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Tsunami Awareness Month Recognizes 50 Years of Warning Progress

The State of Hawaii annually recognizes April as Tsunami Awareness Month to honor the victims and survivors of the April 1, 1946, tsunami generated by an earthquake in the Aleutian Islands. Throughout the month, knowledge-building [events](#) and activities will take place across the state in an effort to encourage local residents to become informed, stay vigilant, have a plan, and follow the instructions of officials during evacuation.

As part of the commemorative month, an international tsunami symposium themed "Making the Pacific Ready for the Tsunami Threat," will be held at the National Oceanic and Atmospheric Administration (NOAA) Daniel K. Inouye Regional Center on Ford Island, Honolulu, on April 20-21. The symposium will also [honor](#) the 50th anniversary of the Pacific Tsunami Warning and Mitigation System (PTWS), highlighting its achievements over the last 50 years and identifying the way forward to sustain and evolve the warning system for the future.



April 1, 1946. People flee as a tsunami attacks downtown Hilo, Hawaii (Bishop Museum Archives)

Devoting an entire month on tsunami awareness is appropriate for the Hawaiian island chain as its location in the middle of the Pacific, and at the center of the Ring of Fire, is vulnerable to frequent earthquakes and volcanic activity. As a result, at any time, in any season, the state is susceptible to a locally generated, fast-arriving tsunami from an earthquake, landslide, or volcanic eruption; or a distant-source tsunami, generated by an earthquake in Chile, Alaska, Japan, or the South Pacific, for example. With many of Hawaii's residents (and visitors) living, working, and playing in coastal areas, the collaborative effort involving state, county, and local agencies—and including the Pacific Tsunami Warning Center (PTWC), Pacific Disaster Center (PDC), and the media—is invaluable for meeting the requirements of mitigation, preparedness, response, and recovery.

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The current and selected past issues are also available at:

www.hawaiiinfip.org

If you wish to receive the Wai Halana via email or wish to be removed from our mailing list, please contact Kristen Akamine at (808) 587-0281.

Upcoming Events

ASFPM 39th Annual National Conference

"Mitigation on my Mind"

May 31-June 5, 2015



The Association of State Floodplain Managers will convene the world's largest and most comprehensive floodplain management conference the of week May 31 – June 5, 2015, at the Hyatt Regency in downtown Atlanta, Georgia.

<http://www.asfpmconference.org/>

Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency show flood zones that delineate areas of high flood hazard (for example, Zone AE and VE as seen to the right) as well as medium, low, and unknown flood hazard areas. These zones can be viewed for Hawaii at:

<http://gis.hawaiiinfip.org/fhat> and <http://msc.fema.gov>. The

flood zones can be a result of localized rainfall, tropical storms, tsunamis, flash floods, or levee failure.

FIRMs are used by communities to manage new development and promote sound land use in floodplains. FIRMs are also used to determine who may be required to purchase flood insurance and the rating of the insur-

What are the Differences Between Tsunami Evacuation Zones and Flood Insurance Rate Maps?

Original Article from January 2011 Wai Halana (updated)

Written by: Eric Simmons, FEMA RIX



Continued from Page 1 "Tsunami Awareness Month Recognizes 50 Years of Warning Progress"

Residents of Hawaii are encouraged to learn tsunami-warning signs and take immediate action if they suspect a tsunami is approaching, to learn evacuation strategies, and to consider community approaches to resilience. There are a number of resources that have been developed for tsunami education and readiness.

To learn more about tsunamis for the safety of your family, start with these resources:

- Find more [information](#) on Tsunami Awareness Month events,
- Learn about the Tsunami Awareness Program ([TAP](#)), or
- Hawaii Hazards Awareness & Resilience Program ([HHARP](#)) to enhance community resilience,
- View [Tsunami Information](#) on the PDC website,
- Access both the static and interactive maps of [tsunami evacuation zones](#),
- Read information about the [Indian Ocean Tsunami](#) of December 2004,
- Refer to the International Tsunami Information Center's 2013 Tsunami [Glossary](#),
- Look at a [7-point list](#) of Tsunami Preparedness steps,
- Read about how parents can [help kids](#) learn about disaster preparedness, and
- View a National Geographic video of the 2011 [Tohoku](#) Tsunami in Japan.



