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# Bridging the Gap

## Developing a Tool to Support Local Civilian and Military Disaster Preparedness

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# Summary

Local disaster preparedness planners face a major challenge: coordinating and planning with the various civilian entities and military installation counterparts that have authority and responsibility for conducting local response operations. The goal of our overall project is to create a risk-informed planning support tool that will allow local military installations and civilian entities, including local Department of Veterans Affairs health providers—either individually or collectively—to conduct "capabilities-based planning" for local major disasters, with a special focus on the first hours or days after a disaster strikes, when only local response resources will be available. This interim report describes the first phase of our work—development of a framework for a local planning support tool. This work entailed three main steps:

1. Set the current policy framework for local disaster preparedness planning in the United States.
2. Examine what civilian authorities and military installations are doing now with regard to preparedness planning, including their professional connections across local agencies and needs of local planners related to a potential preparedness support tool.
3. From the preceding, derive the design features, components, and data needs for a tool to improve planning at the local level and to design and vet the broad architecture for a capabilities-based planning support tool and complementary tool to enhance local agency connections.

For the first step, we reviewed current policies and programs under which local disaster preparedness now operates and examined the concepts and processes for conducting effective risk assessments and capabilities-based planning, which national policy documents declare should be the standard for preparedness planning. For the second step, we conducted site visits at five locations to learn how communities actually prepare for disasters and to identify the desired features and capabilities for a new planning support tool. We then integrated our understanding of the policy context and of local preparedness planning needs to develop a framework for a local capabilities-based planning support tool.

## National Policy Context for Local Disaster Preparedness Planning

Homeland security is often equated with combating terrorism, but the U.S. Department of Homeland Security (DHS) has much broader missions—including federal plans and programs for prevention, protection, preparedness, response, and recovery from all forms of naturally occurring and manmade incidents, both accidental and intentional. Since the terrorist attacks

of September 11, 2001, the federal government has been active in providing national guidance and certain standards and practices that can be broadly applied. DHS is one of several federal agencies with authority and responsibility for providing disaster emergency assistance. Others include the Departments of Justice, Health and Human Services, Agriculture, Energy, Veterans Affairs, and Defense.

Two presidential directives provide policy guidance for purposes of this study. First, Homeland Security Presidential Directive 5 (HSPD-5), Management of Domestic Incidents, called for "a comprehensive approach to domestic incident management" (p. 1). HSPD-5 also called for the development of the National Incident Management System (NIMS) (FEMA, 2008b) and the National Response Plan (now known as the National Response Framework, or NRF) (FEMA, 2008a). NIMS provides a standard template for managing incidents at all jurisdictional levels—federal, state, and local—and regardless of cause—terrorist attacks, natural disasters, and other emergencies. The NRF establishes a set of national principles for a comprehensive, all-hazards approach to domestic incident response.

Second, Homeland Security Presidential Directive 8 (HSPD-8), National Preparedness, makes an all-hazards approach to preparedness planning a matter of national policy. The National Preparedness Guidelines (DHS, 2007b) resulting from this directive describe several planning tools; significant among them are the National Planning Scenarios, which cover a broad spectrum of manmade and natural threats; the Universal Task List (DHS, 2007a), which identifies the tasks that need to be performed by all levels of government and from a variety of disciplines to prevent, protect against, respond to, and recover from major disasters and other emergencies; and the Target Capabilities List (DHS, 2007c), which describes core capabilities required to perform critical tasks to reduce loss of life or serious injuries and to mitigate significant property damage.

These policies and doctrines are intended to create a national preparedness system, within which local, state, and federal government entities; the private sector; and individuals can work together to achieve the priorities and capabilities described in these national documents. The local planning support tool that is the goal of our project is based on these policies and doctrines and could play an important role in the national preparedness system.

We examined how guidance contained in the national-level policy documents was (or was not) being operationalized in ways that will support civilian planners at the local level, and how federal programs that are intended to help in local preparedness are structured. Our review highlighted several key points:

- At the state level, the Emergency Management Assistance Compact (EMAC) facilitates resource sharing across state lines during times of disaster and emergency, but localities cannot use the system directly.
- At the local level, there is no single, consistent system or process for mutual assistance.
- Many states have established organizations within the National Guard structure to provide help to localities in an emergency.
- Several federal departments and agencies have preparedness programs that are targeted at the local level. Programs include grants, guidelines, various planning and support efforts, and legal assistance.
- Local planners have access to some tools to support their efforts, but, as of 2008, there was no publicly available decision support tool for local risk-informed capabilities-based disaster preparedness planning—either within government or available commercially.

