

PLANES DE MITIGACIÓN CONTRA PELIGROS NATURALES
Resiliencia Planificada



JUNTA DE PLANIFICACIÓN

2021

Municipality of Coamo

Natural Hazard Mitigation Plan

Executive Summary



1 Introduction

The Municipality of Coamo has revised its Local Hazard Mitigation Plan (LHMP)¹ in accordance with the federal Disaster Mitigation Act of 2000 (DMA2K), which was signed into law to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988. One of the requirements that this legislation establishes is that in order for the municipality to receive federal mitigation funds, it must elaborate and adopt a Federal Emergency Management Administration (FEMA) approved LHMP.² Also, the DMA2K promotes that the local government, together with the State, work on pre disaster planning and encourages the development of sustainable hazard mitigation activities.

These LHMPs must be revised and updated every five (5) years to remain in compliance with regulations and Federal mitigation grant conditions. This updating requirement offers the municipality an opportunity to reevaluate recommendations, monitor the implementation of mitigation strategies included in the previous Plan, monitor the impact of mitigation actions that have been implemented, and determine if any changes to the Plan need to be incorporated. This Plan complies with said regulations.

Figure 1 Hazard Mitigation Planning Process



Hazard Mitigation Planning Process

The strategies and projects enumerated in the LHMP have the goal of reducing the loss of life and property that can result from a natural disaster. Hence, the mitigation strategies, included in the LHMP, involve planning efforts, capital projects, and other activities that reduces the impacts of the natural hazards included in Coamo’ LHMP of 2020.

The municipality has also revised the LHMP under the authority of Act 107-2020, known as the Municipal Code of Puerto Rico derogating Act 81-1991, Autonomous Municipalities Act of 1991. Section 1.010 of

said Act, *supra* (former section 2.004 of Act 81-1991), states that the municipality can carry out any activity that establish programs or adopt convenient and useful measures to prevent and fight fires, aid the community in cases of emergency or natural disasters, catastrophic accidents of fires and for the civil protection in general.

This Executive Summary will provide an overview on:

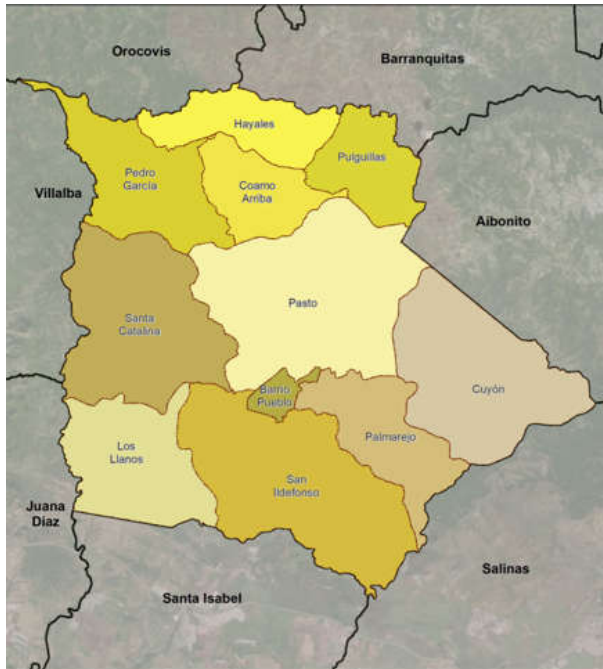
- Coamo’s population characteristics;

¹ Please note that the 2020 Revised HMP was written in Spanish as per agreement between the Municipality, the Planning Board, the Governor’s Authorized Representative (GAR) and FEMA.

² 42 U.S.C 5165; 44 C.F.R. § 201.6.

- The public participation and outreach efforts with the community during the LHMP planning process;
- Coamo’ risk assessment;
- A review of the mitigation strategies, goals and LHMPs action plan; and
- Plan maintenance, and how to keep the Plan current.

