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SPECIAL POLICY ISSUE

"Emergency Management in Pennsylvania: Selected Issues"

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Contents

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PREFACE

"Emergency Management in Pennsylvania: Selected Issues" is the second in a series of policy issues of *COMMONWEALTH*. It is the result of the partnership between the Pennsylvania Political Science Association and the Legislative Office for Research Liaison of the Pennsylvania House of Representatives (LORL). In this partnership, LORL has been given responsibility for developing policy issues of *COMMONWEALTH* using the expertise of faculty members at the more than 100 colleges and universities affiliated with LORL and experts from government and private industry.

We wish to offer our heartfelt thanks to Dr. Beverly Cigler, Professor of Public Policy and Administration in the School of Public Affairs at Penn State Harrisburg, who served as the editor of this issue. Her previous service to the state executive and legislature includes a two-year stint as a LORL Visiting Scholar and assistance with many LORL legislative inquiries and projects. Dr. Cigler is a Fellow of the National Academy of Public Administration and presently serves as a Pennsylvania State University Faculty Associate in LORL.

The authors of the articles in this Symposium were drawn from the academic, practitioner and consultive communities in emergency management, public health, public administration and related fields. Because this is a policy issue, the authors were asked to go beyond their basic findings and to offer policy recommendations derived from their research. These conclusions and recommendations belong to the authors alone and do not necessarily reflect the position, if any, of the editor of the volume, the Pennsylvania Political Science Association, the Legislative Office for Research Liaison or the Pennsylvania House of Representatives.

Special thanks are due to Barbara Stone, LORL Research Analyst/Copy Editor, who did the proofreading and layout work for this volume, and to the staff of the House Democratic Legislative Publications Office who so ably handled the production and printing.

Michael R. King, PhD

Associate Editor for Policy Issues
And
Executive Director, LORL

Emergency Management: Selected Policy Issues

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Every inch of our land, air, and water is vulnerable to disaster. The complexity of emergency management (EM) and its growing importance necessitates that lessons are learned, not merely noted, based on disaster experience. This symposium examines a number of issues important to the EM community, including state policymakers. The lessons imparted seek to build "institutional memory" for those involved with the various phases of EM: mitigation, preparedness, response, and recovery.

Governments alone cannot do all that is needed to deal with emergencies. EM involves building collaborative relationships among and between levels of government and across the public, private and non-profit sectors. Four of the articles here deal explicitly with partnerships – their need, development, and maintenance.

Christopher J. Moran, a Planner for the PA Region 13 Task Force, examines an important but relatively neglected issue, the role and use of volunteers in EM. In "**Utilization of Private Resources to Supplement Government Resources in Case of Emergency**," Moran provides an overview of some of the key existing volunteer programs in the field of EM. He outlines the benefits and costs of using volunteers and provides a set of criteria to use when assessing policy options. Christopher Moran then makes a specific programmatic recommendation for supplementing government resources with private resources. Overall, Moran's contribution buttresses the important point that EM can never be fully funded and that government must look to partnering with the private sector.

The development of partnerships beyond individual jurisdictions is an essential need for dealing with emergencies. State and federal resources cannot be relied upon initially and there is a gap between when resources are requested and when they are operationally available. Pennsylvania has an explicit comprehensive and systematic regional approach to emergency management. **Gregory G. Noll**, program

manager of the South Central Task Force (SCTF), offers an overview of Pennsylvania's regional approach in "**Regional Response to All-Hazards Events: A Commonwealth Perspective**." The SCTF is one of nine regional counter-terrorism task forces formed in 1997 by the Commonwealth to coordinate local and regional efforts in response to acts of terrorism. Additional authorities were later granted under Pennsylvania's Counterterrorism Planning, Preparedness and Response Act 227-2002. Today, the nine task forces strive to develop all-hazards regional approaches.

Drs. Louise K. Comfort, Daniel Mosse, and **Taieb Znati**, all of the University of Pittsburgh, also examine regional response in "**Managing Risk in Real Time: Integrating Information Technology into Disaster Risk Reduction and Response**." Emergency managers increasingly rely on decision support systems to provide real-time information for the complex tasks of predicting, communicating, and responding to emergencies. Various software programs already exist but, as the authors explain, none has been particularly successful in providing the type of dynamic, yet focused, information that emergency managers need. Emergency managers, operating at different locations and carrying out different functions simultaneously, require timely, valid information that can be updated quickly as conditions change. A "common operating picture" must be developed for the myriad of emergency managers working at different levels of responsibility and exposed to different degrees of risk to enable them to take more informed, effective action in a coordinated response for a region.

The authors present information on a prototype decision support system under development at the University of Pittsburgh. The Interactive, Intelligent, Spatial Information System (IISIS) Laboratory focuses on the degree to which the capacity of a region to respond to shared risk can be enhanced by innovative information technologies. A community's capacity for response is considered as a dynamic inter-organizational system characterized by four key decision points: 1) detection of risk; 2) recognition and interpretation of risk for the immediate context; 3) communication of risk to multiple organizations in a wider region; and 4) self organization and mobilization of a collective, community response system to reduce risk and respond to danger. The decision points embrace individual, organizational, and system levels of aggregation and communication of information that are used to create a "common knowledge base" that supports collective action to reduce risk.

The authors develop five propositions as part of a conceptual framework for building resilience in communities exposed to recurring risk.

The Joint Readiness Center, located at the Air Reserve Station in Pittsburgh, is another noteworthy collaborative model. It was established by the Base Realignment and Closure Commission in 2005 and has been identified by the Department of Defense (DOD) as a Center of Excellence in integrating civilian medical and business resources with military assets to provide unique, flexible, and effective emergency preparedness, response, and recovery to the nation. **George A. Huber, David R. Campbell, Keith G. Dorman,** and **Leigh A. McIntosh**, in "**Joint Readiness Center – Pittsburgh: A Model of Military-Civilian Readiness and Response**," describe the Center's origin and activities. The authors are part of the Joint Readiness Center Task Force (JRC Task Force), a community organization that supports the Center, which is a national model for homeland security and homeland defense.

The JRC seeks to improve the nation's response to disasters caused by humans or natural hazards by combining the strengths of the active duty, reserve, and guard components of the military, including the five armed services; federal, state and local government agencies such as the Federal Emergency Management Agency (FEMA), National Disaster Medical System, Disaster Medical Assistance Team, Pennsylvania Emergency Management Agency (PEMA); civilian practitioners skilled in disaster management; as well as the Pittsburgh region's extensive healthcare resources. Realizing JRC's full potential depends on continuing and enhancing the collaborative between the community and its partners.

A fifth symposium article was written by **Karen Finkenbinder**, a PhD candidate at Penn State Harrisburg in Public Administration. In "**Residency Requirements for First Responders**," Finkenbinder assesses a previously neglected issue in emergency management. The response to the effects of Hurricane Katrina and the Great Flood of New Orleans in 2005 highlights an unacknowledged problem associated with first responder families. Evacuation plans in New Orleans did not include consideration of the special needs of the families of first responders. It was difficult for police, fire, and emergency medical personnel to help others when they were witnessing the endangerment of their families and homes. After Katrina, New Orleans and other cities turned to rewriting

their emergency plans to consider a host of issues, including the needs of first responders' families.

Finkenbinder presents a balanced treatment of the residency issue, both from the individual and community perspective. She offers a set of pro and con arguments and places the issue within the broader framework of federalism and related legal issues.

The sixth and final article in the symposium, "**The State Role in Emergency Management (EM): Significant Challenges**," was written by the symposium editor, **Dr. Beverly A. Cigler**, Penn State Harrisburg. She argues that the key state roles in EM are: the facilitation of local disaster mitigation; assisting the public and elected and appointed leadership in understanding risk and mitigating disasters; building the capacity of first responders by strengthening their preparedness and response capabilities; and paying increased attention to shaping the environment in which the state and local governments operate within the federal emergency management system. Much of the state role is direct capacity-building directed at local governments, citizens, and first responders, but much involves money and legal issues.

Utilization of Private Resources to Supplement Government Resources in Case of Emergency

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Summary of the Issue

In a post 9/11 and Hurricane Katrina atmosphere and mindset, emergency management officials understand that government resources alone are not capable of serving the needs of a given population, depending upon the magnitude of the disaster. In the aftermath of 9/11, the resources of New York City were stretched not only by the disaster itself but also by the loss of first responders and emergency crews as they attempted to remove people from the towers. In New Orleans there was a delayed response due in part to communication failures, but also because government resources were unable to cope with the scope of the disaster in terms of sheer numbers and were not available in terms of deployment for a considerable amount of time.

Understanding this issue is vital as the state of Pennsylvania prepares to respond to threats, both natural and human-caused, that face us. Response to these emergencies takes on even greater significance when viewed through the prism of the War on Terror. The death and destruction created by a terrorist attack is a secondary goal when a terrorist attack occurs. Terrorists' primary goal is to frighten the population by making people feel vulnerable. This feeling of vulnerability is intensified when those charged with response and mitigation are unable to accomplish these tasks effectively.

Pennsylvania has many potential target cities for terrorist attacks. Philadelphia, Harrisburg, and Pittsburgh are all possible targets. Philadelphia has much of our national heritage within its boundaries. Pittsburgh has many bridges and tunnels, which are part of major access points to the city itself. The potential for massive disruption of services into and out of Pittsburgh is extremely high. In the aftermath of the Oklahoma City bombing, every state capitol has to be considered a potential target. Finally, Harrisburg has already been specifically targeted by terrorists for an Oklahoma City-style bombing on the federal building

in the downtown area. Pennsylvania must consider itself to have a higher than average probability of being attacked than most other states.

As we face these situations it is incumbent upon us to take inventory of what we in government can accomplish with the tools and resources at our disposal. When these allocations are not enough, we have a responsibility to take advantage of nontraditional resources within our state.

Background

There are many programs which have already been developed in response to this issue that may help illuminate the path forward toward more effective preparation and quicker responses.

The Community Emergency Response Team, or CERT, was originally developed by the Los Angeles Fire Department in 1985. It was then developed by the Federal Emergency Management Agency (FEMA) at the national level. CERT is designed to train members of the community to be their own first responders. Hurricane Katrina made it clear that individuals and community organizations need to view themselves as their own first responders. The CERT program trains people to do just that and can be built out of a school, daycare center, nursing home, or any type of community group, business, or organization that chooses to take part in the program. Training is offered in such aspects of emergency preparation as first aid and communications. Other training might include how to respond to the different Weapons of Mass Destruction (WMD) attacks, including chemical, biological, radiological, or nuclear. The importance of CERT cannot be overstated. Individuals are their own first responders. This fact is usually understated, and the usefulness of individual human capital is underutilized. People believe that government is going to come and save them, but as we have seen time and time again, this is just not the case. This program empowers individuals, organizations, and communities to better serve themselves.

In 1952, the Radio Amateur Civil Emergency Service (RACES) was established. The primary mission of this program is to mobilize amateur radio broadcasters for communication purposes when a disaster of some type has broken the normal avenues of communication. FEMA has provided organizational planning and technical assistance for the establishment of this program at state and local levels. The Federal

Communications Commission (FCC) regulates RACES operations and Pennsylvania uses the program at the local and state levels.

FEMA has also developed a national program called Voluntary Organizations Active in Disasters (VOAD), which is implemented by the Pennsylvania Emergency Management Agency (PEMA) for Pennsylvania. VOAD is not a directive organization since it has no controlling authority over the voluntary organizations from which it is made. Instead, its focus is primarily one of coordination and communication. Organizations involved are defined by their mission and capabilities. Some examples of this are:

Adventist Community Services

Collects food and distributes it to disaster victims
Collects clothing and distributes it to disaster victims
Collects hygiene products and distributes them to disaster victims
Provides counseling
Provides overnight shelter in some churches
Provides personnel for mass feeding, if necessary

American Baptist Men

Collects hygiene products and delivers them to disaster victim
Provides materials and logistical assistance
Provides mass feeding
Rebuilds, repairs, and offers cleanup operations
Provides volunteer personnel

VOAD's programs can be at a community, county, or regional level. The program is extremely important at these sub-state levels of government because they are the first responders to all emergencies and understand the special needs of their own communities.

Another program worth highlighting is the Logistical Civil Augmentation Program or LOGCAP. A number of wings of the military have developed their own programs based on LOGCAP, but LOGCAP was the first. It is a U.S. Army initiative that uses civilian contractors to enhance military non-combat capabilities. The military has always used civilian contractors in military support roles dating back to the Revolutionary War. After the Vietnam War, the U.S. Army realized that a system was needed to expedite the mobilization of contractors on the

battlefield. LOGCAP was established in 1985 by the publication of AR 700-137. During the Persian Gulf War, hundreds of different contractors were hired under as many different contracts with results that were less than satisfactory. The different contracts led to unclear mission statements and requirements. The resulting inefficiencies led to shoddy work and unsatisfied clients. This state of affairs led to a revision and expansion of LOGCAP in order to deal with any situation requiring military intervention that might arise, whether foreign or domestic. The first LOGCAP contract was awarded to the corporate precursor to Halliburton in 1992 for services and support in Somalia.

Since 1992, LOGCAP contracts have been used over a dozen times and currently are used in Iraq and Afghanistan. This program has supported hospitals and public health in the past. Some examples are:

The LOGCAP office administered the contractor operated Madeleine Albright Medical Clinic in Port-au-Prince, Haiti, from January 2000 through February 2001. The purpose of the clinic was to augment the Embassy medical staff in support of Embassy and United Nations (UN) staff personnel and their families. The clinic operated as a trauma unit with helicopter/vehicular paramedic's evacuation capabilities. The clinic was closed when the UN departed from Haiti. It was containerized and stored while an appropriate non-government organization was identified to take ownership.

Tempo Brave (June 2000 and October 2000) was a Combined Joint Task Force (CJTF) exercise for Consequence Management (CM) in the Pacific Theater, held at Fort Lewis, Washington, near 1st CORPS Headquarters. HQ 1 Corps assumed command and control of all CM operations as a JTF HQ within the U.S. Pacific Comment (PACOM) Area of Operations (AO) and was the lead agency, mitigating the effects and assisting in the remediation of the affected operational environment within a Joint Operational Area (JOA). This also tested the menu for the CM Plan written by the contractor. This was a CM exercise and planning development for a Statement of Work (SOW) used in the Pacific Theater.

These examples not only show the usefulness of such a program in supporting hospital and public health capabilities, but also show its versatility. From physical and administrative support to planning, this program can be adapted to fit the specific needs of many situations.

Problem Definition

How can obligations and responsibilities to the communities be served with limited resources and little ability to know the size, scope, and nature of emergencies likely faced? How can resources found outside of government be used in the state's communities in a way that is rapid, efficient, organized, cost effective, and flexible for any given situation?

These are some of the key problems faced in emergency management today. Emergency management personnel have the responsibility and the authority, but not the resources or ability, to fulfill their responsibilities. There are a number of options for dealing with the dilemma. This section offers pro and con arguments for each option listed below:

1. *Increase resources by allocating more funding for emergency management*

2. *Maintain current resource levels (status quo)*

3. *Increase resource availability through means other than increased funding allocations*

1. Increase Resources by Allocating More Funding for Emergency Management

Pros

- Increased funding means that the resources developed from that funding would be under the direct control of emergency management.

- Resources would be able to be quantified. We would know exactly what we have and what we don't.

- Those resources could be organized and allocated by emergency management service standards.

- The need for coordinating with other agencies or groups would be minimized so responses would be more efficient.

Cons

- It would be too expensive. Increasing funding to buy resources for preparations that may never be needed is inefficient and takes funding from other areas that may have more immediate needs.

- No amount of funding could ever prepare for every potential emergency. All funding is finite. It eventually comes to an end. Emergency management has to plan and prepare for as many emergency situations that both nature and humanity can come up with. There are individual emergency situations, such as a pandemic, that would be nearly impossible to have enough funding to prepare for, let alone all situations.

2. Maintain Current Resource Levels (Status Quo)

Pros

- It is inexpensive. The current level of resource availability has sufficiently handled all emergencies to this point.

- Funding can be used in other areas that impact the community immediately and not at some future time which may or may not come.

- Emergencies that outstrip the resources currently available probably won't happen so why do anything differently.

Cons

- Emergencies by their very nature are unexpected so when one comes that outstrips available resources we will have failed at managing that emergency.

- When inadequacies are known to exist, it is irresponsible and unacceptable to maintain the status quo and not address those inadequacies. It will be seen as such by the public who is underserved by this course of action.

3. Increase Resource Availability Through as of Yet Untapped Areas

Pros

- It is inexpensive. There is little need for reallocations of funding.

