Untapped Potential:
Evaluating State Emergency Management Agency Web Sites 2008

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Dr. Robert Honea, Director
University of Kansas Transportation Research Institute
1530 W. 15th Street
Lawrence, Kansas 66045

Dear Dr. Honea:

It is my pleasure to present you with the findings of the Transportation Research Institute-funded study "Crisis Communications: Evaluating Effectiveness of State Emergency Management Web Sites" (Project Number FED45344). Those findings are included in the report *Untapped Potential: State Emergency Management Agencies and the Internet 2008*.

State emergency managers have always approached their jobs with the highest levels of professionalism and commitment to public safety. In the best of times, theirs is a difficult job. However, their challenge has become more difficult because of increased public scrutiny and skepticism following Hurricane Katrina in 2005. The need for increased public outreach coincides with rapid changes in communications technology. This study focuses on current state emergency management agency Internet practices and makes several recommendations for agency Internet use. I hope this report serves as a catalyst for improved Internet practices that, ultimately, will aid emergency managers in fulfillment of their critical mission.

I wish to acknowledge the contributions of my research assistant Gordon Alloway and the guidance provided by my three outside reviewers: Dr. Coy Callison, Tom Ditt and Dr. Kirk Hallahan. I thank you and TRI for support of this research.

Sincerely,

David W. Guth, APR
Associate Dean/Associate Professor

Executive Summary

The social, legal and political fallout from Hurricane Katrina has, for better or worse, shaped the way the American people view their nation's emergency management structure. More than ever, emergency managers face close scrutiny from an often-skeptical public. This attitude shift coincides with another development having a profound effect on emergency management, the Digital Revolution. The advent of new media has resulted in communication advances that have proven to be both helpful and detrimental in emergency responses. It has also given birth to the phenomenon of the "citizen-journalist," individuals aided by technology to record and interpret events in the manner and without the training of traditional journalists. Emergency management officials, public servants who have always been used to working under watchful eyes of the citizens they serve, now face an environment where public support for their actions is not automatically granted. Never before has the need for public outreach by emergency managers been as great as it is now.

The focus of this research was the role of the Internet in crisis communications. It examined both the practice and the attitudes of the 51 state emergency management agencies (EMAs) toward the Web. It did this through a two-phased research design based on an earlier pilot study. Phase one consisted of a content analysis of the EMA web sites conducted January-March 2008. Using a Content-Richness Index (CRI), the quantity (not quality) of information on each Web site was measured. These CRI ratings also were useful in analyzing the results of a May 2008 online survey of state EMA public information officers, the second phase of the research.

The analysis of the data suggests that state emergency planners need greater recognition of the value of the Internet and other social media. This is especially true when communicating with the public and journalists during crises. While the public information officers who responded to the online survey indicated that the public was the primary focus of their agency's Web sites, the content analysis of those sites suggested that their focus was actually directed toward internal publics, such as first responders and local emergency management officials. The study went on to suggest that greater strategic planning of agency Web sites is needed. Considering these findings, it should not come as a surprise that public information officers said they felt that journalists and legislators have a greater understanding of their agency's mission than the public. And while survey respondents said the Internet is of some value as a medium of emergency communications, most felt it was not as valuable as traditional media, such as radio and television. This attitude conflicts with the experience of recent natural disasters, such as the California wildfires and the Virginia Tech shootings.

The study also makes several recommendations regarding the role of EMA public information officers. The agencies with the most content-rich Web sites tended to be those where the PIOs reported directly to the agency's director and had direct control over the agency Web site. While this study does not say that PIOs must be trained in Web site design, it does cite a need for greater Web savvy on their part. One indicator of this was the finding that EMA Web sites based on a design template imposed by the state government appeared to be more content rich than those designed in-house. The report also recommends several steps to increase EMA transparency and Web site accessibility.

It is hoped that this study will serve to generate discussion – and ultimately action – regarding the role of the Internet and social media in crisis communications. This document is not intended to generate criticism. It should be accepted for what it was truly meant to be, a tool that will help dedicated public servants to do their jobs even better than they already do.

Biographical Information

Principal Investigator:

David W. Guth, Associate Dean/Associate Professor, William Allen White School of Journalism and Mass Communications, University of Kansas. (B.A. Radio-TV-Speech, University of Maryland; M.A. Journalism University of North Carolina-Chapel Hill) Prior to joining the faculty in 1991, he served in several public information positions within North Carolina state government, including four years as the chief spokesman for the North Carolina Department Correction. He was as a member of North Carolina's State Emergency Response Team (SERT). He also had a career as a broadcast journalist and was the recipient of numerous reporting honors, including the prestigious Peabody Award. In addition to teaching responsibilities, he has served as a private public relations consultant and has made trips to the Russian Federation and Turkmenistan on behalf of the U.S. State Department. He is also the co-author of four books, three of which are public relations textbooks. *Telephone: (785) 864-0683. E-mail: dguth@ku.edu.*

Research Assistant:

Gordon A. Alloway, (B.S. Journalism, University of Kansas) He is completing a Master's degree in Strategic Communication at the William Allen White School of Journalism and Mass Communications, University of Kansas. His focus is on communications research activity, including two research projects at the KU Center for Telemedicine and Telehealth in the KU Medical Center in the areas of home telehealth and telemedicine expansion. Before starting work on his graduate degree, Alloway worked in the area of health care business development, serving as president of Medical Marketing Management, a business development center for new medical managed care products and services. Prior to his work in health care, Alloway specialized in consumer products brand management.

Consultants:

Three outside consultants – each knowledgeable of the issues discussed within this report – were given an opportunity to comment on a draft of this report. Their insights and thoughtful critiques were appreciated. Many of their suggestions were incorporated into the final report. Their comments are summarized at the end of this document.

Coy Callison, Associate Professor and Public Relations Department Chair, College of Mass Communications, Texas Tech University. (B.A. Mass Communications/Public Relations, Southwest Texas State University; MA Public Relations, University of Alabama; PhD. Communication and Information Sciences, University of Alabama) He is the author of over 60 papers for refereed publications and a co-author of four public relations textbooks. He is also a public relations and communications research consultant.

Tom Ditt, Emergency Preparedness Coordinator, North Carolina Division of Services for the Deaf and Hard of Hearing. (B.S. Psychology, Western Carolina University) He has more that 30 years of experience in television, newspapers, and emergency management public information and education. He is an adjunct faculty member at the National Emergency Training Academy, a member of the National Center for Accessible Media's Working Group on Access to Emergency Alerts for People with Disabilities, and a member of the Contingency Planning Association of the Carolinas.

Kirk Hallahan, Professor, Department of Journalism and Technical Communication, Colorado State University. (B.A. Mass Communications, University of California, Los Angeles; MA Journalism, University of Wisconsin-Madison; PhD. Mass Communications with a minor in Business (Marketing), Wisconsin-Madison.) Prior to joining academia, he had a 19-year career in public relations, public affairs and marketing at Harshe-Rotman & Druck. He was on the faculty of University of North Dakota, Grand Forks prior to joining the CSU faculty in 1996. He is the author of multiple research papers and has presented at over two dozen scholarly conference sessions, being awarded 10 top-paper honors in refereed competitions.

Introduction:
Crisis Communications in the Digital Age

Emergency managers, like all of us, are caught in the midst of the Digital Revolution. From a logistical standpoint, advances in communication technology have made their jobs easier. However, the revolution can be a double-edged sword. The advent of social media is transforming interaction between people and their government. Emergency management officials – especially the public information officers who represent them – are caught in this vortex of change. It is not just a digital revolution. It is a social, political and technological revolution that challenges them at almost every turn.

Emergency managers are the public's first line of defense. It is a position that historically had placed them in a positive and heroic light in the public's eyes. However, that recently has changed. Hurricane Katrina was to emergency managers what the *Challenger* accident was to the U.S. space program. NASA, the agency that had beaten the Russians to the moon, had been a source of national pride. However, after the 1986 space shuttle explosion exposed the space agency's cultural and structural weaknesses, the luster of NASA's shine was dulled. While the agency has repaired much of its image, it will never have the same level of public confidence it once enjoyed.

Hurricane Katrina changed the way people look at government emergency management agencies (EMAs). Up until Katrina battered the U.S. Gulf Coast in the late summer of 2005, EMAs had been largely immune from the criticism. The public had little reason to question the competency and dedication of emergency management officials. However, with Katrina, that changed. It was much more than a public relations failure. It was a systems failure. "This country's emergency operations, awesome in their potential, are also frighteningly interdependent," *Time* reported in a post-storm analysis. "At every level of government, there was uncertainty about who was in charge at crucial moments."[1] A February 2006 White House report concluded that there was a need to "develop an integrated public communications plan to better inform, guide, and reassure the American public before, during, and after a catastrophe."[2] Shortly thereafter, a U.S. House of Representatives select bipartisan committee investigation of the Katrina response said, "The preparation for and response to Hurricane Katrina show we are still an analog government in a digital age. We must recognize that we are woefully incapable of storing, moving, and accessing information – especially in times of crisis."[3]

In June 2006, the Gallup Organization asked 1,002 adults nationwide how much confidence they had in a number of "institutions in American society." Only the military, police and organized religion enjoyed either "a great deal" or "quite a lot" of confidence from a majority of the respondents - 73 percent, 58 percent and 52 percent respectively. Those percentages dropped to just 40 percent for the U.S. Supreme Court, 33 percent for the presidency, 19 percent for Congress and 18 percent for big business.[4] Less than a year earlier, on the heels of the Katrina debacle, Gallup asked 921 adults nationwide whether they were satisfied with the work of the federal government in 17 areas. Only one respondent in three indicated satisfaction with the government's ability to respond to natural disasters, good for only 13th place on the list.[5]

The Purpose of This Study

This study focuses on how state EMAs provide information during emergencies to two very important constituencies, the public that these agencies were created to serve and the news media, which often serves as a link between EMAs and the public. The units of analysis – the things being studied – are

two areas where an EMA communicates with these constituencies, the agency's public information officer and its Web site.

When this study refers to *crisis communications*, the focus is on a subset of what is commonly known as *public relations*. It does not refer to emergency telecommunications systems or related logistics, another area of considerable public discussion in the wake of both the 9/11 terror attacks and Hurricane Katrina. Unfortunately, public relations, both as a term and as a profession, is often misunderstood and occasionally cast in a pejorative light. In the context of this study, it is defined as "the values-driven management of relationships between an organization and the publics that can affect its success." Public relations also plays a critical role in the free flow of information and ideas in democratic societies.[6] This is especially true for government agencies, which face a dual responsibility of keeping the public informed and garnering support for its actions. However, this can be difficult because of what researchers have described as the four areas of conflict inherent to government public relations: the ongoing struggle for control of the information flow between the government and the press, the struggle for power between the government's legislative and executive branches, the competition between political parties, and efforts to protect vested interests from negative legislation or regulation.[7]

This study describes the current Internet practices of emergency management agencies (EMAs) in every state and the District of Columbia. It builds upon and expands a 2007 pilot study that described those practices. Most of the background information used in this section of the report comes from the pilot study. Through content analysis and survey research, this study describes the content of EMA Web sites and public information officer attitudes toward the Internet. In light of scholarly research suggesting that online corporate newsrooms fail to meet journalists' needs, a major objective of this study is to determine whether or not this pattern holds true for state EMA Web sites. The question is particularly important when one remembers the overriding mission of all of these agencies, the protection of public safety through disaster mitigation, preparedness, recovery, and response.[8] This study asks a crucial question: Are emergency managers tapping the full potential of the Internet and social media to fulfill their mission?

