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DISASTER PREPAREDNESS FOR UNIVERSITY/COMMUNITY TRANSIT SYSTEMS

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DISASTER PREPAREDNESS FOR UNIVERSITY/COMMUNITY

TRANSIT SYSTEMS

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ABSTRACT

Public transportation, with its open access, creates an opportunity for masses of people to be hurt while using transit services during human-made or natural disasters. This dissertation reviews the body of academic and professional literature and recent disaster events to characterize the current state of preparedness for disasters affecting transit systems in the United States, focusing on institutions of higher education, other post-secondary educational institutions, and the university/community transit systems providing services to these institutions. The nature of threats is examined, and institutional issues are explored to discover the level of disaster preparedness of university/community transit systems, and their ability to participate in the planning and organization, purchase of equipment, and training exercises for disaster events.

To identify potential gaps in disaster preparedness within university/community transit systems, multiple research objectives were developed: review international and national disaster events with emphasis on preparedness planning for transportation systems; examine federal disaster preparedness requirements to find are any proscribed plans transportation systems should be using; and determine how disaster preparedness planning is used in university/community transit system operations to support post-secondary institutions of higher education during a disaster.

The research question for this study is "how are universities and communities planning for using or protecting transit systems and assets in disaster events?"

hypothesis for this research is that university/community transit systems do have appropriately prepared emergency operating plans. A qualitative document analysis was conducted on university transit systems emergency operations plan documents and a quantitative survey was subsequently conducted with emergency managers working for, or transit system operators providing transit services to, post-secondary institutions of higher to determine if the university/community transit systems did or did not have an emergency operations plan.

Analysis of the survey results shows that university/community transit systems do not comply with the National Incident Management System, and do not have appropriately prepared emergency operating plans. It is recommended that all other post-secondary institutions of higher education, and transit organizations should develop comprehensive and holistic emergency operations plans, similar to the one developed for Clemson University as contained in Appendix A.

DEDICATION

This work is dedicated to the Lord my God, Jesus Christ my Lord, my Savior and God's Holy Spirit, without whose great grace, mercy, forgiveness, and wisdom I would never have made it as far in life as I have.

This work is dedicated to my wife, Karen, who has stayed the course with me in my educational pursuits over the past twenty-four years. Karen's love, support, encouragement and patience, shared with me to complete this final degree, continues to be an absolute blessing of God. You are my best friend, Karen, and I do praise God for bringing us together.

This work is dedicated to my daughter, Melissa, and to my grandchildren, Taylor and Cooper, who loved me and supported my efforts, especially when I missed special family events to complete this manuscript.

This work is dedicated to my mom, Alice Snyder, who keeps me and Karen, my brothers and their wives in her prayers daily. When I have been at my very worst, she was always at her very best, encouraging me to do better in spite of my circumstances. Mom has always and continues to encourage each of us to never, never, never, give up. I will always be grateful to God for my mom and dad (Fred Snyder, Sr.), and my brothers and their wives (Fred Jr. and Sharon, Mark and Dianne, and William and Janet), who graciously have allowed me to be a part of their family.

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LIST OF ACRONYMS

APTA   American Passenger Transportation Association

CPG   Comprehensive Planning Guide 101

The Planning Guide was developed to provide direction in development of plans for

the various levels of government in the United States and its territories.

CONOPS   Concept of Operations

COOP   Continuity of Operations

The phrase "Continuity of Operations" is used in place of "business continuity,"

but the meaning is the same as business continuity or continuity of business plan.

DHS   Department of Homeland Security

DOT   Department of Transportation

EDMI   Emergency Disaster Management, Inc

DOE   U.S. Department of Education

EMHE   Emergency Management for Higher Education

EOP   Emergency Operation Plan

ESF   Emergency Support Functions

FEMA   Federal Emergency Management Agency

FHWA   Federal Highway Administration

FTA   Federal Transit Administration

GIS   Geographic Information System

IC   Incident Command

MPO   Metropolitan Planning Organization

NIMS   National Incident Management System

NTD   National Transit Database

TRB   Transportation Research Board

TSA   Transportation Safety Administration

UC   Unified Command

UNISDR United Nations International Strategy for Disaster Reduction

CHAPTER ONE

INTRODUCTION

Public and private transportation assets have been designated as a part of the nation's critical infrastructure and key resources (CIKR), which includes university and community transit systems owned by or used to provide transit services to post-secondary institutions of higher education. The transit industry's lack of involvement with emergency management agencies and the lack of disaster/ emergency experience within the transportation community have caused some of the nation's most knowledgeable and useful resources for information regarding the use of transportation resources for emergency conditions to be underutilized (Wolshon 2009). Additionally, Directive 8 of the Homeland Security Act of 2002 (6 U.S.C. 101) mandates use of the National Incident Management Systems (NIMS) for all local, state or federal agencies receiving federal funding, while the Federal Transit Administration (FTA) only provides recommendations in the form of a technical resource for its grantee transit agencies. This FTA assistance may also be used by non-federally-funded transit systems.

Objective

The objective of the research was to determine if university/community transit systems providing transit services to post-secondary institutions of higher education have emergency operation plans which comply with the National Incident Management

System (NIMS) and follow the U.S. Dept. of Education's recommendations in its *Action Guide for Emergency Management at Institutions of Higher Education*.

Research Questions and Hypothesis

The research questions are:

1. How are universities/communities planning on using and protecting transit systems in a disaster event?

2. How are universities/communities planning on using and protecting transit assets in a disaster event?

The research hypothesis developed for this work is; university/community transit systems do have appropriately prepared emergency operating plans. Testing of the hypothesis was conducted through a qualitative document analysis and quantitative survey instrument. The results of the findings and analysis are located in Chapter 6, Findings and Results.

Emergency Planning

Emergency Disaster Management, Inc. (EDMI, 2007)) describes a disaster as an "event which suddenly occurs or is unstoppable that may overwhelm the resources of an impacted people and region, having a long term impact on social or natural life and at the onset is always negative." Schmidt (2007) similarly agreed defining emergency management as the "ongoing process to prevent, mitigate, prepare for, respond to, and recover from an event that threatens life, property, operations or the environment."

It is integral to the success of university/community transit systems disaster preparedness to understand the base knowledge of emergency disaster management and its potential to protect transit systems and their assets. Post-secondary institutions of higher education of every size may have access to transit resources which could be used to mitigate the impacts of a disaster. Lahad and Nesher (2007) recognized "communities do have resources available to be used in disaster emergency situations, [and] these resources or assets should be identified in advance as part of the preplanning of an emergency management program." This further emphasizes the need for local authorities to establish programs which facilitate the transportation needs of the population impacted and to do so with existing resources, university/community transit systems are an existing resource.

The disaster/emergency preparedness plan should be one where issues related to preparation, planning and drills are clearly defined and easily understood by all of the participants. In conjunction with NIMS, there are three existing national plans available through the National Fire Protection Association's NFPA 1600 National Preparedness Standard; National Infrastructure Protection Plan; and, the National Response Plan which should be considered when creating emergency operating plans. Once developed and standardized for disaster/emergency management procedures and training for university or community transportation systems, the plans could become a model for all transportation systems, with appropriate review and guidance.

Edwards and Goodrich (2009) noted "campus emergency plans must integrate transportation into the Operations Section to ensure that the coherence essential for good emergency management is in place whenever disaster strikes." A comparative analysis of university/community transit disaster/emergency preparedness plans will promote an understanding of how well existing plans achieve the needs of disaster/ emergency planning. Beyond the documents, a determination should be made as to how well the plans are followed and implemented in either drills or actual events.

Overview of Chapters

The Literature Review in Chapter 2 is a review and study of contemporary theories regarding emergency management practices involving public transit systems. Chapter 3 provides an overview for the components found in a comprehensive and holistic emergency operations plan. The methods and procedures used in this research are presented in Chapter 4. The survey findings and results are detailed in Chapter 5. Recommendations, limitations to the research, potential future research and conclusions of this dissertation are discussed in Chapter 6.

CHAPTER TWO

LITERATURE REVIEW

Federal disaster declarations are increasing in frequency, and ever-growing populations are increasingly vulnerable. University campuses in particular have large concentrated populations for whom disaster planning must address the role of university transit systems in which disaster planning and preparedness remains undefined. This literature review seeks to identify the gap in disaster preparedness with regard to university/community transit systems, and determine if current disaster preparedness planning used in university/community transit systems is at an appropriate level to contribute to the successful recovery from a disaster event. The review also provides additional insight into the specific research about disaster preparedness at the local level, and within university transit systems. The primary questions the literature review seeks to answer are:

1. How **are** universities/communities planning for using or protecting transit systems in disaster events?

2. How **should** universities/communities plan for using or protecting transit system assets in disaster events?

Disasters and Planning

Both international and national disaster events are considered in this literature review because many governments have or are developing preparedness plans to aide

in the prevention of, protection against, response to, recovery from, and mitigation of the effects of human-made or natural disaster events. The review of these events and the plan improvements developed as a result of debriefing after an event should provide insights on best practices for improving existing plans.

In the U.S., Metropolitan Planning Organizations (MPOs) are responsible for regional coordination with local governments on transportation planning issues for urbanized areas. MPOs have multiple roles in the planning process, and one such role is "facilitating the development of regional emergency plans, or at least helping to coordinate the transportation input to these efforts" (Robinson, Dunning 2008). Regional perspectives developed within an MPO could be helpful in creating regional and local response plans for a disaster incident. University transit systems should participate as a member of the local MPO for the purposes of evacuation planning, disaster mitigation and recovery, and to provide input on in- and out-bound movement of people, goods and services within a disaster incident zone.

<u>Definitions</u>

The etymology of the word disaster is traced through the Middle French "desastre" and the Old Italian "disastro" to its Latin root words "dis" and "astrum", meaning "a sudden calamitous event bringing great damage, loss, or destruction" (Merriam-Webster 2009). Emergency Disaster Management, Inc. (2007) states disasters can also be divided into two categories, natural and human-made. Both are defined as "an event which

suddenly occurs or is unstoppable that may overwhelm the resources of an impacted people and region, having a long term impact on social or natural life and at the onset is always negative."

The relative magnitudes of disasters are measured by the number of deaths and personal injuries, extent of property damaged and/or the level of environmental impact to an area. Coppola (2007) states, "to be considered disastrous, the realized hazard must overwhelm the response capability of a community." As an example, a disaster event at the local level is not a state disaster until the local authorities determine they cannot contain or mitigate the event with existing resources, and must have additional resources from the state or national level. Likewise, a state disaster event is not a national disaster until the state has expended or is about to expend all of its resources in the disaster's mitigation.

The United Nations International Strategy for Disaster Reduction (UNISDR) began a process to standardized terminology in 2005 with the specific purpose "to promote common understanding and common usage of disaster risk reduction concepts and to assist the disaster risk reduction efforts of authorities, practitioners and the public." The UNSIDR's *Terminology on Disaster Risk Reduction* (2009) defines disasters as a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources (UNISDR 2009). Schmidt (2007) defined **disaster management** as "an ongoing process to prevent, mitigate,

prepare for, respond to, and recover from an event that threatens life, property, operations or the environment."

<u>Disaster Events</u>

Understanding the definition of a disaster is as relevant as the event itself, when differentiating between a human-made or natural event. Either type of disaster can or often does contain elements of the other with unexpected negative consequences.

An example of a human-made disaster is the series of coordinated bombings which occurred on the commuter rail system in Madrid, Spain, on the morning of March 11, 2004 — just three days before Spain's general elections. The goal was to disrupt the general elections and ostensibly bring about a change in government. Multiple attacks involving ten passenger trains caused 191 deaths and wounded an additional 2,040 people, effectively shutting down the passenger rail services across the nation (Fox News 2004). Figure 2.1 depicts the damage and explosive power of a bomb placed on one of the ten trains targeted by terrorists.

Figure 2.1: Madrid Train Bombing, 03-11-2004, AP File Photo CP-5578800

Natural disasters are often characterized as a storm-weather-related event or earthquake, and have the same potential as a human-made disaster event to disrupt a community, state, or nation. In recent years, the most significant weather-related events in the United States were Hurricanes Katrina and Rita in 2005 and Ike in 2008. Each created unique situations in which the local transit assets were underutilized, or not used at all, to aid in evacuations. Figure 2.2 captures the events occurring from the early morning hours of September 13, 2008, as Hurricane Ike came ashore in Galveston, TX. The photo illustrates the impact of a natural disaster event disrupting daily operations.

Figure 2.2: Hurricane Ike, Galveston, Texas
M. Slocum, AP – USA TODAY 09-13-2008

Several factors contributed to the ultimate problems and issues caused by Hurricane Katrina, not the least of which was "the city's precarious geographical location and social conditions that rendered many residents incapable of helping themselves, and the unbelievably incompetent governmental response combined to produce the worst natural disaster in U.S. History" (Daniels, 2006). As was extensively reported in the media after Hurricane Katrina, the flooding of New Orleans could be attributed to design flaws in the construction of the levees around Lake Pontchartrain (Daniels, 2006). Though human error was in part to blame for the disastrous flooding of New Orleans,

the flawed levees were not the major factor in creating the flooding of New Orleans: "[…] what physically caused the failure were high winds, heavy rainfall, and a massive storm surge" against the poorly designed levee system (Daniels 2006). The City of New Orleans had developed a series of levees and pumping systems designed to keep the city dry and compensate for the below sea level elevation of the city. Unfortunately, both systems failed, which added a human-made component furthering exacerbating this catastrophic natural disaster.

Figure 2.3 depicts a combination of the impact of a natural and human-made disaster. Flood waters from the storm surge (a natural phenomenon); the failure of the levees and inadequate planning (human-made), prevented the use of the buses to transport persons away from the disaster area.

Had planned procedures been established prior to Hurricane Katrina, determining when the school district buses were to be used, which municipal government or school

district was going to provide drivers for the approximately 300 vehicles in Figure 2.3 could have resulted in the evacuation of several thousand people out of harm's way. Had the vehicles been properly accounted for and used in the evacuation of the population of New Orleans, the use of the buses would have protected them from flood waters (Brinkley 2007). New Orleans had created an evacuation plan in 2000 as part of its "City of New Orleans Comprehensive Emergency Management Plan." However, this evacuation plan, which "established a maximum acceptable hurricane evacuation time standard for a Category 3 storm event of 72 hours," was not followed (MSNBC 2011). The lack of an evacuation was due in part because City of New Orleans government officials failed to follow its own emergency management plan while at the same time not implementing federal recommendations for emergency evacuations (Brinkley 2007).

Data shows that there is an increase of occurrences in natural events in the U.S., and how these events are mitigated and the efforts made to rebuild the social, infrastructure, and governmental systems are the determining factors for a successful recovery (FEMA 2009). Today's advanced communication systems with a greater coverage area trigger more rapid notification of a disaster, compared to the early 1930's when there were no mass communication systems, or a national plan for disaster relief.

Disaster data collected by FEMA shows that there has been an increase of disaster events in the United States. Advanced contemporary communications systems provide nearly instantaneous notifications of disasters, with greater coverage to report about a disaster, as opposed to the early 1930s, when there were no mass communication

systems or national plan for disaster relief. The federal government first began tracking

the number of disasters declared nationwide, and the frequency of disasters by state in

1953. The increase in disaster declarations from 1953 to 2010 is dramatic, from 13

declarations in 1953, compared to 81 in 2010. The data, when considered by century,

reveals a more graphic picture. From 1953 to 1999, there was an average of 28 major

disaster declarations per year over the forty-six year period. From 2000 to 2010, there

has been an average of 58 disaster declarations per year.
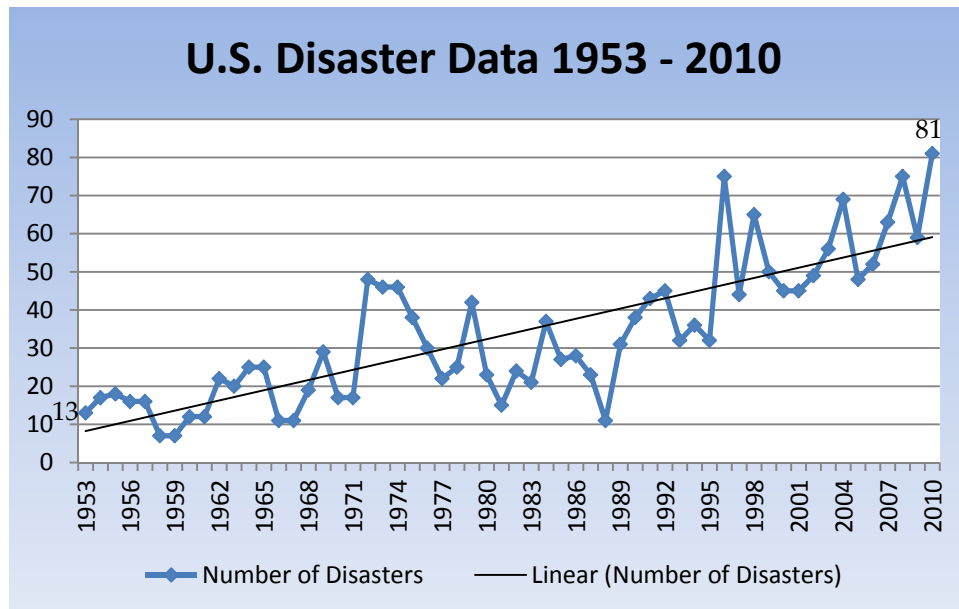
Figure 2.4: U.S. FEMA Disaster Data 1953 - 2010

Disaster events, whether human-made or natural, caused by global warming or

some other weather phenomenon, are not decreasing in number. This data alone is

sufficient evidence for the need to strategically plan for all types of disasters. The U.S.

Department of Education released its *Action Guide for Emergency Management at*

Institutions of Higher Education in 2009, which, if used properly, will be beneficial in

aiding post-secondary institutions of higher education to develop their emergency operations plans in conjunction with their local, county and state transportation organizations and emergency management agencies.

<u>Disaster Preparedness Planning</u>

Disaster preparedness planning involves many areas – i.e. human resources, infrastructure (most notably power, water, and communications) and transportation – which, when brought together, effectively produces a positive outcome for societies, governments, private businesses and individuals before, during and after a disaster event. In recent years, interoperability analysis of critical infrastructures is being noticed more around the globe by "governments, infrastructure operators and risk management specialists." The increased interest in critical infrastructure planning for disasters is that a lack of planning does not afford the opportunity for governments and non-governmental organizations to adequately address potential impacts to other resources as noted by Kajitani (2009) in that "many infrastructure failures and cascading impacts have occurred among different systems throughout the world in the past few years."

Unfortunately, disaster planning often takes place after an event occurs. Planners, administrators, public officials, emergency management agencies and ordinary citizens come together to build a plan based on the most recent event, rather than a holistic document covering all potential infrastructure and societal issues which may arise before, during or after an event. The holistic approach is important because

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infrastructure has significant interconnectivity, which can cause significant problems during a disaster event.

Kajitani and Sagai (2009) in their study "*Modeling the Interdependencies of Critical Infrastructures during Natural Disasters: A Case of Supply, Communication and Transportation Infrastructures*" identified various infrastructures which have connectivity to one another during a disaster. An electrical power outage causes the potential loss of potable water, gasoline, communications, transportation, socio-economic recovery, movement of goods and services into a disaster area and the use of geographic information systems for data retrieval and collection in an impacted area (Kajitani 2009).

Author R. W. Greene (2002) interviewed Alan Leidner, director for the New York City Department of Information Technology and Telecommunications after September 11, 2001, about the efforts necessary to recover a key component of New York City's Geographic Information System (GIS). Leidner utilized staff "from various city agencies, consulting firms, and hardware and software vendors in rebuilding the city's GIS from a pier building on the Hudson River, rebuilding it because much of the system had been destroyed when terrorists assaulted the World Trade Center" (Greene 2002). It took the City of New York several weeks to rebuild their network, advanced planning and having a backup system in place would have saved many personnel hours and dollars. Greene's research found that global information systems are being used to an increasingly greater extent to aid in the planning, preparation and prevention, mitigation, and the recovery process involving human-made and natural disasters.

The human factor should not be discounted in disaster planning, as many people who are at or near the lowest end of the socio-economic spectrum will suffer negatively at a higher rate than those who have the means to leave before a natural disaster occurs. Socio-economic status is a significant predictor as to what will occur in the pre- and post-disaster stages. These stages can be categorized as risk perception, preparedness behavior, warning communication and response, physical and psychological impacts, emergency response, recovery, and reconstruction (Fothergill 2004). As an example for one of these stages research following Hurricane Andrew provided information about warning communications and what the potential response would be based on one's economic status: "Poor women heard the storm warnings, but were unable to take action because they did not have enough money for supplies or transportation" (Fothergill 2004). Furthermore, Matthew Adler (Daniels 2006) found that the poor live or reside in less structurally sound housing, lack readily available forms of transportation and as a result may sustain greater injuries than those whose income is higher living in better constructed homes. Disaster planning works best when the urgency and need of the plan encompasses all members of the community regardless of their socio-economic status.

The U.S. Department of Homeland Security (USDHS) and Federal Emergency Management Administration (FEMA) released the Comprehensive Preparedness Guide 101 ("Guide") in 2009, which discusses the relationships and roles between federal, state and local governments in detail. The Guide is designed to be a significant tool in

disaster planning including the development of holistic emergency operating plans and ensuring all people impacted by a disaster are treated equally.

The goals in the Guide for creating holistic emergency operating plans are (USDHS FEMA 2009):

1. Produce operations plans that:

   a) Serves as the basis for effective response to any hazard that threatens the jurisdiction;

   b) Integrates prevention, protection, and mitigation activities with traditional response and recovery planning;

   c) Facilitates coordination with the Federal government during incidents that require the implementation of the National Response Framework;

   d) Provides consultation and coordination in support of unilateral Federal government actions under its authorities and pursuant to the National Implementation Plan for the Global War on Terror.

2. Incorporate concepts that come from operations planning research and day-to-day experience:

   a) Effective plans convey the goals and objectives of the intended operation and the actions needed to achieve them.

   b) Successful operations occur when organizations know their roles, accept them, and understand how they fit into the organization's overall plan.

   c) The process of planning is as important as the document that results from it.

d) Plans are not scripts followed to the letter but are flexible and adaptable to the actual situation.

Transportation's Role in Disasters

USDHS lists five strategic goals of national concern: awareness, prevention, protection, response and recovery. Transportation assets and transit operations should be considered in relation to each of these goals.

When considering prevention as a strategic goal, the nation's transportation assets are identified as "having a unique ability to be either a means of delivering weapons of terror or the target of a direct terrorist attack" (Haddow 2006). The United States government understands the need to ensure the transportation system continues its vital role of "moving commerce and people" as a major player in the nation's economy. After the events of September 11, 2001, 32 laws were passed to protect the United States' critical infrastructure and key assets (Birkland 2006).

One such law is the Transportation and Air Stabilization Act, the purpose of which is to ensure that measures are in place to protect, prevent, prepare, and mitigate the impact of disastrous events involving transportation systems. The role of transportation is one which should not be overlooked or diminished. The U. S. Department of Transportation (USDOT) has a "before and after" role with its assets if utilized properly, "the before role is in aiding in evacuation along roads and highways; after role is contributing to recovery efforts" (Pampel 2008). By their nature readily accessible public transit systems

have greater vulnerability where large masses of people can be hurt and attackers have multiple transportation options for the movement of weapons and an easy escape. The need to protect transit resources is important due to the number of people using some form of mass transit. In the U.S. in 2007, the American Public Transportation Association (APTA, 2009) reported there were approximately 7,700 transit systems providing more than 10 billion passenger trips covering an estimated 53 billion passenger miles. David Scott (2009) points out that "approximately one-third of terrorist attacks worldwide target transportation systems, with public transit the most frequent." Scott further commented that terrorists and criminals alike will "frequently target mass transit systems" because access to land-based transit systems has proven to be relatively easy, making transit systems increasingly vulnerable to terrorist and human-made disasters in the late 20th and early 21st centuries.

Three key components for providing transportation support services during a disaster incident are: user needs, description of the service, and an operational concept (National ITS Architecture Team 2003). For transportation units to be useful, they must be prepared to respond and be located in or near a disaster incident. Addressing user needs must specifically consider evacuation requirements of sensitive populations such as elderly, disabled, and impoverished persons who make up much of the "carless" population. The potential requirements for transportation in a disaster are:

1. outbound evacuees

2. outbound returning mutual aid operational resources

3. inbound mutual aid operational resources

4. inbound state and federal operational resources

5. inbound support shipments

6. inbound returning evacuees

7. outbound (departing) state and federal resources. (USDOT 2003)

An event the magnitude of Hurricane Katrina provides challenges to utilizing transit assets for evacuations. In his research on evacuations and the use of transit system assets, Wolshon observed that "the low level of involvement and lack of experience within the transportation community has meant that some of the nation's most knowledgeable and useful sources of information on the planning and utilization of transportation resources for emergency conditions have gone underutilized (2009)." The lack of participation by the transportation community has put local communities at a disadvantage in not being able to fully utilize transportation assets. A portion of the evacuation difficulties have been contributed to the lack of transit emergency preparedness preparation and planning or the management for transit systems not being involved with other local emergency support agencies.

The threat to transportation systems and the vulnerability of the traveling public has been demonstrated repeatedly, and investments are being made to improve security. However, spending money in itself does not necessarily equate to disaster preparedness (Robinson, Dunning 2008). Transit systems must participate in the disaster preparedness planning process, if for no other reason than to let local emergency

support agencies know of the assets their transit system can contribute to the evacuation, mitigation and recovery processes. In addition, conducting an emergency drill while excluding transit organizations due to a perception of their not being a traditional emergency responder may result in an evacuation or recovery not being successful.

Protection of critical infrastructure and key resources would include university owned transit systems, municipal owned transit systems providing services to universities, and privately owned transit systems. Edwards and Goodrich believed "campus emergency plans must integrate transportation into the Operations Section to ensure that the coherence essential for good emergency management is in place whenever disaster strikes" (2009). In their paper "*How Do Socioeconomic Characteristics Interact with Equity and Efficiency Considerations? Transportation Planning for Hurricane Disaster Relief,*" Horner and Widener (TRB 2009) presented supporting arguments for the need to have our government agencies understand the importance the role transportation can contribute when planning for hurricane emergencies.

<u>Infrastructure</u>

Transportation infrastructure in the United States has always been a key component for a variety of reasons, but most especially the nation's ability to expand to the west coast in rail service's earliest years, and in bringing about a system of transport which contributes significantly to the U.S. economy. In the United States specifically from the

1920s to the present day, public transportation systems have moved from the horse drawn street cars to subways and buses transporting a significantly larger populace than ever imagined in those early years (Sweet 2006). The local, state and national infrastructure has also improved dramatically to provide a variety of different modes of transport. Conversely, as the nation experienced on September 11, 2001, like Tokyo, Japan, in 1995, Madrid, Spain, in 2004, and London, England, did in 2005, transit infrastructure became a readily available target for human-made disasters (Taylor 2006).

Potential obstacles in using transportation assets in planning any of the phases of prevention, protection against, response to, recovery from, and mitigation is having access to the air space, highways and railway infrastructure systems. Horner and Widener recommend the use of GIS for the selection of locations for relief distribution centers where the needs of the communities are best met to prevent having to travel long distances to receive aid (Horner 2009). In doing so, people may not have to fully rely on a damaged infrastructure system in acquiring relief assistance.

According to a survey of 113 U.S. transit systems, many respondents noted that "while much has been accomplished on securing major transit and airport hubs, the securing of urban transit systems remains a daunting, perhaps insurmountable, challenge" (Taylor 2006). In 2007, the overall value of U.S. infrastructure and conveyances was approximately $6.7 trillion, with highways and streets accounting for $2.6 trillion – 38.8% of the total value.

<u>Public Transit System Components</u>

The U.S. has an intricate transportation system comprised of freight and passenger rail, aircraft, buses, and seafaring vessels for moving people, goods and services. Each form of transport has the potential to be targeted or susceptible to damage as a result of a disaster.

Special Report 294 from the Transportation Research Board (TRB) Committee on the Role of Public Transportation in Emergency Evacuation, *"Role of Transit in Emergency Evacuation"* (2008), reviewed the benefits of transit systems participating in drills and full scale evacuations during a disaster event. One finding in the report was that members of the transportation profession do participate and work closely with emergency management agencies in <u>some</u> areas of the nation. Their research also led to the conclusion that "the potential for transportation in general and transit in particular to play a more significant role in emergency response and evacuation is far from being realized (TRB 2008)." The report also found the U.S. Department of Homeland Security (USDHS) research from 2006 had findings similar to TRB's Special Report 294:

> "The U.S. Department of Homeland Security, which conducted an in-depth assessment of the emergency evacuation plans of 56 states and territories and the 75 largest urban areas, found that the majority (85 percent) of emergency operations plans were not 'fully adequate, feasible, or acceptable to manage catastrophic events' (USDHS 2006, ix). Significant weaknesses in mass evacuation planning were specifically

noted as an "area of profound concern" (USDHS 2006, ix), with only a small fraction of plans (12 percent of state and 8 percent of urban area plans) estimating the time required to evacuate people located in different risk zones (USDHS 2006, 23). Although transit's role in evacuation was not singled out, the assessment found that even fewer urban area plans (7 percent) had incorporated all available modes of transportation into emergency plans, although slightly more state plans (18 percent) had done so."

Additionally, transportation systems add significant value to the U.S. economy. If any portion of a system is disrupted, the financial loss has the potential to be significant. An example of this is the reaction which occurred shortly after the events began on September 11, 2001. Transportation Secretary Leon Mineta ordered U.S. airspace closed to all air traffic and all airplanes had to land immediately, and the economic impact was immediate. Bloom (2007) notes the lasting impact of an incident like 9/11 may well be short lived; the rebounding of the economy started occurring within four to six months, recognizing that "9/11 led to the loss of one million jobs and [the] investment equivalent to 3% of GDP over the next four months," yet his research indicates there was a rebound in the first quarter of 2002.

The U.S. military maintains a secondary role in the nation's emergency management of disaster incidents, which is to assist in disaster recovery and response within the U.S. and its territories. Within the context of disaster planning, an example is the designation

by the U.S. Department of Defense (DOD) of 30,000 miles of railroad to be used as part of the Strategic Rail Corridor Network (Sweet 2006), which is set aside for use in natural or human-made disaster incidents for the nation's military in civilian disaster events. To acquire the assistance, the governor of a state must make the request to the federal government which must be approved by the President of the United States. Miskel describes the military assistance as one which should not be overestimated due to its ability to provide large amounts of personnel and readily available services for disaster relief in support of the civilian infrastructure. Hurricane Andrew in 1992 stands as a testament to the military's capabilities after a disastrous event, "medical care was provided to 68,000 people, served 900,000 meals from mobile kitchens, distributed 1,000,000 pre-packaged MRE's (meals ready to eat), created shelter for an average of 2440 people per day, repaired 98 local schools and removed 6.2 million cubic yards of debris (Miskel 2006)." Just as the military's role cannot be underestimated, neither can the nation's transportation infrastructure at any level of local, tribal, state or federal government. For the purposes of this research, a brief description is provided of the two predominant land- based modes for transit systems and their economic value to the U.S. economy, focusing on land-based transportation systems.

Passenger Rail Services

Passenger rail service also operates under the guidance of the Federal Railway Administration (FRA) and through the years has been reduced from a predominant mode of cross-country transportation to more of a regional role. Amtrak provides

passenger service to approximately 29 million passengers annually on 300 trains operating in 46 states (FRA 2009). As a revenue generator to the U.S. economy, FY 2008 data shows Amtrak had revenues of $2.45 billion with expenses of $3.38 billion. The deficit is made up through federally supported subsidies.

In the event of a disaster, passenger trains could be used in evacuations or bringing in supplies to a disaster impacted zone. What should not happen is a passenger train leaving an evacuation area with seating for seven-hundred (Brinkley 2007) but with no passengers, as occurred in New Orleans with Amtrak's infamous "Ghost Train" prior to Hurricane Katrina making landfall (Glasser 2005). It should, however, be noted that the "Ghost Train" was a local government issue; literature definitely shows this was not caused by Amtrak. Amtrak officials were attempting to aid in the evacuation while protecting a key asset and were told "no, thank you" by City of New Orleans officials.

Passenger Bus Services

The value of bus transit assets is found in the numbers. In 2007, there were approximately 164,000 vehicles available for service during peak hours: 65,249 standard vehicles were available for service, while the number of paratransit vehicles available was second, with 64,865 vehicles (APTA 2009). Bus passenger fares in 2007 generated approximately $4.5 billion of the total fare revenue of $11.1 billion. The total amount of funding for bus transit systems for 2007 was approximately $20.6 billion dollars of the total funding $48.4 billion) for all transit modes. The balance of revenue is made up through federal and state grant funding.

Boyd and Sullivan's survey found terrorism and natural disasters occurred more frequently against rail transit than bus transit services, causing rail system operators and owners to believe they were at a greater risk for disaster events than bus transit operators (2007). A key reaction during 9/11 was the grounding of all aircraft and the closing of U.S. airspace, this same type of action would not be reasonable to attempt for bus services. This type of action could not be accomplished with bus services due to the lack of an intricate national communications system similar to the one used by the Federal Aviation Administration (FAA) and the absence of a built-in transponder radar tracking system on buses as is used on aircraft. Additionally, the United States airspace is highly regulated and in some areas restricted, where the nation's interstates, highways and secondary roads are not.

<u>Transit Planning</u>

Transportation planning creates the basis for making good decisions for the various modes of transport and the enhancements made to transit systems through transportation planning over the past century have helped to develop our economy and national infrastructure. The Federal Transit Administration (FTA) defines the role of transportation planners as individuals who "analyze information on existing and future travel patterns, problems, and needs; develop and evaluate alternative solutions to meet these needs; and develop short and long range plans and programs to implement transportation improvements" (USDOT FTA 2009).

Types of Planning

Generally, there are two types of planning for an organization: short range and long range planning. The type of organization determines what primary focus a planning program will be based upon. Transit planning utilizes same basic characteristics as do other organizations. Short range plans usually are made for 3 to 5 years and include a series of goals, objectives, projects or measures which could be implemented with minimal cost and generally no major infrastructure outlays. Long range plans are typically for 6 or more years and involve major outlays of capital for vehicles, infrastructure improvements or construction projects. Vuchic wrote that public transit system planning is often more complex than a private system or organization, "because of their greater complexity and their diverse clients – the general public" (2005).

Meyer and Miller (2001) describe the primary purpose of planning as providing usable information to decision makers within the transit organization and the information being dependent upon the needs of the organization. They provide the following list of decision-oriented characteristics, which are as important today as they were in 2001:

1. Establish a future context with an emphasis on the implications of decisions made today.

2. Respond to different scales of exploration and have the capability to undertake analysis on multiple scale levels.

3. Expand the exploration scope of the problem to include the total process or system in which occurs identifying issues which may impact a project's success.

4. Maintain flexibility in analysis to allow credible information to be brought forward for comparative evaluations of multiple alternatives.

5. Provide feedback and continuity over time to continually monitor environmental conditions and corresponding responses resulting as part of the planning process.

6. Include in the programming and budgeting process a continually updated plan consisting of program actions staged over a multi-year period.

7. Provide opportunities for public involvement allowing for an exchange of ideas and information with planners and decision makers to influence the final outcome of the planning process.

Safety and Security Planning

Safety and security planning is another component in the transit planning arsenal used to protect the nation's critical infrastructures and key assets. Today society is determining how to balance the needs of national safety verses the individual rights of people: "We must exercise a rational approach to finding a balance between those that put security concern above all others and those that argue openness in our society must be a priority" (Hopper 2005). Threat analysis requires a true understanding of a facility's purpose, be it a transportation terminal or bus maintenance building, when determining what level of threat potential exists for a site in terms of safety and security

planning. Several questions should be addressed when developing a scenario for protecting assets whether human or physical:

1. What asset(s) is the organization trying to protect?

2. What kinds of actions would damage the asset(s)?

3. Is there a likelihood negative events could occur based on these factors?

4. What are the varying threat levels on adjacent properties?

Site safety and security planning for countermeasures, once thought unnecessary to the design of a project, has changed since 9/11. Transportation assets designed for cross-country flights were used as airborne bombs to destroy and or incapacitate fixed targets on the ground. The difficulty for planners since 9/11 is to imagine the worst possible catastrophe in order to ensure the highest levels of safety and security countermeasures, while also requiring the use of a passive countermeasure program which would avoid creating a fortress out of a building project. Cost determinations will have to be made in planning the level of one or more countermeasures the owner desires or can afford for the project. The use of setbacks, barriers, access control, creation of a layered perimeter, use of video/audio devices and/or human personnel will have to be considered as a part of the countermeasure of any project. When developing a safety and security threat level decision for defensible design, an additional factor to be considered is the level of risk management which will be associated with the facilities, and the human assets to be protected.

Crowe (1999) states that risk management is a function of five items:

1. Risk Avoidance;

2. Risk Reduction;

3. Risk Spreading:

4. Risk Transferring; and,

5. Risk Retention

Hopper and Droge suggest "clients may find that they must absorb a certain level of risk because of the high cost of security measures over time or because implementing the ideal security plan would hinder operations to an unacceptable degree (2005)."

Evaluations of transportation facilities should be conducted to determine the level of design needed to ensure a high measure of safety and security for a project. Should multiple sites exist within a project area, then each site should be designed at its appropriate threat level of safety and security. Planning and designing to these performance standards requires an understanding that one size does not fit all projects or facilities. The fundamental question here is "what do we want the site design elements to do as part of a proactive or passive safety and security program?" (Iams 2006).

<center>University Transit Systems</center>

The Transportation Research Board's Committee on the Role of Public Transportation in Emergency Evacuation reported "while recognizing that transit plays

a supporting role in emergency response, the committee believes it is the mutual responsibility of transit agencies, as well as emergency managers, to ensure that transit is included" (2008). The TRB Special Report 294 (2008) did not focus on university transit systems, but their findings are applicable to university transit professionals, recommending that they be actively engaged in disaster emergency preparedness within their community.

Edwards and Goodrich believed university transit systems can and should play an active role within the local framework of disaster planning. Their recommendation is straightforward for university transit disaster preparedness planning: "university emergency planners would be well advised to thoroughly think through the obvious applications of resources and personnel, and plan for their uses in advance" (Edwards 2009). The integration of campus transit systems into having emergency operating plans has the benefit of providing evacuation and recovery assistance during and after a disastrous incident.

Approximately seventy-seven (77) universities and colleges in the U.S. receive grant funding from the Federal Transit Administration and their respective state Departments of Transportation supporting research through university research centers, or for operating public transit systems. Through a memorandum of understanding with the U.S. Department of Homeland Security, the FTA is now fully capable of requesting the use of its grantees' assets (rolling stock), including university-owned transit buses, in the time of a national emergency (USDHS 2004). University transit services might be the

last to be called out in disasters when attempting to evacuate people. A key finding by the Federal Highway Administration (FHWA) is that "although state Departments of Transportation, large city public works and major transit operators are commonly engaged in emergency planning, notification, and response procedures, frequently, smaller city public works and transit agencies are not. Notification is a particular concern for transit agencies which are liable for passenger protection and must plan routes and diversions in advance" (Robinson, Dunning 2008).