- There would be expanded capabilities. Capabilities can expand into areas that would be beyond the capabilities of any amount of funding to maintain.

- There is no need to maintain equipment and other resources which may never be used.

Cons

- We may not have direct control of resources. Our ability to access resources may increase, but the resources themselves may not be under direct government control.

- Some sort of oversight would be required to maintain the availability of those resources.

- Many community resources have already been tapped. We need to explore new avenues for expanded resource capabilities.

Factors Affecting the Options

As the various options are assessed, there are various factors that must be addressed. The first option of increasing the funding allocation for emergency management would need to be sold politically and to special interest groups. As stated earlier, there are no guarantees that preparations that increased funding would make possible would ever be needed. The funding would have to be taken from somewhere and those groups affected by this reallocation of funding would have concerns that need to be addressed. In addition, depending on where funding is allocated from, there may be racial or socio-economical issues brought up by special interest groups.

The second option has similar factors affecting its feasibility. First, politically, if an emergency occurs that might have been avoided if resource availability had been changed, the political fallout would be serious. Second, taking Hurricane Katrina as an example, when resources are not enough or are distributed incorrectly and disaster strikes, accusations of racism, socio-economic disregard, and incompetence surface.

The third option does not take resources away from the existing budget. However, the only area of resources not currently being accessed is private industry. There are already programs that coordinate and exercise nonprofit organizations, volunteer groups, and even individual citizens. The private sector remains largely untapped and yet that is where most of the resources are located. Private industry has a stake in emergency response and mitigation. Fear and disruption of daily life are bad for communities and business. This option does however need to be sold politically and administered fairly. There are groups who might see

this option as being unfairly beneficial to businesses with ties to government officials. There are programs like this at the federal level that have come under fire regarding this very issue.

Recommendations

The third option is in need of exploration. How do we tap into the private sector effectively? There are programs at the federal level that may offer the state a blueprint to follow. The Logistical Civil Augmentation Program (LOGCAP) is particularly noteworthy as a model. This is not a case for the use of military programs in domestic emergency management. Instead, as explained earlier, LOGCAP is a U.S. Army initiative which uses civilian contractors to enhance military non-combat capabilities. While the military has used civilian contractors in military support roles since the Revolutionary War, it wasn't until after the Vietnam War that the U.S. Army realized that a system was needed to expedite the mobilization of contractors on the battlefield and LOGCAP was established in 1985. During the Persian Gulf War, hundreds of different contractors were hired under as many different contracts with results that were less than satisfactory since many contracts had unclear mission statements and requirements. The resulting inefficiencies led to shoddy work and unsatisfied clients and LOGCAP was revised and expanded to deal with any situation requiring military intervention that might arise, both foreign and domestic. The first LOGCAP contract was awarded to the corporate precursor to Halliburton in 1992 for services and support in Somalia. Since 1992, LOGCAP contracts have been used over a dozen times and are currently being used in Iraq and Afghanistan.

This program has supported hospitals and public health in the past. Proposed here is that civilian contracting be used at the state and possibly regional levels to enhance response capabilities of emergency services. The recommendation is based on several basic considerations:

1. Efficient. In the event that an emergency outstrips emergency management resources, private companies will likely have the equipment, expertise, and incentive, including financial, and the desire to help victims in their own region or state. If contracts already exist and only need to be activated, companies are able to begin quickly the actual work that is needed rather than working out the red tape involved. If

contracts already exist, then there will be no lag time in deciding who should be called in to do the work.

2. Cost Effective. This program would require very little in the way of budget allocation or personnel resources. It could be administrated by relatively few people either at the state or in the case of Pennsylvania, within the regional system of nine counterterrorism task forces. There would be little or no waste of resources in that the contracts remain dormant except in the event of an emergency that requires their use. There would be no additional storage requirements for equipment. There would be no need to train additional personnel.

3. Economically Beneficial. When a disaster occurs, communities, regions, and states are hurt economically. If this program were instituted much of the federal emergency relief funding that would come into the area would stay in the area with local contractors. Out of state or even out of region companies would be limited to the needs that could not be supplied by local businesses.

4. Provides Organization for Private Sector Response. During 9/11 and Hurricane Katrina responses, many businesses took part in the relief efforts. However, there were many instances where because of a lack of organization, much needed supplies arrived swiftly and then were not distributed. An example is the case of Wal-Mart. The company was very good at moving the supplies (food, water, paper products, etc.) into disaster areas, but had nowhere to take them and no way to distribute them upon arrival. The program proposed here would allow for the organization of the private sector response, allowing them to do what they do best.

5. Avoids the Pitfalls. While there could be opposition to this option, the concerns involved could be reduced through oversight processes imposed on the program. One particular issue that needs to be addressed is one of fairness in bidding and contract development process. There have been many questions and accusations concerning the awarding of LOGCAP contracts to the company Halliburton in particular due to Vice President Dick Cheney's relationship with that company. To avoid these types of situations and perceptions there are two safeguards that need to be in place:

1. Oversight Committee: An oversight committee either bipartisan or independent needs to be formed to oversee the program. This committee would be responsible for awarding the contracts after

whatever process that is in place has been followed. The committee would not only have the power to award contracts, but would also be accountable for misuse of this power.

2. Transparency: The process and documentation of this process should be transparent and open to public scrutiny. Transparency keeps the process honest and fair. Committees can be lobbied and influenced in ways that the public in general cannot. An open process allows the people to be the ultimate judge as to the fairness of the process.

Conclusion

It is imperative to understand that emergency management by its very nature cannot ever be fully funded. If government sources can't supply enough resources we must look elsewhere to make up the difference. Volunteer organizations and nonprofits have already been tapped into and organized through VOAD. Individual citizens and small community groups are already being trained to be first responders through CERT. The private sector holds the majority of resources in the United States and has been largely ignored as a partner in emergency management. It would be irresponsible to continue to accept response and mitigation shortcomings when it is unnecessary. There is an opportunity to create a strong partner with little effort and we should take hold of it and develop that relationship to its fullest.

Relevant Legislation

Existing legislation must be examined and revised to utilize the LOGCAP model. At the state level, this includes the Counterterrorism Planning, Preparedness and Response Act, which provides for counterterrorism planning, preparedness, and response by imposing powers and duties on the Pennsylvania Emergency Management Agency, the Department of Health, counties and municipalities; and provides for the organization of various response teams. At the federal level, the relevant legislation includes, especially, the Disaster Mitigation Act of 2000, the Hazard Mitigation and Relocation Assistance Act of 1993, the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, and the Volunteer Protection Act of 1997. The Stafford Act is

particularly important in that it includes the promotion of the interests of social service program beneficiaries and taxpayers and sustains the availability of programs, nonprofit organizations, and governmental entities that depend on volunteer contributions by reforming the laws to provide certain protections from liability abuses related to volunteers serving nonprofit organizations and governmental entities.

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Regional Response to All-Hazards Events: A Commonwealth Perspective

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Events of the past five years have illustrated the need to develop partnerships beyond one's contiguous borders. While state and federal resources will ultimately respond, the reality is that there will be a substantial gap between when those resources are requested and when they become operationally engaged. The challenge for all communities is how to fill that void until the "cavalry arrives."

The objective of this article is to provide an overview of the South Central Task Force (SCTF) and its role in developing and implementing a regional-based organization within a commonwealth form of state government to meet the "all-hazards" needs posed by today's emergency preparedness challenges.

Background

SCTF is one of nine regional counter-terrorism task forces originally formed in 1997 by the Commonwealth of Pennsylvania to coordinate local and regional efforts in response to acts of terrorism. In 2002, further authorities were granted under Pennsylvania's Counterterrorism Planning, Preparedness and Response Act 227-2002.

SCTF encompasses an eight-county region, covering an area of approximately 5,200 square miles and a population of over 1.7 million. The region includes the state capital of Pennsylvania, three metropolitan areas with populations exceeding 250,000, and the center of the Commonwealth's agriculture industry. Perry County, the smallest and most rural county, was the site where the 1993 World Trade Center bombers tested their explosive devices before the actual attack. Although it is not a DHS Urban Area Security Initiative (UASI) region, regional

threats, risks and response requirements are also influenced by its proximity to the Philadelphia and Baltimore metropolitan areas.

Pennsylvania is a commonwealth form of government, which results in a myriad of local, town, city, and township governmental jurisdictions. Within the south central region, there are 312 municipalities. Over 90% of fire/rescue organizations are volunteer-based, including the hazardous materials and Urban Search and Rescue (US&R)/technical rescue units. In contrast, the emergency medical services community is in the midst of shifting from a volunteer-based system to a career-based system. Finally, over 75% of the police departments have fewer than five officers. The following summarizes the SCTF regional response community:

- Fire/Rescue Departments = 326

- Police Departments = 143

- Emergency Medical Services (BLS) Agencies = 104

- Emergency Medical Services (ALS) Agencies = 31

- Hospitals = 16

- Special Operations Units [i.e., Tactical Teams (6), HazMat Response Units (6), US&R/Technical Rescue Companies (6)] = 18

The Regional Task Force Concept

Within Pennsylvania, the nine regional task forces serve as the regional point-of-contact for the distribution of all Department of Homeland Security Grant Program (HSGP) and Law Enforcement Terrorism Prevention Program (LETPP) grant funds. The Pennsylvania State Emergency Management Agency (PEMA) functions as the State Administrative Authority (SAA), and allocates the grant funds to the nine regional task forces. Each respective task force is then responsible for the development of a regional homeland security strategy and response plan that is consistent with both federal and state guidance.

The mission of SCTF is: 1) to foster and advance the capabilities of public safety providers, elected officials and other stakeholders throughout the region to protect lives and social/economic infrastructure from terrorist threats or incidents; and 2) to take a leadership role in the

development of a comprehensive regional counter-terrorism program that addresses planning, prevention, response, and recovery issues.

While the legislative basis for SCTF is primarily based upon terrorism-related risks, the Task Force has followed an "all-hazards" planning strategy since its inception. SCTF strategic priorities and objectives are consistent with *HSPD-8 – National Preparedness Goal* (March, 2005) and the *2003 Pennsylvania Homeland Security Strategy*. SCTF has conducted formal homeland security threat assessment processes in both 1999 and 2003, with the next threat assessment tentatively scheduled for 2007.

From a strategic perspective, SCTF exists to coordinate and facilitate the development of regional solutions to regional problems and response scenarios that may exceed the capability of local government agencies. It does not have any command and control authority, and there is no mandate for any agency or organization to participate in the regional process. As a result, SCTF must continuously "market and sell" the benefits of participating in the regional concept.

The Players

SCTF membership can be broken into three categories: the executive committee; liaison members; and SCTF participating agencies, organizations and individuals. A contract program manager is responsible for the day-to-day management and administration of Task Force activities, and another contractor serves as the exercise coordinator.

Executive Committee. SCTF is governed by an Executive Committee consisting of the Emergency Management Coordinator (EMC) from each county within the Task Force. The Chairperson and Vice-Chairperson must be state-certified EMC's and are elected by the Executive Committee. All decisions are based upon a majority vote process.

Liaison Members. These representatives are from state or federal agencies that support or are involved in Task Force activities. Primary government agencies with a liaison to the Task Force include:

- PA Emergency Management Agency (PEMA)
- PA Department of Agriculture (DOA)
- PA Department of Corrections (DOC)

- PA Department of Environmental Protection (DEP)

- PA Department of Health (DOH)

- PA State Police (PSP)

- PA Wing, Civil Air Patrol

- PA National Guard, 3rd Civil Support Team (CST)

- Federal Bureau of Investigation (FBI), Harrisburg Office

- Bureau of Alcohol, Tobacco, Firearms and Explosives (BATF), Harrisburg Office

- U.S. Department of Homeland Security (DHS), Philadelphia Office, Office of Infrastructure Protection

- U.S. Environmental Protection Agency (EPA)

Participating Agencies. This is where the actual "work" is accomplished and includes public, private and volunteer agencies, organizations and individuals who fall into one of the following categories:

1. SCTF Subcommittee or Working Group member, including:

    - Business, Industry and Infrastructure Subcommittee

    - Communications Subcommittee

    - Criminal Justice Subcommittee, including the Tactical Team Working Group

    - Emergency Medical Services (EMS) Subcommittee

    - Equipment Subcommittee and Technology Working Group

    - Fire, Rescue and Hazardous Materials Subcommittee, including the HazMat Chiefs Working Group

    - Hospital Subcommittee

    - Training Subcommittee and Exercise Working Group

2. Agency or organization provided with SCTF-acquired resources which agrees to be available for regional mutual aid responses.

3. Individuals serving on SCTF discipline-specific units, Strike Teams or Task forces.

Concept of Operations

SCTF activities are based upon the following strategic planning assumptions:

1. Any regional response must build upon the elements of mutual aid used on a daily basis.

2. Although the primary focus of SCTF is directed towards terrorism planning and response, where possible all equipment acquired through DHS grant funds shall have a "dual use" or "all hazards" capability.

3. Local response agencies will likely be "on their own" for the initial 24 hours before substantial state resources and up to 96 hours before substantial federal resources will arrive.

4. SCTF planning, procurement and response policies and decisions will be based upon "regional" needs and perspectives vs. "local" perspectives.

5. Emphasis shall be placed upon implementing policy changes that can be institutionalized or will have long-term benefits in the event that current funding streams are terminated.

The SCTF regional concept of operations is based upon providing regional-based mutual aid for large-scale events that exceed the capabilities of local resources prior to the arrival of state and federal response assets. This concept of operations is primarily based upon the deployment of specialized regional response teams.

Under Pennsylvania Act 227, the Counter-Terrorism Regional Task Forces are required to establish "... specialized regional counter-terrorism response teams" that can be deployed in the event of a major event. Deployment of these teams builds upon the basic concepts of mutual aid, and provides a logical framework by which regional-based resources can provide assistance to local jurisdictions when an event exceeds their capabilities.

SCTF specialized response teams include the following:

- Incident Support Team – Type 4 Incident Management Team (IMT)

- Law Enforcement Strike Teams (LEST)

- Decontamination Strike Teams

- Hospital Decon Strike Teams

- Emergency Medical Services (EMS) Task Forces

- Special Operations Units, including five Hazardous Materials Response Teams certified to Pennsylvania Act 165 requirements, six Tactical Teams, technical rescue companies, and Pennsylvania US&R Company 1, which is an in-state component of the Pennsylvania Task Force 1 federal urban search and rescue team.

Accomplishments

The drive to establish a regional planning and response organization has been a significant challenge. Some of our accomplishments include:

1. Recognition of the Business, Industry and Infrastructure (BI&I) Subcommittee by its peers as the first Pennsylvania Regional Task Force that has successfully addressed coordination with the private sector on a regional basis. Since its inception in 2003, the Subcommittee has doubled in size and includes representation from eight critical infrastructure/key resource (CI/KR) sectors. During the 2005–2006 legislative session, the BI&I Subcommittee worked with Pennsylvania House legislators to introduce the Critical Infrastructure Tax Credit Bill, to provide tax credit incentives for private sector investment for security enhancements by critical infrastructure industries.

2. Implemented the Decon Strike Team concept, under which 37 fire department engine companies have been trained and are capable of initiating mass decontamination operations. These units can be deployed individually as a Decon Company to an incident or a hospital to provide decon support, or as a Decon Strike Team (five Decon Companies operating under the direction of a Strike Team Leader who is trained to the Hazardous Materials Technician level).

3. Implemented the concept of the SCTF Incident Management Team (IMT), which is typed as a Type 4 IMT under the NIMS resource typing standard. During the past year, the IMT has been deployed to provide support for the Northeastern Pennsylvania June floods, to a

major hazardous materials train derailment in Hershey, Pennsylvania, to the Nickel Mines Amish school shooting in October, and in January worked with the Pennsylvania Type 3 IMT to provide support for the Pennsylvania Farm Show Exposition.

4. Conducted a major field exercise (Wide Vigilance) that tested and validated the regional concept of operations. The exercise included response operations at three major field locations approximately 20 miles apart from each other (Letterkenny Army Depot, New Cumberland Army Depot, Fort Indiantown Gap), medical activities at all 16 regional hospitals, the activation of eight county Emergency Operations Centers (EOC), the establishment of a Regional multi-agency coordination center (MACC), and the processing of approximately 500 victims.

5. The 16 hospitals in the South Central Region have implemented an aggressive program to enhance their individual and collective capabilities. Key accomplishments include:

   • Enacted formal Memorandums of Understanding (MOU) among all 16 hospitals.

   • Developed a Regional Hospital Response Plan.