State Emergency Management Agencies: An Overview

"A crisis is a major, unpredictable event that has potentially negative results," wrote Laurence Barton. "The event and its aftermath may significantly damage an organization and its employees, products, services, financial condition and reputation."[9] While Barton's definition appears to focus on the for-profit private sector, it also is applicable to nonprofit organizations, as well as government and non-government agencies. The discipline of emergency management – sometimes known as crisis management, disaster management or contingency planning – has been called "the abysmal science" by disaster recovery consultant Kenneth Myers.[10] The process of emergency management involves four phases:

- Mitigation – attempts are made to identify, minimize and (if possible) eliminate potential hazards.

- Preparedness – contingency plans are developed in anticipation of a variety of crisis scenarios.

- Response – crisis plan are executed with the mobilization of necessary resources.

- Recovery – the situation returns to normal, lessons learned from the experience are analyzed, and attempts are made to mitigate future occurrences.[11]

Every U.S. state, territorial and tribal government has a department, office or agency responsible for coordinating its actions in the event of emergencies of natural or human origin. Sometimes this responsibility is shared by two or more agencies. While the specific structures of state EMAs vary among jurisdictions, they have common attributes. They usually are affiliated with the state's military apparatus (the National Guard) or law enforcement agencies (such as the state police or highway patrol). While some EMAs are stand-alone agencies reporting directly to the governor, others are divisions within the state's military or the law enforcement structures. Still others have equal standing under an umbrella public safety department structure.

The EMA's role is to manage each state's response to crises by coordinating resources and serving as an information clearinghouse for all responding entities. Crises are managed from an emergency operations center that hosts representatives from a variety of public and private agencies. For example, it is not unusual to see officials of the American Red Cross or the Salvation Army collaborating with representatives of county, state and federal agencies in a typical state emergency operations center. This is especially true when it comes to incidents involving nuclear power – the Nuclear Regulatory Commission has mandated public relations coordination between the utility, government officials (all levels) and private agencies since the Three Mile Island accident of 1979.

The structure and identities of many state EMAs have changed following the terror attacks of September 11, 2001. They have been influenced by the creation of the Department of Homeland Security in 2002, an effort to centralize the federal government's response to external threats. Homeland Security Presidential Directive-5, issued by President George W. Bush on February 28, 2003, required the Secretary of Homeland Security to develop a mechanism for coordinating the government and non-government responses to domestic incidents. This resulted in the creation of the National Incident Management System (NIMS). According to the Federal Emergency Management Agency (FEMA) Web site, "NIMS was developed so responders from different jurisdictions and disciplines can work together to better respond to natural disasters and emergencies, including acts of terrorism."[12] It also resulted in creation of the National Incident Management System Integration Center (NIC), "a multidisciplinary entity made up of federal stakeholders and over time, it will include representatives of state, local and tribal incident management and responder organizations."[13] NIMS training of state, local and tribal officials was scheduled for completion during fall 2006.

Ironically, the creation of a new emergency management structure under the Department Homeland Security (DHS) umbrella led to many of the problems that hampered the government's response to Hurricane Katrina. Many existing collaboration networks had been uprooted by the DHS structure. In a blistering post-Katrina indictment released in April 2006, the Inspector General of DHS said public criticism of FEMA was justified. The report said the federal government and the state of Louisiana had "great difficulty" coordinating with one another and "never fully achieved a unified command with FEMA."[14]

Crisis Communications and the Internet

The role of the Internet during crises was dramatically demonstrated on September 11, 2001. According to the Pew Internet & American Life Project, the number of Americans going online significantly – and temporarily – dropped in the three weeks immediately following the attack. However, the number of site visits – a sign that people were surfing for information – increased 240 percent during the same period. Pew estimates that 50 percent of Internet users, approximately 53

million people, went online looking for information about the attacks and their aftermath during that period. More significant, according to the Pew report, was "the outpouring of grief, prayerful communication and information dissemination through e-mail and political commentary. Nearly three-quarters of Internet uses (72 percent) have used e-mail in some way related to the events – to display their patriotism, contact their family and friends to discuss events, reconnect with long-lost friends, discuss the fate of friends, and share news." The Internet had become the town commons of the 21st century.[15]

"From a purely technical perspective, the system worked better than anyone might have anticipated," wrote Henry Jenkins in *Technology Review*. "While the World Trade Center housed an important relay system for cell phones, and its destruction thus left many New Yorkers without telecommunications, there was no significant national disruption of computer networks."[16]

Post-Katrina research suggests that Internet users facing crises prefer interactive information sources to those that are static. Three out of four dispersed New Orleans residents who went online during the crisis reported visiting an online discussion forum. More than half said they posted messages. "This level of interaction also appeared to contribute to another phenomenon: the emergence of the citizen reporter," wrote researchers Claire and Steven Procopio. "Users seemed to value information from other users, with 30 percent labeling it their most informative online source in the week following the hurricane."[17]

It is without question that the Internet has been a mixed blessing for organizations. Hill & Knowlton executive Boyd Neil took note of this two-sided nature of the Web when he wrote that the Internet plays an integral role in crisis management in three ways: serving as a "trigger" to launch a crisis, as a strategy used by opponents to an organization's initiatives, or as "a valuable weapon in a company's arsenal for managing crises."[18] Because of these risks and benefits, practitioners have been forced to engage in what authors David Guth and Charles Marsh call "cyber-relations, the use of public relations strategies and tactics to deal with publics via the Internet and with issues related to the Internet."[19]

Private sector research has shown that many organizations do not appear to be taking full advantage of what the Web offers. A content analysis of 2001 *Fortune* 500 company Web sites revealed that the majority did not have dedicated pressrooms where media content is centralized. In the press room, news releases, executive biographies and executive photographs were the most common elements. "The Web has the potential to be a key public relations tool but is not currently being used to its full potential in media relations," researcher Coy Callison wrote. "Journalists also report often not finding what they are looking for on company Web sites, and a few have even suggested that their coverage of companies with poor Web presence is skewed negative, if they cover those companies at all."[20]

A 2003 study by David Hachigian and Kirk Hallahan supported these findings. In a survey of computer industry journalists, they found that respondents considered themselves to be "only moderately reliant upon Web sites as sources." This, despite a consensus "about the time-savings that Web sites bring to the newsgathering process." The authors concluded that "while Web sites have irreversibly taken a place in the media relations mix...(they) have a long way to go before being fully accepted with confidence by journalists as newsgathering tools."[21]

According to some of the earliest scholarship on the subject, a reason journalists may find many Web sites less than satisfying is the absence of research and strategic planning in their creation. Following a series of interviews with "web decision makers," Candace White and Niranjan Raman concluded that many Web sites are the product of an urgency to establish a presence on the Internet without a clear vision of why it is important. "Findings indicate that Web site planning is done by trial and

error, based on intuition, with little or no formal research," White and Raman wrote. They also wrote that these same Web decision makers believe that their Web sites are perceived by their publics as "a mark of quality" for their organization without empirical evidence to support that supposition.[22]

From the perspective of journalists, good Web sites are those that contain information they want in an easy-to-find centralized location, such as an online newsroom. "In particular, journalists search corporate Web pages looking for press releases, public relations personnel contact information, and general corporate facts," wrote Callison. "Journalists also, weary from receiving mountains of unsolicited corporate material they neither request nor want, appreciate downloadable material that allows them control over what content they choose to view in addition to the fact that downloaded documents can be quickly edited and typeset while skipping the step of re-keying text."[23]

The 2007 Pilot Study

The research design for this study grows out of a 2007 pilot study, *Untapped Potential – An Analysis of Online Newsrooms on State Emergency Management Agency Web Sites*, presented at the Public Relations Society of America International Conference in Philadelphia, Pa., in October 2007. The paper was based on a content analysis of 51 Web sites (those of the EMAs of the 50 states and the District of Columbia) conducted between October 20, 2006, and January 9, 2007. The principal purpose of the analysis was to determine the degree to which these Web sites were targeted toward and meet the needs journalists who go online seeking information. Beyond determining the degree to which these Web sites were journalist-friendly, other elements common to these Web sites were identified. The analysis took note of things such as the presence of the agency's mission statement, the director's picture and biography, weather information, training information, information targeting children and students, and indicators of the National Threat Level (as classified by the DHS). There was also an analysis of the potential public hazards cited on each Web site, such as terrorism, tornadoes, hurricanes, fires and floods. By creating an index based on the presence of 15 Web features and information about 11 specific hazards, a determination was made as to which Web sites were content-rich. However, it is important to note that the *presence* of content does not necessarily indicate the *quality* of that content.

At first glance, state EMA Web sites appeared well suited for handling media relations. That's because 46 of the 51 Web sites, 90.2 percent, had some form of *newsroom* where journalists can seek out news releases, backgrounders and other forms of in-depth information. Links to these so-called newsrooms are identified in a variety ways, including *press releases*, *public information*, *media*, *news releases*, *news releases/public service announcements* and, on the Massachusetts EMA Web site, *What's New*. One might suggest that this lack of uniformity is little more than a question of semantics. However, a deeper analysis led to a conclusion that the wide array of names used to describe newsrooms on state EMA Web sites was an indicator of much bigger problems – a lack of understanding of media relations by Web designers and the failure to use a potentially powerful medium to fulfill these agencies' articulated mission of serving and protecting the people of their state.

In 41.2 percent of the surveyed sites, the name of the agency's public information officer (PIO) was not listed. In many of the sites where it was listed, it was necessary to comb through a listing of agency personnel to identify the PIO. Also in 41.2 percent of the surveyed sites, there was not a direct e-mail link to the PIO. In some of these cases, telephone numbers were supplied. In others, a blind, all-purpose e-mail link to the agency was provided. A statement on the Texas Governor's Division of Emergency Management Web site (www.txdps.state.tx.us/dem) indicated that the automatic "mail to"

function has been eliminated "to deter data miners." Site visitors seeking additional information were asked to manually enter a generic e-mail address.[24]

Many of the Web sites used the language of "mitigation, preparedness, response and recovery" – the four phases of the emergency management process. One might argue that communication with important stakeholders is implicit in this process. However, it suggests that, when it comes to online communication, state emergency managers more often direct their focus to internal publics – other public and private responding agencies – than they do toward journalists. Supporting this hypothesis was the presence of emergency management training-related materials on 90.2 percent of the Web sites. Also, a large percentage of the material in online newsrooms was "evergreen" generic information targeting a broad, non-segmented audience.

Of the 15 Web site elements coded, the presence of a newsroom – accessible or otherwise – and training information were most prevalent. They appeared on 90.2 percent of the Web sites. Documents available for download were the third-most prevalent, appearing in 70.59 percent of the sites. The fourth-most prevalent Web site element was the National Threat Level (62.75 percent), followed by local/regional weather conditions (60.78 percent), e-mail links to agency personnel (58.82 percent), the agency director's picture (50.98 percent), the agency mission statement (49.02 percent), the agency director's biography (43.14 percent), and a "kid's link" page (41.18 percent). It is significant that the least prevalent were multimedia elements: a photo gallery (27.45 percent), video (11.76 percent), audio (3.92 percent), podcast (0 percent) and vodcast, a video version of a podcast, (0 percent).

As one might expect, information about specific hazards varied. For example, there certainly isn't much need for tsunami-related information in Nebraska. Nor does one expect to find winter-weather precautions on Hawaii's Web site. However, all states are subject to flooding, which explains why floods were the most cited potential hazard, appearing on 62.75 percent of the sites. Fires, winter weather, and hazardous material accidents tied for second at 54.9 percent. Earthquakes came in sixth at 50.98 percent, with biological incidents and tornados tied for seventh at 49.02 percent. Information on incidents at nuclear power plants was ninth at 39.22 percent, followed by hurricanes (37.35 percent), and tsunamis (13.73 percent).

