CAMPUS EMERGENCY MANAGEMENT: IDENTIFYING OPPORTUNITIES TO
ENHANCE COMMUNICATION EFFECTIVENESS BEFORE, DURING & AFTER A CRISIS

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Effective all-hazards campus emergency management (CEM) help campus leaders meet the school’s mission and strategic goals, sustain continuity of operations, and provide safety and security to campus stakeholders. Campus emergency management has four primary phases: 1) mitigation; 2) preparedness; 3) response; and 4) recovery (U.S. DHS-FEMA, 2003; Zdziarksi, Dunkel & Rollo, 2007; U.S. DOE, 2010). Scrutiny of these programs intensifies as planning requirements increase. Two contemporary events serve as examples: the shootings at Virginia Tech University (manmade) and Hurricane Katrina (natural). One of the major fallouts associated with each event was the poor communication associated with each phase of emergency management planning. In an effort to address the communication challenges connected with CEM, the researcher conducted an archival analysis of the shootings at Virginia Tech University. The primary question directing this research was: When reviewing analysis of the Virginia Tech shooting event, what can be applied to current practices to improve communication linked with each phase of campus emergency management? The theoretical framework for this research consists of perspectives in organizational sensemaking; the process organizations endure to manage information. Areas of literature that inform this inquiry include an analysis of the shooting at Virginia Tech University, about the processes and practices associated with the four phases of emergency management planning, and contemporary experiences at institutions of higher education. Research findings led to three principal themes that highlight opportunities for improved CEM communication.

Key words: emergency management, all hazards, preparedness, mitigation, response, recovery
Dedication

Dedicated with love and appreciation to my wife, daughters and son:

Lori C. Dillon, Riely C. Dillon, Raegan K. Dillon, and Quinn P. Dillon

In recognition of their love, support, humor and sacrifice.
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Chapter One: Introduction

Statement of Problem

Natural and manmade disasters pose strong challenges to educational leaders’ efforts in safeguarding campus communities and maintaining the continuity of operations at institutions of higher education (IHEs). Disastrous events, such as the 2007 shootings at Virginia Tech University (Virginia Tech) or Hurricane Katrina, provide historic examples of disasters higher educational leaders have faced, and the impact those events have had on the organizations. In response to the shootings at Virginia Tech, Hurricane Katrina, and other contemporary disasters, all hazards campus emergency management (CEM) programs, designed to mitigate or prevent such disasters, have come under increasing levels of scrutiny (Sells, 2002).

Much research has been conducted on campus emergency management and its impact on the educational system. The majority of this research focuses on the four phases of emergency management: (1) mitigation; (2) preparedness; (3) response; (4) and recovery (U.S. DHS-FEMA, 2003; Zdziarski, Dunkel, & Rollo, 2007; U.S. DOE, 2010). Research on campus emergency management has led to the creation of innovative response and risk mitigation programs, including physical security changes, improved response planning and stepped-up legislation (Fox & Savage, 2009). While response and risk mitigation programs are essential in emergency management planning, another critical challenge must be studied and addressed: the ability of educational leaders to communicate effectively with stakeholders during all four phases of emergency management planning. See Appendix C for full list of internal and external IHE EM stakeholders. The researcher focused on the shootings at Virginia Tech University and the communication challenges attributed with the event. The outcome of this archival analysis will assist in identifying opportunities to enhance communication associated with each phase of
campus emergency management planning.

**Significance**

It is critical to conduct an intensive examination of the communication challenges associated with all hazards campus emergency management. Across the nation, educational leaders at colleges and universities remain challenged to keep their education communities safe when natural and/or manmade disasters occur. The pressure continues to escalate as they attempt to manage the effects of natural and manmade disasters, particularly acts of campus violence (Sells, 2002). Although no mandate exists on the content and structure of a campus emergency management plan, most institutions of higher education administer plans to address crucial safety and security concerns (Carter, 2010).

Natural disasters occur routinely and can adversely affect the continuity of operations at any institution of higher education. In 1992, Hurricane Andrew caused $17 million worth of damage to the University of Miami, as well as displacing many of its students for a short period of time (U.S. DHS-FEMA, 2003). The 1994 Northbridge, CA earthquake caused more than $380 million in damages to the Northbridge campus of California State University, forcing the school to close for a month. In 2002, a fire broke out in a dormitory at New Jersey’s Seton Hall University, killing three students and seriously injuring 12 (U.S. DHS-FEMA, 2003).

Manmade disasters present similar challenges. In 2008, there were 55 murders, 3,287 forcible sexual offenses, 4,562 robberies, 5,026 cases of aggravated assault and 31,851 burglaries committed on American college campuses (U.S. DOE, 2010). Statistics from 2006 through 2008 identify minimal annual change in these categories. Shootings at Virginia Tech University, and the recent unauthorized removal of cyanide by a lab technician at Northeastern University, represent examples of contemporary manmade disasters and security breaches that challenge
higher educational leaders in their efforts to keep campuses safe.

Educational stakeholders are demanding that more be done to insure their campus community operates as safely and efficiently as possible. To do so, institutions of higher education establish effective emergency management plans. As research has identified, lack of plans for effective communication in reference to the four phases of emergency management planning: 1) mitigation; 2) preparedness; 3) response; and 4) recovery, contributes to the impact and fallout associated with a disaster (Drysdale, Modzelski, & Simmons, 2010; U.S. DHS-FEMA, 2003; Fox & Savage, 2009). A central component of any effective emergency management plan is a parallel communication plan.

Ineffective communication cited by critics in the aftermath of both the Virginia Tech and Northern Illinois University campus shootings contributed to the crisis. In addition, a U.S. Secret Service, U.S. Department of Education (DOE) and Federal Bureau of Investigation (FBI) joint report on campus violence found institutions of higher education faced significant communication challenges in their efforts to effectively manage emergency situations (Drysdale et al., 2010).

**Research Question**

This archival analysis focused on the shootings at Virginia Tech University as a means to understand CEM communication. Primary source data included internal review reports sanctioned by Virginia Tech leaders as well as the governor’s report summarizing the findings leading up to the shootings. The research question focused on the specific communication requirements at each phase of emergency management planning.

The primary research question for this study was:
1. When reviewing analysis of the Virginia Tech shooting event, what can be applied to current practices to improve communication linked with each phase of campus emergency management?

More specifically the study investigated those responsible for communicating, groups/stakeholders involved, and how communication occurs at each phase of emergency management planning.

**Organization of the Document**

The remainder of this thesis includes five sections: theoretical framework, literature review, research design, report of research findings, and discussion of findings. The following section outlines the theoretical framework that provides the lens for this research. The theoretical perspective for this research follows Weick’s (1979) *Organizing Theory* and includes three central components: sensemaking, enactment, and equivocality.

In the literature review, six areas of literature provided a comprehensive analysis of existing research. First, the research offers a summary of available literature on the shootings at Virginia Tech University. Second, the research analyzed literature associated with the four phases of emergency management planning. Third, the research summarized literature on contemporary emergency management experiences at IHEs. Fourth, the research identified theoretical applications relevant to this study. Fifth, provided is a summary overview of relevant crisis communication literature. Finally, offered is a brief review of systems theory as it relates to CEM. Following the literature review, the researcher presents a rationale for a qualitative archival study to identify the experiences of stakeholders involved in campus crisis, and the role of effective communication during campus emergency management. The researcher outlines data collection, analysis, validity and credibility of the research.
The report of research findings and discussion of findings include analysis of relevant archival data related to the Virginia Tech shooting and the identification of primary themes that provide insight into enhanced CEM communication.

**Theoretical Framework**

The purpose of this research was to identify the communication requirements that reach stakeholders at IHEs during each stage of emergency management planning and to pinpoint opportunities for enhancing communication. See Appendix C for full list of internal and external IHE EM stakeholders. To better understand the communication requirements and challenges associated with emergency management planning, Weick’s (1979) *Organizing Theory* provided the theoretical framework for this research. Three specific components of Weick’s (1979) theory assisted in understanding effective and ineffective communication in organizations in crisis. The key factors in Weick’s *Organizing Theory* that supported this study include; sensemaking, enactment, and equivocality. Additionally, Weick & Sutcliffe’s (2001) research on *High Reliable Organizations* enhanced the inquiry by outlining the characteristics of organizations that best handle crises, and the communication practices supporting emergency planning and management efforts.

Weick’s (1979, 2003) *Organizing Theory* is focused primarily on information exchanges and the organization constructs that support stakeholder interaction. Central to this process is effective communication. As Weick (2001) points out, organizations are framed, preserved and thrive based on effective communication. If communication is ambiguous, misunderstood, or subject to varying interpretations, the livelihood of the organization is jeopardized. Weick introduced the concepts of sensemaking, enactment, and the impact equivocality has on effective communication.
Component 1: sensemaking. Sensemaking is the process of enacting the organization and its surroundings to gain an understanding of situations and events (Weick, 1979, 2001). Sensemaking is a process in which stakeholders continuously interact with the organization’s environment to limit equivocality (Eisenberg, 2006; Maitlis & Sonenshein, 2010). Using a retrospective approach, stakeholders reflect on their own experiences to provide meaning, order and reality to new information, situations, or events requiring interpretation (Weick, 2001). For example, university stakeholders would go through the process of sensemaking upon hearing the campus siren associated with a new emergency alert notification system. Upon initiation of the system, stakeholders would reflect on their own experiences, interpret what is transpiring, and take action to understand the event, and then summarize its meaning to themselves and other stakeholders.

Central to sensemaking is the process of interpretation (Weick, 2001). “Members of organizations spend considerable time negotiating among themselves an acceptable version of what is going on” (Weick, 1979, p. 6). This process is termed consensual validation and leads to a common understanding of environmental activities while limiting equivocality (ambiguity) (Weick, 1979). A consequence of equivocality is pluralistic ignorance, a situation in which stakeholders assumes others will enact the environment for meaning (Weick, 2001). Weick (2001) introduces the notion of “speech exchange systems.” Through “speech exchange systems,” stakeholders loop information to enhance communication effectiveness (Weick, 2001).

Component 2: enactment. Enactment is the process in which stakeholders interact with the environment for meaning (Weick, 1979, 1988, 2001; Saetre, Soernes, Browning, & Stephens, 2003; Gioia, 2006). Enactment is the kick-off point for effective communication (Eisenberg, 2006). Through the process of constant environmental interaction and interpretation, meaning
and understanding take shape (Weick, 1988; Saetre, et al., 2003). The process of enactment leads to enhanced communication among stakeholders.

**Component 3: equivocality.** Equivocality is the result of multiple meaning among stakeholders (Weick, 1979). Equivocal environments are the catalyst for miscommunication and lead to pluralistic ignorance. Equivocality and ambiguity are reduced through the process of enactment, interpretation and sensemaking (Weick, 1979). A key factor associated with effective communication is the ability to limit equivocality.

**Crisis planning & management.** Crises are “characterized by low probability/high consequence events that threaten the most fundamental goals of an organization” (Weick, 1988, p. 305). For example, the 1984 plant leak at a Union Carbine facility in India was directly attributed to the rapid reduction of experienced personnel at the plant (Ulmer, Sellnow, & Seeger, 2007). The reduction in experienced personnel deflated the knowledge base of workers who remained on site, adversely affecting communication channels, and creating a level of ambiguity that directly contributed to the crisis and its response (Ulmer et al., 2007).

Maitlis & Sonenshein (2010) explain “a central point [Weick] makes is that, when we take action to try to sort out a crisis, we simultaneously generate the raw material that is both used for sensemaking and that effects the unfolding of the crisis itself” (p. 4). Weick (2001) enhances this point noting that sensemaking during a crisis can have adverse impact on crisis management and become a crisis escalator. Weick (1988) adds, “Sensemaking in crisis condition is made more difficult because action that is instrumental to understanding the crisis often intensifies the crisis” (p. 305).

Weick argues that “commitment, capacity, and expectations affect sensemaking during crisis and the severity of the crisis itself” (Weick, 1988, p. 305). Specific to this research,
stakeholder capacity is of interest with respect to their understanding of authorization and support for action during crises. As Weick (1988) notes, distributed capacity and one’s knowledge that he or she is authorized to act (enactment) can assist in mitigating crises. The authorization to utilize capacity in crisis must be effectively communicated to stakeholders. If authority is centralized, communication can be delayed, inconsistent, and adversely influencing the intended outcome, preventing stakeholders from enacting the environment for meaning and clarity of the situation (Weick, 1988).

Sensemaking is critical to preventing escalation of a crisis and when used effectively during less critical situations can enhance crisis management efforts (Weick, 1988). Weick (1988) reinforces this point, “As people see more, they are more likely to notice things they can do something about, which confirms the perception of control and also reduces crisis intensity to lower levels by virtue of early intervention in its development” (p. 315). To do so, look for all possible human contribution and actions (enactment) in an effort to identify places to gain control over crises.

In the case of crisis planning and management, enactment can occur in all four phases of emergency management, whether it is a planning (pre-event) or management (during/post-event) phase. As noted, equivocality leads to multiple meanings/understandings (Weick, 1979, 2001). Ambiguity and uncertainty can adversely impact organizational performance. Weick (2003) adds:

The problem is one of confusion rather than ignorance-too many plausible possible meanings rather than not enough. When words or events are equivocal, people do not need more information. They need a context or framework to help them sort through the data they already have—a filter to help them screen out interpretations that would turn out
to be counterproductive. (p. 280)

In the case of emergency planning, the presence of equivocality can lead to stakeholders interpreting information, situations, or events in a manner that is inconsistent with the emergency management plan’s intent. In crisis planning, equivocality can lead to gaps in stakeholder accountability, miscommunication of roles/responsibilities, and an ineffective plan (Weick, 2001). In emergency management, equivocality can lead to delays in addressing a crisis or enhance the impact of an event (Weick, 2001). Effective communication in all four phases of emergency management reduces equivocality.

**Research application.** To summarize the components of the theoretical framework, Weick’s *Organizing Theory* informed this research in three ways. First, in general terms, the theory reinforced the importance of effective communication within organizations, explicated the existence of effective and ineffective communication and outlined the potential consequences associated with communication fallout. This was accomplished through defining and applying the concepts of sensemaking, enactment, and equivocality. Second, Weick’s model can straightforwardly be applied to the process of crisis planning and management, providing a clearer understanding of the communication requirements associated with emergency management planning, as well as consequences of miscommunication that lead to crisis. Finally, the model aided the researcher’s understanding of the 2007 shootings at Virginia Tech University as the focus of research. Analyzing the case using Weick’s (1979, 2003) *Organizing Theory* provided a lens into identifying opportunities to enhance communication effectiveness during each phase of emergency management planning.
Chapter Two: Literature Review

The following categories framed the focus for the literature search. They included research of the 2007 shootings at Virginia Tech University, emergency management planning, emergency management experiences at institutions of higher education, theoretical application of Weick’s research as it relates to emergency management planning, crisis communication, and general system theory. A list of key terms provided an introduction, clarity, and understanding of the literature focus.

The first body of the literature analyzed existing research associated with the Virginia Tech shootings. This research is highly concentrated on legal implications associated with the event, and general campus emergency management. The second area of literature analyzed the theoretical constructs applied to EM research and the origins of the four phases of emergency management. The third body of literature documented emergency management experiences on college campuses. Examples include both manmade and natural disasters. With the fourth area, an introduction of four core areas of crisis communication literature was summarized. Fifth, to support an understanding of the complexity of the organization, dynamic interpersonal/intrapersonal relationships and the interactions between IHEs and individual stakeholders, a general introduction of systems theory is outlined. Finally, the researcher analyzed Weick’s Organizing Theory in the context of emergency management, specifically his work with sensemaking as it relates to high reliable organizations. The post-event findings on the shootings at Virginia Tech University represent archival data that framed this archival analysis. An introduction to the event is included to understand the communication challenges associated with campus emergency management.

Definition of Terms
For the purpose of this research, the following definitions assist to provide clarity and understanding.

1. **All-Hazards**: “Describing an incident, natural or manmade, that warrants action to protect life, property, environment, and public health or safety, and to minimize disruptions of government, social, or economic activities” (U.S. DHS-FEMA, 2008c, p. 1).

2. **Community-Based Planning**: “The concept that planning must not only be representative of the actual population within the community, but also involve the whole community in the planning process” (U.S. DHS-FEMA, 2010, p. 1-1).

3. **Emergency Management**: “The coordination and integration of all activities necessary to build, sustain, and improve the capability to prepare for, protect against, respond to, recover from or mitigate against threatened or actual natural disasters, acts of terrorism, or other manmade disasters” (U.S. DHS-FEMA, 2008, p. 5).

4. **Emergency**: “Any unplanned event that may cause death or significant injuries, or that can shut down, disrupt, cause physical/environmental damage or threaten the organization’s financial standing or public image” (U.S. DHS-FEMA, 1993, p. 5).

5. **Incident**: “An occurrence or event - natural, technological, or human-caused that requires a response to protect life, property, or the environment” (U.S. DHS-FEMA, 2010, p. Intro 1-2).

6. **Preparedness**: “Actions that involve a combination of planning, resources, training, exercising, and organizing to build, sustain, and improve operational capabilities. Preparedness is the process of identifying the personnel, training, and equipment needed
for a wide range of potential incidents, and developing jurisdiction-specific plans for delivering capabilities when needed for an incident.” (U.S. DHS-FEMA, 2008c, p. 15).

7. **Mitigation:** “Activities providing a critical foundation in the effort to reduce the loss of life and property from natural and/or manmade disasters by avoiding or lessening the impact of a disaster and providing value to the public by creating safer communities. Mitigation seeks to fix the cycle of disaster damage, reconstruction, and repeated damage. These activities or actions, in most cases, will have a long-term sustained effect.” (U.S. DHS-FEMA, 2008c, p. 11).

8. **Recovery:** “The development, coordination, and execution of service- and site-restoration plans; the reconstitution of government operations and services; individual, private-sector, nongovernmental, and public-assistance programs to provide housing and to promote restoration; long-term care and treatment of affected persons; additional measures for social, political, environmental, and economic restoration; evaluation of the incident to identify lessons learned; post-incident reporting; and development of initiatives to mitigate the effects of future incidents.” (U.S. DHS-FEMA, 2008c, p. 16)

9. **Response:** “Immediate actions to save lives, protect property and the environment, and meet basic human needs. Response also includes the execution of emergency plans and actions to support short-term recovery.” (U.S. DHS-FEMA, 2008c, p. 16)

10. **Whole Community:** “Means by which residents, emergency management practitioners, organizational and community leaders, and government officials can collectively understand and assess the needs of their respective communities and determine the best ways to organize and strengthen their assets, capacities, and interests” (U.S. DHS-FEMA, 2011, p. 3).
Virginia Tech University Shooting

On April 16, 2007 Virginia Tech student Seung-Hui Cho, a lone gunman, initiated a shooting rampage on the campus of Virginia Tech University resulting in 49 people shot and 33 fatalities including the gunman (Davies, 2007; Massengil, 2007; Massengil, 2009; Fallahi, Austad, Fallon & Leischman, 2009). Key timeline events include: “At about 7:15 a.m. on the day of the rampage, Cho shoots (Emily) Hilscher in her room (4040) where he also shoots Ryan Christopher Clark, an RA. Clark, it is thought, most likely came to investigate noises in Hilscher’s room, which is next door to his” (Massengil, 2009, p. 26). “About 9:40 a.m. - 9:51 a.m. Cho begins shooting in room 206 in Norris Hal (Massengil, 2009, p. 29). At “9:51 a.m. Cho shoots himself in the head just as police reach the second floor. Cho’s shooting spree in Norris Hall lasted about 11 minutes. He fired 174 rounds, killed 30 people in Norris Hall plus himself, and wounded 17” (Massengil, 2009, p. 30-A). See Appendix A for the full list of shooting victims.

Shortly after the event, then Virginia Governor Timothy M. Kaine commissioned a review board to analyze the incident (Massengil, 2007). The review board, termed Virginia Tech Review Panel (Virginia Tech Panel) was comprised of nine participants possessing various backgrounds and expertise. “The Review Panel’s mission was to assess the events leading to the shootings and how the incident was handled by the university and public safety agencies. The Review Panel was to make recommendations that would help college campuses prevent or mitigate such incidents in the future” (Massengil, 2007, introduction).

To reach the level of understanding required, the Virginia Tech Panel conducted more than 200 interviews of stakeholders involved or associated with the shooting (Massengil, 2007; Davies, 2007). The panel presented their findings to Governor Kaine August 2007 in Mass

Because of the tragedy and subsequent Virginia Tech Panel findings, a considerable body of literature evolved in analyzing the shooting event. Research on the tragedy falls within two broad categories: 1. legal implications associated with the event, 2. campus emergency management planning. Specific to legal implications, student privacy rights and institution accountability frame the literature (Rainsberger, 2007; Lake, 2007; Shuchman 2007; Griffin, 2007; Rasmussen & Johnson, 2008). With regards to emergency management, research is heavily concentrated on the Virginia Tech Panel recommendations proposed to enhance campus emergency management, stakeholder perceptions of the event, crisis communication, mass notification systems and the associated technology are priorities (Davies, 2007; Walber, 2008; Fallahi, Austad, Fallon, & Leishman, 2008; Butler & Lafreniere, 2010). Limited research discusses communication protocols across all four phases of emergency management. Due to the ambiguity in communication protocols, especially those related to incorrect interpretation of privacy laws, the perpetrator at Virginia Tech destroyed many lives.