   • Implemented a uniform hazmat training curriculum that is used by all 16 hospitals.

   • Used both DHS and U.S. Health and Human Services - Health Resources and Services Administration (HRSA) grant funding streams, increasing the surge capacity of regional hospitals.

   • Established a pharmaceutical cache for emergency response personnel.

   • Conducted over 20 tabletop exercises so that each hospital could exercise its plans, policies and procedures to respond to a terrorist incident causing a mass casualty event. These exercises were conducted in preparation for the October field exercise previously noted.

6. In 2006, approximately 3,800 students attended training courses coordinated and funded by SCTF, and delivered by SCTF-related agencies.

7. Delivered a series of seven Local Elected Officials Workshops to
    familiarize local and county elected officials with the regional
    concept, the role of SCTF, the process by which DHS grants
    management and procurement decisions are made, and to respond to
    their questions.

8. Delivered the Third Annual Homeland Security Conference that is
    designed to bring all of the various response disciplines together and
    facilitate their networking in an educational setting. The Conference
    brings together over 300 attendees annually.

The Task Force has received several awards for its efforts to
establish a regional-based capability, including the International
Association of Emergency Management (IAEM) 2006 Interagency
Disaster Preparedness Award, the U.S. EPA Region 3 Partnership
Award, and the Mid-Atlantic Regional All-Hazards Forum 2006
Regional Readiness Achievement Award.

The Future

SCTF has made substantial progress in developing a regional "all-
hazards" planning, response and recovery capability. However, many
challenges remain including:

1. **Managing the day-to-day business of emergency management
    and response while trying to facilitate the development of a
    regional concept requires good people, hard work and good
    balance.** In reality, there is no separate SCTF. The Task Force
    actually consists of numerous local and county-based agencies and
    organizations who have agreed to work together for the benefit of the
    collective eight county region. In simple terms, they simultaneously
    wear a "local hat" and a "regional hat." In addition, most of the
    actual work performed at the "task level" is accomplished by
    individuals who already have a "full-plate."

2. **The Regional Task Force concept is a "work in progress" and
    continues to lack authority in different areas**. While significant
    improvements have been made, the last five years have demonstrated
    the need for additional state legislative action to address Task Force
    gaps in mutual aid legal protections, workman compensation, and
    insurance protection. In addition, there currently exists no state

mechanism for funding emergency responses to large-scale regional incidents and events that exceed local capabilities.

3. **SCTF is currently a "people dependent" organization and if the regional concept is to grow and sustain itself, it must become a "system dependent" organization**. SCTF is fortunate to have a cadre of highly motivated stakeholders who collectively desire to make a difference in both their organization and in the region. However, the long-term success of the regional concept of operations will be dependent upon our ability to "institutionalize" the regional response concept, so that it is ultimately viewed as a routine part of our business in the emergency management and response communities.

4. **Despite our successes, an objective assessment would show that numerous agencies and organizations have not yet been "sold" on the benefits of a regional approach**. The SCTF Leadership Team continues to move forward with the large number of agencies and organizations who are willing to embrace the concept and the collective benefits it brings to the citizens of South Central Pennsylvania. While we consistently market the advantages that regionalization can bring, we have also made a conscious decision to not allow our failures to stop the forward movement of regional partnerships. Our philosophy is simple – get on the train, get off the train, or get run over by the train.

5. **The regional concept of operations must be continually marketed and validated to all of our stakeholders.** Key elements in this process include: (a) continued movement from the Pennsylvania Act 227 and DHS Homeland Security grant program terrorism focus to an all hazards perspective; (b) supporting the continued growth and maturation of all SCTF subcommittees, Strike Teams and related components; and (c) an aggressive and value-added county and regional training and exercise program.

6. **Adoption of a common incident management framework is the foundation for any successful regional response.** If SCTF-acquired equipment is the equivalent of "emergency response hardware," then adoption, training and implementation of the National Incident Management System (NIMS) is the "emergency response software package" that provides the foundation for an effective regional

response. While we have made significant strides in facilitating the regional adoption of NIMS, additional work remains.

7. **Increased efforts are required to fully integrate volunteer agencies and organizations on a regional basis**. While there have been substantial efforts to integrate and coordinate with volunteer agencies at the county level, efforts to facilitate the collaboration of these agencies at the regional level have been "hit or miss."

Managing Risk in Real Time: Integrating Information Technology into Disaster Risk Reduction and Response

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Introduction

Emergency managers in Pennsylvania face an extraordinarily complex set of tasks in reducing risk to communities that vary widely in size from the metropolitan regions of Philadelphia and Pittsburgh to the small towns of rural Pennsylvania. These communities, with different degrees of density in population and interdependence of infrastructure, are exposed to a wide range of weather conditions, transportation accidents, hazardous materials spills, technical failures, and potential security threats. Emergency managers are responsible for identifying potential threats to the Commonwealth, alerting multiple agencies that are responsible for different functions to reduce such threats, and mobilizing an effective inter-organizational system to respond to rapidly evolving emergency events. Recent events, such as the severe ice storm of February 14, 2007, illustrate the risks, costs, and losses that occur in such emergencies on a region-wide basis.

Increasingly, emergency managers are turning to decision support systems to provide real-time information for the complex tasks of anticipating, communicating, and responding to emergencies. While various software programs such as EIS, E-Team, and WebEOC have been designed, developed, and adopted by emergency response agencies, none has been particularly successful in providing the type of dynamic, yet focused information that emergency managers need to mobilize coordinated action on a regional scale. Emergency managers, operating at different locations and carrying out different functions simultaneously, require timely, valid information that can be updated quickly as conditions change. The challenge is to create a "common operating

picture" for the set of emergency managers working at different levels of responsibility and exposed to different degrees of risk to enable them to take more informed, effective action in a coordinated response for the region.

Creating this "common operating picture" is complicated by the heterogeneity of disciplines, organizations, and jurisdictions that are involved in the mobilization of an effective response system to an extreme event. For example, the response system that evolved following Hurricane Katrina included 535 organizations from city, parish, sub-region, state, federal, and international jurisdictions, identified in news reports from the *Times Picayune* published in New Orleans, Louisiana (Comfort and Haase 2006). The distribution of organizations crossed jurisdictional lines, as 76, or 23.9%, were from the municipal level of operations, while 93, or 29.2%, were federal organizations. In hindsight, it is clear that few personnel from these two levels of operations had worked together previously, or had developed a common understanding of what actions needed to be taken by which agencies at what time to reduce the threat to the region.

The initial step in disaster reduction lies in recognizing risk, and in developing a common definition of risk that is shared among the participating actors. Under these conditions, risk is the probability of danger, not the hazard itself. It can be defined as the dynamic interaction of the exposure to hazard, less the capacity of the community to act to reduce that hazard (Johnson 2005). Many theorists have sought to define risk, but it is difficult to capture the dynamic characteristics of risk as it changes both over time and in reference to specific geographic, technical, organizational, social, economic, and political conditions. Omar Cardona (2003), an international engineer who has examined risk from multiple perspectives, refers to risk as the potential loss to the exposed subject or system, resulting from the convolution of hazard and vulnerability.

Cardona recognizes, importantly, that the degree of risk to which a community is exposed may be modified by actions taken to reduce vulnerability to hazards in the community. Further, he specifies that vulnerability is increased or decreased by the interaction among technical, organizational, social, economic, political, and cultural conditions as the community acts in reference to the hazards to which it is exposed. That is, if a community acknowledges its exposure to hurricanes and allocates resources and training to emergency response

agencies to prepare for such extreme events, its vulnerability to hurricanes will decrease. For example, the state of Florida, based on its significant experience, has increased its capacity to reduce the likely consequences of hurricanes for its communities, and has notably decreased its vulnerability to this hazard, although hurricanes will surely recur in Florida. Conversely, if a community acknowledges the threat of severe weather, but takes no action to mitigate the likely consequences for its population and infrastructure, its vulnerability to severe weather will increase. Risk is the status of the community at a particular time, given its exposure to a specific hazard and the actions that it has taken to reduce that hazard.

Cardona (2003) proposes that the degree of risk for any community may be expressed in mathematical terms as "the probability of surpassing a determined level of economic, social, or environmental consequence at a certain site and during a certain period of time." This proposition suggests a practical means of assessing risk from known hazards for specific communities, and using this information as a basis for informed decision making to reduce risk from hazards. Determining the degree of risk for a given community requires the design and development of a knowledge base and decision support system for the region that characterizes the economic, social, technical, organizational, and geophysical characteristics of the region in order to identify accurately the thresholds of performance that enable a community to manage the consequences of the hazard and still continue its basic operations. Current information technologies provide the potential for addressing the assessment of risk in real time, and providing timely, accurate decision support to practicing emergency managers in the dynamic environment of disaster risk reduction and response.

Risk Assessment and Response at a Regional Level

Managing risk for a given region involves measuring the rate of change between two interacting components in real time: 1) the degree of exposure to a specific hazard for the region, and conversely, 2) the capacity of the region to act to reduce the likely consequences of that hazard when it occurs. The dynamic is reciprocal. As the degree of exposure to a given hazard increases and the region deploys its existing capacity to reduce the likely consequences of that hazard, the vulnerability of the community to danger will increase, unless capacity is

augmented. The ratio of the probability of occurrence of the hazard to the capacity of the region to mitigate that hazard will vary over time. Achieving the appropriate balance between timely, accurate assessment of the probability of hazards and allocation of resources and effort to minimize the potential consequences can be enhanced with the use of innovative information technologies.[1] Designing decision support systems to enable emergency managers to make more informed, timely decisions in managing risk represents an innovative approach to the reduction of recurring risk in metropolitan regions.

A community's capacity for response to hazards can be considered as a dynamic, inter-organizational system that is characterized by four primary decision points: 1) detection of risk; 2) recognition and interpretation of risk for the immediate context; 3) communication of risk to multiple organizations in a wider region; and 4) self organization and mobilization of a collective, community response system to reduce risk and respond to danger. The decision points move from individual to organizational to system levels of aggregation and communication of information that are used as a basis for creating a "common knowledge base" to support collective action to reduce risk. It is at these four transition points of escalating requirements for action that human cognitive, communicative, and coordinating skills frequently fail. Five propositions present a conceptual framework for building resilience in communities exposed to recurring risk.

Detection of Risk

In detection of risk, measurement of hazards is conducted by a network of scientists that review and validate the current status of the hazard and then forward this information to decision makers in public, private, and nonprofit organizations. For example, on August 23, 2005, the meteorologists at the National Hurricane Center (NHC) in Florida identified a tropical depression forming over the Bahamas. On August 24, they upgraded it to Tropical Storm Katrina. On August 25, the staff at the NHC tracked the storm as it made landfall in south Florida as a Category 1 hurricane. On August 26, the storm moved into the Gulf of Mexico and intensified to become a Category 2 hurricane and the NHC

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[1]The Interactive, Intelligent, Spatial Information System (IISIS) Laboratory at the University of Pittsburgh has focused on the degree to which the capacity of a region to respond to shared risk can be enhanced by the appropriate use of innovative information technologies. For more information, please see http://www.iisis.pitt.edu.

projected landfall in Louisiana and Mississippi. At each step of the evolving state of the storm, scientists at the NHC notified the public officials and news media regarding its changing strength and direction. On August 27, as the storm strengthened over the Gulf of Mexico, the NHC upgraded it to a Category 3 hurricane; the next day, August 28, the storm intensified to a Category 4, and then Category 5 storm, with winds over 175 miles per hour. On Monday morning, August 29, Hurricane Katrina made landfall just east of New Orleans as a Category 4 storm. The scientists monitoring the hazard – the evolving hurricane – provided timely, accurate information to both decision makers and the public. Ironically, this scientific information did not lead to sufficiently informed action by the policymakers and emergency managers.

While the validation of weather data is an important stage in this process, monitoring performance across a wider range of critical conditions for the community would provide more accurate and timely detection of emerging danger than separate assessments for particular conditions. The process of risk detection is vulnerable to the fragilities of human organization and performance. Responsible decision makers may be watching separate conditions for indications of vulnerability, but miss the interaction among these conditions that may intensify the potentially destructive impact of the hazard on the whole community. The design of appropriate means to assess the status of a core set of interacting conditions and operational systems critical to the community would augment the early detection and validation of risk. These assessments, reported as thresholds of risk across a set of critical conditions and functions for the community, would provide a more integrated and timely assessment of risk to human decision makers responsible for risk reduction.

In order to achieve such a distributed system of data detection and analysis, an effective decision support system would require a number of monitoring systems that would measure change in critical conditions for maintaining continuity of operations. For example, measuring the capacity of the levee system to withstand the added pressure of a storm surge from the Gulf of Mexico moving into the City of New Orleans through the Mississippi River Gulf Outlet would be a key factor in determining the vulnerability of the city's population to the storm. Other factors, such as monitoring the state of readiness to implement the evacuation plan for all sectors of the city's population, or the current status of alternate communications facilities, are essential measures to

calculate the degree of risk for the entire metropolitan region. These monitoring systems would not only provide redundancy in incident detection, but also allow measurement of the rate of change in key factors over time, which is critical to understanding the probable impact of the hurricane on the community under study. When more details are needed on a particular event, the set of monitors should be able to deliver this information in as much detail as the emergency managers require. Only the needed information should be shown to the emergency managers during the daily operation of the system.

> **Proposition 1**: Human capacity to perceive risk increases with the timeliness, accuracy, and validity of information transmitted in reference to a core set of thresholds of risk to conditions critical for community resilience.

Recognition and Interpretation of Risk

Prior research has found that an individual's capacity for problem solving drops under stress (LaPorte 1975, Miller 1967, Simon 1981). This drop in capacity is the result of the increased number of risk factors, the degree of unfamiliarity with new information, and the degree of uncertainty that characterizes extreme events. In these contexts, appropriate uses of information technology offer a means of extending human problem solving capacity in uncertain conditions. A key question for investigation is the extent to which a socio-technical information infrastructure, designed to detect and transmit risk information quickly and accurately, can facilitate the rapid recognition of risk within a community and lead to more informed, timely action.

With a well-designed socio-technical system, the emergency managers will receive only the information they select to view. The usual way of doing this is to centralize all information into a single server, use database technology to extract relevant views from the database, and transmit it to the consoles of the emergency managers. This approach often creates a bottleneck, since data must be collected into a single server and extracted from the single server under tight timing constraints (in real-time) to be useful. Most systems that use this method slow down the information distribution among emergency managers who operate at different jurisdictional levels of responsibility.

> **Proposition 2**: Human capacity to recognize risk conditions can be increased by focusing risk data through "views" that are

directly relevant to the responsibilities of each major decision maker in the system, thus reducing the overload of less relevant information and time required for information processing and facilitating rapid absorption of threatening information by individual decision makers.

Communication of Risk to Wider Arenas of Response Organizations and Resources

The prevailing method of communicating risk relies largely on command and control processes through a carefully defined hierarchical order. For example, during Hurricane Katrina, the official policies included the National Response Plan (FEMA 2004) and the National Incident Management System (FEMA 2005) that were adopted by the Federal Emergency Management Agency and the Department of Homeland Security. These policies follow a serial format for communication of risk and requests for assistance from lower to upper jurisdictional levels. These plans have recently been replaced by the National Response Framework (January 2008), which includes minor adjustments, but still follows the prevailing pattern of established hierarchical control. A sobering analysis of communication patterns among emergency response agencies in the hours and days leading up to and following Hurricane Katrina illustrates vividly the breakdown of this formal design in practice (Comfort 2005, 2006). Building the awareness of risk to support collective action is a cumulative process. If the first two steps of risk detection and communication have not been carried out successfully, the effort to engage organizations from a wider arena into the emergency response system is likely to flounder or fail.

Our model for achieving this task of communicating critical information to focused audiences is the "bowtie" architecture for decision support (Csete and Doyle 2004, Comfort 2005). This architecture offers a method of presenting relevant views to different emergency managers, while preserving not only the meaning of the incoming data, but also preserving the integrity of the collected data. As shown in Figure 1 on the following page, a "bowtie" design identifies key sources of data that "fan in" simultaneously to a central processing unit (or "knot") where the data are integrated, analyzed and interpreted from the perspective and performance of the entire system. New information is then "fanned out" to relevant actors or operating units that

use the information to make adjustments in their specific operations informed by the global perspective.