The Transportation Security Administration (TSA) and FTA created the Security and Emergency Management Action Items for all transit agencies. The FTA recommends using the list of "Top 17" security actions created in conjunction with the TSA. Security action items in Table 2.1 are described as being "in a […] general priority order, each lays the foundation by outlining prerequisites a transit agency should employ to implement security priorities. The agency needs to have security plans and a management system (personnel and resources) in place in order to establish and advance security priorities" (USDOT FTA 2007). Considering the demographics of the nation's universities and colleges, the public transit systems operated on or for the campuses should adhere to national standards for protection against attacks with sound and sustainable security plans.

Table 2.1: TSA/FTA Security and Emergency Management Action Items for Transit Agencies
http://transit-safety.volpe.dot.gov/security/SecurityInitiatives/ActionItems/default.asp

Population & Types of Institutions

According to the U.S. Department of Education (USDE), there are 4,352 two- and four-year institutions of higher education in the U.S. with 18.25 million students enrolled for fall 2008; and, for fall 2005 the USDE reported that those universities and colleges had approximately 3.43 million employees (2006).

These post-secondary institutions of higher education can be defined as public or private; and, private institutions may be further differentiated by their for-profit or not-for-profit status. A distinction is made between 2- and 4-year institutions in Table 2.2.

IHE Types	Public	Private	
		For Profit	Not For Profit
4-year Institutions	653	1532	490
Research Institutions	165	105	--
2-year Institutions	1032	92	553

Table 2.2: Types of Institutions of Higher Education (IHE)

Disaster Emergency Management

Disaster emergency management is defined as the "ongoing process to prevent, mitigate, prepare for, respond to, and recover from an event that threatens life, property, operations or the environment" (Schmidt 2007). Emergency management plans should be an "all-hazards" document, having in their contents the concepts, policies, and procedures which shall apply, regardless of the nature or origin of an emergency or disaster, and should not be designed to address unique conditions resulting from a

particular hazard or event. The plan should provide a framework which requires emergency operations staff and other relevant departments and agency personnel to work together in developing and maintaining plans with a holistic approach for multiple types of events.

Rao and Eisenberg add to Schmidt's definition of disaster management with the inclusion of communication and technology. Rao (2007) defines disasters "as natural, technological, and human-initiated events that disrupt the normal functioning of the economy and society on a larger scale; information technology (IT) is broadly defined as including computing and communications technology; and disaster management is defined as encompassing mitigation, preparedness, response and recovery efforts undertaken to reduce the impact of disasters." This detailed definition of disasters and emergency management allows for organizations to take a holistic approach to the complete recovery process. Undertaking to understand the management of a disaster without considering 21st century technology has the potential to render the recovery process useless.

Not every household may have the most contemporary communication or information technology devices available to them. Regardless, no substantive reason should be used which precludes emergency management agencies from including communication and information technology devices to aid in providing care, safety and recovery efforts to any community of people involved in a disaster event.

Despite the efforts of federal, state and local governments in the U.S. to mitigate the impact of disaster events, experts predict the post-Hurricane Katrina effort for improving communication and information technology is still woefully inadequate in disaster management. In the next major disaster event, the same "lack of coherent, rapidly deployable, interoperable communications networks for the first responders and the communities they serve" in disaster emergency management (Miller 2009). Miskel contends the issue with communication and information technology between the various levels of government and responders in the emergency management of disasters (2006) is twofold, noting the lack of appropriate lateral communications between federal agencies and inappropriate vertical communications from first responders in communities may be further enhancing the negative impact of the disaster. He suggests the problem at the federal level is a lack of knowledge of how a disaster's relief system works and not a lack of intelligent information hardware. Whereas, for the local community, the problem is not a lack of wanting to communicate, it is a matter of having the appropriate communications hardware to do so.

Coppola's book *Introduction to International Disaster Management* looks at the core competencies of emergency disaster management in mitigation, preparedness, response and recovery as being intertwined and may all be found at multiple points during an event. Often times, the response to an event may occur ahead of the actual event, hurricanes being a prime example in a disaster preparedness continuum. Storms coming from the west coast of Africa are tracked by the U.S. National Oceanic and

Atmospheric Administration's National Weather Service (NWS) and categorized from being an easterly wave (tropical disturbance) traveling from the east to west to a full hurricane. During the birth of a hurricane, predictions are created through multiple models, suggesting what the route of a hurricane may be and where, if at all, the hurricane might make landfall. It is in this time period in a hurricane's development that a response may be crafted by local, state or national authorities to mitigate the potential effects.

Disaster management and preparedness planning stages consist of a time variables and these time variables denote the difference in the two: "preparedness is loosely considered to encompass short-term tasks to prepare for imminent disaster; whereas planning tasks tend to be longer term" (Greene 2002). Disaster emergency management is found to be typical of other planning continuums having some events which need immediate attention and other events which will best be supported to recovery by having effective long range plans developed, regularly reviewed and revised. Definitions of disasters have their limits; some types, such as terrorist acts, earthquakes or tornadoes, often redefine the word "imminent" to be more in line with the phrase "already happened". Applegate's research supports the idea of the importance the communication component of disaster emergency management must contribute in a disaster event. He stated that "to provide hazard and disaster information where and when it's needed […] requires robust monitoring systems with the capability to reach

those in harm's way and provide emergency responders with the information they need" (Miller 2009).

Universities have been impacted in different ways during disaster events, as a refuge for those displaced by the events and sometimes the victim(s) may be the students, faculty or staff. Virginia Tech University (VA Tech) became an extreme example of how ill prepared campuses may be to cope with human-made or natural disasters. On April 16, 2007, VA Tech student Sueng Hui Cho shot and killed 32 students and faculty on the Blacksburg, VA, campus. Cho's mental health history was known to certain administrative units of the university with regard to his belligerent and potentially unstable behavior. The tragedy of these university administrative units was their failure to communicate with one another about Cho (VA Tech Review Panel 2007). Some of the units were the Office of Judicial Affairs, Cook Counseling Center, VA Tech Police and the Dean of Student's office. Key negative elements about the shooting were uncovered by a panel established through the office of the Governor of Virginia to review events which led up to the massacre. The panel identified what occurred during the shootings and how social services and critical incident stress management services were provided in the aftermath. The panel was made up of citizens of the state who would objectively review the events and make recommendations based on the facts as opposed to making recommendations based on the emotions of the shootings.

Errors cited in the report included a lack of communication and planning which resulted in making the situation more difficult than it might have been. The university's

Emergency Policy Group did not report the first shootings to the campus for approximately two hours after they had occurred. This failure was due in part to the VA Tech Police sharing with the VA Tech Policy Group, a crisis management team with the authority to send out emergency messages to the campus community, their belief that the shooter was no longer on campus.

Another issue brought to the forefront was that Virginia's laws on mental health issues were just vague enough that Cho's mental instability and behavior was not considered to be at a level necessary to be reported to the national database used to conduct background reviews on potential purchasers of guns. The lapse in communicating his treatment as an out-patient afforded Cho the opportunity to purchase the weapons used in the shooting. Virginia law at the time only required the reporting of individuals who had been committed to in-patient care but not out-patient services. Cho received his mental health care as an out-patient.

The outcome of the Panel's work was a list of 70 recommendations to improve emergency preparedness on university and college campuses in Virginia and elsewhere in the U.S. The recommendations fell short on how to handle evacuations and the role of the local transit providers (VA Tech Review Panel 2007).

The following recommendations were identified as those most closely related to the overall needs for emergency services responders and university decision makers.

1. VA Tech should update and enhance its Emergency Response Plan and bring it into compliance with federal and state guidelines.

2. Plans for canceling classes or closing the campus should be included in the university's emergency operations plan.

3. Montgomery County, VA, should develop a countywide emergency medical services, fire, and law enforcement communications center to address the issues of interoperability and economies of scale.

4. Emergency personnel should use NIMS procedures for nomenclature, resource typing and utilization, communications, interoperability, and unified command.

5. A unified command post should be established and operated based on the NIMS Incident Command System model.

6. An emergency operations center must be activated early during a mass casualty incident.

7. Regional disaster drills should be held on an annual basis.

8. In order to advance public safety and meet public needs, Virginia's colleges and universities need to work together as a coordinated system of state-supported institutions.

9. Universities and colleges should create a victim assistance capability, either in-house or through linkages to county-based professional victim assistance providers for victims of all crime categories. A victim assistance office or designated campus victim advocate would ensure victims of crime are made aware of their rights as victims and have access to services.

The evacuation of faculty, staff and students when disaster events occur on university campuses using local or university-owned transit assets should also have been included in the discussions. Disaster preparedness should address the "basic day-to-day mobility needs of everyone including older Americans, persons with disabilities, and low-income populations who rely on mass transit to stay active in our communities" (TRB 2009).

A key finding in the VA Tech Review Panel report, Chapter IX, supports the need for communications to be integrated between emergency management agencies as required in intelligent transportation systems. The EMS response in the report pointed out that "because the Blacksburg, VA, Volunteer Rescue Squad and Virginia Tech Rescue Squad are on separate primary radio frequencies, Blacksburg Volunteer Rescue Squad reportedly did not know where to stage their units. In addition, Blacksburg Volunteer Rescue Squad units were reportedly unaware of when the police cleared the building (Norris Hall, site of the second shootings) for entry." The recommendations of the same report address the communications issue. For example, for EMS Response, "IX-1 Montgomery County, VA should develop a countywide emergency medical services, fire, and law enforcement communications center to address the issues of interoperability and economies of scale."

The success or failure of university/community transit system disaster preparedness will rely in part on the successful interaction, training and clear definition of who the first responders are for the community and/or university. First responders were

traditionally thought of as local fire, police, and emergency medical personnel who respond to events such as fires, floods, traffic or rail accidents and hazardous materials spills. However, due to increased concerns about bioterrorism and other potential terrorist attacks, the definition of first responders has been broadened. Presidential Directive 8 (DHS) defined the term 'first responder' as "individuals who in the early stages of an incident are responsible for the protection and preservation of life, property, evidence and the environment, including emergency response providers as defined in section 2 of the Homeland Security Act of 2002 (6 U.S.C. 101), as well as emergency management, public health, clinical care, public works and other skilled support personnel (such as equipment operators) that provide immediate support services during prevention, response and recovery operations." This definition of emergency response providers includes "federal, state and local emergency public safety, law enforcement, emergency response, emergency medical (including hospital emergency facilities) and related personnel, agencies and authorities." Training by first-responder agencies needs to be extended to transit agencies responsible for providing transportation assets during disaster events, thus creating a dialogue of understanding of expectations for transportation systems and their employees.

<u>Institutional Issues for Disaster Preparedness of University Transit</u>

Institutional behavior often determines what is accomplished in a disaster and how needs will be meet during and after an event. The "Disaster Response and Recovery

Resource for Transit Agencies" (USDOT FTA 2006) provides a guide on how to deal with the varied issues brought on by a disaster. Concerns and issues at the institutional level might consist of one or more of the following:

1. information for transit providers in affected area,

2. information for transit providers serving displaced/relocated persons,

3. charter service requirements,

4. funding eligibility and reimbursement,

5. how to help emergency evacuees,

6. emergency transportation for persons with special needs, and

7. assisting the special needs populations.

The USDHS developed two plans to further assist all agencies: the National Response Plan and the National Incident Management System (2004). The National Incident Management System provides a nationwide template enabling government and nongovernmental responders to respond to all domestic incidents using a coordinated and modular approach based on the Incident Command System which was developed in the 1970s and widely used by fire departments to enhance the command and control of major incidents.

Beginning FY 2007 (October 1, 2006), federal preparedness funding may only be acquired by an agency being in full compliance of having disaster preparedness plans modeled after and using the National Incident Management System (NIMS). To comply with standards, one requirement is that all federal, state, tribal, private sector and non-

governmental personnel with a direct role in emergency management and response be trained under the National Incident Management System and Incident Command System (ICS). Table 2.3 defines what the National Incident Management System (NIMS) achieves for emergency management agencies and also what it is not designed to be.

What NIMS Is:	What NIMS Is NOT:
A comprehensive, nationwide, systematic approach to incident management, including the Incident Command System, Multiagency Coordination Systems, and Public Information	A response plan
	Only used during large-scale incidents
A set of preparedness concepts and principles for all hazards	A communications plan
	Only applicable to certain emergency management/incident response personnel
Essential principles for a common operating picture and interoperability of communications and information management	Only the Incident Command System or an organization chart
Standardized resource management procedures that enable coordination among different jurisdictions or organizations	A static system
Scalable, so it may be used for all incidents (from day-to-day to large-scale)	
A dynamic system that promotes ongoing management and maintenance	

Table 2.3: National Incident Management System Overview
National Incident Management System; U.S. Department Of Homeland Security (December 2008)

The National Response Plan establishes a comprehensive national all-hazards approach to domestic incident management across a spectrum of activities. Alternately, the National Response Plan provides the overall framework on how federal departments and agencies would work together and how the federal government would coordinate with state, local, and tribal governments, as well as the private sector, during incidents.

The U.S. Department of Transportation and its modal agencies, including the FTA, must provide support under the National Response Plan whenever major incidents occur (USDHS).

USDHS and FTA agreed through a memorandum of understanding the necessary roles each department must play in bringing about stability in a crisis situation. This memorandum:

1. Recognized USDHS's role as lead agency on public transportation security matters.

2. Requires that USDHS fund certain FTA programs during the immediate period of increased risk, including training courses and access to the Public Transportation Information Sharing and Analysis Center, a grant program for conducting emergency drill exercises and stakeholder sessions.

3. Lists USDHS as the agency responsible for vulnerability and criticality assessment programs.

4. Establishes procedures during emergency situations, including information and intelligence sharing.

5. Establishes specific procedures on coordination of regulations, legislation, budget requests, public statements, research activities, and TSA directives.

6. Establishes a mechanism for temporarily detailing employees between the TSA and the FTA.

Higher Education Institutional Involvement In Disasters

Before, during, and after a disaster occurs, many different federal, state, regional, and local agencies might play a role in the response to events. For example, the following federal agencies played a significant role at different points in response to Hurricane Katrina:

1. Federal Aviation Administration (FAA)

2. Federal Highway Administration (FHWA)

3. ITS Joint Program Office, Research and Innovative Technology Administration (RITA)

4. Federal Transit Administration (FTA)

5. Federal Railroad Administration (FRA)

6. Federal Motor Carrier Safety Administration (FMCSA)

7. U.S. Maritime Administration (MARAD)

At the state level, assistance was delivered through universities. For example, Louisiana State University (LSU) provided facilities to house evacuees and students displaced by the hurricane. LSU also converted its Carl Maddox Fieldhouse (Figure 2.5), and the Pete Maravich Assembly Center into an 800-bed medical facility which "was the largest acute care field hospital in U.S. history and was the largest acute care hospital in Louisiana," observed Chris Trevino, M.D., medical director of the temporary hospital and triage facility during that time.

Figure 2.5: Carl Maddox Fieldhouse converted into triage/surgery center
Ernie Ballard, ©LSU Public Affairs Highlights Team, Fall 2005

National Guard and state highway patrol units, along with many police, fire, and medical personnel who were engaged in events before, during and after Hurricane Katrina were directed to LSU as support personnel.

Many universities along the Gulf Coast found themselves in the path of Hurricane Katrina; Tulane University was one of several universities directly impacted by Hurricane Katrina on August 29, 2005. This particular weekend was Tulane's new student orientation, a time-honored tradition of welcoming new students and their parents into the university family. But for the administration, it was decision time: close the university, or stay open and risk whether or not Katrina would actually come ashore. Tulane President Scott Cowen made the hard decision, and the right one, when he closed Tulane University on Saturday, August 27, at 5 p.m., in the middle of orientation weekend (Brinkley 2007).

Tulane was not prepared for the level of disaster which was about to occur and the aftermath Hurricane Katrina would bring to Tulane University and institutions like theirs. After Hurricane Katrina, Tulane incorporated in its renewal plan's contents the courage, strength and resolve the administration, faculty, staff, students, and the New Orleans community had to summon from within themselves to rebuild from such a disastrous event. The property damage estimates, at Tulane alone, were approximately $600 million (U.S. DOE 2009), which did not account for the loss of faculty, and staff who were laid off, or students who did not return. At the time Hurricane Katrina hit, they could not imagine the level of devastation the hurricane would leave behind all along the Gulf Coast. In its *Action Guide for Emergency Management at Institutions of Higher Education* (2009) the U.S. Department of Education published the following statement about Tulane University (emphasis added):

> "The devastation of Katrina forced the university to undertake a major
> reorganization, which resulted in the layoff of hundreds of faculty and
> staff members, elimination of several undergraduate majors, removal of
> men's and women's sports programs, and significant changes to its
> school of medicine and other graduate programs. The university swiftly
> developed a renewal plan, approved by the Board of Tulane on Dec. 8,
> 2005. **For Tulane University, the challenges of emergency management**
> **became a way of life and a constant struggle.**" However, from their
> experiences in this tragedy, they "gathered once again and are now called

to be the architects of and witnesses to the renewal of a great American university and a great American city." (Additional information on the Tulane renewal plan is located at the following web site: http://renewal.tulane.edu/renewalplan.pdf.)

The USDOT has acknowledged the importance of institutional issues for transportation preparedness. Additionally, transit systems can provide a significant role in major incidents with their ability to move large masses of people, goods, and supplies into and out of staging areas.

Between May 2002 and June 2005, the FHWA and Booz Allen Hamilton conducted workshops on Transportation Operations Preparedness and Response in 30 regions across the United States (USDOT FHA 2007). The objectives of the workshops were to:

1. Increase participant awareness of the critical processes, issues and activities that may arise during and following an emergency, and of the possible approaches for addressing them.

2. Enhance working relationships among personnel from multiple organizations responsible for emergency preparedness and response in each of the 30 regions.

3. Identify areas for improvement for transportation emergency response planning and readiness in each of the 30 regions. Determine next steps to address these areas.

4. Provide input to transportation emergency preparedness guidance material being prepared at the national level.

Having appropriate individuals with appropriate authority to make and implement decisions during a disaster drill or event is one of several best practices.

<u>The Role of Transportation Operations in Evacuations</u>

Universities and colleges invariably have access to resources useful in the mitigation of the impact of a disaster. Lahad and Nesher recognized that "communities do have resources available to be used in disaster emergency situations. These resources or assets should be identified in advance as part of the preplanning of an emergency management program" (Gow 2007). They further emphasize the imperative for local authorities to establish programs which also facilitate the needs of the population impacted and to do so with existing resources including available transit systems.

In recent years, disaster events have demonstrated that the very public and easily accessible nature of transportation systems makes them particularly vulnerable to threats, but aside from being targets, transportation systems are also solutions. They provide a means of evacuating people out of harm's way and may be used as modes to deliver recovery supplies and services into and out of a disaster site.

Often times, the location of an event can create as much difficulty to the inhabitancy of an area as the disaster event itself (Miskel 2006). New Orleans is situated geographically in a region of the U.S. where many weather events have come and gone, yet the city that is often buffeted by storms was unable to protect itself when hit by Hurricane Katrina in 2005. New Orleans "sits below sea level, surrounded by water,

with a poor infrastructure" (Miskel 2006) and had an added component of a high level of poverty. Transportation use in evacuations is best explained when the need is explained in understandable terms: "the high levels of poverty among [New Orleans] city residents necessarily meant that large numbers of people would likely be unable to take emergency precautions or evacuate without public transportation" (Miskel 2006).

Defining and understanding the service a university or public transit provider may offer before, during and after a local or regional incident or disaster allows for enhanced recovery in the impacted area. The three key components to providing transportation services during an incident/disaster are: user needs, service description, and operational concept. In particular, addressing user needs must specifically consider evacuation requirements of sensitive populations such as elderly, disabled, and impoverished persons who make up much of the "carless" population (Bergal 2007).

Literature suggests the greatest need to be addressed in the role of transportation operations during evacuation is the human component. Miller states critics found the overall approach for evacuation during Hurricane Katrina "should have included a better strategy for moving poor people" (2009). Multiple disaster reports have shown many people failed to evacuate simply because they did not have transportation resources.

Contemporary technologies within intelligent transportation systems (ITS) are capable of playing a significant role in enhancing the efficiency for transportation assets to respond and aid in recovering from threats and disasters (USDOT 2003). The

increasing challenges of evacuating growing populations make active collaboration with public safety agencies a critical component to facilitating disaster preparedness plans, and the enhanced communications of ITS facilitate multi-agency interactions.

Coppola (2007) argues transportation is the one technology which interconnects the world and the community of nations absolutely depends upon it for its "travel, commerce and industry." He gives a starkly realist explanation of what happens when we fail to use all the capabilities of the world's multi-faceted (air-, sea- or land-based) transportation: "a flaw or breakdown in any one of these components can and often does result in a major disaster or loss of life, injuries, property and environmental damage, and economic consequences." Furthermore, the components to the world's transportation infrastructure "involve a complex and expensive infrastructure, humans or machines to conduct that infrastructure, and laws and policies by which the whole system is guided." On July 23, 2004, FEMA issued press release #R-6-04-093 discussing the successful drill in 50 Louisiana parishes of fictitious Hurricane Pam, a category four hurricane. The first sentences proved to be an ominous fore-telling of the August 2005 events to occur a little more than a year later in Louisiana:

> "Hurricane Pam brought sustained winds of 120 mph, up to 20 inches of
> rain in parts of southeast Louisiana and storm surge that topped levees in
> the New Orleans area. More than one million residents evacuated and
> Hurricane Pam destroyed 500,000-600,000 buildings. Emergency officials
> from 50 parishes, state, federal and volunteer organizations faced this

scenario during a five-day exercise held this week at the State Emergency

Operations Center in Baton Rouge."

Patrick Roberts uncovered what was left out of the press release; FEMA stopped the

drill early after having spent $850,000, stating the funding for the drill had been cut

(Miller 2009). Roberts also found that the portion cut was directly related to key

decisions which would later prove to be major errors for the City of New Orleans and its

residents in the August 2005 disaster. In the press release, FEMA listed action plan areas

the agency felt good about, and one of the comments in the search and rescue plan reads

"the search and rescue group developed a transportation plan for getting stranded

residents out of harm's way." In this review, the literature has shown that the

transportation plan failed.

FTA's November 2006 publication "Transit Agency Security and Emergency

Management Protective Measures" issued guidelines on the definition of the category

and scope of protective measures which aid in the planning and interaction between

federal, state, and local entities as shown in Table 2.4. The measures provide for

participation of transit system managers to develop working relationships with

emergency management agencies. There is an established and clear understanding

information passed in these relationships is categorized as "sensitive secure

information." Information classified in this manner is to be controlled and protected

from inappropriate disclosure outside of the transit system (FTA/USDHS 2009).

Category	Scope
Information and Intelligence	Information and intelligence gathering including threat and vulnerability information collection and analysis, sharing information with and getting information from local, regional, and federal sources such as the Department of Homeland Security (DHS) and the Federal Bureau of Investigation (FBI)
Security and Emergency Management	All aspects of creating, updating, and executing the security and emergency management plans and procedures for the transit agency
Regional Coordination	Participation of the transit agency in the region, including regional emergency response plans, relationships with other security-related organizations in the region and first responders, and regional drills and exercises
Information Technology and Communications Systems	All aspects of creating, updating, and executing the information system plans and monitoring and operating the communications equipment for the transit agency
Employee and Public Communications	All aspects of creating, updating, and executing the employee and public information communications plans for the transit agency
Contingency and Continuity Plans	All aspects of creating, updating, and executing the transit agency's contingency and continuity of operations plans for emergency incidents and events within the transit system and in the region

Table 2.4: Categories of Protective Measures, Transit Agency Security and Emergency Management Protective Measures, Federal Transit Administration (FTA)

<u>Synthesis of Literature</u>

Federal disaster declarations are increasing in frequency, and populations are growing and increasingly vulnerable. In particular, university campuses have large concentrated populations whom disaster planning must address. However, the role of university transit systems in disaster planning and preparedness remains unclear.

The research questions "How are universities and communities planning for using or protecting transit in disaster events?" and "How should they?" are not addressed in contemporary literature. The Transportation Research Board's Committee on the Role of Public Transportation in Emergency Evacuation (TRB 2008) found in its research that a "majority of the emergency operations plans for large urbanized areas are only partially sufficient in describing how a major evacuation could be conducted successfully in specific and measurable terms, and few focus on the role of transit" (2008).

There were no examples within the literature of university transit systems being utilized as part of a developed emergency preparedness plan. The literature shows that in the United States ridership in public transit has reached approximately 10.24 billion annual passenger trips covering an estimated 53 billion passenger miles; this data alone should be sufficient reason to ensure a standardized "transportation emergency preparedness training" system exists within the United States.

Considering this high number of passenger trips, along with Scott's suggestion there is sufficient evidence terrorists and criminals "frequently target mass transit systems," indicates that transit systems are very vulnerable to terrorist and human-made disasters (Scott 2009). Requiring annual emergency drills for transportation systems has grown in importance as public and private transport assets are a key part of the nation's critical infrastructure and key resources. The literature suggests that the transit industry's lack of involvement with emergency management agencies and lack of experience within the

transportation community has meant some of the nation's most knowledgeable and useful sources of information for acquisition of transportation resources under emergency conditions have gone underutilized (Wolshon 2009). Edwards and Goodrich state that "campus emergency plans must integrate transportation into the Operations Section to ensure the coherence essential for good emergency management is in place whenever disaster strikes" (Edwards and Goodrich 2009).

A key consideration for contemporary preparedness is institutional coordination of "safety, security and law enforcement agency responses to occur in an expeditious manner while permitting the transportation systems to handle the possibly overwhelming public response to the event" (USDOT FHA 2007). Roberts observed the difficulty with responding to disasters is that the events are tending to become more complex. In FEMA's Hurricane Pam exercise, the assumption was made that 100,000 people would fail to evacuate, thus becoming the most threatened by the storm; instead, Bergal found hundreds of thousands were displaced from New Orleans due to Katrina (2007). Glasser and Grumwald exposed the failure of a local government to fully utilize available transportation assets prior to a disaster, and Miskel notes that a direct correlation exists between a lack of emergency preparedness and evacuation and a person's socio-economic status in the community.

Development of a disaster preparedness plan or model should be one where ideas for preparation, planning and drills are clearly defined and easily understood by all of the participants. Integral to the success of university transit preparedness is having the

base knowledge of emergency disaster management. Schmidt similarly agreed defining emergency management as an "ongoing process to prevent, mitigate, prepare for, respond to, and recover from an event that threatens life, property, operations or the environment" (2007).

As this researcher noted earlier in the literature review universities and colleges have large and small populations associated with them, and these institutions have access to resources useable to mitigate the impact of a disaster. Lahad and Nesher recognized that "communities do have resources available to be used in disaster emergency situations; these resources or assets should be identified in advance as part of the preplanning of an emergency management program (Gow 2007)." Further emphasizing it is imperative for local authorities to establish programs which also facilitate the needs of the population impacted and to do so with existing resources, university transit systems should be included as part of the planning and preparation, prevention, protection against, response to, mitigation and recovery from disaster events."

Emergency management agencies should extend their training to include transportation agencies responsible for providing transit assets during disaster events. The goal should be the development of a dialogue to define expectations for the full utilization of transportation systems and their employees during a disaster event. The TRB's committee report *Role of Transit in Emergency Evacuation: Special Report 294* noted that regional MPO's may vary in their capacity and role in individual urbanized areas

yet "their regional perspective could be useful in the development of regional emergency evacuation plans (TRB 2008).

Contemporary literature has shown a deficiency in the utilization of the total capability of a university transit system to actively participate in a drill for, or an actual, disaster incident. In the long term, an assessment should be made as to how well emergency preparedness plans are followed and implemented in either drills or actual events. Additionally, if a mandatory emergency preparedness training model is created, with sustainable methods of training for university transit systems, it is possible that all aspects of the disaster response continuum would be enhanced. A key consideration for contemporary preparedness is institutional coordination of "safety, security and law enforcement agency responses to occur in an expeditious manner while permitting the transportation systems to handle the possibly overwhelming public response to the event" (USDOT FHA 2007).

<u>Key Findings and Considerations</u>

Derived from the literature review are the following key attributes that appear to be important considerations in determining the readiness of university/community transit systems to respond appropriately to disaster incidents.

1. Senior leadership in post-secondary institutions of higher education and management of university/community transit systems should be actively engaged in partnerships and collaboration with one another.

2. Emergency operations plans should be in full compliance with the National Incident Management System and have the necessary components to be an "all hazards" plan.

3. Emergency operating plans should address each of the four components of disaster preparedness; prevention-mitigation, preparedness, response and recovery.

4. Comprehensive planning should be used to develop training exercises ranging from table top exercises to actual drills and address the specific roles of the university or community transit services with regard to emergency preparedness.

5. Communicate the existence of the emergency operating plan and its contents to the public.

CHAPTER THREE

CLEMSON UNIVERSITY DRAFT EMERGENCY OPERATIONS PLAN

In accordance with the National Incident Management System (NIMS), National Response Framework (NRF) and FEMA's Comprehensive Preparedness Guide *"Developing and Maintaining State, Territorial, Tribal and Local Government Emergency Plans"* (CPG 101), a draft document was created by this researcher for Clemson University (CU) as the basis for an Emergency Operations Plan (EOP) for the institution. The document also incorporates information provided by the U.S. Department of Homeland Security, U.S. Federal Emergency Management Agency, U.S. Federal Transit Administration, South Carolina Emergency Management Division, Greenville County Office of Emergency Management, Oconee County Emergency Services, Pickens County Emergency Management, Clemson University Fire and EMS, Clemson University Police Department and the International Association of Campus Law Enforcement Administrators (IACLEA).

The EOP was developed over a period beginning April 2009 and ending in June 2010, and is designed to be used by multiple agency types in the public and/or private sector. This includes public transportation systems found within post-secondary institutions of higher education, community public transportation systems and private companies who provide transportation services to post-secondary institutions of higher education, and other local or county communities and governments. The outline of the

CU Draft Emergency Operations Plan is located at end of this chapter and the entire document in Appendix A.

What is the National Incident Management System?

The *National Incident Management System* (NIMS) provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment. NIMS works hand in hand with the *National Response Framework* (NRF); NIMS provides the template for the management of incidents, while the NRF provides the structure and mechanisms for national-level policy for incident management.

History and Purpose

On February 28, 2003, the President issued Homeland Security Presidential Directive 5 (HSPD–5), "Management of Domestic Incidents," which directed the Secretary of Homeland Security to develop and administer a *National Incident Management System* (NIMS). This system provides a consistent nationwide template to enable Federal, State, tribal, and local governments, nongovernmental organizations (NGOs), and the private sector to work together to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity. This

consistency provides the foundation for utilization of NIMS for all incidents, ranging from daily occurrences to incidents requiring a coordinated Federal response. NIMS is not an operational incident management or resource allocation plan. NIMS represents a core set of doctrines, concepts, principles, terminology, and organizational processes that enables effective, efficient, and collaborative incident management.

HSPD–5 also required the Secretary of Homeland Security to develop the *National Response Plan*, which has been superseded by the *National Response Framework* (NRF). The NRF is a guide to how the Nation conducts all-hazards response. The NRF identifies the key principles, as well as the roles and structures that organize national response. In addition, it describes special circumstances where the Federal Government exercises a larger role, including incidents where Federal interests are involved and catastrophic incidents where a State would require significant support.

HSPD–5 requires all Federal departments and agencies to adopt NIMS and to use it in their individual incident management programs and activities, as well as in support of all actions taken to assist State, tribal, and local governments. The directive requires Federal departments and agencies to make adoption of NIMS by State, tribal, and local organizations a condition for Federal preparedness assistance (through grants, contracts, and other activities). NIMS recognizes the role that NGOs and the private sector have in preparedness and activities to prevent, protect against, respond to, recover from, and mitigate the effects of incidents. Building on the foundation provided by existing emergency management and incident response systems used by jurisdictions,

organizations, and functional disciplines at all levels, NIMS integrates best practices into a comprehensive framework for use nationwide by emergency management/response personnel in an all-hazards context. These best practices lay the groundwork for the components of NIMS and provide the mechanisms for the further development and refinement of supporting national standards, guidelines, protocols, systems, and technologies. The NIMS fosters the development of specialized technologies that facilitate emergency management and incident response activities, and allows for the adoption of new approaches that will enable continuous refinement of the system over time.

The Secretary of Homeland Security, through the National Integration Center (NIC), Incident Management Systems Integration Division (formerly known as the NIMS Integration Center), publishes the standards, guidelines, and compliance protocols for determining whether a Federal, State, tribal, or local government has implemented NIMS. Additionally, the Secretary, through the NIC, manages publication and with other departments and agencies, collaboratively develops standards, guidelines, compliance procedures, and protocols for all aspects of NIMS.

The NIMS was developed through a collaborative intergovernmental partnership with significant input from the incident management functional disciplines, NGOs, and the private sector. Originally published on March 1, 2004, NIMS was revised in 2008 to reflect contributions from stakeholders and lessons learned during recent incidents. Following are the components found in a comprehensive and holistic emergency

operation plan (EOP) using the Emergency Support Function Plan Format as a guide for

creating the plan **(Appendix B).**

<u>Outline of Clemson University Draft Emergency Operations Plan</u>

I.   ADMINSTRATIVE

Letter of Promulgation

Authorities

Record of Changes

Preface

II.   GENERAL

100.00   Plan Fundamentals

100.10   Purpose of the Plan

100.11   Scope of the Plan

100.12   Plan Authority and Date of Effect

100.20   Introduction

100.21   Statement of Policy

100.22   Plan Applicability

100.23   Plan Implementation

100.24   Plan Procedures should be Flexible

100.25   Exceptions to Plan Functions and Responsibilities

100.26   Plan Changes and Recommendations

IX.   ADDITIONAL REQUIRED DOCUMENTS

List of Functional Annexes

Emergency Support Functions

Supporting Documents and Attachments

Hazard Specific Attachments

CHAPTER FOUR

METHODS

This chapter contains a detailed description of the sequential steps carried out in the research project. Each step, from conducting a literature search to deriving the conclusions and recommendations from the study findings, focused on achieving the objectives of this project which were:

1. Identify potential gaps in disaster preparedness within university and community transit systems

2. Review international and national disaster events with a critical eye on preparedness planning for transportation systems

3. Examine disaster preparedness requirements at the federal level to see what if any plans or recommendations were in place which transportation systems should be using

4. Determine, if possible, how disaster preparedness planning is used in university/ community transit system operations to support post-secondary institutions of higher education in advance of, during or after a natural or human made emergency/disaster event.

In addition, the researcher has included a section on ethics and a list of the assumptions made in conducting this study.

Research Hypothesis

A research hypothesis (Ott, Longnecker, 2001) was formulated based on the outcome of the literature research and preliminary results. This hypothesis is that university/community transit systems do have appropriately prepared emergency operating plans.

Literature Review

The researcher utilized the following general categories of resources in conducting the literature search:

1. Research Journal Articles

2. Professional Journal Articles

3. Published Books

4. Federal documents

5. State documents

In reviewing the various sources of information, the researcher sought to understand and determine the level of readiness of university and community transit systems to provide transit services to post-secondary institutions of higher education.

Initial Document Analysis

The next step was to conduct an analysis of specific documents associated with this research project to determine if university transit systems were in compliance with the National Incident Management System (NIMS) as prescribed by the U.S. Department of Homeland Security. The document analysis procedure used by this researcher consisted

of a comparison of the Emergency Operations Plan (EOP) documents from post-secondary institutions of higher education to NIMS.

The sample frame for the document analysis was the Federal Transit Administration's (FTA) *Active Grantees List of June 6, 2008*, which lists 1750 grantees. In this list seventy-six (76) post-secondary institutions of higher education were identified as FTA grant funds recipients. Of the Forty-six (46) institutions were identified as having received FTA funding for transit system operations. Each institution's transit agency received an e-mail from the researcher requesting a current copy of their Emergency Operation plan. Multiple requests were made by this researcher requesting copies of the emergency operations plan documents or an on-line location where they could be found, only ten institutions responded with their plans.

All ten plans received were found to be insufficient in format and/or data to make an accurate comparison to the attributes contained NIMS. For this reason, the determination was made by this researcher to not use the results of the document analysis, and instead develop an in-depth survey.

<u>Survey Instrument</u>

The initial survey questions were developed based on the results of the comprehensive literature search and more specifically on the information from the following documents:

1. NIMS Implementation Objectives (U.S. Dept. of Homeland Security, 2009) (Appendix C)

2. Comprehensive Planning Guide – 101 (Federal Emergency Management Agency, 2008)

3. Action Guide for Emergency Management at Institutions of Higher Education (U.S. Department of Education, 2009) and more specifically the following nine Key Principles in Emergency Management: (See Appendix D for the definitions of the respective principles.)

   (a) Effective emergency management begins with senior leadership on campus.

   (b) An IHE emergency management initiative requires partnerships and collaboration.

   (c) An IHE emergency management plan must adopt an "all-hazards" approach to account for the full range of hazards that threaten or may threaten the campus.

   (d) An IHE emergency management plan should use the four phases of emergency management to effectively prepare and respond to emergencies.

   (e) The IHE emergency management plan must be based on a comprehensive design, while also providing for staff, students, faculty, and visitors with special needs.

(f) Campuses should engage in a comprehensive planning process that addresses the particular circumstances and environment of their institution.

(g) An IHE should conduct trainings based on the institution's prevention and preparedness efforts, prioritized threats, and issues highlighted from assessments.

(h) Higher education institutions should conduct tabletop exercises prior to fully adopting and implementing the emergency management plan.

(i) After adoption of an emergency operations plan, disseminate information about the plan to students, staff, faculty, community partners, and families. (U.S. Dept. of Education (2009)

The questions were then separated into the following categories and types:

1. Institutional and organizational relationship (differential)

2. Information on Emergency Planning, Plans, and Training (planning)

3. Disaster Preparedness Plans and Funding (preparedness and relationships)

4. General Funding (funding)

5. General Information about the Institution, Area, and Transit Service (demographic)

6. Information on Emergency Operations, Communications, Response (operational)

A Purposive Sampling survey was chosen because the focus is on a specific topic impacting a specific group, post-secondary institutions of higher education. Leedy and Ormrod (2005) found that this type of survey "may be very helpful for certain research problems," specifically when the research is designed for a "particular purpose," as is the case in this dissertation. Once developed, the next step was to obtain approval and distribute the survey.

<u>Survey Document Approval</u>

Approval to administer the survey was requested through the Clemson University Office of Research Compliance (ORC) and the Institutional Review Board (IRB) while concurrently developing and researching the survey instrument. Ultimately, IRB made the determination that the survey project, entitled Disaster Preparedness for University/ Community Transit Systems, did not involve human subjects, as defined in the federal regulations governing the protection of human subjects in research [45 CFR 46.102(f)] and was therefore not subject to IRB review. Further, the IRB determined the project would not involve the collection of data "about" living individuals, or the use of "identifiable private information" about living individuals. The survey's design only had "fact-based" questions, meaning participants would not have an opportunity to express an opinion as a response for any question.

