



PAMAHALAANG BAYAN
ALAMINOS LAGUNA



CLUP

2018-2027

COMPREHENSIVE LAND USE PLAN

Volume 3:
Sectoral Studies

MUNICIPALITY OF ALAMINOS
PROVINCE OF LAGUNA

**COMPREHENSIVE LAND USE PLAN
2018 – 2027**

**MUNICIPALITY OF ALAMINOS
PROVINCE OF LAGUNA**



Republic of the Philippines
Province of Laguna
Municipality of Alaminos



OFFICE OF THE MUNICIPAL MAYOR

MESSAGE FROM THE MAYOR

Greetings!

Every City or Municipality is mandated to formulate a Comprehensive Land Use Plan enacted through a zoning ordinance as stated in the Local Government Code of 1991 Section 20 and 447. A plan that will shape up the appearance of our municipality, protect public investments, promote economic development, protect environment and valued resources and maintain ecological balance in our municipality. Hence, I would like to present to you our Comprehensive Land Use Plan 2018-2027.

The plan presents new spatial strategy that will benefit from increasing accessibility of our municipality brought about by different national road projects such as by pass roads to Lipa and San Pablo and most importantly the construction of the South Luzon Expressway Extension that will traverse through our lands. As one of the identified growth corridors of the province, our plan is the concentration of commercial and industrial development around these major highways that will serve as main area for the expansion of our urban core and create employment opportunities to our rich productive population.

Through this plan, we also envision the enrichment of our tourism industry through promotion of our rich culture and development of our potential tourist attractions such as Mt. Pataguin where number of falls are located, yet protection and conservation of our forest and environment will still be safeguarded.

We are fortunate that our municipality is situated in a high place where people's exposure to different types of hazard is minimal and farmers can enjoy the continuous cultivation of our rich agricultural land.

Our newly updated CLUP 2018-2027 is crafted through the efforts of all elective and appointive officials. We were assisted by professionals with different areas of expertise who provided us with conceptual inputs and guided us through every step of the process using the HLURB Enhanced Guidelines. Nevertheless, this plan is a product of participative planning through stakeholders' meetings and consultation with representatives from different sectors of our community. Thus, we can proudly say that this Plan is made for and by the people of Alaminos, Laguna.

I therefore urge all the people of Alaminos, Laguna to embrace our plan and all the officials to rally behind the implementation of this plan keeping the realization of our vision as our main goal.

HON. ELADIO M. MAGAMPON, M.D.

Municipal Mayor



Republic of the Philippines
Province of Laguna
Municipality of Alaminos



OFFICE OF THE MUNICIPAL VICE MAYOR

MESSAGE FROM THE VICE MAYOR

Greetings!

It is a great pride and honor that we are presenting to you and dedicating the Comprehensive Land Use Plan of Alaminos, Laguna for the year 2018 to 2027. The revision of Comprehensive Land Use Plan was formulated over a period of years through various meetings, consultations, conversations and ideas between community members, business and property owners. This plan is designed to represent the voices of the People of Alaminos, Laguna. This is a product of intensive series of research, collation of data and a series of multi-sectoral participatory strategic planning. Alaminos land use and zoning policies will promote investment, facilitate job creation, and improve the urban development. As we all know, our town is admired for so many good physical and economic characteristic. We are quite fortunate to have a well-planned urban core, strategic location, good road network, rich agricultural production, tourism potential and be the ideal point of development opportunities in the entire province. Our Land Use Plan will serve as our guide as we take development undertakings for our town to become more prosperous yet peaceful. This is just the beginning of the path of development. I am encouraging the constituents of Alaminos, Laguna to join our hands and combine our efforts to make Alaminos a true model of development and through this Comprehensive Land Use Plan, we can project a bright future for Alaminos, Laguna.

HON. RUBEN D. ALVAREZ

Municipal Vice Mayor

FOREWORD

The Comprehensive Land Use Plan (CLUP) is a long-term management document that serves as a pillar for a municipality's physical development plan in terms of geography and territory. The detailed spatial development and direction of growth for the ten-year planning period (2018-2027) is clearly provided in the CLUP and it also identifies the area where development can and cannot be located and directs public and private investments accordingly. Furthermore, the land use plan defines the policy direction for the use of land resources within the territorial jurisdiction of the municipality and accounts for available supply of land resources.

Provided in the Local Government Code Sections 447, 458, and 468 (Powers, Duties, Functions and Compensation of the Sangguniang Bayan, Panlungsod and Panlalawigan, respectively), the responsibility of crafting and implementing the CLUP is the responsibility of the Sangguniang Bayan of the local government and should be formulated according to the guidelines provided by the Housing and Land Use Regulatory Board (HLURB). The CLUP of Alaminos, Laguna was crafted with the participation of several stakeholders including the local government, Civil Society Organizations (CSOs), Non-Government Organizations (NGOs), private organizations (POs), National Government Agencies (NGAs), and many others to promote participatory planning.

The CLUP is divided into three volumes: 1) Comprehensive Land Use Plan which provides the detailed information on land supply and demand, the development thrusts of the municipality, and its key strategies to achieve the thrusts; 2) Zoning Ordinance is the implementing tool to achieve the desired land use of the municipality and defines specific zones, the allowable uses therein, and the building regulation in each zone; lastly the 3) Sectoral Assessment and Area Studies which provides comprehensive background of the municipality including its history, geo-physical environment, demography, social sector, economic sector, infrastructure sector, and a brief climate and disaster risk information on each sector.

Implementing the CLUP involves regulating the use of lands that are mainly privately held and this requires the exercise of the political powers of the LGU through legislative action by the Sanggunian Bayan. The zoning ordinance must solidify the 10-year planned spatial development with the help of the municipal government of Alaminos, otherwise, this document will merely be a waste. It is also advisable that the CLUP is reviewed and updated every three years to make sure that the plan is aligned well with the actual situation of the development of the municipality.



RESOLUTION

Republic of the Philippines
Province of Laguna
Municipality of Alaminos

OFFICE OF THE SANGGUNIANG BAYAN

EXCERPTS FROM THE MINUTES OF THE REGULAR OF THE SANGGUNIANG BAYAN HELD ON MARCH 11, 2019 AT THE SANGGUNIANG BAYAN SESSION HALL, MUNICIPALITY OF ALAMINOS, LAGUNA

PRESENT:

HON. RUBEN D. ALVAREZ	Vice Mayor & Presiding Officer
HON. BERNADETH V. ALVAREZ	Sangguniang Bayan Member
HON. VICTOR L. MITRA.	Sangguniang Bayan Member
HON. ARTEMIO M. MAMIIT, JR.	Sangguniang Bayan Member
HON. MORRIS ALBERT S. MATIBAG	Sangguniang Bayan Member
HON. DARWIN C. TOLENTINO	Sangguniang Bayan Member
HON. RAMMEL E. BANZUELA	Sangguniang Bayan Member
HON. GORGONIO M. ABRIGO	Sangguniang Bayan Member
HON. CANDELARIA V. CALABIA.	Sangguniang Bayan Member
HON. JACKLYN A. VILLANUEVA	SK Federation Chair

ABSENT:

HON. LORENZO B. ZUNIGA, JR.	ABC President (O.B.)
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**Resolution No. 59
Series of 2020**

A RESOLUTION ADOPTING AND RATIFYING THE COMPREHENSIVE LAND USE PLAN (CLUP) OF THE MUNICIPALITY OF ALAMINOS, LAGUNA FOR 2018-2027

WHEREAS, the Sangguniang Bayan is mandated by Section 447 of RA 7160 to adopt a Comprehensive Land Use Plan and Zoning Ordinance;

WHEREAS, the Comprehensive Land Use Plan (CLUP) having been submitted to the Sangguniang Bayan and after considering the comments, suggestions and recommendations of the Technical Review Committee and the general public during the public hearings consultation finds the same to be as effective instrument in attaining the development goal sand objectives of the Municipality;

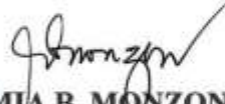
WHEREAS, the said Land Use Plan have been found to be in accordance with the existing policies of the National Government.

NOW THEREFORE, on motion of Hon. Gorgonio M. Abrigo and duly seconded by Hon. Candelaria V. Calabia and unanimously approved by all present, it is **RESOLVED** as it is hereby **RESOLVED** to **ADOPT** the Comprehensive Land Use Plan of the Municipality of Alaminos, Laguna for 2018-2027.

RESOLVED FURTHER, to submit copies of the plan to the Sangguniang Panlalawigan for review and approval of the plan.

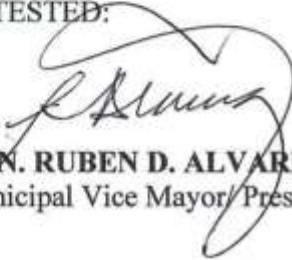
ADOPTED this 11th day of March 2020.

I hereby certify that the foregoing is a true and accurate copy of the Resolution which was duly adopted by the Sangguniang Bayan of Alaminos, Laguna during its Regular Session held on March 11, 2020.



NEMIA B. MONZONES
Secretary to the Sangguniang Bayan

ATTESTED:



HON. RUBEN D. ALVAREZ
Municipal Vice Mayor/Presiding Officer

APPROVED BY:



HON. ELADIO M. MAGAMPON , M.D.
Municipal Mayor

ACKNOWLEDGEMENT

The updating of the Comprehensive Land Use Plans of the Municipality of Alaminos was made possible through the active support and participation of the following:

Honorable ELADIO M. MAGAMPON, M.D., Local Chief Executive;
Honorable RUBEN ALVAREZ, Vice Mayor;

The Former Mayor **ATTY. LORETO M. MASA** and **ROBERTO V. MASA**, Former Mayor's Executive Assistant;

The Department Heads of the Municipality of Alaminos, Laguna composed of MR. CORSENI R. SALCEDO, Mayor's Executive Assistant; ENGR. MICHAEL B. BUNO, Mun. Planning & Development Coordinator; FLORENTINO J. DESTACAMENTO, Municipal Engineer; EDEN C. GESMUNDO, Municipal Local Government Operations Officer; CHRISTIAN V. SABINOSA, Municipal Disaster Risk Reduction and Management Officer; Ms. GLADYS D. THOMPSON, Municipal Agriculturist; Mr. CIRILO M. MISTA, Municipal Accountant; Ms. IRENE O. BANAWA, Municipal Budget Officer; Ms. JOSEFINA A. TOLOSA, Municipal Treasurer; Ms. ARLENE M. GARACHICO, Municipal Civil Registrar; MARISSA M. AGUILAR, Municipal Social Welfare & Development Officer; Mr. EULOGIO B. SANTILLAN, REA, Municipal Assessor; DR. VICTORIA JOSEFA F. BASILAN, Municipal Health Officer; NEMIA B MONZONES, Sangguniang Bayan Secretary; JANETH B. RIVERA, General Services Officer; FSINSP JOEL A ELEFANTE, Fire Marshall; PSINSP GLENN CUEVAS, Acting Chief of Police;

Former Sangguniang Bayan Members of Alaminos namely: HON. LORELEI M. PAMPOLINA; HON. NIKKI D. CASTILLO; HON. NOEL MONZONES; HON. LINO B. ZUÑIGA; HON. JEYSON C. ABU;

Current Sangguniang Bayan Members of Alaminos namely: HON. BERNADETE V. ALVAREZ; HON. VICTOR L. MITRA; HON. ARTEMIO M. MAMIIT JR; HON. MORRIS ALBERT S. MATIBAG; DARWIN C. TOLENTINO; HON. RAMMEL E. BANZUELA; HON. GORGONIO M. ABRIGO; HON. CANDELARIA V. CALABIA; HON. LORENZO B. ZUÑIGA, JR. (Ex-Officio Member); JACKLYN A. VILLANUEVA, SK Federation President;

The current and former members of the Municipal Development Council: Hon. EDUARDO R. BRIZ (Del Carmen); Hon. VICTOR L. MITRA (Palma); Hon. MEXICO VILLANUEVA (Poblacion I); Hon. ANGELO OBA (Poblacion II); Hon. ROMEO ANURAN (Poblacion III); Hon. BILLY BAUTISTA (Poblacion IV); Hon. ROMEO O. SAGARIO, JR., (San Andres); Hon. GREGORIO L. BERTO (San Agustin); Hon. CESAR VILLANUEVA (San Benito); Hon. LORENZO ZUÑIGA JR., (San Idefonso); Hon. RONY H. PUJANES (San Juan); Hon. URBANO M. BALOG (San Gregorio); Hon. MARS V. LIBANG (San Miguel); Hon. EUSTAQUIO ABRIL., (San Roque); Hon. GREGORIA A. CATIPON (Sta. Rosa) and all the CSO, NGO members;

The Alaminos Water District headed by ENGR. EMILIANO CASTILLO; the Local School Board headed by the Department of Education District Supervisor, EDITHA V. RANA, and the group of professionals who provided us with technical assistance and exceptional service namely CHRISTIROSE JIREH R. BETIA, DANA MAE C JACOBO, MA. CHARIZ A. MONTERO, JOHN JOWARD A. MARTILLANA and ARIANE AVENIDO;

Sectoral data requirements were supplied by national government offices namely: The Land Management Bureau; Mines and Geosciences Bureau; Department of Interior and Local Government; Department of Public Works and Highways; Philippine Atmospheric, Geophysical and Astronomical Services Administration; Bureau of Soils and Water Management; Philippine Institute of Volcanology and Seismology; National Statistics Office; and Housing and Land Use Regulatory Board.

Above all, our sincerest gratitude and appreciation to all people of Alaminos who participated in all dialogues, consultations and profiling activities in all barangays who provided the essence for the direction of the municipality's development vision.

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ACRONYMS

4Ps	Pantawid Pamilyang Pilipino Program
AADT	Annual Average Daily Traffic
AICS	Aid in Individual in Crisis Situation
ALS	Alternative Learning System
AURI	Acute Upper Respiratory Infection
BFP	Bureau of Fire Protection
BHS	Barangay Health Station
BNS	Barangay Nutrition Scholar
BPLO	Business and Licensing Permit Office
BSWM	Bureau of Soil and Water Management
CAR	Children at Risk
CBR	Crude Birth Rate
CDO	Climate Data Organizations
CDR	Crude Death Rate
CICL	Children in Conflict with Law
CLUP	Comprehensive Land Use Plan
DAP	Differently Abled Persons
DENR	Department of Environment and Natural Resources
DepEd	Department of Education
DOH	Department of Health
DSWD	Department of Social Welfare and Development
GIS	Geographic Information System
HH	Household
HU	Housing Unit
HLURB	Housing and Land Use Regulatory Board
KII	Key Informant Interview
MAO	Municipal Agricultural Office
MASL	Meters Above Sea Level
MENRO	Municipal Environmental and Natural Resources Office
MEO	Municipal Engineering Office
MERALCO	Manila Electric Company
MGB	Mines and Geosciences Bureau
MHC	Municipal Health Center
MPDO	Municipal Planning and Development Office
MRF	Material Recovery Facility
MSWDO	Municipal Social Welfare and Development Office
NDP	Nurse Deployment Program
NSWD	National Standards for Drinking Water
PLDT	Philippine Long-Distance Telephone
PNP	Philippine National Police
PSA	Philippine Statistics Authority
RHU	Rural Health Unit
RM	Resource Mapping
SCSR	Social Case Study Report
SEA-K	Self-Employment Assistant – Kaunlaran
SPES	Special Program for the Employment of Students
SWMP	Solid Waste Management Plan
TESDA	Technical Education and Skills Development Authority
VAWC	Violence Against Women and Children
VCR	Volume Capacity Ratio

GLOSSARY

Adaptation –the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (RA 10121).

Agricultural Lands (in forestlands) –areas that are extensively used for the production of agricultural crops. These lands are primarily intended for cultivation, livestock production and agroforestry. (DAO 1995-15)

Base Map –shows certain fundamental information such as rivers, roads and political boundaries on which additional, specialized data can be compiled. Base map provides the standard configuration of the planning unit and thus serves as the working map for the preparation of the thematic maps.

Baseline/Reference –The baseline (or reference) is any datum against which change is measured. It might be a “current baseline,” in which case it represents observable, present-day conditions. It might also be a “future baseline”, which a projected future is set of conditions excluding the driving factor of interest (e.g. how would a sector evolve without climate warming). (Climate Change in the Philippines)

Capacity –a combination of all strengths and resources available within a community, society or organization that can reduce the level of risk, or effects of a disaster. Capacity may include infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management. Capacity may also be described as capability. (RA 10121)

Climate Change –change of climate, which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. (Climate Change in the Philippines)

Climate Projection –A Description of the response of the climate system to emission or concentration scenarios of greenhouse gases and aerosols, or radiative forcing scenarios, often based upon simulations by climate models. Climate projections are subject to uncertainty, because they are typically based on assumptions concerning future socio-economic and technological Developments that may or may not be realized. (Climate Change in the Philippines)

Climate Change Vulnerability –is the Degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity. (Climate Change in the Philippines)

Conservation –shall refer to all the processes and measures of maintaining the cultural significance of a cultural property, including but not limited to, preservation, restoration, reconstruction, protection, adaptive re-use or any combination thereof

Critical facilities –the primary physical structures, technical facilities and systems which are socially, economically or operationally essential to the functioning of a society or community, both in routine circumstances and in the extreme circumstances of an emergency

Disaster –a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. Disasters are often described as a result of the combination of: the exposure

to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences. Disaster impacts may include loss of life, injury, disease and other negative effects on human, physical, mental and social well-being, together with damage to property, Destruction of assets, loss of services, Social and economic disruption and environmental Degradation. (RA 10121)

Disaster Mitigation –the lessening or limitation of the adverse impacts of hazards and related disasters.

Disaster Preparedness –the knowledge and capacities Developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions. Preparedness action is carried out within the context of disaster risk reduction and management and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response to sustained recovery. Preparedness is based on a sound analysis of disaster risk and good linkages with early warning systems, and includes such activities as contingency planning, stockpiling of equipment and supplies, the Development of arrangements for coordination, evacuation and public information, and associated training and field exercises. These must be supported by formal institutional, legal and budgetary capacities. (RA 10121)

Disaster Response –the provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected. Disaster response is predominantly focused on immediate and short-term needs and is sometimes called “disaster relief”. (RA 10121)

Disaster Risk –the potential disaster losses in lives, health status, livelihood, assets and services, which could occur to a particular community or a society over some specified future time period. (RA 10121)

Disaster Risk Reduction –the concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposures to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events. (RA 10121)

Disaster Risk Reduction and Management –the systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster. Prospective disaster risk reduction and management refers to risk reduction and management activities that address and seek to avoid the Development of new or increased disaster risks, especially if risk reduction policies are not put in place. (RA 10121)

Early Warning System –the set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss. A people-centered early warning system necessarily comprises four (4) key elements: knowledge of the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received. The expression “end-to-end warning system” is also used to emphasize that warning systems need to span all steps from hazard Detection to community response. (RA 10121)

Earthquake –a sudden and violent shaking of the ground, sometimes causing great Destruction, as a result of movements within the earth’s crust or volcanic action

Earthquake-induced Landslide –a landslide hazard occurred with a Delay in time and over a wider area, which triggered by post-seismic factor (earthquake)

Exposure –the Degree to which the elements at risk are likely to experience hazard events of different magnitudes. (RA 10121)

Farm-to-Market Roads –shall include roads linking the fisheries production sites, coastal landing points and other post-harvest facilities to major market and arterial roads and highways

Fauna –All species of animals found in a given area. (DENR FMB Harmonization Project 2005)

Flood –an abnormal progressive rise in the water level of a stream that may result in the overflowing by the water of the normal confines of the stream with the subsequent inundation of areas, which are not normally submerged

Flora –All species of plants found in a given area, including ferns, lycopods and mosses. (DENR PAWB 2005)

Forest –land with an area of more than 0.5 hectare and tree crown cover (or equivalent stocking level) of more than 10%. The trees should be able to reach a minimum height of 5 meters at maturity in situ. It consists either of closed forest formations where trees of various storey and undergrowth cover a high proportion of the ground or open formations with a continuous vegetation cover in which tree crown cover exceeds 10%. Young natural stands and all plantations established for forestry purposes, which have yet to reach a crown density of more than 10% or tree height of 5 meters are included under forest. (FAO Global Resource Assessment 2000)

Forest Resources –include soil and all elements found on it, above and below the ground in an area classified as forestland. (DENR DAO 2000-65)

Geographic Information System (GIS) –a database that contains, among others, geo-hazard assessments, information on climate change, and climate risk reduction and management (RA 10121). It is defined as an information system that is used to input, store, retrieve, manipulate, analyze and output geographically referenced data or geospatial data. Descriptive attributes in tabular form are associated with spatial features. Spatial data and associated attributes in the same coordinate system can be layered together for mapping and analysis. This tool is most helpful to support Decision making for planning and management of land use, natural resources, environment, transportation, urban facilities, scientific investigations, etc.

Global Positioning System (GPS) –a radio navigation system that allows users on land, sea, and air to Determine their exact location, velocity, and time 24 hours a day, in different weather conditions, and place in the world.

Ground shaking–the primary cause of earthquake damage to man-made structures

Hazard –a dangerous phenomenon, substance human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihood and services, social and economic disruption, or environmental damage. (RA 10121)

History –shall refer to a written record of past events relating to Philippine history

Intensity –measures the strength of shaking produced by the earthquake at a certain location; Determined from effects on people, human structures, and the natural environment

Language –refers to the codes and symbols used by a particular speech community in both written and spoken form to facilitate the conduct of any discourse that contributes to the smooth functioning of society

Library –shall refer to an institution where the collection of books, manuscripts, computerized information and other materials are organized to provide physical, bibliographic, and/or intellectual access to the public, with a librarian that is trained to provide services and programs related to the information needs of its clientele

Liquefaction –a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading

Magnitude–measures the energy released at the source of the earthquake; Determined from measurements on seismographs

Mineral Lands –areas which are presently exploited for mineral production (including land rendered unproductive by deposits of extraction waste material) and those which are positive for ore reserves insufficient quantities and grades to justify their extraction. These include proclaimed mineral reservation

Percentage Slope –is a measurement of the rate of change of elevation over a given horizontal distance, in which the rise is divided by the run and then multiplied by 100. A 45° slope is equivalent to 100% slope.

Preparedness –the knowledge and capacities Developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions

Prevention –the outright avoidance of adverse impacts of hazards and related disasters

Production Area –forestlands tended primarily for the production of timber including areas within ancestral lands devoted to agriculture. These are areas below 50% slope and less than 1,000 meters in elevation.

Projection –The term “projection” is used in two senses in the climate change literature. In general usage, a projection can be regarded as any description of the future and the pathway leading to it. However, a more specific interpretation has been attached to the term “climate projection” by the IPCC when referring to model derived estimates of future climate. (Climate Change in the Philippines)

Rainfall-induced Landslide –a landslide hazard occurred with a delay in time and over a wider area, which triggered by post-seismic factor (rainfall)

Rehabilitation –measures that ensure the ability of affected communities/areas to restore their normal level of functioning by rebuilding livelihood and damaged infrastructures and increasing the communities’ organizational capacity. (RA 10121)

Resilience –the ability of a system, community or society exposed to hazards to resist, absorb, accommodate and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. (RA 10121)

Response –any concerted effort by two (2) or more agencies, public or private, to provide assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected and in the restoration of essential public activities and facilities. (RA 10121)

Risk –the combination of the probability of an event and its negative consequences

Risk Assessment –a methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihood and the

environment on which they depend. Risk assessments with associated risk mapping include a review of the technical characteristics of hazards such as their location, intensity, frequency and probability; the analysis of exposure and vulnerability including the physical, social, health, economic and environmental dimensions; and the evaluation of the effectiveness of prevailing and alternative coping capacities in respect to likely risk scenarios. (RA 10121)

Risk management –the systematic approach and practice of managing uncertainty to minimize potential harm and loss

Spatial Data –information pertaining to a place linked to coordinates or other positional information.

Vulnerability –the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. Vulnerability may arise from various physical, social, economic, and environmental factors such as poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures, and disregard for wise environmental management. (RA 10121)

**VOLUME 3: SECTORAL AND
SPECIAL AREA STUDIES**

1. PHYSICAL AND NATURAL CHARACTERISTICS

This section provides comprehensive baseline information of physical and natural characteristics of Alaminos. The information and assessments are key components in pursuing spatial and strategic development plan in the municipality.

1.1 Geographical and Administrative Profile

1.1.1 Geographical location

Alaminos is a heart-shaped mainland Municipality in the Province of Laguna. It is located within 121° 12' 40.79" - 121° 17' 23.36" Longitude and 13° 59' 43.64" - 14° 5' 35.73" Latitude of the southern part of Laguna. It is bounded by the municipalities of Calauan, Laguna in the north, San Pablo City in the east, Municipality of Sto. Tomas, Batangas in the west, and Lipa City, Batangas in the south. [Map 1](#) shows the location map using the spatial data from the province while [Map 2](#) used the municipality's cadastral data. All maps used in the CLUP are based from the cadastral data.

Alaminos is located 78 kilometers southward of Manila with an average travel time of two (2) hours and approximately 28 kilometers northward of Sta. Cruz, the provincial capitol of Laguna with an estimated travel time of one (1) hour.

Alaminos has a total land area of 5,345.35 hectares (GIS Computed from cadastral data) which is short by 131.22 hectares from the previous CLUP (2000) which was 5,476.57 hectares. This difference can be attributed to map errors and boundary disputes.

1.1.2 Administrative boundaries

Alaminos is a third (3rd) income class municipality in the province of Laguna. It is politically subdivided into 15 barangays, namely: barangays Del Carmen, Palma, San Agustin, San Andres, San Benito, San Gregorio, San Ildefonso, San Juan, San Miguel, San Roque, Sta. Rosa, Poblacion 1, Poblacion 2, Poblacion 3, and Poblacion 4 (refer to [Map 3](#)).

1.2 Natural and Physical Characteristics

1.2.1 Topography

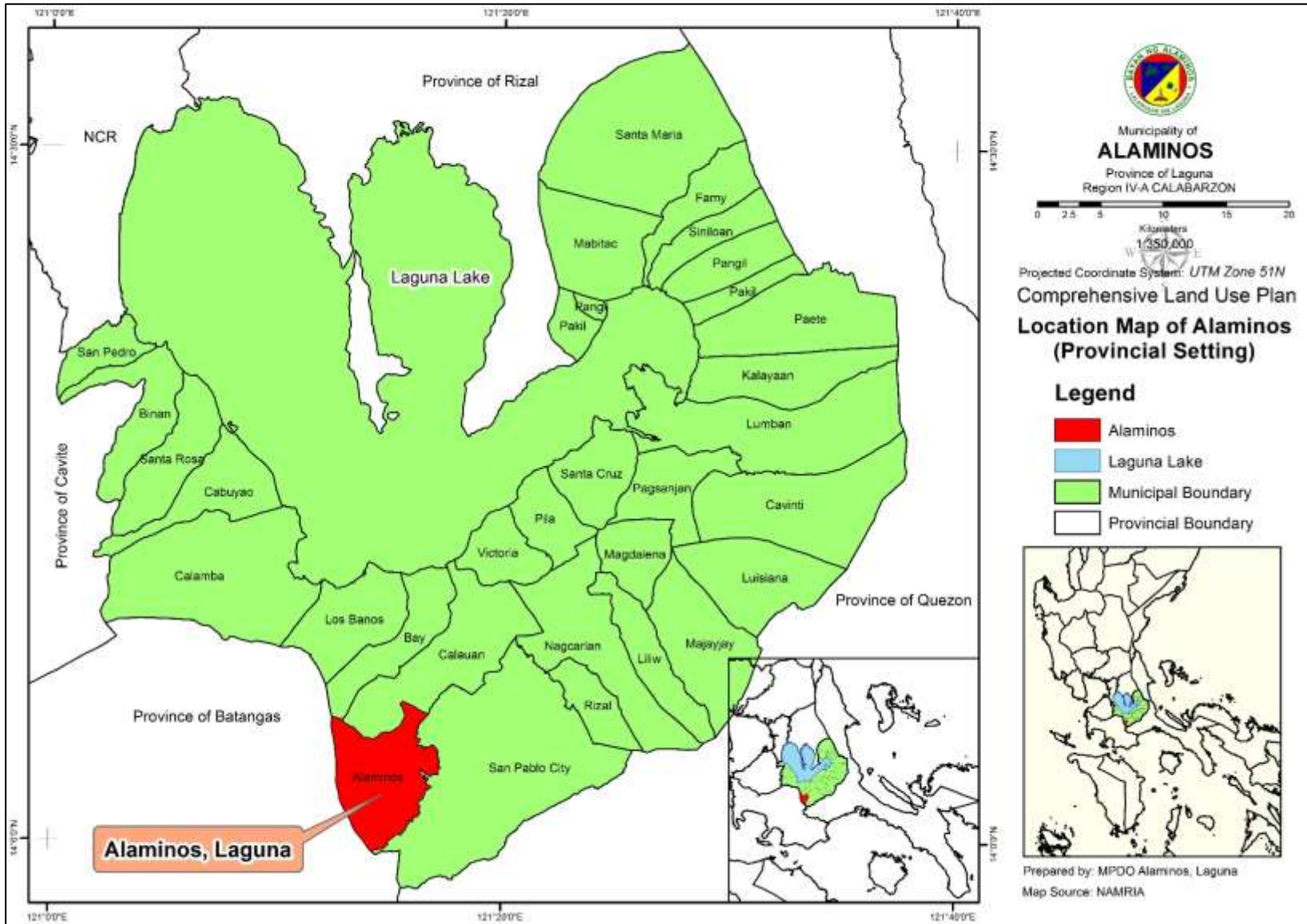
Topography affects the cost of production, land development, networks and infrastructure development.

Topographic Relief

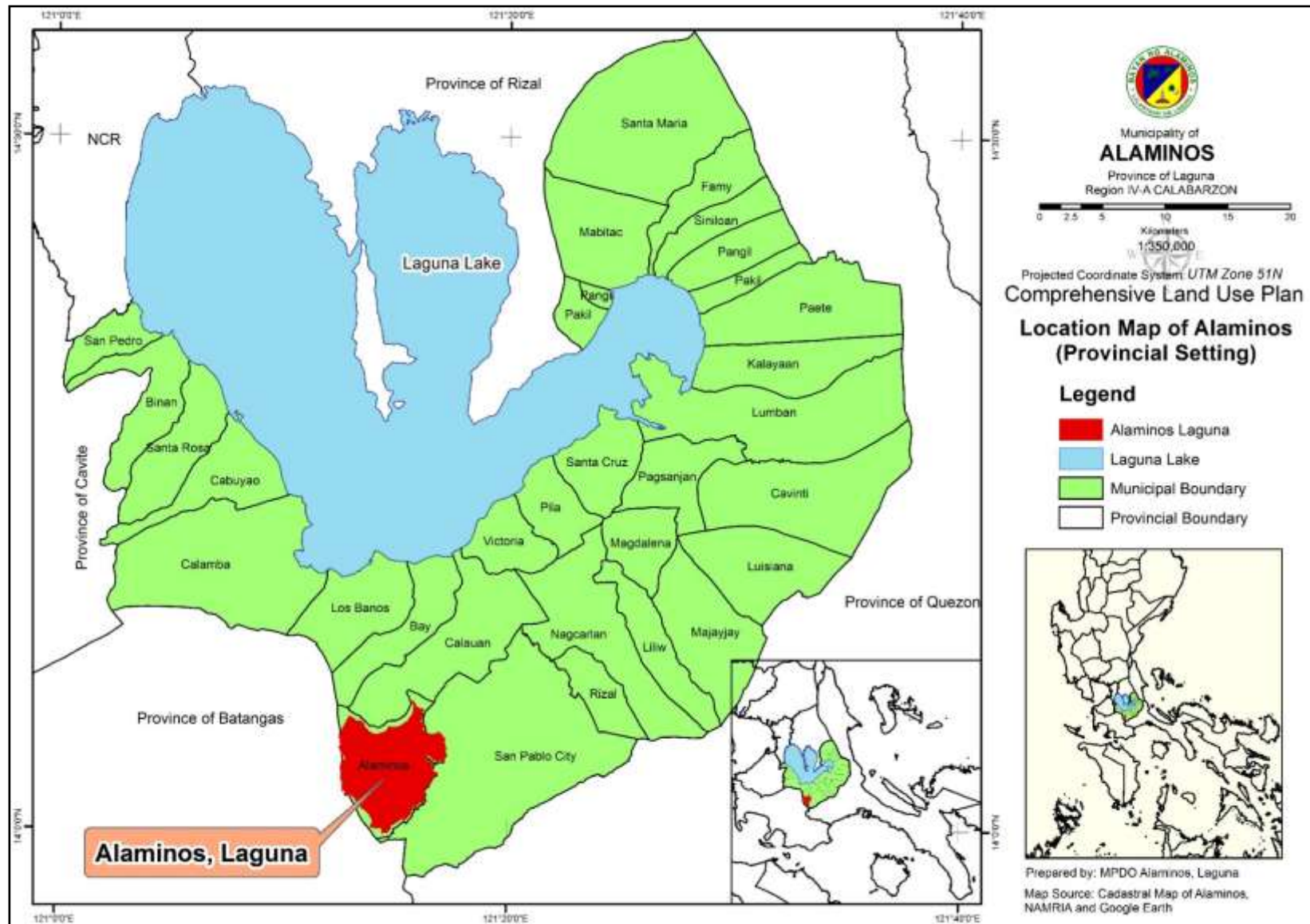
Most of the land area of Alaminos is relatively flat particularly in urban and rural barangays. Further, gently sloping is situated in southern and south-western portion of the municipality which is characterized by a rugged terrain. It is located at barangays Palma, Sta. Rosa and San Gregorio.

The topographic relief is sub-divided into two intervals; 50-meter and 10-meter. Overall, the relief ranges from 50 meters to 700 meters, which is suitable for urban expansion and agricultural uses [Map 4](#) shows the topographic relief map of the municipality.

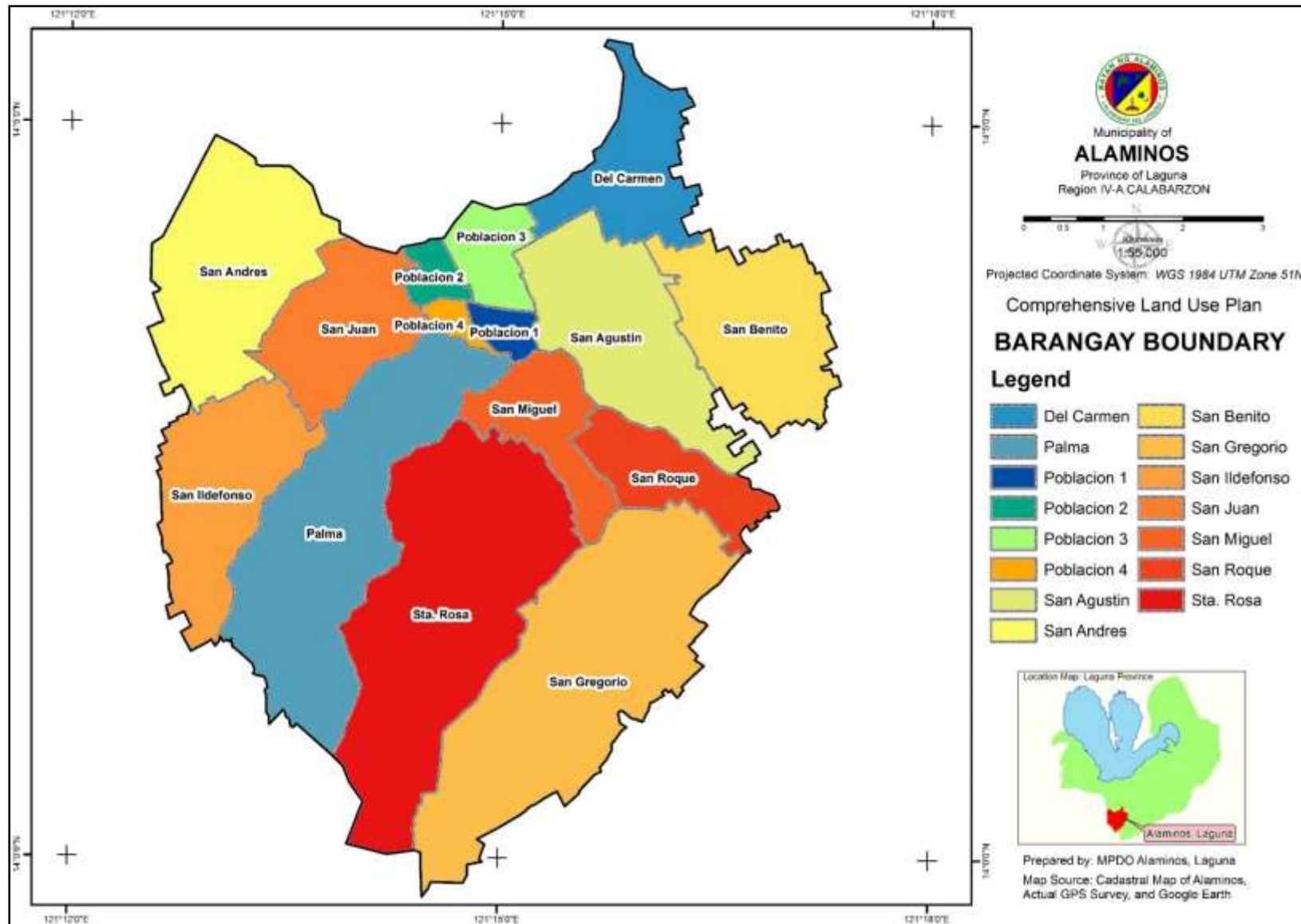
Map 1: Location Map of Alaminos, Laguna – Provincial data



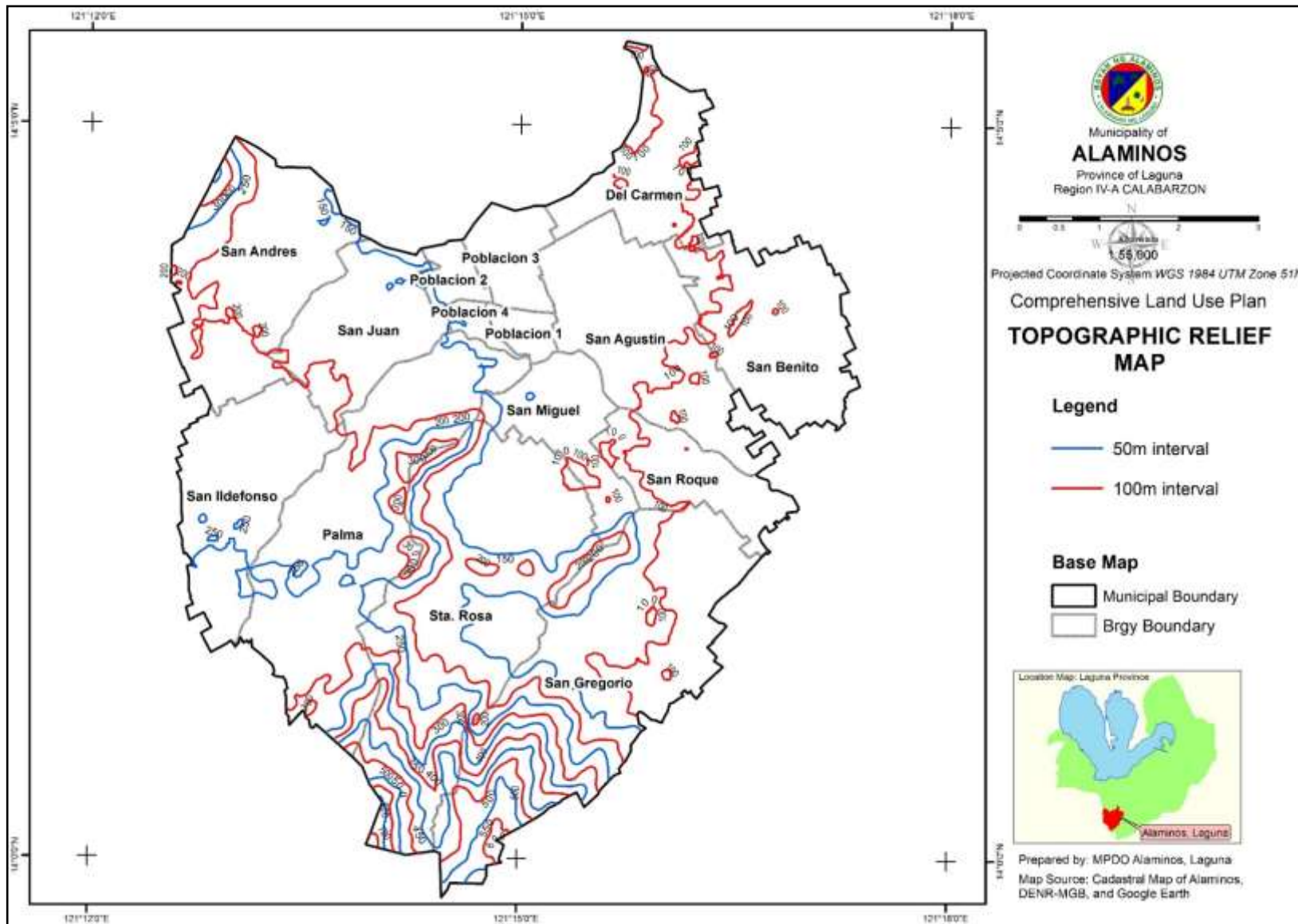
Map 2: Location Map of Alaminos, Laguna – Cadastral data



Map 3: Barangay Boundary Map of Alaminos, Laguna



Map 4: Topographic Relief Map of Alaminos, Laguna



Elevation

The territorial jurisdiction of Alaminos ranges from 66 to 728 meters above sea level (masl) (refer to [Map 5](#)). A vast of land falls under the elevation of 66 – 176 meters above sea level and some portion of barangays are ranging from 176 – 286 meters above sea level, which is suitable for urban development or residential areas. On the other hand, the remaining portions are categorized as forest use. These areas have an elevation ranging from 286 – 728 meters above sea level. [Table 1](#) presents the elevation profile and its covered barangays.

Table 1 - RM: Elevation Profile of Alaminos, Laguna

Elevation (masl)	Barangay
66 – 176	San Andres, San Juan, Poblacion 1, Poblacion 2, Poblacion 3, Poblacion 4, Del Carmen, San Agustin, San Benito, San Roque, San Miguel, Sta. Rosa
176 – 286	San Andres, San Juan, San Ildefonso, Palma, Sta. Rosa, San Gregorio
286 – 728	Palma, Sta. Rosa, San Gregorio

Source: DENR-MGB, 2012

Additionally, the municipality is rich in mountains and hills – two (2) mountains (Mt. Olila and Mt. Pataguin) and five (5) hills (Mapait, Bunsulan, Tanza, Palindan, and Burol) are found within the municipality. The two mountains serve as natural boundaries of the municipality to Sto. Tomas and Lipa City in Batangas province. The descriptions of five (5) hills are presented in [Table 2](#).

Table 2 - RM: Hill Elevations and Location of Alaminos, Laguna

Hill	Elevation (masl)	Location/ Barangay	Coordinates
Mapait Hill	356	Sta. Rosa	14° 0'39.60"N, 121°14'13.20"E
Bunsulan Hill	312	Palma	14° 1'18.78"N, 121°13'51.96"E
Tanza Hill	262	San Gregorio	14° 0'54.00"N, 121°15'00.00"E
Palindan Hill	200	San Gregorio	14° 1'04.80"N, 121°15'18.00"E
Burol/Mani Hill	262	San Gregorio	14° 0'36.00"N, 121°15'32.40"E

Source: MPDO, 2017, DENR-MGB, and Cadastral Map of Alaminos

Slope

About 2,325.45 hectares (43.83%) of the total land area of municipality is from 0 to 3 percent slope, 1,196.74 hectares (22.39%) is from 3 to 8 percent slope, 681.00 hectares (12.74%) is 8 to 18 percent slope, 336.18 hectares (6.29%) and 13.57 hectares (0.25%) for 50 percent and above (refer to [Table 3](#)).

The slope of Alaminos can be best described as having a nearly level to gently sloping to undulating. Since landslide is directly proportional to slope percentage, 0 to 18 percent is characterized as low susceptibility to landslide while 18 percent and above is considered as moderate to high susceptibility. In addition, 286.56 hectares (6.63%) and 4.76 hectares (0.09%) of built-up areas are located in 0 to 18 percent and 18 to 30 percent, respectively. Furthermore, 3.90 hectares of informal settlers are found in 0 to 18 percent located in barangays Poblacion 1, Poblacion 2, and Poblacion 4 while 0.09 hectare is situated in barangay Sta. Rosa with 18 to 30 percent slope.

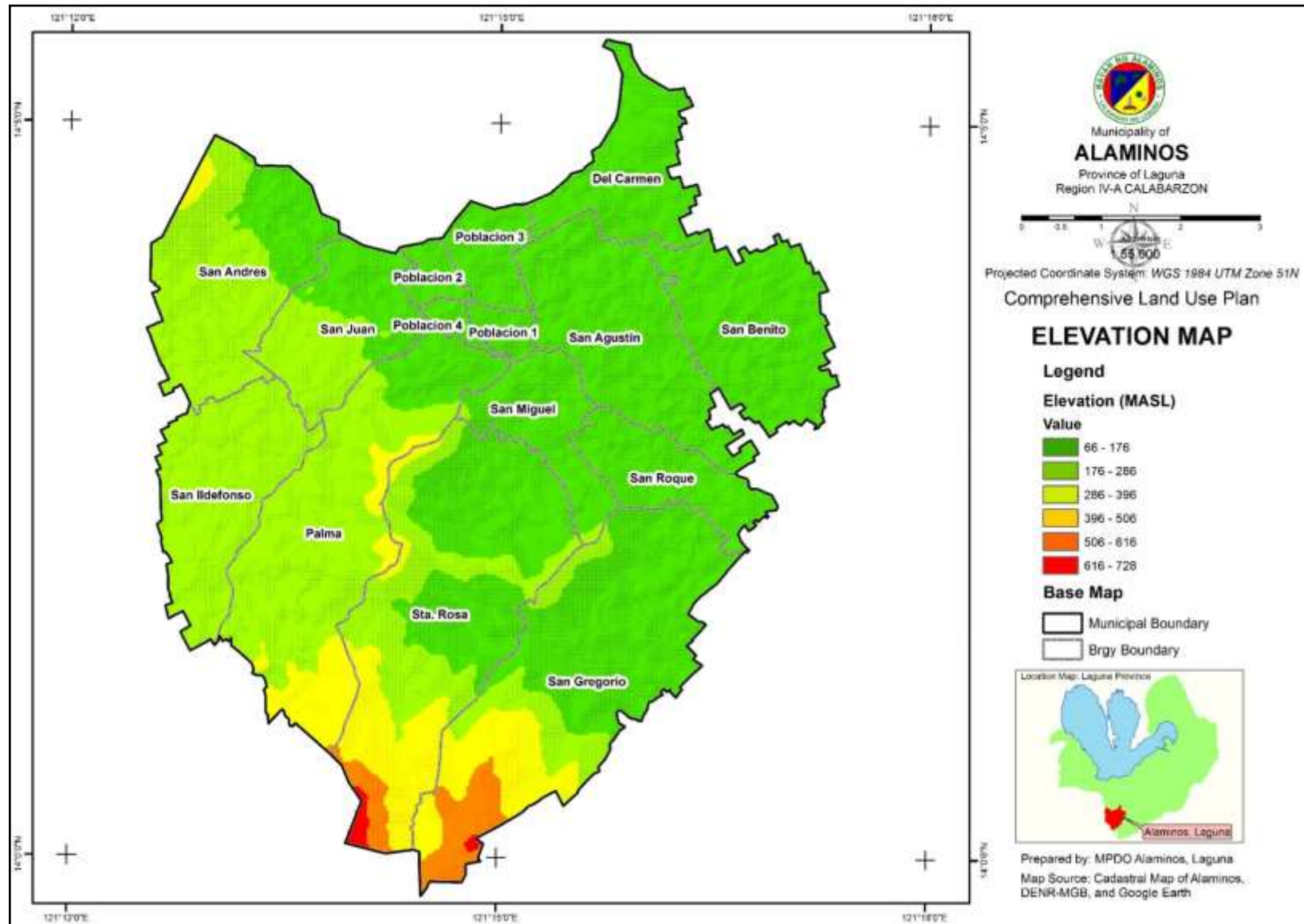
The highest elevation, rising about 736 meters, is located near Lipa City and Sto. Tomas, Batangas boundary where Mt. Olila and Mt. Pataguinare situated (refer to [Map 6](#))

Table 3 - RM: Slope Distribution of Alaminos, Laguna

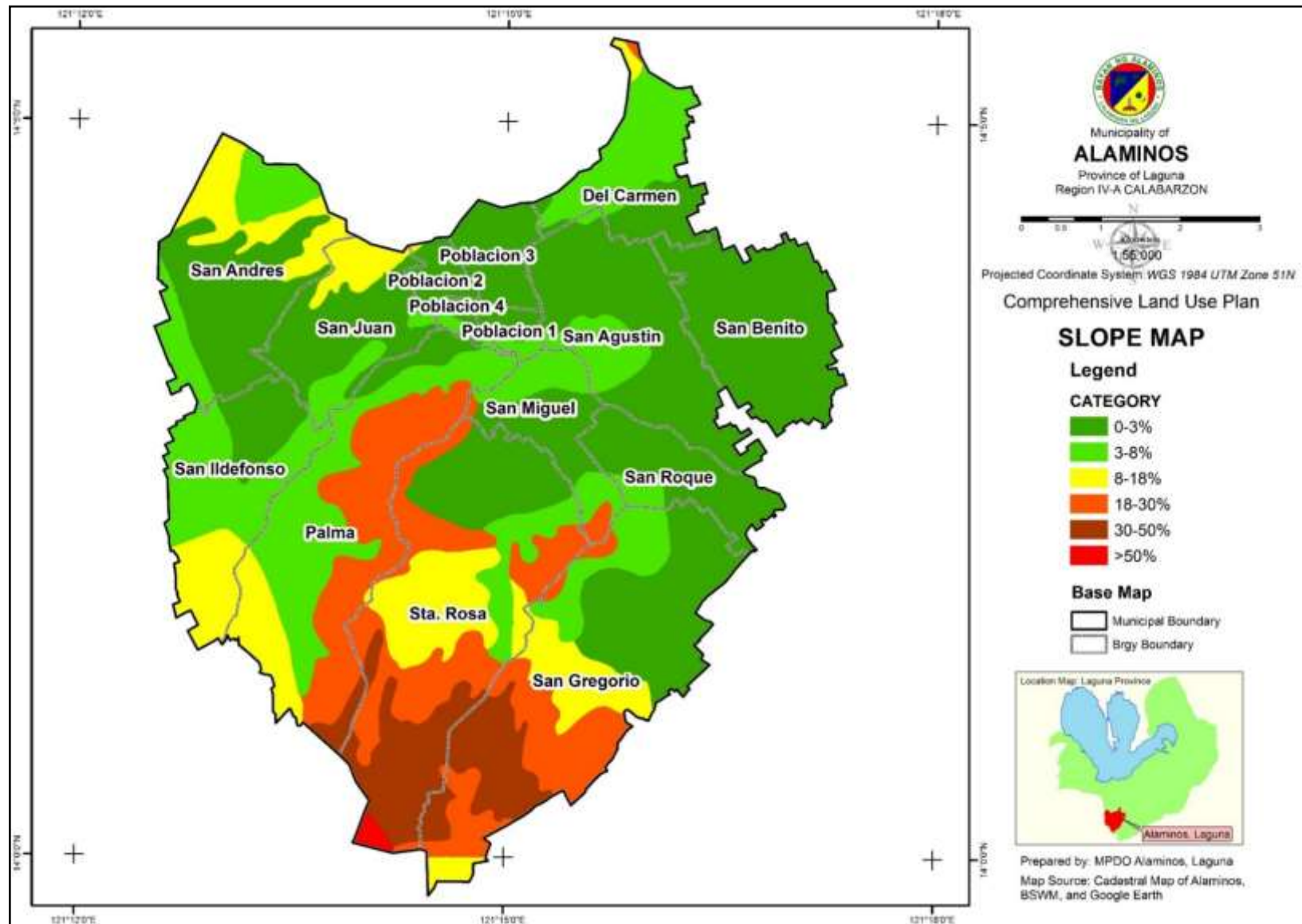
Slope	Area (Ha)	Percentage to Total Area	Description	Erosion Potential	Suitability
0-3%	2,325.45	43.51	Level To Very Gently Sloping	No Erosion Potential	Urban and Agricultural Uses
3-8%	1,196.74	22.39	Gently Sloping To Undulating	No Erosion Potential	Urban and Agricultural Uses
8-18%	681.00	12.74	Undulating To Rolling	Low Susceptibility	Urban and Agricultural Uses
18-30%	792.41	14.82	Rolling To Hilly	Moderately Susceptible	Agricultural Use
30-50%	336.18	6.29	Steep Hills	Highly Susceptible	Forest Use
>50%	13.57	0.25	Very Steep Hills		
Total	5345.35	100	-	-	-

Source: MPDO GIS computation 2017, Bureau of Soil and Water Management (BSWM), 2012

Map 5: Elevation Map of Alaminos, Laguna



Map 6: Slope Map of Alaminos, Laguna



Surface Drainage

The municipality is being drained by the following rivers: Tigas river on the northern portion serving as boundary between Calauan and Alaminos, Tarac (Camachile) river on the western portion, Kaquinkong (Viana) river centrally located and Onipa (Calaboa, Byayong and Sabang) river on the southern portion (refer to [Map 7](#)). River systems traversed from one location to another, as locals name it differently.

1.2.2 Soil

Soil Type and Classification

Lipa Loam is the dominant type of soil in Alaminos, comprising a total of 2,942.51 hectares (55.05%) of the total land area. This type of soil is a Eutropepts-Tropudalfs Association characterized by a thick argillic horizon with maximum soil depth of 1.8 meters. It has a reddish to yellowish red color, with fine to medium angular to sub-angular blocky structures. The texture is characterized as fine to clayey. The infiltration rate is moderate due of its clayey structure.

Aside from Lipa loam, Alaminos also has parts made up of 229.16 hectares (4.29%) Macolod. Its residual soils originated from igneous basalt rocks characterized as having a dark grayish brown color and a slightly compact, granular clay loam of about 50-70 centimeters deep overlaying weathered basalt rocks subsoil. Imbedded ground lenses could be detected sometimes in its profile. Macolod soil can be found in the rolling areas around the foot of Mount Makiling.

Macolod clay loam makes up the 759.92 hectares (14.22%) of the municipality. It is characterized by a dark grayish brown to brown color and generally possesses fine rounded gravels, black andesite rocks exposed on steep slopes, and diffused inter-horizontal boundary.

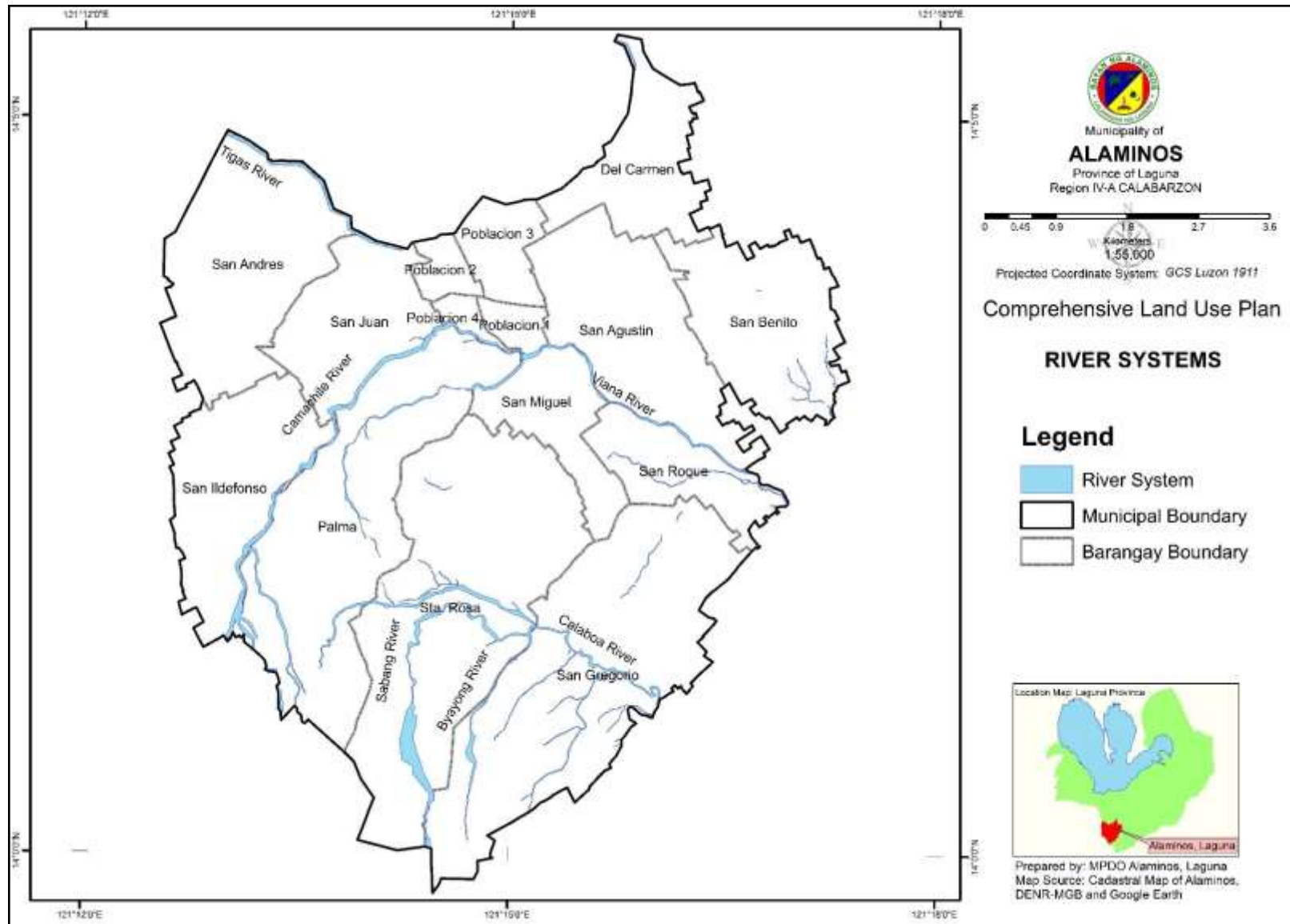
The remaining soil type – Mountain soils covers 1,431.76 hectares (26.44%) of Alaminos. Its textural group is unknown. [Table 4](#) and [Map 8: Soil Map of Alaminos, Laguna](#) show the different soil types and its area in hectares. [Table 5](#) summarized the different soil types per barangay and the percentages of composition.

Table 4 - RM: Soil Type of Alaminos, Laguna

Soil Type	Area (Ha)	Percentage
Lipa Loam	2,942.51	55.05
Macolod	229.16	4.29
Macolod Clay Loam	759.92	14.22
Mountain Soils	1,413.76	26.44
Total	5,345.35	100

Source: MPDO GIS computation 2017, Bureau of Soil and Water Management, 2012

Map 7: River Systems in Alaminos, Laguna



Map 8: Soil Map of Alaminos, Laguna

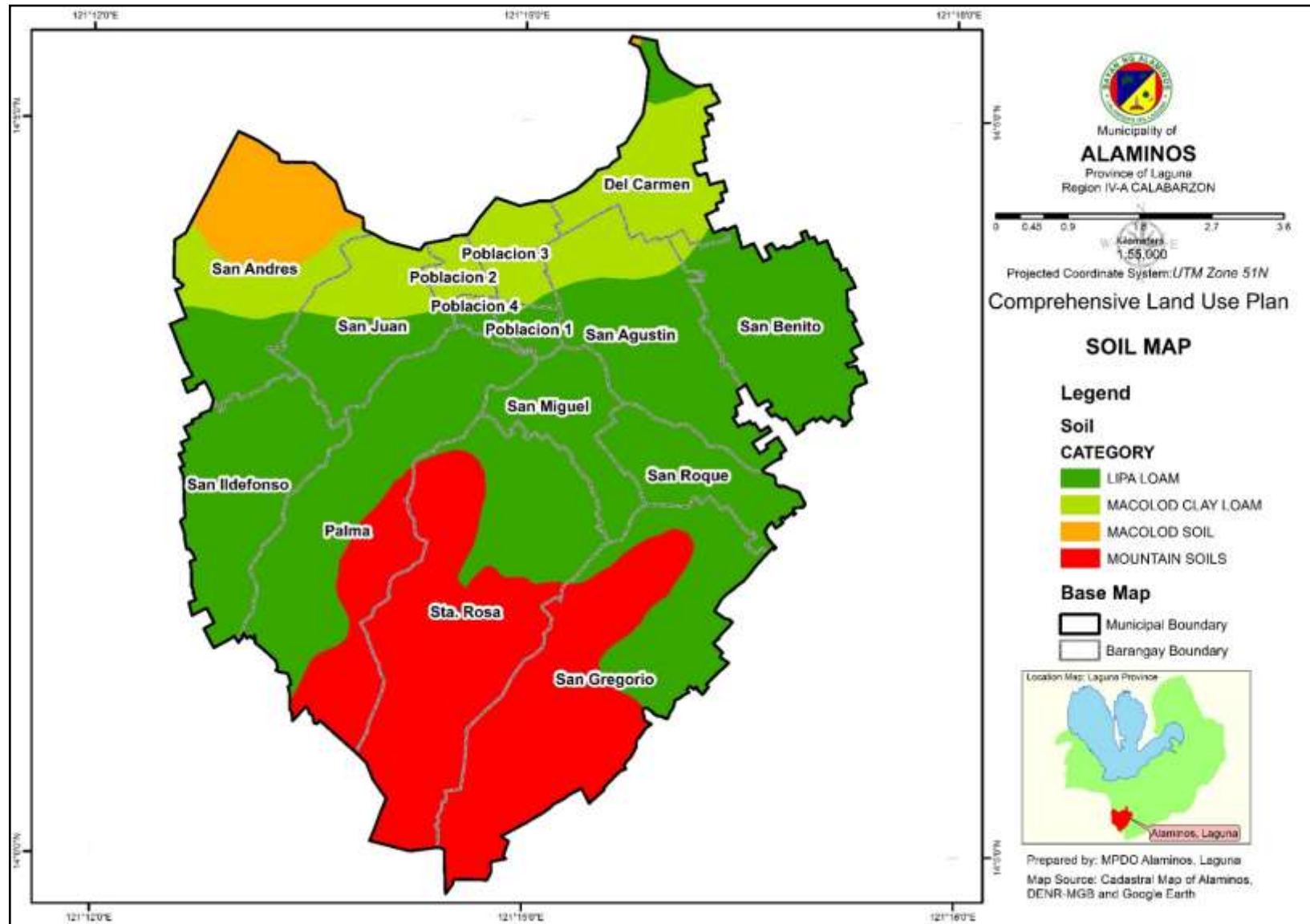


Table 5 - RM: Soil Type per Barangay of Alaminos, Laguna

Barangay	Description	Area (Ha)	Percentage
Del Carmen	Macolod Soil	1.39	0.54
	Macolod Clay Loam	223.42	86.60
	Lipa Loam	33.19	12.86
Palma	Lipa Loam	507.26	69.93
	Mountain Soils	218.10	30.07
Poblacion 1	Macolod Clay Loam	4.11	9.42
	Lipa Loam	39.50	90.58
Poblacion 2	Macolod Clay Loam	49.38	100
Poblacion 3	Macolod Clay Loam	106.76	95.61
	Lipa Loam	4.90	4.39
Poblacion 4	Macolod Clay Loam	5.70	20.28
	Lipa Loam	23.01	81.56
San Agustin	Macolod Clay Loam	104.37	23.78
	Lipa Loam	334.56	76.22
San Andres	Macolod Soil	227.77	46.05
	Macolod Clay Loam	137.50	27.80
	Lipa Loam	129.36	26.15
San Benito	Macolod Clay Loam	7.21	1.90
	Lipa Loam	371.88	98.10
San Gregorio	Lipa Loam	287.95	33.58
	Mountain Soils	569.43	66.41
San Ildefonso	Lipa Loam	380.77	100
San Juan	Macolod Clay Loam	121.48	42.28
	Lipa Loam	165.84	57.72
San Miguel	Lipa Loam	199.88	100
San Roque	Lipa Loam	197.77	100
Sta. Rosa	Lipa Loam	266.63	29.86
	Mountain Soils	626.23	70.14
Total		5,345.35	-

Source: MPDO GIS computation 2017, Bureau of Soil and Water Management (BSWM), 2012

Soil Suitability

Lipa Loam and Macolod are highly suitable for urban expansion, recreational use, road, parking lots and sewage disposal while Macolod clay loam is low to moderately suitable. Mountain soils, however, are not suitable for specific land use. This type of soil is found in barangays Palma, Sta. Rosa, and San Gregorio. Suitability ratings for specific land uses based on the standards of BSWM are presented in Table 6 - RM: Soil Type Suitability for Specific Land Use in Alaminos, Laguna.

Land suitability reflects the degree of soil suitability. The class S1 refers to highly suitable, which means that the land has no significant limitations to sustained application to a given use or only minor limitations that will not significantly reduce its productivity or benefits. Class S2 refers to a moderately suitable land, which will reduce the land's productivity or benefits and increase required inputs to the extent that the overall advantage to be gained from the use, although still attractive, will be appreciably inferior to that expected on Class S1 land. Moreover, reduced productivity or increased required inputs will be only marginally justified with land limitation, which is categorized as Class S3, the marginally suitable or not suitable.

Table 6 - RM: Soil Type Suitability for Specific Land Use in Alaminos, Laguna

Soil Type	Soil Suitability for Specific Land Use				
	Urban Use	Recreational Use	Agriculture	Road, Parking Lots	Sewage Disposal
Lipa Loam	S1	S1	S1	S1	S1
Macolod	S1	S1	S1	S1	S1
Macolod Clay Loam	S3	S2	S2	S3	S3
Mountain Soils	S3	S3	S3	S3	S3

Source: MPDO 2017; BSWM, 2012

Legend: S1 - Highly Suitable; S2-Moderately Suitable; S3-Not Suitable; S4-Extremely not Suitable

Land Capability

Land capability is determined by the area's physical attributes such as slope, soil type, soil drainage, depth of water table and bedrock, degree of erosion, and flooding hazards. For the soil suitability for Urban Use, refer to the Table 7 below. For the soil suitability for Recreational Use, refer the Table 8. And for the soil suitability for Roads, Streets, and Parking Lots, refer to the Table 9 below.

Table 7 - RM: Soil Suitability for Urban Use in Alaminos, Laguna

Items Affecting Uses	Land Description	Degree of Suitability
Slope	0-10%	S1
	15%	S2
	15-25%	S3
	25% and above	S4
Soil characteristics	Clay loam to clayey texture and sandy solum texture	S1
Flooding	No flooding	S1
	Moderately Flooded	S2
	Extreme Submerged Problem	S3
Erosion	None to moderately eroded	S1
	Moderate to severely eroded	S2
	Severely Eroded	S3
	Very severe erosion	S4

Source: MPDO 2017; BSWM,2012

S1 - Highly Suitable; S2-Moderately Suitable; S3-Not Suitable; S4-Extremely not Suitable

Table 8 - RM: Soil Suitability for Recreational Use in Alaminos, Laguna

Items Affecting Uses	Land Description	Degree of Suitability
Slope	0-3%	S1
	3-8%	S2
	8-30%	S3
Depth to water table	Greater than 1 m	S1
Depth to bedrock	Greater than 1 m	S1
Flooding hazard	Low-Moderate susceptibility	S1
	Moderate susceptibility	S2

Items Affecting Uses	Land Description	Degree of Suitability
	High susceptibility	S3
Soil drainage	Good drainage	S1
Erosion	None to moderately eroded	S1
	Moderate to severely eroded	S2
	Severely Eroded	S3
	Very severe erosion	S4

Source: MPDO 2017; BSWM,2012

S1 - Highly Suitable; S2-Moderately Suitable; S3-Not Suitable; S4-Extremely not Suitable

Table 9 - RM: Soil Suitability for Roads, Streets, and Parking Lots in Alaminos, Laguna

Items Affecting Uses	Land Description	Degree of Suitability
Slope	0-10%	S1
	15%	S2
	15-25%	S3
	25% and above	S4
Depth to Bedrock	Greater than 1 m	S1
Depth to water table	Greater than 1 m	S1
Flooding	No flooding	S1
	Moderately Flooded	S2
	Extreme Submerged Problem	S3-S4
Soil drainage	Excessively drained	S1
Erosion	None to moderately eroded	S1
	Moderate to severely eroded	S2
	Severely Eroded	S3
	Very severe erosion	S4

Source: MPDO 2017; BSWM,2012

S1 - Highly Suitable; S2-Moderately Suitable; S3-Not Suitable; S4-Extremely not Suitable

1.2.3 Hydrogeologic Features

Climate Data

The municipality of Alaminos falls under Type I and Type 3 of the Philippine Climate Corona Classification. Type 1 climate has two pronounce seasons, which is dry from November to April and wet during the rest of the year. While Type 3 climate is characterized by having not very pronounced, relatively dry from November to April, and wet during the rest of the year (refer to [Map 9](#)).

Meteorological Data

Alaminos has a significant rainfall most months, with a short dry season. The driest month is February, with an average rainfall of 30 millimeters. In July, the precipitation reaches its peak with an average of 278 millimeters. The warmest month of the year is May, with an average temperature of 28.0 degrees Celsius or 82.4 degrees Fahrenheit. January is considered the coldest month of the year with an average of 24.7 degrees Celsius or 76.46 degrees Fahrenheit.

