**Introduction and Background**

In emergency response slang, “leaning forward” refers to the preemptive deployment of resources when a disaster response is anticipated, for example, when a hurricane is forecast to strike a particular area. Preemptive deployment can be costly if the disaster is misjudged, and pre-positioning supplies and equipment may allow for more efficient response.

The National Disaster Medical System includes about 60 teams of civilian medical personnel, logisticians, and incident managers who intermittently serve as federal responders during disasters. Teams have a basic cache of equipment to create a self-sufficient field hospital. The caches typically are shipped over ground, being moved by air for overwater travel.

**Methodology**

Siting of three warehouses, consistent with the current federal budget allowance, is analyzed based on three factors:

1. **Demand** - the locations where hazards occur, combined with the concentration of population;
2. **Facilities** - proximity to an airport with a runway long enough to depart a fully-loaded cargo plane for extracontinental missions; and
3. **Network** - the web of highways for ground transport.

Hazards were identified based on responses to disasters over the past 13 years. Hurricane, responsible for more responses than any other hazard, was emphasized in the demand model. A Location- Allocation analysis identified the three optimum warehouse sites.

**Hazard Probability and Intensity**

Historic or probabilistic analysis of hazards which have led to past federal response missions is also weighted by the intensity of the hazard. The composite hazards are overlaid with population to form the geographic demand for response.

**Optimized Warehouse Placement**

Location-Allocation network analysis identifies the three best locations to site a warehouse to optimize ground transport response time to the most likely disaster locations in the conterminous United States.

**Data Sources**

- DOT  [U.S. Department of Transportation]
- FEMA  [Federal Emergency Management Agency]
- NGA  [National Geospatial-Intelligence Agency]
- NOAA  [National Oceanic & Atmospheric Administration]
- USGS  [U.S. Geological Survey]

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