

Emergency logistics planning and disaster preparedness

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ABSTRACT

Emergency management is often evaluated and improved after a disaster, especially in the realm of preparedness. This article discusses the importance of logistics planning and operation as it relates to preparedness. The selection of field logistics sites, such as staging areas, prior to the occurrence of a natural or man-made disaster is a crucial step in emergency management planning. Selection can be aided and kept consistent by pre-identifying state- and county-level guidelines for staging areas.

INTRODUCTION

Emergency management is in a continual process of development, and planning is often evaluated and improved upon after a disaster. In 1992, the state of Florida was the site of 40 civilian deaths, \$30 billion in property damage, 82,000 damaged or destroyed businesses, and over 250,000 new homeless as a result of Hurricane Andrew. Following the destruction, Florida began to reexamine existing levels of preparedness and response. Less than two weeks after the hurricane hit the state, Governor Lawton Chiles issued Executive Order 92-242, establishing the Governor's Disaster Planning and Response Review Committee.^{1,2} The purpose of the committee was to evaluate state and local response plans and operations for natural and man-made disasters and make recommendations for improvement. Among the resulting recommendations were improved interagency coordination and communication, increased emergency management funding, advanced emergency management training, and well-constructed plans for response and recovery by each level of government.^{1,3} Twelve years later, it became clear that more improvements were still needed. In 2004, four major hurricanes—Charley, Frances, Ivan,

and Jeanne—provided the state with further evidence of the weaknesses that still existed in emergency management plans and operations, and the 2005 hurricane season identified additional weaknesses on a national scale.

An important element affecting emergency management planning and operations for all levels of government is logistics—more specifically, the field logistics site or staging area. A staging area is a site selected by federal, state, and county government for the purposes of the pre-positioning and disbursement of disaster relief equipment and supplies. This article discusses the preselection of staging areas as a decisively crucial step in emergency logistics planning and management.

BACKGROUND INFORMATION

Response and recovery have often been the focus of emergency management research.⁴⁻⁷ Preparedness is perhaps the one area of emergency management where theory has yet to be developed outside of governmental reports. Identifying this knowledge gap and asserting its importance to the field, David McEntire^{8,9} discussed the process of preparedness that should be undertaken by governments, listing the following steps as vital to emergency management: “establishing emergency management ordinances; assessing hazards, vulnerability and risks; creating an emergency operations plan; developing a warning system; identifying and requiring resources and grants; instituting mutual aid agreements; training; and exercising and educating the public.” Therefore, having an operable plan in place prior to the occurrence of a man-made or natural disaster is essential to preparedness and should be in effect at all levels—national, state, and local.

The National Incident Management System (NIMS) acknowledges preparedness as a process that focuses on guidelines, protocols, and standards for planning. Logistical planning and operations are key elements that should be identified in these guidelines. Although NIMS does not specifically address site-selection criteria, it does recognize the importance of preselection as part of the planning process and the need for a preselected site during response mobilization, stating, “[T]he mobilization process may include equipping, training, and/or inoculating personnel; designating assembly points that have facilities suitable for logistical support; and obtaining transportation to deliver resources to the incident most quickly, in line with priorities and budgets.”¹⁰

The designated assembly points described by NIMS refer to staging areas and points of distribution (PODs). The protocol for site selection should be documented in the emergency management plan. Further, it is important to distinguish staging areas from PODs. Generally, a staging area is a location near or in the disaster area where personnel and equipment are assembled to coordinate response before deployment to an operational site within the disaster area. PODs are locations where in-kind donations of food, water, and other supplies will be given directly to residents. PODs may be located in parking lots or open fields in the disaster area, and should be as close to victims as possible.

The location of emergency resources is strongly related to the effectiveness of response and recovery. According to Hale and Moberg,¹¹ the private sector, in addition to the public and nonprofit sectors, should be concerned with planning, and it should select “a minimum number of emergency resource locations that provide logistics managers with quick access to critical resources while minimizing the total costs spent by the supply chain.” The authors propose a set of four steps for site selection: “1) identify the emergency resources needed at each secure location; 2) identify all critical cities within the supply chain; 3) set maximum response time goals for access to emergency resources and minimum distances to secure site storage areas; and 4) identify the number and approximate location of emergency resource facilities.”

