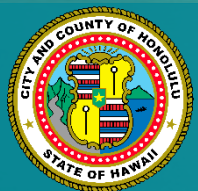


Ola: O'ahu Resilience Strategy



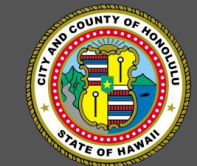
City and County of Honolulu

Office of Climate Change, Sustainability and Resiliency



Resilience

The capacity of individuals, communities, institutions, businesses, and systems to **survive, adapt, and thrive** no matter what kinds of chronic **stresses** and acute **shocks** they experience.

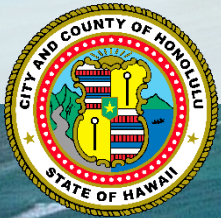


USDN

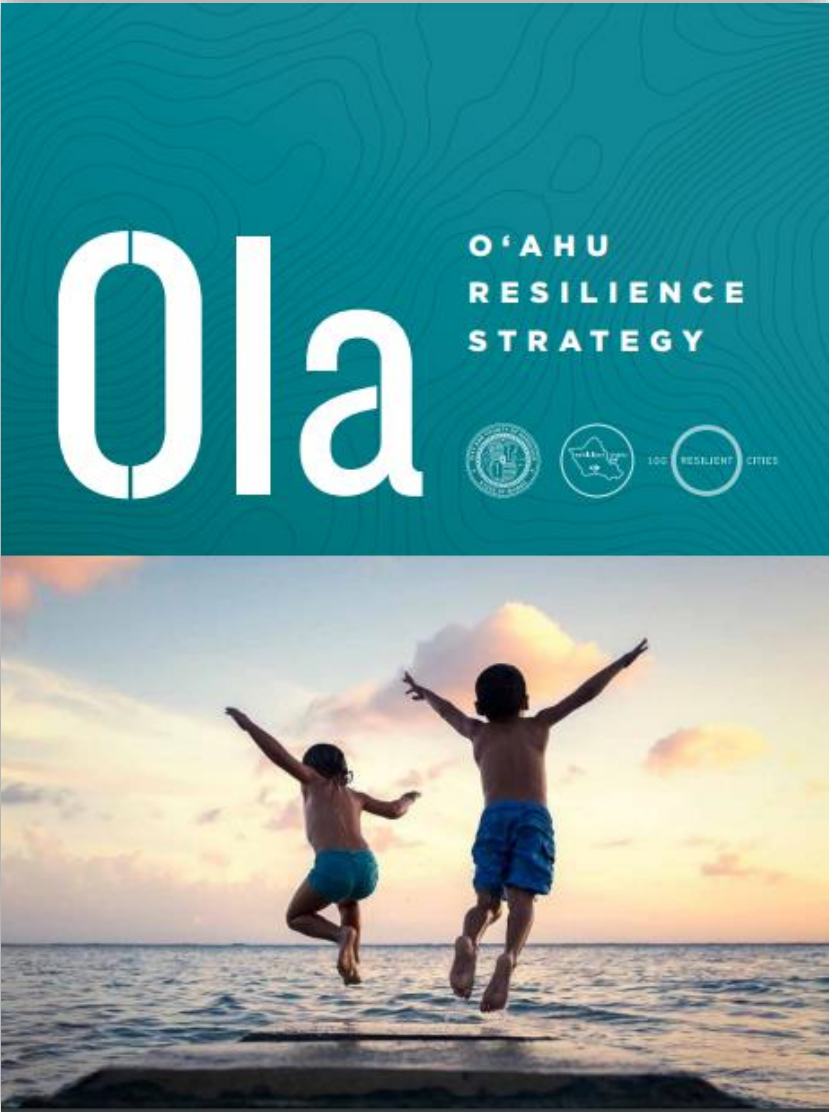
urban sustainability
directors network

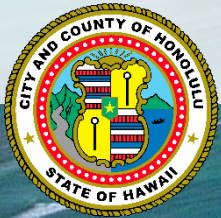
USDN helps us ensure we are using the best ideas from around the world. The Resilience Hubs concept (Action 15) developed organically as the best response to a community need, and now is being duplicated in other cities as a result of sharing best practices.





