



Department of Homeland Security Office of Inspector General

FEMA's Progress in All-Hazards Mitigation





October 19, 2009

Preface

The Department of Homeland Security (DHS) Office of Inspector General (OIG) was established by the *Homeland Security Act of 2002* (Public Law 107-296) by amendment to the *Inspector General Act of 1978*. This is one of a series of audit, inspection, and special reports prepared as part of our oversight responsibilities to promote economy, efficiency, and effectiveness within the department.

This report addresses the Federal Emergency Management Agency's progress in leading the Nation's efforts to mitigate the risks of natural disasters, acts of terrorism, and other manmade disasters, as mandated by the *Post Katrina Emergency Management Reform Act of 2006*. It is based on interviews with employees and officials of relevant agencies and institutions, direct observations, and a review of applicable documents.

The recommendations herein have been developed to the best knowledge available to our office, and have been discussed in draft with those responsible for implementation. We trust that this report will result in more effective, efficient, and economical operations. We express our appreciation to all of those who contributed to the preparation of this report.

A handwritten signature in cursive script that reads "Richard L. Skinner".

Richard L. Skinner
Inspector General

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Abbreviations

DHS	Department of Homeland Security
FEMA	Federal Emergency Management Agency



*Department of Homeland Security
Office of Inspector General*

Executive Summary

The Federal Emergency Management Agency's Mitigation Directorate has made progress promoting multi-hazard mitigation planning and publishing building design guidance for mitigating multi-hazard events. Other Department of Homeland Security components are advancing mitigation measures to reduce or eliminate risks to critical infrastructure and key resources throughout the Nation, but a coordinated risk-based, all-hazards mitigation strategy mandated by the *Post Katrina Emergency Management Reform Act of 2006* has yet to be developed.

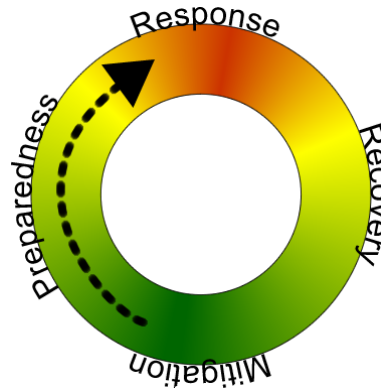
The Mitigation Directorate is well positioned to coordinate an all-hazards mitigation strategy because of its extensive network of mitigation partners and stakeholders at the federal, state, tribal, and local levels. However, its ability to advance structural mitigation projects beyond those that address natural hazards is limited because (1) the *Robert T. Stafford Disaster Relief and Emergency Assistance Act* does not require or incentivize state, tribal, and local jurisdictions to prepare and implement hazard mitigation plans that address technological or manmade hazards, although it requires mitigation plans for natural hazards as a condition of receiving federal mitigation assistance; and (2) the Federal Emergency Management Agency's Mitigation Directorate has only one program, the National Dam Safety Program, to address a technological hazard proactively, and none solely dedicated to address manmade hazards proactively.

We are offering seven recommendations to advance the development and implementation of a risk-based, all-hazards mitigation strategy, along with a matter for congressional consideration that, if enacted, would authorize FEMA's Mitigation Directorate to fund mitigation projects that proactively address technological or manmade hazards and further incentivize state, tribal, and local governments to prepare a hazard mitigation plan that addresses all hazards inherent to their jurisdictions.

Background

The primary mission of the Federal Emergency Management Agency (FEMA) is to reduce the loss of life and property and to protect the Nation from all hazards by leading and supporting a risk-based, comprehensive emergency management system. Mitigation, considered the cornerstone of emergency management, attempts to prevent hazards from developing into disasters altogether or reduce the effects of disasters when they occur. The mitigation phase differs from the other phases of emergency management in that it focuses on long-term actions to reduce or eliminate risk from hazards and their effects. Figure 1 is a graphic representation of the four phases in emergency management.

Figure 1. The Four Phases of Emergency Management



Hazards typically fall into three broad categories: natural, technological, and manmade. Natural hazards are generally associated with weather and geological events, such as a flood, hurricane, tornado, or earthquake. Technological hazards refer to human activities such as dam and levee construction or the manufacture, transportation, storage, and use of hazardous materials. Manmade hazards are typically associated with a criminal or terrorist attack using weapons such as an explosive, biological, or chemical agent. However, natural disasters can also be compounded by manmade and technological hazards to the extent that disaster losses could be prevented through mitigation. For example, Hurricane Katrina was both a natural and technological disaster because it involved the development of urban areas in naturally hazardous areas below sea level, compensated only partially by the construction of levees.

Principal federal statutes guiding disaster mitigation at the state and local levels are the *National Flood Insurance Act of 1968* (42 U.S.C. 4001 et seq.), the *Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988* (Stafford Act) (P.L. 100-707), and the *Disaster Mitigation Act of 2000* (P.L. 106-390). The *National Flood Insurance Act* established the National Flood Insurance Program, which encourages local governments to mitigate flood risks through local regulation and financial incentives. The Stafford Act is the basic disaster relief law of the country and authorizes disaster programs implemented by FEMA. The Disaster Mitigation Act is the most important federal hazard mitigation law because it requires local governments to prepare hazard mitigation as a precondition for receipt of federal hazard mitigation project funds.

Mitigating a hazard can involve both structural and nonstructural measures. Structural mitigation measures are generally technology-based solutions such as building flood levees and designing new or retrofitting existing buildings to make them more resistant to hazards. Nonstructural mitigation includes policy-based measures such as enacting land use ordinances that prohibit residential development in flood-prone areas or requiring hazard insurance for structures susceptible to hurricanes.

A study conducted by the Multi-hazard Mitigation Council¹ of the National Institute of Building Sciences determined that each dollar spent on natural hazard mitigation saves society an average of 4 dollars. It concluded that mitigation is most effective when carried out on a comprehensive, community-wide, long-term basis; and that implementing coordinated mitigation activities over time is the best way to ensure that communities will be physically, socially, and economically resilient to future hazard impacts.

FEMA's Mitigation Directorate, established in November 1993, leads the agency's mitigation efforts and manages a range of programs designed to reduce future losses to homes, businesses, schools, public buildings, and critical facilities from natural disasters. It also provides building design guidance for mitigating multi-hazard events and promotes multi-hazard mitigation planning at the state and local levels.

¹ The purpose of the Multi-hazard Mitigation Council is to reduce the total costs associated with natural and other related hazards to buildings by fostering and promoting consistent and improved multi-hazard risk mitigation strategies, guidelines, practices, and related efforts.

The *Post Katrina Emergency Management Reform Act of 2006* (P.L. 109-295), enacted to address shortcomings identified in the preparation for and response to Hurricane Katrina, enhanced FEMA's authority and gave it primary responsibility for the four phases of comprehensive emergency management: preparedness, response, recovery, and mitigation. FEMA's activities include:

- Lead the Nation's efforts to prepare for, protect against, respond to, recover from, and mitigate against the risk of natural disasters, acts of terrorism, and other manmade disasters, including catastrophic incidents;
- Coordinate the implementation of a risk-based, all-hazards strategy that builds those common capabilities necessary to prepare for, protect against, respond to, recover from, or mitigate against natural disasters, acts of terrorism, and other manmade disasters;
- Integrate the agency's emergency preparedness, protection, response, recovery, and mitigation responsibilities to confront effectively the challenges of a natural disaster, act of terrorism, or other manmade disaster;
- Build the unique capabilities necessary to prepare for, protect against, respond to, recover from, or mitigate against the risks of specific types of incidents that pose the greatest risk to the Nation; and,
- Partner with state, local, and tribal governments and emergency response providers, with other federal agencies, with the private sector, and with nongovernmental organizations to build a national system of emergency management that can effectively and efficiently utilize the full measure of the Nation's resources to respond to natural disasters, acts of terrorism, and other manmade disasters, including catastrophic incidents.

Results of Audit

DHS Efforts to Advance All-Hazards Mitigation

FEMA's Mitigation Directorate recently published guidance on implementing mitigation planning regulations that encourage the inclusion of technological and manmade hazards in state, tribal, and local mitigation plans. It also published a series of disaster publications called the Risk Management Series that promotes the adoption of measures that will reduce casualties and the physical damage to buildings and infrastructure from the impact of conventional bombs; chemical, biological, and radiological agents; earthquakes; floods; and high winds. Several other Department of Homeland Security (DHS) components are advancing mitigation measures as well to reduce or eliminate risks to assets primarily associated with the 18 critical infrastructure and key resource sectors.² Collaboration among DHS components that have a role in mitigation will facilitate the development and implementation of a risk-based, all-hazards mitigation strategy, and help identify resources within DHS that can be used to mitigate all hazards identified in state, tribal, and local mitigation plans.

Multi-hazard Mitigation Planning

In July 2008, FEMA's Assistant Administrator for Mitigation issued *Local Multi-Hazard Mitigation Planning Guidance*, which became effective on October 1, 2008, for all local mitigation plans approved by FEMA.³ The purpose of the local mitigation plan is codified in FEMA regulations, 44 CFR 201.6:

“The local mitigation plan is the representation of the jurisdiction’s commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.”

