



# **Mānoa Disaster Preparedness Plan**

**A Plan for a Resilient Mānoa**

**Be Ready Mānoa Team**

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## Version Control

Date	Author	Version	Notes
6/10/2014	Raleigh Ferdun	2.0	Working draft
1/15/2017	Wes Oda	2.1	<ol style="list-style-type: none"> <li>1. Added a version control</li> <li>2. Part 1: <ul style="list-style-type: none"> <li>• Renamed the section</li> <li>• Included a definition of the community and consolidated all other descriptions of the community from other sections</li> <li>• Removed the Manoa Disaster Prepared Team section</li> <li>• Added sections for MVCERT, Stream Monitoring, and Skywarn</li> <li>• Moved all related disaster preparedness and general risk mitigation activities into this section</li> </ul> </li> <li>3. Part 2: <ul style="list-style-type: none"> <li>• Renamed the section</li> <li>• Added points of contact to the Overview of Disasters Likely to Impact Manoa table</li> <li>• Added placeholder sections for disasters that were not included (i.e. Landslides)</li> </ul> </li> <li>4. Part 3: <ul style="list-style-type: none"> <li>• Renamed the section</li> </ul> </li> <li>5. Appendix C – consolidated all maps into this section</li> </ol>
6/18/2017	Wes Oda	2.2	<ol style="list-style-type: none"> <li>1. Part 1: Included the same mission, purpose, and objectives as the Response Plan.</li> <li>2. Appendix C – Replaced the NB map with the Manoa CERT Zone maps</li> </ol>

## Disclaimer

*The Manoa Valley Disaster Preparedness Plan is intended to serve as a reference and does not replace common sense, sound judgment, and prudent actions in response to a disaster. Be Ready Manoa, the Manoa Valley Community Emergency Response Team (MVCERT), the City and County of Honolulu Department of Emergency Management (DEM), and the Hawaii Emergency Management Agency (HIEMA) assume no responsibility and disclaim any liability for any injury or damage resulting from the use or effects of the products or information specified in this Plan.*

## **PART ONE**

### **Disaster Preparedness Plan Purpose and Scope and Efforts to Prepare the Community**

## Be Ready Manoa

“Together, we prepare, survive and thrive” is the motto which was chosen to rally our community members in developing a strategic preparedness framework for Mānoa. As one of many communities within the State to develop a disaster preparedness plan, we strive to serve as a model to help our immediate neighbors and others beyond. In the chaos and uncertainty, which can accompany disaster, our best chance of surviving and thriving will only happen when working together. This Disaster Preparedness Plan as well as other efforts being done by Be Ready Manoa to be disaster prepared can be found on its website: [Be Ready Manoa - Together We Prepare, Survive and Thrive](#)

**Mission:** Be Ready Manoa is a volunteer group of Manoa Valley residents, active since November, 2013, and a tax-exempt, 501(c)(3) non-profit organization since February, 2017. Our mission is to provide capabilities in support of civil authorities within the Manoa community in response to multiple hazards to protect life, property, critical infrastructure and to provide humanitarian assistance.

**Purpose:** To create the conditions whereby the civil authorities are capable to resume and perform essential government support functions at or near pre-disaster conditions; capable of sustaining the community, capable of securing the community, and capable of resuming economic activity.

### Objectives:

1. Make Manoa Valley an “All Hazards” resilient community.
2. Make Manoa Valley self-sufficient for at least 14 days or more, able to sustain itself until County, State and/or Federal assistance arrives.
3. Identify the risks most likely to impact the community.
4. Identify vulnerable people / groups / establishments in the community.
5. Identify community resources available to assist during an emergency.
6. Establish a BRM Response Organization to address identified issues in preparing for, responding to and recovery of a disaster in the community.

## Acronyms and Abbreviations

CCH	City and County of Honolulu
CERT	Community Emergency Response Team
MVCERT	Mānoa Valley Community Emergency Response Team
DEM	Department of Emergency Management, City and County of Honolulu
HIEMA	Hawaii Emergency Management Agency (fka State Civil Defense)
FEMA	Federal Emergency Management Agency
H-1	State of Hawaii Interstate Highway
MDPP	Mānoa Disaster Preparedness Plan
BRM	Be Ready Mānoa
NOAA	National Oceanic and Atmospheric Administration
NSW	Neighborhood Security Watch
SCD	State (of Hawaii) Civil Defense
USGS	United States Geologic Survey



## **Purpose and Scope of the Mānoa Disaster Preparedness Plan**

For the purposes of this Mānoa Disaster Preparedness Plan, disaster is defined as a natural or man-made event that causes great damage or loss of property and life. In a major statewide disaster, it is likely that first responders will be overwhelmed and access to our community will be hindered. We estimate that it may take up to seven days for Hawaii Emergency Management Agency (fka State Civil Defense) operations to respond. What this means is that Mānoa, like many other communities, will have to rely on its own residents and resources in the initial critical days following a major disaster. Furthermore, Hawai'i's power grid is noncontiguous and there is no back-up from neighboring states so we have to be prepared to function without electricity for prolonged periods of time.

The Mānoa Disaster Preparedness Plan is meant to be a reference guide to the residents of the community. It describes the various types of disasters that could occur, identifies the challenges that our community faces in being disaster prepared and what we are doing to overcome them, and provides reference information about being prepared and resources that are available in the community.

### **Description of the Mānoa Community**

According to City-Data.com, the Mānoa area is approximately 5.3 square miles with a population of 18,537. There are 3,508 people per square mile. The gender distribution is relatively equal but the average age is higher than Honolulu: Male average age in Manoa = 41.7 (vs. 39.8) and Female average age in Manoa = 44.8 (vs. 43.8). More information about the community can be found here: <http://www.city-data.com/neighborhood/Manoa-Honolulu-HI.html>

Mānoa encompasses all residents, businesses, organizations, schools and medical facilities located in the area commonly known as “Mānoa Valley” or “valley”. Access to the Mānoa valley is through Punahou Street to the west and University Avenue to the east. It includes the eastern and western valley walls, both sides of Punahou Street, extends east to The University of Hawai'i at Mānoa and south to the Hawai'i Interstate Freeway (H-1). This generally follows the boundaries of Neighborhood Board No.7 (refer to Manoa Neighborhood Board Map in Appendix C). The valley has also been divided into various zones according to the Mānoa Valley Community Emergency Response Team (MVCERT) boundaries (refer to MVCERT Zone Maps in Appendix C).

Mānoa is home to various public and private educational institutions (The University of Hawaii, Punahou and Maryknoll Schools, etc.) – which means there are a many students and faculty who do not necessarily live in Mānoa but are an essential part of its community. Mānoa has particular vulnerabilities: large number of aging houses, narrow roadways and many overhead electrical and other utility wiring, large canopy trees, elderly residents, limited egress and access, and inadequate shelters. Specific localized threats to the Mānoa community include flooding, landslides, fallen trees as a result of heavy wind and rain, and the ever-growing possibility of an active shooter situation at one of the many educational institutions.

## **Manoa Valley Community Emergency Response Team**

The Community Emergency Response Team is a group of volunteers who have gone through training to learn the basics of search and rescue and medical triaging. CERT will function post disaster – once the ‘all clear’ has been given following a major event – and help the community in various capacities. Although there are many residents who have already gone through this program – which is offered by the City and County of Honolulu Department of Emergency Management – many more are needed given the number of residents we have.

Whenever possible, Be Ready Manoa will organize training sessions specifically for its residents. However, training sessions are held by the City and County Department of Emergency Management on a regular basis. More information about the Community Emergency Team and the dates/times of upcoming classes are available on the internet. Refresher workshops are provided to Manoa Valley CERT volunteers on a regular basis – please go to the Be Ready Manoa website for information about upcoming MVCERT refresher training classes.

FEMA Community Emergency Response Team Reference Information: [Community Emergency Response Teams | FEMA.gov](#)

City and County of Honolulu CERT Program and Training Information: [CERT](#)

## Manoa Valley Stream Monitors

Residents who live near streams within the valley are encouraged to join the stream monitoring team. These volunteers monitor the stream levels through strategically placed gauges by the United States Geological Survey. When there is a risk that the levels are going to exceed the designated limit for that gauge, the volunteers are instructed to call 911 so that first responders can safely address the emerging situation.

United States Geological Survey Hawaii Streamflow Conditions: [USGS Current Conditions for Hawaii Streamflow](#)

Stream Monitoring Team Contact:

### Skywarn

The National Weather Service sponsors the Skywarn program in which volunteers are trained to be weather 'spotters'. The program provides a good overview of the different types of storm related events that can/will occur and the environmental conditions that will likely result in that event occurring and trained volunteers are asked to notify the NSW if a localized storm event (tornado, hail storm, funnel cloud, etc.) is occurring. More information about the program can be found on its website.

Honolulu Skywarn Webpage: [WFO Honolulu Skywarn Webpage](#)

## Community Outreach & Education

Be Ready Mānoa will utilize the following approaches to outreach to and educate the community:

- Post useful disaster preparedness reference information (including this plan) and publicize upcoming disaster preparedness workshops or training sessions on its website
- Utilize the Neighborhood Security Watch (NSW) email network to disseminate disaster preparedness information and notify those volunteers of upcoming workshops or training sessions.
- Regularly attend existing community meetings (Neighborhood Board, Malama Manoa, etc.) to disseminate information and to notify those groups of upcoming workshops or training sessions.
- Prepare informational photo displays to promote awareness of Mānoa's special challenges and vulnerabilities and to encourage people to prepare their families for disaster.
- Schedule preparedness training and programs for individuals, groups, and institutions in Mānoa and encourage community groups to sponsor their own training for their members.
- Encourage partnerships and sponsorships and foster cooperative relationships with local businesses, other community organizations and institutions.

- Develop a user-friendly and abbreviated disaster preparedness manual to be delivered to every household, business, organization and school in Manoa.
- Organize community wide events – like a fair – to disseminate preparedness information to the general public.

Where possible, the media will be used as another channel of information distribution. BRM will utilize the following to distribute public service announcements, press releases when needed for editorials, and calendar events:

- Local Radio.
- Local Television.
- Local Print Media, Newspapers, Magazines, Newsletters, etc.
- Social Media (i.e. Facebook, Twitter, etc.)

## **Disaster Response Planning**

Be Ready Mānoa is currently working on a Disaster Response Plan that will be executed in the event of a major disaster. The response plan will include the proposed organization of the command center, the CERT zones, and how response activities will be coordinated between those teams. The working final of the disaster response plan will be posted on the Be Ready Mānoa website.

## **Disaster Communications Development and Coordination**

Be Ready Mānoa is working with HAM radio operators living in Mānoa to create a HAM radio network in the event of a large scale disaster where official and other modes of communications are compromised. A communications plan, which will ideally be reviewed by and linked to the Hawaii Emergency Management Agency and Department of Emergency Management emergency operations, will be developed and included in the Disaster Response Plan.

## **Resource Information Gathering and Maintenance**

An integral part of Be Ready Mānoa disaster prepared efforts is to identify resources available in the community. BRM will gather and maintain the following information:

- Contact information for residents within Mānoa (to facilitate communication of important disaster preparedness and/or response information)
- Businesses/schools/other organizations who will be willing to support the community in the aftermath of a disaster: faith based organizations, banks, the University of Hawaii, care homes, grocery stores, restaurant owners, medical suppliers, and gas stations.
- Specialized and other skills that will be important during and after a major disaster represented by the following types of professionals: doctors, nurses, care givers, insurance representatives, bankers and financial planning professionals, veterinarians, electricians, plumbers, carpenters, utility workers, first responders, heavy equipment operators, Boy Scouts, Girl Scouts, and community club members (Malama Manoa,

- Lions club, etc.)
- Equipment, materials, and supplies that residents are willing to share and make available

### **Addressing Dangerous Foliage and Ground Cover**

Invasive fast-growing Albizia, Macaranga and Miconia thrive in our valley. Albizia trees can grow to 140-150 feet within 10 years. Because of their heights and shallow root system, they can be the cause of major damage in high wind conditions. In the past, they have clogged our stream and blocked our roads. The shade caused by the Macaranga (Umbrella Leaf) tree and Miconia, as well as the large canopy of the Albizia, prevent native ground cover from growing well. Soil eroding into our stream has been a growing problem. If not eradicated, they can destroy our existing forests. They contribute to potential flooding of Mānoa Stream and landslides on both sides of the valley. Be Ready Manoa will continue to work with City and State officials to address this growing problem.

## **PART TWO**

### **Disasters Impacting Mānoa and Disaster Preparation**

## Overview of Disasters Likely to Impact Mānoa

Type of Disaster	Probability of Occurrence	Severity of Consequences	Area(s) Affected	Potential Issues Associated with Disaster	Existing Point of Contact in Mānoa During a Disaster
<b>Hurricane</b>	Medium	High	All areas of the island of Oʻahu.	<ul style="list-style-type: none"> <li>Many people needing emergency shelter;</li> <li>Debris clogging streets, toppled trees and utility poles;</li> <li>Vulnerable populations trapped indoors and unable to access hurricane safe shelter and other types of aid.</li> </ul>	Mānoa Valley CERT
<b>Tsunami</b>	Low	Low	Usually limited to coastal and lower lying areas of Oʻahu.	<ul style="list-style-type: none"> <li>Power outages;</li> <li>Loss of potable water supply;</li> <li>Large numbers of individuals who will:                             <ol style="list-style-type: none"> <li>1) Seek refuge in Mānoa, a above the coastal inundation zone;</li> <li>2) Large numbers of individuals attend school and go to work in Mānoa who may be unable to return to coastal areas;</li> <li>3) Need to return to their homes in Mānoa from the lower lying, disaster stricken areas;</li> </ol> </li> <li>Vulnerable populations trapped indoors and unable to access shelter and other types of aid.</li> </ul>	Mānoa Valley CERT
<b>Flood</b>	High	High	All areas from storm water runoff and overflow from the Mānoa Stream.	<ul style="list-style-type: none"> <li>Individuals in need of shelter and/or assistance.</li> <li>Debris and high water may render certain streets blocked and impossible to use.</li> <li>Vulnerable populations trapped indoors and unable to access safe shelter and other types of aid.</li> </ul>	Stream Monitoring
<b>Fire</b>	Low	Low	Most likely localized to particular buildings.	<ul style="list-style-type: none"> <li>Fire vehicle access to housing situated along steep driveways, and otherwise difficult to reach areas.</li> <li>Vulnerable populations trapped indoors and unable to access hurricane safe shelter and other aid.</li> </ul>	Mānoa Valley CERT
<b>Earthquake</b>	Low	Medium	All of Oʻahu.	Vulnerable populations trapped indoors and unable to access hurricane safe shelter and other aid.	Mānoa Valley CERT
<b>Landslide</b>	Medium	Medium	Most likely localized to steep slopes and	<ul style="list-style-type: none"> <li>Individuals in need of shelter and/or assistance.</li> <li>Sediment and debris clogging streets, toppled buildings,</li> </ul>	Mānoa Valley CERT