The difference in precipitation between the driest month and the wettest month is 248 millimeters. The variation in annual temperature is around 3.3 degrees Celsius. Fluctuations in temperature and precipitation pose threat to the agricultural production's stability and productivity. However, in the case of Alaminos, most of the crops such as rambutan, lanzones and coconut are considered perennial crops, which are indirectly affected due to the crops' drought and water tolerance characteristics.

Temperature and Humidity

The dry season lasts for 1.9 months (58 days) from April to June, with an average daily high temperature above 32.0 degrees Celsius or 89.6 degrees Fahrenheit. The hottest day of the year is April, with an average high temperature of 33.0 degrees Celsius or 91.4 degrees Fahrenheit and low of 24.0 degrees Celsius or 75.2 degrees Fahrenheit.

The wet season lasts for 2.8 months (85 days) from November to February, with an average daily high temperature below 29.0 degrees Celsius or 84.2 degrees Fahrenheit. The coldest month of the year is January, with an average low temperature of 21.0 degrees Celsius or 69.8 degrees Fahrenheit and high of 28.0 degrees Celsius or 82.4 degrees Fahrenheit.

The average monthly humidity of Alaminos is 80.25 percent.

Changes in temperature patterns combined with climate change and its impacts, threaten the agricultural stability and productivity. This can be indicative to shift of production seasons, pest and disease patterns, and modify the set of feasible crops affecting production, prices, incomes and ultimately livelihoods and lives.

Rainfall

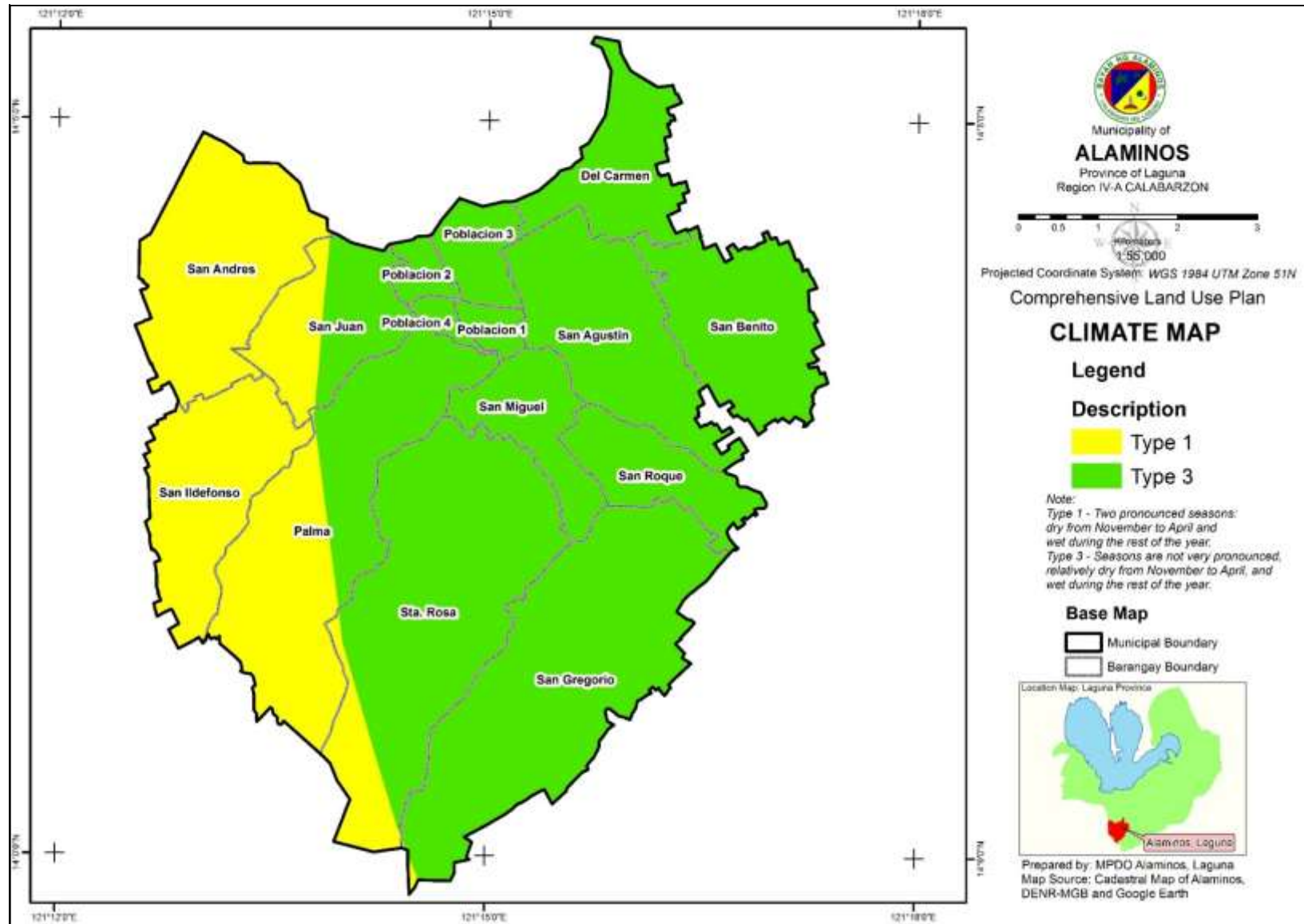
Alaminos also experiences heavy rainfall from June to December. An average of 274.8 millimeters precipitation can be experienced in October. Rainfall is an indication of profound changes in the hydrological cycle, where the rate of precipitation and evaporation are also connected. Changes in rainfall could have a direct impact on negative changes in agricultural sector. In addition, the variation of rainfall during growing season affects crops and income of the farmers. Higher dependency on income from staple crops will be associated with declining agriculture incomes.

Wind Patterns

The peak wind velocity is observed from February to May with a prevailing direction of northeast. Southwest wind is observed in the months of July and August. Peak wind velocity refers to the highest wind speed observed during a given 24-hour period. This is a measurement of a burst or a gust of wind felt over a very short period.

The direction, speed and frequency of wind influences the building design including bracing requirements, roof and wall cladding selection, weather tightness detailing, building entry locations, window size and placement and provision of shelter for outdoor spaces. Wind pattern is one of the factors that determines the land use of an area since it heavily influences the physical and biological processes.

Map 9: Climate Map of Alaminos, Laguna



Geology

Alaminos is dominated by Quaternary Taal Tuff (Qtt), Talahib Andesite (Nta) and Quarternary Volcanic (Qv) which covers 77.30 percent, 21.63 percent and 1.07 percent, respectively (refer to [Map 10: Geological Map of Alaminos, Laguna](#)). [Table 10](#) summarizes the geological features of Alaminos with description, area in hectares and its percentage.

Table 10 - RM: Geology of Alaminos, Laguna

Geology	Description	Area (Ha)	Percentage to Total Area
Qtt	Characterized by fine to medium grained thin to medium-bedded basaltic tuff	4,132.12	77.30
Nta	Mainly andesite flows interbedded with thin layers of pyroclastic and bedded tuff	1,156.13	21.63
Qv	Mainly basalt and andesite flows with associated pyroclastic deposits	57.1	1.07
Total		5345.35	100

Source: DENR-MGB and MPDO GIS computation 2017

Groundwater Resources

Alaminos is classified into two (2) groundwater availability classifications namely, I-C (local and less productive aquifers) and III-B (rocks without any known significant groundwater obtainable through drilled wells, largely untested) (refer to [Map 11: Ground Water Potential Map of Alaminos, Laguna](#)).

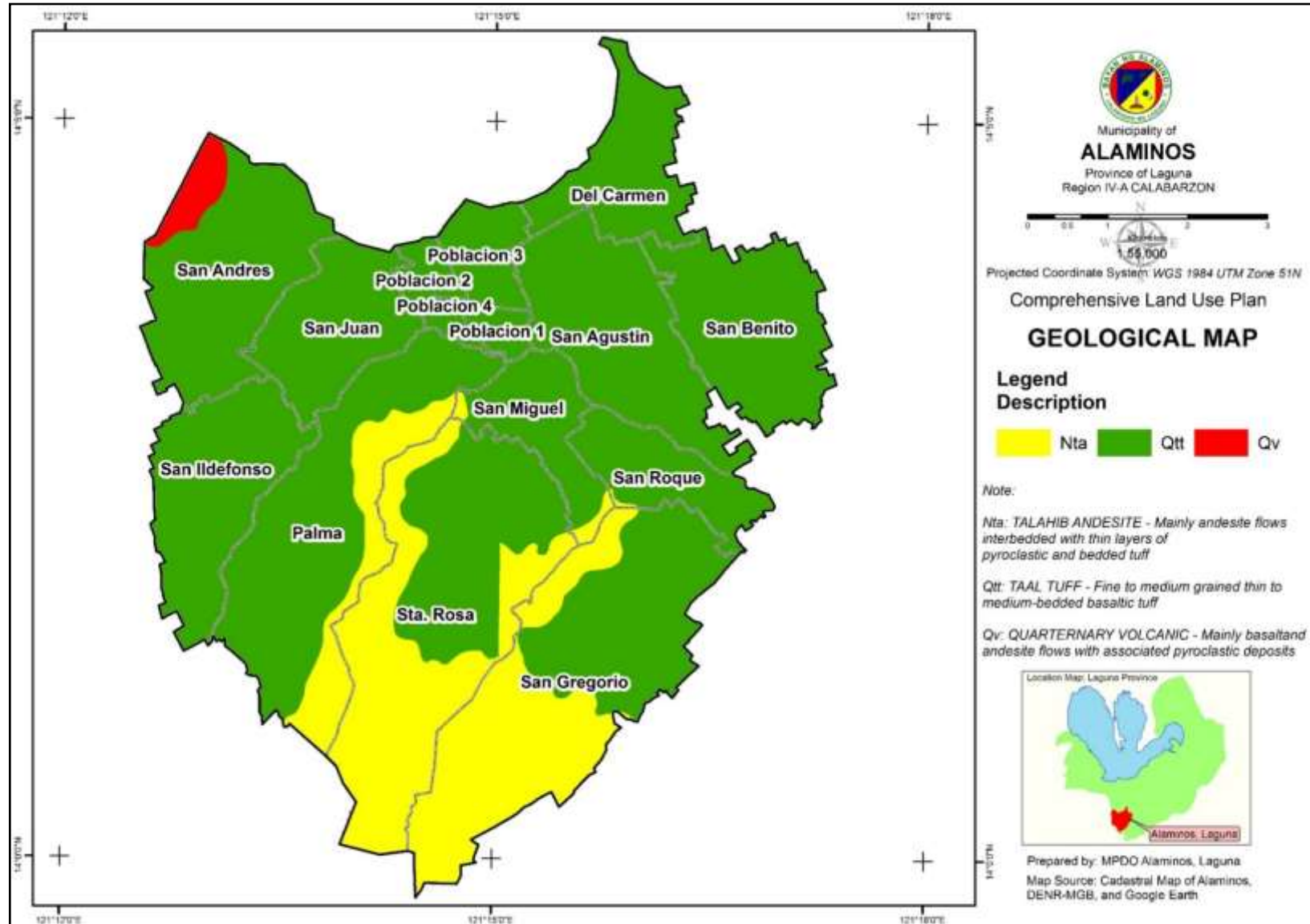
The northern and eastern parts of Alaminos, which include barangays Del Carmen, San Benito, San Agustin, San Miguel, San Roque, and Poblacions 1 to 4, most parts of barangay San Andres, and portions of barangays San Juan, Palma, Sta. Rosa, and San Gregorio belong to the I-C classifications. These barangays have less productive aquifers. Further, I-C yields about two (2) liter per second to as high as 20 liters per second in some sites, with very low to moderate permeability.

The northwestern part of Alaminos falls under the classification of III-B, which is not a potential sole source of drinking water. The areas are found in barangays San Andres and San Juan, the western part which include barangay San Ildefonso, the south-west part which include almost three-fourths (3/4) of barangay Palma and the southern part which include the greater portions of barangays Sta. Rosa and San Gregorio.

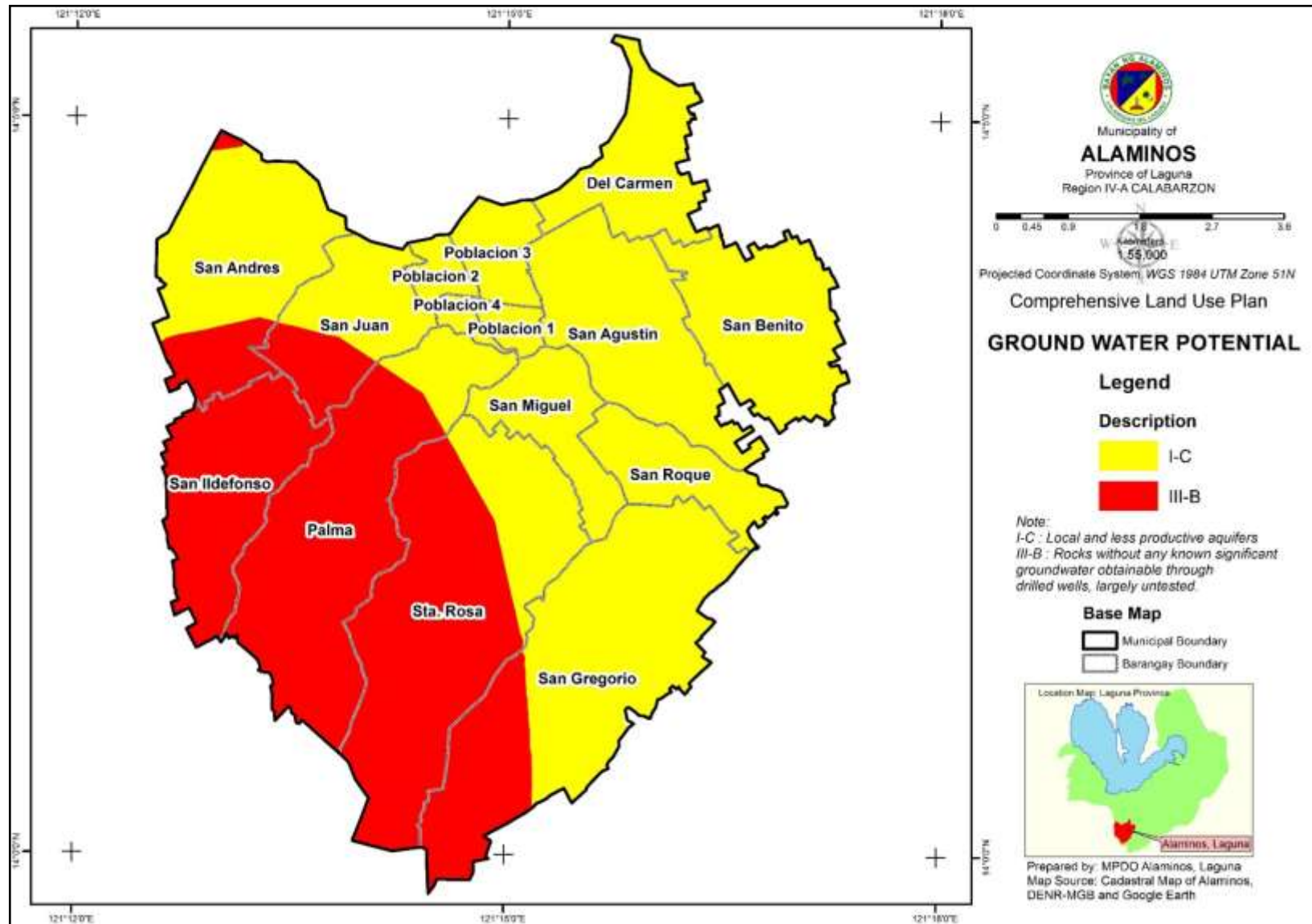
1.2.4 Mineral Resources

Geological processes create mineral resources. This is essential for industrial and economic development, thus with its highest and best use without any risks to people and its environment. A total of 497.67 hectares (9.31%) is classified as mineral resources. It is located in the southern portions of barangays Sta. Rosa and San Gregorio, wherein Mt. Olila and Mt. Pataguin are found (refer [Map 12: Mineral Resources Map of Alaminos, Laguna](#)).

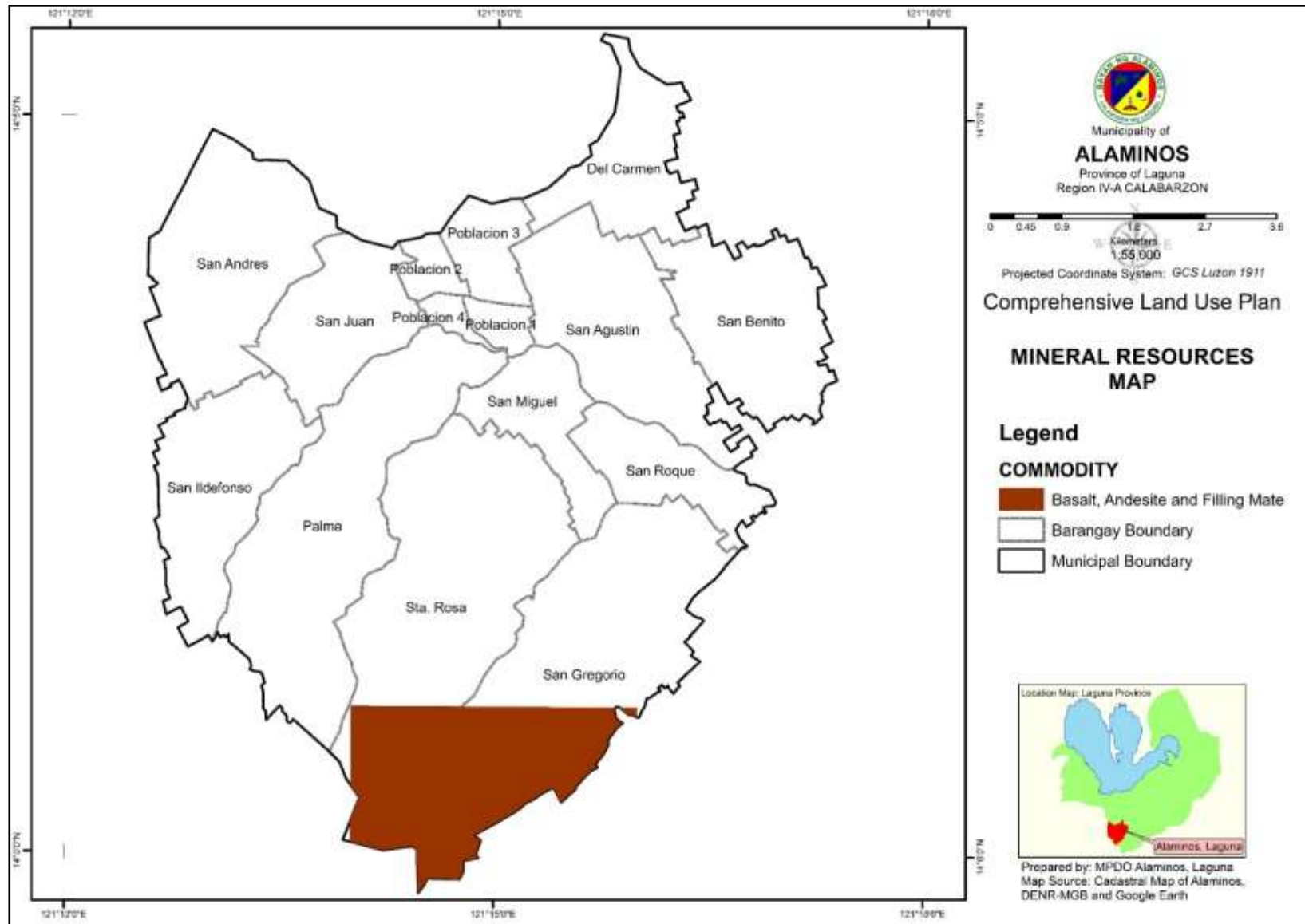
Map 10: Geological Map of Alaminos, Laguna



Map 11: Ground Water Potential Map of Alaminos, Laguna



Map 12: Mineral Resources Map of Alaminos, Laguna



1.2.5 Forest Ecosystem

Forest contains a greater range of biodiversity than any other ecosystems and play an important role in economic and social benefits. Alaminos' forest area has an area of 894.52 hectares (16.73%) of the total land area. These are located in barangays San Gregorio, Sta. Rosa and Palma (refer to [Map 13: Forest Map of Alaminos, Laguna](#)).

National Integrated Protected Areas (NIPAS)

The municipality of Alaminos has no critical/protected area defined under Republic Act No. 7586, NIPAS Act of 1992. There are areas that are locally proclaimed protected area to maintain and preserve the natural conditions to the greatest extent potential. These locally proclaimed protected areas make up a total of 893.28 hectares (16.71%) and are located in barangays Palma, Sta. Rosa, and San Gregorio.

These locally proclaimed protected areas are based on the previous comprehensive land use plan of the municipality, and will be expanded to other areas that need to be protected such as historical and cultural areas, hazard prone areas, areas with slope above 18 percent and deteriorating rivers and creeks.

1.3 Existing Land Uses

1.3.1 Land Classification

The total land area of the municipality is 5,345.36 hectares. Table [Table 11](#) shows the alienable and disposable lands, which cover 5,202.38 hectares (97.33%) of the total land, while forest reserve covering 142.97 hectares (2.67%) (refer to [Map 14: Land Classification Map of Alaminos, Laguna](#)).

Table 11 - RM: Land Classification of Alaminos, Laguna

Land Classification	Area (ha)	% to Total Area
Alienable and Disposable Land	5202.39	97.33
Forest Reserve	142.97	2.67
Total	5345.36	100

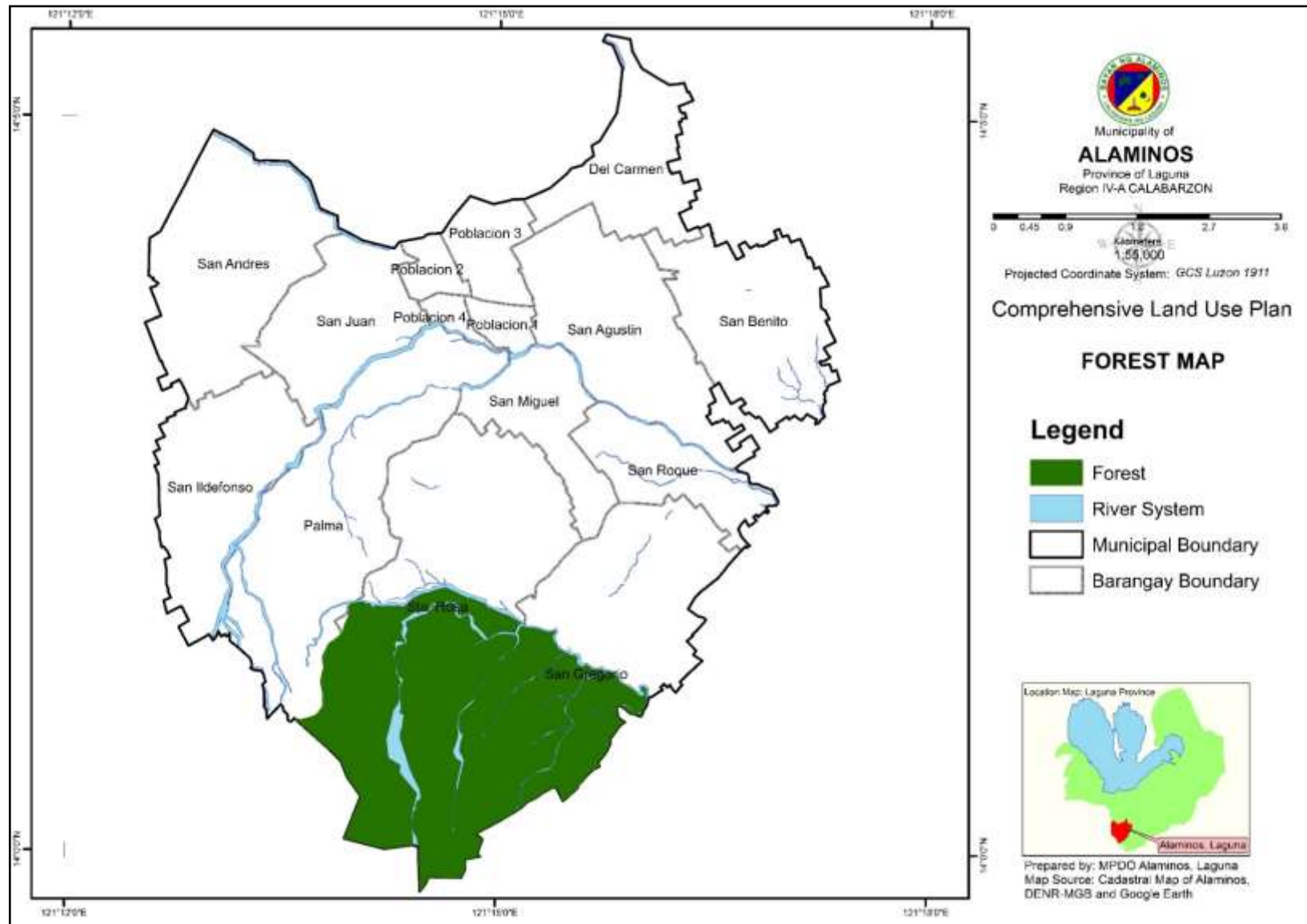
Source: DENR-MGB and MPDO GIS Computation 2017

1.3.2 Land Cover

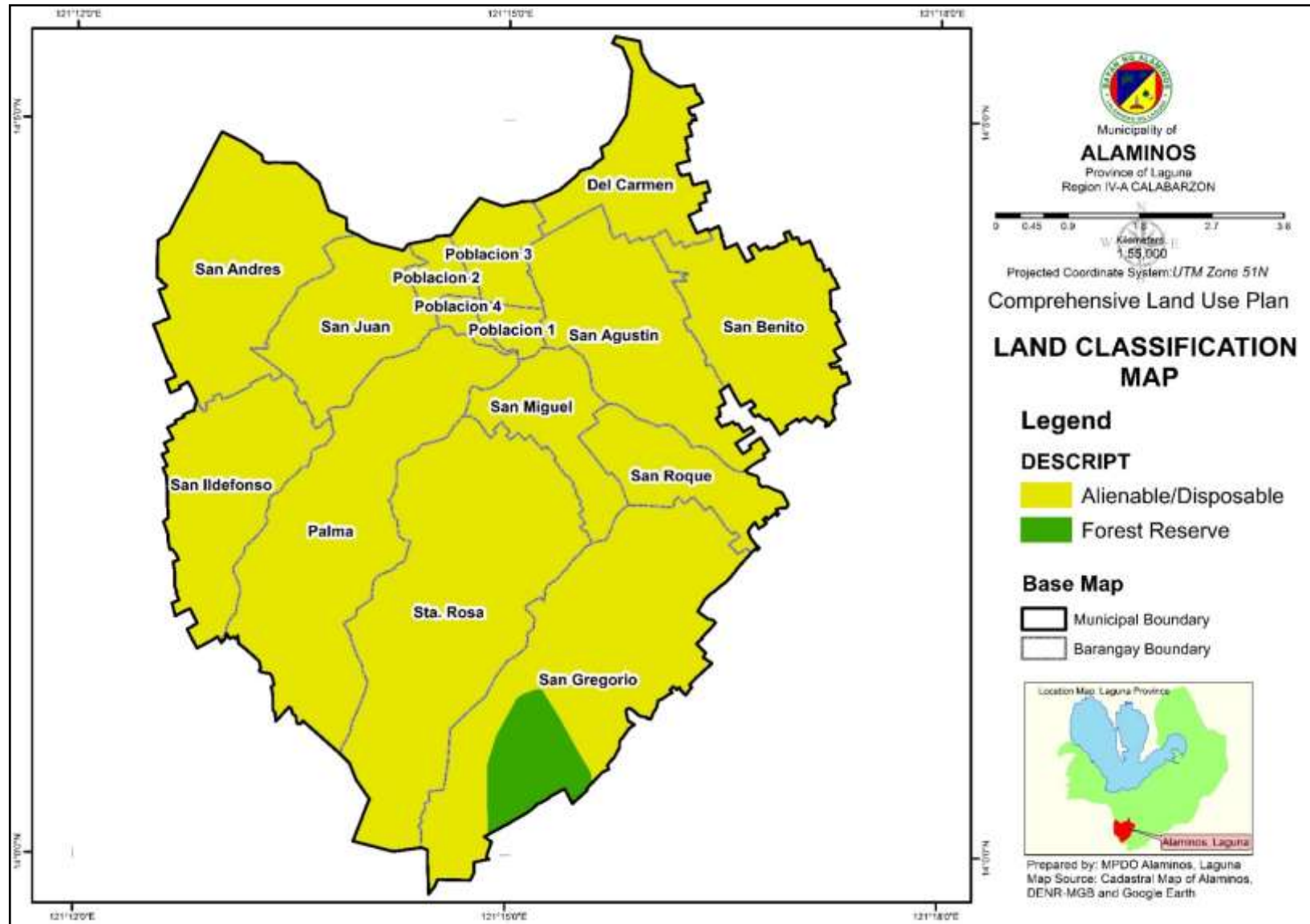
Based from the 2017 Google Earth satellite imagery, the land cover of Alaminos is consist of built-up, coconut with cropland mixed, annual crop, grassland, grassland and shrub land, other wooded grasslands, inland water body, open forest/mixed trees and rivers and creeks (refer to [Map 15: Land Cover Map of Alaminos, Laguna](#)).

[Table 12](#) shows that the majority of the area is perennial crop such as coconut, lanzones, and rambutan with a total area of 3,093.69 hectares (57.88%), followed by open forest/mixed trees, built up, grassland and shrub land, annual crop, river and creeks, grassland, other wooded grasslands and inland water body with an area covers 893.26 hectares, 537.35 hectares, 361.00 hectares, 187.42 hectares, 125.47 hectares, 123.58 hectares, 23.14 hectares, and 0.44 hectares, respectively. However, these areas are only based on GIS digitized from satellite imagery and not accurate as compared to data on the ground. Thus, areas should be validated by authorized office of the municipality.

Map 13: Forest Map of Alaminos, Laguna



Map 14: Land Classification Map of Alaminos, Laguna



Map 15: Land Cover Map of Alaminos, Laguna

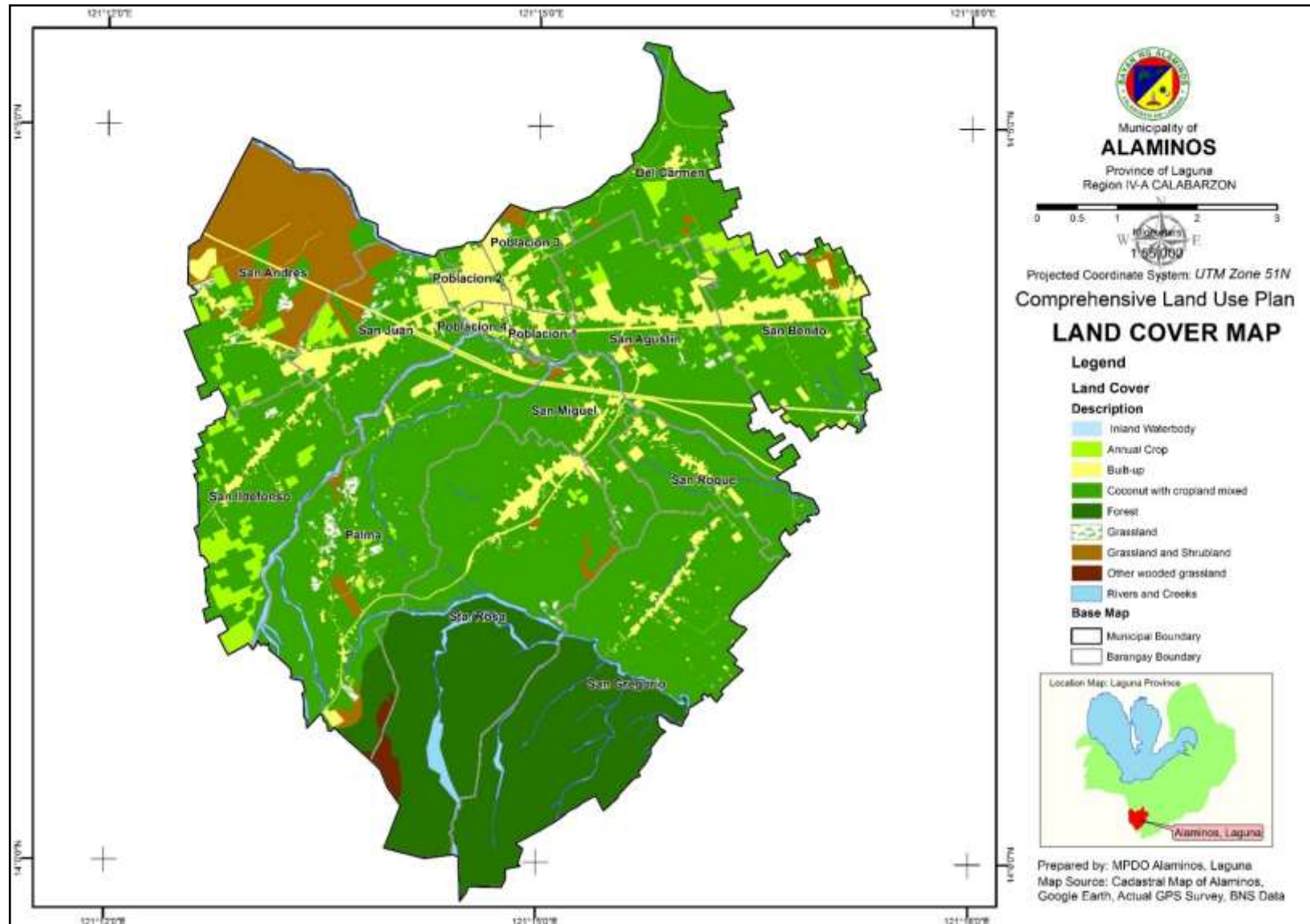


Table 12 - RM: Land Cover of Alaminos, Laguna

Land Cover	Area (Ha)	Percentage to Total Area
Built-up	537.35	10.05
Coconut with cropland mixed	3,093.69	57.88
Annual Crop	187.42	3.51
Grassland	123.58	2.31
Grassland and Shrub land	361.00	6.75
Other Wooded Grasslands	23.14	0.43
Inland Water body	0.44	0.01
Open Forest/Mixed Trees	893.26	16.71
Rivers and Creeks	125.47	2.35
Total	5,345.36	100

Source: MPDO GIS computation 2017

1.3.3 Existing Land Use

The predominant land use in Alaminos is agriculture, having a total land area of 3,488.94 hectares (65.27%), followed by forest area with 893.42 hectares (16.71%) and planned unit development (PUD) owned by Ayala Land Corporation with an area of 300.04 hectares (5.61percent) (refer to [Map 16: General Land Use Map of Alaminos, Laguna](#)). [Table 13](#) summarizes the existing land use category, area and its percentage.

Table 13 - RM: Existing General Land Uses of Alaminos, Laguna

Land Use Category	Land Area (Ha)	% to Total Land Area
Agriculture	3,488.94	65.27
Inland Water body	0.43	0.01
MRF	0.15	0.003
Residential	299.58	5.60
Agri-Industrial	56.47	1.06
Cemetery	8.02	0.15
Commercial	19.95	0.37
Forest	893.42	16.71
Industrial	6.79	0.13
Institutional	16.44	0.31
PUD	300.04	5.61
Recreational	0.19	0.00
Rivers and Creeks	125.13	2.34
Road Network	128.77	2.41
Tourism	1.04	0.02
Total	5,345.36	100

Source: MPDO GIS computation 2017

Built-Up Areas

The majority urban built up land areas are concentrated in barangays Poblacion 1, Poblacion 2, Poblacion 3, and Poblacion 4, San Benito and San Agustin categorized as agri-industrial, cemetery, commercial, institutional, industrial, residential, recreational, transportation network, and tourism. The urban built-up area of municipality covers the 103.83 hectares (4.65%) of the total land area.

Map 16: General Land Use Map of Alaminos, Laguna

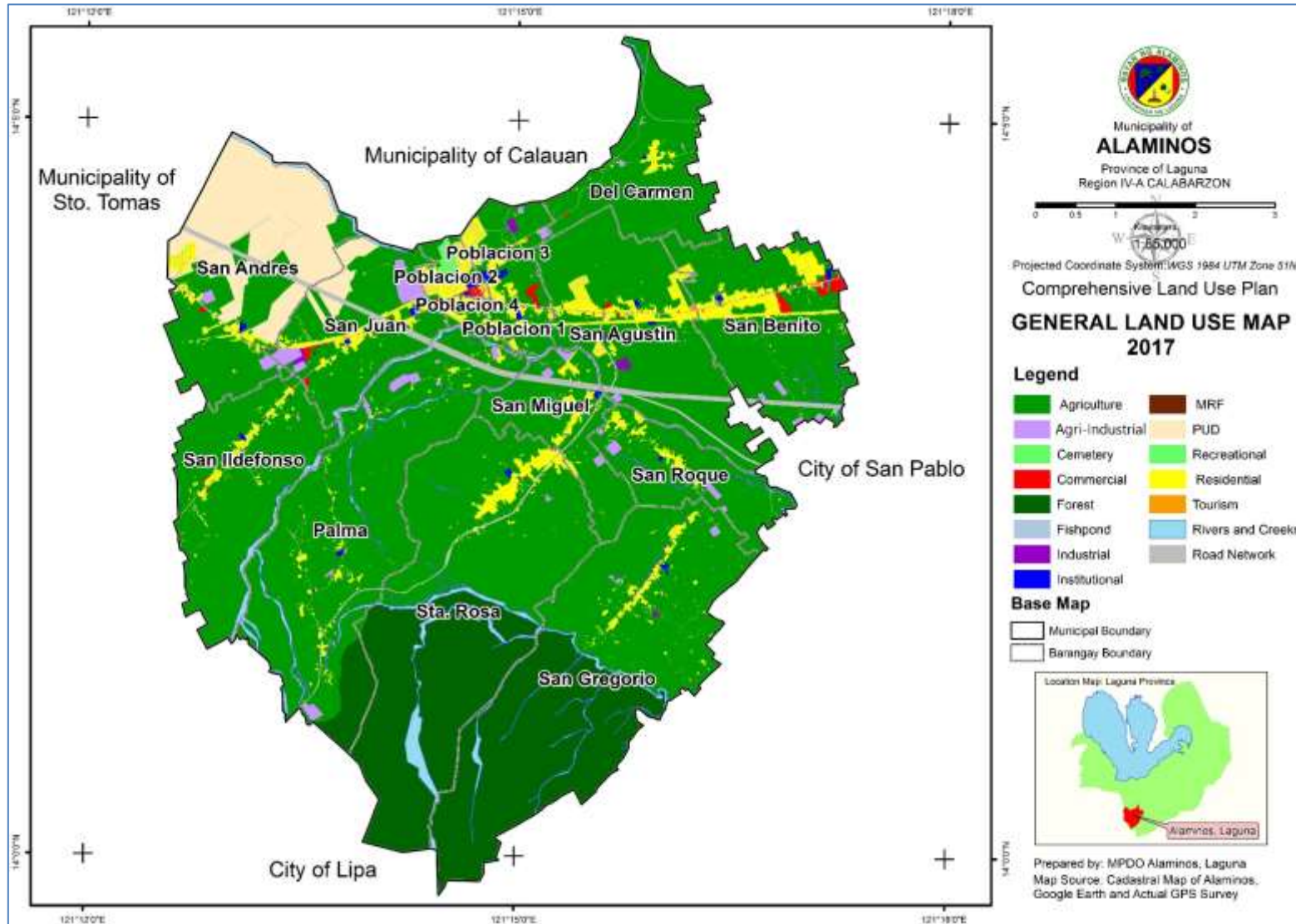


Table 14 - RM: Distribution of Existing Urban Built-up of Alaminos, Laguna

Land Use Categories	Urban Built-Up Areas (Ha)	Percentage of Urban to Existing Built-Up Areas
Residential	150.48	2.82%
Commercial	16.08	0.30%
Institutional	10.16	0.19%
Transportation	50.16	0.94%
Agri-Industrial	8.00	0.15%
Tourism	0.93	0.02%
Industrial	4.75	0.09%
Recreational	0.09	0.002%
Cemetery	8.10	0.15%
Total	103.91	4.65%

Source: MPDO GIS computation 2017

Agricultural areas

The total agricultural land area of the municipality is 3,488.94 hectares, which is mostly located in barangays Palma, San Andres, San Agustin and San Gregorio. Still, crop land mixed with coconut are present in urban areas with a total area of 122.79 hectares or 2.30 percent. There is 306.79 hectares agricultural area in San Benito, 365.34 hectares in San Agustin, 27.36 hectares in Poblacion 1, 8.79 hectares in Poblacion 2, 74.58 hectares in Poblacion 3 and 12.05 hectares in Poblacion 4.

Alaminos does not have abundant water sources but there are areas suited for crops that require less water consumption, such as perennial crops like coconut, rambutan, lanzones, papaya, banana and pineapple. In addition, most of the farmers are very dependent on perennial crops that can live more than one-year despite being harvested annually.

Planned Unit Development

Planned unit development (PUD) is significant and unique to the municipality. This area is designated for carbon forest, solar farm, and will be developed for housing, industrial and commercial purposes. The PUD, owned by Ayala Land Corporation, takes up a total of 300.04 hectares (5.61%) of the land area of Alaminos. In addition, the PUD is currently categorized under industrial zone, however, development has yet to be seen in the area.

Other Uses

Other land uses include roads networks, cemeteries and dumpsite found in the municipality. Transportation networks have an estimated area of 128.77 hectares (2.4%) of the total land area of Alaminos.

According to the Municipal Assessor's data, cemeteries have a total land area for burial sites (public cemetery, Memorial park and Roloma) of 8.02 hectares. On the other hand, based on GIS digitized from satellite imagery, cemeteries have a total area of 1.6 hectares (public cemetery), 3.50 hectares (Memorial park) and 3.00 hectares (Roloma), with a total land area of 8.02 hectares. Moreover, the public cemetery has already reached its' carrying capacity. The construction of Roloma and Mulberry cemeteries will provide

additional space and services for the public. However, the construction of Mulberry Memorial Park is still ongoing and is expected to be completed in 2019.

About 0.15 hectare (0.003%) is used for municipal material recovery facility (MRF). There are 11 MRFs in Alaminos, however, MRFs in San Gregorio and Del Carmen are not functional.

Water Bodies

Based from Google satellite image and GIS computed data, rivers and creeks have a total area of 125.13 hectares (2.34%) while, inland water body covers a total area of 0.43 hectares (0.01%) is located in barangay San Benito. Inland water body adjacent to creek, river and lagoon can serve as potential sources of water for tilapia fishpond. However, these water bodies are only being used for household consumption.

1.3.4 Existing Urban Land Use

The urban areas are composed of six (6) barangays namely Poblacion 1, Poblacion 2, Poblacion 3 Poblacion 4, San Agustin and San Benito. Most of the urban land uses are covered by agricultural land with a total land area of 794.9 hectares. The agriculture land within the urban barangays are may be use for non-agricultural purposes or urban expansion, taking into considerations the physical attributes, hazards and the existing land uses in the area (refer to [Map 17: Urban Land Use Map of Alaminos, Laguna](#)). This is followed by residential areas covering a total area of 150.48 hectares. In addition, some barangays such as barangays San Benito and Del Carmen have areas planned for residential or socialized housing project to reduce the congestion in urban areas. These housing projects are built and owned by private corporations.

Transportation networks ranked as third (3rd) in terms of land area in urban barangays. These include roads and rail tracks. The road networks are classified as either concrete or asphalt. These roads include national (Maharlika Highway), provincial going to Limao, Calauan, Laguna, municipal, barangay and private roads that include subdivisions. Private roads are the longest in urban areas measuring 15.50 kilometers while the shortest is the provincial road, going to Calauan, which is 0.514 kilometers in length. The measurements of length are based on GIS computation.

Commercial establishments such as public market, banks, and other small-medium scale enterprises in all urban areas make up 16.08 hectares. Industrial establishments located in barangays Poblacion 3, San Agustin and San Benito have 4.75 hectares. The commercial and industrial areas are the main source of income of the area.

The institutional areas cover a total land area of 10.16 hectares. It includes schools, which occupied the largest portion, followed by government offices such as municipal, and barangay office, police station, rural health center and Provincial Office of Philippine Coconut Authority-Rizal and Laguna and churches.

The existence of recreational activities and tourism sites such as covered court and private resort balances both physical and mental well-being of the community. Recreational areas are located in barangays Poblacion 1 and Poblacion 3.

Agri-industrial areas in barangays Poblacion 1, Poblacion 2, Poblacion 3, San Agustin and San Benito include poultry for broiler production and hatchery and piggery farm for fattener, make up a total land area of eight (8) hectares.

Map 17: Urban Land Use Map of Alaminos, Laguna

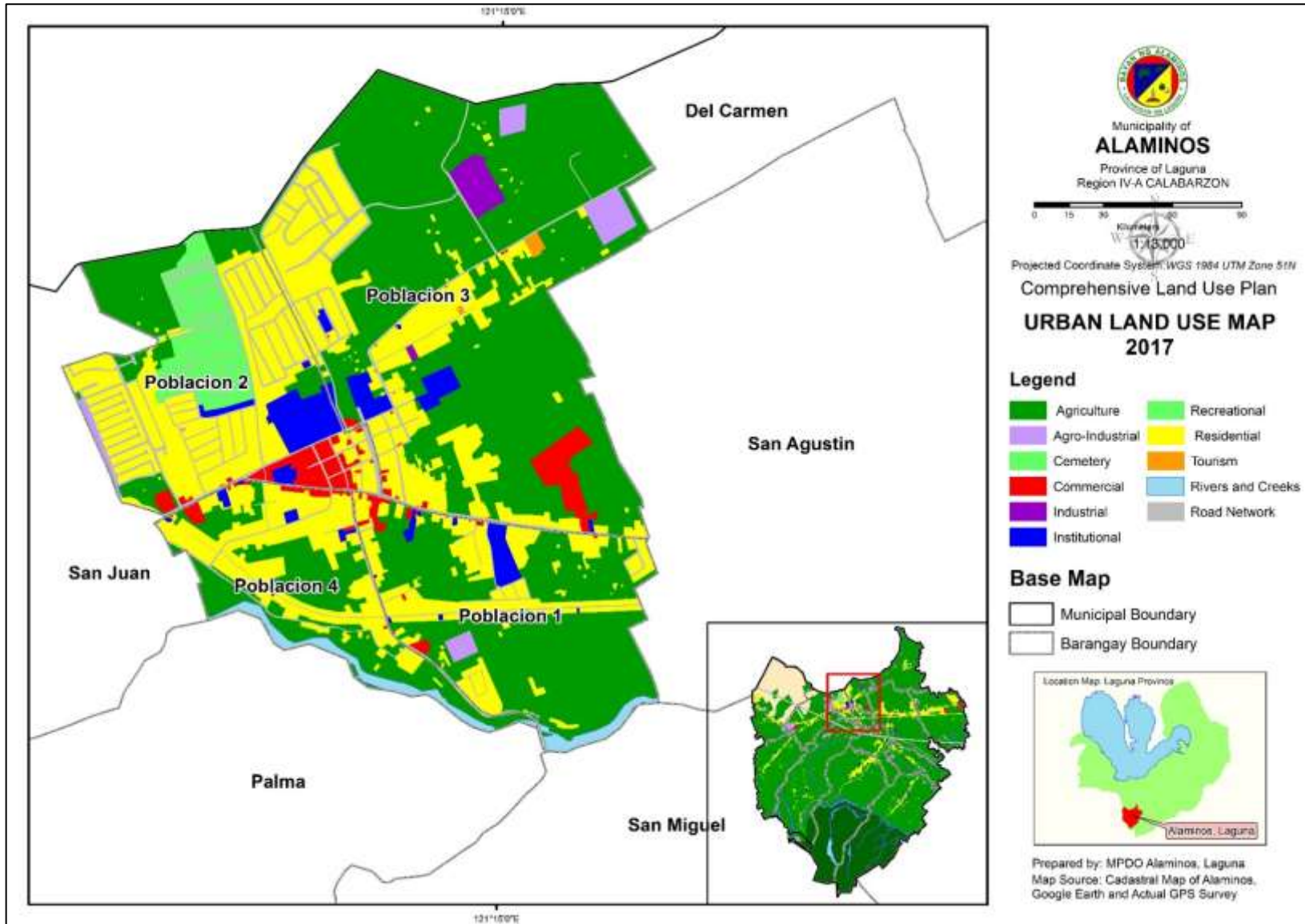


Table 15 - RM: Existing Urban Barangay Land Use in Alaminos, Laguna

Urban Barangay	Existing Urban Land Use										
	Agriculture	Agri-Industrial	Residential	Cemetery	Commercial	Industrial	Institutional	Recreational	Transportation	Tourism	Rivers and Creeks
Poblacion 1	27.38	0.56	10.94	-	0.70	-	1.39	0.04	1.38	-	1.26
Poblacion 2	8.79	0.46	19.22	8.02	2.93	-	3.46	-	6.81	-	-
Poblacion 3	74.58	2.12	22.50	-	2.68	1.81	2.27	-	5.38	0.31	-
Poblacion 4	12.05	-	11.76	-	0.73	-	0.46	-	1.40	-	2.33
San Agustin	365.34	1.06	41.59	-	1.11	2.78	0.96	-	23.12	0.58	2.40
San Benito	306.79	3.80	44.49	-	8.25	0.15	1.62	0.05	12.07	0.04	1.42
Total	794.9	8.00	150.48	8.02	16.08	4.75	10.16	0.09	50.16	0.93	7.41

Source: MPDO GIS computation 2017

1.3.5 Land Use Change

Land use change has been evident in the municipality. Table 16 - RM: Land Use Change from 2000 to 2017 of Alaminos, Laguna presents the land use percentage change from 2000 to 2017. Built up areas, industrial areas and transportation networks showed a significant increase from 2000. Built up areas and industrial areas grew by 35.20 percent and 66.87 percent, respectively, while transportation networks posted a 42,860-percent increase since 2000. On the other hand, agriculture, and PUD show a decrease percentage change. Table 16 shows a negative change in terms of land area of the agriculture area is attributed to industrialization, infrastructure development and shift in economy of Alaminos. The decrease PUD is attributed to map error.

Table 16 - RM: Land Use Change from 2000 to 2017 of Alaminos, Laguna

Land use	2000 Area (Ha)	Percentage to Total Area	2017 Area (Ha)	Percentage to Total Area	Percentage Change
Agriculture ¹	3,962.69	72.36	3,614.54	67.62	-8.79
Forest	893.38	16.31	893.38	16.71	0.00
Built up ²	255.45	4.66	345.45	6.46	35.20
Industrial ³	37.91	0.69	63.26	1.18	66.87
Transportation	0.30	0.01	128.78	2.41	42860.00
PUD	326.37	5.96	300.03	5.61	-8.07
Total	5,476.00	100	5,345.44	100	

Source: MPDO GIS computation 2017, 2000 CLUP

¹ includes water bodies, rivers and creeks

² includes residential, commercial, institutional

³ includes Agri-Industrial

1.4 Land Suitability

Land suitability refers fitness of a particular land for a defined use. In the case of Alaminos, land suitability is computed by subtracting physical and natural features such as hazard prone areas with high susceptibility, slope with 18 percent and above, soil not suitable for urban development and expansion, protected areas, and approved infrastructure projects to the total land area (refer to [Table 17](#) and [Map 18](#)). However, built up areas were also excluded in the computation of land suitable for development to come up with the actual area available for urban development and expansion.

Alaminos has a total of 2,731.12 hectares (51.09%) of land suitable for urban development and expansion. Hazard prone areas with moderate and low susceptibility and ground shaking are included under the suitable areas for expansion, provided that policies are in-placed and strictly implemented.

Table 17 - RM: Area of land suitable for urban development and expansion in Alaminos, Laguna

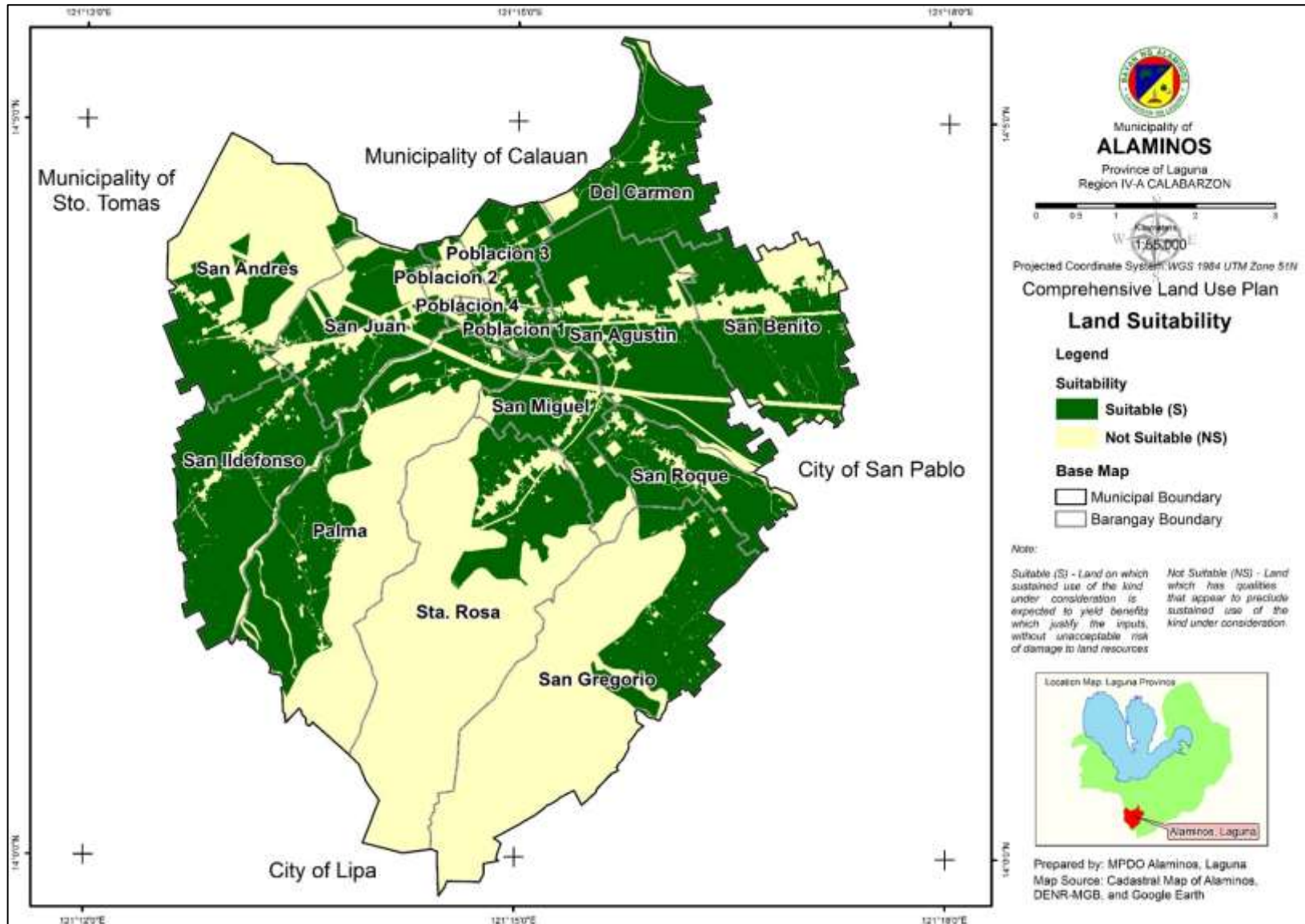
Barangay	Suitable (ha)	Not Suitable (ha)	Total Land Area
Del Carmen	230.40	27.60	258.00
Palma	316.94	408.42	725.36
Poblacion 1	27.36	16.25	43.61
Poblacion 2	8.79	40.58	49.37
Poblacion 3	73.66	38.00	111.66
Poblacion 4	12.05	16.66	28.71
San Agustin	358.19	80.74	438.93
San Andres	174.34	320.3	494.64
San Benito	283.1	95.99	379.09
San Gregorio	240.41	616.96	857.37
San Ildefonso	348.82	31.95	380.77
San Juan	191.81	95.51	287.32
San Miguel	139.24	60.65	199.89
San Roque	166.02	31.74	197.76
Sta. Rosa	159.99	732.87	892.86
Total	2,731.12	2,614.23	5,345.35

Source: MPDO GIS computation 2017, 2000 CLUP

1.5 Environmental Conditions

This section pertains to environmental conditions of Alaminos. The impacts on the environment at present and projected scenarios are described and analyzed. The key elements are considered namely; classification and quality of bodies of water, pollution sources, hazards and its potential impacts for population and informal settlements within easements, existing land uses built-up areas, social sector facilities, economic sector facilities, infrastructure sector facilities and Climate Change Vulnerability Assessment (CCVA). CCVA is determined through the assessment of its exposure to vulnerability, sensitivity to vulnerability and its adaptive capacity. The information and results of analysis serve as a guide to reduce the negative impacts on environment brought by disasters and climate change and to increase the adaptive capacity of the municipality. Moreover, the result of assessment helps to maintain in a state of equilibrium for healthy and safe environment.

Map 18: Land Suitability of Alaminos, Laguna



1.5.1 Probable Sources of Pollution

Possible contamination may occur from point source or non-point source of pollution. Based on the series of workshops and Key Informant Interviews (KIIs), it was reported that unpleasant odor coming from the poultry, vehicle and some animal industries. Improper waste disposal, clogged canals and lack of sewerage systems are also major contributors of pollution in the municipality.

1.5.2 Water Quality

Alaminos has six (6) major rivers and categorized as Class D namely Viana, Camachile, Sabang, Byayong, and Calaboa and Class C with Tigas River. Table 18 shows the location of the rivers and its water quality classification while Table 19 provides the description of the water quality classification.

Table 18 - RM: River Water Quality Classification of Alaminos, Laguna

River	Location/Barangay	Classification
Tigas	San Andres, San Juan, Poblacion 2, Poblacion 3, and Del Carmen	Class C
Viana	San Miguel, San Roque, Poblacion 2, Poblacion 4, San Agustin and Palma	Class D
Camachile	Poblacion 4, San Juan, Palma and San Ildefonso	Class D
Sabang	Sta. Rosa and San Gregorio	Class D
Byayong	Sta. Rosa and San Gregorio	Class D
Calaboa	San Gregorio	Class D

Source: MPDO (2017) and DENR-DAO No. 34 (Revised Water Usage Criteria) Section 68 and 69, Chapter 2 of the 1978 NPCC Rules and Regulation

Table 19 - RM: Classification of Fresh Surface Water

Classification	Beneficial Use
Class AA	Public Water Supply Class I. Intended primarily for water having watersheds which require only approved disinfection in order to meet the National Standards for Drinking Water (NSDW) of the Philippines
Class A	Public Water Supply Class II. For sources of water supply that will require complete treatment (coagulation, sedimentation, filtration and disinfection) in order to meet the NSDW
Class B	Recreational Water Class. For primary contact recreations such as bathing, swimming, ski diving etc., (particularly those designated for tourism purpose)
Class C	Fishery water for the propagation and growth of fish and other aquatic resources; Recreational water class II; Industrial water class I; (for manufacturing processes after treatment)
Class D	For agriculture, irrigation, livestock, watering etc., Industrial water supply class II (Cooling etc.,) Other inland waters, by their quality, belong to this classification

Source: DENR DAO No. 34 (Revised Water Usage Criteria) Section 68 & 69, Chapter II of the 1978 NPCC Rules and Regulations

1.5.3 Hazard Profile

Natural hazard is a threat event that occurs naturally and cause tremendous damage of life and property. When natural hazards occur, humans, agricultural areas, built and natural environments areas at risk. Although, there are many natural factors that contributed to hazard incidence such geology, topography and relief. Human activities can also adversely affect the environment and increase the impact of disasters.

Historical Data

Disaster events caused by natural hazards are becoming more and more frequent. It is important to record the damages and losses to better manage and reduce its effects and impacts to the community, its settlements and land. Historical data enables the government and other institutions to generate appropriate adaptation and mitigation measures.

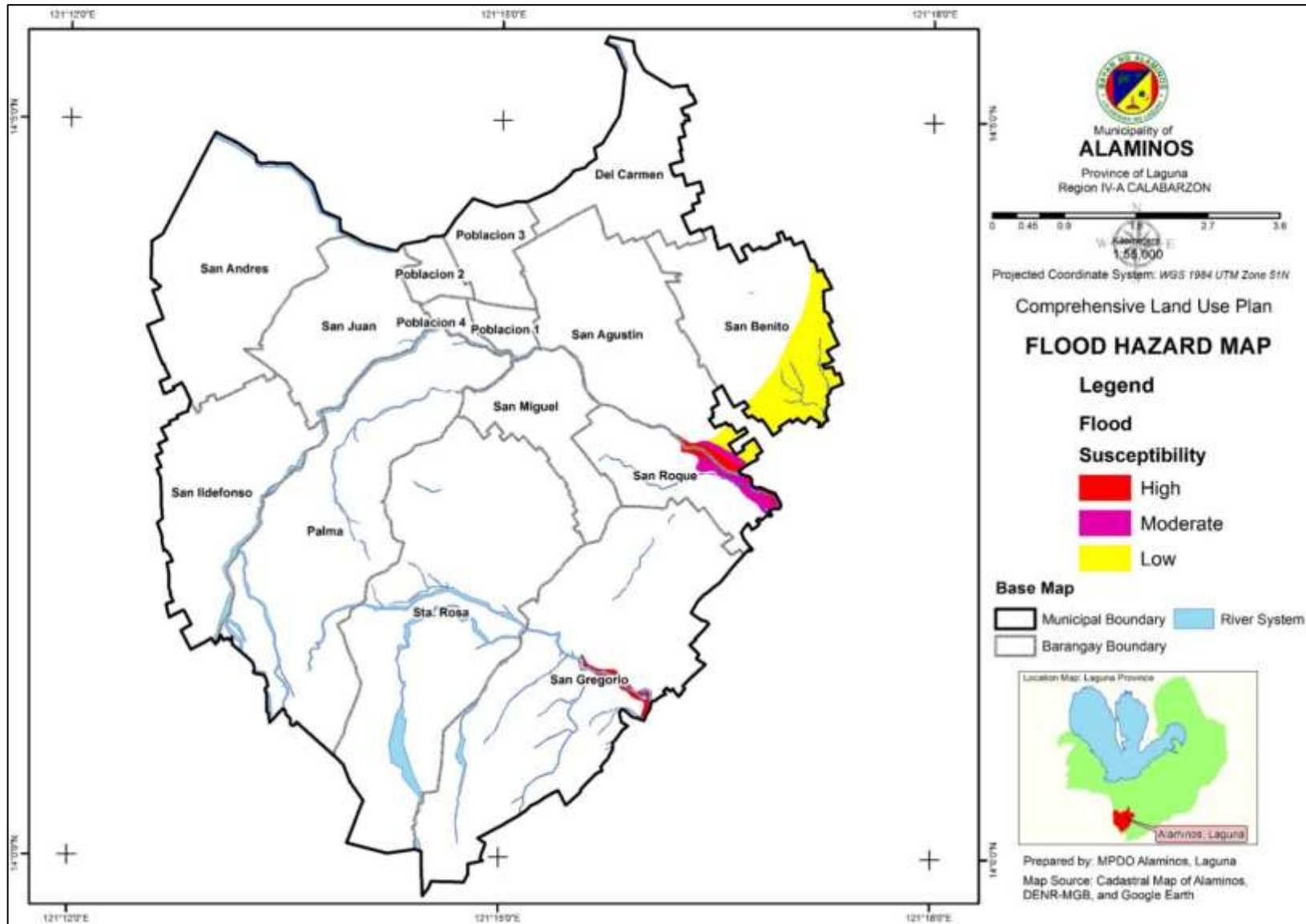
Table 20 shows the historical disaster information of the municipality of Alaminos from 1967 to 2014, derived from the several Climate and Disaster Risk Assessment (CDRA) Workshops.