² The 18 critical infrastructure and key resource sectors are Agriculture and Food; Banking and Finance; Chemical; Commercial Facilities; Communications; Critical Manufacturing; Dams; Defense Industrial Base; Emergency Services; Energy; Government Facilities; Healthcare and Public Health; Information Technology; National Monuments and Icons; Nuclear Reactors; Materials and Waste; Postal and Shipping; Transportation Systems; and Water.

³ This guidance was one of three issued on the requirements of mitigation planning under Code of Federal Regulations, Title 44, Part 201. Separate planning guidance was issued for state multi-hazard mitigation planning and tribal multi-hazard mitigation.

It is important to note that although FEMA regulations and the local multi-hazard guidance focus on mitigation planning for natural hazards, FEMA supports jurisdictions that choose to consider technological and manmade hazards as part of a comprehensive mitigation strategy and developed guidance in 2003 on how jurisdictions can integrate technological and manmade hazards into mitigation plans.⁴ FEMA also underscores in guidance that mitigation plans should identify and assess vulnerability of buildings, infrastructure, and critical facilities or structures located within an identified hazard area, including critical facilities essential to the health and welfare of the population such as hospitals and emergency operations centers; transportation systems such as airports, bridges, and tunnels; lifeline utility systems such as potable water, oil, natural gas, and electric lines; communication systems such as radio stations, repeater sites, and base stations; and hazardous material facilities that house explosives and toxins.

According to FEMA regulations, the purpose of mitigation planning is for state, tribal, and local governments to identify the natural hazards that impact them, to identify actions and activities to reduce any losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of a wide range of resources.⁵ Hazard mitigation planning is the process of identifying risk and vulnerabilities to hazards, followed by a strategy that will reduce or prevent the effects of a hazard from developing into a disaster. The final product is a mitigation plan that provides the framework for implementing mitigation projects that can also attract federal mitigation assistance and grants to mitigate the hazard. The following process for hazard mitigation planning is the same for natural, technological, and manmade hazards:

- Identify and organize resources (create a planning team with representatives from the public and private sectors, citizen groups, higher education institutions, and nonprofits);
- Assess risk (identify hazards and assess losses);
- Develop a mitigation plan (identify mitigation actions that will reduce the effects of the hazard and create a strategy to prioritize them);

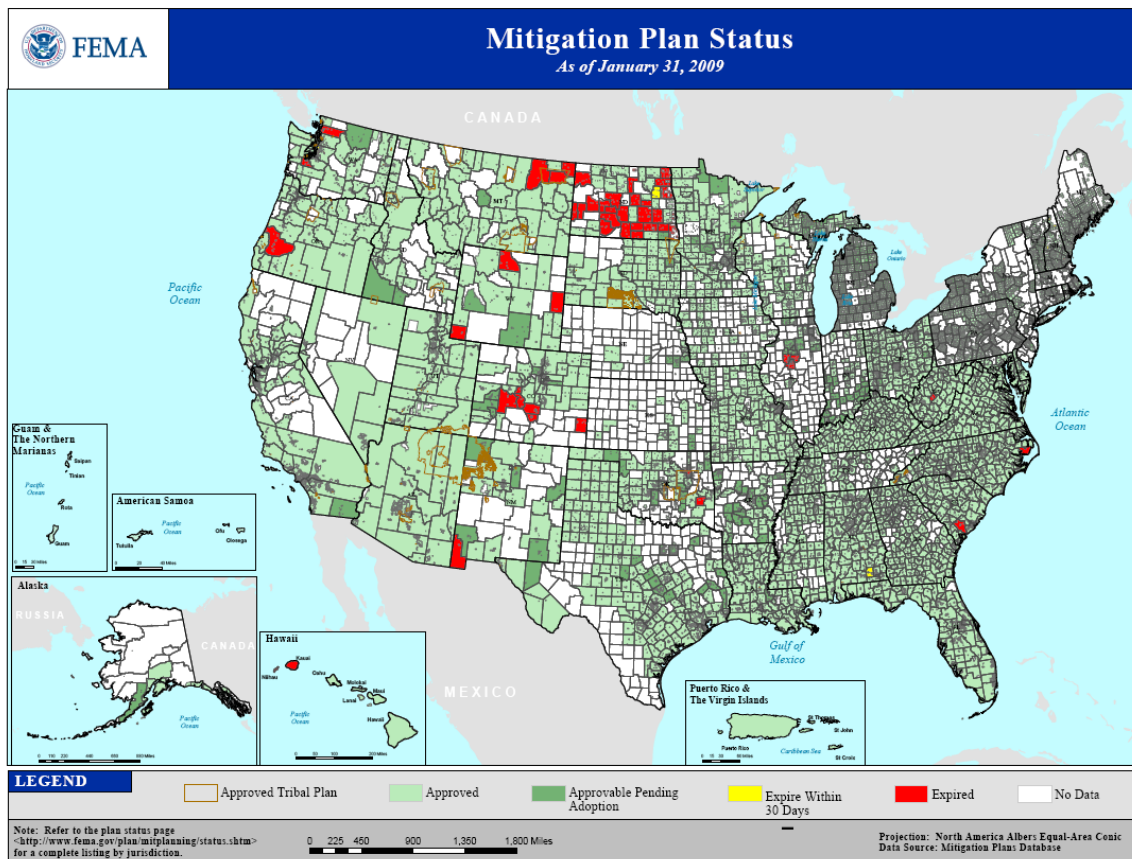
⁴ *Integrating Manmade Hazards into Mitigation Planning* (FEMA 386-7).

⁵ Code of Federal Regulations, Title 44, Part 201, §201.1, Purpose.

- Implement mitigation actions, evaluate results, and update the mitigation plan accordingly.

FEMA reported in March 2009 that all 50 states, 6 territories, and 33 tribal governments have approved mitigation plans, and 18,000 local jurisdictions have approved local mitigation plans, covering approximately 77% of the Nation’s population. Figure 2 illustrates the status of mitigation plans as of January 2009.

Figure 2. Mitigation Plans



FEMA Mitigation Directorate’s Risk Management Series

FEMA’s Risk Management Series is a series of disaster publications developed to protect the Nation’s building inventory and its occupants. The objective of the series is to reduce physical damage to structural and nonstructural components of buildings and related infrastructure, and to reduce casualties from impact by

conventional bombs; chemical, biological, and radiological agents; earthquakes; floods; and high winds. The intended audience includes architects and engineers, building owners, operators, and managers, as well as state and local government officials working in the building sciences community. Most of the mitigation measures in the series are discretionary or voluntary actions that individuals, businesses, and local governments can take to reduce loss of life and property caused by multiple hazards. A list of FEMA's Risk Management Series publications is in appendix C.

Nine publications from the Risk Management Series focus on manmade hazards. Several of the publications address multiple threats and hazards. For example, FEMA publication 426, *Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings*, explains that seismic standards for building components are beneficial against the explosive blast of conventional bombs and that landscaping can be used to mitigate the effects of wildfires as well as improve detection of placed devices. FEMA publications 424, *Design Guide for Improving School Safety in Earthquakes, Floods, and High Winds*, and 577, *Design Guide for Improving Hospital Safety in Earthquakes, Floods, and High Winds*, highlight the pros and cons of designing new and retrofitting existing hospitals and schools to withstand earthquakes, floods, and high winds such as those from hurricanes.

Collectively, the Risk Management Series provides insight on how to mitigate hazards associated with 10 of the 15 national planning scenarios. The national planning scenarios represent a minimum number of credible scenarios depicting the range of potential terrorist attacks and natural disasters and related impacts facing our Nation. They form a basis for coordinated federal planning, training, and exercises. The scenarios covered include: explosive attack, nuclear detonation, radiological attack, anthrax attack, blister agent, toxic industrial chemicals, nerve agent, chlorine tank explosion, earthquake, and hurricane. The five not covered are plague, food contamination, foreign animal disease, cyber attack, and pandemic influenza. Appendix D lists the eight key scenario sets and 15 national planning scenarios presented in the National Response Framework⁶ in January 2008.

⁶ The National Response Framework is intended to present the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies, from the smallest incident to the largest catastrophe.

New York City used FEMA’s Risk Management Series to facilitate the development of a hazard mitigation plan for the financial district when it was identified as a likely target for terrorism after the terrorist attacks in September 2001. The plan recognized that the real challenge for the financial district was not only providing security, but preserving a psychology of openness. Therefore, the mitigation strategy included both structural and nonstructural measures: (1) dispersing the necessary protection among streetscape elements such as specially designed perimeter barriers and controlling vehicle access by rotating road barriers and turntables; and (2) changing traffic patterns and rezoning the financial district to enhance public space and create well-used pedestrian plazas conducive to commerce. Figure 3 illustrates the mitigation measures undertaken in the financial district.

Figure 3. Mitigation Measures in New York City’s Financial District



FEMA and state mitigation officials told us they view the Risk Management Series as a valuable but underutilized all-hazards mitigation resource for two primary reasons: (1) attention to mitigating manmade hazards has waned since the terrorist attacks on September 11, 2001; and (2) there is no federal funding source to incentivize building designers, engineers, and architects to implement the proposed mitigation measures. They suggest that FEMA encourage the adoption of the Risk Management Series by providing direct technical assistance to state and local mitigation officials, in addition to identifying all federal funding sources that can be used to adopt the mitigation measures advocated in the publications. According to FEMA’s guidance on *Integrating Manmade Hazards into Mitigation Planning*, mitigating technological and manmade hazards will require creative funding strategies that incorporate a variety of nontraditional sources because little federal funding is earmarked for state and local use in mitigating manmade hazards.

