

PLANES DE MITIGACIÓN CONTRA PELIGROS NATURALES

Resiliencia Planificada



JUNTA DE PLANIFICACIÓN

2020

Municipality of Luquillo

Natural Hazard Mitigation Plan

Executive Summary

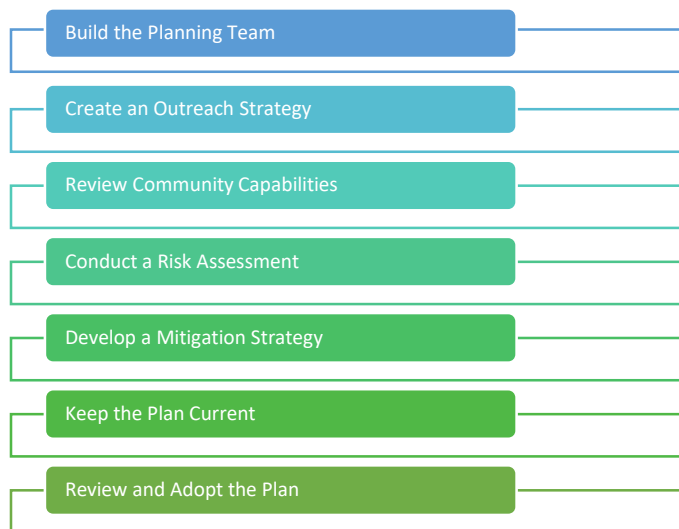


1 Introduction

The Municipality of Luquillo 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 Luquillo’s 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:

- Luquillo’s population characteristics;
- The public participation and outreach efforts with the community during the LHMP 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.

- Luquillo’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 Luquillo’s Profile: Main Population Characteristics



The Municipality of Luquillo is located in the Geographical Regions of the "Northern Coastal Plains" which has alluvial and fertile land, rocky areas and sand dunes and its southern part in the East Wet Mountains. To the south of the Municipality are part of the mountains of the Sierra de Luquillo. The municipality has six (6) official *barrios* or wards: Luquillo-Pueblo, Juan Martín, Sabana, Pitahaya, Mata de Plátano, and Mameyes.

The Municipal Territory has 25.99 square miles, equivalent to 67.31 square kilometers. To the north its coastline is bathed by the waters of the Atlantic Ocean, to the east adjoins the Municipality of Fajardo, to the west with the Municipality of Rio Grande and at its southern end with the Municipality of Ceiba.

Table 1: Population by age group: 2010 and 2018

Population	2010 Census	2017 ACS estimate	% Rate of Change
Younger than 5 years age	1,243	830	-33.23%
5 to 19 years of age	4,482	3,532	-21.20%
20 to 64 years of age	11,349	10,464	-7.80%
65 years of age and older	2,994	3,721	24.28%
Total	20,068	18,547	-7.58%

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

According to ACS estimates, the total population of the Municipality of Luquillo fell from 20,068 at the 2010 Census to 18,547 in 2018. This loss of 7.58% of its inhabitants is in line with averages in the country during that period. As it emerges from the plan, of the total of the six (6) wards comprising the Municipality of Luquillo, all reflect a

population decline between 2010 and 2018. It is estimated that the Pueblo neighborhood had the most significant change between 2010 and 2018 diminishing the population by 37.45%.

In order to guide the development of this Plan, Jesús Márquez Rodríguez, Mayor of Luquillo, 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	Position	Agency	email
Plan. Jardany Díaz	Special Assistant to the Mayor	Office of the Mayor	Jardany.diaz@luquillo.pr.gov
Emmanuel Mojica	Municipal Manager	Office of the Mayor	Emmanuel.mojica@luquillo.pr.gov
Yarelix Pumarejo Torréns	Director	Office of Federal Programs	Yarelix.pumarejo@luquillo.pr.gov
Alice Robles Pérez	Technical Specialist	Office of Emergency Management	arobles@luquillo.pr.gov
Maribel Torréns Santos	Interim Director	Office of Public Works	mtorrens@luquillo.pr.gov

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

An initial notice was published on two local newspapers (Metro and Primera Hora) February 10, 2020. Said notice informed the public about the first Public Participation meeting, which was held in Luquillo on February 25, 2020. Due to the COVID-19 pandemic, that meeting was indefinitely postponed. That meeting was rescheduled for July 27, 2020 and was announced on Primera Hora on July 10, 2020. On October 5, 2020 A second notice was published regarding the publication of the 2020 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 October 20, 2020. Due to the COVID-19 pandemic, both meetings were held remotely via Youtube Live. A draft version of the 2020 LHMP was made available on the Puerto Rico Planning Board’s (PRPB) website (jp.pr.gov), and the municipality also posted the document on its official website caborojopr.net. Luquillo’ Risk Assessment

After reviewing the natural hazards identified as priorities on the previous Luquillo’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) Storm surge, (9) Coastal Erosion, and (10) Wildfire. 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 Luquillo 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 Luquillo.

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

Source: Planning Committee 2019-2020

Currently, the potential risks with the highest classification or greater impact identified for the municipality are Sea Level Rise, Flooding, Strong Winds, Storm Surge, and Coastal Erosion.

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 Property Protection with a total of 20 mitigation projects. Flooding is the natural hazards that is most addressed within the mitigation actions.

3 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 amount 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 Luquillo 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 Luquillo.

Mitigation strategies are activities, projects, measures, or processes that Luquillo will adopt in order to reduce or eliminate risk to people and property from hazards. Consequently, Luquillo reviewed and revised the criteria adopted in the 2014 LHMP to analyze and prioritize potential mitigation strategies for the municipality. In order to developed 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 Luquillo 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:

- Rehabilitation of bridge in Villa Torrens.
- Debris removal.
- Installation of storm shutters in Community Centers, Police Headquartes and elderly homes.
- Flood prevention in Estancias del Atlántico and Mata de Plátano.
- Community training for emergency response and natural hazard awareness.

4 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. The Municipal Administrator will coordinate with other municipal dependencies, as needed, to achieve the goals and objectives stated in this LHMP.

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 Luquillo.
- 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.

5 Plan Approval and Adoption

The Federal Emergency Management Agency (FEMA) completed review of the Municipality of Luquillo'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 March 2, 2021. Accordingly, the Municipality of Luquillo, adopted the Plan on May 4, 2021 via Executive Order No. 26, Series 2020-2021.

Upon receiving the record of adoption from the municipality, FEMA approved the Plan on July 1, 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 June 30, 2026.