In terms of their content richness, Maryland's EMA site had the highest content-richness index (CRI) with an index of 18 out of a possible 26. Alabama, Louisiana, Pennsylvania and Virginia tied for second with an index of 17. Tied at sixth (and rounding out the top 10) were Georgia, New Hampshire, New York, and South Carolina with indices of 16. At the other end of the rankings, six states – Maine, Michigan, Nevada, New Mexico, North Dakota and Ohio – tied for 44th with indices of 6. South Dakota was 50th with an index of 4, and West Virginia was last with an index of 3.

The 2007 pilot study concluded that, at least when it comes to media relations, state emergency management agencies were not tapping into the Internet's full potential. While most of these sites serve a useful purpose, there is so much more that could be done. The results of this review appeared to support the findings of White and Raman, whose research concluded that many Web sites are created without a clearly defined purpose. It also paralleled Callison's findings that most online newsrooms fall short of meeting journalists' needs.

There were several limitations to this study. A three-month sampling period may seem like a substantial time frame. However, it is not representative of the ebbs and flow of a typical year in emergency management. The pilot study, on which this study is based, was conducted during the last three months of 2006 marked the end of fall and the beginning of winter. It was also a time of year in which hurricane and tornado activity were low. With hindsight – as well as more time and resources –

a systematic sampling of the calendar year would have been more representative. However, those issues were not resolved in time to affect the design of this research effort. The time and resource issue also had an impact on the reliability of coding. To compensate for the absence of additional coders, each Web site was visited a minimum of three times to ensure a degree of consistency. As was noted earlier, the CRI could, at best, measure the presence of certain elements within a Web site. However, it does not measure quality. At best, the CRI can serve only as an indicator of Web site quality.

Placing This Study In Its Proper Context

The 2007 pilot study set the stage for this research. Valuable lessons were learned and incorporated into this document. Although some of the study's methodology was improved to generate more substantial data, the purpose of this research effort remained unchanged: To create a greater understanding of existing state EMA Web site practices.

While this study cites several areas where its author believes there is room for improvement, it should not be construed as a criticism of emergency management professionals. Nor should the (CRI) rankings described in the study be seen for anything more than they really are – research matrices created to describe state EMA Web practices nationwide – and not as a comparison of individual state performances. Emergency management protocols, designed to allow for the uniqueness of each state, vary. The research design was created to overcome those obstacles and focus on a common set of communication factors. It was not designed to prove that X is doing a better job than Y in communicating with its citizens. At best, the research methods used in this study are measures of quantity, not quality. And as most communicators know, there's a big difference between the two.

As stated in the concluding paragraph of the 2007 pilot study, "Despite the problems exposed by Hurricane Katrina and 9/11, there is little doubt that the overwhelming majority of the people working in state, local and federal EMAs are professionals dedicated to the preservation of public safety. Even with their flaws, each of the 51 state EMA Web sites serves a useful purpose. It is hoped that the same can be said for this research – that its purpose was not just to criticize these officials, but help shed some light on how they can fulfill the mission to which they have dedicated themselves."[25]

Methodology

Research for this study was conducted in two phases, a content analysis followed by an online survey.

Phase 1: Content Analysis

A content analysis of the 51 state EMA Web sites (including the District of Columbia) was conducted during January-March 2008. The URLs for these Web sites were obtained from the FEMA Web site (www.fema.gov). A Content Richness Index (CRI) for each Web site was created, in part by determining the presence of the following Web site features:

Table 1: Features Used In Determining Each Web Site's CRI

Newsroom	Training information	Director's biography	Director's picture
Explicit mission statement	Implicit mission statement	Photo gallery	E-mail links
Document downloads	Weather	Video	Audio
Podcasts	Vodcasts	National threat level	Homeland Security links
Kids info. (agency generated)	Kids information (generated by others)	Governor's office links	Disabilities information
Family crisis planning	School crisis planning	Business crisis planning	Pets information

For each feature present, one point was added to the Web site's CRI rating. A point was also added to each Web site's CRI for each of the following hazards mentioned:

Table 2: Hazards Used In Determining Each Web Site's CRI

Nuclear war	Radiological/nuclear plant	Terrorism	Tornado
Flooding	Chemical and hazardous materials	Fire	Hurricane
Biological	Snow/Ice	Tsunami	Electrical blackouts
Oil spill	Public health issues	Road conditions	Drought
Extreme temperatures	Cyber-disasters	Weapons/munitions	Dam failures
Landslides and avalanches	Thunderstorms and lightning	Volcanoes/Ash	Earthquakes

As noted in the discussion of the pilot study on which this research is based, the list of potential hazards points to one of the limitations of the CRI – not all states are created equal. While every state has a certain level of potential crises, the list of potential hazards varies within each jurisdiction. Ice storms may not be common to Hawaii, but volcanoes are. The opposite is true for Kansas. Some may be concerned that states with fewer risks will be "penalized" more for a matter of geography than for

practice. If the CRI were meant to serve as a "grade" or as a judgment of an agency's Web competency, this inequity would need to be addressed. However, because this research is meant to be descriptive rather than prescriptive, it is hoped that readers will place the results within their proper context.

Because the presence of an agency's mission statement can be implicit or explicit, but not both, 47 was the maximum CRI rating a Web site could receive. Based on experience gained during the administration of the 2007 pilot study, the number of features and hazards used to generate the CRI were expanded in this study. A state-by-state summary of CRI ratings in included in the appendices.

Newsrooms were characterized as being *active* if the most recent news release posting was less than three months old. Because of the unpredictable ebb-and-flow of emergencies, it was felt that quarter-year would provide a representative sampling period. This is the same criterion used in the 2007 pilot study. To aid in coding reliability, each Web site was reviewed, analyzed and coded on at least three separate occasions.

The attribute *political appointee* is a term of art designed to codify the employment status of respondents. Although public personnel laws vary among jurisdictions, virtually all states divide their employees into two general classifications. The first is career public employees, whose hiring and firing are covered by state personnel regulations. The other classification covers management-level employees, who serve at the pleasure of the executive. While most of these individuals are highly qualified, they are often referred to as political appointees because of their job status is intrinsically linked to success of the political party in power. Political appointee is used here in the broadest sense of the term and is not intended as a pejorative.

Phase 2: Survey

Under the original research design, investigators had planned to conduct detailed telephone interviews with each of the 51 state EMA public information officers. However, a trial run demonstrated significant difficulty in this approach. Perhaps a harbinger of the findings of this report, there was substantial difficulty in reaching the public information officers. Only two of 10 test questionnaires were successfully completed over a two-week period during the trial run. Researchers anecdotally associated the lack of response to heavy workload faced by the public information officers. The process proved to be too labor-intensive within the allotted time and prompted a new operationalization.

Each of the 51 state EMA public information officers (PIOs) was contacted by e-mail May 13-14, 2008, and invited to participate in an online survey. The e-mail recipients were directed to link that took them to the online Survey Monkey questionnaire. A follow-up e-mail was sent to non-responding PIOs approximately one week later. The survey frame consisted of PIO names and e-mail addresses harvested from each agency's Web site or identified through direct telephone contact. Twenty-three of the 51 state EMA PIOs successfully completed the online questionnaire. A copy of the questionnaire is included in the appendices. The online survey research received prior approval and was conduct in accordance with the regulations of the University of Kansas Center for Research Human Subjects Protection Office (HSCL #17100).

A Statement on the Accuracy of the Survey Results

Upon completion of the content analysis of the Web sites of the 51 jurisdictions, a data reduction was performed for analytical purposes. Based on each Web site's assigned Content Richness Index number (CRI), the jurisdictions were divided into three categories of similar size: Low CRI (<20 CRI, 18 jurisdictions),

Medium CRI (20-26 CRI, 17 jurisdictions) and High CRI (>26 CRI, 16 jurisdictions). Of the 23 respondents who completed the online survey, the CRI category distribution CRI was Low CRI 9, Medium CRI 7, and High CRI 7. The mean population rank for respondent states (26.39) was close to that for all states (26). Because this sample is based on a small sampling frame (51 jurisdictions), the margin of error in the sample is high: 15.29 percent. While this does not constitute a random sample in that the respondents were self-selecting, it is a balanced distribution that appears to reflect the national sample. At the very least, it is an indicator of the current environment. This is supported by a comparison of the 10 most-frequent Web site features and hazards within each CRI category. In each case, there was substantial agreement between the content analysis and the online survey. In fact, the higher the level of the CRI category, the greater the degree of agreement. A 45.1 percent response rate to an e-mail solicitation for participation in the online survey is considered good. There is often a disparity in survey response based on occupation, influence and residence. In short, the busier the respondent, the more difficult it is to gain cooperation.[26]

Regional and Population Factors

To identify geographical factors that may exist in the design of EMA Web sites, a cross tabulation on the basis of the 10 FEMA Regions was conducted:

Table 3: Federal Emergency Management Agency Regions

Region	States in the FEMA Region
I	Maine, New Hampshire, Vermont, Connecticut, Rhode Island and Massachusetts
II	New York and New Jersey
III	Pennsylvania, Maryland, Delaware, District of Columbia, West Virginia and Virginia
IV	Kentucky, Tennessee, North Carolina, South Carolina, Mississippi, Alabama, Georgia and Florida
V	Minnesota, Wisconsin, Michigan, Illinois, Indiana and Ohio
VI	New Mexico, Texas, Oklahoma, Arkansas and Louisiana
VII	Nebraska, Iowa, Kansas and Missouri
VIII	Montana, North Dakota, South Dakota, Wyoming, Utah and Colorado
IX	California, Nevada, Arizona and Hawaii
X	Alaska, Washington, Oregon and Idaho

An attempt was made to measure the effect of size of state population on the CRI of Web sites. This information would serve as an indicator – but not as definitive proof – of the effect of available financial resources on Web site quality. The assumption – and that's all it was – is that the more populated states would have greater resources to devote to EMA Web sites. Using the July 1, 2007, estimate of the U.S. Bureau of the Census, each state and the District of Columbia were ranked by size of its population with California ranked first with an estimated population of 36,553,215. Conversely, Wyoming ranked 51st and last with an estimated population of 522,830. The jurisdictions were divided into three classifications: Low Population (states ranked 35-51), Medium Population (18-34) and High Population (1-17).

Summary of Findings

This is a brief summary of the findings of this study. A detailed analysis in support of these findings follows. A list of recommendations based on these findings follows the analysis.

Finding #1 – Contrary to the stated intent of survey respondents, state EMA Web sites appear to place a greater emphasis on reaching internal and local/state public safety stakeholders than they do the citizens of their state or the news media that reach them. The more content-rich the site, the more likely that the site's content is targeted toward citizens and the media.

Finding #2 – There does not appear to be any relationship between the content-richness of EMA Web sites and the potential hazards identified on them.

Finding #3 – Agencies with public information officers (PIOs) who report directly to the director tend to have Web sites that are more content rich than those where the public information officer does not.

Finding #4 – The person maintaining the Web site appears to have a higher influence on its content richness than the person who actually decides on Web content. This may be explained by the site administrator's deeper understanding of Web technology and subsequent decision to make greater use of it. It also suggests the need for a deeper understanding of Web technology by those who determine an agency's Web content.

Finding #5 – Web site designs that conform to a state government-mandated template tend to be more content rich than those designed within the EMA. This suggests that a higher level of Web design expertise exists within state government outside of state EMAs.

Finding #6 – While the respondents see moderate value in using the Internet during emergency conditions, they do not see the Internet equal to the more traditional communications media, such as radio and television.

Finding #7 – The greater the content richness of an emergency management agency's Web site, the greater the likelihood that the public information officer will believe that the news media do a good job of covering his or her agency and that the agency, overall, has a good relationship with the media.

Finding #8 – Content-rich Web sites tend to have online newsrooms that are more easily accessed and more frequently updated. This is especially true with Web sites maintained by the public information officer.

Finding #9 – The size of a state's population – which presumably translates into financial resources – is an indicator of the content richness of state EMA Web sites. As a general rule, EMAs in states with larger populations tend to have more content-rich Web sites than those in less-populated states. However, there are exceptions.