Privacy laws. Leavitt, Spellings, and Gonzales (2007) note a key contributing factor of miscommunication during the Virginia Tech event and at IHEs is the heightened sensitivity towards privacy rights for “fear of liability for sharing private information” (p. 12). Fear of liability, coupled with the ambiguity IHE’s face in trying to understand laws, policies and practices, lead to varying interpretations and application (Rainsberger, 2007). Rainsberger
provides as an example the issues IHE’s endure in trying to comply with Family Educational Rights and Privacy Act (FERPA). Rasmussen and Johnson (2008) expand upon the challenge of ambiguity associated with FERPA noting:

The tragedy brought into the spotlight the often-difficult task of balancing individual privacy rights with the need to communicate with appropriate authorities/stakeholders when a student exhibits disturbing or threatening behavior. The law, commonly known as FERPA, outlines rights to student and parents. Institutions can legally disclose student records to selected third parties without parental consent in certain cases. For example, institutions can communicate with appropriate officials in the case of a health or safety emergency. The definitions of appropriate officials and emergencies are open to interpretation, and colleges and universities have historically erred on the side of not disclosing information to third parties out of concern for students’ privacy and interest in complying with federal law (p. 13).

IHE leaders’ challenges go beyond interpreting rights under FERPA. They include similar issues with the Health Insurance Portability and Accountability Act, or HIPAA. Davies (2007) posits, “The federal education-privacy and health-privacy laws (FERPA and HIPAA) are confusing and inconsistent” (p. 11). Shuchman (2007) summarizes the issue stating:

Family Education Rights and Privacy Act FERPA was not intended to block communication between deans or professors, who may share students’ academic records. It’s also not aimed at blocking communication between universities and students’ families, since it restricts only discussions of a student’s academic record, not interactions about, say, strange behavior or illness. Health Insurance Portability and Accountability Act (HIPAA), various stakeholders had differing opinions on legal restrictions. “Both
have exceptions for emergencies, but even the exceptions are confusing, and the Cabinet members found that people were generally unaware of these exceptions. Virginia Tech case will ultimately help to clarify the provisions of the privacy laws and allow crucial communication to take place (p. 109).

Ambiguity, misunderstanding, and multiple elucidations of privacy laws and regulations, coupled with the continued practice by IHE leaders to err on the side of students’ rights, these are viewed as contributors to the miscommunication with campus stakeholders (Rasmussen & Johnson, 2008). Leavitt et al. (2007) analysis of the Virginia Tech tragedy identified a “theme of confusion and differing interpretations about state and federal privacy laws and regulations impede appropriate information sharing” (p. 7). Leavitt et al. (2007) highlight the “information silos” that existed at Virginia Tech as further constraints to critical information sharing. Universities must weigh the pros and cons of information sharing when considering the liability of mental health as a threat to educational institutions.

**IHE liability.** Lake (2007) outlines IHE’s legal responsibility for such an event. “What happened at Virginia Tech will change higher-education law significantly and permanently, much as the shootings at Kent State did nearly 40 years ago” (Lake, 2007, p. 6). Lake (2007) outlines the 1983 case Mullins v. Pine Manor College establishing IHE’s legal responsibility to protect students and other campus stakeholders. Griffin (2007) provides additional insight into an IHE’s legal exposure and liability by outlining a number of cases reinforcing an IHE duty to protect its stakeholders. “Institutions must understand what legal duty is owed to the student community and aggressively address safety and security threats through sound administrative policies that comport with state and federal laws” (Griffin, 2007, p. 432).

The Virginia Tech tragedy identified several challenges for IHE leaders. IHEs must
eliminate the ambiguity and multiple interpretations associated with privacy laws by understanding their legal responsibilities with regards to FERPA and HIPAA (McBain, 2008). IHEs must gain a better grasp on information sharing about students and who receives the information. Lines of communication, both internally and externally, are critical towards eliminating silos that stifle effective communication (McBain, 2008). Clearly, aligning IHE liability with Campus Emergency Management will be a critical step in mitigating future safety breaches.

**Virginia Tech & campus emergency management.** Davies (2007) *Connecting the Dots* analyzes the Virginia Tech Panel findings categorizing them into critical lessons learned. The research identifies current communication barriers and provides general recommendations that include the use of threat-assessment teams, interoperability between emergency service entities, timely notification to campus stakeholders in emergency situations, communication without bureaucracy, and an emergency management plan tailored to the school’s need (Davies, 2007). The panel enumerated several critical lessons gleaned from the tragedy (Davies, 2007):

1. States should provide sufficient outpatient mental health services.
2. States should comply with Federal Gun Control Act (entering persons judged to be mentally disabled into federal register).
3. Congress and state legislatures should review federal and state privacy laws, and universities should know what they do and do not permit.
4. Colleges and universities should communicate, both within themselves and beyond.
5. Write a plan that fits.
7. Develop a way to access students’ mental health records. (p. 14-15)
In an effort to gauge IHE’s acceptance of the Virginia Tech Panel recommendations, several scholars framed their research using input from campus stakeholders. Gathering feedback from campus public safety officials, Giblin, Burruss, & Schafer (2008) analyzed the status of EM at IHE’s post-Virginia Tech shooting. Their research concludes IHEs have significant capacity for prevention and response, with 95.5% of IHEs having a written plan and 70% making upgrades to their communication infrastructure since the event (Giblin et al., 2008). “The most common post-Virginia Tech preparations were introducing/expanding communication technologies, engaging in planning (new or revised), coordinating training, and creating threat assessment teams” (Giblin et al., 2008, p. 15).

Jan Walber, President, NASPA-Student Affairs Administrators in Higher Education and a team of student affairs leaders, analyzed the shootings at Virginia Tech (Walber, 2008). Framing their findings around the four phases of emergency management, the author outlines a broad framework for crisis planning and response protocols (Walber, 2008). Consistent with other noted researchers, Walber (2008) highlights the challenges associated with laws, policies, and standards of practice. The study reinforces stakeholder involvement as a key contributor to effective communication and recommends student affairs involvement with CEM policy, procedures and prevention efforts (Walber, 2008).

Overall student perceptions of the Virginia Tech shootings were highlighted in research conducted by Fallahi et al., (2008). Their study of 312 students at Central Connecticut State College outlined students perceived causal factors, prevention and issues experienced after violence has occurred. The majority of respondents, 37.2 percent, indicated the shooter himself was responsible (Fallahi et al., 2008). The authors note students accept as true “social support, friendship, good mental health, and parenting were important factors in preventing subsequent
incidents” (Fallahi et al., 2008, p. 120). Students perceive mental instability and lack of friendship were the dominant contributors to the Virginia Tech Shootings. Communication between stakeholders, training, and notification systems were perceived to be less influential in preventing the shootings (Fallahi et al., 2008).

Specific to concerns of timely stakeholder notifications, enhanced mass notification systems became a priority for IHEs after the Virginia Tech shooting (Davies, 2007). Butler and Lafreniere (2010) summarize campus perception of the use of mass notification systems. Referencing Virginia Tech shooting, Butler and Lafreniere (2010) note, “in the aftermath of such a violent campus incident, many universities are looking for ways to improve policies and programs that promote campus safety and allow them to effectively handle emergency situations” (p. 1). In a campus study of 2,017 campus stakeholders at the University of Windsor, 95.6% favored a mass notification system, yet less than 30% felt a mass notification system would enhance campus safety. 85% of those surveyed own a cell phone, yet only 39.4% of students surveyed would provide the campus police with their number for use in emergency notifications (Butler & Lafreniere, 2010).

A common theme among researchers of the Virginia Tech shooting emphasizes the need for better communication and planning through stakeholder involvement. CEM requires the participation and input of all stakeholders. EM should be collaborative community work, specific to the needs of the campus community (Abrams, Carroll, Haynes, & Schafer, 2008). The Virginia Tech shooting, World Trade Center bombings, and Hurricane Katrina are contemporary crises where inappropriate emergency management practices resulted in egregious failures. Abrams et al. (2008) note, “An obvious and urgent response to these failures is to standardize communication protocols and formulate explicit plans about how various assets and
capabilities can be effectively coordinated” (p. 1).

The importance of stakeholder involvement was such a priority after the Virginia Tech shootings that then President George W. Bush charged Michael Leavitt, Secretary of Department of Health and Human Services, Margaret Spellings, Secretary Department of Education and Alberto Gonzales, Attorney General Department of Justice to meet with a wide array of leaders from various communities around the country to discuss the Virginia Tech event (Leavitt et al., 2007). Participants included internal and external higher educational stakeholders. See Appendix C for full list of internal and external IHE EM stakeholders. In a June 13, 2007 report titled *Report to the President on Issues Raised by the Virginia Tech Tragedy*, the secretaries outline their findings. Several common themes were consistent with the Virginia Tech Panel findings: (1) right to privacy vs. safety and security; (2) open and free society while eliminating violence; (3) one-size EM plan is not the answer; (4) and tailored plans specific to the IHE (Leavitt et al., 2007). The authors note the following challenges:

- Critical Information Sharing Faces Substantial Obstacles
- Accurate and Complete Information on Individuals Prohibited from Possessing Firearms is Essential to Keep Guns Out of the Wrong Hands
- Improved Awareness and Communication are Key to Prevention
- It is Critical to Get People with Mental Illness the Services They Need
- Where We Know What to Do, We Have to be Better at Doing It (p. 6)

**Emergency Management Planning**

FEMA (1993) “defines an emergency as any unplanned event that may cause death or significant injuries, or that can shut down, disrupt, cause physical/environmental damage or threaten the organizations financial standing or public image” (p. 5). Common emergencies
(hazards) include (FEMA, 1993):

1. Fires
2. Hazardous materials incidents
3. Floods
4. Hurricanes
5. Tornadoes
6. Winter storms
7. Earthquakes
8. Communications failures
9. Radiological incidents
10. Civil disturbances
11. Loss of key supplier/customer
12. Explosions
13. Terrorist events (p. 5)

Hazards categories include natural, technological, and manmade (U.S. DHS-FEMA, 2010). Natural hazards include, but are not limited to, “earthquakes, tornadoes, lightning, severe winds, hurricanes, floods, wildfires, extreme temperatures, landslides/mudslides, tsunamis, volcanic eruptions and winter precipitation” (U.S. DHS-FEMA, 2003, p. 21). Examples of technological hazards include infectious diseases, contaminated food outbreaks, toxic materials or mechanical/system events. Manmade hazards and threats include violence, terrorism, or cyber hazards (U.S. DHS-FEMA, 2010). The shooting at Virginia Tech University is a manmade hazard. EM planning provides the framework to address these hazards.

Emergency management “is the process of preparing for, mitigating, responding to and
recovering from an emergency” (FEMA, 1993, p. 6). U.S. DHS-FEMA (2008a), *National Response Framework* provides more detail by defining emergency management as “the coordination and integration of all activities necessary to build, sustain, and improve the capability to prepare for, protect against, respond to, recover from or mitigate against threatened or actual natural disasters, acts of terrorism, or other manmade disasters” (p. 5).
Table 2.1 provides a summary of all hazards EM planning comprised of the four phases of emergency management planning: (1) mitigation; (2) preparedness; (3) response; (4) and recovery.

**Table 2.1: The Four Phases of Emergency Management**

<table>
<thead>
<tr>
<th>The Four Phases of Emergency Management</th>
<th>Mitigation</th>
<th>Preparedness</th>
<th>Response</th>
<th>Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mitigation</strong></td>
<td>Preventing future emergencies or minimizing their effects</td>
<td>Includes plans or preparations made to save lives and to help response and rescue operations.</td>
<td>Includes actions taken to save lives and prevent further property damage in an emergency situation. Response is putting your preparedness plans into action.</td>
<td>Includes actions taken to return to a normal or an even safer situation following an emergency.</td>
</tr>
<tr>
<td></td>
<td>: Includes any activities that prevent an emergency, reduce the chance of an emergency happening, or reduce the damaging effects of unavoidable emergencies.</td>
<td>: Evacuation plans and stocking food and water are both examples of preparedness.</td>
<td>: Seeking shelter from a tornado or turning off gas valves in an earthquake are both response activities.</td>
<td>: Recovery includes getting financial assistance to help pay for the repairs.</td>
</tr>
<tr>
<td></td>
<td>: Buying flood and fire insurance for your home is a mitigation activity.</td>
<td>: Preparedness activities take place <strong>before</strong> an emergency occurs.</td>
<td>: Response activities take place <strong>during</strong> an emergency.</td>
<td>: Recovery activities take place <strong>after</strong> an emergency.</td>
</tr>
<tr>
<td></td>
<td>: Mitigation activities take place <strong>before</strong> and <strong>after</strong> emergencies.</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

(FEMA, 2007)

Phases of emergency management have been in use for more than eighty years in disaster
analysis (Baird, 2010). The four phases of emergency management resulted from a study conducted in 1979 by the National Governors Association (NGA) titled *Comprehensive Emergency Management: A Governor’s Guide*. This guide provided the framework to expand EM planning from a two-phased to a four-phased process, enhancing EM using an all-hazards approach (Baird, 2010). Baird’s (2010) research highlights contemporary inconsistencies with the phases of emergency management noting some use a four-phased approach (used for 30 years) while others use a five-phase approach to EM. *Prevention* is added as a fifth phase.

To understand the origin of the phases of contemporary emergency management planning it is important to analyze traditional and contemporary EM research taxonomy. Traditional EM research focused on contextual features to include terror, climate, or economics (Sementelli, 2007). Initial classification of emergency management research included three basic areas for research: (1) decision making; (2) administrative; (3) and economic models. First, traditional EM literature is concentrated using a *decision-making* theoretical lens. “The lion’s share of research in this area tends to focus on decision theories, the application of techniques, the routinization of responses, as well as some policy and agenda issues” (Sementelli, 2007, p. 508). The United States government, specifically DHS and FEMA represent the majority of research using decision-making constructs. An example of this type of research is in *Decision-making and problem solving* (U.S. DHS-FEMA, 2010b). This is an independent study course available through FEMA’s Emergency Management Institute (EMI). The course uses research from FEMA to outline the decision-making process and decision-making styles involved in effective EM planning (U.S. DHS-FEMA, 2010b). EM research using a decision-making construct focuses on identifying approaches, policies, and standard operating procedures (Sementelli, 2007).
The next category of EM literature uses an *administrative* construct focused on leadership and management, ethics, accountability, or legal perspectives (Sementelli, 2007). As example, Cavanaugh, Civiello, Gelles, Reyes, & Zahner (2008) outline the leadership responsibilities during EM that include planning, information management, and decision-making. Cavanaugh et al. (2008) identify the essential qualities required to guide an organization through crisis and reinforce the need for effective communication before, during and after an event.

Finally, an *economic* research perspective analyzes EM in terms of financial impact, loss/damage, and mitigation perspectives (Sementelli, 2007). Contemporary scholarly research on crisis, such as Hurricane Katrina or the World Trade Center bombings, use an economic construct. Sementelli (2007) argues traditional EM research falls short of what is required to understand EM. Contemporary EM should include individual and group dynamics, stakeholder decision-making and their experiences during crisis. Sementelli (2007) posits, “In certain situations the most interesting explanations, treatments, and discussions of the disaster and crises literature occur within the context of social construction, with the context of critical theory, and arguably, with the context of post modernism” (p. 508).

Contemporary scholarship and emergency management research have combined with traditional research paradigms. Newer EM scholarly research includes *social* analysis framed using a construction, critical, postmodern, gender or marginalization approach that work to define the process-oriented dynamics of emergency management (Sementelli, 2007). As an example, a *Weberian* interpretation of emergency management looks at disaster/crisis in terms of vulnerability using a cultural framework that considers beliefs, attitudes and values as contributors to crisis (McEntire, 2004).

Using a *Marxist* construct to emergency management and disaster research focuses on the
economic and political factors that may contribute to, or detract from, crisis. Finally, EM research using an organization behavior construct considers the organization’s interest and is internally centered with stakeholder communication as the central focus. Emergency management research does not have a dominant paradigm. Contemporary scholarly research suggests using a hybrid approach to study emergency management (McEntire, 2004).

Examples include Gotham’s (2007) use of critical theory to frame the fallout from Hurricane Katrina analyzed using a social construct. Gothan (2007) moved beyond a traditional EM construct to include the experiences of stakeholders involved in the event. “Katrina exposed long festering social inequalities and galvanized progressive movements dedicated to challenging relations of domination and subordination” (Gotham, 2007, p. 95). Similarly, Fowlkes and Miller’s (1982) research of chemical migration at Love Canal (New York) focused on resident distrust of officials to the disaster. Residents perceived officials minimized the extent and seriousness of the issue.

McIntire and Fuller (2002) reinforce “the need for a theory of disaster management that takes into account all types of hazards, numerous variables from the physical and social environment, as well as each phase of emergency management” (p. 128). In analyzing the 1997-1998 El Niño disasters, the authors highlight four key implications in developing a more comprehensive disaster construct: (1) products of both physical and social environments; (2) produced through a combination of natural, technological, and human-induced disaster agents; (3) causative factors derive from a number of variables; (4) and mitigation should be the first priority (McIntire & Fuller, 2002).

U.S. government contributions to emergency management. The U.S. government is a key contributor to EM literature. For nearly a century government organizations have worked to
development and define EM programs. Table 2.2 provides a summary of key EM government contributions.

Table 2.2: History of U.S. Emergency Management Preparedness Efforts

<table>
<thead>
<tr>
<th>Period</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Cold War</strong></td>
<td>1916-Council of National Defense (Focused on National Defense)</td>
</tr>
<tr>
<td></td>
<td>1933-National Emergency Council (Emergency programs unrelated to civil defense)</td>
</tr>
<tr>
<td></td>
<td>1940-Council of National Defense (Civil defense tasking at Federal/State/Local level)</td>
</tr>
<tr>
<td></td>
<td>1941-Office of Civilian Defense (Response to WWII &amp; exposure of civilian population)</td>
</tr>
<tr>
<td><strong>Cold War</strong></td>
<td>1950-Federal Civil Defense Administration (Place civil defense at State level/Federal policy guidelines)</td>
</tr>
<tr>
<td></td>
<td>1958-Office of Civil &amp; Defense Mobilization (Oversight of mass evacuation policy)</td>
</tr>
<tr>
<td></td>
<td>1961-Office of Emergency Planning, Office of Civil Defense (Separation of military &amp; nonmilitary EM procedures)</td>
</tr>
<tr>
<td></td>
<td>1979-Federal Emergency Management Administration (Lead coordinator for federal disaster relief)</td>
</tr>
<tr>
<td><strong>Post-Cold War</strong></td>
<td>2001-Office of Homeland Security (Oversight of the National Strategy for Homeland Security)</td>
</tr>
<tr>
<td></td>
<td>2002-Homeland Security Advisory System ( Threat-based communication system with American public)</td>
</tr>
<tr>
<td></td>
<td>2001-Present NPG, NIMS, NRF, NIPP, &amp; NECP (U.S. DHS, 2006)</td>
</tr>
</tbody>
</table>

Issued by then President George W. Bush on December 17, 2003, the *National Preparedness Guidelines* (U.S. DHS-FEMA, 2007) established national policies to enhance
preparedness of the United States in preventing, responding and recovering from all-hazards emergencies within the United States. Also known as Homeland Security Presidential Directive-8 (HSPD-8), this initiative established policies focused on using an all-hazards preparedness approach, with the following guidelines (U.S. DHS-FEMA, 2007):

- Organize and synchronize national efforts to strengthen national preparedness
- Guide national investments in national preparedness
- Incorporate lessons learned from past disasters into national preparedness priorities
- Facilitate a capability-based and risk-based investment planning process
- Establish readiness metrics to measure progress and a system for assessment (p. 1)

HSPD-8 outlines the interdependency among government EM frameworks to include National Incident Management System (NIMS), National Response Plan (NRP), and the National Infrastructure Protection Plan (NIPP) (U.S. DHS, 2007).