Additionally, the survey was pre-tested by seventeen (17) transportation professionals and ten (10) emergency management professionals during a pre-test

period, November 15-December 22, 2010. Their comments were used to enhance the survey instrument. (See Appendix E for a copy of the final survey.)

Population, Sample Frame and Sample

While approval was being obtained to distribute the survey, the population, sampling frame and sample were determined. The population is transit system operators who provide transit services to and emergency mangers employed by post-secondary institutions of higher education. The sample frame consists of three lists. The first list consisted of the National Transit Database's (2010) six hundred-eighty (680) reporting agencies; the second list, from the Federal Transit Administration (2009), consisted of ninety (90) post-secondary institutions of higher education who are recipients or beneficiaries of grants from the FTA, and institutions which operate their own transit system without FTA assistance or were financially supporting a local community transit system; and, the third list, the International Association of Emergency Managers (IAEM) University and College Caucus (2010), consisted of approximately seven-hundred (700) members. The sample for this research consisted of all the names on all three lists.

Survey Distribution

Once the sample was selected, the next step was to distribute the survey. The survey instrument was constructed using Zoomerang Online Surveys and Polls (www.zoomerang.com/). Working with the Clemson Computer Information and

Technology Services, a secure and confidential list-serv was created for use by the researcher to communicate with the sample, titled: *"TransitDisasterSurveyGRP_GLR-L"*. The list-serv was set so that only the researcher could send or receive messages; the list-serv has since been closed.

Three weeks prior to launching the survey, an e-mail (Appendix F) was sent to the sample advising them that the survey would be launched January 5, 2011, and closed February 7, 2011; weekly reminders were sent to the sample asking for their assistance in completing the survey.

Analyze Survey Responses

After the time period allowed for completion and transmission of survey closed, the next step was to code and analyze the responses. Questions 1 and 2 were analyzed to determine the number of respondents who answered yes to both questions 1 and 2.

The researcher coded all of the questions using the following methods: questions 8, 9, 12, 15, 20, 25, and 27 had yes/no possible answers and were coded 0 = no and 1 =yes; questions 5, 10, 11, 13-19, 21-25, and 28 were coded with a non-numerical value of "x"; questions 3, 4, 6 and 7 were quantitative and were not coded having numerical values for their answers. The information provided in this section refers only to general steps taken to analyze the results of the survey. Data analysis for each of the following sub-sections is located in Chapter 5.

The standard deviation, mean, median and quartiles were determined on questions 3, 4, 6 and 7, which were designed to provide information on size of specific data (i.e. number of faculty, staff and students; size of transit service area; number of transit vehicles; and hours of transit service operations).

1. The attributes of the questions were compared to identify common themes and associations across all twenty-eight (28) questions (i.e. funding sources, disaster training or preparedness, types of training, communications, degree, etc.)

2. Each participating institution's responses were scored in comparison to the U.S. Department of Education's "Nine Key Principles in Emergency Management" (Appendix D) to test the research hypothesis using questions 12, 15, 16, 17, 18, 19, 20, 21, 23, 24, 27and 28.

3. Using JMP a program from SAS an analysis was conducted on the following pairs of questions to determine if a relationship exists between the questions: 8 & 5, 8 & 9, 8 & 10, 10 & 5, 11 & 5, 11 & 8, 11 & 9, 12 & 8, 12 & 9, 15 & 8, 15 & 9 and 15 & 12.

Derived Conclusions and Recommendations

Following the results of the analysis of the findings, testing of the research hypothesis and pairwise analysis of questions, the researcher derived major conclusions and recommendations, which are located in Chapter 6.

<u>Ethics</u>

Research Project

Ethics is a major issue throughout social research interactions, including the study of issues when determining whether or not an appropriate use of transit system vehicles occurs during an active natural or human made disaster incident or drill. The research questions developed for this study were designed to improve upon the prevention and mitigation of, protection against, response to, and recovery from the effects of human-made or natural disaster events through the use of university or community transit assets. The inclusion of available transportation system assets may aid in a positive outcome from disaster incidents for impacted populations and communities where the incident has occurred.

The selected approach, using document analysis and a survey, required that certain tenets of ethical research be adhered to. First, being open about the intent of the research to determine if university and community transit systems have appropriately prepared emergency operating plans; ensuring participants know the research results may be published in whole or in part; ensuring participants understand their institutional identity was kept confidential and anonymous; and being honest and professional in all written or verbal conversations.

For this research, documents or lists gathered which are not necessary in supporting the research project shall not be kept or maintained by this researcher. Potential identifiable information about the sample will be secured and will not be shared. Data

in the final dissertation should be presented without breaking confidentiality regarding who provided information for the document analysis; and, who completed or did not complete the surveys.

The information presented will not be used identify any organization, as to whether or not they are compliant with NIMS, rather it will be used to suggest a level of compliance with NIMS for a particular subset (university and community transit systems) of providers within the transportation industry. Berg (2001) advises researchers should deliberately pursue actions to keep documents or notes secured to prevent them from becoming public.

The demographic information requested in the online survey was not used to identify or group similar institutions, and the actual identity of each institution remains confidential.

Transportation

Transportation is a key element in our nation's social and economic success. Research conducted about transportation and disaster preparedness should be accomplished within the highest ethical standards at all times, without exception.

Singleton and Straits (2005) wrote "ethics is the study of right behavior." The issues of right and wrong are very straightforward. The work accomplished through research must be accomplished truthfully, and use appropriate research methodologies in reporting the results of the analysis. Repercussions of not reporting analysis results truthfully have been well documented, causing researchers' loss of grants, employment

and personal reputation. It is imperative researchers follow three broad areas of ethical understanding: "ethics of data collection and analysis, ethics of the treatment of persons and the ethics of responsibility to society" (Singleton, Straits 2005).

Ethical research for exploring transportation organizations and their lack of compliance with the NIMS may expose a major flaw in a particular organizations the area of emergency and disaster preparedness, publishing the identity of such an organization is un-ethical. Additionally, information collected about the transit system's available assets if identified would not be useful if it were recorded inaccurately or misrepresented in any manner.

Assumptions

The assumptions associated with the research are:

1. The participants of the survey know that NIMS is a comprehensive, systematic, nationwide approach to incident management, including the Incident Command System, Multiagency Coordination Systems, and Public Information.

2. Transit operators and institutions of higher education and other post-secondary educational institutions know that the adoption of NIMS is a requirement to receive federal preparedness assistance, through grants, contracts, and other activities, beginning with federal fiscal year (FY) 2009, in accordance with Homeland Security Presidential Directive (HSPD)-5,

3. Transit system operators receiving FTA funding know they are to be in compliance with NIMS.

4. Transit systems providing services to post-secondary institutions of higher education **<u>would not be</u>** in compliance with NIMS.

5. Information provided by the respondents is accurate.

6. Low response rates are common and expected from the transit population, which is also true for both emergency management and criminal justice populations.

CHAPTER FIVE

RESULTS

This chapter begins with a presentation of summaries of the responses of the various survey questions along with some basic statistical data. The results of testing the research hypothesis are presented and the chapter ends with the presentation of the responses of a pairwise analysis of specific questions.

1,470 individuals were invited to participate in the on-line Zoomerang survey and based on Zoomerang's on-line tracking analysis, 317 of those invited viewed the survey. Out of the 317 viewers, 212 participated in the survey — an overall response rate of 14.42%, with 120 partial and 92 complete responses (see Appendix G for the complete results).

After a review of the 212 responses, duplicates and missing responses were eliminated, resulting in 179 usable survey observations for a net useable response rate of 12.17%. The observations used represent the organizations that operated a university or community transit system and also provided transit services to post-secondary institutions of higher education, as identified based on responses to questions one and two.

"N" is used to denote the number of respondents who actually answered each particular question. N may not be the same for each question, based on the total number of the responses for each item. The measures of central tendency and percentiles observed for quantitative variables are the mean, median, the first quartile (Q 1) and the

third quartile (Q 3), and the minimum (min) and maximum values (max). The measure of variation is the standard deviation (SD), and frequencies and relative frequencies are shown in the tables for the qualitative variables.

<u>Summary of Responses</u>

I. Institutional and organizational relationship

Question 1. Does the organization you work for operate a transit system?		
Yes	159	89%
No	20	11%
Total	179	100%

Table 5.1: Does the organization operate a transit system.

Respondents were separated into two categories (Table 5.1): those from a transit organization and those who were not. To determine this status, the survey asked specifically if the respondent's organization actually operated a transit system. Of the 179 respondents, 159 (89%) reported that their organization operated a transit system, and 20 (11%) reported that they do not operate a transit system.

Question 2. Does your transit system provide transit services to institutions of higher education or post-secondary institutions of education?		
Yes	134	75%
No	45	25%
Total	179	100%

Table 5.2: Role of the respondents' transit system for post-secondary institutions of higher education

Respondents were asked whether or not their transit system provided transit services to post-secondary institutions of higher education (Table 5.2). Of the 179

respondents, 134 (75%) reported that they do provide transit services to post-secondary

institutions of higher education.

2. Does your transit system provide transit services to institutions of higher education or post-secondary institutions of education?	1. Does the organization you work for operate a transit system?		
	Yes	No	Total
Yes	127	7	134
No	32	13	45
Total	159	20	179

Table 5.3: Results for questions 1 & 2 combined

Combining Questions 1 and 2 (Table 5.3) allowed for the definition of a specific

group of respondents within the overall group of 179 who answered "yes" to both

questions (127 respondents), identifying a respondent group which both operated a

transit system and provided transit services to post-secondary institutions of higher

education. This also included educational institutions which operated their own transit

services for their institutions and/or communities. Table 5.3 displays the four possible

combinations of answers, which further refined the usable survey observations within

the desired respondent group who answered yes for questions 1 and 2, and are

subsequently analyzed.

II. General Information about the Institution, Area, and Transit Service

Question 3: Total number of Faculty, Staff and Students								
	N	Mean	Median	SD	Min	Max	Q1	Q3
Faculty	33	1,492	1,008	1,563	1	5,012	252	2,073
Staff	39	3,443	2,374	4,818	20	21,719	362	3,865
Students	29	21,445	20,350	13,920	9	49,129	11,500	30,691

Table 5.4: Descriptive statistics for question 3 regarding education institutions demographics

Table 5.4 shows demographic data for the educational institutions which provide transit services themselves or through a third party vendor for the institution or receive transit services from a community transit provider. Educational institutions divide their populations into three major groups: faculty, staff and students. In this research, only the demographics of faculty, staff, and student populations were considered, although there are multiple sub-groups within the education environment: fans attending sporting events, patrons attending theater and art presentations, and daily visitors or contractors.

The mean number of faculty is 1,492 and the median is 1,008; the standard deviation is 1,563. The mean number of staff is 3,343 and the median is 2,374; the standard deviation is 4,818. The mean number of student is 21,445 and the median 20,350, with a standard deviation of 13,920.

Question 4: How large is the total transit service area in square miles?							
N	Mean	Median	SD	Min	Max	Q 1	Q 3
62	400	76	664	1	3623	31	518

Table 5.5: Descriptive statistics for question 4 regarding the size of the transit service areas

Table 5.5 shows descriptive statistics of the transit system service area in square miles. The smallest reported transit system service area was 1 square mile, while the largest service area reported was 3,623 square miles. The mean for the respondent's transit service area size was 400 square miles, and the respondent's transit service area

median was 76 square miles; the standard deviation for the respondent's transit service area was 664 miles.

Question 5. What is the size of the city in which the institution is located?		
Population less than 49,999	12	9%
Population of 50,000 — 199,000	36	28%
Population greater than 200,000 or more	26	20%
No Response	53	42%
TOTAL	127	100%

Table 5.6: Frequencies and relative frequencies for city population categories for question 5

The reported size of the city in which the transit systems was located is given in Table 5.6. Twelve (12) respondents reported operating in a city with a population of less than 49,000 (9%); thirty-six (36) reported operating in a city with a population of 50,000 to 199,000 (28%); and, twenty six (26) reported operating in a city of population greater than 200,000 (20%). Fifty-three (53) respondents did not give an answer to this question.

Question 6. Please provide the following information for your transit system operations showing the number of vehicles operated during peak service, in your fleet and total boardings for FY2010 (07-09 through 06-10):								
	N	Mean	Median	SD	Min	Max	Q 1	Q 3
Vehicles operated in peak service	69	146	18	464	2	2,974	9	44
Vehicles in fleet	69	15,494	32	126,119	5	1,055,488	17	80
FY 2010 Boardings	61	20,498,386	1,600,000	77,202,702	19,876	515,857,192	456,505	4,362,486

Table 5.7: Descriptive statistics for question 6 regarding vehicle counts and boardings

The number of vehicles necessary for each respondent's transit system to provide services during its maximum (peak) service is given in Table 5.7. Respondents also

provided observations for the total number of vehicles operating in their fleet and total number of boardings for the FY 2010 (July 2009 – June 2010).

The mean number of respondents' vehicles operated in peak service reported is 146 and the median is 18; the standard deviation is 464. The mean number of vehicles in the respondents' fleets is 15,494 vehicles, the median is 32 vehicles, and the standard deviation is 126,119 vehicles. When looking at boardings, the mean number of passengers reported is 20,498,386, the median is 1,600,000 passengers, with the standard deviation for boardings being 77,202,702 passengers. Using the FY boarding information ensured that the timeframe covered the peaks and valleys of ridership which normally occur during an academic calendar year for the fall, spring and/or summer semesters.

Question 7. What are the total hours of operations Sun-Sat (i.e.; M-10 hours, T-12 hours, W-12 hours, etc.)								
	N	Mean	Median	SD	Min	Max	Q 1	Q 3
Sunday	68	7.99	8.00	8.32	0	24	0.00	15.00
Monday	71	16.71	16.50	3.64	10	24	14.00	18.75
Tuesday	71	16.72	14.00	3.76	10	24	13.75	12.75
Wednesday	71	16.73	16.00	3.76	10	24	13.75	19.00
Thursday	71	16.99	16.75	3.8	10	24	14.00	16.75
Friday	71	16.92	16.75	4.22	8	24	12.75	20.00
Saturday	68	12.86	14.00	7.25	0	24	9.00	17.88

Table 5.8: Descriptive statistics for question 7 for the total hours of operations Sun-Sat

The mean number of hours a transit system would be operating from Sunday through Saturday is given in Table 5.8. Based on the mean and median, the lowest number of hours of transit service provided were on Sundays (7.99 and 8.00,

respectively), while Thursday (16.99 and 16.75, respectively) has the highest number of reported hours of service. Hours of operation vary with the size of the operation, geographic location, and the passenger counts recorded at specific intervals, as determined by each individual transit organization.

III. Questions on General Funding

Question 8. The Federal Transit Administration (FTA) provides funding to transportation organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. Does your transit system receive federal funding?		
Yes	59	46%
No	14	11%
No Response	54	43%
Total	127	100%

Table 5.9: Frequencies and relative frequencies for question 8 regarding FTA funding

The issues of whether or not transit systems received some level of federal funding for operations or capital for infrastructure, specifically from the FTA is given in Table 5.9. Fifty-nine (59) of the respondents reported their transit organization did receive funding from the FTA, while fourteen (14) reported that their transit agency did not. Fifty-four (54) respondents did not give an answer to this question.

Question 9. Does your transit system receive local, state or federal funds directly to assist in the operations of and/or for providing transit services to institutions of higher education or post-secondary institutions of education?		
Yes	22	17%
No	50	39%
No Response	55	43%
Total	127	100%

Table 5.10: Frequencies and relative frequencies for question 9 where local, state or federal funds are received directly to assist in the transit operations for transit services

The respondents were then asked if transit systems which receive local, state or federal funds to support such services for post-secondary institutions of higher education. The responses are given in Table 5.10. Twenty-two (22) of the respondents reported they did receive local, state or federal funding for transit at these types of institutions, while fifty (50) of the respondents reported they did not. Fifty-five (55) respondents did not give an answer to this question.

Question 10. If your transit agency receives federal funding, which of the following U.S. DOT and Federal Transit Administration definitions describes your service area's status for federal funding, chose the one that applies:		
Rural area with a population less than 50,000	4	3%
Urbanized areas 50,000 to 200,000 in population	33	26%
Urbanized areas 200,000 or more in population	24	19%
No Response	66	52%
Total	127	100%

Table 5.11: Frequencies and relative frequencies for question 10 regarding the FTA defined size of a transit systems service area

The respondents were asked if their organization received FTA funding and what their FTA service area definitions were, with responses shown in Table 5.11. Four (4) respondents reported they were defined as being in a rural area, thirty-three (33) respondents reported they were in urbanized areas under 200,000, and twenty-four (24) respondents reported they were in urbanized areas over 200,000. The majority of the respondents' transit systems for this research are located in urbanized areas with a population of 50,000 to 200,000. Sixty-six (66) respondents did not give an answer to this question.

Question 11. How much of your transit service budget is annually supported by an institution of higher education or post-secondary institutions of education?		
100%	10	8%
75% > 99%	0	0%
50% > 74%	2	1.6%
25% > 49%	3	2.4%
< 25%	18	14%
Not at all	36	28%
No Response	58	46%
Total	127	100%

Table 5.12: Frequencies and relative frequencies for annual support for transit systems by an institution of higher education or post-secondary institutions of education

Table 5.12 reports how much funding is provided from the institution of higher education or other post-secondary educational institution for transit services, based on a percentage of the transit system's overall budget. Thirty-six (36) respondents reported they did not receive any funding from their institution, eighteen (18) respondents reported receiving less than 25% of their funding from their institution, three (3) respondents reported receiving 25% to 49% of their funding from their institution, two (2) reported receiving 50% to 74% of their funding from these institutions, none reported receiving 75% to 99% of their funding from these institutions, and ten (10) respondents reported their transit system was funded 100% by an institution of higher education or other post-secondary educational institution. Fifty-eight (58) respondents did not give an answer to this question.

IV. Questions Regarding Disaster Preparedness Plans and Funding

Question 12. Is the transit system a specific component of an institution of higher education or post-secondary institution of education's disaster preparedness plan?		
Yes	15	12%
No	50	39%
No Response	62	49%
Total	127	100%

Table 5.13 Frequencies and relative frequencies for question 12 regarding the transit system being a component of the disaster preparedness plan.

Table 5.13 shows whether or not the respondent's transit systems are included as a component of post-secondary institutions of higher education disaster preparedness plan. Fifteen (15) of the respondents reported being a specific component of one of these types of post-secondary institutions of higher education disaster preparedness plans. Fifty (50) reported their transit organization was not included in the disaster preparedness plans for their institution. Sixty-two (62) respondents did not give an answer to this question.

Question 13. What amount of institutional or external (student fees, public or private grants, other government sources, etc.) funding is incorporated in your transit budget for disaster preparedness training (common carrier safety, security or emergency preparedness)?		
> $1,000,000	2	2%
$750,000 to $999,999	0	0%
$500,000 to $749,999	2	2%
$250,000 to $499,999	0	0%
$100,000 to $249,999	5	4%
< $100,000	51	40%
No Response	67	53%
Total	127	100%

Table 5.14: Frequencies and relative frequencies for annual funding being incorporated in the transit budget for disaster preparedness training from institutional or external sources

Table 5.14 reports on the annual funding support incorporated in the transit organization's budget specifically designated for disaster preparedness training. Fifty-one (51) respondents reported less than $100,000 per year was set aside for disaster preparedness training in their budgets, such as common carrier safety, security or emergency preparedness; five (5) of the respondents reported setting aside $100,000 to $249,999; two (2) respondents reported setting aside $500,000 to $749,999; and two (2) respondents reported setting aside $1,000,000 or more. No respondents reported setting aside funding for disaster preparedness in the range of $250,000 to $499,999 or $750,000 to $999,999. Sixty-seven (67) respondents did not give an answer to this question.

Question 14. How much of the transit department's transportation budget funding is set aside for disaster preparedness training for safety, security or emergency preparedness of the transit employees?		
< 1%	45	35%
1% to 2.499%	17	13%
2.5% to 3.499%	2	1.6%
3.5% to 4.499%	0	0%
> 4.5%	1	0.8%
No Response	62	49%
Total	127	100%

Table 5.15: Frequencies and relative frequencies for annual budgeted funding which is incorporated in the transit budget for disaster preparedness training

Table 5.15 shows the percentage of an organization's budget set aside for disaster preparedness training for the safety, security or emergency preparedness of their transit employees. Forty-five (45) of the respondents reported less than 1% of their budget was set aside for disaster preparedness training for safety, security or emergency

preparedness of the transit employees. Seventeen (17) respondents reported 1% to 2.499% of their budget was set aside for disaster preparedness training for safety, security or emergency preparedness of the transit employees, and two (2) respondents reported that 2.5% to 3.499% of their budget was set aside for disaster preparedness training for safety, security or emergency preparedness of the transit employees. One (1) respondent reported more than 4.5% of their budget was set aside for disaster preparedness training for safety, security or emergency preparedness of the transit employees. No respondents reported setting aside a range of 3.5% to 4.499% in their budget for disaster preparedness training for safety, security or emergency preparedness of the transit employees. Sixty-two (62) respondents did not give an answer to this question.

V. Information on Emergency Planning, Plans, and Training

Question 15. Is the transit system's director/manager/other designee a member of the institution's emergency planning committee?		
Yes	40	31%
No	30	24%
If no, please explain why they are not	22	73%
No response	57	45%
Total	127	100%

Table 5.16: Frequencies and relative frequencies for question 15 regarding management being a member of the institution's emergency planning committee

Table 5.16 shows whether or not the transit systems management is member of the institution's emergency planning committee. Forty (40) of the respondents indicated that they or someone in their organization was part of the institution's emergency plan

committee, while thirty (30) responded that they did not have an individual on the institution's emergency planning committee. Fifty-seven (57) respondents did not give an answer to this question. Of the respondents who provided an explanation for why they were not a member of an institution's emergency planning committee, the majority were part of a county-wide program which included their institutions. Some reported they had not been invited to participate with the educational institutions; others stated they had separate planning organizations.

Question 16. How often does the transit system's director/manager/other designee participate in emergency/disaster preparedness exercises?		
Never	4	3.1%
Once a quarter	9	7.1%
Semi-annually	14	11%
Annually	15	12%
Other, please specify	28	22%
No Response	57	45%
Total	127	100%

Table 5.17: Frequencies and relative frequencies for question 16 regarding how often management participates in emergency/disaster preparedness exercises

The respondents were asked how often the transit system's director, manager or other designee within their organization participates in emergency or disaster preparedness drills; their responses are given in Table 5.17. Only four (4) respondents reported that their director, manager or a designee never participated in emergency or disaster preparedness drills. Nine (9) respondents reported their director, manager or a designee participated in emergency or disaster preparedness drills once per quarter; fourteen (14) respondents reported their director, manager or a designee participated in

emergency or disaster preparedness drills on a semi-annual basis; and fifteen (15) respondents reported their director, manager or a designee participated in annual emergency or disaster preparedness drills. Fifty-seven (57) respondents did not give an answer to this question. Twenty-eight (28) respondents selected "Other, please specify", but only fifteen (15) gave an example of what other training their organization's director, manager or designee were involved with, which was primarily training exercises as they were offered by other agencies, generally every 2 to 4 years.

Question 17. In which of the following categories does the transit system's director/manager/other designee receive training? (Mark all that apply) Transit Safety		
Rail Safety	16	24%
Bus Safety	54	81%
FTA Drug & Alcohol Program	46	69%
Emergency Management for Safety	40	60%
Fire / Life Safety	29	43%
Other, please specify	11	16%
No Response	60	47%

Table 5.18: Frequencies and relative frequencies for question16 regarding the types of "Transit Safety" training participated in by director/manager/other designee of the transit organization

Within the specific area of "Transit Safety" Table 5.18 shows the categories that the transit system's director, manager or designee's in which they receive training. Each respondent was able to check multiple answers for this question, as it is possible they would be trained in multiple aspects of "Transit Safety". Fifty-four (54) respondents reported their directors, managers or designees received training in Bus Safety; forty-six (46) respondents reported their directors, managers or designees received training in the FTA Drug and & Alcohol Safety program; forty (40) respondents reported their

directors, managers or designees received training in Emergency Management for Safety; twenty-nine (29) respondents reported their directors, managers or designees were trained in Fire and Life Safety; and sixteen (16) respondents reported their directors, managers or designees received training in Rail Safety. Eleven (11) respondents selected the "Other, please specify" option, stating they were involved in a variety of federally approved training programs through the TSA, OSHA and Homeland Security. Sixty (60) respondents did not give an answer to this question.

Question 18. In which of the following categories does the transit system's director/manager/other designee receive training? (Mark all that apply) Transit Security		
Security Initiatives: FTA overview of its security initiatives since September 11, 2001	37	56%
Transit Watch (raises awareness of transit employees, riders, and the general public.)	32	48%
Guidelines and Best Practices for Transit Systems	43	65%
Emergency Management for Security	42	64%
Weapons of Mass Destruction: Guidelines for responding to threats and attacks	26	39%
Other, please specify	12	18%
No Response	61	48%

Table 5.19: Frequencies and relative frequencies for question18 regarding the types of "Transit Security" training participated in by director/manager/other designee of the transit organization

Within the specific area of "Transit Security," Table 5.19 shows the categories which the transit system's director, manager or designee's received training in. Each respondent was able to check multiple answers for this question, as it is possible they would be trained in multiple aspects of Transit Security. Forty-three (43) respondents reported their director, manager or designee received training in the *"Guidelines and Best*

Practices for Transit Systems"; forty-two (42) respondents reported their director, manager or designee received training in Emergency Management for Security; thirty-seven (37) respondents reported their director, manager or designee received training in the *"Security Initiatives: FTA overview of its security initiatives since September 11, 2001"*; thirty-two (32) respondents reported their director, manager or designee receiving training in *"Transit Watch,"* which is designed to raise awareness of transit employees, riders, and the general public of their surroundings while utilizing transit system services; and twenty-six (26) respondents reported their director, manager or designee received training in *"Weapons Of Mass Destruction: Guidelines for Responding to Threats and Attacks."* Twelve (12) respondents selected the "Other, please specify" option, stating they were involved in a training programs through the TSA, Community Transportation Association of America, and the Terrorist Awareness Recognition and Reaction (TARR) for FEMA's Transit Security Grant Program (TSGP). Sixty-one (61) respondents did not give an answer to this question.

Question 19. In which of the following categories does the transit system's director/manager/other designee receive training? (Mark all that apply) Emergency Management		
National Transportation Recovery Strategy	8	13.6%
National Infrastructure Protection Plan (2009)	8	13.6%
National Response Framework (2008)	11	19%
National Incident Management System	48	81%
Hazardous Materials	30	51%
Other, please specify	8	13.6%
Warning Siren Protocols	14	24%
No Response	68	54%

Table 5.20: Frequencies and relative frequencies for question 19 regarding the types of "Emergency Management" training participated in by director/manager/other designee of the transit organization

Within the specific area of "Emergency Management," Table 5.20 shows the categories in which the transit system's director, manager or designee received training. Each respondent was able to check multiple answers for this question, as it is possible they would be trained in multiple aspects of "Emergency Management". Forty-eight (48) respondents reported their directors, managers or designees received training in the *"National Incident Management System";* thirty (30) respondents reported their directors, managers or designees received training in how to deal with *"Hazardous Materials"*; fourteen (14) respondents reported their directors, managers or designees received training in warning siren protocols; eleven (11) respondents reported their directors, managers or designees received training in the *"2008 National Response Framework";* eight (8) respondents reported their directors, managers or designees received training in the *"2009 National Infrastructure Protection Plan"*; and eight (8) respondents reported their directors, managers or designees received training in the *"National Transportation*

Recovery Strategy." Eight (8) respondents selected the "Other, please specify" option, reporting they received training in Emergency Support Function 1 – Transportation, regional catastrophic planning, and web-based emergency operations center training. Sixty-eight (68) respondents did not give an answer to this question.

Question 20. Do the transit system personnel participate with local and regional emergency management offices in disaster planning and training based on your transit organizations plan or the institutions of higher education or post-secondary institutions of education emergency plan?		
Yes	53	42%
No	11	9%
Do not know	5	3.9%
No Response	58	46%
Total	127	100%

Table 5.21: Frequencies and relative frequencies for question 20 regarding participation with local and regional emergency management offices in disaster planning and training

The respondents were asked if their transit system personnel were actively involved with local or regional emergency management in disaster planning and training as part of their transit organization or an institution of higher education or post-secondary institution of education emergency plans; their responses are given in Table 5.21. Fifty-three (53) respondents reported that yes, their organizations do participate with their local or regional emergency management offices in disaster preparedness planning as part of their organizational plans; eleven (11) respondents reported no, their organizations do not participate in planning with their local or regional emergency management offices; and five (5) respondents reported they did not know if their transit organizations participated in disaster and training activities with local or regional

emergency management. Fifty-eight (58) respondents did not give an answer to this question.

Question 21. Which of the following items can be found in your organization's transit system's disaster/emergency preparedness plan for the transit system? (Mark all that apply):		
Prevention	41	60%
Mitigation	34	50%
Preparedness	57	84%
Response	59	87%
Recovery	44	65%
None of the above	7	10.3%
Other, please specify	2	2.9%
No Response	59	46%

Table 5.22: Frequencies and relative frequencies for question 21 regarding the types of information in the transit organizations disaster/emergency preparedness plans

In Table 5.22, respondents report which components within the five areas of disaster and emergency preparedness planning are in their transit organizations disaster/ emergency plan. Each respondent was able to check multiple answers for this question, it is possible that their plans might have only a few of these areas covered in their plans. Fifty-nine (59) respondents reported *"Response"* is a component of their disaster and emergency preparedness plan; fifty-seven (57) respondents reported *"Preparedness"* is a component of their disaster and emergency preparedness plan; forty-four (44) respondents reported *"Recovery"* is a component of their disaster and emergency preparedness plan; forty-one (41) respondents reported *"Prevention"* is a component of their transit organization's disaster and emergency preparedness plan; and thirty-four (34) respondents reported *"Mitigation"* is a component of their transit organization's

disaster and emergency preparedness plan. Seven (7) respondents reported *"None of the above"* components were in their disaster and emergency preparedness plan. Two (2) respondents selected "Other, please specify," reporting that their planning includes maintenance of operations continuity using guidance from local FEMA officials. Fifty-nine (59) respondents did not give an answer to this question.

Question 22: To what level of conformity has your local institution developed a disaster preparedness plan in relation to the National Incident Management System (NIMS)? If your agency is not 100% compliant with the NIMS, please share in the "other" section below which components your agency is compliant.		
Conforms to 100% of the NIMS	40	61%
Conforms to 75% of the NIMS	6	9.1%
Conforms to 50% of the NIMS	3	4.5%
Conforms to 25% of the NIMS	2	3.0%
Does not conform to NIMS	5	7.6%
Other, please specify	15	23%
No Response	61	48%

Table 5.23: Frequencies and relative frequencies for question 22 regarding the level of conformity with the NIMS

Table 5.23 shows the level of conformity with the National Incident Management System (NIMS) based on a scale of non-conformity to 100% conformity with the organizations emergency operations plan. Forty (40) respondents reported their organization as 100% compliant; six (6) respondents reported their organization as 75% compliant; three (3) respondents reported their organization as 50% compliant; two (2) respondents reported their organization as 25% compliant; and five (5) respondents reported their organizations do not conform to the NIMS. Fifteen (15) respondents selected "Other, please specify." The major theme for this answer was that respondents

either did not know what the NIMS is or did not know their agency's level of conformity with the NIMS. Additionally, respondents noted they either were or had plans to be involved in training based on the NIMS recommendations. Sixty-one (61) respondents did not give an answer to this question.

VI. Information on Emergency Operations, Communications, Response

Question 23. If there were a hurricane, tornado, severe storm, flooding, etc., or a human created disaster in your region what would be your agency's response? Mark all that apply:		
Would not respond under any circumstances.	0	0%
If asked, would support emergency management efforts.	36	57%
Respond to university/college needs only.	9	14.3%
Coordinate with emergency management and first responders.	49	78%
Automatically respond to Emergency Operations Center.	33	52%
No Response	64	50.4%

Table 5.24: Frequencies and relative frequencies for question 23 regarding the transit agency's response to natural or human made disasters

Table 5.24 shows the action the respondents' transit agency would take in the event of a natural or human-made disaster. Each respondent was able to check multiple answers for this question; it is possible that their organization's plan would allow for a variety of the possible responses depending upon the situation. Forty-nine (49) respondents reported their agency would coordinate with emergency management and first responders; thirty-six (36) respondents reported their transit agency would support emergency management efforts if asked; thirty-three (33) respondents reported their agency would automatically respond to the Emergency Operations Center (EOC); and nine (9) respondents reported their agency would respond to university/college needs

only. None of the participants reported that their transit agency would not respond to a natural or human-made disaster under any condition in their region. Sixty-four (64) respondents did not give an answer to this question.

Question 24. Is your transit agency's communication system integrated to work with emergency management services in your region? If your answer is "yes" or "partially" please share with us in the "other" section below which components of the communication system your agency uses (cell phone, 2-way radio, portable satellite radios or vehicles, internet etc.)		
Yes	32	53%
No	13	22%
Partially	16	27%
Do Not Know	2	3%
Other, please specify	27	45%
No Response	67	53%

Table 5.25: Frequencies and relative frequencies for question 24 regarding the integration of the agency's communication system with emergency management

Respondents were asked if their transit agency's communication system was integrated with emergency management services in their region; their responses are given Table 5.25. Thirty-two (32) respondents reported their communications are integrated with their regional emergency management services, sixteen (16) respondents' communications system is partially integrated with their region's emergency management services; and thirteen (13) respondents reported their communications were not integrated with their region's emergency management services. Two (2) respondents reported they did not know if their transit systems communication systems were integrated with the regional emergency management services. Twenty-seven (27) respondents selected "Other, please specify" and reported their communications systems

are consistent with contemporary technologies such as the 800 MHz frequency radio systems used in communicating with local, county, state and federal emergency responders, WebEOC, interagency communications, and interoperable communication systems between local, county and state agencies. Several agencies reported using the internet and social media web sites as points of communication. Sixty-seven (67) respondents did not give an answer to this question.

Question 25. Does the university/college your transit system provides services to have an outdoor emergency and warning siren system? Mark those that apply.		
Warning Siren Only	6	10%
Warning Siren with audio messaging	7	12%
Emergency Phones	14	23%
Emergency phones with audio messaging	7	12%
No	15	25%
Other, please specify	25	42%
No response	67	53%

Table 5.26: Frequencies and relative frequencies for question 25 regarding the post-secondary institutions of higher education outdoor warning systems

The respondents were asked what types of outdoor emergency or warning siren system their post-secondary institutions of higher education have on their campuses, with responses reflected in Table 5.26. Each respondent was able to check multiple answers for this question; it is possible these institutions would have multiple types of early warning systems on their campuses. Fifteen (15) respondents reported the institutions their transit agency provides services to do not have any type of early warning systems. Fourteen (14) respondents reported the institutions have emergency phones; seven (7) respondents reported the institutions they provided transit services to

have warning sirens with audio messaging included; seven (7) respondents reported the institutions have emergency phones with audio messaging capabilities; and six (6) respondents reported the institutions they provided transit services to had warning sirens only. Of twenty-five (25) respondents who selected "Other, please specify," eighteen (18) did not know if the educational institution had any type of early warning systems; others reported the education institutions did have other kinds of early warning system capabilities. Sixty-seven (67) respondents did not give an answer to this question.

Question 26. When the outdoor emergency and warning siren system is activated, is your agency automatically notified by the university/college of the event on campus?		
Yes	14	11%
No	20	16%
Do not know	23	18%
No response	70	55%
Total	127	100%

Table 5.27: Frequencies and relative frequencies for question 24 regarding the agency being contacted when the outdoor sirens are activated

The respondents were asked whether or not the transit agency providing services to their institution of higher education or other post-secondary educational institution notifies the transit agency when their emergency and warning sirens area activated; their responses are tabulated in Table 5.27. Twenty-three (23) respondents did not know if they would be notified if the institution's emergency warning systems were activated; twenty (20) of the respondents reported "no," their agency is not notified when the institution's emergency warning systems are activated; and fourteen (14) of the

respondents reported "yes," their transit agency would be notified if the institution activated its emergency warning systems. Seventy (70) respondents did not give an answer to this question.

Question 27. Does your transit agency participate in emergency/disaster preparedness drills with the university/college institution(s) to which your agency provides transportation services?		
Yes	23	18%
No	39	31%
No Response	65	51%
Total	127	100%

Table 5.28: Frequencies and relative frequencies for question 27 regarding the transit agency participating in emergency/disaster preparedness drills with university/college institution(s)

Question 27 asked if the transit agency providing services to post-secondary institutions of higher education participate in the educational institution's emergency or disaster preparedness drills; answers are shown in Table 5.28. Thirty-nine (39) of the respondents reported they do not participate in emergency or disaster preparedness drills and twenty-three (23) respondents reported their agency does participate in the educational institution's emergency or disaster preparedness drills. Sixty-five (65) respondents did not give an answer to this question.

Question 28. Which of the following agencies does your transit agency coordinate with for emergency/disaster preparedness drills (Mark all that apply)?		
University Emergency Services (Police, Fire, etc.)	22	37%
Local Municipal Emergency Services	50	85%
County Emergency Services	44	75%
State Emergency Management Department/Division	30	51%
None of the above	28	47%
Other, please specify	4	6.8%
No Response	68	54%

Table 5.29: Frequencies and relative frequencies for question 28 regarding the agencies which the transit agency would coordinate with for emergency preparedness drills

Table 5.29 shows which emergency services organizations transit agencies participate with in emergency or disaster preparedness drills. Each respondent was able to check multiple answers for this question; it is possible the transit agencies would have multiple working or response relationships with various emergency management organizations. Fifty (50) respondents reported their transit agencies would participate in emergency or disaster preparedness drills with their Local Municipal Emergency Services; forty-four (44) transit agencies report their agencies would participate in emergency or disaster preparedness drills with their County Emergency Services; thirty (30) transit agencies report their agencies would participate in emergency or disaster preparedness drills their State Emergency Management Department/Division; twenty-eight (28) respondents reported they would not participate with any of the emergency management agencies listed; and twenty-two (22) respondents report their transit agencies would participate in emergency or disaster preparedness drills with University Emergency Services (Police, Fire, etc.). Four (4) respondents selected "Other, please

specify," stating they worked with their local light rail provider, airport emergency services, and the education institutions emergency preparedness in developing or for participating with in emergency drills. Sixty-eight (68) respondents did not give an answer to this question.

<u>Research Hypothesis Test Results</u>

The research hypothesis, that university/community transit systems do have appropriately prepared emergency operating plans was evaluated according to whether or not a respondent met the Nine Key Principles recommended by the U.S. Department of Education (Appendix D) and to what extent the principles were satisfied. For this purpose, the questions 12, 15, 16, 17, 18, 19, 20, 21, 23, 24, 26, 27and 28 from the survey were evaluated for testing the research hypothesis and were selected by the researcher in conjunction with his dissertation committee based on the definitions of the nine key principles and the expertise of the selectors.

