



SECTION 1. INTRODUCTION

1.1 Overview

The State of Hawai'i has experienced a range of climate, hydrological, seismic, geological and technological hazard events that have resulted in great costs to lives, property and the economy of the State. To reduce disaster risks in the State requires an integrated, multi-level, multi-sector, collaborative approach to risk reduction with additional emphasis on building community resilience.

Mitigation is the effort to reduce loss of life and property by lessening the impacts of disasters. It creates safer communities and helps maintain the quality of life. To be effective, we must understand all risks and invest in long-term community well-being through the implementation of short- and long-term strategies before the next disaster (FEMA 2018).

The purpose of mitigation planning is to identify hazards that impact the State, identify actions and activities to reduce losses from those hazards, and to establish a coordinated process to implement the plan [44CFR 201.1 (b)]. On October 27, 2004, the State of Hawai'i's first approved Multi-Hazard Mitigation Plan went into effect. The 2010 revision became effective on October 4, 2010. The 2013 update became effective on October 3, 2013. The State is committed to updating and implementing its long-term strategy for reducing the risks of hazards as documented in the 2018 State of Hawai'i Hazard Mitigation Plan Update (2018 HMP Update). The Federal Emergency Management Agency (FEMA) approval and State adoption of the 2018 HMP Update qualify the State of Hawai'i to obtain federal assistance for hazard mitigation, and for the repair and replacement of infrastructure damaged in natural disasters.

The 2018 HMP Update demonstrates the State of Hawai'i's commitment to:

- Reduce risks from hazards;
- Serve as a guide for both State and local decision makers as they commit resources to reducing the effects of hazards on lives and property;
- Provide assurances that the State will comply with all applicable Federal statutes and regulations during the periods for which it receives grant funding, in compliance with the Code of Federal Regulations [44 **CFR 13.11(c)**];
- Maintain its eligibility to participate in all FEMA funding programs;
- Amend the HMP whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 **CFR 13.11(d)**.

Key Terms

Hazard Mitigation - Sustained action to reduce or eliminate the long-term risk to human life and property from hazards.

State Hazard Mitigation Plan – Demonstrates the State's commitment to reduce risks from natural hazards and serves as a guide for decision makers for reducing the effects of natural hazards as resources are committed.

Source: FEMA State Mitigation Plan Review Guide, effective March 2016.



1.2 Authority, Assurances and References

44 CFR §201.4(c)(2)(ii): The plan must include assurances that the State will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, including 2 CFR parts 200 and 3002. The State will amend its plan whenever necessary to reflect changes in State or Federal statutes and regulations.

Authority for this plan originates from the following federal sources:

- Robert T. Stafford Disaster Relief and Emergency Assistance, 42 U.S.C., Section 322, as amended.
- Code of Federal Regulations (CFR), Title 44, Parts 79.4, 201 and 206.
- Disaster Mitigation Act (DMA) of 2000, Public Law 106-390, as amended.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Public Law 100-707, signed into law in 1988 amended the Disaster Relief Act of 1974 (Public Law 93-288). The act constitutes the statutory authority for most Federal disaster response activities.

The DMA 2000 is the current federal regulation addressing hazard mitigation planning. It amended the Stafford Act to require the preparation of hazard mitigation plans by state and local governments emphasizing planning for disasters before they occur. The requirement for a state HMP is continued as a condition for disaster assistance.

The State of Hawai'i will continue to comply with all applicable federal statutes and regulations during the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c), and will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d).

The following Federal Emergency Management Agency (FEMA) guides and reference documents were used to prepare the 2018 HMP Update. Refer to the References section for a complete list of resources used to prepare the plan.

- State Mitigation Plan Review Guide, March 2015
- State Mitigation Planning Key Topics Bulletins: Planning Process, July 2016
- State Mitigation Planning Key Topics Bulletins: Risk Assessment, June 2016
- State Mitigation Planning Key Topics Bulletins: Mitigation Capabilities, September 2016
- State Mitigation Planning Key Topics Bulletins: Mitigation Strategy, October 2016
- Plan Integration: Linking Local Planning Efforts, July 2015
- Hazard Mitigation Assistance Guidance, February 2015
- Integrating Disaster Data into Hazard Mitigation Planning: A State and Local Mitigation Planning How-to-Guide, February 2015
- Integrating Hazard Mitigation Into Local Planning: Case Studies and Tools for Community Officials, March 2013
- Local Mitigation Planning Handbook, March 2013
- Mitigation Ideas. A Resource for Reducing Risk to Natural Hazards, January 2013
- Climate Change Adaptation Policy, January 2012



- Local Mitigation Plan Review Guide, October 1, 2011

1.3 Organization of the Plan

The 2018 HMP Update represents a significant revision to the 2013 HMP. The State of Hawaii's HMP continues to be a 'living document' that supports relationship building, promotes resiliency and sustainability, aids in consistent evaluation, and provides a means to reduce the costs associated with response and recovery.

