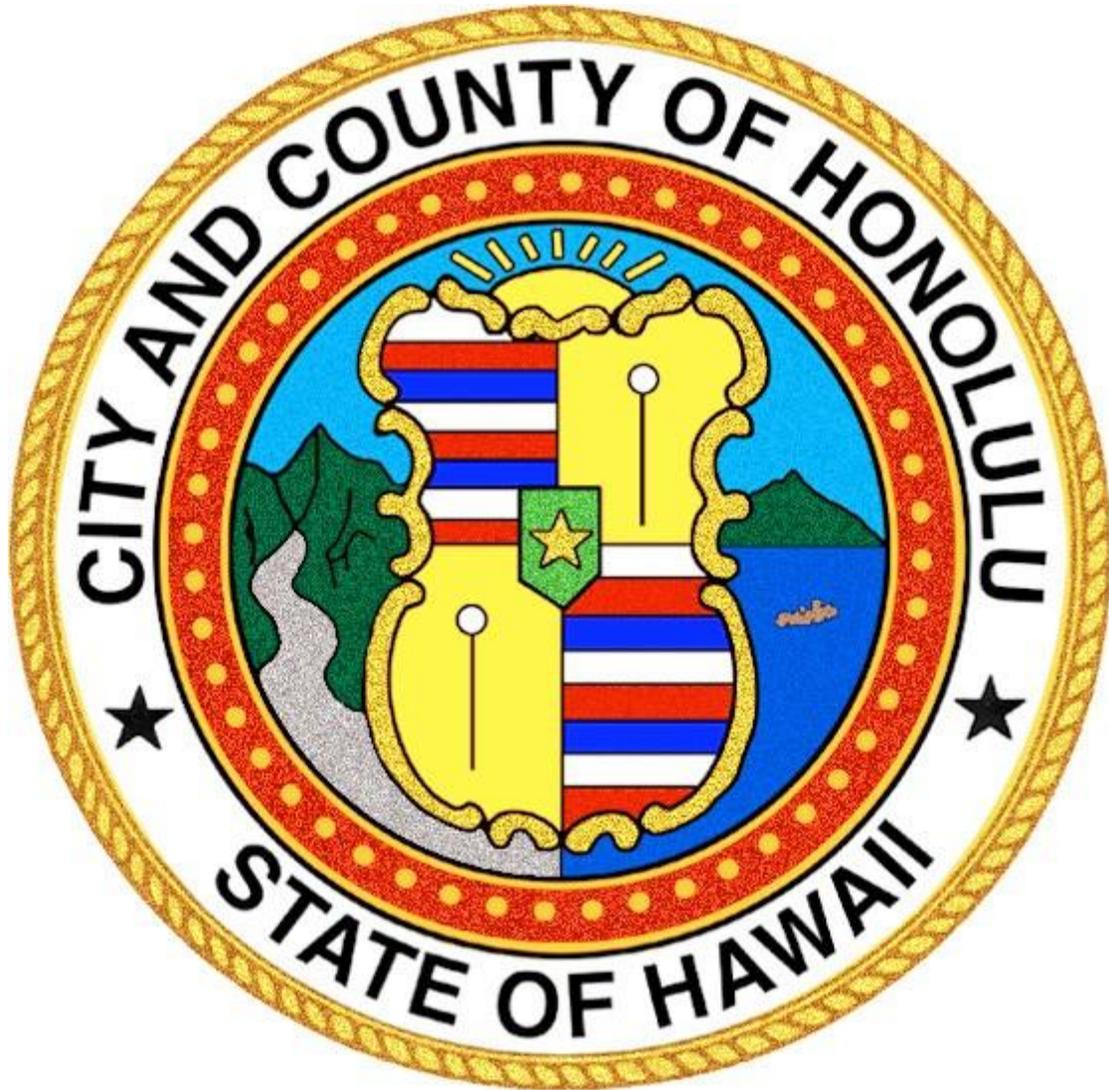


**City and County of Honolulu  
Hurricane Response  
Logistics Concept of Operations**

03 September 2013



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## REVISION RECORD

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| REVISION RECORD |               |         |                       |                        |
|-----------------|---------------|---------|-----------------------|------------------------|
| Date            | Change Number | Section | Updated by Individual | Description of Changes |
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## City and County of Honolulu Hurricane Response Logistics Concept of Operations

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### *1. Overview*

This Hurricane Response Logistics Concept of Operations (CONOPS) will be used by the City and County of Honolulu (hereafter referred to as ‘the City’) in support of the City's response to a Category 4 Hurricane.