For example, the first principle relates to senior administration initiating, devoting resources, implementing and, subsequently putting into action the emergency management plan. The survey questions that most relate to this principle are (12) whether the transit system is a specific component of the disaster preparedness plan, (16) how frequently the transit system's director participates in emergency/disaster preparedness exercises, and (23) the extent of the agency's response to emergency events. Together, these three questions illustrate the decision making authority and

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involvement by the agency's senior administrators. Refer to Table 5.30 for a summary of which questions were assigned to each of the nine principles

	US Department of Education Key Principles	Questions related to Key Principles			
		GLR	LM	RL	Selected 2 or more times
1	Effective emergency management begins with senior leadership on campus.	12, 16,20	12,16, 23,16	15, 16,23	12, 16,23
2	An IHE emergency management initiative requires partnerships and collaboration	15,20, 24,27,28	20,24, 26,27	20,27	20, 24,27
3	An IHE emergency management plan must adopt an "all-hazards" approach to account for the full range of hazards that threaten or may threaten the campus.	19, 21,24	19	27,28	19
4	An IHE emergency management plan should use the four phases of emergency management to effectively prepare and respond to emergencies.	21	21	12,21	21
5	The IHE emergency management plan must be based on a comprehensive design, while also providing for staff, students, faculty, and visitors with special needs.	12, 16,21	12, 23,26	27	12
6	Campuses should engage in a comprehensive planning process that addresses the particular circumstances and environment of their institution.	12, 15,19	15	12	12,15
7	An IHE should conduct trainings based on the institution's prevention and preparedness efforts, prioritized threats, and issues highlighted from assessments.	17, 18,19	17,18	17,18, 19,20	17, 18,19
8	Higher education institutions should conduct tabletop exercises prior to fully adopting and implementing the emergency management plan.	15,16, 20,27,28	16, 27,28	16	16, 27,28
9	After adoption, disseminate information about the plan to students, staff, faculty, community partners, and families.	15, 23,27	27,28	24,26	15,27

Table 5.30: Question Assignment to Nine Key Principles

Each of the 127 respondents' answers was scored based on the answers provided for the above same questions. Questions 12, 15, 20, 24, and 27 allowed for a yes/no response as possible answers, which were coded 0 for no and 1 for yes. Questions 20 and 24 also had a possible answer of "Do not know," coded as a 0.25.

Additionally, question 24 had a possible answer of "partially" which was coded as a 0.5. Questions 16 and 23 gave the respondents an opportunity to choose one of five answers; these answers were coded 0 to 4. Questions 17, 18, 19, 21 and 28 answers were coded as 0 or 1; respondents could choose multiple answers for each question.

The question or questions assigned to a specific principle were scored by the researcher to calculate a "total points possible" for each of the Nine Key Principles and their corresponding questions (Appendix H). To "satisfy" a particular principle, respondents must have scored more than the average of possible points. For example, in the first principle the total number of points across the three questions assigned to this principle was nine (9), the mean is 4.5. If the principle was satisfied, the respondent was given a "1"; if not, the respondent was given a "0".

The maximum number of total points possible from all nine principles was 53, and the maximum number of principles which could be satisfied was nine (9). Respondents were assigned to one of three groups based on quartiles calculated on a total of 53 points describing their degree of compliance: (1) not in compliance, (2) somewhat in compliance, or (3) mostly in compliance.

The group classified as not in compliance (Group 1), contains all respondents accumulating 50% or less of the total possible points (0-26 points). Group 2, categorized as somewhat in compliance, contains those respondents accumulating 51% to 75% of the total points (27-40 points), while the third group (Group 3) contains respondents mostly in compliance with 76% to 100% of the total points (41-53).

To test the research hypothesis, all 127 respondents' answers were reviewed to determine which of the respondents had answered all twelve (12) of the questions used in the evaluation of the principles. There were twenty-eight respondents (28) who answered all twelve (12) questions. As shown in Table 5.31, the majority of the respondents scored in the somewhat to mostly in compliance range (71%); and the majority of the respondents scored in the somewhat and mostly in compliance range for the number of principles satisfied (64%).

Relationship	Total Points	Respondents (28)	Number of Principles Satisfied	Respondents (28)
Not in Compliance	0 - 26	8	0 - 3	10
Somewhat in compliance	27 - 40	16	4 - 6	13
Mostly in compliance	41 - 53	4	7 - 9	5

Table 5.31: Hypothesis Group (28) Results

Chi Square Goodness of Fit Test RHG (28)

Ho: the proportion of respondents is equally distributed in each of the three categories; not in compliance, somewhat in compliance and mostly in compliance.

Ha: At least one of the proportion of respondents is equally distributed in each of the three categories; not in compliance, somewhat in compliance and mostly in compliance is false.

Conclusion: The computed value of X2 is greater than 5.991, so we reject the null hypothesis and conclude that at least one of the cell probabilities differs from that specified in the null hypothesis. (p = .005)

Based on the scoring system developed for the testing of the research hypothesis, it is possible for a respondent to have a high number of total points across all nine (9) principles, but not have enough points to have many of the components satisfied by a respondent. This occurred because the number of questions assigned to each of the principles was not the same: each principle was assigned between one and three of the twelve (12) questions. Three (3) questions were assigned to principles 1, 2, 7 and 8; two (2) questions were assigned to principles 6 and 7; and one (1) question was assigned to principles 3, 4, and 5. In the sample of 28 respondents, three respondents scored a sufficient number of points placing them in a higher compliance category than that corresponding to the number of principles satisfied, while one respondent satisfied a higher number of principles than the corresponding points. Each point on the scatterplot (Figure 5.1) represents the score and number of components satisfied by a respondent. The mean total number of points possible was 29.91, and the median total number of points was 30.13. The mean number of principles satisfied was 4.39 and the

median was 4.0. (See Appendix I for the points, mean and median for the questions and principles.)
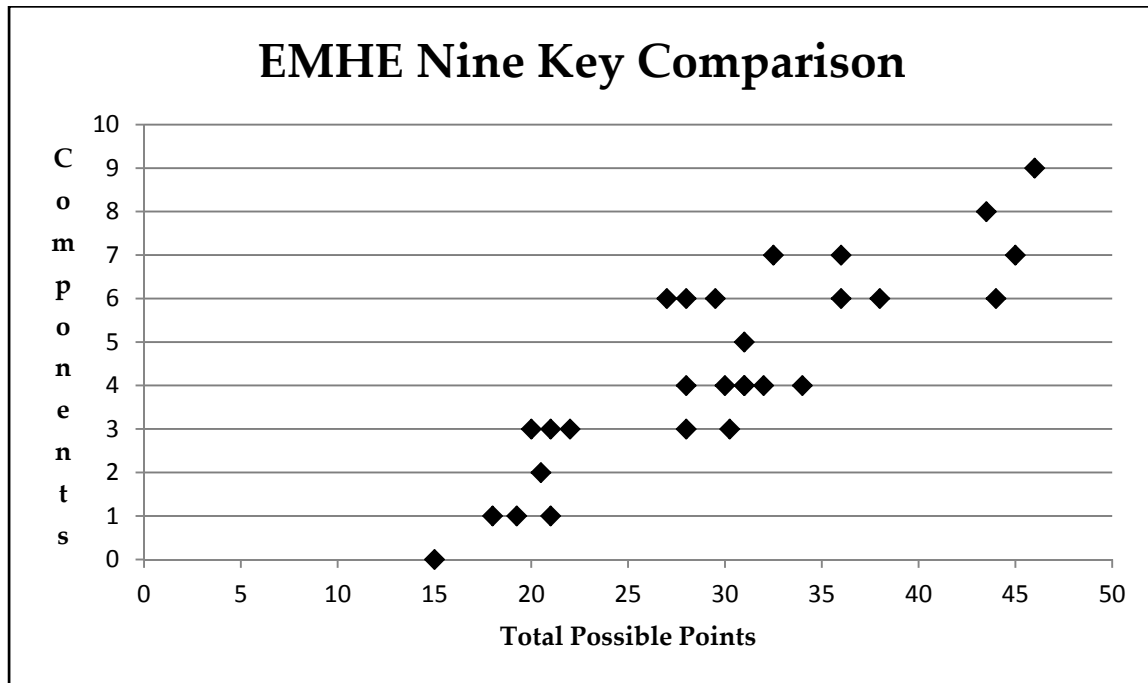
Figure 5.1: EMHE Nine Key Comparison for Hypothesis Group (28)

All of the questions used in the Nine Key Principles analysis were individually reviewed to determine if not having an answer to a particular question had an explainable reason for not being answered. If a missing value was explainable, then the researcher could code the blank response as a zero verses a non-response. For example, Question 19 was a question that frequently had missing observations and reads as follows: "*In which of the following categories does the transit system's director/manager/other designee receive training? (Mark all that apply)   Emergency Management Section: National Transportation Recovery Strategy; National Infrastructure Protection Plan (2009); National Response Framework (2008); National Incident Management System; Hazardous Materials; and,*

Warning Siren Protocols" This question was coded giving 1 point for each answer or a 0 or 1 for selecting "Other, please specify" depending on the choice. The question did not allow for "None of these" as a response. Ten (10) respondents answered the questions on either side of Q-19 (Q-18, Q-20), but may not have responded to question 19 because they do not do this, or it does not apply to their organization, and they did not answer because there was no clear option for their response. The circumstances for questions 17 and 18 were similar to question 19. As a result, eleven (11) additional respondents were added to the sample frame for a total of 39 respondents to use in testing the hypothesis.

In the larger sample of 39, the total points possible (53) and the number of principles which could be satisfied (9) are the same. The mean total possible points changed to 26.79 and the median is 28.0; the mean number of principles satisfied changed to 3.85 and the median is 3.0. Comparing the analysis with 39 respondents to the analysis with only 28 respondents, the mean was reduced by 3.12 and 0.54, and the median was reduced by 2.13 and 1.0, respectively. (See Appendix I for the points, mean and median for the questions and principles.)

As shown in Table 5.32, the somewhat compliant group increased by one respondent in both total points and in the number of principles satisfied. Eighteen (18) respondents' scores indicated they were non-compliant in total points and twenty (20) respondents who were not in compliance in the number of principles satisfied for the Hypothesis Group of 39. The scatterplot in Figure 5.2 illustrates the increased number of those respondents not in compliance.

Relationship	Total Point	Respondents (39)	Number of Principles Satisfied	Respondents (39)
Not in compliance	0 - 26	18	0 - 3	20
Somewhat in compliance	27 - 40	17	4 - 6	14
Mostly in compliance	41 - 53	4	7 - 9	5

Table 5.32: Hypothesis Group (39) Results

Chi Square Goodness of Fit Test RHG (39)

Ho: the proportion of respondents is equally distributed in each of the three categories; not in compliance, somewhat in compliance and mostly in compliance.

Ha: At least one of the proportion of respondents is equally distributed in each of the three categories; not in compliance, somewhat in compliance and mostly in compliance is false.

Conclusion: The computed value of X2 is greater than 5.991, so we reject the null hypothesis and conclude that at least one of the cell probabilities differs from that specified in the null hypothesis. (p = .0001)

EMHE Nine Key Comparison
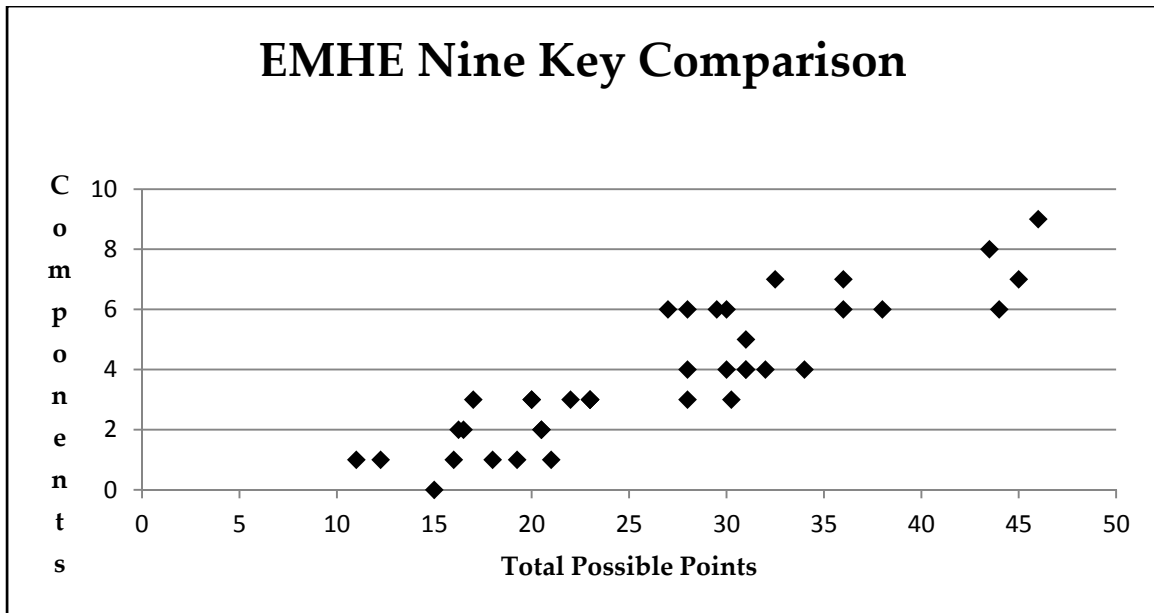
Figure 5.2: EMHE Nine Key Comparison for Hypothesis Group (39)

The majority of Hypothesis Group 28 (82%) scored forty (40) or fewer points, putting them in the "not in compliance" and "somewhat in compliance" range; 86% of these respondents scored 6 or less in the number of components satisfied. The majority of Hypothesis Group 39 (90%) also scored forty (40) or fewer points in the "not in compliance" and "somewhat in compliance" range; 87% of these respondents scored 6 or less in the number of components satisfied. The research hypothesis "university/community transit systems do have appropriately prepared emergency operating plans" does not appear to be supported.

<u>Pairwise Analysis of Questions</u>

Questions were also selected to determine if a relationship exists between different pairs. The questions selected were placed in the following categories:

1. Funding and FTA Population designation

2. Population size and IHE plan component

3. IHE support and size of city

4. Component of IHE emergency plan and FTA Funding

5. Director on EPC and local, state or federal funding

6. Director on EPC and existence of the transit system component in the EOP

JMP was used to analyze the pairs of questions and contingency tables were created to display the frequency distribution. Relationships between two nominal variables were evaluated using Pearson's Chi-square test of independence. If cell counts were less than 5, categories were either combined, or in the case of 2 x 2 tables, Fisher's Exact Test was used. A significance level of 0.05 was used for tests of significance.

5.1 Relationship between Funding and FTA Population Designation

The purpose in looking at a comparison of Question 8 and Question 5 is to consider the relationship between whether or not a respondent who is receiving FTA funding and the size of the city in which the institution is located has a potential relationship. The results of the comparison may show that the transit organization, institution of higher education or other post-secondary educational institution may have a better opportunity

of receiving funding in more populated areas than similar organizations located in smaller populated areas.

The null hypothesis for a comparison of these questions is there is not an association between the level of FTA funding and the city population size. A contingency table for respondents of these questions is given in Table 5.33. There is not sufficient evidence to suggest there is an association between the level of FTA funding received by transit systems or institutions of higher education and the size of the population in the city where the institutions are located (p = 0.2945).

	Question 8: The Federal Transit Administration provides funding to transportation organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. Does your transit system receive federal funding?		
Question 5: What is the size of the city in which the institution is located?	Yes	No	Total
Population greater than 200,000 or more	19	7	26
Population of 50,000 — 199,000	30	4	34
Population less than 49,999	9	3	12
Total	58	14	72

Table 5.33 Contingency table for FTA providing funding based on size of a city

The purpose in looking at a comparison of Question 8 and Question 9 is to consider the relationship between whether or not a respondent who is receiving FTA funding and whether or not the transit system also directly receives local, state or other federal funds

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to assist with the transit services operations for educational institutions. The results may show that if a transit system receives local, state, FTA and other federal transit operations funding, the organizations likely applied for all available transit operations funding from government resources.

The null hypothesis for a comparison of these questions is there is not an association between the level of FTA funding received and the transit organization receiving local, state or other federal funds. A contingency table for respondents of these questions is given in Table 5.34. There is sufficient evidence to suggest that there is an association between the level of FTA funding received by transit systems providing transit services to a post-secondary institution of higher education's funding and their being the recipient of other funding available from local, state or federal sources ($p = 0.0037$).

	Question 8: The Federal Transit Administration provides funding to transportation organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. Does your transit system receive federal funding?		
Question 9: Does your transit system receive local, state or federal funds directly to assist in the operations of and/or for providing transit services to institutions of higher education or post-secondary institutions of education?	Yes	No	Total
Yes	22	36	58
No	0	14	14
Total	22	50	72

Table 5.34: Contingency table for FTA providing funding based on receiving local, state or other federal funding.

The purpose in looking at a comparison of Question 8 and Question 10 is to consider whether or not a respondent who is receiving local, state or federal funds directly to assist in the operations of and/or for providing transit services to educational institutions and whether or not a transit agency receives federal funding based on the U.S. DOT and FTA definitions of the transit systems service area's status for federal funding. The results of the comparison may show that if a transit system is receiving local, state or other federal funding, then the recipients may be receiving that funding based on the transit system's service area definition. Three answers were possible for question 10 regarding population sizes: rural area with a population less than 50,000; urbanized areas 50,000 to 200,000 in population; and, urbanized areas 200,000 or more in population. These three groups were aggregated into two groups (rural and urbanized areas with a population of less than 200,000 and urbanized areas 200,000 or more in population) to compare the groups using Fisher's Exact Test in JMP.

The null hypothesis for a comparison of these questions is that there is not an association between a respondent who is receiving local, state or federal funds directly to assist in the operations of and/or for providing transit services to educational institutions and the transit systems' service area definition for population.

A contingency table for respondents of these questions is given in Table 5.35. There is not sufficient evidence to suggest there is an association between the level of FTA funding and the transit systems' service area definition for population and the level of the federal funding they receive, $(p = 0.6427)$.

Question 10: If your transit agency receives federal funding, which of the following U.S. DOT and Federal Transit Administration definitions describes your service area's status for federal funding, chose the one that applies:	Question 8: The Federal Transit Administration provides funding to transportation organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. Does your transit system receive federal funding?		
	Yes	No	Total
Urbanized areas 200,000 or more in population	22	2	24
Rural and Urbanized areas with a population of less than 200,000	35	2	37
Total	57	4	61

Table 5.35: Contingency table for FTA providing funding based on the transit system's service area definition

The purpose of looking at a comparison of Question 10 and Question 5 was to consider the relationship between whether or not a transit agency receives federal funding based on the FTA definitions of a transit system's service area status for federal funding and the size of the city in which the institution is located. Question 10 addressed the issue of the FTA definitions for a service area's status for federal funding and Question 5 asks about the size of a city in which an educational institution is located. In comparing these questions, the results may show that the FTA's definition for population size and the size of the city in which an educational institution is located has an impact on the amount of funding available. Three potential answers were possible for question 10 regarding population sizes: rural area with a population less

than 50,000; urbanized areas 50,000 to 200,000 in population; and, urbanized areas 200,000 or more in population. Three potential answers were possible for question 5 regarding population sizes: population less than 49,999; population of 50,000 — 199,000; and population greater than 200,000 or more. Each of the questions' three groups were aggregated into two groups to compare the groups using Fisher's Exact Test in JMP.

The null hypothesis for a comparison of these questions is that there is not an association between the FTA's definition for population size and the size of the city an educational institution is located in. A contingency table for respondents of these questions is given in Table 5.36. There is sufficient evidence to suggest that there is an association between the FTA's definition for population size and the size of the city in which an educational institution is located ($p = < 0.0001$).

Question 5: What is the size of the city in which the institution is located?	Question 10: If your transit agency receives federal funding, which of the following U.S. DOT and Federal Transit Administration definitions describes your service area's status for federal funding, chose the one that applies:		
	Population of less than 200,000	Urbanized areas 200,000 or more in population	Total
Population of less than 199,999	35	5	40
Population of 200,000 or more	2	19	21
Total	37	24	61

Table 5.36: Contingency table for FTA providing funding based on the size of the city an institution of higher education is located.

5.2 Transit System as a Component of IHE Emergency Plan Based on City Size

The purpose in looking at a comparison of Question 12 and Question 5 is to consider the relationship between whether or not a transit system is a specific component of an educational institution's disaster preparedness plan and the size of the city in which the educational institution is located. A comparison of these two questions may show that the transit system may be a specific component of an educational institution's disaster preparedness plan based on the size of the city in which the educational institution is located.

Three answers were possible for question 5 regarding population sizes: population less than 49,999; population of 50,000 — 199,000; and population greater than 200,000 or more. These three groups were aggregated into two groups to compare the groups using Fisher's Exact Test in JMP.

The null hypothesis for a comparison of these questions is that there is not an association between the transit system being a specific component of an educational institution's disaster preparedness plan and the size of the city where the educational institution is located. A contingency table for respondents of these questions is given in Table 5.37. There is not sufficient evidence to suggest that there is an association between the level of FTA funding received by transit systems or institutions of higher education and the size of the population in the city where the institutions are located (p = 0.7635).

Question 5: What is the size of the city in which the institution is located?	Question 12: Is the transit system a specific component of an institution of higher education's or post-secondary institution of education's disaster preparedness plan?		
	Yes	No	Total
Population of less than 199,999	9	17	26
Population greater than 200,000 or more	6	32	38
Total	15	49	64

Table 5.37: Contingency table of transit system being component of educational institution's disaster preparedness plan based on population

5.3 Higher Education Budget Support for Transit and Size of City

The purpose in looking at a comparison of Question 11 and Question 5 is to consider the relationship between whether or not the level of funding of a transit service's annual budget is supported by an educational institution and the size of the city in which the educational institution is located. A comparison of these questions may show that the educational institution supports the transit organization's budget based on the population of the city in which the IHE is located. Three potential answers were possible for question 5 regarding population sizes: population less than 49,999; population of 50,000 — 199,000; and population greater than 200,000 or more. Five potential answers were possible for question 11 regarding annual budget support from an educational institution: 100%; 75% > 99%; 50% > 74%; 25% > 49%; and < 25%. Each of the question's groups were aggregated into two groups to compare the groups using Fisher's Exact Test in JMP.

The null hypothesis for a comparison of these questions is that there is not an association between the transit system's annual budget support from an educational institution and the size of the city where the educational institution is located. A contingency table for respondents of these questions is given in Table 5.38. There is not sufficient evidence to suggest that there is an association between the level of FTA funding received by transit systems or institutions of higher education and the size of the population in the city where the institutions are located (p = 0.2196).

Question 5: What is the size of the city in which the institution is located?	Question 11: How much of your transit service budget is annually supported by an institution of higher education or post-secondary institutions of education?		
	Not at all	Some Funding	Total
Population less than 49,999	5	5	10
Population of 50,000 — 199,999	15	18	33
Population greater than 200,000 or more	16	10	26
Total	36	33	69

Table 5.38: Contingency table of educational institution's support of transit systems budget based on population of the city where the educational institution is located

The purpose in looking at a comparison of Question 11 and Question 8 is to consider the relationship between whether or not a transit service's annual budget is supported by an educational institution and whether or not the FTA provides funding to the transportation organization through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. A comparison of these questions may show that if a transit system receives local, state, FTA or other federal transit operations funding, the systems were likely to have applied

for all available transit operations funding from government resources. Five potential answers were possible for question 11 regarding annual budget support from an educational institution: 100%; 75% > 99%; 50% > 74%; 25% > 49%; and < 25%. These five groups were aggregated into two groups to compare the groups using Fisher's Exact Test in JMP.

The null hypothesis for a comparison of these questions is that there is not an association between the transit system's annual budget support from an IHE and the funding received from the FTA. A contingency table for respondents of these questions is given in Table 5.39. There is not sufficient evidence to suggest that there is an association between the amount of funding the transit system's budget includes as support from an educational institution and the funding received from the FTA ($p = 0.2454$).

	Question 8: The Federal Transit Administration provides funding to transportation organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. Does your transit system receive federal funding?		
Question 11: How much of your transit service budget is annually supported by an institution of higher education or post-secondary institutions of education?	Yes	No	Total
Not at all	5	31	36
Some Funding	9	26	35
Total	14	57	71

Table 5.39: Contingency table on how much funding a transit system receives from and IHE based on the FTA funding

The purpose in looking at a comparison of Question 11 and Question 9 is to consider the relationship between whether or not a transit service's annual budget is supported by an educational institution and whether or not a transit system directly receives local, state or federal funds to assist in the operations of and/or for providing transit services to educational institutions. The comparison of these questions may show that an educational institution which is a direct or indirect recipient of state transportation operations funding is supporting a transit system. Additionally, the educational institution may be receiving other local, state or federal funding. Five potential answers were possible for question 11 regarding annual budget support from an educational institution: 100%; 75% > 99%; 50% > 74%; 25% > 49%; and < 25%. These five groups were aggregated into two groups to compare the groups using Fisher's Exact Test in JMP.

The null hypothesis for a comparison of these questions is that there is not an association between the transit system's annual budget support from an educational institution and the funding received from local, state or federal agencies. A contingency table for respondents' answers to these questions is given in Table 5.40. There is not sufficient evidence to suggest that there is an association between the transit systems annual budget support from an educational institution and of the funding received from local, state or federal agencies ($p = 0.2003$).

	Question 9: Does your transit system receive local, state or federal funds directly to assist in the operations of and/or for providing transit services to institutions of higher education or post-secondary institutions of education?		
Question 11: How much of your transit service budget is annually supported by an institution of higher education or post-secondary institutions of education?	Yes	No	Total
Not at all	8	28	36
Some Funding	13	20	33
Total	21	48	69

Table 5.40: Contingency table for transit system directly receiving local, state or federal funds and budget being supported by an IHE

5.6 *Component of IHE emergency plan and FTA Funding*

The purpose in looking at a comparison of Question 12 and Question 8 is to consider the relationship between whether or not a transit system is a specific component of an educational institution's disaster preparedness plan and whether or not the FTA provides funding to transportation organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. The results may show instances where there is no FTA funding for an educational institution's transit organization and the transit system not being a specific component of the educational institution's disaster preparedness plan.

The null hypothesis for a comparison of these questions is that there is not an association between the transit system being a specific component in an educational institution's disaster preparedness plan and receiving FTA funding. A contingency

table for respondents of these questions is given in table 5.41. There is sufficient evidence to suggest there is an association between the transit system as a specific component of an institution of higher education or other post-secondary educational institution's disaster preparedness plan and FTA funding (p <0.0001).

Question 8: The Federal Transit Administration provides funding to transportation organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. Does your transit system receive federal funding?	Question 12: Is the transit system a specific component of an institution of higher education's or post-secondary institution of education's disaster preparedness plan?		
	Yes	No	Total
Yes	6	9	15
No	46	4	50
Total	52	13	65

Table 5.41: Contingency table whether the transit system is a specific component of IHE's disaster preparedness plan based receiving federal funding

The purpose in looking at a comparison of Question 12 and Question 9 is to consider the relationship between whether or not a transit system is a specific component of an educational institution's disaster preparedness plan and whether or not a transit system receives local, state or federal funds directly to assist in the operations of and/or for providing transit services to educational institutions. A comparison of these questions may show that where there are no local, state or federal funds directly assisting in the operations of and/or for providing transit services to an educational institution's transit

operations funding, the transit system may not be a specific component of the educational institution's disaster preparedness plan.

The null hypothesis for the comparison of these questions is that there is not an association between the transit system being a specific component on an educational institution's disaster preparedness plan and the receiving of local, state or federal funding. A contingency table for respondents of these questions is given in Table 5.42. There is not sufficient evidence to suggest that there is an association between the transit system being a specific component of an educational institution's disaster preparedness plan and receiving local, state or federal funding. (p = 0.0525).

	Question 12: Is the transit system a specific component of an institution of higher education's or post-secondary institution of education's disaster preparedness plan?		
Question 9: Does your transit system receive local, state or federal funds directly to assist in the operations of and/or for providing transit services to institutions of higher education or post-secondary institutions of education?	Yes	No	Total
Yes	1	14	15
No	16	33	49
Total	17	47	64

Table 5.42: Contingency table of the transit system being a specific component of IHE's disaster preparedness plan

5.5 Transit system director is on the educational institution's emergency planning

committee if the educational institution is receiving local, state or federal funding

The purpose in looking at a comparison of Question 15 and Question 8 is to consider the relationship between whether or not the transit system's director, manager, or other

designee is a member of the educational institution's emergency planning committee and whether or not the FTA provides funding to transit organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. The results may show if there is no FTA transit operations funding for an educational institution, there may not be a transit system director, manager or other designee on the educational institution's emergency planning committee.

The null hypothesis for a comparison of these questions is that there is not an association between the transit system's director, manager, or other designee being a member of the institution's emergency planning committee and receiving FTA funding for transit organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. A contingency table for respondents of these questions is given in Table 5.43. There is sufficient evidence to suggest that there is an association between the transit system's director or other designee being a member of the educational institution's emergency planning committee and receiving Federal Transit Administration funding ($p = 0.0048$).

	Question 8: The Federal Transit Administration provides funding to transportation organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. Does your transit system receive federal funding?		
Question 15: Is the transit system's director/manager/other designee a member of the institution's emergency planning committee?	Yes	No	Total
Yes	28	29	57
No	11	1	12
Total	39	30	69

Table 5.43: Contingency table for FTA funding as it relates to having director/manager/other designee a member of the institution's emergency planning committee.

The purpose in looking at a comparison of Question 15 and Question 9 is to consider the relationship between whether or not the transit system's director, manager, or other designee is a member of the educational institution's emergency planning committee and whether or not the transit organization receives local, state or federal funds directly to assist in the operations of and/or for providing transit services to post-secondary institutions of higher education. The results may show that if there is no local, state or other federal transit operations funding for an educational institution there may not be a transit system director, manager or other designee on the educational institution's emergency planning committee.

The null hypothesis for a comparison of these questions is that there is not an association between the transit system's director, manager, or other designee being a member of the institution's emergency planning committee and receiving local, state or

other federal funding. A contingency table for respondents' answers to these questions

is given in Table 5.44.   There is not sufficient evidence to suggest that there is an

association between a transit system's director or other designee being a member of an

educational institution's emergency planning committee and receiving local, state or

other federal funding (p = 0.5338).

	Question 9: Does your transit system receive local, state or federal funds directly to assist in the operations of and/or for providing transit services to institutions of higher education or post-secondary institutions of education?		
Question 15: Is the transit system's director/manager/other designee a member of the institution's emergency planning committee?	Yes	No	Total
Yes	11	29	40
No	10	19	29
Total	21	48	69

Table 5.44: Contingency table of transit systems receiving director funding and having a director on the educational institution's emergency planning committee

5.6 Director on Emergency Planning Committee and existence of the

transit system component in the Emergency Operating Plan

The purpose in looking at a comparison of Question 15 and Question 12 is to

consider the relationship between whether or not the transit system's director, manager,

or other designee is a member of the educational institution's emergency planning

committee and whether or not a transit system is a specific component of an educational

institution's disaster preparedness plan.   The results may show that if the transit

system's director, manager or other designee is on the educational institution's

emergency planning committee, then the transit system may be a component of the educational institution's disaster preparedness plan.

The null hypothesis for a comparison of these questions is that there is not an association between a transit system's director, manager, or other designee being a member of the educational institution's emergency planning committee and having the transit system as a specific component in an educational institution's disaster preparedness plan. A contingency table for respondents' answers to these questions is given in Table 5.45. There is sufficient evidence to suggest that there is an association between a transit system's director or designee being a member of educational institution's emergency planning committee and having the transit system as a specific component of the educational institution's disaster preparedness plan (p = 0.0322).

	Question 12: Is the transit system a specific component of an institution of higher education's or post-secondary institution of education's disaster preparedness plan?		
Question 15: Is the transit system's director/manager/other designee a member of the institution's emergency planning committee?	Yes	No	Total
Yes	13	26	39
No	2	23	25
Total	15	49	64

Table 5.45: Contingency table of the transit system as a component of an IHE's disaster preparedness plan and the transit system's director as a member of the institution's emergency planning committee

Pairwise Analysis Findings

1. There is sufficient evidence to suggest that there is an association between a transit system's director or designee being a member of an educational institution's emergency planning committee and having the transit system as a specific component of the educational institution's disaster preparedness plan (p = 0.0322).

2. There is sufficient evidence to suggest there is an association between the transit system as a specific component of an institution of higher education or other post-secondary educational institution's disaster preparedness plan and FTA funding (p < 0.0001).

3. There is sufficient evidence to suggest that there is an association between the transit system's director or other designee being a member of the educational institution's emergency planning committee and receiving FTA funding (p = 0.0048).

4. There is sufficient evidence to suggest that there is an association between the level of FTA funding received by transit systems that provide transit services and an education institution's funding from other local, state or federal sources (p = 0.0037).

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

In this chapter the conclusions derived from the literature search review, analysis of the survey data and development of a draft emergency operations plan will be presented. The limitations of conducting this type of research will be discussed; recommendations will be presented including those for future research on the subject of this dissertation.

Conclusions

Major Results

Major results were determined from information found within the literature review, analysis of the survey data, the testing of the research hypothesis and Pairwise Analysis of the thirteen (13) pairs of questions. The research hypothesis "university/community transit systems do have appropriately prepared emergency operating plans" is not supported. This decision was based on test results of the research hypothesis which showed that the overall number of key principles satisfied were in- sufficient to support the research hypothesis.

Nine Key Principles Review

This researcher conducted a review of the results of the research hypothesis test determining the rank order of the nine key principles. The goal of the review was to determine if one or more principles is supported at a higher frequency than the others.

The review was conducted for both research hypothesis groups 28 and 39. The results of the review are shown in Tables 6.1 and 6.2.

As noted in the methods chapter, each question was scored allowing each respondent's answers be given a numerical value of "0" to "6". To conduct the review the researcher converted the scores to "0" for no and "1" for yes. If a respondent answered a question as "no," "don't know," or "would not respond," their answer was converted to "0." If a respondent answered a question other than "no," their point score was converted to a "1" to indicate some level of inclusion of the respective principles in their emergency operating plan.

The results of groups 28 and 39 show that principles 3, 4 and 7 were most frequently included in their emergency operating plans. Principles 1, 2, and 8 were the next highest group included and principles 5, 6 and 9 were the least included in their respective emergency operating plans.

Research Hypothesis Group (28) Nine Key Principles					
Rank Position	Nine Key Principles	Questions Assigned to the Principle	Number of answers shared	Total number of possible answers for each principle	Percentage of Answers Shared
1	3	19	28	28	100.00%
2	4	21	28	28	100.00%
3	7	17, 18, 19	84	84	100.00%
4	8	16, 27, 28	68	84	80.95%
5	1	12, 16, 23	63	84	75.00%
6	2	12, 15	53	84	63.10%
7	9	15, 27	27	56	48.21%
8	6	12, 15	22	56	39.29%
9	5	12	7	56	25.00%

Table 6.1 Ranked order of RHG (28) Nine Key Principles

Research Hypothesis Group (39) Nine Key Principles					
Rank Position	Nine Key Principles	Questions Assigned to the Principle	Number of answers shared	Total number of possible answers for each principle	Percentage of Answers Shared
1	4	21	39	39	100.00%
2	7	17, 18, 19	103	117	88.03%
3	3	19	30	39	76.92%
4	8	16, 27, 28	90	117	76.92%
5	1	12, 16, 23	84	117	71.79%
6	2	12, 15	64	117	54.70%
7	9	15, 27	34	78	43.59%
8	6	12, 15	28	78	35.90%
9	5	12	8	39	20.51%

Table 6.2 Ranked order of RHG (39) Nine Key Principles

Pairwise Analysis Findings

As a result of the Pairwise Analysis in Chapter 5, the researcher found that there is a significant relationship between the transit system's director or designee being a member of an educational institution's emergency planning committee and having the transit system as part of the educational institution's disaster preparedness plan.

The Pairwise Analysis shows that if a post-secondary institution of higher education is receiving FTA funding, they are more likely to have transportation ESF-1 in their emergency operating plan.

The Pairwise Analysis also points to a significant association between the transit system's director being a member of the educational institution's emergency planning committee and the institution receiving FTA funding.

Finally, the Pairwise Analysis revealed an association between the level of FTA funding received by transit systems that provide transit services to a post-secondary

institution of higher education and the institution's ability to receive additional funding from other local, state or federal sources.

Limitations

The research hypothesis for this work is that university/community transit systems do have appropriately prepared emergency operating plans. As reported in the results, the number of potential respondents (N) for the on-line survey was 1,470, out of which 317 individuals viewed the survey, with 120 partial and 92 fully completed surveys, as detailed by Zoomerang's on-line tracking analysis.

It is not possible to make a generalized statement from the findings, asserting that all transportation systems in the United States do or do not have appropriately prepared emergency operating plans. Of the survey frame (N=1,470), 212 respondents participated in the survey, a response rate of 14.42%. This rate appears to be low: Leedy and Ormrod (2005) wrote that "the majority of people who receive questionnaires (surveys) do not return them," and the need for a large sample frame is important. However, confining the sample frame to a specific population should yield quality responses from those best suited to complete the survey.

An issue in the survey results was the risk of deflated results, due to the questions allowing respondents an opportunity to provide one or more answers to a question and be counted as a completed response with just one answer, even though multiple options were available. In the results analysis, it was necessary to code blank spaces with an N where the blank was actually one answer of multiple choices for a single question,

allowing the response to be counted as a complete. Where there was no selection of any of the possible answers in a question, that question was left as a blank, and was then counted as not completed.

Another limitation was that while 1,470 organizations were invited multiple times over a five week period to participate in the survey, only 317 visits to the survey site were recorded and, out of this group, 212 participated in the survey. Were this researcher to conduct this type of research again, the use of online surveys would not be the first choice, great consideration would be given to individual personal interviews or telephone interviews.

Bias is an attribute which can have a negative impact on survey results for this research a Purposive Sampling survey (Leedy and Ormrod 2005) was chosen due to the focus on a specific topic impacting a specific group, post-secondary institutions of higher education. Conducting this type of survey may also have higher levels of bias from the respondents. It is important to acknowledge that low response rates are common and expected from this population. The same is true for both emergency management and criminal justice populations.

To decrease the probability of bias in the questions themselves, the survey was pre-tested by seventeen transportation professionals and ten emergency management professionals. The comments received from these professionals were used to enhance the survey instrument.

Assumptions were made about the potential participants: that they would know what NIMS is and how it could benefit their organizations and the institutions of higher and post-secondary education to which they provided services. It may be that some of the participants did not know about anything about NIMS, but responded to the survey because they had the time, whereas someone more qualified did not participate because an internet survey might take more time than they had available.

Recommendations

Based on the major conclusions, it is recommended that all university/community transit agencies have a comprehensive emergency plan that includes all nine of the research hypothesis group principles. If an agency has a plan, it is critical that it be reviewed to insure that it addresses all of the nine principles. In developing a new plan or revising an existing one, it is also recommended that those involved take into consideration the draft Clemson University Emer4gency Operation Plan contained in Appendix A.