O'ahu Resilience Strategy





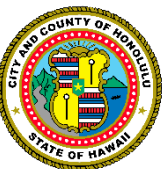
Office of Climate Change, Sustainability and Resiliency

O'ahu Resilience Strategy





Strategy Development Process





Community Resilience Perceptions

Community Input

Agenda Setting Workshop

140+

Stakeholders from 19 sectors representing 117 unique organizations

+2,200

Resilience Perception Surveys Conducted

33

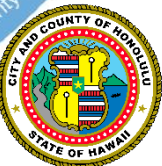
Neighborhood Board Presentations

219

Meetings with other Stakeholder Groups

On a scale of 1-10 (low - high), how resilient do you think O'ahu is today?

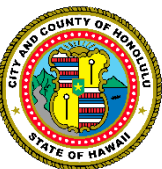
3.9





Survey Responses: Top Five Shocks & Stresses

Top 5 Shocks	Top 5 Stresses
Hurricane	Cost of Living
Tsunami	Climate Change Impacts
Infrastructure Failure	Aging Infrastructure
Rainfall Flooding	Lack of Affordable Housing
External Economic Crisis	Over-reliance on Imports
Disease Outbreak	Food or Water Shortage
Nuclear Attack	Income Inequality
Earthquake	Lack of Political Leadership
Cyber Attack	Over-reliance on Tourism and Military Economy
Terrorist Attack	Decline of Aloha Spirit
Heat Wave	Educational Disparity
Other	
Riot/Civil Unrest	





Community Resilience Pillars



**Remaining
Rooted**



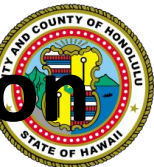
**Bouncing
Forward**



**Climate
Security**



**Communit
y
Cohesion**





Remaining Rooted

Ensuring an Affordable Future for Our Island



Pillar I. / REMAINING ROOTED

Ensuring an Affordable Future for Our Island

Goal 1: Supporting Affordable Housing Development

Action #	Action Name	Lead	Timeframe	Aligned Aloha+ Challenge Goal	Primary Aligned UN Sustainable Development Goal	Secondary Aligned UN Sustainable Development Goal
1	Reduce Empty Homes and Increase Affordable Housing Funding	HOU	Mid-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 10 - Reduced Inequalities
2	Return Illegal Vacation Rental Units to Local Housing	DPP	Immediate	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 1 - No Poverty
3	Develop Alternative, Affordable Housing Options for O'ahu Residents	DPP	Short-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 9 - Industry, Innovation and Infrastructure
4	Expand Affordable Housing Funding by Implementing Progressive Property Taxes	BFS	Mid-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 10 - Reduced Inequalities
5	Implement a Guaranteed Security Program to Support Local Home Ownership	CSD	Mid-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 1 - No Poverty

Goal 2: Reducing Additional Cost Burdens

6	Expand Housing and Energy Transformation by Accelerating the Permitting Process	DPP	Mid-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 9 - Industry, Innovation and Infrastructure
7	Reduce Utility Costs for Residents through Transparency and Disclosure	CCSR	Mid-term	Clean Energy	SDG 7 - Affordable and Clean Energy	SDG 10 - Reduced Inequalities
8	Increase Housing Affordability by Reducing Parking Requirements	DPP	Mid-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 9 - Industry, Innovation and Infrastructure

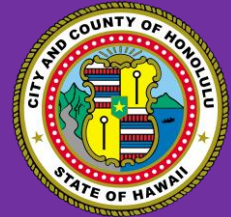
Goal 3: Improving Economic Opportunity

9	Foster an Innovation Economy through the City's Office of Economic Development	OED	Mid-term	Green Workforce & Education	SDG 8 - Decent Work and Economic Growth	SDG 9 - Industry, Innovation and Infrastructure
10	Promote New Agricultural Models for Economic and Food Security	OED	Mid-term	Local Food	SDG 2 - Zero Hunger	SDG 8 - Decent Work and Economic Growth



Bouncing Forward

Fostering Resilience in the Face of Natural Disasters



Pillar II. / BOUNCING FORWARD Fostering Resilience in the Face of Natural Disasters

Goal 1: Pre-Disaster Preparation

Action #	Action Name	Lead	Timeframe	Aligned Aloha Challenge Goal	Primary Aligned UN Sustainable Development Goal	Secondary Aligned UN Sustainable Development Goal
11	Protect Lives and Property by Updating Building Codes	DPP	Short-term	Smart Sustainable Communities	SDG 9 - Industry, Innovation and Infrastructure	SDG 11 - Sustainable Cities and Communities
12	Launch Residential Hurricane Retrofit Program to Strengthen Properties Vulnerable to Hurricanes	CCSR	Short-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 10 - Reduced Inequalities
13	Increase Flood Insurance Affordability for O'ahu Residents	CCSR	Short-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 15 - Life on Land
14	Establish Future Conditions Climate Resilience Design Guidelines	DOC	Mid-term	Smart Sustainable Communities	SDG 9 - Industry, Innovation and Infrastructure	SDG 11 - Sustainable Cities and Communities