Figure 1

Bowtie Architecture for the Iterative Flow of Information within a Disaster Management System
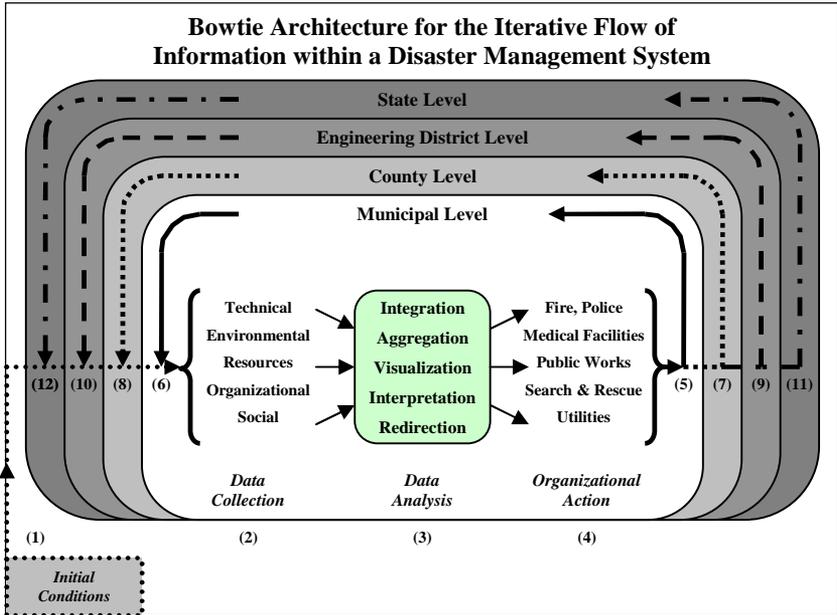
This design fits well with an Emergency Operations Center (EOC). In an EOC, status reports from multiple agencies are transmitted to the service chiefs who collectively integrate, analyze and interpret the data in reference to the performance of the whole response system. They then transmit the relevant information to the respective agency personnel, who adjust the performance of their units informed by the operations perspective for the entire system. The capacity for reciprocal adjustment of performance among multiple organizations based on timely, valid information represents self organization in emergency response, guided by the shared goal of protecting lives, property and maintaining continuity of operations for the whole community (Comfort 1994, Axelrod and Cohen 1999).

This theoretical framework acknowledges the importance of both design and self organizing action in guiding coordinated action in a complex, dynamic environment. It can be modeled as a set of networks that facilitate the exchange of incoming and outgoing information through a series of analytical activities that support systemic decision making. The information flow is multi-way, but gains efficiency through integrated analysis and coordinated action toward a clearly articulated goal for the whole system. It operates by identifying the key sources of information, the key processes of analysis and interpretation for the whole system, and the key routes of transmission. It maintains self organizing functions in that personnel, with informed knowledge, adjust their own performance to achieve the best performance for the whole system. Design, self organization, and feedback are central to effective performance of distinct organizational units within the global system.

The system will use multicasting networks to support the simultaneous transmission of information to multiple actors under conditions of escalating risk. Because such conditions require the aggregation of information at successive levels of responsibility, the proposed network will provide such aggregation functions within the network itself, guided by the views that emergency managers specify. Further, the presentation of fused and selected information (readily understandable to personnel with different levels of training and experience) will be done to avoid information overload. Lastly, the views requested by emergency managers may (and will) change based on temporal conditions and event information. For example, in the early stages, vague, scattered, incoherent indicators of risk will necessitate little information and aggregation, allowing the network to self-organize. Then, during emerging risk, clear indicators trending toward significant danger will require more information to be provided, while still avoiding information overload. During rescue and recovery, data will be distributed in the reverse direction and transformed into action to protect lives and property.

> **Proposition 3**: The capacity of a set of organizational managers, each with specific responsibilities and operating at different locations, to coordinate their actions can be increased by the simultaneous transmission of relevant risk information to each manager, creating a "common operating picture" of risk to the region for all managers.

Self Organization and Mobilization of Collective Action to Reduce Risk

The collective capacity of a community to take informed, coherent action in the face of danger is a measure of that community's resilience. This capacity depends upon the cumulative set of cognitive, communicative, and adaptive processes outlined above. If any one of the preceding steps fails, the capacity of the community for collective action is weakened. If all of the preceding steps are performed effectively, the capacity for collective action is strengthened. Further, instances of negative feedback can have the reverse effect of weakening the whole system's performance in response to danger.

Disaster management involves multiple governmental, nonprofit, and private entities with different structures and organizational models. The interest of each organization in gathering information and data regarding exposure to hazards derives directly from its own mission. In current disaster management systems, these organizations are much more vulnerable to information overload caused by the transmission of a large amount of irrelevant information. As the number and variety of sources of information and sensors continue to grow, so does the volume of data generated by these socio-technical sources of information.

One method of facilitating the timely exchange of valid information to multiple managers simultaneously is the design of an "executive dashboard," in which data from different sources are represented visually to provide a "common operating picture" of the status of the region at risk. This design translates the concept of the "bowtie" architecture for information processes into a working decision support system for emergency managers operating at graduated levels of responsibility and authority. The capacity for multiple managers at different levels of responsibility to view the relevant information for their specific arenas of action simultaneously enhances their ability to adapt and adjust their performance to the emerging threat more quickly, efficiently, and effectively.

Setting the thresholds of risk for participating agencies that have different levels of resources but are exposed to threats of different degrees of severity requires the judgment of experienced emergency managers as well as timely, valid information. In planning sessions for simulated operations exercises, selected practicing emergency managers would be invited to participate in the definition of thresholds that are relevant to their specific responsibilities. The model of an executive

dashboard offers a mechanism for building a "common operating picture" among responsible actors in a complex disaster management system for a community at risk.

> **Proposition 4**. The collective capacity of a community to act in coherent ways to reduce risk can be increased through information search, exchange, focused views, and feedback processes to create an inter-organizational learning system that adapts its behavior to fit available resources to changing conditions of risk more appropriately.

Vulnerability to Systemic Failure in Communities Exposed to Risk

At each of the four decision points identified above, human capacity for informed action is enhanced by access to appropriately designed and functioning information technology. The interaction between organizational performance in coordinating action and the availability and access to a functioning information infrastructure has a fundamental effect upon a community's capacity to manage the risk to which it is exposed. Without access to such a technical information infrastructure, the organizational capacity to mobilize collective action in a region will likely fail. The collapse of the emergency response system in New Orleans after the city lost its communications illustrates this argument vividly.

> **Proposition 5**: Without a well-defined, functioning information infrastructure supported by appropriate technology, the collective response of a community exposed to serious threat will fail.

The five propositions, taken together, constitute a conceptual framework regarding the evolution of capacity for collective action in communities exposed to recurring risk. The basic argument is that human capacity to act collectively and constructively in risky, uncertain environments can be significantly enhanced through appropriate uses of information technology.

The Mon Valley Project

In order to test the conceptual framework of the "bowtie" architecture for decision support, the IISIS Laboratory research team engaged in a trial demonstration project that involved 27 Pennsylvania

municipalities[2] that border the Monongahela River. Pittsburgh's signature three rivers create a recurring risk of flooding for the metropolitan region. Within the last 23 years, seven damaging floods have ravaged riverfront communities, each causing substantial loss of property, disruption of community economic activity, and significant hardship for families, businesses, and communities. These floods include the following events:

> 1985: Monongahela Flood, Pittsburgh, November 14.
>
> 1986: North Hills Flash Flood, May 31. Eight dead.
>
> 1996: River Floods, January, Pittsburgh area.
>
> 2001: Southern West Virginia Floods, June-July.
>
> 2004: Tropical Storm Ivan, September 17.
>
> 2005: January Floods, Allegheny River.
>
> 2007: July Floods, Allegheny River.

Given past experience, exposure to flooding is a known hazard for the Pittsburgh metropolitan region which compels the communities to seek more effective means of managing this risk. The reconstruction of the storm water drainage systems is, of course, an overriding need, but as shown by recent studies sponsored by the Allegheny Conference, the price tag for these infrastructural improvements runs well into the billions of dollars. New methods for analyzing risk to human life and property from natural disasters can help public managers, businesses, and households take preventive action in a timely fashion and at manageable cost. Several of these methods have been incorporated into an innovative decision support system under development at the University of Pittsburgh.

The Interactive, Intelligent, Spatial Information System (IISIS) Laboratory of the University of Pittsburgh has developed a prototype decision support system (DSS) to enable communities to make decisions regarding the vulnerability of existing infrastructure, the threat to local

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[2]Braddock, Braddock Hills, Chalfont, Churchill, Dravosburg, Duquesne, East McKeesport, East Pittsburgh, Edgewood, Forest Hills, Homestead, McKeesport, Munhall, North Braddock, North Versailles, Rankin, South Versailles, Swissvale, Turtle Creek, Versailles, Wall, West Mifflin, Whitaker, White Oak, Wilkins, Wilkinsburg, and Wilmerding.

populations, and the capacity of local resources to respond effectively to flooding in the Pittsburgh metro region. This prototype is currently being tested in a real world setting. The Allegheny County Emergency Management Agency and 27 municipalities along the Monongahela River are collaborating with the IISIS Laboratory to test the model.

The primary objectives of this project are:

1. To implement an innovative decision support system (JIISIS)[3] for assessing the vulnerability to flooding in 27 municipalities exposed to risk in the Monongahela Valley.

2. To collect and validate the data needed to establish a regional knowledge base for the 27 participating communities.

3. To evaluate the performance of the JIISIS prototype in a demonstration exercise with practicing emergency managers.

4. To communicate the results of the exercise to the partner agencies that supported the project: Allegheny County Emergency Management Agency, Southwestern Pennsylvania Chapter of the American Red Cross, the 27 municipalities, the Pittsburgh Foundation, the Buhl Foundation, and an anonymous local foundation.

Interactive, Intelligent, Spatial Information System (IISIS)

The JIISIS is a computational decision support system that integrates data from key sources into a visual framework to assist managers in making an effective assessment of risk to their communities. It helps managers to interpret this information through color-coded graphics that indicate varying levels of risk as the conditions change. While initially developed for flooding incidents, the basic techniques are applicable to any type of hazard. The JIISIS includes three principal components, all of which are integrated into a dynamic information processing system that provides updates on the status of key functions in real time. The components include four types of components: 1) a dynamic bridge to the local 911 system in which incidents are reported in real time, along with the current availability of emergency response units and personnel;

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[3]The prototype Interactive, Intelligent, Spatial Information System (IISIS) has now been converted into JAVA, hence the acronym, JIISIS.

2) a GIS system with data stored on physical characteristics, engineered infrastructure, and social and economic characteristics of the region; 3) a Documents Library that stores current policies, procedures, emergency plans for participating jurisdictions in a regional response system, and professional assessments of risk; and 4) a series of computational modules that estimate the vulnerability/capacity of communities to manage their own risk.

911 Bridge

A major challenge for emergency managers is to keep abreast of the status of a dynamically evolving emergency situation. The JIISIS prototype has developed a bridge that transmits data directly from the local 911 system to the central IISIS processing server in real time to provide a continually updated profile of incidents as they occur. This feature includes dynamically tracked data on resources so that emergency managers know what resources are available at any given time and which have already been committed to action.

Incident Action Plans

As required to be compliant with the National Incident Response System, emergency managers now must file a series of Incident Action Plans. The forms for these plans have been replicated in electronic format, with the identifying information for each form carrying over to subsequent forms. This format facilitates the required recordkeeping tasks for emergency managers, saving time and focusing their attention on the critical information required for coordinated action.

Active Geographic Information System

A key feature of the JIISIS is its capacity to generate GIS thumbnail maps as part of the information that is registered for a particular incident. That is, as an incident is reported, with location, type of hazard, and severity, this information generates a small GIS map that locates the incident in the region. This function has the advantage of building a geographic profile of incidents in the region, and emergency managers can refer to this larger pattern of incidents in making decisions regarding the routing of emergency units and allocation of resources.

Documents Library

The Documents Library stores policies, procedures, plans, and other relevant information for easy reference by emergency managers as complex incidents unfold. These documents are especially useful in inter-jurisdictional events with multiple agencies from many jurisdictions involved in response operations.

Dynamic Assessment Module (DAM)

This module represents a decision-support tool that measures change in a set of significant parameters in infrastructure, threat level, changing environmental conditions, and availability of the emergency response units and personnel. It indicates the vulnerability, or its inverse – capacity – of a particular community or region to respond to disaster. As incidents occur and response assets are assigned, their availability for subsequent incidents lowers the resiliency of the community, and other communities to whom they provide mutual aid. The inverse of the response organization capability is the changing vulnerability of the community based on varying states of infrastructure, environment, and weather conditions.

The equations upon which the model is built include 36 different variables to determine initial vulnerability. These variables are combined into three components of vulnerability: geophysical attributes, engineered structures, and social environments. A total of 10 variables are used to determine the response capacity of public safety and emergency management officials. One variable is used to measure the resiliency of public safety response organizations.

The capability of the public safety response organizations is subtracted from the initial vulnerability of the region to show the change in risk conditions as local resources are deployed to bring the threat under control. This adjusted vulnerability varies as response assets fluctuate between available and assigned. The results have been translated into color-coded graphics that allow the emergency managers to gauge the community's present status at a glance. In practice, a connection to a live 911 data stream would allow managers to assess real-time information on the status of their community and provide additional warning time to minimize the hazard to a community. This unique decision support tool gives emergency managers the technological edge necessary to gain insight into how disasters evolve

and to alert them to potential problems in time to intervene and minimize the damaging impact to their communities.

Risk Assessment Analytical Tools

Several tools for identifying hazardous materials or locating existing quantities in storage are also available, as well as a module for Patient Tracking. Other modules for Traffic Monitoring and Routing are in the early planning stages. These modules represent continuing development by the IISIS Lab research team, with informed guidance and review by practicing managers and interdisciplinary experts.

Risks and Risk Management Strategies

Introducing new concepts and strategies for action into any set of communities poses the risk of rejection by existing managers in favor of maintaining a more familiar status quo. In the case of flooding risk, recent events have increased the awareness of these riverfront communities to the dangers they face and the economic and physical losses they are likely to sustain. Introducing a new approach to managing well-known flooding risk is likely to be clearly understood and well-received by the communities that have recently experienced losses from Hurricane Ivan and watched the devastation created by the flooding of New Orleans in Hurricane Katrina. The timing for introducing a method of computational modeling of flooding risk is appropriate, given the heightened level of public awareness of risk. The trial demonstration project for communities in the Mon Valley included meetings with local communities to explain the need for data collection, the methods, and benefits of the project's operation. Project staff worked directly with emergency service personnel in each community to ensure that they understand the workings of the prototype and would be able to implement it in their respective communities.

Current Status

The one-year pilot project to implement the JIISIS decision support tool with the collaboration of 27 riverfront communities that are most at-risk from flooding was the first demonstration project designed primarily for a study region of municipalities in Allegheny County. These communities also participated in a companion project, the Monongahela River Community Shelter Project that is being conducted by the Southwestern Pennsylvania Chapter of the American Red Cross. The Community Shelter Project, supported by a grant from the U.S. Steel

Foundation, is both strengthened by, and complementary to, the University of Pittsburgh project to assess vulnerability to flooding in the Mon Valley.

These two related projects integrated existing databases as well as added new data to create a regional model for managing risk in the Mon Valley. IISIS staff members are working to develop the partnerships essential for continuing this project on a regular basis. Organizations central to the coalition include Allegheny County Emergency Management Agency, Southwestern Pennsylvania Chapter of the American Red Cross, and the 27 municipalities participating in the Community Shelter Project. Additional organizations may be included as the effort builds a region-wide coalition of informed organizations committed to reduce the risk and losses from flooding.

The Mon Valley Project began on October 1, 2006, and formally concluded on October 8, 2007, with a demonstration of the working design for the selected communities in Allegheny County that are exposed to flooding risk. The prototype is currently being checked and validated for use by the municipalities, and a trial version was released to the participant communities in Fall 2008 for continued testing and feedback. This demonstration served as the major method of evaluating the performance of the project and the efficacy of using information technologies to support decision processes in managing recurring risk. Practicing emergency managers from the 27 municipalities were invited to assess the performance of the prototype and its contribution to increasing the regional capacity to reduce damage and losses from flooding.

Conclusions

The Mon Valley trial demonstration project offered a means of testing a decision support system based on the "bowtie" architecture prior to making a major investment in hardware and software in the Pittsburgh Metropolitan Region. Experience to date demonstrates that information technology facilitates information search and exchange processes among organizations participating in disaster risk reduction and response, but that demonstration and training are essential to encourage adoption and use. Unless such processes are recognized and accepted as part of continuing operations in communities, they are not

likely to produce the desired results. If information technologies are introduced as part of a sociotechnical system that enables human managers to make more accurate, timely decisions under stress, they are more likely to be incorporated quickly into daily operations as a means to improve performance within and among organizations.