Table 20 - RM: Historical Disaster Information of Alaminos, Laguna

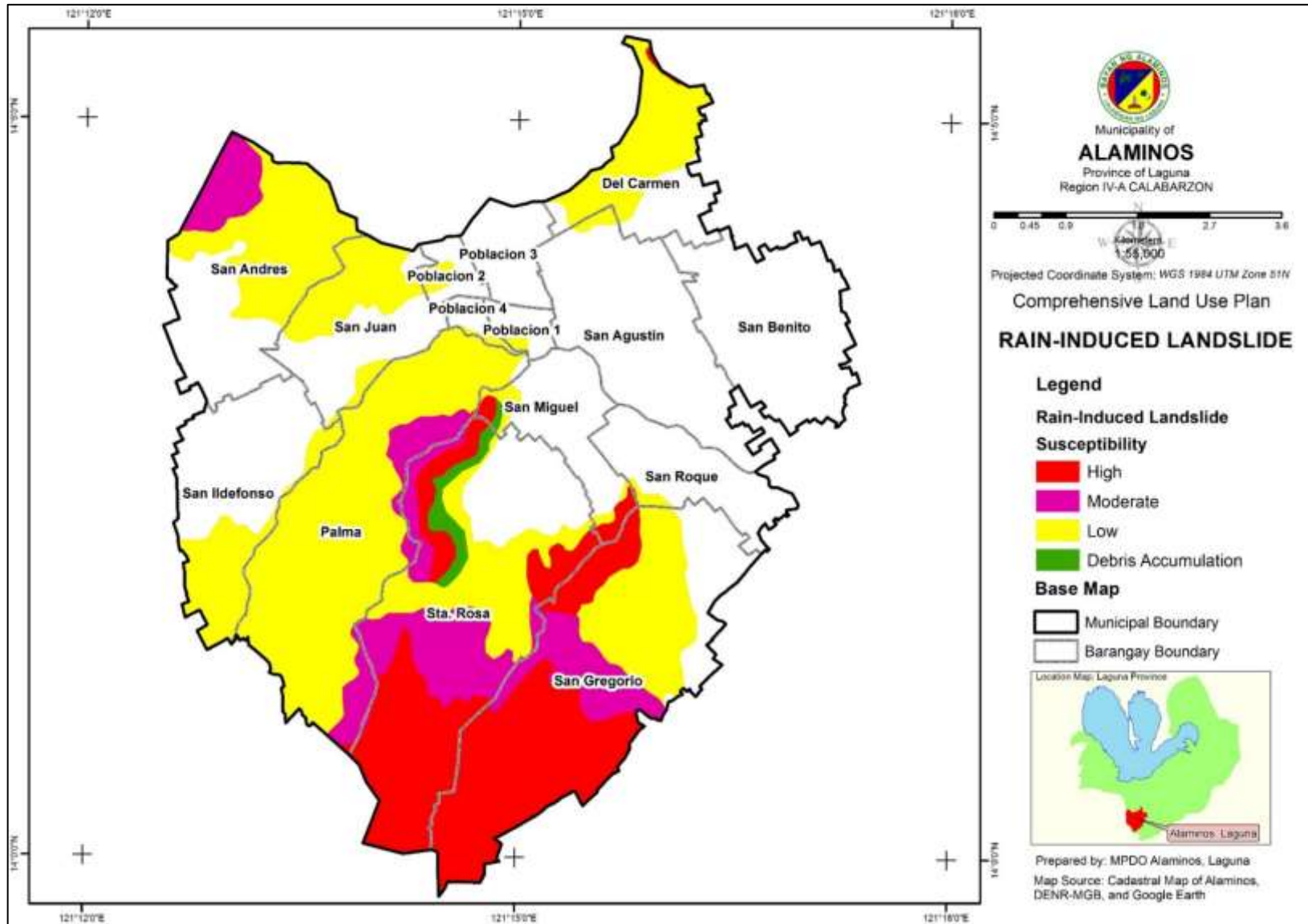
Year	Name	Type	Affected Areas/Barangay/Effect
1967	Welming	Super Typhoon	San Juan Poblacion III - affected by flashflood (knee-level)
1976	Taal Volcano Eruption	Ash Fall	Municipal wide
1990	No data	EIL	No data
1991	Mt. Pinatubo Eruption	Ash Fall	Municipal wide –damaged crops and trees
1995	Rosing	Super Typhoon	Poblacion III (San Pedro Ibaba)
2006	Milenyó	Typhoon	Sta. Rosa – damaged lanzones and rambutan San Miguel Poblacion IV San Benito San Roque San Gregorio – 300 affected families, damaged crops including banana and coconuts, 1 casualty
		RIL	Sta. Rosa
2009	Ondoy	Typhoon	San Roque – partially damaged houses
2013	Yolanda	Super Typhoon	Poblacion II – partial and totally damaged houses, ~200 houses partially damaged
2014	Glenda	Typhoon	San Miguel – 1 casualty, San Benito Poblacion I Poblacion III Sta. Rosa - damaged roofs Del Carmen San Ildefonso San Roque - 2 houses damaged Municipal wide - 1ater and power interruption for 2 weeks in all barangays
		Rain-Induced Landslide	Poblacion I - 190 partially damaged households San Miguel Sta. Rosa

Source: CDRA Workshop, 2018

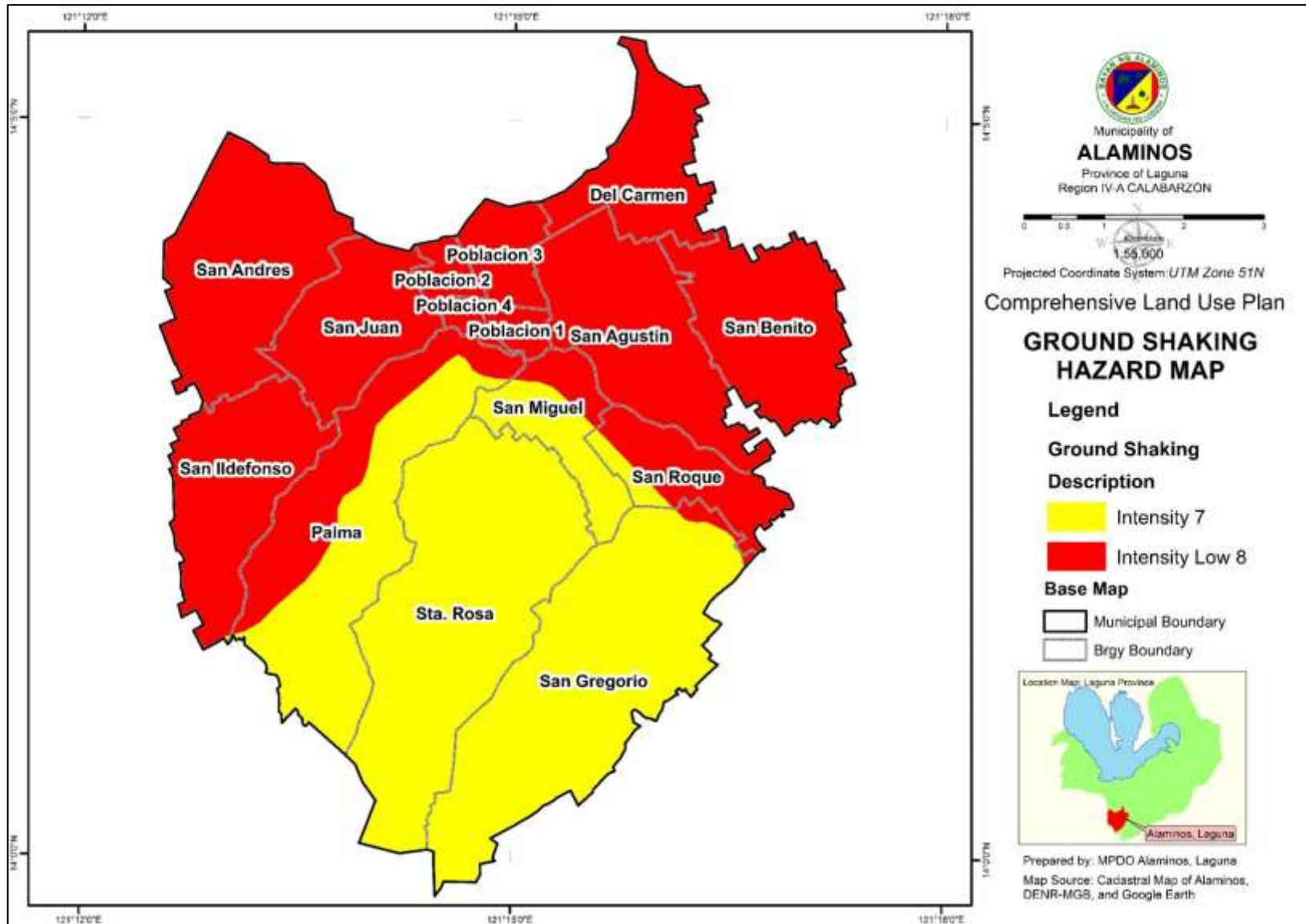
Map 19: Flood Hazard Map of Alaminos, Laguna



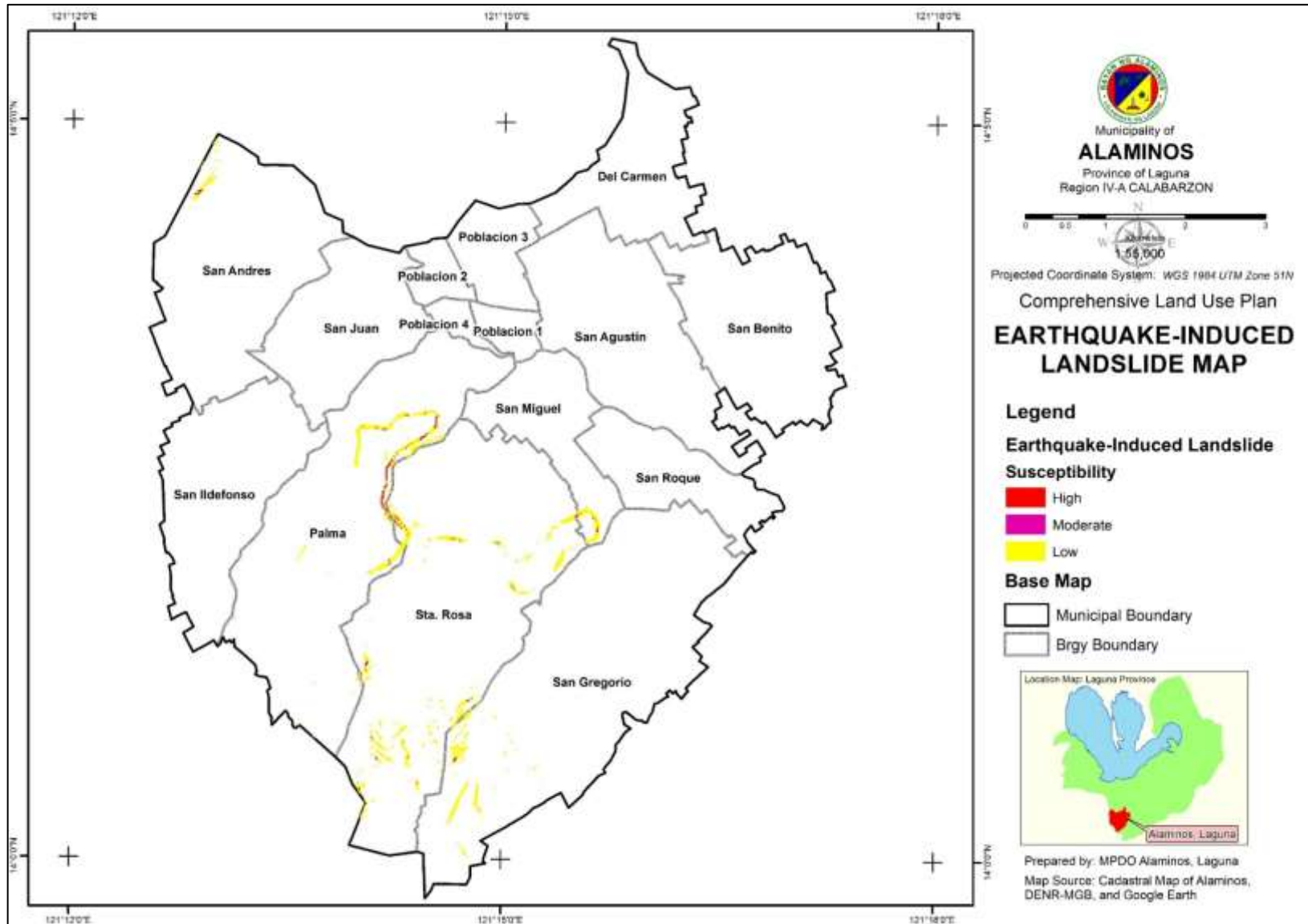
Map 20: Rain-Induced Landslide Hazard Map of Alaminos, Laguna



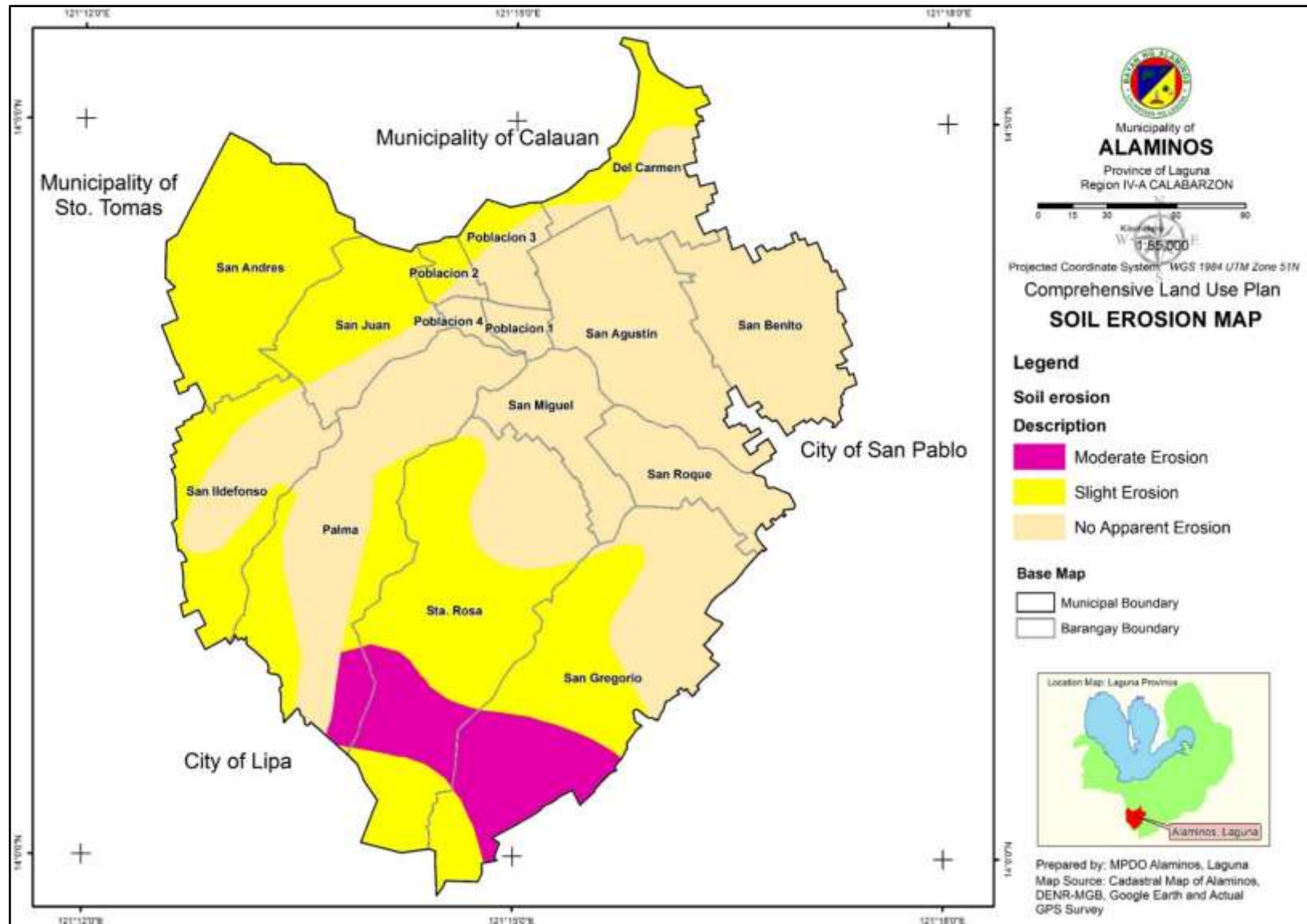
Map 21: Ground Shaking Hazard Map of Alaminos, Laguna



Map 22: Earthquake-Induced Landslide Hazard Map of Alaminos, Laguna



Map 23: Soil Erosion Hazard Map of Alaminos, Laguna



Identified Hazards

According to DENR-MGB, Alaminos have five (5) natural hazards such as flooding, rain-induced landslide, ground shaking, earthquake-induced landslide and soil erosion. [Table 21](#) shows the existing hazards per barangay in Alaminos.

Table 21 - RM: Hazard Inventory Matrix per Barangay of Alaminos, Laguna

Barangay	Flood	Rain-Induced Landslide	Ground Shaking	Earthquake-Induced Landslide	Soil Erosion
Poblacion 1			✓		
Poblacion 2		✓	✓		✓
Poblacion 3			✓		✓
Poblacion 4			✓		
Del Carmen		✓	✓		✓
Palma		✓	✓	✓	✓
San Agustin	✓		✓		
San Andres		✓	✓	✓	✓
San Benito	✓		✓		
San Gregorio	✓	✓	✓	✓	✓
San Idefonso		✓	✓		✓
San Roque	✓	✓	✓		
San Juan		✓	✓		✓
San Miguel		✓	✓	✓	
Sta. Rosa		✓	✓	✓	✓

Source: DENR, 2013

Flood Hazard

Flooding hazard in Alaminos is categorized as low, moderate and high susceptibility with a total land area of 126.03 hectares, 20.62 hectares, and 28.68 hectares, respectively. These are within the boundaries of barangays San Benito, San Roque, San Agustin, and San Gregorio (refer to [Table 22 - RM: Flood Susceptibility per Barangay in Alaminos, Laguna](#) and [Map 22: Earthquake-Induced Landslide Hazard Map of Alaminos, Laguna](#))

Its characteristic with relatively flat and Climate Type III which is characterized as relatively dry from November to April and wet during the rest of the year can trigger the flooding events. The presence of lagoon and river situated in barangays San Benito and San Agustin can cause the occurrence of flooding in the area. In addition, the intensity of rainfall also contributes to flooding.

Table 22 - RM: Flood Susceptibility per Barangay in Alaminos, Laguna

Level	Barangay	Area per barangay (Ha)	Total Area (Ha)
Not Susceptible	Poblacion 1	43.61	5,170.05
	Poblacion 2	49.37	
	Poblacion 3	111.66	
	Poblacion 4	28.71	
	Del Carmen	257.93	
	Palma	725.36	
	San Agustin	412.97	
	San Andres	494.64	
	San Benito	265.85	
	San Gregorio	844.37	
	San Ildefonso	380.77	
	San Juan	287.32	
	San Miguel	199.89	
	Sta. Rosa	892.86	
San Roque	174.75		
Low Susceptibility	San Benito	113.24	126.03
	San Agustin	12.79	
Moderate Susceptibility	San Agustin	5.16	20.62
	San Roque	15.46	
High Susceptibility	Del Carmen	0.07	28.68
	San Agustin	8.01	
	San Roque	7.56	
	San Gregorio	13.00	
		Total Area (Ha)	Percentage to total land area
Total area susceptible		175.30	3.28
Total area not susceptible		5,170.05	96.72
Total		5,345.35	100

Source: MPDO GIS computation 2017, DENR, 2013

The risk estimation of flooding in the municipality is presented in Table 23. Although there are barangays that are not susceptible to flooding, there are other factors that contribute to the occurrence of the hazard in Alaminos, such as overflowing and clogged canals due to pollution, which is one of the identified problems in the area.

Likelihood of occurrence of a hazard is an estimated period of time a certain hazard event itself likely to repeat itself, usually expressed in years. Flooding in urban barangays are more likely to occur than flooding in rural barangays. These occurrences can be attributed to other factors such as intensity of the rainfall, coupled with the presence of clogged canals and pollution, and the current land use in the area.

On the other hand, barangays that are susceptible to flooding, as shown in Table 22 - RM: Flood Susceptibility per Barangay in Alaminos, Laguna such as San Benito, San Roque, San Agustin, Del Carmen and San Gregorio, have an occasional to very rare return period.

In terms of the severity of consequence, all barangays except barangay Poblacion 2 have low severity of consequence score. This means that elements – population, urban use areas, production areas, critical point facilities and lifeline utilities have a low effect. In

the case of Alaminos, less than five (5) percent of its population are affected, less than five (5) percent of its residential structure are severely damaged and less than 10 percent of its non-residential structure are severely damaged, less than 10 percent of its production areas are affected and severely damaged, disruption of critical services is less than one (1) day and disruption of service of utilities does not last for more than one (1) day. For barangay Poblacion 2, five (5) to 10 percent of its population are affected, five (5) to 10 percent of its residential structure are severely damaged and 10 to 20 percent of its non-residential structure are severely damaged, 10 to 20 percent of its production areas are affected and severely damaged, disruption of critical services is less than three (3) days and disruption of service of utilities does not last for more than three (3) days.

Overall, the risk category for flooding in Alaminos shows barangays Poblacion 3, Del Carmen, Palma, San Agustin, San Andres, San Benito, San Gregorio, San Ildefonso, San Juan, San Miguel, and San Roque have low risk, while barangays Poblacion 1, Poblacion 4 and Sta. Rosa have moderate risk and only Poblacion 2 have high risk.

Table 23 - RM: Risk Estimation of Flooding in Alaminos, Laguna

Barangay	Likelihood of Occurrence Score	Severity of Consequence				Risk Score	Risk Category
		Very High	High	Mod	Low		
		4	3	2	1		
Poblacion 1	5				1	5	Moderate
Poblacion 2	6			2		12	High
Poblacion 3	4				1	4	Low
Poblacion 4	6				1	6	Moderate
Del Carmen	4				1	4	Low
Palma	1				1	1	Low
San Agustin	1				1	1	Low
San Andres	4				1	4	Low
San Benito	4				1	4	Low
San Gregorio	4				1	4	Low
San Ildefonso	2				1	4	Low
San Juan	2				1	4	Low
San Miguel	4				1	4	Low
San Roque	4				1	4	Low
Sta. Rosa	5			2		10	Moderate

Source: CDRA Workshop, 2018

Rain-Induced Landslide Hazard

The geographic location, slope, elevation, soil and rainfall patterns are some of the factors that contribute to rain-induced landslides (RIL) in Alaminos. The total land area susceptible to RIL is 767.37 hectare (21.64%) of the total land area. About 462.05 hectares (13.02%) is classified as moderate susceptibility while low susceptibility has an area of 1,748.59 hectares or 49.32% (Map 23). Infrastructure, livelihood and lives of the people in these areas are at risk. Strict implementation of policies and regulations must be observed in these areas to reduce the vulnerabilities and negative impacts, if relocation is not an option for the municipality.

In terms of low susceptibility, barangay Palma has the highest area susceptible to rain induced landslide with 631.05 hectares while barangay Poblacion 3 is the least with less than one (1) percent of its area is susceptible. For moderately susceptible barangays,

barangay Sta. Rosa is the most susceptible having a total of 190.80 hectares (3.57%) of its area, while barangay San Andres is the least with 70.53 hectares (1.32%) moderately susceptible. Among the 15 barangays, barangay San Gregorio has the largest area highly susceptible to RIL with 416.98 hectares at risk, followed by barangay Sta. Rosa with 324.08 hectares.

Overall, barangay San Gregorio is the most susceptible to RIL impacts having a total land area of 739.97 hectares exposed to RIL, while barangay Poblacion 3 is the least susceptible. Moreover, areas in barangays Sta. Rosa and San Miguel are possible landslide debris accumulation zone. This means that implementation of laws and regulations pertaining to this concern should be enhanced.

On the other hand, a total of 2,326.64 hectares (43.53%) are not prone to rain-induced landslides. These areas are suitable for sector-specific development (refer to [Table 24 - RM: Rain-Induced Landslide per Barangay of Alaminos, Laguna](#) and [Map 23: Soil Erosion Hazard Map of Alaminos, Laguna](#)).

Changes of precipitation or amount of rainfall directly affect rain-induced hazards. It can be noted that the highest percentage of susceptibility occurs along rivers and riverbanks due to the soil type, existing land cover and land uses. [Table 24](#) summarizes of level of susceptibility, locations, area and its percentage in Alaminos.

Table 24 - RM: Rain-Induced Landslide per Barangay of Alaminos, Laguna

Level	Barangay	Area per barangay (Ha)	Total Area (Ha)	% Total
Not Susceptible	Del Carmen	86.81	2,326.64	43.53
	Palma	4.00		
	Poblacion 1	38.73		
	Poblacion 2	36.45		
	Poblacion 3	111.64		
	Poblacion 4	21.38		
	San Agustin	430.04		
	San Andres	187.00		
	San Benito	379.09		
	San Gregorio	117.41		
	San Ildefonso	254.93		
	San Juan	154.66		
	San Miguel	157.50		
	San Roque	189.81		
	Sta. Rosa	157.21		
Low Susceptibility	Del Carmen	168.15	1,748.59	14.36
	Palma	631.05		
	Poblacion 1	4.88		
	Poblacion 2	7.33		
	Poblacion 3	0.02		
	Poblacion 4	7.33		
	San Agustin	8.89		
	San Andres	237.11		
	San Gregorio	210.34		
	San Ildefonso	125.84		
	San Juan	132.66		
	San Miguel	18.45		

Level	Barangay	Area per barangay (Ha)	Total Area (Ha)	% Total
	San Roque	7.42		
	Sta. Rosa	183.51		
Moderate Susceptibility	San Andres	70.53	462.05	8.64
	Palma	88.07		
	San Gregorio	112.65		
	Sta. Rosa	190.80		
High Susceptibility	Palma	2.24	767.37	32.71
	Del Carmen	3.04		
	San Roque	0.53		
	San Gregorio	416.98		
	San Miguel	20.50		
	Sta. Rosa	324.08		
Landslide Debris Accumulation	San Miguel	3.44	40.70	0.76
	Sta. Rosa	37.26		
			Total Area (Ha)	Percentage to total land area
Total area susceptible			3,018.71	56.47
Total area not susceptible			2,326.64	43.53
Total			5,345.35	100

Source: MPDO GIS computation 2017, DENR, 2013

Table 25 - RM: Risk Estimation of Rain-induced landslide in Alaminos, Laguna shows the summary of likelihood of occurrence and risk scores for RIL in the municipality. Barangays Poblacion 2, Poblacion 3, Del Carmen, Palma, San Agustin, San Andres, San Benito, San Gregorio, San Ildefonso, San Juan and San Roque have a very rare of occurrence (every > 200 years) of RIL in their areas, while in barangays Poblacion 1 and San Miguel, RIL is a rare event, occurring every 100 to 200 years. RIL in barangay Poblacion 4 occurs every 30 to 100 years and barangay Sta. Rosa occurs every 3 to 10 years. Some barangays, as shown in **Table 24**, experience RIL but the likelihood varies from moderate to very rare return periods.

All barangays have low risk scores except barangay Sta. Rosa with moderate risk score. This means that five (5) to 10 percent of its population are affected, five (5) to 10 percent of its residential structure are severely damaged and 10 to 20 percent of its non-residential structure are severely damaged, 10 to 20 percent of its production areas are affected and severely damaged, disruption of critical services is less than three (3) days and disruption of service of utilities does not last for more than three (3) days. This result is supports the susceptibility of the area in terms of RIL.

Table 25 - RM: Risk Estimation of Rain-induced landslide in Alaminos, Laguna

Barangay	Likelihood of Occurrence Score	Severity of Consequence				Risk Score	Risk Category
		Very High	High	Mod	Low		
		4	3	2	1		
Poblacion 1	2				1	2	Low
Poblacion 2	1				1	1	Low
Poblacion 3	1				1	1	Low
Poblacion 4	3				1	3	Low
Del Carmen	1				1	1	Low

Barangay	Likelihood of Occurrence Score	Severity of Consequence				Risk Score	Risk Category
		Very High	High	Mod	Low		
		4	3	2	1		
Palma	1				1	1	Low
San Agustin	1				1	1	Low
San Andres	1				1	1	Low
San Benito	1				1	1	Low
San Gregorio	1				1	1	Low
San Ildefonso	1				1	1	Low
San Juan	1				1	1	Low
San Miguel	2				1	2	Low
San Roque	1				1	1	Low
Sta. Rosa	5			2		10	Moderate

Source: CDRA Workshop, 2018

Ground Shaking

Ground shaking is the most familiar effect of earthquake. The degree of impact depends on the intensity and magnitude and can be directly damaged the buildings and houses, roads, infrastructures. Also, deformation of the surroundings and even lives can destroy this kind of hazard. In Alaminos setting, there are two (2) ground shaking category which are PEIS Intensity VII and VIII with total land area of 2358.30 hectares or 44.12% and 2987.05 or 55.88%, respectively (refer to [Table 26](#) and [Map 21: Ground Shaking Hazard Map of Alaminos, Laguna](#)).

Table 26 - RM: Ground Shaking Hazard of Alaminos, Laguna

Intensity Scale	Description	Barangay	Area (Ha)	Percentage to Total Land Area
Intensity I (Scarcely Perceptible)	Perceptible to people under favorable circumstance. Delicately balanced objects are disturbed slightly. Still Water in containers oscillates slowly	Not applicable. For presentation purposes only.		
Intensity II (Slightly Felt)	Felt by few individuals at rest indoors. Hanging objects swing slightly. Still Water in containers oscillates noticeably.			
Intensity III (Weak)	Felt by many people indoors especially in upper floors of buildings. Vibration is felt like one passing of a light truck. Dizziness and nausea are experienced by some people. Hanging objects swing moderately. Still water in containers oscillates moderately.			
Intensity IV (Moderately Strong)	Felt generally by people indoors and by some people outdoors. Light sleepers are awakened. Vibration is felt like a passing of heavy truck. Hanging objects swing considerably. Dinner, plates, glasses, windows and			

Intensity Scale	Description	Barangay	Area (Ha)	Percentage to Total Land Area
	doors rattle. Floors and walls of wood framed buildings creak. Standing motor cars may rock slightly. Liquids in containers are slightly disturbed. Water in containers oscillates strongly. Rumbling sound may sometimes be heard.			
Intensity V (Strong)	Generally felt by most people indoors and outdoors. Many sleeping people are awakened. Some are frightened, some run outdoors. Strong shaking and rocking felt throughout building. Hanging objects swing violently. Dining utensils clatter and clink, some are broken. Small, light and unstable objects may fall or overturn. Liquids spill from filled open containers. Standing vehicles rock noticeably. Shaking of leaves and twigs of trees are noticeable.			
Intensity VI (Very Strong)	Many people are frightened; many run outdoors. Some people lose their balance. Motorists feel like driving in flat tires. Heavy objects or furniture move or may be shifted. Small church bells may ring. Wall plaster may crack. Very old or poorly built houses and man-made structures are slightly damaged though well-built structures are not affected. Limited rock falls and rolling boulders occur in hilly to mountainous areas and escarpments. Trees are noticeably shaken.			
Intensity VII (Destructive)	Most people are frightened and run outdoors. People find it difficult to stand in upper floors. Heavy objects and furniture overturn or topple. Big church bells may ring. Old or poorly built structures suffer considerably damage. Some well-built structures are slightly damaged. Some cracks may appear on dikes, fishponds, road surface and concrete hollow block walls. Limited liquefaction, lateral spreading and landslides are observed. Trees are shaken strongly.	Palma, San Miguel, Sta. Rosa, San Gregorio and San Roque	2,358.30	44.12
Intensity VIII	Numerous landslides and rock falls occur in mountainous and hilly	San Andres, San Juan,	2,987.05	55.88

Intensity Scale	Description	Barangay	Area (Ha)	Percentage to Total Land Area
(Very Destructive to Completely Devastating)	areas Most buildings are totally damaged. Bridges and elevated concrete structures are toppled or destroyed. Massive landslides and liquefaction, large-scale subsidence and uplifting of landforms and many ground fissures are observed. Changes in river courses and destructive seiches in large lake occur.	Poblacion 1, Poblacion 2, Poblacion 3, Poblacion 4, San Agustin, Del Carmen, San Benito, San Roque, San Miguel, Palma, and San Ildefonso		
Intensity IX (Devastating)	People are forcibly thrown to ground. Many cry and shake with fear. Most buildings are totally damaged. Bridges and elevated concrete structures are toppled or destroyed. Numerous utility posts, towers and monument are tilted, toppled or broken. Water sewer pipes are bent, twisted or broken. Landslides and liquefaction with lateral spreading and sandboils are widespread. The ground is distorted into undulations. Trees are shaken very violently with some toppled or broken. Boulders are commonly thrown out. River water splashes violently on slopes over dikes and banks.	Not applicable. For presentation purposes only.		
Intensity X (Completely Devastating)	Practically all man-made structures are destroyed. Massive landslides and liquefaction, large-scale subsidence and uplifting of land forms and many ground fissures are observed. Changes in river courses and destructive seiches in large lakes occur. Many trees are toppled, broken and uprooted.			
		Total Area (Ha)	Percentage to Total Land Area	
Total area susceptible		5,345.35	100	
Total area not susceptible		0.00	0	
Total		5,345.35	100	

Source: PHIVOLCS Earthquake Intensity Scale (PEIS), MPDO GIS computation 2017, DENR-MGB, 2013

For the risk analysis of ground shaking, the severity of consequence as shown in [Table 27 - RM: Risk Estimation of Ground shaking in Alaminos, Laguna](#) shows that all barangays have low severity of consequence. In terms of risk score, all barangays have low risk scores except for barangay Palma. For the likelihood of occurrence, barangays have varying scores ranging from more every 3 to more than 200 years (moderate to very rare occurrence). The difference is attributed various answers from the workshop consultations in the municipality.

Table 27 - RM: Risk Estimation of Ground shaking in Alaminos, Laguna

Barangay	Likelihood of Occurrence Score	Severity of Consequence				Risk Score	Risk Category
		Very High	High	Mod	Low		
		4	3	2	1		
Poblacion I	1				1	1	Low
Poblacion II	1				1	1	Low
Poblacion III	3				1	3	Low
Poblacion IV	3				1	3	Low
Del Carmen	3				1	3	Low
Palma	5				1	5	Moderate
San Agustin	4				1	4	Low
San Andres	4				1	4	Low
San Benito	1				1	1	Low
San Gregorio	3				1	3	Low
San Ildefonso	4				1	4	Low
San Juan	4				1	4	Low
San Miguel	1				1	1	Low
San Roque	4				1	4	Low
Sta. Rosa	4				1	4	Low

Source: CDRA Workshop, 2018

Earthquake-Induced Landslide Hazard

Due to the physical characteristics of Alaminos, which is relatively flat to gently sloping, 62.88 hectares(1.18%) of the total land area is susceptible to earthquake induced landslides (EIL). Portion of barangays San Andres, Palma, San Gregorio, San Miguel, and Sta. Rosa are exposed to earthquake-induced landslide, which is presented in [Table 28 - RM: Earthquake-Induced Landslide of Alaminos, Laguna](#). This kind of hazard resulted from ground shaking event (refer to [Map 22: Earthquake-Induced Landslide Hazard Map of Alaminos, Laguna](#)).

In terms of the level of susceptibility, 58.07 hectares (1.09%) of land has low susceptibility to EIL, while 4.62 hectares (0.09%) have moderate susceptibility. Only barangay Palma has high susceptibility to EIL having 0.19 (0.004%) hectare of its land exposed. Overall, barangay Sta. Rosa is the most susceptible to this hazard with a total of 26.59 hectares land exposed to EIL, while Poblacion 1, Poblacion 2, Poblacion 3, Poblacion 4, San Agustin, San Benito, Del Carmen, San Ildefonso, San Juan, and San Roque are not susceptible at all.

Table 28 - RM: Earthquake-Induced Landslide of Alaminos, Laguna

Level of Susceptibility	Barangay	Area (Ha)	Percentage to Total land area
Not Susceptible	Poblacion 1	43.61	98.82
	Poblacion 2	49.37	
	Poblacion 3	111.66	
	Poblacion 4	28.71	
	San Agustin	438.93	
	San Benito	379.09	
	Del Carmen	258	
	San Ildefonso	380.77	
	San Juan	287.32	
	San Roque	197.76	
Low Susceptibility	San Andres	2.77	1.09
	Palma	17.61	
	San Gregorio	9.07	
	San Miguel	3.59	
	Sta. Rosa	25.03	
Moderate Susceptibility	San Andres	0.27	0.09
	Palma	2.36	
	San Gregorio	0.15	
	San Miguel	0.28	
	Sta. Rosa	1.56	
High Susceptibility	San Andres	0.00	0.004
	Palma	0.19	
		Total Area (Ha)	Percentage to total land area
Total area susceptible		62.88	1.184
Total area not susceptible		5,282.47	98.82
Total		5,345.35	100

Source: MPDO GIS computation 2017, DENR-MGB, 2013

Soil Erosion

Soil erosion hazard have many factors to be consider such as slope, elevation and soil type and more importantly, the influence of water and wind that can create more damage on the soil erosion events. In the situation of Alaminos, about 2,570.01 or 48.08 % of the total land area of the municipality experienced soil erosion hazard (refer to [Map 23: Soil Erosion Hazard Map of Alaminos, Laguna](#)). These barangays are San Andres, San Juan, Poblacion 2, Poblacion 3, Del Carmen, San Ildefonso, Palma, Sta. Rosa, and San Gregorio (refer to [Table 29 - RM: Soil Erosion Hazard of Alaminos, Laguna](#)). Barangays Palma, San Gregorio and Sta. Rosa categorized as moderate susceptibility due to its geographical location, slope ranging 18 – 50 percent with an elevation of 286-728 meters above sea level. Moreover, the soil can also resist erosion have greatly affects the effect of high potential erosion.

Further, Macolod clay loam and Mountain soils are present in portion of barangays categorized as moderately susceptible that is in favor to have a good resistance to erosion. However, the extreme and intense rainfall can increase the speed surface runoff resulting to high sediment load, which is directly affect water bodies.

Table 29 - RM: Soil Erosion Hazard of Alaminos, Laguna

Erosion Susceptibility	Barangay	Area (Ha)	Total Area (Ha)	Percentage to Total Area Susceptible
No Apparent Erosion	Del Carmen	146.98	2775.34	51.92
	Palma	476.66		
	Poblacion 1	43.61		
	Poblacion 2	13.83		
	Poblacion 3	74.70		
	Poblacion 4	28.71		
	San Agustin	438.93		
	San Benito	379.09		
	San Gregorio	300.87		
	San Ildefonso	186.58		
	San Juan	75.82		
	San Miguel	199.89		
	San Roque	197.76		
	Sta. Rosa	211.94		
Slight Erosion	Del Carmen	111.04	2162.10	40.45
	Palma	200.86		
	Poblacion 2	35.57		
	Poblacion 3	36.96		
	San Andres	494.64		
	San Gregorio	336.32		
	San Ildefonso	194.19		
	San Juan	211.51		
Sta. Rosa	541.03			
Moderate Erosion	Palma	47.88	407.91	7.63
	San Gregorio	220.19		
	Sta. Rosa	139.88		
			Total Area (Ha)	Percentage to total land area
Total area susceptible			5,345.35	100
Total area not susceptible			0	0
Total			5,345.35	100

Source: MPDO GIS computation 2017, DENR-MGB, 2013

Multi-hazard

Map 24 shows the multi-hazard exposure of Alaminos. Table 30 summarizes the area susceptible to hazards per barangay.

Map 24: Multi-hazard Map of Alaminos, Laguna

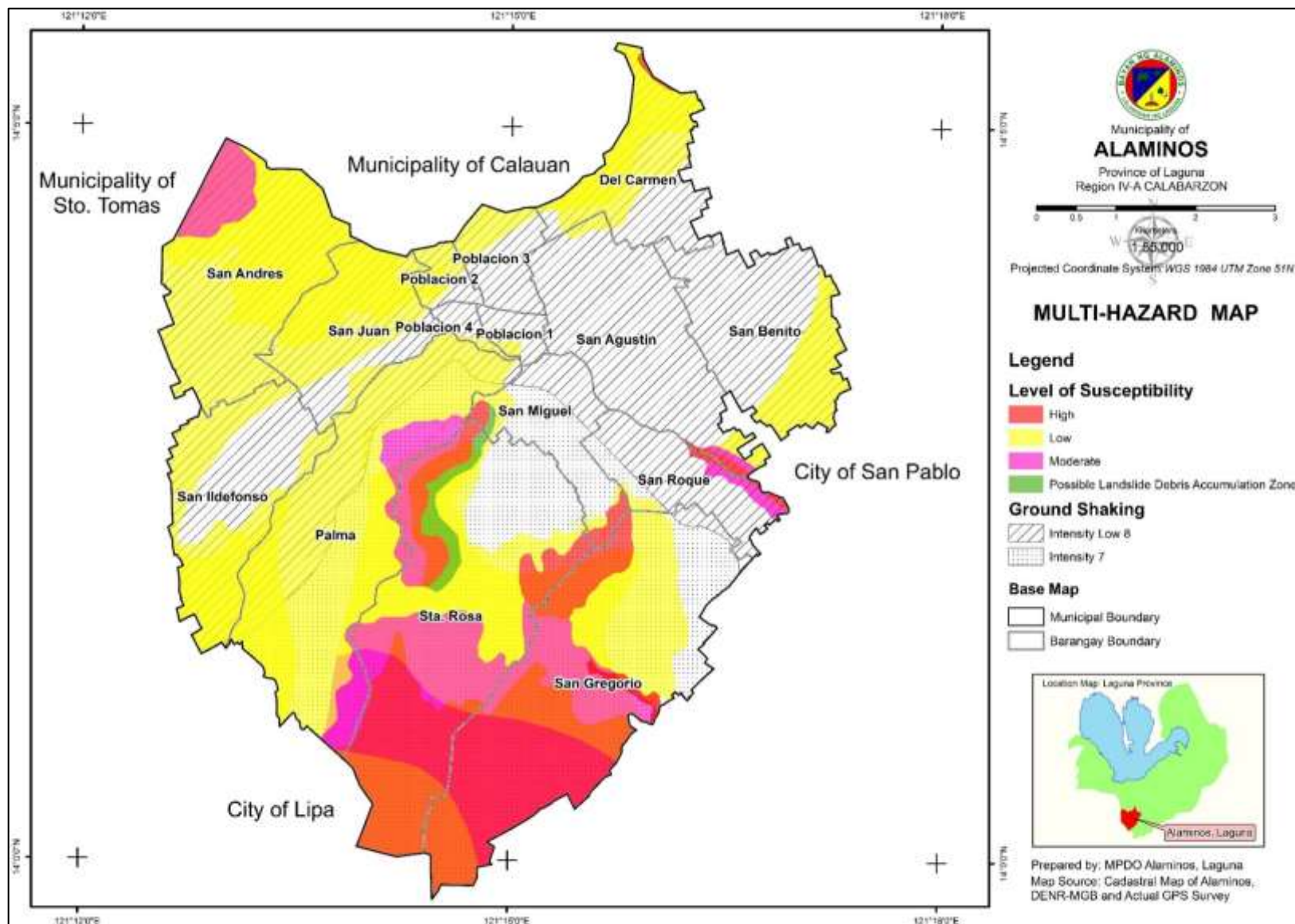


Table 30 - RM: Summary of Area Susceptible to Hazards per barangay in Alaminos, Laguna

Barangay	Land Area	Flooding	RIL	Ground shaking	EIL	Soil Erosion
Palma	725.36	0.00	721.37	725.36	20.16	248.70
Poblacion 1	43.61	0.00	4.88	43.61	0.00	0.00
Poblacion 2	49.37	0.00	12.92	49.37	0.00	35.55
Poblacion 3	111.66	0.00	0.02	111.66	0.00	36.96
Poblacion 4	28.71	0.00	7.33	28.71	0.00	0.00
Del Carmen	258.00	0.07	171.19	258.00	0.00	111.04
San Agustin	428.93	25.96	8.89	428.93	0.00	0.00
San Andres	494.64	0.00	307.63	494.64	3.04	494.64
San Benito	379.09	113.24	0.00	379.09	0.00	0.00
San Gregorio	857.37	13.00	739.97	857.37	9.22	556.51
San Ildefonso	380.77	0.00	125.84	380.77	0.00	194.19
San Juan	287.32	0.00	132.66	287.32	0.00	211.51
San Miguel	199.89	0.00	42.39	199.89	3.88	0.00
San Roque	197.776	23.02	7.96	197.776	0.00	0.00
Santa Rosa	892.86	0.00	735.65	892.86	26.59	680.92

Source: MPDO GIS computation 2017, DENR-MGB, 2013

1.5.4 Climate Change Vulnerability Assessment

Climate Projections

Table 31 shows the projected changes in seasonal temperature. June-July-August (JJA) are the months that are projected to have the highest increase in temperature which is an addition of 2.4°C to the observed baseline temperature which is 27.5°C. This can be correlated to the negative change in seasonal rainfall in the month of June-July-August as discussed above.

Table 31 -RM: Projected Changes in Seasonal Temperature in the Mid-21st Century (2036-2065) for Laguna relative to 1971-2000

Season	Scenario	Range	Projected Change	
			Change in °C	Projected Seasonal Mean Temperature (°C)
December-January-February (DJF) Observed baseline = 25.0 °C	Moderate emission (RCP4.5)	Lower Bound	1.0	26.0
		Median	1.2	26.2
		Upper Bound	1.6	26.6
	High Emission (RCP 8.5)	Lower Bound	1.1	26.1
		Median	1.6	26.6
		Upper Bound	1.9	26.9
March-April-May (MAM) Observed baseline =	Moderate emission (RCP4.5)	Lower Bound	1.0	28.5
		Median	1.2	28.7
		Upper Bound	1.7	29.2
	High	Lower Bound	1.3	28.8

Season	Scenario	Range	Projected Change	
			Change in °C	Projected Seasonal Mean Temperature (°C)
27.5 °C	Emission (RCP 8.5)	Median	1.6	29.1
		Upper Bound	2.2	29.7
June-July-August (JJA) Observed baseline = 27.5 °C	Moderate emission (RCP4.5)	Lower Bound	1.0	28.5
		Median	1.3	28.8
		Upper Bound	1.8	29.3
	High Emission (RCP 8.5)	Lower Bound	1.3	28.8
		Median	1.5	29.0
		Upper Bound	2.4	29.9
September-October-November (SON) Observed baseline = 26.7 °C	Moderate emission (RCP4.5)	Lower Bound	1.0	27.7
		Median	1.1	27.8
		Upper Bound	1.9	28.6
	High Emission (RCP 8.5)	Lower Bound	1.4	28.1
		Median	1.5	28.2
		Upper Bound	2.3	29.0

Source: PAGASA, 2018

Table 32 shows that the months of December-January-February (DJF) has the highest percentage of projected change in the seasonal rainfall which is 43.9 percent or 276 millimeters. It is also observable that in June-July-August (JJA) has a negative value for the rate of seasonal rainfall change which is -22.7 percent or negative 191.6 millimeters of rainfall amount. This means that, the projected value for the rainfall amount in JJA is less than the observed baseline which is 845 millimeters.

Table 32 - RM: Projected Changes in Seasonal Rainfall in the Mid-21st Century (2036-2065) for Laguna relative to 1971-2000

Season	Scenario	Range	Projected Change		Projected Seasonal Rainfall Amount (mm)
			Percent	Rainfall amount (mm)	
December-January-February (DJF) Observed baseline = 629 mm	Moderate emission (RCP4.5)	Lower Bound	4.2	26.7	655.9
		Median	10.2	64.0	693.2
		Upper Bound	43.9	276.0	905.2
	High Emission (RCP 8.5)	Lower Bound	2.3	14.5	643.7
		Median	13.8	87.1	716.3
		Upper Bound	32.9	207.2	836.4
March-April-May (MAM) Observed baseline = 387 mm	Moderate emission (RCP4.5)	Lower Bound	-2.1	-8.3	378.5
		Median	12.6	48.6	435.4
		Upper Bound	24.8	95.8	482.6
	High Emission (RCP 8.5)	Lower Bound	-14.4	-55.8	331.0
		Median	-0.1	-0.5	386.3
		Upper Bound	28.3	109.4	496.2
June-July-August (JJA)		Lower Bound	-22.7	-191.6	653.4
		Median	-14.3	-121.0	724.0

Season	Scenario	Range	Projected Change		Projected Seasonal Rainfall Amount (mm)
			Percent	Rainfall amount (mm)	
Observed baseline = 845 mm	Moderate emission (RCP4.5)	Upper Bound	-2.1	-17.7	827.3
	High Emission (RCP 8.5)	Lower Bound	-20.9	-176.2	668.8
		Median	-11.0	-93.0	752.0
		Upper Bound	7.5	63.8	908.8
September-October-November (SON) Observed baseline = 1,067	Moderate emission (RCP4.5)	Lower Bound	-9.0	-96.2	970.3
		Median	-5.8	-61.8	1004.7
		Upper Bound	5.7	60.5	1127.0
	High Emission (RCP 8.5)	Lower Bound	-10.8	-115.5	951.0
		Median	1.4	14.6	1081.1
		Upper Bound	10.5	112.4	1178.9

Source: PAGASA, 2018

Potential Impacts and Effects

The figures show both positive and negative effects and impacts on settlements, production, protection and infrastructure areas. These effects and impacts were derived from CDRA workshops.

Settlement Area

Climate change influences the rate of precipitation and evaporation and the overall water cycle, groundwater, which is the usual source of household water, will be harder to maintain. An increase in temperature would also affect groundwater and if not replenished (via precipitation), it could lead to water shortage.

Increase in temperature (as shown in [Figure 1](#)) also causes an increase in power and water consumption which leads to a higher demand in both electricity and water but with the chances of power and water shortage, prices of these services would increase and will be unaffordable for some. Aside from economic impacts, drought increases the likelihood of prevalence of diseases and pests for warm temperature is a favorable environment for pests and pathogens to proliferate which increases the risk of the residents to contract disease such as measles, food and water-borne diseases.

[Figure 2](#) shows the impact chain for increase in rainfall in urban areas. Landslide and flooding are a major concern in urban areas especially that most of the populace reside there. It can damage properties and infrastructures, cause overflow of canal/drainage, and loss of lives or higher morbidity rate. Damage in property increases road traffic and disrupt public and private transportation, it also delays delivery of goods and services.

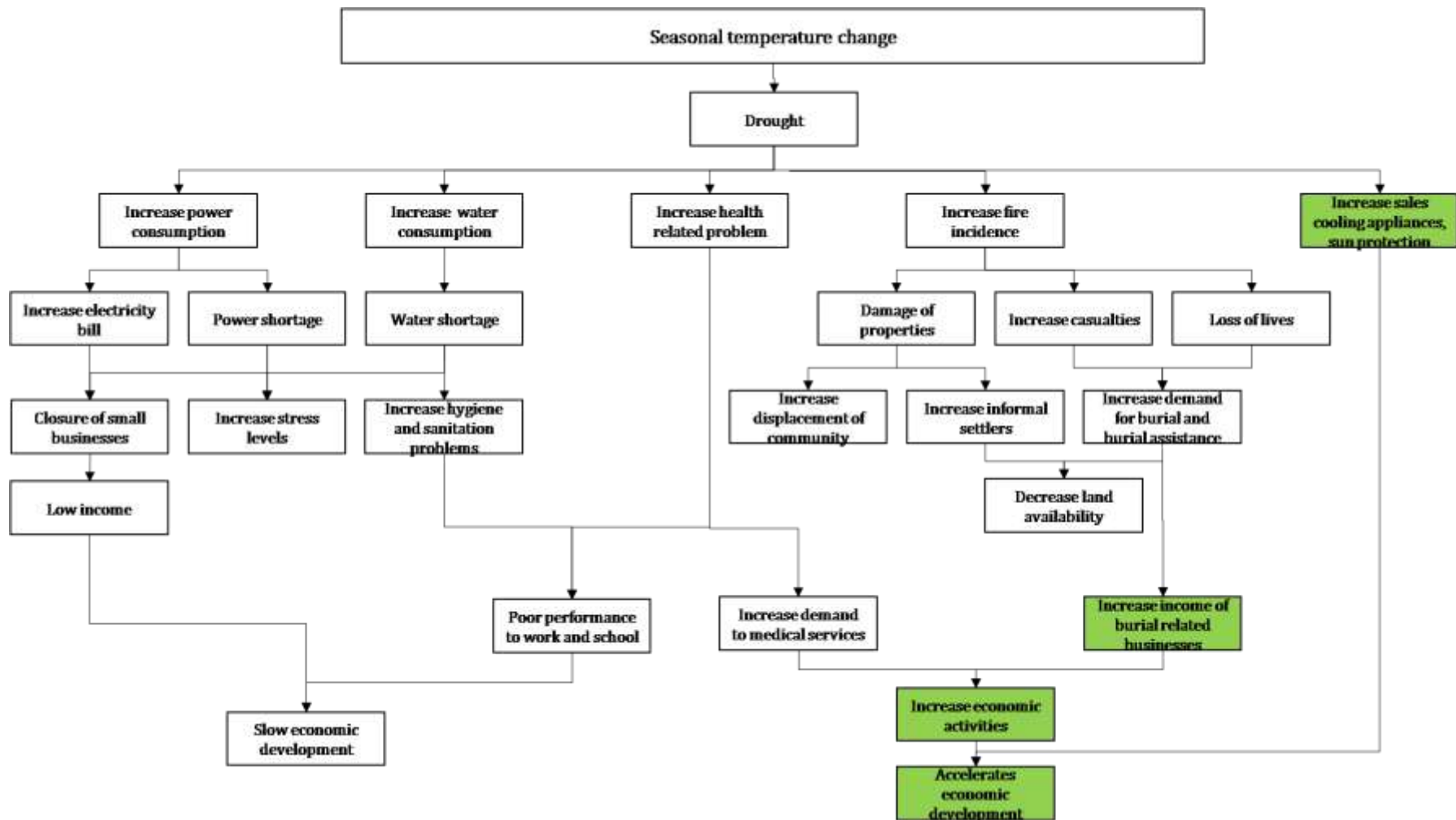


Figure 1 - RM: Potential impacts and effects of changes in seasonal temperature to settlements area

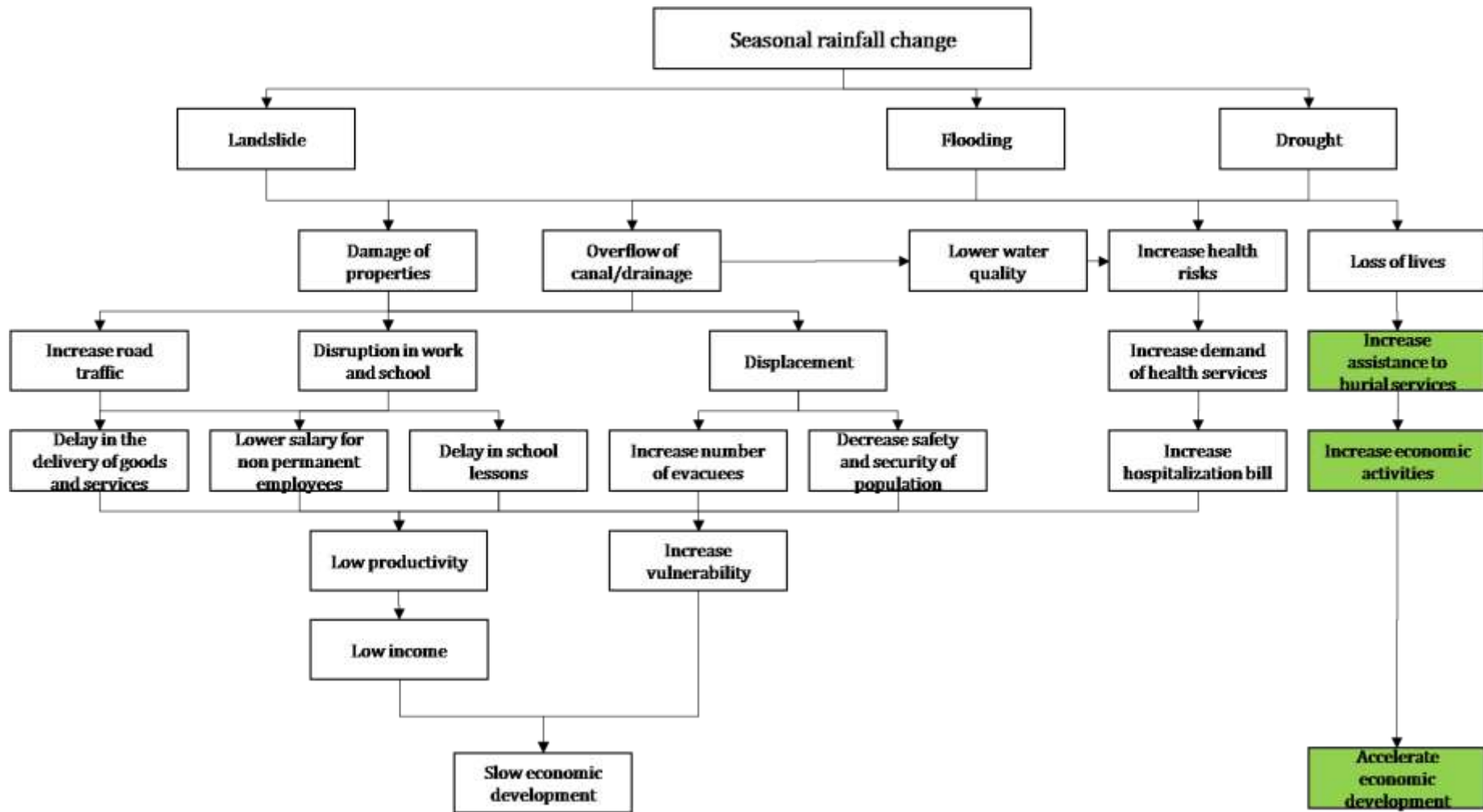


Figure 2 - RM: Potential impacts and effects of changes in seasonal rainfall to settlements area

Production Area

The impacts of increasing temperature are showed in [Figure 3](#). Drought is identified to be the only direct impact of increased temperature which may lead to reduced water recharge, reduced river flow, increased stress to crops and animals, and increased likelihood of new predators, pests, and pathogens. Currently, Alaminos is experiencing water interruptions and is said to have insufficient supply of water in some areas and an occurrence of drought may exacerbate the current situation which may occur on the months March-April-May since the expected rainfall is less and temperature may reach up to 29.7°C.

Alaminos is known to have several poultry services and many residents are also dependent on crops such as lanzones, rambutan, and coconut. These livelihoods will largely be affected because drought reduces soil moisture content which results to poor quality of agriculture produce. Temperature also affects the growth pattern of crops and may adversely affect the productivity of the crops and trees.

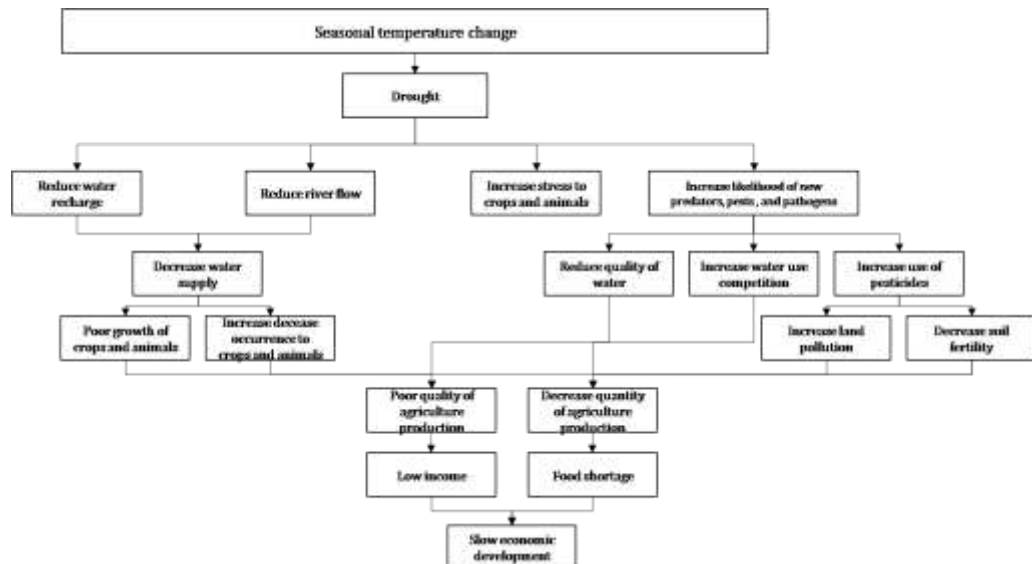


Figure 3 - RM: Potential impacts and effects of changes in seasonal temperature to production area

Excessive rainfall could lead to landslide, flooding, increased diseases of crops and animals, and change in harvesting and planting cycle. These direct impacts would result to damage in agricultural areas and overflow of fishponds, it may also cause destruction of infrastructures such as farm to market roads. The months September-October-November is projected to have 1178.9 millimeter of rainfall, these could be the months when extreme rainfall could happen. Livelihood and food shortage are the major concern in case there would be intense rainfall (refer to [Figure 4](#)).

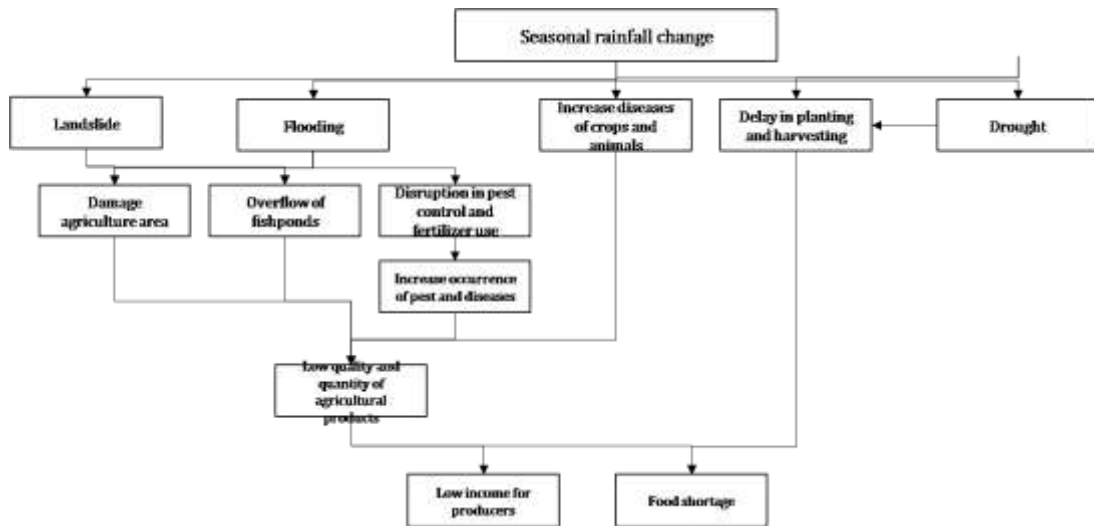


Figure 4 - RM: Potential impacts and effects of changes in seasonal rainfall to production area

Protection Area

Increased temperature means warmer temperature. This affects the moisture content of the soil and could even lead to drought. This reduces the speed of growth of the trees. Warm temperature increases the likelihood of insect outbreaks and invasive species; it reduces river flow, and decreases water availability due to faster rate of evaporation.

On the positive side, the warm temperature increases the concentration of carbon dioxide which promotes photosynthesis, thus, encourages forest growth. It decreases vulnerability and increases economic activity by reducing the occurrence and impact of hazards, improving forest production, and promotes biodiversity.

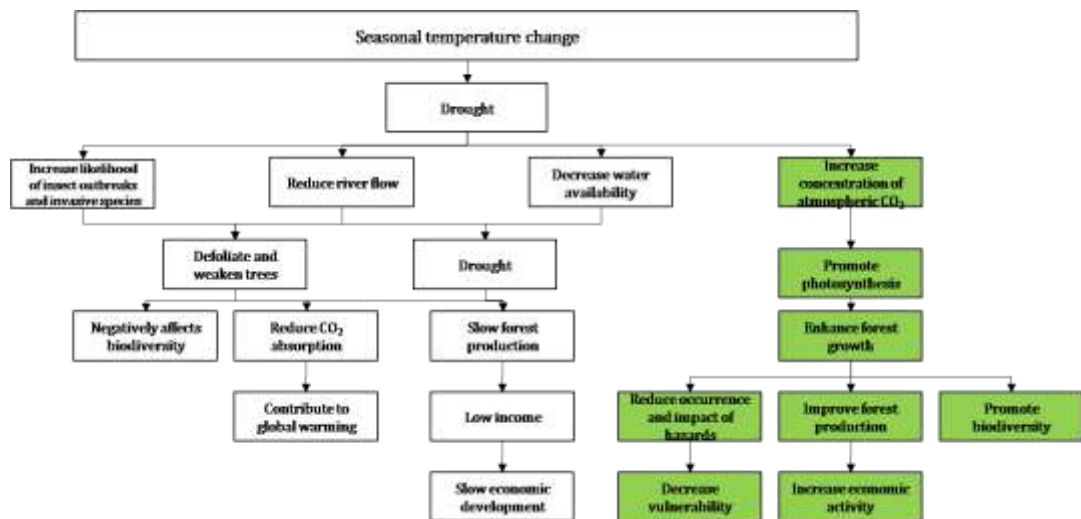


Figure 5 - RM: Potential impacts and effects of changes in seasonal temperature to protection area

Increased rainfall leads to three direct impacts: increased break up of soil and water built up, overflow of rivers and creeks, and an increase of tree mortality. This could lead to soil erosion, landslide, flooding, and even reduced carbon dioxide absorption which inhibit the growth of seeds and seedlings, disturbance of species pattern, lower food availability,

lower quality of water. Overall, the disruption of normal amount of rainfall and its increase affects biodiversity in a negative way.

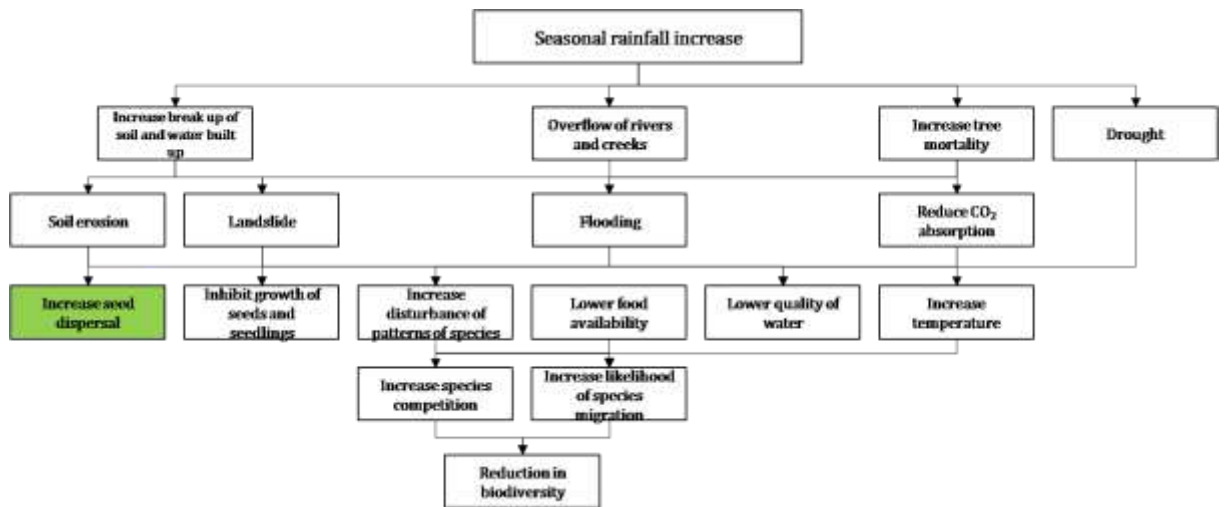


Figure 6 - RM: Potential impacts and effects of changes in seasonal rainfall to protection area

Infrastructure Area

Changes in season temperature may lead to drought and affect the water and power supplies of the area, leading to an increase in demand and shortage of utilities. Increase in temperature also increases likelihood of infrastructure damage.

One positive impact of season temperature change in infrastructure is the potential for use of renewable energy such as solar power, which does not harm the environment but require land and space.

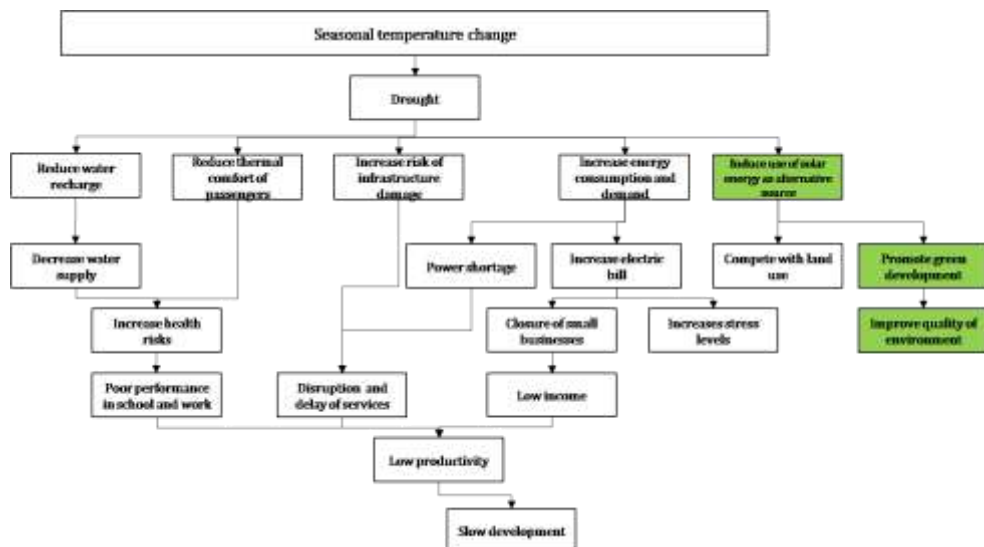


Figure 7 - RM: Potential impacts and effects of changes in seasonal temperature to infrastructure area

Changes in rainfall may lead to landslide, flooding and also drought in the area. These hazards affect and damage the utility line networks, and overflow canals and drainage systems, potentially delaying deliver of goods and services, and flow of resources in the municipality. These potentials impacts affect both the population and production areas.

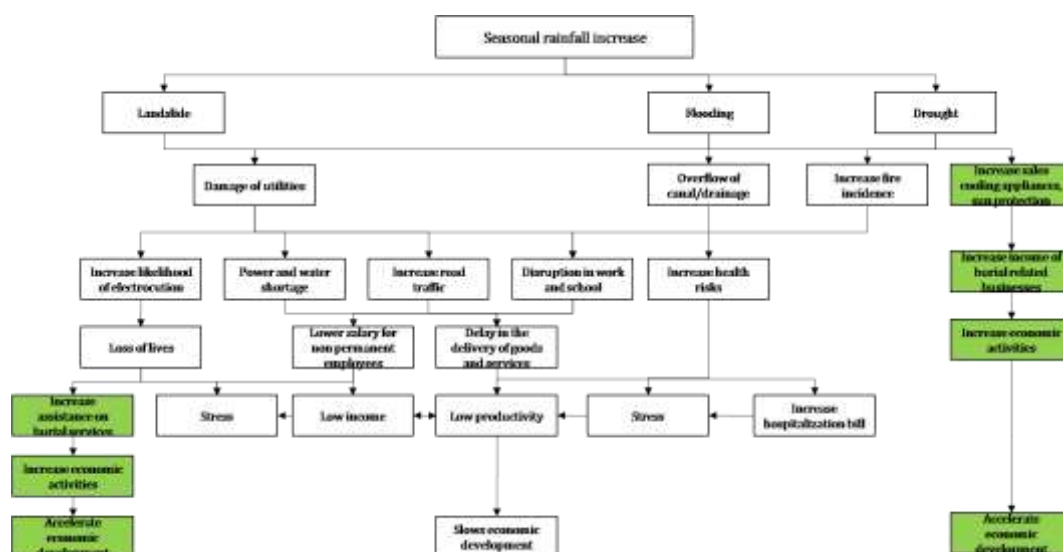


Figure 8 - RM: Potential impacts and effects of changes in seasonal rainfall to infrastructure area

1.6. Environment and Natural Resources Analysis Matrix

Table 33 summarizes the analysis of the environment and natural resources sector.

Table 33 - RM: Environment and Natural Resources Analysis Matrix

Technical Observations	Implications	Policy options
Solid waste management		
Some households do not comply with waste segregation ordinance.	Contributes to pollution to land, water and air and poses health risks to population.	<p>Strict implementation of solid waste management ordinances and policies</p> <p>Monitor and evaluate the implementation of ordinances and policies</p> <p>Provision of fines and penalties on solid waste control (e.g. improper waste disposal of garbage)</p> <p>Creation of Project Management Office on Solid Waste Management to ensure compliance with solid waste management rules and regulations</p>

		IEC Campaign Project on Solid Waste Management
Poor implementation and enforcement of solid waste management	Contributes to pollution to land, water and air and poses health risks to population.	<p>Strict implementation of solid waste management ordinances and policies</p> <p>Monitor and evaluate the implementation of ordinances and policies</p> <p>Provision of fines and penalties on solid waste control (e.g. improper waste disposal of garbage)</p> <p>Creation of Project Management Office on Solid Waste Management to ensure compliance with solid waste management rules and regulations</p> <p>IEC Campaign Project on Solid Waste Management</p>
Closing of landfill with no alternative system/facility	Additional costs in transporting garbage to other cities/areas, contributes to pollution	Establishment or Rehabilitation of municipal MRF
Non-functional and overcapacity MRFs in some barangays	Contributes to pollution	<p>Monitoring and evaluation of MRFs</p> <p>IEC Campaign Project on Environmental Management</p>
Inadequate garbage disposal facilities	Contributes to pollution and health risks	<p>Additional vehicles for waste collection</p> <p>Scheduling of waste collection</p> <p>IEC Campaign Project on waste segregation</p>
Water resources		
Observed water pollution near poultry production areas and industries	Increases incidence of water borne diseases, discourages in migration and investment opportunities	<p>Implementation of a Clean Water Act</p> <p>Strict implementation on water policies and ordinances (e.g. entitlements, licenses, permits)</p>

		Monitoring and Evaluation of water policies and ordinances
Water source in the LGU is not sustainable	Decreases water supply Increases water supply competition	Provision on water protection policies and ordinances (e.g. entitlements, licenses, permits) Identification of alternative water sources Adoption or use of water harvesting technologies
Altered the natural water pathway	Flooding	Provision on water policies and ordinances (e.g. entitlements, licenses, permits) Monitoring and evaluation of water policies and ordinances
Air pollution		
Air pollution brought by transportation vehicles passing through Alaminos using Maharlika Highway	Increases incidence of air borne diseases	Provision on air pollution prevention and control measures Impose policies and ordinances on air pollution Construction of diversion roads
Lack of odor control measures in poultry areas	Increases incidence of air borne diseases Discourage in migration and investment opportunities	Provision on odor control measures Creation of team for monitoring and evaluation of odor control
Sewerage and drainage system		
Lack of sewerage and drainage system	Affects water quality, especially with the current water source Increases possibility of water contamination	Strict implementation of Solid Waste Management Program (RA 9003) Monitoring and evaluation of policies and ordinances on solid waste IEC Campaign Project on Environmental Management Development of sewerage and drainage system plan
Clogged canals	Flooding Increases pollution	Implementation of a Clean Water Act

	Increases possibility of water contamination Unpleasant odor in some areas affected Increases health risks due to water and air borne diseases	Monitoring and evaluation of policies and ordinances related to environment Development of sewerage and drainage system plan
Disaster/Hazards		
Some areas experience flooding : High Flood (HF), Moderate Flood (MF) and Low Flood (LF)	Increases vulnerability to flooding	Establishment and monitoring of projects Flood Control Measures or flood warning systems (e.g. rain gauge, rip rap, dikes)
Some areas experience landslide: High Landslide (HL), Moderate Landslide (ML) and Low Landslide (LL)	Increases vulnerability to landslide	IEC Campaign related to flood disaster management Establishment of evacuation center nad relocation sites Strict implementation of national building code and adoption of resilience measure in infrastructure and agricultural areas
Some barangay have high and moderate risk categories	Increases risks to flooding, RIL and groundshaking	
Others		
Proliferation of illegal logging and charcoal making	Contributes to pollution, forest degradation, affect climate change, loss of government revenue, cheaper price compared to legal timber, affect biodiversity	Restriction of charcoal production Provision of logging ban policies Strengthen law enforcement and strict forest patrolling Provision of fines and penalties on illegal logging and charcoal production Monitoring and evaluation of policies and ordinances related to environment IEC Campaign Project on Environmental Management and Conservation
Data management		
Lack of data management system	Lack of data management system affects the productivity and efficiency of employees, accuracy and credibility of data, and difficulty in analysing and interpreting conditions for planners, investors and decision makers	Establishment of the database management system per office and regular staff will be assigned to process the system

2. DEMOGRAPHY

This chapter shows the demographic features, changes, and trends in the municipality of Alaminos. This section presents the overall information on population composition, population distribution and core indicators of the municipality. This will help assess and determine needs for public services and creates demand for goods and services in the planning area.