The estimated requirements in this document are based on experiential data from hurricane-affected states in the southeastern United States, jurisdictions impacted by Hurricane Sandy in 2012, Federal Emergency Management Agency (FEMA) and U.S. Army Corps of Engineers (USACE) guidelines. All estimates will require adjustment and validation by City and other governmental officials to better fit the City’s needs.

This hurricane response logistics CONOPS is a dynamic document, and will continue to be updated periodically by City emergency management authorities, with input from other emergency responders, neighboring counties, and the State. It will be synchronized with and integrated into Hawaii State logistics response plans as they continue to evolve.

### *2. Assumptions*

The following assumptions guide the logistics concept:

- ◆ Assuming 2/3 of the population, approximately 635,000 residents or visitors will require government assistance of some kind:
  - 254,000 will require sheltering and will not arrive with disaster kits, food, or water.
  - 381,000 will require food, water, tarpaulins, or other critical commodity assistance.
- ◆ Some visitors will not be able to evacuate the City before tropical storm-force winds arrive and will not be able to leave the City before the tropical storm force winds subsides.
- ◆ Full restoration of power will take several months.
- ◆ Power will take longer to fully restore for outlying areas.
- ◆ Damage to major ports will be disruptive, but not catastrophic.
- ◆ Resources from outside the City will not be available for up to three days.
- ◆ Major road connections and road network will not be usable in their entirety for at least three days due to debris—particularly on the windward



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side of the island, although some parts of the highway may be passable immediately after the storm passes.

### *3. Background*

The City's population of 953,000, with an average of 100,000 additional visitors, will be largely self-sufficient and sheltered-in-place for the first three days of response. These population numbers suggest that the City may have as many as 325,000 households. While the majority of the population is centered around Metropolitan Honolulu, the island also has a sizable population of rural and small communities. These rural and small communities tend to be more self-sufficient and well-connected than the more urban areas, and communities will help one another during the initial response. As the response phase continues, smaller communities will be overwhelmed and require outside assistance in terms of commodities and resources. The top priorities will be water, food, and fuel, followed by electrical power. The City has already identified a critical shortage of backup generator capacity, particularly for critical infrastructure assets.

The State of Hawaii (hereafter referred to as 'the State') has a large population of "kupuna"—elderly residents whose health and welfare needs are greater than the general population. The kupuna population is less self-sufficient and less mobile than the general population, thus requiring more help and posing a special challenge to emergency responders.

The execution of the Logistics CONOPS will require a wide range of knowledge and skilled personnel to conduct logistics operations. Surge or temporary staff personnel will be required in different phases of the hurricane response and recovery operations. The City has a substantial number of trained volunteers to augment the limited full-time staff. The State has a number of trained personnel who could be called upon to support the City's hurricane response and recovery operations. Additionally, the State has assets, such as State of Hawaii National Guard (HING) to support the City's response. FEMA will furnish logistics incident management assistance teams to the City as it deploys federal resources.



## 4. Requirements

Resource ordering, fulfillment, and tracking during an incident are vital to the success of disaster response. Therefore, the City must identify its resource needs now and work to establish pre-event contracts to the extent possible for as many resources or services as possible. The City has identified a resource database that contains many of the resources and services available.

### 4.1 PERSONAL CARE COMMODITY REQUIREMENTS

On the basis of Oahu’s population and sheltering assumptions, Table 1 identifies personal care commodity requirements. The logistics annex (the strategic document associated with this CONOPS) contains additional information on planning factors and quantifies some of the personal care commodities in the table.