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Joint Readiness Center – Pittsburgh:
A Model of Military-Civilian Readiness And Response

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Joint Readiness Center – Pittsburgh Task Force

Established by a decision of the Base Realignment and Closure Commission in 2005, the Joint Readiness Center located at the Air Reserve Station at Pittsburgh was identified by the Department of Defense as a Center of Excellence in integrating civilian medical and business resources with military assets to provide unique, flexible and effective emergency preparedness, response and recovery to the nation. Supported by a community organization, known as the Joint Readiness Center Task Force (JRC Task Force), the JRC concept is a national model for homeland security and homeland defense and is consistent with the dictates of the U.S. National Response Plan and U.S. National Incident Management System.

 The objective of the JRC is to improve the nation's response to natural or human-caused disasters by combining the strengths of the active duty, reserve, and guard components of the military, including the five armed services; federal, state, and local government agencies such as the Federal Emergency Management Administration, National Disaster Medical System, Disaster Medical Assistance Team, Pennsylvania Emergency Management Agency; civilian practitioners skilled in disaster management; and the Pittsburgh region's extensive healthcare resources.

This article examines the history of the JRC in light of the actions of the Base Realignment and Closure Commission, public perceptions of civil-military preparedness, the benefits of the JRC to Pittsburgh and the nation, and its evolving role.

History

The Military Affairs Council of Western Pennsylvania (MAC) was created in 2000 to recognize the importance that the 171st Air Refueling Wing of the Pennsylvania Air National Guard (ANG), the 911th Tactical Airlift Wing stationed at the Pittsburgh Air Reserve Station (ARS), and the 99th Regional Readiness Command (RRC), and all local military installations contribute to the overall well-being of the 10-county Pittsburgh region's economic and quality of life climate. MAC's mission is to enhance the importance of the military presence in the Pittsburgh region and strive to facilitate, communicate, and cooperate with military units, surrounding communities, businesses, colleges and universities, and governments. The goal is to connect the community and military in symbiotic partnership through:

- Increasing public knowledge of the contributions made by the Pittsburgh region's military units, which have global, national, and regional impacts.

- Bringing attention to the community-wide support and pride for the Pittsburgh region's local military units, through campaigning, lobbying, advertising, and special events.

In late 2004, the MAC undertook a proactive initiative in developing a regional strategy to protect and enhance the Pittsburgh region's defense community in anticipation of the May 2005 report by the U.S. Department of Defense (DOD) recommending the closure or realignment of military bases across the globe. It was critical for the community to take this stance in support of the Pittsburgh region's military bases, personnel, and related economic impact on the surrounding communities. To assist in crafting the MAC plan, grant funding was secured from the Pennsylvania Department of Community and Economic Development to pay for a study to:

- Develop the concept of a Regional Joint Readiness Center, integrating civil-military operations, homeland security, and community-based medical support;

- Explore consolidation of existing military and defense entities within the Pittsburgh region to a location at the Pittsburgh International Airport;

- Identify properties for further development in the immediate and surrounding areas of the airport; and

- Create a public affairs strategy and implementation plan.

Recognizing the role Pittsburgh could play as the keystone in the country's homeland security and homeland defense future, the report outlined a plan to build on the region's military assets, creating a vital daily operational resource for coordinated, multi-agency multi-jurisdictional disaster response. The study resulted in a plan for the creation of the country's first civilian-military Joint Readiness Center, building on the Pittsburgh region's military presence as the core.

Base Realignment and Closure Commission Action

After the MAC study was completed in May 2004, the community braced itself as DOD released its plan for realignment and closure of military installations. DOD's report recommended the closure of 33 major bases across the country, and further recommended that an additional 29 be downsized (www.defenselink.mil/brac/pdf/Appendix_C_Final Updated.pdf). In Pennsylvania, 13 installations were targeted for closure or realignment, including Air Force Reserve's 911th Airlift Wing, near Pittsburgh International Airport in Moon Township, Allegheny County. The 911th's eight C-130s would be moved to Pope Air Force Base near Fort Bragg, North Carolina, and combined with eight others to build a new squadron (U.S. Department of Defense, Base Closure and Realignment Report, May 2005, Department of Air Force, p. 35). Army Reserve's 99th Regional Readiness Command, along Business Route 60 in Moon Township, Allegheny County, would be one of four reserve headquarters consolidated at Fort Dix, New Jersey. The Army's Charles E. Kelly Support Center, Oakdale and Neville Island, as well as a site in Collier, Allegheny County, would be closed (U.S. Department of Defense, Base Closure and Realignment Report, May 2005, Department of Army, p. 120).

With the DOD plan outlined, the MAC led the charge to rally community support to save the local installations. Pennsylvania Governor Edward G. Rendell approached MAC to engage the organization in fighting to preserve the local military presence, and named co-chairs for the effort: Allegheny County Chief Executive Dan

Onorato and Michael Langley, CEO of the Allegheny Conference on Community Development. MAC created a community organization for the effort named the Pittsburgh-Base Realignment and Closure Committee (PIT-BRAC). Through PIT-BRAC and the participation of hundreds of community leaders and volunteers from across the Pittsburgh region, an effort came together to pour through the data used by DOD to make its May 2005 base closure and realignment recommendations. PIT-BRAC staff and volunteers identified errors and misinformation in the DOD analysis, rallied public support for the Pittsburgh region's military during meetings and events; provided formal testimony before the Presidentially-appointed Base Realignment and Closure Commission (BRAC Commission); and communicated regularly with BRAC Commission staff reviewing the DOD recommendations. In addition to advocacy aimed at keeping the existing military installations open, the PIT-BRAC Task Force recommended creation of a Joint Readiness Center and linking the Joint Readiness Center concept to the operations at the Pittsburgh Air Reserve Station.

On September 9, 2005, the BRAC Commission completed months of hearings and deliberations on the DOD recommendations and submitted its final report to President Bush. The BRAC Commission recommendations were accepted by the White House and ultimately upheld by Congress in November of 2005. In regard to the Pittsburgh region, the approved plan included:

- Realignment of the 99th Regional Readiness Command, Coraopolis, to Fort Dix, New Jersey;

- Closure of Charles E. Kelly Support Facility, Oakdale and Neville Island, Allegheny County, Pennsylvania, and relocate units to Pitt U.S. Army Reserve Center, Coraopolis, Allegheny County, Pennsylvania (2005 Defense Base Closure and Realignment Commission Report, Volume One, Department of the Army, p. 70);

- Realignment of the Pittsburgh International Airport (IAP) Air Reserve Station (ARS), Pennsylvania. "Establish a contiguous enclave at the Pittsburgh ARS, Pennsylvania, sufficient to support continued operations of the reserve station units, including flight operations, and compatible with combined use of the civilian airport by the Air Reserve, Air National Guard, and civilian users. Within that enclave, establish a Regional Joint Readiness Center (RJRC) at

the Pittsburgh International Air Station with the mission of providing civil-military operations, homeland security, and community-based medical support to the Department of Defense and the Department of Homeland Security National Incident Management Plan and the National Incident Response Plan. The enclave and RJRC will be staffed at the current manning level of the ARS. The PAA and personnel allocation of Air National Guard units at Pittsburgh are unaffected by this recommendation." (2005 Defense Base Closure & Realignment Commission Report, Volume One, Department of the Air Force, pp. 150, 151.)

With the final report as law, DOD has up to five years, or until 2011, to implement the commission recommendations.

Public Perception of Civil-Military Preparedness

The September 11, 2001, terrorist attacks, along with Hurricane Katrina, and recent threats of pandemic disease outbreaks, have raised awareness and concern among the general public related to federal, state, and local government's ability to respond to terrorist events, natural disasters, and health emergencies. As a result, all levels of government are undertaking efforts to ensure that plans exist and are integrated for responding to natural or man-made disasters.

The White House, in the report *The Federal Response to Hurricane Katrina: Lessons Learned*, identified four critical flaws in national preparedness: the absence of a process for unified management of the national response; lack of command and control structures within the federal government; lack of knowledge of preparedness plans; and an absence of regional planning and coordination. (The White House, *The Federal Response to Hurricane Katrina: Lessons Learned*, p. 90.) These findings point out the need for an organization such as the Joint Readiness Center and clearly support the role it can play. The JRC maximizes the skills and strengths of the Pittsburgh region to respond to almost any incident. Focusing on the strengths of the public and private sectors in the Pittsburgh region, and integrating and enhancing that capacity from the bottom up, would create a resource able to provide a more timely response to incidents, along with the needed command, control, communication, and coordination capability.

To assist the federal partners in the development of an implementation plan, the PIT-BRAC Task Force evolved into another community effort led by Allegheny County Executive Onorato and Allegheny Conference CEO Langley as co-chairs, with the involvement of private sector partners, community leaders, and volunteers. Known as the Joint Readiness Center Task Force (JRC Task Force), the group has been working since November of 2005 to build this first-of-its-kind national model for homeland security and homeland defense, in support of the National Response Plan (NRP) (http://www.fema.gov/emergency/ nims/index.shtml) and National Incident Management System (NIMS) (http://www.dhs.gov/xprepresp/committees/editorial_0566.shtm).

Working in collaboration with the private, academic, and institutional sectors, along with federal, state, and local government agencies, the JRC Task Force developed a vision of the BRAC-mandated JRC. The mission of the JRC is to support the Departments of Defense, Homeland Security, and Health and Human Services, other federal, state, and local organizations in transcending jurisdictional borders to build on existing capabilities and provide for more effective, synchronized, and collaborative regional readiness, with a special focus on medical emergency management and corporate response. The objectives of the JRC are to optimize military, civilian, public, and private collaboration; coordinate emergency response; facilitate rapid mobilization; integrate community based education and training; model operations as a "Center of Excellence" focused on the delivery of world-class medical care and business continuity support; and create a national paradigm.

Qualitative Improvements through JRC

The JRC aims to improve the nation's disaster readiness, response, and recovery by combining the strengths of the military, including the active duty, reserve, and guard components of the five armed services; local, county, state, and other federal government agencies such as the Federal Emergency Management Administration (FEMA), NDMS (National Disaster Medical System), DMAT (Disaster Medical Assistance Team), Pennsylvania Emergency Management Agency (PEMA) and civilian counterparts skilled in disaster management; and the Pittsburgh region's extensive healthcare resources. This group of experienced and talented individuals will serve as a center of excellence

that will jointly train, prepare, and be available to coordinate appropriate resources for rapid deployment, and respond and provide support to hazards of all kinds, including both man-made and natural.

A key component of the JRC program is to bring these diverse groups of talented and experienced people together on a day-to-day basis, even if only virtually, to ingrain in them this collaborative and cooperative approach so that it is second nature. This day-to-day interaction will prepare the various groups to cooperate at a level not experienced during prior disasters. Although the majority of these response groups may not be physically located day-to-day in the JRC, the center will be able to serve as a command, control, and coordination point for all-hazard response assets within the Pittsburgh region, state, nation, and beyond.

In order to prepare individuals for these roles, new training programs encompassing a variety of clinical and educational disciplines will be established. The development of training programs will utilize the unique partnership among military leaders, Pittsburgh region health care providers, and educators to craft programs ensuring participants possess the necessary skills sets and competencies to protect our citizens. Also key to this transformation will be the development and execution of realistic drills and exercises, which will again allow the personnel of the JRC to develop the working relationships that will allow them to succeed.

This unique level of interoperability among military, government, and civilian agencies is currently non-existent at the national level, and will become a model program for the country. In support of developing this national model, the JRC will provide consultation and training to groups across the United States, in effect multiplying the JRC's response capabilities.

Defining the JRC

The JRC will serve two main operational roles in response to natural or man-made disaster situations. The first is to coordinate and transport deployable equipment and trained personnel to the on-scene incident commander at the site of a major disaster. Tailored to each situation, the type and amount of this response will bring much needed resources to

help care for patients at the disaster site. The second JRC operational role is to act as a receiving point to triage and distribute disaster victims to appropriate health care facilities. On a small scale, this will be completed independent of the NDMS system. On a larger scale, the JRC would integrate with NDMS plans and would be a lead asset in a large-scale evacuation.

An example of a mission performed by the JRC in its operational role would be in response to a natural disaster or terrorism event located outside the Pittsburgh region. This would involve transporting air assets, medical crews, aircraft maintenance supplies and equipment, and medical supplies to the disaster area. The nature and size of the event will dictate the number of resources sent to the area. The following is one possible deployment scenario:

- Civilian aeromedical helicopters are dispatched to the disaster area. Each will be sent with two complete crews, and thus be capable of 24 hour operation. Although it is possible that these helicopters could be broken down and placed on military aircraft, the difficulty in accomplishing this in a short period negates any time savings due to the shorter flight times and higher speed of military transport aircraft.

- Additional aeromedical evacuation (AE) crews and physicians and nurses, along with enough food, water, and medical supplies to make the "unit" self sufficient, are dispatched via military airlift. If possible, living quarters will be transported to the area.

- Additional 911th C130 aircraft and 171st KC135 aircraft are dispatched to the disaster scene as needed. These will be staffed with AE crews from the 911th (or other AF Reserve units), supplemented with medical attendants from area helicopter crews, and physicians and nurses from local medical centers.

- At the disaster area, helicopter crews will perform evacuation of ill and injured persons. Due to design limitations, there will be no rescues conducted requiring hoists. These patients will be transported to a Mobile Aeromedical Staging Facility.

- Mobile Aeromedical Staging Facilities (MASFs) can be erected and jointly staffed by Air Force medical personnel, and civilian helicopter crews, physicians, and nurses. These staging units are

capable of triaging, stabilizing, and staging patients for medical evacuation to tertiary care centers.

- Military airlift will transport the patients back to the Pittsburgh area for triage to the appropriate medical facility. Transport to these hospitals can be accomplished by helicopter or ground ambulance.

- Depending on the size and nature of the event, military airlift could be used to transport and support specialized medical and scientific experts from area hospitals. For example, there may be the need for specialists in infectious disease, immunology, and microbiology for the management of health conditions related to a bioterrorism event. Or, medical and other experts would be needed for mitigating and treating the effects of a radiation release event.

The JRC will also serve a major role in disaster preparedness and planning, and in developing the nation's joint military and civilian response capability. One major component of this role will be providing comprehensive, combined training and joint exercises for military, medical, and civilian personnel, including first responders and first receivers from across the Pittsburgh region. This total training system will make the Pittsburgh region more prepared for a national response by creating a joint pool of skilled personnel. It will also expose disaster response personnel from around the country to the JRC's model disaster response capabilities.

JRC: National Medical and Business Resource

Pittsburgh is unique in its ability to serve as a center of excellence for medically related disaster response. The Pittsburgh region is home to some of the nation's most advanced tertiary and academic medical centers and offers expertise in long-term acute care, as well as healthcare. In Allegheny County alone, there are 43 hospitals with 9,031 staffed beds. These hospitals host four Level I Trauma Centers (three adult and one pediatric), two burn centers, two comprehensive transplant programs, and multiple open-heart surgery programs. Through the Pittsburgh region's many teaching and research programs, and its world class academic medical center, these healthcare systems have vast experience in assisting areas around the world in improving their medical care systems. This experience is a major asset in the development of the

JRC model, and in assisting other communities in developing and upgrading the response capabilities of medical resources.

The NDMS is a federal initiative that is governed by the Emergency Management Strategic Health Group (EMSHG) and is intended to provide a nationwide, coordinated response of emergency medical services in the case of a disaster of great magnitude. The system is a cooperative effort of the Department of Health and Human Services, (HHS), DOD, FEMA, Department of Veterans Affairs, state and local governments, and the private sector. The NDMS does not replace existing emergency medical activities, but rather is intended to complement state and local efforts in the case of a disaster that is so widespread, that "mutual aid" from different areas of the nation is required. NDMS responds to "national" disasters both here in the United States and internationally, and is totally supported by the military for transportation, medical evacuation, and security.

The Pittsburgh region is designated as one of just 70 federally coordinated NDMS sites in the nation. Geographically, the region includes southwest Pennsylvania and northern West Virginia. Most of the hospitals, EMS groups, and other local and regional agencies are dedicated participants in the NDMS program. Once alerted of a national disaster scenario, the functions of the Pittsburgh NDMS area will be to: deploy its Disaster Medical Assistance Teams (DMAT) if necessary; receive casualties via air evacuation flights and transport to appropriate medical facilities; provide definitive hospital treatment to casualties; and finally, maintain communications within the area and with the Global Patient Movement Requirements Center (GPMRC) regarding the status of patients and the availability of hospital beds.