2.1 Population Composition

2.1.1 Population by Age-Group and Sex

The age distribution is usually depicted in a table that groups the population into clusters of 5-year interval. The population from 5-9 years old has the highest share with 4,761 population (9.9%) of total population in 2015. This population age group is part of the school going population ages 5 to 24 years old. Population with ages 80 years old and above has the lowest share with 426 total population (0.89%). Moreover, there is noticeable higher number of females per age group showing that female population has longer lifespan. Females under reproductive age (15-49) has a number total population of 12,574.

Table 34 - DE: Population by Age-Group and Sex in Alaminos, Laguna

Age Group	Male	Female	Total
Under 1	497	490	987
1 - 4	2,045	1,929	3,974
5 - 9	2,510	2,251	4,761
10 - 14	2,423	2,211	4,634
15 - 19	2,393	2,179	4,572
20 - 24	2,244	2,260	4,504
25 - 29	2,042	2,060	4,102
30 - 34	1,888	1,856	3,744
35 - 39	1,678	1,651	3,329
40 - 44	1,354	1,280	2,634
45 - 49	1,247	1,288	2,535
50 - 54	1,131	1,168	2,299
55 - 59	962	1,002	1,964
60 - 64	720	741	1,461
65 - 69	409	506	915
70 - 74	220	341	561
75 - 79	157	300	457
80 years	118	308	426
Total	24,038	23,821	47,859

Source: Philippine Statistics Authority, 2015

2.1.2 Age Dependency and Sex Ratio

The young dependents ages 0 to 14 years old comprised of 30 percent on the total population in 2015. On the other hand, old dependents from ages 65 years and above posted a share of 4.93 percent. The working age population (15-64 years) accounted to 65.07 percent while the overall dependency ratio was recorded at 49.89 percent. This

indicates that for every 100-working age-population, there were about 50 dependents (43 young dependents and seven (7) old dependents). As for the sex ratio, there are 101 males for every 100 females in Alaminos. Table 35 summarizes the age-dependency and sex ratio of the municipality.

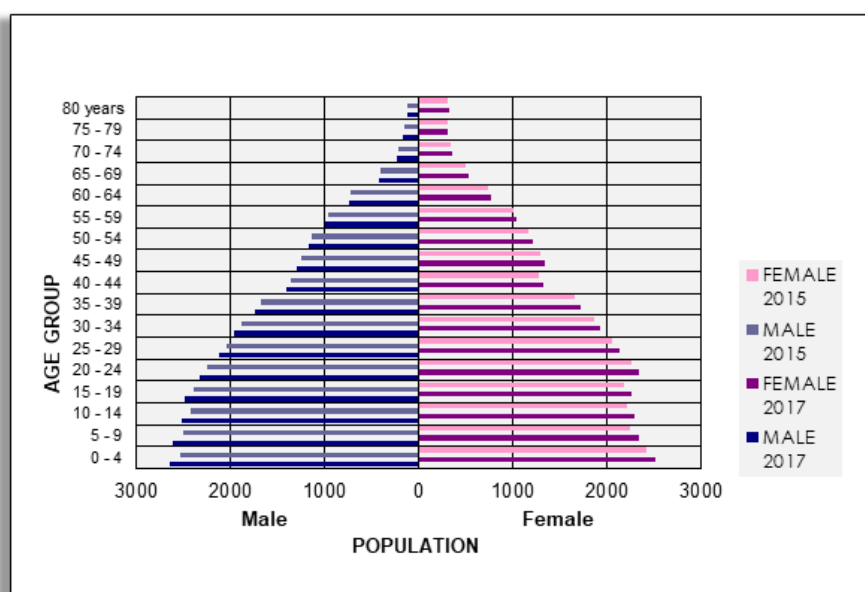


Figure 9 - DE: Population Pyramid of Alaminos, Laguna

Table 35 - DE: Population by Age Dependency and Sex Ratio in Alaminos, Laguna

Age Group	2015	Percentage to Total Population (%)	Dependency Ratio
0 - 14	14,356	30.00	42.85
65 and over	2,359	4.93	7.04
Total Dependent	16,715	34.93	49.89
			Sex Ratio
Female	23,821	49.77	101
Male	24,038	50.23	
			Percentage to total population (%)
Productive or Working age group (15 - 64)	31,144		65.07
Female Reproductive age group (15-49)	12,574		26.27
Total Population	47,859		100

Source: Philippine Statistics Authority, 2015

2.1.3 Labor Force and Employment

The municipality of Alaminos has a total working age population of 33,503 or 65 percent of the total population. The total percentage share of the population employed from the working population is at 57.7 percent (19,327) while the percentage share for the unemployment is posted at 42.3 percent of the total working population.

Table 36 - DE: Labor Force and Employment in Alaminos, Laguna

Sex	Alaminos					Not in Labor Force
	Population	Employed	%	Unemployed	%	
Female	16,940	7,330	43.3	9,610	56.7	6,881
Male	16,563	11,997	72.4	4,566	27.6	7,475
Total	33,503	19,327	57.7	14,176	42.3	14,356
	Laguna					
	Population	Employed	%	Unemployed	%	
Male	1,098,581	522,346	47.5	576,235	52.5	
Female	1,062,881	808,262	76.0	254,619	24.0	
Total	2,161,462	1,330,608	61.6	830,854	38.4	

Source: Philippine Statistics Authority, 2015

At the provincial level, 61.6 percent (1,330,608) of Laguna's population are employed. On the other hand, 38.4% (830,854) of the province's total population are unemployed. Comparing the number of populations employed and unemployed in Laguna and Alaminos, the latter has lower number of employed and unemployed population.

2.1.4 School-Age Population

The total school going population of Alaminos is recorded at 18,471, which is dominantly male students with 9,570 and 8,901 female students. Pre-school to early elementary grade students (5-9 years old) have the highest number of populations with 4,761 while college students have the least number having only 4,504. With regards to the sex distribution, there are more male students. The number of educational institutions should respond to the increasing demand of the population. This will be discussed in detail in the succeeding chapters.

Table 37 - DE: School-Going Age Population in Alaminos, Laguna

Age Group	Both	Male		Female		Sex Ratio
		No.	Percentage	No.	Percentage	
5-9	4,761	2,510	53%	2,251	47%	1.12
10-14	4,634	2,423	52%	2,211	48%	1.10
15-19	4,572	2,393	52%	2,179	48%	1.10
20-24	4,504	2,244	50%	2,260	50%	0.99
Total	18,471	9,570	52%	8,901	48%	1.08

Source: Philippine Statistics Authority, 2015

2.2 Population Distribution

2.2.1 Total Population by Barangay

Six barangays are classified as urban, while the remaining barangays are considered rural. Urban population contributes 50.54 percent to the total population while rural barangays contribute 49.96 percent. Among the 15 barangays in Alaminos, barangay San Benito has the highest population with 6,280, while barangay Del Carmen is the least in terms of population size with 1,150. Barangays San Benito and San Agustin are both rural barangays, according to the PSA's new urban barangay definition; if the barangay population is more than 5000 it is a ground for reclassification as urban barangay. These two (2) barangays are reclassified as urban barangays.

Table 38 - DE: Urban and Rural Barangay Population in Alaminos, Laguna

Barangay	Population	No. of Household	Average Household Size
Urban			
Poblacion 1	3,366	604	5.57
Poblacion 2	2,804	543	5.17
Poblacion 3	2,675	547	4.89
Poblacion 4	3,388	792	4.28
San Agustin	5,675	1,231	4.61
San Benito	6,280	1,331	4.72
Sub-Total	24,188	5,048	4.87
Rural			
Del Carmen	1,150	268	4.29
Palma	2,512	571	4.40
San Andres	3,298	772	4.27
San Gregorio	3,315	847	3.92
San Ildefonso	2,821	716	3.94
San Juan	3,108	757	4.11
San Miguel	2,033	537	3.79
San Roque	2,235	482	4.64
Sta. Rosa	3,199	1,106	2.89
Sub-Total	23,671	6,056	4.03
Total	47,859	11,103	4.37

Source: Philippine Statistics Authority, 2015

2.2.2 Urbanization Level

Urbanization refers to the growth in the proportion of the population living in urban areas, which takes place when there is development. The extent of urbanization of a locality at a certain point in time indicates progress or development taking place. Thus, where there are economic activities/opportunities in an area, in-migration occurs resulting to an increase in population. Urbanization can be measured by determining level of urbanization and tempo of urbanization. From 2000 to 2015, Alaminos show a decrease on its level of urbanization.

The tempo of urbanization is used to express the speed at which an area is moving toward an urban classification. This is computed by taking the difference between the growth rate of urban population and growth rate of rural population. Generally, the level of urbanization and tempo of urbanization showed a negative trend, this can imply slow progress, development and out-migration to urban areas.

Table 39 - DE: Urbanization Level in Alaminos, Laguna

Population				Average Yearly Population Growth Rate (%)		Level of Urbanization (%)		Average Yearly Tempo of Urbanization (%)
Year	Urban	Rural	Total	Urban	Rural	Municipal	Provincial	Municipal
1995	8,180	23,262	31,442	-	-	26.02	45.20	0.00
2000	9,453	26,667	36,120	2.94	2.77	26.17	47.00	0.17
2007	10,405	29,975	40,380	1.38	1.68	25.77	66.46	-0.30
2010	11,170	32,356	43,526	2.39	2.58	25.66	71.85	-0.19
2015	24,188	23,671	47,859	1.83	1.94	25.56	-	-0.11

Source: Philippine Statistics Authority, 2015

2.2.3 Population and Residential Density

With a land area of 5,345.35 hectares, the gross population density of Alaminos is at nine (9) persons per hectare. The density is lower compared to Laguna with 16 persons per hectare but the similar with CALABARZON region 9 persons per hectare. Using the total alienable and disposable land area of 5202.38 hectares (97.33 percent) of total land area, the net population density is at 10 persons per hectare, due to the large percentage of land classifies as alienable and disposable.

With the total urban land area of 1,051.4 hectare (19.7%) of the total land area of Alaminos, the urban density that was computed using total population is at 23 per hectare. The urban land area, which only shares 19.7 percent, has a total urban population of 28,188. On the other hand, the remaining 80.3 percent are considered rural areas inhabited by 23,671 population.

The barangay with highest population density is Poblacion 4 with 112 persons per hectare. Meanwhile, Barangay Palma is the least dense among the 15 barangays, with three (3) persons per hectare. In terms of residential density, the total residential of the municipality is 291.33 hectares, thus the residential density is calculated at 164.28 persons per hectare (refer to **Error! Reference source not found.**).

Table 40 - DE: Population Density of Alaminos, Laguna

Barangay	Population	Area (Has.)	Population Density
Urban			
Poblacion 1	3,366	43.61	77
Poblacion 2	2,804	49.37	57
Poblacion 3	2,675	111.66	24
Poblacion 4	3,388	28.71	118
San Agustin	5,675	438.93	13
San Benito	6,280	379.09	17
Rural			
Del Carmen	1,150	258.00	4
Palma	2,512	725.36	3
San Andres	3,298	494.64	7
San Gregorio	3,315	857.37	4
San Ildefonso	2,821	380.77	7
San Juan	3,108	287.32	11
San Miguel	2,033	199.89	10
San Roque	2,235	197.76	11
Sta. Rosa	3,199	892.86	4
Total	47,859	5345.35	9

Source: Philippine Statistics Authority, 2015

2.2.4 Hierarchy of Settlements by Barangays

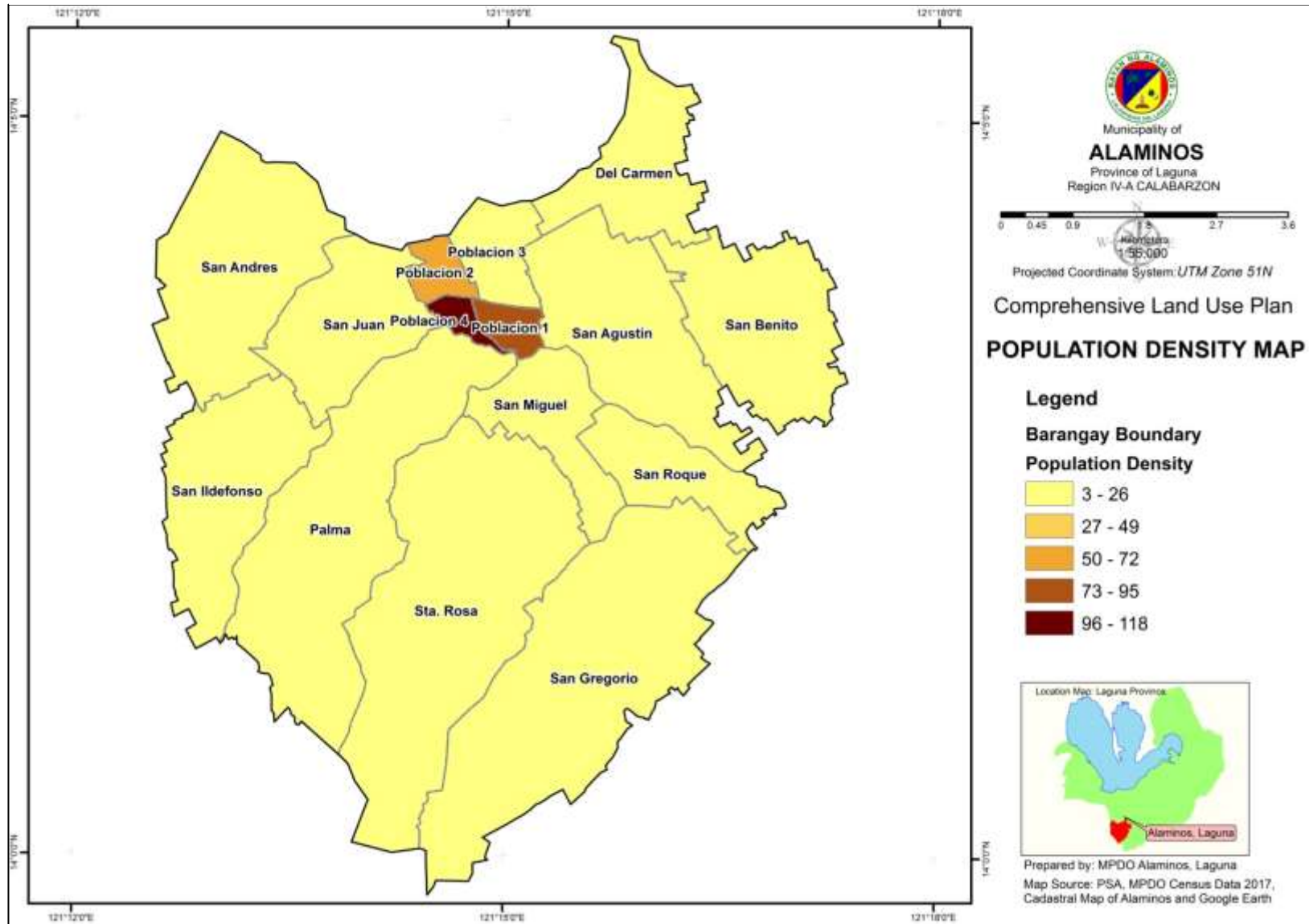
Among the 15 barangays, barangay San Benito ranked first having the highest number of population (6,280). This barangay is the nearest barangay of Alaminos going to San Pablo. It is followed by barangay San Agustin ranked as second to the highest with 5,675. Meanwhile, barangay Del Carmen placed at the bottom with the lowest number of population (1,150).

Table 41 - DE: Hierarchy of Settlements of Alaminos, Laguna

Rank	Barangay	Population
1	San Benito	6,280
2	San Agustin	5,675
3	Poblacion 4	3,388
4	Poblacion 1	3,366
5	San Gregorio	3,315
6	San Andres	3,298
7	Sta. Rosa	3,199
8	San Juan	3,108
9	San Ildefonso	2,821
10	Poblacion 2	2,804
11	Poblacion 3	2,675
12	Palma	2,512
13	San Roque	2,235
14	San Miguel	2,033
15	Del Carmen	1,150

Source: Philippine Statistics Authority, 2015

Map 25: Residential Density Map of Alaminos, Laguna



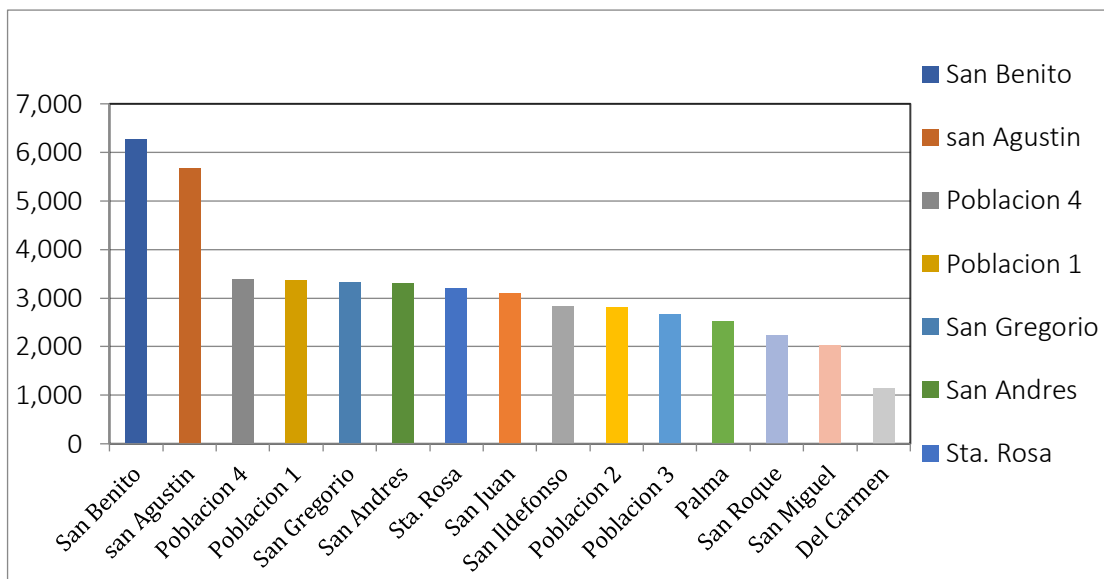


Figure 10 - DE: Hierarchy of Settlements of Alaminos, Laguna

2.3 Population Changes

2.3.1 Historical Growth of Population

The historical data of Alaminos' population is presented in Table 42 along with its population growth rates. In 2015, the Alaminos has a population of 47,859 with a growth rate of 1.92, lower compared to the previous years. In the same census year, the province of Laguna has a population of 3,035,081 with 2.47 growth rate while Region IV-A has 14,414,774 population with 2.58 growth rate.

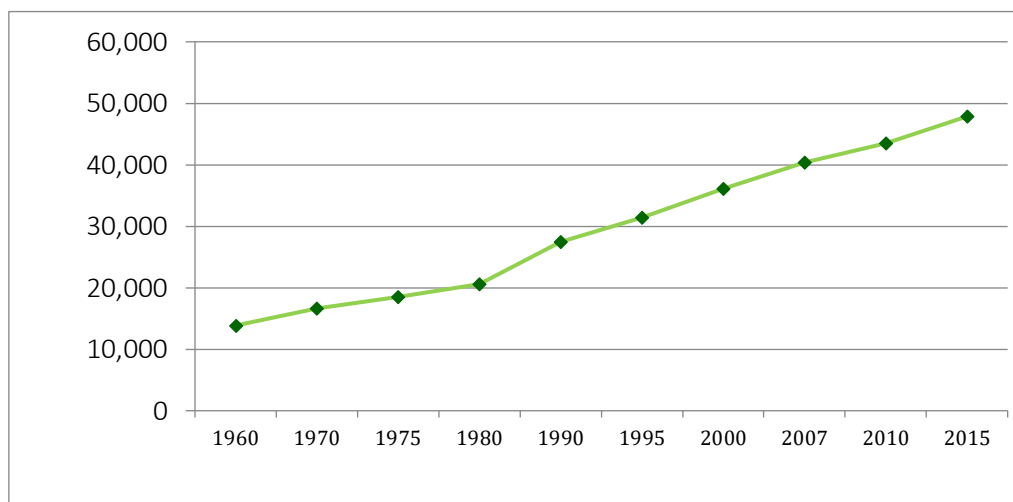


Figure 11 - DE: Historical Growth of Alaminos, Laguna

Table 42 - DE: Historical Population Growth of Alaminos, Laguna

Year	Population	Increase/ Decrease	Growth Rate
1960	13,860	-	-
1970	16,649	2,789	1.85
1975	18,504	1,855	2.14
1980	20,615	2,111	2.18
1990	27,412	6,797	2.89
1995	31,442	4,030	2.78
2000	36,120	4,678	1.61
2007	40,380	4,260	2.53
2010	43,526	3,146	2.53
2015	47,859	4,333	1.92

Source: Philippine Statistics Authority, 2015

Generally, population increased over the years and will continue to increase in the next few years if the growth rate is maintained.

2.3.2 Fertility and Mortality

Fertility refers to the live births that occur within a population. Fertility varies with the characteristics of the mother such as educational attainment or occupational status. Crude Birth Rate (CBR) is the most common index of fertility and is computed by dividing the number of births by the midyear population. The data shows that the municipality has a low CBR, which contributed to only 2.87% in 2014. There was an increase in CBR of 8.27% in the following year but in 2016, it dropped to 4.27% (refer to Table 43).

On the other hand, mortality refers to the occurrence of deaths in a population. Crude Death Rate (CDR), which refers to the number of deaths per 1,000 population, decreased from 4.39% to 2.06% in 2015 and 2016. In 2016, the CDR increased by 0.28% making the CDR for that year to be 2.34%.

The country's CBR in 2016 is at 23.21% while in the same year, the CDR of the country is 6.5%. Both indices are higher if compared to the municipality's crude birth and death rate. Both indices measure whether the population is growing or declining. With the relatively low birth rate of Alaminos, this may indicate that the population in the municipality have a slow growth. Alaminos also has a low death rate, which may signify that the population is living in a safe and healthy environment.

Table 43 - DE: General Health Situation for the Past Three Years of Alaminos, Laguna

Health Indicator	2014	%	2015	%	2016	%
Fertility						
Crude Birth Rate (CBR)	501	2.87	898	8.27	1203	4.27
Mortality						
Crude Death Rate	203	4.39	152	2.06	117	2.34
Infant Mortality	6	4.45	3	11.15	2	9.8
Young Child	8	24.16	2	7.43	1	4.9
Maternal Mortality	0	-	0	-	0	-

Source: Rural Health Unit, 2017

2.4 Other Population Characteristics

2.4.1 Marital Status

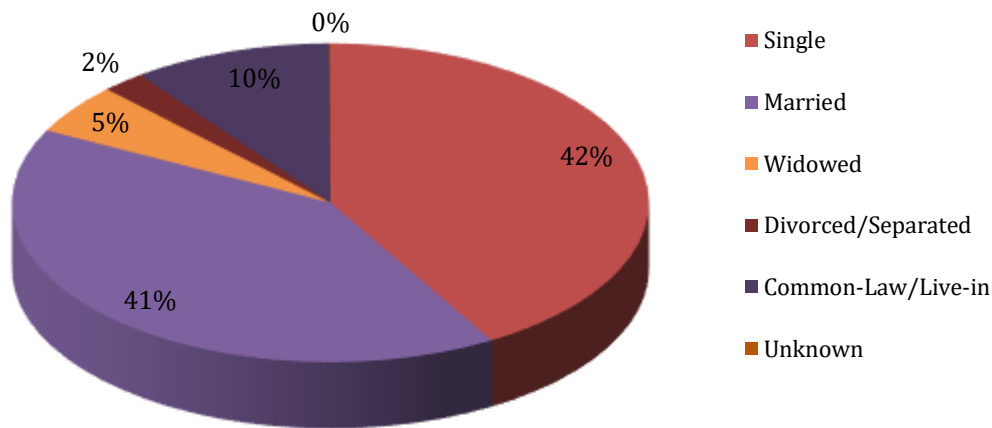


Figure 12 - DE: Marital Status of Alaminos Laguna

The marital status of Alaminos' population showed that 41 percent are married or 15,563 population while 41.5% were single or 15,805 population. This population is household population of 10 years old and above. Population below 20 years old have low number of married individual with 64 counts while 193 were under cohabitation/live-in.

Table 44 - DE: Marital Status of Alaminos, Laguna

Age Group	Household Population 10 Years Old and Over	Single	Married	Widowed	Divorced/Separated	Common-Law	Unknown
Male	18,878	8,467	7,777	394	330	1,904	6
< 20	4,794	4,739	13	-	2	40	-
20 - 24	2,206	1,629	249	1	18	309	-
25 - 29	2,020	905	705	6	27	377	-
30 - 34	1,874	453	1,043	7	41	330	-
35 - 39	1,670	234	1,100	16	52	267	1
40 - 44	1,351	158	956	10	49	175	3
45 - 49	1,246	113	951	20	40	121	1
50 - 54	1,131	92	867	44	25	102	1
55 - 59	962	67	742	49	31	73	-
60 - 64	720	41	547	61	25	46	-
65 - 69	409	20	297	49	11	32	-
70 - 74	220	7	141	48	4	20	-
75 - 79	157	6	101	39	3	8	-
80-over	118	3	65	44	2	4	-
Female	19,148	7,338	7,786	1,547	513	1,951	13
< 20	4,390	4,182	51	1	3	153	-
20 - 24	2,259	1,338	460	7	21	432	1
25 - 29	2,060	712	871	12	62	402	1
30 - 34	1,856	359	1,097	24	72	300	4
35 - 39	1,650	172	1,147	28	68	232	3

Age Group	Household Population 10 Years Old and Over	Single	Married	Widowed	Divorced/ Separated	Common-Law	Unknown
40 - 44	1,279	118	907	47	65	142	-
45 - 49	1,288	103	938	92	48	106	1
50 - 54	1,168	98	795	136	65	74	-
55 - 59	1,002	81	643	171	45	60	2
60 - 64	741	64	399	219	36	23	-
65 - 69	506	41	238	202	11	13	1
70 - 74	341	24	118	179	10	10	-
75 - 79	300	19	76	200	4	1	-
80-over	308	27	46	229	3	3	-
Both	38,026	15,805	15,563	1,941	843	3,855	19
< 20	9,184	8,921	64	1	5	193	-
20 - 24	4,465	2,967	709	8	39	741	1
25 - 29	4,080	1,617	1,576	18	89	779	1
30 - 34	3,730	812	2,140	31	113	630	4
35 - 39	3,320	406	2,247	44	120	499	4
40 - 44	2,630	276	1,863	57	114	317	3
45 - 49	2,534	216	1,889	112	88	227	2
50 - 54	2,299	190	1,662	180	90	176	1
55 - 59	1,964	148	1,385	220	76	133	2
60 - 64	1,461	105	946	280	61	69	-
65 - 69	915	61	535	251	22	45	1
70 - 74	561	31	259	227	14	30	-
75 - 79	457	25	177	239	7	9	-
80-over	426	30	111	273	5	7	-

Source: Philippine Statistics Authority, 2015

2.4.2 Mother Tongue/Ethnicity

Tagalog is the most used dialect in Alaminos with 96.8 percent of household's speakers.

Other dialects such as Ilocano, Bikolano, Waray and Cebuano used in the municipality can be attributed to migrants from other provinces. They comprise of 3.23 percent of households.

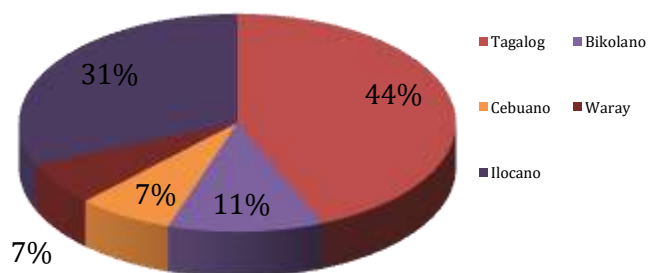


Figure 13 - DE: Mother Tongue in Alaminos, Laguna

Table 45 - DE: Mother Tongue of Alaminos, Laguna

Mother Tongue	Household Population	No. Of Total Households
Tagalog	48,113	11,233.25
Bikolano	701	163.66
Cebuano	184	42.95
Waray	114	26.70
Ilocano	104	24.37
Other	502	117.23

Source: Philippine Statistics Authority, 2015

2.4.3 Religious Affiliation

Eighty-eight percent of the total population of Alaminos is Roman Catholics. Other religious affiliations include Iglesia ni Cristo, Aglipay, Jesus and Lord and other religious affiliations.

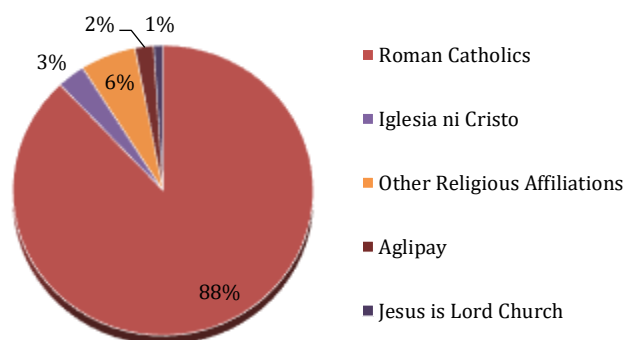


Figure DE 6: Religious Affiliation of Alaminos, Laguna

The least among the religious affiliations is the Jesus Is Lord Church with 648 in number or one (1) percent of the total population.

Figure 14 - DE: Religious Affiliation of Alaminos, Laguna

Table 46 - DE: Religious Affiliation of Alaminos, Laguna

Religious Affiliation	Population	% to Total Population
Roman Catholics	43,637	88%
Iglesiani Cristo	1,445	3%
Other Religious Affiliations	3,039	6%
Aglipay	946	2%
Jesus is Lord Church	648	1%
Total	49,714	100%

Source: Philippine Statistics Authority, 2015

2.4.4 Literacy Rate

Access to education is vital to have a decent job and opportunity. Alaminos has a 98 percent literacy rate compared to the literacy rate of Laguna which is 90.10 percent. This rating can be attributed to public schools present from all level and vocational school and accessible to everyone within the municipality as well as in the neighboring cities and municipalities.

Table 47 - DE: Literacy Rate of Alaminos, Laguna

Indicator	Male		Female		Both Sex	
	No.	%	No.	%	No.	%
Literate	21,496	98	21,402	98	42,898	98
Illiterate	444	2	414	2	858	2
Total	21,940	-	21,816	-	43,756	-

Source: Philippine Statistics Authority, 2015

2.4.5 Differently-Abled Persons (Persons with Disabilities)

Differently abled persons (DAP) in the municipality of Alaminos are clustered into persons with psychosocial disability, mental disability, hearing disability, visual disability, speech disability, learning disability and orthopedic disability. There are 156 persons (35%) with psychosocial disability,

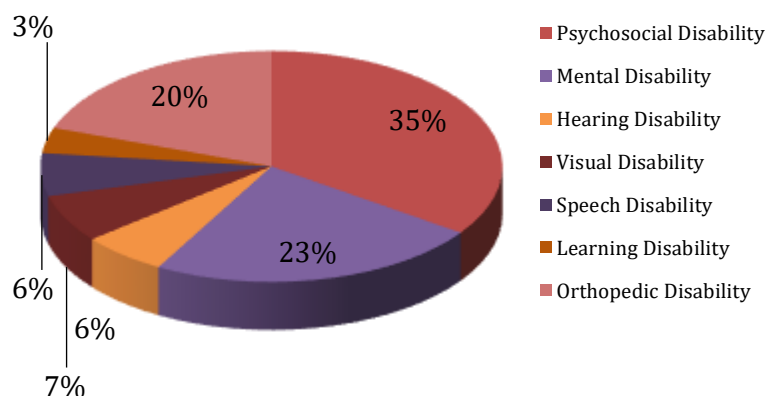


Figure 15 - DE: Differently-Abled Persons of Alaminos, Laguna

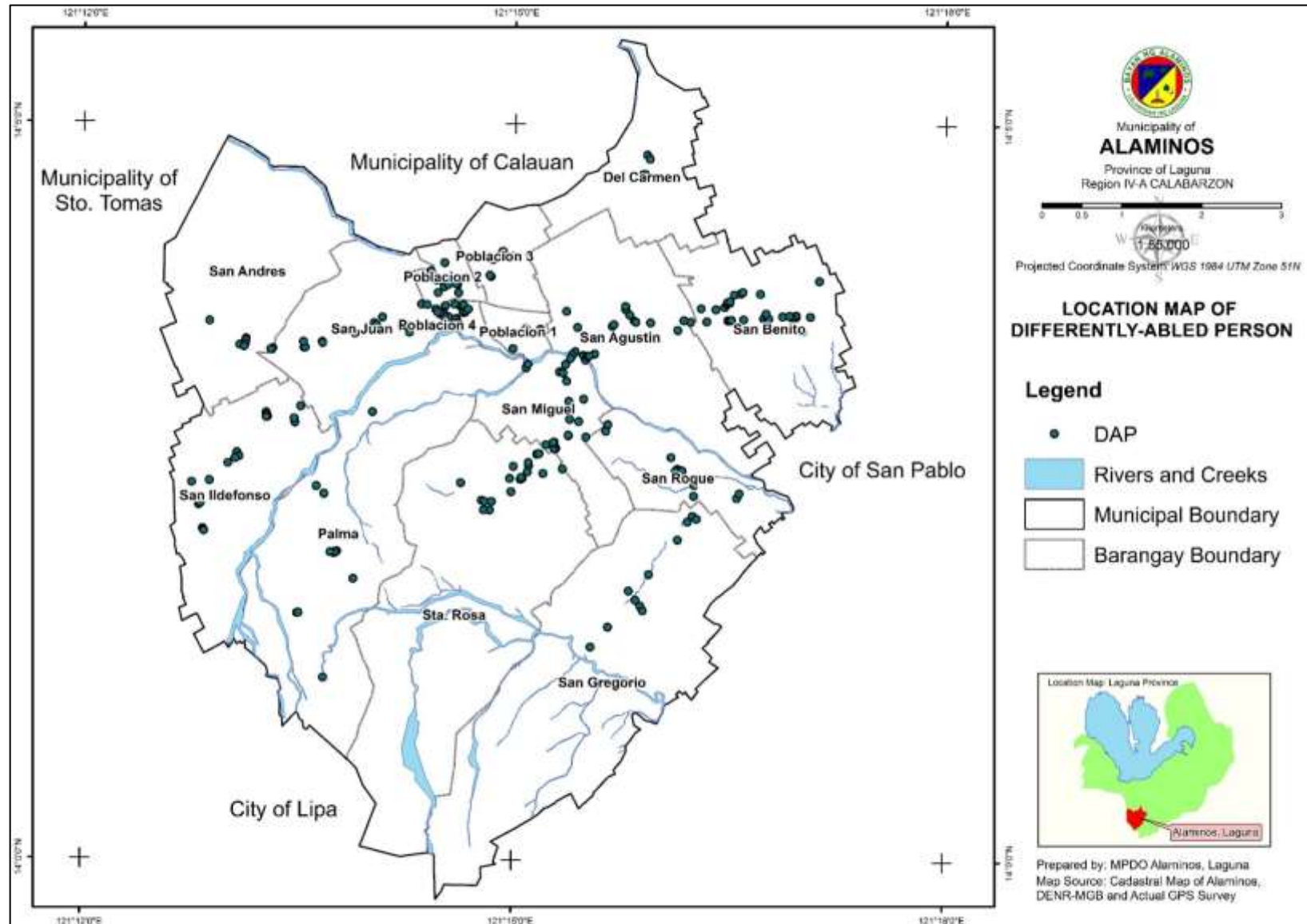
which is also the highest among other disabilities. Speech and hearing disabilities showed to be the least in terms of number of listed individuals with both 27 (both with 6%) in number. Overall number of differently abled person is 449 (refer to Map 26).

Table 48 - DE: Population of Disabled Persons by Age Group, Sex, and Type of Disability of Alaminos, Laguna

Age Group	Psychosocial Disability		Mental Disability		Hearing Disability		Visual Disability		Speech Disability		Learning Disability		Orthopedic Disability	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Under 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 to 4	2	2	6	4	0	1	0	0	1	0	1	0	0	0
5 to 9	6	4	6	5	1	1	2	2	5	2	4	3	2	1
10 to 14	9	4	6	2	2	4	1	0	3	1	2	0	3	1
15 to 19	7	4	6	5	3	1	1	3	3	3	2	0	1	2
20 to 24	2	6	3	7	1	0	1	0	0	3	0	0	3	3
25 to 29	3	6	3	3	1	1	0	0	0	2	0	2	0	2
30 to 34	2	6	6	5	4	0	0	3	0	2	0	1	10	3
35 to 39	7	5	6	4	0	0	2	2	0	0	0	1	7	1
40 to 44	1	10	3	2	1	4	2	0	0	0	0	0	6	6
45 to 49	13	6	3	3	0	0	2	0	0	0	0	0	3	5
50 to 54	10	7	2	3	0	0	1	1	1	0	0	0	10	7
55 to 59	10	11	0	5	0	1	2	4	0	1	0	0	3	4
60 to 64	5	4	6	0	0	1	0	0	0	0	0	0	1	1
65 to 69	2	0	0	0	0	0	0	0	0	0	0	0	2	0
70 to 74	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75 to 79	0	0	0	0	0	0	1	0	0	0	0	0	0	1
80 - 89	1	0	0	0	0	0	0	0	0	0	0	0	0	0
=> 90	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Total	81	75	57	48	13	14	15	15	13	14	9	7	51	37
Total	156		105		27		30		27		16		88	

Source: Philippine Statistics Authority, 2015

Map 26: Location Map of Differently Able Person in Alaminos, Laguna



2.5 Population Projections and Estimates

2.5.1 Population Projection by Barangay

In 2027, Alaminos is expected to reach 60,080 as to number of population using the growth rate of 1.92. Barangay San Benito is projected to be the most populated barangay in Alaminos with 7,905. Other barangays also showed an expected increase in the number of population. These increases will require additional facilities and personnel on institutions catering basic services.

The doubling time calculated for Alaminos is 36 years, which indicates that the population will double its population. Doubling time refers to the length of time which a particular population would double its size under a given growth rate. Low growth rate is a good indicator because there is a lot of time to accommodate large population, and plan to make adjustments to provide basic services and needs.

Table 49 - DE: Population Projection per Barangay in Alaminos, Laguna

Barangay	Population						
	2017	2018	2019	2020	2021	2022	2027
Urban							
Poblacion 1	3,496	3,560	3,626	3,692	3,760	3,828	4,192
Poblacion 2	2,913	2,966	3,020	3,076	3,132	3,189	3,492
Poblacion 3	2,779	2,830	2,881	2,934	2,988	3,042	3,331
Poblacion 4	3,519	3,584	3,649	3,716	3,784	3,853	4,219
San Agustin	5,895	6,009	6,126	6,245	6,366	6,489	7,144
San Benito	6,523	6,650	6,779	6,910	7,045	7,181	7,905
Sub-Total	25,125	25,599	26,081	26,573	27,075	27,582	30,283
Rural							
Del Carmen	1,195	1,218	1,241	1,265	1,290	1,315	1,448
Palma	2,609	2,660	2,712	2,764	2,818	2,872	3,162
San Andres	3,426	3,492	3,560	3,629	3,700	3,771	4,152
San Gregorio	3,443	3,510	3,578	3,648	3,719	3,791	4,173
San Ildefonso	2,930	2,987	3,045	3,104	3,164	3,226	3,551
San Juan	3,228	3,291	3,355	3,420	3,486	3,554	3,912
San Miguel	2,112	2,153	2,195	2,237	2,281	2,325	2,559
San Roque	2,322	2,367	2,413	2,459	2,507	2,556	2,813
Sta. Rosa	3,323	3,387	3,453	3,520	3,588	3,658	4,027
Sub-Total	37,007	37,725	38,457	39,203	39,963	40,739	44,846
Total	49,714	50,664	51,633	52,620	53,626	54,652	60,080

Source: Philippine Statistics Authority, 2015

2.5.2 Projected School-Age, Labor Force, and Dependent Populations

Among the three age groups (school going age (4-24 years old), labor force (15-64 years old), dependent age (0-14 and 65 above years), 15-64 years old appeared to be the highest in number. By year 2027, labor force population is expected to be 39,097, which will lead to more number of job seekers, thus, number of job offers and vacancies should also increase.

On the other hand, school going age population is expected to be 28,176. Increase in the number of school going population will require additional elementary and secondary schools if the existing schools cannot accommodate all of the students.

Meanwhile, dependent population is anticipated to be 20,983. This population is composed of young dependents age ranging from 0-14 years old and old dependents age ranging from 65 years old and above.

Table 50 - DE: Projected School Age, Labor Force and Dependent Population of Alaminos, Laguna

Projected Population							
2015	2017	2018	2019	2020	2021	2022	2027
School going Age (5-19)							
13,967	14,508	14,786	15,069	15,356	15,650	15,949	17,534
Labor Force (15-64)							
31,144	32,351	32,969	33,600	34,242	34,897	35,565	39,097
Dependent Age (0-14 and 65 above)							
16,715	17,363	17,695	18,033	18,378	18,729	19,087	20,983

Source: Philippine Statistics Authority, 2015

Out of 40,767 population who have access in education, 18,098 population comprised those who are in high school and finished high school level. The table below shows the other number of population who reached elementary having 12,239 in number, post-secondary with 805, and college level with 9,611. The presence of both public and private educational institutions help in municipality as it serves as knowledge provider to the people.

Table 51 - DE: Educational Attainment in Alaminos, Laguna

Highest Educational Attainment	Municipal						Provincial	
	Male		Female		Both Sexes		Both Sexes	
	No.	%	No.	%	No.	%	No.	%
Elementary	6,435	32	5,804	28	12,239	30	576	1
1 st - 4 th Grade	3,137	15	2,589	13	5,726	14	320	0
5 th - 7 th Grade	3,298	16	3,215	16	6,513	16	256	0
High School	9,262	45	8,836	43	18,098	44	30,240	36
Undergraduate	3,113	15	2,519	12	5,632	14	2,362	3
Graduate	6,149	30	6,317	31	12,466	31	27,878	34
Post-Secondary	402	2	403	2	805	2	5,607	7
Undergraduate	35	0	34	0	69	0	354	0
Graduate	367	2	369	2	736	2	5,253	6
College	4,273	21	5,338	26	9,611	24	46,511	56
Undergraduate	2,333	11	2,455	12	4,788	12	13,664	16
Academic Degree	1,940	10	2,883	14	4,823	12	32,847	40
Post Baccalaureate	11	0	10	0	21	0	105	0
Not Stated	5	0	9	0	14	0	17	0
Total	20,377	-	20,390	-	40,767	-	82,951	-

Source: Philippine Statistics Authority, 2015

2.6 Population Exposure and Risk Assessment to Hazards

Population exposure refers to the spatial location and number of potentially affected persons exposed to a particular hazard. In terms of flooding, only barangays San Gregorio and San Ildefonso have population exposed to flooding hazards, with 2.07 hectares and 0.10 hectares exposed, both with less than one percent of its population.

As for RIL, barangays San Benito, Santa Rosa and San Gregorio, have the highest percentage of its population exposed to RIL, while barangays San Andres, Poblacion 3, and Del Carmen are not exposed and susceptible to this type of hazard. Population is also exposed to soil erosion, particularly in barangays San Miguel and Palma, being the barangays with the highest percentage of population exposed.

On the other hand, there is no population exposed and susceptible to earthquake-induced landslide, while all barangays are affected by ground shaking. [Map 30: Population Flood Exposure Map of Alaminos, Laguna](#) to [Map 34](#) show the population exposed to various hazards.

Error! Reference source not found. summarizes the population exposure and the degree of impact to hazard events of Alaminos. A degree of impact value of one (1) means that the estimated direct and indirect impacts are low to negligible and can be felt within a short period of time only. All barangays exposed to flooding, ground shaking, and EIL have low degree of impact, while some barangays exposed to RIL and soil erosion have a combination of degree of impact values of two (2) and three (3). A DOI value of two (2) means that the direct and indirect impacts are moderate in terms of number of fatalities and injuries, while a value of three (3) means that the estimated direct and indirect impacts in terms of number of fatalities and injuries are disastrous.

Table 52 - DE: Population Hazard Exposure and Degree of Impact of Alaminos, Laguna

Barangay	Flooding		Rain-Induced Landslide		Ground shaking		Earthquake-Induced Landslide		Soil Erosion	
	Ex	DOI	Ex	DOI	Ex	DOI	Ex	DOI	Ex	DOI
Poblacion 1	0.00	1	0.09	1	0.20	1	0.00	1	0.00	1
Poblacion 2	0.00	1	0.24	1	0.36	1	0.00	1	0.26	1
Poblacion 3	0.00	1	0.00	1	0.42	1	0.00	1	0.16	1
Poblacion 4	0.00	1	0.40	1	0.22	1	0.00	1	0.00	1
San Agustin	0.00	1	3.20	1	0.14	1	0.00	1	0.01	1
San Benito	0.00	1	13.50	3	0.29	1	0.00	1	0.01	2
Del Carmen	0.00	1	0.00	1	0.78	1	0.00	1	0.00	1
Palma	0.00	1	5.76	2	0.36	1	0.00	1	0.36	3
San Andres	0.00	1	0.00	1	0.67	1	0.00	1	0.00	1
San Gregorio	0.013	1	13.84	3	0.34	1	0.00	1	0.05	3
San Ildefonso	0.001	1	2.35	1	0.28	1	0.00	1	0.03	2
San Juan	0.00	1	0.15	1	0.23	1	0.00	1	0.00	1
San Miguel	0.00	1	2.48	1	0.39	1	0.00	1	0.37	2
San Roque	0.00	1	0.79	1	0.28	1	0.00	1	0.00	1
Sta. Rosa	0.00	1	13.76	3	0.49	1	0.00	1	0.01	3

Source: CDRA, 2018

Ex – Percentage of Population Exposed, DOI – Degree of Impact

Table 53 below summarizes the vulnerability ratings of Alaminos in terms of its population and hazards. Vulnerability is the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. All urban barangays have low vulnerability ratings while urban barangays have

a combination of low and moderate vulnerability ratings. Barangays Palma, San Andres, San Gregorio, San Ildefonso, San Juan, and Sta. Rosa have moderate vulnerability ratings in terms of RIL and soil erosion.

Low vulnerability ratings in these areas can be attributed to low exposure to hazards of the population of Alaminos.

Table 53 - DE: Population Hazard Vulnerability Ratings of Alaminos, Laguna

Barangay	Flooding	Rain-Induced Landslide	Ground shaking	Earthquake-Induced Landslide	Soil Erosion
Poblacion 1	Low	Low	Low	Low	Low
Poblacion 2	Low	Low	Low	Low	Low
Poblacion 3	Low	Low	Low	Low	Low
Poblacion 4	Low	Low	Low	Low	Low
San Agustin	Low	Low	Low	Low	Low
San Benito	Low	Low	Low	Low	Low
Del Carmen	Low	Low	Low	Low	Low
Palma	Low	Moderate	Low	Low	Moderate
San Andres	Low	Moderate	Low	Low	Moderate
San Gregorio	Low	Moderate	Low	Low	Moderate
San Ildefonso	Low	Low	Low	Low	Moderate
San Juan	Low	Low	Low	Low	Moderate
San Miguel	Low	Low	Low	Low	Low
San Roque	Low	Low	Low	Low	Low
Sta. Rosa	Low	Moderate	Low	Low	Moderate

Source: CDRA, 2018

The specific population hazard vulnerability maps are referenced below: p. 194-198

1. [Map 35: Population Flood Vulnerability Map of Alaminos, Laguna](#)
2. [Map 36: Population RIL Vulnerability Map of Alaminos, Laguna](#)
3. [Map 37: Population Ground Shaking Vulnerability Map of Alaminos, Laguna](#)
4. [Map 38: Population EIL Vulnerability Map of Alaminos, Laguna](#)
5. [Map 39: Population Soil Erosion Vulnerability Map of Alaminos, Laguna](#)

3. SOCIAL SECTOR

A key task of the government is to improve the level of human development within the community. Social sector profiling and analysis with the support and assistance of the community and other stakeholders can pave the way for the local government to achieve the government's purpose. Determining and understanding the underlying causes and effects of existing conditions will generate proposals or interventions to support the government's desirable outcome. Moreover, it will ascertain the assistance and influence the community need to achieve the desired level of services delivered by the government. The social sector has several sub components namely: health and sanitation, social welfare and development, education, public order and safety, sports and recreation, and housing.

3.1 Education

3.1.1 Preparatory, Elementary and Secondary

Schools (by level, type, and facilities and condition)

Alaminos has 19 elementary schools, 13 of which are public while 6 are private schools. Generally, private school facilities are in good condition while some public-school facilities need repair (minor/major) or demolition.

Most public elementary schools do not have a laboratory and a shop, most libraries are in good condition except for San Ildefonso Elementary School's library, which needs demolition, seven (7) schools do not have a clinic, comfort rooms need a repair, and play grounds are in good condition.

There are six (6) high schools in Alaminos, three (3) public schools and three (3) private schools. As observed, public high schools either lack the facilities or, if existing, needs a repair.

Table 54 - SO: Schools by Level, Type, and Condition of Facilities, SY 2018

School	Barangay	Area (Ha)	Ownership	Facilities and Condition						
				La	S	Li	Cl	CR	P	Others
Elementary School (ES)										
San Juan ES	San Juan	0.495	Public	N	N	G	N	G	G	Feeding Area (G)
San RoqueES	San Roque	0.500	Public	N	N	N	/	N	G	N
Santa Rosa ES	Sta. Rosa	-	Public	N	N	N	N	P	G	N
Alaminos ES	Pob.3	2.824	Public	N	/	/	/	/	/	N
San Ildefonso ES	San Ildefonso	-	Public	N	N	D	/	C	D	Feeding Room (D)
San Andres ES	San Andres	-	Public	N	N	C	/	P	C	N
San Agustin ES	San Agustin	0.519	Public	N	N	G	N	P	N	N
San Benito ES	San Benito	0.627	Public	N	N	N	G	N	G	N
Del Carmen ES	Del Carmen	1.200	Public	N	N	N	N	/	N	N
Palma ES	Palma	0.500	Public	N	N	N	N	N	N	Canteen, E-room, Feeding Area
San Miguel ES	San Miguel	0.287	Public	N	N	N	N	N	N	N
DemasaES	San Gregorio	1.080	Public	N	G	G	G	G	G	Canteen (G)

Maranatha Christian Academy	Pob.2	0.210	Private	N	N	N	/	/	/	N
Palm Valley Multiple Intelligence School, Inc.	Pob. 3	3.000	Private	G	G	G	G	G	G	N
Marcelino Fule College	Pob.1	1.000	Private	/	N	/	/	N	/	N
Cresmat Learning Center	Pob. 1	0.123	Private	/	/	/	N	/	/	N
Reymarie	Pob. 1	-		N	N	G	N	/	N	Office (G), Canteen (G)
St. Paul Learning Academy	Pob.3	0.900	Private	/	/	/	/	/	/	N
High School (HS)										
Buenaventura E. Fandialan Memorial Integrated National HS	San Agustin	-	Public	N	N	N	N	P	/	Canteen(C), Speech Lab
Marcelino Fule Memorial College	Pob.1	1.000	Private	/	N	/	/	/	/	N
Palm Valley Multiple Intelligence School, Inc.	Pob. 3	3.000	Private	/	/	/	/	/	/	N
Alaminos Integrated National HS	Pob.2	0.600	Public	N	N	C	N	C	G	Canteen (G), HE Room (C)
St. Paul Learning Academy	Pob. 3	0.910	Private	/	/	/	/	/	/	N
Ibayiw Integrated National HS	San Miguel	-	Public	N	N	C	N	C	C	HE Room (C)

Source: MPDO, 2018

Ownership – Public/Private

Facilities: La – Lab, S – Shop, Li – Library, Cl – Clinic, CR - Comfort Room, P – Playground, O - Others

Condition: G – Good (Well Maintained), P – Poor (Needs Improvement), C – Critical (Needs Priority Action), D – For demolition, N – None, / – Present but condition is not indicated

Student-Teacher and Student-Classroom Ratios

The Department of Education (DepEd) targets 1:35 student-teacher and student-classroom ratio in elementary level and 1:40 for high school to maintain the quality of education that students can get.

Currently, public and private high schools, comply to the student-teacher ratio. For student-classroom ratio, Alaminos Integrated National High school has an average of 62 students in one (1) classroom which is way beyond the prescribed ratio. Ibayiw Integrated National High School, as well, is beyond the prescribed ratio, having 44 students in one (1) classroom. Overall, Alaminos does not need additional classrooms.

All private elementary schools are within the prescribed student-teacher and student classroom ratio. As for public elementary schools, four (4) out of twelve (12), have a student-teacher ratio which is beyond the prescribed 1:35. These schools include: Alaminos Elementary School, San Agustin Elementary School, San Benito Elementary School, Sta. Rosa Elementary School.

On the other hand, six (6) out of 12 elementary schools have exceeded the prescribed student-classroom ratio, these are: Alaminos Elementary School, Palma Elementary School, San Agustin Elementary School, San Andres Elementary School, Sta. Rosa Elementary School. However, generally, the number of classrooms for elementary students exceeded its requirements by 32 classrooms, if all students are equally distributed in all schools, which do not happen as some schools are more expensive than others.

Education must be provided for the youth but going beyond the standard ratio of student-teacher and student-classroom set by DepEd may compromise the quality of education, learning of the students, and the performance of teachers. There is a need, especially in public schools, to employ additional teachers and build classroom in order to meet the standard.

Table 55 - SO: Student-Teacher and Student-Classroom Ratio by Level, SY 2018

Name of School	Enrollment			No. of Teachers	No. of Classrooms	Student - Teacher Ratio	Student-Classroom Ratio
	M	F	Total				
High School (HS)							
Public							
Alaminos Integrated Nat'l HS	1,043	1,004	2,047	73	33	28:1	62:1
Buenaventura E. Fandialan Memorial Integrated Nat'l HS	144	119	263	16	12	16:1	22:1
Ibayiw Integrated National HS	373	338	711	28	16	25:1	44:1
Private							
Palm Valley International School	49	52	101	6	6	17:1	17:1
KCD Senior HS	160	75	235	7	6	34:1	39:1
St. Paul Learning School	nd	nd	0	nd	nd	nd	nd
Marcelino Fule Memorial College - HS	nd	nd	0	nd	nd	nd	nd
Elementary School (ES)							
Public							
Alaminos ES	1,090	938	2,029	55	53	37:1	38:1
Del Carmen ES	85	58	143	7	7	20:1	20:1
DemesaES	207	187	394	12	12	33:1	33:1
Palma ES	160	132	292	9	8	32:1	37:1
San Agustin ES	285	242	527	14	14	38:1	38:1
San Ildefonso ES	204	179	383	13	13	29:1	29:1
San Roque ES	130	106	236	7	7	34:1	34:1
San Andres ES	226	195	421	13	10	32:1	42:1
San Benito ES	313	278	591	15	15	39:1	39:1
San Miguel ES	166	164	330	13	13	25:1	25:1
San Juan ES	187	197	384	14	24	27:1	16:1
Santa Rosa ES	261	214	475	13	10	37:1	48:1

Name of School	Enrollment			No. of Teachers	No. of Classrooms	Student - Teacher Ratio	Student-Classroom Ratio
	M	F	Total				
Private							
Reymarie	24	17	41	9	9	5:1	5:1
Maranatha	14	34	48	3	3	16:1	16:1
Cresmat	125	130	255	12	13	21:1	20:1
Palm valley International School	67	62	129	10	10	13:1	13:1
St. Paul Learning School	38	84	122	6	6	20:1	20:1

Source: MPDO, 2018

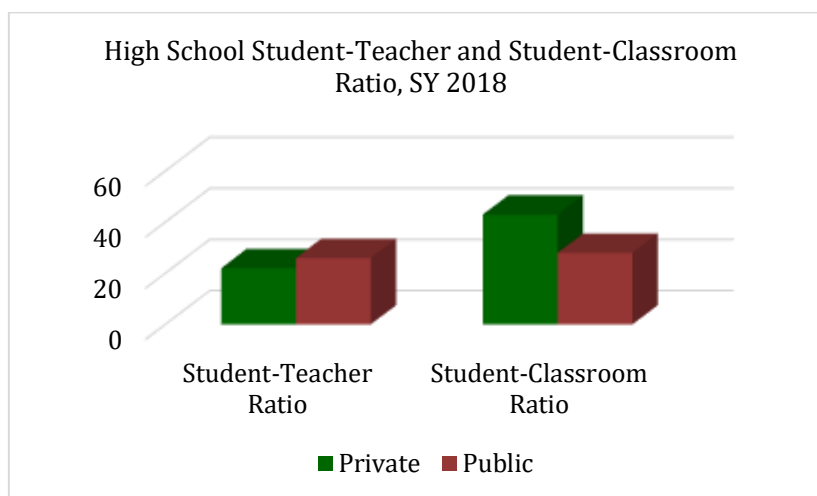


Figure 16 - SO: High School Student-Teacher and Student-Classroom Ratio, SY 2018

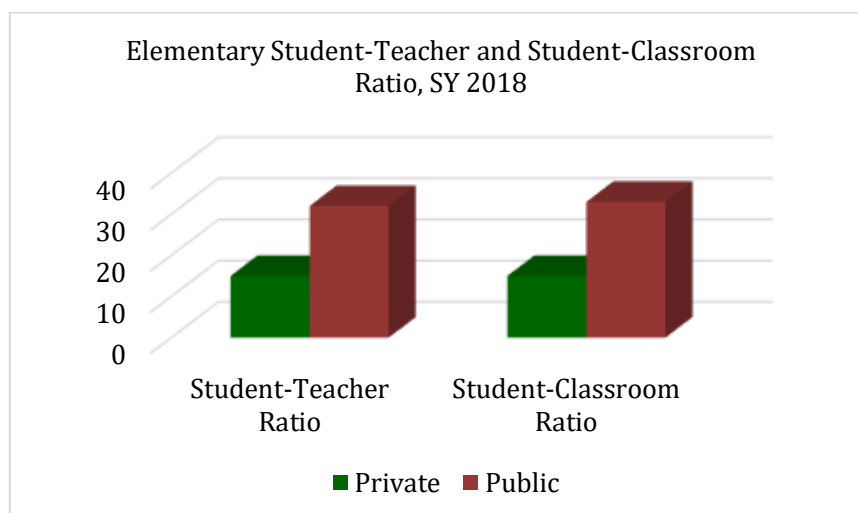


Figure 17 - SO: Elementary Student-Teacher and Student-Classroom Ratio, SY 2018

3.1.2 Tertiary and Vocational/Technical

Schools

Marcelino Fule Memorial College, a private school, is the only school that offers tertiary education in the municipality of Alaminos which offers courses such as Bachelor of Elementary Education, Bachelor of Secondary Education, and Bachelor of Science in Business Administration. They also offer certificate courses such as Bookkeeping, Computer Programming, and Associate in Hotel and Restaurant Management.

KCD Technical Institute, located along Maharlika Highway, is a technical/vocational school that is accredited by Technical Education and Skills Development Authority (TESDA). The institute offers programs such as welding, electrical installation and maintenance, mechatronics servicing, and dressmaking.

Table 56 shows that in KCD Technical Institute, there were more females enrolled compared to males in 2018.

Table 56 - SO: Tertiary and Vocational/Technical Schools by Type and Total, SY 2018

Name of School	Barangay	Area (ha)	Ownership	Total Enrollment	
				M	F
Tertiary					
Marcelino Fule Memorial College	Poblacion 1	0.551	Private	nd	nd
Vocational/Technical					
KCD Technical Institute	Poblacion 3	0.237	Private	423	443

Source: MPDO, 2018

3.1.3 Historical Enrollment by Level

Historical enrollment is used to monitor the number of students enrolled in the past and often compared to the current enrollment whether the number of students enrolled increased or decreased. It can be used as an indicator to determine if there is a need to provide more classrooms or teachers to accommodate the students. More often than not, it is presumed that student transfer causes an increase or decrease in enrollment.

The general trend for the historical enrollment in elementary schools from 2013 to 2017 is decreasing. Among all the elementary schools, the decrease is evident in Alaminos Elementary School, San Benito Elementary School, San Miguel Elementary School, Demesa Elementary School, and St. Paul Learning School. In the past two years, San Roque Elementary School and San Agustin Elementary School also had a decrease in their enrollment.

All high schools have a consistent increase in enrollment for the past five years except St. Paul Learning School.

Table 57 - SO: Historical Enrollment by Level for the Past Five School Years

School	History of Enrollment				
	2013	2014	2015	2016	2017
Elementary					
San Juan Elementary School	325	347	341	356	384
San Roque Elementary School	200	201	232	242	236
Santa Rosa Elementary School	550	534	509	471	475
Alaminos elementary School	2045	1827	1842	1895	1836
San Ildefonso Elementary School	312	339	338	369	383
San Andres Elementary School	419	407	410	406	421
San Agustin Elementary School	502	545	540	541	528
San Benito Elementary School	635	663	635	647	591
Del Carmen Elementary School	132	138	137	145	143
Palma Elementary School	229	246	238	288	292
San Miguel Elementary School	386	354	347	336	330
Demesa Elementary School	428	490	500	481	466
Maranatha Christian School	n/a	n/a	n/a	35	58
Palm Valley Multiple Intelligence School, Inc.	96	117	122	125	129
Marcelino Fule College	141	144	138	104	141
Cresmat Learning Center	145	153	170	198	203
Reymarie	60	60	47	47	52
St. Paul Learning School	386	426	295	134	122
Total	6931	6991	6841	6820	6790
High School					
Buenaventura E. Fandialan Memorial Integrated National High School	174	166	169	181	268
Marcelino Fule Memorial College	295	305	329	405	488
Palm Valley Multiple Intelligence School, Inc.	25	37	51	72	101
Alaminos Integrated National High School	1333	1388	1490	1748	1898
St. Paul Learning School	382	397	295	290	235
Total	2209	2293	2334	2696	2990

Source: MPDO, 2018

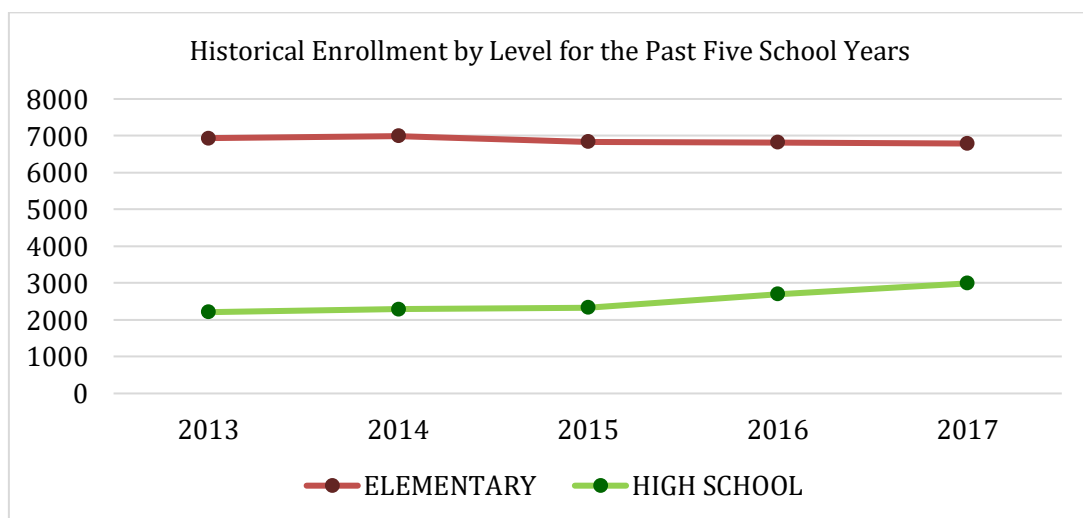


Figure 18 - SO: Historical Enrollment by Level for the Past Five Years

Out of School Youth and Alternative Learning System

DepEd defined Alternative Learning System (ALS) as a parallel learning system which provides educational option to youth (Except for the minimum age requirement of 11 years old for elementary dropouts, and 15 years old for high school dropouts, anyone can take ALS regardless of age) that does not have an access to formal education in schools in their communities. It includes non-formal/informal sources of knowledge and skills. There are two (2) major programs under ALS, the *Basic Literacy Program* and the *Continuing Education Program—Accreditation and Equivalency*, these programs flexible and can take place any time and any place, making it practical for the ALS students.

Barangays San Miguel and San Juan do not have any out of school youth. As for other barangays, the Municipal Social Welfare and Development Office are still identifying children who are not enrolled in school to offer ALS.

3.1.4 Historical Enrollment by Participation Rate

Enrollment Participation Rate (EPR) can be an indicator whether the elementary and high school enrollees are increasing or decreasing. As shown in **Table 58**, the EPR of elementary enrollees are beyond 100%, this means that all elementary school students in Alaminos are enrolled plus, there are enrollees in elementary schools of Alaminos who are from neighboring municipalities.

On the other hand, the table below shows the EPR of high schools. Through 2013 to 2017, the EPR is constantly increasing however, it is still below the target of a 100%. One reason for this is that, EPR does not take into account the existence of ALS, where some students may not be enrolled in a school but may be studying with the help of the ALS.

Table 58 - SO: Historical Enrollment Participation Rate for the Past Five Years

Year	Enrollment Participation Rate	
	Elementary	High School
2013	105.17	59.98
2014	106.08	62.26
2015	103.81	63.37
2016	103.49	73.20
2017	103.03	81.18

Source: MPDO, 2018

3.1.5 Projected Classroom and Teacher Requirements

Table 59 summarizes the current and projected classroom and teacher requirements of Alaminos. For classrooms, the minimum space required is 1.4 square meters. By 2023, the municipality shall be able to provide 138 classrooms for both elementary and secondary levels, and by 2028, 43 additional classrooms are needed to accommodate the increasing enrolments.

Given the broad base of the population pyramid of the municipality, by 2023, Alaminos will need 82 teachers for elementary level and one (1) for secondary level. By 2028, 30 additional teachers, provided that there 82 teachers were provided already, and 13 secondary teachers to meet the standard set by the Department of Education.

Table 59 - SO: Projected classroom and teacher requirements of Alaminos, Laguna

Level	Planning Period						
	2017	2019	2020	2021	2022	2022	2027
Projected Enrollment	14,508	14,786	15,069	15,356	15,650	15,949	17,534
Elementary	9,759	9,946	10,136	10,330	10,527	10,729	11,794
Secondary	4,749	4,840	4,933	5,026	5,123	5,220	5,740
Classroom							
Elementary	52	57	63	68	74	80	110
Secondary	46	48	50	53	55	58	71
Teacher							
Elementary	54	59	65	70	76	82	112
Secondary	-11	-9	-7	-4	-2	1	14

Source: Source: Philippine Statistics Authority, 2015; MPDO, 2018

3.1.6 Education Analysis Matrix

Presented in **Table 60** is the Education Analysis Matrix of Alaminos.

Table 60 - SO: Education Analysis Matrix

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Insufficient classroom facilities	Conducting classes outside a classroom may cause students to become distracted due to noise/excessive noise, affecting their performance and learning, overcrowded classroom decreases student's engagement and learning	Provision of additional buildings and classrooms
Student-teacher and student-classroom ratio is below the standard set	Overcrowded classrooms decrease student's engagement and learning, exhausting for teachers	Provide additional classrooms and employ additional teachers
Lack of health facilities in schools	Decreases access of students to basic health care and support especially for families who cannot afford	Coordinate with schools; requirement of a clinic in schools
Poor conditions of school buildings	May negatively affect students' performance and learning, increases vulnerability during disaster (e.g. groundshaking)	Annual inspection of buildings especially those in need to be repaired or demolished
Increase in high school enrollees	Lack of classrooms that will accommodate the additional enrollees	Provide additional classrooms and employ additional teachers for public high schools

3.2 Health and Sanitation

3.2.1 Facilities and Personnel

Alaminos' Rural Health Unit (RHU) is composed of a Main Health Center (MHC) and eight (8) Barangay Health Stations (BHS). The municipality has no existing private or public hospital, and the RHU located in barangay Poblacion III serves as the main health facility in the municipality and have a total of personnel including one (1) doctor, one (1) nurse, one (1) midwife, and a sanitary inspector. With a population of 49,714 in 2017, it is recommended that the municipality should at least have two (2) doctors, two (2) nurses, three (3) midwives, and three (3) sanitary inspector in order to cater the health services needed by the population (refer to [Table 61](#)).