NIMS provides a framework for use in incident management and includes the Incident Command System (ICS) designed to support command, control, and coordination efforts during a crisis (U.S. DHS-FEMA, 2007). NIMS defines incident management concepts, organizational guidance, and policies. NIMS is not an operational, response document. Homeland Security Presidential Directive-5 (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 support of all actions taken to assist state, tribal, and local governments” (U.S. DHS-FEMA, 2008b, p. 3). “All K-12 schools and HEIs — urban, suburban, rural; large or small — receiving federal preparedness monies via the U.S. Department of Education (ED), the U.S. Department of Homeland Security (DHS), and/or the U.S. Department of Health and Human Services (HHS) are required to support the implementation of NIMS” (U.S DOE, 2004, p. 1).
The NRP and NIPP represent applications of NIMS (U.S. DHS-FEMA, 2007). The NRP provides a framework for how the U.S. conducts all-hazards response (U.S. DHS-FEMA, 2007). The NRP operationalizes incident management response by outlining protocols that govern asset allocation and resource usage during crisis (U.S. DHS-FEMA, 2008b). The NIPP provides guidance on safeguarding the nation’s critical infrastructure and key resources (CIKR) (U.S. DHS-FEMA, 2009). The NIPP (U.S. DHS-FEMA, 2009) goal is to:

Build a safer, more secure, and more resilient America by preventing, deterring, neutralizing, or mitigating the effects of deliberate efforts by terrorists to destroy, incapacitate, or exploit elements of our Nation’s CIKR and to strengthen national preparedness, timely response, and rapid recovery of CIKR in the event of an attack, natural disaster, or other emergency. (p. 11)

In support of National Preparedness Guidelines (U.S. DHS-FEMA, 2007), NIMS, NRF, and NIPP, FEMA (U.S. DHS-FEMA, 2010) created Developing and Maintaining Emergency Operations Plans: The Comprehensive Preparedness Guide 101 (CPG 101). CPG 101 is designed to enhance an “understanding of the fundamentals of risk-informed planning and decision–making” (U.S. DHS-FEMA, 2010a, p. i-1). The goal of CPG 101 is to help emergency management planners assess all-hazards threats and create comprehensive emergency management plans (U.S. DHS-FEMA, 2010a). CPG 101 is the foundation for emergency management planning. CPG 101 identifies the connection between national guidelines framed in HSPD-5 (NIMS) and HSPD-8 (NRP, and NIPP) with localized, community-based “planning efforts in the areas of prevention, protection, response, recovery and mitigation” (U.S. DHS-FEMA, 2010a, p. 1). CPG 101 introduces the concept of community-based planning. Community-based planning “is the concept that planning must not only be representative of the
actual population within the community, but also must involve the whole community in the planning process” (U.S. DHS-FEMA, 2010, p. 1) CPG 101 recommends several planning methods (U.S. DHS-FEMA, 2010):

- Conduct community-based, whole community processes inclusive of all stakeholders
- Plan development through risk analysis
- Identify operational assumptions and resource demands
- Prioritize plans and planning efforts to support transition from development to execution for any threat or hazard
- Communicate, integrate and synchronize efforts across all levels of the organization (p. i).

U.S. DHS-FEMA (2011) published A Whole community approach to emergency management: Principles, themes and pathways for action to address to growing concern that “a government-centric approach to disaster management will not be enough to meet the challenges posed by a catastrophic incident” (U.S. DHS-FEMA, 2011, p. 2). Contemporary EM efforts will require whole-community inclusion. The explicit communication generated from a local level, is imperative for emergency management systems to reach their potential.

In an effort to address the communication challenges associated with EM, the U.S. government created the National Emergency Communication Plan (NECP) (U.S. DHS-FEMA, 2008a). The NECP was structured “to promote the ability of emergency response providers and relevant government officials to continue to communicate in the event of natural disasters, acts of terrorism, and other manmade disasters and to ensure, accelerate, and attain interoperable emergency communication nationwide” (U.S. DHS-FEMA, 2008a, p. 1). Furthermore, the Homeland Security Act of 2006 required communication policies to address the communication
fallout identified in recent manmade and natural disasters. A key shortfall of the NECP is its limited support. The policy is structured to support first responders and is not inclusive of entire stakeholder community. This is particularly concerning at IHEs. IHEs have large concentrations of stakeholders and during times of crisis, communication is essential. Additionally, the NECP framework does not consider mass notification requirements of IHEs.

To support the unique requirements at IHEs, the U.S. DOE (2010) published Action Guide for Emergency Management at Institutions of Higher Education. The U.S. DOE (2010) uses the four phases of EM to outline how IHEs “plan, respond to, and recover from a campus emergency” (p. 2). The guide identifies internal and external stakeholders who should be involved. Refer to Appendix C for IHE EM Stakeholders. U.S. DOE (2010) posits emergency management effectiveness at IHE relies on (1) senior leadership support; (2) stakeholder partnerships and collaboration; (3) and adopting an all-hazards approach.

The guide further identifies a four-step process for emergency management and implementation: (1) get organized; (2) identify hazards, vulnerabilities and threats, and conduct a risk assessment; (3) develop or update the EM plan; (4) and adopt/implement EM plan (DOE, 2010). Similar to previous government EM documents, the guidelines fall short of the necessary communication protocols requirement of CEM.

Experiences at Institutions of Higher Education

Manmade disasters. Manmade disasters present themselves in a variety of ways. On February 14, 2008, a student at Northern Illinois University (NIU) killed five peers, wounding another 21 (NIU Report, 2008). Findings of the event concluded no mental health issues nor warning signs were evident, yet, a historical review of the shooter’s mental health issues identified a clear digression in his stability (NIU Report, 2008). In response to the event, NIU
had to establish the Office of Support and Advocacy to support stakeholder needs.

On October 6, 2009 at approximately 3:00 pm, university officials notified campus stakeholders of a manhunt resulting in a school lockdown (Piotrowski & Guyette, 2009). The authors researched communication protocols with the faculty and staff. Their findings included stakeholder perceptions of the threat and the efficacy of the organization’s response (Piotrowski & Guyette, 2009). Key research findings point to inadequate emergency management planning, ineffective leadership and uncoordinated communication approaches as major concerns (Piotrowski & Guyette, 2009).

In 2010, a Northeastern University student lab technician intentionally committed suicide using chemicals obtained through her access at the university (Ellement, 2010). Emily Staupe took crystallized cyanide from Northeastern University’s lab subsequently killing herself in her parents’ home (Ellement, 2010). Northeastern was forced to review its hazardous materials procedures. A similar inside threat is represented in the case of Aaron Swartz. Swartz stood accused of stealing millions of academic writings by hacking into Massachusetts Institute of Technology’s computer network (Farberov, Pow, & Nye, 2013). Facing more than a dozen felony counts and three decades in prison, Swartz committed suicide prior to his trial. MIT continues to review its access protocols and network protection programs (Farberov, Pow, & Nye, 2013). The situation at Pennsylvania State University represents a manmade disaster in which egregious communication protocols led to catastrophic consequences. An employee of the university, Assistant Coach Gerald Sandusky, was knowingly abusing children in a sexual manner (Freeh Report, 2012). Findings of the Freeh Report (2012) note:

A total disregard for the safety and welfare of Sandusky’s child victims by the most senior leaders at Penn State. The most powerful men at Penn State failed to take any
steps for 14 years to protect the children who Sandusky victimized. In order to avoid the consequences of bad publicity, the most powerful leaders at Penn State University-Graham Spanier (President), Gary Schultz (Vice President), Joe Paterno (Head Football Coach) and Tim Curley (Athletic Director)-repeatedly concealed critical facts relating to Sandusky’s child abuse from the authorities, the Board of Trustees, Penn State community, and the public at large. (p. 4).

Investigation results identified failure of the Penn State Board of Trustees (Board) to provide overall governance. Additional findings include (1) poor reporting procedures/structures for disclosing major risks; (2) overconfidence by the Board in President Spanier’s actions; (3) poor oversight by Board with regard to underreporting by Spanier; (4) and overconfidence in Spanier’s ability to address catastrophic event (Freeh Report, 2012).

The results documented in the Freeh Report led to the firing of Coach Joe Paterno and criminal charges filed against a number of university leaders and athletic staff. The report identified 14 preliminary recommendations with an additional 119 required to address the “lack of awareness of child abuse issues, the Clery Act, and whistleblower policies and procedures” (Freeh Report, 2012, p. 16). More than half of the recommendations outlined in the Freeh Report address communication failures requiring policy and protocol updates or the creation of new programs. Two examples include (1) increase and improve the channels of communication between the Board and university administrators; and (2) communicate regularly with University students, faculty, staff, alumni and the community regarding significant university policies and issues through a variety of methods and media (Freeh Report, 2012, p. 130). In these cases, increased procedures and protocols around risks, as well as improved communication, could have prevented and/or minimized the impact.
Natural disasters. Hurricane Katrina represents the immense challenges IHEs experience during major natural disasters. According to the report *Hurricane Katrina and New Orleans Universities* (2007) by Dr. E. Joseph, Louisiana’s commissioner of Higher Education, “What actually befell New Orleans higher education on August 29th far exceeded even the worst fears” (p. 3). The state’s public IHEs suffered between $500 and $600 million in damage, lost more than $150 million in revenue and tuition, suffered $75 million in immediate budget cuts and saw a combined 105,000 staff and students displaced (Joseph, 2007). Private institutions experienced the same catastrophic losses. Tulane University suffered $600 million in damages from Hurricane Katrina (Tulane University, 2005). All university functions ceased. The campus was inaccessible, few of the technologies were functioning, and no communication mechanisms were operational. Tulane had to shut its doors for the fall semester and spent weeks trying to locate faculty, staff and students who had evacuated around the country. Additional fallout included faculty, staff and students’ personal losses and the destruction of decades of research. Poor communication, leadership and planning were major contributors as “disaster preparation was uneven, and might well have included keener anticipation of problems communicating with faculty and obtaining information” (Joseph, 2007, p. 76).

Several recommendations come from the *Special Committee on Hurricane Katrina and New Orleans Universities* (Joseph, 2007) such as the need for the development and maintenance of emergency plans and emergency communication and information systems in place ahead of disasters. Such a plan should presuppose the total breakdown of all traditional communications and information systems, as well as mandatory evacuation of campus facilities (Joseph, 2007). Included in these plans should be leadership and organizational structures that facilitate communication.
Leadership and organizational structures must enable IHE leaders to be “responsive in the face of disaster” (Collins, Savage, & Wainwright, 2008, p. 200). Yet, these structures directly contributed to poor communication, planning, and recovery procedures during Hurricane Katrina (Collins, et al., 2008). Schneider (2005) identifies a number of additional administrative breakdowns in the governmental response to Hurricane Katrina noting, “The delays, hesitation, and confusion exhibited by government officials at all levels exacerbated the pain, suffering, and frustration of disaster victims” (Schneider, 2005, p. 515).

Failure of established government communication networks designed to support public, private and nonprofit communication represent the most egregious challenges IHEs faced during Hurricane Karina (Koliba & Zia, 2011). Failure of these networks, and resulting poor communication, adversely affect an organization’s resiliency (Comfort, Oh, & Ertan, 2009). A balance is required between an organization’s ability to be resilient during a crisis as it navigates and addresses entropy (Comfort et al., 2009).

Planning can be a contributor to poor communication (Piper & Ramos, 2006). Many of the communication failures associated with Hurricane Katrina “occurred because of poor planning” (Piper & Ramos, 2006, p. 3). These include the warning-response failures and inadequate response of the government at all levels (Parker, Stern, Paglia, & Brown, 2009). Beggan, (2010), summarizes Hurricane Katrina research noting, “Many of the articles reached similar conclusions that inept leadership, considerable communication breakdowns, and a lack of adequate planning at multiple levels of government compounded failures during Hurricane Katrina” (p. 94).

IHEs face many challenges in practicing emergency management related to the distinctive structure and the environment of higher education. First and foremost of these is that
most IHEs cover large areas with thousands of stakeholders dispersed throughout; some IHEs resemble small towns that include fire, police, and medical services as well as major sports, resident and business complexes (DOE, 2010). In addition to academic programs, IHEs maintain major organizations that include hospital, research, and development facilities. Additional programs that support IHEs operational requirements include residential complexes, food services, and transportation systems. Many IHEs operate complex enterprises in addition to academic programs. The unique setting for IHEs requires standardization with preparedness and prevention policies while affording EM planners the flexibility to meet the diverse requirements distinctive to a particular IHE (DOE, 2010).

Second, IHEs’ structure of governance is also highly varied, unique and often widely decentralized. Decentralized organizational structures and academic departments may not be co-located requiring alternative decision-making methods. Unlike corporate and government entities, where decision-making is primarily top-down, IHEs include a number of stakeholders in campus governance. Decision-making in an organization with this type of structure can be slow, and adversely affect campus response to a crisis. This decentralized structure of governance makes the need for clear lines of authority and decision-making all the more important at IHEs (DOE, 2010). Responsibility for developing, testing and implementing an emergency management plan should be shared and communicated across all departments and functions. Finally, most IHEs can be openly accessed 24x7 and are geographically integrated in the surrounding community.

Crisis Communication

Four areas of communication scholarship related to crisis communication have relevance to this research. These include: (1) the role of network structure; (2) strategic communications;
(3) the relationship between communication and emergency management; (4) and communication competency.

Monge and Margolin’s (2009) analysis of network structure theory outline the evolution of communication networks within an organization. Focusing on patterns, organizational configurations and the role of information sharing, the authors reinforce the importance of organizational structure in determining appropriate communication networks. Within these structures, social networks connect information sharing and knowledge management (Hatala & Lutta, 2009). Stakeholders use formal and informal social network structures as exchange systems designed to influence and enhance the quality of information (Hatala & Lutta, 2009). Winnerman (2009) introduces the idea of social networks enhancing crisis communication via social networks platforms. Creating official “community-response grids” on Facebook or Twitter allow organizational leaders and stakeholders to share essential information related to a crisis. Winnerman (2009) identifies the 2007 shootings at Virginia Tech University as an example. Students relied on social networks to communicate relevant updates on the crisis.

An essential component of crisis communication is strategic communication planning. Critical to this process is a leader/s role in designing plans leading to effective organizational communication (Matha & Boehm, 2008). A requirement of these strategic communication plans is the ability of an organization and its stakeholders to respond during time of crisis. Communication response is the ability to identify and address crisis activities, whether occurring in sequence or simultaneously (Stephens, Malone, & Bailey, 2005). Embedded in these plans are well-defined communication and message strategies required before, during, and after a crisis (Stephens, et. al., 2005).
Table 2.3 outlines communication strategies to support communication demands during crisis:

**Table 2.3: Crisis Communication Demands**

<table>
<thead>
<tr>
<th>Managing Uncertainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Providing a consistent voice</td>
</tr>
<tr>
<td>• Identifying the cause of the crisis</td>
</tr>
<tr>
<td>• Contacting everyone affected by the crisis</td>
</tr>
<tr>
<td>• Determining current and future risks</td>
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<table>
<thead>
<tr>
<th>Responding to the Crisis</th>
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<tbody>
<tr>
<td>• Reducing uncertainty</td>
</tr>
<tr>
<td>• Coordinating activities</td>
</tr>
<tr>
<td>• Disseminating information</td>
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<table>
<thead>
<tr>
<th>Resolving the Crisis</th>
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<tbody>
<tr>
<td>• Compensating victims</td>
</tr>
<tr>
<td>• Renewing the organization’s reputation</td>
</tr>
<tr>
<td>• Grieving and memorializing the events</td>
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<tr>
<th>Learning from the Crisis</th>
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<tbody>
<tr>
<td>• Enhancing safety and prevention</td>
</tr>
<tr>
<td>• Reviewing industry standards</td>
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<tr>
<td>• Enhancing community dialogue</td>
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(Ulmer et. al, 2007, p.13)

Research analyzing the relationship between communication and emergency management
planning is rich. Adkins, Thorton, & Blake (2009) provide a historical analysis of the relationship between communication, business continuity and emergency management. Using a construct framed by the Knowledge Management Theory, the authors identify contributing factors to communication challenges in business continuity and emergency management planning. Fearn-Banks’ (2007) research reinforces the interdependency between communication and emergency management relating to a disaster. Focused on stakeholder and public opinion, Fearn-Banks (2007) defines crisis communication as “The dialog between the organization and its public prior to, during, and after the negative occurrence. The dialog details strategies and tactics designed to minimize damage to the image of the organization” (p. 9). Fearn-Banks (2007) identify Johnson & Johnson’s association with the Tylenol murders and the Exxon Valdez oil spill as two examples of crisis that relied on public relations communication (Fearn-Banks. 2007).

Individual uncertainty and the perception of the organization in addressing uncertainty is an important consideration of effective communication (Clampitts & Williams, 2005). Clampitts and Williams (2007) identify the challenges posed by limited, ambiguous, and unpredictable information and the impact this has on communication and a stakeholder’s ability to effectively communicate. An organization and its stakeholders must possess communication competency to be effective (Littlejohn & Jabusch, 1982). Communication competency is “The ability and willingness of an individual to participate responsibly in a transaction in such a way as to maximize outcomes of shared meanings” (p. 29). Jablin (2007) identifies the process in developing these communication skills, noting one’s ability and capacity are critical. Jablin (2007) provides an alternative definition of organizational communication:

The set of abilities, henceforth termed resources, which a communicator has available for
use in the communication process. These resources are acquired via a dynamic learning process and take the form of interrelated subsets of communication skills, henceforth termed capacity, and strategic knowledge of appropriate communication behavior. (p. 9)

Government analysis of crisis communication recognizes the need for communication competency in support of emergency management (U.S. DHS-FEMA, 2008). To enhance communication competency, DHS developed the National Emergency Communication Plan (NECP) (U.S. DHS-FEMA, 2008). NECP provides a communication framework for first responders at the federal, state, local, and tribal levels. The goal is to enhance interoperability during a crisis using a standardized communication framework (U.S. DHS-FEMA, 2008). Critics argue the plan lacks broad adoption, is heavily resource-driven, and leads to strategic communication gaps during overall EM planning (U.S. DHS-FEMA, 2008).

**Systems Theory**

The complexity associated with institutions of higher education, the number of stakeholders within a campus community, and the process concomitant with campus emergency management planning required the researcher to employ a broad analysis of the organization. Systems theory provides a holistic construct that “Can model complex intrapersonal, interpersonal, intergroup, and human/nature interaction” (Laszlo & Krippner, 1998, p. 7). Laszlo & Krippner (1998) identify two vital characteristics present in all systems: (1) each component within systems influences the whole; (2) and components within the system are affected by at least one other component.

Boulding (1956) identified possible approaches to the organization of general systems: (1) analysis of population change and interaction; (2) and the interaction of individuals with their environment. The latter use of general systems theory could add insight into the communication
and information processes required for effective campus emergency management planning.

“Communication and information processes are found in a wide variety of empirical situations, and are unquestionably essential in the development of organization, both in the biological and the social world” Boulding, 1956, p. 202).

Critics of systems theory argue the “Theory failed to revolutionize scientific methodology” (Langlois, 1982, p. 581). Yet contemporary systems theory identifies General Systems Theory “As a platform for the study of human behavior that has led to recent applications in areas of social work, mental health, and the political and behavioral sciences” (Laszlo & Krippner, 1998, p. 6). It is within the construct of systems theory human behavior and human communication can be further understood. Systems theories explicate “Nearly all communication contexts, from interpersonal to organizational settings” (Dainton & Zelley, 2011, p. 78).

**Theoretical Application**

The pressure on IHEs to be ready for disaster is at an unprecedented level (Light, 2007). Campus emergency management plans alone cannot guarantee universal safety and security for IHE stakeholders (Light, 2007). The continued over-reliance on government organizations to structure procedures and protocols that support CEM preparedness, response, and recovery efforts is an issue as well (Light, 2007). As the literature has identified, IHEs have experienced significant fallout from manmade and natural disasters resulting in catastrophic consequences. In each incident, IHEs were supported by detailed CEM plans and government programs, yet poor and inadequate communication directly contributed to each incident (Light, 2007). However, these communication barriers can be resolved with careful planning.

Weick’s research on high reliability organizations (HROs) and the role of enactment and
sensemaking can be useful in identifying opportunities to address the communication challenges IHEs face during CEM. HROs characteristics include a (1) focus on failure vs. success; (2) reliability vs. efficiency; (3) stable cognitive process vs. stability of routines; (4) embrace variation in activity; (5) and flexibility of structure (Weick, Sutcliffe, & Obstfeld, 1999).

A focus on failure and reliability generate a “reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and underspecified structuring (Weick et al., 1999, p. 31). Simplification and routines lead to contentment, carelessness, and unconsciousness that stifle cognitive response to potential threats and obstruct communication (Weick et al., 1999). Hierarchical authority and decision-making structures contribute to ineffective communication. To address these challenges, HROs replace routines with variance in activity, loosen the decision-making to migrate with challenges, and prioritize stable cognitive processes as a constant (Weick et al., 1999).

Sensemaking and enactment are rooted in stable cognitive processes (Weick et al., 1999). Sensemaking occurs as a means to interpret the environment (Weick, 1979, 2001). Enactment represents the relationship between sensemaking and action (Weick, 1979, 1988, 2001; Saetre et al., 2003; Gioia, 2006). Weick notes, “At the heart of enactment is the idea that cognition lies in the path of the action. Action precedes cognition and focuses cognition” (p. 307). The cognitive process as a constant allows for an organization’s stakeholders to leverage past experiences to make sense of present events. Empowering stakeholders to identify challenges, make sense of the issue, take action or enlist others for assistance is critical to effective communication (Weick, 1988). A fixation with failure, flexibility of organization structure, and a stable cognitive processes leading to interconnecting among stakeholders can enhance organizational communication (Eisenberg, 2006).
Chapter Three: Research Design

Research Question

To address the research problem, communication challenges associated with all-hazards campus emergency management planning, the researcher investigated the events of the Virginia Tech shootings. The primary research question was: When reviewing analysis of the Virginia Tech shooting event, what can be applied to current practices to improve communication linked with each phase of campus emergency management? Secondary questions include:

a. Who does the communicating?

b. What groups or stakeholders are involved?

c. How does communication occur at each phase of emergency management planning?