Source: Pacific Disaster Center (www.pdc.org)



Updated "Reducing Flood Losses through the International Codes" now includes Three Model Code-Coordinated Floodplain Management Ordinances

By John Ingargiola, EI, CFM, CBO, Senior Engineer, FEMA Building Science Branch and Gregory Wilson, Building Science Program Specialist, FEMA Building Science Branch

Communities participating in the National Flood Insurance Program can rely on the 2009 and later editions of the International Codes® (I-Codes) to form the basis of their floodplain management practices. Now that FEMA deems that those provisions meet or exceed the NFIP requirements for buildings, the concept of states and communities coordinating floodplain management regulations with the flood provisions of the I-Codes gains importance. The primary objective of this coordination is to eliminate duplication and inconsistencies.

Developed by the International Code Council in cooperation with FEMA, the fourth edition of [Reducing Flood Losses through the International Codes](#) provides tools for state and local officials to integrate the I-Codes into current floodplain management regulatory processes.

"This is a great tool and a huge undertaking. It will answer a lot of questions," said Ivy Frances, FEMA Region I Floodplain Management and Insurance Branch Chief. Nicole Lick, FEMA Region III Floodplain Management and Insurance Branch Chief, agreed, adding, "This is a tremendous undertaking and News you can use... News & Views December 2014 8 certainly helped clarify for me a number of head scratchers. I think it is well written and very concise in addressing very complex issues." Frances and Lick, along with Patricia Rippe, FEMA Region IX Acting Risk Analysis Branch Chief, reviewed the fourth edition.

The guide introduces and provides a [link](#) to download three versions of a model floodplain management ordinance that satisfies NFIP requirements and coordinates with the flood provisions of the I-Codes. The guide also describes the differences between NFIP regulations and I-Code requirements for buildings; identifies pertinent questions that should be answered in the context of each state's or local community's existing statutes and codes; and offers examples of how the I-Codes can be modified to incorporate even higher standards to increase resistance to flood damage.

Source: ASFP News & Views (December 2014)



Reducing Flood Losses Through the International Codes®

Coordinating Building Codes and Floodplain Management Regulations
4th Edition, 2014



in cooperation with the Federal Emergency Management Agency



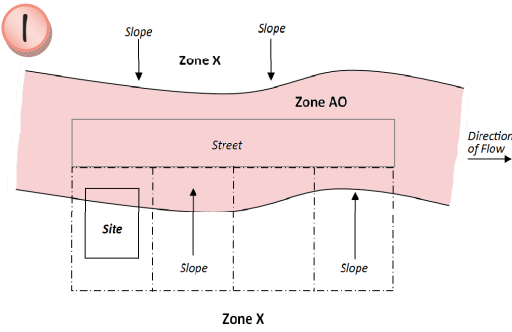
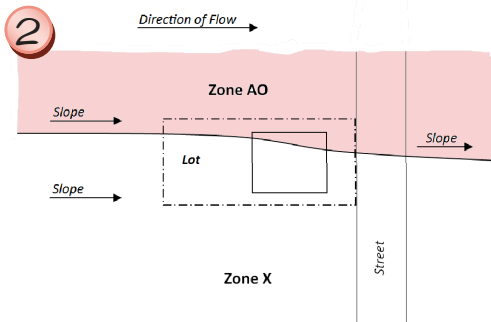
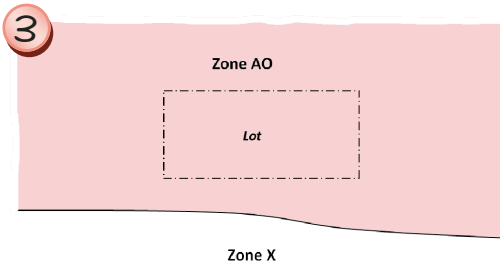
Can I get a LOMA in an AO Zone ?

The short answer: “It’s possible”. For any removal from the Special Flood Hazard Area on FEMA’s Flood Insurance Rate Map (FIRM), an applicant needs to demonstrate to FEMA that the Lowest Adjacent Grade (LAG) is at or above the Base Flood Elevation (BFE).

An AO Zone is an area subject to inundation by the 1 percent annual chance shallow flooding (typically sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown in this zone on the FIRM maps. Unlike an AE zone, where BFEs have been calculated for you, a FIRM map doesn’t provide a BFE for AO Zones. Instead you’ll typically see a “depth number” labeled on the FIRM map, which represents the anticipated depth of flooding by a 1 percent annual chance event. If no depth number is identified on the FIRM, then the default depth is 2 feet.

