

PLANES DE MITIGACIÓN CONTRA PELIGROS NATURALES

Resiliencia Planificada



JUNTA DE PLANIFICACIÓN

2021

Municipality of Culebra

Natural Hazard Mitigation Plan

Executive Summary

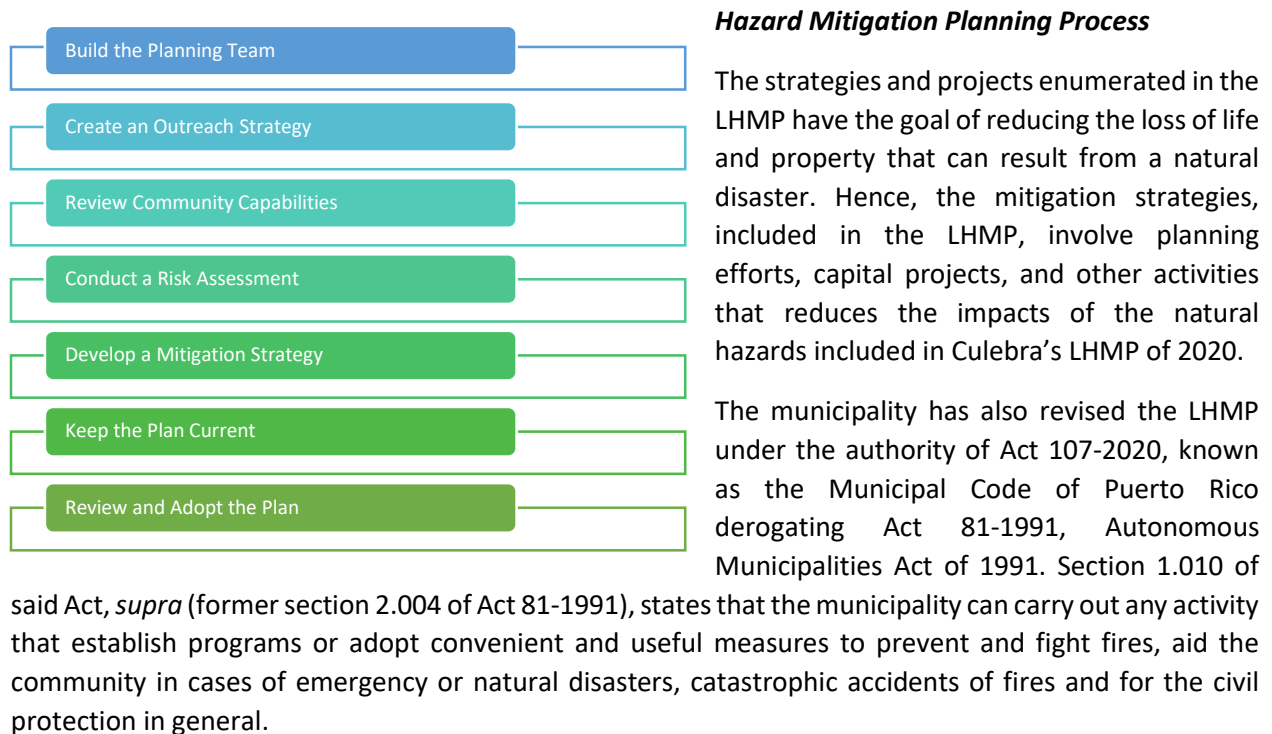


1 Introduction

The Municipality of Culebra 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

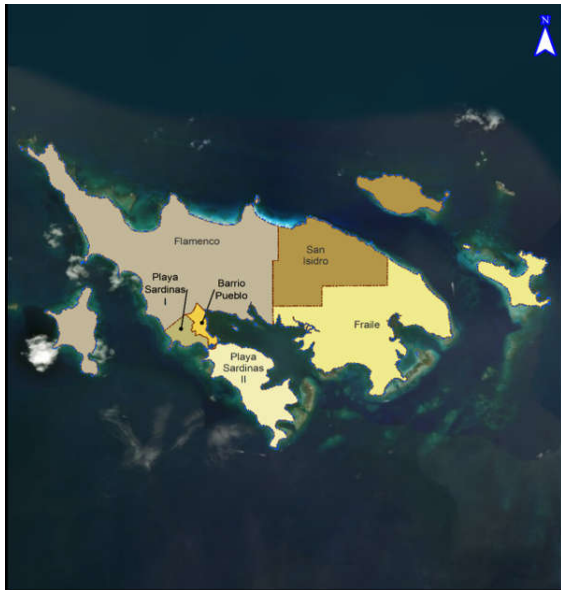


¹ Please note that the 2020 Revised HMP was written in Spanish as per agreement between the Municipality, the Planning Board, the Governor’s Authorized Representative (GAR) and FEMA.
² 42 U.S.C 5165; 44 C.F.R. § 201.6.

This Executive Summary will provide an overview on:

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

2 Culebra’ Profile: Main Population Characteristics



Culebra is an island-municipality in that is part of the archipelago of Puerto Rico. Originally, the island was called Isla Pasaje and Isla de San Ildefonso. The island is located ten (10) kilometers east of the main island, fourteen (14) kilometers north of the island-municipality of Culebra and nineteen (19) kilometers west of St. Thomas. The island municipality has an estimated area of 30.1 km². Culebra is also known as "Isla Chiquita" and "Last Virgin" and its residents are called Culebrenses.

