in the three below categories and budget years. Please include in your total, items like the purchase of generators, classroom door locks, communications equipment (e.g., emergency notification system, sirens, radios for campus security), computer back ups, video surveillance equipment, and shutters; exclude staff time from the total amount you report.

   a. internal budget reallocations (excluding staff) and
   b. state grants

c. federal grants
d. restricted funding

Internal Budget Reallocations
(excluding staff)

	2004-05	2005-06	2006-07	2007-08
Estimate total amount of expenses incurred for pre-disaster planning				

Grants & Restricted Funding

	2004-05	2005-06	2006-07	2007-08
State grants				
Federal grants				
Restricted funding				

5. Has the community college appointed a project manager whose work is primarily focused on pre-disaster planning? (check one)

i. Yes ____
6b. If yes,
1. In which budget year was he/she appointed (e.g., 2004-05)?
_____

ii. No ____

6. Who are the administrative staff members *most* involved in pre-disaster planning? Please note the title and salary of each one and the approximate percentage of his/her time focused on pre-disaster planning. (NOTE: Exclude preparation time in which a

community college might engage during the 4-5 days prior to a disaster (e.g., hurricane). Rank order as many as 5 administrative staff members by level of involvement (i.e., most to least involved).

Title of administrative staff member (e.g., Business Officer); rank order from most to least involved in pre-disaster planning	Salary (excluding benefits) (e.g., $50,500)	Percentage of time focused on pre-disaster planning (e.g., 4%)

7. The community college President has formally adopted the pre-disaster mitigation plan (check one).

i. Yes ____ No ____

APPENDIX C

Letter of Cooperation

Letter of Cooperation

March 17, 2008

To: Florida Atlantic University - Institutional Review Board

I am familiar with Timothy J. De Palma's study entitled Pre-disaster Planning at Florida Community Colleges after the 9/11 Terrorist Attacks, the Hurricanes of 2004 and 2005 and the Virginia Tech Massacre. As the Chair of the Council on Business Affairs (COBA) – Florida Association of Community Colleges, I give permission to Mr. De Palma to invite members of COBA to voluntarily participate in his study, reserving the right to withdraw at any time. The online survey will ultimately identify pre-disaster planning leaders (i.e., two to three administrators at each of three community colleges) who will be asked to participate in one-on-one qualitative interviews extending ninety minutes to two hours in length. My participation in the study will include me emailing Business Officers a letter supporting the study. If necessary, I will send a reminder email(s) and a hard copy to Business Officers, but will not be apprised of who has or has not completed the survey or the qualitative interview. The identities of survey respondents and qualitative interview participants will remain confidential and will be reported neither in study findings, conclusions nor to anyone outside of Mr. De Palma's dissertation committee.

I understand that the research study will be conducted using sound ethical principles and that Mr. De Palma has completed the Collaborative Institutional Training Initiative, Human Research Curriculum for Social & Behavioral Research Investigators and will conduct the study under Dr. Deborah L. Floyd, Responsible Project Investigator.

Sincerely,

Dr. Carol Probstfeld
Vice President - Business & Administrative Services, Manatee Community College and Chair of Council on Business Affairs - Florida Association of Community Colleges

APPENDIX D

Letter of Support

Letter of Support

TO: Business Officers, Florida Association of Community Colleges

FROM Dr. Carol Probstfeld, Vice President - Business & Administrative Services, Manatee Community College and Chair - Council of Business Affairs - FACC

RE: Brief confidential survey on your pre-disaster planning process

DATE: June 9, 2008

Effective emergency management is on all of our minds, especially since the tragedy that occurred at Virginia Tech a year ago and more recently at Northern Illinois University. Many of us either attended or sent a representative to the Florida Community College Campus Safety Summit at St. Petersburg College in June in response to the Gubernatorial Task Force on Campus Safety. A doctoral student at Florida Atlantic University is studying the pre-disaster planning process at Florida community colleges, which provides us a *timely and confidential* method of exploring our process of planning for disasters. The study is being supervised by Dr. Deborah L. Floyd, Educational Leadership Program Coordinator and Doctoral Dissertation Chair for Mr. Timothy J. De Palma.

I invite you to consider completing Mr. De Palma's brief 7-item survey, which will help him to identify the three community colleges and 3-4 staff at each one who will be asked to participate in an interview about their pre-disaster planning process. The doctoral study is confidential meaning that neither your community college nor your staff that agree to participate in the study will be identified in the report of the findings and recommendations. The findings and recommendations will aid Florida's Community College System to better prepare itself as it attempts to reduce or eliminate the impact of all types of disasters on its campuses. An executive summary of exemplars will be sent to you if you complete the brief survey.