## Overview of Disasters Likely to Impact Mānoa

Type of Disaster	Probability of Occurrence	Severity of Consequences	Area(s) Affected	Potential Issues Associated with Disaster	Existing Point of Contact in Mānoa During a Disaster
			hillsides. Particularly unstable areas are on the east side of Mānoa Valley near Alani Drive and Woolsey Place.	<p>trees and utility poles.</p> <ul style="list-style-type: none"> <li>Vulnerable populations trapped indoors and unable to access safe shelter and other aid.</li> </ul>	
<b>Power Outage</b>	High	High	Entire Mānoa Valley	<ul style="list-style-type: none"> <li>Neighborhood security is potentially compromised during power outages.</li> <li>Food, water and basic supplies may be difficult to obtain when grocery and other stores are closed.</li> </ul> <p>Vulnerable populations trapped indoors and unable to access hurricane safe shelter and other aid.</p>	Neighborhood Security Watch
<b>Disease/Pandemic</b>	Medium	High	It Depends.	<ul style="list-style-type: none"> <li>Hospitals will be overcrowded;</li> <li>May need to designate a temporary place of treatment and/or quarantine;</li> <li>Outreach may be needed for residents who may live alone and are otherwise unable to drive themselves to get medical help.</li> </ul>	Be Ready Mānoa
<b>Terrorist Attack/Social Disturbance</b>	Low	Low	Can be widespread or more localized.	<ul style="list-style-type: none"> <li>High profile areas in Mānoa, including state flagship University of Mānoa.</li> <li>Some unprepared individuals may resort to lawlessness and looting in their search for food and water.</li> <li>Police may be occupied elsewhere and unable to respond to the incident(s) immediately.</li> <li>May entrap residents, students and workers in the Mānoa Valley until the situation is cleared.</li> </ul>	Manoa Valley CERT



## Overview of Disasters Likely to Impact Mānoa

Type of Disaster	Probability of Occurrence	Severity of Consequences	Area(s) Affected	Potential Issues Associated with Disaster	Existing Point of Contact in Mānoa During a Disaster
<b>Hazardous Material Spill/Release</b>	Medium	Medium	Can be widespread or more localized.	May be spillover effects from an attack in another location.	Mānoa Valley CERT

## **Emergency Communications**

### **General Emergency Communications**

You may be alerted to the emergency by the sounding of the Hawaii Emergency Management Agency sirens. When you hear the sirens, tune to any radio or television station for emergency information and instructions. Evacuation instructions may be issued over the Emergency Alert System (EAS) via television and radio. Radio Stations include but are not limited to the following:

- KSSK AM 590 / FM 92.3
- KZOO AM 1210 (Japanese)
- KREA AM 1540 (Korean)
- KNDI AM 1270 (Multi-Cultural-Filipino, Samoan, Tongan, Hispanic, Chinese, Okinawan, Vietnamese, Laotian, Marshallese, Pohnpeian, and Chuukese)

The City and County of Honolulu, Department of Emergency Management (DEM) may also send out Nixle emergency alerts via email and/or text messages to people who voluntarily sign up for this free notification service at [www.nixle.com/dem](http://www.nixle.com/dem).

### **Mānoa Community Communications**

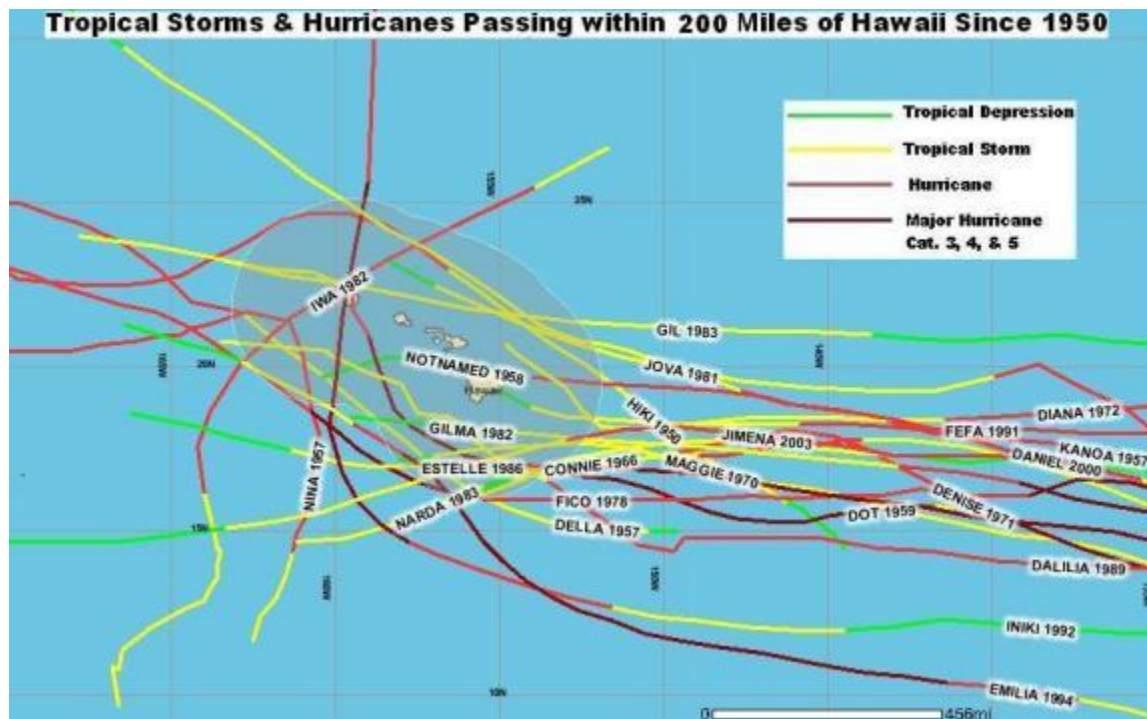
Be Ready Mānoa is working on a communications plan that will include the use of existing email distribution channels (Neighborhood Security Watch, Community Emergency Response Team) as well as a network of residents with HAM/FRS/mobile phone devices to inform residents of any impending disasters as well as instructions on what to do post disaster. All residents will be encouraged to join either the Neighborhood Security Watch or the Community Emergency Response Team. All information about Manoa's efforts in being disaster prepared – including this plan – will be available on the Be Ready Manoa website.

Neighborhood Security Watch Contact:

Manoa Valley Community Emergency Response Team Contact:

## Hurricane

Hurricanes and other high wind events are arguably the highest risk that faces Mānoa Valley residents. The following graphic shows all of the hurricanes and tropical storms which have passed within 200 miles of the Hawaiian Islands since 1950. Based on that history, the threat of future tropical storms or hurricanes is very real.



Source: NOAA . <http://www.prh.noaa.gov/cphc/pages/climatology.php>



Therefore, it is very important to understand what a hurricane is, how to prepare for a hurricane and how to protect yourself during a hurricane.

Since many of the homes in Mānoa are single wall construction built in the '50s, '60s and '70s, before hurricane rated building codes were established, it is anticipated that many will be damaged by a major hurricane. In addition to the hazard to personal property, it is important to note that most of the utilities in Mānoa Valley are above ground on wooden utility poles, many of which are over 50 years old. It is anticipated that in the event of a category 4 or higher hurricane, many of these poles will be blown down damaging homes and blocking roads. For more information

on hurricanes see: <http://www.soest.hawaii.edu/met/Faculty/businger/poster/hurricane/>

## What is a hurricane?

A hurricane is a type of tropical cyclone – an organized rotating weather system that develops in the tropics. Hurricanes rotate counterclockwise in the northern hemisphere and travel from east to west. Tropical cyclones are classified as follows:

- **Tropical Depression** – An organized system of persistent clouds and thunderstorms with a closed low-level circulation and maximum sustained winds of 38 mph or less.
- **Tropical Storm** – An organized system of strong thunderstorms with a well-defined circulation and maximum sustained winds of 38 to 75 mph.
- **Hurricane** – An intense tropical weather system with a well-defined circulation and sustained winds of 74 mph or higher. Hurricanes are classified as follows:
  - Category 1 – Sustained winds 74 to 95 mph. Minimal damage, primarily to shrubbery, trees, foliage and unsecured items. No real damage to structures. Storm surge typically four to five feet above normal.
  - Category 2 – Sustained winds of 96 to 110 mph. Moderate damage. Some trees blown down, some damage to roofing materials, windows and doors. Storm surge typically 6 to 8 feet above normal.
  - Category 3 – Sustained winds of 111 to 130 mph. Extensive damage. Some structural damage to roofing materials, some structural damage to smaller buildings. Storm surge typically nine to twelve feet above normal.
  - Category 4 – Sustained winds of 131 to 155 mph. Extreme damage. Large trees blown down. Extensive damage to roofing materials, windows and doors. Complete failure of roofs on some residences. Storm surge typically thirteen to eighteen feet above normal.
  - Category 5 – Sustained winds of greater than 155 mph. Catastrophic damage. Complete roof failure on many residences and industrial buildings. Extensive damage to windows and doors. Complete structural failure to some buildings. Storm surge typically greater than 18 feet above normal.

## How will you know if a hurricane is coming?

Typically there are several days warning before a tropical storm or hurricane strikes. There is usually considerable coverage in local media as the storm develops in the eastern Pacific and moves toward Hawaii. So, when should you be concerned? The National Weather Service as well as State and County agencies will be tracking the storm and will be issuing storm alerts which have very specific meanings.

- **Tropical Storm Watch** – This is an announcement that tropical storm conditions (winds of 39 to 73 mph) are possible within 48 hours.
- **Tropical Storm Warning** – This is an announcement that tropical storm conditions (winds of 39 to 73 mph) are possible within 36 hours.

- **Hurricane Watch** – This is an announcement that hurricane conditions (winds of 74 mph or higher) are possible. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane watch is issued 48 hours prior to the anticipated onset of tropical force winds. Preliminary precautions should be taken.
- **Hurricane Warning** -- This is an announcement that hurricane conditions (winds of 74 mph or higher) are possible. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane watch is issued 48 hours prior to the anticipated onset of tropical force winds. Actions for the protection of life and property should begin immediately.

### **How should you prepare for a hurricane?**

- Review your home insurance policy. Check exceptions and exemptions to make sure that you are adequately covered.
- Make plans to secure your property. Prepare to board up windows with 5/8-inch plywood.
- Install hurricane straps or additional clips to securely fasten your roof to the rest of the structure.
- Place important documents such as insurance policies, bank account information, credit card information, and important contact addresses and telephone numbers for all important persons and institutions etc. in a weather tight container to ensure that they are available after the storm passes.
- Make sure that trees and shrubs are trimmed and will not be a danger. Secure lawn furniture and other loose items.
- Clean clogged rain gutters clear debris from your streambed and make sure that other drainage systems are in working order.
- Consider building a safe room for sheltering in place. If that is not possible, identify the safest areas of your home such as an interior room with no windows.
- Listen to radio and TV for current weather information. Consider purchasing a battery-powered radio with weather band capability. Turn your refrigerator and freezer to their coldest settings and keep the door closed.
- Avoid using the phone except for serious emergencies. Consider using text messaging to contact family members. A text is more likely to work when voice systems are overloaded. Designate a point of contact with an area code other than Hawaii since it will be likely that telecommunications with the State will be flooded during and after the hurricane.
- Ensure a supply of water for sanitary purposes such as flushing toilets. Fill the bathtub and other large containers.
- Have a 7-day disaster supply kit including food, water and other essentials.
- Prepare to evacuate when directed to by local authorities or when you feel in danger. Take your emergency supply kit with you. Have a plan for how to care for your pets.

- Keep a supply of low denomination cash handy. Checks, credit cards and ATMs will probably not be usable during a disaster emergency.
- Turn off utilities; water, gas and electricity if instructed to do so.

### **What should you do after a hurricane?**

- If you have evacuated to a shelter, wait for the “All Clear” announcement before returning home.
- Likewise, wait for the “All Clear” before leaving your home or attempting to drive.
- Be aware of hazards such as downed power lines, broken gas lines, contaminated water, weakened structures, broken glass etc.
- Assess damage to your home and property. Take pictures to document damage.
- Remove any standing water from your home as well as wet objects such as carpet, mattresses, or other items which may contribute to the growth of mold.
- Contact your insurance agent to file a damage claim if necessary.
- Contact family members here and on the mainland to let them know your situation.

## Tsunami

It is unlikely that a tsunami will have a direct effect on Mānoa Valley in the form of inundation or other property damage, but there will be indirect or secondary effects. These could include dealing with many refugees seeking higher ground, loss of electrical power, loss of water supply, disruption of state and city services and isolation from the rest of the island. In addition, depending on the timing of the tsunami, there may be people at work or at school who are unable to leave or return to the valley.

### What is a tsunami?

Tsunamis are ocean waves caused by underwater earthquakes or landslides. Tsunamis are not visible from the surface of the ocean and do no damage until they reach land where they can cause severe flooding and property damage for a mile or more inland. A tsunami is not a single wave but is a series of waves where the first wave is usually not the largest or most destructive. A tsunami wave can range from a few inches in height to 100 feet or more. There is no tsunami season. Tsunamis are a year-round, 24-hours a day threat to all shoreline areas in Hawai'i.

### How will you know if a tsunami is coming?

A tsunami may be generated by a distant event or a local event. If it is a distant event, we may have as much as five hours warning. If it is a local tsunami, it could strike within minutes. The Pacific Tsunami Warning Center monitors seismic events around the Pacific with mid-ocean buoys and other information sources and determines if a tsunami has been generated. If they detect that a tsunami is possible due to a distant event, they will issue one or more of the following announcements.

- **Tsunami Watch** – A tsunami watch is issued when a major earthquake has occurred in a distant area of the Pacific Basin and a tsunami may have been generated which may impact Hawai'i. Persons in tsunami inundation zones should prepare to evacuate.
- **Tsunami Warning** – A tsunami warning is issued when the Pacific Tsunami Warning Center has confirmed that a tsunami has been generated. Evacuate coastlines immediately. Civil Defense will sound sirens at least 3 hours prior to the expected arrival of the first wave in Hawaii. Thereafter sirens will sound at one hour intervals and then 30 minutes prior to the first wave arrival. Turn on your radio or TV, listen to Civil Defense official announcements and instructions.
- **Tsunami Advisory** – A tsunami advisory may be issued due to the after effects of a tsunami. There may be strong currents or unusual wave action. Officials may close beaches or harbors.