An updated outline of the 2018 HMP Update is presented below with a brief summary of each section's contents.

- **Section 1: Introduction**—This section defines mitigation and the planning requirements for the State of Hawai'i HMP. It also discusses the 2018 HMP Update organization and a summary of changes made during the 2018 HMP update.
- **Section 2: Planning Process**—This section documents the planning process, the agencies, stakeholders and subject-matter experts (SMEs) involved, and the manner of their involvement. It highlights the extended outreach efforts conducted to encourage participation and increased involvement during this 2018 HMP update. This section also describes how the planning process has been integrated into ongoing federal and state programs and initiatives.
- **Section 3: State Profile**—This section provides a description of the State of Hawaii's physical setting, demographics, economy, state assets and critical facilities, cultural assets, natural resources and land use and development.
- **Section 4: Risk Assessment**—
 - **Section 4.1: Overview**—This section provides an overview of the risk assessment including the identification of hazards and update process, the asset inventories collected and utilized and the hazard-specific data and methodologies used in the vulnerability assessment.
 - **Sections 4.2 through 4.15: Risk Assessment for each Hazard**—The risk assessment for each hazard is divided into two parts: (1) hazard profile and (2) vulnerability assessment. The vulnerability assessment now follows the hazard profile, so that all information about a particular hazard is found in one concise section.
 - All hazard profiles and vulnerability assessments have been updated and enhanced to include more detailed and current technical information. The hazard profile includes a hazard description, location, extent, warning time, previous occurrences and losses, discussions on each hazard's probability of future occurrence and potential effects of climate change.
 - The vulnerability assessment includes qualitative and quantitative assessments to state assets and counties including state buildings, state roads, critical facilities, population, the built environment, land use, environmental resources, cultural assets and projected development.
 - **Section 4.16: Vulnerability Summary**—A hazard ranking methodology was developed to rank all hazards, both statewide and for each county. The methodology was expanded beyond an examination of impacts to include hazard event probability, warning time, spatial extent, duration, adaptive capacity, and future conditions.



- **Section 5: Capability Assessment**—This section provides a comprehensive review and evaluation of state and local capabilities used to support and facilitate mitigation activities and describes the process utilized by the State of Hawai'i to support, promote and coordinate mitigation planning at the county level.
- **Section 6: Mitigation Strategy**—This section provides a description of the review and update of the State's goals and mitigation actions. Previously identified mitigation actions were updated by each lead agency, and new actions were developed to enhance the State's resiliency to disasters.
- **Section 7: Plan Maintenance**—This section describes the 2018 implementation process. For the 2018 HMP Update, changes to this section are based on an evaluation of the effectiveness of the plan maintenance strategy in the 2013 HMP.
- **Appendices:**
 - Appendix X – Capability Assessment
 - Appendix X – Mitigation Strategy

1.4 Overview of Changes from the 2013 HMP to 2018 HMP Update

The HI-EMA State Hazard Mitigation Officer's vision for the 2018 HMP Update is to streamline the plan resulting in a practical and more readable document for the public, and an implementable document for the State to support future risk reduction. In addition, the 2018 HMP Update will serve as a technical reference for the next round of local HMP updates with a robust risk assessment that expands the assets assessed and integrates best available climate science.

With that in mind, the 2018 HMP Update included a comprehensive update to the 2013 HMP risk assessment. The 2018 HMP Update has been reformatted and organized to be more readable while paralleling the structure of the requirements outlined in 44CFR 201.4 and FEMA's State Mitigation Review Guide (March 2015) and State Mitigation Planning Key Topics Bulletins: Planning Process (July 2016); Risk Assessment (June 2016); Mitigation Capabilities (September 2016) and Mitigation Strategy (October 2016). Highly technical information has been simplified, with lengthy tables, maps and support text moved to the appendices.