When developing or revising a university/community transit system emergency operating plan the following key issues need to be kept in mind.

1. Senior management of all participating organizations must not only be committed to the effort but also dedicate the needed resources including funding.

2. Those involved with the implementation of the plan including the transit systems director or designee must be part of the planning process.

3. The plan must incorporate the university/community transit system.

4. Training in various forms, i.e. table top exercises, drills etc. need to be part of the plan.

5. A comprehensive assessment process must be included as an essential part of the plan.

It is recommended the Federal Transit Administration develop and implement policies and procedures tying federal funding to its grant recipients requiring safety and security plans, emergency operation plans and continuity of operations plans before they receive federal funding for their transportation systems. Furthermore it is recommended that federal, state, tribal and local agencies must be incorporated into effective disaster planning, along with non-governmental organizations and local emergency planning committees and the institutional emergency planning needs to be implemented strategically.

Future Research

A national research agenda should be developed to address the following questions and to help develop or expand disaster preparedness for public transit systems owned, operated, or financially supported by post-secondary institutions of higher education, and local, county or state governments.

1) What understanding do public transit system managers have of the needs and demands for transportation security?

2) What level of disaster preparedness is sufficient for public transit systems, post-secondary institutions of higher education? Defining such a level of preparedness requires consideration of many dimensions, such as the full range of disasters that might be encountered and the full range of severities of those disasters. If such a benchmark can be developed, how well do transit systems meet this benchmark?

3) Conduct a comparative analysis of public transit organizations, post-secondary institutions of higher education security and safety plans, emergency operating plans and continuity of operations plans, could determine how well these plans achieve the needs of disaster and emergency planning.

4) Determine a training model which can be created to establish sustainable methods of training to ensure preparedness becomes the norm and not the exception. This training model could be developed using the Clemson University Draft Emergency Operations Plan in Appendix A.

5) If a determination is made of the current state of security drills and training for public transit systems, educational institutions and complementary first-response agencies institutions could learn:

   a. How well do drills simulate real disasters, and how well do training exercises enhance preparedness?

b. What training techniques work most effectively in this highly-specialized

context?

This research agenda needs to fully address the comprehensive aspects of public

transit systems, moving beyond infrastructure to include operations and the inherent

vulnerabilities of open transportation systems. The homeland security and

transportation research communities have many tools to address these questions, such

as simulation modeling, table-top exercise and planned drills. However, the nature of

disaster preparedness requires researchers to move beyond specific disciplines to

integrate research tools of complementary fields. For instance, traffic modelers studying

vehicles might work with industrial engineers modeling pedestrian movement, and

social scientists need to inform the technology engineers of the qualitative realities of

human, organizational, and political influence on the efficiency and effectiveness of

evacuations and disaster planning.

The U.S. Departments of Homeland Security, Education, and Transportation should

collaborate together to determine how many transit organizations, post-secondary

institutions of higher education have safety and security plans, emergency operating

plans and continuity of operations plans. The research could be accomplished through a

survey instrument or a requirement that these organizations produce their emergency

and disaster preparedness plans or be subject to a decrease in federal and state funding.

With either of these scenarios participants' responses from future surveys or requiring

the documents to be produced would provide a greater understanding of the

preparedness level of the university and community transit systems. The results would be used to help educate local, county and state decision makers about the level of emergency operation planning within their transit organizations within their communities' and post-secondary institutions of higher education.

The data from the review of the nine key principles indicates these principles are not being equally followed in the development of EOP's. Since it has been determined in this dissertation research that full compliance is lacking for the two research hypothesis groups, further research should be conducted to determine why all the principles are not being implemented as set out in the *Action Guide for Emergency Management at Institutions of Higher Education (2009).*

APPENDICES

Clemson University Draft Emergency Operations Plan

June 30th, 2010

LETTER of PROMULGATION

Clemson University is committed to protecting the welfare of its community members as well as its intellectual property and facilities. For this reason, the Director of Public Safety/Chief of Police has developed the Emergency Operations Plan. With this plan, the university strives to minimize the impact of emergencies and maximize the effectiveness of the campus community's response to and recovery from their inevitable occurrence.

We can best prepare to meet the enormous challenges emergencies present by working together. Thus Clemson University expects individual departments to develop their own detailed plans to effectively organize, coordinate, and direct available resources toward emergency response and recovery. As such, the *Emergency Operations Plan* includes a chain of command establishing the authority and responsibilities of campus officials and staff members. The plan also requires departments to designate emergency coordinators who will have the authority to make modifications in emergency procedures and commit resources to emergency preparedness as necessary.

The *Emergency Operations Plan* is designed to help university employees respond appropriately when emergency conditions exist. Although these situations are unpredictable, this plan allows for an immediate response by university employees, thereby minimizing danger to our campus. Every member of the Clemson University community should understand his or her role in emergency situations. Please review this manual so you can support your colleagues and protect our students, faculty, staff, and visitors should an emergency arise.

Thank you,

James Barker
President
Clemson University

State of South Carolina

Executive Department
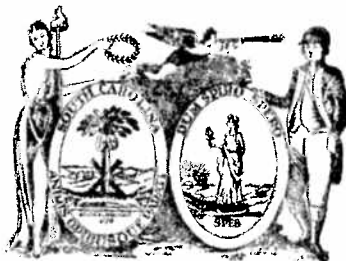
Office of the Governor

EXECUTIVE ORDER NO.   **2011-06**

WHEREAS, the State of South Carolina is vulnerable to a wide range of emergencies, including natural and technological disasters and disasters caused by weapons of mass destruction, all of which threaten the life, health, and safety of its people; damage and destroy property; disrupt services and everyday business and recreational activities; and impede economic growth and development; and

WHEREAS, this vulnerability is exacerbated by the state's growing population, especially the growth in the number of persons residing in coastal areas, in the elderly population, in the number of seasonal vacationers, and the number of persons with special needs; and

WHEREAS, the state must take all prudent action to reduce the vulnerability of the people and property of this state; to prepare for the efficient evacuation and shelter of threatened or affected persons; to provide for the rapid and orderly provision of relief to persons and for the restoration of services and property; and to provide for the coordination of activities relating to emergency preparedness, response, recovery, and mitigation among and between agencies and officials of this state, with similar agencies and officials of other states, with local and federal governments, with interstate organizations, and with the private sector; and

WHEREAS, the Governor is responsible for the development and coordination of a system of Comprehensive Emergency Management pursuant to the South Carolina Code of Laws, Section 25-1-440 (b) and the South Carolina Emergency Management Division, Office of the Adjutant General, as established by Section 25-1-420, is responsible for coordinating the efforts of all state, county and municipal agencies and departments in developing a State Emergency Plan and maintaining a State Emergency Operations Center; and

WHEREAS, the South Carolina Emergency Operations Plan, dated February 11, 2011, developed pursuant to the requirement of Section 25-1-420 (a), has been reviewed and approved in accordance with the South Carolina Code of Regulations, 58-

151

101,B., as establishing the policies and procedures to be followed by South Carolina Government in executing all emergency or disaster operations.

NOW, THEREFORE, pursuant to the powers conferred upon me by the Constitution and laws of the State of South Carolina, I do hereby order:

Section 1.   That each department or agency of the State shall be responsible for emergency services as assigned in the South Carolina Emergency Operations Plan.

Section 2.   That each department or agency assigned a primary responsibility in the Plan shall maintain, as directed by the Emergency Management Division, comprehensive standard operating procedures for executing its assigned emergency services.   Each department or agency assigned a support responsibility shall assist the primary department or agency in maintenance of these procedures.

Section 3.   That each department or agency assigned a primary or support responsibility in the Plan shall participate in scheduled exercises of the South Carolina Emergency Management Division and shall conduct training of personnel essential to the implementation of all assigned emergency functions.

Section 4.   That all departments or agencies shall execute, without delay, the emergency functions so designated in the Plan or further ordered by me during any emergency or disaster through the initial use of existing agency appropriations and all necessary agency personnel, regardless of normal duty assignment.
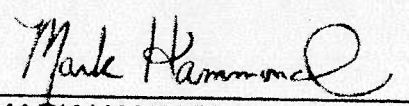
Executive Order 2003-12 is hereby rescinded.

GIVEN UNDER MY HAND AND THE GREAT SEAL OF THE STATE OF SOUTH CAROLINA, THIS 27th DAY OF JANUARY, 2011.

NIKKI R. HALEY
Governor

ATTEST:

MARK HAMMOND
Secretary of State

<u>Board of Trustees Policy</u>

Chapter VI - Delegations of Authority

"Emergency Delegation of Authority In the event of an emergency which poses an imminent threat of harm to the University, including loss or damage to persons or property such as might be posed by a pandemic or act of terrorism, the President of the University shall notify the Board of Trustees and request that the Board declare a state of emergency and authorize the President to exercise emergency powers, including but not limited to the authority to suspend classes and other University operations. The Board shall have the discretion to delegate some or all of its powers to the President in an emergency, depending upon the facts and circumstances of each case. The President shall have the authority to declare a state of emergency and to take such steps, without delay, as may be reasonable under the circumstances to avoid or mitigate loss or damage to persons or property until such time as a quorum of the Board may be convened. In the event the President is unable to act in an emergency, the President's official delegate shall have the authority to act in any manner ascribed to the President by this policy. Any action taken by the Board or the President pursuant to this policy shall be temporary in nature and shall be effective only for the duration of the state of emergency, unless otherwise ratified by action of the Board. Once declared, a state of emergency shall exist until such time as rescinded by the Board, upon recommendation of the President. " *(Approved October 2009 Board of Trustees Meeting)*

University Policy

"Emergency Suspension of University Policies and Procedures In the event that a state of emergency has been declared by the Board of Trustees or the President, in accordance with Board of Trustees Policy on "Emergency Delegation of Authority", the President of the University or the President's official designee, shall have the right to suspend or modify any University policy or procedure in the interest of avoiding a threat of imminent harm to any person or property. Any suspension or modification of University policy or procedure shall be effective only during the period of the state of emergency."

(Approved October 2009 Board of Trustees Meeting)

TABLE OF CONTENTS

V.   ADMINISTRATION

VI.   DIRECTION AND CONTROL

TABLE OF CONTENTS and CU - EOP
DEVELOPMENT AND MAINTENANCE SECTION

This certifies the Table of Contents and the Contents of the CU - EOP have been reviewed and appropriate changes have been made as needed to meet the needs of Clemson University Emergency Operations Plan.

RECORD OF CHANGES

Page Changed	Date Change Made	Made By

<u>Preface</u>

What is the National Incident Management System?

The *National Incident Management System* (NIMS) provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment. NIMS works hand in hand with the *National Response Framework* (NRF). NIMS provides the template for the management of incidents, while the NRF provides the structure and mechanisms for national-level policy for incident management.

History and Purpose

On February 28, 2003, the President issued Homeland Security Presidential Directive 5 (HSPD–5), "Management of Domestic Incidents," which directed the Secretary of Homeland Security to develop and administer a *National Incident Management System* (NIMS). This system provides a consistent nationwide template to enable Federal, State, tribal, and local governments, nongovernmental organizations (NGOs), and the private sector to work together to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity. This consistency provides the foundation for utilization of NIMS for all incidents, ranging from daily occurrences to incidents requiring a coordinated Federal response. NIMS is

not an operational incident management or resource allocation plan. NIMS represents a core set of doctrines, concepts, principles, terminology, and organizational processes that enables effective, efficient, and collaborative incident management.

HSPD–5 also required the Secretary of Homeland Security to develop the *National Response Plan*, which has been superseded by the *National Response Framework* (NRF). The NRF is a guide to how the Nation conducts all-hazards response. The NRF identifies the key principles, as well as the roles and structures that organize national response. In addition, it describes special circumstances where the Federal Government exercises a larger role, including incidents where Federal interests are involved and catastrophic incidents where a State would require significant support.

HSPD–5 requires all Federal departments and agencies to adopt NIMS and to use it in their individual incident management programs and activities, as well as in support of all actions taken to assist State, tribal, and local governments. The directive requires Federal departments and agencies to make adoption of NIMS by State, tribal, and local organizations a condition for Federal preparedness assistance (through grants, contracts, and other activities). NIMS recognizes the role that NGOs and the private sector have in preparedness and activities to prevent, protect against, respond to, recover from, and mitigate the effects of incidents. Building on the foundation provided by existing emergency management and incident response systems used by jurisdictions, organizations, and functional disciplines at all levels, NIMS integrates best practices into a comprehensive framework for use nationwide by emergency management/response

personnel in an all-hazards context. These best practices lay the groundwork for the components of NIMS and provide the mechanisms for the further development and refinement of supporting national standards, guidelines, protocols, systems, and technologies. NIMS fosters the development of specialized technologies that facilitate emergency management and incident response activities, and allows for the adoption of new approaches that will enable continuous refinement of the system over time.

The Secretary of Homeland Security, through the National Integration Center (NIC), Incident Management Systems Integration Division (formerly known as the NIMS Integration Center), publishes the standards, guidelines, and compliance protocols for determining whether a Federal, State, tribal, or local government has implemented NIMS. Additionally, the Secretary, through the NIC, manages publication and with other departments and agencies, collaboratively develops standards, guidelines, compliance procedures, and protocols for all aspects of NIMS.

NIMS was developed through a collaborative intergovernmental partnership with significant input from the incident management functional disciplines, NGOs, and the private sector. Originally published on March 1, 2004, NIMS was revised in 2008 to reflect contributions from stakeholders and lessons learned during recent incidents.

The Clemson University Emergency Operations Plan is designed as an all hazards plan to be in full compliance with the National Incident Management Systems protocol.

CLEMSON UNIVERSITY ALL HAZARDS EMERGENCY OPERATIONS PLAN

BASIC PLAN

I. GENERAL

100.00 Plan Fundamentals

This plan contains the following components:

- Basic Plan

- Lists for:

    1. Functional Annexes

    2. Emergency Support Functions

    3. Hazard Specific Attachments

    4. Supporting documents and attachments

100.10 Purpose of the Plan

The Clemson University (CU) All Hazards Emergency Operations Plan has been designed as an administrative plan to provide the guidelines and directives deemed necessary to cope with most CU emergencies. The overall ability of the CU campus to respond to an emergency will rely upon the presence and overall quality of tactical or operational plans and the business continuity plans developed by each college, division, department or unit. The purpose the Clemson University All Hazards Emergency

Operations Plan is to enable emergency responders and staff to perform essential emergency planning and response functions which will save lives; establish responsibilities necessary to perform these functions; and to prevent, minimize, and repair damage; and to ensure continuity of operations so essential services may continue to be provided to the university and its faculty, staff, students and visitors. The Clemson University All Hazards Emergency Operations Plan assigns roles and responsibilities to departments and individuals who are directly responsible for emergency response efforts and critical support services, and provides a management structure for coordinating and deploying all essential resources.

100.11 Scope of the Plan

Numerous natural or man-made disasters and hazards can affect the University and pose an actual or potential threat to public health and safety on campus. A comprehensive emergency plan is needed to insure the protection of students, employees, and the public from the effects of critical incidents and emergencies. This plan may be activated in response to a regional or national crisis that affects the University system. Any emergency that affects our students, faculty, and/or staff community is to be considered a University emergency. This plan is designed to enable faculty, staff, and students to successfully cope with campus critical incidents and emergencies. The overall ability of University personnel to respond to an incident will rely primarily upon preplanned procedures, Incident Action Plans, business continuity plans, university building or facility Emergency Action Plans, and existing or newly promulgated SOPs and

other similar directives. This plan, while primarily local in scope, is intended to be able to support a comprehensive, national, all-hazards approach to domestic incident management across a spectrum of activities including mitigation, preparedness, response, and recovery.

The Clemson University All Hazards Emergency Operations Plan includes directly or by reference or incorporation such annexes, attachments, Incident Actions Plans, building and facility plans and other approved instruments and inclusions which are intended to augment, assist, support, or amend the Basic Plan during emergency operations formulated in anticipation or response to a critical incident, crisis, or disaster.

The Clemson University All Hazards Emergency Operations Plan guides preparedness, response, recovery, and mitigation actions and may be activated during any of the following incidents, which, depending on Clemson University needs, may include, but are not limited to:

- Active Shooters

- Aircraft incidents

- Bombs

- Chemical, Biological, Radiation, Nuclear, Explosive (CBRNE) incidents

- Civil Disorder/Disturbances

- Cyber Attacks

- Earthquakes

- Explosions

- Fires

- Floods

- Hostage Situations

- Hurricanes

- Medical Emergencies: Severe/Mass Casualty incidents

- Snow Emergencies

- Structural Collapses

- Tornados

- Utility Emergencies

- Volcanic Eruptions, and

- Others as prescribed by the institution

The plan establishes the policies and procedures by which Clemson University will coordinate its response to disasters impacting the University. Describing how the University will mobilize resources and conduct activities to guide and support local emergency management efforts through preparedness, response, recovery, and mitigation planning. The plan addresses the various types of emergencies that are likely to occur, from local emergencies with minor impact to major or catastrophic disasters. The plan utilizes the Emergency Support Function (ESF) concept to marshal and apply state resources and describes the responsibilities of state agencies in executing effective response and recovery operations.

This plan assigns specific functions and responsibilities to appropriate colleges, departments or units, agencies and organizations within the University, as well as outlines the methods how private sector and voluntary organizations may assist the University in response to events.

This plan supports the National Incident Management System (NIMS) and Incident Command System (ICS), which is a nationwide template enabling federal, state, local, and tribal governments and private sector and nongovernmental organizations to work together effectively and efficiently to prevent, prepare for, respond to, and recover from domestic incidents regardless of cause, size, or complexity.

100.12 Plan Authority and Date of Effect

As the President of this University, I direct that this Plan shall be in full force and effect as of 12:01 A.M. on the first day of the month next following the date of the last signing of this instrument, as evidenced by the signatures as affixed below.

This Emergency Operations Plan has been reviewed and approved by:

University President	Date
Vice President for Academic Affairs and Provost	Date
Vice President for Public Service and Agriculture	Date
Chief Financial Officer	Date
Vice President for Student Affairs	Date

Chief of Police and Public Safety Director   Date

Director of Emergency Management   Date

100.20 Introduction

It is the policy of Clemson University to be prepared for any emergency or disaster.

Emergency response personnel, equipment, and facilities will be maintained in a state of

readiness to save lives, prevent or minimize damage to property, and provide assistance

to all people who are threatened by an emergency or who become victims of any

disaster. Emergency operations will be coordinated to the maximum extent with

comparable activities of local governments, state agencies, the federal government, and

private agencies of every type.

100.21 Statement of Policy

This Plan is a comprehensive administrative plan for the protection of life and

property on the CU campus. It is compatible with the doctrines and methods expressed

in the National Incident Management System (NIMS), the Incident Command System

(ICS), the National Response Framework (NRF), the FEMA Comprehensive

Preparedness Guide (CPG 101), Homeland Security Presidential Directive-5 (HSPD-5),

Homeland Security Presidential Directive-8 (HSPD-8), and other applicable federal and

state directives.

100.22 Plan Applicability

The policies and procedures contained in this plan will be followed by any administrator, faculty member, or staff member, whose position and/or duties are expressly addressed or are implied by this Plan. University emergency operations will be conducted within the framework of the policies and procedures of the federal National Incident Management System (NIMS), the federal National Response Framework (NRF), the FEMA Comprehensive Preparedness Guide (CPG 101) and all applicable local, state, county, and federal laws, ordinances, and regulations.

100.23 Plan Implementation

Whenever an emergency affecting the campus reaches such proportions that it cannot be handled by routine measures, the University President, or his/her designee may declare a University State of Emergency and shall cause implementation of this Plan by a designated Incident Commander or in the absence of an IC, the Director of Emergency Management. In the alternative, if a declared University State of Emergency is determined not to be necessary, portions or all of this EOP may be activated as needed to contain or control an incident which may or may not include the activation of an EOC.

100.24 Plan Procedures Should Be Flexible

Since an emergency may occur suddenly and without warning, this Plan must be flexible enough to accommodate conditions as they occur. While most incidents are handled on a daily basis by a single jurisdiction at the local level, there are important

instances in which successful domestic incident management operations depend on the involvement of multiple jurisdictions, functional agencies, and emergency responder disciplines. These instances require effective and efficient coordination across an often-broad spectrum of organizations and activities.

Once a critical incident begins to evolve, the Incident Commander shall be continuously mindful of the possibility that University resources and capabilities may be overwhelmed. If so, the Incident Commander shall so apprise the University President of this fact, or the possibility thereof, so that a request for additional assistance can be forwarded promptly to county or state authorities in a timely and effective manner.

The promulgation and maintenance of this Plan is the responsibility of the Director of Emergency Management as directed by the University President.

100.25 Exceptions to Plan Functions and Responsibilities

Exceptions to Plan policies and procedures may only be implemented after the specific written approval from the University President, or their designee is obtained.

100.26 Plan Changes and Recommendations

Requests for procedural changes and other recommendations will be submitted in writing to the Office of Emergency Management for review and finalization. All changes recommended by the Office of Emergency Management will be submitted to through the office of the Public Safety Director who may submit recommended changes to the Vice President of Student Affairs to be presented to the Administrative Council for evaluation and final approval before being integrated into the EOP.

100.27 Plan as Primary Source Instrument, exceptions

The Clemson University All Hazards Emergency Operations Plan shall be used as the primary source for guiding University administrators, students, and staff whenever an emergency or a disaster occurs on or in close proximity to the campus. It is recognized that, in addition to the procedures outlined in this Plan, there are functional and geographic areas close to or on the campus having specific procedures in place which are to be followed initially in any developing emergency. These additional procedures, including SOPs, checklists, Field Operations Guides (FOG), and other similar guidelines, shall remain in effect as long as they do not conflict with the provisions of this Plan.

100.28 Plan Conflicts

This EOP supersedes all previously developed administrative policies and procedures that address campus emergency operations. Conflicts with existing plans, including university SOPs and similar directives shall be reconciled with this Plan or shall be immediately brought first to the attention of the University Public Safety Director and then to the Office of Emergency Management as soon as possible for resolution.

100.29 Plan Legal Basis and References

Public Laws (PL)

- Homeland Security Act of 2002, Pub. L. No. 107-296, 116 Stat. 2135 (2002)

- Federal Civil Defense Act, as amended (50 USC 2251 et seq.), 1950

- Disaster Relief Act, PL 93-288, as amended (42 USC 5121 et seq.), 1974

- Superfund Amendment and Reauthorization Act (also known as the Emergency Planning and Community Right to Know Act), PL 99-499, 1986

- Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 93-288, as amended by Pub. L. 109-295, 120 Stat. 1355 (2006)

- Disaster Mitigation Act, PL 106-390, 2000   United States Code (USC), Title 42, Public Health and Welfare

- Chapter 68, Disaster Relief

- Chapter 116, Emergency Planning and Community Right-To-Know (EPCRA)

South Carolina State Statutes

- Chapter 58, Division of Public Safety Programs

- Executive Order 2005-12- NIMS

- SECTION 6-11-1810. Authorization of mutual aid assistance

- SECTION 6-11-1820. Utilization of incident commander, and Incident Command System, at emergency incidents

- SECTION 6-11-1420. Operations at scene of fire

- Title 48 – Environmental Protection and Conservation

- Title 44 – Health CHAPTER 4. EMERGENCY HEALTH POWERS

- Title 46 – Agriculture, chapter 7 Clemson University

- Title 59 – Education, Chapter 119 Clemson University

- Title 4 – Counties, Chapter 19 Fire Protection Services

- Title 44 – Health, Chapter 61 Emergency Medical Services

- Title 44 – Health, Chapter 56 Hazardous Materials Waste Management

- Title 25 – Military, Civil Defense and Veterans Affairs

- Pickens County Ordinance #313 – Pickens County Emergency Management Agency

100.30 Training and Certification Standards

All personnel who are defined and tasked as emergency responders or emergency management personnel are required to train and/or be certified to minimum levels of competency as required by various federal, state, and local standards, including Homeland Security Presidential Directive-8 (HSPD-8). For most personnel this means, at a minimum, completing training courses offered by the Federal Emergency Management Agency as well as local municipal, county, or state emergency management resources for training.

(http://www.fema.gov/emergency/nims/NIMSTrainingCourses.shtm)

100.31 The NIMS and the Emergency Operations Plan

Within NIMS, preparedness focuses on the following elements: planning; procedures and protocols; training and exercises; personnel qualifications, licensure, and certification; and equipment certification. Effective adoption, implementation, and training of all NIMS components in advance of an incident or planned event will facilitate collaborative emergency management and incident response activities. Preparedness is a foundational step in emergency management and incident response;

therefore, the concepts and principles that form the basis for preparedness are an integration of the concepts and principles of all NIMS components (USDHS, FEMA 2008). NIMS provides the mechanisms for emergency management/response personnel and their affiliated organizations to work collectively by offering the tools to enhance preparedness. Preparedness is achieved and maintained through a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action. Ongoing preparedness efforts among all those involved in emergency management and incident response activities ensure coordination during times of crisis. Moreover, preparedness facilitates efficient and effective emergency management and incident response activities.

100.40 Incident Action Plans (IAP)

Tornadoes, floods, blizzards and other natural disasters can affect the University. In addition, disasters such as transportation accidents, explosions, accidental releases of hazardous materials and national security emergencies pose a potential threat to public health and safety on campus. Terrorist events involving Weapons of Mass Destruction (WMD) may also be a threat. A comprehensive emergency plan is needed to protect students, employees and the public from the effects of these hazards. An Incident Action Plan (IAP) guides preparedness, response, recovery, and mitigation actions and may be activated during any incident.

The Office of Emergency Management is responsible for coordinating the planning functions for responses to unusual occurrences for the University. This function

includes the development, publishing, and retention of all IAPs. An IAP includes the overall incident objectives and strategies established by the IC or UC. In the case of UC, the IAP must adequately address the mission and policy needs of each jurisdictional agency, as well as the interaction between jurisdictions, functional agencies, and private organizations. The Clemson University IAP should include the use of the following ICS forms, at a minimum:

Forms:	Components:	Normally Prepared By:
ICS-202	Incident Objectives	Incident Commander
ICS-203	Organization List/Chart	Resources Unit
ICS-204	Assignment List	Resources Unit
ICS-205	Communications Plan	Communications Unit
ICS-206	Responder Medical Plan	Medical Unit
N/A	Incident Map	Situation Unit
N/A	General Safety Message	Safety Office

The IAP addresses tactical objectives and support activities required for one operational period, generally of 12 to 24 hours duration. The IAP contains provisions for continuous incorporation of "lessons learned" as incident management activities progress. An IAP will be completed for the University under the following circumstances when:

- Resources from multiple agencies and/or jurisdictions are involved

- Multiple jurisdictions are involved

- The incident will effectively span several operational periods

- Changes in shifts of personnel and/or equipment are required; or

- There is a need to document actions and/or decisions

Any original Incident Action Plan shall be retained for a minimum period of twenty years by the University within the Planning Section files of the Office of Emergency Management. Copies of any IAP shall be distributed to all primary and supporting departments or units of the university for appropriate tactical, planning, training, and historical uses, or for any other legitimate purpose.

100.41 After Action Reports

Immediately after the conclusion of emergency operations concerned with a critical incident, crisis, or disaster, the Incident Commander shall cause the preparation and publication of an After Action Report (AAR). The AAR shall be written by the Office of Emergency Management with the assistance of the Director of Risk Management and any other section of the Incident Command Group, as required. AAR documents shall be completed within 30 days of termination of incident operations.

The AAR shall detail all facts and circumstances known about incident causation, the quality and nature of the response effort, and the incident resolution. In addition, the AAR shall determine both deficiencies and highlights that occurred during the resolution of the incident and shall make recommendations about planning, training, and operational needs and improvements for consideration to enhance the efficiency of future responses.

Each original AAR shall be retained on file within the Offices of the CUPD and CUFD & EMS Chiefs and the Office of Emergency Management for a period of 20 years.

Copies of the AAR shall be contemporaneously forwarded to all Chiefs of the Incident Command Group, including the IC.

100.50 General Response Guidelines to Campus Conditions

Under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5131, an emergency is defined as: "Absent a Presidentially declared emergency, (is) any incident(s) human-caused or natural that requires responsive action to protect life and property."

The university classifies responses using the NIMS system as developed by the , according to increasing severity. The severity of an incident will be identified by the incident commander (IC) or the first qualified individual to arrive at the scene of the incident. The severity level of the incident may increase or decrease during response activities, requiring the level of response to be adjusted. The severity of an incident is determined by the threat to the safety of the campus community and university property, as well as the ability of the university to handle the incident.

Many emergencies involve a recognizable build-up period during which actions can be taken to achieve a gradually increasing state of readiness. These states are called readiness conditions, and consist of a five-tier system. Increased readiness refers to a situation that presents a greater potential threat than a "Type 5 incident" and may pose an immediate threat to life and/or property. Increased readiness actions may be appropriate when situations similar to the following occur:

- RE: Radiological Emergency Response

- Tornado / Severe Thunderstorm Watch: issued by the NWS, indicates the possibility of tornadoes and/or severe thunderstorm development. Readiness actions may include increasing situation monitoring and placing selected staff on alert.

- Flash Flood Watch: issued by the NWS, indicates flash flooding is possible due to heavy rains occurring or expected to occur. Readiness actions may include increasing situation monitoring, conducting reconnaissance of known trouble spots, and deploying warning signs/alerts.

- Wildfire Threat: during periods of extreme wildfire threat, readiness actions may include deploying additional resources to areas most at risk, arranging for standby commercial water tanker support, conducting daily aerial reconnaissance, or initiating burn bans.

- Mass Gathering: for mass gatherings with previous history of problems, readiness actions may include reviewing security, traffic control, fire protection, and first aid planning with organizers, and determining additional requirements.

Levels of readiness conditions will be recommended to the university president for her/his decision by the vice president for Student Affairs, and/or the chiefs of CUFD & EMS or CUPD. General actions to be taken for each readiness condition are outlined in the following sections (100.51 - 100.55) and will be used as a means of increasing the university's alertness and emergency preparedness:

100.51 Normal Campus Conditions - (No Emergency – Type 5)

When normal campus conditions exist, no unusual response or planning activities are necessary:

- The incident can be handled with one or two single resources with up to six personnel.

- Command and General Staff positions (other than the Incident Commander) are not activated.

- No written Incident Action Plan (IAP) is required.

- The incident is contained within the first operational period and often within an hour to a few hours after resources arrive on scene.

- Examples include a vehicle fire, an injured person, or a police traffic stop.

- Under normal conditions emergency events occur and local officials are notified. One or more department or agency responds to handle the incident, and an ICP may be established. Limited assistance may be requested from other jurisdictions pursuant to established inter-local agreements.

- The normal operations of government are not affected.

100.52 CMT Crisis (Emergency Type – 4)

A crisis CMT emergency is an event which <u>may disrupt the orderly operations of a limited portion</u> of Clemson University or its institutional missions. A CMT crisis may affect multiple facets of the institution and <u>may raise questions or concerns over closing or shutting down a portion of Clemson University for a limited period of time.</u> Outside

emergency resources may be required, as well as a major effort from available campus resources. A CMT crisis on campus may require a meeting of the core Crisis Management Team:

- Command staff and general staff functions are activated only if needed.

- Several resources are required to mitigate the incident.

- The incident is usually limited to one operational period in the control phase.

- The agency administrator may have briefings, and ensure the complexity analysis and delegation of authority is updated.

- No written Incident Action Plan (IAP) is required but a documented operational briefing will be completed for all incoming resources.

- The role of the agency administrator includes operational plans including objectives and priorities.

100.53 Critical Incident (Minor Emergency – Type 3)

A critical incident or minor emergency is any event whose initial impact is limited to a specific college or department of the university. A critical incident causes significant disruption to the University colleges or departments which they affect, and may disrupt the overall institutional operations. During a critical incident an Incident Command Post (ICP) may be established as determined necessary by the CUPD or CUFD & EMS chiefs or their designee.

Outside emergency resources may be required, as well as a major effort from available campus resources. A crisis on campus will require establishment of an ICP

and may require an Emergency Operations Center (EOC) and/or a meeting of the core Crisis Management Team. Major policy considerations and decisions may be considered by the university administration during a crisis:

- When capabilities exceed initial attack/disaster, the appropriate ICS positions should be added to match the complexity of the incident.

- Some or all of the Command and General Staff positions may be activated, as well as Division/Group Supervisor and or Unit Leader level positions.

- A Type 3 Incident Management Team (IMT) or incident command organization manages initial action incidents with a significant number of resources, an extended attack/disaster incident until containment/control is achieved, or an expanding incident until transition to a Type 1 or Type 2 team.

- The incident may extend into multiple operational periods.

- A written IAP may be required for each operational period.

100.54 Crisis (Major Emergency – Type 2)

A crisis or major emergency is any event which disrupts the orderly operations of Clemson University or its institutional missions. A crisis affects all facets of the institution and often raises questions or concerns over closing or shutting down the institution for any period of time. Outside emergency resources will probably be required, as well as a major effort from available campus resources. A crisis on campus will require establishment of an ICP and may require an Emergency Operations Center

(EOC). Major policy considerations and decisions will usually be considered by the university administration during a crisis.

- This type of incident extends beyond the capabilities for local control and is expected to go into multiple operational periods. A Type 2 incident may require the response of resources out of area, including Pickens County Emergency Management, State of South Carolina Emergency Management Division, regional and/or national resources, to effectively manage the operations, command, and general staffing.

- Most or all of the Command and General Staff positions are filled.

- A written IAP is required for each operational period.

- Many of the functional units are needed and staffed.

- Operations personnel normally do not exceed 200 per operational period and total incident personnel do not exceed 500 (guidelines only).

- The agency administrator is responsible for the incident complexity analysis, agency administrator briefings, and the written delegation of authority.

High Readiness

High readiness refers to a situation with a significant potential and probability of causing loss of life and/or property and presents a greater potential threat than "Type 5, 4 or 3 incidents". This condition will normally require some degree of warning to the public.

Actions could be triggered by severe weather warning information issued by the National Weather Service or the National Emergency Broadcast System, such as:

- RE: Radiological Emergency Response

- Tornado / Severe Thunderstorm Warning: as issued by the NWS, is issued when a tornado and/or a severe thunderstorm has been sighted/reported in the area or indicated by weather radar and is imminent or occurring in the warning area. Readiness actions may include activating the EOC, conducting continuous situation monitoring, and notifying the public about the warning.

- Flash Flood Warning: issued to alert persons when flash flooding is imminent or occurring on certain streams or designated areas, indicating immediate action should be taken. Readiness actions may include notifying the public about the warning, evacuating low-lying areas, opening shelters to house evacuees, and conducting continuous situation monitoring.

- Winter Storm Warning: issued when heavy snow, sleet, or freezing rain are forecast to occur separately or in a combination. Readiness actions may include preparing for possible power outages, putting road crews on stand-by to clear and/or sanding the roads, and conducting continuous situation monitoring.

- Mass Gathering: demonstration/civil disorder in which relatively large-scale localized violence is imminent. Readiness actions may include increasing law enforcement presence, putting hospitals and fire departments on alert, and conducting continuous situation monitoring.

100.55 Disaster (Severe Emergency Type - 1)

A disaster is an event whose nature and impact extends beyond Clemson University and disrupts not only operations and functions of the institution, but also those of surrounding communities. During a disaster, resources that Clemson University might typically rely on may be delayed or unavailable because they are being employed within the broader community. In some instances, mass casualties or severe property damage may have been sustained. A coordinated effort of all campus-wide resources is required to effectively control the situation and outside emergency services and resources will be essential. In all cases of a disaster, an ICP and an EOC will be activated, and appropriate support and operational plans will be executed:

- This type of incident is the most complex, requiring national resources to safely and effectively manage and operate.

- All Command and General Staff positions are activated.

- Operations personnel often exceed 500 per operational period and total personnel will usually exceed 1,000.

- Branches need to be established.

- The agency administrator will have briefings, and ensure that the complexity analysis and delegation of authority are updated.

- Use of resource advisors at the incident base is recommended.

- There is a high impact on the local jurisdiction, requiring additional staff for office administrative and support functions.

<u>Maximum Readiness</u>

Maximum readiness refers to a situation in which hazardous conditions are imminent. This condition denotes a greater sense of danger and urgency than "Type 4, 3, 2 or 1 event." Actions could also be generated by severe weather warning information issued by the National Weather Service (NWS) or National Emergency Broadcast System, combined with factors making the event more imminent.

- Radiological Emergency Response

- Tornado / Severe Thunderstorm Warning: a warning issued by the NWS, when a tornado, very large hail, or widespread, straight-line, damaging wind has been sighted or is approaching a highly populated area or a special event (football game or other highly attended outdoor venue). Readiness actions may include taking immediate shelter and putting damage assessment teams on stand-by.

- Flash Flood Warning: flooding is imminent or occurring at specific locations. Readiness actions may include conducting evacuations, placing rescue teams on alert, sheltering evacuees and/or others displaced by the flooding, and conducting continuous monitoring of the situation.

- Mass Gathering: civil disorder is about to erupt into large-scale and widespread violence. Readiness actions may include putting hospitals and fire departments on alert, requiring all law enforcement present for duty, and conducting required continuous situation monitoring.

II. SITUATION

110.00 General Assumptions

Emergency planning requires a commonly accepted set of assumed operational conditions that provide a foundation for establishing protocols and procedures. These assumptions are called planning assumptions, and the standard practice is to base planning on the potential worst-case conditions. For Clemson University, severe weather hazards pose the most probable threat of emergency conditions. Using the severe weather model, the following planning assumptions were incorporated into this plan:

- Critical lifeline utilities may be interrupted, including water delivery, electrical power, natural gas, telephone communications, microwave and repeater-based radio systems, cellular telephones, and information systems.

- Regional and local services may not be available.

- Major roads, overpasses, bridges, and local streets may be damaged.

- Buildings and structures, including homes, may be damaged.

- Damage may cause injuries and displacement of people.

- Normal suppliers may not be able to deliver materials.

- Contact with families and households of the university community may be interrupted.

- People may become stranded at the university, and conditions may be unsafe to travel off campus.

- Emergency conditions that affect campus will likely affect the surrounding community, including the city of Clemson and Pickens County proper.

- The University will not receive outside assistance in rapid damage assessment and will need to conduct its own situation analysis and deployment of on-site resources and management of emergency operations on campus, through the campus CMT/EOC while emergency conditions exist.

- Communication and exchange of information will be one of the highest priority operations for the campus CMT/EOC.

110.10 An Emergency may occur at any time

A critical incident, crisis, or disaster may occur at any time of the day or night, on weekends or holidays, and with little or no warning. This plan addresses emergency preparedness activities that take place during all four phases of emergency management. These emergency management phases include the following:

1. Mitigation

    Clemson University will conduct mitigation activities as an integral part of the emergency management program. Mitigation is intended to eliminate hazards, reduce the probability of hazards causing an emergency situation, or lessen the consequences of unavoidable hazards. Mitigation should be a pre-disaster activity, although mitigation may also occur in the aftermath of an emergency situation with the intent of avoiding repetition of the situation.