In order for a property owner to obtain an approved Letter of Map Amendment (LOMA) that removes their structure from the AO zone, FEMA will need to evaluate the LAG and the calculated BFE. If the LAG is at or above the calculated BFE (see Figure 1), then FEMA will remove the structure from the AO Zone.

As explained in FEMA’s MT-1 and MT-EZ application forms, there are several ways the BFE is calculated in an AO Zone. The table below summarizes the different scenarios and methodologies:

Scenario	Lot Inundated by AO Zone	Flow is Conveyed by Street/Roadway	BFE Calculation
	Partial	YES	$\text{BFE} = \text{Depth Number} + \text{Highest Top of Curb or Crown of Street Elevation (whichever is higher) along the Property Line}$
	Partial	NO	$\text{BFE} = \text{Depth Number} + \text{Lowest Lot Elevation}$
	Entire Lot	NO	$\text{BFE} = \text{Depth Number} + \text{Average Surrounding Grade}$

Continued from Page 4 "Can I get a LOMA in an AO Zone?"

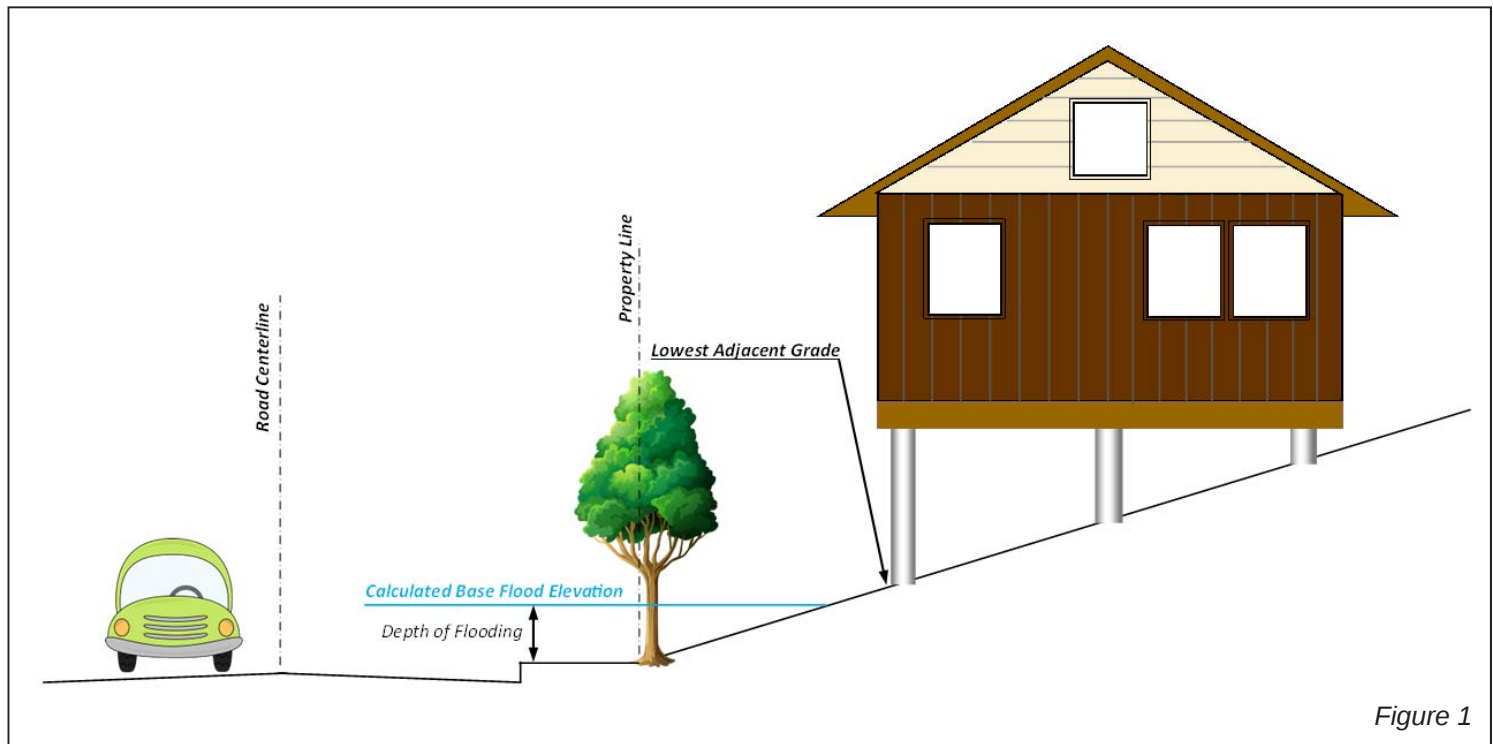
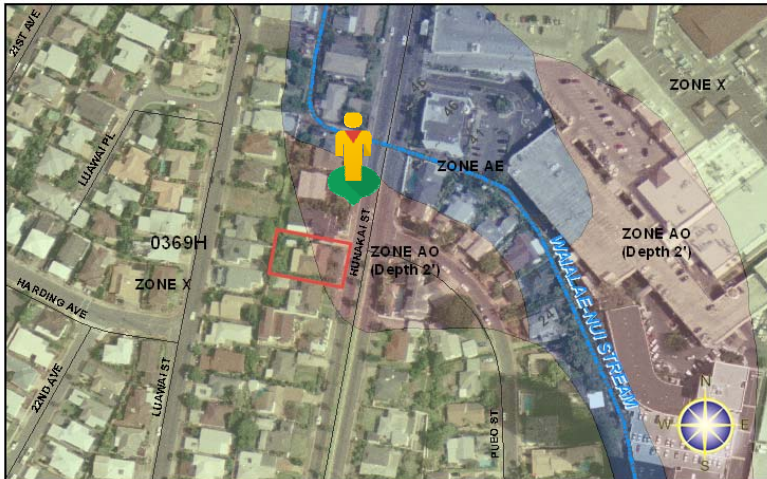