Methodology

Investigating these questions required a qualitative approach using a historiographic archival analysis methodology. A historiographic archival analysis combines the requirements of historical inquiry with details related to a particular event or case. Historical inquiry relies on “Primary documents, secondary documents, and cultural and physical artifacts” (Yin, 2003, p. 7). Streubert & Carpenter (1999) posit historical analysis has two primary applications: (1) when prior events provide insight into present or future incidents; (2) and when variance exists with interpretation of past events. Historical analysis requires the research to recognize the issue, gather and synthesize the data, and summarize the research for clarity and interpretation (Busha & Harter, 1980). Historiographic research “uses hermeneutic, which is the theory and practice of interpretation” (O’Brien, J., Remenji, D. & Keaney, A., 2004, p. 139). Creswell (2009) recommends the following steps in the process of interpretation: (1) merging of questions and procedures; (2) collection of data that originates from the event’s setting; (3) inductive analysis
of data into themes; (4) and final interpretations of the data.

**Research Design Approach**

Historiography is “an empirical research paradigm using an interpretive or qualitative approach (O’Brien, J., et. al., 2004, p. 137). Historiographic archival research directs the researcher towards documents that illuminate organization alignment as well as processes supporting the organization. Historiographic research “is typically restricted to the careful and detailed scrutiny of archival materials of a few organizations” (Ventresca & Mohr, 2001, p.15). Analysis tries to determine the best organizational configuration, operating protocols, and leadership approaches leading to “a fuller and richer understanding of a situation or circumstances” (O’Brien et. al, 2004, p. 137).

Central to archival analysis is the ability to effectively evaluate and make inferences from a variety of sources. This process is critically important because readers of this and other archival research “are dependent on accepting the version of analysis presented to them” (L’Eplattenier, 2009, p. 73). A number of challenges must be addressed when using an archival approach. Two key considerations include the perceived loss of context with reusing data and the accuracy of interpretations. Archival analysis “will always be an incomplete window into the past, yet even incomplete documentation will provide an invaluable source” (Geiger, T., Moore, N. & Savage, M., 2010, p. 9). Context is reshaped in the process of defining how data is collected and utilized against a given project.

**Data Collection**

Archival research is dependent on primary and secondary data used for inductive, logical reasoning. History is not always clear and an unambiguous guide; sometimes it creates more questions. Archival analysis “includes a broad range of activities applied to facilitate the
investigation of documents and textual materials produced by and about organizations” (Ventresca & Mohr, 2001, p. 2). Archival analysis identified documents that stand alone among a mountain of information. Traditionally used by historians, contemporary usage of archival analysis leverages the investigation of documents and material to learn about modern organizations.

The researcher collected qualitative archival data from government, university and independent sources. The researcher utilized transcriptions of the 200 stakeholders interviewed conducted after the event, the summary report of these interviews titled *The Virginia Tech Panel Report*, three Virginia Tech working group reports, and a number of external independent analyst findings as principle investigative documents (Massengil, 2007). Key considerations in archival analysis focus on how the data is collected, how data is utilized to support the researcher’s agenda, and the distinction between objects (characteristics of the social system such as people, organizations) and social actions (behavior of organizations). Archival data has many forms. Sources of data include documents, public and audiovisual materials, used to assist to identify themes associated with events (Creswell, 2009). The most common type of archival materials includes directories, encyclopedias, government documentation, organization documents, scholarly literature and proprietary databases (Bantin, 1998).

**Data Analysis**

Data analysis included using strategies for data reduction, pattern identification and interpretation. Data analysis encompassed organizing raw data for analysis, reading and identifying themes, and interpreting (Creswell, 2009). Creswell (1998) recommends organizing the data into a matrix that summarizes the types of data analyzed and the identification of themes. This is accomplished through: (1) categorical aggregation (combining data for
meaning); (2) direct interpretation; (3) pattern identification; (4) naturalistic generalizations (broad lessons learned); (5) and a description of the facts (Stake, 1995; Creswell, 1998).

In support of this research, three sets of archival data were gathered and analyzed. These included historical information related to the Virginia Tech Shooting from government, university and independent sources. The first step of data analysis employed categorical aggregation specific to each archival data set. This allowed for the organization of the data for further interpretation and meaning. Next, direct interpretation and the use of pattern analysis led to the identification of general themes. The final step required the triangulation of data and general themes from all archival sources. The aggregate of this last step led to the identification of principal themes. These principal themes provide the framework for final interpretation of the research.

**Validity and Reliability**

Validity allows checking for accuracy of findings; reliability checks consistency (Creswell, 2009). Validity refers to the correctness or credibility of a description, conclusion, explanation or interpretation (Maxwell, 2005). The “Main emphasis of a qualitative approach will include how the researcher will rule out specific plausible alternatives and threats to the interpretations and explanations” (Maxwell, 2005, p. 107).

To check for validity, the researcher used the triangulation of different data sources to justify the themes presented. The use of thick description allowed for detailed descriptions of the setting and the multiple perspectives of those involved, enhancing the realness of the events (Maxwell, 2005). It also allowed for the identification of discrepant information that counters and contradicts the themes identified, limits of proposed work, threats to validity of data collected, or to analysis and interpretation of it (Creswell, 2009). Concrete suggestions for how
to deal with these threats and to strengthen the validity were utilized and include: (1) how to deal with researcher bias, (2) using a representative sample, (3) organization of data collection and analysis, (4) and examining competing explanations and discrepant data (Yin, 2003; Maxwell 2005; Cresswell, 2009).

The purpose of this archival analysis was to understand communications challenges at Virginia Tech University and to leverage those findings to support enhancements in communication effectiveness related to campus emergency management. The shootings at Virginia Tech University provide insight into the impact a major crisis can have on IHEs and their stakeholders. The shooting event at Virginia Tech represents the complex nature and rich communication requirements needed by leaders at institutions of higher education to successfully navigate similar crises. An example of the nature of the material used for this archival analysis, include The Virginia Tech Review Panel Report, the detailed interview transcripts that provide the basis for the report and internal working group reports (Massengil, 2007).

Studying these communicative challenges shed light on communication requirements that support future all-hazards campus emergency management. This research suggested that awareness of communication challenges may assist higher education leaders and campus stakeholders to be better at emergency management planning. A key contributing cause of the fallout associated with each event is lack of and/or poor communication. Significant scholarly research conducted by crisis management and organizational communication scholars’ outline the need for improved communication, leaders’ role in bridging those communication gaps, and the structural support required (Stephens et. al., 2005; Matha & Boehm, 2008; Winnerman, 2009).

There are advantages of The Virginia Tech Review Panel Report (2007) and internal
working group reports as archival data sources for this research. First, these reports summarized stakeholder experiences throughout the event, framed in the report findings. Retrospective findings, occurring in the context of public hearings concerning the communication challenges institutions of higher education experience associated with manmade or natural emergency situations, constitute the body of research. As this is a historical approach, the existence of the researcher did not alter the actions of stakeholders interviewed. As the research questions were generated after the events, stakeholder experiences, and summary findings were unaffected. These characteristics enhance validity of the research. Specific to research reliability, the use of actual report findings, interview transcripts, and independent analysis versus personal observations significantly enhances the credibility of findings. Other researchers wishing to reproduce the research have the benefit of starting with the same primary and secondary data. The primary and secondary data used in this research is public, easily accessible, and because it represents a historical event using an archival methodology, it allows for recurrent analysis.

Limitations

The shortcomings of the primary and secondary data are the limitations of studying a single event and the time since the event occurred. The Virginia Tech shootings included only archival data related to that event. Stakeholder experiences outside of these summary documents are not included in reports or transcripts. The primary and secondary data represent only a small sample of the communications surrounding the event, limiting the opportunity to identify communicative challenges preceding/after the event. Stakeholders contributing to the report may have been under stress. No doubt the situation in which the interviews took place influenced the feedback given. Additionally, nonverbal components of communication are not available in the summary documents. Each of these concerns make it more challenging to identify opportunities
to enhance CEM communication effectiveness with absolute accuracy. Keeping these
limitations in mind, it is conceivable and valuable to study the treatise of the inquiry proceedings
and to summarize some of the probable communication rules operating at Virginia Tech during
the time of crisis.

**Conclusion**

A great deal of research has been conducted on campus emergency management and its
impact on education. Most of this research falls under the four phases of emergency
management planning: preparedness, response, recovery and mitigation (FEMA, 2003). To
safeguard stakeholders, the current scholarship includes recommendations that seek to alter
campus communities’ security and long-term safety planning, policy and legal protections.
While current efforts have created safer campuses, they have also fallen short of what
stakeholders should expect, especially with regard to effective communication.

This research addressed the question: Can campus emergency management planning be
enhanced through the integration of effective communication practices across all four phases of
campus emergency management? To understand the requirements of this endeavor, the main
body of research examined the shootings at Virginia Tech University, processes and practices
associated with emergency management, contemporary experiences at IHEs, and application of
Weick’s *Organizing Theory* to CEM.
Chapter Four: Report of Research Findings

The purpose of this research inquiry was to organize, review, and analyze archival data in order to identify opportunities to enhance communication effectiveness during each phase of Institutions of Higher Education (IHE) emergency management. This study engaged a historiographical archival qualitative research methodology focused on the 2007 shootings at Virginia Polytechnic Institute and State University (Virginia Tech). Despite significant efforts from Virginia Tech stakeholders, emergency management planning and parallel communication, efforts failed to prevent the shootings.

The principal goal of Campus Emergency Management (CEM) is the safety and wellbeing of all stakeholders. See Appendix C for full list of internal and external IHE EM stakeholders. Because CEM requires four phases: (1) mitigation, (2) preparedness, (3) response, (4) and recovery, effective communication is a key component (Drysdale, et al., 2010; U.S. DHS-FEMA, 2003). This goal is unattainable when CEM efforts are layered with miscommunication.

Chapter four outlines the research findings. This chapter is organized by the following sections: (1) archival data analysis, (2) government archival data, (3) archival data sanctioned by Virginia Tech leaders, (4) archival data summarized by independent analysts, (5) an integrated summary of findings into principal themes, and (6) conclusion.

Archival Data Analysis

Archival data analysis includes a variety of archival information that is most relevant to the research. Specific to this research, archival data included government, university and independent information. Archival data analysis led to the identification of opportunities to enhance effective communication associated with each phase of campus emergency
management. Analysis of archival data uncovered facts requiring further inquiry.

Analysis of the data led to the identification of patterns associated with CEM communication challenges related to the Virginia Tech event. Findings are presented as general themes identified during analysis of each area of inquiry. Correlating general themes among various archival data sources were integrated into principal themes. Principal themes were used to make inferences and assist in the identification of opportunities to improve communication in CEM.

The Virginia Tech shootings are well documented with extensive archival data. This information was critical to this research and provided substantial information about the communication challenges associated with campus emergency management. The researcher thoroughly examined documents and records associated with the Virginia Tech shootings. A comprehensive analysis of the archival data provided invaluable insight and contributed extensively to the research conclusions. The investigation of this data is categorized in a logical sequence allowing the reader to review this research and analytically examine each data set.

Three primary areas of inquiry frame the archival findings. Two external data sets and one internal data set are included as primary contributors to the findings. Primary documents include: (1) Virginia Tech Panel Report to Governor Timothy Kaine, (2) three Virginia Tech Working Group Presidential Reports, and (3) a collection of independent analytic summaries.

The Virginia Tech Panel Report to Governor Kaine was a government sanctioned, external report focused on the actions taken by stakeholders during the crisis and concluded with the identification and documentation of administrative and procedural deficiencies (Massengil, 2007). The report, essential to this research, documents the experiences and feedback of several hundred stakeholders affected during the response and recovery phases of the event.
Additionally, the report identified leadership, procedural, and policy gaps associated with all four phases of CEM. Parallel to the Virginia Tech Panel Report, Virginia Tech President Dr. Charles Steger sanctioned three internal working groups to analyze key areas associated with the Virginia Tech shootings. These internal working groups were responsible for reporting findings to the Virginia Tech community. Specific areas of focus included analysis of Virginia Tech’s organizational structure, planning, policies, and the technology and safety programs that were in place during the event.

The first internal report analyzed the organizational interface between Virginia Tech counseling services, academic affairs, and the legal system (Virginia Tech UPIR, 2007c). This data source provided vital insight into the organizational structure and communication practices among key university organizations. The second report critically analyzed existing information and communication infrastructure in place to support Virginia Tech stakeholder communication (Virginia Tech UPIR, 2007a). Lastly, an in-depth investigation into Virginia Tech’s security infrastructure framed the remaining internal review (Virginia Tech UPIR, 2007b). Collectively, the three internal reports illustrate the existing state of Virginia Tech CEM at the time of the shooting and the university’s ability to mitigate, prepare, respond, and recover from a crisis.

Independent scholarly and media analysis/reviews of external and internal findings were included as archival data sources. This third data set provides a means to enhance the validity and reliability of this research.

**Government Archival Data**

Government archival data includes information sanctioned by the State of Virginia or other government entities that directly relates to the Virginia Tech shootings. Then Governor Timothy Kaine sanctioned the Virginia Tech Panel Report (Massengil, 2007). After an
exhaustive examination of the shooting event and interviews with more than 200 stakeholders, the report outlined several key findings. Eleven of the 21 key findings of the Virginia Tech Panel Report attribute miscommunication as a contributor to the shooting event (Massengil, 2007). In analyzing the Virginia Tech Panel Report findings, a number of general themes, identified as contributors to the miscommunication, are noted in the original report. Table 4.1 identifies a summary of general themes identified as contributors to the miscommunication associated with the event.

**Table 4.1 Government: Communication Challenges**

<table>
<thead>
<tr>
<th>Communication Challenges Resulted From</th>
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<tr>
<td>Stakeholder inaction</td>
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<tr>
<td>Administrative practices</td>
</tr>
<tr>
<td>Poor planning</td>
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<tr>
<td>Legal/Procedural knowledge</td>
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<tr>
<td>Leadership/Lack of clarity</td>
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Key *stakeholder inaction* and *administrative practices* contributed to the miscommunication noted throughout the report and include: (1) inaccurate and premature reporting by police, (2) the executive decision making team not inclusive of Virginia Tech Chief of Police, (3) delayed campus-wide notification, and (4) conflicting written policy related to emergency notification (Massengil, 2007).

The Policy Group consisted of only executive level administrators responsible for activating the emergency plan/procedures during a crisis. Inaccurate reporting included the hasty declaration from campus police to the Policy Group indicating the threat had subsided. This directly impacted the Policy Group’s decision to delay a mass notification. The Virginia Tech Chief of Police was not part of the Policy Group, requiring permission for him to issue additional mass notifications. Finally, “Virginia Tech had two different emergency notification policies in
effect on April 16, 2005,” adding to the confusion and miscommunication (Massengil, 2007, p. 4).

Poor planning was another contributor to the communication challenges associated with the event. The school’s emergency management plan was obsolete, not properly maintained, and riddled with inaccurate information. Massengil posits, “The version in effect on April 16 was about two years old and had several components that were outdated” (2007, p. 16). This fact contributed to questions of response practices as well as adherence protocols. Both should be clearly outlined and communicated in the preparedness phase of CEM. A noted example in the Virginia Tech Panel Report (Massengil, 2007) states:

The plan called for the establishment of an emergency operation center (EOC). There were multiple coordinators and multiple centers but no central EOC on April 16th. It did not include provisions for a shooting scenario and did not place police high enough in the emergency response decision-making hierarchy (p.17).

Additional planning gaps included the lack of active shooter training for students and staff.

Communication challenges also surfaced related to legal/procedural knowledge. The general lack of understanding by police, university leaders, and internal/external counseling staff of federal laws associated with health and educational records led to inaction, information silos and overall miscommunication. The Virginia Tech Panel Report findings conclude:

University officials in the office of Judicial Affairs, Cook Counseling Center, campus police, the Dean of Students, and others explained their failure to communicate with one another or with [Virginia Tech shooter] Seung-Hui Cho’s parents by noting their belief that such communications are prohibited by the federal laws governing the privacy of health and education records (Massengil, 2007, p. 2).
Given the obvious safety situation resulting from the perpetrator’s unstable mental state, stakeholders could have shared health and educational information, but failed to do so. As noted, “During Cho’s junior year at Virginia Tech, numerous incidents occurred that were clear warning of his mental instability. Although various individuals and departments with the university knew about each of the incidents, the university did not intervene effectively” (Massengil, 2007, p. 2). This lack of understanding and ineffective communication stifled CEM efforts to prepare for and/or mitigate such an event.

Additional legal considerations include the fact that Cho illegally purchased two weapons, two years prior to the event at Virginia Tech. At the time of the purchase, he was declared a danger to himself and was required to seek mental health support. Given this scenario, federal law would have barred him from acquiring the two handguns used in the shootings. However, existing silos and lack of training and understanding of the law further compounded the communication fallout associated with the event (Massengil, 2007, p. 2). The Virginia Tech Panel Report placed the responsibility to address these issues and the overall lack of clarity on university leadership.

Leadership indecision and lack of clarity facilitated poor CEM communication. The Virginia Tech Policy Group delayed almost two hours before sending out a mass notification after the first shooting. The Policy Group was required to convene and agree on messaging prior to any notification, yet “the protocol for sending an emergency message in use on April 16th was cumbersome, untimely, and problematic when a decision was needed as soon as possible” (Massengil, 2007, p. 17). Lack of staffing oversight, insufficient mental health resources, and poorly organized supporting programs and policies were noted as contributors to Virginia Tech leadership indecision, adversely influencing the university’s preparedness, mitigation and
Communication to medical facilities and communication with families were two additional areas found to be deficient. Response by medical personnel directly after the shootings was noted as a strength, yet communication and accurate information from Virginia Tech leaders and first responders to area hospitals represented a significant gap. Compounding this issue was the slow response by the state emergency management system and delayed resources required to support the Virginia Tech community. Similarly, accurate and timely information from Virginia Tech personnel to Virginia Tech parents was deficient. The disorganized effort to create a place for family support and information exchanges is a prime example. The Virginia Tech Panel Report notes, “The university established a family assistance center at The Inn at Virginia Tech, but it fell short in helping families and others for two reasons: lack of leadership and lack of coordination among service providers” (Massengil, 2007, p. 3). Parents of victims lacked accurate and timely updates. This point is supported by one victim’s plight:

Emily Hilscher (one of the victims of the double homicide at West Ambler Johnston) survived for three hours and was transported from the scene to one hospital and later transferred to another. Despite the fact that her identity was known, neither Virginia Tech nor law enforcement nor hospital representatives informed her parents that she had been shot and seriously wounded, or where she had been taken for medical treatment, until after her death (Massengil, 2007, p. 4).

This botched dissemination of information had very personal implications for the victims of the event, as did other areas exposed by the Virginia Tech internal working group reports (Massengil, 2007).

Archival Data Sanctioned by Virginia Tech Leaders
The second archival data set includes information gathered at the direction of the university. Similar to government archival information, this data directly related to the Virginia Tech shooting. Virginia Tech President Dr. Charles Steger sanctioned three internal working groups to analyze key areas associated with the Virginia Tech shootings (Virginia Tech UPIR, 2007a; 2007b; 2007c). The first working group report findings summarize the interface between Virginia Tech counseling services, academic affairs, and legal personnel (Virginia Tech UPIR, 2007c). The second working group report documents Virginia Tech information and communication structure at the time of the event (Virginia Tech UPIR, 2007a). The final internal working group report focuses on the security structure at Virginia Tech (Virginia Tech UPIR, 2007b). These reports offer insight from internal contributors to the communication fallout associated with the event, specifically related to stakeholder interactions, information and communication infrastructure, and security infrastructure. Table 4.2 represents a summary of general themes identified after archival analysis of the three internal working group reports.

**Table 4.2 Internal: Communication Challenges**

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<th>Internal: Communication challenges resulted from</th>
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<tr>
<td>Stakeholder interactions</td>
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<tr>
<td>Information and communication infrastructure</td>
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<td>Security infrastructure</td>
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**Working group report 1: organizational interface between Virginia Tech counseling services, academic affairs and the legal system.** Stakeholder interaction presented itself as a general theme in the miscommunication associated with the Virginia Tech shootings. The interactions between counseling services, academic affairs, and legal personnel were adversely impact by existing organizational structure and resources, policy and procedures, legal knowledge and training, leading to communication fallout. As an example, organizational
structure impeded communication among personnel working with at-risk students. Virginia Tech UPIR, 2007c notes, “Effective communication among units regarding at-risk students is essential, yet Virginia Tech’s existing organization and resources lacked the ability to identify and respond to at-risk students” (p. 3). Virginia Tech’s organizational structure lacked threat assessment teams, links between existing care teams and academic entities, and was resource deficient in its ability to handle the most challenging situations (Virginia Tech UPIR, 2007c). This limited the ability for Virginia Tech personnel to mitigate issues by recognizing and addressing students in crisis.

Resources placed inappropriately within the organization were not effective, adversely affecting the ability to prepare for and meet student needs. No central authority was given the responsibility and accountability to identify, gather, understand, and coordinate planning for vulnerable students (Virginia Tech UPIR, 2007c). This situation created fragmentation of information leading to an inability to respond “with respect to comprehensive assessment and treatment” required of vulnerable students (Virginia Tech UPIR, 2007c, p. 16).

Virginia Tech’s organizational structured lacked the ability to effectively communicate with external entities. Emergency information related to students was inaccurate, as evidenced by documentation that stated, “Currently the data base for emergency contact information is uneven and often not updated in a timely manner” (Virginia Tech UPIR, 2007c, p. 18). Furthermore, communication with outside mental health agencies was deficient, distressing CEM preparedness and mitigation efforts. The structure and notable lack of information sharing was an issue, requiring:

The establishment of a central university contact who has a comprehensive picture of distressed students who have been assessed by the system, clarifying policies for
communicating with external agencies regarding acutely distressed students, and implementing a new policy for emergency notification information for students (Virginia Tech UPIR, 2007c, p. 3).