2 Coamo’ Profile: Main Population Characteristics



The Municipality of Coamo is located in the southern part of the Central Cordillera of Puerto Rico and is vulnerable to a wide variety of natural hazards, including floods, earthquakes, landslides, hurricanes, and fires. It is bounded to the south by Santa Isabel, to the west by the municipalities of Juana Díaz and Villalba, to the north by the municipalities of Orocovis and Barranquitas, and to the east by the municipalities of Aibonito and Salinas. It is located in a valley and mountainous area, with elevations of up to 3,000 feet above the sea level.

The municipality has eleven (11) official *barrios* or wards: Pueblo, Coamo Arriba, Cuyón, Hayales, Los Llanos, Palmarejo, Pasto, Pedro García, San Idelfonso, and Santa Catalina.

Table 1: Population by age group: 2010 and 2019

Population	2010 Census	2019 ACS estimate	% Rate of Change
Younger than 5 years age	2,726	1,645	-2.78%
5 to 19 years of age	9,347	7,225	-5.45%
20 to 64 years of age	23,331	23,339	0.02%
65 years of age and older	5,108	6,697	4.08%
Total	40,512	38,906	-4.13%

Source: US Census Bureau, Census 2010; American Community Survey 2015-2019 Estimates

According to ACS estimates, the total population of the Municipality of Coamo fell from 40,512 at the 2010 Census to 38,906 in 2019. This loss of 4.13% of its inhabitants is lower than average with other municipalities during that period.

The neighborhood with the largest population for 2019 is San Idelfonso with 12,387 inhabitants, followed by the Pueblo neighborhood with 5,927 inhabitants. On the other hand, the neighborhood with the least population is Coamo Arriba with 340 inhabitants, followed by Pedro García with 602 inhabitants.

3 Outreach and Public Participation

In order to guide the development of this Plan, Juan C. García Padilla, Mayor of Coamo, appointed the following officials to constitute the Mitigation Planning Committee (henceforth, the Planning Committee).

The Planning Committee is comprised by representatives from several departments and citizen involvement with key roles and experience in community planning, public works, and emergency management to serve as key components in the planning process. Please refer to Section 2.5 on the LHMP.

Table 2 Hazard Mitigation Planning Committee

Name	Title	Office	Email
María A. Maurás Colón	Director	Federal Programs	maria.mauras@coamo.puertorico.pr
Elvin R. Colón Correa	Manager	Planning and Economic Development	elvin.colon@coamo.puertorico.pr
Miraisa David Esparra	Director	Finances	miraisa.david@coamo.puertorico.pr
Raúl A. Torres	Planner	Planning and Economic Development	raul.torres@coamo.puertorico.pr
Sandra V. Larrauri del Valle	Special Assistant	Planning and Economic Development	sandra.larrauri@coamo.puertorico.pr
Rita M. Rodríguez Rivera	Special Assistant	Operations	rita.rodriguezrivera@coamo.puertorico.pr
Virgilio Sotomayor Cardona	Commissioner	Municipal Police	virgilio.sotomayor@coamo.puertorico.pr
Ramón Méndez David	Sub-Director	Public Works	ramon.mendez@coamo.puertorico.pr
Luis Alvarado Santiago	Director	Emergency Management	luis.alvarado@coamo.puertorico.pr

The Planning Committee activities included: (1) updating the list of the municipality assets and local critical facilities; (2) updating the status of the previous LHMP mitigation strategies; (3) determine possible new mitigation strategies for the 2020 LHMP; (4) development and implementation of public participation and outreach activities and stakeholders at large such as neighboring municipalities, governmental agencies; (5) announce the municipality's LHMP efforts to agencies, stakeholders and public feedback for Coamo LHMP 2020 draft version and incorporate such comments on the Plan.