Figure 1

The following is an example of a LOMA that was approved for a property in Kahala. This case was similar to Scenario #2. The structure, which is perched above Hunakai Street, was shown to be partially inundated by the 1 percent annual chance event (AO zone). However, through survey, the property owner was able to demonstrate that the lowest adjacent grade (49.0') is higher than the calculated BFE (lowest lot elevation + 2' depth of flooding).



Page 1 of 2		Date: November 06, 2014		Case No.: 14-09-4243A		LOMA	
 Federal Emergency Management Agency Washington, D.C. 20472							
LETTER OF MAP AMENDMENT DETERMINATION DOCUMENT (REMOVAL)							
COMMUNITY AND MAP PANEL INFORMATION				LEGAL PROPERTY DESCRIPTION			
CITY AND COUNTY OF HONOLULU, HAWAII				Lot 11, Block 2, Waialae Neighborhood Subdivision Tract A, as shown on the Plat recorded as File No. 478, in the Office of the Bureau of Conveyances, Honolulu County, Hawaii			
COMMUNITY NO.: 150001							
AFFECTED MAP PANEL NUMBER: 15003C0369H							
DATE: 11/5/2014							
FLOODING SOURCE: SHEET FLOW				APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 21.276, -157.789 SOURCE OF LAT & LONG: GOOGLE EARTH PRO DATUM: NAD 83			
DETERMINATION							
LOT	BLOCK/SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (LTD)	LOWEST ADJACENT GRADE ELEVATION (LTD)
11	2	Waialae Neighborhood Tract A	1178 Hunakai Street	Structure	X (shaded)	47.5 feet	49.0 feet
Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).							
ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)							
PORTIONS REMAIN IN THE SFHA STUDY UNDERWAY							
This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the structure(s) on the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.							
This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605.							
Luis Rodriguez, P.E., Chief Engineering Management Branch Federal Insurance and Mitigation Administration							

