

PLANES DE MITIGACIÓN CONTRA PELIGROS NATURALES

Resiliencia Planificada



JUNTA DE PLANIFICACIÓN

2020

Municipality of Morovis

Natural Hazard Mitigation Plan

Executive Summary

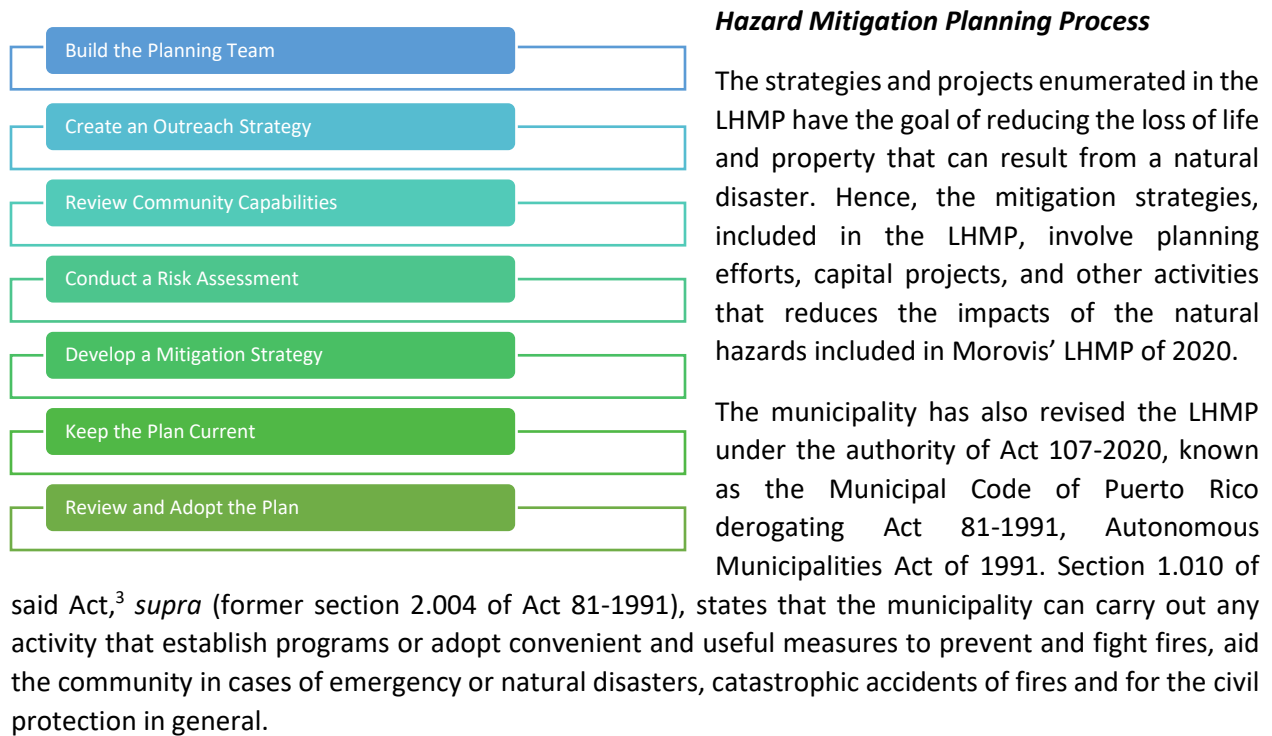


1 Introduction

The Municipality of Morovis 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 2021 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.

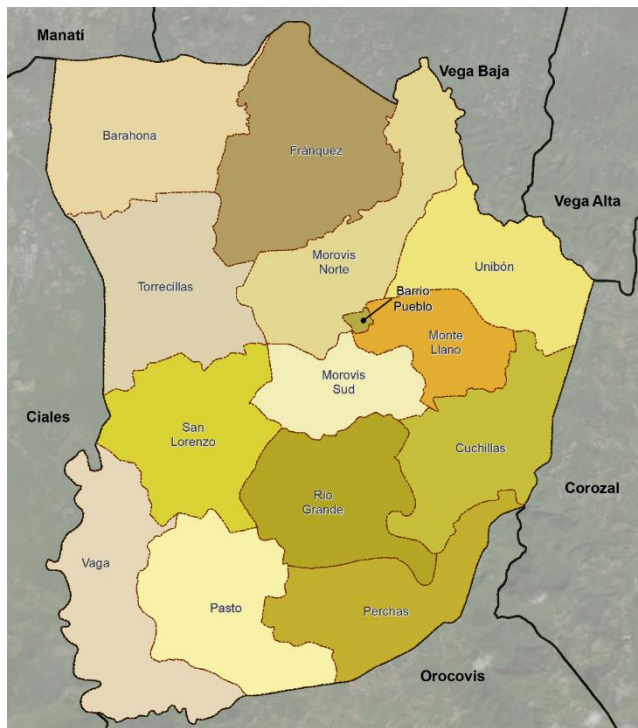
³ 21 L.P.R.A § 7015

This Executive Summary will provide an overview on:

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

2 Morovis’ Profile: Main Population Characteristics

Figure 1 Morovis and its wards



The Municipality of Morovis is located in the central-north area of Puerto Rico. To the north it is adjacent to the Municipality of Vega Baja and Manatí, to the northeast with the municipality of Vega Alta, to the east with the municipality of Corozal and Orocovis, to the south with the municipality of Orocovis and to the west with the municipality of Ciales. The Municipality of Morovis has a territorial area of 145 km² or 53 mi².