An initial notice was published on the Primera Hora newspaper on August 20, 2020 Said notice informed the public about the first Public Participation meeting to be held in September 4, 2020. Due to the COVID-19 pandemic, public meetings were held remotely via Youtube Live. On February 3, 2021, a second notice was published regarding the publication of the 2020-21 LHMP draft version for review providing a 25-day period for review, submittal of comments, and the opportunity to participate in a second community meeting on February 18, 2021. Due. A draft version of the 2020-2021 LHMP was made available on the Puerto Rico Planning Board's (PRPB) website (jp.pr.gov). The municipality also made a public copy available for review on the local Planning and Economic Development office.

After reviewing the natural hazards identified as priorities on the previous Coamo' 2014 LHMP, the Municipal Emergency Response Plan, the municipality's disaster history, and other literature related to potential future hazards, the Planning Committee identified the following hazards in the 2020 LHMP; (1) Extreme Heat, (2) Drought, (3) Earthquakes, (4) Flooding, (5) Landslides, (6) Strong Winds (Tropical Cyclones), (7) Wild Fire. Discussion of these natural hazards are included in the 2021 LHMP's Chapter 4.

In addition, the 2021 LHMP includes a quantitative vulnerability analysis based on the best available data for Coamo and Puerto Rico accounting for future development to assess mitigation strategies to prevent repetitive and severe property loss.

This assessment served as a key tool for the Planning Committee and the public to identify and prioritize potential mitigation strategies by focusing attention on areas that present the greatest risk of damages to people, critical facilities, and normal municipality operations. The analysis for earthquake, flood, landslides, and high winds was performed by assessing the potential impacts from each hazard using geographic information system data (GIS).

By ranking each section, the municipality was in position to determine an overall risk classification. It is important to mention that this classification exercise resulted from the municipality’s 2020 LHMP technical risk assessment along with a capability gap analysis and the local community input, which is based on previous natural events experienced by the Planning Committee and the residents and business owners of Coamo.

The following table provides a summary of the risk classification for each identified hazard. Part of the process of completing the next appraisal required input from the community as well as from the Committee. Beyond the risk analysis, this table presents the municipality’s prioritization analysis.

Table 3 Natural Hazard Ranking

Natural Hazard	Risk to people	Risk to facilities	Risk to operations	Classification
Climate Change/ Extreme Heat	Low	Low	Low	Low
Drought	Low	Low	Moderate	Low
Earthquake/Liquefaction	Moderate	Low	Moderate	Low
Flooding	High	Moderate	Moderate	High
Landslide	Moderate	Moderate	Moderate	Moderate
Strong Winds/Tropical Cyclones	Moderate	Moderate	Moderate	Moderate
Wildfire	Low	Low	Moderate	Low

Source: Planning Committee 2019-2020

Currently, the potential risks with the highest classification or greater impact identified for the municipality are flooding, landslides, and strong winds.

A ranking methodology was adopted to develop the mitigation strategies based on these risks as discussed on Chapter 6 and are divided into the following categories: (1) Prevention, (2) Property Protection, (3) Natural Resources Protection, (4) Structural Projects, (5) Emergency Services, and (6) Education and Public Awareness. The strategy category with most mitigation actions is “Prevention” with a total of 11 mitigation projects. Landslide and flooding are the natural hazards that are most addressed within the mitigation actions.

4 Mitigation Strategies, Goals, and Action Plan

The municipal capabilities, along with the risk assessment, serve as a foundation for the design, development, and implementation of mitigation strategies. Mitigation strategies, found in Chapter 6, consist of a broad number of local goals and strategies. The local mitigation actions were gathered from the 2014 LHMP and were incorporated into the current LHMP. This chapter provides information about the assigned implementation mechanisms and target completion dates. The sections in this chapter are designed to make the Plan strategic by identifying long-term goals, and functional, by identifying short term and immediate actions that will guide the daily local decision-making process and project implementation.

Mitigation goals consist of general guidelines that explain what the Municipality of Coamo wants to achieve in terms of hazards and mitigation. Thus, the goals included in the 2020 LHMP, offer the Planning Committee and the communities a framework for identifying, prioritizing, and implementing actions to reduce the risks associated to natural hazards at Coamo.