Ambiguous, confusing and conflicting policies and procedures sanctioned by Virginia Tech leaders compounded the communication issues among counselor, academic, judicial and legal entities. The report notes, “One of the most important aspects of creating a successful system for working with at-risk students is to have an accurate, timely, and accessible flow of information regarding the student” (Virginia Tech UPIR, 2007c, p. 16).

Information issues included jurisdictional, access and management concerns as well as a pervasive code of behavior that limited information sharing (Virginia Tech UPIR, 2007c). Each concern stifled the flow of accurate information. Personnel were confused with the policies and procedures directing student information sharing, authority/ability to share, with whom and the specific information that could be shared as it related to behavior, academic performance, and/or the physical or mental well-being of a student (Virginia Tech UPIR, 2007c). Additionally, student discipline policies did not include the ability for Virginia Tech personnel to place a student on a leave of absence for medical or psychological reasons (Virginia Tech UPIR, 2007c). Many of these misunderstandings were due to lack of training, but still others were rooted in the nuances of students’ legal rights.

The report findings discuss a lack of legal knowledge and training across the organization contributing to miscommunication among counseling, academic, judicial and legal entities. Furthermore, the absence of clear FERPA guidelines as well as campus safety and violence information muted attempts by staff and students to understand the process and protocols associated with campus emergency management (Virginia Tech UPIR, 2007c). Additional
impediments to stakeholder interaction and the overall effective of CEM communication resulted from the antiquated information and communication infrastructure in place at the time of the event.

Working group report 2: information and communication structure. Working group report two provides “a comprehensive inventory and analysis of the communications infrastructure and information systems used during this time period” (Virginia Tech UPIR, 2007a, p. 1). The report focuses on the deployment, utilization and effectiveness of the following informational systems in place at the time of the event (Virginia Tech UPIR, 2007a):

1. Data communication
2. Web communication
3. Radio communication systems
4. 911 system
5. Cellular Service
6. Traditional Telephone Service
7. Video, Campus Cable Television, and Related Systems
8. Data Preservation
9. Data Retrieval
10. Managing Personal Information
11. Response Centers
12. Cyber-Security
13. Virginia Tech Alerts Automated Notification System

Capacity, coverage and interoperability were at the forefront of response concerns, representing the general lack of preparedness for such an event and severely limiting the
capabilities of the information and communication structure. At the time of the event, the technology in use was outdated and antediluvian, creating stress within data and voice networks (Virginia Tech UPIR, 2007a). The report notes, “Lines connecting the campus telephone system to the public network experienced a five percent blocking rate for a short period of time in the face of a three hundred percent increase in the number of call attempts” (Virginia Tech UPIR, 2007a, p. 2). In addition to phone line traffic, in excess of 150,000 people per hour accessed Virginia Tech’s homepage to gain information and event updates. Virginia Tech’s interface with the internet experienced an egregious increase in data exchanges, placing unsustainable capacity requirements on its existing network (Virginia Tech UPIR, 2007a). Virginia Tech personnel were challenged to immediately expand network access/capacity (Virginia Tech UPIR, 2007a).

Along with data capacity issues, regular and cellphone utilization into the Virginia Tech campus created capacity and coverage issues on plain-old-telephone-service (POTS) and cellular networks (Virginia Tech UPIR, 2007a). This resulted in call blocking and a Virginia Tech Police Department dispatch center encumbered with calls that went unanswered. “External voice communication channels became overloaded making them temporarily ineffective for communications. Technologies relying on the voice circuits provided by external vendors reached saturation levels at times making them unreliable for communications” (Virginia Tech UPIR, 2007a, p. 10). This issue impacted both the response and recovery phases of Virginia Tech’s CEM efforts.

Interoperability issues compounded the communication challenges. The limited capabilities of radios and cellular technology used, amount available, the lack of portability of communication equipment, and limited value to first responders added to communication issues (Virginia Tech UPIR, 2007a). Another challenge in response to the event was the deployment of
technology to support mass notification to the Virginia Tech community. The Virginia Tech Alerts Emergency Notification System was in place at the time of the event, however, it had limited capabilities (Virginia Tech UPIR, 2007a). The system did not support individual notifications such as text or instant messaging. Virginia Tech emergency personnel were unable to reach students on personal mobile devices or computers, personal email, or call alternate phone numbers to provide status or updates of the event (Virginia Tech UPIR, 2007a). Additional concerns related to the information and communication infrastructure involved maintenance, procedural, and process challenges.

Virginia Tech information and communication infrastructure utilized during the event operated on legacy architecture in which components of data, telephone and cable services operated in isolation (Virginia Tech UPIR, 2007a). The fragmented architecture is extremely difficult to maintain and limits the communication and information capabilities unlike a fully integrated, internet protocol-based platform that allows for enhanced security while increasing communication and informational exchanges, all controllable by university leaders and first responders (Virginia Tech UPIR, 2007a).

Additional issues with procedures and processes associated with Virginia Tech’s information and communication infrastructure contributed to communication gaps, impacting response and recovery efforts. Key procedural and process issues included: (1) incoming cellular telephone calls inappropriately rerouted to non-emergency lines, (2) lack of resources/ability to support non-English speaking callers, and (3) the inability to support wireless/internet access requirements of hundreds of first responders and media professionals (Virginia Tech UPIR, 2007a).

**Working group 3: security infrastructure.** Senior executives at the State and National
levels sanctioned commissions to look at government security policies and procedures in response to the Virginia Tech shootings (Virginia Tech UPIR, 2007b). The final internal working group’s focus was to “examine security issues from the perspective of a large university” (Virginia Tech UPIR, 2007b, p. 1). The working group identified strengths and areas for improvement in the following areas:

1. Mutual aid agreements
2. Joint exercises
3. Mass emergency communication system
4. Communication infrastructure
5. Electronic card key access
6. Nationally accredited campus police department
7. Documented campus emergency preparedness response plan
8. Virginia Tech President and key campus administrators in addressing campus emergencies (Virginia Tech UPIR, 2007b p.2).

The working group report highlights strengths and limitations related to Virginia Tech’s security infrastructure. Analysis of the physical setup, security protocols and practices, and organizational structure associated with Virginia Tech’s security infrastructure identified gaps leading to communication fallout. The physical infrastructure lacked modern technology such as electronic key access, closed circuit television (CCTV) and enhanced mass notification capabilities (Virginia Tech UPIR, 2007b). An electronic key access system supports CEM preparedness and mitigation efforts by documenting anyone entering/exiting a building, restricting access, and enabling security personnel the ability to remotely lockdown a building (Virginia Tech UPIR, 2007b). The physical security infrastructure did not include a centrally
monitored CCTV system, capable of using video surveillance cameras throughout the campus. This limited the ability to communicate timely, accurate information about the event, adversely influencing both response and recovery activities (Virginia Tech UPIR, 2007b).

Although the physical infrastructure included a mass notification system, the system had limited reach. Staff and students in classrooms and other areas on campus were unable to receive mass notifications. Additionally, campus stakeholders in transit to and from campus were negatively impacted by the limited capabilities of the existing mass notification system (Virginia Tech UPIR, 2007b). In addition to the physical limitations of the security infrastructure, the working group report notes issues with security policies and procedures that existed at the time of the event.

The plan did not include an annual maintenance/review requirement. The existing emergency plan was outdated, specifically the response protocols, significantly influencing the ability to effectively communicate and respond to the event (Virginia Tech UPIR, 2007b). Moreover, the university lacked a master security plan, a key component of the comprehensive emergency management plan (CEMP). Specific to the lack of a master security plan, the report suggests, “Without the use of a measured and standardized methodology, new implemented security measures and recommendations from this report will be employed in an ad hoc fashion. This unbalanced approach could lead to further inequity and confusion in the context of campus security” (Virginia Tech UPIR, 2007b, p. 28).

Stakeholders were unsure of security protocols and practices. Safety materials and information available for students, staff and visitors were inadequate. Key response personnel such as public safety and university maintenance personnel lacked training and the experience to practically apply response protocols (Virginia Tech UPIR, 2007b). Other stakeholders such as
faculty, staff, students and parents were not included in practice exercises. Furthermore, organizational issues included a lack of building-based coordination in the event of an emergency. At the most senior leadership level, the organization of the Virginia Tech Policy Committee, who was charged with overseeing security practices and policies, was void of backup, alternative members and not inclusive of key security members. This resulted in delayed decision-making and additional communication bottlenecks (Virginia Tech UPIR, 2007b).

The security organizational structure was deficient. As noted The Virginia Tech Panel Report (Massengil, 2007), the Virginia Tech Chief of Police was not part of the policy committee, requiring permission of the policy group for such necessities as mass notifications. The Virginia Tech Police Department role was limited (Virginia Tech UPIR, 2007b). The organization did not have oversight of all physical access controls. Structure, technology and assigned accountability limited the Virginia Tech Police Department from utilizing organizational tools to include panic buttons, CCTV and biometrics systems.

The emergency command structure was fragmented, with key security personnel having no direct report to a senior campus executive (Virginia Tech UPIR, 2007b). Lines of communication were unclear. Finally, among the various public safety entities, organizations use verbal codes rather than common language commands when communicating. Variations in verbal codes as well as interaction with entities/personnel not familiar with verbal codes, limited the effectiveness of communication (Virginia Tech UPIR, 2007b). External analysis of these same issues corroborates the findings above.

Archival Data Summarized by Independent Analysts

The last archival data set included information from non-government entities with no
affiliation to the university. The information analyzed provided additional information related to
the Virginia Tech shooting. Similar to the government/university findings presented in the
Virginia Tech Panel Report as well as the internal working group reports, independent analysts
identified communication issues associated with CEM planning, policy, and protocols in place at
the time of the event, existing organization structure and university leaders’ action/inaction.
Table 4.3 represents a summary of general themes identified after archival analysis of external
reports.

Table 4.3 External: Communication Challenges

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<th>External: Communication challenges resulted from</th>
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<tr>
<td>Planning, policy, and protocols</td>
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<tr>
<td>Organization/structural concerns</td>
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<td>Leadership action/inaction</td>
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Fischer advances, “An internal review ordered in the wake of last April’s deadly shooting
rampage at Virginia Tech concludes that the university needs to improve its monitoring of
troubled students, enhance campus wide communications, and better secure campus buildings to
prevent a similar tragedy” (p. 1). Key recommendations to improve CEM and associated
communication noted by Fischer (2007) include:

1. Planning/Organization: Create a security and master plan for the campus and establish a
campus-security committee

2. Training/Knowledge: Increase the number of simulation exercises for campus police
officers, emergency responders, and others to prepare for potential emergencies.

3. Accountability/Technology: Establish an electronic “people locator system” that would
allow students and others to post their status after an emergency.
4. Maintenance: Improve the university’s communication infrastructure to enhance campus security.

5. Interoperability: Help first responders improve radio communications.


7. Organization/Policy: Add case managers to improve follow-up services for students who have been seen at the counseling center or by a counseling team.

8. Law: Clarify university policy on how federal privacy laws, such as the Family Educational Rights and Privacy Act is applied, and provide continuing training for faculty and staff members.


Davies (2007) reinforced the structural concerns associated with the Virginia Tech shooting, noting federal, state and university leaders must work together to make sure structural supports and laws related to public mental healthcare, gun and privacy laws support institutional stakeholders. Specific to Virginia Tech, university leadership must address communication gaps in dealing with at-risk students. Davies (2007) notes, with the broader preparedness efforts, a plan is required that is capable of addressing multiple response protocols and one that can be understood and practiced by all stakeholders (Davies, 2007). A comprehensive plan could also be applied on a broad scale to other university settings.

Ramussen & Johnson (2008) highlight the national impact the Virginia Tech shooting had related to CEM. Findings of an IHE survey related to safety and security policy and practice post-Virginia Tech shooting note greater than 95% of participating IHE organizations indicated they required changes to their mass notification systems. Likewise, more than 88% indicated
structural/operational changes occurred within IHE police/security departments. 71% of those surveyed required policy and procedural improvements related to students with mental health issues while nearly 70% of all respondents indicated relationship among and between departments and offices needed to be improved (Ramussen & Jonson, 2008). By identifying, analyzing, and improving areas of weakness, universities can begin the necessary task of restructuring campus emergency management initiatives. With a focus on leadership, universities can utilize these findings to structure their emergency plans in a more effective way.

Further analysis of the government/university findings of the Virginia Tech shootings and associated communication issues identifies the impact leadership action/inaction have on emergency management efforts. Thrower et al. (2008) present three recommendations that improve leadership effectiveness: (1) Emergency planning and critical incidence response, (2) Empowerment and resources of the campus public safety function; and (3) Improve prevention and education programs. These three recommendations should be the cornerstones of the leadership team’s approach as they dissect the need for safety improvements in the areas of both communication and vulnerability.

Specific to emergency planning and critical incidence response, under the direction of senior leaders, Virginia Tech needs to establish a program allowing for threat and vulnerability assessments and enhanced mass notification capabilities (Thrower et. al. (2008). Through enhancements in organization structure and policy, leaders must create opportunities to empowerment stakeholders throughout the CEM process. Thrower et. al. (2008) recognize this can be accomplished by restructuring/broadening public safety personnel authorities, continually updating emergency response plans, establishing clear mutual aid programs with area first responders/hospitals and incorporating government EM practices to include National Incident
Management System (NIMS) and Incident Command System (ICS) practices and protocols.

Integrated Summary of Findings into Principal Themes

The next step in data analysis involved examining the archival data and general themes as an aggregate. Through data reduction, pattern identification and interpretation three principal themes were identified. Each principal theme contributed to Virginia Tech’s CEM miscommunication. The three principal themes are:

1. Leadership and organizational structure, defined as the entity that provides direction, oversight and required systems constructed for information exchanges;
2. Planning and technology, defined as the organizing activities and the required infrastructure to support communication; and
3. Policy, procedural and legal knowledge, defined as the guidelines required for decision-making.

Leadership and organizational structure represent two important conduits for effective communication. Similarly, organizations employ planning and technology initiatives as a means to enhance communication. Equally important is factual communications of policies, procedures and legal aspects designed to support strategic imperatives and day-to-day operations. Archival analysis of data related to the Virginia Tech shooting highlight concerns related to these areas and note each area as a contributor to the communication fallout associated with the event.

Leadership and organization structure. Leadership and organizational structure can be a catalyst to effective internal and external communication required of campus emergency management (CEM). Conversely, leadership indecision, lack of clarity and improper leadership oversight in the alignment of resources within an organization can be a facilitator of poor (CEM) communication. The Virginia Tech Policy Group’s delay in communicating to campus
stakeholders is an example, as determined by “The Virginia Tech Panel Report”, of the indecision and lack of clarity eminent throughout the event (Massengil, 2007). Furthermore, the general lack of staffing oversight as well as poorly organized resources compounded communication challenges. University personnel lack the oversight and resources to support at-risk students, as outlined by the internal working group reports. Virginia Tech safety and security personnel were void of the authority and structure to effectively do their job, leading to gaps in communication. Leaders struggled to communicate with external stakeholders including parents, first responders and medical personnel. Collectively, this situation adversely impacted the university’s ability to support campus emergency preparation, mitigation and response:

A central university contact who has a comprehensive picture of distressed students who have been assessed by the system, clarifying policies for communicating with external agencies regarding acutely distressed students, and implementing a new policy for emergency notification information for students (Virginia Tech UPIR, 2007c, p. 3).

**Planning and technology.** Proper planning and appropriate technology can enhance communication. In opposition, analysis of the data identified poor planning and an outdated information and communication infrastructure as key contributors to the lack of effective communication associated with campus emergency management. This situation limited prevention, response and recovery efforts. Issues highlighted in the analysis of archival data sources note concerns with the school’s emergency management plan, outdated communication infrastructure and limiting technology.

*The Virginal Tech Panel Report* noted the school’s emergency management plan was dated and not preserved, void of updated information (Massengil, 2007). The plan lacked an
emergency management training program for the university community, creating gaps in understanding and the ability for stakeholders to communicate and respond appropriate during the event. The information and communication structure in place at the time of the event further compounded communication issues.

The system in place was outdated, void of routine maintenance, and lacked the ability to support stakeholders’ needs during a crisis. Analysis of the archival data identified the inability of the system to handle severe spikes in capacity requirements. The second Virginia Tech internal working group report concluded the issue was compounded by the limiting abilities to communicate among stakeholders because of coverage and operability concerns (Virginia Tech UPIR, 2007a).

The technology supporting the communication and physical security infrastructure was not up-to-date. Unlike a fully integrated, digital communication structure, each portion of the legacy technology in place at the time of the shootings operated in isolation, limiting the effectiveness of this communication. The physical security infrastructure lacked the technical ability to remotely control access, gain real-time visual updates across campus and communicate with all stakeholders, regardless of their physical location on campus (Virginia Tech UPIR, 2007b).

**Policy, procedures and legal knowledge.** Analysis of the data highlights misunderstandings of policy, procedural and legal knowledge. Examples contributing to the communication fallout include: (1) campus emergency notification, (2) emergency response planning, (2) executive organization, (3) and a general misunderstanding of the laws associated with student information (Massengil, 2007).

Analysis of archival data sources identified a pervasive issue associated with conflicting
policies and procedures. Policy and procedural concerns were noted in both government and internal reports, highlighting miscommunication associated with campus emergency notification, campus emergency response plans, and organization of principal leaders during a crisis (Virginia Tech UPIR, 2007c). A lack of legal understanding associated with student information sharing further compounded the issues of miscommunication.

Misunderstanding of the laws associated with student information sharing led to communication silos among stakeholders and organizations within or associated with Virginia Tech. Analysis of the archival data identified concerns with stakeholders’ authority and right to collect, analyze and share student information. This issue significantly limited appropriate information sharing (Virginia Tech UPIR, 2007c). Additionally, student discipline policies did not include the ability for Virginia Tech personnel to place a student on a leave of absence for medical or psychological reasons (Virginia Tech UPIR, 2007c).

Conclusion

Effective communication is essential to campus emergency management. Conversely, poor leadership and organizational structure, as well as technology, policies, practices and lack of knowledge, can adversely impact an organization’s ability to prepare, mitigate, respond to and recover from a crisis.

A historiographic archival analysis of data associated with the Virginia Tech shooting, and related communication challenges, led to the identification of general themes. An aggregate of those themes directed the identification of principal themes. Principal themes represent areas for improvement related to effective CEM communication. The primary research question of this study proposed to identify opportunities to enhance communication effectiveness for each
phase of campus emergency management: (1) mitigation, (2) preparedness, (3) response, and (4) recovery.
Chapter 5: Discussion of Research Findings

Introduction

This chapter is a summary of the research findings, in combination with the theoretical framework and the literature presented in this study. The presented findings enlighten institution of higher education (IHE) leaders and campus stakeholders of opportunities to enhance communication effectiveness during campus emergency management (CEM). See Appendix C for full list of internal and external IHE EM stakeholders.

The purpose of this research was to analyze communication requirements associated with CEM. Utilizing an archival historiographical methodology, the research focused on the Virginia Tech shootings to understand how miscommunication compounded the challenges associated with this disaster (U.S. DHS-FEMA, 2003; Drysdale, Modzelski & Simmons, 2010; Fox & Savage, 2009). This research highlights the need to understand the extent to which effective communication can enhance CEM efforts. The principal research question guiding this research was: When reviewing analysis of the Virginia Tech shooting event, what can be applied to current practices to improve communication linked with each phase of campus emergency management?

The primary question was examined utilizing Karl Weick’s Organizing Theory as a theoretical construct. Three distinct components of Weick’s theory provide insight into effective communication during crisis. These include sensemaking, enactment, and equivocality.

This chapter is organized in the following sections: (1) Interpretation of Primary Findings, (2) Implications for Practice and Recommendations, (3) Future Research and (4) Conclusion.

Interpretation of Primary Findings
Specific to this study, research identified three principal themes that contribute to the overall effectiveness of CEM and associated communication. These include: (1) leadership and organization structure; (2) planning and technology; and (3) policy, procedures and legal knowledge. The Virginia Tech analysis identified several areas that can affect CEM communication.

**Principal theme 1: leadership & organization structure.** Leadership and organizational structure is defined as the entity that provides direction, oversight and the required systems constructed for information exchanges. As the findings highlight, central to effective campus emergency management (CEM) is senior leadership oversight, stakeholder involvement, and appropriate organizational structure (U.S. DOE, 2010). A critical responsibility of institution of higher education (IHE) leaders is to establish standards of practice related to safety and security of stakeholders (Walber, 2008). Specifically, leadership oversight is required in the standardization of CEM practices. Standardized CEM practices enable mitigation, preparedness, response, and recovery efforts while facilitating communication among stakeholders.

Analysis of leadership and organizational structures associated with the Virginia Tech shooting identified that the following areas would have improved CEM communication at the time of the shootings:

1. Leadership oversight of the standardization of campus emergency management practices.
2. Organizational structure inclusive of all stakeholders in CEM procedural, policy and prevention efforts.