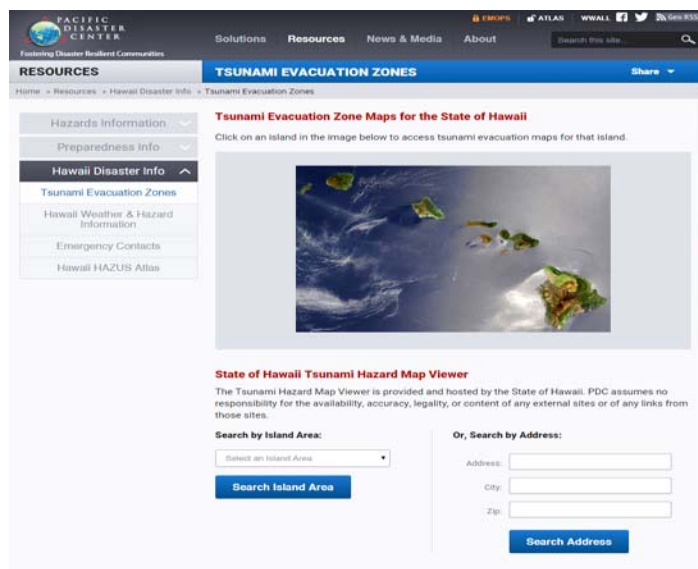
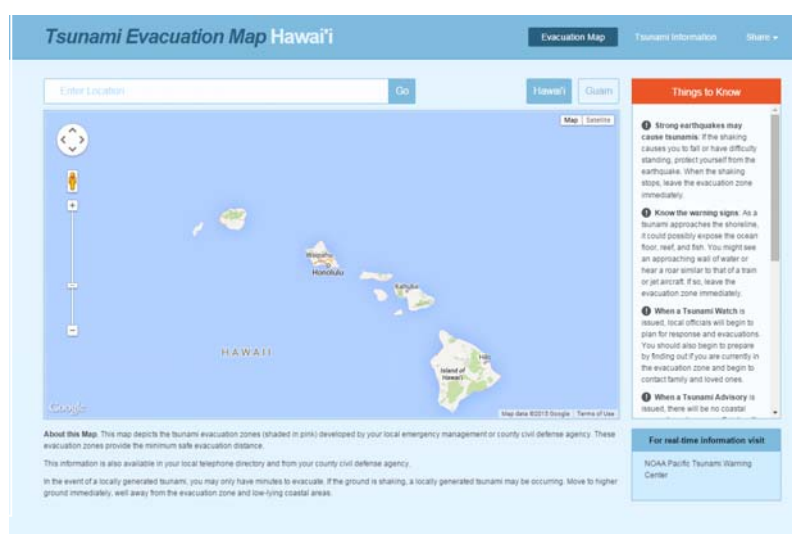
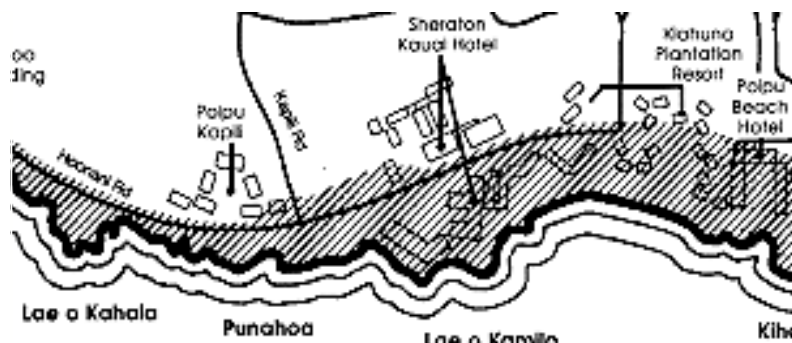


ance premiums. FIRMs are updated due to changes in topography, construction activity, and the availability of more accurate flood hazard information. For the islands of Kauai, Oahu, Maui and Lanai, the flood zones along the southern coastlines were updated using the latest scientific techniques to reflect flood hazards from hurricanes.

Tsunami evacuation zones, as seen in the telephone books, are established by the individual Hawaiian Counties in conjunction with State public safety officials and are viewable at:

<http://tsunami.csc.noaa.gov/map.html>.

These maps identify areas that may be impacted by a tsunami and must be evacuated under a tsunami warning. The tsunami maps are not inundation maps, like the Flood Insurance Rate Maps. The tsunami evacuation maps have been recently updated for Oahu and are being updated statewide. The new zones on these maps were developed using updated technology. In some instances the new maps identify wider evacuation zones. Citizens can obtain general information about tsunami evacuation zones by visiting the website at <http://www.pdc.org/resources/hawaii-disaster-info/tsunami-zones/>.



Map Comparison Chart

Tsunami Evacuation Zones		Flood Insurance Rate Maps
Purpose of Map	Informational to plan for evacuation during a tsunami	Insurance rating, determination of what structures may require flood insurance, and floodplain management.
Map Source	County with data developed by the State of Hawaii Civil Defense	Federal Emergency Management Agency.
Type of Floods Depicted on Map	Tsunami	Riverine and coastal flooding due to tropical storms and hurricanes, heavy rainfall, and -in some areas- tsunami or levee failure. Flood zones are based on the 1% annual chance (100-year) event and, where available, the 0.2% annual chance (500-year) event.
Information on Map	Evacuation area impacted by worst-case tsunami	Flood hazard zones, cross section/transect locations, hydraulic structures, base flood elevations, etc.