In the event of a local tsunami there may be little or no warning. If you feel a strong earthquake and are near the coast, immediately evacuate to higher ground. Do not wait for an evacuation order. Civil Defense may or may not issue an **Urgent Tsunami Warning**. Evacuate coastal areas immediately. It is recommended that you do not take your car. Roads will be



gridlocked and you may be trapped in a traffic jam. If you are in or near a substantial high rise building, you can do a vertical evacuation by climbing above the 4<sup>th</sup> floor. Turn on your radio or TV and listen for Civil Defense announcements and instructions.

### **How do you prepare for a tsunami?**

As noted above, Mānoa Valley is not at direct risk for tsunami damage. However, you may not be at home when a tsunami warning sounds.

- Check tsunami inundation maps for your work location, school or places you often go. The maps can be found in the front of the telephone book or at Department of Emergency Management web site ([http://www1.honolulu.gov/dem/new\\_tsunami\\_evacuation\\_zone\\_maps\\_.htm](http://www1.honolulu.gov/dem/new_tsunami_evacuation_zone_maps_.htm) ) or at the Pacific Tsunami Warning Center web site ( <http://ptwc.weather.gov/> ).
- If you are outside the tsunami evacuation zone, stay where you are. Keep streets and highways clear for emergency responders.
- Plan and practice evacuation routes for work or school locations in a tsunami evacuation zone.
- Discuss tsunamis with your family to help reduce fear and anxiety and to be sure that everyone knows how to respond.
- If your children go to school in a tsunami inundation zone, know what the school's disaster plan is and how they expect parents to respond.
- Make a plan with your family on where you will meet if separated and how you will communicate.
- Do not tie up phone lines or the cellular network with non-emergency calls.
- Rely on radio and TV for the most current and up-to-date emergency information.

### **What should you do after a tsunami?**

- Wait for the Civil Defense "ALL Clear" announcement before leaving or returning home.
- Stay out of damaged areas.
- Stay away from beaches and shorelines. Typically, the ocean does not settle down for several days after a tsunami.



## Flood

Flooding is a significant risk in Mānoa Valley due to heavy rainfall and the existence of only one major stream to drain the valley. Two deaths resulted from flooding in Mānoa, on December 3, 1918 and December 3, 1950. Heavy rains in May 1927 caused about \$23,000 of damage to about 50 farms in the valley. The flood on February 4, 1965 caused streams in Mānoa and Pālolo Valleys to record the highest peaks since 1921 and the storm on November 14-15, 1965 flooded homes in the vicinity of Kanewai-Koali Road. The Flood of December 17-18, 1967 caused damage to Waikīkī as the Ala Wai Canal overflowed but no flooding was reported in Mānoa Valley. Two other storms causing flooding in Mānoa Valley were recorded in December 1992 where Mānoa Stream overtopped the stream bank and flowed over Woodlawn Drive and on March 24, 1994 when 12.5 inches fell in 24 hours and some flooding occurred when a tree blocked the Woodlawn Drive Bridge.

Most people living in Mānoa today remember the October 30, 2004 storm where a blockage of Mānoa Stream at the Woodlawn Drive Bridge caused the stream to overflow its banks resulting in significant damage (see pictures below). Residence and businesses suffered approximately \$5 million of damage with the bulk of the damage to residences. Estimated damage to the University of Hawai'i was approximately \$81 million. More information can be found at [http://scd.hawaii.gov/HazMitPlan/chapter\\_3\\_appA.pdf](http://scd.hawaii.gov/HazMitPlan/chapter_3_appA.pdf). See also the Woodlawn Drive Bridge stream gauge here: [http://waterdata.usgs.gov/hi/nwis/uv/?site\\_no=16241600&PARAMeter\\_cd=00065,00060,00045,00063,72150,00011](http://waterdata.usgs.gov/hi/nwis/uv/?site_no=16241600&PARAMeter_cd=00065,00060,00045,00063,72150,00011)

The Army Corps of Engineers is conducting a major study on the Ala Wai watershed, but it is not expected to be complete for several years and any corrective action can be anticipated even further in the future. During this time, another major flooding event could occur.

### What is a flood?

A flood occurs any time a body of water rises to cover what is usually dry land. Flooding can develop slowly over a period of several days or may develop quickly causing a flash flood.

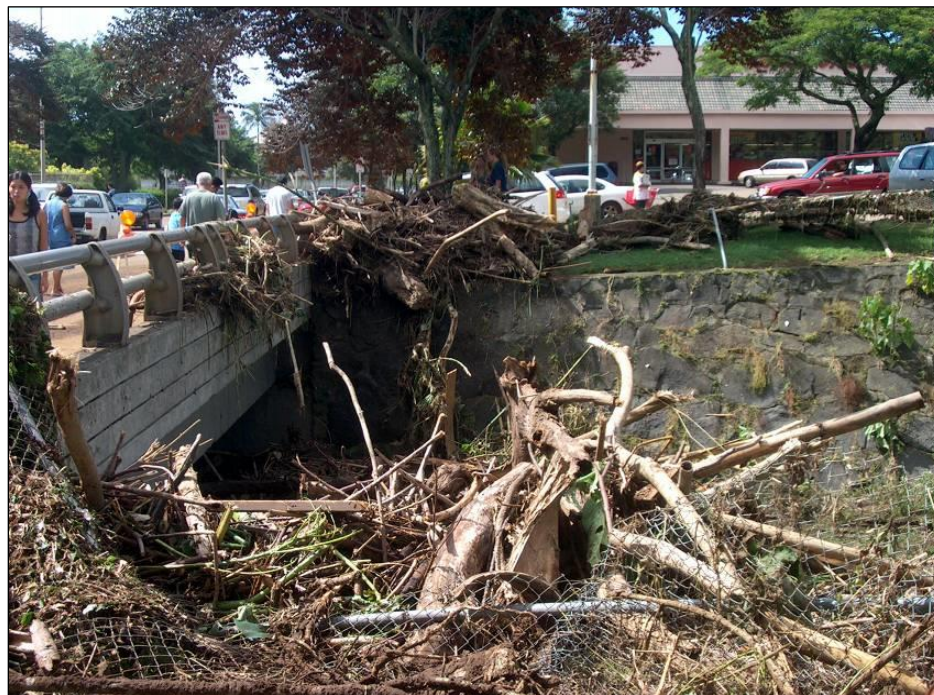
### How will you know if a flood is coming?

Pay attention to the weather and weather forecasts. If heavy rains are forecast and you are in a flood zone, take necessary precautions. If flooding is possible, authorities will probably issue one or more of the following announcements:

- **Urban and Small Stream Flood Advisory** – Minor flooding is expected in low-lying areas, but it is not expected to cause major property damage or be life threatening.
- **Flash Flood Watch** – Flooding is possible. Take immediate precautions to protect property if you are in a flood prone area. Be ready to evacuate.
- **Flash Flood Warning** – Flooding is imminent or occurring now. Evacuate to high ground now if you are in a flood prone area.



**Pictured Above:** Vehicles that had washed downstream of the Woodlawn Drive Bridge during the 2004 Mānoa Stream Flood.  
Raleigh Ferdun @ 2004.



**Pictured Above:** Woodlawn Drive Bridge with some un-cleared debris that contributed to the Mānoa Stream Flood of 2004.  
Raleigh Ferdun @ 2004.

## **How do you prepare for a flood?**

- Avoid building in a floodplain unless you elevate and reinforce your home.
- Keep a supply of sandbags or other materials to protect your home from floodwaters.
- Consider mitigation actions such as waterproofing walls one to two feet above the foundation.
- Be aware of streams, drainage channels, roads and other areas known to flood suddenly.
- Understand that if your property abuts a stream, you are responsible for maintenance and keeping it clean to the middle of the stream. Do not use the stream to dispose of yard waste or other items, which could be washed downstream.
- Flash flooding can occur quickly and without warning. Be prepared to move to higher ground. Do not wait for instructions to move.
- Gather important documents in a weatherproof container.
- Be aware that flood losses are not covered under most homeowner's insurance policies. Consider buying special flood insurance if your home is located in a flood prone area.
- If your home is in imminent danger of flooding, turn off utilities such as electricity, water and gas. Elevate essential items.
- Never attempt to walk or swim through floodwaters, as they may be contaminated with chemicals or sewage.
- Do not walk or drive through fast moving floodwaters. Six inches of fast moving water can knock you off of your feet. Two feet of fast moving water will float most vehicles. Also, there may be unseen hazards below the water.
- Listen to radio and TV for information and announcements.

## **What should you do after a flood?**

- If you have evacuated, return home only if authorities indicate it is safe.
- Remove any standing water from your home as well as wet objects such as carpet, mattresses, or other items, which may contribute to the growth of mold.
- Assess damage to your home and property. Take pictures to document damage.
- Be aware of hazards such as downed power lines, broken gas lines, contaminated water, weakened structures, broken glass etc.
- Be careful in areas where floodwaters have receded. Roads may have been undermined and may collapse under the weight of a car.
- Service damaged septic tanks, cesspools and leaching systems as soon as possible. Damaged sewage systems are a serious health hazard.
- Clean and disinfect or dispose of everything that got wet. Floodwaters could have contained sewage or harmful chemicals.

## **Fire**

Fires are generally of two types; wild fires or structure fires. Because of its lush nature and heavy rainfall, Mānoa Valley is at very low risk for a wild fire or brush fire. However, as in any residential neighborhood, structure fires are always a possibility. Fires kill more people than all natural disasters combined. Approximately 85% of all fire deaths occur while people are asleep. Fire victims are disproportionately children and the elderly.

### **What is a fire?**

A fire is any unwanted and uncontrolled combustion of materials. Fires pose the following hazards:

- Asphyxiation – Asphyxiation is the leading cause of death in a fire.
- Heat – A fully developed room fire can reach temperatures of over 1100 degrees Fahrenheit.
- Smoke – Fire produces thick, black, impenetrable smoke which blocks vision, stings the eyes and clogs the lungs. Many people die because they cannot find their way to safety through the smoke.

### **How will you know if a fire is coming?**

You will generally not have any warning of a fire. If you have smoke alarms, you may have some warning where you can take action before a fire gets too large.

### **How do you prepare for a fire?**

- Install smoke detectors near the kitchen and in all sleeping areas.
- Have working fire extinguishers in or near the kitchen and sleeping areas. Make sure that all family members know how to use them.
- Be sure that your homeowner's insurance policy has adequate fire coverage.
- Make a fire evacuation plan showing at least two exits from each room. Discuss the plan with all members of the family so that they are familiar with and understand the plan.
- Have fire drills and practice fire evacuation at least twice a year. Designate a meeting area away from the home where you can do a headcount to make sure that all family members are accounted for.
- Exercise care when using gas grills, hibachis, charcoal grills and other sources of open flame near your home. Never leave them unattended especially with children around.
- Store flammable items such as paint, gasoline for lawnmowers, etc. away from the home. Store matches, lighters and other fire starters out of the reach of children.
- Do periodic inspections for fire hazards. Check for overloaded electrical outlets, frayed extension cords and overheating electrical equipment. Talk to your local fire station to see if they will do a fire inspection of your home.

- Call 911 immediately if a fire is detected.

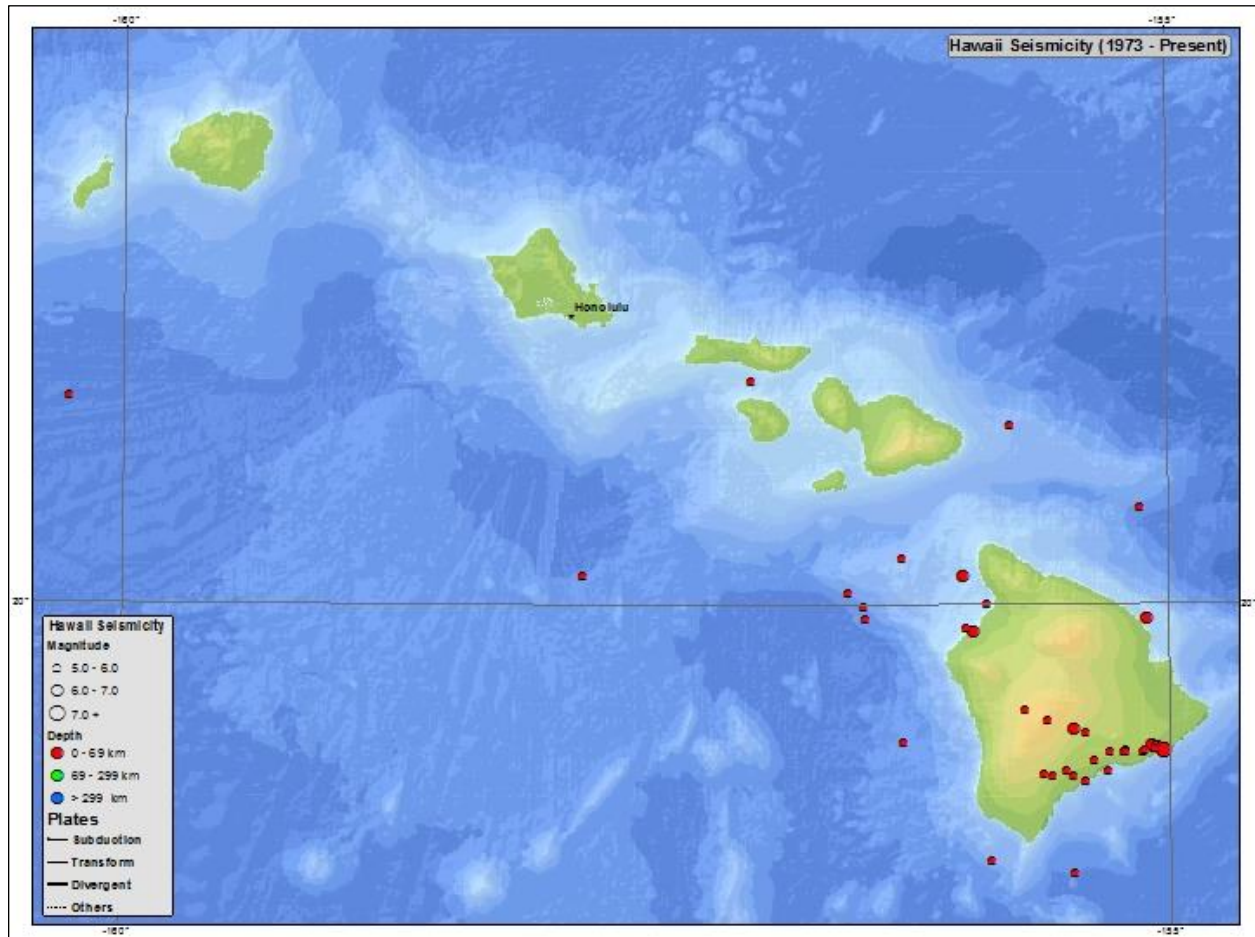
### **What do you do after a fire?**

- Make sure that all family members and pets are accounted for.
- As soon as it is safe, assess damage to your home and property. Take pictures to document the damage and call your insurance agent.