The Department of Health (DOH) also recommends that the service zone for a BHS should be three (3) to five (5) kilometers depending on the ease of transport of both the health staff and the patient. The BHS is also expected to provide maternal and child care, immunizations, treatment of simple medical conditions, nutrition, family planning, sanitary health care, emergency treatment and health education. On the other hand, MHC is a requirement in every municipality regardless of its population.

Table 61 - SO: Health Facilities, Personnel, and Ownership of Alaminos, Laguna

Name of Health Facility	Barangay	Type Of Medical Health Center Facility	No. of Bed	No. of Doctor	No. of Nurse	No. of Mid-wife	No. Sanitary Inspector	Others	Total
<i>Alaminos RHU</i>	Pob.3	Main health center	2	1	1	1	1 (PROR)	NDP-EMTRACT UAL Nurse 3	7
<i>San Benito</i>	San Benito	Health Station	0	0	0		0	NDP Nurse 1	1
<i>San Agustin</i>	San Agustin	Health Station	0	0	0	1	0	0	1
<i>San Andres</i>	San Andres	Health Station	0	0	0	1	0	0	1
<i>San Juan</i>	San Juan	Health Station	0	0	0	0	0	NDP Nurse 1	1
<i>San Ildefonso</i>	San Ildefonso	Health Station	0	0	0	0	0	NDP Nurse 1	1
<i>San Miguel</i>	San Miguel	Health Station	0	0	0	0	0	NDP Nurse 1	1
<i>Sta. Rosa</i>	Sta. Rosa	Health Station	0	0	0	0	0	NDP Nurse 1	1
<i>San Gregorio</i>	San Gregorio	Health Station	0	0	0	1	0	0	1

Source: Rural Health Unit, 2018

*NDP Nurse Deployment Program of the DOH

3.2.2 Leading Causes of Morbidity

Morbidity refers to how often a disease occurs in a specific geographic area used in assessing health situation and services in the population.

Acute upper respiratory infections have been the leading cause of morbidity in the municipality from 2015 to 2017. The acute upper respiratory infection affects the nose, sinuses, pharynx, or the larynx and leads to common diseases such as sore throat, nasal obstruction, tonsillitis, pharyngitis, laryngitis, sinusitis, and common cold. In the past three years, acute upper respiratory infection shows an increasing trend totalling to 26,913 recorded cases. This particular infection affects both male and female of any age group but is more prevalent among children from one to four (1-4) years of age.

Other causes of morbidity include:

1. Disorder of eyelids, lacrimal system, and orbit –disease or medical condition that affects the eye
2. Urinary system diseases- a general category of diseases which involves the urinary tract
3. Early complications of trauma- injuries that may cause prolonged disability or death
4. Skin and subcutaneous tissue disorder – diseases such as dermatitis and eczema
5. Soft tissue disorders- problems with tendons, ligaments, etc.
6. Injuries to unspecified part of trunk, limb, or body region- damage to the body caused by external force
7. Non-infective enteritis and colitis- enteritis is the inflammation of the small intestine while colitis is the inflammation of the colon
8. Viral infections characterized by skin and mucous membrane lesions – skin damage through injury or disease such as wound, ulcer, lump, or bump
9. Hypertensive diseases – diseases caused by chronic elevated blood pressure

Table 62 - SO: Ten Leading Causes of Morbidity for The Past Three Years of Alaminos, Laguna

Causes	2015	2016	2017	Total
Acute Upper Respiratory Infections	7754	8314	10845	26913
Disorder of eyelids, lacrimal system, and orbit	6	923	495	1424
Other diseases of urinary system	475	507	407	1389
Certain early complications of trauma	43s9	397	460	1296
Other disorder of the skin and subcutaneous tissue	578	153	498	1229
Soft tissue disorders	261	349	559	1169
Injuries to unspecified part of trunk, limb, or body region	23	553	553	1129
Non-infective enteritis and colitis	409	383	291	1083
Viral infections characterized by skin and mucous membrane lesions	203	446	324	973
Hypertensive diseases	294	402	178	874

Source: Rural Health Unit, 2018

3.2.3 Leading Causes of Mortality

Mortality is defined as the occurrence of deaths in a population. According to the municipality’s rural health unit, the top cause of mortality in the past three years is the “Different forms of heart disease” (these includes coronary artery disease, angina, heart attack, etc.) with 79 reported cases (see [Table 63](#)). In the Philippines, other forms of heart disease are ranked as seventh in the top causes of death among Filipinos in 2016. This cause of mortality is more common to males than females ages 50 years old and above.

Other causes of mortality include:

1. General symptoms and signs
2. Other diseases of the respiratory system- may include asthma, bronchitis, chronic obstructive pulmonary disease, etc.
3. Malignant neoplasms- cancerous tumor
4. Renal failure- kidney failure, last stage of chronic kidney disease
5. Ischaemic heart diseases- narrowed arteries causing less blood and oxygen in the heart
6. Influenza and Pneumonia- influenza is a highly contagious infection caused by influenza virus while pneumonia is inflammation of the lungs
7. Cerebrovascular diseases- includes stroke, aneurysms, and vascular malformations
8. Symptoms and signs involving the circulatory and respiratory
9. Other bacterial diseases- may include tuberculosis, meningitis, STDs, etc.

Table 63 - SO: Ten Leading Causes of Mortality for The Past Three Years of Alaminos, Laguna

Causes	2015	2016	2017	Total
Different forms of heart disease	21	35	23	79
General symptoms and signs	3	14	35	52
Other diseases of the respiratory system	10	6	13	29
Malignant neoplasms	14	5	8	27
Renal failure	11	4	11	26
Ischaemic heart diseases	9	5	11	25
Influenza and Pneumonia	7	5	12	24
Cerebrovascular diseases	1	8	13	22
Symptoms and signs involving the circulatory and respiratory	14	1	6	21
Other bacterial diseases	6	5	3	14

Source: Rural Health Unit, 2018

3.2.4 Nutritional Status

According to Gomez classification, protein-energy malnutrition is classified into three (3) degrees. The classification is based on the percentage of expected weight for age where, over 90 percent is normal, 76-90 percent is first(1st) degree malnutrition (mild malnutrition), 61-75 percent is second (2nd) degree malnutrition (moderate malnutrition), and less than 60 percent is third (3rd) degree malnutrition (severe malnutrition).

Table 64 below shows that there is a steady decrease in cases malnutrition in Alaminos. In 2017, only 3.54 percent of the total number of children ages 0 to 15 are considered malnourished, if this is compared with 3.57 percent and 5.14 percent malnourished children in 2016 and 2015, respectively, the percentage of children with malnourishment in 2017 is lower.

The Barangay Nutrition Scholars (BNS) give consistent efforts to eradicate the incidence of malnourishment in the municipality by monitoring the weight of the children, conducting feeding program, and promotion of good nutrition.

Table 64 - SO: Malnourished Children for the Past Three Years of Alaminos, Laguna

Degree Of Malnutrition	2015		2016		2017	
	Number	% of Children	Number	% of Children	Number	% of Children
Underweight	208	4.49	136	3.09	138	3.17
Severely Underweight	30	0.65	21	0.47	16	0.36
TOTAL	238	5.14	157	3.57	154	3.54
Total No. of Children (0-15 years)	4,630	-	4,395	-	4,343	-

Source: MSWDO, MNAO, 2018

3.2.5 Projected Requirement for Barangay Health Facilities

Based on the standard set in Housing and Land Use Regulatory Board (HLURB) guidelines, the ratio of population to a barangay health facility should be 5000:1. Barangays San Agustin and San Benito do not meet the required number of barangay facility (refer to Table 65).

The Municipal Health Center is located in barangay Poblacion III. It can accommodate patients in the Poblacion area, as well as the patients from other barangays which has no barangay health station, these includes barangays Poblacion I, Poblacion II, Poblacion IV, Palma, Del Carmen, San Roque.

Table 65 - SO: Projected Requirements for Barangay Health Facilities, Year 2018 of Alaminos, Laguna

Barangay	2018	2019	2020	2021	2022	2027
Poblacion 1	0	0	0	0	0	0
Poblacion 2	0	0	0	0	0	0
Poblacion 3	0	0	0	0	0	0
Poblacion 4	0	0	0	0	0	0
Del Carmen	0	0	0	0	0	0
Palma	0	0	0	0	0	0
San Agustin	1	1	1	1	1	1
San Andres	0	0	0	0	0	0
San Benito	1	1	1	1	1	1
San Gregorio	0	0	0	0	0	0
San Ildefonso	0	0	0	0	0	0
San Juan	0	0	0	0	0	0
San Miguel	0	0	0	0	0	0
San Roque	0	0	0	0	0	0
Sta. Rosa	0	0	0	0	0	0

Source: Rural Health Unit; MPDO, 2018

3.2.6 Inventory of Cemeteries and Memorial Parks

Alaminos has four (4) cemeteries and memorial parks. The privately-owned memorial park includes: Alaminos Memorial Park, Inc., Roloma Memorial Park Corp., and Mulberry Garden Memorial Park, there is only one government-owned cemetery which is Alaminos Public Cemetery. The Mulberry Memorial Garden is still under construction. Although there are available plots, these are privately-owned which means that these plots are expensive and some may not be able to afford to buy it (refer to Table 66). Alaminos also has a low death rate which may signify that the population is living in a safe and healthy environment and the provision of good healthcare services. Although the CDR is relatively low, there is still a need for an expansion or addition of a public cemetery in the municipality because some families may not be able to afford a burial of a deceased relative in a private cemetery.

Table 66 - SO: Cemeteries and Memorial Parks in Alaminos, Laguna

Name	Barangay	Ownership	Area (Ha)	Capacity*	No. of Plots
Alaminos Memorial Park Inc.	Poblacion 2	Private	3.5	n.d	n.d.
Alaminos Public Cemetery	Poblacion 2	Public	1.6	n.d.	n.d.
Roloma Memorial Park Corp.	Poblacion 2	Private	3.0	9,518	9,518
Mulberry Garden Memorial Park	San Juan	Private	10.49	19,011	15,095

Source: MPDC, 2018

Capacity – Number of Burial Plots, Number of Columbarium/Ossuary, Niches

3.2.7 Household Distribution by Type of Toilet Facility

Generally, 90.7% of the households in the municipality have access with sanitary toilet. Among the 10,137 households, only 843 households do not have sanitary toilet, most of them belong to barangay Del Carmen.

Table 67 - SO: Household Distribution by Type of Toilet Facility in Alaminos, Laguna

Barangay	No. of Household	No. of household without Sanitary Toilet	No. of household with Sanitary Toilet	Percentage of household with Sanitary Toilet
Poblacion 1	550	38	512	93%
Poblacion 2	440	8	432	98%
Poblacion 3	496	40	456	92%
Poblacion 4	527	13	514	96%
Del Carmen	281	94	187	67%
Palma	623	104	519	83%
San Agustin	805	50	755	94%
San Andres	887	103	784	88%
San Benita	1,415	69	1346	95%
San Gregorio	855	52	793	93%
San Ildefonso	711	85	626	88%
San Juan	646	8	638	99%
San Miguel	428	56	372	87%
San Roque	469	97	382	81%
Sta. Rosa	1,004	26	978	97%
Total	10,137	843	9294	90.7%

Source: Rural Health Unit, 2017

3.2.8 Solid Waste and Wastewater Facilities

Solid Waste Generation and Treatment

Among the different sources of waste generation, most of the volume of the waste generated comes from the domestic source, which is at 21, 586.39 kilograms per day. According to the Solid Waste Management Plan (SWMP)2015-2024, Alaminos practices recycling and vermi-composting. Due to lack of a land fill, the existing schedule of waste collection (refer to ANNEX – Annex A, page 166 is not strictly followed. The municipality has no sanitary land fill and the final disposal site is in San Pedro, Laguna.

Table 68 - SO: Solid Waste Generation by Source in Alaminos, Laguna

Source	Types of Waste	Volume of Solid Waste Generated (kgs/day)	Disposal Methods/ Treatment Facilities
Domestic	Biodegradable, Recyclable, Residual, Special, Others	21,586.39	Collection, Recycling, Vermi Composting
Commercial	Biodegradable, Recyclable, Residual, Special, Others	501.57	Collection, Recycling, Vermi Composting
Industrial	Biodegradable, and Recyclable	6.23	Collection, Recycling, Vermi Composting
Institutional	Biodegradable, Recyclable, Residual, Special, Others	124.95	Collection, Recycling, Vermi Composting
Others	Biodegradable, Recyclable, Residual, Special, Others	51.28	Collection, Recycling, Vermi Composting

Source: Solid Waste Management Plan, 2013

Materials Recovery Facilities

Alaminos has several MRFs, and the capacity depends upon the waste generated. The Solid Waste Management Plan reported that there will be increase of waste generation due to the increase in population. By 2024, it is projected to have a 28,937.66 kilogram of daily waste generated based on population. Therefore, there is a need to expand existing and establish new MRFs to reduce the pollution, bad odor and contamination.

3.2.9 Health and Sanitation Analysis Matrix

Table 69 - SO: Health and Sanitation Analysis Matrix

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Increasing prevalence of acute upper respiratory infection	Affects the development of human capital in the municipality	Coordinate with Municipal Health Center to identify causes of AURI and how it can be reduced Provision of health equipment and facilities
Prevalence of second-degree malnourished children	Affects the development of human capital in the municipality, affects the children's performance, learning and health	Provision of affordable health care to marginalized locals Programs to combat malnutrition
Some health units are not functional	Additional cost for families who need to go to another health unit, decreases access to basic health care	Employ health workers and barangay nutrition scholars who can operate said barangay health units
Cemetery easements are not implemented	Poses threat to health-related issues	Monitor existing cemeteries and implement proper easements for cemeteries to avoid health risks
Flooded cemetery	Delays burials, poses threat to health-related issues (unsanitary), damages properties (coffins)	Improve drainage system in cemeteries

3.3 Housing

Housing is considered as one of the basic social services that the municipality should provide to the people especially those who cannot avail housing services. Land and facilities with good condition are some of the requirements of a good quality housing.

3.3.1 Housing Situation

The standard ratio between household and housing unit is 1:1. This means that a household occupies one (1) housing unit. The average household size occupying a housing unit is five (5), which implies that an average household size is composed of the parents and three (3) offspring.

There has been an increase of 4,238 housing population from 2010 to 2015. Alaminos has a ratio of household to occupied housing unit in 2015 is 1.01:1, this means that the municipality meets the standard ratio. However, as for the household population to occupied housing unit, the ratio is 4.33:1. This is an indication that multiple households occupy a single household unit.

Table 70 - SO: Housing Situation in the Past Three Censal Years in Alaminos, Laguna

Description	2007	2010	2015
Households (HH)	9,019	9,611	11,103
Household Population	40,377	43,510	47,859
Occupied Housing Units (HU)	9,012	9,497	11,025
Ratio of HH to Occupied HU	1:1	1.01:1	1.01:1
Ratio of HH Population to Occupied HU	4.48:1	4.58:1	4.33:1

Source: Philippine Statistics Authority, 2015

3.3.2 Housing Backlog

There are 343 housing backlogs in the municipality in 2015. It should be noted that 75.80 percent of the housing backlogs are from doubled up households and unacceptable housing units.

Table 71 - SO: Housing backlogs in Alaminos, Laguna

Backlog	2015	
	No.	%
Doubled-Up Households	78	37.61
Unacceptable Housing Units	131	38.19
Makeshift/ Salvage/ Improvised HU	73	21.28
Others	10	2.92
Total	292	100

Source: Philippine Statistics Authority, 2015

3.3.3 Informal Settlements

Informal settlement is defined as an area where housing units have been constructed on land not owned by the occupants. More often than not, informal settlements are made up of light materials, which are susceptible to fire, especially since houses are closely spaced and have narrow roads or pathways, and other disasters. Occupants in informal settlements are often perceived as poor or underprivileged. Alaminos has 249 identified informant settlers in the municipality, 136 of which belong to the urban barangays, and 133 belong to the rural barangays. Barangays Poblacion III, Del Carmen, San Ildefonso, San Juan, and San Roque do not have an informant settler.

Table SO 19: Informal Settlers in Alaminos, Laguna

Barangay	Informal Settlers
Poblacion 1	41
Poblacion 2	27
Poblacion 3	0
Poblacion 4	30
San Benito	16
San Agustin	22
Palma	34
Del Carmen	0
San Andres	18
San Gregorio	5
San Ildefonso	0

Barangay	Informal Settlers
San Juan	0
San Miguel	34
San Roque	0
Santa Rosa	22
Total	249

Source: MPDO, 2018

3.3.4 Inventory of Residential Subdivisions and Condominiums

There are nine (9) identified subdivisions in the municipality, four (5) of them are considered socialized housing. These are, Lynville Homes Alaminos, Newborn Village, Sitio Maligaya, La Trenchera de Felimon Masa and Bella Vita. A total of 2,067 dwelling units are available as part of the socialized housing in these subdivisions. Those who are identified as socio-economically disadvantaged can avail these socialized housing units.

Table 72 - SO: Inventory of Residential Subdivisions in Alaminos, Laguna

Name	Location	Area (Ha)	Type of Unit	Saleable Lots	Developer
Villa Adelina XI	Brgy. San Agustin	6.5719	BP-220	312 lots	Fernando Realty Development Corp.
Nuestra Senora Del Pilar Village	Poblacion II	4.9215	BP-220	238 lots	Jaime A. Calderon Real Estate Developer
Lynville Homes Alaminos	Brgy. San Agustin	1.7457	BP-220	150 units	Citihomes Realty Inc.
Villa Rosas I	Brgy. San Benito	5.790	BP-220	25 lots	RamirR.Saspa Construction Firm & Realty
Villa Rosas II	Brgy. San Roque	6.007	BP-220	27 lots	RamirR.Saspa Construction Firm & Realty
Newborn Village	Brgy. San Benito	11.208	CMP under Social Housing Financial Corp.	150 lots	Nilollao and Retitallao
Sitio Maligaya	San Roque	1.17	CMP under Social Housing Financial Corp	185 lots	HOA
Bella Vita	San Andres	11.396	CMP under Social Housing Financial Corp.	1582 Units	Bella Vita Land Corp
La Trenchera de Felimon Masa	San Juan	2.4	Group Land Acquisition	320 lots	HOA

Source: MPDO, 2018

However, Table 73 shows group of Homeowners Associations living in PNR Non-Core Properties registered in the Provincial Urban Development and Housing Office.

Table 73 - SO: Inventory of Residential Subdivisions in Alaminos, Laguna

#	NAME OF HOA	REG. NO.	LOCATION	DATE REG.	CA PRES.	NO. OF MEMBERS	PROGRAM/ PROJECT
1	PALITA I PNR HOA, INC.	HLURB Reg. No. 09372-R4A-04-06	Purok I, Brgy.San Benito, Alam.Lag	06/08/04	Gerardo Mista	141	CLASP ON-Site
2	PALITA II, PNR HOA, INC.	HLURB Reg. No. 09378-R4A-04-06	Purok II, Brgy.San Benito, Alam.Lag	06/08/04	Eva Bayais, OIC	101	CLASP ON-Site
3	PALITA III, PNR HOA, INC.	HLURB Reg. No. 09373-R4A-04-06	Purok III, Brgy.San Benito,Alam.Lag.	06/08/04	Isabelita Marajas	165	CLASP ON-Site
4	ANTIPOLO I PNR HOA,INC.	HLURB Reg. No. 09374-R4A-04-06	Purok I, Brgy.San Agustin,Alam.Lag	06/08/04	Gregorio L. Berto	167	CLASP ON-Site
5	ANTIPOLO II PNR HOA,INC.	HLURB Reg. No. 09381-R4A-04-06	Purok II, Brgy.San Agustin,Alam.Lag	06/08/04	Editha Pineda	119	CLASP ON-Site
6	ANTIPOLO III PNR HOA,INC.	HLURB Reg. No. 09383-R4A-04-06	Purok II, Brgy.San Agustin,Alam.Lag	06/08/04	Darwin Delantar	165	CLASP ON-Site
7	MASAGANA I PNR HOA,INC.	HLURB Reg. No. 14118	Purok I, Brgy. Pob. IV, Alam.	03/27/07	Elma Amongo	147	CLASP ON-Site
8	MASAGANA II PNR HOA,INC.	HLURB Reg. No. 14121	Purok II, Brgy. Pob. IV, Alam.	07/23/09	Mila Lidan	215	CLASP ON-Site
9	BAGONG SILANG PNR HOA,INC.	HLURB Reg. No. 09379-R4A-04-06	Brgy. Pob. I, Alam.	06/08/04	LorenzO Valido, Jr.	190	CLASP ON-Site
10	PAG-ASA I PNR HOA, INC.	HLURB Reg. No. 09380-R4A-04-06	Purok I, Brgy. San Juan, Alam.	06/08/04	Constancia Linatoc	131	CLASP ON-Site
11	S.J. MARENOSA II PNR HOA, INC.	HLURB Reg. No. 09375-R4A-04-06	Purok II, Brgy. San Juan, Alam.	06/08/04	Norma M. Villanueva	120	CLASP ON-Site

12	S.J. MARENOSA III PNR HOA, INC	HLURB Reg. No. 09371- R4A-04-06	Purok III, Brgy. San Juan, Alam.	06/08/04	Ruben Pujanes	97	CLASP ON- Site
13	S.J. MARENOSA IV PNR HOA, INC	HLURB Reg. No. 09381- R4A-04-06	Purok IV, Brgy. San Juan, Alam.	06/08/04	Constancia Linatoc	54	CLASP ON- Site
14	SANDERS I PNR HOA, INC.	HLURB Reg. No. 09376- R4A-04-06	Purok I, Brgy. San Andres, Aam.	06/08/04	Teresita Tolentino	132	CLASP ON- Site
15	SANDERS II PNR HOA, INC.	HLURB Reg. No. 09370- R4A-04-06	Purok II, Brgy. San Andres, Aam.	06/08/04	Vivian Malabayoc	102	CLASP ON- Site
16	SANDERS III PNR HOA, INC.	HLURB Reg. No. 09377- R4A-04-06	Purok III, Brgy. San Andres, Aam.	06/08/04	Edgar Abellada	66	CLASP ON- Site

PUDHO, 2019

3.3.5 Resettlement Areas

There are no resettlement areas in the municipality, however, residents that are situated in hazard prone areas, as well as the informal settlements, need to be relocated.

3.3.6 Housing Facilities and Utilities

The availability of basic services such as water, electricity and sanitation facilities are measures of development since they determine the quality of life of households and communities. These facilities are provided and present in Alaminos.

Water levels 1, 2, and 3 are available in the municipality, while Manila Electric Company (MERALCO) is the main service provider of electricity. In 2015, there are 9,741 households served with water supply, ranging from level 1 to 2 type water. The remaining 12.67 percent households do not have water supply connections. In terms of electricity, in 2017, MERALCO reported that 94.69 percent of all households have electricity, the remaining 5.31 percent of households scattered all over the municipality still need electricity. No data is available to determine the number of water-sealed toilets in the municipality. **Table 74** summarizes the number of household served with water and electricity in Alaminos.

Table 74 - SO: Housing facilities and utilities in Alaminos, Laguna

Utilities	Number of households			
	Served	Percentage	Unserved	Percentage
Water Supply	9,741	87.33	1,413	12.67
Electricity	10,763	94.69	604	5.31

Source: PSA, 2015, and MERALCO, 2017

3.3.7 Occupied Housing Units and Lots by Tenure Status

A total of 7,194 residents of Alaminos own their house and lots while residents who own their houses but not the lot (with owner's consent) is 2,260 households.

Those who belong to the categories *own house rent-free lot without consent of owner* and *rent-free house and lot without consent of owner* can be considered as informal settlers since they are occupying lots without the consent of its owner.

Table 75 - SO: Occupied Housing Units and Lots by Tenure Status in Alaminos, Laguna

Tenure Status of the Housing Unit and Lot	Number of Households
Own or owner like possession of house and lot	7,194
Rent house/room including lot	882
Own house rent lot	106
Own house rent-free lot with consent of <i>owner</i>	2,260
Own house rent-free lot without consent of owner	214
Rent-free house and lot with consent of owner	429
Rent-free house and lot without consent of owner	69
Not Applicable	-
Not Reported	-
Total	11,154

Source: Philippine Statistics Authority, 2015

3.3.8 Current and Projected Housing Need

Table 76 shows the current and projected housing needs of Alaminos from 2019 to 2028. Using the computations in the HLURB guidelines, the following housing requirements were calculated. By 2023, there are 88 housing backlogs and by 2028, there will be no housing backlogs, provided that the municipality will meet the demand of its people.

Table 76 - SO: Current and Projected Housing Need

Housing Backlogs	Present Needs (2015)	Future Housing Needs					
		2018	2020	2021	2022	2022	2027
Housing Backlog	292	205	176	146	117	88	0
Household Formation	-	652	878	1,108	1,342	1,581	2,846

Source: MPDO Computations, 2018, PSA, 2015

3.3.9 Housing Analysis Matrix

Table 77 presents the housing analysis in Alaminos.

Table 77 - SO: Housing Analysis Matrix in Alaminos, Laguna

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Presence of informal settlements	Limited access to social services, increases vulnerability specially during disasters	Socialized housing
Presence of houses made of light materials	Light materials are easily burned therefore, fire is spread faster	Provision of financial assistance for home improvement
No shelter plan and absence of local housing policy and housing board in Alaminos	Difficulty in implementing systematic programs, standards and other laws related to housing	Formulate a committee to create a Local Shelter Plan to identify housing needs of the municipality

3.4. Social Welfare Services

3.4.1 Social Welfare Facilities and Services Offered

There are three (3) identified types of facilities in Alaminos: 1) Day Care Centers, each barangay has their own and are reported to have an acceptable and serviceable condition; 2) Senior Citizens Office which provide services such as Senior Citizen ID, purchase booklet for discounts, and financial assistance to persons over the age of 65; and 3) Differently Abled Persons (DAP) or Persons With Disabilities (PWD) office, which caters the social needs of DAP or PWD such as educational assistance, financial assistance, provision of DAP or PWD IDs, and psychosocial and intervention program. Both the senior citizens' office and DAP or PWD office are located in the municipal hall of Alaminos (refer to [Table 78](#)).

According to Republic Act No 6972 – Day Care Center Law, every barangay shall have a day care center. On the otherhand, Republic Act No. 7277 – Magna Carta for Disabled Persons and Republic Act No, 7432 – Senior Citizen Act require every municipality to have at least one (1) DAP or PWD office and Senior Citizen Center. [Table 78](#) shows the number of facilities in the municipality. Alaminos meets the minimum required number of day care, senior citizen and DAP or PWD facilities.

Table 78 - SO: Social Welfare Facilities and Condition of Alaminos, Laguna

Barangay	Facilities		
	Day Care	Senior Citizen	DAP
Urban			
Poblacion 1	1	0	0
Poblacion 2	1	0	0
Poblacion 3	1	1	1
Poblacion 4	1	0	0
San Benito	1	0	0
San Agustin	1	0	0
Rural			
Palma	2	0	0

Barangay	Facilities		
	Day Care	Senior Citizen	DAP
Del Carmen	1	0	0
San Andres	1	0	0
San Gregorio	1	0	0
San Ildefonso	1	0	0
San Juan	1	0	0
San Miguel	1	0	0
San Roque	1	0	0
Santa Rosa	1	0	0
Total	16	1	1

Source: MSWDO, 2017

3.4.2 Historical Number of Population Served by Type of Service and Clientele System

The Department of Social Welfare and Development (DSWD) offers social welfare policies and programs provided to people who belong to the poor, the women's sector, the youth, differently-abled, elderly, and victims of natural and man-made calamities. Programs of the DSWD includes: PantawidPamilyang Pilipino Program (4Ps) which is the conditional cash transfer assistance, Kalahi-CIDSS which is a poverty alleviation program, they also offer sustainable livelihood program, adoption and foster care, *Listahanan* which is a targeting system for poverty reduction, social pension, supplementary feeding program, gender and development, disaster response operations, and protective services program.

As a satellite office, the Municipal Social Welfare Development Office (MSWDO) extends the service of the DSWD to the municipality of Alaminos. **Table 79** below shows that in 2017, a lot of social welfare services were provided. Most of these services are focused to the child and youth clientele. Services provided to the child and youth are related to nutrition: food supplement distribution, supplementary feeding program, and measurement activity for the pre-school children.

The increase in the number of social welfare projects can be attributed to the effort of the municipality to improve the health, and to provide educational assistance to the child and youth sector, additional services to women, educational, financial, and material assistance to DAP or PWD, and financial assistance to the elderly.

However out of the 449 DAPs or PWDs in the municipality, only 352 are provided with DAP or PWD IDs. Those who have yet to have their DAP or PWD ID may not be able to avail discounts and perks stated in the Magna Carta of Disabled Persons. On the other hand, services for the Senior citizen include Burial and Financial Assistance, Senior Citizen IDs, and 1500 php quarterly pension—this is the counterpart of the Social Pension program of DSWD, instead of giving the five hundred pesos (500php) on a monthly basis, the MSWDO gives the stipend on a quarterly basis.

Table 79 - SO: Number of Population Served by Type of Service and Clientele System in Alaminos Laguna

Services	Previous Years	
	2016	2017
Child & Youth Welfare		
Day Care Children Program	-	854

Services	Previous Years	
	2016	2017
Supplementary Feeding Program	801	854
Educational Assistance for Children in Conflict with Law (CICL)	50	50
Protective Custody for CICL and Children at Risk (CAR)	10	14
Other Support Programs and Services for Pre-identified CICL	-	30
Food Supplement Distribution	-	2834
Programs and Service for the Malnourished Children	-	154
Measurement Activity for Pre-school Children	-	622 (Stunted); 144 (Wasted)
Book Allowance	-	82
Educational Assistance	-	100
Case Work Intervention for Children in Difficult Circumstance in their families	-	15
Technical Assistance to OJT and Practicumers	-	10
Special Program for the Employment of Students (SPES)		100 Local SPES; 54 Provincial SPES
SPES Babies	-	48
Women Welfare		
R.A 9262 Intervention and Counselling Program	10	11
Cash, Food, and Learning Assistance for VAWC victims	-	10
Self-Employment Assistant – Kaunlaran (SEA-K)	-	2
Persons W/ Disabilities		
Educational Assistance	-	74
Financial Assistance	-	26
Material Assistance	-	16
DAP IDs	254	98
Psychosocial and Intervention Program	-	100
Older Persons Welfare		
Financial Assistance	-	40
Burial Assistance	-	77
IDs, Purchase Slip Booklet for Medicines and Basic Commodities	-	843
Pension	560	420 (enrolled additional)
Family & Community Welfare		
Pre-marriage counselling Seminar	54	234
Single Parent	107	275
Pantawid Beneficiaries	-	744
Parent Effectiveness Service	-	1,015
Livelihood Program for OFW and their families	-	10
Aid in Individual in Crisis Situation (AICS)	101	57
Issuance of Social Case Study Report (SCSR)	-	2040

Source: MSWDO, 2015

3.4.3 Social Welfare Analysis Matrix

Table 80 - SO: Social Welfare Analysis Matrix

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Inadequate social welfare facilities	Limited accessibility of services	Identify and provide social welfare facilities that are urgently needed
Poverty Incidence	Compromised living condition of locals	Provision of indigent support fund Participate in DSWD program Conditional Cash Transfer (CCT)

3.5 Protective Services

Protective services include securing the safety, peace and order in the municipality with the help of the police and the fire fighters.

3.5.1 Facilities and Equipment

Both the police station and fire station are located in barangay Poblacion 3, near the municipal hall. Only eight (8) out of the 15 barangays are able to provide an inventory of their equipment. These barangays include barangays San Juan, San Agustin, Del Carmen, Sta. Rosa, San Roque, San Benito, San Miguel, and Palma. Each barangay's protective service is categorized into traffic, peace and order, disaster/emergency, and auxiliary services (refer to [Table 81](#)).

Table 81 - SO: Protective Services Equipment/Facilities and its Condition

Barangay	Type of Services	Number of Volunteer/Staff	Facilities/Equipment	Physical Condition of Facilities/Equipment
San Juan	Traffic	10	2-way radio (10) Flashlights, Raincoat, Rubber boots, Uniform	Good Condition
	Peace and Order	15	Rescue Vehicle, 2-way radio (13) Flashlights, Rain Coat, Rubber boots, Uniform, Stretcher, Fire Extinguisher, Spine board	Good Condition
	Disaster	20	Rescue vehicle, 2-way radio (18) Flashlights, Rain Coat, Rubber boots, Uniform, Stretcher, Fire Extinguisher, Spine board	Good Condition
San Agustin	Traffic	20	Uniform, 2-way radio, whistle, Hand held sign	Needs replacement, Needs repairs, insufficient

	Peace and Order	20	Uniform, 2-way Radio, Barangay Patrol/ Tricycle, Motorcycle, Flashlight, Melee Club (batuta), Raincoats, Rubber Boots, CCTV Camera	Needs replacement, Additional, Lacking
	Emergency	20	Ambulance, Uniform, 2-way Radio, Barangay Patrol/ Tricycle, Flashlight, Melee Club (batuta), Raincoats, rubber boots, Emergency response equipment (stretcher, Neck Braces)	Lacking, Absent or none, needs repair/maintenance, brand new
Del Carmen	Traffic	5	2-Way radio, uniform	Lacking Absent in some Barangay
	Peace and Order	21	Flashlight, 2way radio, Uniform & CCTV CAMERA	Lacking Absent in some Barangay, need replacement
	Disaster	5	Emergency response equipment (stretcher, Neck braces, Etc.), Uniform & 2-way radio	Lacking Absent in some barangay, needs repair/ maintenance
Sta. Rosa	Peace and Order	15	(15) Uniforms (pants, polo shirt vest) (8) 2-way radio (1) Brgy. Patrol/ (1) Tricycle 1 Melee clup (batuta) (15) Rain coats (4) CCTV cameras	Lacking, needs repair (13) Needs repair/ in good condition Lacking In good condition Lacking, 4 in good condition
	Disaster	28	(1) Ambulance (15) Uniforms (pants polo shirt, vest) (8) 2-way radio (1) Brgy. Patrol/ 1 tricycle (1) melee clup (batuta) (28) Rain coat (1) Stretcher, (2) Chainsaw, (1) Fire extinguisher (1) Ladder	Needs repair/ replacement, Lacking, Lacking, needs repair (13) Needs repair/ In good condition Lacking In good condition In good condition In good condition In good condition In good condition
	Auxiliary	28	(1) Ambulance (28) Uniforms (8) 2-way radio (1) Brgy. Patrol/ 1 tricycle (1) Melee clup (28) Rain coats (1) Stretcher (2) Chain saw (1) Fire extinguisher (1) Ladder	Needs repair/ replacement, Lacking, Lacking, needs repair (13) Needs repair/ In good condition Lacking In good condition in good condition in good condition In good condition In good condition
San Roque	Traffic	10	Uniform, 2-way radio (10) Good Condition	

			(4), Barangay Patrol, Flashlight, Rubber boots, Melee Clup (batuta)	Need of brand new 2-way radio, others are in good condition
	Peace and Order	15	Uniform, 2-way radio (10) Good Condition (4), Barangay Patrol, Flashlight, Rubber boots, Melee CluB (batuta), Fire extinguisher	Need of brand new 2-way radio, others are in good condition
	Disaster	24	2-way radio, Ambulance, Barangay patrol, Flashlight, Rubber boots, Rain coat, Melee clup (batuta), Fire extinguisher, Emergency response Equipment, Megaphone	Need of brand new 2-way radio, others are in good condition
San Benito	Traffic	17	Uniforms, 11 Units 2-way handheld radios, 1-unit base radio, Traffic barriers	Good
	Peace and Order	17	uniforms, 11 Units 2-way handheld radios, 1-unit base radio, 1-unit barangay patrol tricycle/1-unit multicab/ 1 unit rescue, flashlight, rain coats rain boots	Good Serviceable
	Disaster	17	Uniforms, 11 units 2-way handheld radios, 1-unit base radio, 1-unit barangay patrol tricycle/1 unit multicab/ 1 unit rescue, flashlight, rain coats rain boots, stretcher, 2 units power saw	Good Serviceable
	Auxiliary Services	17	Uniform, 11 units 2-way handheld radio, 1-unit base radio, 1-unit rescue vehicle, Barangay patrol, tricycle, Flashlight, rain coats, rain boots, stretcher, 2 units power saw	Good Serviceable
	Traffic	13	Uniform, 15 unit of 2-way radio, whistle	All Equipment are in good condition excepting 9 units of 2-way radio needs repairs
San Miguel	Peace and order	17	Barangay Patrol, CCTV Cameras (12 Cameras	all equipment is in good condition 9 units

			in different location in the vicinity of barangay, 15 unit of 2-way radio, uniform, flashlight, melee club(batuta)	of 2-way radio needs repairs
	Disaster	30	public Address (4), ambulance, Barangay Patrol, Emergency response equipment (stretcher, first aid kit), 15 unit of 2-way radio, Flashlight, Raincoat & Rubber boots, Mini-power saw, rope, Ladder	All Equipment are in good condition excepting 9 units of 2-way radio needs repairs
	Traffic	19	2-way radio, uniform, whistle, vest, melee clup (batuta)	Lacking needs replacement
Palma	Peace and order	19	Flashlight, uniform, 2-way radio, caps, Melee clup(batuta), raincoats, service vehicle	Lacking, absent in some barangay
	Disaster	19	uniform, raincoat. Rubber boots, fire, extinguisher, 2-way radio, flashlight, mini-power saw, service vehicle, tools & Equipment for emergency response (first aid kit, spine board, Gauge and blood Pressure kit, tank of oxygen)	Lacking, maintenance, brand new absent in some barangay
	Auxiliary	19	2-way radio, uniform, Vest, Melee Club (Batuta)	Lacking, needs in barangay

Source: MPDO, 2018

3.5.2 Barangay Security Force and Volunteers by Type of Service

All barangays of Alaminos have its own barangay hall which serves as office for barangay tanods and where residents could file complaints and assistance for peace and order. **Table 82** shows the physical conditions and building areas of barangay halls in Alaminos.

Table 82 - SO: Lot Area, Building Area, and Physical Condition of Barangay Halls

Barangay	Lot Area (m ²)	Building Area (m ²)	Physical Condition
Palma	56.00	46.00	Fair
Del Carmen	80.00	25.00	Fair
Poblacion 1	78.40	119.80	Fair
Poblacion 2	399.00	13.00	Fair

Poblacion 3	130.00	96.30	Fair
Poblacion 4	81.00	63.36	Fair
San Andres	49.00	147.00	Fair
San Agustin	117.00	110.00	Fair
San Benito	108.00	75.00	Fair
San Ildefonso	100.00	49.00	Fair
San Juan	150.00	340.00	Fair
San Gregorio	74.00	100.00	Fair
San Miguel	338.20	146.00	Fair
San Roque	151.00	83.60	Fair
Sta. Rosa	212.160	198.00	Fair

Source: MPDO and GIS Computed, 2012

3.5.3 Fire Incidence

There are 12 fire incidences and (5) five of which happened in barangay San Benito. The cause of the fire incidence in barangays Poblacion 3 and San Agustin is electrical combustions while other incidences have no record regarding the cause.

Table 83 shows the summary of the fire incidences that happened in the municipality in the past five years.

Table 83 - SO: Fire Incidence in the Last Five Years

Barangay	Causes/Origin	2013	2014	2015	2016	2017
Poblacion 1	-	-	-	-	-	1
Poblacion 2	-	-	-	-	1	-
Poblacion 3	Electrical Combustion	1	-	1	-	-
San Agustin	Electrical Combustion	-	1	-	-	-
San Andres	-	-	-	-	-	1
San Benito	-	-	1	1	-	3
San Gregorio	-	-	-	1	-	-
Total Number of Responses for each year		1	2	3	1	5

Source: BFP Alaminos, 2017

3.5.4 Crime Incidence by Type of Crime and Frequency of Occurrence

A crime is defined as an act committed or omitted in violation of a law forbidding or commanding it and for which a punishment is imposed upon conviction. Index crimes, as defined by the Philippine National Police (PNP), involve crimes against persons such as murder, homicide, physical injury and rape, and crimes against property such as robbery, theft, carnapping/carjacking and cattle rustling. Non-index crimes, on the other hand, are violations of special laws such as illegal logging or local ordinances.

Among the crimes that happened in the municipality, it can be noted that the most frequent crime was under traffic incidents, specifically under reckless imprudence resulting (RIR) to damage to property with 144 cases in 2016 and 101 cases in 2017, with only 11 cases, which were solved. It can be observed that, in both years, there is a low number of cases solved as compared to the reported cases except for direct assault and crimes under the Comprehensive Dangerous Drug Act which shows that all reported cases were solved.

Table 84 shows the crimes that are committed in the municipality of Alaminos and its frequency in the last two years.

Table 84 - SO: Crime Incidence by Type of Crime and Frequency of Occurrence

Type of Crime	2016		2017	
	Total	Cases Solved	Total	Cases Solved
Against Persons	23	10	23	8
Murder	5	2	10	2
Parricide	0	0	0	0
Infanticide	0	0	0	0
Murder (Plain)	5	2	10	2
Homicide	4	1	1	0
Physical Injury	12	6	5	3
Frustrated/Attempted Murder	1	1	2	1
Frustrated/Attempted Homicide	2	0	1	1
Physical Injury (Plain)	9	5	2	1
Rape	2	1	7	3
Against Property	13	4	6	4
Robbery	3	1	0	0
Theft	6	3	4	3
Carnapping MV	0	0	1	1
Carnapping MC	4	0	1	0
Cattle Rusting	0	0	0	0
Non-Index Crime	13	3	5	3
Acts Of Lasciviousness	1	0	2	0
Direct Assault	1	1	2	2
Estafa	3	0	0	0
Grave Threats	3	1	0	0
Malicious Mischief	3	1	0	0
Other Form of Trespass	1	0	1	1
Slander (Oral Defamation)	1	0	0	0
Traffic Incidents	197	1	137	16
RIR Homicide	3	0	6	2
RIR Physical Injury	50	1	30	3
RIR Damage To Property	144	0	101	11
Special Laws	49	49	43	38
Comprehensive Dangerous Drug Act Of 2002 (R.A. 9165)	45	45	19	19
Comprehensive Law on Firearms And Ammunition (R.A. 10591)	3	3	8	7
Violation Of R.A. 9287	1	1	10	10
Anti-Violence Against Women & Children (9262)	nd	nd	3	0
Child Abuse Act (7610)	nd	nd	1	0
Violation of RA 4136 (Land Transportation and Traffic Code)	nd	nd	2	2
Total	295	67	214	69

Source: PNP Alaminos, 2017

3.5.5 Current and Projected Requirement for Protective Personnel

Based on HLURB guidelines, the standard ratio for police force to population is 1:1000. Currently, Alaminos current have 37 policemen, this shows that the police to population is 1:1344. The police force needs to add thirteen (13) more policemen in order to comply to the minimum standard and by 2027, the municipality needs to reach at least 60 police personnel in order to ensure a safer and more peaceful municipality.

The police station of Alaminos, which is located in barangay Poblacion 3, has a lot area of 246.5 square meters. The municipal jail should at least be able to accommodate 250 inmates and below.

As for the fire force, the municipality currently have 13 personnel making the fire force ratio 1:3824. This is below the minimum standard set in the HLURB guidelines fire force to population ratio of 1:2000 which means that there should be an additional of at least an additional of 12 more fire personnel in the municipality to comply with HLURB's standard in 2018 and by 2027, a total of 30 fire personnel is needed.

Table 85 - SO: Current and Projected Requirement for Protective Personnel and Facilities

Type	Existing No.	Projected Population and Required No. Of Personnel					
		2017	2018	2019	2020	2021	2027
Population	-	49,714	50,664	51,633	52,620	53,626	60,080
Police Force	37	50	51	52	53	54	60
Police Station		0.04 hectare (additional space requirement to existing station)					
Fire Force	13	25	25	26	26	27	30
Jail Personnel	2	-					
Jail/Prison	0	0.5 hectare					

Source: Philippines Statistics Authority, 2015; PNP Alaminos and BFP Alaminos 2018

3.5.6 Protective Services Analysis Matrix

Table 86 presents the protective services analysis in Alaminos.

Table 86 - SO: Protective Services Analysis Matrix in Alaminos, Laguna

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Slow response of protective service providers	Increases casualties and damage of properties	Provide more training to personnel Acquisition of new equipment needed
Fire fighters to population ratio and police to population ratio are below the standard set	Slow response	Employ additional fire fighters and police
Poor implementation of local anti-criminality plan	Decreases safety and security of community	Review and enforce the strategies of the local anti-criminality plan
Lack of fire hydrants	No additional support to aide fire fighters	Identify areas which needs fire hydrants Acquisition of new equipment needed

3.6. Sports and Recreation

3.6.1 Existing Sports and Recreational Facilities

Sports and recreation develop the psychosocial and physical aspect of an individual. Alaminos has very limited sports and recreational facility. As basketball is the most popular type of sports, the multipurpose covered courts in the municipality are designed to cater this sport. All barangays in the municipality have their own multipurpose covered courts, which are frequently used, as a venue for barangay events and activities.

Table 87 - SO: Sports and Recreational Facility and Condition

Barangay	Type of Facility	Physical Condition of Facility	Used as Evacuation Center
Poblacion 1	Multipurpose Covered Court	Good	No

Poblacion 2	Multipurpose Covered Court, Tennis Court	Good	No
Poblacion 3	Multipurpose Covered Court	Good	No
Poblacion 4	Multipurpose Covered Court	Good	No
Del Carmen	Multipurpose Covered Court	Good	No
Palma	Multipurpose Covered Court	Good	No
San Agustin	Multipurpose Covered Court	Good	No
San Andres	Multipurpose Covered Court	Good	No
San Benito	Multipurpose Covered Court	Good	Yes
San Gregorio	Multipurpose Covered Court	Good	No
San Ildefonso	Multipurpose Covered Court	Good	No
San Juan	Multipurpose Covered Court	Good	No
San Miguel	Multipurpose Covered Court	Good	No
San Roque	Multipurpose Covered Court	Good	No
Sta. Rosa	Multipurpose Covered Court	Good	No

Source: MEO, 2018

3.6.2 Sport and Recreation Analysis Matrix

Table 88 presents the sports and recreation analysis in the municipality of Alaminos.

Table 88 - SO: Sport and Recreation Analysis Matrix

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Absence of parks and open spaces	Do not promote healthy lifestyle and wellbeing, negatively affects health, population are not encouraged to have more physical activities and more social interactions	Allocate areas that could be a park or a playground

3.7 Integrated Social Analysis Matrix

Table 89 presents the integrated social analysis in the municipality of Alaminos. Map 27: Location Map of Critical Facilities shows the location of basic service and critical facilities of Alaminos.

Table 89 - SO: Integrated Social Analysis Matrix of Alaminos, Laguna

Issues/observations	Explanation	Implications when unresolved	Policy Options/ Intervention
Education			
Insufficient classroom facilities	Some schools hold classes in the school's covered court to compensate for the inadequate number of classrooms	Conducting classes outside a classroom may cause students to become distracted due to noise/excessive noise, affecting their performance and learning,	Provision of additional buildings and classrooms

Issues/observations	Explanation	Implications when unresolved	Policy Options/ Intervention
		overcrowded classroom decreases student's engagement and learning	
Student-teacher and student-classroom ratio is below the standard set	The growing number of students will most likely lead to insufficient classrooms and teachers in the future if problem is not addressed	Overcrowded classrooms decrease student's engagement and learning, exhausting for teachers	Provide additional classrooms and employ additional teachers
Lack of health facilities in schools	Most public schools do not have an existing school clinic	Decreases access of students to basic health care and support especially for families who cannot afford	Coordinate with schools; requirement of a clinic in schools
Poor conditions of school buildings	Some public-school buildings need to be demolished or to have major/minor repairs	May negatively affect students' performance and learning, increases vulnerability during disaster (e.g. groundshaking)	Annual inspection of buildings especially those in need to be repaired or demolished
Increase in high school enrollees	Data shows that there is an increase in the total number of high school enrollees especially in public high schools	Lack of classrooms that will accommodate the additional enrollees	Provide additional classrooms and employ additional teachers for public high schools
Health and sanitation			
Increasing prevalence of acute upper respiratory infection	There is a consistent increase of reported cases of acute upper respiratory infection	Affects the development of human capital in the municipality	- Coordinate with Municipal Health Center to identify causes of AURI and how it can be reduced - Provision of health equipment and facilities
Prevalence of second-degree malnourished children	Some children are either too heavy or too light for their age	Affects the development of human capital in the municipality, affects the children's performance, learning and health	- Provision of affordable health care to marginalized locals - Programs to combat malnutrition
Some health units are not functional	There is a lack of health personnel in some barangay health units	Additional cost for families who need to go to another health unit, decreases access to basic health care	Employ health workers and barangay nutrition scholars who can operate said barangay health units

Issues/observations	Explanation	Implications when unresolved	Policy Options/ Intervention
Cemetery easements are not implemented	Cemeteries are near to residential areas	Poses threat to health-related issues	Monitor existing cemeteries and implement proper easements for cemeteries to avoid health risks
Flooded cemetery	Some areas in Roloma Memorial Garden and Alaminos Memorial Garden are flooded when there is a heavy rain which may be due to improper drainage system	Delays burials, poses threat to health-related issues (unsanitary), damages properties (coffins)	Improve drainage system in cemeteries
Protective Services			
Slow response of protective service providers	There is an insufficient number of fire fighters and police and this adversely affects the delivery of their services	Increases casualties and damage of properties	- Provide more training to personnel - Acquisition of new equipment needed
Fire fighters to population ratio and police to population ratio are below the standard set	The standard for police to population is 1:1300 while fire fighters to population 1:200, there is a need of 1 additional police and 11 more of the fire fighters	Slow response	Employ additional fire fighters and police
Poor implementation of local anti-criminality plan	High incidence of certain crimes such as reckless imprudence resulting to damage to property	Decreases safety and security of community	Review and enforce the strategies of the local anti-criminality plan
Lack of fire hydrants	There are certain areas in Poblacion that needs fire hydrants but due to	No additional support to aide fire fighters	- Identify areas which needs fire hydrants - Acquisition of new equipment needed
Social Welfare			
Inadequate social welfare facilities	Most structures are not DAP-friendly or senior citizen friendly which reduces the accessibility of DAPs and senior citizens to avail social services	Limited accessibility of services	Identify and provide social welfare facilities that are urgently needed

Issues/observations	Explanation	Implications when unresolved	Policy Options/ Intervention
Poverty Incidence	The province of Laguna has an estimated 0.8% poverty incidence rate in 2015	Compromised living condition of locals	- Provision of indigent support fund - Participate in DSWD program - Conditional Cash Transfer (CCT)
Sports and Recreation			
Absence of parks and open spaces	No available land to create parks and open spaces	Do not promote healthy lifestyle and wellbeing, negatively affects health, population are not encouraged to have more physical activities and more social interactions	Allocate areas that could be a park or a playground
Housing			
Presence of informal settlements	Some in-migrants settle illegally because they could not afford to rent or the socialized housing	Limited access to social services, increases vulnerability specially during disasters	Socialized housing
Presence of houses made of light materials	Some residents especially the informal settlers cannot afford to buy house building materials that are sturdy	Light materials are easily burned therefore, fire is spread faster	Provision of financial assistance for home improvement
No shelter plan and absence of local housing policy and housing board in Alaminos	Absence of local housing policy and housing board in Alaminos	Difficulty in implementing systematic programs, standards and other laws related to housing	Formulate a committee to create a Local Shelter Plan to identify housing needs of the municipality
Data Management			
Lack of data management system	There is no centralized data base which causes data loss/unavailability	Lack of data management system affects the productivity and efficiency of employees, accuracy and credibility of data, and difficulty in analysing and interpreting conditions for planners, investors and decision makers	Allocate an office or designate a person to manage and store data and information in the municipal hall; require all personnel to have a backup data

3.8 Critical Point Facilities Exposure and Risk Assessment

Map 40 shows the location of identified critical point facilities and Map 40 to Map 44 show the critical facilities exposed to various hazards. These facilities elementary schools, day care centers, government offices such as barangay and municipal halls, health centers, police stations, fire stations, transport terminals, among others. These facilities provide key socio-economic support services.

Table 90 shows the exposure and degree of impact on critical point facilities in the municipality. In terms of degree of impact, flooding, RIL, EIL and soil erosions have a value of one (1), while ground shaking has a value of three (3). A value of one (1) has a low degree of impact, which means that the estimated direct and indirect impacts are low to negligible and can be felt within a short period of time. While critical point facilities with a value of three (3) means that the estimated direct and indirect impacts in terms of property damage will be disastrous given the extent of exposure and current sensitivity of the system. The high degree of impact for ground shaking can be attributed to the materials used, age of the buildings and location.

Table 90 - SO: Critical Point Facilities Degree of Impact to Hazards of Alaminos, Laguna

Barangay	Flooding	Rain-Induced Landslide	Ground Shaking	Earthquake-Induced Landslide	Soil Erosion
	DOI	DOI	DOI	DOI	DOI
Poblacion 1	1	1	3	1	1
Poblacion 2	1	1	3	1	1
Poblacion 3	1	1	3	1	1
Poblacion 4	1	1	3	1	1
San Agustin	1	1	3	1	1
San Benito	1	1	3	1	1
Del Carmen	1	1	3	1	1
Palma	1	1	3	1	1
San Andres	1	1	3	1	1
San Gregorio	1	1	3	1	1
San Ildefonso	1	1	3	1	1
San Juan	1	1	3	1	1
San Miguel	1	1	3	1	1
San Roque	1	1	3	1	1
Sta. Rosa	1	1	3	1	1

Source: CDRA, 2018

Ex – Percentage of Area Exposed, DOI – Degree of Impact

In terms of vulnerability ratings, only ground shaking has a moderate vulnerability rating, while all barangays have low vulnerability ratings in flooding, RIL, EIL and soil erosion. This low vulnerability can be attributed to low exposure, sensitivity and high adaptive capacity of facilities to hazards. Table 91 below summarizes the vulnerability ratings of Alaminos in terms of its critical point facilities and hazards.

Table 91 - SO: Critical Point Facilities Hazard Vulnerability Ratings of Alaminos, Laguna

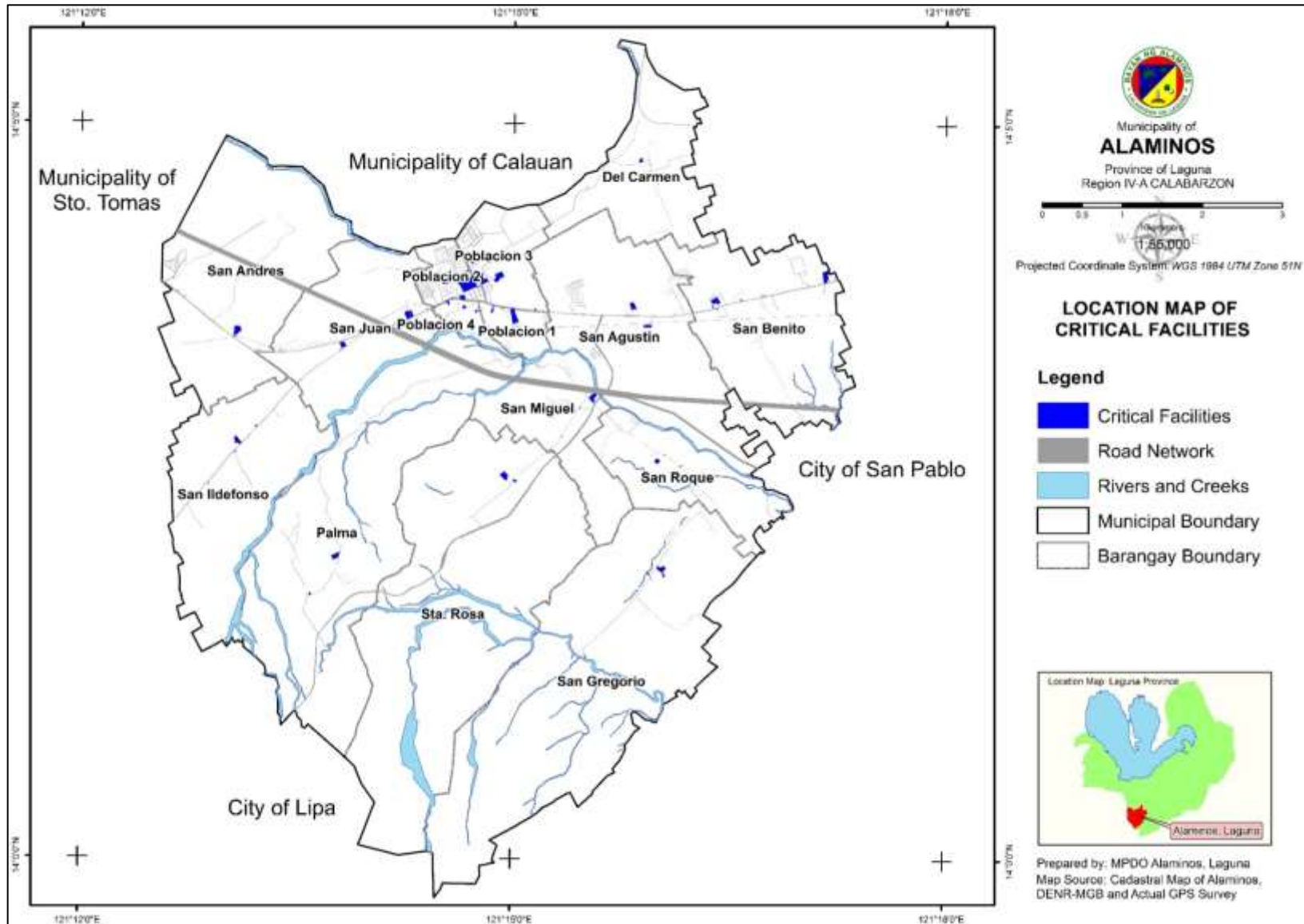
Barangay	Flooding	Rain-Induced Landslide	Ground shaking	Earthquake-Induced Landslide	Soil Erosion
Poblacion 1	Low	Low	Moderate	Low	Low
Poblacion 2	Low	Low	Moderate	Low	Low
Poblacion 3	Low	Low	Moderate	Low	Low
Poblacion 4	Low	Low	Moderate	Low	Low
San Agustin	Low	Low	Moderate	Low	Low
San Benito	Low	Low	Moderate	Low	Low
Del Carmen	Low	Low	Moderate	Low	Low
Palma	Low	Low	Moderate	Low	Low
San Andres	Low	Low	Moderate	Low	Low
San Gregorio	Low	Low	Moderate	Low	Low
San Idefonso	Low	Low	Moderate	Low	Low
San Juan	Low	Low	Moderate	Low	Low
San Miguel	Low	Low	Moderate	Low	Low
San Roque	Low	Low	Moderate	Low	Low
Sta. Rosa	Low	Low	Moderate	Low	Low

Source: CDRA, 2018

The specific vulnerability maps for critical point facilities are referenced below: **p.Error! Bookmark not defined.-192**

1. [Map 45: Critical Facilities Flooding Vulnerability Map of Alaminos, Laguna](#)
2. [Map 46: Critical Facilities RIL Vulnerability Map of Alaminos, Laguna](#)
3. [Map 47: Critical Facilities Ground Shaking Vulnerability Map of Alaminos, Laguna](#)
4. [Map 48: Critical Facilities EIL Vulnerability Map of Alaminos, Laguna](#)
5. [Map 49: Critical Facilities Soil Erosion Vulnerability Map of Alaminos, Laguna](#)

Map 27: Location Map of Critical Facilities



4. ECONOMIC SECTOR

4.1 Agriculture

4.1.1 Existing Major Agricultural Crops

The agriculture sector of Alaminos mainly focuses on fruit bearing trees. Fruit bearing trees are trees that bear fruits in season. Fruiting season varies into months, length of day time and amount of sunlight absorbed. Fruit bearing trees in the municipality include mango, avocado, lanzones and rambutan, which are only available on a certain month in a year. Its dominant crops are mainly lanzones, rambutan, papaya, banana, pineapple and coconut. Rambutan is available from July to September while lanzones is available from September to October. Pineapple is present from April to May and December to January. In addition, coconut and banana are present throughout the year.

Listed in the [Table 92](#) are the major agricultural crops per barangay and the area occupied. Durian, avocado and santol trees are also present in the municipality. It can be noted that the total agricultural land and the total area in the table below are not similar, this is because farmers in the municipality practice crop diversification. Some crops overlapped with each other.

Table 92 - EC: Area of Existing Major Agricultural Crops of Alaminos, Laguna

Barangay	Area (Ha)					
	Lanzones	Rambutan	Papaya	Banana	Pineapple	Coconut
Poblacion 1	12.8	1.5	1	5	0.5	20
Poblacion 2	6.5	0.0	0.5	6	0.1	0
Poblacion 3	11	15.9	0	8.6	6.5	15
Poblacion 4	5	1	0	2	15	0.0
Del Carmen	37.25	8.2	0.5	6.2	24	257
Palma	56.5	2.6	3.5	85	18	500
San Agustin	59.75	7.9	1.4	12	0	470
San Andres	41	21.7	0.57	8.2	0	165
San Benito	40.8	7.95	2.3	11	0	526
San Gregorio	62.31	3.8	0.4	9.2	0	840.6
San Ildefonso	57.7	30.5	1.17	10.5	0	350
San Miguel	14.2	5.55	3.7	6.8	0	185
San Juan	22.6	10.57	4.39	7.2	0	86
San Roque	30.52	6.5	0.5	7.6	0	229
Sta. Rosa	7.1	9.87	0.3	7.9	0	589
Total	465.03	133.54	20.23	193.20	64.10	4,232.60

Source: MAO, 2018

In terms of area per crop, barangay San Gregorio has the highest land area for lanzones and coconut production. Barangay Ildefonso is the leading rambutan producer while San Juan, Palma, and Del Carmen lead the production in papaya, banana and pineapple.

4.1.2 Existing Livestock and Poultry Farms

In addition to crop production, livestock and poultry productions are also present in the municipality.

Poultry

There are 21 existing poultry farms in the municipality of Alaminos. Five (5) poultry farms located mostly in barangay Palma. Other poultry farms are located in barangays Poblacion 2, San Roque, Sta. Rosa, San Andres, Poblacion 3, Del Carmen and San Agustin. Most of these poultry farms are growing broiler chickens for meat production. Poultry products are being exported outside Alaminos and being delivered in the neighboring provinces. Other poultry farms are raising layer chickens that are for chick production.

Livestock

There are two (2) piggery farms located in barangays Palma and Sta. Rosa. The produce of these farms are marketed to San Pablo City and to the towns of Batangas. There is also an existing piggery farm raising breeder and fattener swine. Goat farm is also present in the municipality, located in barangay Poblacion 2 which is mainly for milk production.

Table 93 - EC: Existing Livestock and Poultry Farms of Alaminos, Laguna

Owner's Name	Name of Farm	Barangay	Type
Livestock production			
Artemus C. Almeda	Alaminos Goat Farm	San Juan	Dairy Farm
Rollen Gallivo		Sta. Rosa	Piggery
Poultry Farm			
Bernard Dykheng Faylona	Bernard Dykheng Farm	Palma	Poultry Farm
Maricel Silva		Palma	Poultry Farm
Gerry Faylona		Palma	Poultry Farm
Erwin Bonifacio B. Agra	E. Agra Poultry Farms	Palma	Poultry Farm
Virgilio F. Monzones	Marshall Farm	San Roque	Poultry Farm
Natividad A. Gallivo	Acel and Joy Farm	San Roque	Poultry Farm
Natividad A. Gallivo	Poultry Farm	San Miguel	Poultry Farm
Ana Gerlie B. Belen	Joshua & Jhayden Poultry Supply	San Miguel	Poultry Farm
Arthur P. Magno	APM Poultry Farms	San Miguel	Poultry Farm
Moises Belen, Jr.	Justin & Jhayden Poultry Farm	San Miguel	Poultry Farm
Joselito Cubillejo	Lito Poultry Farm	Sta. Rosa	Poultry Farm
Meynardo F. Monzones	M.F.M. Poultry Farm	San Andres	Poultry Farm
Ramon C. Sarmiento	Monsa Poultry Farm	San Andres	Poultry Farm
Virgilio F. Monzones	Virm Poultry Farm	San Andres	Poultry Farm
Conrado Masa		San Andres	Poultry Farm
Nelson Faylona	Rizal Poultry Farm	Poblacion 1	Poultry Farm
Ricardo B. Talento	Bettina Farms, Inc.	San Agustin	Poultry Farm/ Hatchery
Neil S. Macasaet	Macasaet Poultry Farm	San Gregorio	Poultry Farm

Marco D. Bondad	Marco Bondad Farm	Del Carmen	Poultry Farm
Wilfredo Monzones		San Juan	Poultry Farm
Poultry and Livestock Farm			
Mirazon K. Maranan	MNAD Farm	Palma	Poultry Farm Piggery Farm

Source: MAO & BLPO 2018

In terms of major producers of livestock and poultry products, barangay Sta. Rosa has the highest production area for livestock with 45,000 square meters while barangay San Juan has the highest land area of poultry production having 30,000 square meters, followed by barangay San Roque with 23,000 square meters. Table 94 presents the major livestock and poultry producers in the municipality.

Among the urban barangays, barangay Poblacion 1 is the only with a farm, totaling to 6,000 square meters for poultry production.

Table 94 - EC: Major Livestock and Poultry Producers in Alaminos, Laguna

Owner's Name	Barangay	Type	Area (m ²)	Classification	Volume of Production (MT)		Value (M)
					Swine	Poultry	
Livestock Producers							
Art Almeda	San Juan	G	40,000	Dairy	nd	nd	nd
Rollen Galliv o	Sta. Rosa	Pi	45,000	Breeder/ Fattener	nd	18	1.76
Mirazon Mar anan	Palma	Pi	20,000	Fattener	nd	60	6, 900
Poultry Producers							
Nelson Faylona	Pob. 1	Po	6,000	Broiler	nd	24	2.4
Maricel Silva	Palma	Po	5,000	Broiler	nd	90	9
Gerry Faylona	Palma	Po	12,000	Broiler	nd	360	36
Sergio Agra	Palma	Po	8,000	Broiler	nd	120	12
Virgilio Monzones	San Roque	Po	23,000	Breeder	nd	40	nd
Marco Bondad	Del Carmen	Po	1,500	Broiler	nd	90	9
Niel Macasaet	San Gregorio	Po	5,000	Layer	nd	3,280	13.1 2
Tony Gallivo	San Roque	Po	nd	Broiler	nd	24	24
Wilfredo Monzones	San Juan	Po	38,000	Broiler	nd	90	9
Virgilio Monzones	San Andres	Po	17,000	Pullets	nd	60	6
Maynard Monzones	San Andres	Po	30,000	nd	nd	nd	6
Ramon Sarmiento	San Andres	Po	20,000	Breeder	nd	nd	10

Owner's Name	Barangay	Type	Area (m ²)	Classification	Volume of Production (MT)		Value (M)
					Swine	Poultry	
Conrado Masa	San Andres	Po	25,000	Broiler	nd	90	9
LitoCabellejo	Sta. Rosa	Po	15,000	Layer	nd	10.9	2.19

Source: MAO, 2018

Legend: G – Goat, Pi – Piggery, Po –Poultry

Farm Animal Population

Alaminos has a total number of 8,190 animal farm population. Fifty-nine percent of the total population is comprised by gamefowls, which are roosters reared for fighting. Others include horses, carabaos, cattle, goats, boars, sows and fatteners. Carabaos in the municipality are commonly and usually used as draft animals. Draft animals are any domesticated animals used in the farm for works such as plowing and harrowing the soil and in pulling heavy like transporting agricultural goods or harvests. Table 95 shows animal farm population in Alaminos in 2018.

Table 95 - EC: Animal Population of Alaminos, Laguna

Barangay	Horse	Carabao	Cattle	Goat	Boar	Sow	Fattener	Gamefowl
Poblacion 1	1	3	19	23	0	0	15	410
Poblacion 2	3	2	24	48	0	6	45	440
Poblacion 3	2	2	36	41	0	2	60	380
Poblacion 4	0	0	2	15	0	1	15	320
Del Carmen	1	7	19	23	0	0	15	410
Palma	72	7	145	96	1	90	140	620
San Agustin	28	9	101	60	0	6	42	139
San Andres	51	28	304	25	16	9	4	550
San Benito	30	27	124	61	0	3	24	84
San Gregorio	56	12	81	57	0	0	39	64
San Ildefonso	24	37	177	31	9	17	74	450
San Juan	2	1	53	5	0	13	19	480
San Miguel	18	5	68	21	0	28	66	151
San Roque	35	3	99	65	0	3	42	0
Sta. Rosa	37	18	126	30	2	4	45	337
Total	360	161	1378	601	28	182	645	4835
Grand Total	8,190							

Source: MAO, 2018

4.1.3 Existing Fishing Grounds and Aquaculture Production

There are three (3) existing fishing grounds in Alaminos located in barangay San Benito. These fish ponds that are not for commercial use. The fishes that are caught are naturally present in the ponds.