Mr. De Palma will be sending you an email in the next 48 hours containing a web link that will allow you to complete the brief survey online. Thank you for considering this researcher's request as we continually strive to enhance our ability to protect our institutions against all disasters.

APPENDIX E

Consent Form - Survey

CONSENT FORM - SURVEY

1) Title of Research Study: Pre-disaster Planning in Florida Community Colleges after the 9/11 Terrorist Attacks, the Hurricanes of 2004-05 and the Virginia Tech Massacre

2) Investigator: Responsible Project Investigator, Educational Leadership Program Coordinator and Doctoral Dissertation Chair - Dr. Deborah L. Floyd, and Co-Investigator, Timothy J. De Palma

3) Purpose: The purpose of this study is to explore and describe the pre-disaster planning process used by Florida's community college administrators as they plan to reduce or eliminate disasters on their campuses after the terrorist attacks of 9/11, the 2004-05 hurricanes and the Virginia Tech massacre. The identification of pre-disaster planning practices employed by community college leaders in the State of Florida will inform the future practice of their counterparts, enabling them to better protect life, buildings, equipment, and data on their campuses.

4) Procedures:
You are being asked to complete one 7-item, online survey about your pre-disaster planning process, which will take 20-30 minutes. You may be asked to voluntarily participate in an in-depth interview about this issue three to seven weeks after completing the survey.

If your survey score is amongst the three highest scores and you have identified yourself as one of the top five administrators and staff who are most involved in the community college's pre-disaster planning process, you will be asked to participate in an in-depth interview. Your interview will consist of one confidential, 90 minute to 2-hour, interview with me. Your interview will be audio taped and transcribed verbatim and you will be asked to review your interview transcript, requiring 15-30 minutes. Your interview will be conducted on the campus where you are employed and at a location that is mutually agreed upon.

5) Risks:
The risks involved with participation in this study are no more than one would experience in regular daily activities. All data collected will remain confidential. There is the potential risk of disclosing confidential institutional information related to the community college's security plan, and information about the status of its pre-disaster planning process. All information that may personally identify you or your community college will be assigned a code and only pseudonyms will be used in the report of findings and conclusions. You may choose to not answer any question and may refuse to participate in this study without penalty.

6) Benefits:

A potential long-term benefit you may derive by participating in this study is the awareness that you have contributed to enhancing disaster planning at Florida's community colleges. Your participation may help to reduce or eliminate the impact of disasters, whether they are economic losses to the community, or the loss of life, property, equipment and data. Neither you nor your community college will derive any immediate, individual benefits from participation in this study.

7) Data Collection & Storage:

All of the results will be kept confidential and secure and only the people working with the study will see your data, unless required by law. Your name will not be included on field notes or interview transcripts, but a code identifying you and the community college will be noted on each one and all such research documents will be stored in a locked file cabinet. Likewise, codes assigned to you and your community college will be recorded on a master code list and stored in a locked filing cabinet separate from the coded field notes and interview transcripts.

8) Contact Information:

For related problems or questions regarding your rights as a subject, the Division of Research of Florida Atlantic University can be contacted at (561) 297-0777. For other questions about the study, you should call the Responsible Project Investigator, Dr. Deborah L. Floyd at (561) 297-2671 Office or (954) 564-0344 or Co-Investigator, Timothy J. De Palma at (561) 901-1114.

9) Consent Statement:

I have read or had read to me the preceding information describing this study. All my questions have been answered to my satisfaction. I am 18 years of age or older and freely consent to participate. I understand that I am free to withdraw from the study at any time without penalty. I will use the print command on my desktop computer to produce a copy of this consent form (recommended). I acknowledge my consent to participate in this study by clicking the "agree" button.

APPENDIX F

Interview Guide

Interview Guide

Phase I: Organizing Resources

What internal and external stakeholders and resources have been organized to aid the community college in its pre-disaster planning and has a mission statement been developed for the advisory committee as recommended by DRU guidelines?

1.1a How have internal leaders been involved in the pre-disaster planning process (e.g., the provost or president and business officer?

1.1b What about other internal stakeholders (e.g., like faculty or other Academic Affairs planning units, Business & Student Affairs, Institutional Research, the Advancement Office and student groups?

1.1c What external resources have been involved in the pre-disaster planning process (e.g., local police/fire, county or city emergency manager or hazard mitigation planner for know-how of demographic, economic and physical data and to provide an inventory of their capabilities?