## Earthquake

The following map shows earthquake activity of magnitude 5.0 or higher in Hawai'i from 1973 to the present. As is apparent, Oahu, and by inclusion Mānoa Valley, is at very low risk for a significant earthquake. However, the Big Island is at high risk for a major earthquake, which could trigger a local tsunami that could strike O'ahu within a few minutes.



Source: USGS <http://earthquake.usgs.gov/earthquakes/states/hawaii/seismicity.php>

### What is an earthquake?

An earthquake is a violent shaking of the earth caused by slippage or movement of crustal plates along a fault line or by volcanic activity. Since Hawai'i has no fault lines, earthquakes are primarily caused by volcanic activity.

### How will you know if an earthquake is coming?

You will not know an earthquake is coming. Earthquakes are inherently unpredictable and occur at any time without obvious warning.

## **How do you prepare for an earthquake?**

While O‘ahu and Mānoa Valley are at low risk of a major earthquake, the risk is not zero. So there are some precautions which can be taken before and during an earthquake.

- Fasten heavy furniture such as tall bookcases, hutches, cabinets, large screen TVs and water heaters to the wall with straps or brackets.
- Store heavy or breakable objects and hazardous chemicals on lower shelves or in secured cabinets.
- If you are inside, stay there. Few people are hurt by the shaking, but many are injured by running outside where they are hit by falling debris.
- Drop to the floor and assume the “duck and cover” position by covering your head with your hands.
- If possible, get under a sturdy table, desk or other piece of furniture.
- If nothing else is available, take cover near an inside corner of the building away from windows, outside doors and anything that could fall.
- If outdoors, stay there. Move away from buildings, utility wires and other overhead objects. Most earthquake injuries are from collapsing walls, flying glass and falling debris.
- Family members may not be together during an earthquake. Make a plan for how to contact each other when it is safe.

## **What should you do after an earthquake?**

- Check others for injuries and provide first aid as necessary. Don’t move seriously injured persons unless they are still in danger.
- Check gas, water and electrical lines for damage.
- Don’t touch electrical lines or damaged electrical equipment.
- Don’t use any open flame or electrical equipment, which could create a spark until you are sure that there is no gas leak.
- Be prepared for aftershocks.
- Assess damage to your home and property. Take pictures to document damage for insurance purposes

**Landslide (Placeholder)**  
**Power Outage (Placeholder)**  
**Disease/Pandemic (Placeholder)**  
**Terrorist Attack/Social Disturbance (Placeholder)**  
**Hazardous Material Spill/Release (Placeholder)**

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## **PART THREE**

### **Sheltering In Place and Oahu Shelter Locations**

## Sheltering in Place

During a disaster, emergency shelters may be crowded, uncomfortable or possibly impossible to get to. Also, if you have small children, disabled/elderly people or pets in your care, it may be difficult to meet their needs in a public shelter. Under those conditions it would be better to shelter-in-place if at least some part of your home is sound and you are not in danger. In general, you should not go to a shelter unless the appropriate authorities instruct you otherwise, you are far away from your home, your home is unlivable or you are otherwise in danger. Remember that food, water and medications are not provided in a public shelter.

- Build a safe room in your home.
- If building a safe room is not possible, choose an interior room(s) which is/are away from exterior windows and doors.
- The room(s) should have running water and a toilet. You should also have a battery powered radio, battery powered lights and a telephone.
- Collect your emergency supplies of food, water and other necessities and keep them in the room or close by.
- Have bedding for each person.
- Avoid the use of candles, propane stoves or any other open flame not only because of the danger of fire but because they produce carbon monoxide gas which can be deadly in an enclosed space.

Sheltering in place may be necessary in the event of an incident involving the release of hazardous airborne contaminants. These materials may be in the form of chemical, biological or nuclear agents, which are colorless and odorless. You may be directed to shelter in place if it is hazardous to go outside or if there is little time to evacuate. If directed to shelter in place because of a hazardous materials (HAZMAT) release, besides the above you will need to do the following:

- Turn off all ventilation fans and air conditioning systems.
- Close and lock all windows and doors.
- Close off other non-essential rooms.
- Seal gaps under and around doors and windows with wet towels and duct tape.

Seal gaps around windows with air conditioning units, around exhaust fans in the kitchen and bathrooms, stove and dryer vents using duct tape and plastic sheeting, aluminum foil, or wax paper.

## Emergency Shelter Information

All public emergency shelters are located in areas and facilities that maximize the safety of its occupants. Since these shelters do not stock supplies, you must bring provisions from your emergency supply kit at home. You will need at least seven days' worth of food, water, medications, and personal items for yourself, family members, and household pets. Emergency Shelters fall into three categories: *General Population*, *Special Needs*, and *Pet Friendly*. *General Population* shelters provide refuge for the general population only. Please be aware that:

- **All shelters including *Special Needs* and *Pet Friendly* shelters do not stock supplies.**
- You must bring all of your emergency supplies with you. You will need at least seven days' worth of food, water, clothing, medical supplies and personal items for yourself and family members. If you have pets or a family member with special needs, see the following shelter options. **NOTE:** If you are sick when reporting to a shelter, please notify shelter staff as soon as you arrive.
- Facilities designated to serve as *Special Needs Shelters* provide limited support to persons who need the added space and accessibility to restrooms. Special health needs evacuees must either be capable of taking care of their own needs or be accompanied by a caregiver.
- Household pets entering a pet friendly shelter must be caged for safety. Pet owners must provide water and food for their pets.
- Emergency shelters will be opened selectively depending on the severity and type of incident or disaster. You should know the location of your two nearest shelters but do not go there until instructed to do so.
- Public emergency shelters may not be open during evacuations for a tsunami warning. Civil Defense or Emergency Management personnel will provide locations of tsunami evacuation centers or assembly areas through local media.
- During an emergency or threat of disaster, Civil Defense information will be broadcast over local radio and TV stations. When an evacuation is necessary, these broadcasts may include information about the location of Public Emergency Shelters in affected areas.
- More information, including the location of shelters designated for persons with special health needs, and facilities for household pets, may be broadcast, as well as when volunteers will be available to open shelters and direct evacuees to the appropriate areas.
- Household pets, i.e. non-service animals, entering a pet friendly shelter must be caged for safety. Pet owners must provide water and food for their pets.
- If you know someone who does not speak English or someone who, due to a disability cannot receive emergency information readily, we highly recommend forming a core group of family or friends who can assist with translations or provide important emergency information, assist with disaster preparedness actions and if needed- evacuation.

- Official information about shelters can be found at the City and County of Honolulu Department of Emergency Management Hurricane Information Website: [Hurricane Information & Shelter List](#)

# O'ahu Shelter Locations

Since you may not be at home, or be able to get home during a disaster, you should know where the nearest shelters to work locations, schools or other areas you may frequent.

## Be Informed and Ready

During an emergency or threat of disaster, Civil Defense information will be broadcast over local radio and TV stations. When an evacuation is necessary, these broadcasts may include information about the location of public emergency hurricane shelters in affected areas. More information, including the location of shelters designated for people with special health needs and facilities for household pets may be broadcast, as well as when volunteers will be available to open shelters and direct evacuees to the appropriate areas.

Since public emergency hurricane shelters do not stock supplies, please bring provisions from your emergency supply kit at home. You will need at least seven days worth of food, water, medical supplies, and personal items for yourself, family members, and household pets.

Please review this statewide list of Public Emergency Shelters and note the two or three closest to your home. The shelters are listed by county.

<p><b>Oahu</b></p> <p><b>Northshore</b> (Kaena to Kahuku)</p> <p>Waialua High and Intermediate ♦ ▲</p> <p><b>Leeward Coast</b> (Makua to Waipahu and Vicinity)</p> <p>August Ahrens Elementary Barbers Point Elementary Campbell High ♦ ▲ Ewa Beach Elementary Ewa Elementary ♦ Holomua Elementary Honowai Elementary ♦ Ilima Intermediate ♦ ▲ Kaimiloa Elementary Kaleiopuu Elementary Kamaile Elementary Kanoelani Elementary Kapolei Elementary ♦ Kapolei High ♦ Leihoku Elementary Makaha Elementary Makakilo Elementary Mauka Lani Elementary ♦ Nanakuli Elementary Nanakuli High&amp;Intermediate ♦ ▲ Pohakea Elementary Waianae Elementary Waipahu Elementary ♦ ▲ Waipahu High ♦ ▲ Waipahu Intermediate ♦</p> <p><b>Central Oahu</b> (Wahiawa to Mililani and Vicinity)</p> <p>Hanalani Elementary Helemano Elementary ♦ Iliahi Elementary Kaala Elementary ♦ Kipapa Elementary ♦ Leilehua High ♦ ▲ Mililani High ♦ ▲ Mililani Ike Elementary</p>	<p>Mililani Mauka Elementary Mililani Waena Elementary ♦ Mililani Middle ♦ ▲ Mililani-Uka Elementary ♦ Wahiawa Elementary ♦ Wahiawa Middle ♦ <b>Pearl City to Aiea and Salt Lake</b> Aiea Elementary ♦ Aiea Intermediate ♦ Aiea High ♦ ▲ Aliamanu Elementary ♦ Aliamanu Middle ♦ Halawa District Park Highlands Intermediate ♦ ▲ Lehua Elementary ♦ Makalapa Elementary ♦ Manana Elementary ♦ Moanalua Elementary ♦ Moanalua Middle ♦ ▲ Moanalua High ♦ ▲ Momilani Elementary Nimitz Elementary Palisades Elementary ♦ Pearl City District Park Pearl City Elementary Pearl City High ♦ ▲ Pearl City Highlands Elementary ♦ Pearl Harbor Elementary Pearl Harbor Kai Elementary Pearlridge Elementary ♦ Radford High ♦ ▲ Red Hill Elementary ♦ Salt Lake Elementary ♦ Waiau Elementary Waimalu Elementary ♦ Webbing Elementary <b>Salt Lake to Punchbowl and Downtown</b> Central Middle ♦ Dole Middle ♦ Farrington High Fern Elementary Kaahumanu Elementary Kaewai Elementary ♦</p>	<p>Kaiulani Elementary ♦ Kalakaua Middle ♦ Kalihi Elementary Kalihi-Kai Elementary ♦ Kalihi-Uka Elementary Kalihi Valley District Park Kalihi-Waena Elementary ♦ Kapalama Elementary ♦ Kauluwela Elementary Kawananakoa Middle ♦ Lanakila District Park Lanakila Elementary ♦ Likelike Elementary Linapuni Elementary ♦ Lincoln Elementary Maemae Elementary ♦ Nuuanu Elementary Pauoa Elementary Puuhale Elementary ♦ Roosevelt High ♦ ▲ Royal Elementary ♦ Stevenson Middle ♦ ▲ <b>Punchbowl to Waialae and Vicinity</b> Aliiolani Elementary ♦ Anuenue Elementary Hawaii Convention Center ♦ Hokulani Elementary ♦ Jarrett Middle ♦ ▲ Kaahumanu Elementary Kahala Elementary ♦ Kaimuki High ♦ ▲ Kaimuki Middle ♦ ▲ Kuhio Elementary Liholiho Elementary ♦ Lunalilo Elementary <b>Manoa Elementary</b> ♦ McKinley High ♦ Neal Blaisdell Center ♦ <b>Noelani Elementary</b> ♦ Palolo Elementary ♦</p>	<p>Waialae Elementary ♦ Waikiki Elementary Washington Middle ♦ ▲ Wilson Elementary ♦ <b>Aina Haina to Hawaii Kai and Vicinity</b> Aina Haina Elementary ♦ Hahaione Elementary ♦ Kaiser High ♦ ▲ Kalani High ♦ ▲ Kamiloiki Elementary ♦ Koko Head Elementary ♦ Niu Valley Middle ♦ <b>Windward Coast</b> (Kahuku to Waimanalo) Ahuimanu Elementary ♦ Aikahi Elementary Benjamin Parker Elementary Brigham Young University of Hawaii ♦ Castle High ♦ ▲ Enchanted Lake Elementary ♦ Heeia Elementary ♦ Kahaluu Elementary ♦ Kahuku High &amp; Intermediate ♦ Kailua Elementary ♦ Kailua High ♦ ▲ Kailua Intermediate ♦ Kainalu Elementary Kalaheo High ♦ ▲ Kaneohe Elementary Kapunahala Elementary Keolu Elementary King Intermediate ♦ ▲ Lanikai Elementary ♦ Maunawili Elementary ♦ Pope Elementary ♦ Puohala Elementary Waiahole Elementary ♦ Waimanalo Elementary and Intermediate ♦ ▲</p>
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### Know Your Shelter

- ♦ **Special Health Needs Shelters** - Provide limited support to persons with special health needs. These evacuees must either be capable of taking care of their own needs or be accompanied by a care giver.
- ▲ **Pet Friendly Shelters** - Are co-located with some general population shelters. Household pets entering a pet friendly shelter must be caged for safety and owners should provide water and food for their pets.

### ⚠ ATTENTION! ⚠

Public Emergency Shelters **MAY NOT** be open during evacuations for a Tsunami **WARNING**. Your local civil defense or emergency management agency will provide locations of *tsunami evacuation centers* or assembly areas through local media.

## Current Capacity and Anticipated Future Needs of Mānoa's Mass Care and Disaster Shelters

The following provides information about where to go in Mānoa Valley for temporary, mass care and sheltering in the event of a disaster (source: (<http://www1.honolulu.gov/dem/>.)

Hurricane Shelter	Evacuation Capacity	Medical Sheltering Capacity	Pet Sheltering Available
Mānoa Elementary	2,271	77	No*
Noelani Elementary	865	61	No*

*\*Note: Closest Pet Friendly designated shelters to Mānoa are located at Jarrett Middle School, Washington Middle School and Roosevelt High School.*

Tsunami Refuge Shelters/Areas	Evacuation capacity	Congregate Care Capacity	Pet Sheltering Available
Mānoa Valley Church	300	150	No
Mānoa Valley District Park	1387	693	No (Outside Only)
University Avenue Baptist Church	250	125	Yes

During post-disaster recovery, additional shelter space able to handle special needs and pets may be needed for long-term use. In anticipation of future mass care and sheltering needs in Mānoa, the Be Ready Mānoa plans to explore the possibility of partnering with schools and places of worship in the valley and helping them to develop Congregate Shelter Agreements with the American Red Cross, Hawai'i Chapter. Partnerships with local food providers, such as Safeway, will also be explored.