Culebra is located at latitude: 18° 18 '18 "N and longitude: 065° 18' 05" W. It is a small archipelago that consists of the main island (Culebra) and twenty-three (23) small islands or keys. The four largest keys are: Culebrita to the east, Cayo Norte to the northeast, and Cayo Luis Peña and Cayo Lobo to the west. The smaller

islands include Cayo Ballena, Cayo Geniqui, Arrecife Culebrita, Las Hermanas, El Mono, Cayo Lobito, Cayo Botijuela, Alcarraza, Los Gemelos and Piedra Steven. The islands of the archipelago are arid since they do not have rivers or streams. Fresh and drinkable water is brought from Isla Grande (Puerto Rico) via Vieques.

The municipality has six (6) official *barrios* or wards: Pueblo, Flamenco, Fraile, Playa Sardinias I, Playa Sardinias II, and San Isidro.

Table 1: Population by age group: 2010 and 2017

Population	2010 Census	2017 ACS estimate	% Rate of Change
Younger than 5 years age	101	73	-27.72%
5 to 19 years of age	365	232	-36.44%
20 to 64 years of age	1,087	884	-18.68%
65 years of age and older	265	305	15.09%
Total	1,818	1,494	-17.82%

Source: US Census Bureau, Census 2010; American Community Survey 2013-2017 Estimates

According to ACS estimates, the total population of the Municipality of Culebra fell from 1,818 at the 2010 Census to 1,494 in 2017. This loss of 17.82% of its inhabitants is similar to the average in the country during that period.

3 Outreach and Public Participation

In order to guide the development of this Plan, William Solís Bermúdez, then Mayor of Culebra, 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	Office	Email
Roberto Morales	Office of Federal Programas	jdirectorfederalesculebra@gmail.com
Neil Romero	Emergency Management Offica	neilrommecul@gmail.com
Tulio Ortiz	Office of Public Works	tortizmunicipioculebra@gmail.com
Frank García	Systems Office	sistemaculebra2021@hgmail.com
Alfredo Montañez	Community Planning Consultant	alfredo.montanez@upr.edu

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 Culebra LHMP 2020 draft version and incorporate such comments on the Plan.

An initial notice was published on the Primera Hora and Metro newspapers on November 6, 2019. Said notice informed the public about the first Public Participation meeting to be held in Culebra on November 21, 2019. A second notice was published on February 6, 2020 regarding the publication of the 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 which was held on February 19, 2020. A draft version of the 2020 LHMP was made available on the Puerto Rico Planning Board’s (PRPB) website (jp.pr.gov).

4 Culebra’ Risk Assessment

After reviewing the natural hazards identified as priorities on the previous Culebra’s 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) Sea Level Rise, (2) Drought, (3) Earthquakes, (4) Flooding, (5) Landslides, (6) Strong Winds (Tropical Cyclones), (7) Tsunami (8) Coastal Erosion, (9) Strom Surge, (10) Wild Fire. Discussion of these natural hazards are included in the 2020 LHMP’s Chapter 4. In addition, the 2020 LHMP includes a quantitative vulnerability analysis based on the best available data for Culebra 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 2021 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 Culebra.

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
Sea Level Rise	High	Moderate	Moderate	High
Drought	Moderate	Low	Moderate	Moderate
Earthquake/Liquefaction	Low	Low	Low	Low
Flooding	Moderate	High	High	High
Landslide	Low	Low	Low	Low
Strong Winds/Tropical Cyclones	High	High	High	High
Tsunami	High	Moderate	Moderate	High
Storm Surge	High	Low	Low	Moderate
Coastal Erosion	Moderate	Moderate	Moderate	Moderate
Wildfire	Moderate	Low	Low	Moderate

Source: Planning Committee 2019-2020

Currently, the potential risks with the highest classification or greater impact identified for the municipality are: (1) Flooding, (2) strong winds, and (3) Tsunami.

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 categories with most mitigation actions are Structural Projects, and Education and Public Outreach with a 9 mitigation projects each. Flooding and strong winds are the natural hazards that are most addressed within the mitigation actions.

5 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 2013 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 Culebra 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 Culebra.

Mitigation strategies are activities, projects, measures, or processes that Culebra will adopt in order to reduce or eliminate risk to people and property from hazards. Consequently, Culebra reviewed and revised the criteria adopted in the 2013 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 Culebra 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 protection of structures during a hazard event. The following summarizes some of the strategies intended to mitigate these hazards:

- Rehabilitation of abandoned structures
- Increasing personnel for emergency response.
- Flood prevention & Coastal protection PR-250.
- Tsunami Ready (Tsunami Alert System)
- Community training for emergency response and natural hazard awareness.

6 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 May or June and November and after each natural disaster occurring in the jurisdiction of Culebra.
- 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.

7 Plan Approval and Adoption

The Federal Emergency Management Agency (FEMA) completed review of the Municipality of Culebra's 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 August 17, 2021. Accordingly, the Municipality of Culebra, adopted said Plan on September 28, 2021 via Resolution No. 4, Series 2021-2022.

Upon receiving the record of adoption from the municipality, FEMA approved the Plan on October 13, 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 October 12, 2026.