We also examined statutory authorities and U.S. Department of Defense (DoD) directives and instructions that provide the framework for the role of military installations and other DoD organizations in local preparedness and response activities. Overall, we found that there is ample statutory authority for conducting almost any domestic mission that the military may be called on to perform, especially in the context of domestic disasters or emergencies.

Finally, current national guidance calls for risk assessment and capabilities-based planning within an all-hazards context. Risk analysis is often associated with terrorism planning, but it is not inherently limited to this arena. Risk is composed of three factors: *threat* (the probability of a specified event), *vulnerability* (the probability of damage if an event occurs), and *consequences* (impact on lives and property) (Willis, Morral, et al., 2005). Risk assessment includes assessment of these different components of risk. Risk assessment and capabilities-based planning are both important but not systematically connected in practice. Because DoD asked RAND to address local risk-informed capabilities-based planning, we sought to conceptually connect the two, based on national policy and described methods for each. This would, in turn, guide our development of the planning support tool.

## Local Civilian and Military Disaster Preparedness Activities

We conducted site visits at five locations to understand better how communities actually engage in disaster preparedness and to identify the desired features and potential capabilities for a new preparedness support tool. We identified the following patterns across sites.

### Civilian Community Networks Were Broader Than Local Military Networks

Across all five sites, civilian and military leaders made fairly consistent distinctions of what the "community" comprised and what constituted their own boundaries for disaster planning purposes. Civilian interviewees generally had a more expansive view of community that included the main city and county and, in some cases, neighboring counties or districts. Their definitions tended to be bounded by where the population lived and worked. Civilians also viewed the installations as largely independent from the city. Military leaders tended to define the community in terms of what they were responsible for in an emergency, which was mostly inside installation boundaries.

### Military and Civilians Plan Separately but Use an All-Hazards Approach and Often Participate Together in Exercises

Military installations and civilian planners both tend to approach major disaster planning from an all-hazards perspective. Nevertheless, both the process and the end product may vary by installation and military service and by community. Planning usually starts with a threat or vulnerability assessment. Exercises (tabletops, functional drills, and larger-scale field exercises) are used to test and refine plans and to meet external requirements. Civilian planners rely on several tools to guide the development of plans.

Although there are notable exceptions, military and civilian leaders tend to create their own separate plans in isolation without input from the other party. Once plans are prepared, the level of dissemination and collaboration varies, ranging from simply sharing the plans to participation in joint meetings and exercises.

The level of interaction between military installations and local civilian agencies often depends on the kind of event being planned for and the function of the specific agency. Fire services and public health leaders tend to be more connected across military-civilian boundaries; military and civilian security forces are comparatively less engaged but still cooperate at the tactical level. There is relatively little interaction between civilian planners and the local Department of Veterans Affairs facilities; there is also little interaction with the National Guard in *planning* for disasters. However, the Guard's Civil Support Teams (CSTs) are regularly involved in *responding* to specific emergencies.

### Military and Civilian Planners Carry Out Risk Assessment and Capabilities-Based Planning Based on Different Tools Available to Them

Risk assessment for a military installation is a broadly standardized process because all installations are required to meet established DoD benchmarks for antiterrorism protection. However, the process varies substantially across sites depending on the key players. Most of these assessments are not shared with the civilian community. Risk assessments generally take place annually. DoD provides a number of tools to help users conduct risk assessments. The most commonly reported of these is the Joint Staff Integrated Vulnerability Assessment program.

The civilian community has a similar conception of risk assessment, but its process is looser and less standardized. Civilian agencies have also developed a number of tools to address their own needs for a risk assessment template; the Hazard Vulnerability Assessment tool developed by Kaiser Permanente for medical facilities is widely used by civilian planners and by medical personnel on military installations.

### We Identified Facilitators and Barriers to Local Disaster Preparedness That Are Important to Consider in Designing a Preparedness Support Tool

*Facilitators* of local disaster preparedness planning include receipt of external funding, primarily federal government grants passed down through the states; attention from external stakeholders, including federal authorities, the media, and the general public; common guidance, including nationwide, strategic guidance derived from the NRF and from agency-specific guidance from such entities as the Centers for Disease Control and Prevention (CDC); regular interactions among military and civilian stakeholders in the form of meetings and routine or unexpected events; putting faces to names, developing informal connections, and networking; mutual aid agreements, memoranda of understanding, and other formal documentation of the roles and responsibilities of key stakeholders; and information technology.

*Barriers* to disaster planning include shortcomings in information technologies that preclude essential communications among the many entities involved in a disaster response, especially across military-civilian lines; lack of common terminology; practices for safeguarding information; lack of continuity among the personnel responsible for disaster preparedness or emergency management, especially on the military side; perceived legal constraints that reduce the military's ability to provide support for local disasters; lack of resources; and inaccurate perceptions on the part of both civilians and the military about what each could contribute in the case of a disaster.