Historical and contemporary emergency management literature (McIntire, 2004, Sentinelli, 2007) confirms the important role of leaders in CEM standardization of practices and with the facilitating information management and organizational communication. Conversely, as
noted in the archival analysis of the Virginia Tech shooting, ineffective leadership involvement and poor CEM practices lead to miscommunication among stakeholders. As Weick (2001) notes, organized emergency management strategies allow order and lead to sensemaking, permitting stakeholders the opportunity to interpret for meaning activities occurring within their organization or environment. This is an essential step required of effective CEM communication.

The literature identifies a number of national emergency management practices that leaders should take account of when standardizing CEM practices. These include the National Preparedness Guidelines (NPG), National Incident Management System (NIMS), National Response Plan, and the National Infrastructure Protection Plan (NPP) (U.S. DHS-FEMA, 2007; U.S. DHS, 2008). Coupled with local requirements and campus-specific guidelines, such as the Action Guide for Emergency Management at Institutions of Higher Education (U.S. DOE, 2010), IHE leaders are provided a set of tools to support CEM standardization. The “flexibility to manage incidents of any size requires coordination and standardization among emergency management/response personnel and their affiliated organizations” (U.S. DHS, 2008, p. 7). As such, in standardization of CEM practices, leaders must be inclusive of all stakeholders. CEM “Procedures and protocols should detail the specific actions to implement a plan or system. All emergency management/response personnel and their affiliated organizations should develop procedures and protocols that translate into specific, action-oriented checklists for use during incident response operations.” (U.S. DHS, 2008, p. 19).

Research related to prior IHE disasters confirm a constant challenge among leaders to communicate with stakeholders before, during and after an event. As with the Virginal Tech shooting incident, historical events identify a lack of involvement among stakeholders in CEM
procedures, policy and prevention planning. Because of this phenomenon, stakeholders limit
their enactment of the environment, leading to multiple interpretations of events, further
compounding miscommunication associated with CEM (Weick, 2001). This challenge becomes
more complex when one considers the unique organizational constructs associated with
individual IHE.

Emergency management research reinforces the reliance of top-down practices required
for successful mitigation, preparedness, response, and recovery practices. Yet, each IHE has a
unique set of characteristics, as noted in the findings, which complicate the integration of these
practices (U.S. D.O.E., 2010). CEM requires clear lines of authority, decision making and
communication. Weick’s *Organizing Theory* (1979) mitigates this concern, noting that in a
decentralized organization it is important to empower stakeholders. This type of organizational
structure requires stakeholder participation, developed through communication competency
(Littlejohn & Jabusch, 1982). The finding reinforce the notion that IHE leaders, using
distributive capacity, can delegate authority to stakeholders to enact the environment for
meaning, enhancing their involvement in CEM leading to improved communication (Weick,
1988). Through consensual validation, stakeholders gain a collective understanding of
events/activities occurring in the environment (Weick, 1988, 2001). Critical to this process is the
effective use of formal and informal communication networks (Hatala & Lutta, 2009). Relevant
plans and technological infrastructure facilitate communication within these networks.

**Principal theme 2: planning and technology.** Planning and technology is defined as
the organizing activities and the required infrastructure to support communication. Findings
conclude that central to effective communication is leaders’ ability to oversee the development
of plans and the utilization of technology required to support CEM. Analysis of planning,
technology, and maintenance requirements associated with the Virginia Tech shooting identified the following opportunities to improve CEM communication:

1. Use of a comprehensive emergency management plan and associated maintenance program.
2. CEM supported by a fully integrated communication network architecture consisting of technology that supports capacity, coverage, and interoperability requirements.

Research identifies a comprehensive emergency management plan (CEMP) as a critical component of CEM and a catalyst for enhanced communication (Massengil, 2007). The CEMP is a means to document practices, structure, and communication protocols associated with CEM. The CEMP is inclusive of stakeholders, framed using national and local guidelines. Research confirms a maintenance program is an essential component of the CEMP (U.S. DHS-FEMA, 2010a).

A synergy exists between a comprehensive plan, maintenance, and technology. A properly maintained all-hazard CEMP, with updated content and protocols, allows for the mitigation of risks, preparedness for crisis, and timely response and recovery capabilities. As noted, the CEMP must be inclusive of stakeholders and contain appropriate training for staff and students during emergencies. Analysis of prior research confirms the need to communicate to all stakeholders, regardless of the language one speaks. Furthermore, the CEMP should include provision to practice the plan. This is accomplished via table top and operational exercises (Massengil, 2007). Emergency management literature supports the fact that maintenance of the CEMP is imperative (Davies, 2007; Thrower et al., 2008; U.S. D.O.E., 2010a). Leaders and stakeholders should review the CEMP content annually and make appropriate updates.

Archival analysis of the Virginia Tech shooting, specifically *The Virginal Tech Panel*
Report identified that the emergency response plan in place at the time of the Virginia Tech shooting was not maintained (Massengil, 2007). The content and protocols were outdated and deficient, contributing to miscommunication among stakeholders, which limited the effectiveness of CEM (Massengil, 2007). The catalyst for the associated miscommunication was identified as equivocality, the inability of stakeholders to enact the environment and establish consensual validation (Weick, 2001).

Consensual validation is the process in which stakeholders gain a common understanding of events by enacting the environment via speech exchange. A properly maintained plan with updated practices and protocols facilitates communication, which is critical to the effectiveness of CEM. Research notes that of the IHEs surveyed after the Virginia Tech shooting, 95% had a plan in place with almost all those requiring additional updates and maintenance. Furthermore, 70% of those surveyed required significant upgrades to their communication network (Giblin et al., 2008).

Furthermore, research confirms a pervasive issue related to the technology supporting communication and information management at IHEs (Butler & Lafreniere, 2010). The archival analysis of the Virginia Tech shooting was consistent with the research, identifying an archaic, outdated communication infrastructure that further contributed to the miscommunication during CEM.

The internal working groups sanctioned by Virginia Tech leadership noted that technological infrastructure designed to facilitate CEM and associated communication requirements must be current and updated. Aligned with appropriate formal and informal communication networks, an integrated technological infrastructure can enhance speech exchanges among stakeholders while limiting equivocality (Weick, 2001). The infrastructure
must have the capacity, coverage and operability to communicate with all stakeholders. The infrastructure must be able to withstand the stresses associated with a crisis, having the capability to facilitate and enhance communication, regardless of the event. As noted in the research findings (Virginia Tech UPIR, 2007b) a fully integrated IP-based system can optimize the technology required to support CEM in a crisis.

**Principal theme 3: policies, procedures and legal knowledge.** Policy, procedural and legal knowledge are defined as the guidelines required for decision-making. Both government and university archival data conclude that CEM policies and procedures generated through leadership oversight and planning provide direction to stakeholders (Massengil, 2007; U.S. DHS-FEMA, 2008). In parallel, federal, state and local laws offer additional guidance. As previously noted, the Virginia Tech emergency plan had a number of policy and procedural issues. Examples include the lack of active shooter procedures and mental health protocols, as well as written policies for emergency notification to stakeholders.

Similarly, archival research of the Virginia Tech event confirm original findings that a gross lack of knowledge associated with privacy laws, and an unwillingness to share student information, existed among key stakeholders. Scholarly analysis associated with privacy laws emphasizes a continued fear among IHEs of institutional liability associated with the sharing private information (Leavitt et al., 2007). The “privacy laws in place at the time of the Virginia Tech shooting provided few legal barriers to disclosure of key information relating to the shooter’s deteriorating mental health condition. Nonetheless, a presumption of nondisclosure permeated the campus” (Brusca & Ram, 2010, p. 167).

Research emphasizes a lack of understanding of the Family Educational Rights and Privacy (FERPA) and Health Insurance Portability and Accountability Act (HIPAA) led to
significant communication gaps (Leavitt et al., 2007). Both laws allowed for information sharing associated with emergencies, yet stakeholders erred on the side of student privacy, leading to communication gaps among key stakeholders (Ramussen & Johnson, 2008).

With the Virginia Tech shooting, a general fear of liability compounded by ambiguous knowledge of the laws, inhibited sensemaking. Stakeholders were unwilling to enact the environment for meaning, comfortable with their inaction. Weick (2001) posits, “Stunted enactment leads to pluralistic ignorance. Each person watches someone else avoid certain procedures, goals, activities, sentences, and pastimes and concludes that this avoidance is motivated by ‘real’ noxiants in the environment” (p. 152). The unwillingness to make sense of these laws affected CEM by stifling communication associated with mitigation and response efforts.

Analysis of policies, procedures, and laws associated with the Virginia Tech shooting identified the following opportunities to improve CEM communication:

1. The CEMP must include updated and relevant policies and procedures that support CEM and the protection of stakeholders.
2. Require training and participation of all stakeholders in campus emergency management.

**Implications for Practice and Recommendations**

With an increasing demand of IHE leaders to keep stakeholders safe, the effectiveness of campus emergency management practices, and associated communication requirements, cannot be understated. This research provides valuable insight for IHE leaders to improve communication associated with each phase of CEM. Moreover, improved communication during mitigation, preparedness, response, and recovery efforts enhances the effectiveness of campus emergency management.
The need for effective campus emergency management (CEM) is well known. However, CEM and associated communication requirements is a difficult concept to understand and implement. The results of this research can be shared with leaders at institutions of higher education and applied to future CEM planning efforts. Leaders are encouraged by the researcher to use the findings to help educate campus stakeholders and inform campus emergency management initiatives.

As findings associated with principal theme 1 suggests, it is important to hold leaders accountable for planning and organization of CEM efforts. Additionally, as noted in the findings of principal theme 2, technological infrastructure designed to facilitate communication with campus stakeholders must be modern and have the capacity to withstand the most egregious crisis. Finally, principal theme 3 reinforces the point that policies, procedures and stakeholder legal knowledge must be updated, maintained and supportive of CEM initiatives.

The following recommendations offer IHE leaders and campus stakeholders a concise list of actions that directly contribute to improved CEM and associated communication. IHE leaders must:

1. As noted with analysis of principal theme 1, structure the organization to meet the needs of staff and students. Specific recommendations include organizational constructs that support threat and vulnerability analysis.

2. As noted with analysis of principal themes 1 and 3, establish a Comprehensive Emergency Management Plan (CEMP) and supporting maintenance plan. Stakeholders at all levels must be included in this process.

3. As noted with analysis of principal theme 2, supply the campus community with a fully integrated communication infrastructure designed to optimize information management.
4. As noted with analysis of principal theme 3, establish a training plan to support stakeholder education related to CEMP protocols.

5. As highlighted by analysis of principal theme 3, in coordination with campus stakeholders, establish clear avenues for learning, interpretation and application of laws associated with university operations.

6. As highlighted by analysis of all three principal themes, in coordination with campus stakeholders, establish a timeline to practice CEM preparedness, mitigation, response, and recovery protocols via tabletop and operational exercises.

Future Research

Although the research findings suggest opportunities for improved CEM communication, as noted in analysis of principal themes one and three, it may be helpful to continue the research to answer the following questions:

1. What specific components would comprise the required campus emergency management training needed for stakeholders?

2. What is the most effective way to deliver stakeholder training?

In addition, future research could include analysis of technological infrastructure utilized by various institutions of higher education (IHE). This study might include IHE chief information/technical officers as well as vendor expert feedback. The goal of this research would be to identify the technological and design requirements needed for optimizing information management and communications linked to campus emergency management.

Another study could involve analysis of various comprehensive emergency management plans, in an effort to create a boilerplate plan that assists IHE leaders in identifying the essential plan components and standardized practices of CEM. It may be important to understand which
components are critical to facilitating communicating with stakeholders.

Lastly, impending research could look at different industries as they relate to emergency management and communication. Specifically, outside of higher education, are there opportunities to learn from leaders and stakeholders in other businesses? The research might involve analysis of a variety of industries consolidated into a summary of best practices to be utilized by organizational leaders and stakeholders.

These questions and additional research focus areas would assist IHE leaders in determining additional opportunities to improve campus emergency management and associated communication requirements.

Conclusion

Communication is an essential component of effective campus emergency management (CEM). Effective communication requires stakeholders be able to enact the environment for meaning, the core of effective communications. Through speech exchange systems, organizations and stakeholders must work to avoid equivocality and gain consensual validation (Weick, 2001).

The archival research of the Virginia Tech shootings, coupled with the literature review and Weick’s *Organizing Theory*, highlight common themes associated with the role of communications during campus emergency management. In regards to the archival analysis of the Virginia Tech shootings, the research uncovered three principal themes that offer opportunities to improve communication during the four phases of CEM. With the implementation of these recommendations, leaders at institutions of higher education will be positioned to communicate before, during, and after a crisis, significantly enhancing the safety and security of the campus community.
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APPENDICES

A. Shooting Victims

B. Major Findings

C. IHE EM Stakeholders

D. Names of Stakeholders Interviewed by Virginia Tech Panel
APPENDIX A - Shooting Victims

Ross A. Alameddine
Hometown: Saugus, Massachusetts
Sophomore, University Studies
Student since fall 2005
Posthumous degree: Bachelor of Arts, English and Foreign Languages/French

Ryan Christopher Clark
Hometown: Martinez, Georgia
Senior, Psychology
Student since fall 2002
Posthumous degrees: Bachelor of Science, Biological Sciences, Bachelor of Arts, English, Bachelor of Science, Psychology

Matthew Gregory Gwaltney
Hometown: Chesterfield, Virginia
Masters student, Environmental Engineering
Student since fall 2001
Posthumous degree: Master of Science, Environmental Engineering

Christopher James Bishop
Residence in Blacksburg
Instructor, Foreign Languages
Joined Virginia Tech on August 10, 2005

Austin Michelle Cloyd
Hometown: Blacksburg, Virginia
Sophomore, Honors Program, International Studies
Student since fall 2006
Posthumous degrees: Bachelor of Arts, Foreign Languages/French, Bachelor of Arts, International Studies

Caitlin Millar Hammaren
Hometown: Westtown, New York
Sophomore, International Studies
Student since fall 2005
Posthumous degree: Bachelor of Arts, International Studies

Brian Roy Bluhm
Hometown: Cedar Rapids, Iowa
Masters student, Civil Engineering
Student since fall 2000
Posthumous degree: Master of Science, Civil Engineering

Kevin P. Granata
Residence in Blacksburg
Professor, Engineering Science and Mechanics
Joined Virginia Tech on January 10, 2003

Jeremy Michael Herbstritt
Hometown: Blacksburg, Virginia
Masters student, Civil Engineering
Rachael Elizabeth Hill
Hometown: Glen Allen, Virginia
Freshman, University Studies
Student since fall 2006
Posthumous degree: Bachelor of Science, Biological Sciences

Jarrett Lee Lane
Hometown: Narrows, Virginia
Senior, Civil Engineering
Student since fall 2003
Posthumous degree: Bachelor of Science, Civil Engineering

Liviu Librescu
Residence in Blacksburg
Professor, Engineering Science and Mechanics
Joined Virginia Tech on September 1, 1985

Emily Jane Hilscher
Hometown: Woodville, Virginia
Freshman, Animal and Poultry Sciences
Student since fall 2006
Posthumous degree: Bachelor of Science, Animal and Poultry Sciences

Matthew Joseph La Porte
Hometown: Dumont, New Jersey
Sophomore, University Studies
Student since fall 2005
Posthumous degree: Bachelor of Arts, Political Science

G. V. Loganathan
Residence in Blacksburg
Professor, Civil and Environmental Engineering
Joined Virginia Tech on December 16, 1981

Partahi Mamora Halomoan Lumbantoruan
Hometown: Blacksburg, Virginia (originally from Indonesia)
Ph.D. student, Civil Engineering
Student since fall 2003
Posthumous degree: Doctor of Philosophy, Civil Engineering

Henry J. Lee
Hometown: Roanoke, Virginia
Sophomore, Computer Engineering
Student since fall 2006
Posthumous degree: Bachelor of Science, Computer Engineering

Lauren Ashley McCain
Hometown: Hampton, Virginia
Freshman, International Studies
Student since fall 2006
Posthumous degree: Bachelor of Arts, International Studies
Jocelyne Couture-Nowak  
Residence in Blacksburg  
Adjunct Professor, Foreign Languages  
Joined Virginia Tech on August 10, 2001

Minal Hiralal Panchal
Hometown: Mumbai, India  
Masters student, Architecture  
Student since fall 2006  
Posthumous degree: Master of Science, Architecture

Michael Steven Pohle, Jr.
Hometown: Flemington, New Jersey  
Senior, Biological Sciences  
Student since fall 2002  
Posthumous degree: Bachelor of Science, Biological Sciences

Daniel Patrick O’Neil
Hometown: Lincoln, Rhode Island  
Masters student, Environmental Engineering  
Student since fall 2006  
Posthumous degree: Master of Science, Environmental Engineering

Daniel Alejandro Perez
Hometown: Woodbridge, Virginia  
Sophomore, International Studies  
Student since summer 2006  
Posthumous degree: Bachelor of Arts, International Studies

Julia Kathleen Pryde
Hometown: Blacksburg, Virginia  
Masters student, Biological Systems Engineering  
Student since fall 2001  
Posthumous degree: Master of Science, Biological Systems Engineering

Juan Ramon Ortiz-Ortiz
Hometown: Blacksburg, Virginia  
Masters student, Civil Engineering  
Student since fall 2006  
Posthumous degree: Master of Science, Civil Engineering

Erin Nicole Peterson
Hometown: Centreville, Virginia  
Freshman, International Studies  
Student since fall 2006  
Posthumous degree: Bachelor of Arts, International Studies

Mary Karen Read
Hometown: Annandale, Virginia  
Freshman, Interdisciplinary Studies  
Student since fall 2006  
Posthumous degree: Bachelor of Arts, Interdisciplinary Studies

Reema Joseph Samaha
Hometown: Centreville, Virginia
Maxine Shelly Turner

Hometown: Vienna, Virginia
Senior, Honors Program, Chemical Engineering
Student since fall 2003
Posthumous degree: Bachelor of Science, Chemical Engineering

Waleed Mohamed Shaalan

Hometown: Blacksburg, Virginia (originally from Egypt)
Ph.D. student, Civil Engineering
Student since fall 2006
Posthumous degree: Doctor of Philosophy, Civil Engineering

Nicole Regina White

Hometown: Smithfield, Virginia
Sophomore, International Studies
Student since fall 2004
Posthumous degree: Bachelor of Arts, International Studies

Leslie Geraldine Sherman

Hometown: Springfield, Virginia
Junior, Honors Program, History
Student since fall 2005
Posthumous degrees: Bachelor of Arts, History, Bachelor of Arts, International Studies

APPENDIX B – Virginia Tech Panel Summary of Key Findings

On April 16, 2007, Seung Hui Cho, an angry and disturbed student, shot to death 32 students and faculty of Virginia Tech, wounded 17 more, and then killed himself. The incident horrified not only Virginians, but people across the United States and throughout the world. Tim Kaine, Governor of the Commonwealth of Virginia, immediately appointed a panel to review the events leading up to this tragedy; the handling of the incidents by public safety officials, emergency services providers, and the university; and the services subsequently provided to families, survivors, caregivers, and the community.

The Virginia Tech Review Panel reviewed several separate but related issues in assessing events leading to the mass shootings and their aftermath:

- The life and mental health history of Seung Hui Cho, from early childhood until the weeks before April 16.
- Federal and state laws concerning the privacy of health and education records.
- Cho's purchase of guns and related gun control issues.
- The double homicide at West Ambler Johnston (WAI) residence hall and the mass shootings at Norris Hall, including the responses of Virginia Tech leadership and the actions of law enforcement officers and emergency responders.
- Emergency medical care immediately following the shootings, both onsite at Virginia Tech and in cooperating hospitals.
- The work of the Office of the Chief Medical Examiner of Virginia.
- The services provided for surviving victims of the shootings and others injured, the families and loved ones of those killed and injured, members of the university community, and caregivers.

The panel conducted over 200 interviews and reviewed thousands of pages of records, and reports the following major findings:

1. Cho exhibited signs of mental health problems during his childhood. His middle and high schools responded well to these signs and, with his parents' involvement, provided services to address his issues. He also received private psychiatric treatment and counseling for selective mutism and depression. In 1999, after the Columbine shootings, Cho’s middle school teachers observed suicidal and homicidal ideations in his writings and recommended psychiatric counseling, which he received. It was at this point that he received medication for a short time. Although Cho’s parents were aware that he was troubled at this time, they state they did not specifically know that he thought about homicide shortly after the 1999 shootings.

2. During Cho's junior year at Virginia Tech, numerous incidents occurred that were clear warnings of mental instability. Although various individuals and departments within the university knew about each of these incidents, the university did not intervene effectively. No one knew all the information and no one connected all the dots.

3. University officials in the office of Judicial Affairs, Cook Counseling Center, campus police, the Dean of Students, and others explained their failures to communicate with one
another, or with Cho’s parents, by noting their belief that such communications are prohibited by the federal laws governing the privacy of health and education records. In reality, federal laws and their state counterparts afford ample leeway to share information in potentially dangerous situations.

4. The Cook Counseling Center and the university’s Care Team failed to provide needed support and services to Cho during a period in late 2005 and early 2006. The system failed for lack of resources, incorrect interpretation of privacy laws, and passivity. Records of Cho’s minimal treatment at Virginia Tech’s Cook Counseling Center are missing.

