Mitigating Climate-Activated Disasters Hazard Mitigation Plan Update

February 4, 2020 County of Maui

RECEIVED AT PAR MEETING ON 2/3/20

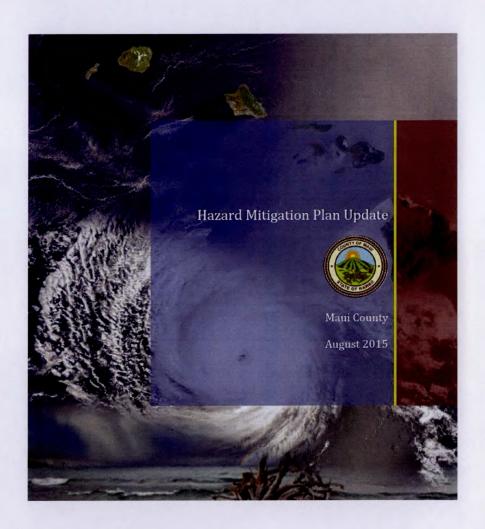
Climate Action and Resilience Committee

JAMIE CAPLAN CONSULTING LLC

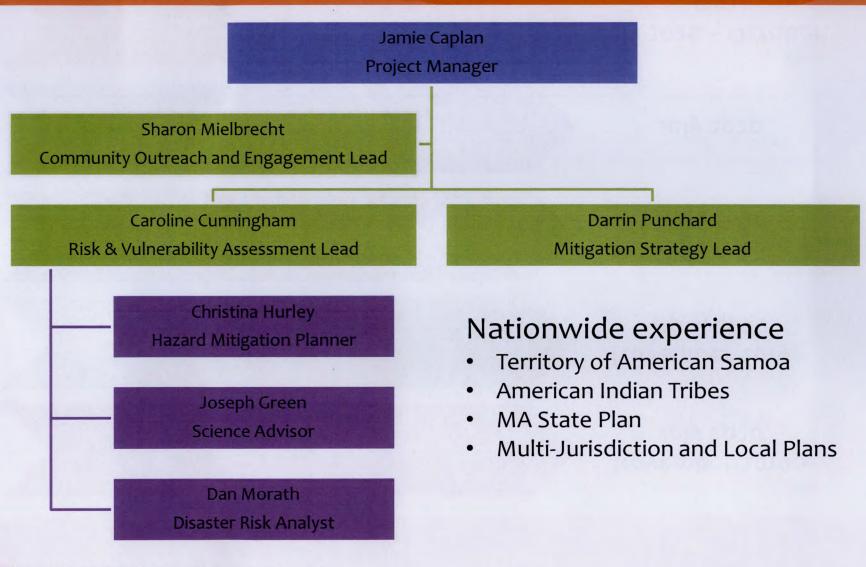
Emergency Management Services

Hazard Mitigation Plan

The Maui County Hazard Mitigation Plan serves as an essential guide to reducing current and future risks to natural hazards and improving the emergency preparedness of the county's three islands.



Consulting Team



Community Driven - Project Approach

Task 1. Planning Process

November 2019 – July 2020

Task 2. Hazard Analysis & Risk Assessment

November 2019 – April 2020

Task 3. Mitigation Strategy

November 2019 – June 2020

Task 4. Plan Review, Evaluation, & Implementation

July 2020

Task 5. Plan Approval and Adoption

July 2020 – October 2020

Plan Development Process Purpose

- FEMA Approval
- Enhance current CRS rating of Class 7
- Extensive public engagement process



- 1. Molokai
- 2. Lanai
- 3. West Maui
- 4. Central Maui
- 5. North Maui
- 6. South Maui
- 7. Upcountry Maui
- 8. East Maui