Finding #10 – Less than half of the EMA Web sites provide the identity of the PIO, his/her direct telephone number and direct e-mail address. One out of every five sites does not identify the

agency's PIO by name. This is in conflict with the value of transparency the public expects of government agencies.

Finding #11 – There is a clear relationship between the PIO's on-the-job experience and the content-richness of his or her agency's Web site. It appears that the more experience one has, the greater the content-richness of the agency's Web site.

Finding #12 – State EMA public information officers tend to believe that the news media have a better understanding of their agency's mission than do state legislators or the public. Of the three stakeholders, the PIOs believe that the public has the least level of understanding of their state's EMA's mission.   In a post-Katrina environment in which EMA's are under intense public scrutiny, the belief that there exists a lack of public understanding is troubling.

Finding #13 – PIOs with media experience in their professional backgrounds are more likely to feel their agency's mission is understood by key stakeholders than by those who do not have media backgrounds. However, PIOs with media experience are less likely to determine Web content than their counterparts without media backgrounds.

Detailed Analysis & Findings

Web Features

Among the 51 jurisdictions included in the content analysis of Web sites, training information was the most-frequent Web feature at 92.16 percent. Document downloads came in second at 84.31 percent. Newsrooms were the third most-frequent feature at 82.35 percent. Among the 23 agencies that participated in the online survey, those three features were tied for first at 82.61 percent each. Table 4 is a summary of the top 10 Web features (percentages in parentheses).

Table 4: Ranking of Web Features

All (n=51)	Low CRI (n=18)	Medium CRI (n=17)	High CRI (n=16)
1 - Training info (92.16%)	1 - Training info (88.89%)	1T – Training info (100%)	1T – Newsroom (100%)
2 - Doc. Downloads (84.31%)	2 - E-mail links (72.22%)	1T – Doc. Downloads (100%)	1T – Family crisis plan (100%)
3 - Newsroom (82.35%)	3 - Director picture (66.67%)	3 – Newsroom (94.12%)	1T – Pets info (100%)
4 - Family crisis plan (78.43%)	4T - Family crisis plan (61.11%)	4T – E-mail links (76.47%)	4 – Weather (93.75%)
5 - E-mail Links (76.47%)	4T - DHS links (61.11%)	4T – Family crisis plan (76.47%)	5T – Training info (87.5%)
6 - Weather (70.59%)	6T – Newsroom (55.56%)	4T – Gov's Office link (76.47%)	5T – Doc. Downloads (87.5%)
7T – Gov's Office link (68.63%)	6T – Gov's Office link (55.56%)	7 – Threat level (70.59%)	7T – E-mail links (81.25%)
7T - DHS links (68.83%)	6T – Director Bio (55.56%)	8 – DHS links (64.71%)	7T – DHS links (81.25%)
9T - Director picture (64.71%)	9T – Implied Mission (44.44%)	9 – Disabilities info (58.82%)	9T – Gov' Office link (75%)
9T - Threat level (64.71%)	9T – School crisis plan (44.44%)	10T –Director picture (52.94%)	9T – Threat level (75)
		10 T – Pets info (52.94%)	9T – Director picture (75%)
			9T – Business crisis plan (75%)

Analysis: The more content-rich the EMA Web site, the more likely that it is to be focused on the citizens and the media outlets that reach them. When asked whom they considered the "primary" audience of their Web sites, 80.3 percent of the survey respondents (public information officers a/k/a PIOs) indicated "everybody" or "residents of my state" were their primary public. No one in the sample indicated that local EM officials, first responders, or local officials were their "primary" audience. However, the most frequent Web feature on Low and Medium CRI Web sites was training information.

Finding #1 -- **Contrary to the stated intent of survey respondents, state EMA Web sites appear to place a greater emphasis on reaching internal and local/state public safety stakeholders than they do the citizens of their state or the news media that reach them. The more content-rich the site, the more likely that the site's content is targeted toward citizens and the media.**

Hazards

There is more agreement among the states when it comes to the hazards listed on the EMA Web sites. Floods and adverse winter conditions were the most-listed hazards nationwide (84.31 percent), with chemical/hazardous material incidents third (80.39 percent), and terrorism and fire tied for fourth (72.55 percent). Table 5 is a summary of the top 10 hazards within each cross-tabulation (percentages in parentheses):

Table 5: Rankings of Hazards Identified

All (n=51)	Low CRI (n=18)	Medium CRI (n=17)	High CRI (n=16)
1T - Flood (84.31%)	1 – Snow/ice (66.67%)	1T – Snow/ice (94.12%)	1T – Flood (100%)
1T –Snow/ice (84.31%)	2 - Flood (61.11%)	1T – Flood (94.12%)	1T – Chemical/Hazmat (100%)
3 – Chemical/Hazmat (80.39%)	3 – Health issues (55.56%)	1T – Chemical/Hazmat (94.12%)	3T – Terrorism (93.75%)
4T - Terrorism (72.55%)	4 – Chemical/Hazmat (50%)	1T – Terrorism (94.12%)	3T – Fire (93.75%)
4T - Fire (72.55%)	5 - Fire (44.44%)	5 – Fire (82.35%)	3T – Tornado (93.75%)
6 - Tornado (68.63%)	6T – Earthquake (38.89%)	6 – Tornado (76.47%)	3T – Extreme temps. (93.75%)
7 – Health issues (68.63%)	6T – Tornado (38.89%)	7 – Extreme temps. (70.59%)	3T – Radiological (93.75%)
8T – Extreme temps. (60.78%)	8 – Terrorism (33.33%)	8T – Earthquake (64.71%)	3T – Snow/ice (93.75%)
8T - Radiological (60.78%)	9T – Biological (27.78%)	8T – Radiological (64.71%)	9T – Earthquake (81.25%)
8T - Earthquake (60.78%)	9T –Radiological (27.78%)	10T –Health issues (58.82%)	9T – Thunder/Lightning (81.25%)
		10 T – Hurricane (58.82%)	

Analysis: It should be no surprise that hazards common to all regions of the country should top the rankings. It may surprise some that terrorism doesn't lead any list. However, in the wake of public, political and media criticism following Hurricane Katrina, EMA focus on terrorism appears to have been deemphasized and it is treated as one among several hazards citizens face. Following the September 11, 2001, terror attacks on the United States, both the Department of Homeland Security and Federal Emergency Management Agency Web sites had a primary focus on terrorism. However, following the Hurricane Katrina debacle and the widespread belief that those agencies ignored more common disasters, those Web sites decreased their emphasis on terrorism.[27] Another thing that stands out is the disparity in the frequency of listing hazards between the Low CRI and High CRI rankings. The percentage of the most-cited hazard among Low CRI Web sites (Snow/ice at 66.67 percent) would place it 14th among hazards listed on the High CRI sites and 8th on the Medium CRI sites.

Finding #2 – There does not appear to be any relationship between the content-richness of EMA Web sites and the potential hazards identified on them.

The Effect of Organizational Structure

Greater than two-thirds of the respondents (69.6 percent) indicated that they report directly to their agency's director. Another 17.4 percent said they were one supervisory level separated from the director and 8.9 percent said they were two supervisory levels separated from the director.

Table 6 –Supervisory Levels Versus CRI Rating

PIO Supervisory Levels From the Director	Low CRI	Medium CRI	High CRI
0	62.5%	85.7%	0
1	37.5%	12.5%	0
2	0	0	28.6%
Director Supervisory Levels From the Governor	Low CRI	Medium CRI	High CRI
0	16.7%	50%	33.3%
1	50%	25%	25%

Analysis: The higher in the organization chart the PIO is placed, the more likely the CRI of the Web site will a be higher. Among Low CRI Web sites, 62.5 percent reported directly to the director and 37.5 were one supervisory level separated from the director. Among Medium CRI Web sites, 85.7 percent reported directly to the director and 12.5 were one supervisory level separated from the director. That pattern does not precisely hold among the High CRI Web sites, where 71.4 percent reported directly to the director – still higher than in the Low CRI category -- and 28.62 were two supervisory levels separated from the director. More than half (56.3 percent) of those reporting directly to the director decide the content of their agency's Web site, compared to only 25 percent of those who said they were separated from the director by one supervisory level.

Finding #3 – Agencies with PIOs who report directly to the director tend to have Web sites that are more content rich than those where the public information officer does not.

Who Decides and Who Maintains?

Respondents were also asked whether they consider themselves a political appointee (serving for a limited time at the pleasure of the governor) or as a non-partisan (career) state employee. Contrary to its wording, this question has nothing to do with the effect of politics on emergency management. Instead, the focus is on the degree to which the PIO serves in a managerial role. By definition, positions filled by political appointees tend to be more managerial than those filled by career employees. These are the top managers of an agency who come and go with changes in political leadership. While a large majority of respondents said they were career (non-partisan) employees, it was the political appointees who were more likely (75 percent) to decide Web content than those who were nonpartisan career employees (47.4 percent). This finding is consistent with the managerial nature of political appointees.

There appears to be an inverse relationship between content-decision makers and content richness. Just over half of the respondents (52.6 percent) said they determine the content of their agency's Web site. In those agencies where the PIO maintains the Web site, the mean CRI (23.08) is only slightly higher than in those that

do not (22.27). However, when the respondent was the content-decision maker, 50 percent were in agencies with Low CRI sites, 33.33 percent with the Medium CRI sites, and 16.67 percent with High CRI sites. However, the opposite is true for respondents who maintain the agency Web sites. Only 20 percent came from agencies with Low CRI Web sites, compared to 40 percent with Medium CRIs and 40 percent with High CRIs.

Twenty-three of the 51 EMA Web sites (45.1) had non-functioning links. This problem does not appear to be linked to content-richness: Fifty percent of Web sites with a Low CRI had nonfunctioning links, compared to 41.2 percent among Medium CRI Web sites and 43.1 percent among High CRI Web sites. If anything, these figures suggest that the need for regular Web site maintenance is commonplace.

Analysis: Only half (50 percent) of the respondents who decide Web site content (n=12) also maintain the sites. Among that group, the Web sites are evenly divided among the three CRI categories. Among those who decide, but do not maintain their Web sites (n=6), the breakdown was 66.7 percent Low CRI, 33.3 percent Medium CRI, and zero percent High CRI. All of the respondents (n=2) who do not decide content, but maintain the sites had High CRI sites. Among those who neither decide the content of Web sites nor maintain those sites (n=11), 44.44 percent had Low CRIs, 33.33 percent had Medium CRIs and 22.22 percent had High CRIs.

Finding #4 – The person maintaining the Web site appears to have a higher influence on its content richness than the person who actually decides on Web content. This may be explained by the site administrator's deeper understanding of Web technology and subsequent decision to make greater use of it. It also suggests the need for a deeper understanding of Web technology by those who determine an agency's Web content.

Who Designed the Web Site?

A little over half (52.2 percent) of respondents said that the design of their agency's Web sites must conform to a design/template imposed adopted by their state government. Just under one-third (30.4 percent) said their Web site was designed within their agency, with another 8.7 percent created by outside consultants/designers. Overall, Web sites created by outside designers/consultants had the highest mean CRI, followed by those following a mandated template (23.5) and those that were designed within the agency (19.71).

Analysis: Table 7 is a cross-tabulation of CRI categories against design source and provides a much clearer picture:

Table 7: Design Source Versus CRI Rating

	State Government Template	Outside Designer	Agency Designed	Don't Know
Low CRI (n=9)	40.0%	0	50.0%	10.0%
Medium CRI (n=7)	57.1%	28.6%	14.3%	0
High CRI (n=7)	66.7%	0	16.7%	16.7%

These figures suggest a relationship between the Web site's designer and content-richness -- not surprising, in light of Finding #4. However, it may be a surprise to some that Web sites administered under a mandated template appear to be more content-rich than those designed in-house. A further cross-tabulation shows that 66.67 percent of respondents who said they determine the content of their agency's Web site are using a state-mandated template, compared to only 8.33 percent whose Web site was designed in-house. Also, more respondents who administer their agency's Web site are using a template (62.5 percent) than those administering an agency-designed site (12.5 percent).