*Table 1. Individual Commodity Requirements*

| Tier           | Commodities                               | Requirements (30 days)  |
|----------------|---|---|
| I (Critical)   | Water                                     | 1 gallon per person per day—up to 20 million gallons  |
|                | Meals                                     | 2 meals per person per day—up to 40 million meals   |
|                | Blankets                                  | 1 blanket per person—up to 635,000 blankets   |
| II (Important) | Cots                                      | 1 cot per person sheltered—280,000 cots   |
|                | Tarps                                     | 1 tarp per household, plus 90,000 tarps to support airport, seaport, community points of distribution (CPODs), and refueling point operation (a total of 415,000 tarps) |
|                | Medical                                   | To be determined (TBD)  |
|                | Ice                                       | 8 pounds of ice per person per day—up to 168 million pounds   |
|                | Comfort kits                              | 1 kit per person assisted—up to 700,000 kits  |
|                | III (Frequently required)                 | Pet supplies  |
|                | Infant care and feminine hygiene products | Infant care products for up to 16,800 infants and feminine hygiene products for up to 280,000 women   |
|                | Cleaning necessities                      | TBD   |
|                | Bug spray, sun screen, etc.               | TBD   |
|                | Over-the-counter medications              | TBD   |

Although the Honolulu Board of Water Supply (BWS) will restore water service to homes, some are likely to be severely damaged and uninhabitable. The effort to ensure that water mains and pipelines are secure will take several days, so other means will be needed to provide water to the affected population. Most residents rely on city authorities to dispose of wastewater, so sewage will be a significant problem for the City. Given the relatively more centralized approach for the



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City’s response, using the City’s water bladders and transporting them to CPODs and shelters will be the most effective option until people return to their homes. BWS should execute its plans according to the *City Emergency Operations Plan*.

### 4.2 RESPONDER RESOURCE REQUIREMENTS

Table 2 demonstrated some of the most common high priority items and supplies that would be needed in the event of a large or catastrophic event. As always, these numbers are highly dependent upon the actual scenario and impacts.

*Table 2. Responder Equipment and Supplies*

| Tier                      | Responder equipment and supplies  | Requirements (30 days)   |
|---------------------------|---|--|
| I (Critical)              | Generators  | To be determined (TBD). Assuming ten percent of the normal daily load, 10,000 15 KW generators would be required.                        |
| II (Important)            | Safety items<br>Personal protective equipment (PPE)<br>Communications<br>Responder supplies | Safety supplies, PPE, communication devices, and responder supplies may be required for as many as 50,000 responders in the first 3 days |
|                           | Portable sanitation<br>Light sets<br>Heavy equipment  | Portable sanitation, light sets, and heavy equipment will be required at each CPOD and refueling point                                   |
|                           | Sandbags  | Sandbags may be required for up to 10 percent of Oahu’s 325,000 households   |
| III (Frequently required) | Body bags, triage tags  | TBD  |
|                           | Shovels and sand for sandbags   | TBD  |
|                           | Ancillary supplies (such as power cords for generators)                                     | TBD  |
|                           | Pumps and hoses   | TBD  |
|                           | Responder clothing  | TBD  |
|                           | Vehicle tires   | TBD  |
|                           | Personal floatation devices   | TBD  |

### 4.3 LOGISTICS SERVICES REQUIREMENTS

To support the entire logistics effort, logistics services will also be needed, as illustrated below in Table 3. DEM will largely leverage commercial support for these functions. Memorandums of Understanding (MOUs) will be developed and changed over time.