Task 1 Planning Process









1.1 Project
Initiation and
Kick-off
Meeting

1.2 Steering Committee Meetings 1.3 Public and Stakeholder Engagement 1.4 Draft Plan and Document the Planning Process

Steering Committee

1. Herman Andaya	MEMA	Administrator
2. Tara Owens	University of Hawaii Manoa	Coastal Hazards Specialist
3. Annette Matsuda	Department of Transportation - Highways	Maintenance Engineer
4. Bridget Velasco	Department of Health	Public Health Planner
5. Rowena Dagdag-Andaya	Department of Public Works	Director
6. Todd Teraoka	Maui Fire Department	Fire Captain
7. Chris Reynolds	Maui Electric	Director - Operational Tech.
8. Joyce Kawakami	Feed My Sheep	CEO, Founder
9. Michele Blair	American Red Cross	Maui County Director
10. Janet Kuwahara	Maui Visitor's Bureau	Senior Manager of Ops.
11. Diego Sanchez-Gomez	Planning	Floodplain Manager
12. Kathleen Aoki	Planning	Division Chief
		Shoreline Planner/Chair, State
13. Jim Buika	Planning	Hazard Mitigation Forum
14. Zhantell Lindo	CM Keani Rawlins-Fernandez EA	Executive Assistant
15. Gail Miyahira	Hawaii Healthcare Emergency Management	Maui County Coordinator
16. Lindsay Ball	Department of Education	Area Superintendent
18. Sharon Mielbrecht	Pacific Disaster Center	Hazard Mitigation Specialist
19. Alex DeRoode	Maui County	Energy Commissioner
20. Chana Ane	Office of Economic Development	Environmental Coordinator
21. Loren Lapow	Maui Hero Project	Founder - Maui Hero Project
22. Lance De Silva	Division of Forestry & Wildlife	Forestry Program Manager
23. Toni Eaton	Hawaiian Homelands	Maui District Supervisor

Steering Committee Roles



Help guide and inform plan development.



Provide supporting data or information.



Assist in the identification and prioritization of mitigation actions.



Review and comment on draft plan deliverables.



Participate in public outreach/stakeholder engagement.



Approve final draft plan prior to submission to FEMA.

Fact Sheet and Webpage



County of Maui Hazard Mitigation Plan Update

FACT SHEET

The Maul Emergency Management Agency (MEMA) is developing an update to the County's Hazard Mitigation Plan. The plan serves as an essential strategy for reducing current and future risks to natural hazards and improving the emergency preparedness of the county's three islands. Updates are required every five years. This update is scheduled for completion in Summer 2020.

The Hazard Mitigation Plan Update will focus on the identification, assessment, and mitigation of natural hazards such as widdfires, coastal erosion, and tropical storms. The plan will result in a list of mitigation actions or projects the County can take to save lives and reduce damages. It will also double as a creditable "floodplain management plan" under FEMA's Community Rating System (QRS), helping the County maintain its current CRS rating of Class 7.

Federal Emergency Management Agency (FEMA) Requirements Met Once approved by FEMA, the plan makes the County eligible for pre- and post-desaster mitigation project grant funding through FEMA's Hazard Mitigation Assistance (HMA) programs and other non-emergency disaster assistance.

Hazard Mitigation Plans

Hazard Mitigation Plans form the foundation for a long-term strategy to reduce disaster losses and break the cycle of disaster damage, rebuilding, and repeated damage.



Public Meetings-Everyone is Welcome
Additional Public Meetings in April and June

Steering Committee

☐ Department of Educa` on

Transporta' on - High

Emergency Managem

Division of Forestry and

☐ Hawaiian Home banks

Maui Fire Department

☐ Maui Visitor's Bureau

☐ University of Hawaii Mar

Flash Flood Precautions

□ Office of Economic

☐ Maui Hero Project

Department of Health

☐ Department of Public

Department of

☐ Feed My Sheep

Maui Electric
 Maui Emergency

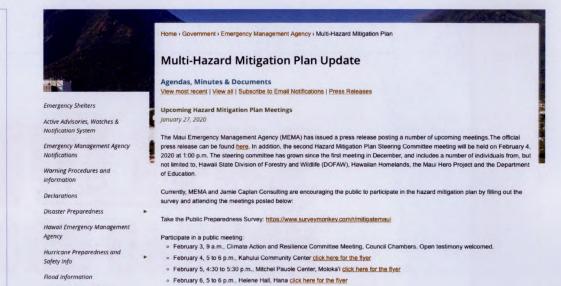
Representation

Central Maui	2/4/20
Kahului Community Center	5:00 pm - 6:00 pm
Molokai	2/5/20
Mitchell Paucle Center	4:30 pm - 5:30 pm
Hana	2/6/20
Helene Hall	5:00 pm -6:00 pm

Reduce or Eliminate Risk to People and Property from Natural Hazards.