## **APPENDIX A**

### **Resource Reference Guide**

## City, State and Federal Resources

Name	Organization/ Affiliation	Email
Senator Brian T. Taniguchi	State Senator	<a href="mailto:sentaniguchi@capitol.hawaii.gov">sentaniguchi@capitol.hawaii.gov</a>
Representative Isaac W. Choy	State House Representative	<a href="mailto:repchoy@capitol.hawaii.gov">repchoy@capitol.hawaii.gov</a>
Councilmember Ann Kobayashi	City and County of Honolulu Council Member, District 5, Chair Budget	<a href="mailto:akobayashi@honolulu.gov">akobayashi@honolulu.gov</a>
Federal Emergency Management Agency (FEMA)		<a href="http://www.fema.gov/areyouready">www.fema.gov/areyouready</a> <a href="http://www.fema.gov/pte/carep/htm">www.fema.gov/pte/carep/htm</a>
Mr. Gregg Nakano	National Disaster Preparedness Training Center	<a href="mailto:gnakano@hawaii.edu">gnakano@hawaii.edu</a> <a href="https://ndptc.hawaii.edu/">https://ndptc.hawaii.edu/</a>
Mr. Jimmy L. Lagunero	UH Campus Security & Emergency Management, Campus Services Coordinator	<a href="mailto:lagunero@hawaii.edu">lagunero@hawaii.edu</a> <a href="http://manoa.hawaii.edu/emergency/management/">manoa.hawaii.edu/emergency/management/</a>
Hawai'i State Civil Defense		<a href="mailto:askCivilDefense@scd.hawaii.gov">askCivilDefense@scd.hawaii.gov</a> <a href="http://www.scd.hawaii.gov">www.scd.hawaii.gov</a>
Mr. Kevin Richards	Hawai'i Hazards Awareness & Resilience Program	<a href="http://www.scd.hawaii.gov">www.scd.hawaii.gov</a>
Pacific Disaster Center		<a href="http://WWW.pdc.org">WWW.pdc.org</a>
Pacific Tsunami Warning Center		<a href="http://ptwc.weather.gov">ptwc.weather.gov</a>
Central Pacific Hurricane Center		<a href="http://www.prh.noaa.gov/hnl/cphc">www.prh.noaa.gov/hnl/cphc</a>
Sargent Pamela Liu	Honolulu Police District 7	<a href="mailto:pliu@honolulu.gov">pliu@honolulu.gov</a>
Major Calvin Tong	Commander HPD District 7	
Corporal Everett S. Higa	HPD District 7	<a href="mailto:ehiga2@honolulu.gov">ehiga2@honolulu.gov</a>
Ms. Crystal van Beelen	Disaster Preparedness Dept. of Emergency Management, City and County of Honolulu	<a href="http://www.OahuDEM.org">www.OahuDEM.org</a> <a href="https://www.facebook.com/OahuDEM">www.facebook.com/OahuDEM</a> <a href="https://www.twitter.com/OahuDEM">www.twitter.com/OahuDEM</a>
Honolulu Fire Department District 20	2900 East Manoa Rd. Honolulu HI 96822	
Ms. Maria Lutz	American Red Cross— Hawai'i State Chapter	<a href="http://www.hawaiiaredcross.org/">http://www.hawaiiaredcross.org/</a>



## Directory of Community Groups, Organizations, and Businesses

Clubs & Organizations	Address	Website
Boy Scouts Mānoa Elementary School		<a href="mailto:gogawa@honolulu.gov">gogawa@honolulu.gov</a>
Girl Scouts Troop		
Boys Scouts Troop 35		<a href="mailto:tom.weber@hawadvocate.com">tom.weber@hawadvocate.com</a>
Friends of Mānoa Library	2716 Woodlawn Dr. Honolulu, HI 96822	facebook.com/FriendsOfLibrary
Mānoa Garden Club	3860 Rd, Honolulu, HI 96822	<a href="http://www.gchonolulu.org">http://www.gchonolulu.org</a>
East Mānoa Lions Club		<a href="mailto:gogawa@honolulu.gov">gogawa@honolulu.gov</a>
Mānoa Waioli Lions Club	909 Isenberg St.  Honolulu, HI	
Mānoa Neighborhood Board	c/o Neighborhood Commission 530 So. King St, Rm 406 Honolulu, HI 96813	<a href="mailto:Eric.thpmas.eads@gmail.com">Eric.thpmas.eads@gmail.com</a>
Mālama Mānoa		<a href="mailto:jarizumi@gmail.com">jarizumi@gmail.com</a>
Mānoa Neighborhood Security Watch		<a href="mailto:norm516@hawaiiantel.net">norm516@hawaiiantel.net</a>
Mānoa Heritage Center		<a href="mailto:heritagecenter@hawaiiantel.net">heritagecenter@hawaiiantel.net</a>
Salvation Army		<a href="mailto:shane.halverson@usw.salvationarmy.org">shane.halverson@usw.salvationarmy.org</a>

<b>Faith Based Organizations</b>	<b>Address</b>	<b>Website</b>
Mānoa Valley Church	2728 Huapala St., Honolulu, HI 96822	<a href="mailto:pastor@valleychurch.org">pastor@valleychurch.org</a> <a href="http://www.valleychurch.org/wp/">www.valleychurch.org/wp/</a>
Koganji Temple	2869 O'ahu Ave., Honolulu, HI 96822	<a href="http://koganjitemple.org">koganjitemple.org</a>
Saint Pius Catholic Church	821 Lowrey St., Honolulu, HI 96822	<a href="mailto:general@mp-cc.net">general@mp-cc.net</a>
Sacred Heart Catholic Church	1701 Wilder Ave., Honolulu, HI 96822	<a href="mailto:general@mp-cc.net">general@mp-cc.net</a>
Newman Center	1941 E. West Rd., Honolulu, HI 96822	<a href="http://newmanhawaii.com">newmanhawaii.com</a>
University Avenue Baptist Church	2305 University Ave., Honolulu, HI 96822	<a href="http://www.universityavenuebaptist.org/">www.universityavenuebaptist.org/</a>
Honolulu Christian Church	2207 O'ahu Ave., Honolulu, HI 96822	<a href="http://www.honoluluchristian.org/">http://www.honoluluchristian.org/</a>
Hawai'i Pacific Baptist Convention	2042 Vancouver Dr., Honolulu, HI 96822	<a href="http://www.hpbaptist.net/">http://www.hpbaptist.net/</a>
Korean Presbyterian Church of Honolulu	2122 Metcalf St., Honolulu, HI 96822	<a href="http://www.hawaiiichurch.org/">http://www.hawaiiichurch.org/</a>
Hawai'i Korean Central Church	3516 Pilikino St., Honolulu, HI 96822	
Lutheran Church of Honolulu	1730 Punahou Street, Honolulu, HI 96822	<a href="mailto:Ich@LCHwelcome.org">Ich@LCHwelcome.org</a>
Our Redeemer Lutheran Church	1402 University Ave., Honolulu, HI 96822	<a href="http://4sq.com/bXRMFB">http://4sq.com/bXRMFB</a>
Youth With a Mission		<a href="mailto:personnel@ywmahonolulu.com">personnel@ywmahonolulu.com</a>
Muslim Association of Hawai'i	1935 Alea Pl., Honolulu, HI 96822	
<b>Higher Education</b>	<b>Address</b>	<b>Website</b>
University of Hawai'i at Mānoa	2500 Campus Rd., Honolulu, HI 96822	<a href="http://www.hawaii.edu/">http://www.hawaii.edu/</a>

<b>Private and Language Schools</b>	<b>Address</b>	<b>Website</b>
Punahou School	1601 Punahou St., Honolulu, HI 96822	<a href="http://www.punahou.edu/">http://www.punahou.edu/</a>
Saint Francis School	2707 Pamoia Rd., Honolulu, HI 96822	<a href="http://www.stfrancis-oahu.org">www.stfrancis-oahu.org</a>
Mānoa Japanese English School	2804 Mānoa Rd., Honolulu, HI 96822	<a href="http://www.japaneselanguageschool.org">www.japaneselanguageschool.org</a>
<u>Mid-Pacific Institute</u>	2445 Kaala St., Honolulu, HI 96822	<a href="http://midpac.edu">midpac.edu</a>
Maryknoll Elementary School	1526 Alexander St., Honolulu, HI 96822	<a href="http://maryknollschool.org">maryknollschool.org</a>
<u>Maryknoll High School</u>	1402 Punahou St., Honolulu, HI 96822	<a href="http://maryknollschool.org">maryknollschool.org</a>
<u>The University Laboratory School</u>	1776 University Ave., Honolulu, HI 96822	<a href="http://hawaii.edu/crdg/labschool">hawaii.edu/crdg/labschool</a>
<u>Lutheran High School of Hawai'i</u>	1404 University Ave., Honolulu, HI 96822	<a href="http://hshawaii.org">hshawaii.org</a>
<b>Public Schools</b>	<b>Address</b>	<b>Website</b>
Mānoa Elementary School	3155 Mānoa Rd., Honolulu, HI 96822	<a href="http://www.manoaelementaryschool.com">www.manoaelementaryschool.com</a>
Noelani Elementary School	2655 Woodlawn Dr., Honolulu, HI 96822	<a href="http://www.noelani.k12.hi">www.noelani.k12.hi</a>
<b>Transportation</b>	<b>Address</b>	<b>Website</b>
Catholic Charities Hawai'i	Transportation services for seniors	<a href="http://www.catholiccharitieshawaii.org">www.catholiccharitieshawaii.org</a>
<b>Food Markets</b>	<b>Address</b>	<b>Website</b>
Safeway	2855 E. Mānoa Rd., Honolulu, HI 96822	<a href="http://www.safeway.com/IFL/Grocery/Home">www.safeway.com/IFL/Grocery/Home</a>
Longs Drugs	2750 Woodlawn Dr., Honolulu, HI 96822	<a href="http://www.cvs.com/">http://www.cvs.com/</a>
<b>Restaurants</b>	<b>Address</b>	<b>Website</b>
McDonalds	2915 E. Mānoa Rd., Honolulu, HI 96822	
Bangkok Chef	2955 E. Mānoa Rd., Honolulu, HI 96822	<a href="http://bangkokchefexpress.com">bangkokchefexpress.com</a>

SUBWAY Restaurants	Mānoa Marketplace, 2851 E. Mānoa Rd., Honolulu, HI 96822	
Mānoa Sushi	2752 Woodlawn Dr., Honolulu, HI 96822	<a href="http://tokonamehawaii.com">tokonamehawaii.com</a>
Asia Mānoa Chinese Restaurant	2801 E. Mānoa Rd., Honolulu, HI 96822	
Paesano Ristorante Italiano	2752 Woodlawn Dr., Honolulu, HI 96822	<a href="http://www.paesanohawaii.com/">www.paesanohawaii.com/</a>
Serg's Mexican Kitchen	2740 E. Mānoa Rd., Honolulu, HI 96822	
Boston Pizza Mānoa	2740 E. Mānoa Rd., Honolulu, HI 96822	
Andy's Sandwiches & Smoothies	2904 E. Mānoa Rd., Honolulu, HI 96822	<a href="http://gayot.com">gayot.com</a>
Mānoa Barbecue	2752 Woodlawn Dr., Honolulu, HI 96822	<a href="http://www.shopathome.com/Restaurants">www.shopathome.com/Restaurants</a>
Nishi Moncho Ramen	2851 E. Mānoa Rd., Honolulu, HI 96822	
O-Bok Restaurant	2756 Woodlawn Dr., Honolulu, HI 96822	<a href="http://www.shopathome.com/Restaurants">www.shopathome.com/Restaurants</a>
Island Manapua Factory	2752 Woodlawn Dr., Honolulu, HI 96822	
Garden Island Cafe	2908 E. Mānoa Rd. Honolulu, HI 96822	<a href="http://urbanspoon.com">urbanspoon.com</a>
Tsukuneya Robata Grill Mānoa	1442 University Ave., Honolulu, HI 96822	<a href="http://tsukuneyarobatagrill.com">tsukuneyarobatagrill.com</a>
GRYLT Mānoa Marketplace	2764 Woodlawn Dr., Honolulu, HI 96822	<a href="http://urbanspoon.com">urbanspoon.com</a>
Waipuna Sushi	2801 E. Mānoa Rd., Honolulu, HI 96822	<a href="http://waipunasushi.com">waipunasushi.com</a>
Island Burgers	2752 Woodlawn Dr., Honolulu, HI 96822	
Nishi Moncho Ramen	2851 E. Mānoa Rd., Honolulu, HI 96822	<a href="http://urbanspoon.com">urbanspoon.com</a>
Ba-Le Sandwich Shop	2445 Campus Rd., Honolulu, HI 96822	<a href="http://viewmenu.com">viewmenu.com</a>
<b>Coffee Shops</b>	<b>Address</b>	<b>Website</b>
Morning Glass Coffee + Café	2955 E. Mānoa Rd., Honolulu, HI 96822	<a href="http://morningglasscoffee.com">morningglasscoffee.com</a>
The Coffee Bean and Tea	2754 Woodlawn Dr.,	<a href="http://www.coffeebean.com">http://www.coffeebean.com</a>

Leaf	Honolulu, HI 96822	<a href="#">/</a>
Starbucks	2902 E. Mānoa Rd, Honolulu, HI 9682	<a href="http://www.starbucks.com">www.starbucks.com</a>
<b>Gas Stations</b>	<b>Address</b>	<b>Website</b>
Aloha Petroleum	3001 E. Mānoa Rd., Honolulu, HI 96822	<a href="http://alohagas.com">alohagas.com</a>
Chevron Mānoa	2927 E. Mānoa Road Honolulu, HI 96822	<a href="http://chevronwithtechron.com">chevronwithtechron.com</a>
7-11	2028 Wilder Ave, Honolulu, HI	<a href="http://7-eleven.com">7-eleven.com</a>
<b>Banking &amp; Finance</b>	<b>Address</b>	<b>Website</b>
First Hawaiian Bank	Mānoa Marketplace 2752 Woodlawn Dr., Honolulu, HI 96822	<a href="https://www.fhb.com/">https://www.fhb.com/</a>
Finance Factors	2955 E. Mānoa Rd. Honolulu, HI 96922	
Bank of Hawai'i	2752 Woodlawn Dr, Honolulu, HI	<a href="https://www.boh.com/">https://www.boh.com/</a>
American Savings Bank	2855 E. Mānoa Rd, Honolulu, HI 96822	<a href="http://asbhawaii.com">asbhawaii.com</a>
American Savings Bank	2445 Campus Rd, Honolulu, HI	<a href="http://asbhawaii.com">asbhawaii.com</a>
Central Pacific Bank		
Territorial Savings Bank		
<b>Retirement &amp; Assisted Living Residences</b>	<b>Address</b>	<b>Website</b>
Mānoa Sunshine- Residential Care Inc.	2205 McKinley St., Honolulu, HI 96822	
Mānoa Cottage Care Home	2039 Kamehameha Ave., Honolulu, HI 96822	<a href="http://www.cottage.com">www.cottage.com</a>
Mānoa Cottage and McTree	2035 Kamehameha Ave., Honolulu, HI 96822	<a href="mailto:Shims003@hawaii.rr.com">Shims003@hawaii.rr.com</a>
Respite Care Hawai'i Inc.	2575 Dole St., Honolulu, HI 96822	
Mānoa Elder Care	2870 O'ahu Ave., Honolulu, HI 96822	