5. Virginia’s mental health laws are flawed and services for mental health users are inadequate. Lack of sufficient resources result in gaps in the mental health system including short-term crisis stabilization and comprehensive outpatient services. The involuntary commitment process is challenged by unrealistic time constraints, lack of critical psychiatric data and collateral information, and barriers (perceived or real) to open communications among key professionals.

6. There is widespread confusion about what federal and state privacy laws allow. Also, the federal laws governing records of health care provided in educational settings are not entirely compatible with those governing other health records.

7. Cho purchased two guns in violation of federal law. The fact that in 2005 Cho had been judged to be a danger to himself and ordered to outpatient treatment made him ineligible to purchase a gun under federal law.

8. Virginia is one of only 22 states that report any information about mental health to a federal database used to conduct background checks on would-be gun purchasers. But Virginia law did not clearly require that persons such as Cho—who had been ordered into outpatient treatment but not committed to an institution—be reported to the database. Governor Kaine’s executive order to report all persons involuntarily committed for outpatient treatment has temporarily addressed this ambiguity in state law, but a change is needed in the Code of Virginia as well.

9. Some Virginia colleges and universities are uncertain about what they are permitted to do regarding the possession of firearms on campus.

10. On April 16, 2007, the Virginia Tech and Blacksburg police departments responded quickly to the report of shootings at West Ambler Johnston residence hall, as did the Virginia Tech and Blacksburg rescue squads. Their responses were well coordinated.

11. The Virginia Tech police may have erred in prematurely concluding that their initial lead in the double homicide was a good one, or at least in conveying that impression to university officials while continuing their investigation. They did not take sufficient action to deal with what might happen if the initial lead proved erroneous. The police reported to the university emergency Policy Group that the "person of interest" probably was no longer on campus.
12. The Virginia Tech PD erred in not requesting that the Policy Group issue a campus-wide notification that two persons had been killed and that all students and staff should be cautious and alert.

13. Senior university administrators, acting as the emergency Policy Group, failed to issue an all-campus notification about the WAJ killings until almost 2 hours had elapsed. University practice may have conflicted with written policies.

14. The presence of large numbers of police at WAJ led to a rapid response to the first 9-1-1 call that shooting had begun at Norris Hall.

15. Cho’s motives for the WAJ or Norris Hall shootings are unknown to the police or the panel. Cho’s writings and videotaped pronouncements do not explain why he struck when and where he did.

16. The police response at Norris Hall was prompt and effective, as was triage and evacuation of the wounded. Evacuation of others in the building could have been implemented with more care.

17. Emergency medical care immediately following the shootings was provided very effectively and timely both onsite and at the hospitals, although providers from different agencies had some difficulty communicating with one another. Communication of accurate information to hospitals standing by to receive the wounded and injured was somewhat deficient early on. An emergency operations center at Virginia Tech could have improved communications.

18. The Office of the Chief Medical Examiner properly discharged the technical aspects of its responsibility (primarily autopsies and identification of the deceased). Communication with families was poorly handled.

19. State systems for rapidly deploying trained professional staff to help families get information, crisis intervention, and referrals to a wide range of resources did not work.

20. The university established a family assistance center at The Inn at Virginia Tech, but it fell short in helping families and others for two reasons: lack of leadership and lack of coordination among service providers. University volunteers stepped in but were not trained or able to answer many questions and guide families to the resources they needed.

21. 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.

As reflected in the body of the report, the panel has made more than 70 recommendations directed to colleges, universities, mental health providers, law enforcement officials, emergency service providers, law makers, and other public officials in Virginia and elsewhere.

### APPENDIX C – IHE EM Stakeholders

<table>
<thead>
<tr>
<th>College or University Department*</th>
<th>Illustrative Department Contributions</th>
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</thead>
</table>
| Academic Affairs                  | • Develop procedures to communicate with and account for teaching faculty in an emergency situation.  
                                       • Develop plans to identify alternate facilities where institution activities can be conducted in the event of the destruction, disablement, or denial or lack of access to existing facilities  
                                       • Identify and prioritize critical support services and systems  
                                       • Identify and ensure recovery of critical assets |
| Business Office                    | • Develop the processes and procedures for tracking employees’ time and issuing paychecks during disaster operations  
                                       • Develop procedures for procuring emergency resources for responding to and recovering from emergencies  
                                       • Develop the process for documenting the financial cost of emergency response and recovery operations  
                                       • Develop a Business Continuity Plan (BCP) |
| Central Administration or Designee| • Provide resources and leadership support to drive the initiative  
                                       • Develop procedures for declaring an emergency  
                                       • Identify alternate administrative facilities  
                                       • Develop procedures for increasing public information efforts  
                                       • Develop and coordinate procedures for recruiting volunteers and additional staff  
                                       • Develop procedures to coordinate and approve volunteers and manage donations during an emergency  
                                       • Develop a Continuity of Operations Plan (COOP) |
| Counseling and Mental Health Services | • Identify and train appropriate staff to provide developmentally and culturally appropriate mental health services  
                                           • Train mental health staff on specific interventions  
                                           • Provide basic training on available resources and common reactions to trauma for all staff (including administrators)  
                                           • Train teachers and other staff on early warning signs of potentially dangerous individuals  
                                           • Assemble and train crisis recovery teams  
                                           • Identify both internal and external partners (consider local mental health agencies who may be able to assist, and develop a structure for support) and develop partnership agreements  
                                           • Develop template letters (that can be tailored) for alerting students, parents, families, staff, and the community to emergencies |
| Emergency Medical Services | • Develop and coordinate procedures for mobilizing resources needed for significant, longer-term emergencies  
• Identify sources for mutual aid agreements and assistance |
| Environmental Health and Safety | • Participate in vulnerability and hazard assessments  
• Review and update office standard operating procedures to align with the campus emergency management plan  
• Develop procedures for pre-positioning resources and equipment  
• Review and update processes and procedures for state and federal disaster declaration requests  
• Develop, review, and update state and federally required environmental emergency response plans, including management procedures for the plans  
• Coordinate with public safety operations (see next entry) to develop process and procedures for increasing public information  
• Provide warning system information |
| Facilities and Operations | • Participate in vulnerability and hazard assessments  
• Provide floor plans with room layout, electrical sources, and entrance and exit points for all campus buildings  
• Develop procedures for pre-positioning resources and equipment  
• Identify sources for mutual aid agreements and assistance |
| Food Services | • Identify possible threats and mitigation strategies relating to food safety  
• Develop procedures for providing food to students, staff, faculty, and community partners during a major emergency  
• Develop mutual aid agreements for obtaining, preparing, and distributing food |
| Health Services | • Develop procedures to determine if there are adequate supplies and equipment to triage for an emergency and to support community health partners  
• Develop procedures for mobilizing personnel on campus and at external sites  
• Develop procedures for developing mutual aid agreements  
• Develop pandemic flu and infectious disease plans  
• Develop system for disease surveillance and tracking  
• Coordinate with local and state public health partners |
| Human Resources | • Develop plans to maintain the continuity of payroll, together with the business office (see above), during an emergency  
• Develop plans to maintain employee benefit services during an emergency |
| Information Technology | • Develop plans to hire or replace staff with temporary employees, if needed  
• Develop plans to serve as the liaison, or organizer, or both, of volunteer assistance in the event of an emergency  
• Prepare to execute components of the COOP relating to staffing, including assessing faculty and staff availability, appropriation of personnel, and assisting employees with work-recovery needs (e.g., psychological help, time off for personal needs).  
• Develop procedures and systems for checking critical information and alert systems to disseminate emergency information via Web site, cell phone, e-mail, and other mechanisms.  
• Identify IT resources needed to facilitate the emergency operations of all campus departments  
• Identify need for and sources of emergency communication devices (e.g., ham radios, cell phones)  
• Develop plans to continue academic programs that significantly use technology for teaching purposes |
| Legal Counsel | • Provide legal counsel on campus liability to key decision makers  
• Coordinate investigations completed by community partners  
• Review messages drafted by PIO  
• Ensure that all campus and community actions are documented with a rationale for the action  
• Develop procedures for coordinating with all departments to provide unified and factual messages to students, staff, faculty, families, and the media using multiple modalities  
• Develop pre-agreements with the media concerning debriefings and media holding areas during an emergency  
• Designate a campus spokesperson |
| Public Information Office (PIO) | • Develop procedures for reviewing and updating emergency management plan  
• Develop procedures for facilities and equipment, including testing systems  
• Develop procedures for mobilizing department of public safety personnel and pre-positioning resources and equipment  
• Develop a process for managing incidents at the field level using the Incident Command System  
• Develop a process for communicating with and directing the central dispatch center, including the activation of the Emergency Contact List  
• Develop procedures to warn threatened elements of the population  
• Ensure that hazardous material procedures are consistent with the state
<table>
<thead>
<tr>
<th>Residential Life</th>
<th>and local environmental safety hazardous materials plans</th>
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<tbody>
<tr>
<td></td>
<td>• Develop procedures to coordinate the need for on-campus housing, temporary shelters, and temporary off-campus housing locations</td>
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<td>• Develop procedures for mobilizing residential life personnel and prepositioning resources</td>
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<td></td>
<td>• Develop an on-call staffing system to ensure staff are available at all times</td>
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<td>• Develop procedures for identifying resident students in need of emergency evacuation assistance</td>
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<td></td>
<td>• Develop procedures for the evacuation and temporary shelter accommodations for resident students</td>
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<td>• Develop procedures for checking residential facilities and equipment</td>
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<tr>
<td>Student Affairs (To Include Students &amp; Parents)</td>
<td>• Develop procedures for checking student affairs facilities and equipment, including those relating to on-campus recreation, student organizations, on-campus employment, community service, and volunteerism</td>
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<tr>
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<td>• Develop procedures for addressing the needs of students living in Greek housing or off-campus facilities</td>
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<td>• Develop procedures for pre-positioning resources to maintain functioning of such campus elements as career services and student government</td>
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<td>• Develop mutual aid agreements and pre-negotiate services for goods and services in the event of an emergency</td>
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<td></td>
<td>• Ensure that all items under the <em>Americans with Disabilities Act</em> are considered throughout the planning and implementation of the emergency management plan</td>
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<td></td>
<td>• Ensure that the plan is accessible to students whose primary language is not English</td>
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<td></td>
<td>• Develop parent or family notification procedures</td>
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<tr>
<td>Transportation</td>
<td>• Develop procedures for mobilizing campus wide transportation for an emergency and for maintaining control of traffic from private vehicles</td>
</tr>
<tr>
<td></td>
<td>• Develop evacuation procedures from various campus locales</td>
</tr>
</tbody>
</table>

APPENDIX D - Individuals Interviewed by Virginia Tech Panel

The Virginia Tech Review Panel conducted more than 200 interviews. The interviewees included family members of victims; injured victims; students; and individuals from universities, law enforcement, hospitals, mental health organizations, courts, and schools. During the course of the review, the interviews were conducted in person, through public meetings, by phone, and through group meetings. A number of people were interviewed multiple times. The panel wishes to express its appreciation to everyone who graciously provided their time and comments to this undertaking.

**Virginia Tech**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position/Department</th>
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<tbody>
<tr>
<td>Carl Bean, English Department Faculty</td>
<td></td>
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<tr>
<td>Cathy Griffin Betzel Cook Counseling Center</td>
<td></td>
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<tr>
<td>Erv Blythe Vice President for Information Technology</td>
<td></td>
</tr>
<tr>
<td>Tom Brown Dean of Students</td>
<td></td>
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<tr>
<td>Sherry K. Lynch Conrad Cook Counseling Center</td>
<td></td>
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<tr>
<td>Fred D’Aguilar English Department Faculty</td>
<td></td>
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<tr>
<td>Ed Falco English Department Faculty</td>
<td></td>
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<tr>
<td>Christopher Flynn, MD Director, Cook Counseling Center</td>
<td></td>
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<tr>
<td>Davis R. Ford Vice Provost for Academic Affairs</td>
<td></td>
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<tr>
<td>Nikki Giovanni English Department Faculty</td>
<td></td>
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<tr>
<td>Kay Heidbreder University Counsel</td>
<td></td>
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<tr>
<td>Bob Hicok English Department Faculty</td>
<td></td>
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<tr>
<td>Zenobia Lawrence Hikes Vice President for Student Affairs</td>
<td></td>
</tr>
<tr>
<td>Lawrence G. Hincker Associate Vice President for University Relations</td>
<td></td>
</tr>
<tr>
<td>Maggie Holmes Manager, West Ambler Johnston Hall</td>
<td></td>
</tr>
<tr>
<td>Jim Hyatt Vice President and Chief Operating Officer</td>
<td></td>
</tr>
<tr>
<td>Frances Keene Director, Judicial Affairs</td>
<td></td>
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<tr>
<td>Gail Kirby Faculty in Norris Hall</td>
<td></td>
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<tr>
<td>Judy Lilly Associate Vice President</td>
<td></td>
</tr>
<tr>
<td>Heidi McCoy Director of Administrative Operations, News and External Relations</td>
<td></td>
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<tr>
<td>Jim McCoy Capital Design and Construction</td>
<td></td>
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<tr>
<td>Lenwood McCoy Liaison of University President to Panel</td>
<td></td>
</tr>
<tr>
<td>Jennifer Mooney Coordinator Undergraduate Counseling</td>
<td></td>
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<tr>
<td>Jerome Niles Dean, College of Liberal Arts and Human Sciences</td>
<td></td>
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<tr>
<td>Lisa Norris English Department Faculty</td>
<td></td>
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<tr>
<td>Lynn Nystrom Director, News and External Relations, College of Engineering</td>
<td></td>
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<tr>
<td>Ishwar Puri Chairman, Engineering Mechanics Dept.</td>
<td></td>
</tr>
<tr>
<td>Kerry J. Redican President, Faculty Senate</td>
<td></td>
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<tr>
<td>Lucinda Roy Past Chair, English Department</td>
<td></td>
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<tr>
<td>Carolyn Rude Chair, English Department</td>
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<tr>
<td>Joe Schetz Aerospace and Ocean Engineering Faculty</td>
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<td>Name</td>
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<tr>
<td>Maisha Marie Smith</td>
<td>Cook Counseling Center</td>
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<tr>
<td>Ed Spencer</td>
<td>Faculty in Norris Hall</td>
</tr>
<tr>
<td>Charles Steger</td>
<td>President</td>
</tr>
<tr>
<td><strong>Other Universities and Colleges</strong></td>
<td></td>
</tr>
<tr>
<td>Richard Alvarez</td>
<td>Chief Financial Officer, Hollins University</td>
</tr>
<tr>
<td>Grant Azdell</td>
<td>College Chaplain, Lynchburg College</td>
</tr>
<tr>
<td>Mary Ann Bergeron</td>
<td>Virginia Community Services Board</td>
</tr>
<tr>
<td>Walter Bortz</td>
<td>President, Hampden-Sydney College</td>
</tr>
<tr>
<td>William Brady</td>
<td>MD University of Virginia, Department of Emergency Medicine</td>
</tr>
<tr>
<td>William Thomas Burnett</td>
<td>MD University of Virginia, Medical Director of the Virginia State</td>
</tr>
<tr>
<td>Police Division 6 SWAT Team</td>
<td></td>
</tr>
<tr>
<td>Valerie J. Cushman</td>
<td>Athletic Director, Randolph College</td>
</tr>
<tr>
<td>Susan Davis</td>
<td>University of Virginia, Special Advisor/Liaison to the General Counsel, Office of the Vice President for Student Affairs</td>
</tr>
<tr>
<td>Chris Domes</td>
<td>Chief Admissions Officer, Marymount University</td>
</tr>
<tr>
<td>Roy Ferguson</td>
<td>Executive Assistant to the President, Bridgewater College</td>
</tr>
<tr>
<td>Pamela Fox</td>
<td>President, Mary Baldwin College</td>
</tr>
<tr>
<td>Ken Garren</td>
<td>President, Lynchburg College</td>
</tr>
<tr>
<td>Nancy Gray</td>
<td>President, Hollins University</td>
</tr>
<tr>
<td>Robert B. Lambeth</td>
<td>President, Council of Independent Colleges in Virginia</td>
</tr>
<tr>
<td>Robert Lindgren</td>
<td>President, Randolph-Macon College</td>
</tr>
<tr>
<td>Greg McMillan</td>
<td>Executive Assistant to President, Emory and Henry College</td>
</tr>
<tr>
<td>Katherine M. Loring</td>
<td>Vice President for Administration, Virginia Wesleyan College</td>
</tr>
<tr>
<td>Courtney Penn</td>
<td>Special Assistant to the President, Roanoke College</td>
</tr>
<tr>
<td>Herb Peterson</td>
<td>Vice President for Business and Finance, University of Richmond</td>
</tr>
<tr>
<td>Richard Pfau</td>
<td>President, Averett University</td>
</tr>
<tr>
<td>Jeff Phillips</td>
<td>Director of Administrative Services, Ferrum College</td>
</tr>
<tr>
<td>Michael Puglisi</td>
<td>President, Virginia Intermont College</td>
</tr>
<tr>
<td>Robert Reiser</td>
<td>MD Department of Emergency Medicine, University of Virginia</td>
</tr>
<tr>
<td>James C. Renick</td>
<td>Senior Vice President, American Council on Education</td>
</tr>
<tr>
<td>Robert Satcher</td>
<td>President, Saint Paul’s College</td>
</tr>
<tr>
<td>LeeAnn Shank</td>
<td>General Counsel, Washington and Lee University</td>
</tr>
<tr>
<td>Wesley Shinn</td>
<td>Dean, Appalachian School of Law</td>
</tr>
<tr>
<td>Douglas Southard</td>
<td>Provost, Jefferson College of Health Sciences</td>
</tr>
<tr>
<td>Phil Stone</td>
<td>President, Bridgewater College</td>
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<tr>
<td>Loren Swartzendruber</td>
<td>President, Eastern Mennonite University</td>
</tr>
<tr>
<td>Melvin C. Terrell</td>
<td>Vice President of Student Affairs, Northeastern Illinois University</td>
</tr>
<tr>
<td>Madelyn Wessel</td>
<td>Special Advisor/Liaison to the General Counsel and Chair, Psychological Assessment Board, University of Virginia</td>
</tr>
<tr>
<td>Name</td>
<td>Position and Organization</td>
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<tr>
<td>-----------------------------------------------------------</td>
<td>----------------------------------------------------------------</td>
</tr>
<tr>
<td>William Woods, MD</td>
<td>Department of Emergency Medicine, University of Virginia</td>
</tr>
<tr>
<td>Andrea Zuschin</td>
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<tr>
<td>Robert M. Berdahl</td>
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<tr>
<td>Susan Chilcott</td>
<td>Vice President for Communications, American Association of State Colleges and Universities</td>
</tr>
<tr>
<td>Charles L. Currie</td>
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</tr>
<tr>
<td>Benjamin F. Quillian</td>
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<td>James C. Renick</td>
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<tr>
<td>David Ward</td>
<td>President, American Council on Education</td>
</tr>
<tr>
<td><strong>Law Enforcement</strong></td>
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<tr>
<td>Donald J. Ackerman</td>
<td>Assistant Special Agent-in-Charge, FBI Criminal Division (NY)</td>
</tr>
<tr>
<td>Joseph Alberts</td>
<td>Captain, Virginia Tech Police Department</td>
</tr>
<tr>
<td>Richard Ault</td>
<td>Supervisory Special Agent for the FBI, (ret.), Academy Group Inc.</td>
</tr>
<tr>
<td>Kenneth Baker</td>
<td>Supervisory Special Agent for the FBI, U.S. Secret Service (ret.), Academy Group Inc., Manassas, Virginia</td>
</tr>
<tr>
<td>Ed Bracht</td>
<td>Director of Security, Hofstra University</td>
</tr>
<tr>
<td>David Cardona</td>
<td>Special Agent-in-Charge, FBI Criminal Division (NY)</td>
</tr>
<tr>
<td>Rick Cederquist</td>
<td>Counter-Terrorism Coordinator, Union County (NJ) Sheriff's Office</td>
</tr>
<tr>
<td>Don Challis</td>
<td>Chief, College of William and Mary Police Department</td>
</tr>
<tr>
<td>Kim Crannis</td>
<td>Chief, Blacksburg Police Department</td>
</tr>
<tr>
<td>Lenny Depaul</td>
<td>U.S. Marshal's Service (NY/NJ), Fugitive Task Force</td>
</tr>
<tr>
<td>Robert C. Dillard</td>
<td>Chief, University of Richmond Police Department and President, Virginia Association of Chiefs of Police</td>
</tr>
<tr>
<td>Jonathan Duecker</td>
<td>Assistant Commissioner, New York Police Department</td>
</tr>
<tr>
<td>Chuck Eaton</td>
<td>Special Agent, Salem, Virginia, Virginia State Police</td>
</tr>
<tr>
<td>Samuel Feemster</td>
<td>Supervisory Special Agent for the FBI, Behavioral Science Unit</td>
</tr>
<tr>
<td>Martin D. Ficke</td>
<td>SES Resources International/ Special Agent-in-Charge (ret.) Immigration and Customs Enforcement (NY)</td>
</tr>
<tr>
<td>W. Steve Flaherty</td>
<td>Superintendent, Virginia State Police</td>
</tr>
<tr>
<td>Wendell Flinchum</td>
<td>Chief, Virginia Tech Police Department</td>
</tr>
<tr>
<td>Kevin Foust</td>
<td>Supervisory Special Agent for the FBI, Roanoke, Virginia</td>
</tr>
<tr>
<td>Vincent Giardani</td>
<td>New York Police Department Counter-Terrorism Division</td>
</tr>
<tr>
<td>Richard Gibson</td>
<td>Chief, University of Virginia Police Department</td>
</tr>
<tr>
<td>Christopher Giovino</td>
<td>SES Resources/Dempsey Myers Co.</td>
</tr>
<tr>
<td>Ray Harp</td>
<td>SWAT Team Commander and Homicide Detective, Arlington County (Virginia) Police Department (ret.)</td>
</tr>
<tr>
<td>Charles Kammerdener</td>
<td>New York Police Department, Special Operations Division</td>
</tr>
<tr>
<td>Name</td>
<td>Title and Affiliation</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
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<tr>
<td>Robert Kemmler</td>
<td>Lt. Col., Virginia State Police; Deputy Director, Bureau of Administration and Support Service</td>
</tr>
<tr>
<td>Kenneth Lanning</td>
<td>Supervisory Special Agent for the FBI (ret.)</td>
</tr>
<tr>
<td>Jeff Lee</td>
<td>Active Shooter Training Program, International Tactical Officers Organization</td>
</tr>
<tr>
<td>Stephen Mardigian</td>
<td>Supervisory Special Agent for the FBI (ret.), Academy Group Inc.</td>
</tr>
<tr>
<td>George Marshall</td>
<td>New York State Police</td>
</tr>
<tr>
<td>Raymond Martinez</td>
<td>New York Police Department Counter-Terrorism Division</td>
</tr>
<tr>
<td>Bart McEntire</td>
<td>Resident Agent-in-Charge, Bureau of Alcohol, Tobacco, Firearms and Explosives, Roanoke, Virginia</td>
</tr>
<tr>
<td>William McMahon</td>
<td>Special Agent-in-Charge, Bureau of Alcohol, Tobacco, Firearms and Explosives, Roanoke, Virginia</td>
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<tr>
<td>Ken Middleton</td>
<td>High-Intensity Drug Traffic Agency (NY/NJ)</td>
</tr>
<tr>
<td>Terrence Modglin</td>
<td>Executive Director, College Crime Watch</td>
</tr>
<tr>
<td>Andrew Mulrain</td>
<td>Nassau County, New York Police Department.</td>
</tr>
<tr>
<td>Chauncey Parker</td>
<td>Director, High-Intensity Drug Traffic Agency (NY/NJ)</td>
</tr>
<tr>
<td>Robert Patnaude</td>
<td>Captain, New York State Police</td>
</tr>
<tr>
<td>Alfred Perales</td>
<td>Sergeant, University of Illinois Police Department, Chicago, IL</td>
</tr>
<tr>
<td>Kevin Ponder</td>
<td>Special Agent, FBI Criminal Division (NY)</td>
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<tr>
<td>David Resch</td>
<td>Chief, Behavioral Analysis Unit, FBI, Quantico, Virginia</td>
</tr>
<tr>
<td>Anthony Rocco</td>
<td>Nassau County, New York Police Department.</td>
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<tr>
<td>Jill Roark</td>
<td>Terrorism and Special Jurisdiction, Victim Assistance Coordinator, Federal Bureau of Investigation</td>
</tr>
<tr>
<td>Bradley D. Schnur</td>
<td>Esq. President, SES Resources International Inc.</td>
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<tr>
<td>Dennis Schnur</td>
<td>Chairman, Police Foundation of Nassau County Inc.</td>
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<tr>
<td>Andre Simons</td>
<td>Supervisory Special Agent for the FBI, Behavioral Analysis Unit, Quantico, Virginia</td>
</tr>
<tr>
<td>Sean Smith</td>
<td>Sergeant, Emergency Response Team Virginia Tech Police Department</td>
</tr>
<tr>
<td>Philip C. Spinelli</td>
<td>Union County, New Jersey Office of Counter-Terrorism</td>
</tr>
<tr>
<td>Matt Sullivan</td>
<td>Detective/Lt. Suffolk County, New York Police and Hostage Negotiation Team</td>
</tr>
<tr>
<td>Bob Sweeney</td>
<td>Lieutenant, Suffolk County, New York Police Emergency Services Bureau</td>
</tr>
<tr>
<td>Thomas Turner</td>
<td>Director of Security, Roanoke College</td>
</tr>
<tr>
<td>Shaun F. VanSlyke</td>
<td>Supervisory Special Agent for the FBI, Behavioral Analysis Unit, Quantico, Virginia</td>
</tr>
<tr>
<td>Anthony Wilson</td>
<td>Sergeant, Emergency Response Team, Blacksburg Police Department</td>
</tr>
<tr>
<td>Jason Winkle</td>
<td>President, Active Shooter Training Program, International Tactical Officers Organization</td>
</tr>
<tr>
<td>Joan Yale</td>
<td>Nassau County, New York Police Department.</td>
</tr>
</tbody>
</table>