Other DHS Components Advancing All-Hazards Mitigation

A number of other DHS components have a role in advancing hazard mitigation. FEMA's Grant Programs Directorate administers the Buffer Zone Protection Program, which provides financial assistance to jurisdictions for mitigating threats and vulnerabilities to critical infrastructure. The National Preparedness Directorate uses the Citizen Corps program and the Emergency Management Institute⁷ to educate the public and emergency management professionals about mitigation. DHS' Science and Technology Directorate researches and develops new technology to identify and mitigate vulnerabilities associated with the critical infrastructure and key resource sectors. DHS' National Protection and Programs Directorate leads and coordinates a national program to reduce risks to the Nation's critical infrastructure and key resource sectors. According to DHS' *Future Years Homeland Security Program – Fiscal Years 2009–2013*, \$3.45 billion and 528 full-time equivalent employees have been dedicated to mitigation in FY 2009.

FEMA's Grant Programs Directorate administers 52 grant programs; of these, it is programmatically responsible for 19. The other 33 are programmatically managed by DHS components, such as the Buffer Zone Protection program managed by the National Protection and Programs Directorate. The Buffer Zone Protection program supports planning, equipment, training, and exercise requirements that help jurisdictions mitigate threats and vulnerabilities to critical infrastructure. The 19 programs administered and managed by the Grant Programs Directorate are generally oriented toward prevention, protection, response, and recovery.

FEMA's National Preparedness Directorate oversees the coordination and development of the capabilities and tools necessary to prepare for terrorist incidents and natural disasters. It provides strategy, policy, and planning guidance to build prevention, protection, response, and recovery capabilities among all levels of government. Two components within the directorate, the National Integration Center and the Community Preparedness Division, include mitigation as an objective. The National Integration Center is responsible for developing, managing, and

⁷ The Emergency Management Institute is the national focal point for the development and delivery of emergency management training to enhance the capabilities of federal, state, local, and tribal governments.

coordinating homeland security training, education, exercise, and lessons learned programs to ensure that the Nation is prepared for all hazards. The Community Preparedness Division uses its Citizen Corps program to engage, educate, and train Americans on all-hazards emergency preparedness, planning, mitigation, response, and recovery.

The National Preparedness Directorate is also responsible for managing and implementing the target capabilities list initiative, which contains 37 core capabilities jurisdictions need to be prepared for disasters. The purpose of the target capabilities list initiative is to establish a baseline to measure the Nation's preparedness for all hazards, including the 15 national planning scenarios. Currently, the target capabilities list address four homeland security mission areas: prevention, protection, response, and recovery. FEMA anticipates a second phase will be released in the future that will include a hazard mitigation capability. A draft version of mitigation capabilities for the target capabilities list has been developed. It is important that mitigation be included because it is the only phase of emergency management that focuses on long-term actions for reducing or eliminating risk from hazards and their effects.

The Science and Technology Directorate, DHS' primary research and development arm, focuses on innovative ways to use advanced technology to support homeland security efforts. It is composed of six divisions, three of which have an explicit mitigation objective: the Explosives Division; the Human Factors Behavioral Sciences Division; and the Infrastructure and Geophysical Division. The Explosives Division develops the technical capabilities to detect, interdict, and lessen the impacts of non-nuclear explosives used in terrorist attacks against mass transit, civil aviation, and critical infrastructure. The Human Factors Behavioral Sciences Division applies the social and behavioral sciences to improve detection, analysis, and understanding of homeland security threats. The Infrastructure and Geophysical Division focuses on identifying and mitigating the vulnerabilities of the critical infrastructure and key assets essential to our society.

The National Protection and Programs Directorate is responsible for advancing DHS' risk reduction mission, and its Office of Infrastructure Protection is responsible for leading and coordinating a national program to reduce risks to the Nation's critical infrastructure and key resources posed by acts of terrorism,

and to strengthen national preparedness, timely response, and rapid recovery in the event of an attack, natural disaster, or other emergency. According to the National Infrastructure Protection Plan,⁸ a sector-specific federal agency is to lead a collaborative process for infrastructure protection for each of the 18 critical infrastructure and key resource sectors. Within these 18 sectors, DHS has designated more than 2,000 Tier I and Tier II critical infrastructure/key resource assets. Tier I assets or systems are those that if attacked could trigger major national or regional impacts similar to those experienced during Hurricane Katrina. Tier II assets are other highly consequential assets with potential national or regional impacts if attacked.⁹

FEMA and other DHS component staff told us that developing and implementing a risk-based, all-hazards mitigation strategy could be facilitated through a more collaborative working relationship among all DHS components and other federal agencies that have a role in hazard mitigation. They explained that FEMA has done a good job integrating an all-hazards approach to disaster preparedness, but integrating an all-hazards approach to hazard mitigation has been a challenge because FEMA's Mitigation Directorate has traditionally focused on mitigating natural hazards, while other DHS components focus primarily on mitigating risk and vulnerabilities associated with terrorism. Because the expertise of personnel working in DHS components involved with mitigation is also often specific to either natural hazard mitigation or infrastructure protection from terrorism; it has been difficult for management and staff to embrace an all-hazards approach to mitigation.

⁸ The National Infrastructure Protection Plan provides the unifying structure for the integration of a wide range of efforts for the enhanced protection and resiliency of the Nation's critical infrastructure and key resources into a single national program.

⁹ Government Accountability Office testimony, *DHS Improved its Risk-Based Grant Programs' Allocation and Management Methods, But Measuring Programs' Impact on National Capabilities Remains a Challenge* (GAO-08-488T), March 11, 2008.

Conclusion

State and local mitigation officials say they would benefit from FEMA technical assistance and enhanced training on how to fund and implement mitigation measures proposed in the publications. Mitigation needs to be included in the target capabilities list to ensure consideration of long-term measures that reduce or eliminate hazard risk for all hazards. FEMA's Mitigation Directorate has developed guidance that promotes mitigation measures to reduce the risk and effect of natural, technological, and manmade hazards. Other DHS components are advancing mitigation measures that protect our Nation's critical infrastructure and key resources. However, collaboration among all DHS components with a mitigation role is important for three primary reasons: (1) to further the development and implementation of a risk-based, all-hazards mitigation strategy; (2) to identify resources and expertise that can be used to mitigate all-hazards identified in state, tribal, and local mitigation plans; and (3) to ensure that the \$3.45 billion in DHS funds dedicated to mitigation in FY 2009 and in the future are used efficiently and effectively.

Recommendations

We recommend that the Assistant Administrator, Mitigation Directorate:

Recommendation #1: Dedicate resources to provide technical assistance and training to state, tribal, and local mitigation officials about the Risk Management Series to further promote mitigation measures that reduce or eliminate loss of life and property.

Recommendation #2: Update FEMA 386-7, *Integrating Manmade Hazards into Mitigation Planning*, to include all federal funding sources that can be used to implement mitigation measures that address technological and manmade hazards.

Recommendation #3: Include mitigation in the next phase of the target capabilities list to ascertain whether communities are considering what capabilities are needed to implement long-term measures for reducing or eliminating risk from hazards and their effects.

Recommendation #4: Establish and coordinate a formal network of representatives from the Grant Programs Directorate, the National Preparedness Directorate, the Science and Technology Directorate, the National Protection and Programs Directorate, and other federal agencies involved in hazard mitigation to identify opportunities, resources, and expertise that can be leveraged to implement mitigation projects that address all hazards identified by state and local governments.

Management Comments and OIG Analysis

Recommendation #1: The Office of Policy and Program Analysis generally concurred with this recommendation and will ensure that the Risk Management Series is promoted through technical assistance and training to state, tribal, and local mitigation officials. We consider this recommendation resolved because initial steps are being taken to implement it; however, it will remain open until FEMA provides evidence that it has been fully implemented.

Recommendation #2: The Office of Policy and Program Analysis did not concur with our recommendation to update FEMA 386-7 to include all federal funding sources that can be used to implement technological and manmade mitigation measures for two primary reasons: (1) many resources to implement mitigation measures that address technological and manmade hazards are outside of FEMA; and (2) it would not be appropriate given the purpose of this planning document.

The Office of Policy and Program Analysis explained in their response to our draft report that mitigation planning is focused on encouraging communities to make and enforce better land use planning decisions to ensure that future development is at less risk from hazards. Furthermore, FEMA's primary audience is land use planners, floodplain managers, and building code officials. Actual implementation of identified mitigation measures goes beyond the scope and purpose of the planning effort. FEMA does emphasize that communities should not limit mitigation strategies to those eligible for particular federal programs, but should have comprehensive planning appropriate to its risks. For a community interested in federal funding, sources of funding mitigation measures that address technological and manmade hazards can be found in the Catalog of Federal Domestic Assistance.