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*Table 3. Logistics Services Requirements*

| Tier           | Services                   | Requirements  |
|----------------|----------------------------|---|
| I (Critical)   | Fuel                       | Bulk fuel through various MOUs—total gallons TBD  |
|                | Transportation of material | 500 to 800 40-foot truckloads per day for basic commodities                                     |
|                | Transportation of people   | Transport of up to 130,000 20-mile round trip segments to bus evacuees and affected individuals |
| II (Important) | Additional staffing        | TBD   |
|                | Warehousing                | Tents/temporary warehouse facilities  |
|                | Construction               | Construction materials  |
|                | Base camp                  | Telephone and light poles, signage, and way-finding materials                                   |

Establishing Temporary Refueling Points (TRPs) will enable workers to refuel their vehicles. TRPs will be established along major access points along Oahu’s major roadways or near responder base camps.

**4.4 OTHER SERVICE REQUIREMENTS**

Other services will be required to sustain the logistics function. DEM and other City departments will coordinate with the Department of Budget and Fiscal Services (BFS) to establish contracts to secure the following services:

- ◆ Vehicle maintenance, including engine repair and spare tires
- ◆ Equipment maintenance, including preventive maintenance of items such as generators
- ◆ Emergency contracting personnel, to write and issue contracts to support the response

**5. Distribution and Transportation**

The City’s centralized response will require a wide array of distribution assets to provide commodities to the impacted population. Major population centers are on the south and east portions of Oahu, but the City will need to provide commodities to outlying areas. The City has the most developed transportation infrastructure in the state, with a robust multi-lane road network, one major airport and several airfields throughout the island, and extensive communication capabilities. The vulnerability of the port operation, though, presents a potential bottleneck to response and recovery operations, and the dependence of the other islands and the mainland for an uninterrupted flow of commerce and government assistance through both the Honolulu Harbor is of great concern.



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If resources allow, a Movement Coordination Center (MCC) should be established under the logistics section of the state emergency operations center to support transportation operations. Routing all transportation requests through a centralized point or points benefits the operation through centralized transportation planning, apportioning, allocating, de-conflicting, and coordinating. Centralization also facilitates in-transit visibility of disaster response resources. With the City's centralized transportation response, an MCC will prove valuable in ensuring transportation assets are used effectively.

### *5.1 POINTS OF DEBARKATION AND LOGISTICS STAGING AREAS*

Honolulu Harbor and Honolulu International Airport (HNL) will serve as the main points of debarkation for incoming resources. Both must be operational within three days. The City's large population and urban density make the island a perfect candidate to establish and operate a fully functioning Logistics Staging Area (LSA). Other facilities, such as the Marine Corps base at Kaneohe and the Army facilities at Schofield Barracks, would also serve as potential LSA satellite areas. These facilities will likely sufficiently serve as LSAs and points of debarkation during the first several days of a response as the offload and cross-docking locations from which resources will be dispersed throughout the island.

Honolulu Harbor will likely be damaged and unusable for at least a short period of time. The State of Hawaii Department of Transportation (HDOT) will ensure that ship lanes to the port are open within 24-hours after tropical storm-force winds subside. Fuel lightering will be imperative until USACE makes necessary repairs and the United States Coast Guard (USCG) certifies the port's usability.

### *5.2 INTRA-COUNTY DISTRIBUTION NETWORKS*

Interstate Highways H1, H2, and H3 are the backbone of land-based distribution and will require significant debris clearance to reach outlying areas. Given limited debris clearance capability on-island, intra-island transport other than roadways to outlying areas will be required for at least seven days while roadways are cleared or repaired. For the outlying areas, the use of helicopters and small airplanes will reduce response time and increase accessibility during the initial phases of response. These locations should be pre-staged with equipment to offload and transport items to the CPODs and have pre-staged debris clearing capabilities. As the arterial roadways are cleared, the transition to entirely land-based distribution will be feasible.

The Department of Environmental Services (ENV) will oversee the pre-staging and execution of contracts pre-landfall.



*5.3 COMMUNITY POINTS OF DISTRIBUTION*

DEM will determine locations for CPOD operations, coordinating with the Department of Parks and Recreation (DPR) to use its facilities where possible. The CPODs should be located in areas central to the impacted population and close to major roadways for ease of resupply. CPODs should be capable of 24-hour operation with light sets, security, and clearly marked areas.