Mānoa Senior Care	2872 O'ahu Ave., Honolulu, HI 96822	
Caring Mānoa	2383 Beckwith St., Honolulu, HI 96822	
Living Mānoa	2385 Beckwith St., Honolulu, HI 96822	
Scottish Association	2635 Beckwith St., Honolulu, HI 96822	
Beckwith Hillside Adult Day Care	2375 Beckwith St., Honolulu, HI 96822	
Franciscan Adult Day Center	2715 Pamoia Rd., Honolulu, HI 96822	<a href="http://www.franciscanadultday.com/">http://www.franciscanadultday.com/</a>
Mānoa Manor Retirement Homes	2625 Ferdinand Mānoa Ave., Honolulu, HI 96822	
Mānoa Gardens Elderly Housing	2790 Kahaloa Dr., Honolulu, HI 96822	
Arcadia Retirement Residence	1434 Punahou St., Honolulu, HI 96822	<a href="http://www.arcadia-hi.org/">http://www.arcadia-hi.org/</a>

## **APPENDIX B**

### **Family Preparedness**

## How to Make a Plan

Every family should have a disaster preparedness plan with all family members participating on an age appropriate basis. The plan should include the following:

- **Escape routes:** Draw a floor plan of your home with escape routes from each room. Identify a safe place to meet in the event of an emergency.
- **Communications plan:** Your family may not be together when disaster strikes, so plan how you will contact one another and where to go in an emergency. Please see the *FEMA Family Emergency Plan*, for an example of the types of information you should always keep on hand.
- **Utility shut-off and safety:** In the event of a disaster, you may be instructed to shut-off the utility service at your home. Because there are different gas shut-off procedures for different gas meter configurations, it is important to contact your local gas company for guidance on preparation and response regarding gas appliances and gas service to your home.
- **Water shut-off valve:** Close the water shut-off valve to minimize water loss. Cracked lines may pollute the water supply to your house.
- **Electrical box:** Locate your electricity circuit box and show family members how to shut-off the electricity.
- **Insurance and vital records:** Gather property, health, and life insurance documents and keep in a safe place.
- Consider purchasing flood insurance to reduce your risk of flood loss.
- **Inventory:** Take photos or a video of the interior and exterior of your home and include personal belongings in your inventory for insurance purposes.
- **Money:** Keep some cash in a safe place at home as automated teller machines (ATM) machines may not work following a disaster.
- **Special needs:** If you or someone close to you has a disability or a special need, you may have to take additional steps to protect yourself and your family in an emergency. Make arrangements for special assistance such as transportation to a shelter. You may also need to keep specialized items ready, including medications, oxygen, medical devices and any other items needed.
- **Caring for animals:** Identify pet friendly shelters. Gather pet supplies including a pet carrier. Ensure your pet has proper ID and current veterinarian records.
- **Safety skills:** Learn first aid, cardiopulmonary resuscitation (CPR) and how to use an automated external defibrillator (AED) and how to operate a fire extinguisher.
- **Disaster supply kit:** Your disaster supply kit should contain essential food, water, and supplies for at least five (5) to seven (7) days. Keep this kit in a designated place and have it ready in case you have to leave your home quickly. You may also want to consider having a kit for your work place and automobile.



- **Medication list:** Keep a current list of medication needed by all family members and keep on hand medications and supplies to last at least seven (7). Take them with you if you have to evacuate to a shelter or other location.
- **Evacuation guidelines:** The amount of time you have to leave will depend on the hazard. Know your evacuation route. Keep a full tank of gas in your car if an evacuation seems likely. Make transportation arrangements if you do not own a car. Leave early enough to avoid being trapped by severe weather conditions.



# Family Emergency Plan

Prepare. Plan. Stay Informed.



Make sure your family has a plan in case of an emergency. Before an emergency happens, sit down together and decide how you will get in contact with each other, where you will go and what you will do in an emergency. Keep a copy of this plan in your emergency supply kit or another safe place where you can access it in the event of a disaster.

Out-of-Town Contact Name:	Telephone Number:
Email:	
Neighborhood Meeting Place:	Telephone Number:
Regional Meeting Place:	Telephone Number:
Evacuation Location:	Telephone Number:

Fill out the following information for each family member and keep it up to date.

Name:	Social Security Number:
Date of Birth:	Important Medical Information:
Name:	Social Security Number:
Date of Birth:	Important Medical Information:
Name:	Social Security Number:
Date of Birth:	Important Medical Information:
Name:	Social Security Number:
Date of Birth:	Important Medical Information:
Name:	Social Security Number:
Date of Birth:	Important Medical Information:
Name:	Social Security Number:
Date of Birth:	Important Medical Information:

Write down where your family spends the most time: work, school and other places you frequent. Schools, daycare providers, workplaces and apartment buildings should all have site-specific emergency plans that you and your family need to know about.

<b>Work Location One</b>	<b>School Location One</b>
Address:	Address:
Phone Number:	Phone Number:
Evacuation Location:	Evacuation Location:
<b>Work Location Two</b>	<b>School Location Two</b>
Address:	Address:
Phone Number:	Phone Number:
Evacuation Location:	Evacuation Location:
<b>Work Location Three</b>	<b>School Location Three</b>
Address:	Address:
Phone Number:	Phone Number:
Evacuation Location:	Evacuation Location:
<b>Other place you frequent</b>	<b>Other place you frequent</b>
Address:	Address:
Phone Number:	Phone Number:
Evacuation Location:	Evacuation Location:

Important Information	Name	Telephone Number	Policy Number
Doctor(s):			
Other:			
Pharmacist:			
Medical Insurance:			
Homeowners/Rental Insurance:			
Veterinarian/Kennel (for pets):			

Dial 911 for Emergencies



Prepare. Plan. Stay Informed.

# Family Emergency Plan



Make sure your family has a plan in case of an emergency. Fill out these cards and give one to each member of your family to make sure they know who to call and where to meet in case of an emergency.

ADDITIONAL IMPORTANT PHONE NUMBERS & INFORMATION:

Family Emergency Plan

EMERGENCY CONTACT NAME:  
TELEPHONE:

OUT-OF-TOWN CONTACT NAME:  
TELEPHONE:

NEIGHBORHOOD MEETING PLACE:  
TELEPHONE:

OTHER IMPORTANT INFORMATION:

DIAL 911 FOR EMERGENCIES

Ready

< FOLD HERE >

ADDITIONAL IMPORTANT PHONE NUMBERS & INFORMATION:

Family Emergency Plan

EMERGENCY CONTACT NAME:  
TELEPHONE:

OUT-OF-TOWN CONTACT NAME:  
TELEPHONE:

NEIGHBORHOOD MEETING PLACE:  
TELEPHONE:

OTHER IMPORTANT INFORMATION:

DIAL 911 FOR EMERGENCIES

Ready

ADDITIONAL IMPORTANT PHONE NUMBERS & INFORMATION:

Family Emergency Plan

EMERGENCY CONTACT NAME:  
TELEPHONE:

OUT-OF-TOWN CONTACT NAME:  
TELEPHONE:

NEIGHBORHOOD MEETING PLACE:  
TELEPHONE:

OTHER IMPORTANT INFORMATION:

DIAL 911 FOR EMERGENCIES

Ready

< FOLD HERE >

ADDITIONAL IMPORTANT PHONE NUMBERS & INFORMATION:

Family Emergency Plan

EMERGENCY CONTACT NAME:  
TELEPHONE:

OUT-OF-TOWN CONTACT NAME:  
TELEPHONE:

NEIGHBORHOOD MEETING PLACE:  
TELEPHONE:

OTHER IMPORTANT INFORMATION:

DIAL 911 FOR EMERGENCIES

Ready

BRM Disaster Preparedness Plan v2.22

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## How to Make a Kit

There are any number of lists available on-line of suggested items to include in your disaster preparedness kit. Some of them are: [www.ready.gov](http://www.ready.gov), and [www.getreadyhawaii.org](http://www.getreadyhawaii.org) . It is suggested that a good way put your kit together is to do it over the space of several weeks selecting those items which are used on a day-to-day basis and would be critical to have if it is necessary to evacuate. However, the following items are considered essential to a basic disaster preparedness kit:

- Water, one gallon of water per person per day, for drinking and sanitation for seven days;
- Food, at least a seven-day supply of non-perishable food;
- Battery-powered radio and a NOAA Weather Radio with tone alert, and extra batteries for both;
- Flashlight and extra batteries;
- First Aid kit;
- Whistle to signal for help;
- Infant formula and diapers, if you have an infant;
- Moist towelettes, garbage bags and plastic ties for personal sanitation;
- Dust masks;
- Plastic sheeting and duct tape to shelter-in-place;
- Wrench or pliers to turn off utilities;
- Can opener for food (if kit contains canned food);
- Prescription medications for each family member.

Other items to consider adding to your kit are:

- An extra change of clothes for each family member;
- Blanket or sleeping bag for each family member;
- Rain gear;
- Mess kits, paper cups, plates and plastic utensils;
- Cash or traveler's checks, change;
- Paper towels;
- Fire Extinguisher;
- Tent;
- Matches in a waterproof container;
- Paper, pencil;
- Personal hygiene items including feminine supplies;
- Soap;
- Household chlorine bleach – You can use bleach as a disinfectant (diluted nine parts water to one part bleach), or in an emergency you can also use it to treat water. Use 16

drops of regular household liquid bleach per gallon of water. Do not use scented, color safe or bleaches with added cleaners (see Appendix 1);

- Medicine dropper;
- Important Family Documents.

Additional items for elderly and disabled individuals:

- **Life-sustaining medications** -- seizure, blood pressure, and heart medications, insulin, ostomy dressings, etc. to last through the disaster and recovery period. There may be no phone service and pharmacies may close. Plan with your physician for emergency prescription refills.
- **Special equipment** -- canes, walkers, wheelchairs, braces, eyeglasses, hearing aids etc.

### **Disaster Kit Maintenance**

Your disaster kit is not something that you can put together and forget about. It needs regular maintenance so that it will be in top shape for any disaster. Every six months you should open up the kit containers and do the following:

- Replace the water.
- Replace the canned food.
- Replace batteries. Since aging batteries can swell and leak, they should be removed from the device they are intended to power and stored in plastic bags.
- Replace any medicines or other items with limited life.
- Inspect all items for deterioration, leaking containers and other problems.
- Wash clothes and bedding. Check children's clothes to make sure that they still fit.
- Update any of your important documents.

## How to Plan for Your Pets

Because Hawai'i is subject to dangerous year-round hazards such as flash floods, hurricanes, tsunamis and earthquakes, it is important for pet owners to be prepared. Pet owners should plan ahead and make advance preparations to insure the safety of their pets in the event of a natural disaster.

Pet Friendly Shelters have been developed by the State of Hawai'i and are co-located with some general population shelters. Household pets entering a pet friendly shelter must be in a pet carrier for safety and owners should provide at least a seven-day supply of water and food for their pets. In addition owners will be responsible for feeding, cleaning, and exercising their pets and may be asked to assist shelter staff. If the pet shelter is not yet available, keep your pet in its carrier parked in your vehicle in a shaded and protected area next to the shelter. Make sure that your vehicle provides adequate ventilation. Pet Friendly Shelter locations will be broadcast over TV and radio. See the O'ahu shelter location list In Part Three of this document for pet friendly shelter locations.

The following items are recommended for a pet disaster supplies kit:

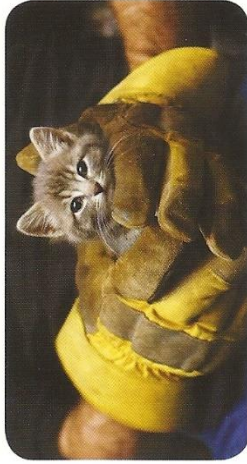
- A seven day supply of food and water for each pet.
- Food and water bowls.
- Extra supply of necessary medications.
- A carrier or crate for each pet which is large enough for the animal to stand up and turn around. This is required if evacuating to a pet friendly shelter. The carrier should be labeled with the pet's name plus the owners name and address.
- Include pet litter, and litter box if appropriate, newspapers, paper towels, trash bags and cleaning supplies.
- Leash, and collar with up-to-date ID and license tags. All pets should wear a collar with ID tag at all times in case you are separated. Also consider permanent identification such as a microchip.
- Pet first aid kit.
- Grooming supplies.
- Favorite toys, treats or bedding to help relieve stress for your pet.
- A picture of your pet with detailed description.





## About Lost & Found

Whether you've lost a pet or found one, a report needs to be filed with the Humane Society. All dogs are required to be licensed by the City & County of Honolulu. Collars and ID tags, along with microchip identification has helped thousands of animals find their way home every year.



## About Us

Hawaiian Humane Society shelters, rescues, adopts and welcomes all animals. As an independent, local non-profit organization, we receive no funding from organizations such as ASPCA or HSUS.

Our work to support disaster preparedness and pet-friendly shelters is supported entirely by donations. To make a gift, visit [HawaiianHumane.org](http://HawaiianHumane.org).



### Hawaiian Humane Society

*People for animals. Animals for people.*

2700 Waialae Avenue  
Honolulu, HI 96826

Phone: (808) 356-2217

[hhs@hawaiianhumane.org](mailto:hhs@hawaiianhumane.org)  
[HawaiianHumane.org](http://HawaiianHumane.org)



## Disaster Preparedness Kit

- 7-10 day supply of food and water
- Crate or carrier for each pet in which he can stand up and turn around in with ID card attached
- Leash, collar with updated ID and license tags
- Bedding, towels and toys
- Dry or canned food in sealed containers
- Fresh water in sealed containers
- Treats
- Food and water bowls; can opener
- Medications
- Grooming supplies
- Cleaning supplies for crates and litter boxes
- Cat litter in sealed containers with litter pan
- Vaccine records and other paperwork
- Veterinary information
- Photographs of your pet
- Pet First Aid Kit





## We're here to help

Hawaiian Humane Society is a designated first responder and partners with the State Civil Defense to assist in disaster planning and response.

## Emergency Pet Shelters

Run by Humane Society staff and volunteers as a public service to the community, Oahu's 30 emergency pet shelters will open adjacent to people shelters on public school grounds.

Owners assume responsibility for their pet's care during their stay, which will offer visiting hours. It's critical that pets are microchipped and up-to-date on their vaccinations. You must bring a crate for your pet and provide all supplies.

Call 356-2216 to become an emergency pet shelter volunteer.