It is evident that field logistics sites, such as staging areas and PODs, require strategic consideration and predisaster decision making. To ensure preparedness, these elements should be included in emergency management planning. Each of the steps for site selection is integral to the preparedness design. In an effort to learn more about how government is actually preparing logistical operations, a number of sources have been researched in order to establish a set of guidelines applicable to all staging-area selections.¹²⁻¹⁷ These documents include the Florida Division of Emergency Management’s (FDEM) *Logistical Technical Bulletin* (2005),¹² FEMA’s *Guide for All-Hazard Emergency Operations Planning* (1996),¹⁴ the National Wildfire Coordinating Group’s *Staging Area Job Aid J236* (2004),¹⁵ and The Central Florida Fairgrounds as a Forward Staging Area for Disaster Relief.¹⁸

LOGISTICS AND STAGING-AREA SELECTION

Presently, there are no officially documented guidelines pertaining to the selection of staging areas at any level of government. Emergency management plans list staging areas as an element in resource distribution planning. They do not, however, specifically list criteria to be used for selection or designate locations for staging. County emergency management plans (CEMPs) sometimes include such information, but it is rare. The following is a list of general criteria to be considered:

- **Location.** Sites should be set up in locations familiar to local residents, on the inbound route between the resources and the incident. The location should allow for resources to be deployed immediately yet be removed from harm.
- **Operations center location.** Sites should be located in relative proximity to emergency operations centers.
- **Access.** Sites should be accessible from major highways and thoroughfares for all large vehicles, including semi trucks, and they should provide at least two entries/exits.

- **Helicopter access.** All sites should be accessible by helicopter. A minimum area of 300 x 300 feet, clear of trees, wires, or any other obstructions, is necessary for a helibase or helispot.
- **Safety and security.** Sites should be in close proximity to the incident yet out of harm's way and at a safe distance from refugees. The facilities on site should be surveyed for stability and secured.
- **Demobilization.** Time is a primary consideration in site selection. A staging area site should be available for use as a critical facility for an extended length of time to be determined by the emergency manager.
- **Hardstand.** A total of 150,000 total square feet of paved or unpaved hardstand is required. Paved is preferred; if only unpaved is available, the hardstand should be known to be able to support weights up to 65,000 pounds without sinking.
- **Equipment.** Loading docks, forklifts, and pallet jacks should all be located on site.
- **Storage.** Sites should have a minimum of 50,000 square feet of warehouse storage. Other specific storage requirements may also be necessary for resources such as medicine.
- **Utilities.** Sites should have telephone lines (landlines) and water (potable) readily available.

The above criteria establish a set of guidelines to be included in emergency management plans and followed during site selection. The state of Florida has played an exemplary role in preparedness through the incorporation and implementation of such guidelines on a state and county level. In fact, county emergency management departments are

expected to include up to three staging areas in their CEMPs.

The most comprehensive guidelines have been established by FDEM, who has outlined criteria to be used in the selection of county staging areas (CSAs) and PODs. According to FDEM's *Logistical Technical Bulletin* (2005),¹² CSAs should have all of the following as minimums: 1) 50,000 square feet of warehouse storage, 2) one or two loading docks, 3) 150,000 square feet of hardstand, 4) one forklift and two pallet jacks, and 5) 300 x 300 feet of clear area designated as a helicopter landing zone. In addition, the site of the CSA should be conducive to one-way traffic and be located near major highways. PODs are selected based on population base and therefore are responsible for serving a specific type of community, e.g., densely populated or outlying/special communities. CSAs and PODs do not serve the same purpose and should never be co-located. The majority of CEMPs do not list specific staging areas; rather, they explain that the sites are to be selected annually and/or based on the type of disaster. The state and several counties maintain a list of staging area locations that is kept confidential for security reasons.

CONCLUSION

Emergency management theory has been found to be a constantly evolving topic of discussion among academics and practitioners wherein current discussion revolves around current disasters, such as the heightened preparedness discussions following Hurricane Katrina. The purpose of staging areas in relation to preparedness has been determined by selection and operation. Inclusion in emergency plans and preselection of staging areas are imperative steps in planning, and require much consideration. Although no officially documented criterion exists, a general set of criteria is often considered during the planning and selection process. Staging areas are distinguished from PODs in that staging areas are for the pre-positioning of supplies, whereas PODs are for direct distribution of supplies to the community. This difference should be clarified in the emergency management plan.

Based on the current body of research, it is recommended that, first, federal, state, and county emergency management agencies establish more open, cross-agency communication for the discussion of logistics planning and operations. Second, each governmental level should create and adopt official guidelines based on those presented in the research findings for field logistics site selection, paying attention specifically to staging areas. Third, the guidelines, protocols, and standards established should be included in each emergency management plan and should be updated on at least an annual basis. And fourth, each sector—public, private, and nonprofit—should be engaged in field logistic site selection and operation. These recommendations are particularly important on the state and local levels, where disaster hits most directly and response is most effective.

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