The Puerto Rico Planning Board, according to the most recent area delimitation, divides the island into eleven areas, grouping the different municipalities by their demographic trends and human settlements, infrastructure endowment, socioeconomic variables, sociodemographic characteristics, internal cohesion, and the resources and development potential of each. The Municipality of Morovis belongs to the Functional Area of Manatí, which is composed of

the municipalities of Barceloneta, Ciales, Florida, Manatí, Morovis, Orocovis and Vega Baja.

The municipality has fourteen (14) official *barríos* or wards: Barahona, Cuchillas, Fránquez, Monte Llano, Morovis Norte, Morovis Sud, Pasto, Perchas, Pueblo, Río Grande, San Lorenzo, Torrecillas, Unibón, y Vaga

Table 1: Population by age group: 2010 and 2018

Population	2010 Census	2018 ACS Estimate	% Rate of Change
Younger than 5 years age	2,217	1,536	-30.72%
5 to 19 years of age	7,948	6,364	-19.93%
20 to 64 years of age	18,938	18,850	-0.46%
65 years of age and older	3,507	4,570	30.31%
Total	32,610	31,320	-3.96%

Source: US Census Bureau, Census 2010; American Community Survey 2014-2018 Estimates

According to the 2010 Census, Morovis had a population of 32,610. The American Community Survey (ACS) of 2018 estimated that the population of Morovis had decreased by 1,290 habitants. This represents a reduction of 3.96%. Nonetheless this overall reduction, seven of the fourteen wards were estimated to have an increase in

their population in 2018: Cuchillas, Fránquez, Monte Llano, Morovis Sud, Pasto, Torrecillas and Vaga. The

one that stands out is Pasto with an increase of 53.19%. Further details, regarding the profile of the municipality, can be found in Chapter 3, Section 3.2 of the updated 2020 LHMP.

3 Outreach and Public Participation

In order to guide the development of this Plan, the Hon. Carmen Maldonado González, Mayor of Morovis, 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	Dependency	E-mail
Víctor L. Rivera	<i>Director</i>	<i>Municipal Emergency Management Office</i>	tuomemorovis@gmail.com
Ilka Santiago ⁴	<i>Secretario Municipal</i>	<i>Secretaría Municipal</i>	secmunicipal@morovis.pr.gov
Ariel Soto	<i>Coordinador Interagencial</i>	<i>Oficina de la Alcaldesa</i>	interagencial@morovis.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 Morovis’ 2020 LHMP draft version and incorporate such comments on the Plan.

An initial notice was published on a local newspaper (Primera Hora). Said notice informed the public about the first Public Participation meeting to be held online on August 19, 2020. A second notice was published regarding the publication of the 2020 LHMP draft version for review providing a 25-day period for review, submit comments, and the opportunity to participate in a second community meeting held on November 30, 2020. A draft version of the 2020 LHMP was made available on the Puerto Rico Planning Board’s (PRPB) website (jp.pr.gov). Due to the extraordinary circumstances brought by the COVID-19 pandemic the public meeting were held online. For further details please refer to section 2.7 and Appendix B.4 in the 2020 LHMP

4 Morovis’ Risk Assessment

After reviewing the natural hazards identified as priorities on the previous Morovis’ 2014 LHMP, the Municipal Emergency Response Plan, the municipality’s disaster history, and other literature related to

⁴ During the initial phases the municipal secretary was Mr. Emmanuel Rodríguez.

potential future hazards, the Planning Committee identified the following hazards in the 2020 LHMP; (1) Climate Change/Extreme Heat, (2) Drought, (3) Earthquakes/Liquefaction, (4) Flooding, (5) Landslides, (6) Strong Winds (Tropical Cyclones), (7) Wildfires. A discussion of these natural hazards is 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 Morovis 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 Morovis.

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
Drought	1	1	1	Low
Earthquake/Liquefaction	2	2	2	Moderate
Flooding	2	1	1	Moderate
Landslide	3	1	3	High
Strong winds	3	3	3	High
Wildfire	1	1	1	Low
Extreme Heat	1	1	1	Low

Source: Planning Committee 2020

High=3, Moderate=2, Low=1

Currently, the potential risks with the highest classification or greater impact identified for the municipality are: (1) landslide, and (2).

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 “Structural Projects” with a total of 16 mitigation projects. Landslide and flooding 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 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 Morovis 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 Morovis.

Mitigation strategies are activities, projects, measures, or processes that Morovis will adopt in order to reduce or eliminate risk to people and property from hazards. Consequently, Morovis reviewed and revised the criteria adopted in the 2014 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 Morovis 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 continuity of municipality services after a hazard event. The following summarizes some of the strategies intended to mitigate these hazards (Refer to Section 6.5 of the LHMP):

- Purchase and demolition or reconstruction of seventy-five structures located on areas of high risk to flooding and/or landslides.
- Storm shutters installation on critical municipal assets.
- Increase protected areas within the municipality to prevent development of areas prone to flooding or landslides.
- Improvement to the bridge over the Unibón River.

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. 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 7.4.2 and 7.7 of the LHMP):

- Holding a yearly plan supervision meeting, open to the public.
- Promote community response training and workshop.
- Making presentations of Plan implementation report to various stakeholder groups.

7 Plan Approval and Adoption

The Federal Emergency Management Agency (FEMA) completed review of the Municipality of Morovis' 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 24, 2021. Accordingly, the Municipality of Morovis, adopted said Plan on July 1, 2021 via Executive Order No. 5, Series 2021-2022.

Upon receiving the record of adoption from the municipality, FEMA approved Plan on July 19, 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 July 18, 2026.