While the Pittsburgh area NDMS has been developed specifically to lend support during a national crisis, its basic elements are intended to be useful for implementation during local or statewide emergencies as well. The Pittsburgh area NDMS can also be utilized to evacuate patients from the tri-state area to other NDMS reception sites in cases of manmade or natural disasters affecting local communities. Regardless of the kind of disaster, or the manner used to activate the system, the NDMS is flexible enough to provide for effective medical response under most disaster scenarios. The complete NDMS program has been exercised annually in the Pittsburgh Region since its inception.

The JRC has a unique link with local, regional, and national companies based in the Pittsburgh region. Through this link, not only are these resources available to respond to a national disaster situation, but also the combined resources of these companies serve as a national model for business preparedness. These businesses are represented by the Pittsburgh Regional Business Coalition for Homeland Security (PRBCHS). The Coalition is dedicated to assisting businesses as they prepare for, respond to, and recover from natural disasters, technological disasters, or terror attacks. The PRBCHS also serves as a vital link between the public and private sectors in the Pittsburgh region and their pursuit of common goals and mutual assistance. In addition to developing resources for disaster recovery for its members, one of the first tasks the group undertook was the development of a regional asset list for the Pennsylvania Region 13 Command Center, so that available business assets could be easily located and used in a disaster situation.

Pittsburgh Location Adds Value to the JRC and Benefits to the Nation

Through preliminary discussions with the federal government partners, there is current thought of replicating the JRC model nationally, creating a network of JRC-like capability centers to address the 15 threat scenarios outlined by the NDMS. The Pittsburgh region and Commonwealth of Pennsylvania have a unique opportunity to be the first of the network of JRCs to be implemented. As recognized by the federal partners, Pittsburgh is a valued location as a home to the first JRC.

- The Air Reserve Station located at Pittsburgh International Airport provides a high level of physical security as a location for a JRC.

- The airport is accessible by a superior highway system, and a precision instrumented, multi-runway airport, with the longest being 11,500 feet. A reliever field is only 16.1 nautical miles away, with a maximum runway length of 6,501 feet.

- The climate in the Pittsburgh region is not subject to extremes, permitting year-round operations, and 24/7/365 availability for operations.

- The site is located within 500 miles, or a two-hour flight, of 55% of the population of the United States, including the major metropolitan

areas of Washington, DC; New York City; Chicago; and Philadelphia.

- The emergency response capabilities and resources of Pennsylvania Region 13 have matured to the point that work on the JRC can begin immediately and progress rapidly.

- Pittsburgh is home to some of the nation's most advanced tertiary and academic medical centers and offers expertise in long-term acute care as well as healthcare.

- The Pittsburgh Regional Business Coalition for Homeland Security can serve as a catalyst to build network of private sectors to aid at times of emergency.

These attributes position the Pittsburgh region and Commonwealth of Pennsylvania as the perfect location for the JRC and can assist in making it the model of excellence in providing readiness, response, and recovery service to meet the homeland security needs that currently exist in our country. This designation would bring national recognition, create new job opportunities for residents, and lead to new capital investment.

The JRC is positioned to provide a wide range of benefits to the nation and to communities where it is located. By design, it provides support for incident preparedness, response, and recovery activities. As mentioned above, its location facilitates rapid movement of resources to an incident site, or evacuation of victims from that site. As a collaborative model, it allows for seamless integration of private sector medical and business resources to deploy as an incident response tool. And most critically, it serves as a hub for the interaction of civilian and military assets as they prepare for, respond to, and recover from, natural or man-made disasters.

As mentioned in previous sections, the JRC conducts programs that support emergency preparedness, response, and recovery activities. As a center devoted to civilian-military integrated effort, the JRC offers a unique training environment capable of replicating actual conditions where resources from a variety of sources combine to address a crisis. Cooperative preparedness training builds relationships and refines protocols that translate into more timely and effective response to natural or man made incidents. Additionally, by identifying civilian medical and business expertise and resources – and training in an integrated fashion

to work seamlessly with government and military assets – more rapid, effective, and efficient recovery efforts can be provided to affected areas.

The JRC's Pittsburgh location, noted above, places it proximate to large eastern, mid-Atlantic and midwest population centers. This location facilitates rapid movement of resources to an incident site. In addition, this location allows for the rapid evacuation of victims from incident sites and ready access to the more than seventy hospitals in the region.

As a center of excellence for the integration of medical and business civilian resources with public assets to prepare for, respond to, and recover from emergencies, the JRC serves as an incubator for protocols and processes that other joint centers can utilize in developing approaches bringing together private and public sector assets. Successful development of the JRC "practice" will allow for a better prepared and more responsive resource available in emergencies, and provide for faster recovery of communities impacted by natural or man-made disasters.

Crafting a seamless, integrated, civilian and military joint resource will provide for a better-prepared and more responsive asset. In the end, the success of the JRC will be measured by the many lives saved, property protected, and communities returned to normal. These results will be achieved through the development and full implementation of the JRC's innovative national model for preparedness, recovery, and response.

Next Steps

Realizing the full potential of the JRC will take a strong collaborative between community and DOD/DHS leadership; funding for continued program development and operations; and ultimately the allocation of sufficient resources to build, man, and operate the JRC. The beginnings of an effective collaborative between the community and DOD/DHS leadership are already in place. Briefings and leadership interaction has occurred in Pittsburgh, in Washington, DC, and in the many locations where key Homeland Security and Homeland Defense commands are headquartered. These sessions must not only continue, but must continually broaden and deepen to allow full discussion of issues associated with JRC establishment.

Funding to provide support for JRC concept development, research, and outreach efforts has been supplied by local business and from the Commonwealth of Pennsylvania. Further funding is necessary to support the next phase of JRC program design and development. While local resources can provide a significant amount of resource for the JRC, these local contributions can only supplement, not supplant, federal funding necessary to finish development of the JRC concept. Finally, federal resources are necessary to actually establish the JRC and implement its programs. While community resources and state support can add up to significant assistance, only a commitment of federal manpower and funding resources will allow a well-crafted, fully functional, and effective and efficient JRC to become reality.

Residency Requirements For First Responders

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Introduction

Disaster planning raises many issues. One of the most important is that of evacuation planning. The response to Hurricane Katrina allowed us to see what happens when plans are not viable or not executed as expected. As a part of evacuation planning, the issue of residency requirements for first responders has come to the forefront of emergency response debates.

In 2005, Pennsylvania Senators Orie, Scarnati, Wozniak, and several others introduced Senate Bill 438 which stated, "No municipality may require its law enforcement officers to be residents of the municipality in order to serve in the capacity of law enforcement officer."[1] This particular bill only dealt with police officers and was not prompted by emergency response concerns. The bill was tabled, never becoming a law.

Residency requirements are "rules or regulations promulgated by city council ordinance, charter provision, or administrative rule that state that local public employees must live within the boundaries of a municipality."[2] In recent months, administrators and policymakers have been questioning such requirements for several reasons:

- The perception that such requirements narrow the applicant pool to a point that there is increasing incompetence in the ranks;

- Quality-of-life issues such as schools, crime, and affordable housing.

- They inhibit an employee's opportunities to be promoted; and

- Recent disasters have reinforced the image that there is danger to first-responders and their families that may preclude first responders from helping others.[3, 4]

In addition to questioning the wisdom of residency requirements, others are asking questions about federalism – are residency requirements local, state or federal issues? Holistic disaster planning requires us to look at many issues and perhaps determine that residency should be addressed in evacuation plans.[5]

Disaster Planning

The National Response Plan (2004) specifically addressed the issue of worker safety for emergency responders.[6] At the time of publication, the nation was still recovering from heavy losses suffered on September 11, 2001, by the New York Fire Department, New York Police Department, and New York Transit Authority. Subsequent guidance issued by the Federal Emergency Management Agency (FEMA) and Pennsylvania Emergency Management Agency (PEMA) encourage municipalities to "pre-plan to the greatest extend possible" for first-responder safety.[7] Similarly, literature published in academic and practitioner journals have supported pre-planning and minimizing risks to first-responders.[8]

It was not until after Hurricane Katrina that the interplay of "worker safety" and "residency requirements" was noted; however, the large geographical area involved in the disaster seems to demonstrate that even those living outside New Orleans were vulnerable. It does not seem that an emergency responder living in the suburbs of New Orleans fared much better than one in the city.

The Bipartisan Senate Report observed that there was no planned evacuation for "essential personnel and non-essential personnel" and that "many first-responders used their own initiative and left to take care of their families."[9] As police officers were required to live in New Orleans, many of them lost their homes, equipment, and uniforms in the flooding; thus, those that did arrive for duty often were without ballistic vests, gloves, and waterproof clothing suitable for wading through contaminated waters. The Senate Report noted that because of the residency requirements for police officers, they were personally affected by the hurricane. The White House Report stated that over 70% of New Orleans officers were victims.[10] A later debate on the Department of Homeland Security's "Lessons Learned" website addressed the issue of residency requirements for New Orleans and concluded that we need to

"re-look at residency requirements."[11] This website is available to all local, state, and federal employees and is a clearinghouse to share ideas in the homeland security arena.

Another area of disaster planning that has been discussed is the possibility of emergency responders following the example of the armed forces and creating "family care plans." These plans provide information such as where the family goes if the military member is sent away or the member's duty assignment becomes uninhabitable (such as in sensitive overseas assignments). A similar concept might be developed for first responders. The process of creating such plans forces the employee and family to consider their options.

Further, agencies often require first-responders to have a packed emergency bag that may include three days of food (often military-style rations), water, and toiletries. Police officers in particular observe that their "toolkit" has grown exponentially from the days of a pair of handcuffs and a revolver – perhaps it may be time to assume that every first-responder has a "grab and go kit" that allows him to be self-sufficient for 48-72 hours.

Background

It is helpful to know something about the history of residency requirements to better understand the arguments for and against them. As with many other remaining vestiges of bygone days, there is a reason why many cities created them and in some cases still have residency ordinances. There is no clearly defined beginning of residency requirements.[12, 13] The most commonly accepted origin of residency requirements in the United States seems to be that they derived from the spoils system prevalent in large American cities during the mid-1800s. In cities such as Chicago and Boston, the local ward bosses hired public employees, particularly police officers and firefighters. This practice ensured the ward bosses' continued reelection by employees whose jobs were directly tied to the ward bosses. But it also provided a service to assist the ward bosses in collecting bribes and protection money.

By the twentieth century, reformers had identified machine politics and residency requirements as being primary causes of corruption and they issued a call for hiring the "best qualified men regardless of where they lived."[14] Some municipalities did heed the call (at least partially)

and required employees to live within a certain distance from the jurisdiction. After World War II, most large cities saw much of their populations move to the suburbs. As a result, many municipalities began to require their employees to live within the jurisdictional boundaries of their municipality. This was intended to keep employees' expenditures of their personal incomes within the municipality as well as ensuring that emergency personnel were available in a timely manner.[15]

By the late 1960s, a few large cities still had residency requirements but most others did not. This was made possible through improved transportation and the growth of suburbs. This trend reversed when cities reinstated residency requirements to halt "middle-class flight" to the suburbs.[16] Proponents of residency requirements highlight such success in "protecting the public coffer and providing more employment to city residents."[17] With the advent of community policing, a model of policing that encourages police officers to know their communities, proponents have noted that residents have a greater interest in quality of life issues and that officers living in communities help to suppress crime.[18] Others have observed that residency requirements provide a more equitable balance of race and ethnicity within a community. Finally, some research has proposed that officers with longer commutes to work experience more stress and such commutes have negative impacts on the environment and infrastructure.

Opponents to residency requirements are equally convinced that their worth is questionable. An analysis of the Miami-Dade Police Department concluded that residency requirements (often invoked to increase the number of minority employees) so narrowed the applicant pool that they were a factor in increasing the incompetence of the force.[19] An examination of consent decrees that impose race-conscious hiring found that such practices encourage lowering qualifying standards to permit hiring of recruits with less education and more criminal and financial problems.[20]

Employees often oppose such requirements for quality-of-life reasons. In recent years, more have been vocal in their need to place families in safe, affordable neighborhoods that can accommodate disabled family members. Unions often oppose residency requirements because they inhibit an employee's ability to be promoted. Police and fire departments are normally hierarchical organizations with relatively little opportunity for advancement unless an officer or firefighter is

willing to move to another department or agency. They may not be free to do so if residency is required.[21] Police unions have noted that their officers are at risk "simply because they are police officers - harassed, their children ridiculed and intimidated, along with their cars and homes being vandalized."[22] Police officers are sometimes victimized by virtue of their position; however, it is unclear if a residency requirement makes a difference – criminals are mobile and can travel outside a political jurisdiction. The "pros" and "cons" of residency are summarized in the following table:

Table 1: Residency Requirements

Pro	Con
• Halts "middle-class" flight • Protects public coffers • Provides employment for residents • Creates equitable balance of race/ethnicity in public jobs • Longer commute times have negative consequences on employee and infrastructure	• Narrows applicant pool • Lowers qualification standards • Quality of life issues (housing, crime, schools) • Inhibits promotions • Employees and their families in harms way if disaster strikes • Police cite safety issue of living among those they arrest

Today

A recent U.S. Department of Justice survey found that the "number of police agencies that require residency has significantly decreased."[23] Some, such as those in Ohio and Rhode Island, have had little choice as the states have stepped in and passed legislation prohibiting residency requirements. Further, cities such as Austin, Texas, that have considered residency requirements discovered they are prohibited.[24] Even when residency requirements are prohibited because of state or municipal codes, some cities have attempted to get around it by giving promotion to officers who reside in the jurisdiction.

New Orleans had been discussing residency requirements before Hurricane Katrina devastated the city. In 2005, many black business, civil rights, and religious leaders formed a coalition to oppose suspending residency requirements for the police department. They observed that doing so "will increase the number of white officers and lead to racial problems." [25] Mayor Nagin countered that "more than 70% of the city's residents support lifting them to give the police chief what he needs."[26] In December 2005, the New Orleans City Council suspended the residency requirements to help officers who needed to find a place to live and were not going to be successful in finding it in New Orleans because of Hurricane Katrina damage.[27]

Lastly, many police agencies are experiencing a personnel crisis as they struggle to find replacements for many police officers that are members of the National Guard or Reserves and have been called up for extended military service. Some agencies have relaxed hiring standards in areas such as criminal history, physical fitness, and college degrees. This concerns criminal justice educators who fear that the move toward professionalizing public safety is regressing.

The types of residency are generally broken down into three categories and are summarized in the following table.

Table 2: Types of Residency

None	Response Residency	Physical Residency
No restrictions – employee lives where he or she chooses	Employee must live within a certain commuting time or distance from jurisdiction – may be distance from employee's home to jurisdictional border, work location, or center of municipality	Employees must live within jurisdictional area

Pennsylvania

Pennsylvania has more local governments than any state except Illinois.[28] With over 2,600 municipalities, there are 1,114 police departments, 2,062 fire departments, and almost 90,000 emergency medical services practitioners (emergency medical technicians and

paramedics assigned within 16 regions). All Pennsylvania cities, boroughs, and townships outside of rural areas provide police services and fire services. Though cities most commonly have paid firefighters, many boroughs have a mixture of paid and volunteer. Thirty percent of rural municipalities provide police services (their own, contracted, or regional).[29] Those that do not provide police services rely on the Pennsylvania State Police for coverage. All municipalities have at least one fire company and associated EMT response unit responsible for its citizens though it is increasingly becoming difficult to staff volunteer fire departments.[30]

Residency is a local issue in Pennsylvania and is often decided through collective bargaining. It is most common in policing – less common in fire services because of their dependence on volunteers and almost non-existent in EMS. It is more common in larger municipalities such as Philadelphia where a residency requirement exists for all city employees.

Physical residency, in which an employee must live within their jurisdiction, is not a common practice in most areas except for agency leaders (Chief of Police, Fire Chief) and only for paid positions. It is more common to find response residency in which municipalities require officers to respond within a certain time frame or live within a certain distance from the jurisdiction. State and local fire officials were unaware of any such requirements except for the largest cities because of the severe volunteer shortage.[31]

Legal Issues

Residency rules have been the subject of considerable litigation. Nationwide, there have been many challenges to residency requirements for all public employees (including school teachers) but overwhelmingly the courts have reiterated that these are collective bargaining or local government issues short of any state legislation stating otherwise.[32, 33] The two most frequent areas of constitutional litigation have been in the areas of right to travel and right to equal protection under the law. The right to travel issue was pretty much settled in the 1970s when the U.S. Supreme Court upheld the City of Philadelphia's residency requirement for firefighters. In *McCarthy v Philadelphia Civil Service Commission,* 424 U.S. 645 (1976), the court ruled that the firefighter did not have a

"constitutional right to be employed by the City of Philadelphia while he is living elsewhere."[34]

Likewise, when considering the right to equal protection under the law claim, the state courts addressed the issue in the 1970s. A recent series of cases in the 1990s brought it to the attention of the federal courts. Generally, the courts have upheld reasonable residency ordinances for police officers and firefighters because it is rational to have a policy that allows such employees to respond more quickly to emergency calls. What is still in dispute is whether or not disabled employees can be forced to live within a jurisdiction if they need services located outside the city.[35] The only connection to emergency responders may be for those who have disabled family members.