That these results suggest a higher degree of Web-related expertise outside of state EMAs is not necessarily a negative finding. "There's nothing wrong with an EMA site conforming to a state template if the template is functional and serves needs," noted research consultant Kirk Hallahan. "The presence of a state template suggests that the state government recognizes the value of Web communications, and thus there is a greater commitment by the state and perhaps the agency to effective Web communications." He also wrote, "Designs produced by a state for all its agencies often can demonstrate a higher level of sophistication and graphical design that what could be produced internally."

Finding #5 – Web site designs that conform to a state government-mandated template tend to be more content rich than those designed within the EMA. This suggests that a higher level of Web design expertise exists within state government outside of state EMAs.

The Value of the Internet

When asked whether they thought the Internet was a valuable medium for use during emergencies, 78.4 percent of the respondents answered in the affirmative (47.8 percent "slightly agree" and 30.4 percent "strongly agree"), while 17.4 percent answered in the negative (17.4 percent "slightly disagree" and 0 percent "strongly disagree"). The rating average for all respondents was just below the threshold for "slightly agree." However, when asked if the Internet is as valuable a medium for use during emergencies as traditional media (such as radio and television), 63.7 percent answered in the affirmative (36.4 percent "slightly agree" and 27.3 percent "strongly agree") and 31.8 percent answered in the negative (31.8 percent "slightly disagree" and 0 percent "strongly disagree"). The rating average (on a 1-5 scale with higher numbers indicating greater agreement) for all respondents was 3.59, between "no opinion" and "slightly agree." Respondents from agencies with a High CRI rating were slightly more positive than those with Web sites with a Low CRI rating (4.33 and 4.11 respectively). However, the inverse was true when asked if the Internet is as valuable as traditional media during emergencies (High CRI – 3.00 compared to Low CRI – 4.00). Most notably, in almost every cross-tabulation, the rating for the Internet as a valuable tool was higher than that for the ratings of the Internet as being as valuable as traditional media.

Analysis: The numbers reflect a general ambivalence toward the Internet. While the respondents see some value in the Internet, they do not see it being as valuable as the more traditional media with which they are more familiar. Even those individuals who one might expect to a champion of the Web, the respondents who maintain/administer their agency's Web site, are less enthusiastic about the Internet compared to traditional media (3.25 or close to "no opinion" on the five-point scale).

Finding #6 -- While the respondents see moderate value in using the Internet during emergency conditions, they do not see the Internet equal to the more traditional communications media, such as radio and television.

Media Relations

Respondents were asked the degree to with they agreed with the statement "the news media do a good job, overall, in covering the activities of my agency." They were also asked if they have a good working relationship with the news media of their state. (Table 8)

Analysis: As these are among the strongest numbers in the survey, it appears that some respondent bias may exist. If the respondents – all public information officers – see media relations as an important aspect of their jobs and believe that they are doing a good job, it is reasonable to assume that the

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response to these questions would be very positive. However, even after taking the potential for bias into account, it appears that the higher the CRI rating of an agency's Web site, the more positive the public information officer feels about media coverage and the agency's relationship with the media. However, it should also be noted that there is no data that demonstrates a cause and effect relationship. The presence of a content-rich Web site may just be one of several indicators of good public relations practice leading to overall good media relations.

Table 8: Media Relations Versus CRI Rating

		Strongly Disagree	Slightly Disagree	Don't Know	Slightly Agree	Strongly Agree	Rating Average
Media do a good job covering the agency.	**All**	4.5%	13.6%	0	40.9%	40.9%	4.00
	L-CRI	0	22.2%	0	22.2%	55.6%	4.11
	M-CRI	16.7%	0	16.6%	33.3%	16.7%	3.50
	H-CRI	0	0	0	50%	50%	4.50
PIO has good relations with media	**All**	0	17.4%	4.3%	30.4%	60.9%	4.48
	L-CRI	0	11.1%	0	44.4%	44.4%	4.22
	M-CR	0	0	0	28.6%	71.4%	4.71
	H-CRI	0	0	0	16.7%	83.3%	4.83

Finding #7 – The greater the content richness of an emergency management agency's Web site, the greater the likelihood that the public information officer will believe that the news media do a good job of covering his or her agency and that the agency, overall, has a good relationship with the media.

Web Site Newsrooms

For the purposes of this study, a Web site's newsroom or training page was considered easily accessible if it had a direct link on the agency's home page. By that standard, three out of four EMA Web sites nationwide (74.51 percent) were considered accessible. That figure was slightly higher (78.26 percent) for the 23 agencies that responded to the online survey. In contrast, EMA training information was considered accessible on 82.35 percent of the sites nationwide and on 82.61 percent of the respondents' Web sites.

This study also examined how recently information in agency online newsrooms had been updated. For the purposes of this study, information was considered recently updated if it had been posted within three months of the content analysis. This covered the period of December 1, 2007 – to February 29, 2008. A relatively liberal definition was applied – as it was in the earlier pilot study – to take into account regional differences and potential post-election political turnover. By this standard, fewer than two out of three Web sites nationwide (64.71 percent) had recently updated newsroom content. The figure was slightly higher among the survey respondents (73.91 percent).

A cross-tabulation of accessibility and newsroom content based on CRI rating yielded these results:

Table 9: Accessibility Versus CRI Rating

	Low CRI	Medium CRI	High CRI
Newsrooms Accessible	52.63%	82.35%	93.33%
Training Information Accessible	84.21%	70.50%	93.33%
Recently Updated Newsroom Content	50%	52.94%	93.75%

Analysis: These results provide additional support to Finding #1, that a greater emphasis has been placed on providing training information for internal and public safety publics than public information for the citizenry or the news media that represent the public's interests. It also suggests that newsroom accessibility and the frequency newsroom information is updated are linked. Once again, this does not suggest a cause and effect relationship. The presence of an accessible newsroom with recently updated information may an indicator of good public relations practice. It is also an indicator – at least in terms of accessibility -- that the public information officer maintained the Web site.

Additional cross-tabulations showed that among the newsrooms considered accessible, 87.50 percent were on Web sites maintained by the respondent, compared to just 73.73 percent among those maintained by others in the agency. However, there was little difference overall in the frequency of recently updated newsroom content between PIO and non-PIO maintained Web sites, 75 percent on PIO-maintained sites compared to 73.33 percent for other Web sites. There was also little difference in newsroom accessibility and freshness of newsroom content between those sites updated on a regular schedule and those without a regular schedule of updates. There was a pronounced difference between Web sites updated daily (100 percent accessible and 100 percent with recently updated newsroom content) and those updated as needed (76.47 percent and 70.89 percent respectively).

Finding #8 – Content-rich Web sites tend to have online newsrooms that are more easily accessed and more frequently updated. This is especially true with Web sites maintained by the public information officer.

State Population Differences

A state's population base – which can be an indicator of the size of state government budgets and bureaucracy – appears to influence the CRI content of EMA Web sites.

Table 10: State Population Versus CRI

	Low State Population	Medium State Population	High State Population
Mean CRI	21.18	21.65	26.64
Low CRI Web Sites	35.3%	41.2%	29.4%
Medium CRI	58.8%	35.3%	5.9%
High CRI	5.9%	23.5%	64.7%

Analysis: Table 10 shows a cross-tabulation of state population size against the mean CRI ratings. There appears to be a sharp differentiation between the Low State Population and High State Population categories. Simply put, the greater the state population – and presumably the greater the state financial resources – the more likely the more content-rich the state EMA Web site will be. (It has been the principal investigator's personal experiences that this is not a discovery that will surprise most public employees.) As we have seen elsewhere in this study, the exception to this pattern was in the analysis of Medium CRI respondents who, by definition, are in transition between the Low and High categories and, therefore, may not represent as clear a differentiation.

There are other exceptions to this pattern. Maryland, 19th in state population and considered to be a Medium Population State, has the highest CRI ranking in the nation (40). On the other hand, Texas, second in population, has the 25th-highest CRI (24). Montana, which ranks 40th in population, has the

11th highest CRI. At best, one can say that state population is an indicator of the content-richness of state EMA Web sites.

Finding #9 – The size of a state's population – which presumably translates into financial resources – is an indicator of the content richness of state EMA Web sites. As a general rule, EMAs in states with larger populations tend to have more content-rich Web sites than those in less-populated states. However, there are exceptions.

FEMA Regional Differences

Table 11 shows the cross-tabulation of CRI ratings for the 10 FEMA regions. It also shows the population and population rankings for each region:

Table 11: Regional CRI Ratings

FEMA Region	Regional CRI (Rank)	Percent of Web Sites in Region			Population and (Ranking) Of FEMA Regions.[28]
		Low CRI	Medium CRI	High CRI	
I ME, NH, VT, CT, RI, MA	23.83 (3)	33.3%	50%	16.7%	14,264,185 (7)
II NY, NJ	28.50 (1)	0	0	100%	27,983,649 (6)
III PA, MD., DE, DC, VA, WV	28.00 (2)	16.7%	33.3%	50%	29,028.318 (5)
IV KY, TN, NC, FL, SC, MS, AL, GA	22.63 (6)	37.5%	25%	37.5%	59,209,563 (1)
V MN, WI, MI IL, IN,, OH	21.33 (8)	66.7%	0	33.3%	51,535,837 (2)
VI NM, TX, OK AR, LA	21.60 (7)	40%	40%	20%	36,619.612 (4)
VII NE, IA. KS, MO	23.75 (4)	25%	50%	25%	13,417.029 (8)
VIII MT, ND, SD WY, UT, CO	20.67 (9)	33.3%	66.7%	0	10,423.465 (10)
IX CA, NV AR, HY	23.25 (5)	25%	50%	25%	46,740,740 (3)
X AK, WA OR. ID	19.28 (10)	75%	0	25%	12,398,759 (9)

Analysis: The most content-rich EMA Web sites are in the mid-Atlantic. Region II (NY and NJ) had the highest regional mean CRI at 28.50. This may be statistically insignificant because Region II is the smallest of the 10 regions in terms of the number of states that comprise it. New York and New Jersey are both high population (ranked third and 11th respectively) and High CRI (27 and 33 respectively). The second-highest regional mean CRI (28.00) was Region III (PA, MD, DE, VA. WV and DC), which included the three states with the highest CRI ratings in the content analysis (Maryland at 40, Virginia at 35 and Pennsylvania at 33). Conversely, the least content-rich EMA sites are in the

mountain states and the Pacific Northwest. Region X (AK. WA, OR and ID) has the lowest regional mean CRI (19.28). Region XIII (MT, ND, SD, WY, UT and CO) had the second-lowest regional mean CRI (20.67). Because the FEMA regions were based on geographical considerations as opposed to population size, these figures do not appear to be anything more than interesting comparisons. However, it should be noted that the two regions with the lowest regional mean CRI ratings also have the two smallest population bases, which is consistent with Finding #9.

Public Information Officer Accessibility

The name of each state's EMA public information officer was listed on approximately two out of every three Web sites (68.63 percent). The percentage was higher among the respondents (78.26 percent). For agencies with a Low CRI rating, the public information officer was identified 66.67 percent of the time, compared to 81.25 percent of the time on Web sites with a High CRI rating. Less prevalent was the public information officer's direct telephone number. Overall, only 58.82 percent of the Web sites listed the PIO's direct line. In many of those cases, one had to search through a directory to find it. On Low CRI rated Web sites, the telephone number was listed 55.56 percent of the time, compared to 75 percent of the time on High CRI sites. This pattern also held for direct e-mail links to the PIO: 52.94 percent overall, 33.33 percent for Low CRI sites, and 75 percent for High CRI sites.