We fully recognize the importance of comprehensive mitigation planning, but a mitigation plan that has not been implemented is of little use when a disaster strikes. According to the *Post Katrina Emergency Management Reform Act of 2006*, FEMA is to “lead the Nation’s efforts to prepare for, protect against, respond to, recover from, and mitigate against the risk of natural disasters, acts of terrorism, and other man-made disasters.” Providing a list of federal resources that can be used to implement technological and manmade mitigation measures in FEMA’s guidance on *Integrating Man-Made Hazards into Mitigation Planning* would demonstrate leadership and help state, tribal and local mitigation professionals plan for and implement measures that support FEMA’s mission of protecting the Nation from all hazards. This is particularly relevant since FEMA’s Office of Policy and Program Analysis acknowledges that there are programs within FEMA and DHS to address such hazards. We consider this recommendation unresolved and open.

Recommendation #3: The Office of Policy and Program Analysis concurred with this recommendation and FEMA will include mitigation in the target capabilities list. We consider this recommendation resolved because steps are being taken to implement it; however, it will remain open until FEMA provides evidence that it has been fully implemented.

Recommendation #4: The Office of Policy and Program Analysis concurred with this recommendation and FEMA will establish and coordinate a formal network of representative within DHS and other federal agencies to identify opportunities, resources, and expertise that can be leveraged to implement mitigation projects that address all hazards. We believe the FEMA Mitigation Directorate is well positioned to lead this collaborative effort because of its extensive network of mitigation partners and its focus on long-term solutions to address hazards. We consider this recommendation resolved because steps are being taken to implement it; however, it will remain open until FEMA provides evidence that it has been fully implemented.

Coordinating an All-Hazards Mitigation Strategy

FEMA's Mitigation Directorate is well positioned to coordinate a risk-based, all-hazards mitigation strategy because of its extensive network of mitigation partners and its focus on long-term solutions to address hazards. To develop this strategy, input from state, tribal, and local governments about all risks and vulnerabilities inherent to their jurisdictions is essential. Mitigation plans for state, tribal, and local governments are not statutorily required for technological or manmade hazards. However, FEMA-approved mitigation plans for natural hazards are statutorily required and incentivized by linking federal mitigation assistance to the plans. Thus, most mitigation plans focus on natural hazards to satisfy statutory requirements and to qualify for disaster assistance and hazard mitigation grants.

FEMA's Network of Mitigation Partners

FEMA's Mitigation Directorate has developed an extensive network of mitigation partners, including federal, state, local, and tribal governments, the private sector, professional associations, nongovernmental groups involved in public policy and administration, the insurance industry, higher education, the building sciences community, and urban planning practitioners. It has more than 200 full-time employees at its headquarters in Washington, DC, and approximately 40 employees in 10 regional offices who support its mitigation mission. FEMA regional office mitigation personnel, along with contractors, provide the bulk of direct technical assistance and planning guidance to jurisdictions that plan and implement hazard mitigation projects.

The Mitigation Directorate collaborates with numerous federal agencies to implement both the National Hurricane program¹⁰ and the National Earthquake Hazard Reduction program.¹¹ The National Hurricane program, which supports communities and residents at risk from hurricane hazards through various projects, received \$5.86 million in funding for FY 2008. The National Earthquake Hazard Reduction program aims to reduce the risks to

¹⁰ The National Hurricane program is a multi-agency partnership involving FEMA, the National Oceanic and Atmospheric Administration, the National Weather Service, the U.S. Department of Transportation, and the U.S. Army Corps of Engineers.

¹¹ The National Earthquake Hazard Reduction program is a collaborative effort among FEMA, the National Institute of Standards and Technology, the National Science Foundation, and the United States Geological Survey.

life and property from future earthquakes. It received \$121.5 million in funding for FY 2008.

State and tribal hazard mitigation officials play a critical role in advancing FEMA's mitigation efforts, and their positions are often funded in part by FEMA's emergency management performance grant program. These officials are primarily responsible for administering federal mitigation grants programs, and coordinating mitigation and planning activities with their local counterparts to prepare mitigation grant applications that are submitted to FEMA regional office staff for review and approval. Local hazard mitigation officials are responsible for identifying local hazards, assessing risks, and implementing mitigation projects. They are also responsible for making the public aware of hazards; adopting, administering, and enforcing land use regulations; conducting mitigation project inspections; and ensuring compliance with hazard mitigation laws.

FEMA's Mitigation Directorate relies on the private sector to underwrite and administer flood insurance policies that are backed by the National Flood Insurance Fund. Private sector contractors also provide local hazard mitigation officials technical expertise and management support to plan and implement mitigation projects. A Midwest state mitigation official told us that approximately 40% of the jurisdictions in her state relied on private sector contractors for mitigation planning, preparing mitigation grant applications, and implementing mitigation projects.

FEMA's Mitigation Directorate interacts with professional associations such as the National Emergency Management Association¹² to solicit ideas that help advance its mitigation mission. The association develops policy white papers and recommendations for FEMA and other government and private sector decision makers. A recent white paper underscored the importance of developing a national all-hazards mitigation strategy to counter social, political, and economic realities that drive public choice away from mitigation investments. The white paper noted that a national mitigation strategy should be based on several strategic themes: broader, collaborative partnerships; total hazard

¹² The National Emergency Management Association is composed of emergency management directors from all 50 states, 8 territories, and the District of Columbia. The primary purpose of the association is to provide support and expertise for emergency management professionals at all levels of government and the private sector.

awareness at the community level; and a pull approach to mitigation initiated by communities rather than a federally driven push-down approach. It recommended five steps for developing and institutionalizing a national mitigation strategy: (1) form a national mitigation collaborative consortium; (2) foster innovative grassroots participation; (3) build a national mitigation knowledge repository; (4) connect mitigation to other programs; and (5) focus policies on incentives rather than disincentives to participate.

Educational institutions through DHS' Homeland Security Centers of Excellence support FEMA's mitigation efforts by conducting research and development on a wide range of mitigation-related topics such as biological risk assessment, terrorism countermeasures, decontamination procedures, and port security. The Homeland Security Centers of Excellence are authorized by Congress and chosen through a competitive process. Each center is led by a university in collaboration with partners from other institutions, agencies, laboratories, think tanks, and the private sector.

FEMA's Mitigation Directorate also works with the building sciences community and nongovernmental organizations such as the National Institute of Building Sciences, which brings together representatives of government, industry, labor, and consumer interests to serve as an authoritative source on building safety and technologies that mitigate natural, manmade, and technological hazards. For example, the National Institute of Building Sciences works on developing barrier technologies, sustainable building materials, and blast guard window film.

Advancing an All-Hazards Strategy and Local Planning

State, tribal, and local mitigation officials are the frontline implementers of hazard mitigation projects and are most familiar with the risks and vulnerabilities inherent to their jurisdictions. To develop a national risk-based, all-hazards mitigation strategy that builds capabilities to mitigate natural, technological, and manmade hazards, FEMA will need input from the frontline implementers. Garnering this input, however, will be challenging without further incentivizing the inclusion of all hazards confronting the jurisdiction into a local hazard mitigation plan.

The Stafford Act and the Disaster Mitigation Act require state, tribal, and local mitigation plans for natural hazards, and

incentivize the development of these plans through the offer of federal mitigation grants. The Disaster Mitigation Act, which amended the Stafford Act to require local governments to prepare natural hazard mitigation plans as a condition of receiving federal mitigation grants,¹³ was enacted to address the growing volume and severity of preventable, repetitive losses from natural disasters in the 1990s aggravated by poorly planned local development. Major disasters such as the 1993 floods along the Missouri and Mississippi Rivers, the Northridge Earthquake of 1994, and the increase in wilderness-urban interface fires convinced Congress of the need for natural hazard mitigation planning.

The enactment of the Disaster Mitigation Act combined with the Stafford Act represents a trend in the past decade toward a more systematic approach to natural hazard mitigation planning and implementation at all levels of government. However, developing state, tribal, and local mitigation plans that address all hazards inherent to their jurisdictions remains a challenge. Many state and local hazard mitigation officials told us that despite FEMA's encouragement, all-hazards mitigation planning has not been widely adopted for four primary reasons: (1) All-hazards mitigation planning that includes technological and manmade hazards is not statutorily required; (2) local jurisdictions often rely on contractors to develop mitigation plans, and the scope of the contracts is limited to hazards that qualify for federal grant assistance; (3) natural hazard mitigation planning and projects demand much of their attention and are frequently a state priority; and (4) demonstrating cost-effectiveness for mitigating manmade and technological hazards is too complex and time-consuming.

It is important to note that while all-hazards mitigation planning has not been widely adopted, some states and local governments have included technological and manmade hazards in their plans. California's mitigation plan, developed in 2007, is a good example of a comprehensive plan. It represents a culmination of input from local hazard mitigation plans that identifies 57 natural, technological, and manmade hazards. California mitigation officials told us they prepared a comprehensive plan beyond what is required to obtain FEMA mitigation grants to demonstrate the state's commitment to reduce or eliminate the impact of disasters, regardless of cause. For example, the plan identifies specific mitigation actions to address hazards associated with climate

¹³ The Stafford Act already required state hazard mitigation plans.

change, such as regulating emissions and adopting mandatory reporting rules for significant sources of greenhouse gases. Projected impacts of climate change include more severe storms and flooding, food and water shortages, increases in the range of insect pests and diseases presently found in tropical areas, and desertification of presently temperate regions.¹⁴ Appendix E lists the hazards identified in local hazard mitigation plans for California.