1.1d What about community infrastructure representatives and vendors (for either utilities, transportation and housing, or vendor assistance, staff support or financial support?)

1.1e What about state and federal emergency management officers regarding disaster mitigation on campus?

1.1f What federal disaster assistance program have you drawn upon for funding?

1.1g What about federal agencies for an inventory of resources (e.g., “U.S. Geological Survey, National Weather Service, National Oceanic and Atmospheric

Administration, and the Departments of Energy, Housing and Urban Development, Education, and Transportation", FEMA, 2003, p. 15)?

1.1h How have the resources of the Red Cross, Salvation Army and the National Voluntary Organizations Active in Disaster (NVOAD) been included in your disaster planning (e.g., providing temporary housing & feeding students)?

1.1i Has an advisory committee and project manager or consultant been selected and how endorsed? Document of endorsement?

1.1j How has the plan been endorsed by leadership?

1.1k What timeline has been established for each of the four phases of pre-disaster planning: Phase 1: Organization of Resources; Phase 2: Hazard Identification & Risk Assessment; Phase 3: Developing the Mitigation Plan; and Phase 4: Adoption & Implementation?

1.1l What mission statement and plan for communicating successes has been developed by the advisory committee?

Phase II: Hazard Identification and Risk Assessment

Who has assisted the community college in identifying a list of natural and manmade hazards and what assets have been inventoried (i.e., buildings, contents and infrastructure) allowing hazards to be profiled (i.e., disaster scenarios developed to estimate impact) as compared to DRU guidelines.

Hazard Assessment

2.1 Whom assisted the community college in its identification of hazards and what type of assessment was used (e.g., HLS-CAMS; A-CAMS)?

2.2 In what format is a base map of campus available and has it been archived (e.g., on and off campus facilities, campus buildings, utilities, shelters, emergency communications, computer labs, hazardous materials, roadways and parking)?

Asset Inventory

2.3 You indicated you inventoried ALL buildings and infrastructure assets. How did you document them? (e.g., buildings, contents, infrastructure assets and utilities, "…administrative systems; payroll; accounts payable and; student records" (p. 26)?

2.4 What scenarios of disaster events have you created to estimate the impact of disasters (e.g., scenarios involving losses to life, property, and function of institution (e.g., in dollars, instructional time, data)?

2.5 What impact will interruptions to the institution's operations have on the local economy and community and how has the impact been communicated to local and state emergency management planners?

Phase III: Mitigation plan development

Who assisted the community college in developing and prioritizing mitigation plan goals and objectives and was the institution's mission and/or a process or formula for prioritization used and how do its efforts compare to DRU guidelines?

3.1a. What are the goals and objectives of your mitigation plan and when was it last revised (e.g., Do you have a prioritized list of actions)?

3.1b. How were internal/external stakeholders involved in the establishment of mitigation actions?

3.1c. Alpha: How much funding is yet needed to fund all mitigation actions?

Beta / Gamma: What funding for mitigation actions is currently being pursued under a grant application and when was it submitted? How much in budget reallocations will be used to fund mitigation actions?

3.1d. As you developed your plan, what process/formula did you use to develop mitigation plan priorities (e.g., benefit-cost analysis) (FEMA, 2003, p. 32)?

3.2a. How has the college's mission helped you prioritize mitigation actions?

3.2b. How has the college's strategic plan and master plan helped prioritize mitigation actions?

3.3. What is the status of the college's campus evacuation plans/procedures?

3.4a. What type of campus lock-down procedures are in place (e.g., in the event of an active-shooter) and what type of training has staff received?

3.4b. How will you communicate with the campus community about disaster events?

3.5. When was the mitigation plan last revised?

3.6. How have you approached disaster planning differently since the terrorist attacks of 9/11, the hurricanes of 2004-05 and the massacre at Virginia Tech? How much training has staff had on preventing and mitigating disasters?

3.7. Whom did you share the mitigation plan with (e.g., local, state and federal emergency management officials)?

Phase IV: Adoption and implementation

Which internal and external stakeholders formally adopted the mitigation plan and how was the efficacy of mitigation actions measured and successes published as compared to DRU guidelines?

4.1 How was the disaster mitigation plan formally adopted by the college (e.g., adopted by president, planning council, board of trustees, VP Administrative Affairs, VP Academic Affairs, VP Student Affairs, advisory council, local/state emergency managers, public safety, environmental health & safety, external stakeholders, vendors, student groups)?