In Pennsylvania, the only lawsuit addressing residency requirements is the case of three former Scranton police officers who were fired after challenging the city's residency requirement in 1997. The 3rd U.S. Circuit Court of Appeals ruled that there was sufficient evidence of retaliation for the officers to pursue their legal claim.[36] In this case, the real issue is not residency but retaliation. Pittsburgh is the only city in Pennsylvania in which a state law was passed years ago prohibiting the police union from even bringing up the residency rule when it negotiates a new contract for city officers. Officers in other towns are allowed to discuss eliminating the requirement.[37]

Union challenges to residency within the bargaining process are murkier. Arbitrators have issued varied rulings depending on the facts of each case. Legislation that has been enacted by states to eliminate residency for police or firefighters has thus far generally been upheld.[38] Ohio and Rhode Island have passed such legislation forbidding local residency requirements. Opponents to residency requirements often tout that such requirements force the hiring of less-qualified applicants (particularly those with criminal records). Several cities are under U.S. Department of Justice consent decrees because officers were hired with expedited and cursory background checks.[39]

These types of issues raise the real possibility of "negligent hiring" of police officers and other first-responders. First-responders have a great deal of autonomy and are working in rapidly-evolving, tense situations – without much, if any, direct supervision.

Federalism

The framers of the U.S. Constitution created jurisdictional arrangements as a way to prevent the tyranny of a strong, central government. Police powers were given to the state so that "states have the power to regulate health, safety, welfare, and morals of its citizens."[40] Local governments have no status in the U.S. Constitution – they are creations and conveniences of the states. Traditionally they have adapted state laws to local conditions, taken care of public works, licensed public accommodations, and provided basic public services. Issues such as residency requirements traditionally have rested with local authorities and this is the status-quo. Allowing local governments to make such decisions brings the decision-making closer to the affected residents and it allows for collective bargaining. Nevertheless, it makes it difficult to create disaster plans because of the inconsistencies throughout the state. Many opponents of residency couch it in constitutional terms and constitutional issues may be better addressed by the state.

Conversely, the state can "legislate" the issue of residency by requiring or prohibiting it. Similarly, it can recommend a course of action and tie it to funding or provide education and information to local governments. A consistent state policy helps in creating disaster plans. Nevertheless, local governments generally dislike the state moving into areas they feel are local issues and it may be difficult to account for very real local differences. Furthermore, the state might change a policy that works.

The federal government can also "legislate" residency in a couple of ways. They might tie disaster preparedness funds or homeland security funds to a particular residency policy. Or they can provide education and information to state and local governments. Of course this ensures consistent disaster planning, but the states will see federal action as federal encroachment into a state issue. Lastly, this too may have unintended consequences by changing policies that work.

Conclusion

Police residency in Pennsylvania is a local issue and thus inconsistent throughout the Commonwealth. Senate Bill 438 introduced in 2005 was tabled. Residency mostly affects police officers and some

paid firefighters. It has vociferous opponents and proponents. It does not seem that it is an "all or nothing" proposition. Disaster planners look at issues that may impact community readiness. Hurricane Katrina was an exceptional event. It may not be necessary to change current policies because of Hurricane Katrina; however, it should be noted that Pennsylvania is one of the most flood-prone states in the United States and has had its own share of disasters. Pennsylvania also has more commercial truck traffic (much of it carrying hazardous materials) than any state in the eastern United States. It also has a large amount of rail traffic that is equally vulnerable to disasters. It is not inconceivable that Pennsylvania can have a disaster (man-made or natural) in which residency of first responders might be relevant.

One of the most important considerations of disaster planning is the ability of first responders to adequately respond. Policymakers desiring to have rational, well-thought out disaster plans need to look at the issues surrounding such response. First-responder residency clearly fits into this area. One of the lessons noted after Hurricane Katrina dealt with the failure of policymakers and emergency management practitioners to inculcate the recommendations made after training exercises and previous disasters. They failed to make important decisions necessary to safeguard the residents of New Orleans and surrounding communities. Pennsylvania should not make the same mistake. To quote former British Prime Minister John Major, "The politician who never made a mistake, never made a decision."[41] Conversely, failing to make a decision may clearly turn out to be a larger mistake.

Policymakers can create policy to promote residency or forbid it. This may be done at all levels of government. But there may be unintended consequences to any decision. One can only make a decision based upon the known advantages and disadvantages. These are summarized in Table 3, on the following page.

Hurricane Katrina taught us that we suffer predictable consequences when we fail to use existing information and be decisive in creating and executing our emergency plans. It is prudent for us to use the lessons learned to make decisions in creating our current emergency response policies.

Table 3: Levels of Government: Disadvantages and Advantages of Deciding the Issue at Each Level

Local Issue	
Advantages: • Status Quo • Decision-making closer to residents • Collective-bargaining possible	*Disadvantages:* • Inconsistent throughout state which makes it difficult to create disaster plans • Constitutional issues may be better addressed by the State
State Issue	
Advantages: • Can legislate the issue state-wide • Can recommend a course of action and tie it to funding • Can provide education and information to local governments • A consistent state policy helps in creating disaster plans	*Disadvantages:* • Locals usually dislike the state moving in to areas they feel are local issues • Difficult to account for very real local differences • May be changing a policy that works
Federal Issue	
Advantages: • Ensures consistent disaster planning • Can tie to disaster preparedness and/or homeland security funding • Can provide education and information to state and local governments	*Disadvantages:* • States will see as federal encroachment into a state issue • May have unintended consequences by changing policies that work

Notes

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The State Role in Emergency Management: Significant Challenges

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States and the national government have traditionally performed facilitating, not dominating, roles in emergency management. After 9/11, the threat of terrorists on our homeland led to the creation of a new national structure for responding to disasters and thrust the national government into a more dominating role. The state's role within the emergency management system is both complex and unsettled in this new era. The "intergovernmental paradox of emergency management" remains: the governments least likely to perceive the threat of disaster as a very high priority (local governments) are at center stage in terms of responsibility and are limited in their capacity – financial, managerial, technical and political will – to deal with hazards. This places the states into a pivotal role as a capacity-builder through information generation and dissemination roles for their local governments, and, perhaps, regulation. It also means that the states must be ever attentive to their role in relation to that of the national government.

This essay examines the key roles of state government within the emergency management system. These are: 1) the facilitation of local disaster mitigation; 2) assisting the public and elected and appointed leadership in understanding risk and mitigating disasters; 3) building the capacity of first responders by strengthening their preparedness and response capabilities; and 4) paying increased attention to shaping the environment in which the state and local governments operate within the federal emergency management system. Much of the state role is direct capacity-building directed at local governments, citizens, and first responders. Much involves money and legal issues.

Disaster Mitigation

Calling a flood an "act of nature" or a "natural disaster" is largely a misnomer. Floods, hurricanes, tornadoes, wildfires, subsidence, drought, and earthquakes are "natural hazards" but human actions make them disasters. New Orleans, most of which sits below sea level, is a dramatic example of placing people and property in harm's way. Most Americans live within an easy drive of our hazard-prone coasts and the majority of our communities are located in floodplains, leaving most of us at risk. Especially vulnerable are the poor, who don't have the transportation to flee harm, money for shelter, and savings to ease unemployment. After a disaster, rebuilding occurs too often without plans that take into account the interdependence of the human-built and natural environments.

At risk from many hazards, both human-made and natural, Pennsylvania is especially prone to flooding, with their toll on lives and property. Even small floods can have significant cumulative damages and public safety impacts. New developments often are not compatible with the floodplain. The National Flood Insurance Program, which offers individual property owners flood insurance, is underutilized for purchasing insurance. Without "teeth" in the local ordinances, or strong enforcement, people and property are left vulnerable.

Dealing with floods requires coming to terms with the intergovernmental paradox. Floods, as is the case with other disasters, are low probability, high consequence events. From the national government's perspective, floods are a major problem. For the state and local levels, the damages experienced are generally fewer from that level of government's viewpoint. Local governments are the least likely to perceive of flooding as important and, thus, give the hazard low priority on the agenda – until an event occurs.

Structural vs. Non-Structural Mitigation Options

Urban development over many decades has exacerbated the flood problem, with the rate of urban growth in floodplains far exceeding that of other areas. It is not nature that is changing; instead, people make the environment more prone to catastrophic events and themselves more vulnerable to disasters. Traditional public policy attempts to keep floods away from people and property through costly flood control structures

(dams, reservoirs, dikes, levees, floodwalls, channel alterations). Flood prevention can result from these structural options, which are heavily funded by the national government. Structural options are not always reliable – levees can be topped and breached and dams can break. Once structures are built, a false sense of security results, especially when maintenance and monitoring are neglected. Despite many successful structural projects, they can encourage encroachment in other areas, leading to progressive invasion of floodplains and relentless growth of per capita flood losses.

A different policy approach, based upon the realistic understanding that floods are inevitable, aims to use cost-effective measures to keep people away from waters that may flood. Nonstructural options include regulations, education, financial incentives, and technical assistance. Examples are zoning and other land use regulations, elevation and other flood proofing of buildings, flood insurance, flood warning systems, land acquisition, permanent property relocation, and improved disaster preparedness and response planning. Such options aim to reduce the flood hazard for people and property, with a commitment to long-term management of all factors that affect flood risk.

A balanced approach toward floodplain "management" through a wise combination of structural and nonstructural, cost-effective options is slowly replacing flood "control" as the dominant philosophy. If owners of buildings in a floodplain assume that risk is minimal and that the costs of flood proofing through elevation of structures is too high, damages from the inevitable flood will increase. If flood warning systems or evacuation routes are neglected, a failed levee or reservoir may have catastrophic consequences. Floodplain management means that local governments acquire wetlands to serve as natural flood basins and require builders to create detention areas for flood waters. Land uses that are compatible with the floodplain and occasional flood, e.g., parks, ballfields, greenways, can occur in the floodplain and some floodplain can be preserved. Floodproofing requirements (privately constructed detention ponds and placement of buildings on piers) can also help steer development away from floodprone areas.

Sound land use techniques are an alternative to costly structural options for flood prevention. Locating people and property away from harm outside of the floodplain, raising structures on stilts, using floodplains for uses compatible with floods (such as parks that can dry

out and not houses to be destroyed by water, mold, and seepage of toxins), and using stringent building codes are examples. Local governments are most responsible for sound land use policies but weakest in capacity, especially political will. It is in the area of hazard mitigation that the "intergovernmental paradox" is most disconcerting. And, this is the area is which proactive states can have considerable impact. Damages caused by natural hazards are inevitable but losses of lives and property can be reduced. Policymakers need to plan to make the human-made and natural environments work together to improve quality of life and public health in equitable ways. The American public may be tiring of having its federal tax dollar pay for repetitive flood losses. We may be moving toward a time in which the state and local governments have little option but to get more serious about land use measures to mitigate losses.

Natural disasters are inevitable but losses of life and property can be reduced. Policymakers need to plan to make the human-made and natural environments work together to improve quality of life and public health in equitable ways. The state role in mitigation is pivotal. Most local governments are small and have relatively limited technical and financial resources, including that for public planning. The states can serve as information generators and disseminators, as well as regulators (requiring building codes), if that need is perceived.

Public and Leader Preparedness

A major part of preparing the public for disaster events is to develop a realistic view of risk. Human tragedy resulting from a disaster event is often caused by the failure of so many to evacuate the affected area. Some people don't hear about an evacuation order. Some are too sick to comply. Others are without transportation. A small number simply refuse, not wanting to leave their homes. They may be fearful of losing their possessions due to the impending emergency or because of anticipated looting. Some not leaving may feel secure. Others may have had a negative evacuation experience previously and think they know the community and its risks but underestimate them.

Mandatory evacuation orders are difficult to implement in our democracy. Quarantines during a pandemic may be even more problematic. Some communities use innovative approaches to implement

evacuation orders, such as the "Magic Marker" strategy of giving residents a marker and telling them to write their name and social security number on their bodies so it will be easier to identify fatalities. The "Good Samaritan" approach expects and urges the most able to take care of the aged, the disabled, the very young, the poor, etc. Government's ability to quarantine effectively on a large scale has not been tested.

At a time when we must protect against both natural and human-made disasters, risk perceptions significantly shape policies. Alarm about terrorist-induced emergencies leads to reluctant sharing of evacuation plans fully with the general public. A more balanced approach to secrecy and security needs requires educating the public fully about plans and working toward their implementation. Many people misperceive risks from hurricanes and/or floods, which are a greater threat than winds from hurricanes. Our national government pursued policies after 9/11 that mitigated against and prepared for terrorist events more than for the more typical disasters, such as floods that have taken the most lives and destroyed the most property.

Governments and people underestimate some risks and overestimate others. An important state role is to provide accurate information to citizens and to elected and appointed officials about the nature and types of risk for which citizens are most vulnerable. Pennsylvania's residents should know what hazards exist in their area and have a sense of which are most threatening. As with mitigation, the state role in information generation and dissemination is paramount.

As a nation, we do not have a strong track record in perceiving risks: we are getting more obese and fail to link weight gain to adverse health impacts. Cigarette smokers often don't perceive the link between their habits and the risk of lung cancer. Misperceiving risk, many people habitually drink alcohol and drive. Many motorcyclists choose to drive without helmets. Our credit card-dependent society has checkbooks that don't balance, empty savings accounts, and increased bankruptcy declarations, in part because economic risks are misperceived. Americans typically don't save adequately for their retirements, not linking living longer to having less financial means. More Americans than ever live misperceived risks and live in hazard-prone areas. Floodplain dwellers often don't purchase floodplain insurance. Those aging usually don't purchase long term care insurance.

Risk perception is influenced by experience and education. Members of the general public are usually the "first responders" in an emergency, either as victims or helpers. Each of us has primary responsibility for ourselves, having to balance our rights with our responsibilities. In our democracy, we have choice over most of the decisions we make. One of the most useful actions we can take is to know our risks and decide how we will deal with them. State government plays a significant role in using its capabilities to measure risk accurately and to convey risk in language understandable to the general public.

State government can take care to structure its emergency management operation to avoid neglect of disasters tied to natural hazards, compared to the more infrequent human-made terrorist-related disasters. Post-Katrina, the national government was strongly criticized for placing the Federal Emergency Management Agency (FEMA) within the Department of Homeland Security and removing its preparedness responsibilities, cutting budgets and personnel, and failing to appoint professional emergency managers to high levels of responsibility, including direct reporting to the President. While many of the failings have been reversed, the states need to reconcile their organization for handling homeland security issues, broadly defined to include national security and natural hazards.

Building the Capacity of First Responders

During catastrophic events it can seem as if everyone is in charge but working at cross-purposes. In reality, there is no "one" in charge. Multiple and diverse people and entities are part of disaster response and intergovernmental and intersector coordination and collaboration are necessary but difficult, especially due to the need for quickness. Lost responsibility and lost accountability result. In the years since Hurricane Katrina, much attention has rightly been devoted to improving the intergovernmental response mechanisms to disasters. While all disasters occur locally and the initial response is local, large scale disasters require well planned and coordinated actions among a myriad of actors at all levels.

Preparedness and Risk

The "first responders" in a disaster are typically characterized as local law enforcement officers, firefighters, and emergency medical personnel. Yet, it is the victims caught in the disaster, or those who assist them, who are the very first responders. They must be prepared to take major responsibility for the first response to a disaster event. Local police, fire, and emergency medical personnel must be prepared to take major responsibility for the first 24 to 72 hours of a disaster event. Specific actions of potential disaster victims include completion of first aid training; developing an evacuation plan for leaving one's home in an emergency; having a disaster supply kit with water, food, medicine, and other supplies; selecting a person who lives outside of one's geographic region whom family members can contact if they become separated after an emergency; and establishing a specific meeting place to reunite in the event that family members cannot return home.