Less than half of the EMA Web site nationwide (45.9 percent) had all three elements (PIO identified, direct telephone listed, direct e-mail listed) present on their Web sites. Predictably, they were more present in the High CRI sites (68.8 percent) compared to Low CRI sites (45.1 percent).

Analysis: While it may seem counter-intuitive, there may be reasons EMA public information officers may want to be insulated from the citizenry. Most EMA public affairs staffs are relatively small. Demands on their time are considerable, especially during periods of crisis. One can't blame them for not wanting to be overwhelmed with public inquiries when they are busiest. However, at the same time, this "blackout" approach appears to run contrary to the need for transparency in public agencies. It appears that a handful of states have sought a middle ground by providing password-protected access to journalists.

Although not part of the original research design, it is possible that state EMA Web addresses, their URLs, also may be a barrier to Web site accessibility. For the purposes of this study, "easy to remember URLs" were defined as those Web addresses containing words and/or abbreviations that the public is likely to remember. Examples include Alaska's http://www.ak-prepared.com, Florida's http://www.floridadisaster.org, and Iowa's http://www.iowahomelandsecurity.org. The definition did not include URLs based on agency initials, such as South Carolina's http://www.scemd.org, in the belief that the public will be less likely to associate government agencies with their acronyms. Nor did the definition include those where the recognizable words or abbreviations were secondary elements of the URL, such as Kansas's http://www.ink.org/public/kdem/. Using these admittedly subjective criteria, only 13.7 percent of the agencies had Web sites with easy-to-remember URLs. Of course, the existence of state government Web portals and search engines mitigate this problem.

Finding #10 – Less than half of the EMA Web sites provide the identity of the PIO, his/her direct telephone number and direct e-mail address. One out of every five sites does not identify the agency's PIO by name. This is in conflict with the value of transparency the public expects of government agencies.

Public Information Officer Characteristics

In terms of on-the-job experience, the respondents appear to be a seasoned group. Through the process of data reduction, respondent on-the-job experience was reduced to two categories: less than three years on the job and three or more years on the job.

Table 12: The Level of Experience Versus CRI Rating

	Less than 3 years	Three or more years
All respondents	39.1%	60.9%
Low CRI	70.0%	30.0%
Medium CRI	28.6%	71.4%
High CRI	16.7%	83.3%

As already stated, the survey results are not necessarily representative of the nation's 51 state EMA public information officers because the sample was self-selecting and not truly random. However, as also stated in this report's methodology section, the response rate (45.1 percent) was reasonably good considering the medium used (online survey) and the managerial responsibilities of the respondents. The distribution among CRI categories and the state population rank mean (26.39) also give validity to the survey results.

Analysis: Among the respondents, the gender make-up was fairly even, with 47.8 percent male, 43.5 percent female and 8.7 percent not indicating their gender. It should be noted, however, that this runs contrary to national trends for public relations practitioners. The Public Relations Society of America estimated in 2005 that women comprise approximately 70 percent of the nation's public relations practitioners. However, while men outnumber women in agencies with Low CRI and Medium CRI Web sites (62.5 percent and 60 percent respectively), there are a greater number of women public information officers in agencies with High CRI ratings (57.1 percent). The size of a state's population appears to have no effect on the gender of the agency's public information officer. Thirty percent of women public information officers were political appointees, compared to only 11.1 percent of the male respondents. There wasn't a significant gender difference when it came to on-the-job experience: 60 percent of the women had been in their job three or more years compared to 54.5 percent for men. However, more women (60 percent) had five or more years experience compared to the male respondents (36.3 percent).

Finding #11 – There is a clear relationship between the PIO's on-the-job experience and the content-richness of his or her agency's Web site. It appears that the more experience one has, the greater the content-richness of the agency's Web site.

Understanding the Mission

Respondents were asked the degree to which they felt various stakeholders had a "good understanding" of their agency's mission. Table 13 reveals those results. The responses were coded on a one-to-five scale: "strongly disagree" = 1, "slightly disagree" = 2, "don't know" = 3," slightly agree" = 4 and "strongly agree" = 5.

Table 13: Stakeholder Understanding of EMA Mission

	Strongly Disagree	Slightly Disagree	Don't Know	Slightly Agree	Strongly Agree	Rating Average
Media	4.5%	4.5%	0	54.5%	36.4%	4.14
Public	18.2%	18.2%	9.1%	45.5%	9.1%	3.09
Legislators	4.3%	21.7%	13.0%	30.4%	30.4%	3.61

Analysis: Approximately nine out of every 10 respondents believe the news media within their state had a good understanding of their agency's mission. In terms of their understanding of the agency mission, the respondents rated the state legislators second (60.8 percent agreement, 26 percent disagreement) and citizens of their state third (54.6 percent agreeing, 36.4 percent disagreeing). This pattern generally held true in cross-tabulations against CRI category, whether the respondent determines Web site content, maintains the Web site or the number of levels of supervision between the respondent and the agency director. These results may be explained, in part, by the very nature of being a public information officer. When respondents were asked about their prior employment experience, many indicated that they had worked in some aspect of journalism. It would be natural for former journalists to feel an affinity toward the news media. It would also be natural for a public employee to be attuned to the interests and understanding of state legislators.

Professor Hallahan believes that the respondents' prior media experience also influenced the results. **"I think it could be argued that the experienced people might have a more sophisticated understanding of what is reasonable to expect from media and the public vis-à-vis other organizations," he wrote. "Their *higher assessments* might be based on *lower expectations* grounded in experiences with other organizations vis-à-vis a PIO with no media background who might have unrealistic expectations."**

Finding #12 – State EMA public information officers tend to believe that the news media have a better understanding of their agency's mission than do state legislators or the public. Of the three stakeholders, the PIOs believe that the public has the least level of understanding of their state's EMA's mission. In a post-Katrina environment in which EMA's are under intense public scrutiny, the belief that there exists lack of public understanding is troubling.

The online survey respondents were asked if they have worked in emergency management in the previous jobs. An overwhelming majority (82.6 percent) said they had not. Those who indicated that they had no prior emergency management experience where asked a follow-up contingency question, "If no, how would do describe your past work experience?" Based on that information, respondents were coded into two categories, those who had prior experience as journalists, public relations practitioners or some form of marketing and those who either responded "yes" (and did not respond to the contingency question) or those with some other background experience. For clarity, we will label respondents with journalism/PR/marketing backgrounds has having "media backgrounds."

Table 14 – Public Information Officer Backgrounds

	PIOs with media backgrounds N=10	Other PIOs N=13
Overall CRI	23.30	22.31
Low CRI	40.0%	46.2%
Medium CRI	40.0%	23.1%
High CRI	20.0%	30.8%
Web site newsroom accessible	70.0%	76.9%
Fresh news on Web site	70.0%	76.9%
Rating Scale Questions (1-5)		
Internet seen as equal to traditional media	3.13	3.85
Media understand agency mission	4.50	3.77
Public understand agency mission	3.63	2.62
Legislators understand agency mission	4.00	3.31
Media does job good covering agency	4.50	3.37
Agency has good media relations	4.89	4.31
PIO Role Within the EMA		
Report Directly to the Director	60%	76.9%
More than three years on the job	70%	53.8%
Determines Web site content	40%	61.5%
Administers the Web site	30%	38.5%

Analysis: PIO employment backgrounds do not appear to significantly influence the content-richness of EMA Web sites. However, those backgrounds do appear to influence PIO attitudes. When it comes to the belief that key stakeholders understand the agency mission, PIOs with media backgrounds are more positive than those who do not. PIO with media backgrounds are also in stronger agreement that the media does a good job covering their agency, and their agencies have good media relations. PIOs with non-media backgrounds are more inclined to see the Internet as the equal to traditional media during emergencies. However, for both groups, agreement with that statement is relatively neutral. When it comes to how the PIO's background affects his or her role within the agency, the only area of significant difference comes in the determination of agency Web site content. PIOs without a media background determined content more frequently to those with a media background, 61.5 percent to 40 percent respectively.

Finding #13 – PIOs with media experience in their professional backgrounds are more likely to feel their agency's mission is understood by key stakeholders than by those who do not have media backgrounds. However, PIOs with media experience are less likely to determine Web content than their counterparts without media backgrounds.

Recommendations

Recommendation 1 – State emergency management agencies must do a better job defining the purposes and targeted stakeholders when designing and administering Web sites.

Because of the ubiquitous nature of the Internet, it is easy to understand why some may believe that one size fits all. It hardly seems to be a medium appropriate for targeting individual audiences. Its ability to target multiple messages to multiple publics have led some to use the "splatter theory" when determining Web site content: Just throw everything onto the Web and see what sticks. There often does not seem to be a strategic (goal-driven) reason for the material posted.

As already noted in Finding #1, many state EMA Web sites do not appear to be properly targeted. While agency public information officers describe them as being targeted to the public-at-large, they more often focus on the needs of first responders and others in the emergency management community. Equaling compelling is Finding #6, where the respondents they believe that the public does not understand their agency's mission as well as either the news media or state legislators. Considered together, these two findings raise the prospect of a potentially damaging credibility gap between the perception and reality of emergency management. To put it another way, public information officers say they are least understood by the publics they are, in fact, least targeting. This communication breakdown could result in a climate of severe political recriminations much like that experienced in the post-Katrina period.

There's nothing wrong with providing training calendars and internally focused information on the Web. In fact, the Internet is well suited for this purpose. The emergency management community is an important stakeholder. However, this does not preclude providing a similar emphasis to other publics, such as the news media, businesses, educational institutions and the public at-large. Should any specially targeted information be of a sensitive nature not intended for other publics, it can easily be password protected.

It is important to remember that the Internet is a medium and not the message. It is not enough to have an Internet presence. Web sites are portals for reaching multiple audiences. However, messages should be tailored to meet both the strategic needs of the EMAs and the information needs of the individual publics. Recommendation 3 also speaks to this issue.

Recommendation 2 – State emergency management planners must recognize that the Internet and emerging social media are as important in public outreach – even during emergencies – as more traditional media.

While traditional mass communication sources of information – radio, television and newspapers – continue as important channels for reaching the American public, the nontraditional Internet and wireless social media must also be considered. According to a 2006 Pew Internet and American Life Project study, 45 percent of Internet users – about 60 million Americans – said that the Internet helped them make big decisions or negotiate their way through major episodes in their lives.[29] An earlier Pew report noted that half of online Americans turned to the Internet for news and information about Hurricanes Katrina and Rita.[30] Three out of four dispersed New Orleans residents who went online during the crisis reported visiting an online discussion forum. More than half said they posted messages. "This level of interaction also appeared to contribute to another phenomenon: the emergence of the citizen reporter," wrote researchers Claire and Steven Procopio. "Users seemed to value information from other users, with 30 percent labeling it their most informative online source in the week following the hurricane."[31]

Following the Virginia Tech shootings and California wildfires in 2007, researchers found that social networking Websites such as Facebook, blogs and instant messaging were better at warning affected individuals than traditional media sources.[32]

The respondents in this study were asked if they agreed with the statement that the Internet is a valuable source of information during emergencies, with 78.4 percent in agreement and 17.4 percent in the negative. However, when asked if the Internet is "as valuable" as traditional media during crises, only 63.7 percent answered in the affirmative and 31.8 percent answered in the negative. While these figures are probably higher than they would have been just a few years ago, emergency planner should not ignore the increasing penetration of the Internet into American society, an estimate 71.4 percent in November 2007. That represents a growth of 125.6 percent since 2000.[33] It should be noted that the first finding of this study was that while state EMA public information officers said that *external* publics were the prime targets of their agency's Web sites, the content of those same sites suggest that they are more *internally* focused. It may be that EMA Web deciders and designers are tend to focus more on the publics they know best than those they say they want to reach.