4.2 Who will measure the mitigation action's effectiveness and how?

4.3 What timeline has been established for updating your disaster mitigation plan (e.g., due to new hazards or stakeholders)?

4.4 How have you published successes of the advisory committee and project coordinator?

APPENDIX G

Consent Form – Interview

CONSENT FORM - INTERVIEW

1) Title of Research Study: Pre-disaster Planning in Florida Community Colleges after the 9/11 Terrorist Attacks, the Hurricanes of 2004-05 and the Virginia Tech Massacre

2) Investigator: Responsible Project Investigator, Educational Leadership Program Coordinator and Doctoral Dissertation Chair - Dr. Deborah L. Floyd, and Co-Investigator, Timothy J. De Palma

3) Purpose: The purpose of this study is to explore and describe the pre-disaster planning process used by Florida's community college administrators and staff as they plan to reduce or eliminate disasters on their campuses after the terrorist attacks of 9/11, the 2004-05 hurricanes and the Virginia Tech massacre. The identification of pre-disaster planning practices employed by community college leaders in the State of Florida will inform the future practice of their counterparts, enabling them to better protect life, buildings, equipment, and data on their campuses.

4) Procedures:
You are being asked to voluntarily participate in one confidential, 90 minute to 2-hour, in-depth interview about your pre-disaster planning process. Your interview will be audio taped and transcribed verbatim and you will be asked to review your interview transcript, requiring 15-30 minutes. Your interviews will be conducted on the campus where you are employed and at a location that is mutually agreed upon.

5) Risks:
The risks involved with participation in this study are no more than one would experience in regular daily activities. All data collected will remain confidential. There is the potential risk of disclosing confidential institutional information related to the community college's security plan and information about the status of its pre-disaster planning process. All information that may personally identify you or your community college will be assigned a code and only pseudonyms will be used in the report of findings and conclusions. You may choose to not answer any question and may refuse to participate in this study without penalty.

6) Benefits:
A potential long-term benefit you may derive by participating in this study is the awareness that you have contributed to enhancing disaster planning at Florida's community colleges. Your participation may help to reduce or eliminate the impact of disasters, whether they are economic losses to the community, or the loss of life, property, equipment and data. Neither you nor your community college will derive any immediate, individual benefits from participation in this study.

7) Data Collection & Storage:
All of the results will be kept confidential and secure and only the people working with the study will see your data, unless required by law. Your name will not be included on field notes or interview transcripts, but a code identifying you and the community college will be noted on each one and all such research documents will be stored in a locked file cabinet. Likewise, codes assigned to you and your community college will be recorded on a master code list and stored in a locked filing cabinet separate from the coded field

notes and interview transcript.

8) <u>Contact Information:</u>

For related problems or questions regarding your rights as a subject, the Division of Research of Florida Atlantic University can be contacted at (561) 297-0777. For other questions about the study, you should call the Responsible Project Investigator, Dr. Deborah L. Floyd at (561) 297-2671 Office or (954) 564-0344 or Co-Investigator, Timothy J. De Palma at (561) 901-1114.

9) <u>Consent Statement:</u>

I have read or had read to me the preceding information describing this study. All my questions have been answered to my satisfaction. I am 18 years of age or older and freely consent to participate. I understand that I am free to withdraw from the study at any time without penalty. I have received a copy of this consent form.

Signature of Subject:_____ Date: _____

Signature of Investigator: _____ Date: _____

APPENDIX H

Document List

Document List

1. Mission statement for Advisory Committee
2. Goals and objectives of disaster mitigation plan
3. County or state's risk-assessment outlining a prioritized list of hazards to which the community college is most vulnerable
4. List of building and infrastructure assets
5. Memorandum from internal or external stakeholder adopting the disaster mitigation plan
6. Memorandum noting the successes of the advisory committee and project manager

APPENDIX I

Scoring Methodology for 7-item Pre-disaster Planning Leader Survey

Scoring Methodology for 7-item Pre-disaster Planning Leader Survey

1. A respondent replying “yes” received 1 point toward her pre-disaster planning leadership score. A “no” response earned the community college ‘0’ points toward its pre-disaster planning leadership score. The names of external stakeholders (i.e., county, state or other agencies) who have provided risk assessment assistance to the community college will be used to verify data collected during the qualitative interview.