The CPODs are a local responsibility to include staffing requirements. NGOs are viable options to support additional staffing requirements.

On the basis of Oahu’s population needs, a minimum of 80 CPODs are needed, capable of serving up to 800,000 people. To adequately staff all CPOD locations, an estimated 1,920 personnel would be required. The City will need to identify locations to potentially serve as CPODs. These locations should be pre-staged with equipment pre-landfall, if possible.

Table 4 below shows the personnel and equipment required for 80 Type III CPODs.

*Table 4. CPOD Personnel and Equipment Requirements*

| Requirement type | Requirement item           | Requirements (30 days)          |                          |
|------------------|----------------------------|---------------------------------|--------------------------|
|                  |                            | Day requirement                 | Night requirement        |
| Personnel        | Leader                     | 1 per site—80 leaders           |                          |
|                  | Forklift operators         | 1 per site—80 operators         | 1 per site—80 operators  |
|                  | Laborers                   | 15 per site—1,200 personnel     | 2 per site—160 personnel |
|                  | Law enforcement            | 2 per site—160 personnel        | 1 per site—80 personnel  |
|                  | Community relations        | 1 per site—80 personnel         |                          |
| Equipment        | Forklifts                  | 1 per site—80 forklifts         |                          |
|                  | Pallet jacks               | 1 per site—80 pallet jacks      |                          |
|                  | Traffic cones              | 10 per site—800 cones           |                          |
|                  | Light sets with generators | 1 per site—80 light sets        |                          |
|                  | Portable toilets           | 2 per site—160 portable toilets |                          |
|                  | Tents                      | 1 per site—80 tents             |                          |
|                  | Dumpsters                  | 1 per site—80 dumpsters         |                          |

*5.4 MASS CARE AND SHELTERING*

Oahu has identified shelters, but most are not rated to withstand a Category 4 Hurricane. On the basis of expectations of loss and damage of housing stock, the island could be managing as many as 254,000 displaced persons. The full list of shelters is in the *City and County of Honolulu Emergency Operations Plan*. Daily



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replenishment of supplies to each shelter will be required. On the basis of a 1,000-person capacity, daily resupply for each shelter should include at least

- ◆ 6 pallets of water (1,000 gallons),
- ◆ 2 pallets of ice (4,000 pounds), and
- ◆ 2 pallets of Meals Ready to Eat (MREs) (2,000 MREs).

### *5.5 TRANSPORTATION OF PERSONS*

TheBus, the City's primary public transit operator, serves the entire island and, in a disaster, will move people from shelters to off-island evacuation areas once the airport is operational and movement of people off-island is possible. DEM must ensure that enough buses, drivers, and fuel are made available to support this operation. Buses will refuel at TRPs or commercial or City's gas stations when possible.



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### 6. Acronyms

|        |  |
|--------|--|
| BFS    | Department of Budget and Fiscal Services     |
| BWS    | Honolulu Board of Water Supply               |
| City   | City and County of Honolulu                  |
| CONOPS | Concept of Operations                        |
| CPOD   | Commodities Point-of Distribution Sites      |
| DEM    | Department of Emergency Management           |
| ENV    | Department of Environmental Services         |
| FEMA   | Federal Emergency Management Agency          |
| HDOH   | State of Hawaii Department of Health         |
| HDOT   | State of Hawaii Department of Transportation |
| HFD    | Honolulu Fire Department                     |
| HING   | Hawaii National Guard                        |
| HNL    | Honolulu International Airport               |
| LSA    | Logistics Staging Area                       |
| MMC    | Movement Coordination Center                 |
| MOU    | Memoranda of Understanding                   |
| MRE    | Meal Ready-to-Eat                            |
| PPE    | Personal protective equipment                |
| TRP    | Temporary Refueling Points                   |
| USACE  | United States Army Corps of Engineers        |
| USCG   | United States Coast Guard                    |
| VOAD   | Volunteer Organizations Active in a Disaster |