Goal 2: Effective Disaster Response

15	Develop a Network of Community Resilience Hubs	DEM	Mid-term	Smart Sustainable Communities	SDG 9 - Industry, Innovation and Infrastructure	SDG 11 - Sustainable Cities and Communities
16	Establish an O'ahu Emergency Food Supply and Storage Strategy	DEM	Short-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 10 - Reduced Inequalities
17	Ensure Access to Fuel Supplies to Aid Disaster Response and Recovery	DEM	Mid-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 15 - Life on Land
18	Increase O'ahu's Preparedness Utilizing Scenario Modeling and Artificial Intelligence	DEM	Short-term	Smart Sustainable Communities	SDG 9 - Industry, Innovation and Infrastructure	SDG 11 - Sustainable Cities and Communities

Goal 3: Successful Disaster Recovery

19	Develop and Implement a Long-Term Disaster Recovery Plan for O'ahu	CCSR	Short-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 16 - Peace, Justice and Strong Institutions
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Bouncing Forward

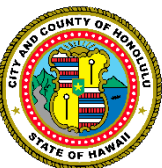
Action 11: Protect Lives and Property by Updating Building Codes

Stronger codes increase the ability of residents to shelter at home with all of their necessities

National Benefit-Cost Ratio Per Peril <small>*BCR numbers in this study have been rounded</small>	Exceed common code requirements	Meet common code requirements	Utilities and transportation	Federally funded
Overall Hazard Benefit-Cost Ratio	4:1	11:1	4:1	6:1
Riverine Flood	5:1	6:1	8:1	7:1
Hurricane Surge	7:1	Not applicable	Not applicable	Not applicable
Wind	5:1	10:1	7:1	5:1

National Benefit-Cost Ratio by Hazard Mitigation Measure
If the City invests now in mitigation, rather than clean-up after a natural hazard, the return on investments are considerable:
Exceeding common code requirements saves \$4 per \$1 spent; Adopting model codes saves \$11 per \$1; mitigating infrastructure saves \$4 per \$1 spent; Federal mitigation grants save \$6 per \$1 spent.

Graphic Adopted from National Institute of Building Sciences





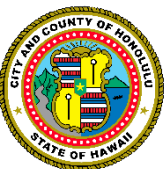
Bouncing Forward

Action 12: Launch Hurricane Retrofit Program for Vulnerable Homes

Retrofit programs can help bring older homes up to modern code standards



Roof blown off in Kahala earlier this year

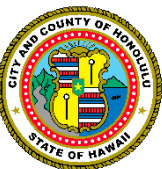




Bouncing Forward

Action 13: Increase Flood Insurance Affordability for O'ahu Residents

In addition to ensuring residents are able to afford insurance, the City-level actions which lower flood insurance premiums reduce potential flooding impacts





Bouncing Forward

Action 15: Develop a Network of Community Resilience Hubs

Resilient community facilities that are designed or retrofitted to withstand potential disaster impacts can function during and after disaster, providing operational space for critical service and resource providers

WHAT IS A RESILIENCE HUB?

OFF GRID SOLAR POWER

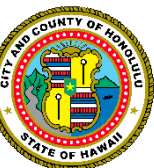
Designed to provide power during an emergency, and reconnect to the grid once power is restored.



COMMUNICATION HUB

A single point for access to news and information during and after an emergency.

EXISTING COMMUNITY CENTER

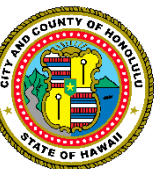




Bouncing Forward

Action 16: Establish an O'ahu Emergency Food Supply and Storage Strategy

Hawai'i Foodbank assists 1 in 5 people
City-wide with daily food needs, so
planning for emergency food supply during
disaster is critical





Bouncing Forward

Action 19: Develop and Implement a Long-term Disaster Recovery Plan for O'ahu

Stakeholder input and buy-in is essential to the recovery planning process, both in preparing for and recovering from disaster