2. Preparedness

Preparedness activities will be conducted to develop the response capabilities needed in the event of an emergency. Preparedness is everyone's responsibility. Colleges, departments, and offices must develop plans and procedures to assist in the overall implementation and maintenance of emergency plans. Among the preparedness activities included in the emergency management program are:

- Providing emergency equipment and facilities

- Emergency planning, including maintaining this plan, its annexes, and appropriate SOPs

- Conducting or arranging appropriate training for emergency responders, emergency management personnel, other local officials, and volunteer groups who assist this jurisdiction during emergencies

- Conducting periodic drills and exercises to test emergency plans and training

3. Response

Clemson University will respond to emergency situations effectively and efficiently. The focus of most of this plan and its annexes is on planning for the response to emergencies. Response operations are intended to resolve a situation while minimizing casualties and property damage.

Response activities include: warnings, emergency medical services, firefighting, law enforcement operations, evacuation, shelter and mass care, Emergency Public Information, search and rescue, as well as other associated functions.

4. Recovery

If a disaster occurs, Clemson University will carry out a recovery program that involves both short-term and long-term efforts. Short-term operations seek to restore vital services to the university community and provide for the basic needs of the public. Long-term recovery focuses on restoring the university to its normal state. The federal government, pursuant to the Stafford Act, provides the vast majority of disaster recovery assistance. The recovery process includes assistance to individuals, businesses, and government and other public institutions. Examples of recovery programs include temporary housing, restoration of university services, debris removal, restoration of utilities, disaster mental health services, and reconstruction of damaged roads and facilities. The recovery program should be outlined in a Recovery Annex.

110.20 Incidents are handled locally

Almost all incidents are handled by the University locally; some incidents may require the support and resources of the City of Clemson, Pickens County, State of South Carolina, federal governments, and/or private institutions, Non-Governmental Organizations (NGOs), and other entities.

110.30 Incident plans

The succession of events in any incident are not fully predictable, therefore, this EOP and any Incident Action Plan (IAP) devised prior to or at the time of the event, will serve

primarily as a guide or checklist, and may require modifications in the field to mitigate injuries, damages and/or to recover from the incident.

110.40 Outside resources or assistance may be delayed

An emergency or a disaster may additionally affect residents within close proximity to the University, therefore City of Clemson, Pickens County, State of South Carolina, and federal emergency services or resources may not be immediately available. In such cases, a delay in the delivery of effective off-campus emergency services may typically be expected for a period of 48-72 hours or longer.

110.50 Media events must be properly addressed

Any incident that is likely to result in media coverage should be promptly reported to the Clemson University Chief Public Affairs Officer. The Chief Public Affairs Officer also serves as Clemson University's primary spokesperson. During non-business hours report these incidents to the E-911/PSAP (Public Safety Answering Point) dispatch located in the CUPD 864-656-222. Personnel shall then make further notifications according to established plans. The accurate assessment of received information and its accurate reporting to all will negate the spread of unfounded rumors, panic, and the effects of misinformation.

110.60 Operational requirements must be sustainable

During any incident which is perceived to require operations for longer than twenty-four hours, at the discretion of the University Public Safety Director, impacted personnel

shall be assigned to 12 hour shifts with cancellation of vacations, holidays, or regular time off from work shift assignments, as appropriate.

110.70 Communications are likely to be disrupted or compromised

During an emergency or disaster, there is a likelihood of the disruption of communications due to damage to related infrastructure or by the burdens placed on communications systems due to high levels of usage. This is especially true of cellular telephones. Prior agreements with cellular companies should be in place to secure usable operating channels during any emergency by arranging for Wireless Priority Service (WPS) or as otherwise noted in the University Emergency Communications Plan.

110.80 Incident Documentation

Each participating college, department, section, building, or function manager/ supervisor is responsible for documenting all activities and expenditures associated with the discharge of his/her emergency functions. Additionally, each emergency response entity will retain documents associated with its activities during the response. These documents, although local in origin, will be based primary on the formats and purposes devised for federal ICS forms for the following purposes:

- Provide a basis to assess the emergency and evaluate the response
- Identify areas where campus preparedness activities worked well and those areas needing improvement
- Verify all emergency related expenses and document efforts to recover such expenses

- Assist recovery in the event of litigation

All documents, status sheets, daily logs, and forms shall be kept along with all financial records and photographs related to the emergency. The Finance/ Administration Section Chief within the ICS structure shall request documentation, including post-incident reports, from any responding agency that participated in an incident response for Clemson University.

120.00 Declaration of a University State of Emergency (USOE)

The decision to declare a University State of Emergency rests primarily with the University President or his or her designee. Upon notification of a critical incident or emergency by the Chief of CUPD, if the President decides that a USOE declaration is necessary, he or she shall so inform the Chief of CUPD, who shall in turn direct the CUPD Dispatch to make necessary notifications. Clemson University policy is as follows:

> "Emergency Suspension of University Policies and Procedures: In the event that a state of emergency has been declared by the Board of Trustees or the President, in accordance with Board of Trustees Policy on "Emergency Delegation of Authority", the President of the University or the President's official designee, shall have the right to suspend or modify any University policy or procedure in the interest of avoiding a threat of imminent harm to any person or property. Any suspension or modification of University policy or procedure shall be effective only

during the period of the state of emergency." (*Approved October 2009*

Board of Trustees meeting)

120.10 The Initial Incident Response

This plan identifies the functional groups, management structure, key responsibilities, emergency assignments and general procedures to follow during emergency conditions. The plan is activated whenever emergency conditions exist in which normal operations cannot be performed and immediate action is required to:

- Save and protect lives

- Coordinate communications

- Prevent damage to the environment, systems, and property

- Provide essential services

- Temporarily assign university staff to perform emergency work

- Invoke emergency authorization to procure and allocate resources

- Activate and staff the ECC and other EOCs (CUFD & EMS, CUPD, Facilities, etc.)

120.20 Involvement of the Clemson University Police (CUPD) and the Clemson University Fire & EMS (CUFD & EMS) is required

Whenever conditions are present that meet the definition of a crisis or disaster, or whenever a University State of Emergency is declared by the University President, or designee, E-911/PSAP (Public Safety Answering Point) communication will immediately place procedures into effect that are designed to meet the emergency by safeguarding persons and property and by maintaining the overall functioning of the institution.

On-duty E-911/PSAP communications personnel shall immediately consult with the Clemson University Police Chief/Director of Public Safety through the chain of command regarding the emergency and shall initially follow the notification procedures outlined in Sections 300.10 to 310.40 of this Plan. The following procedure from the CUPD Unusual Occurrences Procedure Manual and Operational Plan in Chapter 1 Emergency Mobilization (page 6) Alert Stages are:

- **Stage One** (Normal): Day-to-day operations of the Clemson University Police Department are in effect. No unusual occurrence is anticipated.

- **Stage Two** (Advanced): Day-to-day operations of the Clemson University Police Department are in effect. An unusual occurrence is anticipated. All personnel must notify their supervisor of a telephone number where they can be reached (if they are not at their residence). When notified of an Advanced Alert, all officers are to prepare clothing and personal equipment for immediate recall. All officers with assigned vehicles should assure that they have full fuel tanks in their vehicles and make arrangements for the welfare of their families.

- **Stage Three** (Emergency): Normal or Advanced Alert conditions are in effect. An unusual occurrence is imminent. All personnel are placed on "telephone stand-by" and must remain at their residence and prepare for immediate recall. All officers should double check their clothing and personal equipment for serviceability and place these items in their vehicle (see Annex D: Equipment).

All officers with take-home vehicles must prepare to report to the assembly area within thirty minutes.

- **Stage Four** (Recovery): Advanced or Emergency Alert conditions are in effect. An unusual occurrence has subsided. All personnel will continue with their current assignments and await further instructions. (The majority of emergencies requiring a recall will take place during "Normal" conditions. It is a rare situation when an unusual occurrence can be anticipated or is imminent. It is imperative that all personnel are aware of their responsibilities during an emergency situation that requires a recall.)

120.30 Persons allowed on campus during a University State of Emergency

During a Clemson University State of Emergency, only registered students, active faculty and staff, and their affiliates (i.e., persons required by employment) are authorized to enter or remain on campus. Persons who cannot present proper identification (such as a student or employee identification card or other suitable identification showing that they have a legitimate purpose on campus) will be directed to leave the campus. Unauthorized persons remaining on campus may be subject to expulsion, detention, or arrest in accordance with applicable laws.

120.40 Nonessential persons shall be restricted from the Incident Site

Only faculty, staff, and student volunteers who have been assigned to Incident Management duties or who have been issued a Clemson University Emergency Identification Pass (EIP) by CUPD and/or CUFD & EMS will be allowed to enter the

immediate incident site. Since any terrorist incident is considered to be a criminal act, that incident site is to be managed as a crime scene that requires the collection and preservation of evidence and other procedural requirements that are critical to the performance of a criminal investigation.

120.50 Perform Communications and Media Relations duties

Any incident that is likely to result in media coverage should be promptly reported to the Clemson University Chief Public Affairs. The Chief Public Affairs Officer also serves as Clemson University's primary spokesperson. Effective communications plays a critical role during any emergency. In almost all emergencies, the University will need to communicate with internal audiences, including students, faculty, and staff. Depending on the severity of the situation, it is likely that the University will need to communicate with external media sources and through them to wider audiences.

120.60 Direct all media inquiries to the CU Public Information Office

Any incident that is likely to result in media coverage should be promptly reported to the Clemson University Chief Public Affairs. The Chief Public Affairs Officer also serves as Clemson University's primary spokesperson. All media inquiries should be directed to the Public Information Officer. It is important that information provided to outside media persons be coordinated through PIO to ensure consistency concerning communications about the status of the University during a critical incident or emergency. If the incident involves entities from other jurisdictions, the external

communications function of the PIO shall be coordinated through an established Joint Information Center (JIC).

120.70 Mutual Aid Agreements

Clemson University maintains Mutual Aid Assistance Agreements with appropriate law enforcement, fire and EMS agencies, details of which can be obtained from the within each agency. Clemson University does operate its own Fire Services. Backup Fire & EMS is provided through Central Fire Department and Pickens County EMS and South Carolina's ***Statewide Mutual Aid Agreement for Catastrophic Disaster Response and Recovery*** agreement.

120.80 Other Notifications

The PIO, in coordination with the Incident Commander, shall determine when and by what methods to appropriately issue timely warnings, emergency alerts, and other informational releases to key government officials, community leaders, emergency management response agencies, volunteer organizations, and any other persons and entities essential to mounting a coordinated response to the incident. It is critical that adjoining jurisdictions be notified whenever an incident has actual or potential impact on residents, buildings, traffic, or otherwise has an impact on civic health or well-being. Sufficient factual information should first be gathered and evaluated for accuracy to minimize the effects of spreading false rumors and misinformation, prior to disseminating any release of information.

III. MISSION

130.00 Mission Statement

Clemson University will provide for the protection of the people and resources in the county in order to minimize damage, injury and loss of life resulting from any type of disaster; provide for the continuity of government; and provide for damage assessment and survey of damage, private and public, resulting from such emergency.

IV.   EXECUTION

200.00 ICS Organizational Elements and Leadership Positions

Most incidents are managed locally and are typically handled by local communications/ dispatch centers and emergency management/response personnel19 within a single jurisdiction. The majority of responses need go no further. In other instances, incidents that begin with a single response within a single jurisdiction rapidly expand to multidisciplinary, multijurisdictional levels requiring significant additional resources and operational support. ICS provides a flexible core mechanism for coordinated and collaborative incident management, whether for incidents where additional resources are required or are provided from different organizations within a single jurisdiction or outside the jurisdiction, or for complex incidents with national implications (such as an emerging infectious disease or a bioterrorism attack).

ICS is a widely applicable management system designed to enable effective, efficient incident management by integrating a combination of facilities, equipment, personnel,

procedures, and communications operating within a common organizational structure. ICS is a fundamental form of management established in a standard format, with the purpose of enabling incident managers to identify the key concerns associated with the incident—often under urgent conditions—without sacrificing attention to any component of the command system.

200.10 Clemson University Table of Organization:
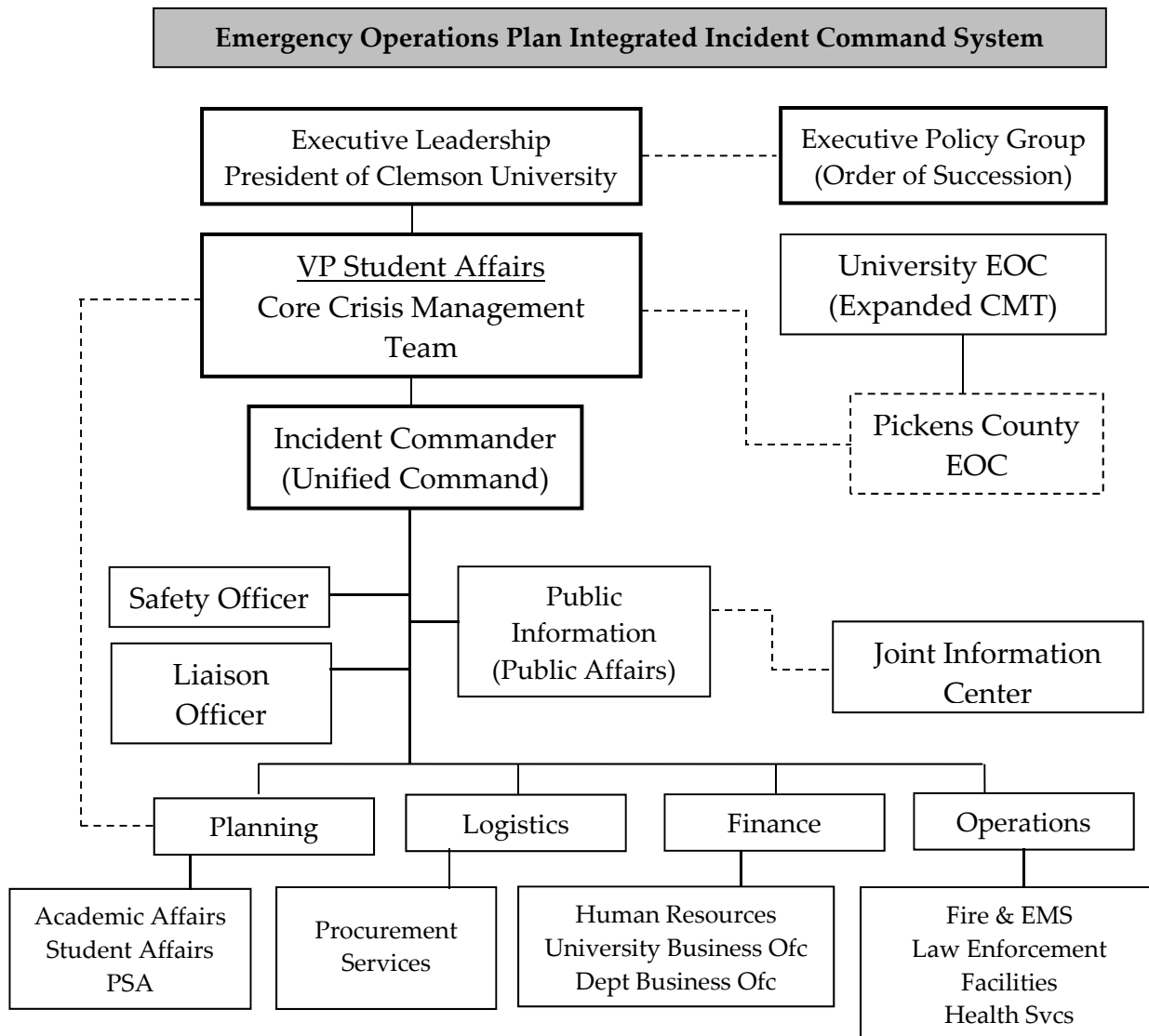
The following definitions will be used in conjunction with the CU Emergency Operations Plan:

- Crisis – As delegated by the President in the Crisis Management Plan

  Incidents that create a period of instability, risk, or public affairs exposure but that do not immediately affect lives and property will be mitigated by the Crisis Management Plan Incident annex. Some crisis may be more complex or extend beyond one operational period that will benefit from partial activation of the University EOC and a change in University OPCON. The University Executive Leadership will be consulted and kept apprised as appropriate. Ex: Lawsuits, Arrests, Near Fatal Injuries, Suicide Attempts, Regulatory Investigations, Negative News Coverage; Response to Death of a Faculty member, Student, Staff, Visitor, Partial or Temporary Loss of Campus Infrastructure.

- Emergencies

  Incidents that require immediate response to preserve lives and property will normally be stabilized by campus Public Safety Resources utilizing Standard Operation Guidelines as outlined in the ESF annexes. Some emergencies may become more complex and extend beyond one operational period that will benefit from partial or full activation of the University EOC and a change in OPCON. The CMT will Liaison with the

University Executive Leadership. Ex: Fires, Crimes, Bomb Threats, Tornados

- Disaster

Any incident that may result in the great loss of life or property will require a partial or full activation of the Clemson University EOC and a change in OPCON. University Resources will likely become exhausted and external assistance should be anticipated. Full NIMS-ICS will be implemented. Ex: Public Health Threat, Oconee Nuclear Emergency, Flood, or Terrorist Attack.

200.20 The Incident Management Team

The Incident Management Team (IMT) is defined by NIMS as the Incident Commander and the appropriate Command and General Staff personnel which are assigned to manage an incident.

200.30 The Incident Commander

The Incident Commander has overall control of any incident. All decisions that refer to campus evacuation, closure or restrictions, postponements and resumptions, and special circumstance personnel policies fall within the purview of the Incident Commander. The Incident Commander may be a manager with overall experience in the management of the University and its facilities, such as the University President or the Director of Facilities Management. In most cases, however, the IC will be the CUPD and/or CUFD & EMS senior campus fire or police/public safety official who has had

<u>Incident Command System training and critical incident related experience.</u> The command function may be conducted in one of two general ways:

(1) Single Incident Commander

When an incident occurs within a single jurisdiction and there is no jurisdictional or functional agency overlap, a single IC should be designated with overall incident management responsibility by the appropriate jurisdictional authority. (In some cases where incident management crosses jurisdictional and/or functional agency boundaries, a single IC may be designated if agreed upon.) Jurisdictions should consider designating ICs for established Incident Management Teams (IMTs).

(2) Unified Command

UC is an important element in multijurisdictional or multiagency incident management. It provides guidelines to enable agencies with different legal, geographic, and functional responsibilities to coordinate, plan, and interact effectively. As a team effort, UC allows all agencies with jurisdictional authority or functional responsibility for the incident to jointly provide management direction through a common set of incident objectives and strategies and a single IAP. Each participating agency maintains its authority, responsibility, and accountability. UC functions as a single integrated management organization, which involves:

- Co-located command at the ICP.

- One Operations Section Chief to direct tactical efforts.

- A coordinated process for resource ordering.

- Shared planning, logistical, and finance/administration functions, wherever possible.

- Coordinated approval of information releases.

All agencies in the UC structure contribute to the process of:

- Selecting objectives.

- Determining overall incident strategies.

- Ensuring that joint planning for tactical activities is accomplished in accordance with approved incident objectives.

- Ensuring the integration of tactical operations.

- Approving, committing, and making optimum use of all assigned resources.

The exact composition of the UC structure will depend on the location(s) of the incident (i.e., which geographical jurisdictions or organizations are involved) and the type of incident (i.e., which functional agencies of the involved jurisdiction(s) or organization(s) are required). The designation of a single IC for some multijurisdictional incidents, if planned for in advance, may be considered in order to promote greater unity of effort and efficiency. Under UC, the IAP is assembled by the Planning Section and is approved by the UC. A single individual, the Operations Section Chief, directs the tactical implementation of the IAP. The Operations Section Chief will usually come from the organization with the greatest jurisdictional involvement. UC participants will agree on the designation of the Operations Section Chief.

UC works best when the participating members of the UC co-locate at the ICP and observe the following practices:

- Select an Operations Section Chief for each operational period.

- Keep each other informed of specific requirements.

- Establish consolidated incident objectives, priorities, and strategies.

- Establish a single system for ordering resources.

- Develop a consolidated written or oral IAP to be evaluated and updated at regular intervals.

- Establish procedures for joint decision making and documentation.

200.40 Incident Command and Command Staff Functions

Incident Command is responsible for overall management of the incident. Overall management includes Command Staff assignments required to support the command function. The Command and General Staff are typically located at the Incident Command Post (ICP). In an Incident Command organization, Command Staff typically includes a Public Information Officer, a Safety Officer, and a Liaison Officer, who report directly to the IC/UC and may have assistants as necessary. The functions of the Command Staff shall include, but not be limited to the following:

- Command Staff shall advise the Incident Commander of all campus-wide policy matters as they relate to the campus crisis or disaster

- Command Staff shall assist in the implementation of policy strategies developed to mitigate the effects of the crisis or disaster

- Command Staff shall establish a priority list of issues that reference specific crisis and/or disaster situations, and shall approve all communications initiatives and emergency directions

- Command Staff shall maintain liaison with pertinent municipal, county, State, Federal Agencies, and other University leaders.

200.41 The Public Information Officer

Preparedness and training for emergency media communications procedures shall be conducted under the direction of the Clemson University Chief Public Information Officer. The PIO will coordinate all communications functions during a CU State of Emergency. Using information provided by others, the PIO will provide timely information on the status of Clemson University and information regarding any emergency measures being undertaken. If required, the Clemson University PIO will function through the Joint Information System (JIS) to permit coordinated PIO services whenever subordinate to joint or area command functions. The PIO:

- Advises the Emergency Manager and CU President on matters of emergency public information (EPI).

- Establishes and maintains a working relationship with local media.

- Prepares a call-down list for disseminating EPI to groups that do not have access to normal media (e.g., schoolchildren).

- Prepares emergency information packets for release; distributes pertinent materials to local media prior to emergencies; and ensures that information

needs of visually impaired, hearing impaired, and non-English speaking audiences are met.

- Coordinates with the Clemson University Livestock-Poultry Health (CULPH) animal care and control agency to obtain information for dissemination to the public on the appropriate action that should be taken to protect and care for companion and farm animals and wildlife during disaster situations.

Clemson University Livestock-Poultry Health (CULPH) is responsible for the coordination of all ESF-17 administrative, management, planning, training, preparedness, mitigation, response, and recovery activities to include developing, coordinating, and maintaining ESF-17 Standard Operating Procedures for the State of South Carolina. All ESF-17 supporting agencies must assist CULPH in the planning and execution of the above. (South Carolina Emergency Management Division, SC-EOP Annex 17, ESF 17 - Animal/Agriculture Emergency Response -2009)

Communication methods may include, but shall not be limited to the following:

- E-mail messages to all students, faculty and staff or subsets of those groups
- Voicemail messages, including the establishment of an "emergency message" voicemail box to provide a status update message for phone inquiries
- Web-based messages

- Establishment of a phone center with a special hotline number that would be staffed during emergencies

- Emergency signage

- News releases to the media

- News conferences for the media

Clemson University has two basic guidelines to observe in any emergency incident:

- Only authorized spokespersons such as the Clemson University President or their designee, or the Chief Public Affairs Officer will meet or talk with the media

- Only factual information is released; no speculation is to be offered Additional Guidelines

- All executive and supervisory personnel are notified to report emergencies to the police. They also should be reminded not to discuss the situation and instruct their subordinates not to discuss the situation with anyone, especially the media, on behalf of Clemson University

- The President, other senior administrators, and the Chief Public Affairs Officer are to be immediately informed of an existing emergency. Complete details are to be made available to these officials

- The President and the Chief Public Affairs Officer and any other appropriate personnel involved shall confer and decide on appropriate actions

- All calls from the news media are to be referred directly to the Chief

  Public Affairs Officer at: *(864) 656-4233* or *(864) 656-2061*

200.42 The Safety Officer (SO)

The Safety Officer monitors incident operations and advises the IC/UC on all matters relating to operational safety, including the health and safety of emergency responder personnel. The ultimate responsibility for the safe conduct of incident management operations rests with the IC/UC and supervisors at all levels of incident management. The Safety Officer is, in turn, responsible to the IC/UC for the systems and procedures necessary to ensure ongoing assessment of hazardous environments, including the incident Safety Plan, coordination of multiagency safety efforts, and implementation of measures to promote emergency responder safety as well as the general safety of incident operations. The Safety Officer has immediate authority to stop and/or prevent unsafe acts during incident operations.

It is important to note that the agencies, organizations, or jurisdictions that contribute to joint safety management efforts do not lose their individual identities or responsibility for their own programs, policies, and personnel. Rather, each contributes to the overall effort to protect all responder personnel involved in incident operations.

200.43 The Liaison Officer (LNO)

The Liaison Officer is Incident Command's point of contact for representatives of other governmental agencies, NGOs, and the private sector (with no jurisdiction or legal authority) to provide input on their agency's policies, resource availability, and other

incident-related matters. Under either a single-IC or a UC structure, representatives from assisting or cooperating agencies and organizations coordinate through the Liaison Officer. Agency and organizational representatives assigned to an incident must have the authority to speak for their parent agencies or organizations on all matters, following appropriate consultations with their agency leadership. Assistants and personnel from other agencies or organizations, public or private, involved in incident management activities may be assigned to the Liaison Officer to facilitate coordination.

200.44 Additional Command Staff Positions

Additional Command Staff positions may be necessary depending on the nature and location of the incident, and/or specific requirements as established by the IC. For example, a member of the Clemson University Legal Counsel's office may be assigned directly to the Command Staff to advise the IC on legal matters, such as emergency proclamations, legality of evacuation orders, and legal rights and restrictions pertaining to media access.

Similarly, a Medical Advisor from Redfern Health Center may be designated and assigned directly to the Command Staff to provide advice and recommendations to the IC in the context of incidents involving medical and mental health services, mass casualty, acute care, vector control, epidemiology, and/or mass prophylaxis considerations, particularly in the response to a bio-terrorism event.

200.50 Conduct of Day-to Day Operations

Day to day operations shall be initially directed by the senior police or fire official from CUPD and/or CUFD & EMS at the scene, or by his or her designee, acting as the Incident Commander (IC). In the absence of the CU Public Safety Director or a designated alternate, one of the administrators that fill the positions listed below shall assume the role of the IC, in descending order of preference:

- Operations Section Chief

- Planning Section Chief

- Liaison Section Chief

- Logistics Section Chief

- Other designee of the Clemson University Public Safety Director

200.60 The General Staff

The General Staff is responsible for the <u>functional aspects</u> of the incident command structure and typically consists of the Operations, Planning, Logistics, and Finance/ Administration Section Chiefs.

200.61 The Operations Section Chief

Initially, the direct operational control of any campus critical incident, crisis, or disaster is the responsibility of the Clemson University Public Safety Director. The senior police or fire official from CUPD and/or CUFD & EMS at the scene, or his or her designee <u>will function as the Operations Section Chief.</u> The Operations Section is responsible for managing tactical operations at the site, directed toward the coordination

of all on-campus emergency functions and campus provided emergency response teams until such time as another IC is specifically named. The Operations Section Chief directs tactical operations at the incident site to reduce the immediate hazard, save lives and property, establish situational control, and restore normal campus conditions.

The Operations Section is responsible for implementation of the Clemson University EOP, to include:

- Determine the type and magnitude of the emergency and initiate the appropriate Incident Action Plan.

- Establish an ICP and/ or EOC as appropriate

- Initiate an immediate liaison with the Executive Policy Group for Clemson University

- Notify and use CUPD and CUFD & EMS personnel, outside law enforcement agency personnel, Student Auxiliary Patrol aides and/or other available resources to maintain safety and order

- Notify members of Command Staff and advise them of the nature of the incident

- Liaison with outside organizations such as police, fire, EMS, and other emergency response personnel

- Ensure notifications are made to appropriate staff members located off-campus

- Perform related duties as needed during the campus emergency, and

- In conjunction with the Clemson University Office of Risk Management, prepare and submit an After Action Report (AAR) directed to the Clemson University

President and the Executive Policy Group apprising them of the final outcome of the emergency.

200.62 The Planning Section Chief

Training and planning activities to ensure the preparedness of the campus community in dealing with emergency situations shall be conducted as necessary under the direction of the director for the Clemson University Capital Planning and Financing Team will serve as the <u>Planning Section Chief</u> at the scene, or his or her designee. The Clemson University Public Service Activities, the Resource Efficiency and Process Improvement Team and the Student Affairs Business Office will support the Planning Section of the NIMS protocol.

The Planning Section shall collect, evaluate, and disseminate tactical information pertaining to any preplanned or actual incident. This section shall maintain information and intelligence on any current and forecasted situation, as well as prepare for and document the status of all resources assigned to the incident. The Planning Section prepares and documents IAPs and incident maps and gathers and disseminates information and intelligence critical to the incident.

The Planning Section has four primary units: the Resources, Situation, Demobilization, and Documentation Units, and may include technical specialists to assist in evaluating the situation and forecasting requirements for additional personnel and equipment. The Documentation Unit devises and distributes all ICS Forms and other forms as necessary.

The Planning Section Chief in cooperation with the Public Safety Director or any suitable other person or entity on campus, shall devise, maintain, and distribute as needed an Emergency Communications Plan (ECP) prior to the occurrence of any critical incident. This plan shall be updated at least once each year. It shall describe the status and capabilities of the communications function on campus, and the capabilities related to conducting effective communications with other public and private emergency response organizations and other key emergency management personnel. The ECP shall provide lists of contact names and numbers, describe the status of communications interoperability, and incorporate all related operational and planning agreements between participants in any emergency, subsequent to completed and current MOUs, MOAs, and other written agreements. Incident planning shall incorporate, but shall not be limited to the following:

- Incident Action Plans

- Checklists

- Field Operations Guides (FOG)

- Flip charts

- Other job aids

200.63 The Logistics Section Chief

Emergency communications equipment and other materials necessary for the operation of an Emergency Operations Center (EOC) and/or an Incident Command Post (ICP) shall be maintained in a state of readiness by shall be conducted as necessary

under the direction of the Chief Procurement Officer for Clemson University will serve as the Logistics Section Chief at the scene, or his or her designee. The Logistics Section function includes the supply, food, ground support, communications, facilities, and medical units, and meets all of the support needs for the incident, including ordering resources through appropriate procurement authorities from off-site locations. It also provides facilities, transportation, supplies, equipment maintenance and fueling, food services, communications, and medical services for incident personnel.

200.64 The Finance/Administration Section Chief

When there is a specific need for financial, reimbursement (individual and agency or department), and/or administrative services to support incident management activities, a Finance/Administration Section should be established. The Finance/Administration Section includes the Compensation, Claims, Cost, Procurement, and Time Units and is headed by the Director, Comptroller's office for Clemson University as the Finance/Administration Section Chief. The Clemson University Office of Budgets and Financial Planning, Office of Human Resources and the Student Affairs Business Office will support the Finance and Administration Section of the NIMS protocol.

Under the ICS, not all agencies will require every facet of assistance. In large, complex scenarios involving significant funding originating from multiple sources, the Finance/Administrative Section is an essential part of ICS. In addition to monitoring multiple sources of funds, this Section Chief must track and report to the IC the financial "burn rate" as the incident progresses. This allows the IC to forecast the need for

additional funds before operations are negatively impacted. This is particularly important if significant operational assets are provided under contract by private sector suppliers.

The Finance/Administration Section Chief may also need to monitor cost expenditures to ensure that statutory rules which apply are met. Close coordination with the Planning and Logistics Sections is essential so that operational records can be reconciled with financial documents. Note that, in some cases, only one specific function may be required (e.g., cost analysis), which a technical specialist assigned to the Planning Section could provide.

The Finance/Administration Section Chief will determine, given current and anticipated future requirements, the need for establishing specific subordinate units. In some of the functional areas (e.g., procurement), an actual unit need not be established if it would consist of only one person. In such a case, a procurement technical specialist would be assigned in the Planning Section. Because of the specialized nature of finance functions, the Finance/Administration Section Chief should come from the agency that has the greatest requirement for this support. This Section Chief may also have an assigned deputy.

V.   ADMINISTRATION

210.00 Other Administrative Duties and Responsibilities

Additional Command Staff positions may also be necessary under the direction of the senior police or fire official from CUPD and/or CUFD & EMS at the scene, their

designee, depending on the nature and location(s) of the incident or specific requirements established by Incident Command. For example, a legal counsel might be assigned to the Planning Section as a technical specialist or directly to the Command Staff to advise Incident Command on legal matters, such as emergency proclamations, the legality of evacuation and quarantine orders, and legal rights and restrictions pertaining to media access. Similarly, a medical advisor might be designated from Redfern Health Center to provide advice and recommendations to Incident Command about medical and mental health services, mass casualty, acute care, vector control, epidemiology, or mass prophylaxis considerations, particularly in response to a bioterrorism incident. In addition, a special needs advisor might be designated to provide expertise regarding communication, transportation, supervision, and essential services for diverse populations in the affected area.

210.10 Clemson University President / Chief Executive Officer (CEO)

The duties of the Clemson University President/Chief Executive Officer include:

- Sets policy for the emergency response organization

- Assumes responsibility for the overall response/recovery operations

- Authorizes the mitigation strategy for recovery

- Identifies by title or position the individuals responsible for serving as IC(s), EOC Manager, Health and Medical Coordinator, Warning Coordinator, PIO, Evacuation Coordinator, Mass Care Coordinator, and Resource Manager.

- Identifies by title or position the individuals assigned to work in the EOC during emergencies.

210.20 The Incident Commander

The duties of the Incident Commander (IC) include the following:

- Responsible for the overall emergency response effort of the University

- Works with the Incident Command Staff to assess the emergency and to prepare the specific response of the University

- Declares and ends the Campus State of Emergency as appropriate

- Notifies and conducts liaison activities with Clemson University administration, and the administration of the City of Clemson, Pickens County, South Carolina Emergency Management Division and of any Federal Emergency Management agencies

210.30 The Chief Public Affairs Officer

The Chief Public Affairs Officer:

- Is responsible for developing communications to be disseminated to internal and external audiences

- Establishes the media center and provides information to the media

- Establishes an emergency telephone center to respond to inquiries from parents, family, and other relatives of students, and to staff and faculty

- Acts as the University PIO for the duration of the incident

210.40 The Senior Public Safety Officer on duty

The Senior Public Safety Officer on duty:

- Maintains CUPD and CUFD & EMS facilities in a state of constant readiness during an incident

- Initiates the Emergency Notification System – (ENS) as directed

- Takes immediate and appropriate action to protect life and property and to safeguard University records as required

- Obtains law enforcement assistance from city, county, state or federal governments as required

- Provides traffic control, access control, perimeter and internal security patrols and coordinates fire and EMS services as needed

210.50 The Director of Facilities Management (DFM)

If the DFM may be assigned to the Incident Commander for the incident, the following functions will be performed by a deputy or a designee instead:

- Provides equipment and personnel to perform shutdown procedures, establish hazardous area controls, erect barricades, and perform damage assessment, debris clearance, emergency repairs and equipment protection

- Provides vehicles, equipment and operators for the movement of personnel and supplies, and assigns vehicles as needed

- Obtains the assistance of utility companies as required during emergency operations

- Furnishes emergency power and lighting systems

- Surveys habitable spaces and relocates essential services and functions

- Provides and equips primary and alternate sites for the EOC

- Assists in the dissemination of all information and directives intended for the on-campus student population

- Provides temporary or alternate housing and food service facilities for the on-campus student population affected by the disaster or emergency

- Provides temporary housing and food services for off campus students who have been directed to remain on campus or who are unable to leave the campus

- Provides temporary housing and food services for emergency response personnel and University staff directed to remain on campus for extended periods of time

- Provides temporary beds, food, water or other resources as required

210.60 The Vice President for Information Technology

The Vice President for Information Technology:

- Provides the personnel and expertise necessary to maintain telephone service or establishes emergency landline services or other communications facilities

- Provides for the security of computer and information systems

- Provides for temporary computer and information services to facilitate the business procedures necessary and related to emergency purchases, personnel services and accounting functions

210.70 The Office of Risk Management

The Office of Risk Management:

- Coordinates with other Operations Section members

- Provides an accounting summary of the financial impact of the emergency response, clean-up and recovery efforts

- Ensures that rescue and clean-up operations are conducted in as safe a manner as possible to prevent injury to rescue and clean-up personnel, or to prevent unnecessary or further injury to victims

- Coordinates rescue and clean-up operations so as to conform to applicable safety, health and environmental regulations

- Coordinates with the Director of Research Safety to ensure the safe and successful clean-up and disposal of all hazardous materials

- Coordinates and has oversight of the activities of outside regulatory, investigative or insurance related agencies

- Initiates the request for the spending authority necessary to conduct emergency operations

- Obtains funding provided for clean-up and recovery expenses

- Monitors campus emergency warning and evacuation systems

- Maintains liaison with County or State Disaster and/or Emergency Services for telecommunications support if necessary.

VI. DIRECTION AND CONTROL

220.00 Functional Assignments

Within any organization there are emergency response functions and duties that would be required to be assigned to some person or functional entity. The following section tasks (220.10 – 240.30) may be assigned as follows or to any existing position or person.

220.10 Clemson University Fire Department & Emergency Medical Services

The Fire Department manages fire department & EMS resources, directs fire department & EMS operations.

220.20 Clemson University Police Department

The Police Department manages law enforcement resources and directs traffic control and law enforcement operations

220.30 Health and Medical Care Coordinator (Director, Redfern Health Center)

- Coordinates the use of health and medical resources and personnel involved in providing medical assistance to disaster victims.

- Meets with the heads of local public health, emergency medical (EMS), hospital, environmental health, mental health, and mortuary services, or

their designees, to review and prepare emergency health and medical plans and ensure their practicality and interoperability.

- When appropriate, includes local representatives of professional societies and associations in these meetings to gain their members' understanding of and support for health and medical plans.

- Meets with representatives of fire and police departments, emergency management agencies, military departments, State and Federal agencies, and the ARC to discuss coordination of disaster plans.

220.40 Public Works (Clemson University Facilities)

- Manages public works resources and directs public works operations (e.g., water supply/treatment, road maintenance, trash/debris removal).

- Coordinates with private sector utilities (e.g., power and gas) on shutdown and service restoration.

- Coordinates with private sector utilities and contractors for use of private sector resources in public works-related operations.

220.50 Warning Coordinator (CUPD Captain for Support Services)

- Determines warning resource requirements.

- Identifies warning system resources in the jurisdiction that are available to warn the public.

- Performs a survey to establish warning sites.

- Identifies areas to be covered by fixed -site warning systems.

- Develops procedures to warn areas not covered by existing warning systems.

- Develops special warning systems for those with hearing and sight disabilities.

- Develops means to give expedited warning to custodial institutions (e.g., nursing homes, schools, prisons).

- Coordinates warning requirements with the local Emergency Alert System (EAS) stations, and other radio/TV stations in the jurisdiction.

- Develops a chart of various warning systems, applicability of each to various hazards, and procedures for activating each.

- Coordinates planning requirements with the EOC Manager.

220.60 EOC Manager (To Be Determined)

(Note: In many jurisdictions, this function is performed by the Emergency Manager.)

- Manages the EOC as a physical facility (e.g., layout and set-up), oversees its activation, and ensures it is staffed to support response organizations' needs.