Conclusion

FEMA's Mitigation Directorate has an extensive network of mitigation partners, and because it focuses on long-term solutions to address hazards, it is well positioned to coordinate a risk-based, all-hazards mitigation strategy. Input from state, tribal, and local mitigation officials who know the risks and vulnerabilities inherent to their jurisdictions is essential to develop and implement an effective strategy. However, most mitigation plans focus on natural hazards to meet statutory requirements and to qualify for disaster assistance and hazard mitigation grants. Local jurisdictions are not statutorily required to have mitigation plans that address technological and manmade hazards, but they are required to have them for natural hazards and as a condition of receiving federal mitigation grants. A similar incentive for jurisdictions to prepare mitigation plans for all applicable hazards would facilitate the development of a risk-based, all-hazards mitigation strategy.

Recommendations

We recommend that the Assistant Administrator, Mitigation Directorate:

Recommendation #5: Use the established network of mitigation partners along with enhanced collaboration with DHS components, other federal agencies, and private sector stakeholders to develop and implement a risk-based, all-hazards mitigation strategy that identifies all hazards inherent to local jurisdictions and establishes a national framework to mitigate these hazards using structural and nonstructural measures.

¹⁴ Intergovernmental Panel on Climate Change, *Climate Change 2007: Impacts of Climate Change – Impacts, Adaptation and Vulnerability – Summary for Policymakers*, Working Group II Report, April 2007.

Matter for Congressional Consideration: Authorize FEMA’s Mitigation Directorate to fund mitigation projects that directly address technological or manmade hazards and further incentivize state, tribal, and local governments to identify and prepare a hazard mitigation plan that addresses all-hazards inherent to their jurisdictions.

Management Comments and OIG Analysis

Recommendation #5: The Office of Policy and Program Analysis concurred with this recommendation and FEMA will develop and implement a risk-based, all hazards mitigation strategy. The full implementation of this recommendation is vital and mandated in section 503 of the *Post Katrina Emergency Management Reform Act of 2006*: “(b) ALL-HAZARDS APPROACH.—In carrying out the responsibilities under this section, the Administrator shall coordinate the implementation of a risk-based, all-hazards strategy that builds those common capabilities necessary to prepare for, protect against, respond to, recover from, or mitigate against natural disasters, acts of terrorism, and other man-made disasters, while also building the unique capabilities necessary to prepare for, protect against, respond to, recover from, or mitigate against the risks of specific types of incidents that pose the greatest risk to the Nation.” We consider this recommendation resolved because steps are being taken to implement it; however, it will remain open until FEMA provides evidence that it has been fully implemented.

Implementing an All-Hazards Mitigation Approach

FEMA's Mitigation Directorate has 13 statutorily authorized programs, including 5 mitigation grant programs that all focus on natural hazards. It has one program, the National Dam Safety program, that proactively addresses a technological hazard, and none solely dedicated to address manmade hazards identified in its Risk Management Series or in state, tribal, and local mitigation plans. Natural disasters historically represent the greatest loss of life and property, but local mitigation measures that address technological and manmade hazards are important to further reduce our Nation's risk and vulnerability.

Statutorily Authorized Programs Focus on Natural Hazards

FEMA's Mitigation Directorate has five hazard mitigation grant programs that focus primarily on natural hazards:

1. Hazard Mitigation Grant program
2. Pre-disaster Mitigation program
3. Flood Mitigation Assistance program
4. Severe Repetitive Loss program
5. Repetitive Flood Claims program

The Flood Mitigation Assistance program, the Severe Repetitive Loss program, and the Repetitive Flood Claims program focus solely on flooding. The Hazard Mitigation Grant and Pre-disaster Mitigation programs can be used only under certain circumstances to help state, tribal, and local mitigation officials implement projects that address technological and manmade hazards.

The Hazard Mitigation Grant program, authorized under Section 404 of the Stafford Act, was created to reduce the loss of life and property caused by natural disasters and is employed only after a major Presidential disaster declaration. This program can be used to address natural, technological, and manmade hazards following a disaster that the President believes has caused damage of such severity that it is beyond the combined capabilities of state and local governments to respond. For example, the President's disaster declaration for the State of New York following the September 11, 2001, terrorist attacks on the World Trade Center authorized the use of the Hazard Mitigation Grant program to aid New York City's recovery.

The Pre-disaster Mitigation program, in contrast, is intended to fund mitigation planning and projects before a disaster. However, FEMA FY 2009 guidance for the Pre-disaster Mitigation program stipulates that projects that solely address a manmade hazard are ineligible. Yet, it points out that although Pre-disaster Mitigation funds must be used primarily to support projects that address natural hazards, projects and plans also may address hazards caused by manmade events. The guidance, however, does not demonstrate how program funds can be used to primarily address natural hazards in addition to hazards caused by manmade events. Specific examples of how this can be accomplished would help mitigation officials prepare grant applications that address manmade hazards.

State mitigation officials told us they are reluctant to include manmade or technological hazards in their applications for the Pre-disaster Mitigation program because it is a competitive program, and it is difficult to perform the required cost-benefit analysis for these hazards. According to FEMA's Hazard Mitigation Grant program guidance, "Project subapplications that propose ineligible activities will be removed from consideration. FEMA will not separate eligible activities from ineligible project subapplications for funding consideration." Mitigation officials also said that the amount of funding available from the Pre-disaster Mitigation program is limited and often earmarked by Congress for specific projects. The Pre-disaster Mitigation program was appropriated \$114 million in FY 2008 and \$90 million in 2009, and earmarks accounted for a total of 37.4% of these funds.

The Office of Management and Budget recommends and FEMA requires a benefit-cost analysis for most FEMA mitigation grant programs to promote the efficient allocation of federal dollars.¹⁵ The objective of the benefit-cost analysis is to compare the net present value of project benefits with project costs, and express this comparison in a ratio of annualized benefits over costs. FEMA requires a positive benefit-cost ratio (i.e., the measurable benefits are greater than the measurable costs) before it approves a mitigation grant application. The benefit-cost analysis, however, is not required for homeland security grants. Instead, FEMA's Grant Programs Directorate uses a risk-based methodology that is driven 90% by risk and 10% by the effectiveness demonstrated in the application. State mitigation officials told us that it is difficult to

¹⁵ Office of Management and Budget, Circular A-94.

perform a cost-benefit analysis on manmade and technological hazards because, unlike hazards such as floods, occurrence is difficult to predict. Thus, mitigation planning for manmade or technological hazards is often deferred to state homeland security personnel, and applications submitted to FEMA include only natural hazard mitigation measures.

The National Dam Safety program is the Mitigation Directorate's only program that proactively addresses a technological hazard. Congress appropriated this program \$7.1 million in FY 2008. However, communities frequently have other technological hazards that DHS does not consider to be critical infrastructure or key resource assets, but that nonetheless represent a concern for the community. For example, the mitigation plan for California alone identifies 6,000 miles of hazardous liquid pipelines, 21 refineries, 100 oil and natural gas terminals, and 2,500 "high risk" chemical facilities.

FEMA's Mitigation Directorate has no mitigation grant program dedicated to proactively address manmade hazards identified in its Risk Management Series or in state, tribal, and local hazard mitigation plans. For example, a mitigation measure introduced in the Risk Management Series to reduce the potential for hazardous materials entering a building from a ground-level outdoor release is to elevate the building's fresh air intakes and cover them with screens to make it more difficult to insert a container of hazardous material directly into the building's heating, ventilating, and air conditioning system. Figure 4 illustrates this mitigation measure.

Figure 4. Preventing Hazardous Material From Entering a Building

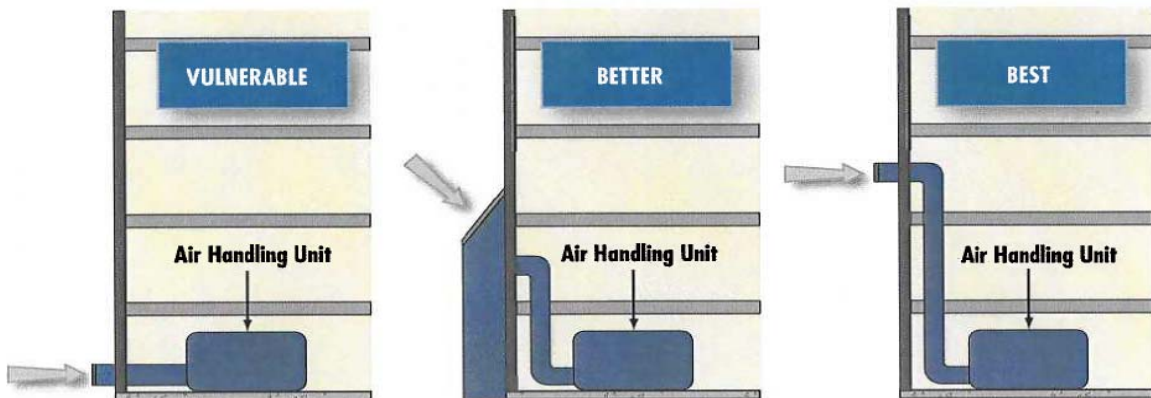
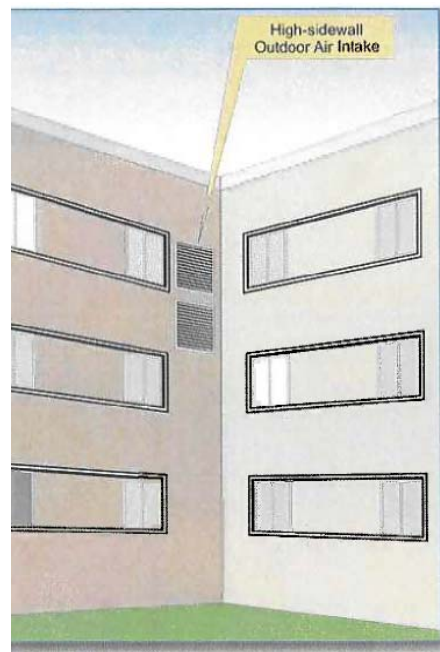