Fire in Central Plani

For more information and to get involved, please contact Authory Joyce, PhD, Hazard Mitigation Specialist, Grants Manager, Maul Emergency Management Agency, Phone: (808) 270-7286 Email: anthony coveregenationarity gov



https://www.mauicounty.gov/1832 /Multi-Hazard-Mitigation-Plan

https://www.surveymonkey.com/r/mitigatemaui



Public Meetings

County of Mauii Midigation Plan Update

PUBLIC MEETING

DISASTER MITIGATION

February 4, 2020

Kahului Community Center, Central Maui 5:00 p.m. – 6:00 p.m.

The development of the Maui County Hazard Mitigation Plan Update is underway. This plan will serve as a strategy for reducing current and future risks in the County and enable the County to leverage Federal funding sources to prevent damages from natural hazards such as wildfires, power outages, and floods.

During this public meeting, you will learn about the process of developing the plan and contribute your ideas for making the island safer and more resilient to natural hazards.

Take the Maui County Disaster Preparedness Survey Today. https://www.surveymonkey.com/r/mitigatemaui.

Your Participation is Needed!



Share your ideas for reducing risk on Central Maui.

Rower Outages, Castal Erosion, Hurricanes!

FOR MORE INFORMATION CONTACT Anthony Joyce, PhD, Hazard Mitigation Specialist Maui Emergency Management Agency (808) 270-7286 anthony joyce@mauicounty.gov Refreshments Served!

- Kahului Community
 Center, Central Maui
- 2. Mitchell Pauole Center, Moloka'i
- 3. Helene Hall, Hana





Stakeholder Meetings

Herman Andaya	Administrator, MEMA
Kathleen Aoki	Planning Division Chief
Jim Buika	Shoreline Planner, County of Maui and Chair, State Hazard Mitigation Forum
Rowena Dagdag- Andaya and Jordan Molina	Director, Department of Public Works and Deputy Director, Department of Public Works
Sherry Duong and Janet Kuwahara	Executive Director, and Senior Manager of Operations, Maui Visitors and Convention Bureau
Andrea Finkelstein	Operations Officer, MEMA
Paul Haake	Fire Captain, Fire Prevention Bureau
Joyce Kawakami	CEO, Founder, Feed My Sheep, VOAD Leader
Keanu Lau Hee	Coastal Planning, County of Maui
Tara Owens	Coastal Hazards Specialist, University of Hawaii
Chris Reynolds	Incident Commander, Hawaiian Electric
Diego Sanchez- Gomez	County Floodplain Manager
Todd Teraoka	Fire Captain, Maui Fire Department
Bridget Velasco	Public Health Planner, Department of Health

Task 2 Hazard Analysis and Risk Assessment

- 2.1 Review Hazards
- 2.2 Update Hazard Profiles
- 2.3 Assess Vulnerability and Impacts
- 2.4 Develop Vulnerability
 Summary



Hazard Identification

2020 Maui County Hazards

Coastal erosion

Dam and reservoir failure

Drought

Earthquake

Flood - Inland (e.g., riverine, pluvial/urban, ponding) and Coastal (e.g., coastal, high surf, sea level rise)

High wind storm

Landslide, debris flow, and rockfall

Hurricane (including Tropical Storm and Kona Storms)

Tsunami

Volcanic hazards (Lava, VOG)

Wildfire

Hazardous materials incident (added for 2020)

Health risks (added for 2020)

Extreme cold (added for 2020)

Extreme heat (added for 2020)

Climate Impact Considerations



Climate Data Collection

- Pacific Islands ocean Observing System (PaclOOS)
- National Climate Assessment
- National Oceanic and Atmospheric Administration
- Pacific Disaster Center
- University of Hawaii
- · Others?





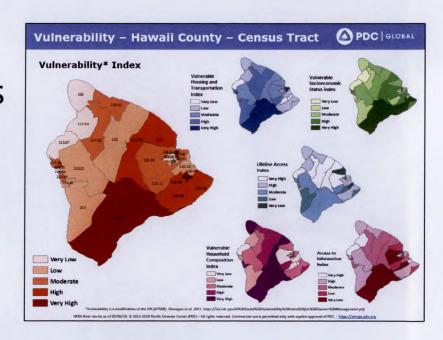






Assess Vulnerability

- At Risk Assets
 - Number
 - Value of potential losses
- Development Trends and Land Use
- Climate Change Considerations
- Socio-economic
 Vulnerability