The focus of this research is the Internet. However, the growth of wireless communication has also led to advances in emergency notification through text messaging to cellular telephones. While that technology is outside the scope of this research, they are certainly among the social media presenting emergency managers with new opportunities for public outreach.

While some may express concerns about the fragility of the Internet and social media infrastructure during calamities, the fact is that all digital age communications face similar vulnerabilities. The Federal Communications Commission has noted that some social media systems, such as text messaging, cell phone and personal data assistants (PDAs), may continue to function while other systems fail.[34] It is true that the Internet is least reliable during periods in which electricity is disrupted and there is severe infrastructure damage. However, the same can be said of almost all emergency communications. Nor does this diminish the value of social media in the areas preparedness (pre-disaster) and recovery (post-disaster).

In an era when mass communications channels are becoming more and more diffused with the passage of time, the need to reach the public through the media they prefer is increasingly critical. While the traditional mass communication media will continue to play a vital role in the near future, the evidence suggests that emergency planners should place the Internet and emerging social media on an equal footing.

Recommendation 3 – The content of state emergency management agency Web sites should be under the direction of public information officers who have direct access to an agency's top manager.

The United Nations' International Strategy for Disaster Reduction defines emergency management as "the organization and management of resources and responsibilities for dealing with all aspects of emergencies, in particularly preparedness, response and rehabilitation."[35] Inherent in that – or any – definition of the term is the mastery of communications between the various entities and individuals in a position to effect solutions.

That is why it is ironic that many Web sites – increasingly important links between the agencies and the publics they serve – are administered by those not trained as professional public communicators. As Table 10 shows, there is a much stronger connection between PIOs with media experience and the perception of positive relationships with key stakeholders than exists with PIOs without media experience. (For the purposes of this study, "media experience" was defined as individuals with

journalism, public relations or marketing backgrounds.) However, as the data shows, PIOs without media experience have a greater say in Web site content than their counterparts with media experience. This is a reality that appears to be working at cross-purposes.

The essence of management – and leadership – is communication. Emergency managers do not build sandbag levies against rising floodwaters or serve as staff in shelters after natural disasters. They *communicate* with people who make those things happen. Considering that the public is likely the most important stakeholder in any crisis scenario – after all, they are *public* agencies – it is logical to assume that communication with this important audience should be in the hands of persons most experienced in both public relations practice and its tools.

Recommendation 4 – State emergency management officials must make agency Web sites more accessible to the public and the news media.

Perhaps the most disheartening finding of this study had to do with the lack of transparency and accessibility to agency public information officers. While most (74.51 percent) had online newsrooms directly linked the agency's home page, less than half (45.9 percent) identified the PIO by name and provided direct telephone numbers and e-mail links. Even that number is somewhat misleading. In preparing the e-mail address list for the follow-up survey, this information was frequency dispersed, requiring researchers to scour different sections of the Web site to glean that information. In an ideal situation, PIO contact information should be placed in one convenient spot, such as in the online newsroom.

Reporters face deadline pressures as demanding as those faced by emergency managers. And both, in their own ways, are serving the public interest. So why would anyone assume that journalists have the time to search an agency Web site for important contact information? Of course, the answer is that no one really assumes that. It is not an error of commission as much as it is one of omission. This situation exists because many agencies have not been as proactive in media relations planning as they have with other aspects of their mission.

There is a legitimate need to control direct media and public assess to the public information officer and his/her staff. They could be easily overwhelmed by public inquiries at the times they are busiest. Some states have solved this problem by providing password-protected access for journalists. However, in an era where emergency response has become a political touchstone, there is a need to place the value of transparency over that of expedience.

Recommendation 5 – State emergency management public information officers should be knowledgeable in the use of Internet technology.

The study concluded that the person maintaining the agency Web site appears to have a higher influence on its content richness than the person actually entrusted with that responsibility. If we were discussing newspapers, this would be the equivalent of the printing press operator having more influence over content than the reporters or editors. Another finding, that Web sites using a state government mandated template are more content rich than those designed in-house, also suggests a greater need for Web design skills.

This recommendation does not suggest that the public information officer should be the Web designer. In many situations, that is just not practical. However, the more public information officers understand Web capabilities, the better they can instruct Web designers in how to use them. Even a basic understanding of Web design and architecture could prove beneficial at times staff resources are strained.

The dairy and beef industries demonstrated the value of the Web in crisis communications in 2003, when the first case of mad cow disease was reported in the U.S. Having learned from the mistakes Europeans made when confronted with an outbreak of the disease in 2001, several industry associations developed emergency Web sites with a wealth of information designed to inform the news media and comfort consumers. Those Web sites – sometimes referred to as *dark sites* - remained off-line until the first mad cow report surfaced. At that moment, they were immediately posted on-line. These and other tactics helped to minimize what could otherwise have been a catastrophic economic disaster for the cattle and dairy industries.[36] There's no reason why a proactive public information officer could not direct his/her staff to develop contingency Web pages for use in informing key stakeholders about preparing for and mitigating the effects of crises common to their states.

"EMAs don't have a choice between using traditional media and the Web to communicate vital public information in an emergency," wrote Professor Hallahan of Colorado State. "They must do both." He suggested that state emergency managers incorporate a Web response in their incident response planning. Hallahan also noted that behavior research has shown that people engage in both *information seeking* and *information sharing* behavior during crises. "Providing timely and accurate information can help agencies avoid problems of rumor and misinformation, which quickly are created in information vacuums," he said. "Thus agencies can provide a valuable to service to the public."

Recommendation 6 – State emergency management agencies should simplify their Web site URLs to facilitate public outreach.

As noted in the Analysis & Findings section of this report, state EMA Web addresses, URLs, may be a barrier to Web site accessibility. Only 13.7 percent of state emergency management agencies had Web sites with easy-to-remember URLs. While the existence of state government Web portals and search engines mitigate this problem, it doesn't entirely eliminate it.

The telephone company understood this concept from its earliest days. By assigning letters to each number on the dial, customers were able to create memory aids to increase business traffic. An example of this concept in action is the North Carolina Department of Commerce's 1-800-VisitNC telephone number. The federal government has taken the lead with easy-to-remember Web addresses such as Ready.gov, Floodsmart.gov and Disasterhelp.gov. As noted in the analysis, several states also have adopted user-friendly Web addresses. Not only are the URLs for these Web sites easy to remember, they are also easier to promote in agency communications. In the example noted above, North Carolina tourism officials promote their state by using a Web address, www.visitnc.com, similar to their promotional telephone number.

If some are wary of using marketing tactics in emergency management, it is good to remember that the two disciplines have similar goals – reaching the most people as effectively and efficiently as possible.

Consultant Comments

Upon completion of the initial draft of this report in July 2008, it was shared with three outside consultants. Each was chosen because of the expertise he brings to the discussion. Many of their suggestions were incorporated into the final document. Where appropriate, their comments have been inserted into the narrative. A summary of each consultant's critique of this research follows.

Associate Professor Coy Callison
Texas Tech University

Dr. Coy Callison was complimentary of the report, but had some suggestions concerning its methodology. "Guth has devised a systematic and seemingly valid means of analyzing how state emergency management agencies are employing the Internet to fulfill the roles for which they were chartered," Professor Callison said. "In addition to inventorying and critiquing the EMA Web sites, Guth takes an additional step that provides context to website construction in that he surveys the public information officers whose offices maintain the websites. This two-step approach allows Guth to uncover the *why* in addition to the *how* in his look into EMA use of the Internet."

Professor Callison's greatest concern was the role hazards play in calculating the content richness index. "Depending on the state, more or fewer hazards should be addressed," Callison wrote. "Your index would rate a state lower on the CRI if it did not include all the hazards (as compared to a state that did). I would argue that states can and should only address the hazards that could befall their citizens. Should Oklahoma be rated lower because it does not have a plan for a hurricane, a tsunami, and volcano? Naturally, some states are more hazardous. California, for example, could be the victim of any of the disasters listed other than volcano. New Mexico, however, may face only half that number." He suggested that coding the percentage of hazards applicable to individual states would be a more equitable measure. Callison also recommended an adjustment in the 47-point scale. He said that by using a multiplier, it could be converted to a 100-point scale that would be more easily understood by the public. *Note: While the principle investigator agrees in principle with these suggestions, he feels they are best addressed in the operationalization of a future study.*

"The findings outlined by Guth match logically to the data gathered," said Professor Callison. "Careful effort seems to have been taken to avoid reaching conclusion that require stretches in logic." He went on to write, "Findings like #5 (Sites built from a template are especially content rich) provide real direction to EMAs and decision-makers as they determine best practices in crafting a site. Rather than having to base decisions on intuition, designers can reference the report and Guth's evidence that sites built on a template have fewer informational holes."

Emergency Preparedness Coordinator Tom Ditt
North Carolina Division of Services for the Deaf & Hard of Hearing

While consultant Tom Ditt did not comment specifically on the recommendations of this report, he offered extensive comments on its findings. He agreed with the report's first finding, that state EMA Web sites tend to focus more on internal audiences. "Unfortunately, in many instances emergency management Web sites are directed at an emergency management population as an electronic newsletter," Ditt wrote. "In an emergency, people seeking information are not interested in looking at pictures of a three-year-old plane crash exercise." He also stressed the importance of having the PIO – and not the IT folks – determine Web site content.

Many of Ditt's comments focused on the importance of the public information function within emergency management. One of the report's findings was that agencies with public information officers who report directly to the agency head and/or are political appointees tend to have more content rich Web site than those who do not. "The public information function is critical if lives are to be saved and property losses reduced, but it has to be supported," he wrote. In response to Finding #10, which suggests that states with greater financial resources tend to have more content-rich Web sites, Ditt said, "Having seen other state EM Web sites and knowing the PIOs, I would submit that the content and effectiveness of an EM Web site is based on the support of people and funding for it."

Ditt was not surprised with the finding that state EMA public information officers tend to believe that the news media have a better understanding of their agency's mission than do state legislators or the public. He said this is an outgrowth of the working PIO-reporter working relationship. "After a couple of disasters, the reporters are familiar with terminology and EM operations," Ditt wrote. "Many PIOs began their careers as reporters. They have played the same game." However, Ditt also warned that having a content-rich Web site doesn't necessarily translate into good media relations. "You start believing your own press clippings and fail to search for new and better ways to communicate," he said. "Don't live on your laurels as you are only as good as your last disaster."

Professor Kirk Hallahan, Ph.D.
Colorado State University

Dr. Kirk Hallahan provided a 13-page critique of the study. Many of his suggestions have been incorporated into the final version of the report. Some of those changes included creation of a more accurate and descriptive title for the report, a reorganization of the narrative to group related topics together, and more detailed analyses and tables to increase reader clarity. Professor Hallahan also demonstrated a keen ability in copy editing.

Hallahan raised two concerns involving the methodology. First, he was concerned about the survey sample and whether interviews would have been preferable and have generated a higher response rate. This prompted a clearer explanation of the survey rationale in the methodology section of the report. He also expressed concerns about the Content Richness Index. "At least three different elements are inter-mixed in the index: 1) agency-related information, 2) Web site features (presence of e-mail links, podcasts, etc.), and 3) hazard-specific content," he noted. "A strong argument could be made that these should be analyzed separately." He also noted that Web site content might be influenced by each agency's current operational status. "The narrative might draw more heavily on differentiating how Web sites might serve EMAs during different phases of an emergency," Hallahan wrote. "It could be argued that most states are in mitigation and preparedness modes during most of the year. States when rev up their Web sites to deal with responses on a real-time basis. The Web also can be used during the recovery periods of particular emergencies (in varying degrees depending on the jurisdiction)."