- Oversees the planning and development of procedures to accomplish the emergency communications function during emergency operations.

- Ensures a sufficient number of personnel are assigned to the communications and Information Processing sections in the EOC.

- Oversees the planning and development of the warning function.

- Reviews and update listings including phone numbers of emergency response personnel to be notified of emergency situations.

- Designates one or more facilities to serve as jurisdiction's alternate EOC.

- Ensures that communications, warning, and other necessary operations support equipment is readily available for use in the alternate EOC.

220.70 Emergency Manager (To Be Determined)

- Coordinates with the Communications Coordinator, Warning Coordinator, PIO, Evacuation Coordinator, Health and Medical Coordinator, Resource Manager, and the Mass Care Coordinator to ensure necessary planning considerations are included in the EOP.

- Coordinates with the local chapter of the ARC, Salvation Army, other public service non-profit organizations, the School Superintendent, etc., as appropriate to identify a lead organization, if possible, and personnel to perform mass care operations jobs.

- Coordinates volunteer support efforts to include the activities of volunteers from outside the jurisdiction and the assistance offered by unorganized volunteer and neighborhood groups within the jurisdiction.

- Works with the PIO to develop emergency information packets and emergency instructions for the public.

- Coordinates planning requirements with the emergency management staff in neighboring jurisdictions that have been identified as potentially hazard-free and have agreed to house evacuees in their mass care facilities.

- Coordinates the provision of mass care needs for personnel performing medical duties during catastrophic emergencies.

- Assists, as appropriate, the animal care and control agency staff's efforts to coordinate the preparedness actions needed to protect and care for animals during and following catastrophic emergencies.

- Assists the Resource Manager as needed to prepare for response operations:

  o Convenes planning meetings for the function in consultation with (or on the advice of) the Resource Manager.

  o Designates Emergency Management Agency staff to serve in key posts, as appropriate. (Whether the Resource Manager should be an emergency management official--given the emergency resources focus--or a Department of General Services person is left to the discretion of the jurisdiction.)

  o Advocates that mitigation concerns be addressed appropriately during response and recovery operations.

220.80 Communications Coordinator: PSAP Comm Supervisor or Records Administrator

This individual is responsible for the management of all emergency communications systems and will set emergency systems operations protocol for all emergency communications operations. The Communications Coordinator:

- Assembles a team of representatives from the government departments and public service agencies involved in emergency operations to develop a communication procedure that will be responsive to the jurisdiction's needs and compatible with the communication procedures used by emergency response organizations.

- Identifies communications and warning resources in the local government available to the EOC.

- Identifies and designates private and public service agencies, personnel, equipment, and facilities that can be used to augment the jurisdiction's communications capabilities. For example, developing procedures with RACES or other available local communications resources and arranging for emergency augmentation of communications capabilities.

- Designates personnel to serve on the Communications Section Team.

- Surveys communications equipment sites for power sources and locations.

- Analyzes equipment locations in relation to potential hazards and disaster conditions.

- Coordinates emergency communications and warning frequencies and procedures with EOCs at higher levels of government and with neighboring communities.

- Identifies a repair capability available under emergency conditions and coordinates repair and maintenance activities.

- Arranges training programs for all communications staff, including volunteers and repair personnel.

220.90 Evacuation Coordinator (CU Environmental Health and Safety Director)

- Coordinates all evacuation planning activities with the Emergency Manager.

- Identifies high-hazard areas and determines population at risk; prepares time estimates for evacuation of the people located in the different risk area zones. Accomplishment of these tasks requires the preparation of a threat summary, based on the jurisdiction's hazard analysis. The summary quantifies the specific evacuation needs of the jurisdiction. It addresses the evacuation planning needs that are applicable to the hazards that threaten the people living in the jurisdiction. Typical threats include: hazardous materials accidents involving the facilities that use, store, manufacture, or dispose of them and the transport modes (planes,

trains, boats, trucks, pipelines, etc.) used to move them; flooding as a result of snow melt or torrential rains in flood prone and/or low lying areas subject to flash floods; coastal and inland flooding caused by tidal surge and rain, and the wind damage associated with hurricanes and tropical storms; flooding of locations downstream from dams; areas subject to wildfire; areas subject to major seismic activity; areas within a 10-mile radius of nuclear power plants; populations at risk to war-related threats including attacks involving nuclear, chemical, or biological weapons, and other situations involving terrorist activities.

- Identifies transportation resources (e.g., public transit, school buses, etc.) likely to be available for evacuation operations; prepares an inventory of vehicle resources (public and private buses, public works trucks, commercial bus companies, trucking companies, truck rental companies, rail services, marine/ferry, air services, ambulance services, etc.).

- Assists facilities that provide care for special needs populations to develop a facility evacuation plan.

- Develops information for evacuees' use on the availability and location of mass care facilities away from the threat of further hazard-induced problems.

- Assists, as appropriate, the animal care and control agency staff's coordination of the preparedness actions that are needed to prepare for the evacuation of animals during catastrophic emergencies.

230.00 Mass Care Coordinator (Director, Redfern Health Center)

- Surveys buildings to select the safest and best possible for use as mass care facilities.

- Prepares a list that identifies the buildings that have been selected for use as mass care facilities and the number of people that can be housed in each.

- Compares mass care facility locations with potential hazards and disaster conditions.

- Prepares a resource list that identifies the agencies that are responsible for providing the resources (cots, blankets, beds, food, water, candles, medical and sanitation supplies, communication gear, backup power sources, etc.) required to set up and sustain operations in each mass care facility.

- Makes provisions to ensure the following items are available in sufficient quantities for use in mass care facilities, when opened (these stocks may be pre-positioned or delivered at the time of need):

  o Food supplies.

  o Water and sanitary supplies.

- - Clothing, bedding, and other supplies.

  - First Aid/medical supplies, as appropriate.

- Prepares necessary agreements to guarantee access to those nongovernment owned facilities that have been designated for mass care use during emergencies.

- Designates a mass care facility manager and identifies staffing requirements for each mass care facility.

- Makes necessary arrangements to ensure mass care staff members are trained.

- Prepares a manager's kit for the designated manager in each mass care facility.

- Coordinates with the Emergency Manager and PIO to develop a public information program to make citizens aware of availability and location of mass care facilities.

- Develops a mass care operations organization chart.

- Manages mass care activities during emergencies.

- Coordinates mass care activities with the Emergency Manager.

- Assists, as appropriate, the animal care and control agency staff's coordination of the preparedness actions that should be accomplished in order to feed, shelter, and provide medical treatment for animals during and after catastrophic emergencies.

230.10 Resource Manager (CU Procurement Director)

- Manages and directs resource support activities during large-scale emergencies and disasters.

- Chairs planning meetings for the function.

- Ensures that resource listings and/or the resource database is current.

- Ensures that necessary agreements and appropriate public information materials (e.g., regarding donations) are in place.

- Coordinates resource planning activities with the Emergency Manager.

230.20 Vice President Student Affairs

- Develops and periodically exercises a student evacuation plan.

- Coordinates with the Evacuation Coordinator to work out arrangements to use transit buses to transport school children and other evacuees.

- Coordinates with the Mass Care Coordinator to work out arrangements to use schools and/or their food stocks for mass care.

- Coordinates with the Mass Care Coordinator for the transport of school children to mass care facilities.

230.30 Animal Care and Control Agency (CU-PSA - Livestock, Poultry Health)

The Clemson University Public Service Activities (CU-PSA) - Livestock, Poultry Health organization has a major role in protecting the quality of life for humans, as well as companion and food animals in the State of South Carolina. Constant surveillance for diseases that affect both man and animals, providing the diagnostic expertise that allows

for treatment and eradication of disease of domestic animals, and inspection and testing of processing of foods of animal origin are daily functions of LPH. Veterinary diagnostic support for wildlife also is provided by our accredited diagnostic laboratory. Our mission also encompasses an expanding role in food safety and emergency preparedness. As primary agency for ESF-17 in the State of South Carolina Emergency Operations Plan, our multi-agency coordination of statewide animal emergency response plans provides protection for livestock and wildlife, as well as supporting public health and safety.

PSA coordinates the services and assistance provided to the animal victims. Activities may include the protection, care, and disposal (if appropriate) of animal victims impacted by disasters. The CU-PSA also:

- Coordinates preparedness activities with the appropriate public and private sector organizational representatives. These activities include planning that addresses provisions for protection of companion and farm animals, wildlife, animals in zoos and aquarium parks, animal shelters, animal research facilities, university medical and animal science centers, pet stores, etc. Note that extensive coordination with State/local agencies such as fish and game departments; farm bureaus; wildlife, natural resources, and agriculture departments; game wardens; the jurisdiction's Emergency Management Agency staff; the individuals tasked in the EOP to serve as the Evacuation and Mass Care Coordinators, PIO, Health and Medical Coordinator, Resource Manager, etc. and

other non-government organizational representatives from the ARC, Humane Society, American Veterinary Medical Association, State veterinarians associations, veterinary technician associations, livestock and horse associations, kennel clubs, and other animal protection volunteer groups will be necessary to ensure the needs of animals are met during disaster situations.

- Forms an emergency response team (evacuation, shelter, medical treatment, search and rescue, etc.) that includes trained professionals and volunteers to accomplish necessary actions during response operations. Team members may include animal care and control staff, Humane Society staff, veterinarians, veterinary technicians, livestock inspectors, game wardens, farmers, kennel owners, volunteers from animal protection organizations, etc.

230.40 All Tasked Organizations

"All tasked organizations" includes those identified above, and all other government or private sector organizations that have been assigned tasking in the EOP to perform response functions.

- Maintain current internal personnel notification rosters and SOPs required to perform assigned tasks.

- Negotiate, coordinate, and prepare mutual aid agreements, as appropriate.

- Analyze need and determine specific communications resource requirements.

- Work with EOC Communications Coordinator to ensure equipment and procedures are compatible.

- Identify potential sources of additional equipment and supplies.

- Provide for continuity of operations by taking action to:

  o Ensure that lines of succession for key management positions are established to ensure continuous leadership and authority for emergency actions and decisions in emergency conditions.

  o Protect records, facilities, and organizational equipment deemed essential for sustaining government functions and conducting emergency operations.

  o Ensure, if practical, that alternate operating locations are available should the primary location suffer damage, become inaccessible, or require evacuation. Alternate operating locations provide a means to continue organizational functions during emergency conditions.

  o Protect emergency response staff. This includes actions to:

    ▪ Obtain, as appropriate, all necessary protective respiratory devices and clothing, detection and decontamination equipment, and antidotes for personnel assigned to perform tasks during response operations.

- Ensure assigned personnel are trained on the use of protective gear, detection and decontamination devices, and antidotes.

- Provide security at facilities.

- Rotate staff or schedule time off to prevent burnout.

- Make stress counseling available.

o Ensure the functioning of communications and other essential equipment. This includes actions to:

- Test, maintain, and repair communications and warning equipment.

- Stockpile supplies and repair equipment.

240.00 Written Operational Procedures shall be devised and maintained

The head of each CU department or organization with emergency response duties and functions shall prepare and maintain current written Standard Administrative Procedures (SAPs), Standard Operating Guidelines (SOGs), Standard Operating Procedures (SOPs), resource lists, checklists, and other documentation as may be required to support the operations of those organizations during critical incident or emergency operations.   The oversight for this requirement shall be devised and implemented by the Incident Commander or a designee as soon as practical.

240.10 Duties of Building Security Coordinators

Each Building Security Coordinator, shall either act as or shall appoint a Building/Facility Safety Officer or a Safety Committee for each campus building/location

under their supervision or control, has the following responsibilities prior to and during any emergency:

240.11 Develop an Emergency Action Plan

An Emergency Action Plan for each building or facility shall be developed that will include, but not necessarily be limited to, the following components, equipment, and/or functions: (29 CFR 1910.38 U.S Labor Dept.)

- Procedures for reporting a fire or other emergency

- Procedures for emergency evacuation, including the type of evacuation and exit route assignments

- Procedures for employees who remain to operate critical plant operations before they evacuate

- Procedures to account for all employees after evacuation

- Procedures to be followed by employees performing rescue or medical duties

- The name or job title of an employee who may be contacted by other employees who need more information about the plan or an explanation of their duties under the plan

In addition, the following subject areas should be considered for inclusion in each plan:

- Evacuation coordinator duties

- Evacuation of disabled or special-needs persons

- Management of designated assembly areas

- Diagrams of specified building/facility exit locations and evacuation routes

- Hazardous conditions reporting and appropriate corrective procedures

- Emergency First Aid information

- Specified locations of available emergency equipment, including Personal Protective Equipment (PPE)

- Location and maintenance of adequately stocked First Aid kits

- The location and operation of fire extinguishers and other fire suppression equipment

- Lists of available emergency equipment

- Lists of personnel who would normally present within each building/facility

A revised and updated Emergency Action Plan for each building/facility shall be submitted to the Director of Public Safety for approval on the 1st day of July of each year, or more often if needed. The designated Building Security Coordinator or Safety Officer/Safety Committee may assist with plan formulation or revision, as required. The Emergency Action Plan for each building and facility should be as concise as possible. Each Department/Division within a specific building shall have at least one copy of the Emergency Action Plan for their building/facility prominently displayed within each major or significant workspace area.

240.12 Review Emergency Action Plans

Each Building Security Coordinator must review and/or make available the Emergency Action Plan with or to each employee or student covered by the plan:

- When the plan is developed or the employee/student is initially assigned to the building or facility

- When the employee or student's responsibilities under the plan changes

- When the plan is changed

Building evacuation information shall be distributed to all employees with follow-up discussions, on-the-job training or additional explanation as required. Contact Risk Management for assistance. Sufficient time shall be taken to train each employee in emergency techniques such as fire extinguisher use, First Aid, and/or CPR and emergency evacuation procedures. The CUFD Fire Marshal's office will be consulted for training support services.

240.13 Other Building Security Coordinator Duties

- Report every emergency to the Clemson University Fire and Police E-911/PSAP at **911**

- Serve as the primary contact person to receive emergency information from Emergency Management Personnel

- Inform all building employees of any emergency conditions

- Evaluate the impact of any emergency on persons or property and take appropriate action including ceasing operations and initiating evacuation of the building or facility

- Maintain emergency telephone communications with Clemson University officials from the building or facility or from an alternate site if necessary.

240.14 Develop a Building/Facility Telephone Tree

The Building Security Coordinator or their designee shall develop a phone tree of both work/home/mobile phone numbers for all persons that normally work or reside in the building or facility. This information is to be given to the BSC program coordinator at CUPD and University Facilities.

240.20 General Faculty/Staff Supervisor Responsibilities

Each faculty or staff member who supervises university students or other university employees has the responsibility to:

- Educate students or employees to relevant emergency procedures including evacuation procedures for their building or facility

- Inform students and/or staff of any perceived emergency and initiate emergency procedures as prescribed within the Building Emergency Plan, the University Employee Safety Handbook, and the EOP

- Evaluate, survey, and estimate their assigned building/facility or activity spaces to determine the potential impact of any emergency on their facility

- Report all safety hazards as soon as possible to the building manager or safety officer

- Submit a work order to reduce hazards and to minimize accidents promptly to the Building Security Coordinator or University Facilities.

IMPORTANT: Inform students, staff, and faculty to conform to building evacuation guidelines during an emergency and to report to an appropriate assembly area outside the building for a head count.

240.30 Deans, Department Heads, Other Campus Employee Duties

Each University Dean and Department Head will develop and implement a business continuity plan for each of their respective areas of responsibility. It is the responsibility of every campus employee to become familiar with the Emergency Action Plan for his/her work area(s) and to read the University Employee Safety Handbook.

Business Continuity Plans will be updated at least once every three years, or more often as the need arises, due to the reassignment of Deans and Department Heads, or other critical circumstance that affect the suitability of such plans. A copy of each revised plan will be submitted to the Planning Section Chief within thirty days of such revision for approval and retention.

300.00 The Emergency Notification System (ENS)

300.10 Communications methods used to implement the ENS

During any critical incident or emergency, the University will use several methods of communication to disseminate information. The methods to be used, in the following descending order of preference, will include these listed devices:

- The University telephone system

- The telephone landline system is to be used as a primary means of communication, unless it is compromised.

- Two-way Radios and Pagers: Key members of the Incident Command Staff will be equipped with appropriate two-way radios and/or alphanumeric pagers.

- Cellular Telephones: Incident Command Staff members will use cellular phones, including those that incorporate satellite technology or prior arrangement of cellular channels set aside for use during emergencies when land lines or regular cellular telephones are likely to become inoperative or unusable.

- Voice-mail: A special voicemail box will be established for use during emergencies.

- E-mail: System-wide e-mails will be disseminated. This will be a primary means of communication.

- Web messages: Emergency messages will be disseminated through the emergency notification information box on the home page of University's website.

- Signage: Signs detailing the status of the University will be posted on University buildings.

- Fax Machines: Fax messages may be used to transmit timely or preplanned messages, checklists, assignment sheets, and other information, as required

300.20 The Initial Responses to a Reported Emergency

Each emergency occurring on-campus shall be reported immediately to the CUPD or CUFD & EMS E911/PSAP at **911**. Upon receiving notification of a reported emergency, the E911/PSAP shall initiate the following chronology of events:

300.30 Dispatch a Police Officer to the Scene

One or more police officers shall be dispatched to the scene to confirm the existence of a critical incident, crisis, or disaster

300.40 Dispatch Appropriate EMS/Fire Services

E911/PSAP communications shall request appropriate assistance from CUFD & EMS personnel.

300.50 Dispatch Facilities Management Staff

E911/PSAP communications shall request appropriate assistance from the Office of the Director of Public Safety once an emergency or disaster has been identified as one

that affects University buildings or other infrastructure in a manner that requires Clemson University Facilities corrective action.

300.60 Contact the Chief/Director of Public Safety

E911/PSAP communications will immediately contact the Chief of Police/Director of Public Safety or his/her designee.

300.70 The Public Safety Director shall contact the University President

The Public Safety Director shall immediately contact one of following persons in the following descending order of preference:

- University President

- Provost, Vice President for Academic Affairs

- Vice President for Research

- Vice President for Student Affairs

310.00 Assignment of Emergency Status

After consulting with the University President or a designee, the Director of Public Safety will assign one of the following four emergency status conditions to the incident and shall activate the Emergency Notification System (ENS), if appropriate:

310.05 CMT Crisis (Emergency Type – 4)

A crisis CMT emergency is an event which <u>may disrupt the orderly operations of a limited portion</u> of Clemson University or its institutional missions. A CMT crisis may affect multiple facets of the institution and <u>may raise questions or concerns over closing or shutting down a portion of Clemson University for a limited period of time.</u>

310.10 Critical Incident (Minor Emergency – Type 3)

During a Critical Incident or Minor Emergency, ENS <u>may</u> be activated. Incident Command staff members may not necessarily meet as a group, but will be still be advised of conditions. An Incident Command Post (ICP) <u>may</u> be established.

310.20 Crisis (Major Emergency – Type 2)

During a Crisis or Major Emergency, ENS <u>will</u> be activated. Command Staff members shall report as directed by the Chief/Director of Public Safety. An EOC <u>may</u> be activated at Hendrix Student Center or at the Madren Conference Center. An Incident Command Post shall be established.

310.30 Disaster (Severe Emergency Type - 1)

During a Disaster, the ENS <u>will</u> be activated. All Incident Command Staff members shall report to the ICP or EOC as directed. If a primary site is not available, an alternate ICP or EOC site will be established by the Chief/Director of Public Safety. Command Staff members shall report as requested and shall also provide the following items, as appropriate:

- All University property keys checked out to them.

- Pagers

- Cellular phones with extra batteries

- Laptop PC, iPad with extra batteries, if any

- Two way radios with extra batteries, if any

310.40 Deactivation of Emergency Incident Operations

At the close of Incident Operations, the Incident Commander will notify the Operations Section Chief to begin the stand-down phase of operations according to the procedures developed as part of the Incident Action Plan for that incident.

320.00 Responding to ENS Notification

The Emergency Notification System (ENS) is only activated upon the direct order of the University President or their appointed designee. Once the ENS is activated, CUPD dispatch will contact all Incident Management Team members and provide them with the appropriate instructions for reporting to either the ICP or the EOC, as directed by the IC.

320.05 Executive Policy Group

The following members of the Executive Policy Group will report to the EOC as directed or shall remain on Stand-By status.

- University President

- Provost

- Vice President for Public Service and Agriculture

- Vice President for Research and Economic Development

- Chief Financial Officer

- Vice President for Student Affairs

- Chief Public Affairs Officer and Assistant to the President

320.10 Command Staff

The following members of the Command Staff will report to the ICP or EOC as directed or shall remain on Stand-By status:

- Public Information Officer

- Liaison Officer

- Safety Officer

320.11 Incident Command Staff

The CU Incident Command Staff members will be contacted by the IC and requested to:

- Report to the ICP to conduct IC operations

- Report to the EOC to perform policy group and critical support functions,

- Or, remain on stand-by status

320.12 Operations Section Staff

The Operations Section shall serve in a direct support capacity to the Incident Command Staff. The Operations Section shall include, but is not necessarily limited to the following individuals:

- Chief/Director of Public Safety -- CUPD

- Chief CUFD & EMS

- CU Office of Risk Management

- Director of University Facilities

- Director of Redfern Health Center

Once the EOC has been activated, all Operations Section staff will respond to the EOC unless directed otherwise by the Operations Section Chief. If an ICP only is being staffed, the Operations Section staff will be contacted by the Operations Section Chief and shall either report to the ICP or remain on standby alert, as directed.

330.00 Emergency Facilities

Whenever a critical incident, crisis, or disaster occurs or is imminent, it shall be the responsibility of the on-duty CUPD and or CUFD & EMS personnel to set up and staff an Incident Command Post (ICP) and/or an Emergency Operations Center (EOC), as appropriate. In addition, regular Clemson University Police facilities are to be fully staffed and operational at all times during the incident. The Local Enforcement Officer (LEO) Virtual Command Center may be considered as an alternative option for campus emergency management personnel. An assembly site should still be designated for outside responders to report to.

330.10 Incident Command Post (ICP)

A Clemson University Fire or Police vehicle or other suitable vehicle may be used as an Incident Command Post (ICP). The ICP is to be located as close to the emergency scene as possible to enhance tactical control. At least one uniformed officer or police dispatcher is to staff the ICP at all times until tactical operations terminate. A small stationary office with a desk, chairs, and a telephone may also be established as near to

the scene as may be determined necessary by the Chief/Director of Public Safety. The ICP may be maintained in addition to any EOC at the discretion of the Chief of UPD.

During the selection of any stationary ICS location, an alternate site should also be selected, in the event that relocation of the ICS is required due to safety concerns or other reasons.

330.11 ICP Equipment List

The following types and quantities of equipment suitable for an ICP should be considered for staging as required:

- Barricades, barrier tape, and signage for the scene

- Portable hand radios (minimum of two) with spare batteries

- Portable public address system unit

- First aid kit

- Campus telephone directory, a State Government Telephone Directory, and a local Telephone Directory to include Yellow Pages sections

- Three hard copies of the University EOP (electronic and paper, not either or but both)

- Flashlights (minimum of 10) with extra batteries

- Cellular Telephone(s) and extra batteries and/or charging capabilities

- High Visibility Vests (10)

- Command Post Location Marker or other suitable means of ICP identification, and

- Campus Maps/Area Maps.

330.20 Emergency Operations Center (EOC)

If any incident exceeds or is likely to exceed available Clemson University capabilities and resources, an Emergency Operating Center (EOC) will be established at Pickens County Emergency Operating Center (EOC). If this location is unsuitable or unavailable, the Director of Public Safety shall select another location and shall so inform the CU E911/PSAP. At least one uniformed police officer is to staff the EOC at all times until the incident is resolved. During the selection of any stationary EOC location, an alternate site should also be selected, in the event that relocation of the EOC is required due to safety concerns or other reasons. This space is activated at the direction of the CU Director of Public Safety and remains so until the IC decides to deactivate it. The main EOC and back-up EOC should each take approximately 20 minutes and one hour, respectively, to become operational. <u>(The actual desired times for setup time goal is to be determined through planning and drill exercises, etc.)</u>

330.21 EOC Equipment List

The following types and quantities of equipment suitable for an EOC should be considered for staging as required:

- All equipment contained within an ICP, plus

- An emergency power source (gas generator & fuel sufficient for an initial

  72 hour period)

- Tables, desks and chairs sufficient to accommodate IC Staff and all support staff, to include a refrigerator and coffee maker

- Copy machine

- Two-way radio base station, battery operated AM/FM radio and a television

- Telephone equipment as follows:

   o Dedicated lines for Incident Commander use (min. of 2)

   o Dedicated lines for Incident Command Staff use (min. of 2)

   o Cellular telephones (min. of 3)

- Sanitary facilities

- Campus maps, drawings/blueprints of buildings, HVAC systems, etc.

- Computer work station and printer that has network capabilities

- Pads, envelopes, writing implements and other office supplies

- A Fax machine with broadcast capabilities

- Cots suitable for temporary sleeping areas.

330.30 Staging Areas

One or more staging areas for arriving off-campus responders, equipment, and other resources shall be established by the Director of Public Safety. For operations of the Incident Command Staff, a permanent conference room with facilities for emergency response elements that is designed to accommodate multiple telephone and/or electrical

devices shall be established at the Madren Conference Center. In the event this established facility is not available, another suitable alternate site shall be chosen.

Staging areas should be located either on or as near to the campus as possible (i.e.; T. Ed. Garrison Arena, R-1 parking lot, and Rugby Intramural Fields, et.) but not in such close proximity to the incident site as to interfere with site operations or to be endangered by the incident.

330.40 Media Center/JIC

If a campus incident is expected to last for more than eight hours, a site for a media center/Joint Information Center (JIC) will be established in the Hendrix Student Center in the 2nd floor meeting rooms or at Madren Center Meeting Rooms and other rooms by the direction of the Chief Public Affairs officer. Parking adjacent to these facilities will be reserved for media and staff vehicles. Press conferences will be held in the Hendrix Student Center McKissick Auditorium or the Madren Center Auditorium.

The media center/JIC will include space for the media reporters, a podium, a multimedia box, backdrop, and appropriate signage. If a JIC is established, the site should contain enough space for meeting rooms and have the capacity to support JIC operations. Backup media facilities will be located at the McFadden Building and or Littlejohn Coliseum.

330.41 Campus Telephone Center

At the direction of the Chief Public Affairs Officer, a Campus Telephone Center will be established at the CU Foundation and/or at Brackett Hall. The telephone phone

center will be used to answer inquiries from students, employees, and relatives regarding the nature and consequences of the emergency.

330.50 Area Maps

Insert maps of potentially affected campus and surrounding areas in this section. Show building and facilities sites, roads, parking areas, areas of particular concern and other elements that may have an impact on campus infrastructure during any critical incident or emergency. Campus Planning will be responsible for creating and disseminating all campus maps to the EOC.

VII. SUPPORT INFORMATION

400.00 Emergency Assistance Contact Numbers

This section is used to identify the contact names and telephone numbers of on-campus and off-campus resources available to assist campus personnel. List of Contact Information Resource Numbers will be maintained the E911/PSAP (Communications Annex).

500.00 Annual Training

Training will be conducted on a bi-annual basis for all designated first responders. This training will include tabletop exercises and other contextual training. The CUPD and/or CUFD & EMS Chiefs, as appropriate, will supervise and coordinate such training in conjunction with the Planning Section Chief and the CU Emergency Management Office.

500.10 Exercises and Evaluations

The Planning Section Chief in conjunction with the CU Emergency Management Office shall develop a program of periodic evaluation and training that is compatible with the federal, State and local governments. The training shall coincide with the goals and doctrines of the U.S. Department Homeland Security, Office of Grants and Training, Homeland Security Exercise and Evaluation Program. The Homeland Security Exercise & Evaluation Program (HSEEP) contains doctrine and policy for designing, developing, conducting and evaluating exercises. HSEEP is a threat- and performance-based exercise program that includes a cycle, mix and range of exercise activities of varying degrees of complexity and interaction. (Document is located at https://hseep.dhs.gov/)

500.20 EMS Training and Medical Training shall be monitored

The Planning Section Chief, in coordination with the CUFD & EMS and CU Emergency Management Office, shall devise, or otherwise research training opportunities to access or ensure that EMS and other medical training is available and appropriately delivered to local responders according to applicable federal, State, and local standards, including licensing and certification.

600.00 Infrastructure Protection

600.10 Threat and Risk Assessment Evaluation (T&RA) Program

As soon as practicable, and periodically thereafter, the Director of Emergency Management shall devise and implement a program whereby each physical asset and/or facility of the University shall be inspected and evaluated for risk potential.

600.20 Purpose

The purpose of this program will be to perform a Threat and Vulnerability Assessment and to implement solutions identified during these assessments to enhance security and improve campus preparedness.

600.30 Methodology

Upon completion of such inspection, a report shall be filed with the CU Emergency Management Office detailing the evaluation of risk and making recommendations on ways to decrease the vulnerability of the asset or facility. The Texas Engineering Extension Service (TEEX) National Emergency Response and Rescue Training Center (NERRTC) Campus Preparedness Assessment Instrument or its equivalent may be used to collect and evaluate the necessary data (http://www.teex.com/nerrtc/). In addition, diagrams, blueprints, and similar materials shall be assembled for each campus facility and shall be submitted to the Director of Facilities Management for use during both routine and emergency operations. All such reports shall be used by the Director of Emergency Management to document the deficiencies found and make recommendations for the purpose of improving campus preparedness and security.

700.00 The Law Enforcement Information Sharing Program

A Law Enforcement Information Sharing Program should be devised and initiated as soon as practicable by the CUPD Chief of Police or their designee.

700.10 Purpose

The purpose of this program shall be to increase communications between CUPD and other law enforcement agencies at all levels of government to enhance safety and security measures against criminal and terrorist threats against the campus and surrounding communities and to enhance cooperative efforts to combat such threats.

700.20 Methods

The CUPD Chief of Police/Director of Public Safety or their designee shall devise and implement a program designed to maximize the interaction of the campus law enforcement community with the appropriate members of government law enforcement agencies and campus police, public safety, and or security agencies within post-secondary institutions of higher education. In order to ensure the timely receipt of threat information, the Chief/Director shall establish a working relationship with:

- The SAC of the FBI field office

- The regional Joint Terrorism Task Force (JTTF)

- State and local law enforcement officials, and

- Others, as appropriate

800.00 Campus Response to county, state or National Threat Alert Levels

The CUPD Chief of Police/Director of Public Safety may consider any of the following steps, as well as any others, calibrated to local, state, or national threat alert levels:

- Consider assigning officers form CUPD and CUFD as liaisons with international student groups on campus (in addition to potentially eliciting lifesaving information, these officers may build trust and allay the fears such groups may have)

- Establish a management team responsible for directing implementation of the campus EOP

- Immediately review the Clemson University Safety and Security Plan, Emergency Operating Plan and the Business Continuity Plan and mutual aid agreements with the CU executive and management teams, command staff and jurisdictional partners.

- Ascertain the need for additional staff training

- Consider assigning a campus liaison officer to the local EOC

- Review leave policies and SOPs for reassignment of plainclothes officers to uniform duty to enhance visibility and coverage to critical areas

- Update your most recent risk assessment inventory

- Increase physical checks of critical facilities during periods of increased alert

- Establish a single point of access fro each critical facility and institute 100% identification checks

- Limit public access to critical facilities and consider escort procedures for authorized persons

- Increase administrative inspections of persons and their possessions entering critical facilities

- Increase administrative inspections of vehicles and their contents

- Assess adequacy of video monitoring

- Assess adequacy of physical barriers outside sensitive buildings and the proximity of parking areas

- Ensure adequacy of your emergency alert and communication system for students, faculty, staff and visitors

- Review your parent communication and reunification plan and educate all stakeholders

900.00 Annual Plan Reviews

900.10 The Emergency Operating Plan shall be reviewed at least once each year

On or about July 1 of each year, the Director of Public Safety shall cause an annual review of the EOP to be conducted. As a result of this review, any updates and/or changes shall be incorporated into this Plan and shall be distributed to users as soon as possible. <u>Changes requiring immediate action shall be expedited as soon as possible throughout the year.</u>

900.20 Emergency Action Plans

On or about July 1 of each year, each Building/Facility Emergency Action Plan shall be reviewed, updated, and submitted to the CUFD & EMS Fire Marshal and the CUPD Crime Prevention offices for approval.

900.30 Reporting Status of Plan Revisions

The Director of Emergency Management shall devise a system to manage and track the updating of all Building/Facility Plans and shall notify the Office of the President of the status of this project, in writing, no later than October 1 of each year.

900.40 Emergency Communication Plan

On or about July 1 of each year, the Office of Emergency Management in conjunction with University Planning (or designated Planning Manager) shall conduct a review of the campus Emergency Communications Plan and the Emergency Assistance Contact lists. As a result of this review, any updates and/or changes shall be incorporated into this Plan and shall be distributed to users as soon as possible. This review shall be

conducted whether or not plan updates have been accomplished at any time since the previous review.

900.50 Incident Action Plans

On or about July 1 of each year, the Office of Emergency Management in conjunction with University Planning (or designated Planning Manager) shall conduct a review of the campus Incident Action Plans. As a result of this review, any updates and/or changes shall be incorporated into these Plans and shall be distributed according to this Plan as soon as possible. This review shall be conducted whether or not plan updates have been accomplished at any time since the previous review.

900.60 Additional Support/Action Plans

The following lists are additional items which your organization should include as a part of your Emergency Operations Plan with the assistance of your local, county or state emergency management organizations.

LIST OF FUNCTIONAL ANNEXES:

Annex A: Building Emergency Plan Template

Annex B: Earthquake

Annex C: Flooding and Dam Failure

Annex D: Hazardous Materials

Annex E: Hurricane

Annex F: Lethal Unitary Chemical Agents and Munitions

Annex G: Radiological Hazards

Annex H: Terrorist Incident Guidelines

Annex I: Tornado

Annex J: Pandemic

Annex K: Recovery

EMERGENCY SUPPORT FUNCTIONS LIST:

ESF 1: Transportation

ESF 2: Telecommunications & Information Technology

ESF 3: Public Works & Engineering

ESF 4: Firefighting

ESF 5: Emergency Management

ESF 6: Mass Care, Emergency Assistance, Housing, and Human Services

ESF 7: Resource Support & Logistics Management

ESF 8: Public Health and Medical Services

ESF 9: Search and Rescue

ESF 10: Hazardous Materials Response

ESF 11: Agriculture and Natural Resources (Food Service)

ESF 12: Energy

ESF 13: Public Safety & Security

ESF 14: Long-Term Community Recovery (Economic Stabilization, Community

Recovery & Mitigation)

ESF 15: Emergency Public Information & External Communications

ESF 16: Evacuation & Emergency Traffic Management

ESF 17: Animal/Agriculture Emergency Response

ESF 18: Donated Goods and Volunteer Services

ESF 19: Military Support

ESF 20: Special Medical Needs

ESF 21: Disaster Assessments

ESF 22: Air Operations

ESF 23: Damage Assessments

HAZARD SPECIFIC ATTACHMENTS:

Hurricane Plan

Tornado Plan

Hurricane Plan

Operational Radiological Emergency Response Plan – under separate cover

Earthquake Plan

Dam Failure Preparedness and Response Plan Mass Casualty Plan

Recovery Plan

Civil Disturbance Plan

Terrorism Plan Catastrophic Plan Drought Response Plan Tsunami Plan

SUPPORTING DOCUMENTS AND ATTACHMENTS:

1. Incident Action Plans

2. Standard Operating Procedures

3. Field Guides

4. Written directives and guidelines

Appendix B

Emergency Support Function Plan Format

The following plan format is from the Federal Emergency Management Agency

Comprehensive Planning Guide: Developing and Maintaining State, Territorial, Tribal,

and Local Government Emergency Plans (USDHS 2009).

