# Disaster Response Trade Study Tool

## Report Details

**Date Report Generated:** Saturday, July 23, 2016 10:38:37 PM EDT  
**Country Report Generated:** United States

## Best Architecture

|  |  |  |
| --- | --- | --- |
| Technology | Type | Description of Selected Technology |
| Medium Fixed Wing | Platform | Cost Rank: 3 [1 < 5]  Range: 3000.0 kilometers  Ops Duration: 5.0 hours  Payload: 2300.0 kg |
| LTE Cellular | Communications | Cost Rank: 1 [1 < 5]  Range: 8.0 km  Data Rate: 300.0 Mbps  Weight: 1.0 kg |
| LIDAR | Sensors | Cost Rank: 4 [1 < 5]  Swath Size: 1.5 km  Ground Sample Distance: 0.15 m  Weight: 35.0 kg |

## Selected Disaster Effects

|  |  |
| --- | --- |
| Disaster Effect | Selected |
| Flood |  |
| Debris |  |
| Smoke/Dust (airborne) |  |
| Ground Instability |  |
| Land Slide |  |
| Mud Slide |  |
| Structural Damage |  |
| High Wind (near term) |  |
| Hazardous Material Spill |  |
| Radiological Spill |  |
| Lava |  |
| Ash | ✓ |
| Fire |  |
| Infrastructure Breakdown |  |

## Environment Definition

|  |  |  |
| --- | --- | --- |
| Terrain Effect | Value Selected | Description of selected value |
| Elevation | 2 | Moderate elevation change (+/- 5000 feet) |
| Roads | 2 | Majority of roadways are unimproved |
| Bridges | 3 | Bridges handle only foot traffic |
| Foliage | 2 | Partial coverage due to foliage |
| Wetness | 3 | Terrain consists of extreme marsh-like conditions |
| Streams | 0 | No Factor |
| Beach | 2 | Steeper Sand or Pebble |
| Water Ways | 1 | Water ways are navigable |
| Urbanization | 0 | No Factor |
| Range | 0 | No Factor |
| Population | 3 | High population level |
| Persistence | 0 | No Factor |
| Trafficability | 1 | Roadways are clear |
| Slope | 3 | Steep Terrain (> 45° ) |

## Defined Weighting Criteria

### Platforms

|  |  |
| --- | --- |
| Platform Attributes | Weighting |
| Cost Rank ([1 < 5]) | 11.976% |
| Range (kilometers) | 47.904% |
| Ops Duration (hours) | 10.18% |
| Payload (kg) | 29.94% |

### Communications

|  |  |
| --- | --- |
| Communications Attributes | Weighting |
| Cost Rank ([1 < 5]) | 33.505% |
| Range (km) | 18.041% |
| Data Rate (Mbps) | 41.237% |
| Weight (kg) | 7.216% |

### Sensor

|  |  |
| --- | --- |
| Sensor Attributes | Weighting |
| Cost Rank ([1 < 5]) | 50.926% |
| Swath Size (km) | 28.704% |
| Ground Sample Distance (m) | 13.889% |
| Weight (kg) | 6.481% |