## Pet-Friendly Disaster Shelters

Visit [HawaiianHumane.org](http://HawaiianHumane.org) to find a shelter near you. Shelters will open as needed depending on the disaster.



### Honolulu

Jarrett Middle School  
Kaimuki Middle & High Schools  
Kaiser High School  
Kalakaua Middle School  
Kalani High School  
Roosevelt High School  
Stevenson Middle School  
Washington Middle School



### Central Oahu

Aiea High School  
Highlands Intermediate School  
Lanikai High School  
Mililani Middle & High Schools  
Moanalua Middle & High Schools  
Pearl City High School  
Radford High School  
Wheeler Middle School

### Leeward Oahu

Campbell High School  
Ilima Intermediate School  
Nanakuli Intermediate & High Schools  
Waipahu Elementary & High Schools

### Windward Oahu

Castle High School  
Kahuku Intermediate & High Schools  
Kailua High School  
Kalaheo High School  
King Intermediate School  
Waimanalo Elementary & Intermediate Schools

### North Shore

Waialua Intermediate & High Schools

## Be Disaster Ready

Disaster readiness offers you and your pet peace of mind. It is estimated that half of the human deaths during Hurricane Katrina were due to those who refused to leave their pets behind.

- Agree on a meeting location for your family and include your pet in that plan.
- Plan to bring your pet indoors well ahead of a natural disaster. Never leave a dog tied up.
- Identify a safe indoor area that's protected from breaking glass, wind and noise. If your pet becomes frightened, consider a crate or carrier.
- If your home isn't safe for you, it's not safe for your pet. Oahu is vulnerable to hurricanes, flooding, tsunamis and earthquakes.
- Tune in to radio and television reports for your nearest shelter and instructions from local emergency officials.
- Know where your nearest pet-friendly shelter is. As a back-up plan, arrange a safe haven with friends or family and designate a pet caregiver.



## Readiness Tip

Place rescue alert stickers on your home's windows and front door to let people know pets are inside. This can also save your pet's life in the event of fire.



## How to Purify Water During an Emergency

The treatments described below work only to remove common bacteria or viruses from water. If you suspect the water is unsafe because of chemicals, oils, poisonous substances, sewage or other contaminants, do not drink the water. Do not drink water that is dark colored, has an odor or contains solid materials.

### Storing water safely

The best source of drinking water during an emergency is water you have stored with your emergency supplies.

- Store one gallon of water per person per day--enough for at least seven days.
- Store-bought, factory-sealed bottled water is best. Check for an expiration date and replace as needed.
- If you choose to fill your own water containers:
  - Collect the water from a safe supply.
  - Store water in thoroughly washed plastic containers such as soft drink bottles. You can also purchase food-grade plastic buckets or drums.
  - Seal water containers tightly, label with date, and store in a cool, dark place.
  - Replace water every six months.
  - Never reuse a container that held toxic substances such as pesticides, chemicals or oil.

### Purifying by boiling

If your tap water is unsafe, boiling is the best method to kill disease-causing organisms.

If tap water is unavailable, the following may be considered as potential water sources. Water taken from these sources should be boiled before drinking.

- Rainwater
- Lakes
- Rivers and streams
- Natural springs
- Ponds

**Caution:** Many chemical pollutants will not be removed by boiling.

Cloudy water should be filtered before boiling. Filter cloudy water using coffee filters, paper towels, cheesecloth or any clean cloth such a tee shirt, handkerchiefs or clean socks.

- Bring the water to a rolling boil for at least one full minute.
- Let the water cool before drinking.
- Add two drops of household bleach per gallon to maintain water quality while in storage.

### **Purifying by adding liquid chlorine bleach**

- Treat water by adding liquid household bleach, such as Clorox or Purex.
- Household bleach is typically between 5.25 percent and 8.25 percent chlorine. Read the label.
- Avoid using bleaches that contain perfumes, dyes and other additives. Be sure to read the label.
- Cloudy water should be filtered before adding bleach.
- Place the water in a clean container. Add the amount of bleach according to the table below.
- Mix thoroughly and let stand for at least 60 minutes before drinking. Retreat the water if it does not have a slight bleach odor.
- Bleach taste can be reduced by pouring treated water back and forth between two clean containers several times.

<b>Treating water with household bleach containing 5.25-8.25 percent chlorine</b>	
<b>Volume of Water to be Treated</b>	<b>Bleach Solution to Add</b>
1 quart/1 liter	4 drops
1/2 gallon/2 quarts/2 liters	8 drops
1 gallon	1/4 teaspoon
5 gallons	1 teaspoon
10 gallons	2 teaspoons

**Caution:** Bleach will not kill some disease-causing organisms commonly found in surface water. Bleach will not remove chemical pollutants.

## Residential Emergency Water Preparedness

If in the event of a large scale disaster where City and County Water Service becomes unavailable, the question “How much water should I store in advance?” is often asked. The honest answer is you can never store enough. Going without water for 2 to 3 days quickly becomes a life threatening situation. FEMA recommends storing a minimum of 1 gallon of water /person /per day. This minimum is likely based on only drinking and cooking needs during a sedentary “sit it out at home” recovery phase. If it becomes necessary to do hard physical work, for example – repairs on your home or community work in clearing roads of storm debris etc., a more realistic minimum target might be 2 gallons per person per /day. Personal hygiene, if only sponge bathing, at a certain point may become a health concern as much as a providing a sense of well-being and may require an adjusted minimum requirement of 3 gallons per person /per day.

Recovery time from a major disaster may be long and in the case of normal water service, crucial. Given this and the above considerations the answer – you can never store enough water – does not seem to be outlandish. Storing a much water as possible under the right conditions at your residence might just save you life and lives of your family and friends. The following are suggested resources and products that may help in your water storage preparation.

- For most people, bottled water, available almost anywhere, is typically the first source of storable water that springs to mind. Certainly store as much as you can – but bear in mind, especially for a larger family, the cost per unit and sheer volume of storage space that may be required. Bottled water would also be most suitable for travel, offsite work or delivery to those in need. Most bottling companies state shelf life, under proper conditions, at about 2 years.
- Sealable Water Barrels filled with tap water are excellent for water storage provided they are of FOOD GRADE (BPA free) plastic or Stainless Steel construction. Costco sells blue Self Reliance brand 55 gallon sturdy plastic barrels, BPA Free with filtered manual siphon pump, bung wrench & water treatment solution. Also good for storing rain water, especially in higher rainfall communities such as Manoa, and direct improvised water catchment systems with roof collection surface. Food grade rain water buckets may come in handy.
- Quite possibly one of the most important items is a good stainless steel gravity (off the grid) water filter. Do yourself a favor and go to [www.britishberkefeld.com](http://www.britishberkefeld.com) and buy one. Used all around the world by the Red Cross. It filters out almost everything including stagnant pond water. Filters 20-24 gallons per day.
- As with food storage, do not store any bottles, water barrels or other water containers directly on concrete without a wooden platform or pallet. Store all your water inside or out in a cool, dry place out of the sun.

# Emergency Food Supply Checklist



**5-7 Day Suggested Emergency Food Supply for Two People**  
**Department of Emergency Management**  
**City and County of Honolulu**  
**808-723-8960 ♦ www.oahuDEM.org**



- |                                                                                   |                             |  |
|-----------------------------------------------------------------------------------|-----------------------------|--|
| <input type="checkbox"/> <b>Milk – Non-Fat Dry</b>                                | 2 boxes (12 1-qt envelopes) |  |
| <input type="checkbox"/> <b>Canned Meat, Poultry, Fish</b>                        |                             |  |
| ○ Tuna                                                                            | 2 cans                      |  |
| ○ Beef Stew                                                                       | 2 cans                      |  |
| ○ Chili with Beans                                                                | 3 cans                      |  |
| ○ Salmon                                                                          | 2 cans                      |  |
| ○ Vienna Sausage                                                                  | 3 cans                      |  |
| ○ Spam                                                                            | 3 cans                      |  |
| ○ Corned Beef Hash                                                                | 3 cans                      |  |
| ○ Corned Beef                                                                     | 3 cans                      |  |
| ○ Deviled Ham                                                                     | 3 cans                      |  |
| ○ Pork and Beans                                                                  | 3 cans                      |  |
| ○ Chunked Chicken                                                                 | 2 cans                      |  |
| ○ Assorted Condensed Soups                                                        | 6 cans                      |  |
| ○ Condensed Cream of Mushroom Soup                                                | 3 cans                      |  |
| <input type="checkbox"/> <b>Canned Fruits and Vegetables</b>                      |                             |  |
| ○ Assorted Fruits (peaches, pears, etc.)                                          | 12 cans                     |  |
| ○ Assorted Vegetables (peas, carrots, etc.)                                       | 7 cans                      |  |
| ○ Assorted Fruit Juices                                                           | 3 6-packs                   |  |
| ○ Seedless Raisins                                                                | 2 boxes                     |  |
| <input type="checkbox"/> <b>Cereals and Baked Goods</b>                           |                             |  |
| ○ Instant Hot Cereal                                                              | 2 boxes, assorted flavors   |  |
| ○ Cold Cereal (corn flakes, bran, etc.)                                           | 2 boxes                     |  |
| ○ Soda Crackers                                                                   | 3 pkg                       |  |
| ○ Hilo Cream Crackers                                                             | 3 pkg                       |  |
| ○ Rice                                                                            | 3 lbs                       |  |
| ○ Cookies                                                                         | 2 pkg                       |  |
| <input type="checkbox"/> <b>Sugar and Sweets</b>                                  |                             |  |
| ○ Granulated Sugar                                                                | 1 lb                        |  |
| ○ Hard Candy or Gum                                                               | As desired                  |  |
| ○ Jelly                                                                           | 2 jars                      |  |
| <b>Miscellaneous</b>                                                              |                             |  |
| ○ Instant Orange drink                                                            | 2 bottles                   |  |
| ○ Instant Coffee                                                                  | 2 bottles                   |  |
| ○ Instant Tea                                                                     | 2 bottles                   |  |
| ○ Non-Dairy Creamer                                                               | 1 bottle                    |  |
| ○ Salt                                                                            | 1 small shaker              |  |
| ○ Pepper                                                                          | 1 small shaker              |  |
| ○ Peanuts                                                                         | 2 jars                      |  |
| ○ Mustard                                                                         | 2 jars                      |  |
| ○ Catsup                                                                          | 1 bottle                    |  |
| ○ Soda                                                                            | 2 6-packs                   |  |
| ○ Peanut Butter                                                                   | 2 jars                      |  |
| ○ Cooking Oil                                                                     | 1 pint                      |  |
| <input type="checkbox"/> <b>Water (drinking and sanitation)</b>                   | 14 gallons                  |  |
| <input type="checkbox"/> <b>Disposable plates, forks, spoons and knives</b>       |                             |  |
| <input type="checkbox"/> <b>Disposable hot and cold cups</b>                      |                             |  |
| <input type="checkbox"/> <b>Paper napkins or towels</b>                           |                             |  |
| <input type="checkbox"/> <b>Non-electric can opener</b>                           |                             |  |
| <input type="checkbox"/> <b>Trash bags</b>                                        |                             |  |
| <input type="checkbox"/> <b>Butane stove with 5-7 day supply of butane fuel</b>   |                             |  |
| <input type="checkbox"/> <b>Matches or butane lighter in waterproof container</b> |                             |  |
| <input type="checkbox"/> <b>Heavy duty aluminum foil</b>                          |                             |  |
| <input type="checkbox"/> <b>Gallon and quart size freezer type zip lock bags</b>  |                             |  |
| <input type="checkbox"/> <b>Small pot/cooking set or camping set</b>              |                             |  |



## Emergency Food Storage Overview

When researching emergency food storage (especially during a prolonged power outage or failure) it is best to consider prepared food that can be consumed directly – or with minimal heating and/or water required. A supply of butane or propane gas and a stove, even a small camping stove, will suffice to heat water or meals. Heating over a can of STERNO (Canned Heat) or a couple of candles will do if necessary.

Of course, consideration of individual dietary health concerns need to be addressed and reflected in your food storage supplies. AVERAGE DAILY RECOMMENDED adult calorie intake = 2,000 to 2,400. Also don't forget PET FOOD.

Commercially Prepared foods generally fall into 3 categories regarding shelf life, Long Term, Medium Term & /Short Term (NOTE: regardless of the type and packaging, all food should be stored in a cool, dark & dry place and never directly on a concrete floor unless on a wooden pallet or platform).

- Long Term (15 – 20+ yrs.) quality foods consist of dehydrated and freeze dried products as individual food items or prepared meals, soups and even desserts. Long term foods typically come in sealed #10 food grade enameled cans (about the size of a gallon paint can) with oxygen absorbers. Dehydrated and freeze dried foods are re-hydrated with hot OR cold water, are balanced, nutritious and high in fiber. These foods can be rotated into your regular diet immediately, or replace your regular diet over a period of 1-2 weeks. Best suited for families or larger groups.  
Military MREs (meals ready to eat) 1 serving meals require no preparation, are primarily designed for physically stressful field or combat use, are somewhat higher in protein and fat & low in fiber. Normally MREs are not recommended for daily use beyond 5-7 days. Under proper conditions MREs can be stored for a long period of time.
- Medium Term (3-5 yrs.) quality foods, almost exclusively, fall into the camping supply category. They are typically prepared, dehydrated & freeze dried meals of 1-2 servings. Designed for backpack hiking and camping they are packaged in reseal foil pouches, are lightweight, convenient and re-hydrate in the pouch using hot or cold water. This type of product is used by some military Special Operations units such as Marine Corps Force Recon Teams. Balanced, nutritious & high fiber.
- Short Term (1-2 yrs.) foods are available at any grocery store, some carry short term dehydrated and freeze dried packages. Canned or packaged foods should have an expiration date printed somewhere on the container or package. Most canned goods for example have an expiration date of about one year from its manufactured date. However, many products may be safe to eat several months longer than "BEST USED BY" or "EXPIRATION" date, use your best judgment. Some grocery store products such

as, instant oatmeal, instant rice, SPAM. dried nuts, dried fruit, honey etc., may store much longer. Nonetheless, rotating your food periodically is best. Also it might be beneficial to include a supply of multivitamins and other supplements.

### **Long Term and Medium Term Storable Food Resources:**

- [www.alpineaire.com](http://www.alpineaire.com) one of the best producers of high quality dehydrated and freeze-dried foods, have been in business for over 30 years, no artificial preservatives or additives, supplies mountaineering expeditions, military units, individual items, family and group storage systems available.
- Natural High – distributed through [www.alpineaire.com](http://www.alpineaire.com) (above), high quality products very similar to alpineaire foods, organic, contact the company for local distributors.
- [www.mountainhouse.com](http://www.mountainhouse.com) another high quality producer, reputable well known company, supplies hikers, campers, hunters, individual items, family and group systems, contact the company for local distributors.
- COSTCO carries individual items and family preparedness food systems, quality unknown.