Task 3 Mitigation Strategy

3.1 Update Capability Assessment

3.2 Update Mitigation Plan Goals

3.3 Analyze and Update Previous Mitigation Actions

3.4 Develop and Prioritize Mitigation Action Plan



North Sore Baldwin Beach Pavilion

Types of Mitigation Actions



Plans and Regulations

Adhere to building codes and resilience standards in citing and design of buildings



Structure and Infrastructure

Invest in resilient infrastructure



Nature Based Solutions

Maintain the natural and beneficial functions of floodplains



Education and Outreach

Foster resilient communities and smart growth

Develop and Prioritize Mitigation Actions



Overall Strategy

Structural and non-structural measures included

Climate adaptation emphasized

Cost-benefit review conducted



Community-based action plans

Realistic

Implementable

Prioritized

Task 4 Plan Review, Evaluation and Implementation







4.1 Develop Plan Maintenance Procedures 4.2 Develop
Procedures for
Continued Public
Involvement

4.3 Document Plan Update Changes

Task 5 Plan Approval and Adoption

5.1 Steering Committee and Public Review of Draft Plan (~July 2020)

5.2 Review by Hawaii Emergency Management Agency

5.3 Review and Approval by Federal Emergency Management Agency

5.4 County Adoption (~October 2020)

Results



Blueprint for resilient and sustainable County.



Consistent with state and regional plans.



FEMA standards exceeded.



Relationships fostered.



Useful and operational resource.

Thank You

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	jamie@jamiecaplan.com
Sharon	Pacific Disaster Center
Mielbrecht	Office) 808-891-7927
	smielbrecht@pdc.org
Caroline	Stantec
Cunningham	Office) 919-475-9171
	Caroline.Cunningham@Stantec.com



County of Maui Hazard Mitigation Plan Update

FACT SHEET

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The Hazard Mitigation Plan Update will focus on the identification, assessment, and mitigation of natural hazards such as wildfires, coastal erosion, and tropical storms. The plan will result in a list of mitigation actions or projects the County can take to save lives and reduce damages. It will also double as a creditable "floodplain management plan" under FEMA's Community Rating System (CRS), helping the County maintain its current CRS rating of Class 7.

Federal Emergency Management Agency (FEMA) Requirements Met

Once approved by FEMA, the plan makes the County eligible for pre- and post-disaster mitigation project grant funding through FEMA's Hazard Mitigation Assistance (HMA) programs and other non-emergency disaster assistance.

Hazard Mitigation Plans

Hazard Mitigation Plans form the foundation for a long-term strategy to reduce disaster losses and break the cycle of disaster damage, rebuilding, and repeated damage.

Steering Committee Representation

- American Red Cross
- · Department of Education
- · Department of Health
- Department of Public Works
- Department of Transportation – Highways
- Feed My Sheep
- Hawaii Healthcare
 Emergency Management
- Hawaiian Homelands,
 Division of Forestry and
 Wildlife
- Maui Electric
- Maui Emergency
 Management Agency
- Maui Fire Department
- Maui Hero Project
- Maui Planning Department
- Maui Visitor's Bureau
- Office of Economic Development
- Pacific Disaster Center
- University of Hawaii Manoa



Public Meetings–Everyone is Welcome Additional Public Meetings in April and June

2/4/20
5:00 pm - 6:00 pm
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4:30 pm - 5:30 pm
2/6/20
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Reduce or Eliminate Risk to People and Property from Natural Hazards.

Fire in Central Maui

For more information and to get involved, please contact Anthony Joyce, PhD, Hazard Mitigation Specialist, Grants Manager, Maui Emergency Management Agency, Phone: (808) 270-7286

Email: anthony.joyce@mauicounty.gov



County of Maui Hazard Mitigation Plan Update



Hurricane Lane Flooding on Puu Way

Maui County Residents - Get Involved!

Opportunities exist for Maui County residents to get involved in the hazard mitigation planning process including:

Steering Committee

A Steering Committee of County leaders has been convened to guide the planning process. The Committee will meet four times during the planning process; their knowledge and participation is critical to the success of the project.

Public Opinion Survey

A Public Opinion Survey is available online. Survey results will identify what hazards are

of greatest concern and what mitigation actions are of interest. You can access the survey at https://www.surveymonkey.com/r/mitigatemaui.