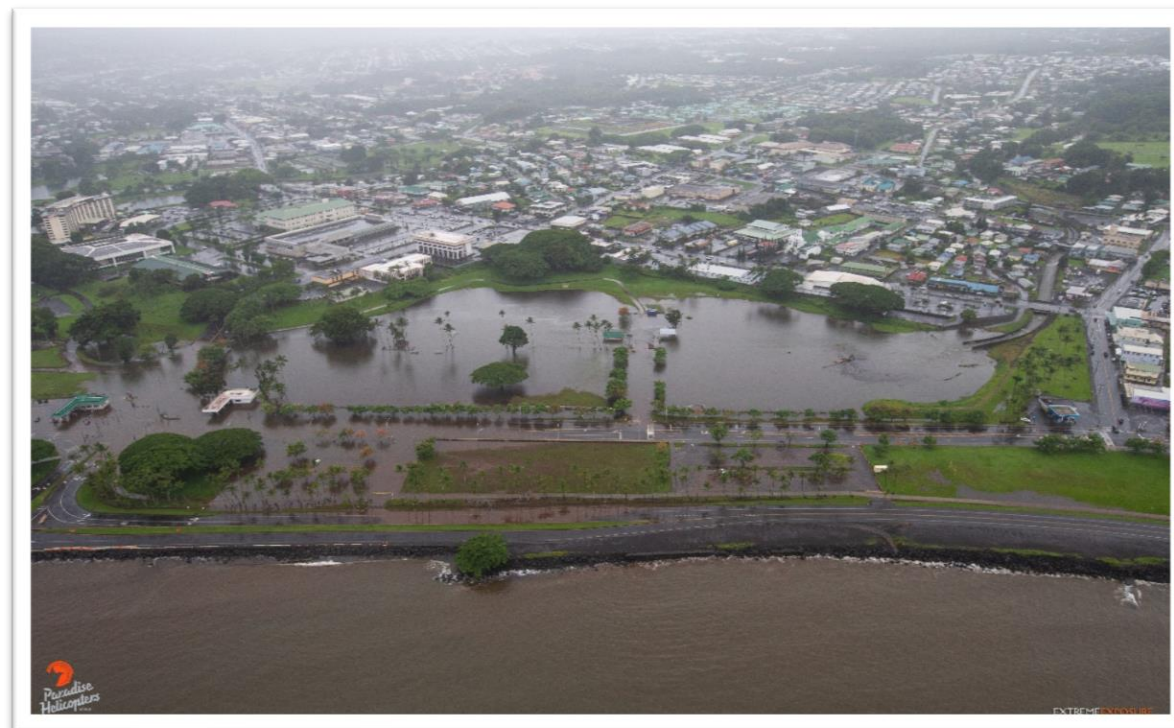
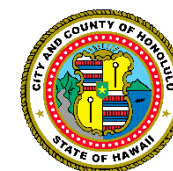


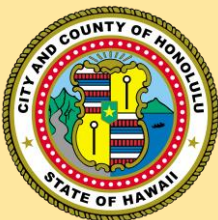
Photo credit: Paradise Helicopters and Extreme Exposure





Climate Security

Tackling Climate Change by Reducing Emissions and Adapting to Impacts



Pillar III. / CLIMATE SECURITY

Tackling Climate Change by Reducing Emissions and Adapting to Impacts

Goal 1: Clean Energy Economy

Action #	Action Name	Lead	Timeframe	Aligned Aloha+ Challenge Goal	Primary Aligned UN Sustainable Development Goal	Secondary Aligned UN Sustainable Development Goal
20	Reduce Taxpayer Expense and Increase Renewable Energy through a City-Wide Energy Performance Contract	DDC	Short-term	Clean Energy	SDG 13 - Climate Action	SDG 7 - Affordable and Clean Energy
21	Establish an Energy Benchmarking Standard for O'ahu Commercial Buildings	CCSR	Short-term	Clean Energy	SDG 9 - Industry, Innovation and Infrastructure	SDG 11 - Sustainable Cities and Communities
22	District Cooling: Tap the Ocean to Cool Our Buildings	DFM	Short-term	Clean Energy	SDG 7 - Affordable and Clean Energy	SDG 13 - Climate Action
23	Expand Opportunities for Methane Capture and Re-Use	ENV	Mid-term	Waste Reduction	SDG 12 - Responsible Consumption &	SDG 7 - Affordable and Clean Energy

Goal 2: Clean Ground Transportation

24	Expand Electric Vehicle Charging Infrastructure Island-Wide	CCSR	Immediate	Clean Energy	SDG 13 - Climate Action	SDG 9 - Industry, Innovation and Infrastructure
25	Accelerate Carbon-Free New Mobility Options	DTS	Long-term	Clean Energy	SDG 11 - Sustainable Cities and Communities	SDG 13 - Climate Action
26	Ensure Equal Access to Sustainable Transportation Options and Cost Savings	BFS	Immediate	Clean Energy	SDG 13 - Climate Action	SDG 10 - Reduced Inequalities
27	Transform the City's Public Fleet to 100% Renewable Fuel by 2035	DTS	Long-term	Clean Energy	SDG 13 - Climate Action	SDG 11 - Sustainable Cities and Communities