Figure 5. Placing Air Intake High on a Building

Placing a building's heating, ventilating, and air conditioning system intakes at the highest practical level protects against malicious acts and mitigates the risk that contaminants released near the ground will enter the building (figure 5). Many existing buildings have air intakes that are at or below ground level. For those that have below-grade intakes close to the building, the intakes can be elevated by constructing a plenum or external shaft over the intakes. An extension height of 12 feet will place the intake out of reach of individuals without some assistance.



The mitigation measure described above is one of many identified in the Risk Management Series that mitigation officials need to consider to counter manmade hazards. The implementation of this mitigation measure, and others like it, is dependent upon funding. State and local mitigation officials told us it is difficult to obtain federal funding for mitigation measures that address technological and manmade hazards for buildings not considered critical infrastructure. Yet the importance of mitigating the risk posed to ground-level intake systems was underscored during the trial of Nidal Ayyad for the 1993 World Trade Center bombing. Ayyad, a naturalized U.S. citizen who worked for a New Jersey chemical company, used his position to procure chemicals to manufacture the explosive used in the attack. During his trial, it was revealed that Ayyad and his associates had stolen cyanide and were planning to release it in office-building ventilation systems.

The risks to public and private buildings from manmade hazards are a tremendous challenge for mitigation officials because of the sheer number of places Americans congregate daily. The U.S. Department of Education reported in 2006 that there were 136,819 public, private, and postsecondary schools throughout the country; the U.S. Census Bureau recorded 6,713 hospitals in 2007; the International Council of Shopping Centers recorded 48,695 malls

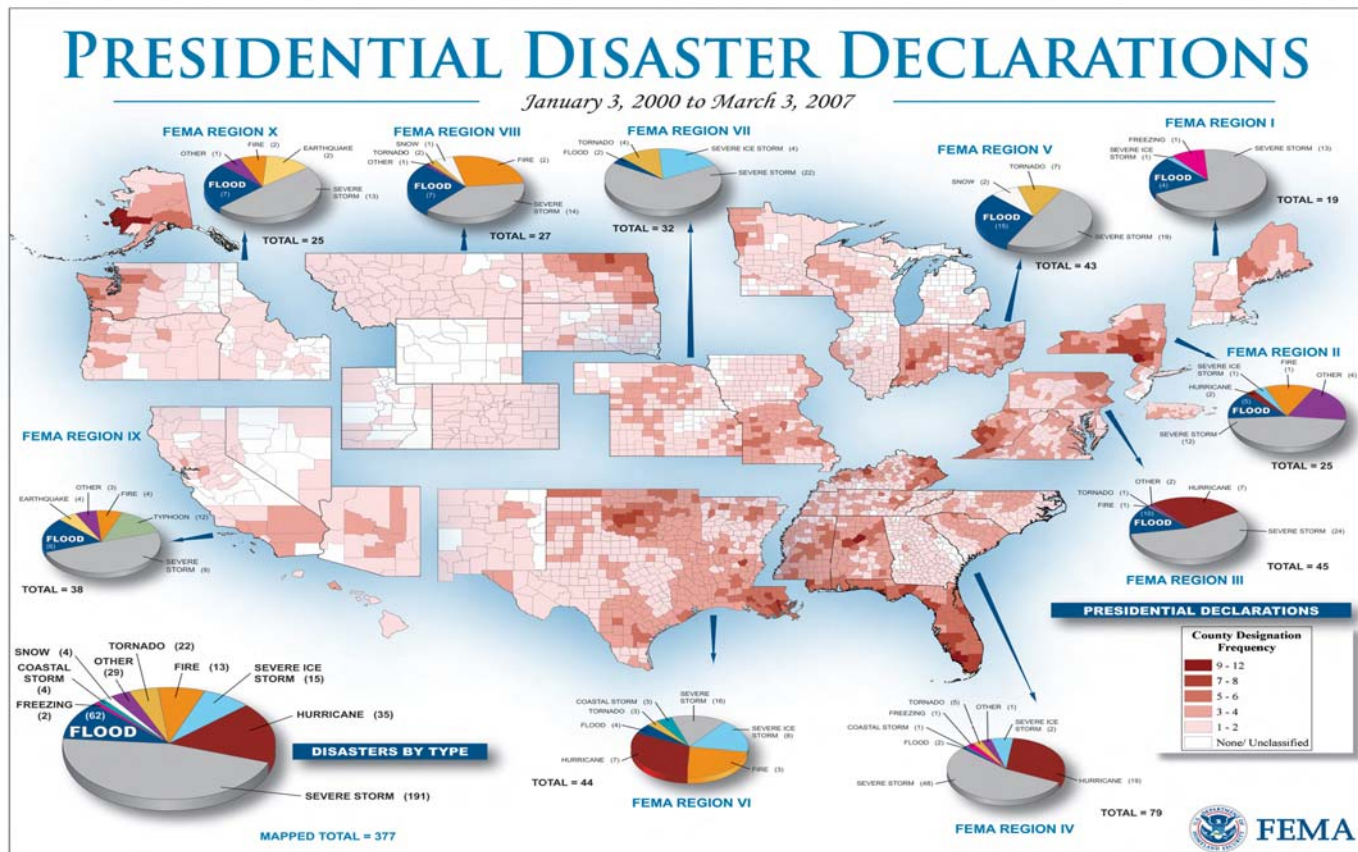
and shopping centers in 2005; and the Department of Energy reported more than 4.5 million commercial buildings in 2003.

To encourage the implementation of hazard mitigation measures that protect buildings and their occupants, DHS' Science and Technology staff are promoting the integration of hazard mitigation with environmental and energy efficiency planning in a performance-based design approach. Building designers, owners, and operators can use this approach to link hazard mitigation with environmental and energy-saving measures to demonstrate the efficacy of performance-based projects. For example, blast guard window film can mitigate the risk of shattered glass caused by a bomb, hurricane-force wind, or earthquake, as well as reflect heat from the sun through reflective tinting that lowers energy costs for air conditioning and improves the building environment.

Natural Hazards Are Predominant But Not the Only Hazards

Natural disasters historically represent the greatest loss to life and property throughout the United States, as illustrated in figure 6. There were 75 major disaster declarations in 2008, nearly 70% of which involved flooding from severe storms. However, terrorism and hazardous material incidents are also apparent. The September 11, 2001, attacks on New York City and Washington, DC, and the July 2001 hazardous material train derailment and fire in Baltimore, Maryland, demonstrate the risk of manmade and technological hazards. The 2001 anthrax attacks, the 1996 bombing at the summer Olympics in Atlanta, the 1995 destruction of the Murrah Federal Building in Oklahoma City, and the 1993 World Trade Center bombing all reinforce the need to plan and implement mitigation measures for manmade hazards. Protecting American communities from disasters, no matter what the source, depends on policymakers adopting an integrated, all-hazards approach to disaster risk reduction, drawing on existing knowledge from natural and accidental hazards combined with new information on risks associated with technological and terrorism events.

Figure 6. Presidential Disaster Declarations



The U.S. Department of Transportation reported that in the first quarter of 2009 alone there were 3,306 hazardous material incidents in the United States costing \$7.5 million in damages.¹⁶ The three states with the most incidents were California (346), Texas (278), and Illinois (280). The Federal Bureau of Investigation reports 318 terrorism events in the United States from 1980 to 2005.¹⁷ The most frequent attack methods were bombs (209) and arson (43), both of which are a concern for those charged with protecting the Nation’s building inventory and its occupants.

¹⁶ Hazardous Materials Information System, U.S. Department of Transportation.

¹⁷ U.S. Department of Justice, Federal Bureau of Investigation, *Terrorism 2002–2005*.

Conclusion

The grant programs administered by FEMA's Mitigation Directorate all focus on natural hazards; only the Hazard Mitigation Grant and Pre-disaster Mitigation programs can be used under certain circumstances to address technological and manmade hazards. The Hazard Mitigation Grant program was used to aid New York City's recovery following the Presidential disaster declaration regarding the September 11, 2001, terrorist attacks on the World Trade Center. The Pre-disaster Mitigation program can be used before a disaster occurs, but mitigation projects that solely address manmade hazards are ineligible for grant funds. However, the Pre-disaster Mitigation program can be used to address manmade hazards if grant funds primarily address natural hazards, but program guidance does not provide instruction or examples of how this can be accomplished. It does make clear that project subapplications that propose ineligible activities will be removed from consideration. State mitigation officials are reluctant to include technological or manmade hazards in their application for the Pre-disaster Mitigation program because it could make their application less competitive owing to the benefit-cost ratio requirement. Natural disasters are the predominant threat facing the United States and warrant great attention, but the threat posed by technological and manmade hazards is also apparent and reinforces the need for mitigation planning and measures that will eliminate or reduce their risk and effect.