Public Meetings

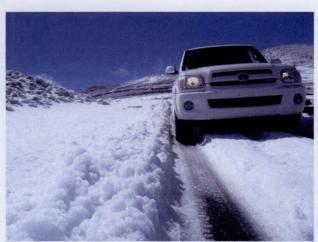
These meetings provide an opportunity to discuss the unique risks, capabilities and mitigation actions necessary for each region of the county.

Stakeholder Meetings

Generating interest, soliciting input and engaging partners in the plan development process provides an opportunity for project leaders to gain significant insight into the needs and capabilities of County leaders and businesses.

Purpose of Mitigation Plan Update

- Develop County Mitigation Plan Update for FEMA Approval
- Revise Risk and Vulnerability Assessment with Best Available Data
- Update Mitigation Strategy with Feasible Actions to Reduce Risk
- Maintain Community Rating System (CRS) Status to keep Flood Insurance Costs Down



Winter Storm Causes Ice and Snow on Haleakala

For more information and to get involved, please contact Anthony Joyce, PhD, Hazard Mitigation Specialist, Grants Manager, Maui Emergency Management Agency, Phone: (808) 270-7286

Email: anthony.joyce@mauicounty.gov



1. Natural Hazards and Community Vulnerabilities

The Maui Emergency Management Agency (MEMA) is updating the County's 2015 Hazard Mitigation Plan. The plan will identify and assess the County's natural hazard risks (such as coastal erosion, hurricanes, and flooding) and determine how to best minimize or manage those risks. The updated plan will make Maui County eligible to receive pre-disaster mitigation grant funds from FEMA and other agencies.

Your responses to this survey will help MEMA to better understand your hazard concerns and opinions regarding strategies to reduce hazard risk. Participation in this survey is voluntary and none of the information you provide will be attributed to you directly.

If you have any questions regarding this survey or would like to learn about more ways you can participate in the development of the Hazard Mitigation Plan Update, please contact Anthony J. Joyce, PhD. at (808) 270-7286 or by e-mail at anthony.joyce@mauicounty.gov or visit the MEMA Mitigation Webpage at https://www.mauicounty.gov/1832/Multi-Hazard-Mitigation-Plan.

	Very Concerned	Somewhat Concerned	Not Concerned
Coastal Erosion	0	0	0
Dam or Reservoir Failure	0	0	0
Drought	0	0	0
Earthquake	0	0	0
Inland Flooding	0	0	0
Coastal Flooding (high surf, sea level rise)	0	0	0
High Wind Storm	0	0	0
Landslide, Debris Flow, Rockfall	0	0	0
Hurricane, Tropical Storm	0	0	0
Tsunami	0	0	0
Fire	0	0	0
Volcanic Hazards (Lava, Vog)	0	0	0
Climate Change	0	0	0
Hazardous Materials Incidents	.0	0	0
Extreme Heat	0	0	0
Extreme Cold	0	0	0
nem by location (e,g.,	c areas of your commu street address, intersec	nity exposed to the hazards ab	ove? If so, please lis

Protect private property Protect critical facilities (i.e. transportation	0	0	0
facilities (i.e.			
networks, hospitals, fire stations)	O	0	O
Prevent development in high hazard areas	0	0	0
Enhance the function of natural features (i.e. wetlands, sand dunes, floodplains)	0	0	0
Protect historical and cultural landmarks	0	0	0
Protect and reduce damage to utilities	0	0	0
Strengthen emergency services (e.g., police, fire, ems)	0	0	0
Promote cooperation between public agencies, citizens, non-profit groups and businesses.	0	0	. 0
Protection and restoration of natural systems (i.e., stream corridors, forests, conservation areas)	0	0	0
Promote hazard awareness and preparedness	0	0	- 0

	Agree	Neutral	Disagree
I support a regulatory approach to reducing risk	0	0	0
I support policies to prohibit development in areas subject to natural hazards	0	0	0
I support the use of tax dollars (federal and/or local) to compensate land owners for not developing in areas subject to natural hazards	0	0	0
I support the use of local tax dollars to reduce risks and losses from natural disasters	0	0	0
support protecting historical structures	0	0	0
I would be willing to make my home more disaster-resistant	0	0	0
I support steps to safeguard the local economy following a disaster event		0	0
I support improving disaster preparedness of local schools	0		0
I support increasing building and infrastructure code standards	0		0

