# Disaster Response Trade Study Tool

## Report Details

**Date Report Generated:** Saturday, July 23, 2016 6:52:01 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 |
| SWIR | Sensors | Cost Rank: 2 [1 < 5]  Swath Size: 0.8 km  Ground Sample Distance: 0.4 m  Weight: 40.0 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 | 1 | Majority of roadways are paved |
| Bridges | 3 | Bridges handle only foot traffic |
| Foliage | 1 | Completely open |
| Wetness | 0 | No Factor |
| Streams | 2 | Streams have no bridges crossings |
| Beach | 3 | Steep Sand or Pebble |
| Water Ways | 1 | Water ways are navigable |
| Urbanization | 0 | No Factor |
| Range | 3 | Distance from staging area to disaster > 100 nm |
| Population | 1 | Low population level |
| Persistence | 3 | Long duration persistence overhead/at disaster area |
| Trafficability | 1 | Roadways are clear |
| Slope | 1 | Level Terrain (≤ 10° ) |

## Defined Weighting Criteria

### Platforms

|  |  |
| --- | --- |
| Platform Attributes | Weighting |
| Cost Rank ([1 < 5]) | 65.359% |
| Range (kilometers) | 22.004% |
| Ops Duration (hours) | 11.547% |
| Payload (kg) | 1.089% |

### Communications

|  |  |
| --- | --- |
| Communications Attributes | Weighting |
| Cost Rank ([1 < 5]) | 56.364% |
| Range (km) | 12.727% |
| Data Rate (Mbps) | 22.182% |
| Weight (kg) | 8.727% |

### Sensor

|  |  |
| --- | --- |
| Sensor Attributes | Weighting |
| Cost Rank ([1 < 5]) | 60.484% |
| Swath Size (km) | 25% |
| Ground Sample Distance (m) | 8.871% |
| Weight (kg) | 5.645% |