4.1.4 Existing Agricultural Support and Equipment

There are existing agricultural support facilities given by the local government. These include power sprayers, hand tractor, and shredder machines. All equipment are operational. Power sprayer is used in applying insecticides, pesticides and fertilizer to agricultural crops. On the other hand, hand tractor is used in preparing the land for planting specifically for plowing; it breaks the soil into clods making it easier in transplanting or sowing seed in the soil. Shredder machine is used in shredding agricultural waste or by products into smaller pieces, through this, agricultural waste will be decomposed easily at be used as fertilizer and into other uses.

Table 96 - EC: Existing Agricultural Support and Equipment of Alaminos, Laguna

Equipment	Location	No.	Type	Remarks
Power Sprayer	Poblacion 1, Poblacion 2, Poblacion 3, Poblacion 4, Palma, San Juan, San Andres, Sta. Rosa, San Miguel, San Ildefonso	11	nd	Operational
Hand Tractor	Poblacion 1, Palma, San Juan, San Miguel, San Ildefonso, San Benito, San Agustin, San Roque	8	Mini Tiller, Hand Tractor Viking, Minifarm Tractor	Operational
Shredder Machine	Poblacion 2, Poblacion 3, Palma, San Juan, San Andres, Sta. Rosa, San Miguel, San Ildefonso, San Roque, Del Carmen	10	nd	Operational

Source: MAO, 2018

4.1.5 Agricultural Occupations/Groups in Urban and Rural Areas

There are 714 farmers/agriculture-related workers in the municipality. Almost 50 percent (49.58%) of these workers are working in livestock industries, followed by lanzones farmers with 28.85 percent. The least agricultural occupation group are poultry farmers with only 10 workers.

Table 97 - EC: Agricultural Occupations/Groups of Alaminos, Laguna

Major and Minor Occupation Groups	Total
Vegetable farmers	53
Farmworkers	91
Lanzones farmer	206
Livestock producers/workers	354
Poultry farmers	10
Total	714

Source: MAO, 2018

4.1.6 Strategic Agriculture and Fisheries Development Zones

The strategic agriculture and fisheries development zones (SAFDZs) refer to the areas within the network of areas for agricultural and agri-industrial development (NPAAAD) identified for production, agro-processing, marketing activities to help develop and modernize, either the support of government, the agriculture and fisheries sectors in an environmentally and socio-cultural sound manner (refer to [Map 28](#)).

The largest portion based on the SAFDZ classification is agri-industrial lands with 64.66 percent of the total land area of the municipality. This implies that 3,456.46 hectares of land is suitable for agri-industrial use. While 35.44 percent is not intended for agricultural use.

Table 98 shows the SAFDZ categories and area in hectares of the municipality, however, the data used for this analysis needs to be updated.

Table 98 - EC: Strategic Agriculture and Fisheries Development Zones of Alaminos, Laguna

SAFDZ Category	Description	Area	Percentage to total land area
Alluvial Lands	Land formerly deposited by streams and subject to frequent flooding	2.51	0.05
Gently Sloping Lands	Land with 3-8 percent slope	0.65	0.10
Erodible Lands	Land susceptible to erosion	782.25	14.65
Non-Agricultural Use	Land not intended for agricultural use	1,103.37	20.64
Agri-Industrial Lands	Land suitable for agri-industrial use	3,456.46	64.66

Source: MPDO GIS Computation 2017

4.1.7 Agriculture Related Projects

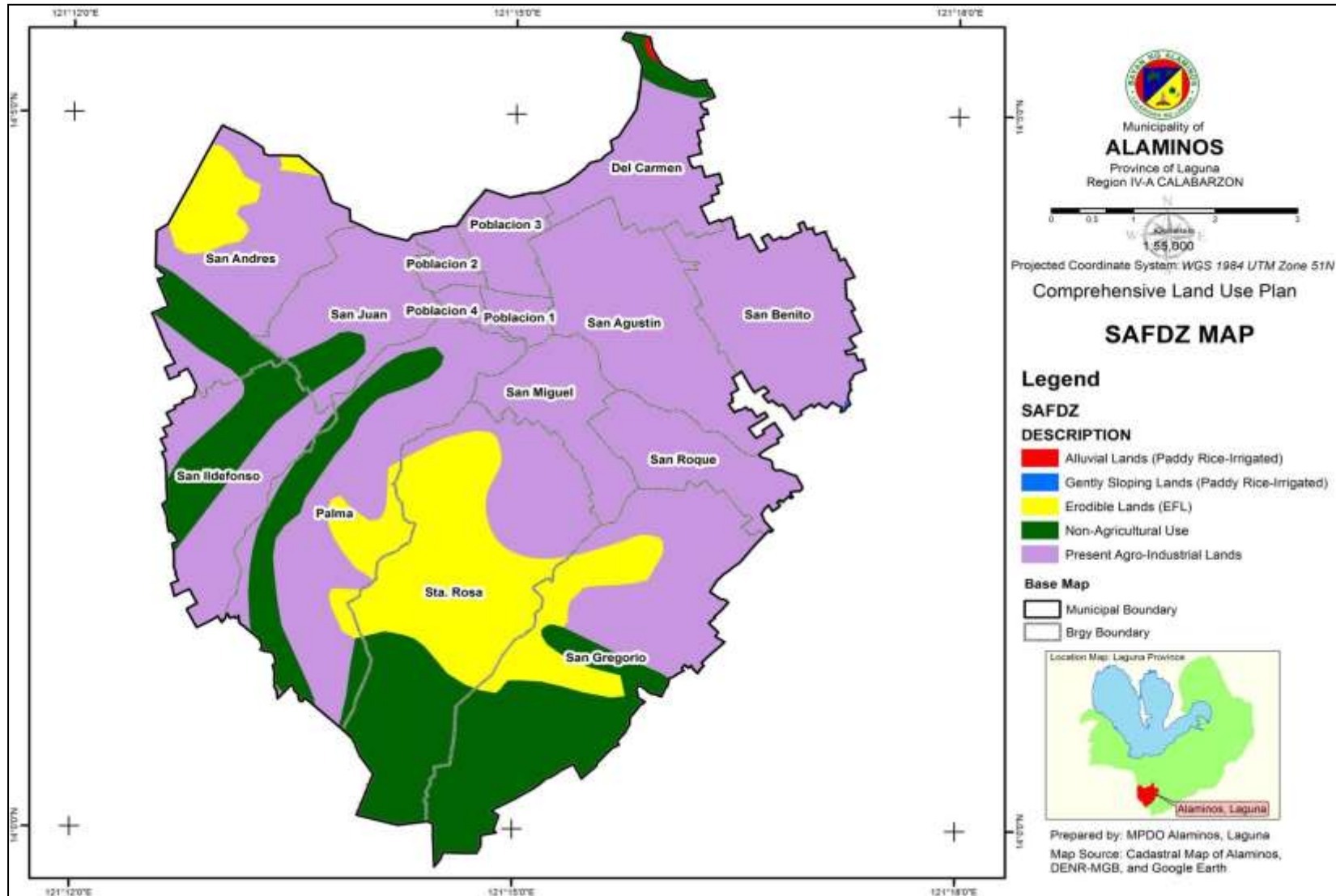
Presented in the Table 99 are the existing projects of the municipality for the agriculture sector. More projects should include farm to market roads, hazard (flood) resistant crop use, improved equipment and establishment of training facilities and centers to improve the farmers' skills and, ultimately their production.

Table 99 - EC: Agriculture Related Projects of Alaminos, Laguna

Project	Location
Promotions of improved quality crops	
Distribution of quality vegetable seeds	Municipal wide
Purchase of fruit trees	Municipal wide
Distribution of farm implements	Municipal wide
Training of farmers and personnel	Municipal wide
Promotion of organic agriculture	
Farmer's field school	Municipal wide
Organic fertilizer production	Municipal wide
Promotion and Dissemination of improved technology in animal health	
Anti-rabies vaccination	Municipal wide
Anti-hog cholera vaccination	Municipal wide
Deworming	Municipal wide
Production support services	

Source: MAO, 2018

Map 28: Strategic Agriculture and Fisheries Development Zones Map of Alaminos, Laguna



4.1.8 Agriculture Analysis Matrix

Presented below is [Table 100](#) summarizing the technical findings of the agricultural subsector of the municipality of Alaminos.

Table 100 - EC: Agriculture Analysis Matrix of Alaminos, Laguna

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Large agriculture areas are underutilized	Prevalence of idle lands increases local revenue from idle land taxation, negatively affect food security, inefficient land use	Promotion of crop diversification Intensification of crop, and livestock production
Agricultural lands are converted to industrial use	Affects the food security, land converted but not reclassified for industrial use have smaller tax receipts	Updating and enforcement of the land use plan Protocol on land conversion within the limit
Lack of modern agricultural technology	The potential of the agriculture sector remains untapped and undeveloped	Enhancement of extension support, education and training
Farmers' organizations are not well organized	No partnership and collaboration with local government decision making, the farmers' needs are not voiced out, less support received from the LGU; potentials remained untapped and undeveloped; less chance to participate in activities that provide training, workshops, seminars and practical expertise	Strengthening of farmers and cooperatives
Insufficient projects/training for farmers	Reduces chance to learn new techniques and methods, and marketing skills	Provision of production support programs Enhancement of extension, education and training
High reliance on importation from other provinces	Local sources/business/ industries remain undeveloped, prices of goods and produce are higher compared when it's sourced locally	Promotion of crop diversification Intensification of crop, and livestock production
Agriculture production is exported to other areas	Affects food security of the municipality especially during emergency, there will be	Provision of production support programs Promotion of crop diversification

Technical Findings	Implications when unresolved	Policy Options/ Intervention
	no stored goods/produce to sustain the population especially during emergency	Intensification of crop, and livestock production
Livestock and poultry wastes contributes to pollution and other health related risks	Increases incidence of water and air borne diseases	Protocol on waste management of agri-industries Monitoring of existing agri-industries on waste production and management

4.2 Forestry

4.2.1 Area and Location of Forestlands

Forestlands in Alaminos are located in barangays Palma, Sta. Rosa, and San Gregorio. The forest area in Alaminos has a total area of 894.38 hectares comprising 16.71 percent of the total land area. This area is not used for forest production (timber), rather, the area is a locally proclaimed protection area based on the previous comprehensive land use plan and zoning ordinance of the municipality.

4.2.2 Volume of Production by Forest Concessionaires

There is no documented volume of production by forest concessionaries however there are observed illegal logging and charcoal making activities in some parts of barangay San Gregorio.

4.3 Commerce and Trade

4.3.1 Inventory of Commercial Areas

There are 470 businesses in the municipality. Commercial areas in Alaminos are concentrated in the urban areas, where 117 establishments are located in barangay Poblacion 3. Meanwhile, barangay San Gregorio has only one (1) establishment. Thirty-nine business establishments are primary economic activities, 58 establishments are secondary, mostly on manufacturing, and 373 commercial establishments are tertiary in nature (refer to ANNEX – Annex B, page ANNEX B: List of Businesses 167).

These includes wholesale and retail trade, repair of motor vehicles, restaurants, transport, storage and communication, financial intermediation, real estate, renting and business, public administration, education, health and social work, other community, social and personal service activities and private household with employed person.

Table 101 summarizes the number of business establishments per barangay in Alaminos.

Table 101 - EC: Inventory of Commercial Areas of Alaminos, Laguna

Barangay	Business
Poblacion 1	47
Poblacion 2	85
Poblacion 3	117
Poblacion 4	32
Del Carmen	2
Palma	4
San Agustin	41
San Andres	18
San Benito	51
San Gregorio	1
San Ildefonso	8
San Juan	52
San Miguel	6
San Roque	2
Sta. Rosa	4
Total	470

Source: BLPO, 2017

4.3.2 Historical Data on Commercial Areas

There is no data available to trace back the history for commercial areas, however, the concentration of commercial establishment is located in barangay Poblacion 3. Most institutions such as municipal buildings, central school, and public markets are located in this barangay. These institutions create opportunities for the emergence of most of the businesses in Alaminos, thus, majority of commercial establishments surrounds the barangay.

4.3.3 Business Permits Granted

In 2017, there were 470 business permits granted, 390 permits were renewed while 80 are new permits. There are cases that some business establishments fail to renew their business permits due to failure to comply with the requirements of the renewal process. Table 102 shows the number of employees per barangay in the municipality. Three hundred seventy-three (79%) of business establishments are concentrated in the urban barangays – Poblacions 1 to 4, San Benito and San Agustin, with barangay Poblacion 3 having the greatest number of establishments, and barangay San Benito in terms of number of employees.

Table 102 - EC: Inventory of Commercial Establishment by Employment in Alaminos, Laguna

Barangay	No. of Establishment	No. of Employees
Poblacion 1	47	184
Poblacion 2	85	162
Poblacion 3	117	202
Poblacion 4	32	54
Del Carmen	2	0
Palma	4	30
San Agustin	41	106
San Andres	18	106

Barangay	No. of Establishment	No. of Employees
San Benito	51	527
San Gregorio	1	5
San Ildefonso	8	7
San Juan	52	154
San Miguel	6	16
San Roque	2	13
Sta. Rosa	4	16
Total	470	1,582

Source: BLPO, 2017

4.3.4 Commerce and Trade Analysis Matrix

Presented below is Table 103 summarizing the technical findings of the commerce and trade subsector of Alaminos.

Table 103 - EC: Commerce and Trade Analysis Matrix of Alaminos, Laguna

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Business establishment are not renewing their permits	Closure of business establishment, increase fines	Close monitoring on the businesses operating in the local Enforcement of regulations to non-complying business establishments
Livelihood programs and other local initiatives are not sustained, maintained and monitored	Waste of resources, population will seek opportunities elsewhere, affect economic development	Provision of sustainable projects, programs at other initiatives Monitoring and evaluation of project and programs implemented

4.4 Industry

4.4.1 Historical Data on Industrial Areas

Most of the industries are located in barangays San Agustin, Poblacion 2 and Poblacion 3. These industries are considered light to heavy in nature and pollutive and hazardous. Light industries are non pollutive and non-hazardous in nature. Examples of this are industries are drying fish, biscuit factory, other bakery products, printing, publishing and allied industries and manufacture of products that do not emit any chemical that may harm the environment. On the other hand, medium industries are those that are pollutive and hazardous, there is danger in health and in fire occurrence. Industries classified as medium in the level of intensity are flour milling, production of prepared feeds for animals, garment and undergarments, manufacture of charcoal, candles, inks rubber shoes, plastic furniture and footwear, and sign and billboard shop. Meanwhile, heavy industries are those, highly pollutive, highly hazardous and extremely hazardous.

4.4.2 Inventory of Existing Industrial Establishments by Intensity, Capitalization, and Employment

There are 13 industrial establishments in Alaminos. Four (4) establishments are classified as light industries, four (4) establishments are medium industries and the remaining six (6) establishments are heavy industries (refer to Table 104).

Pollutive industries discharge large amounts of air, water, and solid pollutants. Non-pollutive industries on the other hand emit little or negligible amounts of these pollutants. These two types of industry both exist in Alaminos. It varies in the intensity where there are light, medium and heavy industries.

Table 104 - EC: Inventory of Existing Industrial Establishments by Intensity, Capitalization, and Employment in Alaminos, Laguna

Barangay	Industrial Establishment	Employment
Light Industry		
Poblacion 3	Jacksonville Creative Concept	nd
Poblacion 2	Charise Sash Factory and Furniture	nd
San Agustin	Carl Lou Furniture	2
San Juan	Trichique Wood Creations	1
Medium Industry		
Poblacion 1	Kayumanggi (KTF) Tropical Food	2
San Miguel	Larcen Metal Works	3
San Benito	Texin Inc.	22
San Juan	Joe-Vick's Buko Pie	nd
Heavy Industry		
Poblacion 2	Trinidy Steel Works	nd
Poblacion 3	Reyes Nata De Coco	2
San Roque	Pyro Buster Enterprise	11
San Juan	Rastech Chemicals Manufacturing	1
San Agustin	Mega Southern Asphalt Mix Corp.	22
San Agustin	Meridian Nature-Tek Corp.	1

4.4.3 Local Revenue and Industrial Establishment

The local revenue of Alaminos in 2015 reached P7,759,207.62, which is comprised of tax revenue and non-tax revenue. Tax revenue are those tax on income and profits, social security contributions, real property tax, and business tax while non-tax revenue are collected from regulatory fees, service income, business income and other income (dividend, interest and miscellaneous income). The revenue increased in 2016 by P1,141,008.62 and P1,400,411.61 in 2017. The increase in the local revenue is attributed to improve tax collection management of the Business Permits and Licensing Office.

Although there is an increase in revenue per year, the amount cannot suffice all the monetary needs of the municipality, thus, making the municipality highly internal revenue allotment (IRA) dependent. Similar to the province which is also IRA dependent with 86 percent in 2015 and 85 percent in 2016. Alaminos is 76.18 percent IRA dependent in 2015 and 75.67 percent in 2016.

Table 105 shows the local revenue generated from industries from 2015 to 2016.

Table 105 - EC: Local Revenue of Alaminos, Laguna

Year	Revenue from industries	Total Revenue	Increase/ Decrease
2015	7,759,207.62	106,552,716.07	-
2016	8,900,216.24	118,274,563.08	1,141,008.62

Source: Treasurer's Office, 2017

4.4.4 Inventory of Local Policies relating to Industrial Development

Resolution No.01 Series of 2008 – A resolution enacting investment incentive ordinance for prospective investors in the municipality of Alaminos, Laguna and for any other purposes relative thereof.

4.4.5 Fuel and Chemical Depot

Gasoline products are abundant and readily available in Alaminos. Gasoline stations are concentrated in barangay San Juan. There are seven (7) fuel depot in the barangay. Vehicles passing thru Alaminos benefit most from these depots as well as the municipality in which they pay for the tax. The existence of the by-pass road going to Lipa City is the primary reason for the concentration of these fuel depots.

Table 106 - EC: Fuel and Chemical Depot Company/Owner, Type, and Location

Company/ Owner	Type	Location
Suncrest Gas Corp.-Retail Outlet (Regaso Brand)	-	San Juan
Teresita F. Esguerra	EFG Marketing	San Juan
Richard M. Tan	Pryce Gases, Inc.	San Juan
Jose Melchor J. Enriquez	Optimum Gas Energy, Inc.	San Juan
	Shell Gas Station	San Juan
Total Elite Gasoline Station, Inc.	Total Gasoline Station	San Juan
Edwin M. Mojica	Edchel Marketing	Poblacion1
Robert Niño M. Bernardo	Robert Niño Bernardo Gas Station	San Agustin
Petron Corporation	Petron Gasoline Station	San Juan, San Agustin
	Caltex Gas Station	Poblacion 2

Source: BPLO, 2017

4.4.6 Industry Analysis Matrix

Presented below is Table 107 summarizing the technical findings of the industry subsector of Alaminos.

Table 107 - EC: Industry Analysis Matrix of Alaminos, Laguna

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Business establishment are not renewing their permits	Closure of business establishment, increase fines	Close monitoring on the businesses operating in the local

Technical Findings	Implications when unresolved	Policy Options/ Intervention
		Enforcement of regulations to non-complying business establishments
Presence of highly pollutive and hazardous industries	Increase incidence of water and air borne diseases	Protocol on industry application to operation monitoring

4.5 Tourism

4.5.1 Inventory of Existing Tourist Destinations

Currently, Alaminos has five (5) existing tourist destinations located in the urban area. [Table 108](#) shows the different destinations.

Table 108 - EC: Existing Tourist Destinations in Alaminos, Laguna

Name	Barangay
Villa Luisa	Poblacion 3
Ricardo's Forest Hill	San Benito
Cipra Museum	San Agustin
Royal Palm Paradise Resort & Spa	San Agustin
Alaminos Goat Farm	Poblacion 2
Nuestra Senora Del Pilar Church	Poblacion 3
Al-iman Mosque	Poblacion 3
Mapecon	Poblacion 3

Source: MPDO, 2017

4.5.2 Cultural and Tourism Activities/Festivals

CORAMBLAN festival was created to promote tourism in Alaminos. CORAMBLAN stands for coconut (CO), rambutan (RAMB), and lanzones (LAN) which the trees are abundant in Alaminos. It is celebrated every 12th day of October as a tribute to the religious Patron of the town, Nuestra Senora Del Pilar. Other barangays in the municipality celebrate their own fiesta as tribute to their patron saints as shown in [Table 109](#) below.

Table 109 - EC: Barangay Patron Saints and Date of Festivities in Alaminos, Laguna




Barangay	Patron Saint	Date of Festivity
Del Carmen	Del Carmen	July 16
Palma	San Isidro Labrador	May 15
San Agustin	San Agustin	August 28
San Andres	San Andres	November 30
San Benito	San Benito	July 11
San Gregorio	San Gregorio	March 12
San Ildefonso	San Ildefonso	January 23
San Juan	San Juan	December 27
San Miguel	San Miguel	May 8
San Roque	San Roque	August 16
Sta. Rosa	Sta. Rosa	August 30

Source: MPDO, 2018

4.5.3 Potential Tourist Attractions in the Locality

The municipality has several tourist destinations that remain untapped and undeveloped. Listed below are potential tourist attractions in Alaminos.

Table 110 - EC: Potential Tourist Attractions in Alaminos, Laguna

Potential Tourist Attractions	Description
	<p>Fule Ancestral Houses, Poblacion III</p> <p>Fule Mansion is one of the ancestral houses in Alaminos, Laguna and is owned by Fule Family. One of the mansions is the old rural bank. Both are following Hispanic structure design.</p>
	<p>Nahiren Falls, Palma</p> <p>This falls is located at Brgy. Sta Rosa. Its name was derived from the big stone that was stocked in the opening of the falls and termed as “Nahirinan or nakahiren” meaning the big stone chokes the falls, which also gives name of the falls “Nahiren”.</p>
	<p>Mt. Pataguin, Palma</p> <p>This mountain requires of about three hours of trekking prior to reach the overlooking view of Lipa City. Visitors come during holy week from Tanauan Batangas and other places.</p>

Source: MPDC, 2018

4.5.4 Tourism Analysis Matrix

Presented below is **Table 111** summarizing the technical findings of the tourism subsector of the municipality of Alaminos.

Table 111 - EC: Tourism Analysis Matrix of Alaminos, Laguna

Technical Findings	Implications when unresolved	Policy Options/ Intervention
No tourism officer	No tourism development	Designation of tourism officer
No tourism master plan	Tourism sector will remain undeveloped, no direction set for the industry, no potential/additional local revenue	Provision of tourism plans and programs thru the tourism officer
Potential tourism sites are undeveloped	No potential/additional local revenue	Formulation of projects and programs prior for development and advertisement of potential tourism sites

4.6 Integrated Economic Sector Analysis

Table 112 summarizes the integrated economic sector analysis of Alaminos, Laguna.

Table 112 - EC: Integrated Economic Sector Analysis of Alaminos, Laguna

Issues/observations	Explanation	Implications when unresolved	Policy options
Labor and employment			
Lack of local job opportunities	Previous livelihood projects were unsustainable whereas monitoring is also insufficient	People will continue to seek employment elsewhere, and may increase out migration	Provision of long term and sustainable and competitive livelihood
High unemployment and underemployment rates	Most of the working population were working outside the municipality wherein wages do not suffice with their job.	People will continue to seek employment elsewhere, and may increase out migration	Local government -private sector cooperation to provide employment with the locale
Large number of working population are employed outside of the LGU	Less job opportunities in the municipality. Industries in the area were not in need of much man power.	May affect the local revenue source; increase out migration	Local government -private sector cooperation to provide employment with the locale
Agriculture			

Issues/observations	Explanation	Implications when unresolved	Policy options
Large agriculture areas are underutilized	Irrigation system is not adequate to serve planting areas for annual crops. Plantation areas were mostly occupied by perennials such as fruit bearing trees	Prevalence of idle lands increases local revenue from idle land taxation, negatively affect food security, inefficient land use	Promotion of crop diversification Intensification of crop, and livestock production
Agricultural lands are converted to industrial use	Some agricultural declared lands were converted into industrial land resulting to lesser lands used for agricultural production	Affects the food security, land converted but not reclassified for industrial use have smaller tax receipts	Updating and enforcement of the land use plan Protocol on land conversion within the limit
Lack of modern agricultural technology	Modern technologies were not fully used as to farming resulting to unmaximized yield	The potential of the agriculture sector remains untapped and undeveloped	Enhancement of extension support, education and training
Farmers' organizations are not well organized	Farmers' association were not legally registered (ex. SEC)	No partnership and collaboration with local government decision making, the farmers' needs are not voiced out, less support received from the LGU; potentials remained untapped and undeveloped; less chance to participate in activities that provide training, workshops, seminars and practical expertise	Strengthening of farmers and cooperatives
Insufficient projects/training for farmers	Farmers were not exposed to different trainings where	Reduces chance to learn new techniques and	Provision of production support programs

Issues/observations	Explanation	Implications when unresolved	Policy options
	they can be empowered	methods, and marketing skills	Enhancement of extension, education and training
High reliance on importation from other provinces	Most of the agricultural commodities being sold in the market were being imported from the nearby provinces.	Local sources/business/industries remain undeveloped, prices of goods and produce are higher compared when it's sourced locally	Promotion of crop diversification Intensification of crop, and livestock production
Agriculture production is exported to other areas	Harvests such as poultry products were delivered and sold outside the municipality	Affects food security of the municipality especially during emergency, there will be no stored goods/produce to sustain the population especially during emergency	Provision of production support programs Promotion of crop diversification Intensification of crop, and livestock production
Livestock and poultry wastes contributes to pollution and other health related risks	Foul odor were present near the farm area	Increases incidence of water and air borne diseases	Protocol on waste management of agri-industries Monitoring of existing agri-industries on waste production and management
<i>Tourism</i>			
No tourism officer	Tourism office in not yet established in the LGU due to that no personnel to be appointed	No tourism development	Designation of tourism officer
No tourism master plan	No tourism office and designated tourism officer	Tourism sector will remain undeveloped, no direction set for the industry, no potential/additional local revenue	Provision of tourism plans and programs thru the tourism officer
Potential tourism sites are undeveloped	No officer is designated for eco-tourism sites development	No potential/additional local revenue	Formulation of projects and programs prior for development and advertisement of

Issues/observations	Explanation	Implications when unresolved	Policy options
			potential tourism sites
Commerce, trade and industry			
Business establishment are not renewing their permits	Some of the business establishments fail to renew their permits resulting to tax mapping	Closure of business establishment, increase fines	Close monitoring on the businesses operating in the local Enforcement of regulations to non-complying business establishments
Livelihood programs and other local initiatives are not sustained, maintained and monitored	Beneficiaries of programs and projects do not continue the livelihood given to them	Waste of resources, population will seek opportunities elsewhere, affect economic development	Provision of sustainable projects, programs at other initiatives Monitoring and evaluation of project and programs implemented
Presence of highly pollutive and hazardous industries	There are hazardous and pollutive industries operating in the municipality	Increase incidence of water and air borne diseases	Protocol on industry application to operation monitoring
Data management			
Lack of data management system	Data of the municipality are consolidated and updated. Some data for the previous years is missing.	Lack of data management system affects the productivity and efficiency of employees, accuracy and credibility of data, and contributes to difficulty in analysing and interpreting conditions for planners, investors and decision makers	Establishment of MIS and staff assigned on data management

4.7 Production Area Exposure and Risk to Hazards

Production areas pertain to areas utilized for crop, fisheries, and forestland production. For the case of the municipality, only crop production is applicable and therefore used for this assessment. For the degree of impact, only ground shaking has a value of one (1) or low. This means that the estimated damage to property is low to negligible. In terms of other hazards, barangays Poblacions 1 to 4 have a low DOI value. This low value is

attributed to these barangays having very low crop production areas. For other barangays, there is a combination of high and moderate estimated direct and indirect damage to property/production areas, particularly barangays Sta. Rosa, San Gregorio, Palma, San Agustin, and San Andres, since these barangays have high estimated direct and indirect damage to its production areas. Mitigation and adaptation measure must be strengthened in these areas to reduce impact of damage to flooding, RIL, EIL and soil erosion(refer to [Map 50: Production Area Flood Exposure Map of Alaminos, Laguna](#) to [Map 54: Production Area Soil Erosion Exposure Map of Alaminos, Laguna](#)).

Barangays San Agustin, San Benito, Del Carmen, San Gregorio, and San Roque have production areas exposed to flooding. With barangay San Benito having the highest percentage of area exposed with 0.308 percent of its total production area. In terms of RIL, barangays Poblacion 4, Del Carmen, San Ildefonso, San Juan and Sta Rosa are top five barangays with the highest percentage of its production area exposed to this type of hazard. On the other hand, all urban barangays are not exposed to earthquake induced landslide, however, barangays Palma, San Andres, San Gregorio, San Miguel and Sta Rosa have areas exposed to EIL, with barangays Palma and Sta. Rosa having the highest percentage among all barangays. In terms of ground shaking exposure, all barangays are exposed to this type of hazard.

Table 113 - EC: Production Area Hazard Exposure and Degree of Impact of Alaminos, Laguna

Barangay	Flooding		Rain-Induced Landslide		Ground shaking		Earthquake-Induced Landslide		Soil Erosion	
	Ex	DOI	Ex	DOI	Ex	DOI	Ex	DOI	Ex	DOI
Poblacion 1	0.00	1	0.117	1	1.00	1	0.00	1	0.00	1
Poblacion 2	0.00	1	0.070	1	1.00	1	0.00	1	0.92	1
Poblacion 3	0.00	1	0.0002	1	1.00	1	0.00	1	0.32	1
Poblacion 4	0.00	1	0.336	1	1.00	1	0.00	1	0.00	1
San Agustin	0.063	3	0.024	3	1.00	1	0.00	3	0.00	3
San Benito	0.308	3	0.0002	2	1.00	1	0.00	2	0.00	2
Del Carmen	0.000 2	2	0.648	3	1.00	1	0.00	2	0.43	2
Palma	0.00	3	1.020	3	1.00	1	0.030	3	0.37	3
San Andres	0.00	3	0.642	3	1.00	1	0.007	3	1.00	3
San Gregorio	0.004	3	1.020	3	1.00	1	0.010	3	0.68	3
San Ildefonso	0.00	2	0.324	1	1.00	1	0.00	2	0.52	3
San Juan	0.00	2	0.511	2	1.00	1	0.000	2	0.70	3
San Miguel	0.00	1	0.250	1	1.00	1	0.023	2	0.00	1
San Roque	0.116	2	0.046	1	1.00	1	0.00	1	0.00	1
Sta. Rosa	0.00	3	0.883	3	1.00	1	0.030	3	0.78	3

Source: CDRA, 2018

Ex – Percentage of Production Area Exposed, DOI – Degree of Impact

In terms of flooding, rail-induced landslide, soil erosion and earthquake-induced landslide, Alaminos has a combination of low and moderate vulnerability ratings, while in terms of ground shaking, the municipality has a low vulnerability rating. Table 114 below summarizes the vulnerability ratings of Alaminos in terms of its production area and hazards.

Table 114 - EC: Production Area Hazard Vulnerability Ratings of Alaminos, Laguna

Barangay	Flooding	Rain-Induced Landslide	Ground shaking	Earthquake-Induced Landslide	Soil Erosion
Poblacion 1	Low	Low	Low	Low	Low
Poblacion 2	Low	Low	Low	Low	Low
Poblacion 3	Low	Low	Low	Low	Low
Poblacion 4	Low	Low	Low	Low	Low
San Agustin	Moderate	Moderate	Low	Moderate	Moderate
San Benito	Moderate	Low	Low	Low	Low
Del Carmen	Low	Moderate	Low	Low	Low
Palma	Moderate	Moderate	Low	Moderate	Moderate
San Andres	Moderate	Moderate	Low	Moderate	Moderate
San Gregorio	Moderate	Moderate	Low	Moderate	Moderate
San Ildefonso	Low	Low	Low	Low	Moderate
San Juan	Low	Low	Low	Low	Moderate
San Miguel	Low	Low	Low	Low	Low
San Roque	Low	Low	Low	Low	Low
Sta. Rosa	Moderate	Moderate	Low	Moderate	Moderate

Source: CDRA, 2018

The specific hazard vulnerability maps for production area are referenced below: p.192-143.

1. [Map 55: Production Area Flood Vulnerability Map of Alaminos, Laguna](#)
2. [Map 56: Production Area RIL Vulnerability Map of Alaminos, Laguna](#)
3. [Map 57: Production Area Ground Shaking Vulnerability Map of Alaminos, Laguna](#)
4. [Map 58: Production Area EIL Vulnerability Map of Alaminos, Laguna](#)
5. [Map 59: Production Area Soil Erosion Vulnerability Map of Alaminos, Laguna](#)

5. Infrastructure Sector

This section presents the development, conditions, and concerns of the infrastructure and utilities in the Municipality of Alaminos. Included in this section are transportation, communication, water resources, power/energy, social service support, economic support, and administrative support facilities.

5.1 Transportation

Similar to the province of Laguna, Alaminos is only accessible by land transportation. The transportation network in Alaminos is composed of roads, railways and footpaths.

5.1.1 Inventory of Roads by System Classification and Type of Pavement

There is a total of 64.85 kilometers of road networks, which is mostly made of concrete or asphalt. Table 115 summarizes the national, provincial, municipal, barangay, and private roads in Alaminos, Laguna (refer to [Map 29: Road Network Map of Alaminos, Laguna](#)).

Table 115 - IF: Road Networks and Length of Alaminos, Laguna

Road Classification	Length (Km)
National Roads	16.64
Provincial Roads	9.94
Municipal Roads	6.89
Barangay Roads	27.60
Private Roads	3.78
Total	64.85

Source: MPDO GIS Computed, 2018

National Roads

There are two (2) national roads in Alaminos – Maharlika Highway and Alaminos Lipa Road. Maharlika Highway, which is 9.32 kilometers in length, is the main network of the municipality connected to the City of San Pablo and Sto. Tomas, Batangas. Maharlika highway is currently being widened to accommodate road needs and alleviate traffic congestions along major thoroughfares. The Alaminos-Lipa road is 7.32 kilometers long connecting the municipality to the city of Lipa. In terms of surface type, Maharlika highway has an asphalt surface while Alaminos –Lipa road is concrete. Both national roads are in fair and good conditions. Table 116 below shows the national roads, surface types, conditions and length.

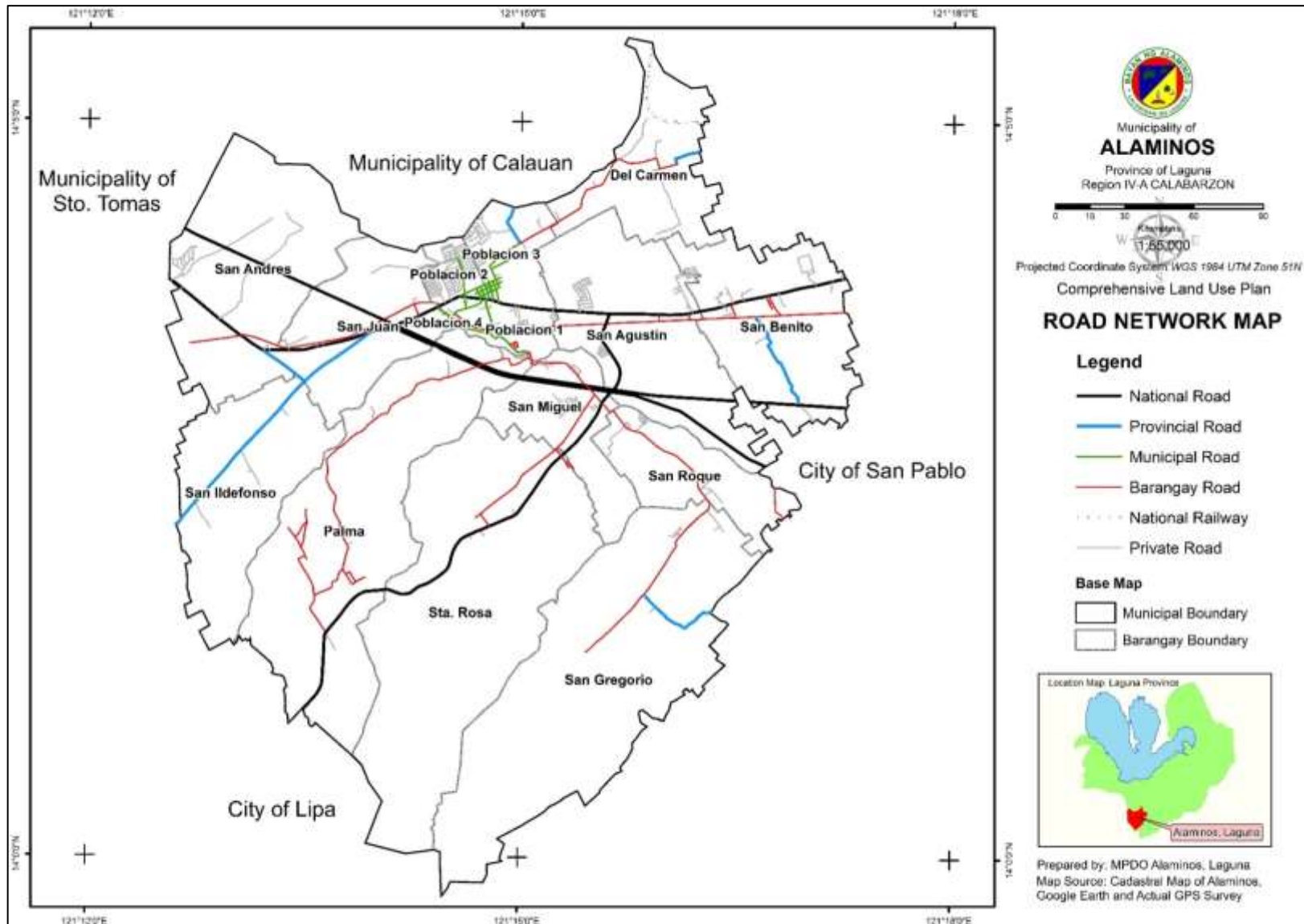
The national government has a program for widening national roads and this includes the Maharlika highway which, after the road widening, has a width of 20 meters.

Table 116 - IF: National Roads with Surface Type, Condition, and Length of Alaminos, Laguna

Road Name	Surface Type	Condition	Length (Km)
Maharlika Highway	Asphalt	Fair	9.32
Alaminos - Lipa City Road	Concrete	Good	7.32
Total			16.64

Source: MPDO GIS Computed, 2018

Map 29: Road Network Map of Alaminos, Laguna



Provincial Roads

The provincial roads make up a total of 9.94 kilometers of the total road network of Alaminos. This type of road connects cities and municipalities without traversing national roads, national roads to barangays through rural areas and major provincial government infrastructure.

Provincial roads made up of either asphalt(41.85%) or concrete(58.15%).In terms of its condition, 46.08 percent is generally fair and good. Table 117 shows that the San Benito-Sta. Veronica road, San Gregorio-Santiago 1 road, and Del Carmen-San Crispin road are in poor condition and need of an improvement.

Table 117 - IF: Provincial Roads with Surface Type, Condition, and Length in Alaminos, Laguna

Road Name	Surface Type	Condition	Length (Km)
Sto.Tomas - Alaminos Road	Asphalt	Fair	3.61
Sta. Veronica Road, SPC	Concrete	Fair	0.41
San Benito - Sta. Veronica Road	Concrete	Poor	1.63
San Gregorio - Santiago 1 Road	Concrete	Poor	1.10
Barangay 3 - Limao Road	Asphalt	Good	0.55
Del Carmen - San Crispin Road	Concrete	Poor	2.63
Total			9.94

Source: MPDO GIS Computed, 2018

Municipal Roads

Municipal roads are roads within Poblacion area that connect to provincial and national roads, and provide inter-barangay connections to major municipal infrastructure without traversing to provincial roads.The total length of the municipal roads in Alaminos is 6.89 kilometers. Like the provincial roads, the type of surface of the municipal roads is either asphalt (67.92%) or concrete (32.08%) with conditions varying from poor (23.51%), fair (36.57%), or good (39.91%). Roads that have a poor condition are in need of an immediate repair or improvement, roads classified as fair mean it is acceptable or serviceable but can later be improved, while roads that are good in condition provide good service and accessibility to the people.

Table 118 - IF: Municipal Roads with Surface Type, Condition, and Length of Alaminos, Laguna

Road Name	Surface Type	Condition	Length (Km)
Faylona Street	Asphalt	Fair	0.29
Barangay 3 Road	Asphalt	Good	0.35
Schultz Street	Asphalt	Good	0.50
Francisco Fule Street	Concrete	Poor	0.97
Jose Fule	Asphalt	Fair	0.48
Marcelino Fule Diversion Route	Asphalt	Good	0.94
Medina Street	Asphalt	Fair	0.28
Gen. Malvar Street	Asphalt	Fair	0.20
KalyePutol	Concrete	Poor	0.15
Lt. de Villa	Asphalt	Fair	0.15
Rizal Street	Concrete	Good	0.59
Daniel Fandiño Street	Asphalt	Fair	0.67
Apolinario Mabini Street	Asphalt	Fair	0.17

Road Name	Surface Type	Condition	Length (Km)
Juan Luna Street	Asphalt	Good	0.37
Villanueva	Concrete	Poor	0.50
Baylon Street	Asphalt	Fair	0.28
Total			6.89

Source: MPDO GIS Computed, 2018

Barangay Roads

Barangay roads function as other public roads within the barangay and do not meet the other criteria previously mentioned in the other road classifications. Among the 20 barangay roads, three (3) roads are already considered poor (46.20%) and in need of repair, these are: San Gregorio barangay road, PNR road, and Del Carmen road. The rest of the barangay roads are considered in a fair condition (53.80%).

Table 119 - IF: Barangay Roads with Surface Type, Condition, and Length of Alaminos, Laguna

Road Name	Surface Type	Condition	Length (Km)
San Gregorio Barangay Road	Concrete	Poor	2.33
Sta. Rosa Barangay Road	Concrete	Fair	0.89
San Juan Barangay Road	Concrete	Fair	0.67
San Miguel Barangay Road	Concrete	Fair	0.20
San Miguel Barangay Road	Concrete	Fair	1.23
San Juan Barangay Road	Concrete	Fair	0.18
San Agustin Barangay Road	Concrete	Fair	0.09
San Benito Barangay Road	Concrete	Fair	0.21
San Benito Barangay Road	Concrete	Fair	0.30
San Miguel Barangay Road	Concrete	Fair	0.24
San Juan Barangay Road	Concrete	Fair	0.05
San Agustin Barangay Road	Concrete	Fair	0.09
PNR Road	Concrete	Poor	7.79
Palma Barangay Road	Concrete	Fair	7.08
Alaminos Bypass Road	Concrete	Fair	1.28
Del Carmen Barangay Road	Concrete	Poor	2.63
San Benito Barangay Road	Concrete	Fair	0.19
San Roque Barangay Road	Concrete	Fair	1.91
San Benito Barangay Road	Concrete	Fair	0.04
Sta. Rosa Barangay Road	Concrete	Fair	0.20
Total			27.60

Source: MPDO GIS Computed, 2018

Private Roads

Private roads have a total length of 3.78 kilometers. It is mostly composed of subdivision roads made of concrete and are in fair condition. It is mostly composed of subdivision roads made of concrete and are in fair condition.

Table 120 - IF: Private Roads with Surface Type, Condition, and Length of Alaminos, Laguna

Road Name	Classification	Surface Type	Condition	Length (Km)
Private Roads	Private	Concrete	Fair	3.78
Total				3.78

Source: MPDO GIS Computed, 2018

5.1.2 Inventory of Bridges by Location, Type, Capacity, and Condition

Bridges serve as an important link for the road networks. It connects roads and enable vehicles to cross rivers or cliffs. Currently, Alaminos has seven (7) bridges, all made of concrete.

Table 121 - IF: Inventory of Bridges by Location, Type, Capacity, and Condition in Alaminos, Laguna

Bridge name	Barangay	Length	Width	Type
<i>Mayor Francisco Donato Bridge</i>	Poblacion I	45.60 m	10 m	Concrete
		44.70 m	10 m	Concrete
	San Andres	16.3 m	8.8 m	Concrete
		16.3 m	4.5 m	Concrete
		8.2 m	8.0 m	Concrete
	San Miguel Bridge	63.3 m	10.5 m	Concrete
	San Roque	10.8 m	4 m	Concrete

Source: MEO, 2018

5.1.3 Inventory of Railways, Railway Facilities and Services

The Philippine National Railway traverses in Alaminos, specifically in barangays San Andres, San Juan, Poblacion IV, Poblacion I, San Agustin, San Benito. However, these railways are no longer being used as a form of transportation since residents of Alaminos and the neighboring municipalities/cities use private vehicles, jeeps, tricycles, and buses as their main modes of transportation.

Also, the railway is no longer functional since the track is already paved and there are no facilities or services provided.

5.1.4 Modes of Transportation and Transportation Terminals

The modes of transportation in the municipality include jeepneys, tricycle, buses, and use of private vehicles. Tricycles and jeepneys are the main transportation modes in the municipality. Tricycle terminal is located in the public market in barangay Poblacion 3. The municipality ten (10) tricycle operators and drivers associations (TODAs), eight (8) of which are registered and operating in the municipality, while two (2) are registered in Calauan.

The tricycles allow the locals of Alaminos to travel narrow roads in barangays, and areas that jeepneys cannot reach. Though the Alaminos does not have its own jeepney terminal, it is accessible by jeepneys that pass by the Maharlika highway going to either Tanauan City, Batangas or San Pablo City, Laguna.

Table 122 - IF: Existing Tricycle Operators and Drivers' Association Location of Service in Alaminos, Laguna

TODA Name	Location
APODA 1	Poblacion 1
ATODA II	Poblacion 2
ATODA III	Poblacion 3
APODA IV	Poblacion 4
AITODA	Ibayiw

TODA Name	Location
SALTODA	San Agustin
AJIFTODA	San Ildefonso
PATODA	Palma
ALITODA	Limao, Calauan
ATTODA	Tamlong, Calauan
SBTODA	San Benito

Source: Treasurer's Office, 2018

5.1.5 Traffic Conditions

The annual average daily traffic (AADT) and volume capacity ratio (VCR) in two (2) national roads is summarized in Table 123 below. The AADT or the average volume of traffic of a road per day in the municipality of Alaminos has reached its peak at 24,342. A high AADT signifies severe 24-hour congestion at a given section of a highway or road. The highest AADT are experienced in major thoroughfares near Calamba City and San Pablo City and cities in Batangas.

The VCR is the ratio of vehicles passing a point in one hour with the maximum number of vehicles that can pass a certain point at the reasonable traffic condition. It is used to assess traffic status in a particular area. Roads with VCR greater than 1.50 is considered beyond capacity, 1.0 to 1.50 VCR is at and above capacity, 0.75 to 1.0 VCR is reaching capacity, and less than 0.75 VCR us below capacity. The Maharlika highway traversing Alaminos is considered as beyond capacity with saturated traffic volumes, stop and go situations. This means that drivers do not have freedom to elect their speed.

With the ongoing project of DPWH, the bypass road and TR4, the traffic along Maharlika highway is expected to significantly decrease.

Table 123 - IF: Annual Average Daily Traffic (AADT) and volume capacity ratio (VCR)

National road	AADT	VCR
Maharlika Highway	24,342	1.20
Alaminos - Lipa City Road	2,110	0.07

Source: DPWH, 2018

5.1.6 Road Crashes by location, Nature, and Frequency

Table 124 shows the frequency of road accidents in the municipality for the past two years. Among the three (3) types of road crashes, reckless imprudence resulting to damage to property is the most frequent type of accident in the municipality with 144 accidents cases in 2016, and 101 cases recorded in 2017.

Table 124 - IF: Road Crashes by Type and Frequency in Alaminos, Laguna

Nature	Location	2016	2017
Reckless imprudence resulting to damage to property	Palma, San Juan, San Benito, San Andres, San Agustin, Sta. Rosa, Poblacion 1, Poblacion 2, Poblacion 3, Poblacion 4	144	101
Reckless imprudence resulting to physical injury	Palma, San Juan, San Benito, San Andres, San Agustin, Sta. Rosa, San Miguel, Poblacion 2	50	30

Nature	Location	2016	2017
Reckless imprudence resulting to homicide	San Benito	3	6

Source: Philippine National Police Alaminos, 2017

5.1.7 Transport Related Projects

Transport related projects are projects that are expected to ease the transport of goods and services, as well as, to provide safe and fast travel of the road users. On-going transport-related projects in the municipality include: additional street lights, farm to market roads (FMR), perimeter fences, concrete box culvert bridges, bypass road, and the TR4.

Table 125 - IF: Transport Related Projects in Alaminos, Laguna

Name	Location	Contractor	Estimated Start Date
Supply and Installation of 20 LED Solar Streetlights	CALABARZON Road, San Agustin	Equator	5/21/2018
Farm to Market Road (ADM)	San Juan	WMLC	6/3/2018
Supply and Installation of Streetlights	Poblacion 4	Lake City Builders	6/6/2018
Farm to Market Road (20% Development)	San Juan	Lake City Builders	6/6/2018
Construction of Perimeter Fence at San Ildefonso Elementary School	San Ildefonso	Lake City Builders	7/8/2018
Construction of Reinforced Concrete Box Culvert	Poblacion 2	Lake City Builders	7/8/2018
Bypass Road	San Juan, Palma, San Miguel, San Agustin	DPWH	On-going
South Luzon Expressway Toll Road 4 (SLEX-TR4).	San Andres, San Juan, Palma, San Miguel, San Agustin, San Benito	DPWH	On-going

Source: MEO, 2018

5.1.8. Transportation Analysis Matrix

Table 126 presents the transportation analysis matrix for the municipality of Alaminos.

Table 126 - IF: Transportation Analysis Matrix

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Presence of narrow roads	May contribute to difficulty or delays in transporting goods to and from Alaminos and difficulty in mobility and accessibility during emergency situations, narrow roads along urban	Road widening projects

Technical Findings	Implications when unresolved	Policy Options/ Intervention
	areas may contribute to road crashes among pedestrians	
Traffic congestion along national road	May contribute to delays in transporting goods and services	There are ongoing projects—TR4 and Bypass road, Maharlika highway widening that would reduce the traffic congestion along Maharlika highway
Proliferation of illegal parking	Contributes to congestion in urban areas and delay in the delivery of goods and services	Implementation of Article 5 Sec. 52 of R.A. 4136 or the Land Transportation and Traffic Code
No policy regulating speed limits in shared roads	Increases likelihood occurrence of road crashes among vehicles and pedestrians	Craft an ordinance for speed limit in shared roads Street signs as cautionary guide for drivers
High incidence of reckless impudence resulting to damage to properties	Road safety is compromised	Monitor speed of vehicles Designation of traffic enforcers in accident prone areas
Lack of differently abled person (DAP) friendly infrastructure support facilities	Increases vulnerability among DAPS specially during disaster, do not encourage participation, not empowering	Implementation of Batas Pambansa 344 (An act to enhance the mobility of Differently Abled Persons)
Weak enforcement of traffic management program	Causes transport related issues such as traffic congestion, proliferation of illegal parking, lack of traffic facilities investment, poor enforcement and implementation of rules and regulations	Establish a traffic management office
Insufficient farm to market roads	Increases cost of transporting goods	Coordinate with private land owners near the farms for allocation of land for FMR
Slow progress of road widening programs	Causes traffic congestion, contributes to delays in the delivery of goods and services, and may cause road crashes	Coordination with contractor; stick with the project schedule to avoid delaying the completion of the project
Lack of transportation support facilities – street lights and CCTV	Reduces safety especially at night	Investment to transport facilities such as CCTVs

5.2 Power

5.2.1 Households Served with Electricity

The main electricity provider in the municipality is the Manila Electric Company (MERALCO). Table 127 shows that in 2015, 10,475 households or (percentage) have already provided with electricity by MERALCO. This means that there is only (number of households) or 2.98 percent of total households that is still in need of electricity. However, there is an increase in the number of households in 2016 and 2017. The percentage of electrified households dropped to 94.69% in 2017 because of this. The local government of Alaminos is keen on granting permits to households that are requesting for electricity. Households that still do not have electricity may be the ones which are identified as informal settlements which comprise of 249 households.

Table 127 - IF: Household Electrification Statistics in Alaminos, Laguna

Year/Barangay	Total Household	Estimated Electrified Household	Estimated % Household Electrification
2015	10,687	10,475	98.02%
2016	11,368	10,765	94.70%
2017	11,367	10,763	94.69%
Poblacion 1	832	788	94.71%
Poblacion 2	629	596	94.75%
Poblacion 3	617	584	94.65%
Poblacion 4	789	747	94.68%
Del Carmen	639	605	94.68%
Palma	536	507	94.59%
San Agustin	1,273	1,206	94.74%
San Andres	671	635	94.63%
San Benito	1,446	1,369	94.67%
San Gregorio	905	857	94.70%
San Ildefonso	640	606	94.69%
San Juan	701	664	94.72%
San Miguel	436	413	94.72%
San Roque	464	439	94.61%
Santa Rosa	789	747	94.68%

Source: MERALCO, 2018

5.2.2 Number of Connections by Type of Users and Average Consumption

MERALCO serves four (4) types of clientele in the municipality. The table below shows that in 2017, MERALCO served a total of 9,097 clients where 8,524 are residential, 555 are commercial establishments, 13 are industries, and six (6) are street lights. It is projected that in 2027, the total of clients that needs to be provided with electricity will be at 13,534.

Table 128 - IF: Number of Clientele Provided with Electricity in Alaminos, Laguna

Year	Clientele				
	Residential	Commercial	Industrial	Street Light	Total
2013	7,584	519	12	5	7,768
2014	7,584	533	13	4	8,134
2015	7,748	528	13	5	8,294
2016	8,182	541	13	6	8,742
2017	8,524	555	13	6	9,097
2027	12,854	655	16	9	13,534

Source: MERALCO, 2018

The table below shows that, generally, the bulk of electricity provided goes to residential clients. Their annual consumption is 12,877-megawatt hour (mwh), only half of commercial consumption which is 6,554 mwh, annually. The total electricity consumption of all the clientele in 2017 is 23,702 mwh and is expected to be more than doubled in 2027, with 48,513 mwh as a total consumption.

Table 129 - IF: Annual Electricity Consumption per Clientele in Alaminos, Laguna

Year	Electricity Consumption (Mwh)*				
	Residential	Commercial	Industrial	Street Light	Total
2013	9,809	4,770	1,107	201	15,887
2014	9,945	5,108	2,529	180	17,762
2015	10,723	5,785	3,522	179	20,209
2016	12,094	6,469	3,315	201	22,079
2017	12,877	6,554	4,069	202	23,702
2027	25,428	14,503	8,376	206	48,513

Source: MERALCO, 2018

5.2.3 Power Transmission/Distribution Line

A transmission line and a distribution line both carries electricity from one place to another. The difference lies on the where the electricity is from and the voltage level it carries. Transmission lines carry electricity from power plants and deliver it to substations with a voltage level of 11,000, on the other hand, distribution lines carry electricity with a low voltage of 220 to a power substation and delivers it to consumers.

The municipality has 39 transmission towers, which can be found in four (4) barangays, namely – San Andres, San Ildefonso, San Gregorio, and Palma.

Table 130 - IF: Transmission towers in Alaminos, Laguna

Barangay	Number of Transmission towers
San Andres	10
San Ildefonso	9
San Gregorio	8
Palma	12

Source: Office of the Municipal Engineer, 2018

5.2.4 Power Substations

Power substations transforms voltage into low to high or reverse which will then be transmitted or distributed. In the case of Alaminos, there is no existing power substation.

5.2.5 Power Plants

A power plant is a facility where electricity is generated from difference energy sources and converted into electrical power. Currently, Alaminos has no existing power plant in the municipality.

5.2.6 Power Analysis Matrix

Table 131 presents the transportation analysis matrix for the municipality of Alaminos.

Table 131 - IF: Power Analysis Matrix

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Prevalence of illegal electricity connections	Illegal connections, may lead to electrical accidents and fire incidence, may cause overloaded power lines and transformers due to unregistered consumption may also contribute to accidents and brownouts that affect the community	Enforce strict implementation of R.A 7832 or the Anti-electricity and Electric Transmission Lines/Materials Pilferage Act of 1994

5.3 Water

Philippines has three (3) levels of classification of water system, these are 1) Level 1— Stand-alone water points, including shallow wells, hand pumps, or rainwater collectors; 2) Level 2— piped water supply with a communal water point, such as spring system or bore well; and 3.) Level 3— Piped water supply with a private water point, such as a house connection. All three levels of classification of water system are present in Alaminos, Laguna and will be discussed each below.

5.3.1 Level I Water Supply System by Type and Number of Households Served

Table IF 18 shows that three (3) barangays in Alaminos is dependent on a hand pump which is considered as a Level I water supply. These barangays include Poblacion I, San Agustin, and Sta. Rosa with 148 households relying on hand pumps as their main source of water.

Table 132 - IF: Number of Households Served with Level I Water Supply in Alaminos, Laguna

Barangay	Number of households
Poblacion 1	74
Poblacion 2	0
Poblacion 3	0
Poblacion 4	0

Barangay	Number of households
Del Carmen	0
Palma	0
San Agustin	63
San Andres	0
San Benito	0
San Gregorio	0
San Ildefonso	0
San Juan	0
San Miguel	0
San Roque	0
Sta. Rosa	11
Total	148

Source: PSA, 2015

5.3.2 Water Sources of Level II Water Supply System

Households from barangays Palma, San Gregorio, San Ildefonso, San Miguel, San Roque, and Sta. Rosa have 3,892 households relying on a communal water source for their water supply.

Table 133 - IF: Number of Households Served with Level II Water Supply in Alaminos, Laguna

Barangay	Number of households
Poblacion 1	0
Poblacion 2	0
Poblacion 3	0
Poblacion 4	0
Del Carmen	0
Palma	592
San Agustin	0
San Andres	0
San Benito	0
San Gregorio	821
San Ildefonso	680
San Juan	0
San Miguel	415
San Roque	414
Sta. Rosa	970
Total	3892

Source: PSA, 2015

5.3.3 Level III Local Waterworks System Number of Households Served

Majority of the households in Alaminos use a Level III water supply for their daily needs. Alaminos Water District provides service for water supply in barangay Poblacion 1, Poblacion 2, Poblacion 3, Poblacion 4, Del Carmen, San Agustin, San Andres, San Benito, and San Juan.

Table 134 - IF: Number of Households Served with Level III Water Supply in Alaminos, Laguna

Barangay	Number of households
Poblacion 1	519
Poblacion 2	409
Poblacion 3	465
Poblacion 4	496
Del Carmen	250
Palma	0
San Agustin	774
San Andres	851
San Benito	1322
San Gregorio	0
San Ildefonso	0
San Juan	615
San Miguel	0
San Roque	0
Sta. Rosa	0
Total	5701

Source: PSA, 2015

5.3.4 Water Analysis Matrix

Table 135 summarizes the water subsector findings, implications and policy interventions.

Table 135 - IF: Water Analysis Matrix

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Limited water supply	Continuous water shortage affects households, and other sectors and subsectors	Invest in water treatment facility
High frequency of water interruptions	Continuous water shortage affects households, and other sectors and subsectors	Invest in water treatment facility Promotion of rainwater harvesting
Water pollution	Water-borne diseases	Strong implementation of RA 9275 or the Clean Water Act of 2004

5.4 Information and Communications Technology

5.4.1 Communication Services Facilities

Table 136 shows the types of communication available in the municipality, this includes postal services, freight services, internet providers, telephone service, cellular sites, and cable providers.

The postal office operates in the municipal hall and its services include mailing and freight forwarding and delivery. Aside from the post office, there are also eight (8) freight services offered in the municipality listed below (Table IF 17) which are all privately owned.

Internet is available in the municipality but with relatively slow connection, depending on the location and the service provider. There are three (3) internet providers present in the municipality which includes PLDT-Smart, Digitel, and Globe. PLDT and Digitel offers telephone services which is usually bundled with the internet connection.

For cellular network, both Globe Telecommunication and Smart Communications are available and widely used in the municipality for calling and messaging. Strength of connections varies from place to place, while even some areas have dead spots—areas with no signal receptions.

Cable television is a technology where television programming is delivered via a co-axial or a fiber-optic cable. In Alaminos, there are two (2) cable television service provider: 1) Rustic Clear Cable Corporation and; 2) Telmarc Corporation, which are both are located in barangay San Benito.

Table 136 - IF: Communication Service Facilities in Alaminos, Laguna

Type	Service Provider/ Company	Barangay Served	Ownership
Postal services	Postal Office	All Barangays	Public
Freight Services	Montelena Prime Movers	San Ildefonso	Private
	ML KargoPadala Inc.	nd	Private
	Trirex Logistics Inc.	Poblacion I	Private
	4BIS Joe's Mac Express Services	San Agustin	Private
	Castlerey Enterprises	San Agustin	Private
	Pailo Forwarder	San Ildefonso	Private
	Fastcargo Logistic Corp	San Benito	Private
	Jul's Transport	San Ildefonso	Private
	Internet providers	PLDT-Smart	All Barangays
Digitel		All Barangays	Private
Globe Telecom, Inc.		All Barangays	Private
Telephone service provider	PLDT	All Barangays	Private
	Digitel	All Barangays	Private
Cellular sites network	Smart Communications	All Barangays	Private
	Globe Telecom, Inc.	All Barangays	Private
Cable Television	Rustic Clear Cable Corporation	San Benito	Private
	Telmarc Corporation	San Benito	Private

Source: BPLO, 2018

5.4.2 Type of Print Media Available

There is only one print media available in the municipality which is handled by Kaboom Media Advertising and is located in barangay San Juan.

5.4.3 Cell Site Network

A cell site or tower is a support infrastructure which houses equipment used to transmit radio signal for cellular voice and data. Area coverage of a cell site, whether strong or weak coverage, depends on the equipment attached to it, the location, height, and other significant technology therein.

Globe Telecom, Inc. and Smart Communications, Inc., two of three country's leading networks, are offered in the municipality. In fact, there are twelve (12) cell sites present, five (5) belongs to Globe Telecom, Inc., while seven (7) belongs to Smart Communications, Inc.

Table 137 - IF: Cell Site Location in Alaminos, Laguna

Owner	Location
Globe Telecom, Inc.	San Miguel
Globe Telecom, Inc.	San Andres
Globe Telecom, Inc.	San Benito 1
Globe Telecom, Inc.	San Gregorio
Globe Telecom, Inc.	San Benito 2
Smart Communication, Inc.	Poblacion I
Digitel Mobile Philippines/ Smart Communication, Inc.	Poblacion I
Smart Communication, Inc.	San Benito
Smart Communication, Inc.	San Gregorio
Smart Communication, Inc.	San Ildefonso
Smart Communication, Inc.	San Juan
Smart Communication, Inc.	Sta. Rosa

Source: MEO, 2018

5.4.4 Information and Communications Technology Analysis Matrix

Table 138 presents the information and communication technology subsector analysis matrix below.

Table 138 - IF: Information and Communications Technology Analysis Matrix

Technical Findings	Implications when unresolved	Policy Options/ Intervention
Some areas have limited/low signal for communication	Delay in transmitting and receiving communications especially during emergency situations, may affect social services such as education, poor mobile networks affect the business processes and the speed of output production.	Improvement/ upgrade of existing cellular sites for a wider coverage
Poor management of CCTV facilities	Reduces safety/security in the area	Designation of a personnel to specifically monitor CCTV facilities

5.5. Integrated Infrastructure Analysis Matrix

Table 139 presents the integrated infrastructure analysis matrix of Alaminos below.

Table 139 - IF: Integrated Infrastructure Analysis Matrix of Alaminos, Laguna

Issues/observations	Explanation	Implications when unresolved	Policy Options/ Interventions
Transportation			
Presence of narrow roads	Some roads are in need to be widened to accommodate large volume of vehicles	May contribute to difficulty or delays in transporting goods to and from Alaminos and difficulty in mobility and accessibility during emergency situations, narrow roads along urban areas may contribute to road crashes among pedestrians	Road widening projects
Traffic congestion along national road	Large volume of vehicles uses the national road of Alaminos going to and coming from the municipality of San Pablo, Laguna	May contribute to delays in transporting goods and services	(There is an ongoing project—TR4 and Bypass road—that would reduce the traffic congestion along Maharlika highway)
Proliferation of illegal parking	Some residents don't have their own	Contributes to congestion in urban areas and delay in the delivery of goods and services	Implementation of Article 5 Sec. 52 of R.A. 4136 or the Land Transportation and Traffic Code
No policy regulating speed limits in shared roads	Absence of traffic management program	Increases likelihood occurrence of road crashes among vehicles and pedestrians	- Craft an ordinance for speed limit in shared roads - Street signs as cautionary guide for drivers
High incidence of reckless impudence resulting to damage to properties		Road safety is compromised	- Monitor speed of vehicles - Designation of traffic enforcers in accident prone areas
Lack of differently abled person (DAP)	Differently abled persons will have	Increases vulnerability	Implementation of Batas Pambansa

friendly infrastructure support facilities	difficulty with mobility and access to services	among DAPS specially during disaster, do not encourage participation, not empowering	344 (An act to enhance the mobility of Differently Abled Persons)
Weak enforcement of traffic management program	Traffic violations are more likely to be committed	Causes transport related issues such as traffic congestion, proliferation of illegal parking, lack of traffic facilities investment, poor enforcement and implementation of rules and regulations	Establish a traffic management office
Insufficient farm to market roads	Often times, lands near farms are often privately owned and therefore, the municipal government cannot build FMR	Increases cost of transporting goods	Coordinate with private land owners near the farms for allocation of land for FMR
Slow progress of road widening programs		Causes traffic congestion, contributes to delays in the delivery of goods and services, and may cause road crashes	Coordination with contractor; stick with the project schedule to avoid delaying the completion of the project
Lack of transportation support facilities – street lights and CCTV	CCTVs and street lights are ancillary facilities that can help reduce crime incidences	Reduces safety especially at night	Investment to transport facilities such as CCTVs
Insufficient basic social services infrastructure facilities	Social services such as barangay health station	Causes increase out migration	
Lack of data management system	There is no centralized data base which causes data loss/unavailability	Lack of data management system affects the productivity and efficiency of employees, accuracy and credibility of data, and difficulty in	Allocate an office or designate a person to manage and store data and information in the municipal hall; require all personnel to have a backup data

		analysing and interpreting conditions for planners, investors and decision makers	
Power			
Prevalence of illegal electricity connections	Informal settlers often illegally tap on electricity connections since they can't be provided with permit to have their own connection	Illegal connections, may lead to electrical accidents and fire incidence, may cause overloaded power lines and transformers due to unregistered consumption may also contribute to accidents and brownouts that affect the community	Enforce strict implementation of R.A 7832 or the Anti-electricity and Electric Transmission Lines/Materials Pilferage Act of 1994
Water			
Limited water supply	Low level of ground water supply	Continuous water shortage affects households, and other sectors and subsectors	- Invest in water treatment facility
High frequency of water interruptions	Due to limited water supply, there are water interruptions in the morning in some parts of the municipality	Continuous water shortage affects households, and other sectors and subsectors	- Invest in water treatment facility - Promotion of rainwater harvesting
Water pollution		Water-borne diseases	Strong implementation of RA 9275 or the Clean Water Act of 2004
Information and Communication			
Some areas have limited/low signal for communication	Some areas have limited/low signal coverage depending on the service provider	Delay in transmitting and receiving communications especially during emergency situations, may affect social services such as education, poor mobile networks affect the business	Improvement/ upgrade of existing cellular sites for a wider coverage

		processes and the speed of output production.	
Poor management of CCTV facilities	Some areas still do not have CCTV and CCTV facilities	Reduces safety/security in the area	Designation of a personnel to specifically monitor CCTV facilities

5.6 Lifeline Utilities Exposure and Risk to Hazards

Lifeline utilities include the transportation, water distribution, drainage and power distribution networks. These utilities are considered as assets and the LGU must ensure delivery of these lifeline services. Due to limited data, Alaminos only used transportation networks in the assessment. Maps 63 to 67 show the transportation networks exposed to various hazards.

Among the hazards, ground shaking is the only hazard with a high degree of impact, while the remaining four (4) hazards – flooding, RIL, EIL and soil erosion varies from DOI values one (1) to two (2). For flooding, 3.55 kilometers of roads are exposed, particularly in barangays San Agustin, San Benito and San Roque. The total road length exposed for other hazards are 36.63 kilometers, 117.57 kilometers, 0.13 kilometers, and 39.72 kilometers, for RIL, ground shaking, EIL and soil erosion, respectively.

Table 140 - IF: Lifeline Utilities Hazard Exposure and Degree of Impact of Alaminos, Laguna

Barangay	Flooding		Rain-Induced Landslide		Ground shaking		Earthquake - Induced Landslide		Soil Erosion	
	Ex	DOI	Ex	DOI	Ex	DOI	Ex	DOI	Ex	DOI
Poblacion 1	0.00	1	0.44	1	3.27	3	0.00	1	0.00	1
Poblacion 2	0.00	1	3.66	1	11.31	3	0.00	1	8.60	1.22
Poblacion 3	0.00	1	0.00	1	8.28	3	0.00	1	3.77	1.17
Poblacion 4	0.00	1	0.55	1	3.50	3	0.00	1	0.00	14
San Agustin	0.62	1	0.00	1	14.56	3	0.00	1	0.00	1
San Benito	2.72	1	0.00	1	10.47	3	0.00	1	0.00	1
Del Carmen	0.00	1	5.56	1.50	6.84	3	0.00	1	3.88	1.5
Palma	0.00	1	15.43	1.17	15.73	3	0.00	1	0.82	1.33
San Andres	0.00	1	4.68	1.20	10.08	3	0.00	1	10.08	2
San Gregorio	0.00	1	4.11	1.33	5.07	3	0.00	1	0.90	1.67
San Ildefonso	0.00	1	0.00	1	3.17	3	0.00	1	1.35	1.67
San Juan	0.00	1	0.66	1	9.70	3	0.00	1	8.74	1.78
San Miguel	0.00	1	0	1	7.56	3	0.00	1	0	1
San Roque	0.21	1	0	1	3.27	3	0.00	1	0	1
Sta. Rosa	0.00	1	1.54	1.25	4.76	3	0.13	1	1.58	1.67

Source: CDRA, 2018

Ex – Percentage of Population Exposed, DOI – Degree of Impact

In terms of flooding, ground shaking and earthquake-induced landslide, Alaminos has low vulnerability ratings, while rain-induced landslide and soil erosion have barangays with moderate vulnerability ratings. Table 141 below summarizes the vulnerability ratings of Alaminos in terms of its population and hazards.