Recommendations

We recommend that the Assistant Administrator, Mitigation Directorate:

Recommendation #6: Provide guidance for the Pre-disaster Mitigation Grant program that offers instruction and examples of how mitigation officials should prepare grant applications for projects that primarily address natural hazards and also address hazards caused by manmade forces.

Recommendation #7: Apply the risk-based methodology used by the Grant Programs Directorate for homeland security preparedness grants to technological and manmade hazard mitigation projects.

Management Comments and OIG Analysis

Recommendation #6: The Office of Policy and Program Analysis generally concurred with this recommendation and reaffirmed that the focus of the Pre-disaster Mitigation program is on addressing natural hazards and only cost-effective measures can be funded under the program. Furthermore, FEMA believes that it is not currently feasible to provide meaningful guidance on cost effectiveness for manmade and technological mitigation projects. It also responded that FEMA is prohibited by its authorities from funding projects that only address manmade hazards through its Hazard Mitigation Assistance programs.

We recognize the imposed constraints relating to the Pre-disaster Mitigation program, but the need to employ mitigation measures that address technological and manmade hazards is also apparent. We believe providing guidance that demonstrates how grant applications can be prepared by mitigation officials to effectively address hazards beyond just natural hazards will help FEMA fulfill its mission of protecting the Nation from all hazards. We consider this recommendation resolved because initial steps are being taken to implement it; however, it will remain open until FEMA provides evidence that it has been fully implemented.

Recommendation #7: The Office of Policy and Program Analysis generally concurred with this recommendation and the Mitigation Directorate is evaluating the methodology used by the Grant Programs Directorate to address manmade hazards. However, it also notes that project funding solely to address technological and manmade hazard risks is generally available under federal programs and authorities outside FEMA Mitigation Directorate's Hazard Mitigation Assistance grant programs.

We believe the methodology used by the FEMA Grant Programs Directorate for homeland security preparedness grants can be used by the Mitigation Directorate to evaluate the effectiveness of mitigation projects that address technological and manmade hazards. We therefore consider this recommendation resolved because initial steps are being taken to implement it; however, it will remain open until FEMA provides evidence that it has been fully implemented.

Appendix A

Purpose, Scope, and Methodology

The primary objective of our audit was to assess FEMA's progress in coordinating the implementation of a risk-based strategy to reduce or eliminate long-term risks to people and property from all hazards, including technological and manmade hazards. We conducted 26 interviews with DHS headquarters and regional staff, state and local hazard mitigation officials, mitigation consultants, academic researchers, independent analysts, and other experts in the field of hazard identification and mitigation. We examined documentation relating to hazard mitigation, including authorizing legislation, rules and regulations, and FEMA hazard mitigation assistance program guidance.

We reviewed DHS documents, including strategic and operational plans, correspondence, analyses, and reports. We reviewed mitigation plans from California, Illinois, New Jersey, New York, and Texas because each state has at least one DHS-designated Tier I urban area considered to be at high risk for manmade and technological hazards. We also reviewed reports on various aspects of manmade and technological hazard mitigation prepared by the Government Accountability Office, the Congressional Research Service, the Congressional Budget Office, and various public policy organizations.

We acknowledge the cooperation and courtesies extended to our audit team during this audit. We conducted this performance audit between October 2008 and May 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix B Management Comments to the Draft Report


U.S. Department of Homeland Security
Washington, DC 20472



FEMA

SEP 17 2009

MEMORANDUM FOR: Matt Jadacki
Deputy Inspector General
Office of Emergency Management Oversight
Office of Inspector General

FROM: 
David J. Kaufman
Director
Office of Policy and Program Analysis

SUBJECT: Comments on OIG Draft Report, *FEMA's Progress in All-Hazards Mitigation*

Thank you for the opportunity to review and comment on the Office of Inspector General's (OIG's) subject draft audit report. As the Federal Emergency Management Agency (FEMA) works toward refining its programs, the OIG's independent analysis of program performance greatly benefits our ability to continuously improve our activities.

We do have some comments regarding the audit's observations and conclusions which are organized below by the major sections of your draft report. First, we submit the following general comments:

- The draft report states that the Post-Katrina Emergency Management Reform Act of 2006 (PKEMRA) "mandates" a "coordinated risk-based all-hazards mitigation strategy." PKEMRA defines the FEMA "Mission" (technically by amending the Homeland Security Act of 2002) in terms of a comprehensive emergency management *system* (not "strategy"), and calls for an integrated approach to emergency management which includes all five functions of emergency management – Preparedness, Protection, Response, and Recovery as well as Mitigation. It is within the FEMA Administrator's discretion to determine how best to organize the agency to accomplish this mission and associated functions within the authorities which govern the agency.
- The draft report does not include a common definition for "mitigation" to ensure that the discussion is based on a common understanding of the term. For the purposes of the programs within the Mitigation Directorate, mitigation is defined as any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. However, for other agency programs mitigation may mean preparedness, prevention and protection.

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FEMA's Progress in All-Hazards Mitigation

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- The draft report uses the concept of “phases” of emergency management, leaving out the “protection” element, which is critical to the discussion. Mitigation, Preparedness, Protection, Response and Recovery constitute the functions of the comprehensive emergency management *system*, not “phases of the emergency management cycle.” These functions work collaboratively within the system, as opposed to discretely/independently in a time-“*phased*” sequence of a cycle. The functions are correctly represented on pages 10 and 11 of the draft report.
- The draft report assumes that Mitigation is the sole responsibility of the Mitigation Directorate, and all recommendations are directed to the FEMA Assistant Administrator for Mitigation. However, the Grants Program Directorate administers programs to protect from and mitigate against man-made and technological hazards, which is in keeping with the PKEMRA concept of all-hazards mitigation.

Specific comments on *DHS Efforts to Advance All-Hazards Mitigation*:

- The explanation of the “three broad categories” of hazards (p.2) is confusing, and the confusion is compounded by the example provided which contradicts the terminology explanation provided within the same paragraph. Specifically, if “man-made” hazards refer to “criminal” events, then Hurricane Katrina is an example of a natural and *technological* (not “man-made”) disaster.
- The draft report makes the case for terrorism mitigation as a primary focus for mitigation grants rather than a secondary purpose for mitigation projects. Terrorism “mitigation” is generally focused on protection and prevention (prevention is specifically defined as mitigation by PKEMRA). Protective and prevention measures to mitigate man-made hazards, such as acts of terrorism, are authorized and funded by authorities separate and distinct from measures to mitigate against natural hazards.
- On Page 13, the draft report states that the Department of Homeland Security (DHS) has \$3.45 billion of funds dedicated to Mitigation in FY 2009. Without further clarification, this number is misleading. The source of this amount is page 92 of Volume II of the DHS Future Years Homeland Security Program (FYHSP). A very large portion of the amount (approximately \$2.826 billion) is National Flood Insurance Program Revenue that is required to pay Flood Insurance claims and by law is not available to fund all-hazards mitigation. Of the remaining \$694 million, \$215.7 million is available for Hazard Mitigation Assistance (HMA) grants. This amount does not include the Hazard Mitigation Grant Program allocation, as this is allocated by disaster and is not a part of the FYHSP.

Specific comments on *Coordinating an All-Hazards Mitigation Strategy*:

- A critical element of the Mitigation Directorate’s mission is to assist states and locals in determining their mitigation priorities and FEMA’s HMA program is developed around this concept. Section 322 of the Stafford Act specifically requires mitigation planning for natural

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hazards. However, HMA grant guidance for planning does permit the inclusion of man-made and technological hazards in mitigation plans if the state, tribe or local community determines it is appropriate. While one benefit of an approved Hazard Mitigation Plan is availability of HMA assistance, mitigation planning is a larger program and is intended to assist states, tribes and local communities in building a comprehensive mitigation program.

- On page 15 it states that the National Hurricane Program “received \$5.86 million in funding for FY2008.” The Mitigation Directorate only received an allocation of \$1.706 million for the National Hurricane Program.

Specific comments on *Implementing an All-Hazards Mitigation Approach*:

- The FEMA HMA grant programs present a critical opportunity to reduce the risk to individuals and property from natural hazards while simultaneously reducing reliance on Federal disaster funds. FEMA recognizes that there may be secondary benefits when a project funded under the applicable Mitigation authorities has a secondary benefit of mitigating against a man-made or technological hazard. Although FEMA is prohibited by its authorities from funding projects that only address man-made hazards through its HMA programs, other FEMA and DHS programs are available to address such hazards.

FEMA generally concurs with six of the draft report’s seven recommendations. Our responses for each recommendation are as follows:

Recommendation #1: Dedicate resources to provide technical assistance and training to state, tribal, and local mitigation officials about the Risk Management Series to further promote mitigation measures that reduce or eliminate loss of life and property.