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## APPENDIX C

### Maps of Mānoa

#### Manoa Valley CERT Zone Maps

**Manoa Valley Zones-**Be Ready Manoa has organized Manoa Valley into 4 zones to coordinate a disaster response.

##### Zone 1

- West Boundary: E Manoa Rd
- East Boundary: Waahila Ridge
- North Boundary: Manoa Chinese Cemetery
- South Boundary: Lowrey Ave

##### Zone 2

- West Boundary: Tantalus Ridge
- East Boundary: E Manoa Rd
- North Boundary: Paradise Park
- South Boundary: Lowrey Ave

##### Zone 3

- West Boundary: University Ave to Oahu Ave
- East Boundary: Waahila Ridge
- North Boundary: Lowrey Ave
- South Boundary: H-1 Freeway

##### Zone 4

- West Boundary: Punahou St to Manoa Rd and along the Tantalus Ridge
- East Boundary: University Ave to Oahu Ave
- North Boundary: Lowrey Ave
- South Boundary: H-1 Freeway

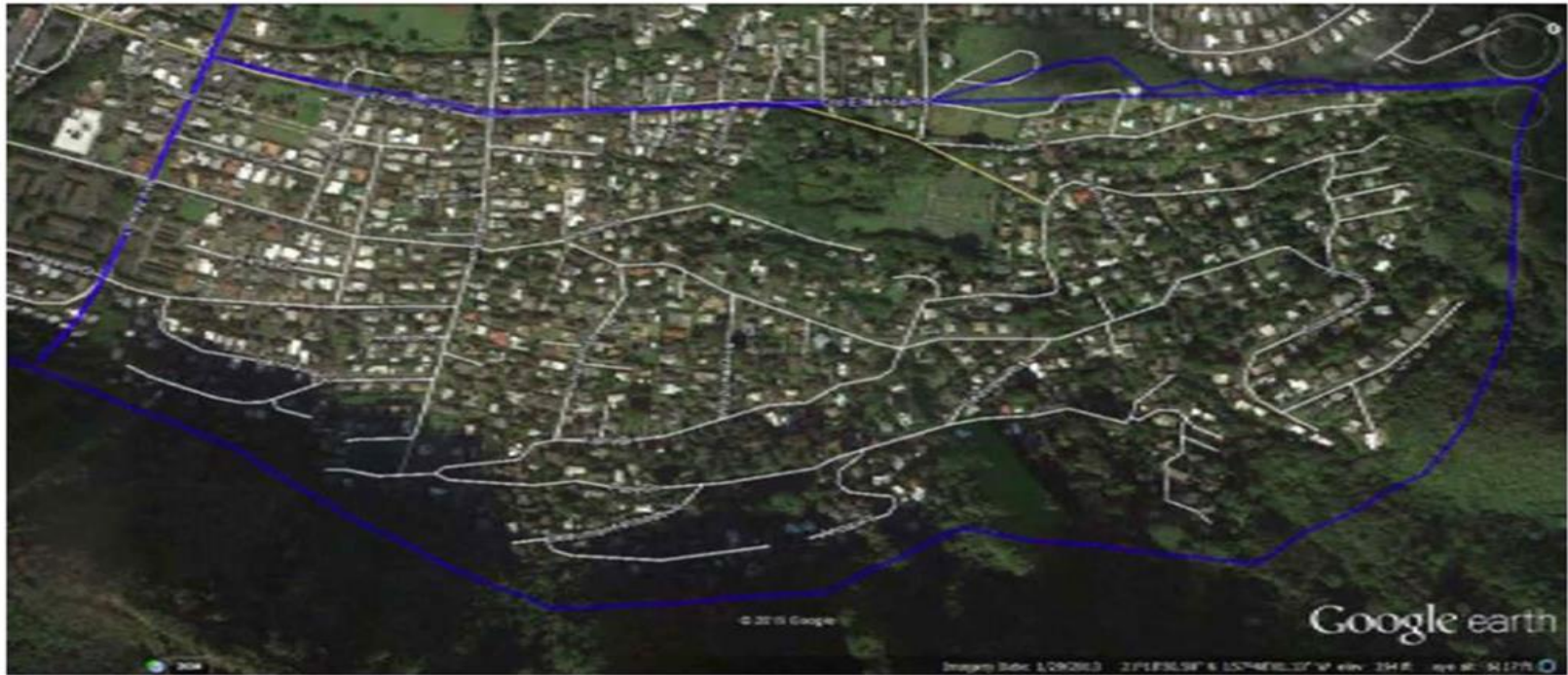


## Manoa Valley Zones

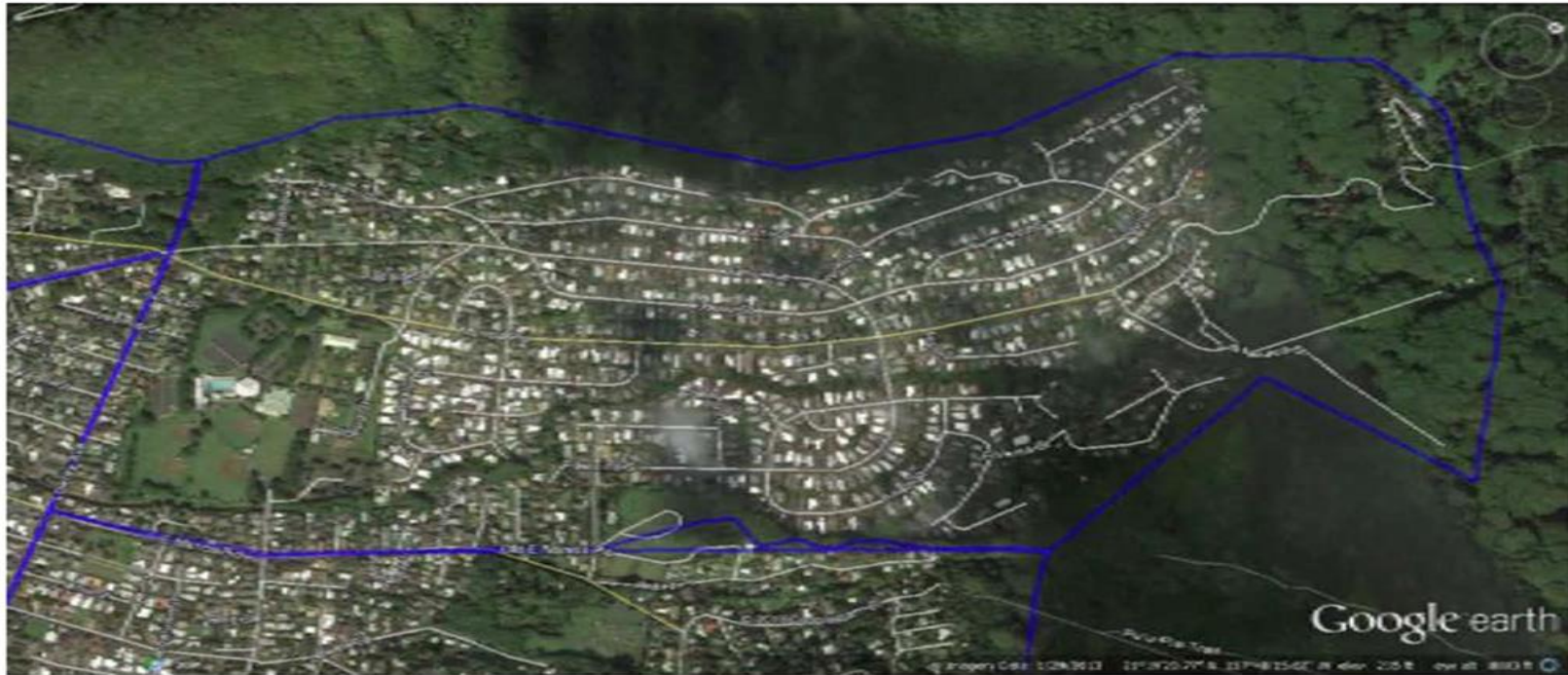




## Zone 1

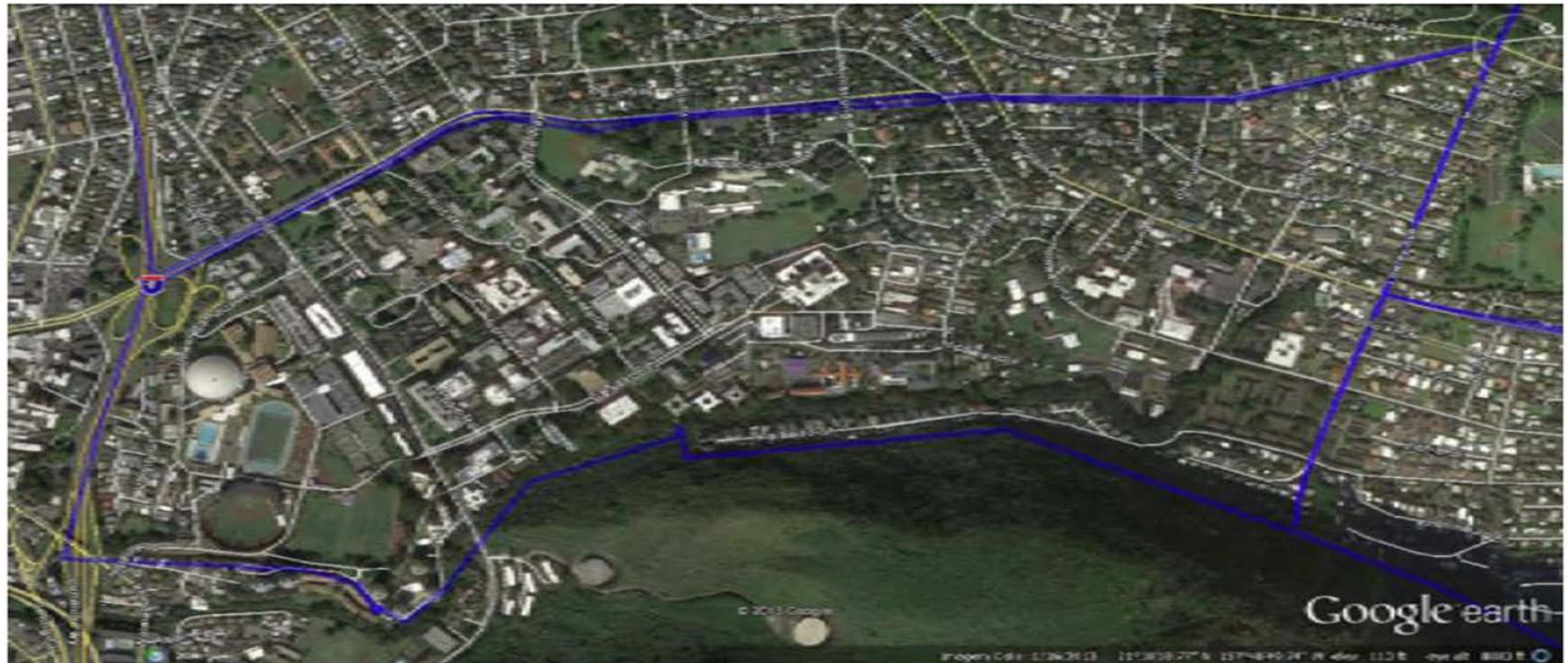


## Zone 2

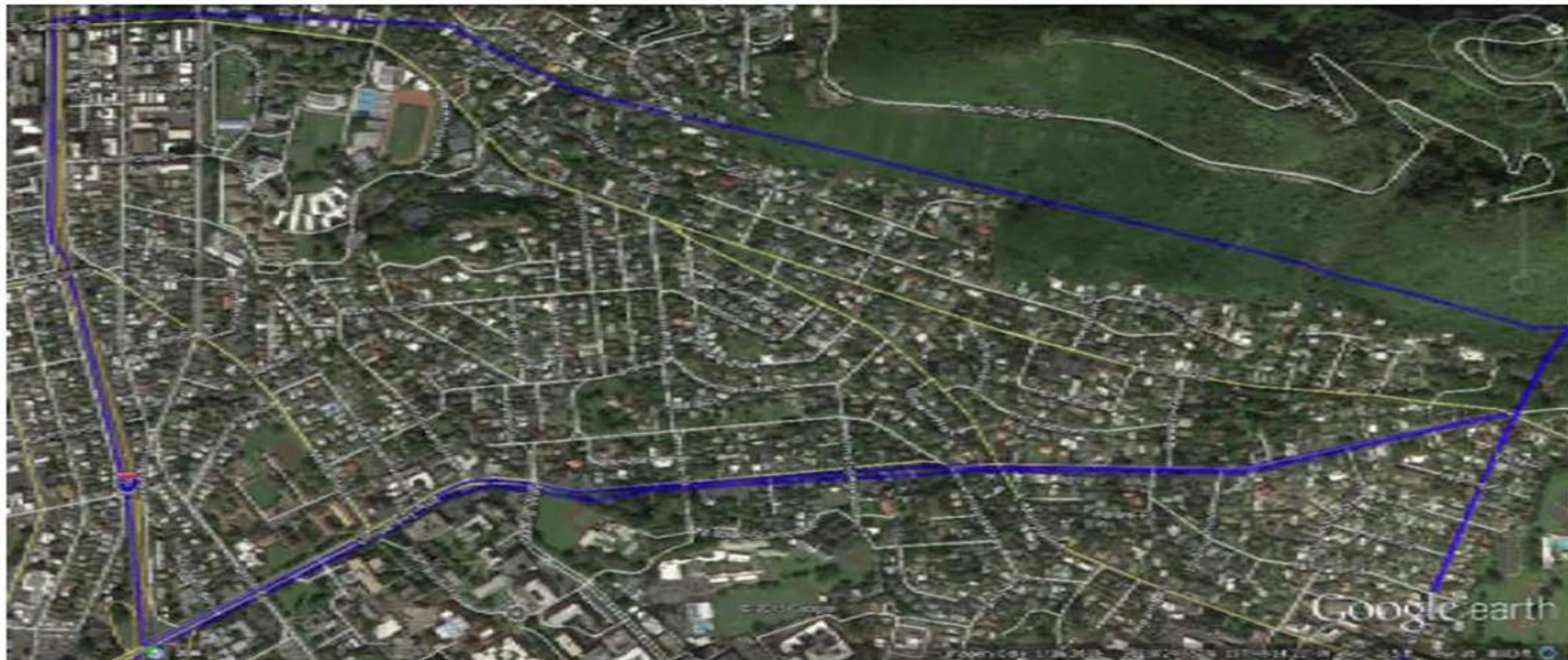




## Zone 3



## Zone 4





# Manoa Valley Critical Infrastructure Map