Table 141 - IF: Lifeline Utilities Hazard Vulnerability Ratings of Alaminos, Laguna

Barangay	Flooding	Rain-Induced Landslide	Ground shaking	Earthquake-Induced Landslide	Soil Erosion
Poblacion 1	Low	Low	Low	Low	Low
Poblacion 2	Low	Low	Low	Low	Low
Poblacion 3	Low	Low	Low	Low	Low
Poblacion 4	Low	Low	Low	Low	Low
San Agustin	Low	Low	Low	Low	Low
San Benito	Low	Low	Low	Low	Low
Del Carmen	Low	Low	Low	Low	Low
Palma	Low	Low	Low	Low	Low
San Andres	Low	Low	Low	Low	Low
San Gregorio	Low	Low	Low	Low	Low
San Ildefonso	Low	Low	Low	Low	Low
San Juan	Low	Low	Low	Low	Low
San Miguel	Low	Low	Low	Low	Low
San Roque	Low	Low	Low	Low	Low
Sta. Rosa	Low	Low	Low	Low	Low

Source: CDRA, 2018

The Lifeline Utilities hazard vulnerability maps are referenced below: p.192-192

1. [Map 65: Lifeline Utilities Flood Vulnerability Map of Alaminos, Laguna](#)
2. [Map 66: Lifeline Utilities RIL Vulnerability Map of Alaminos, Laguna](#)
3. [Map 67: Lifeline Utilities Ground Shaking Vulnerability Map of Alaminos, Laguna](#)
4. [Map 68: Lifeline Utilities EIL Vulnerability Map of Alaminos, Laguna](#)
5. [Map 69: Lifeline Utilities Soil Erosion Vulnerability Map of Alaminos, Laguna](#)

5.7 Urban Use Areas Exposure and Risk to Hazards

Urban use areas pertain to the built environment currently utilized for residential, commercial, industrial, tourism, sanitary waste management facilities, cemeteries, and other land uses. For this assessment, most of the built-up areas are concentrated in urban barangays. Maps 73 to 77 show the urban built up areas exposed to hazards. All urban barangays have low degree of impact score for all identified hazards. This means that the estimated direct and indirect damage to property is low to negligible. For the percentage of exposed area, only barangay San Benito has built up areas exposed, with 0.05 percent. For RIL, barangays Poblacions 1, 2, and 4 have exposed built up areas, with barangay Poblacion 2 having the highest percentage among the six (6) barangays with 1.33 percent. All areas exposed to groundshaking

Table 142 - IF: Urban Areas Hazard Exposure and Degree of Impact of Alaminos, Laguna

Barangay	Flooding		Rain-Induced Landslide		Ground shaking		Earthquake - Induced Landslide		Soil Erosion	
	Ex	DOI	Ex	DOI	Ex*	DOI	Ex	DOI	Ex	DOI
Poblacion 1	0.00	1	0.34	1	100	1	0.00	1	0.00	1
Poblacion 2	0.00	1	1.33	1	100	1	0.00	1	1.72	1
Poblacion 3	0.00	1	0.00	1	100	1	0.00	1	0.37	1
Poblacion 4	0.00	1	0.35	1	100	1	0.00	1	0.00	1
San Agustin	0.00	1	0.00	1	100	1	0.00	1	0.00	1
San Benito	0.05	1	0.00	1	100	1	0.00	1	0.00	1

Source: CDRA, 2018

Ex – Percentage of Area Exposed, DOI – Degree of Impact

All urban barangays have low vulnerability ratings in terms of flooding, ground shaking and earthquake-induced landslide, rain-induced landslide and soil erosion. Table 143 below summarizes the vulnerability ratings of Alaminos in terms of its population and hazards.

Table 143 - IF: Urban Areas Hazard Vulnerability Ratings of Alaminos, Laguna

Barangay	Flooding	Rain-Induced Landslide	Ground shaking	Earthquake-Induced Landslide	Soil Erosion
Poblacion 1	Low	Low	Low	Low	Low
Poblacion 2	Low	Low	Low	Low	Low
Poblacion 3	Low	Low	Low	Low	Low
Poblacion 4	Low	Low	Low	Low	Low
San Agustin	Low	Low	Low	Low	Low
San Benito	Low	Low	Low	Low	Low

Source: CDRA, 2018

The Urban Areas hazard vulnerability maps are referenced below: p.192-192

1. [Map 75: Urban Areas Flood Vulnerability Map of Alaminos, Laguna](#)
2. [Map 76: Urban Areas RIL Vulnerability Map of Alaminos, Laguna](#)
3. [Map 77: Urban Areas Ground Shaking Vulnerability Map of Alaminos, Laguna](#)
4. [Map 78: Urban Areas EIL Vulnerability Map of Alaminos, Laguna](#)
5. [Map 79: Urban Areas Soil Erosion Vulnerability Map of Alaminos, Laguna](#)

Annexes

ANNEX A: Schedule of Waste Collection

Table 144 - AX: Waste Collection Schedule of Alaminos, Laguna

Barangay	Mon		Tues		Wed		Thurs		Fri		Sat		Sun	
	B	R W	B	R W	B	R W	B	R W	B	R W	B	R W	B	RW
Poblacion 1														
Poblacion 2														
Poblacion 3														
Poblacion 4														
San Benito														
San Agustin														
Del Carmen														
San Andres														
San Juan														
San Ildefonso														
Palma														
San Miguel														
Sta. Rosa														
San Roque														
San Gregorio														

Source: Solid Waste Management Plan

B – Biodegradable, RW - Recyclable

ANNEX B: List of Businesses

Table 145 - AX: Name of Businesses, Owners, Address, and Number of Employees in Alaminos, Laguna

Business Owner	Business Name	Address	No. of Employees
Tour And Travel Agencies			
Allen Aurelio V. Avenido	Dreamscapes Travel and Tours	93 Del Pilar St. Brgy. I Alaminos Lag.	2
Maria Aiza G. Villanueva	Flyolo Travel Services	Brgy III Alaminos Laguna(Extension Office)	0
Advertising			
Denneth M. Nacalaban	Kaboom Media Advertising	142 Brgy. San Juan, Alaminos, Laguna	4
Agricultural, Animal Husbandry Service			
Highridge Breeding Farms, Inc.		Palma II, Alaminos, Laguna	21
Baking of perishable bakery products			
Edgardo M. Belen	Agra Bakery	Del Pilar St. Brgy IV Alaminos, Laguna	4
Florida B. Mirano	FB Mirano Bakery	D. Fandiño St., Brgy. III- Alaminos, Lag.	0
Jocelyn T. Rojo	Jolan Bakery	Baylon St., Brgy. 111, Alaminos, Laguna	6
Eric L. Magturo	Ka PablengMalunggayPan desal	del Pilar St., Brgy. 11 - Alaminos, Laguna	4
Elsie O. Regis	Regis Cake Shop	Del Pilar St. Brgy. 4 - Alaminos, Lag.	1
Analyn N. Abila	BudongMalunggayPan desal	Brgy. II , Alaminos Laguna	1
Humbelina C. Enriquez	InayCrescenBroas Biscuit Products	San Agustin, Alaminos, Laguna	1
Joy R. Enriquez	N-Joy's Bakery	Baylon St., Brgy. 111, Alaminos, Lag.	0
Joy R. Enriquez	Joy's Sari-Sari Store	D. Fandino St. Brgy,3 Alaminos Lag.	1
Building of Constructions or Parts, Civil Engineering			
Ramir R. Saspa, Sr.	RamirSaspa Construction Firm & Realty	San Benito, Alaminos, Laguna	14
MDC BuildPlus, Inc.		San Andres, Alaminos, Laguna	13
Camila S. Maligalig	AJSM Construction	San Andres, Alaminos, Laguna	3
Revere Construction & Supply Corporation		San Andres, Alaminos, Laguna	11

Business Owner	Business Name	Address	No. of Employees
Pio R. Oplado	Marnelan Corporation	Brgy San Andres Alaminos Laguna	14
Stella Marie O. Tolentino	R2S Builders	San Andres, Alaminos, Laguna	2
Edison D. Prahinog	Edison Prahinog Construction Services	249 Purok 3, San Juan, Alaminos, Laguna	2
Jet Tech Energy and Construction Group , Inc.		J. Luna St., Brgy. 111, Alaminos, Lag.	1
Liezel D. Samson	Sams Precision Engineering & Construction Services	Brgy. III, Alaminos, Laguna	2
Buying, Selling, Renting, Leasing, Operation of Dwellings			
Domingo O. Matibag	Domingo Matibag Apartment Rental	Brgy. II, Alaminos, Laguna	0
Artrie N. Arambulo	Arambulo Property Leasing & Management	San Juan, Alaminos, Laguna	0
BellaVita Land Corp.		San Andres, Alaminos, Laguna	1
Merle T. Castro	Land Leasing	San Juan, Alaminos, Laguna	0
Editha M.Gallardo	HomeGreen Leasing Corporation	San Benito Alaminos Laguna	1
Dionides R. Belda	Edd& Carla Apartment & Office Rental	San Benito, Alaminos, Laguna	0
Ronaldo L. Miranda	Space Leasing	M.H.Del Pilar St. Brgy.1 Alam.Lag.	0
Rudy Prospero A. Ticzon	Rudy Prospero A. Ticzon Business Rental	del Pilar St., Brgy. 11, Alaminos, Laguna	0
Melanie M. Medina	Business Rental (Leasing)	del Pilar St., Brgy. 1V, Alaminos, Laguna	0
Manolito Jr. Alvarez	Business Rental	Nuestra Senora Del Pilar Village Brgy II Alaminos Laguna	0
Rodelo A. Dimayuga	Business Rental	del Pilar St., Brgy. 4- Alaminos, Laguna	0
Chicken Broiler Production(Operation of Chicken Hatcheries)/Game Propagation, Breeding			
Ricardo B.Talento	Bettina Farms, Inc.	San Agustin Alaminos Laguna	8
Collection, Purification, Distribution of water			
Gerard Renato Stephen V. Faylona	Cool Filter Flow	Rizal St. Brgy1 Alaminos Laguna	10
Fortunata E. Bicomong	Sabih Purified Drinking Water	F.Fule St. Brgy.1 Alaminos Lag.	1
Julieta E. Fernandez	Victorious Water Refilling Station	San Agustin, Alaminos, Laguna	2

Business Owner	Business Name	Address	No. of Employees
Gemma C.Cordero	Beau Monte Pure Drinking Water	Jose Rizal St., Brgy.1- Alaminos, Lag.	8
Sheila Marie A. De Guzman	Lovingwater Mineral & Alkaline Water Station	San Ildefonso, Alaminos, Laguna	1
Domingo R. Asprec	Aqua Oasis Water Refilling Station	San Juan Alaminos, Laguna	1
Buenafe F. Bueser	Buenz Ultra Water Station	San Benito Alaminos Laguna	1
Jerry G. Malolos	Macjewel Purified Drinking Water	Villanueva St., Brgy. 11- Alaminos Laguna	8
Neil S. Macasaet	Macneilxen co.	de Villa St., Brgy. 111, Alaminos, Laguna	2
Noriedette A. Hernandez	Heralz Alkaline Water	San Juan, Alaminos, Laguna	1
Alexander M. Duma	Leira& Carmen Natural Alkaline Water Station	Del Carmen Alaminos Laguna	0
Cesar R. Hernandez	JR Adds Purified	190 San Benito,	6
Corn Milling / Storage and Warehousing			
Benacorn Corporation (TMR)		San Andres, Alaminos, Laguna	27
Benacorn Corporation (PHF)		San Andres, Alaminos, Laguna	20
Custom Dress-Making			
Antonio E.Villanueva	Clev Garments	Del Pilar St. Brgy.1 Alaminos Laguna	6
Dormitories/Boarding Houses			
Mercy F. Magampon	Business rental	San Juan Alaminos, Laguna	0
Ederlita L. Magampon	Mean & Sara Apartment	San Juan, Alaminos, Laguna	0
Electrical & Mechanical Work at Site of Construction			
Florante T.Montoya	Kings Tower Power Supply & Construction Services Co.	San Agustin Alaminos Laguna	1
Expanded commercial banking			
Christian Wayne D. Dayo	BDO Unibank, Inc. Laguna - Alaminos	Del Pilar St. Brgy.2 Alaminos Lag.	8
Fabrication Installation			
Industrial Design & Equipment Expertise, Inc.		San Benito, Alaminos, Laguna	87
Foreign Exchange Dealing other Business Activities			
Rodolfo B. Galvez	Rodlen Money Changer	del Pilar St., Brgy. 1V, Alaminos, Laguna	1
Freight Forwarding Services			

Business Owner	Business Name	Address	No. of Employees
Lito A. Belena	Montelena Prime Movers	San Ildefonso, Alaminos, Laguna	0
Michel J. Lhuillier	ML KargoPadala Inc.	del Pilar St., Alaminos, Laguna	0
TRIREX LOGISTICS INC.		123 Medina St., Brgy. 1, Alaminos, Lag.	6
Janice C. Macapagal	4BIS Joe's Mac Express Services	LynvilleSubd., San Agustin, Alam., Lag.	4
Leila R. Castillo	Castlerey Enterprises	San Agustin, Alaminos, Laguna	8
Ofelia M. Belena	Pailo Forwarder	San Ildefonso, Alaminos, Laguna	0
William Joseph Chiongbian II	FastcargoLogisic Corp	San Benito, Alaminos, Laguna	11
Ely Julius M. Delima	Jul's Transport	San Ildefonso Alaminos Laguna	0
Funeral & Related Activities			
Dulce Patricia A.Lorilla	Dulce Patricia A.Lorilla Funeral Homes	M.H Del Pilar St. Brgy.1 Alam.Lag.	12
Melogen V. Villanueva	Ace Funeral Homes	San Juan, Alaminos Laguna	2
Goat Farming			
Artemus C. Almeda	Alaminos Goat Farm	Del Pilar St., Brgy. 2 - Alaminos Laguna	9
Grain Warehouses			
Inphilco, Inc.		San Benito, Alaminos, Laguna	3
Hairdressing and Other Beauty Treatment			
Mary Ann M. Alvarez	Hair Rebonding& Straightening ByZaldy&Mhean	Mabini St., Brgy. 111, Alaminos, Laguna	0
Paz A. Mendoza	Rose Parlor	M.H.Del Pilar St. Brgy.3 Alam.Lag.	1
January C. Donato	Graciella Beauty Salon	Del Pilar St. Brgy1 Alaminos Laguna	6
Cesar F. Gorre	Cstar beauty salon	Brgy II Alaminos Laguna	2
Iron & Steel Casting/Foundry			
Romel D. Perez	R.C. Perez Metal Fabrication and Trading	San Gregorio, Alaminos, Laguna	5
Junkshop			
Darwin A. Llames	Three D. Junkshop	San Juan Alaminos, Laguna	4
Roderic P. Oblepias	OblepiasScrapwood& Junk shop	San Juan, Alaminos, Laguna	3

Business Owner	Business Name	Address	No. of Employees
Leisure, Gaming, Cockpit			
Larry S. Amante	Fantastic Coliseum	San Benito, Alaminos, Laguna	0
Lending Investor Activities			
Taytay Sa Kauswagan, Inc.			0
Cavite Apc Lending Co., Inc.		del Pilar St., Brgy. 2 - Alaminos, Laguna	4
Maintenance & Repair of Motor Vehicles			
Alaminos Autoworx and Accessories Corp.		San Benito Alaminos Laguna	13
Maria Mylene R. Villamor	Bugo-Bugo Towing Services	Del Pilar St., Brgy. 11 - Alaminos, Laguna	0
Manufacture of articles of concrete, cement, plaster			
Mega Southern Asphalt Mix Corp.		San Agustin, Alaminos, Laguna	22
Manufacture of Fertilizers & Nitrogen Compounds/Other Retail Sale in Specialized Stores			
Nilda S. Lima	Meridian Nature-Tek Corp.	San Agustin, Alaminos, Laguna	1
Manufacture of Hats, Gloves, Handkerchiefs, Neckware, Belts			
Gerardo U. Valbuena	Jacksonville Creative Concept	Alam. Hts., Subd., Brgy. 111 - Alam., Lag.	0
Manufacture of Nata De Coco			
Faustino E. Reyes	Reyes Nata De Coco	D. Fandino St. Brgy.3 Alaminos Lag.	3
Manufacture of Other Chemical Products			
Jesus Marco G. Sari	Pyro Buster Enterprise	069 San Roque, Alaminos, Laguna	11
Rey Apolinario S. Tolentino	Rastech Chemicals Manufacturing	San Juan, Alaminos, Laguna	1
Manufacture of other fabricated metal products			
Larcen A. Libang	Larcen Metal Works	San Miguel Alaminos Laguna	3
Glenn P. Flores	Texin Inc.	San Benito, Alaminos, Laguna	22
Rodrigo M. Relucio	Trinidy Steel Works	Pob. II Alaminos Laguna	0
Manufacture of Other Food Products			
Nenita A.Mitra	Joe-Vick's Buko Pie	San Juan Alaminos Laguna	2
John Francis L. Flores	Kayumanggi (KTF) Tropical Foods	Fandino St. Alaminos Laguna	4

Business Owner	Business Name	Address	No. of Employees
Manufacture of Other Wearing Apparel			
Gerardo U. Valbuena	Jacksonville Creative Concept Manufacturing, Inc.	Alam. Hts., Subd., Brgy. 111-Alam., Lag.	117
Manufacture of Wood Carvings			
Lou Jojo I. Deles	Carl Lou Furniture	San Agustin, Alaminos, Laguna	2
Salvacion Trinidad L. Gonzales	Trichique Wood Creations	San Juan, Alaminos, Laguna	1
Charise R. Balaaldia	Charise Sash Factory And Furniture	#245Del Pilar St. Brgy. II Alaminos Laguna	0
Memorial Parks			
Rolando B. Tolentino	Roloma Memorial Park Corporation	Villanueva St. Alaminos Laguna	3
Jose Cesar Z. Insua	Alaminos Memorial Park, Inc.	D.Fandino St., Brgy.3 Alaminos Lag.	2
Men's, Boy's Garment Manufacturing			
Nelson C. De Villa	L.Villa Garments Corporation	Jose Fule St. Brgy.4 Alam. Lag	15
Motor Vehicles, Retailing/Maintenance & Repair of Motor Vehicles/Sale of Motor Vehicle Parts & Accessories Count			
Gorgonio M. Abrigo	GRRS Car Sales	San Agustin Alaminos Laguna	3
San Pablo 4 Wheels Motor Corporation	Motor Vehicles Retailing	San Benito, Alaminos, Laguna	7
Luzon Ramcycles, Inc.		M.H.Del Pilar St. Brgy.2 Alam. Lag.	2
Dearborn Motors Co., Inc.	Ford Laguna	San Benito, Alaminos, Laguna	12
Richard C. Tan	Toyota San Pablo Laguna, Inc.	San Benito Alaminos Laguna	136
Oil Mill			
Frances and Sons Oil Mill Corp.		San Benito, Alaminos, Laguna	16
On-line Gaming			
Larry S. Amante/Liazle A. Avanzado	Fantastic Web Gaming Co.	Fantastic Coliseum, San Benito, Alam., Lag.	8
Other Building Completion			
Josefina M. Delos Reyes	AAM Universal Power Poles Trading Corp	San Agustin, Alaminos, Laguna	2
Other Business Service			
Rafael A. Tabora	T2 RAF Gaming Station	San Benito, Alaminos, Laguna	4
T2 RAF Electronic Gaming Station, Inc.		San Benito, Alaminos, Laguna	12

Business Owner	Business Name	Address	No. of Employees
Fantastic Web Gaming Corp.		Maharlika Hi-way, San Benito, Alaminos, Laguna	20
Arnold M. Lopez	Nadine Emission Testing Center	San Benito, Alaminos, Laguna	4
Mapecon Green Charcoal Phils., Inc.		San Pedro St., Brgy. 111, Alaminos, Lag.	23
Nelia D. Tolentino	Nelia Dress Shop	Mabini St. Alaminos, Laguna	1
Emerito M. Montecillo	MER Business Center	Brgy San Agustin Alaminos, Laguna	2
Rosalina B. Fule	Pillars Payment Center	93 Del pilar St. Brgy. III alaminos, Laguna	2
Aguila Glass Co., Inc		San Benito, Alaminos, Laguna	3
Rizal Poultry & Livestock Association, Inc.		San Juan, Alaminos, Laguna	18
Isidro Z. Catipon	Eyie Trading & Coco Lumber Dealer	San Juan, Alaminos, Laguna	2
Onofre Jr. A. Mecinas	Mecinas Trading	San Benito Alaminos Laguna	0
BellaVita Alaminos HomeOwner's Association Inc.		Brgy. San Andres Alaminos Laguna	0
Guillermo C. Uy,Jo	Residenza De Alaminos HomeOwner's Association, Inc	Residenza de Alaminos, Brgy. Pob. II Alaminos, Laguna	0
Other Computer Related			
LevinieO.Dacles	ClevithanPhotomania Print @ Design Solutions	Cor. Mabini / Baylon St. Alam. Lag.	1
LevinieO.Dacles	ClevithanPhotomania Print @ Design Solutions	Del Pilar St. Brgy. IV Alaminos Laguna	0
Velmon Y. Austria	KuyaMondivash Internet Shop	Brgy. I, Alaminos, Laguna	0
Allan D. Fandiño	ARF Cyberzone Internet Café	Malvar St., Brgy. 111, Alaminos, Laguna	0
Rodelio v. Eugenio	ROJENZ PISONET	San Agustin, Alaminos, Laguna	1
Other Non-Store Retail Sale, Other Service Activities			
Gerardo M. Macalinga	Balisong Metals	San Andres, Alaminos, Laguna	0
Rodolfo E. Marquez	Retail Super &Step-in	34 Baylon St., Brgy. III - Alaminos, Lag.	0

Business Owner	Business Name	Address	No. of Employees
Macaria B. Belda	Karfeu General Merchandise	San Benito, Alaminos, Laguna	3
Sesinando A. Enriquez, Jr.	S.A. Enriquez General Merchandise	Baylon St., Brgy. 111, Alaminos, Lag.	0
Carold A. Gullas	Govenne Enterprises	San Agustin, Alaminos, Laguna	0
Keith John F. Mantupar	KJM Meat and Seafoods	048 Villanueva St., Brgy. 11-Poblacion	1
Ruby B. Pelomeo	RBP Organic Products	Purok 111, San Benito, Alaminos, Laguna	2
Fernando C. Beredo	FermayLambanog	San Agustin, Alaminos, Laguna	2
Bounty Agro Ventures, Inc.		87 del Pilar St., Brgy. 1V, Alaminos, Laguna	1
Rosally Q. Gallajones	RosallyGalljones LPG Outlet	San Benito, Alaminos, Laguna	0
Beverlyn N. Peñera	Neilbert Enterprises	56 F. Fule St., Brgy. 1, Alaminos, Laguna	2
Gina B. Maglaque	Warner & Gina Iskultural	188 Purok 4, San Juan, Alaminos, Laguna	2
Other Publishing			
Denneth M. Nacalaban	Kaboom Media Advertising	142 San Juan, Alaminos, Laguna	4
Other Real Estate Activities with Own or Leased Property Count			
Ma. Victoria V. Faylona	MaviFay Ventures	121 FuleSt.,Brgy. 1, Alaminos, Laguna	0
Ernani Jose F.Cordero	Quimio& Cordero2 Leasing	Del Pilar St., Brgy.2 - Alaminos, Laguna	0
Juanito M. Masa	Dr. Juanito M. Masa Apartment Leasing	del Pilar St., Brgy. IV, Alaminos, Laguna	0
Lydia Navarro	Lydias Business Rental	Brgy III, Pob. Alaminos, Laguna	0
Amor R. Dilapdilap	Business Rental	San Juan, Alaminos, Laguna	0
Edgar P. Umali	Edlyn& Denver Space Rental	#31 Baylon St. Alaminos, Laguna	0
Minerva M. Fandino	3Y's Business Rental	003 Del Pilar St., Brgy. 1V- Alam., Lag.	0
Gail M. Tejado	Gail and Angelo Land Leasing	San Juan, Alaminos, Laguna	0
Teofila A.Matibag	Teofila A. Matibag Commercial Place	Del Pilar St. Brgy,4 Alaminos Lag.	0
Rubelyn C. Banzuela	Business Rental	D. Fandino St. Brgy,3 Alaminos Lag.	0
Necita D. Malabanan	Business Rental	Alam. Hts. Subd., Brgy. 111-Alam., Lag.	0

Business Owner	Business Name	Address	No. of Employees
Grace T. Khu	Grace Khu Rental	San Pedro Brgy,3 Alaminos Lag.	1
Lazaro E. Reyes	Lazaro Reyes Rental	del Pilar St., Brgy. 1V, Alaminos, Laguna	0
Lourdes A. Macasaet	L. A. Masacaet Apartment	88 del Pilar St., Brgy. 1, Alaminos, Lag.	0
Erlinda G. Puzon	Erlinda G. Puzon Property Leasing	Cor. Mabini & Baylon St., Brgy. 111, Alam. Lag.	0
Santos S. Sarmiento	Sarmiento Commercial Building rental	De Villa St., Brgy. 111 - Alaminos Laguna	0
Veronica V. Alvarez	Veronica Alvarez space Rental	De Villa St., Brgy. 111- Alaminos, Laguna	0
Perciverancia F. Villanueva	Fule Property Leasing	Del Pilar St. Brgy.1 Alaminos Laguna	0
Victoria F. Basilan	Land Leasing	St. Joseph Homes Subd. Brgy I Alam. Lag	0
Larry S. Amante	Larry S. Amante Leasing	San Benito, Alaminos, Laguna	1
Other Recreational Activities			
Allan D. Fandiño	Alaminos Fitness Gym	Malvar St., Brgy. 111, Alaminos, Laguna	1
Other Retail Sale in Non- Specialized Stores:Food, Beverages,Tobacco			
Gemma B. Bautista	RaygemBinalot Sa Dahon	San Juan Alaminos Laguna	2
Rodolfo P. Cortes Jr.	Zen Kaleb Mini Store	San Benito Alaminos Laguna	2
Esther Gloria A. Lee	5AJ'S Congee Houre	M.H Del Pilar St.Brgy I Pob, Alam.Lag.	0
Edwin A. Mendoza	Miguel At Isabelle Food Trip	Rizal St. Cor. Fandino St. Brgy III Alam. Lag.	6
Other Retail Sale in Specialized Stores			
Raquel A. Millares	Reinmar Cycle Parts	221 Malvar St., Brgy. 111, Alaminos, Lag.	1
Mariano Thomas M.Flores	Kayumanggi Tropical Foods, Inc.	San Juan Alaminos Laguna	2
Mariano Thomas M.Flores	Kayumanggi Tropical Foods, Inc.	Rizal St. Brgy.1 Alaminos Laguna	80
Florante B. Ramirez	Reba Mktg & Tire Supply	Del Pilar St. Alaminos Lag	1
Marites M. Marinduque	Rene & Tess Sari-Sari Store	Public Market, Alaminos, Laguna	2
Arvin M. Carandang	ATC Enterprises	Public Market Alaminos Laguna	2
Lea Marie J. Atienza	Yolie's Pasalubong Center	San Agustin, Alaminos, Laguna	0

Business Owner	Business Name	Address	No. of Employees
Raquel N. Lacson	R.N. Lacson Cycle Trading	Baylon St., Brgy. 111, Alaminos, Laguna	1
Jennifer R. Laurencio	Laurencio Enterprises	Brgy IV Maharlika Highway Del Pilar St. Alaminos, Laguna	0
Jervy Melchor R. Alvarez	Noah and Andrei loading Station	9293 F. Fule St. Brgy. IV-Alam., Lag.	2
Randell P. Hermano	Drew & Wes Convenience Store	BrgyIII,Pob. Public Market Alaminos, Laguna	0
Ridel M. Haino	4RM Trading	Blk. 6 lt. 17 Lynville San Agustin Alam. Lag.	0
Marie Grace L. Cerilla	Tamaraw Trading	Brgy III, Alaminos, Laguna	2
Erlyn R. Saspa	Lyn's Aluminum Supply	Del Pilar St., Brgy. 1-Alaminos Laguna	8
SIDC Coopmart Alaminos		Sta. Rosa, Alaminos, Laguna	10
Analyn D. Villanueva	Elma-Lyn's Frozen Food	Alaminos Laguna	0
JonalynA.Miranda	NJ Mira Variety Store	Medina St., Brgy.1 - Alaminos, Laguna	0
Rizalina V. Sulabo	Norriza General Merchandise	Baylon St., Brgy. 111-Alaminos, Laguna	1
Rizalina V. Sulabo	Codykyle's Enterprises	Baylon St., Brgy.3 - Alaminos, Laguna	1
Charina A. Alcantara	Charines Enterprise	Mabini St., Brgy.3 - Alaminos, Laguna	1
Ronnie G. Go	Mom's Babies Store	Del Pilar St., Brgy. 111-Alaminos Laguna	6
Lucilo C. Cayao	Cayao Meat Shop	Baylon St., Brgy. 111-Alaminos, Laguna	1
Lucilo C. Cayao	Vegetable Vendor	Baylon St., Brgy. 111-Alaminos, Laguna	0
Violeta M. Pareja	Italvill Auto Supply	San Juan Alaminos Laguna	2
Sofronio A. Abel	Planet-S Abel Store	Alaminos Public Market	1
Zenaida A. Belen	Sister Zen Sari-Sari Store & General Mdse.	292 San Agustin, Alaminos, Laguna	0
Rodolfo C. Baldo Jr.	R. Baldo Jr Enterprises	Mabini St., Brgy. 111, Alaminos, Laguna	2
Ma. Lovella V. Capuno	Dedeth&Zaki Enterprises	Mabini St. Brgy.3 Alaminos Laguna	2
Edeza A. Mendoza	Charles Clayton Enterprises	Del Pilar St.-Public Market, Alam., Lag.	0
Other Retail Sale in Specialized Stores/Other Service			

Business Owner	Business Name	Address	No. of Employees
Maximo B.Cato	Top Construction & Fabrication	San Agustin, Alaminos Laguna	10
Other Service Activities			
Oscar A. Danta	Flying "D" Enterprises / Carwash	San Juan, Alaminos, Laguna	1
Norita C. Cuenca	Yenvy's Trading	130 J. Fule St., Brgy. 1V, Alam., Lag.	0
Marinelle D. Maloles	Anne Marie Travel & Tours	Poblacion, Alaminos, Laguna	2
Marivic E. Marabe	Mapo's Catering	Brgy. III, Alaminos, Laguna	2
Maria Nenita M. Santillan	Mareleths Touch Catering Services	45 Del Pilar St. Brgy I Alaminos Laguna	0
Ma Ana T.Manalo	Janique Junkshop	San Juan Alaminos Laguna	1
John Reymark C. Garcia	Metafit 101 Fitness Center	Del Pilar St. Brgy. IV, Alaminos, Laguna	0
Arwyn C Nayle	Nicosarden Watch Repair Shop	Brgy III, Alaminos, Laguna	0
Maria Riza F. Monzonez	Freshair Emission Testing Center	San Benito, Alaminos, Laguna	0
WenceslaoPetrasanta	Marwen's Function Hall	Brgy III Pob., Alaminos Laguna	0
Maria Mylene R. Villamor	Bugo-Bugo Auto Repair Shop	Del Pilar St., Brgy. 11 - Alaminos, Laguna	1
SionedaM.Pabanil	James' Junkshop	San Juan Alaminos Laguna	2
Richard B. Escueta	R.B. Escueta Enterprises	138 J. P. Rizal St., Brgy. 1-Alam., Lag.	2
Pauline T. Aquino	Tordillos-Aquino Money Transfer & Loading Station	40 Purok 7, San Juan, Alaminos, Laguna	0
Mariel B. Dino	Maja Thai Massage and Wellness Spa	2F Allysa's Arcade, San Benito, Alaminos, Lag.	6
Rosita L. Duncil	Okazyon Catering Services	San Benito, Alaminos, Laguna	6
Ronald L. Valino	Paleta Infinity Massage Spa	9651 San Agustin, Alaminos, Laguna	6
Other Services			
Manuel D.Masangkay	Heman Carwash	San Agustin, Alaminos, Laguna	1
Joel P. Andor	Barber Shop	39 Mabini St., Brgy. 111, Alam., Lag.	0
Ariston S. Basilan	AR-AR J General Merchandise	Mabini St., Brgy.3 - Alaminos, Laguna	0

Business Owner	Business Name	Address	No. of Employees
Ruben G. Gagal	Ruben Barbershop	A. Mabini St., Brgy. 111-Alaminos, Lag.	0
Maria Elisa Gizelle N. Aquino	M.E.G Trucking Services	San Agustin Alaminos Laguna	2
Hector M. Bondad	I C 8 Electronics Repair Shop	81 del Pilar St., Brgy. 4, Alaminos, Laguna	1
Chester D. Jalgalado	Royal Advantage Co. Emission Testing Center	San Benito, Alaminos, Laguna	3
Dr. Donna Marie A. Marabe	Abrigo-Marabe Dental Clinic	del Pilar St., Brgy. 111, Alaminos, Lag.	2
Manuel C. Pujanes	Maxelez General Merchandise	San Juan, Alaminos, Laguna	9
Wannie F. Avenido	GMA Money Remittance Express	Sta. Rosa, Alaminos, Laguna	1
Lorna N. Villanueva	Navill trucking Services	Brgy. San Agustin Alaminos, Laguna	0
Nelda D. Arai	Arai Fashion	San Agustin, Alaminos, Laguna	4
Faustino G. Almendral	Faustino G. Almendral	San Benito Alaminos Laguna	0
Century Drilling & Energy Services (NZ) Limited Phil. Branch		San Benito, Alaminos, Laguna	3
Map General Services Corporation		San Benito Alaminos Laguna	3
Sunguard Security Service, Inc.		Del Pilar St. Pob. I Alam. Lag.	0
Jenet D. Malabuyoc	Bluebiz Payment Center	Public Market	0
Magie A. Terrones	M. Terones Vulcanizing Shop	Brgy. 11-Poblacion,	2
	GLMM Hermes & Motor Car Engine Services	San Juan, Alaminos, Laguna	2
Tessie D. Rosales	Perya and Cedera	Barangay 111-Poblacion, Alaminos, Laguna	9
Serapio E. Reyes	Serafel Property Ventures Inc	San Agustin, Alaminos, Laguna	0
Frederick M. Belen	Frexie's Handicraft	59 Brgy San Miguel Alaminos Laguna	1
Manolito M. Pilapil	ManolitoPilapil Fashion	Brgy.San Benito Alaminos Laguna	0
Glenn Armstrong C. Lim	VitalCare Medical Supplies and Equipment	San Agustin Alaminos Laguna	0
Other Wholesaling/ Other Service Activities			

Business Owner	Business Name	Address	No. of Employees
	Tatay Aba Coconut & Copra Dealer	San Andres Alaminos Laguna	0
Heuclid T. Ong	Abba's Best Commercial Distributor, Inc.	San Benito, Alaminos, Laguna	8
Lilia A. Aporo	Lilia Aporo Broom Enterprises	273 Bagong Silang St., Brgy. 1-Alam., Lag.	2
Randall Ray M. Dimayuga	RRJ Extreme Trading	22 San Ildefonso, Alaminos, Laguna	4
Mary Jane M. Lim	Ricci & Mencius Trading Enterprise	232 San Agustin Alaminos Laguna	0
Sharlene Kim D. Salanguste	Rhaijin& Lorenz Trading	San Benito, Alaminos, Laguna	1
Richard G. Feraldo	Richard's Rosemarie General Merchandise	Brgy 2 Alaminos Laguna	0
Leila R. Castillo	Castlerey Enterprises	Brgy. III, Alaminos, Laguna	3
Leila R. Castillo	Castlerey Enterprises	San Agustin, Alaminos, Laguna	1
Pawnshop Operators			
HL Villarica Pawnshop, Inc.	Villarica Pawnshop	Brgy. IV, Alaminos, Laguna	4
Paragua Pawnshop & Financial Services, Inc.	Palawan Pawnshop & Palawan Express PeraPadala	Brgy. III, Alaminos, Laguna	1
Michel J. Lhuillier	Michel J. Lhuillier Financial Services (Pawnshop) Inc	Del Pilar St. Alaminos Laguna	6
Rosalina P. Garcia	Nuestra Señora del Pilar Pawnshop	del Pilar St., Brgy. 1V, Alaminos, Laguna	0
Raquel Pawnshop, Inc.		Del Pilar St. Brgy4 Alamnos Lag.	2
Poultry Farming			
Meynardo F. Monzones	M.F.M. Poultry Farm	Brgy.San Andres Alaminos Laguna	2
Romeo S.Faylon	IA Marketing	Del Pilar St. Brgy.1 Alaminos Laguna	2
Bernard DykhengFaylona	Bernard Dykheng Farm	Palma 1 Alaminos Laguna	6
Natividad A. Gallivo	Acel and Joy Farm	319 Brgy. San Roque Alaminos Laguna	2
Natividad A.Gallivo	Poultry Farm	San Miguel Alaminos Laguna	2
Joselito Cubillejo	Lito Poultry Farm	Brgy.Sta. Rosa Alaminos Laguna	5

Business Owner	Business Name	Address	No. of Employees
Ramon C. Sarmiento	Monsa Poultry Farm	San Andres Alaminos Laguna	5
Virgilio F. Monzones	VIRM POULTRY FARM	San Andres, Alaminos, Laguna	6
Neil S. Macasaet	Macasaet Poultry Farm	de Villa St., Brgy. 111, Alaminos, Laguna	3
Erwin Bonifacio B. Agra	E. Agra Poultry Farms	Palma 1, Alaminos Laguna	3
Ana Gerlie B. Belen	Joshua & Jhayden Poultry Supply	San Miguel, Alaminos, Laguna	0
Moises Belen, Jr.	Justin & Jhayden Poultry Farm	San Miguel, Alaminos, Laguna	0
Marco D. Bondad	Marco Bondad Farm	del Carmen, Alaminos, Laguna	16
Arthur P. Magno	APM Poultry Farms	2 San Miguel, Alaminos, Laguns	10
Mirazon K. Maranan	MNAD Farm	Palma I, Alaminos, Laguna	0
Private General Secondary Education			
Marcelino Fule Memorial College		Del Pilar St. Alaminos Laguna	16
Private Medical, Dental, Other Health Services			
Jonathan G. Soriano	Saint Odile Surgicenter	360 del Pilar St., Brgy. 1 - Alaminos, Laguna	2
Cesar M. Mardia, Jr.	Blesces Clinical Laboratory	Del Pilar St. Brgy1 Alaminos Laguna	3
Dr. Clarinda S. Magampon	Clinic	F. Fule St., Brgy. 1V, Alaminos, Lag.	1
Pedro J. Castillo	St. Clement Medical Clinic	D. Fandino St., Brgy. 3 - Alaminos, Laguna	16
Kevin William S. Oro	KW Oro Optical Clinic	del Pilar St., Brgy. 11- Alaminos, Laguna	0
Maria Dolores D. Monzones	DBD Clinical Laboratory	Del Pilar St. Alaminos Laguna	2
Almario G. Sisante	St. Jude Dental Clinic	84 F. Fule St., Brgy. 1, Alaminos, Laguna	2
Private Pre-School Education			
Andy E. Tan	Maranatha Christian Academy	Brgy. II, Alaminos, Laguna	2
Matilde M. Ticzon	Cresmat Learning Center	Del Pilar St. Alaminos Laguna	6
Private Pre-School, Elementary, Secondary Education			
Palm Valley Multiple Intelligence School, Inc.		AHS, Brgy. 111- Alaminos, Laguna	6

Business Owner	Business Name	Address	No. of Employees
Imelda C. Matienzo	St. Paul Learning School of Alaminos, Laguna Inc	Alaminos Heights Subd. Alaminos Laguna 4001	0
Real Estate Activities on a Fee or Contract Basis			
Azucena C. Perez	Azucena Calaguaz Perez Building	Del Pilar St. Alaminos Laguna	0
Citihomes Realty, Inc.		San Agustin, Alaminos, Laguna	4
Arceli E. Guron	Business Rental	San Benito Alaminos Laguna	0
Arceli E. Guron	Real Estate Property(EG Compound)	San Benito Alaminos Laguna	0
Lynville Realty And Development Corporation		San Benito, Alaminos, Laguna	54
Sr. Sto. Nino de Cebu Resources and Dev't. Corp.		San Benito, Alaminos, Laguna	5
Lynville Properties & Landholdings Corporation		San Benito, Alaminos, Laguna	0
Recycling of Metal Waste, Scrap			
Dennis B. Belda	GDCJ Scrap Trading	San Benito, Alaminos, Laguna	0
Refreshment stands, kiosks and counters			
Marlon L. Belen		del Pilar St., Brgy. 11, Alaminos, Laguna	0
Rigor G. Cabaal	C-FerriSiomai Haus	D. Fandino St. Brgy,3 Alaminos Lag.	2
Regular Commercial Banking			
Perla D. Templado	Luzon Development Bank	Public Market Alaminos Laguna	4
Renting of Computers & Computer Peripheral Equipment			
Alvin S. Castillo	Castle Expert Computer Shop	Del Pilar St. Brgy. 1 Alaminos, Laguna	2
Dante Jr. C. Castro	JDC Computer Shop	Brgy II Alaminos Laguna	0
Maria Pilar A. Flores	Pilar Place & Computer Shop	del Pilar St., Brgy. 1, Alaminos, Laguna	0
Benjie M. Ticson	Jaybok's Comp Shop	68 Del Pilar St. Alaminos Laguna	1
Liezel D. Samson	Accruebytes Internet Shop	Rizal St. Brgy.3 Alaminos Laguna	0
Restaurant, cafes, fast food centers, Bars, Canteens, Eating and Drinking Places			

Business Owner	Business Name	Address	No. of Employees
Victoria A.Carandang	Vicky and GervieVedeoke Bar	San Juan Alaminos Laguna	0
Philippine Seven Corp.	7-11 Food Store	Del Pilar St.Brgy.4 Alaminos Lag.	6
Reynaldo F. Latayan	RFL 371 Videoke Bar	San Juan, Alaminos, Laguna	0
Amado C. Reyes	Dadi'sVideoke Bar	San Juan, Alaminos, Laguna	0
Rio R. Enriquez	Pawid R2 Restobar	de Villa St., Brgy. 111, Alaminos, Laguna	1
Esperidiondela Peña	Dubai Resto Bar	San Juan Alaminos Laguna	0
Jocelyn F. Espinosa	Joy-ArthVideoke Bar	San Juan Alaminos Laguna	0
Racel A. Montoya	Royal Palm Paradise Resort & Spa Co.	San Agustin, Alaminos, Laguna	3
Mary Liza Ponayo	Tapico De Coffee Shop	San Benito Alaminos Laguna	4
Mary Liza Ponayo	Satori Japanese Restaurant	San Benito Alaminos Laguna	5
Retail in Non-Specialized Store			
Alfredo M.Chavez	Maring&Dennis Sari-Sari Store	Public Market, Alaminos, Laguna	0
Zelda D. Marciano	Rozelle Sari-sari Store	Public Market, Alaminos Laguna	0
Lorelie S. Argote	Mini Sari-sari Store	San Andres Alaminos Laguna	0
Retail in Non-Specialized Stores (Department Stores)			
Redindo S. Donato	RS Donato Store	F.Fule St.Brgy,1 Alaminos Laguna	1
Raquel N. Lacson	JARB Merchandise	64 Baylon St., Brgy. 111, Alaminos, Lag.	4
Retail in Specialized Stores: Food, Beverages, Tobacco			
MailaL.Malicad	Aidan Mai Store 1	Baylon St., Brgy.3 - Alaminos Laguna	0
Maila L. Malicad	Aidan Mai Store 2	Baylon St., Brgy. 3 - Alaminos, Laguna	0
Eddie O. Averion	Lanie & Eddie Sari-Sari Store	del Pilar St., Brgy. 111, Alaminos, Lag.	2
Dulce G.Fandino	Jenny Joyce Pasalubong Store	San Andres Alaminos Laguna	0
Southpark Chicken Foodhaus Corp. (AndoksLitson)		del Pilar St., Brgy. 1, Alaminos, Laguna	10
Retail of agricultural supplies			

Business Owner	Business Name	Address	No. of Employees
Ma. Lovella V. Capuno	Dedeth&Zaki Enterprises	Mabini St. Brgy.3 Alaminos Laguna	1
Melecia C. Danta	Quezon Farmers' Agricultural Supply	Del Pilar St., Brgy. 1 Alaminos Laguna	4
Abegail B. Torres	Abraizel Trading	258 San Ildefonso, Alaminos, Laguna	1
Retail of Books, Office / School Supplies			
Normalyn I. Macasaet	Mari-John General Merchandise	23 Lt. de Villa St., Brgy 111, Alam., Laguna	0
Retail of Liquefied Petroleum Gas, Other Fuel Products			
Suncrest Gas Corp.-Retail Outlet (RegasoBrand)		San Juan, Alaminos, Laguna	2
Teresita F. Esguerra	EFG Marketing	Del pilar St., Alaminos Laguna	2
Richard M. Tan	Pryce Gases, Inc.	San Juan Alaminos Laguna	13
Jose Melchor J.Enriquez	Optimum Gas Energy, Inc.	San Juan Alaminos Laguna	11
Edwin M. Mojica	Edchel Marketing	del Pilar St., Brgy.1 - Alaminos, Laguna	1
Robert Niño M. Bernardo	Robert Niño Bernardo Gas Station	San Agustin, Alaminos, Laguna	8
Petron Corporation		San Juan, Alaminos, Laguna	1
Total Elite Gasoline Station, Inc.		San Juan, Alaminos, Laguna	2
Total Elite Gasoline Station, Inc.		San Juan, Alaminos, Laguna	17
Retail of personal & household goods			
Florizel C. Magampon	Sari Sari Store	Brgy III - Poblacion, Alaminos, Laguna	0
Jonalyn H. Maranan	KARLKIRK RICE DEALER	E. De Villa St. , Alaminos, Laguna	1
Belen E. Rabino	Sari Sari store	San Juan, Alaminos, Laguna	0
Humbelina C. Enriquez	Humbelina's Sari-Sari Store	San Agustin, Alaminos, Laguna	0
Ederlita L. Magampon	Mean & Kaela Store	San Juan, Alaminos, Laguna	2
Ruby V. Gucor	Christian's Baking Supply	Baylon St., Brgy. 111 - Alaminos, Laguna	0
Patricia B. Halili	Halili Store	San Juan, Alaminos, Laguna	0
Nicetas M. Galiito	Nicetas Store	San Ildefonso, Alaminos, Laguna	0

Business Owner	Business Name	Address	No. of Employees
Don Loubert A. Hernandez	DCSH Enterprises	D. Fandino St. Brgy,3 Alaminos Lag.	2
Jose E. Reyes	Jose Reyes Sari-sari Store	Brgy III - Pob., Alaminos, Laguna	0
Retail of pharmaceutical, medical, cosmetic, toilet articles			
Nemesio Jude III A. Villa	Generika Drugstore	Del Pilar St., Brgy. 4 - Alaminos, Laguna	8
Cynthia V. Cortez	VillecortMerchadise	F.Fule ST.Brgy.1 Alaminos Laguna	0
Madonna A. Maloles	FairMed Drugstore	31 del Pilar St., Brgy. 111, Alaminos, Laguna	1
Danilo T. Osmeña 111	PJD & O Laboratory Equipment Services/Sari-Sari Store	56 D. Fandiño St., Brgy. 111, Alaminos,Lag.	0
Henry M. Abrigo	Darmae Enterprises	109 San Agustin, Alaminos, Laguna	2
Maria Lilia E. Villabroza	The Generics Pharmacy	M.H.Del Pilar St. Brgy 4	2
Carlos Miguel A. Villena	Dermgenics Organic Beauty Products	Tierra Dal Alma Subd. Brgy. Sta Rosa Alaminos Laguna	0
Retail of Textiles, Clothing, Footwear, Leather Goods			
Ana Maria A. Matibag	Eijay's Merchandise	D. Fandino St., Brgy.III, Alaminos Lag.	0
Billy M. Villanueva	Eserb Dry Goods Store	Baylon St., Brgy.3 - Alaminos, Laguna	1
Retail Sale in Non-Specialized Store			
Norma D. Angeles	Angeles Sewing Machine Retail Center	231 San Juan, Alaminos, Laguna	0
Modesta M. Tiquis	Ding-Ric Chicken & Eggs Store	LynvilleSubd., San Agustin, Alam., Lag.	2
Romeo A. Temprosa	Bio Ray Enterprises	75 del Pilar St., Brgy. 1V - Alaminos, Laguna	2
Retail Sale of Automotive Fuel			
Exdel Supplies Corporation - Phoenix		San Juan, Alaminos, Laguna	10
Retail Sale of book offices/school supplies			
Rowena L. Escueta	Tam Tori School Supplies	San Benito, Alaminos, Laguna	0
Retail sale of hardware, paints and glasses			
Violeta M. Pareja	Italvill Hardware	San Juan Alaminos Laguna	2
Pia S. Ramos	AVS Hardware	Brgy. San Agustin Alaminos, Laguna	0

Business Owner	Business Name	Address	No. of Employees
Alvin A. Villanueva	Alexian Trading	Alaminos Public Market Alam., Lag.	1
Ronaldo L. Miranda	5A Alaminos Trading	M.H.Del Pilar St. Brgy.1 Alam.Lag.	16
Renante S. Donato	Donato's Trading	F.Fule St. Brgy,1 Alaminos Laguna	15
Art Russel A. Montoya	Sunrise Rock Builders Construction & Electrical Supply	del Pilar St., alaminos, Laguna	2
Ester P. Espana	QWS Hardware	San Juan, Alaminos, Laguna	0
Retail Sale Via Stalls & Markets			
Ruel L. Anquilo	Dry Fish	De Villa St., Brgy. 3 - Alaminos, Laguna	0
Ralph Kirby L. Mantupar	Thalit'z Fruits And Dry Fish	Public Market, Alaminos Laguna	2
Jessica B. Nayle	Alyzza Venice's Variety Store	Mabini St. ,Brgy. 111- Alaminos, Laguna	0
Rose Ann A. Montecillo	Totzky Souvenir Shop	Mabini St., Alaminos, Laguna	1
Ariston S. Basilan	ARAJ Store	San Pedro, St. Brgy.3 - Alaminos Laguna	0
Randy P.Banzuela	Gob's General .Mdse.	M.H Del Pilar St. Brgy. 3 - Alam., Lag.	4
Emelito M. Maliksi	Meat Vendor	Public Market, Alaminos, Laguna	0
Eduardo A. Asprec	Edy & Ofel Meat Stall	Lt. de Villa St., Brgy 111 - Alam., Laguna	0
Bayani O. Salazar	Nameless Sari-Sari Store	Brgy III - Poblacion, Alaminos, Laguna	0
Elda G. Zarate	KUNDU Trading	Public Market	2
Lodito L. Herrera	Chicken Meat Shop	Baylon St. Alaminos, Laguna	1
Mila A. Dy	Mila's Store	Public Market Alaminos Laguna	0
Arnold D. Bansil	Botnoy Sari-Sari Store	San Agustin, Alaminos, Laguna	0
Alex C. Nayle	Alyzza Jeal's Variety Store	Public Market Alaminos Laguna	0
Vince Germiland D. Apostol	Agrilivestock Supply	Public Market, Alaminos, Laguna	0
Marcela R. Alzona	M.R Alzona Enterprise	D. Fandiño St., Brgy. III- Alaminos, Lag.	0
Catherine R.Cortez	Seawest Sari Sari Store	San Benito Alaminos Laguna	0

Business Owner	Business Name	Address	No. of Employees
Jasper C. Villegas	M310 Rice & Feeds Supply	Del Pilar St. Brgy. 3 Alaminos Lag.	2
Janice S. Ebarle	Janice Ebarle Food Stand	Brgy III Poblacion Alaminos Laguna	0
Louella P. Babia	RCL Store	Brgy. San Agustin Alaminos Laguna	0
Donato D. Brion	Ato & Nerie Rice & Feeds Supply	Public Market, Alaminos Laguna	2
Jocelyn F. Fandiño	NJFR Meat Stall	Public Market, Alaminos, Laguna	0
Lorna B. Napa	Lensley's Store	Public Market Alaminos Laguna	0
Edward A. Pajanonot	Enor Litson Manok	Del Pilar St. Brgy 3 Alam. Lag.	0
Loreta M. Maleon	Vegetable Store	E. De Villa St. Alaminos Public Market	0
Loreta M. Maleon	Vegetable Store	E. De Villa St. Alaminos Public Market	0
Julieta A. Marasigan	Marasigan Store	E. De Villa St. Alaminos Public Market	0
Cesar Z. Abrigo	Abrigo's Poultry Supply	De Villa St. Brgy, 3 Alaminos Laguna	0
Glenda M. Castillo	GM Castillo's General Merchandise	35 Baylon St., Brgy. 111, Alaminos, Lag.	0
Precilla M. Carada	Chang's Mamian	Brgy. III, Alaminos, Laguna	0
Jessie P. Aguila	Jessie & Claris Store	Brgy. III Poblacion, Alaminos, Laguna	0
Shirley B. Valdivia	Ukay	Public Market, Alaminos, Laguna	0
Julio M. Garcia	Etay Store	Public Market Alaminos Laguna	0
Cherry C. Pineda	Kuya Jay & Ate Che Eatery	Mabini St. Brgy. 3 Alaminos Laguna	3
Ann Margarete J. Tanzuaco	J316 Trading	Del Pilar St. Brgy, 3 Alaminos Lag.	0
Nerissa A. Brion	Rice & Poultry Supply	Public Market Alaminos Laguna	0
Remile M. Quiatchon	Fish Vendor	Public Market Alaminos Laguna	0
Jesusa R. Onera	Vegetable Vendor	Public Market, Alaminos Laguna	0
Gladys D. Thompson	7G's Meatshop	Public Market, Alaminos Laguna	0
Jovelyn V. Martinez	Lucy Store	Public Market Alaminos Laguna	0

Business Owner	Business Name	Address	No. of Employees
Rowena M. Sagario	Unyot&Whena Meat Vendor	de Villa St. Alaminos, Laguna	0
Edwin I. Rivera	EIR General Merchandise	Public Market	1
Edlyn V. Maliksi	Maliksi Store	Public Market Alaminos Laguna	0
Aljhon F. Manalo	Tony &Lilet Chicken Vendor	Public Market Alaminos Laguna	0
Moises C. Matibag	Sari Sari store	Brgy. IV, Alaminos, Laguna	0
Nena L. Herrera	Nena's Fish Stand	Public Market	0
Victoria R. Bondad	Meat Vendor	Public Market	0
Angelita B. Canon	Meat Vendor	Public Market	0
Merly Masa	Saw saw store	San Andres Alaminos Laguna	0
Analyn C Maliksi	Fish Vendor	Brgy III Pob., Alaminos Laguna	0
Juan B. Mueco	JGMB Store	Baylon St., Brgy. 111, Alaminos, Laguna	2
Eden A. Lizardo	Custom Plus Enterprises	Brgy. San Juan Alaminos Laguna	2
Mila A Lidan	Mila Fish Vendor	Brgy III Poblacion Alaminos Laguna	0
Rollen F. Gallivo	Rollen Feeds & Poultry Supply	Public Market	0
Rollen F. Gallivo	Rollen Grocery	Public Market	0
Jessie C.Flores	JissieKayuranNg Niyog	Public Market Alaminos Laguna	0
Jessie C.Flores	Jissie& Marivic Store	Public Market Alaminos Laguna	0
Wilma T Helera	Chicken Vendor	Alaminos Public market	0
Novien L. Averion	Meat Vendor	Public Market Alaminos Laguna	0
Teresita B. Zuniga	Dry Good Store	Public Market, Alaminos Laguna	0
Roderick D. Oracion	Malta's Cyber Café	36 Mabini St., Brgy. 111, Alaminos, Laguna	0
Veronica V. Alvarez	Meat Vendor	Public Market, Alaminos Laguna	0
Liza A. Digno	Liza's Sari Sari store	Brgy San Agustin Alaminos Laguna	0
Filipina DC. Herrera	Bheck Fish Vendor	Public Market Alaminos Laguna	0
Filipina DC. Herrera	Bheck vegetable Vendor	Public Market Alaminos Laguna	0

Business Owner	Business Name	Address	No. of Employees
Nicolas T. Dayao	KuyaNicktoMeatshop	Public Market, Alaminos Laguna	0
Corazon P. Deocareza	Azon Store	Brgy San Benito, Alaminos Laguna	0
Rowena B. Hernandez	Rowena's Carideria	De Villa St. Alaminos, Laguna	0
Rosally S. Francisco	Soling Store	Public Market, Alaminos Laguna	0
Wilson G. Suarez	Wilson's Sari-Sari Store	Public Market, Alaminos, Laguna	0
Evelyn M. Saldua	Joyce & Joshua Eatery	Public Market, Alaminos, Laguna	4
Ria Ann M. Agnote	B31 Toys and Accesories	34 Baylon St., Brgy. III - Alaminos, Lag.	0
Madonna A. Latobe	Vegetable and ihawihaw	Brgy III - Poblacion, Alaminos, Laguna	0
Nelson P. Sulindom	Peanut Vendor	Alaminos, Laguna	0
Ma. Elena D.Bertol	Kcee at Angel Sari-Sari Store	Public Market	0
Nabil H Biston	Hanabel Footwear Store	Bailon St. Pob. III Alaminos, Lag.	1
Arlene B. Pascua	ABP88 General Merchandise	Public Market, Alaminos, Laguna	0
Rosalinda A. Aningalan	Vinnie's Home Furnishing & Gen.Merchadise	Del Pilar St Brgy.4 Alaminos Laguna	2
Gordon Yu Chua	Geordan Commercial	del Pilar St., Brgy. 11 - Alaminos, Lag.	1
Johnart V. Agustin	Jironicken Merchandising	Brgy III (pob), Alaminos, Laguna	0
Rina P. Fineza	Azriella&Wacky Store	Public Market, Alaminos, Laguna	1
Erlie E. Gonzales	Colleen, Matthew & Cello Store	Alaminos Public Market	4
Felomina C. Mondragon	Vegetable fEly Store	Public Market, Alaminos, Laguna	0
Nilda D Mantupar	Nilda's Puto	Public Market	0
Robert M. Baldivia	Rice Store (Kuya Bert Rice)	Brgy III Poblacion Alaminos Laguna	0
Flora S. Ramirez	Flor Ramirez Fish Vendor	Alaminos Public Market	1
Aileen M. Padilla	Romy & Aileen General Merchandize	Baylon St., Brgy. 111, Alaminos, Lag.	0
Mara Monica R. Rodillas	Mara Monica Yema Cake	del Pilar St., Alaminos, Laguna	1

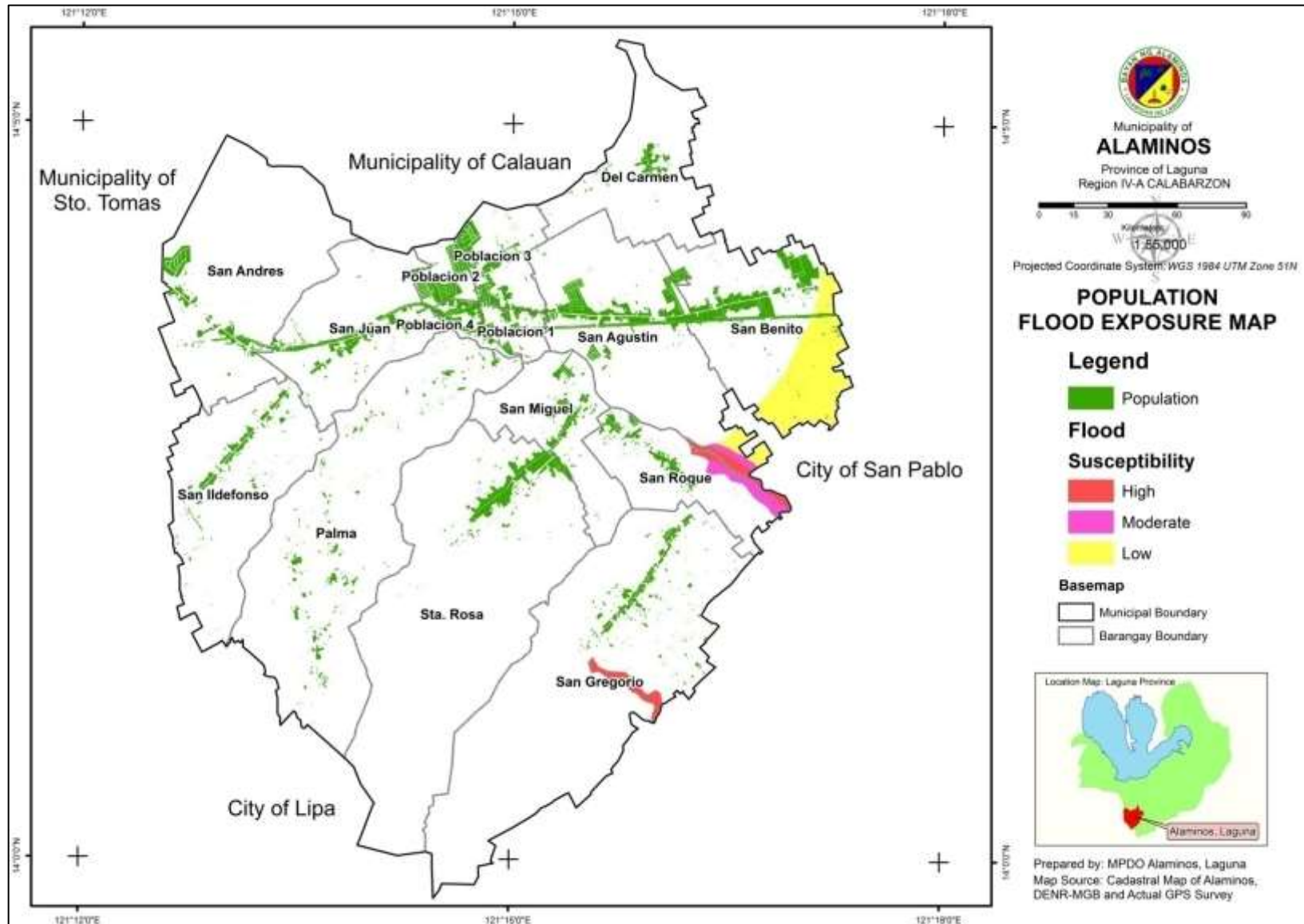
Business Owner	Business Name	Address	No. of Employees
Lourdes B. Enriquez	R & L Feeds and Rice Retailer	De Villa St. Alaminos, Laguna	1
Drug Stores			
Mercury Drug Corporation (Essential)		Del Pilar St. Brgy,3 Alaminos Lag.	17
Retail Sale Via Stalls and Markets			
Morris Roderick U. Paredes	Lechon Manokni Sr. Pedro (RodjazFoods)	Del Pilar St. Alaminos Laguna	2
Retail of Liquefied Petroleum Gas, Other Fuel Products			
Gaz De Bay, Inc. (Alaminos Branch)		San Juan Alaminos Laguna	7
Perry's Fuel Distribution Inc.	Fuel Distribution	San Juan Alaminos Laguna	0
Rural Banking			
Rural Bank Of Dolores (Quezon), Inc.		D.Fandino St. Brgy.3 Alaminos Lag.	6
Arnel B. Palmones	Card Bank Inc. Alaminos Unit	Del Pilar St. ,Brgy.1 - Alaminos Lag.	6
UCPB Saving Bank, Inc.		Del Pilar St. Brgy.1 Alaminos Lag.	6
Quezon Capital Rural Bank, Inc. - Alaminos Branch		Del Pilar St., Brgy 3 - Alam. Lag.	7
Sale Vehicle Parts & Accessories			
Dennis A. Mendoza	Mendoza Auto Supply	M.H Del Pilar St. Brgy.4 Alam. Lag.	0
Ann Charmaine A. Montoya	Precious Ace Auto Supply	del Pilar St., Alaminos, Laguna	1
Social Work without Accommodation			
Asa Philippines Foundation, Inc.		Del Pilar St. Brgy.1 Alaminos Lag.	5
Storage and Warehousing			
Sta. Clara International Corporation		San Andres, Alaminos, Laguna	2
Saveway Shoppers, Inc.		Fantastic Coliseum, San Benito, Alam., Lag.	28
Remelita M. Guevarra	Remy Store/Bodega	Public Market Alaminos Laguna	0
Trucking Services			
Edgardo A .Paynor	Rustic Clear Cable Corporation	San Benito Alaminos Laguna	4
Edgardo A .Paynor	Telmarc Corporation	San Benito Alaminos Laguna	18

Business Owner	Business Name	Address	No. of Employees
Telecommunications Count			
Rolly C. Baldo	Roll Wide Venture	Mabini St. Alaminos, Laguna	1
Veterinary Activities			
Flori Ann M. Buiser	Annica's Pet Place	del Pilar St., Brgy. 1, Alaminos, Laguna	2
Christy Paula L. Basilan	Bark Village Grooming and Veterinary Services	238 San Juan, Alaminos, Laguna	4
Wholesale of Food, Beverages & Tobacco(5122), Retail of Pharmaceutical'			
Rosemarie A. Abrigo	Rosestone Trading Company	San Agustin, Alaminos, Laguna	1
Wholesale of other Intermediate Products, Waste, Scrap			
Denis J. Laurio	D.J. Laurio Junk Shop	San Benito, Alaminos Laguna	1
Wholesale of Solid, Liquid, Gaseous Fuels			
Oro Oxygen Corporation		San Juan Alaminos Laguna	13
Wholesale on a Fee or Contract Basis			
Elvira D. Sarmiento	CY & Rish Boutique	Brgy. III, Alaminos, Laguna	0
Merilyn C. Nayle	Jhaira's Boutique	Brgy. 111, Alaminos, Laguna	0
Ramon C. Flores	Pikesville Modular Cabinets & Office Furniture	Lynville Subd., San Agustin, Alam., Lag.	2
Wholesale on a Fee or Contract Basis/Other Service Activities			
Henry M. Abrigo	Victory 77 Ventures	109 San Agustin, Alaminos, Laguna	1
Russel C. Arida	145A Distribution	145 San Ildefonso, Alaminos, Laguna	1