Response: Concur in part. The Risk Management Series (RMS) is one of many tools for comprehensive technical assistance and training that are available throughout the agency and are available to state, tribal and local officials. FEMA will continue to ensure that the Risk Management Series, along with these other tools, is included in technical assistance and training to state, tribal, and local mitigation officials to promote mitigation measures that reduce or eliminate loss of life and property.

Recommendation #2: Update FEMA 386-7, *Integrating Man-Made Hazards into Mitigation Planning*, to include all federal funding sources that can be used to implement mitigation measures that address technological and man-made hazards

Response: Nonconcur. Since many such resources are outside of FEMA, and given the purpose of this Planning document, we do not believe this is appropriate. Mitigation planning is focused on encouraging communities to make and enforce better land use planning decisions to ensure that future development is at less risk from hazards. Our primary audiences are land use planners, floodplain managers, and building code officials. Actual implementation of identified mitigation measures goes beyond the scope and purpose of the planning effort. FEMA also emphasizes that communities should not limit mitigation strategies to those eligible for particular federal programs,

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but should have comprehensive planning appropriate to its risks. For a community interested in federal funding, sources of funding for mitigation measures that address technological and man-made hazards can be found in the Catalog of Federal Domestic Assistance.

Recommendation #3: Include mitigation in the next phase of the target capabilities list to ascertain whether communities are considering what capabilities are needed to implement long-term measures for reducing or eliminating risk from hazards and their effects.

Response: Concur. This work is currently in progress.

Recommendation #4: Establish and coordinate a formal network of representatives from the Grants Programs Directorate, the National Preparedness Directorate, the Science and Technology Directorate, the National Protection and Programs Directorate and other federal agencies involved in hazard mitigation to identify opportunities, resources, and expertise that can be leveraged to implement mitigation projects that address all hazards identified by state and local governments.

Response: Concur. This work is in progress.

Recommendation #5: Use the established network of mitigation partners along with enhanced collaboration with DHS components, other federal agencies, and private sector stakeholders to develop and implement a risk-based, all-hazards mitigation strategy that identifies all hazards inherent to local jurisdictions and establishes a national framework to mitigate these hazards using structural and non-structural measures.

Response: Concur. Much of this has already been accomplished. FEMA participates in the National Science and Technology Council Subcommittee for Disaster Reduction. This body is part of the interagency coordination process to leverage programs and capabilities across the Federal family. In addition, FEMA worked with the National Emergency Management Association to develop the White Paper, *Recommendations for an Effective National Mitigation Effort, Building Stronger Partnerships, Increased Resilience, and Disaster Resistance for a Safer Nation*, which identifies the needs for developing broader collaborative partnerships to address all-hazards mitigation.

Recommendation #6: Provide guidance for the Pre-disaster Mitigation Grant program that offers instruction and examples of how mitigation officials should prepare grant applications for projects that primarily address natural hazards and also address hazards caused by man-made forces.

Response: Concur in part. FEMA has accomplished this in part through our existing wind and seismic mitigation projects which by design also contribute mitigation benefits for man-made and technological hazards. In general, however, Pre-disaster Mitigation (PDM) is authorized under Section 203(b) of the Stafford Act to fund mitigation activities identified in mitigation plans with respect to natural hazards, and only cost-effective measures can be funded under the program. The focus of FEMA guidance for PDM is on addressing the risk from natural hazards that is the primary purpose of the program; however, it is not currently feasible to provide meaningful guidance on cost effectiveness for man-made and technological mitigation projects.

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Recommendation #7: Apply the risk-based methodology used by the Grants Programs Directorate for homeland security preparedness grants to technological and man-made hazard mitigation projects.

Response: Concur in part. In coordination with GPD and NPD, Mitigation is evaluating this methodology that is currently limited to man-made hazards. Currently, project funding solely to address technological and man-made hazard risks are generally available under federal programs and authorities outside FEMA Mitigation Directorate's HMA grant programs.

Thank you again for the opportunity to comment on this draft report and we look forward to working with you on other issues as we both strive to improve FEMA.

Appendix C

List of Publications From FEMA's Risk Management Series

- FEMA 389, *Communicating with Owners and Managers of New Buildings on Earthquake Risk: A Primer for Design Professionals*, January 2004
- FEMA 395, *Incremental Seismic Rehabilitation of School Buildings (K-12): Providing Protection to People and Buildings*, June 2003
- FEMA 396, *Incremental Seismic Rehabilitation of Hospital Buildings: Providing Protection to People and Buildings*, December 2003
- FEMA 397, *Incremental Seismic Rehabilitation of Office Buildings: Providing Protection to People and Buildings*, December 2003
- FEMA 398, *Incremental Seismic Rehabilitation of Multifamily Apartment Buildings: Providing Protection to People and Buildings*, February 2004
- FEMA 399, *Incremental Seismic Rehabilitation of Retail Buildings: Providing Protection to People and Buildings*, July 2004
- FEMA 400, *Incremental Seismic Rehabilitation of Hotel and Motel Buildings*, April 2005
- FEMA 424, *Design Guide for Improving School Safety in Earthquakes, Floods, and High Winds*, January 2004
- FEMA 426, *Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings*, December 2003
- FEMA 427, *Primer for Design of Commercial Buildings to Mitigate Terrorist Attacks*, December 2003
- FEMA 428, *Primer to Design Safe School Projects in Case of Terrorist Attacks*, December 2003
- FEMA 429, *Insurance, Finance, and Regulation Primer for Terrorism Risk Management in Buildings*, December 2003
- FEMA 430, *Site and Urban Design for Security Guidance Against Potential Terrorist Attacks*, December 2007
- FEMA 433, *Using HAZUS-MH for Risk Assessment: How-To Guide*, August 2004
- FEMA 452, *A How-To Guide to Mitigate Potential Terrorist Attacks Against Buildings*, January 2005

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List of Publications From FEMA's Risk Management Series

- FEMA 453, *Safe Rooms and Shelters – Protecting People Against Terrorist Attacks*, May 2006
- FEMA 454, *Designing for Earthquakes: A Manual for Architects*, December 2006
- FEMA 455, *Rapid Visual Screening for Building Security*, Publishing pending
- FEMA 459, *Incremental Protection for Existing Commercial Buildings from Terrorist Attack*, April 2008
- FEMA 543, *Design Guide for Improving Critical Facility Safety from Flooding and High Winds: Providing Protection to People and Buildings*, January 2007
- FEMA 577, *Design Guide for Improving Hospital Safety in Earthquakes, Floods, and High Winds*, June 2007

Appendix D
National Planning Scenarios Identified in the National Response Framework

Key Scenario Sets	National Planning Scenarios
1. Explosives Attack – Bombing Using Improvised Explosive Device	Scenario 12: Explosives Attack – Bombing Using Improvised Explosive Device
2. Nuclear Attack	Scenario 1: Nuclear Detonation – Improvised Nuclear Device
3. Radiological Attack – Radiological Dispersal Device	Scenario 11: Radiological Attack – Radiological Dispersal Device
4. Biological Attack – <i>With annexes for different pathogens</i>	Scenario 2: Biological Attack – Aerosol Anthrax Scenario 4: Biological Attack – Plague Scenario 13: Biological Attack – Food Contamination Scenario 14: Biological Attack – Foreign Animal Disease
5. Chemical Attack – <i>With annexes for different agents</i>	Scenario 5: Chemical Attack – Blister Agent Scenario 6: Chemical Attack – Toxic Industrial Chemicals Scenario 7: Chemical Attack – Nerve Agent Scenario 8: Chemical Attack – Chlorine Tank Explosion
6. Natural Disaster – <i>With annexes for different disasters</i>	Scenario 9: Natural Disaster – Major Earthquake Scenario 10: Natural Disaster – Major Hurricane
7. Cyber Attack	Scenario 15: Cyber Attack
8. Pandemic Influenza	Scenario 3: Biological Disease Outbreak – Pandemic Influenza

Appendix E
Hazards Identified in Local Hazard Mitigation Plans for the State of California, October 2007

Agriculture	Insect Hazards
Arson/Commercial Fire	Landslides
Avalanche	Large Venue Fires
Biological/Health Emergency	Liquefaction
Blackout	Mass Casualty
Civil Unrest	Mine Safety
Coastal Erosion	Multi-Hazard
Coastal Storm	Nuclear Power Plant Accident
Dam/Levee Failure	Propane Distribution Facilities
Data Telecommunications	Radiological Incident/Accident
Drought	Severe Weather
Earth Movement	Sinkholes/Subsidence
Earthquake	Soil Hazards
Economic Disruption	Snow Storm
Energy Emergency	Special Events
Explosions	Substations
Explosive Manufacturing & Storage	Technological Failure
Extreme Heat	Terrorism
Fire	Tornados
Flooding	Toxic Pollution
Fuel Release	Transportation Incident (incl. Train & Airplane)
Geologic Hazard	Tsunami
Ground shaking	Unexploded Munitions
Groundwater Contamination	Utility Loss
HAZMAT	Volcanoes
High/Straight Line Winds	Water/Wastewater Disruption
Human Caused	Wildfire
Infrastructure (Pipeline, Aqueduct)	Windstorms
Jail/Prisons Event	

Appendix F
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Appendix G
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