## Local Emergency Preparedness Networks

We conducted a social network analysis (SNA) to supplement the information we obtained from the interviews at our five study sites. The basic assumption of SNA is that the structure of relationships among a set of actors, and the location of these relationships and actors within a network, have important behavioral, perceptual, and attitudinal consequences for the individual actors and for the system as a whole. We hypothesized that, by seeing their own networks, local emergency response planners might be able to identify missed opportunities for connections.

### Most Influential Organizations

Across all five sites, and in both the civilian and military communities, the most influential organizations were consistently emergency management and planning; health and medical; and security, law enforcement, and fire services. These findings align closely with findings from our site interviews.

### Communications Flow, Coordination, and Innovation

Our site interviews suggested that fire services and public health organizations are more connected than other organizations across military-civilian boundaries. However, the network analysis suggests that emergency management and law enforcement/security organizations also stand out as particularly influential players that help to improve coordination across each of the larger site-specific networks. These organizations are important not only for increasing coordination *across* civilian and military communities but also for connecting otherwise disconnected organizations *within* either community.

As we learned from the site interviews, there is relatively little interaction between civilian planners and the local Department of Veterans Affairs facilities and little interaction with the National Guard, except for the Guard's CSTs.

Overall, the emergency management networks at all five sites were fairly decentralized and not very densely connected, which means that communications and coordination across the networks are probably less efficient than would be the case in more centrally managed or more densely connected networks. Communications tend to be stovepiped around the larger functional communities in each network, such as the public health/medical community or the law enforcement/security community, but is also concentrated *within* communities, such as the local military installation or the civilian community. Despite this stovepiping, there is a fair amount of regular contact across communities and across functions at various levels; it is just not as common or as frequent as it is within functions and communities.

### Resiliency, Redundancy, and Single Points of Failure

A highly centralized network is a less resilient network because the most central node is a potential point of critical failure. The extent of centralization of a network is thus inversely related to its resiliency.

Each of the five study sites is fairly decentralized and, as such, *might* be more resilient to disruption. The site visit interviews suggested that such redundancy exists: several installation emergency managers noted that tactical organizations, such as security forces and fire services, have their own distinct relationships with their civilian counterparts. Our network surveys also reveal some of these relationships.

Organizations that act as brokers between otherwise unconnected pairs of organizations are also potential single points of failure in the network, since they are responsible for bridging the gaps between these otherwise disconnected nodes. Their removal from the network would leave some nodes completely disconnected from one another and, potentially, from the broader network entirely. The organizations playing this broker role and therefore rendering the broader emergency preparedness network most vulnerable were a public health or medical organization (at three of our five sites) and the local emergency management office (at four of the five sites).
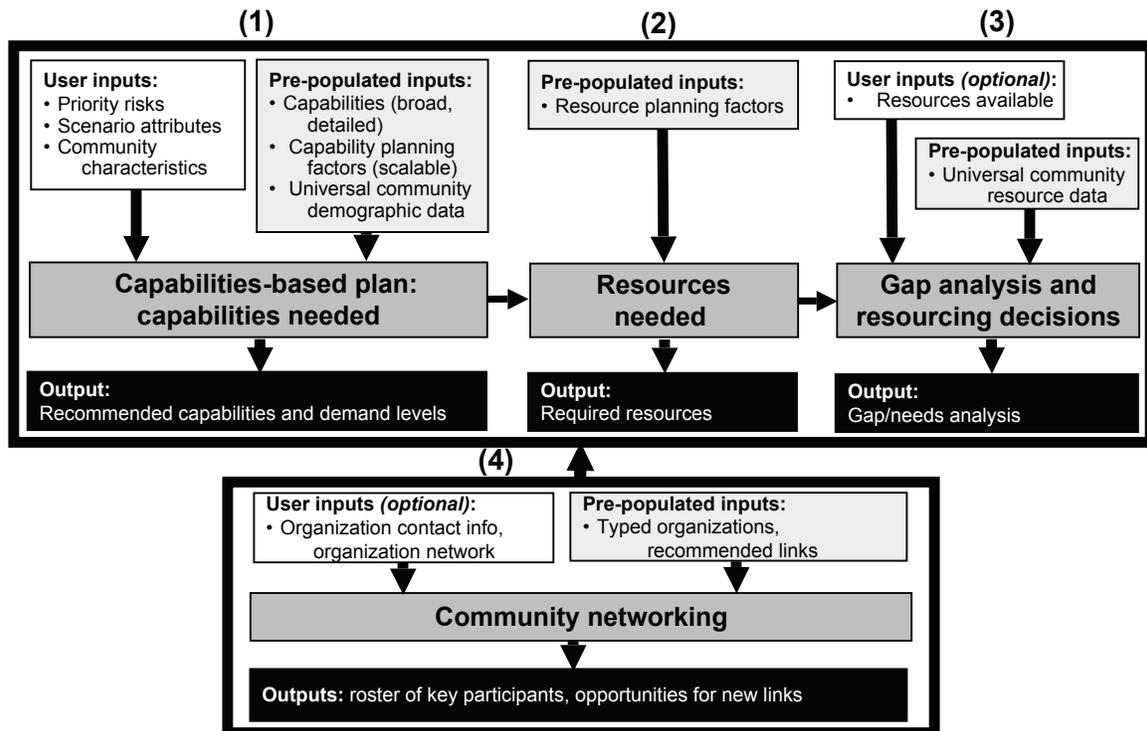
## Framework for a Local Planning Tool