5	5. Please indicate your level of agreement with each of the following statements.
	The effects of climate change are directly impacting Maui County.
	Plans and policies should be in place to address climate change impacts.
	Climate change is not affecting Maui County.
6	6. What climate changes have you observed?
L	
7	7. How can Maui County support risk reduction in your community? Please choose all that apply.
	Provide outreach and education to residents and businesses to help them understand risks and be better prepared.
	Provide technical assistance to residents and businesses to help them reduce losses from hazards and disasters.
Tanana and a	Conduct projects in the community, such as drainage and flood control projects, to mitigate for hazards and minimize impacts from disasters.
	Improve warning and response systems to improve disaster management.
	Strengthen regulations, codes, and ordinances - such as zoning regulations and building codes - designed to protect people from natural hazards and disasters.
,	Other (please specify)
(



2. Personal Preparedness and Mitigating Risk

Households can mitigate and prepare for natural hazards in order to prevent loss of life, injuries and damage to property. The precautions you take and the training you receive can make a big difference in your ability to recover from a natural disaster or emergency. The following questions focus on your household's preparedness for disaster events.

covered by homeowners insurance policies (i.e., flood, landslide, wildfire, earthquake, hurricar	
Check all that apply.	
Flood	
Landslide	
Wildfire	
Earthquake	
Hurricane	
No, I have not purchased any hazard specific insurance policies.	
9. If not, why not?	
I don't live in a hazard zone.	
It's too expensive	
It's not necessary.	
Other (please specify)	

	Have Done	Plan to Do	Not Done	Unable to Do
Put smoke detectors and carbon monoxide detectors on each floor of your house?	0	0	0	0
Prepared a disaster supply kit for your car with food, water, batteries or other emergency supplies?	0	0	0	0
Developed a "Household Emergency Plan" describing what everyone will do in the event of an emergency?	0	0	0	0
Prepared two weeks of supplies for your home and family in case of a disaster?	0	0	0	0
1. What have you don	e to mitigate risks	to your home? Pleas	e select all that app	oly.
Elevated home or stru	ctures			
Installed back flow val	ves to prevent reverse	e-flow flood damages		4
Removed trees, tree li	mbs or brush around	your home		
Purchased a generato	r			
Attended a workshop	or class about disaste	r preparedness		
Other (please specify)				

	Yes	No
Coastal Resilience Planning	0	0
Local Mitigation Planning	0	0
Climate Change Adaptation Planning	0	0
Public-Private Partnership Initiative to Address Disaster- Related Issues	0	0
Community Emergency Response Team	0	0
Citizen Corps Other (please specify)	0	



3. A Little About You

West Maui Central Maui, Wailuku-Kahului South Maui, Kihei-Makena North Maui, Pa'ia-Ha'iku 14. Do you consider your home to Coastal Inland 15. Do you own or rent your home Own	Upcountry Maui, Makawao-Pukalani-Kula East Maui, Hana-Kaupo Lana'i Moloka'i be coastal or inland?	Other Hawaiian Island Other
Coastal Inland 15. Do you own or rent your home		
<i></i>	?	
Rent 16. Are you a part-time or seasona	ıl resident?	
Yes No		
17. Do you live in a tsunami evacu	ation zone?	
Yes		
○ No		

	Coastal Erosion
	Dam or Reservoir Failure
	Drought
	Earthquake
	Inland Flooding
	Coastal Flooding (high surf, sea level rise)
	Fire
	High Wind Storm
	Landslide, Debris Flow, Rockfall
	Hurricane, Tropical Storm
	Tsunami
	Volcanic Hazards (Lava, Vog)
	Climate Change
	Hazardous Materials Incidents
	Extreme Heat
	Extreme Cold
19.	How long have you lived in Maui County?
0	My whole life
0	Over 10 years
0	Five to 10 years
0	Less than 5 years
20.	What is your age?
0	Under 18
0	18 - 29
0	30 - 44
0	45 - 59

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Public Workshop	



4. Thank you!

- For more information about Hazard Mitigation in Maui County visit: https://www.mauicounty.gov/1832/Multi-Hazard-Mitigation-Plan.
- To register for Maui County emergency notifications visit: https://www.mauicounty.gov/983/Active-Advisories-Watches-Notification-S.