**Families of Victims**

Mrs. Alameddine Mother of Ross Alameddine
<table>
<thead>
<tr>
<th>Name</th>
<th>Relationship</th>
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<tbody>
<tr>
<td>Stephanie Hofer</td>
<td>Wife of Christopher James Bishop</td>
</tr>
<tr>
<td>Mr. and Mrs. Dennis Bluhm</td>
<td>Parents of Brian Roy Bluhm</td>
</tr>
<tr>
<td>Mr. and Mrs. Cloyd</td>
<td>Parents of Austin Michelle Cloyd</td>
</tr>
<tr>
<td>Mrs. Patricia Craig</td>
<td>Aunt to Ryan Christopher Clark</td>
</tr>
<tr>
<td>Ms. Betty Cuevas</td>
<td>Mother of Daniel Alejandro Perez</td>
</tr>
<tr>
<td>Mrs. Linda Granata</td>
<td>Wife of Kevin P. Granata</td>
</tr>
<tr>
<td>Mr. Gregory Gwaltney</td>
<td>Father of Matthew Gregory Gwaltney</td>
</tr>
<tr>
<td>Ms. Lori Haas</td>
<td>Mother of Emily Haas</td>
</tr>
<tr>
<td>Marian Hammaren and Chris Poote</td>
<td>Father and Stepfather of Caitlin Millar Hammaren</td>
</tr>
<tr>
<td>Mr. John Hammaren</td>
<td>Father of Caitlin Millar Hammaren</td>
</tr>
<tr>
<td>Mr. Michael Herbstritt</td>
<td>Father of Jeremy Michael Herbstritt</td>
</tr>
<tr>
<td>Mr. and Mrs. Eric Hilscher</td>
<td>Parents of Emily Jane Hilscher</td>
</tr>
<tr>
<td>Mrs. Tracey Lane</td>
<td>Mother of Jarret Lee Lane</td>
</tr>
<tr>
<td>Mr. Jerzy Nowak</td>
<td>Husband of Jocelyne Couture-Nowak</td>
</tr>
<tr>
<td>Mr. William O’Neil</td>
<td>Father of Daniel Patrick O’Neil</td>
</tr>
<tr>
<td>Mrs. Celeste Peterson</td>
<td>Mother of Erin Nicole Peterson</td>
</tr>
<tr>
<td>Mr. and Mrs. Larry Pryde</td>
<td>Parents of Julia Kathleen Pryde</td>
</tr>
<tr>
<td>Mr. and Mrs. Peter Read</td>
<td>Parents of Mary Karen Read</td>
</tr>
<tr>
<td>Mr. and Mrs. Joseph Samaha</td>
<td>Parents of Reema Joseph Samaha</td>
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<tr>
<td>Mrs. Holly Adams-Sherman</td>
<td>Mother of Leslie Geraldine Sherman</td>
</tr>
<tr>
<td>Mr. Girish Suratkal</td>
<td>Brother of Minal Hiralal Panchal</td>
</tr>
<tr>
<td>Mr. and Mrs. Paul Turner</td>
<td>Parents of Maxine Shelly Turner</td>
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<tr>
<td>Ms. Liselle Vega-Coates Ortiz</td>
<td>Wife of Juan Ramon Ortiz</td>
</tr>
<tr>
<td>Mr. and Mrs. White</td>
<td>Parents of Nicole Regina White</td>
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<tr>
<td><strong>Cho Family</strong></td>
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<tr>
<td>Mr. and Mrs. Cho</td>
<td>Parents of Seung Hui Cho</td>
</tr>
<tr>
<td>Sun Cho</td>
<td>Sister of Seung Hui Cho</td>
</tr>
<tr>
<td>Wade Smith</td>
<td>Attorney at Law, Tharrington Smith, Raleigh, NC; Advisor, Friend to Cho Family</td>
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<td><strong>Injured Victims and Their Families</strong></td>
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</tr>
<tr>
<td>Alec Calhoun</td>
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</tr>
<tr>
<td>Colin Goddard</td>
<td>Student, Virginia Tech</td>
</tr>
<tr>
<td>Suzanne Grimes</td>
<td>Mother of Kevin Sterne</td>
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<tr>
<td>Emily Haas</td>
<td>Student, Virginia Tech</td>
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<tr>
<td>Jeremy Kirkendall</td>
<td>Virginia National Guard</td>
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<tr>
<td>Mrs. Miller</td>
<td>Mother of Heidi Miller</td>
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<tr>
<td>Erin Sheehan</td>
<td>Student, Virginia Tech</td>
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<tr>
<td><strong>Rescue Squads</strong></td>
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<tr>
<td>Allan Belcher</td>
<td>Carilion Patient Transportation Services</td>
</tr>
<tr>
<td>Sidney Bingley</td>
<td>Blacksburg Volunteer Rescue Squad</td>
</tr>
<tr>
<td>Name</td>
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<tr>
<td>William W. Booker IV</td>
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<tr>
<td>Charles Coffelt</td>
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<tr>
<td>Paul Davenport</td>
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<td>Jeremy Davis</td>
<td>Virginia Tech Rescue Squad</td>
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<tr>
<td>Jason Dominiczak</td>
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<tr>
<td>Kevin Hamm</td>
<td>Christiansburg Rescue Squad</td>
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<tr>
<td>Matthew Johnson</td>
<td>Captain, Virginia Tech Rescue Squad</td>
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<tr>
<td>Tom Lovejoy</td>
<td>Blacksburg Volunteer Rescue Squad</td>
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<tr>
<td>Alisa Nussman</td>
<td>Virginia Tech Rescue Squad</td>
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<tr>
<td>John O’Shea</td>
<td>Blacksburg Volunteer Rescue Squad</td>
</tr>
<tr>
<td>Neil Turner</td>
<td>Montgomery County EMS Coordinator</td>
</tr>
<tr>
<td>Colin Whitmore</td>
<td>Virginia Tech Rescue Squad</td>
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**Hospitals**

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<tbody>
<tr>
<td>Carole Agee</td>
<td>Legal Counsel, Carilion Hospital</td>
</tr>
<tr>
<td>Deborah Akers</td>
<td>Lewis-Gale Medical Center</td>
</tr>
<tr>
<td>Pat Campbell</td>
<td>Director of Nursing, New River Valley Medical Center</td>
</tr>
<tr>
<td>Candice Carroll</td>
<td>Chief Nursing Officer, Lewis–Gale Medical Center</td>
</tr>
<tr>
<td>Loressa Cole</td>
<td>Montgomery Regional Hospital</td>
</tr>
<tr>
<td>Susan Davis</td>
<td>Special Advisor/, Liaison to the General Counsel, Office of the Vice President for Student Affairs</td>
</tr>
<tr>
<td>Michael Donato</td>
<td>MD Carilion Roanoke Memorial Hospital Emergency Room</td>
</tr>
<tr>
<td>Robert Dowling</td>
<td>MD Lewis–Gale Medical Center</td>
</tr>
<tr>
<td>Patrick Earnest</td>
<td>Carilion New River Valley Medical Center</td>
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<tr>
<td>Ted Georges</td>
<td>Carilion New River Valley Medical Center</td>
</tr>
<tr>
<td>Carol Gilbert</td>
<td>MD EMS Regional Medical Director</td>
</tr>
<tr>
<td>Mike Hill</td>
<td>Director, Emergency Department, Montgomery Regional Hospital</td>
</tr>
<tr>
<td>Scott Hill</td>
<td>Chief Executive Officer, Montgomery Regional Hospital</td>
</tr>
<tr>
<td>Anne Hutton</td>
<td>Manager, CONNECT, Carilion Hospital</td>
</tr>
<tr>
<td>Judith M. Kirkendall</td>
<td>Administrator, Criminal History Records, Richmond, Virginia</td>
</tr>
<tr>
<td>David Linkous</td>
<td>Director, Staff Development and Emergency Management, Montgomery Regional Hospital</td>
</tr>
<tr>
<td>Rick McGraw</td>
<td>Carilion Roanoke Memorial Hospital Emergency Room</td>
</tr>
<tr>
<td>William Modzeleski</td>
<td>Assistant Deputy Secretary, U.S. Department of Education</td>
</tr>
<tr>
<td>John O’Shea</td>
<td>Lieutenant and Cardiac Technician, Blacksburg Volunteer Rescue Squad</td>
</tr>
<tr>
<td>Fred Rawlins</td>
<td>DO Carilion New River Valley Medical Center</td>
</tr>
<tr>
<td>Mike Turner</td>
<td>Clinical Support Representative, Carilion St. Albans</td>
</tr>
<tr>
<td>Holly Wheeling</td>
<td>MD Montgomery Regional Hospital</td>
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**Federal, State, and Local Agencies**

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<tr>
<td>Marcella Fierro</td>
<td>MD Chief Medical Examiner, Virginia</td>
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<tr>
<td>Robert Foresman</td>
<td>Director of Emergency Management, Rockbridge County, Virginia</td>
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<table>
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<tr>
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<tbody>
<tr>
<td>Mandie Patterson</td>
<td>Chief Victim Service Section, Department of Criminal Justice Services, Virginia</td>
</tr>
<tr>
<td>Patricia Sneed</td>
<td>Emergency Planning Manager, Virginia Department of Social Services</td>
</tr>
<tr>
<td>Jessica Stallard</td>
<td>Assistant Director, Victim Services, Montgomery County, Virginia</td>
</tr>
<tr>
<td>Karen Thomas</td>
<td>Virginia Department of Criminal Justice Services</td>
</tr>
<tr>
<td>Mary Ware</td>
<td>Director, Criminal Injuries Compensation Fund</td>
</tr>
<tr>
<td><strong>Mental Health Professionals</strong></td>
<td></td>
</tr>
<tr>
<td>Harvey Barker, MD</td>
<td>Director of Crisis and Intervention, New River Community Service Board</td>
</tr>
<tr>
<td>Richard Bonnie, MD</td>
<td>Director, Institute of Law, Psychiatry and Public Policy, University of Virginia</td>
</tr>
<tr>
<td>Gail Burruss, MD</td>
<td>Director, Adult Clinical Services and Crisis Intervention, Blue Ridge Behavioral Healthcare</td>
</tr>
<tr>
<td>Pam Kestner Chappalear</td>
<td>Executive Director, Council of Community Services</td>
</tr>
<tr>
<td>Lin Chenault</td>
<td>Executive Director, New River Community Service Board</td>
</tr>
<tr>
<td>Katuko T. Coelho</td>
<td>Center for Multicultural Human Services</td>
</tr>
<tr>
<td>Roy Crouse</td>
<td>Independent Evaluator for Commitment</td>
</tr>
<tr>
<td>Joan M. Ridick, MD</td>
<td>Depue Clinical Psychologist, Pastoral Counseling, Culpeper, Virginia</td>
</tr>
<tr>
<td>Russell Federman, MD</td>
<td>Director, Counseling and Psychological Services, University of Virginia</td>
</tr>
<tr>
<td>Kathy Godbey, MD</td>
<td>New River Community Service Board, pre-screener for commitment</td>
</tr>
<tr>
<td>James Griffith, MD</td>
<td>Psychiatrist, Center for Multicultural Human Services</td>
</tr>
<tr>
<td>Kathy Highfield</td>
<td>Blue Ridge Behavioral Healthcare</td>
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<tr>
<td>Dennis Hunt, MD</td>
<td>Executive Director, Center for Multicultural Human Services</td>
</tr>
<tr>
<td>D. J. Ida</td>
<td>Clinical Psychologist and Executive Director, National Asian American and Pacific Islander Mental Health Association</td>
</tr>
<tr>
<td>Jerald Kay, MD</td>
<td>Chair, College Mental Health Committee for the American Psychiatric Association, Chair of the Department. Of Psychiatry, Wright State School of Medicine</td>
</tr>
<tr>
<td>Wun Jung Kim, MD</td>
<td>Psychiatrist and Professor, University of Pittsburgh</td>
</tr>
<tr>
<td>Jeanne Kincaid, ADA/OCR</td>
<td>Attorney with Drummond Woodson</td>
</tr>
<tr>
<td>Francis Lu, MD</td>
<td>Chair, APA Council on Minority Mental Health and Health Disparities, Professor of Clinical Psychiatry, UCSF</td>
</tr>
<tr>
<td>James Madero, MD</td>
<td>Clinical Psychologist, Former NIMH Staff/School Violence Specialist, California School of Professional Psychologists at Alliant International University</td>
</tr>
<tr>
<td>Kent McDaniel, MD</td>
<td>Consultant Psychiatrist to the Office of the Inspector General, Virginia</td>
</tr>
<tr>
<td>Jasdeep Migliani, MD</td>
<td>Staff Psychiatrist, St Albans Medical Center, Carilion Health System</td>
</tr>
<tr>
<td>Frank Ochberg, MD</td>
<td>Former Director of Michigan Department of Mental Health</td>
</tr>
<tr>
<td>Carrie Owens</td>
<td>Director of Victim Services, Montgomery County, Virginia</td>
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<tr>
<td>Annelle Primm, MD</td>
<td>Director, Division of National and Minority Affairs, American Psychiatric Association, Chair Department of Psychiatry,</td>
</tr>
<tr>
<td>Andres Pumariega, MD</td>
<td>Chair of the Diversity Committee for the American Reading Hospital, PA</td>
</tr>
<tr>
<td>James S. Reinhard, MD</td>
<td>Commissioner, Virginia Department of Mental Health, Mental Retardation and Substance Abuse Services</td>
</tr>
<tr>
<td>Name</td>
<td>Title/Position</td>
</tr>
<tr>
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<tr>
<td>Gregory B. Saathoff, MD</td>
<td>Executive Director, Critical Incident Analysis Group, University of Virginia</td>
</tr>
<tr>
<td>Les Saltzberg</td>
<td>Executive Director, New River Community Service Board</td>
</tr>
<tr>
<td>Jim Sikkema</td>
<td>Executive Director, Blue Ridge Behavioral Healthcare</td>
</tr>
<tr>
<td>Bruce Smoller, MD</td>
<td>President-elect, Medical Association of Maryland; HPC</td>
</tr>
<tr>
<td>James W. Stewart III</td>
<td>Inspector General, Virginia Department of Mental Health, Mental Retardation and Substance Abuse Services</td>
</tr>
<tr>
<td>Terry Teel</td>
<td>Attorney for Commitment Clavitis Washington-Brown Blue Ridge Behavioral Healthcare</td>
</tr>
<tr>
<td>Richard West</td>
<td>Psychologist, Research on Preventing Campus Mental Health-Related Incidents</td>
</tr>
<tr>
<td><strong>Courts/Hearing Officials</strong></td>
<td></td>
</tr>
<tr>
<td>Paul Barnett</td>
<td>Special Justice</td>
</tr>
<tr>
<td>Donald J. Farber</td>
<td>Attorney at Law, San Rafael, CA</td>
</tr>
<tr>
<td>Lorin Costanzo</td>
<td>Special Justice, Virginia</td>
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<tr>
<td>John Molumphy</td>
<td>Special Justice, Virginia</td>
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<tr>
<td>Joseph Graham Painter</td>
<td>Attorney, Former Special Justice</td>
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<tr>
<td><strong>High School Staff</strong></td>
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<tr>
<td>Dede Bailer</td>
<td>Director, Psychology and Preventative Services, Fairfax County Public Schools</td>
</tr>
<tr>
<td>Rita Easley</td>
<td>School Guidance Counselor, Westfield High School</td>
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<tr>
<td>Frances Ivey</td>
<td>Former Assistant Principal, Westfield High School</td>
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<tr>
<td><strong>Students at Virginia Tech</strong></td>
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<tr>
<td>Joseph Aust</td>
<td>Cho Roommate</td>
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<tr>
<td>Chandler Douglas</td>
<td>Resident Advisor</td>
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<tr>
<td>John Eide</td>
<td>Cho Roommate</td>
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<td>Andy Koch</td>
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<td>Austin Morton</td>
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<td>Melissa Trotman</td>
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<td><strong>Business</strong></td>
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<tr>
<td>Kathleen Schmid</td>
<td>President, Professional Services Group, Winter Park, FL</td>
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<tr>
<td>Mark E. Koltko-Rivera</td>
<td>Executive Vice President, Professional Services Group, Winter Park, FL</td>
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<td><strong>Other</strong></td>
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<tr>
<td>Steve Capus</td>
<td>President, NBC News</td>
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<tr>
<td>Steven Erickson</td>
<td>Father of Stalking Victim</td>
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<tr>
<td>Mr. Gibson</td>
<td>Father of Stalking Victim</td>
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<tr>
<td>David McCormick</td>
<td>Vice President, NBC News</td>
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