During our site visits, we garnered information about what civilian and military emergency management personnel would find most useful to support their disaster preparedness efforts. Through a separate review of websites and documents, and complemented by our site interviews, we also inventoried existing preparedness-oriented support tools. We have characterized an inventory of approximately 30 of these, according to such factors as functional support area (risk assessment, planning, event management), access (public versus commercial), hazard(s) addressed, outputs, required user inputs, and target audience.

Existing tools for capabilities-based planning tend to be linked to specific threats or specific localities. The RAND tool will be more broadly applicable—i.e., for all communities and all hazards—and will be automated to alleviate some of the planning burden for local civilian and military planners. The RAND tool would have the following characteristics, based on perceived user needs. It will *leverage existing models and tools* whenever desirable, *automate linkages* for planning activities across disaster phases, and *be applicable to all U.S. communities*, regardless of size. The tool will be *easy to use* and *require minimal technical expertise*. It will be designed in a *Microsoft® Excel® framework*, with which many planners are already familiar. There will be *no barriers to gaining access* to the tool, so it can be widely distributed. The tool will *run on nearly any computing platform*, making it portable.

The tool will *automate use of planning guidance* for civilian and military agencies to help civilian and military officials comply with legal and policy requirements and assist civilian agencies in qualifying for federal grants. We will link recommendations from the tool to their sources for local planners to understand and include a capability for local planners to populate rosters of civilian and military actors within the community who have been identified as being involved with disaster preparedness planning.

The RAND tool will assist local planners by *automating four key outputs*. The tool will (1) automate the process of linking risk assessment to capabilities-based planning, (2) generate resources needed, and, on an optional basis, (3) perform a gap analysis between resources needed and resources available and (4) generate a community disaster preparedness network map, highlighting networking opportunities and a roster of key actors. Figure S.1 shows inputs and outputs for the tool.

**Figure S.1**
**Proposed Inputs and Outputs for the RAND Planning Support Tool**



**(1)**    **(2)**    **(3)**

**User inputs:**
• Priority risks
• Scenario attributes
• Community
  characteristics

**Pre-populated inputs:**
• Capabilities (broad,
  detailed)
• Capability planning
  factors (scalable)
• Universal community
  demographic data

**Pre-populated inputs:**
• Resource planning factors

**User inputs** *(optional)*:
•    Resources available

**Pre-populated inputs:**
• Universal community
  resource data

**Capabilities-based plan:
capabilities needed**

**Resources
needed**

**Gap analysis and
resourcing decisions**

**Output:**
Recommended capabilities and demand levels

**Output:**
Required resources

**Output:**
Gap/needs analysis

**(4)**

**User inputs** *(optional)*:
• Organization contact info,
  organization network

**Pre-populated inputs:**
• Typed organizations,
  recommended links

**Community networking**

**Outputs:** roster of key participants, opportunities for new links

**RAND** *TR764-S.1*

Based on this framework, our next steps will be to develop and field test a prototype tool that will focus on risk-informed capabilities-based planning. This first prototype will be a "workable" tool—capable of testing inputs and outputs for a subset of capabilities (e.g., medical capabilities) related to some but not all disaster scenarios. We also propose to develop a tool function that can be used to strengthen community networks. The tool will create an environment for community organizations to share contact information; help users identify key organizations with which they can partner to coordinate capabilities should an event occur; and provide an environment in which organizations can share information about upcoming exercises. Although more time and effort will be required to develop a full-scale, fully functional tool that incorporates all capabilities across all scenarios and ready for production and distribution, the next steps in our research effort will be to develop a proof-of-concept prototype tool and field test it in a range of local settings. The proof-of-concept field tests will help in identifying areas for improvement in the further development of the tool and thus will inform the development of the all-capabilities all-hazards planning support tool that is the ultimate goal of this effort.