Mitigation strategies are activities, projects, measures, or processes that Coamo will adopt in order to reduce or eliminate risk to people and property from hazards. Consequently, Coamo reviewed and revised the criteria adopted in the 2017 LHMP to analyze and prioritize potential mitigation strategies for the municipality. In order to develop the actions, the Planning Committee used the following criteria: (1) the potential of the strategy to reduce expected future damages and/or losses; (2) the capacity of the municipality to implement the action within the 5-year cycle of the Plan; (3) support from the public, agencies, municipal departments, amongst others; and (4) the potential of the action to increase resiliency of Coamo and its residents. Accordingly, the Planning Committee adopted these criteria, the results from the risk assessment, and the feedback from local and neighboring communities to prioritize each mitigation strategy that was contained in this LHMP.

Most of the strategies and projects in the action plan target the repair of bridges and road structures during a hazard event. The following summarizes some of the strategies intended to mitigate these hazards:

- Flood control study at the Río Coamo
- Rehabilitation of bridges.
- Debris removal.
- Flood prevention.
- Community training for emergency response and natural hazard awareness.

5 Maintenance to Keep the Plan Current

Chapter 7 details the revision and monitoring process in great extent. The formal maintenance process, identified by the Planning Committee, aims to keep the document viable and current, as it is a living document that shall reflect the hazards and realities affecting its community, and how to plan and prepare ahead in the event of a natural disaster. The plan maintenance process provides the procedures for evaluation and review every third quarter of each fiscal year during its 5-year life cycle. Evaluation will include a review of the mitigation action plan implementation, continued public involvement through the Plan's life cycle, as required by federal legislation. As part of the review process, the members of the Planning Committee. In the event of a major natural disaster affecting the island and/or municipality, an

emergency meeting must be scheduled, and the Plan should be updated or amended, as necessary, bypassing the 5-year term.

Finally, the municipality will promote continued public participation during the plan maintenance by, including, but not limited to (Refer to Section 7.3 of the LHMP):

- Making sure to coordinate meetings between those involved in the Plan maintenance process, which will take place at during June and December and after each natural disaster occurring in the jurisdiction of Coamo.
- Prepare the Work Plan and assign responsibilities for the Evaluation and Plan Update to take place within 60 days of that first meeting.
- Prepare the Reports of the Plan Progress Analysis, which will be presented and discussed in meetings with the people involved in the Plan maintenance process.
- In coordination with the Mayor's Office, review whether there were changes in the Act, regulatory agency regulations, which affect the Plan in one way or another, as well as budget allocations that may affect the development of projects programmed for communities.
- Ensure that applications for funds for the development of the activities described in the Plan to be made by the municipality are included in the budget of the relevant fiscal year.
- Identify opportunities to access funds.
- In coordination with the Municipal Department of Public Works to achieve the implementation of the projects set out in the Plan.
- Establish the program-specific Work Plan, based on the schedule and goals set out in the Plan.

6 Plan Approval and Adoption

The Federal Emergency Management Agency (FEMA) completed review of the Municipality of Coamo Hazard Mitigation Plan, based on the standards pursuant to title 44 C.F.R. Section 201 as authorized by the Disaster Mitigation Act of 2000 (DMA2k). The Plan received a satisfactory rating for all required criteria and was approved as approvable pending adoption (APA) on May 25, 2021. Accordingly, the Municipality of Coamo, adopted the Plan on July 22, 2021 via Executive Order No. 16, Series 2021-2022.

Upon receiving the record of adoption from the municipality, FEMA approved the Plan on August 24, 2021 and issued an official approval letter to municipality stating the jurisdiction has adopted said Plan thus approved and eligible for FEMA Hazard Mitigation Assistance programs. The approval letter establishes the expiration date 5 years from the date of approval, or until August 23, 2026.