1. Basic Plan

   (i) Promulgation Document/Signature Page

   (ii) Approval and Implementation

   (iii) Record of Changes

   (iv) Record of Distribution

   (v) Table of Contents

   a) Purpose, Scope, Situations, and Assumptions

   (i) Purpose

   (ii) Scope

   (iii) Situation Overview

   (1) Hazard Analysis Summary

   (2) Capability Assessment

   (3) Mitigation Overview

   (iv) Planning Assumptions

   (4) Concept of Operations

(5) Organization and Assignment of Responsibilities

(6) Direction, Control, and Coordination

(7) Information Collection and Dissemination

(8) Communications

(9) Administration, Finance, and Logistics

(10)   Plan Development and Maintenance

(v)   Authorities and References

2)   Emergency Support Function Annexes

ESF #1 – Transportation

ESF #2 – Communications

ESF #3 – Public Works and Engineering

ESF #4 – Firefighting

ESF #5 – Emergency Management

ESF #6 – Mass Care, Emergency Assistance, Housing, and Human Services

ESF #7 – Resource Support

ESF #8 – Public Health and Medical Services

ESF #9 – Search and Rescue

ESF #10 – Oil and Hazardous Materials

ESF #11 – Agriculture and Natural Resources

ESF #12 – Energy

ESF #13 – Public Safety and Security

ESF #14 – Long-Term Community Recovery

ESF #15 – External Affairs

ESF #16 – Other Locally Defined ESFs

3) Support Annexes

a) Financial Management

b) Local Mutual Aid/Multi-State Coordination

c) Logistics Management

d) Private Sector Coordination

e) Public Affairs

f) Volunteer and Donation Management

g) Worker Safety and Health

4) Incident Annexes

a) Biological

b) Catastrophic

c) Cyber

d) Food and Agriculture

e) Nuclear/Radiological

f) Oil and Hazardous Materials

g) Terrorism

h) Other Hazards as Required

Appendix C

FY 2009 NIMS Implementation Objectives

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The chart below depicts the 28 NIMS Implementation Objectives prescribed by National Integration Center's Incident Management Systems Integration (IMSI) Division for Federal Fiscal Year (FY) 2009. **State, territorial, tribal, and local jurisdictions must ensure *all* NIMS objectives have been initiated and/or are in progress toward completion.**

NIMS Component		NIMS Implementation Objective	Federal FY Prescribed to:		
			State/ Territory	Tribal	Local
ADOPTION		1. Adopt NIMS for all Departments/Agencies; as well as promote and encourage NIMS adoption by associations, utilities, nongovernmental organizations (NGOs) and private sector emergency management and incident response organizations.	2005		
ADOPTION		2. Establish and maintain a planning process to communicate, monitor, and implement all NIMS compliance objectives across the State/Territory/Tribal Nation (including Departments/Agencies), to include local governments. This process must provide a means for measuring progress and facilitate reporting.	2006	2008	N/A
ADOPTION		3. Designate and maintain a single point of contact within government to serve as principal coordinator for NIMS implementation jurisdiction-wide (to include a principal coordinator for NIMS implementation within each Department/Agency).	2006	2007	
ADOPTION		4. Ensure that Federal Preparedness Awards [to include, but not limited to, DHS Homeland Security Grant Program and Urban Area Security Initiative Funds] to State/Territorial/Tribal Departments/Agencies, as well as local governments, support all required NIMS Compliance Objectives (requirements).	2005	2008	
ADOPTION		5. Audit agencies and review organizations should routinely include NIMS Compliance Objectives (requirements) in all audits associated with Federal Preparedness Awards.	2006	2008	
ADOPTION		6. Assist Tribal Nations with formal adoption and implementation of NIMS.	2007	N/A	
PREPAREDNESS	Planning	7. Revise and update emergency operations plans (EOPs), standard operating procedures (SOPs), and standard operating guidelines (SOGs) to incorporate NIMS and National Response Framework (NRF) components, principles and policies, to include planning, training, response, exercises, equipment, evaluation, and corrective actions.	2005		
PREPAREDNESS	Planning	8. Promote and/or develop intrastate and interagency mutual aid agreements and assistance agreements (to include agreements with the private sector and NGOs).	2005		
PREPAREDNESS	Training	9. Use existing resources such as programs, personnel and training facilities to coordinate and deliver NIMS training requirements.	2006	2008	
PREPAREDNESS	Training	10. Implement IS-700 *NIMS: An Introduction* training to include appropriate personnel (as identified in the *Five-Year NIMS Training Plan*, February 2008).	2006		
PREPAREDNESS	Training	11. Implement IS-800 *National Response Framework (NRF): An Introduction* training to include appropriate personnel (as identified in the *Five-Year NIMS Training Plan*, February 2008).	2006		
PREPAREDNESS	Training	12. Implement ICS-100 *Introduction to ICS* training to include appropriate personnel (as identified in the *Five-Year NIMS Training Plan*, February 2008).	2006		
PREPAREDNESS	Training	13. Implement ICS-200 *ICS for Single Resources and Initial Action Incidents* training to include appropriate personnel (as identified in the *Five-Year NIMS Training Plan*, February 2008).	2006		
PREPAREDNESS	Training	14. Implement ICS-300 *Intermediate ICS* training to include appropriate personnel (as identified in the *Five-Year NIMS Training Plan*, February 2008).	2007		
PREPAREDNESS	Training	15. Implement ICS-400 *Advanced ICS* training to include appropriate personnel (as identified in the *Five-Year NIMS Training Plan*, February 2008).	2009		
PREPAREDNESS	Exercises	16. Incorporate NIMS concepts and principles into all appropriate State/Territorial/Tribal training and exercises.	2005		
PREPAREDNESS	Exercises	17. Plan for and/or participate in an all-hazards exercise program [for example, Homeland Security Exercise and Evaluation Program] that involves emergency management/response personnel from multiple disciplines and/or multiple jurisdictions.	2006		
PREPAREDNESS	Exercises	18. Incorporate corrective actions into preparedness and response plans and procedures.	2006		
COMMUNICATION AND INFORMATION MANAGEMENT		19. Apply common and consistent terminology as used in NIMS, including the establishment of plain language (clear text) communications standards.	2006		
COMMUNICATION AND INFORMATION MANAGEMENT		20. Utilize systems, tools, and processes to present consistent and accurate information (e.g., common operating picture) during an incident/planned event.	2007		
RESOURCE MANAGEMENT		21. Inventory response assets to conform to NIMS National Resource Typing Definitions, as defined by FEMA Incident Management Systems Integration Division.	2006		
RESOURCE MANAGEMENT		22. Ensure that equipment, communications and data systems acquired through State/Territorial and local acquisition programs are interoperable.	2006		
RESOURCE MANAGEMENT		23. Utilize response asset inventory for intrastate/interstate mutual aid requests [such as Emergency Management Assistance Compact (EMAC)], training, exercises, and incidents/planned events.	2007		
RESOURCE MANAGEMENT		24. Initiate development of a State/Territory/Tribal-wide system (that incorporates local jurisdictions) to credential emergency management/response personnel to ensure proper authorization and access to an incident including those involving mutual aid agreements and/or assistance agreements.	2008		
COMMAND AND MANAGEMENT	Incident Command System	25. Manage all incidents/ planned events in accordance with ICS organizational structures, doctrine and procedures. ICS implementation must include the consistent application of Incident Action Planning (IAP), common communications plans, implementation of Area Command to oversee multiple incidents that are handled by separate ICS organizations or to oversee the management of a very large or evolving incident that has multiple incident management teams engaged, and implementation of unified command (UC) in multi-jurisdictional or multi-agency incident management, as appropriate.	2006		
COMMAND AND MANAGEMENT	MultiAgency Coordination Systems	26. Coordinate and support emergency management and incident response objectives through the development and use of integrated MACS, [i.e. develop/maintain connectivity capability between local Incident Command Posts (ICPs), local 911 Centers, local/regional/State/territorial/tribal/Federal Emergency Operations Centers (EOCs), as well as NRF organizational elements.]	2006		
COMMAND AND MANAGEMENT	Public Information	27. Institutionalize, within the framework of ICS, Public Information, [e.g., Joint Information System (JIS) and a Joint Information Center (JIC)] during an incident/planned event.	2006		
COMMAND AND MANAGEMENT	Public Information	28. Ensure that Public Information procedures and processes can gather, verify, coordinate, and disseminate information during an incident/planned event.	2007		

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Appendix D

Key Principles in Emergency Management

These nine key principles serve as the foundation for the content of the *Action Guide for Emergency Management at Institutions of Higher Education*.

- **Effective emergency management begins with senior leadership on campus.**

    The IHE president, chancellor, or provost must initiate and support emergency management efforts to ensure engagement from the entire campus community. This "champion" administrator will have decision-making power and the authority to devote resources to implementing the initiative and subsequently put into action the emergency management plan. Since budgetary realities may force campus administrators to make decisions within select fiscal parameters, it is important to have high-level support to provide both political and financial backing to the effort.

- **An IHE emergency management initiative requires partnerships and collaboration.**

    Every department responsible for creating a safe environment and enhancing campus functions must be involved in planning efforts. IHE's should identify and engage internal and external partners, and ensure that all planning tasks are performed within a collaborative and integrated approach. This means involving a variety of departments and functions across the campus and reaching out to community partners in the public, nonprofit, and private sectors. Partnerships with such community groups as law enforcement, fire safety, homeland security, emergency medical services, health and mental health organizations, media, and volunteer groups are integral to developing and implementing a comprehensive emergency management plan.

- **An IHE emergency management plan must adopt an "all-hazards" approach to account for the full range of hazards that threaten or may threaten the campus.**

    All-hazards planning is a more efficient and effective way to prepare for emergencies. Rather than managing planning initiatives for a multitude of threat scenarios, all-hazard planning develops capacities and capabilities that are critical to prepare for a full spectrum of emergencies or disasters, including natural hazards and severe weather, biological hazards, and violence and terrorism. As defined by FEMA, all-hazard planning "encourages emergency managers to address all of the hazards that

threaten their jurisdiction in a single emergency operations plan, instead of relying on stand-alone plans" (FEMA's State and Local Guide SLG 101: Guide for All-Hazards Emergency Operations Planning; September 1996). An all-hazards plan should be flexible and specific to the campus and its needs.

- **An IHE emergency management plan should use the four phases of emergency management to effectively prepare and respond to emergencies.**

Emergency plans at higher education institutions should use the four phases of emergency management as the framework for planning and implementation. Part of the founding principles of comprehensive emergency management when FEMA was created in 1979 is the four phases of emergency management: Prevention-Mitigation, Preparedness, Response, and Recovery. FEMA prescribes *"to treat each action as one phase of a comprehensive process, with each phase building on the accomplishments of the preceding one. The overall goal is to minimize the impact caused by an emergency in the jurisdiction…"*, (FEMA's State and Local Guide SLG 101: Guide for All-Hazards Emergency Operations Planning; September 1996).

- **The IHE emergency management plan must be based on a comprehensive design, while also providing for staff, students, faculty, and visitors with special needs.**

Every aspect of an emergency plan also should incorporate provisions for vulnerable populations, those of which can have a wide range of needs, including: language barriers, disabilities, or other special conditions. Thus, any procedures, products, and protocols created to prevent, prepare, respond, and recover from an emergency also must accommodate people with various levels of cognitive ability, knowledge, physical capabilities and life experience.

- **Campuses should engage in a comprehensive planning process that addresses the particular circumstances and environment of their institution.**

A high-quality emergency management plan does not simply duplicate another institution's specific model. Rather, the plan must be based on the unique aspects of the campus, such as the academic programs offered, size, geographic location of the campus, number and type of buildings, such as athletic venues and research labs, availability of campus and community resources, and student demographics.

- **An IHE should conduct trainings based on the institution's prevention and preparedness efforts, prioritized threats, and issues highlighted from assessments.**

Routine, multi-hazard training should be conducted with faculty, staff, and other support personnel, focusing on the protocols and procedures in the emergency management plan. Training should be conducted in conjunction with community partners, as well as integrated with responders' expertise, to ensure consistent learning.

- **Higher education institutions should conduct tabletop exercises prior to fully adopting and implementing the emergency management plan.**

These exercises should cover a range of scenarios that may occur on the campus, and should be conducted with a variety of partners and stakeholders from the campus and the community. It is important for emergency planners also to evaluate and document lessons learned from the exercise(s) in an after-action review and an after-action report, and to modify the main emergency plan, as needed.

- **After adoption, disseminate information about the plan to students, staff, faculty, community partners, and families.**

Dissemination efforts should include the conveyance of certain plan components to specific audiences, such as relaying shelter-in-place procedures to faculty members, or relaying campus evacuation information to the transportation department. General plans and procedures can be posted around campus or displayed on a Web site. Students, staff, faculty, and all of the varied campus support personnel should familiarize themselves with the plan and its components so they are prepared to respond in an emergency.

U.S. Department of Education, Office of Safe and Drug-Free Schools, *Action Guide for Emergency Management at Institutions of Higher Education,* Washington, D.C., 2009.

This guide is available on the Department of Education's Web site at:
http://www.ed.gov/emergencyplan

Disaster Preparedness for University/Community Transit Systems - Survey

Page 1 - Heading

This survey is being conducted to gather information on Disaster Preparedness for University and Community Transit Systems. The intended respondents for this survey include transit service providers (either post-secondary institutions or institutions of higher education) and/or emergency management professionals. The transit service providers may be part of the institution, or operated externally by a private company or other city/state agency. While most of the questions can likely be answered by the transit provider, university or local (municipal, county or state) emergency management professionals should be consulted on some of the questions to ensure the most accurate response is provided. Your responses to the survey will remain anonymous. Thank you for participating, your feedback is important.

Page 1 - Heading

I. Institutional and organizational relationship

Page 1 - Question 1 - Choice - One Answer (Bullets)

Does the organization you work for operate a transit system?

○ Yes
○ No

Page 1 - Question 2 - Choice - One Answer (Bullets)

Does your transit system provide transit services to institutions of higher education or post-secondary institutions of education?

○ Yes
○ No

Page 2 - Heading

II. General Information about the Institution, Area, and Transit Service

Page 2 - Question 3 - Open Ended - One or More Lines with Prompt

Provide the total number of full-time equivalents (FTEs) for students and employees in the following categories at your Institution:

✎ Total # faculty
_____
✎ Total # staff
_____
✎ Total # students
_____
✎ If you don't know the answer please list a contact or source who would have the information
_____

Page 2 - Question 4 - Open Ended - One Line

How large is the total transit service area in square miles?

Page 2 - Question 5 - Choice - One Answer (Bullets)

What is the size of the city in which the institution is located?

○ Population less than 49,999
○ Population of 50,000 — 199,000
○ Population greater than 200,000 or more

Page 2 - Question 6 - Open Ended - One or More Lines with Prompt

Please provide the following information for your transit system operations showing the number of vehicles operated during peak service, in your fleet and total boardings for FY2010 (07-09 through 06-10):

✎ vehicles operated in peak service
_____
✎ vehicles in your fleet
_____
✎ FY 2010 boardings
_____

Page 2 - Question 7 - Open Ended - One or More Lines with Prompt

What are the total hours of operations Sun-Sat (i.e.; M-10 hours, T-12 hours, W-12 hours etc.)

- ✍ Sunday _____.
- ✍ Monday _____.
- ✍ Tuesday _____.
- ✍ Wednesday _____.
- ✍ Thursday _____.
- ✍ Friday _____.
- ✍ Saturday _____.

Page 3 - Heading

III. Questions on General Funding

Page 3 - Question 8 - Yes or No

The Federal Transit Administration provides funding to transportation organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations.
 Does your transit system receive federal funding?

- ○ Yes
- ○ No

Page 3 - Question 9 - Choice - One Answer (Bullets)

Does your transit system receive local, state or federal funds directly to assist in the operations of and/or for providing transit services to institutions of higher education or post-secondary institutions of education?

- ○ Yes
- ○ No

Page 3 - Question 10 - Choice - One Answer (Bullets)

If your transit agency receives federal funding, which of the following U.S. DOT and Federal Transit Administration definitions describes your service area's status for federal funding, chose the one that applies:

- ○ Rural area with a population less than 50,000
- ○ Urbanized areas 50,000 to 200,000 in population
- ○ Urbanized areas 200,000 or more in population

Page 3 - Question 11 - Choice - One Answer (Bullets)

How much of your transit service budget is annually supported by an institution of higher education or post-secondary institutions of education?

- ○ 100%
- ○ 75% > 99%
- ○ 50% > 74%
- ○ 25% > 49%
- ○ < 25%
- ○ Not at all

Page 4 - Heading

IV. Questions Regarding Disaster Preparedness Plans and Funding

Page 4 - Question 12 - Yes or No

Is the transit system a specific component of an institution of higher education's or post-secondary institution of education's disaster preparedness plan?

- ○ Yes
- ○ No

Page 4 - Question 13 - Choice - One Answer (Bullets)

What amount of institutional or external (student fees, public or private grants, other government sources, etc.) funding is incorporated in your transit budget for disaster preparedness training (common carrier safety, security or emergency preparedness)?

- ○ < $100,000
- ○ $100,000 to $249,999
- ○ $250,000 to $499,999
- ○ $500,000 to $749,999
- ○ $750,000 to $999,999
- ○ > $1,000,000

Page 4 - Question 14 - Choice - One Answer (Bullets)

How much of the transit department's transportation budget funding is set aside for disaster preparedness training for safety, security or emergency preparedness of the transit employees?

- ○ < 1%
- ○ 1% to 2.499%
- ○ 2.5% to 3.499%
- ○ 3.5% to 4.499%
- ○ > 4.5%

Page 5 - Heading

V. Information on Emergency Planning, Plans, and Training

Page 5 - Question 15 - Yes or No

Is the transit system's director/manager/other designee a member of the institution's emergency planning committee?

- ○ Yes
- ○ No
- ○ If no, please explain why they are not

Page 5 - Question 16 - Choice - One Answer (Bullets)

How often does the transit system's director/manager/other designee participate in emergency/disaster preparedness exercises?

- ○ Never
- ○ Once a quarter
- ○ Semi-annually
- ○ Annually
- ○ Other, please specify

Page 5 - Question 17 - Choice - Multiple Answers (Bullets)

In which of the following categories does the transit system's director/manager/other designee receive training? (Mark all that apply) Transit Safety

- ❑ Rail Safety
- ❑ Bus Safety
- ❑ Federal Transit Administration Drug & Alcohol Program
- ❑ Emergency Management for Safety
- ❑ Fire / Life Safety
- ❑ Other, please specify

Page 5 - Question 18 - Choice - Multiple Answers (Bullets)

In which of the following categories does the transit system's director/manager/other designee receive training? (Mark all that apply)
Transit Security

- ❑ Security Initiatives: An overview of FTA security initiatives since September 11, 2001.
- ❑ Transit Watch (Transit Watch raises awareness of transit employees, riders, and the general public.)
- ❑ Guidelines and Best Practices for Transit Systems
- ❑ Emergency Management for Security
- ❑ Weapons of Mass Destruction: Guidelines for responding to threats and attacks
- ❑ Other, please specify

Page 5 - Question 19 - Choice - Multiple Answers (Bullets)

In which of the following categories does the transit system's director/manager/other designee receive training? (Mark all that apply)
Emergency Management

- ❑ National Transportation Recovery Strategy
- ❑ National Infrastructure Protection Plan (2009)
- ❑ National Response Framework (2008)
- ❑ National Incident Management System
- ❑ Hazardous Materials
- ❑ Warning Siren Protocols
- ❑ Other, please specify

Page 5 - Question 20 - Choice - One Answer (Bullets)

Do the transit system personnel participate with local and regional emergency management offices in disaster planning and training based on your transit organizations plan or the institutions of higher education or post secondary institutions of education emergency plan?

- ○ Yes
- ○ No
- ○ Do not know

Page 5 - Question 21 - Choice - Multiple Answers (Bullets)

Which of the following items can be found in your organization's transit system's disaster/emergency preparedness plan for the transit system (Mark all that apply):

- ❑ Prevention
- ❑ Mitigation
- ❑ Preparedness
- ❑ Response
- ❑ Recovery
- ❑ None of the above
- ❑ Other, please specify

Page 5 - Question 22 - Choice - Multiple Answers (Bullets)

To what level of conformity has your local institution developed a disaster preparedness plan in relation to the National Incident Management System (NIMS)?

If your agency is not 100% compliant with the NIMS, please share in the "other" section below which components your agency is compliant.

- ❑ Conforms to 100% of the NIMS
- ❑ Conforms to 75% of the NIMS
- ❑ Conforms to 50% of the NIMS
- ❑ Conforms to 25% of the NIMS
- ❑ Does not conform to NIMS
- ❑ Other, please specify

Page 6 - Heading

VI. Information on Emergency Operations, Communications, Response

Page 6 - Question 23 - Choice - Multiple Answers (Bullets)

If there were a hurricane, tornado, severe storm, flooding, etc., or a human created disaster in your region what would be your agency's response? Mark all that apply:

- ❑ Would not respond under any circumstances.
- ❑ If asked, agency would support emergency management efforts.
- ❑ Automatically respond to university/college needs only.
- ❑ Coordinate with emergency management or other first responders.
- ❑ Automatically respond to Emergency Operations Center to provide support. (local, regional, state or national needs)

Page 6 - Question 24 - Choice - Multiple Answers (Bullets)

Is your transit agency's communication system integrated to work with emergency management services in your region?
If your answer is "yes" or "partially" please share with us in the "other" section below which components of the communication system your agency uses (cell phone, 2-way radio, portable satellite radios or vehicles, internet etc.)

❑ Yes
❑ Partially
❑ No
❑ Do not know
❑ Other, please specify

Page 6 - Question 25 - Choice - Multiple Answers (Bullets)

Does the university/college your transit system provides services to have an outdoor emergency and warning siren system? Mark those that apply.

❑ Warning Siren Only
❑ Warning Siren with audio messaging
❑ Emergency Phones
❑ Emergency phones with audio messaging
❑ No
❑ Other, please specify

Page 6 - Question 26 - Choice - One Answer (Bullets)

When the outdoor emergency and warning siren system is activated, is your agency automatically notified by the university/college of the event on campus?

○ Yes
○ No
○ Do not know

Page 6 - Question 27 - Yes or No

Does your transit agency participate in emergency/disaster preparedness drills with the university/college institution(s) to which your agency provides transportation services?

○ Yes
○ No

Page 6 - Question 28 - Choice - Multiple Answers (Bullets)

Which of the following agencies does your transit agency coordinate with for emergency/disaster preparedness drills (Mark all that apply)?

- ❑ University Emergency Services (Police, Fire, etc.)
- ❑ Local Municipal Emergency Services
- ❑ County Emergency Services
- ❑ State Emergency Management Department/Division
- ❑ None of the above
- ❑ Other, please specify

Page 6 - Heading

WARNING: You are about to come to the end of the survey, once you push the "submit button" you will not be able to come back to the survey. If you need to temporarily leave the survey to collect data then just exit and you should be able to reopen the link from the e-mail I sent you and complete the survey.

Thank You Page

Thank you for taking the time to participate in my survey. This research is in partial fulfillment of my dissertation in the multi-disciplinary Ph.D. program, "Planning Design and Built Environment" in the College of Architecture, Arts and Humanities. To learn more about this Ph.D. program please click on the Clemson Logo above.

Geary L. Robinson

<http://www.grad.clemson.edu/programs/EDP/>

Appendix F

Survey Email Request

Date: December 23rd, 2010

Good Afternoon,
I am a PhD student at Clemson University in the College of Architecture, Arts and Humanities Planning, Design and Built Environment Ph.D. program http://www.grad.clemson.edu/programs/EDP/.   My dissertation research is about University/Community Transportation Disaster Preparedness with a focus on the use of transit assets during the multiple phases of a disaster event. These being the prevention, protection against, response to, recovery from, and mitigation of the effects of human made or natural disaster events. I am seeking your assistance in my research by completing a survey for me, the survey will take approximately 10 to 15 minutes to complete.

This survey is being conducted to gather information on Disaster Preparedness for University and Community Transit Systems. The intended respondents for this survey include transit service providers (either post-secondary institutions or institutions of higher education) and/or emergency management professionals. The transit service providers may be part of the institution, or operated externally by a private company or other city/state agency. While most of the questions can likely be answered by the transit provider, university or local (municipal, county or state) emergency management professionals should be consulted on some of the questions to ensure the most accurate response is provided. Your responses to the survey will remain anonymous.   Thank you for participating, your feedback is important.

The survey launch date is set for Monday January 10th with a closing date of Monday January 31st. In a follow-up e-mail I will share with you a link to the survey on January 5th. (The survey actually launched January 5th, 2011after approval of the survey from the CU-Institutional Review Board.)

Thanks, Geary
Geary L. Robinson, CAPP
403 Autumn Trace Lane
Seneca, SC 2978-5749
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(E) gearyr@g.clemson.edu

Appendix G

Final Survey Results: Disaster Preparedness for University/Community Transit Systems

I.   Institutional and organizational relationship

1. Does the organization you work for operate a transit system?		
Yes	159	89%
No	20	11%
Total	179	100%

2. Does your transit system provide transit services to institutions of higher education or post-secondary institutions of education?		
Yes	134	75%
No	45	25%
Total	179	100%

II.   General Information about the Institution, Area, and Transit Service

3. Provide the total number of full-time equivalents (FTEs) for students and employees in the following categories at your Institution:
82 Responses

4. How large is the total transit service area in square miles?
83 Responses

5. What is the size of the city in which the institution is located?		
Population less than 49,999	15	16%
Population of 50,000 — 199,000	48	51%
Population greater than 200,000 or more	31	33%
Total	94	100%

6. Please provide the following information for your transit system operations showing the number of vehicles operated during peak service, in your fleet and total boardings for FY2010 (07-09 through 06-10):
90 Responses

7. What are the total hours of operations Sun-Sat (i.e.; M-10 hours, T-12 hours, W-12 hours etc.)
91 Responses

III. Questions on General Funding

8. The Federal Transit Administration provides funding to transportation organizations through state departments of transportation, statewide transportation planning organizations and/or metropolitan planning organizations. Does your transit system receive federal funding?		
Yes	76	81%
No	18	19%
Total	94	100%

9. Does your transit system receive local, state or federal funds directly to assist in the operations of and/or for providing transit services to institutions of higher education or post-secondary institutions of education?		
Yes	25	27%
No	67	73%
Total	92	100%

10. If your transit agency receives federal funding, which of the following U.S. DOT and Federal Transit Administration definitions describes your service area's status for federal funding, chose the one that applies:		
Rural area with a population less than 50,000	4	5%
Urbanized areas 50,000 to 200,000 in population	41	52%
Urbanized areas 200,000 or more in population	34	43%
Total	79	100%

11. How much of your transit service budget is annually supported by an institution of higher education or post-secondary institutions of education?		
100%	12	13%
75% > 99%	0	0%
50% > 74%	2	2%
25% > 49%	3	3%
< 25%	20	22%
Not at all	55	60%
Total	92	100%

IV.   Questions regarding Disaster Preparedness Plans and Funding

12. Is the transit system a specific component of an institution of higher education or post-secondary institution of education's disaster preparedness plan?		
Yes	18	21%
No	68	79%
Total	86	100%

13. What amount of institutional or external (student fees, public or private grants, other government sources, etc.) funding is incorporated in your transit budget for disaster preparedness training (common carrier safety, security or emergency preparedness)?		
< $100,000	69	88%
$100,000 to $249,999	5	6%
$250,000 to $499,999	0	0%
$500,000 to $749,999	2	3%
$750,000 to $999,999	0	0%
> $1,000,000	2	3%
Total	78	100%

14. How much of the transit department's transportation budget funding is set aside for disaster preparedness training for safety, security or emergency preparedness of the transit employees?		
< 1%	55	65%
1% to 2.499%	26	31%
2.5% to 3.499%	2	2%
3.5% to 4.499%	0	0%
> 4.5%	1	1%
Total	84	100%

V.   Information on Emergency Planning, Plans, and Training

15. Is the transit system's director/manager/other designee a member of the institution's emergency planning committee?		
Yes	53	59%
No	37	41%
Total	90	100%

16. How often does the transit system's director/manager/other designee participate in emergency/disaster preparedness exercises?

Never	7	8%
Once a quarter	10	11%
Semi-annually	18	20%
Annually	37	41%
Other, please specify	18	20%
Total	90	100%

17. In which of the following categories does the transit system's director/manager/ other designee receive training? (Mark all that apply) Transit Safety

Rail Safety	16	18%
Bus Safety	71	82%
Federal Transit Administration Drug & Alcohol Program	58	67%
Emergency Management for Safety	56	64%
Fire / Life Safety	37	43%
Other, please specify	15	17%

18. In which of the following categories does the transit system's director/manager/ other designee receive training? (Mark all that apply) Transit Security

Security Initiatives: An overview of FTA security initiatives since September 11, 2001.	46	53%
Transit Watch (Transit Watch raises awareness of transit employees, riders, and the general public.)	43	49%
Guidelines and Best Practices for Transit Systems	54	62%
Emergency Management for Security	49	56%
Weapons of Mass Destruction: Guidelines for responding to threats and attacks	29	33%
Other, please specify	16	18%

19. In which of the following categories does the transit system's director/manager/ other designee receive training? (Mark all that apply) Emergency Management

National Transportation Recovery Strategy	10	14%
National Infrastructure Protection Plan (2009)	9	12%
National Response Framework (2008)	11	15%
National Incident Management System	59	81%
Hazardous Materials	35	48%
Warning Siren Protocols	14	19%
Other, please specify	10	14%

20. Do the transit system personnel participate with local and regional emergency management offices in disaster planning and training based on your transit organizations plan or the institutions of higher education or post-secondary institutions of education emergency plan?

Yes	71	81%
No	12	14%
Do not know	5	6%
Total	88	100%

21. Which of the following items can be found in your organization's transit system's disaster/emergency preparedness plan for the transit system (Mark all that apply):

Prevention	57	64%
Mitigation	47	53%
Preparedness	75	84%
Response	76	85%
Recovery	59	66%
None of the above	8	9%
Other, please specify	4	4%

22. To what level of conformity has your local institution developed a disaster preparedness plan in relation to the National Incident Management System (NIMS)? If your agency is not 100% compliant with the NIMS, please share in the "other" section below which components your agency is compliant.

Conforms to 100% of the NIMS	49	56%
Conforms to 75% of the NIMS	8	9%
Conforms to 50% of the NIMS	5	6%
Conforms to 25% of the NIMS	2	2%
Does not conform to NIMS	7	8%
Other, please specify	21	24%

VI.   Information on Emergency Operations, Communications, Response

23. If there were a hurricane, tornado, severe storm, flooding, etc., or a human created disaster in your region what would be your agency's response? Mark all that apply:

Would not respond under any circumstances.	0	0%
If asked, agency would support emergency management efforts.	49	60%
Automatically respond to university/college needs only.	9	11%
Coordinate with emergency management or other first responders.	58	71%
Automatically respond to Emergency Operations Center to provide support. (local, regional, state or national needs)	42	51%

24. Is your transit agency's communication system integrated to work with emergency management services in your region?   If your answer is "yes" or "partially" please share with us in the "other" section below which components of the communication system your agency uses (cell phone, 2-way radio, portable satellite radios or vehicles, internet etc.)

Yes	41	50%
Partially	20	24%
No	18	22%
Do not know	2	2%
Other, please specify	32	39%

25. Does the university/college your transit system provides services to have an outdoor emergency and warning siren system? Mark those that apply.

Warning Siren Only	9	12%
Warning Siren with audio messaging	7	9%
Emergency Phones	16	21%
Emergency phones with audio messaging	8	10%
No	22	29%
Other, please specify	32	42%

26. When the outdoor emergency and warning siren system is activated, is your agency automatically notified by the university/college of the event on campus?

Yes	14	19%
No	31	42%
Do not know	28	38%
Total	73	100%

27. Does your transit agency participate in emergency/disaster preparedness drills with the university/college institution(s) to which your agency provides transportation services?		
Yes	23	29%
No	55	71%
Total	78	100%

28. Which of the following agencies does your transit agency coordinate with for emergency/disaster preparedness drills (Mark all that apply)?		
University Emergency Services (Police, Fire, etc.)	23	28%
Local Municipal Emergency Services	62	76%
County Emergency Services	56	68%
State Emergency Management Department/Division	35	43%
None of the above	7	9%
Other, please specify	5	6%

Appendix H

Question Point Totals

#1 – Effective Emergency Management Begins With Senior Leadership On Campus

Q-12	Score	Possible Score: 9.0
Yes	1	
No	0	

Q-16	Score
Never	0
Once a Quarter	4
Semi-Annually	3
Annually	2
Other	1

Q-23	Score
Would Not Respond	0
If Asked …	1
Automatically responded to Univ/College	2
Coordinate w/EM	3
Auto Respond to EOC	4

#2 – An IHE Emergency Management Initiative Requires Partnerships And Collaboration

Q-20	Score	Possible Score: 3.0
Yes	1	
No	0	
Don't Know	0.25	

Q-24	Score
Yes	1
Partially	0.5
No	0
Do Not Know	0

Q-27	Score
Yes	1
No	0

#3 – An IHE Emergency Management Plan Must Adopt An "All-Hazards" Approach To Account For The Full Range Of Hazards That Threaten Or May Threaten The Campus

Q-19	Score	Possible Score: 6.0
Nat'l Transportation Recovery	1	
Nat'l Infrastructure Protection Plan	1	
Nat'l Response Frame	1	
NIMS	1	
HAZMAT	1	
Warning Siren	1	
Other	0.0 or 1.0	

#4 – An IHE Emergency Management Plan Should Use The Four Phases Of Emergency Management To Effectively Prepare And Respond To Emergencies

Q-21	Score	Possible Score: 5.0
Prevention	1	
Mitigation	1	
Preparedness	1	
Response	1	
Recovery	1	
None of the Above	0	
Other	0.0 or 1.0	

#5 – The IHE Emergency Management Plan Must Be Based On A Comprehensive Design, While Also Providing For Staff, Students, Faculty, And Visitors With Special Needs

Q-12	Score	Possible Score: 1.0
Yes	1	
No	0	

#6 – Campuses Should Engage In A Comprehensive Planning Process That Addresses The Particular Circumstances And Environment Of Their Institution

Q-12	Score	Possible Score: 2.0
Yes	1	
No	0	

Q-15	Score
Yes	1
No	0
Other	1.0 or 0.0

#7 – An IHE Should Conduct Trainings Based On The Institution's Prevention And Preparedness Efforts, Prioritized Threats, And Issues Highlighted From Assessments

Q-17	Score	Possible Score: 16.0
Rail	1	
Bus	1	
FTA - Drug	1	
EM for Safety	1	
Fire/Life Safety	1	
Other	0.0 or 1.0	

Q-18	Score
FTA Security	1
Transit Watch	1
EM for Security	1
WMD	1
Guidelines	1
Other	0.0 or 1.0

Q-19	Score
Nat'l Transport. Recovery Strategy	1
NIPP	1
NSF	1
NIMS	1
HAZMAT	1
Sirens	1
Other	0.0 or 1.0

#8 – Higher Education Institutions Should Conduct Tabletop Exercises Prior To Fully Adopting And Implementing The Emergency Management Plan

Q-16	Score	Possible Score: 9.0
Never	0	
Once a Quarter	4	
Semi-annual	3	
Annual	2	
Other	1	

Q-27	Score
Yes	1
No	0

Q-28	Score
Univ EMS	1
Municipal EMS	1
State EM	1
County	1
Other	0.0 or 1.0
None	0

#9 – After Adoption, Disseminate Information About The Plan To Students, Staff, Faculty, Community Partners, And Families

Q-15	Score	Possible Score: 2.0
Yes	1	
No	0	
Other	1.0 or 0.0	

Q-27	Score
Yes	1
No	0

Research Hypothesis Groups 39 and 28 Coding, Mean and Medians

EMHE Principles	Principle Score and Question Coding	Research Hypothesis Group (39)		Research Hypothesis Group (28)	
		Mean	Median	Mean	Median
Principle 1	9	5.9	6	6	7
Question 12: Is the transit system a specific component of an institution of higher education's or post-secondary institution of education's disaster preparedness plan? Yes = 1 point No = 0 point	0,1	0.21	0	0.25	0
Question 16: How often does the transit system's director/manager/ other designee participate in emergency/disaster prepared- ness exercises? Never = 0 point, Once a quarter = 4 points, Semi- annually = 3points, Annually = 2 points, Other, please specify = 1 or 0 points	0,1,2,3,4	2.5	2	2.82	3
Question 23: If there were a hurricane, tornado, severe storm, flooding, etc., or a human created disaster in your region what would be your agency's response? Mark all that apply: Would not respond. = 0 point; If asked, agency would support emergency management efforts. = 1 point; Automatically respond to university/college needs only. = 2 points; Coordinate with emergen- cy management or other first responders. = 3; Automatically respond to Emergency Ops Center to provide support (local, regional, state or national needs). = 4 points	0,1,2,3,4	3.26	3	3.36	3.5

EMHE Principles	Points	Mean	Median	Mean	Median
Principle 2	3	1.64	2	1.84	2
Question 20: Do the transit system personnel participate with local and regional emergency management offices in disaster planning and training based on your transit organizations plan or the institutions of higher education or post-secondary institutions of education emergency plan? Yes = 1 point No = 0 point, Do not know = 0.25 point	0, 0.25, 1	0.77	1	0.88	1
Question 24: Is your transit agency's communication system integrated to work with emergency management services in your region? If your answer is "yes" or "partially" please share with us in the "other" section below which components of the communication system your agency uses (cell phone, 2-way radio, portable satellite radios or vehicles, internet etc.) Yes = 1 point; Partially = .5 points; No = 0 point; Do not know = .25 points; Other, please specify = 0 or 1 point	0,0. 25, 0.50, 1	0.46	0.5	0.54	0.5
Question 27: Does your transit agency participate in emergency/disaster preparedness drills with the university/college institution(s) to which your agency provides transportation services? Yes = 1 point No = 0 point	0, 1	0.41	0	0.43	0

EMHE Principles	Points	Mean	Median	Mean	Median
Principle 3	6	1.67	1	2.18	2
Question 19: In which of the following categories does the transit system's director/manager/other designee receive training? (Mark all that apply) <u>Emergency Management Section:</u> National Transportation Recovery Strategy, National Infrastructure Protection Plan (2009), National Response Framework (2008), National Incident Management System, Hazardous Materials, and Warning Siren Protocols = 1 point given for each answer; Other, please specify = 0 or 1 point	0, 1	1.67	1	2.18	2
Principle 4	5	3.64	4	3.68	4
Question 21: Which of the following items can be found in your organization's transit system's disaster/emergency preparedness plan for the transit system (Mark all that apply): <u>Four Phases Section:</u> Prevention, Mitigation, Preparedness, Responses, Recovery = 1 point given for each answer; None of the above = 0; Other, please specify = 0 or 1 point	0, 1	3.64	4	3.68	4
Principle 5	1	0.21	0	0.25	0
Question 12: Is the transit system a specific component of an institution of higher education's or post-secondary institution of education's disaster preparedness plan? Yes = 1 point No = 0 point	0, 1	0.21	0	0.25	0
Principle 6	**2**	**0.72**	**1**	**0.79**	**1**
Question 12: Is the transit system a specific component of an institution of higher education's or post-secondary institution of education's disaster preparedness plan? Yes = 1 point No = 0 point	0, 1	0.21	0	0.25	0
Question 15: Is the transit system's director/manager/other designee a member of the institution's emergency planning committee? Yes = 1point, No = 0 point, If no, please explain why they are not. = 1 or 0	0, 1	0.51	1	0.54	1

EMHE Principles	Points	Mean	Median	Mean	Median
Principle 7	16	6.95	6	8.07	7.5
Question 17: In which of the following categories does the transit system's director/manager/other designee receive training? (Mark all that apply) <u>Transit Safety Section:</u> Rail Safety, Bus Safety, Federal Transit Administration Drug & Alcohol Program, Emergency Management for Safety, Life Safety = 1 point given for each answer; Other, please specify = 0 or 1 point	0, 1	2.72	3	2.93	3
Question 18: In which of the following categories does the transit system's director/manager/ other designee receive training? (Mark all that apply) <u>Transit Security Section:</u> Security Initiatives: FTA overview of its security initiatives since 09/11/2001; Transit Watch (raises awareness of transit employees, riders, and the general public.); Guidelines and Best Practices for Transit Systems; Emergency Management for Security; and, WMD: Guidelines for responding to threats and attacks. = 1 point given for each answer; and, Other please specify = 0 or 1 point	0, 1	2.56	2	2.96	3
Question 19: In which of the following categories does the transit system's director/manager/other designee receive training? (Mark all that apply) <u>Emergency Management Section:</u> National Transportation Recovery Strategy, National Infrastructure Protection Plan (2009), National Response Framework (2008), National Incident Management System, Hazardous Materials, and Warning Siren Protocols = 1 point given for each answer; Other, please specify = 0 or 1 point	0, 1	1.67	1	2.18	2

EMHE Principles	Points	Mean	Median	Mean	Median
Principle 8	9	5.21	5	5.71	5.5
Question 16: How often does the transit system's director/manager/other designee participate in emergency/disaster preparedness exercises? Never = 0 point, Once a quarter = 4 points, Semi-annually = 3points, Annually = 2 points, Other, please specify = 1 or 0 points	0, 1, 2, 3, 4	2.5	2	2.82	3
Question 27: Does your transit agency participate in emergency/disaster preparedness drills with the university/college institution(s) to which your agency provides transportation services? Yes = 1 point No = 0 point	0, 1	0.36	0	0.43	0
Question 28: Which of the following agencies does your transit agency coordinate with for emergency/disaster preparedness drills (Mark all that apply)? Univ. Emergency Services (Police, Fire, etc.), Municipal Emergency Services, County Emergency Services; State Emergency Management Department or Division = 1 point; None of the above = 0 point; Other, please specify = 0 or 1 point	0, 1	2.41	2	2.46	2
Principle 9	2	0.87	1	0.96	1
Question 15: Is the transit system's director/manager/other designee a member of the institution's emergency planning committee? Yes = 1point, No = 0 point, If no, please explain why they are not. = 1 or 0	0, 1	0.51	1	0.54	1
Question 27: Does your transit agency participate in emergency, disaster preparedness drills with the university/college institution(s) to which your agency provides transportation services? Yes = 1 point No = 0 point	0, 1	0.36	0	0.43	0

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