The 2018 HMP Update includes references to the CFR throughout to provide the reader context. Where possible, these provide specific section and subsection notations. When citing the CFR for state hazard mitigation planning, it is located in the light blue text boxes as seen below:

44 CFR 201.4(c)(4)(ii): [The State Plan must include a] ...description of the State process and timeframe by which the local plans will be reviewed, coordinated, and linked to the State Mitigation Plan.

Table 1.4-1 crosswalks the section changes from the 2013 HMP to the 2018 HMP Update.

Table 1.4-1. Crosswalk of Section Changes to the 2018 HMP Update

2013 HMP	Location in the 2018 HMP
Chapter 1 - Introduction	Section 1 - Introduction
Chapter 2 – Mitigation Planning	Section 2 – Planning Process
Chapter 3 – Land Use and Development	Section 3 – State Profile
Chapters 4 through 18	Sections 4.1 through 4.15 – Risk Assessment



2013 HMP	Location in the 2018 HMP
	Section 5 – Capability Assessment
Chapter 19 – Risk Assessment	Sections 4.1 through 4.15 – Overview and Hazard Sections Section 4.16 – Vulnerability Overview
Chapter 20 – Mitigation Strategy	Section 6 – Mitigation Strategy
Chapter 21 – Planning Processes and Update Procedures	Section 7 – Plan Maintenance

Source: State of Hawaii HMP 2013

At the beginning of each section, there is a bulleted summary of changes made. The following highlights the significant changes and enhancements made for the 2018 HMP Update organized by key topic.

Planning Process

- One of the HI-EMA’s priorities for the 2018 HMP Update was to ensure increased outreach and collaboration among various sectors to ensure a comprehensive update. The following sectors were engaged throughout the planning process: emergency management, economic development, land use and development, housing, health and social services, infrastructure, natural and cultural resources, academia and the private sector.

Risk Assessment

- State Buildings**—An enhancement to the 2018 HMP Update was utilizing the complete State Risk Management Office’s database of state-owned and leased buildings (referred to as state buildings). Through increased interagency coordination between the HI-EMA and the State Risk Management Office, this dataset was made available to utilize in the 2018 risk assessment update. A state building dataset was not available for the 2013 HMP; therefore, changes in risk and vulnerability of these facilities over the performance period of the plan cannot be assessed.
- Critical Facilities**—Another enhancement to the 2018 HMP Update risk assessment is the updated definition of a critical facility and the utilization of a more robust critical facility and infrastructure dataset. The 2013 HMP included 274 critical structures in the risk analyses. The 2013 HMP indicated that because the State was involved with the local HMPs, the counties included State critical facilities and lifeline structures in their local risk assessments. For the 2018 HMP Update, the definition and identification of critical facilities as a result of a collaborative planning effort conducted with county, state, federal, private sector and non-governmental organizations was utilized as reported in the Makani Pahili 2017 Emergency Power Prioritization Workshop Series Report.
- Sea Level Rise**—The 2018 HMP Update was enhanced to include quantified losses to the sea level rise hazard.
 - The 2017 *Hawai'i Sea Level Rise Vulnerability and Adaptation Report* quantified the potential area and assets exposed to sea level rise impacts, mapped vulnerability zones, and formulated a comprehensive adaptation strategy. The sea level rise spatial data developed for this effort was used for the climate change and chronic coastal flood risk assessments and adaptation strategies integrated into the updated mitigation strategy in the 2018 HMP Update.
 - A coastal flood zone was modeled that included flood extents and wave heights for wave-generating events with 3.2 feet of sea level rise. This area, referred to as the 1-percent annual chance coastal



flood zone with sea level rise (1%CFZ-3.2) was utilized to examine potential impacts to event-based flooding with sea level rise (Section 4.2 – Climate Change and Sea Level Rise).

- **Local Vulnerability**—The enhanced risk assessment not only evaluates state assets, but also evaluates each county's vulnerability to the identified hazards so that results may be integrated into upcoming local HMP updates. Each section discusses potential impacts to population, the built environment and economy, land use, environmental resources, cultural assets and projected development.

Capabilities

- State and local capabilities have been comprehensively reviewed, updated and reformatted. The following plan elements have been consolidated into a single section: State Capability Assessment, Effectiveness of Local Mitigation Capabilities, and Coordination of Local Mitigation Planning.

Mitigation Strategy

- The 2013 HMP mitigation actions, updated risk assessment, updated capability assessment, and county local HMP actions were used to identify mitigation actions for the 2018 HMP Update. Each identified mitigation action now includes detailed implementation information as well as a clearly articulated and uniformly applied prioritization scheme.