2. A respondent replying “yes” (i.e., conducted an inventory of building and infrastructure assets) received 1 point toward her pre-disaster planning leadership score and was assigned 1 full point each for items 2b and 2c (i.e., percentage of buildings and infrastructure assets inventoried). A “no” response (i.e., did not conduct an inventory of building and infrastructure assets) earned the community college ‘0’ points toward its pre-disaster planning leadership score, but if a community college reported that any percentage of buildings or infrastructure assets had been inventoried, the community college received a corresponding score for each category (e.g., 30% is equal to .30 points).

3. A respondent replying “yes” (i.e., identified goals for plan) received 1 point toward her pre-disaster planning leadership score. A “no” response earned the community college ‘0’ points toward its pre-disaster planning leadership score.

If the respondent replies “yes” to having assigned someone to ALL goals and objectives, he/she received 1 point toward her pre-disaster planning leadership score. A “no” response earned the community college ‘0’ points toward its pre-disaster planning leadership score.

Respondents replying “yes” (i.e., identified how ALL goals and objectives will be funded) received 1 point toward her pre-disaster planning leadership score. A “no” response earned the community college ‘0’ points toward its pre-disaster planning leadership score.

4. The 3 respondents reporting the highest normalized values for internally reallocated funding for all four budget years received 1 point toward her pre-disaster planning leader score. Likewise, the 3 respondents that reported the highest normalized values for state grants, federal grants and restricted funding for all four budget years received 1 point toward her pre-disaster planning leader score. The dollar values provided by respondents in all four categories were normalized by calculating a per student value. For example, a community college’s total amount of internal budget reallocations for 2004-05, 2005-06, 2006-07 and 2007-08 each was divided by the annual unduplicated student headcount enrollment for 2003-04 and 2004-05, 2005-06 and 2006-07, respectively (Florida Community College System, 2005, p. 19). The most up-to-date headcount enrollment figures from the Department of Education were used to calculate the normalized values.

5. Respondents replying “yes” to having appointed a project manager received 1 point toward her pre-disaster planning leadership score. The year in which a project manager was appointed aids in determining how cutting-edge the community college is compared to other colleges and was reported in the study findings. A respondent replying “no” to having appointed a project manager received “0” points toward her pre-disaster planning leadership score.

6. Each respondent rank-ordered as many as 5 administrative staff members by most to least involved in pre-disaster planning; each staff members’ title, salary and percentage of time focused on pre-disaster planning was reported. The three respondents reporting the highest totals for salaries received 1 point. Total salary dollars was determined by multiplying each staff member’s salary by the percentage of time he/she focuses on pre-disaster planning [e.g., A salary of $60,000. is multiplied by 4% (the amount of time one focuses on pre-disaster planning) to obtain a product of $2,400]. A salary mean weighted by time spent on pre-disaster planning was be calculated for each respondent. The top three respondents with the highest weighted means received 1 point.

7. Respondents replying “yes” (i.e., President has formally adopted pre-disaster mitigation plan) received 1 point toward her pre-disaster planning leadership score. A “no” response earned the community college ‘0’ points toward its pre-disaster planning leadership score.

8. The total number of points awarded to each community college using the above method of scoring created a stratified ranking of colleges. The 3 top-ranked community

colleges comprise the sample for the study. The first three administrative staff noted by each Business Officer will comprise the sample of participants to be interviewed.

APPENDIX J

Matrix of Research Questions by Data Collection Technique

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Research questions based on the four phases of the conceptual lens (i.e., DRU model):	Pre-disaster Planning Survey	Interview Protocol Questions	Document List
Phase I: What internal and external stakeholders and resources have been organized to aid the community college in its pre-disaster planning and has a mission statement been developed for the advisory committee as recommended by DRU guidelines?	6a 5a-5c	1.1a, 1.1b 1.1i 1.1c, 1.1d, 1.1e, 1.1g, 1.1h 1l	 1
Phase II: Who has assisted the community college in identifying a list of natural and manmade hazards and what assets have been inventoried (i.e., buildings, contents and infrastructure) allowing hazards to be profiled (i.e., disaster scenarios developed to estimate impact) as compared to DRU guidelines.	1b-1p 2a-2c	2.1 2.3 2.4	3 4
Phase III: Who assisted the community college in developing and prioritizing mitigation plan goals and objectives and was the institution's mission and/or a process or formula for prioritization used and how do its efforts compare to DRU guidelines?	3a	3.1a, 3.1b 3.1d, 3.2	2
Phase IV: Which internal and external stakeholders formally adopted the mitigation plan and how was the efficacy of mitigation actions measured and successes published as compared to DRU guidelines?	7	4.1 4.2 4.4	5 6

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