Hallhan suggested that the report should "clarify" and "amplify" several issues related to public information officers. He questioned the report's implication that emergency management agencies should employ a full-time PIO. He also questions whether *public information officer* is the correct term. "Based on the results in Table 13, I suspect there are operations people who are responsible for the PIO function in addition to handling other tasks," he wrote. "There's a higher proportion of PIOs without media backgrounds who report directly to the Director and substantially more who determine web site content (possibly because they are responsible for activities)." While he agreed in principle

with the recommendation that the content of EMA Web sites should be under the control of PIOs, he said some may challenge the notion on the basis of Web sites serving multiple units. Hallahan also said that the use of the term *political appointee* to distinguish civil servants from those who serve at the pleasure of the governor is misleading and implies an unintended meaning.

Appendix I
CRI by State (Alphabetical)

Content-Richness Index (CRI)
CRI Scores, CRI Rankings & State Population Rankings

	CRI Ranking	Web site CRI score	Population Rank		CRI Ranking	Web site CRI score	Population Rank
Alabama	26T	23	23	Montana	17T	26	44
Alaska	38T	18	47	Nebraska	43T	17	38
Arizona	47T	13	16	Nevada	17T	26	35
Arkansas	34T	19	32	New Hampshire	29T	22	41
California	4T	31	1	New Jersey	10	30	11
Colorado	38T	18	22	New Mexico	20T	25	36
Connecticut	26T	23	29	New York	12T	27	3
Delaware	32T	20	45	North Carolina	4T	31	10
District of Columbia	20T	25	50	North Dakota	32T	20	48
Florida	4T	31	4	Ohio	34T	19	7
Georgia	4T	31	9	Oklahoma	47T	13	28
Hawaii	26T	23	42	Oregon	49	11	27
Idaho	43T	17	39	Pennsylvania	3	33	6
Illinois	12T	27	5	Rhode Island	20T	25	43
Indiana	38T	18	15	South Carolina	29T	22	24
Iowa	17T	26	30	South Dakota	50T	10	46
Kansas	4T	31	33	Tennessee	34T	19	17
Kentucky	46	14	26	Texas	25	24	2
Louisiana	12T	27	25	Utah	20T	25	34
Maine	11	28	40	Vermont	38T	18	49
Maryland	1	40	19	Virginia	2	35	12
Massachusetts	12T	27	14	Washington	4T	31	13
Michigan	34T	19	8	West Virginia	45	15	37
Minnesota	38T	18	21	Wisconsin	12T	27	20
Mississippi	50T	10	31	Wyoming	20T	25	51
Missouri	31	21	18				

Content-Richness Index (CRI)
CRI Scores, CRI Rankings & State Population Rankings

	CRI Ranking	Web site CRI score	Population Rank		CRI Ranking	Web site CRI score	Population Rank
Maryland	1	40	19	Connecticut	26T	23	29
Virginia	2	35	12	Hawaii	26T	23	42
Pennsylvania	3	33	6	New Hampshire	29T	22	41
California	4T	31	1	South Carolina	29T	22	24
Florida	4T	31	4	Missouri	31	21	18
Georgia	4T	31	9	Delaware	32T	20	45
Kansas	4T	31	33	North Dakota	32T	20	48
North Carolina	4T	31	10	Arkansas	34T	19	32
Washington	4T	31	13	Michigan	34T	19	8
New Jersey	10	30	11	Ohio	34T	19	7
Maine	11	28	40	Tennessee	34T	19	17
Illinois	12T	27	5	Alaska	38T	18	47
Louisiana	12T	27	25	Colorado	38T	18	22
Massachusetts	12T	27	14	Indiana	38T	18	15
New York	12T	27	3	Minnesota	38T	18	21
Wisconsin	12T	27	20	Vermont	38T	18	49
Iowa	17T	26	30	Idaho	43T	17	39
Montana	17T	26	44	Nebraska	43T	17	38
Nevada	17T	26	35	West Virginia	45	15	37
District of Columbia	20T	25	50	Kentucky	46	14	26
New Mexico	20T	25	36	Arizona	47T	13	16
Rhode Island	20T	25	43	Oklahoma	47T	13	28
Utah	20T	25	34	Oregon	49	11	27
Wyoming	20T	25	51	Mississippi	50T	10	31
Texas	25	24	2	South Dakota	50T	10	46
Alabama	26T	23	23				

Appendix III
Content Analysis Tabulations

Content Analysis Tabulations

Number of web sites: 51

Average Content-Richness Index: 23.02 *

Web Site Features

Newsroom	42	82.35%
Training info	47	92.16%
Director Bio	28	54.90%
Director pix	33	64.71%
Explicit Mission**	26	50.98%
Implied Mission**	19	37.25%
Photo Gallery	16	31.37%
E-mail Links	39	76.47%
Document Downloads	43	84.31%
Weather	36	70.59%
Video	12	23.53%
Audio	3	5.88%
Podcasts	1	1.96%
Threat Level	33	64.71%
Vodcasts	2	3.92%
Kids Info (agency)	16	31.37%
Kids Info (other)	19	37.25%
Homeland Sec. Links	35	68.63%
Governor's Office Links	35	68.63%
Disabilities info	24	47.06%
Pets info	30	58.82%
Family crisis plan	40	78.43%
School plan	23	45.10%
Business plan	23	45.10%

* CRI equals frequency of the 48 Web Site Features and Web Site Hazards indicators shown in green.

** Because the presence of an agency's mission statement can be implicit or explicit, but not both, 47 is the maximum CRI score a web site can receive.

Specific Hazards

Nuclear war	7	13.73%
Radiological incident	31	60.78%
Terrorism	37	72.55%
Tornado	35	68.63%
Flood	43	84.31%
Chemical/Hazmat	41	80.39%
Fire	37	72.55%
Hurricane	23	45.10%
Earthquake	31	60.78%
Biological	23	45.10%
Snow/Ice	43	84.31%
Tsunami	9	17.65%
Blackouts	16	31.37%
Oil spills	2	3.92%
Health issues	32	62.75%
Road conditions	18	35.29%
Drought	23	45.10%
Extreme temperatures	31	60.78%
Cyber disasters	7	13.73%
Weapons	7	13.73%
Dams	12	23.53%
Landslides/Avalances	15	29.41%
Thunderstorm/Lightning	24	47.06%
Volcanoes/Ash	9	17.65%

Web Site Issues

Newsroom accessible	38	74.51%
Fresh news (since 12/1)	33	64.71%
PIO Identified	35	68.63%
PIO direct phone	30	58.82%
PIO direct e-mail	27	52.94%
Training accessible	42	82.35%
Nonfunctional Links	23	45.10%

Appendix IV
Online Survey Instrument

State Emergency Management Agency Public Information Officer

Statement of Understanding

✱ 1. The University of Kansas Center for Research Human Subjects Protection Office requires that all survey participants understand the following information:

1. You are under no obligation to participate in this survey.
2. You may discontinue your participation in this survey at any time.
3. Participation in this survey indicates your willingness to take part in this study.
4. You are at least 18 years old.
5. Survey answers will only be seen by the Project Investigator and such Research Assistants as he may assign. The summary and analysis of responses will be all that is shared with the public. A copy of the summary and analysis will be provided to you if requested.

◯ I understand.

◯ I do not understand. Please contact me by telephone for clarification.

Contact me at (phone number):

_____

State Emergency Management Agency Public Information Officer

Participant Background

The six questions in this section are designed to familiarize researchers with your position at the Emergency Management Agency and how it fits within the governmental structure of your state.

1. Your name and current job?

Name: _____

Title: _____

Department: _____

State: _____

2. How long have you worked in your current job?

○ Less than one year

○ 1-2 Years

○ 2-3 Years

○ 3-4 Years

○ 4-5 Years

○ 5 or More Years

Comment (if desired):

_____

3. Have you worked in Emergency Management in the past?

○ a. Yes

○ b. No.

If NO, how would you describe your past work experience?

_____

4. Would you consider your position as:

○ A political appointee serving at the pleasure of the current administration.

○ A non-partisan employee of the state. (example: Civil Servant)

State Emergency Management Agency Public Information Officer

5. How many levels (supervisory or administrative) exist between you and your state's EMA Director?

◯ None (I report directly to the EMA Director.)

◯ One (Example: I have a supervisor who reports to the EMA Director.)

◯ Two (Example: I have a supervisor who reports to the head of our department, and the head of our department reports to the EMA Director.)

◯ Other (please specify):

```
[                                                            ]
```

6. How many levels exist between your state's EMA Director and the Governor?

◯ None (The EMA Director reports directly to the Governor.)

◯ One (Example: The EMA Director reports to the head of a governmental department and the head of that department reports to the Governor.)

◯ Other (please specify)

```
[                                                            ]
```

State Emergency Management Agency Public Information Officer

Internet Web Site Use - Content Development

The questions in this section are directly related to your agency's Internet web site and its use as a source for dissemination of public and media information.

These questions are NOT intended to survey Internet web site use for activity related to your agency's training responsibilities.

1. Are you the person who decides what information goes on your state's EMA web site?

(Example: Like the editor of a newspaper who decides what goes into the newspaper each day.)

○ Yes

○ No

2. If you are NOT the person who decides what information goes on your state's EMA web site, who is? (Job title only, please.)

[_____]

3. If you provided a title for someone else in Question #2 (above), does that person report to you?

○ Yes

○ No

○ Other (Please explain.)

[_____]

4. Are you the person who manages the web site? (The "hands-on" person who uploads and enters information to the site.)

○ Yes

○ No

5. If you are NOT the person who manages the web site, who is? (Job title only, please.)

[_____]

6. If you provided a title for someone else in Question #5 (above), does that person report to you?

○ Yes

○ No

Other (Please explain.)

[_____]

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Internet Web Site Use - Design

1. Do you have a planned schedule for updating the web site?

○ Yes

○ No

2. How often is the information on your web site updated?

☐ Daily

☐ Weekly

☐ Monthly

☐ As needed

Other (please specify)

[   ]

3. Who do you consider to be the primary "audience" when you prepare information for the web site (other than EMA personnel or those seeking training information)?

○ The public in general, regardless of where they live

○ Residents of our state only

○ Media/Journalists/Those responsible for communicating information to others

Others:

[   ]

4. Why was the current EMA web site design selected?

○ Followed template or guidelines required of all our state's web sites

○ Outside source was hired to design best web site possible

○ Web site was designed by EMA to meet agency needs

○ Don't know

Other (please specify)

[   ]

5. What do you like most about your state's EMA web site?

[   ]

6. Given ample resources and time, what would you change about your state's EMA web site?

[   ]

State Emergency Management Agency Public Information Officer

Internet Web Site Use - Public Relations

This final section contains a seven statements. Please indicate the degree to which you either agree or disagree with each statement.

1. Rate the following statements, based on your personal opinion:

	Strongly Disagree	Slightly Disagree	Don't Know	Slightly Agree	Strongly Agree
A. The news media in my state have a good understanding of my agency's mission.	○	○	○	○	○
B. The public in my state have a good understanding of my agency's mission.	○	○	○	○	○
C. The state legislature has a good understanding of my agency's mission.	○	○	○	○	○
D. The news media do a good job, overall, of covering the activities of my agency.	○	○	○	○	○
E. I have a good working relationship, overall, with the media of my entire state.	○	○	○	○	○
F. During an emergency, I believe my web site is a valuable source for the public and media to find current informaion.	○	○	○	○	○
G. During an emergency, I believe my web site is as valuable a source for providing information to the public as traditional mass communication resources (such as radio and television).	○	○	○	○	○

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State Emergency Management Agency Public Information Officer

Thank You.

Thank you for your participation in this survey.

Should you have any immediate questions about this project or your participation in it, you may contact:

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If you have any questions about your rights as a research participant, you may call the University of Kansas Department of Research Human Subjects Protection Office at 785.864.7429, or email dhann@ku.edu.

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