We tend to neglect the need to educate individuals and families both about the risk of disasters and how they might help when one strikes. We also tend to overlook the first responder role of planners and policymakers who can change the relative threat of disaster. Similarly, we neglect the role of the private sector entities that own approximately 85% of a community's infrastructure and we pay inadequate attention to the roles of the large and diverse non-profit community. For all of these actors, the states, once again, can play major roles in information generation and dissemination, and in bringing actors together.

Americans now have their lowest fear of terrorist's attacks since 9/11. A Readiness Quotient survey conducted for National Preparedness Month in September 2008, found that on a scale of 1 to 10, the nation's collective level of preparedness or Readiness Quotient (RQ) decreased from 4.14 the prior September to 3.57 (http://www.whatsyourrq.org/). The Council for Excellence in Government developed the online RQ test to measure our readiness quotient. Americans are not prepared for water shortages and fuel shortages or for a disaster of any kind. Relatively few have a specific plan for evacuation and claim to have no supplies for an emergency. Only 36% of respondents claim to have a disaster supply kit in a designated place. Just 32% have made a communication plan to keep in touch with loved ones in case of emergencies. Only 27% have set a meeting place for family members in case they get separated by a

disaster. Only 48% know whether their local government has an emergency or disaster plan.

Business can play an important role in public preparedness. The RQ survey shows that employees are better prepared if their employer has a plan and has practiced that plan. If the employer had a plan, individuals had an average RQ score of 4.0. Those who either didn't know if their employer had a plan or whose employer didn't have a plan had an average RQ score of 2.7. Seventy-three percent of employees reported that their employer has an emergency plan. Of those, 65% practiced the plan in the last year. Schools and daycare centers play a strong role in public readiness and parents are better prepared if their children's schools or daycare centers have a plan that is practiced.

The U.S. Center for Disease Control and Prevention promotes a range of "Readiness Initiatives" for cities in public health emergencies. In recent years, the White House has promoted the fostering of a Culture of Preparedness to permeate all levels of society so that families, businesses, and government agencies make emergency planning a routine concern. Most people, however, think that they can judge the risk of prospective hazards accurately and, thus, don't take the necessary precautions. Even when people live close to major hazards, they may not take an interest in preparedness. Post-9/11 and post-Katrina, half of survey respondents in an N.Y.U. Center for Catastrophe Preparedness and Response study in October 2005, said that their level of preparedness was about the same as before 9/11 and 4 percent claimed to be somewhat or much less prepared. After Katrina, many Americans lost confidence in government's ability to assist in crises. A 2006 N.Y.U. survey found 50 percent of respondents saying they have an emergency supply kit in their homes but only a third of those had enough food and water to last three days. Half of the respondents said that if they had to evacuate they would drive or take a taxi, despite frequent warnings about gridlock. Thirty-six percent claim to have no household emergency plan at all and no way to reunite with family or friends during a crisis.

Personal preparedness can – and must – be facilitated by government. State governments, especially, can work to build the capacity of businesses, schools, daycare centers, local governments, and individuals to prepare for emergencies by designing and providing emergency kits, reviewing plans, and any of a number of other facilitating, enabling behaviors. At the mitigation or prevention stage of a

disaster responsibility and accountability, problems arise long before a hazard creates a disaster event. This can mean the difference between an emergency and a disaster of catastrophic proportion.

Legal Issues

There are several major areas of concern regarding national/state, interstate, state/regional, and state/municipal relations in emergency management that need continuous attention from the states. These include: 1) sorting out what a catastrophic disaster is; 2) sorting out who does what and when; and 3) the role of the military in supplementing the states.

Catastrophic Events

Planning for emergency response too often is based on the last disaster and not the next one. This is why so much attention has to be paid to improvements based on after-action reports and studies of preparedness and response. A pre-condition however, is the need to sort out what authority is appropriate and applicable for each level of government in a catastrophe. Only after doing that can unresolved issues involving communication and coordination problems during response, and recovery, be addressed.

The magnitude of a threat, the vulnerability to communities and to the state and nation, and/or the consequence of the disaster in terms of lives and property lost or national security should be of the highest concern in shaping the emergency management system. A significant but little debated consideration is the threshold of severity in terms of size, scope, nature, and consequences of a disaster event that should define when the national government should have greater authority. During the Katrina response, the laws and regulations among and between governments involved were poorly understood and communicated, confounding the response. States and the national government were at odds, for example, over what was requested by the states, what was possible, and what the conditions of aid would be. The public and media commentators were confused over the responsibilities and authorities of the military and federal officials.

Who Does What Before and After the Disaster

By design and necessity, dealing with emergencies involves complex relations among all levels of government in sharing responsibilities. Cooperation is needed along vertical lines (national-state-local) and along horizontal lines (municipal-municipal, regional). Leadership that builds collaborative relationships in our decentralized governance system is required. We expected a greater role for the national government in the Katrina disaster, especially through its broad authority to respond to a major disaster through rapid deployment of "key essential resources," including medical teams and supplies, food and water, transportable shelters, and urban search and rescue teams.

Just as the federal role is unsettled for catastrophic events, no single federal agency has a clear legal mandate to organize the rebuilding or repair of public housing, federal subsidized rentals, or other affordable housing. FEMA has more of a mandate and money than the Department of Housing and Urban Development (HUD), but little expertise. On the other hand, HUD has expertise but no legal mandate. The Stafford Act of 1988 gives FEMA responsibility for housing 18 months after a disaster declaration but a truly catastrophic event such as Katrina required a much longer period, especially because low income housing tends to be older, less sturdy, and not retrofitted, compared to other housing. Just as the nation attempts to sort our roles and responsibilities among national actors during recovery, the states need to ensure that such parallel functions have been sorted out at the state level.

Interest in hazard mitigation has risen with the rising costs of natural hazard events. With the Disaster Mitigation Act of 2000, Congress sought to establish a national hazard mitigation program to reduce the loss of life and property, human suffering, economic disruption, and resulting disaster assistance costs from natural hazard events, as well as to provide pre-disaster mitigation funding to assist states and local governments in implementing mitigation measures. Other measures to improve state and local hazard mitigation planning were established. FEMA plays a central role in hazard mitigation through its grants programs and through various capacity building efforts. A number of other federal agencies such as the Department of Interior, Department of Agriculture, Department of Commerce, and the Corps of Engineers, have responsibilities related to natural hazard mitigation. The states play a central role in facilitating sound hazard mitigation policies at that level

and with their local governments, and must work to establish the appropriate relationships with the myriad of agencies involved in mitigation.

The Department of Homeland Security (DHS), through its Urban Area Security Initiative (UASI) regions, requires multiple jurisdictions within a region to jointly administer federal funds for police and fire, for example. In years past, funds were used for purchasing equipment but some UASI districts, beginning in fiscal 2008, can be used only for planning. States can play an important role in helping to establish mechanisms that allow for joint action via a coordinated response.

The Emergency Operations Center (EOC) is central to the communication system needed for response. A longstanding barrier to the flow of information that ensures timely situational awareness and allows strategic and tactical orders to reach the appropriate people in timely ways is interoperability. In part, this is a technical problem that is being increasingly addressed by the federal government. Interoperability also requires effective coordination across diverse agencies. Law enforcement and intelligence units have been working to share information and tighten coordination since 9/11 through fusion centers. Among many of the nation's 60 fusion centers, all hazards approaches are being embraced. There is no one model for a fusion center's structure but data fusion through the exchange of information from various sources and then analysis turns information and intelligence into actionable knowledge. Pennsylvania state officials would be wise to think comprehensively about the types of information they need in the developing fusion center – antiterrorism intelligence, general law enforcement, weather reports, etc. Technological sophistication can move available information and analysis to new levels and deal with multiple hazards missions.

Military-Civilian Relations

After 9/11, the Department of Defense (DOD) needed a more integrated military response to an attack on the homeland. The U.S. Northern Command (NORTHCOM) was established in October 2002 to provide command and control of DOD homeland defense efforts and to coordinate defense support of civil authorities. While DHS is the lead federal agency for homeland security, DOD is the lead federal agency for

homeland defense, defined as the protection of United States sovereignty, territory, domestic population, and critical defense infrastructure against external threats and aggression against the United States contributes through its military missions overseas and homeland defense and civil support operations. The current National Response Framework involves a stepped series of responses to a disaster, beginning with local authorities, state authorities, and outside assistance from other states. When those capabilities are exceeded, federal assistance is involved and the DOD might be asked to provide assistance. NORTHCOM's area of responsibility includes all 49 states in North America and the District of Columbia and it works with other DOD organizations

NORTHCOM is hampered in executing its plans because DHS and the states have not provided the necessary information. For example, as of mid-2008, NORTHCOM had not systematically reviewed state emergency plans. Few regularly assigned military forces have traditionally been assigned to NORTHCOM and it has difficulty monitoring the readiness of military units for its civil support mission. Neither the DOD nor the states, in fact, have fully determined the National Guard Bureau's (NGB) requirements for civil support operations in the United States In the short term, reform is necessary to increase coordination among DOD entities and commands, including the NGB and NORTHCOM, to ensure better national security outcomes.

Planning and funding for civil support missions of the National Guard (NG) have traditionally been considered a state responsibility, although the war fighting capabilities provided to the NG are facilitative. Since 9/11, the NG has been in a key role in responding to catastrophic natural disasters and for homeland security-related events of national significance. The state and federal government have a shared interest in preparing the NG to conduct civil support missions. There is a need to integrate not just the response to an incident, but also the plans of many entities at all levels involved in responding to such incidents. The states need to better coordinate with NORTHCOM and the NGB on a process for requesting, obtaining, and using information on state emergency plans and capabilities.

Perhaps the biggest issue regarding the interface between the military and the state EM community relates to NORTHCOM's most recent plans. By 2011, the United States military hopes to activate and train an

estimated 20,000 service members for specialized domestic operations, under the direction of NORTHCOM. One unit became operational on October 1, 2008, with two others expected to be equipped and assigned by 2011. Already, there are about 80 National Guard and reserve units, with a total of 6,000 troops, in support of local and state officials nationwide. All of these and the NORTHCOM units are to be trained to respond to a domestic, chemical, biological, radiological, nuclear, or high-yield explosive attack (CBRNE).

During Katrina there was substantial confusion regarding its role, including a slow response. NORTHCOM's units are intended to assist in responding to terrorist attacks or disasters stemming from natural hazards. The units have unique training in logistics and medicine and consist of medical personnel, chemical decontamination experts, logistics, and engineering personnel. Groups concerned with guarding civil liberties, and libertarians, are uneasy about how closely the military will be involved with law enforcement issues falling under a state's jurisdiction, possibly undermining the 130-year federal law that restricts the military's role in domestic law enforcement, the Posse Comitatus Act. Some claim that the new homeland emphasis may strain the military.

The Obama Administration will have to sort out a clearer mission for NORTHCOM during catastrophic events and the role of the National Guard as a support unit to civil authorities. Funding for the changes is still unclear. The Posse Comitatus Act, as well as numerous powers and authorities of the states and national government, will likely be revisited in the near term to forge the role of the military in disaster response and recovery.

State policymakers must take a proactive role in this debate. Underlying the role of the military in supplementing the states during a disaster is that the threshold for military action is unsettled. The magnitude of a threat, the vulnerability to communities and to the nation, and/or the consequence of the disaster in terms of lives and property lost or national security should be of the highest concern in shaping the EM system. As discussed here, many of the key issues among and between governments in terms of the threshold of severity – size, scope, nature and consequences of a disaster event – that should define if and when the national government should have greater authority – or the military are unsettled. This is an area ripe for state interest and action.

COMMONWEALTH: A Journal of Political Science

COMMONWEALTH: A Journal of Political Science is a peer-reviewed journal that publishes original research in all subfields of political science along with interdisciplinary articles. Open to a variety of approaches and methodologies, *COMMONWEALTH* seeks manuscripts that are based on theoretical perspectives (empirical or normative) as well as those that employ an historical approach. *COMMONWEALTH* solicits manuscripts for a general issue and one or more policy options issues. An important part of the journal's mission is to encourage research on topics of Pennsylvania and regional importance (northeastern and mid-Atlantic United States). Manuscripts on state and local government, politics, and policy are especially desired. Book reviews are generally limited to essays on recently published works with a Pennsylvania or regional focus. The journal's special policy issues are devoted exclusively to dispassionate academic discourse on state and regional public policy issues and options.

COMMONWEALTH was founded by the Pennsylvania Political Science Association (PPSA) in 1987. In 2004, the Legislative Office for Research Liaison (LORL) of the Pennsylvania House of Representatives agreed to jointly publish and expand the journal. The journal's editorial staff, Editorial Review Board, and referees maintain the highest peer-review and publication standards. Public policy research emanating from academic fields other than political science is processed by the University Committee for Legislative Liaison, which advises LORL.

Copies of *COMMONWEALTH* are sent to all PPSA members — individual, departmental, and institutional. For PPSA membership rates, see the separate announcements in this issue. Mailing to PPSA members is generously assisted by the School of Public Affairs of Penn State-Harrisburg. LORL provides copies to members of both chambers of the Pennsylvania General Assembly, to key legislative staff, and to the presidents of each of the Pennsylvania colleges and universities that belong to the LORL Academic Network. In addition, LORL provides copies to the National Conference of State Legislatures, the Council of State Governments, the National Governors' Association, various other national associations of state and local officials, and to all Pennsylvania state depository libraries. Back issues of *COMMONWEALTH* are available online at www.house.state.pa.us/CJPS. Hard copies in limited quantities may be obtained by contacting LORL.

SPEAKER'S JOURNAL

The *SPEAKER'S JOURNAL* is a series of essays important to the future of the citizens of the Commonwealth of Pennsylvania. Published by the Office of the Speaker, Pennsylvania House of Representatives, in cooperation with LORL, topics addressed include Access to Higher Education, How to Save for College Education, the Importance of Libraries, Autism, Geospatial Policy, and Early Childhood Education. Past issues will soon be available online.

Legislative Office for Research Liaison
Pennsylvania House of Representatives

With initial funding from the National Science Foundation, the Pennsylvania House of Representatives established the Legislative Office for Research Liaison (LORL) in 1976 as the General Assembly's science and technology staff. LORL continues as a nonpartisan research office that enables legislators, committees, and staff to access the expertise of faculty in the LORL University Network, which includes most of Pennsylvania's institutions of higher education (Drexel University, Lincoln University, The Pennsylvania State University, Temple University, the University of Pennsylvania, the University of Pittsburgh, the 14 universities in the State System of Higher Education, and the member institutions of the Pennsylvania Association of Independent Colleges and Universities).

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The Pennsylvania Political Science Association

Founded in 1939, the Pennsylvania Political Science Association (PPSA) is the nation's oldest state political science association. Its mission has always been to promote scholarship, research, and the exchange of ideas within the Pennsylvania community of political scientists. PPSA draws its membership principally from the political science and public administration faculties of Pennsylvania's public and private colleges and universities but also includes government professionals and faculty members from surrounding states.

PPSA's annual conference includes dozens of panelists covering a wide variety of subject areas. While university faculty comprise the vast majority of participants, legislators, legislative staff, executive officials, and undergraduates also have been participants. The PPSA began publishing *COMMONWEALTH: A Journal of Political Science* in 1987.

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Manuscripts from all fields of political science are welcome, especially those on Pennsylvania or regional research (northeastern or mid-Atlantic United States) in the areas of state and local government, politics, or public policy. State and regional policy research may originate from any relevant academic discipline. Manuscripts should be submitted in Microsoft Word format. The preferred length is 15–30 double-spaced pages, including notes, references, tables, and appendices. Citations should follow the American Political Science Association's *Style Manual for Political Science*. For guidance, authors should consult previous issues of *COMMONWEALTH,* the *American Political Science Review*, or the editor. Tables should be created with the MS-WORD tools, not created manually, and they should be placed in the body of the manuscript, not at the end. Content notes should be used sparingly, and they should be contained in endnotes rather than footnotes. Appendices should be placed after the content notes. A list of references should be placed last. The author's name and affiliation should appear only on a separate cover page. An abstract of no more than 200 words should accompany the manuscript. Submit *three* paper copies (not disks or e-mail attachments) to:

Dr. Gerard J. Fitzpatrick
Department of Politics   Telephone: (610) 489-4111, ext. 2200
Ursinus College   E-mail: gfitzpatrick@ursinus.edu
Collegeville, PA 19426

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Dr. Michael R. King
Legislative Office for Research Liaison   Telephone: (717) 787-8948
House Box 202218   E-mail: mking@legis.state.pa.us
Harrisburg, PA 17120

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Dr. Thomas J. Baldino
Department of Political Science   Telephone: (570) 408-4474
Wilkes College   E-mail: tbaldin@wilkes.edu
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