Goal 3: Climate Resilient Future

28	Chart a Climate Resilient Future by Creating and Implementing a Climate Adaptation Strategy	CCSR	Short-term	Smart Sustainable Communities	SDG 13 - Climate Action	SDG 11 - Sustainable Cities and Communities
29	Protect Beaches and Public Safety with Revised Shoreline Management Rules	DPP	Short-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 14 - Life Below Water
30	Protect Coastal Property and Beaches Through Innovation and Partnerships	DPP	Short-term	Natural Resource Management	SDG 14 - Life Below Water	SDG 17 - Partnerships for the Goals

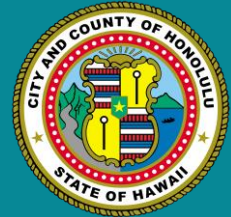
Goal 3: Climate Resilient Future (continued)

31	Establish a Storm Water Enterprise Fund to Better Finance Water Management	DFM	Short-term	Natural Resource Management	SDG 9 - Industry, Innovation and Infrastructure	SDG 6 - Clean Water and Sanitation
32	Deploy Sustainable Roof Systems to Manage Urban Heat and Rainfall	DPP	Short-term	Smart Sustainable Communities	SDG 9 - Industry, Innovation and Infrastructure	SDG 11 - Sustainable Cities and Communities
33	Keep O'ahu Cool by Maintaining and Enhancing the Community Forest	DPR	Long-Term	Natural Resource Management	SDG 15 - Life on Land	SDG 13 - Climate Action
34	Minimize Economic and Property Risk within the Ala Wai Canal Watershed	DDC	Immediate	Smart Sustainable Communities	SDG 9 - Industry, Innovation and Infrastructure	SDG 11 - Sustainable Cities and Communities



Community Cohesion

Leveraging the Strength and Leadership of Local Communities



Pillar IV. / COMMUNITY COHESION

Leveraging the Strength and Leadership of Local Communities

Goal 1: Empower Grassroots Resilience Champions

Action #	Action Name	Lead	Timeframe	Aligned Aloha+ Challenge Goal	Primary Aligned UN Sustainable Development Goal	Secondary Aligned UN Sustainable Development Goal
35	Increase Coordination with Neighborhood Emergency Preparedness Groups	DEM	Immediate	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 10 - Reduced Inequalities
36	Increase City-Community Relationships through Volunteerism	CSD	Short-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 17 - Partnerships for the Goals
37	Weave a Tighter Community With Neighborhood Gatherings	CCSR	Immediate	Smart Sustainable Communities	SDG 16 - Peace, Justice and Strong Institutions	SDG 11 - Sustainable Cities and Communities
38	Empower Neighborhoods to Co-Design Safe and Complete Streets	DTS	Immediate	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 9 - Industry, Innovation and Infrastructure

Goal 2: Communicate and Affirm Island Values

39	Celebrate O'ahu's Resilient Past and Future through Public Art	MOCA	Short-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 16 - Peace, Justice and Strong Institutions
40	Lift Up Positive Examples of Island Values in Action	MAY	Short-term	Smart Sustainable Communities	SDG 11 - Sustainable Cities and Communities	SDG 16 - Peace, Justice and Strong Institutions
41	Launch a Place-Based Resilience Training Program for City Leadership	CCSR	Immediate	Smart Sustainable Communities	SDG 16 - Peace, Justice and Strong Institutions	SDG 11 - Sustainable Cities and Communities
42	Foster Shared Understanding of Climate Change Island-Wide Through an Outreach Campaign	CCSR	Short-term	Clean Energy	SDG 13 - Climate Action	SDG 4 - Quality Education

Goal 3: Island-Wide Alignment

43	Ensure City Partnership in O'ahu's Collective Impact Resilience Efforts	CCSR	Mid-term	Smart Sustainable Communities	SDG 17 - Partnerships for the Goals	SDG 16 - Peace, Justice and Strong Institutions
44	Create a City-Community Liaisons to Leverage Non-Profit and Volunteer Assets	MDO	Mid-term	Smart Sustainable Communities	SDG 17 - Partnerships for the Goals	SDG 8 - Decent Work and Economic Growth

Mahalo



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