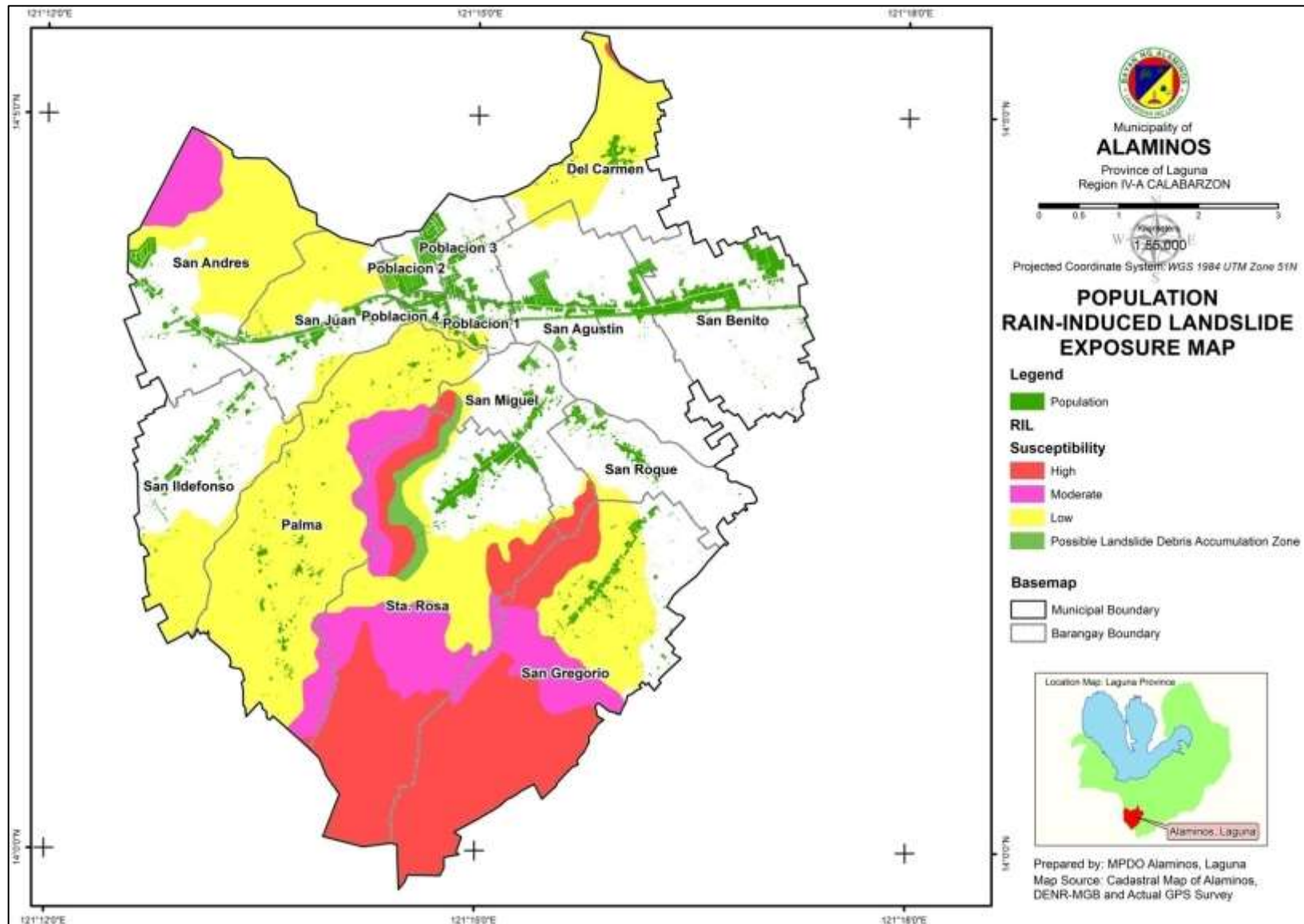
Source: BLPO, 2018

Maps

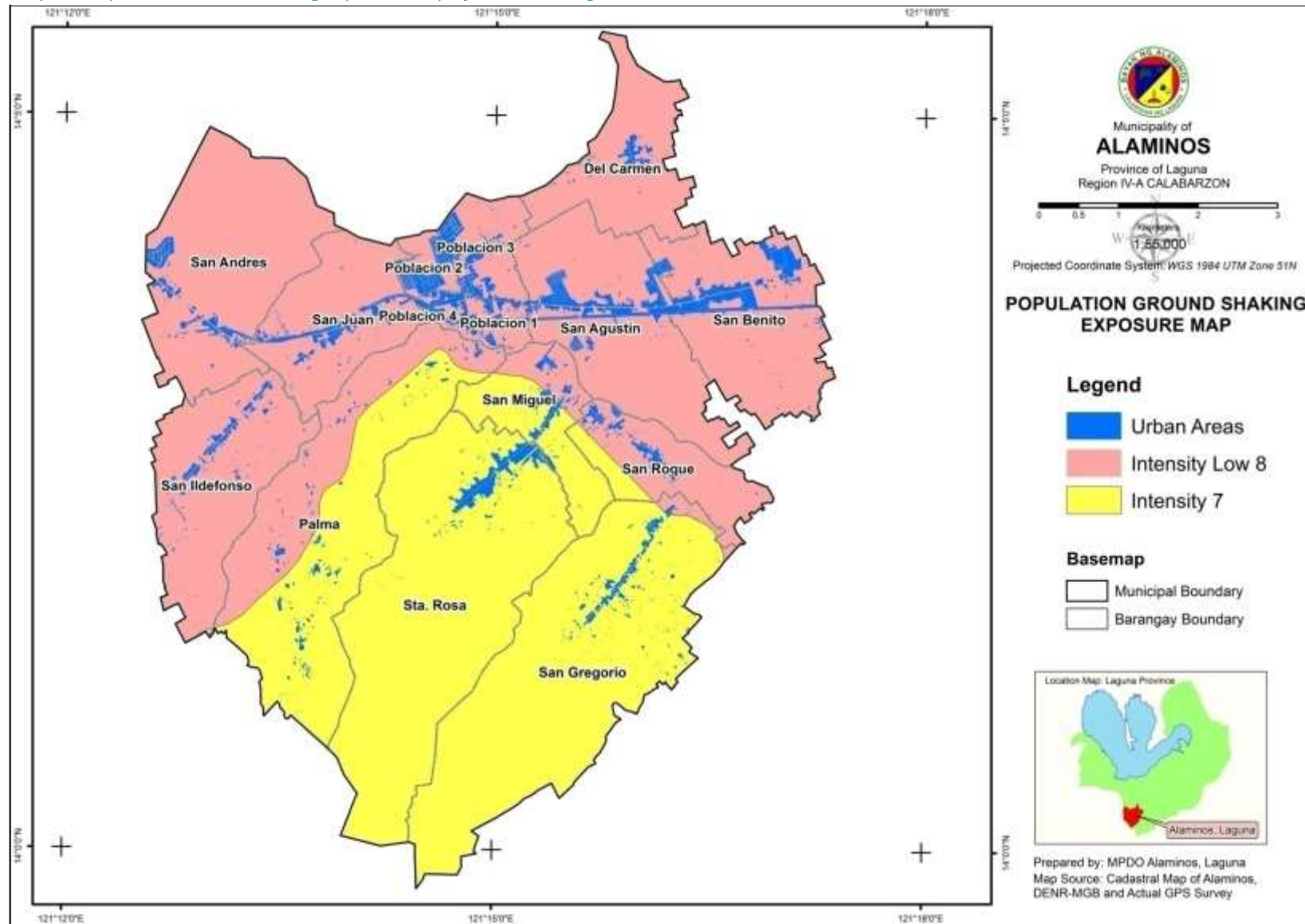
Map 30: Population Flood Exposure Map of Alaminos, Laguna



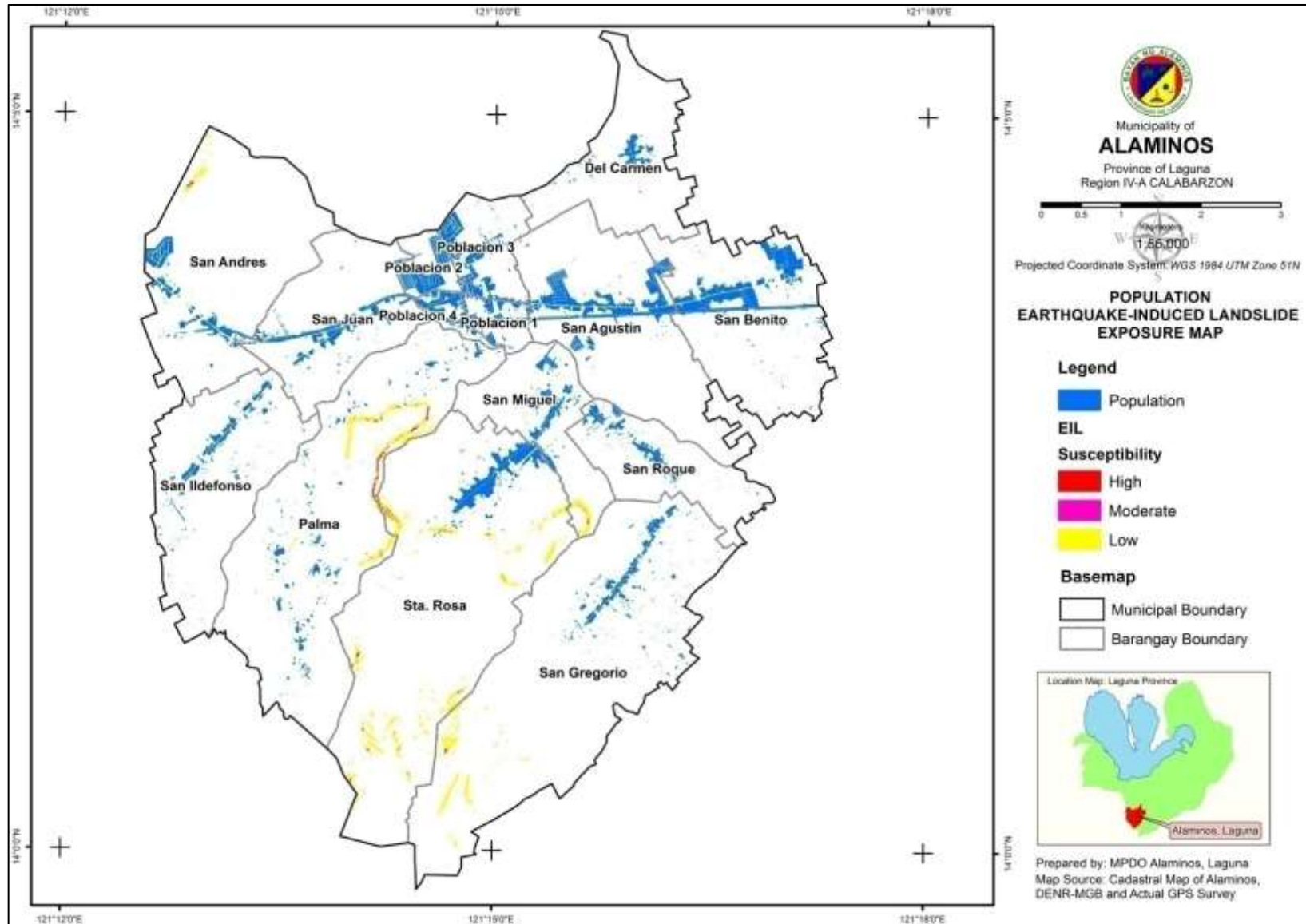
Map 31: Population RIL Exposure Map of Alaminos, Laguna



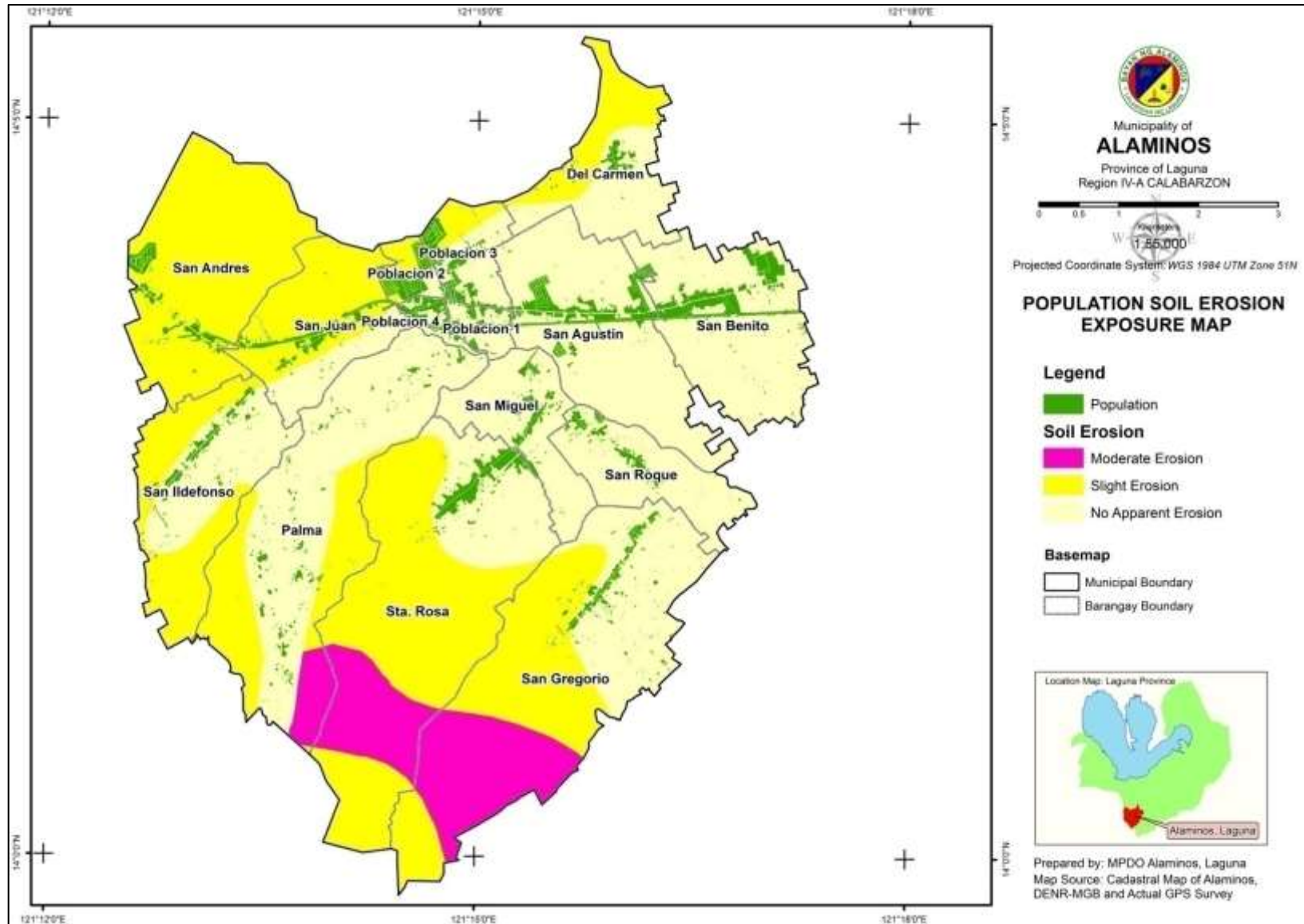
Map 32: Population Ground shaking Exposure Map of Alaminos, Laguna



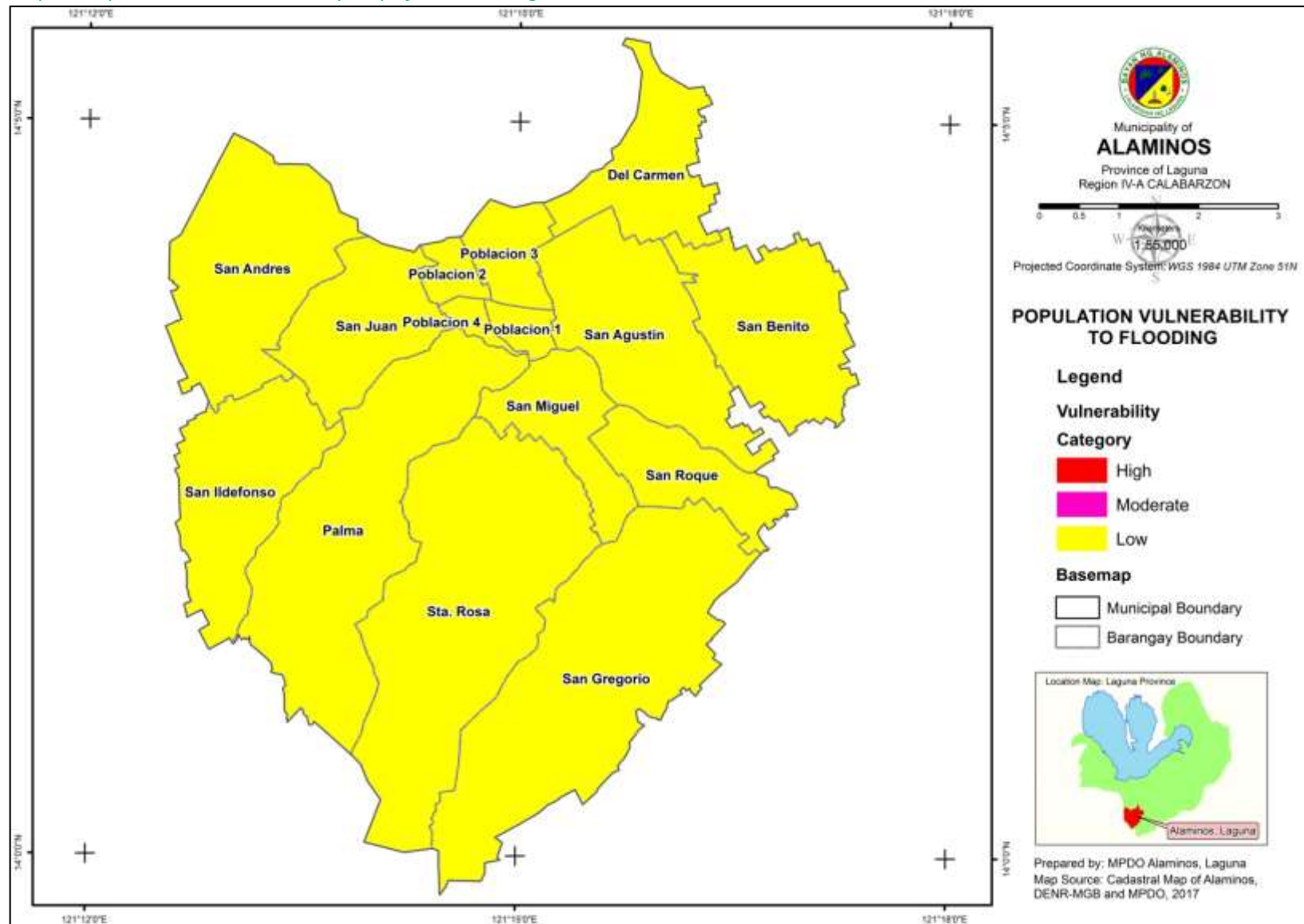
Map 33: Population EIL Exposure Map of Alaminos, Laguna



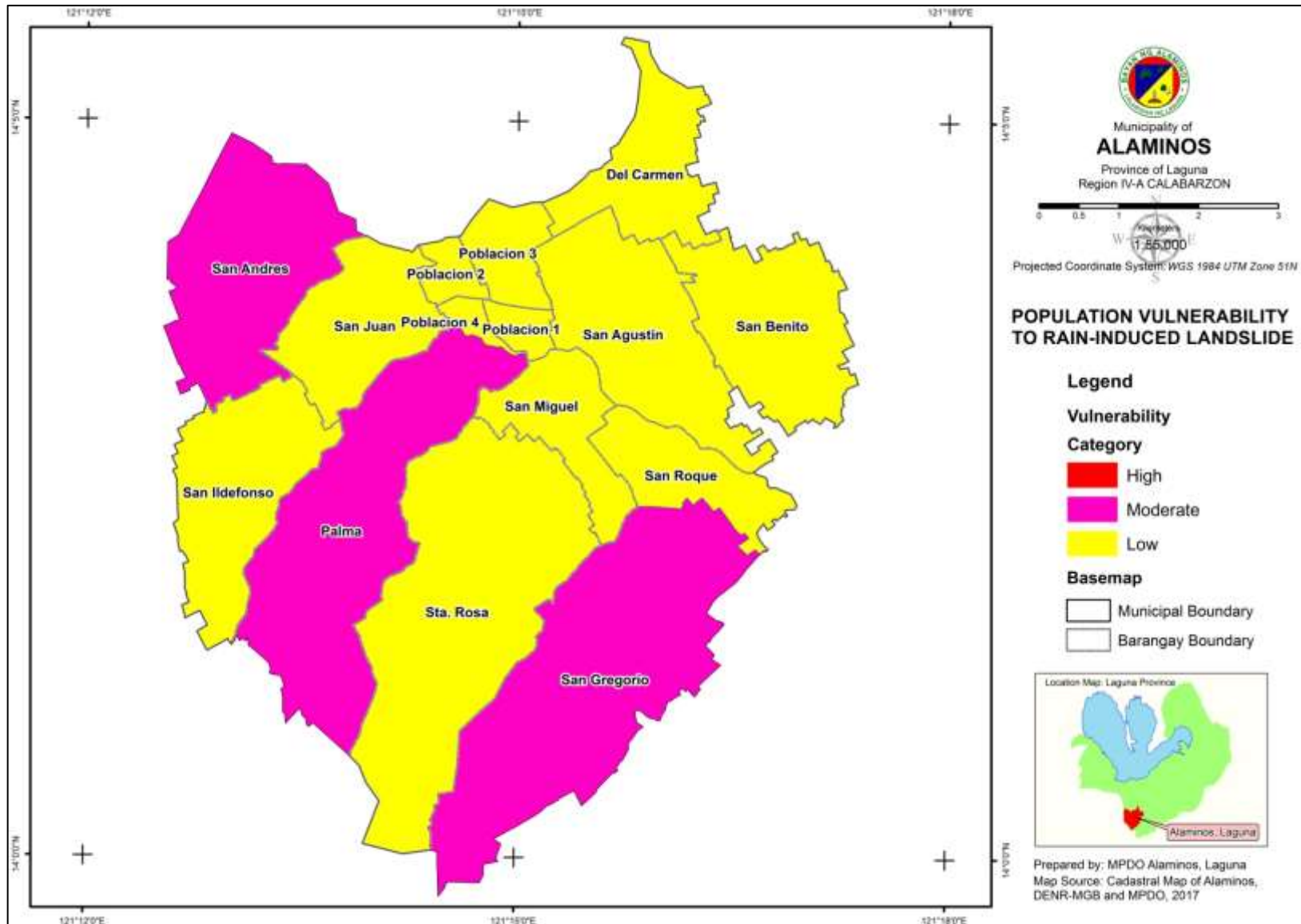
Map 34: Population Soil Erosion Exposure Map of Alaminos, Laguna



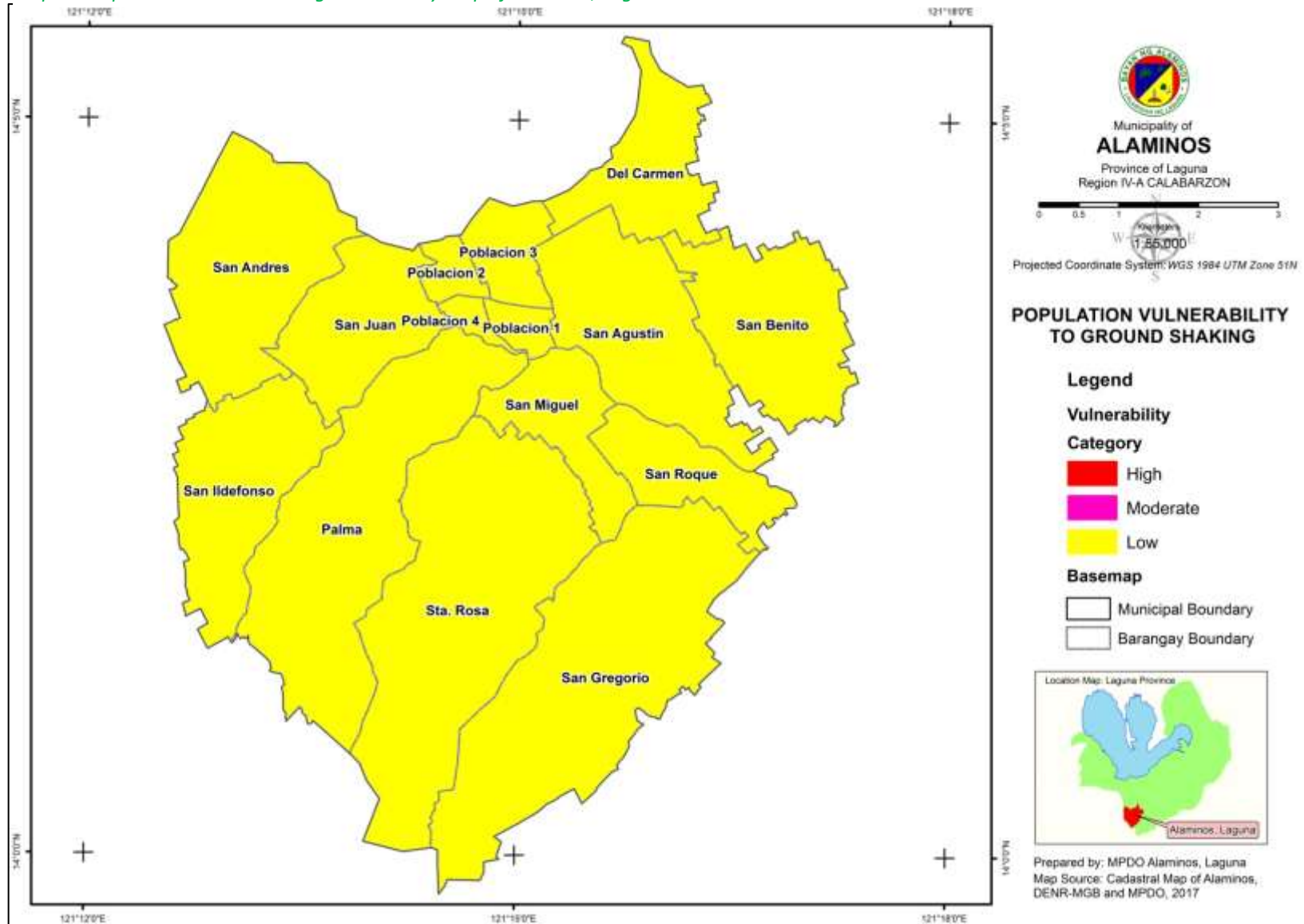
Map 35: Population Flood Vulnerability Map of Alaminos, Laguna



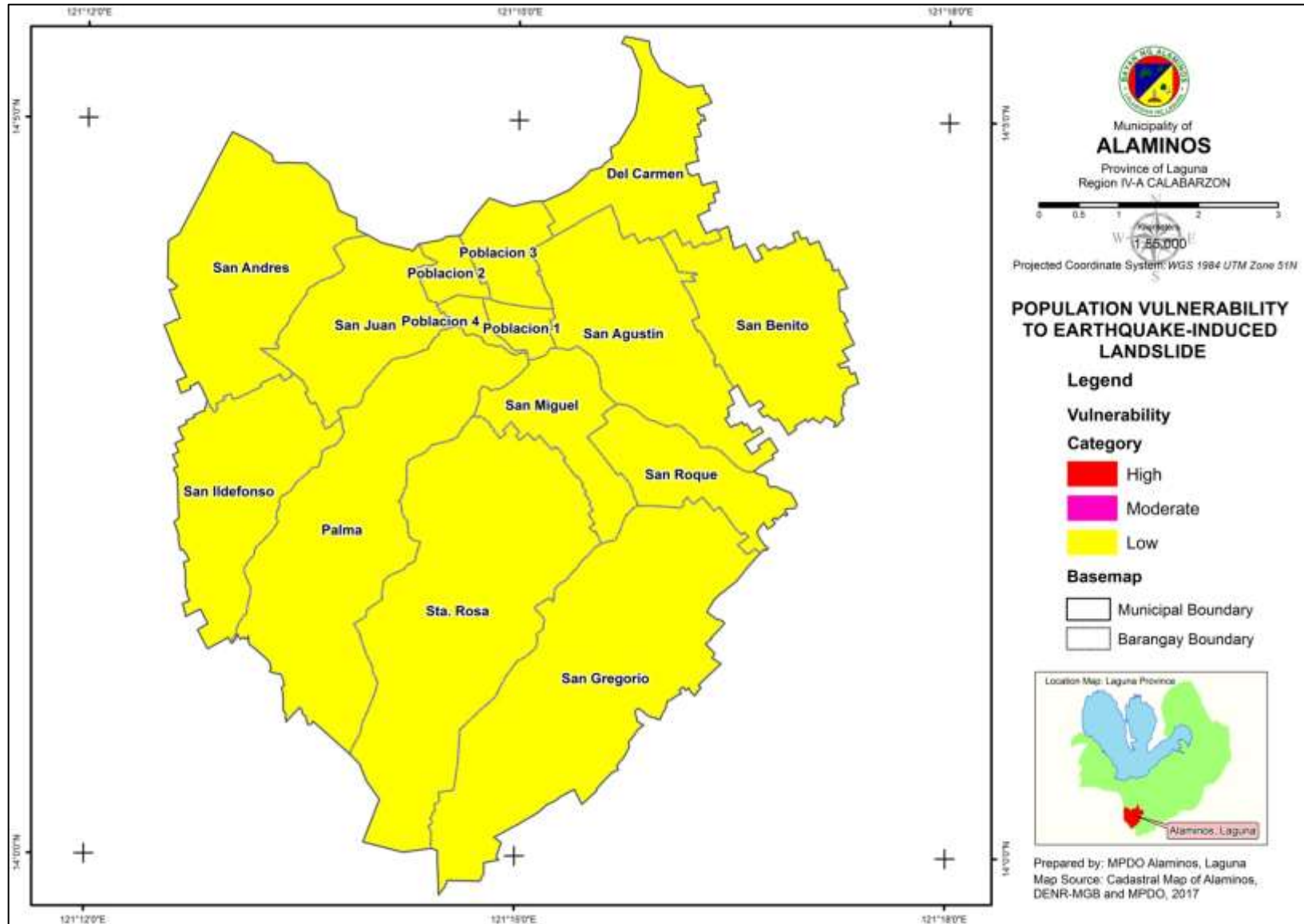
Map 36: Population RIL Vulnerability Map of Alaminos, Laguna



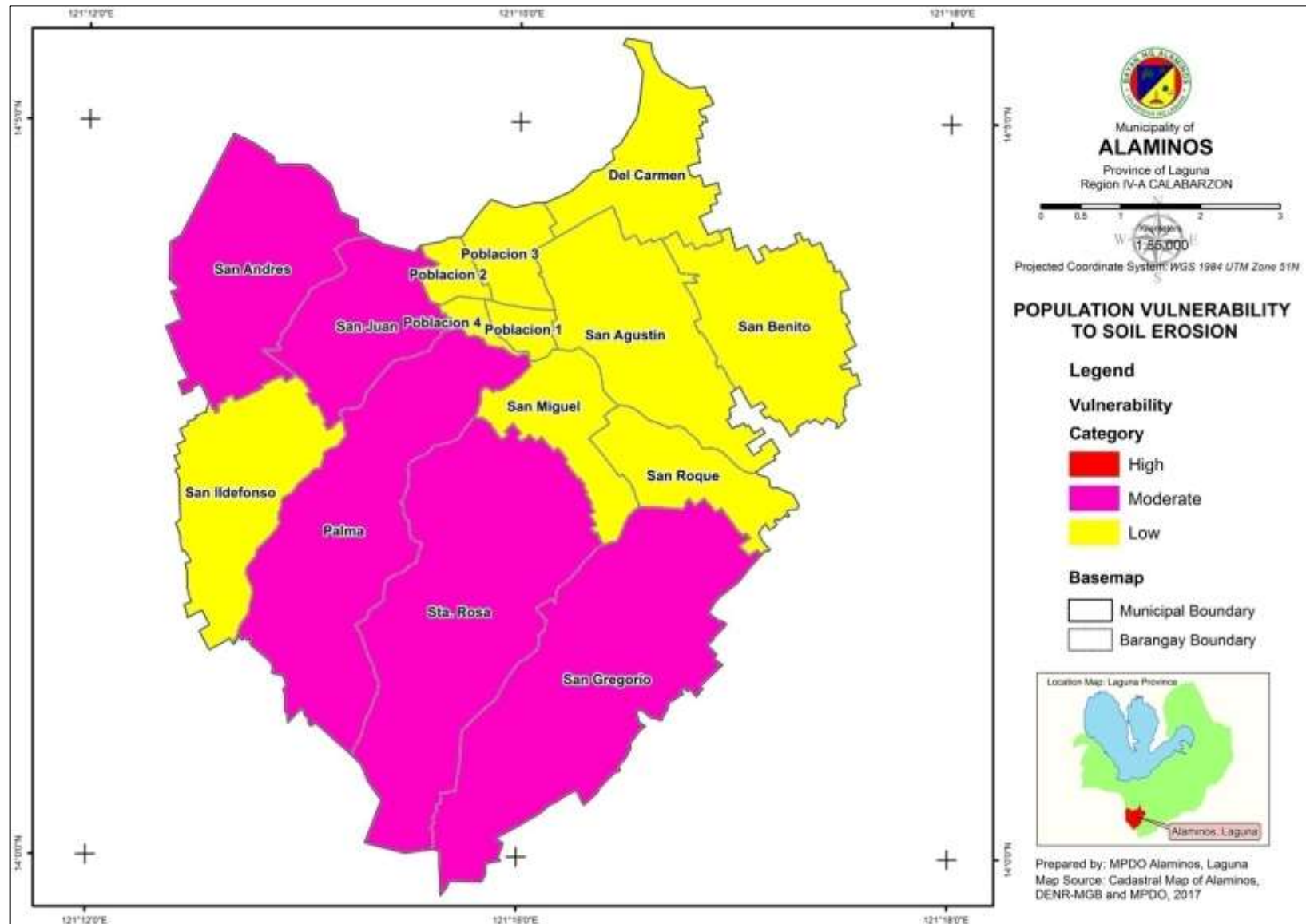
Map 37: Population Ground Shaking Vulnerability Map of Alaminos, Laguna



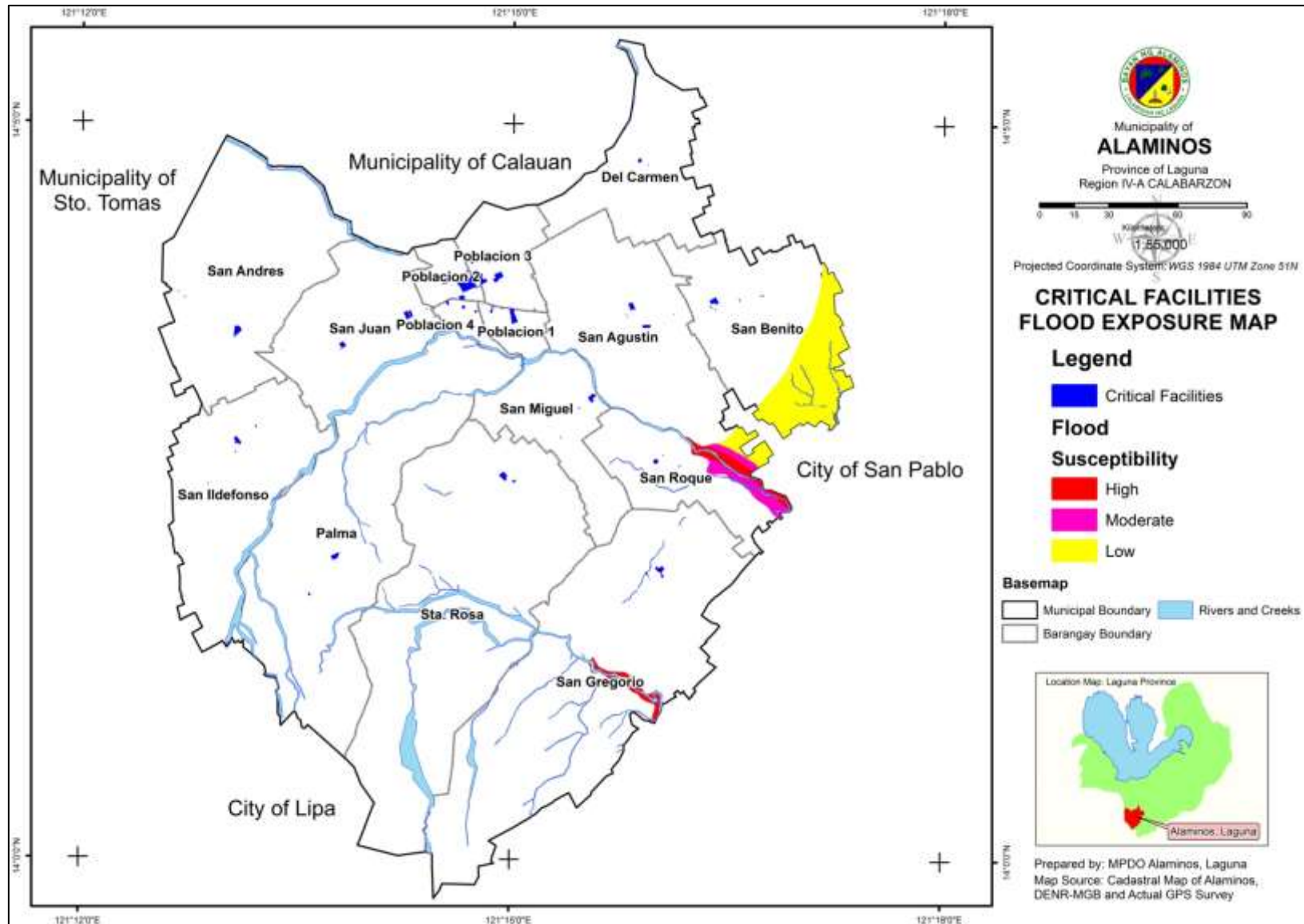
Map 38: Population EIL Vulnerability Map of Alaminos, Laguna



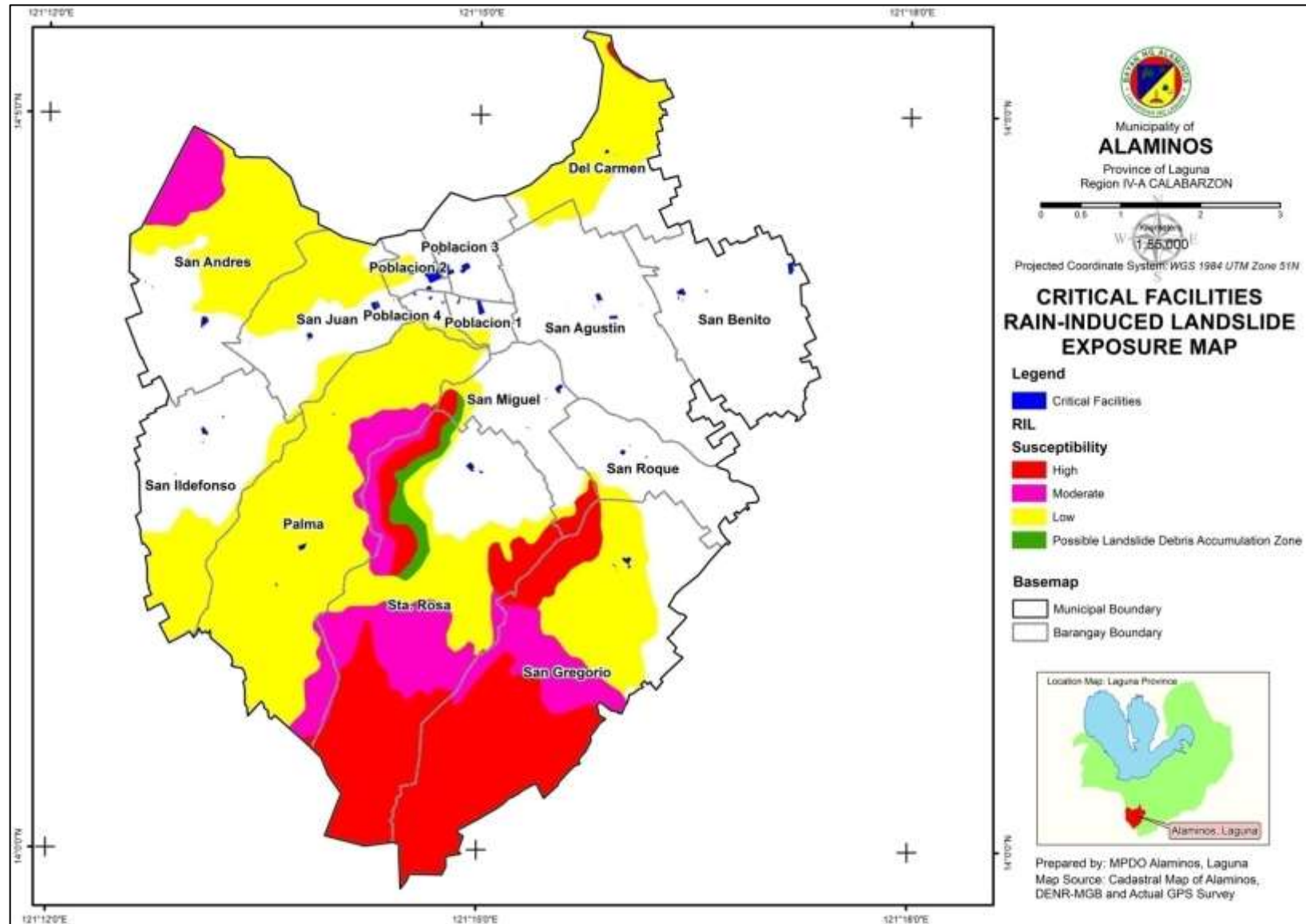
Map 39: Population Soil Erosion Vulnerability Map of Alaminos, Laguna



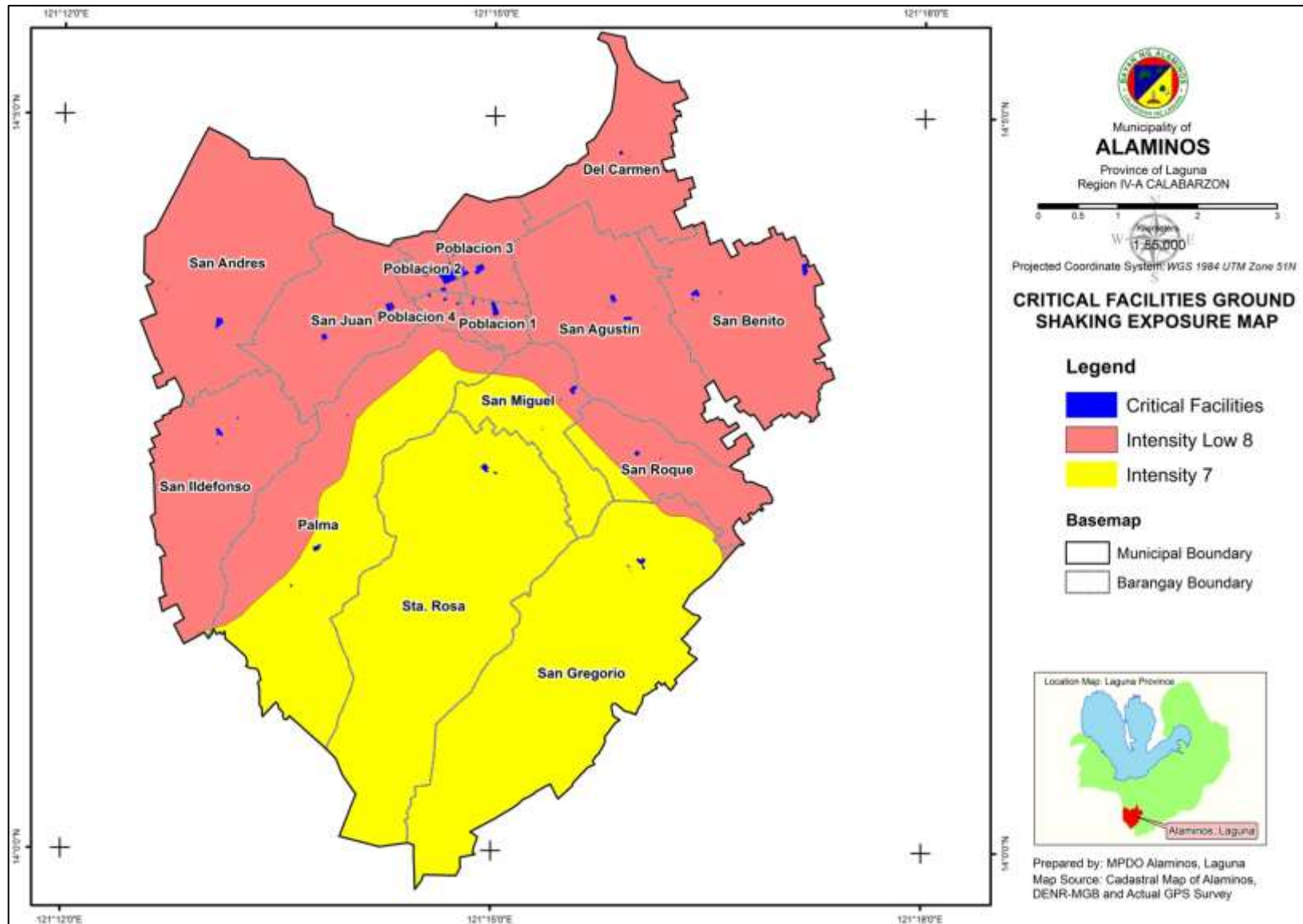
Map 40: Critical Facilities Flood Exposure Map of Alaminos, Laguna



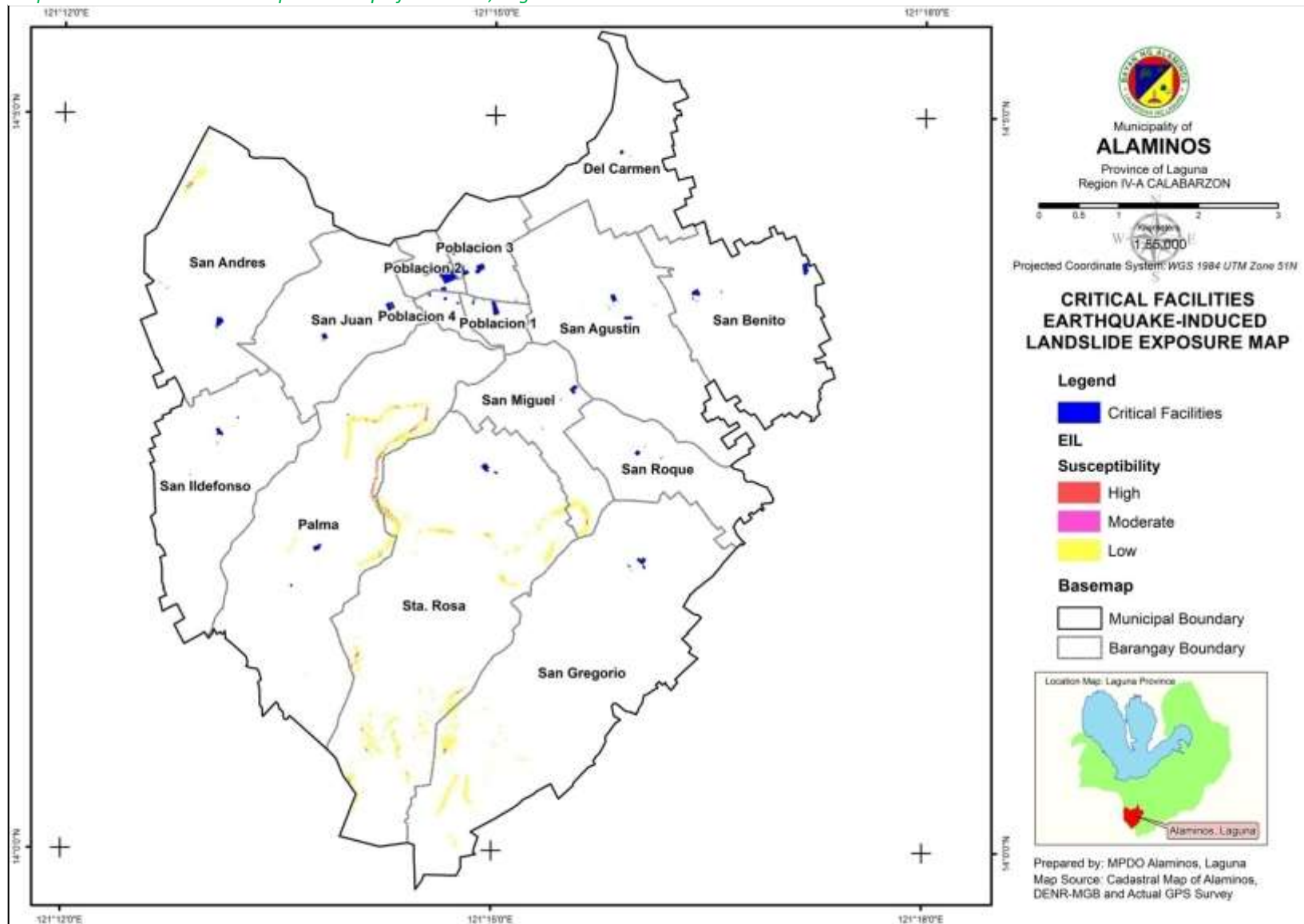
Map 41: Critical Facilities RIL Exposure Map of Alaminos, Laguna



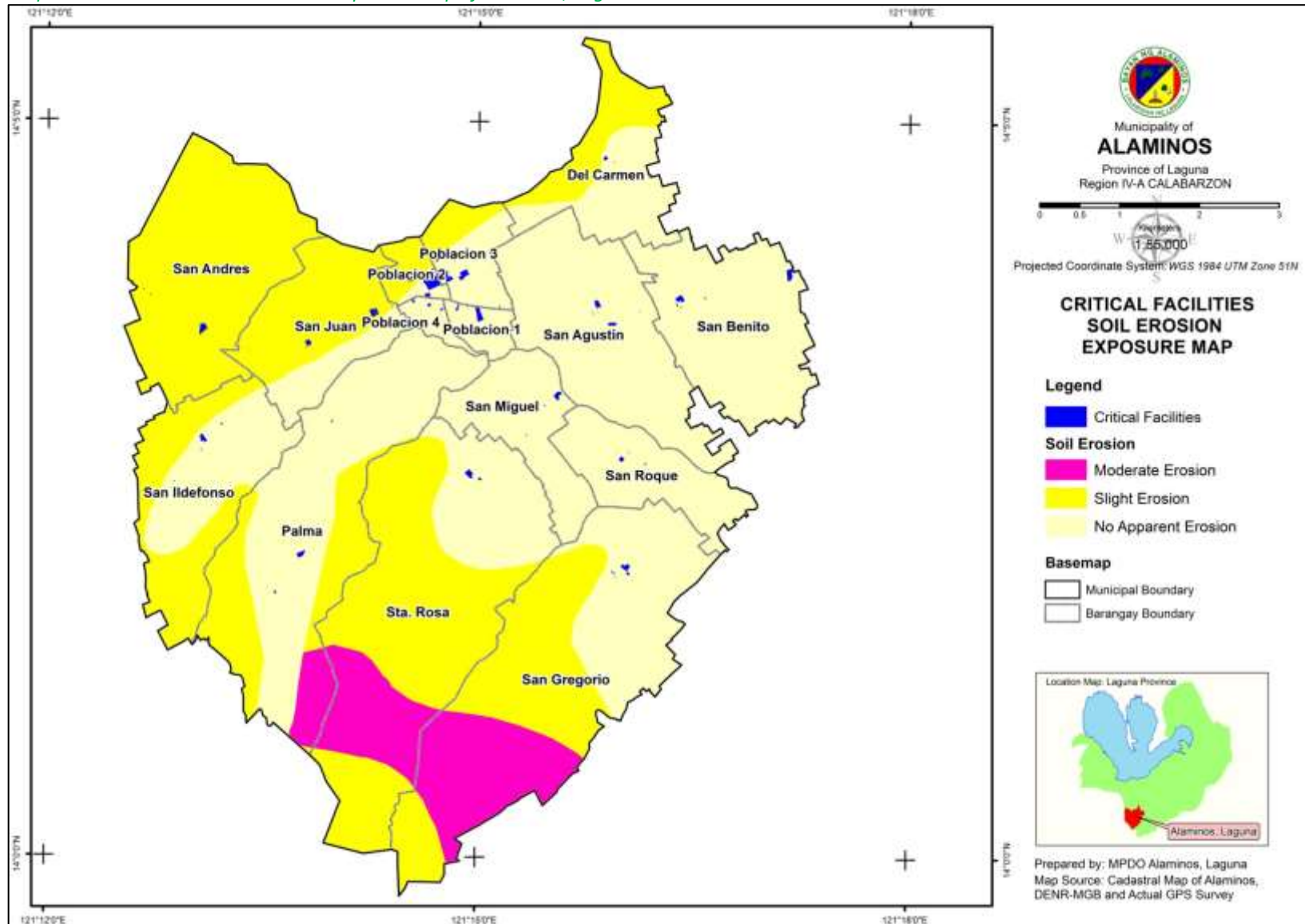
Map 42: Critical Facilities Ground Shaking Exposure Map of Alaminos, Laguna



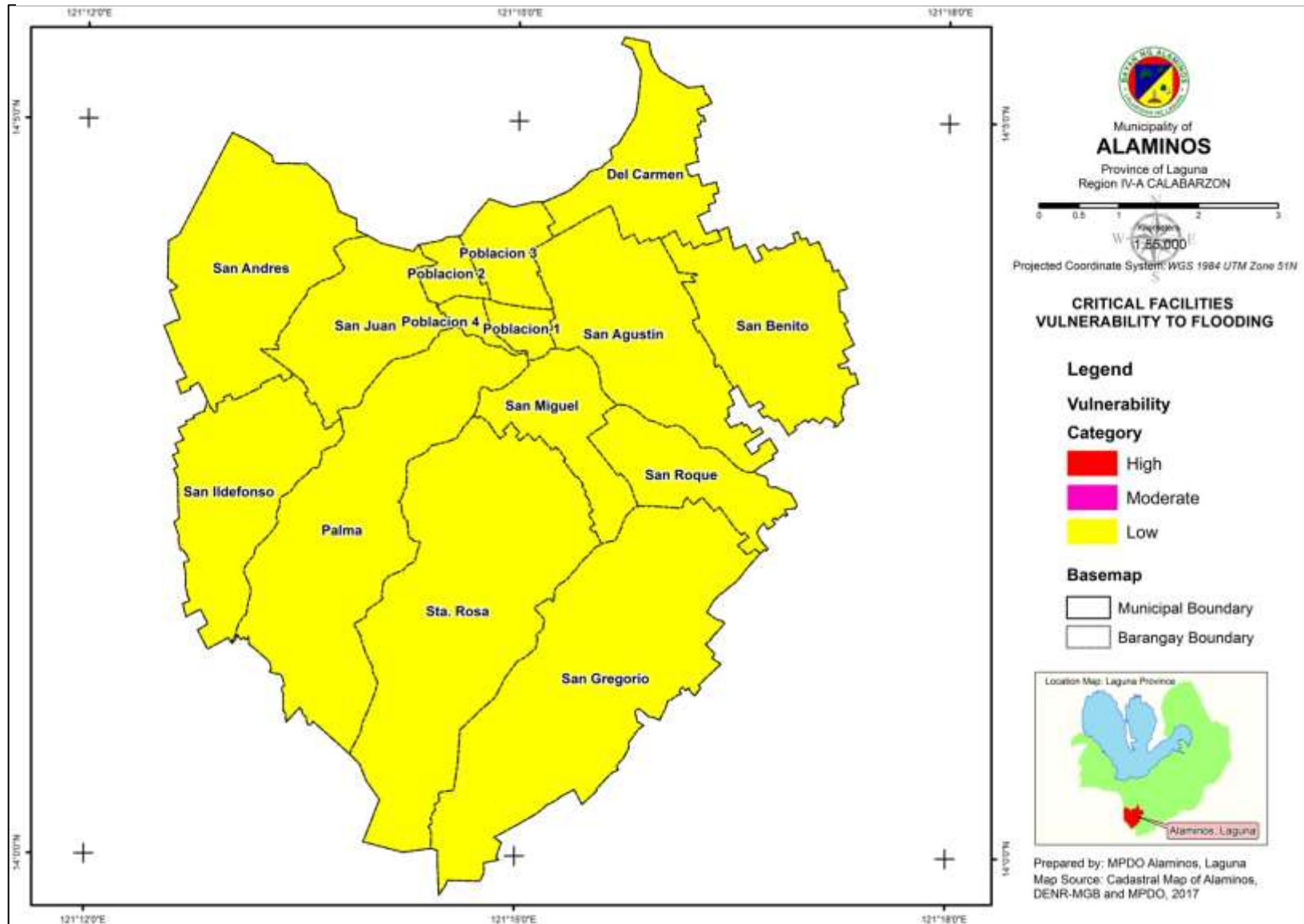
Map 43: Critical Facilities EIL Exposure Map of Alaminos, Laguna



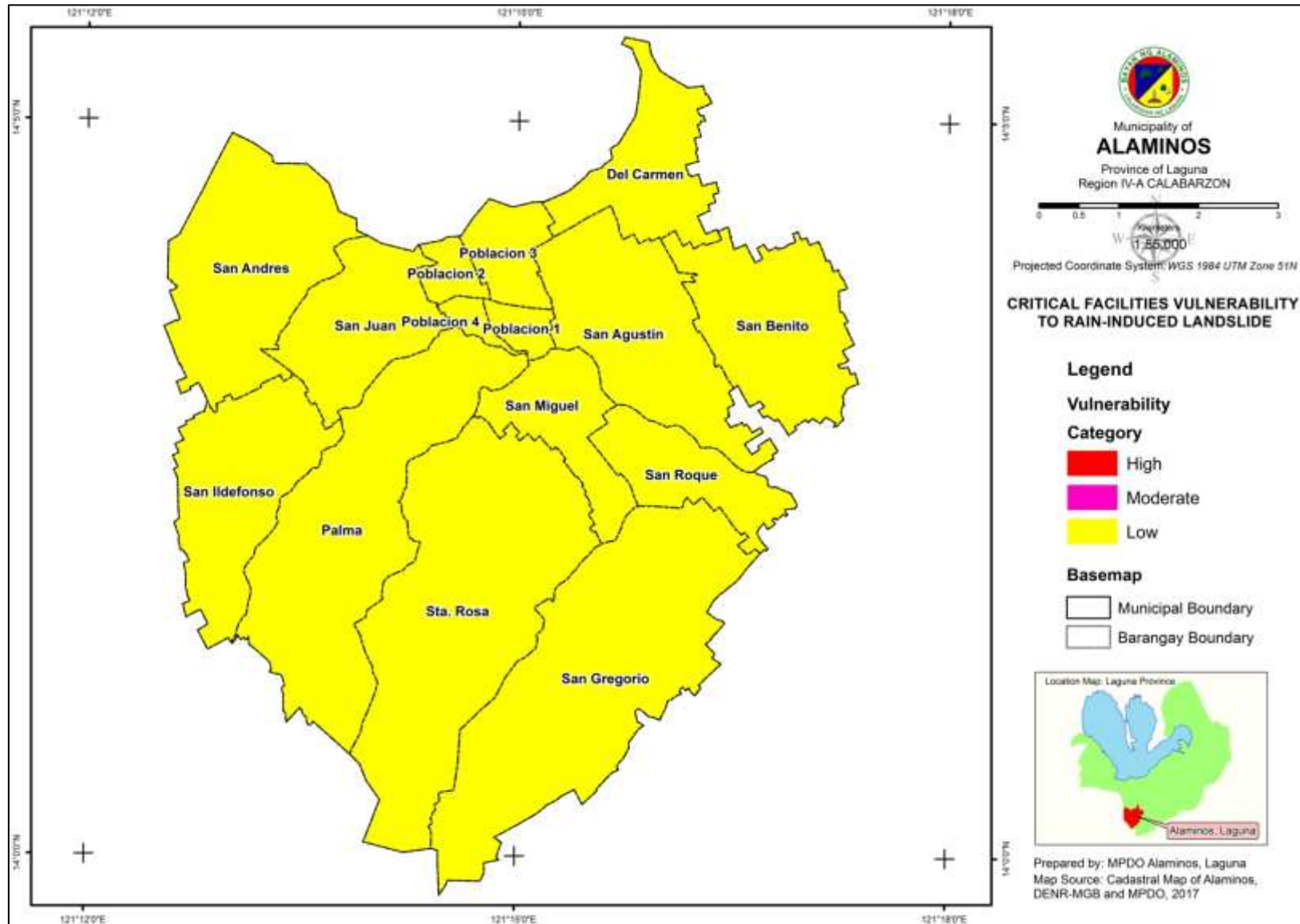
Map 44: Critical Facilities Soil Erosion Exposure Map of Alaminos, Laguna



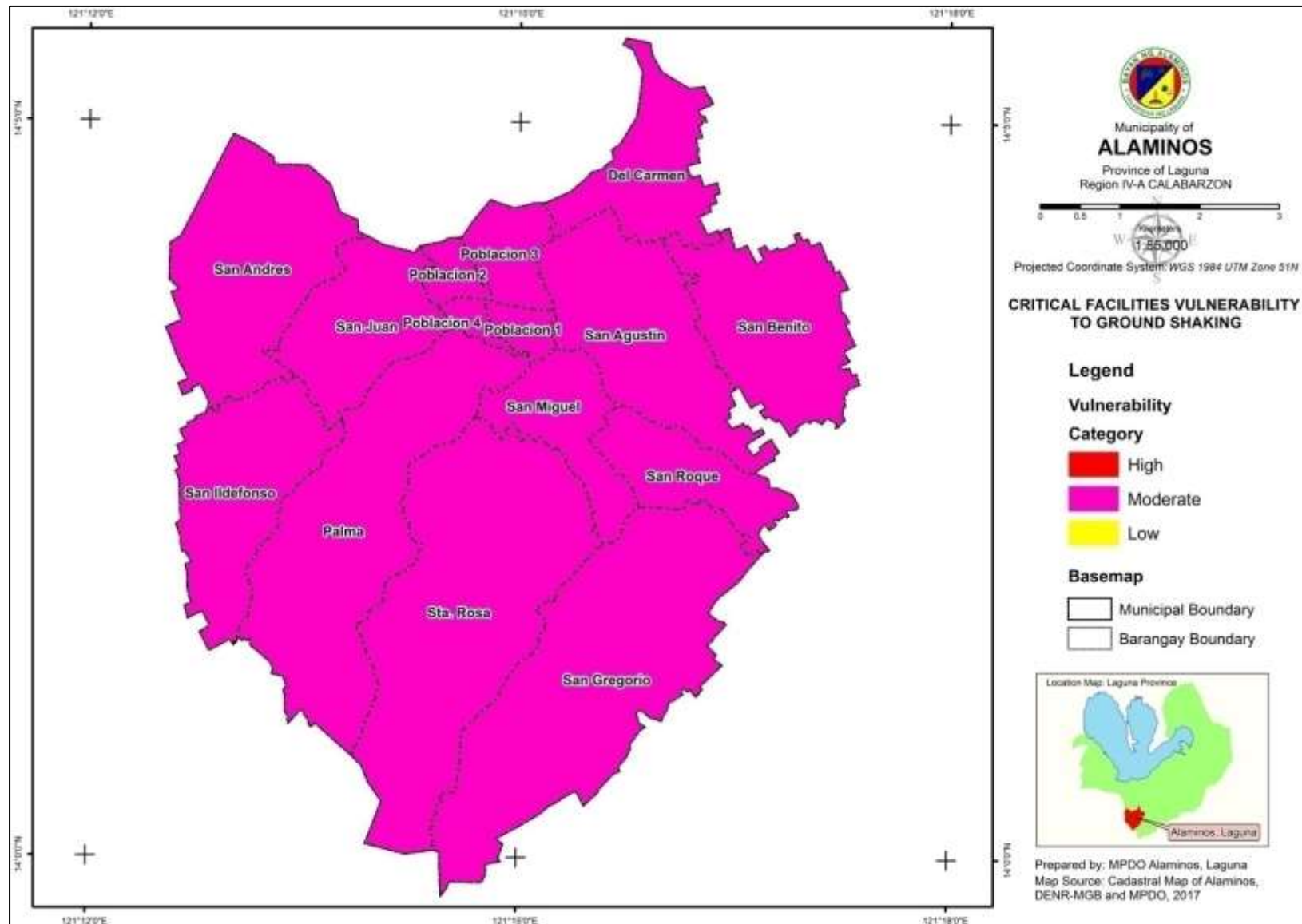
Map 45: Critical Facilities Flooding Vulnerability Map of Alaminos, Laguna



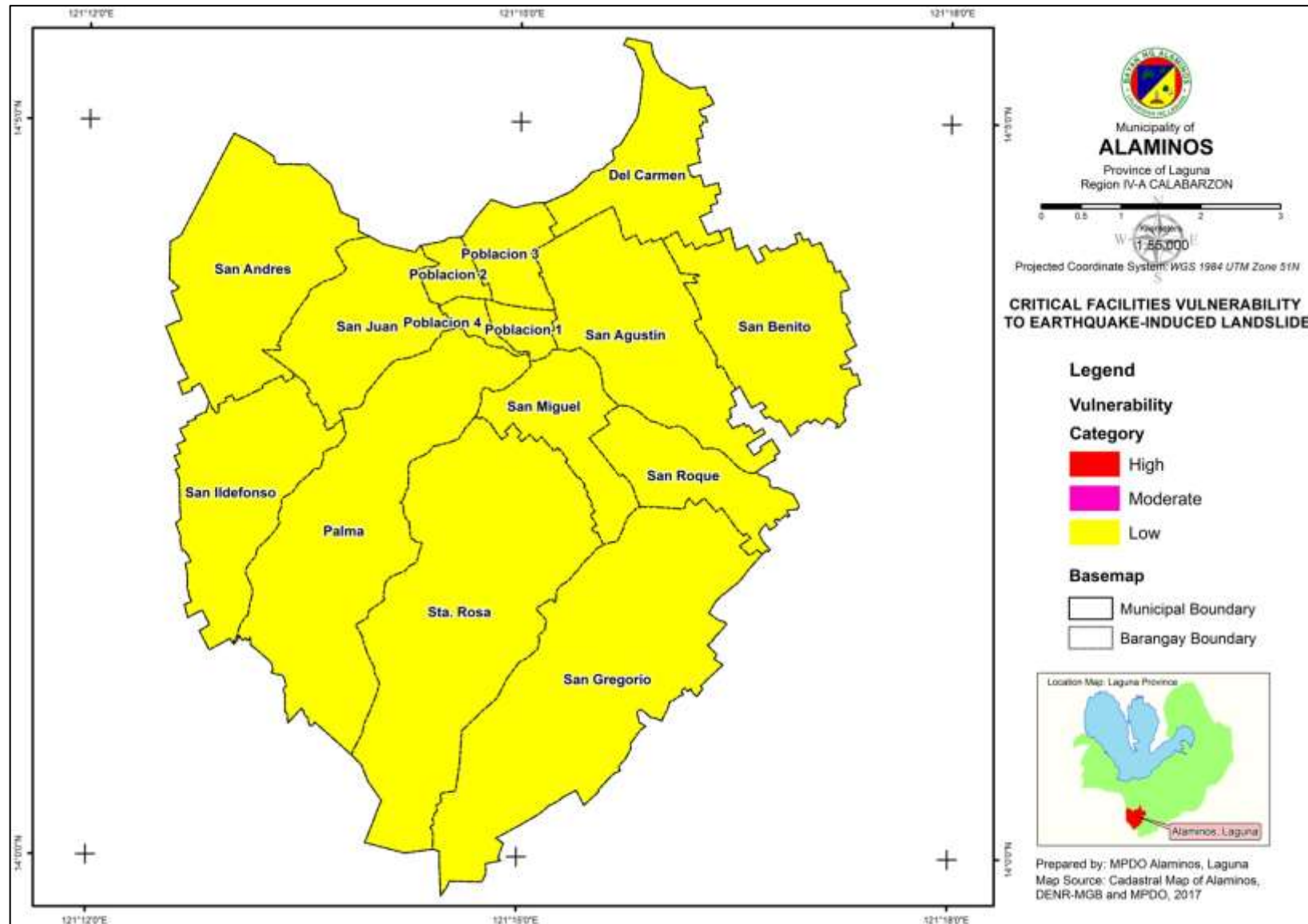
Map 46: Critical Facilities RIL Vulnerability Map of Alaminos, Laguna



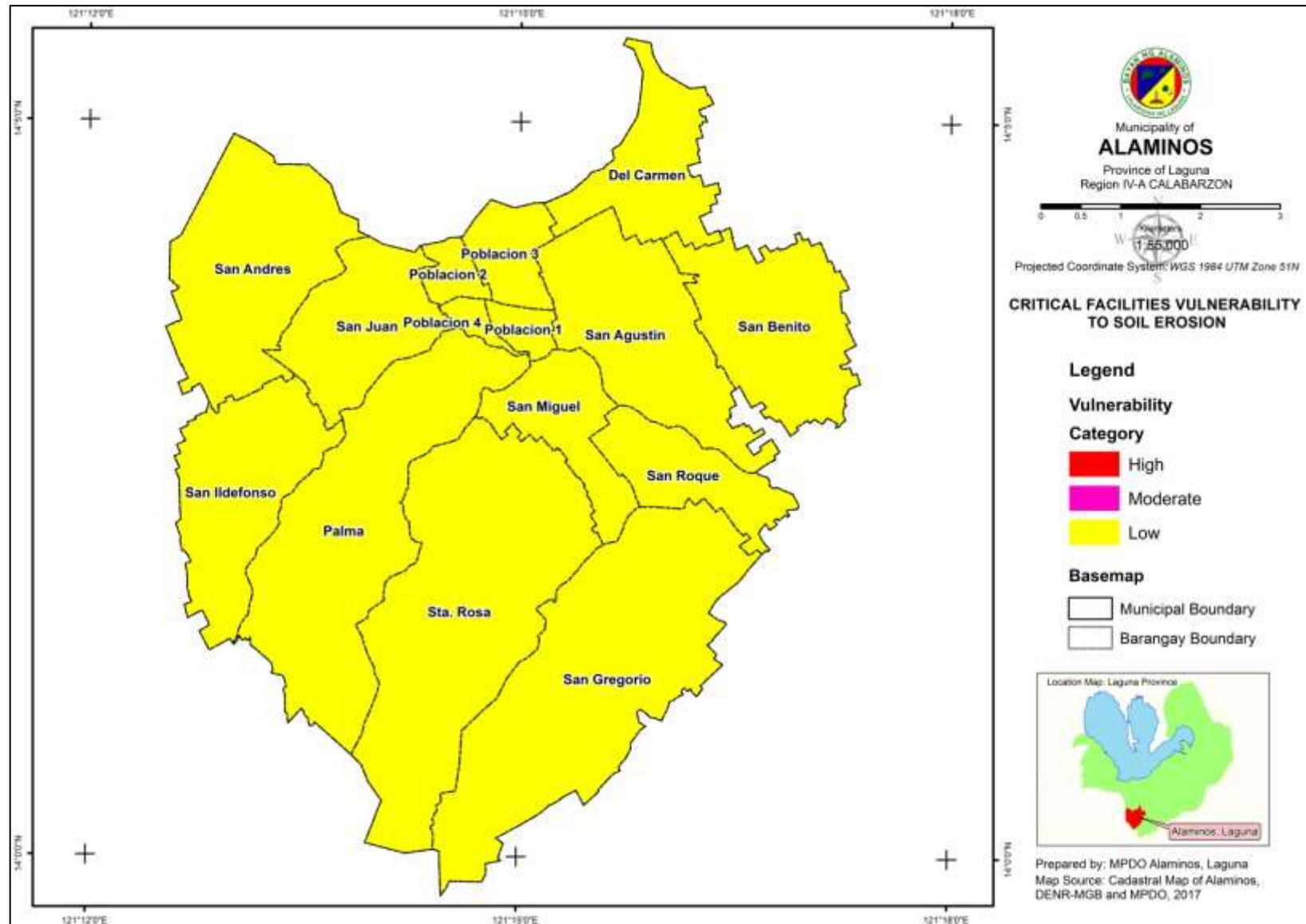
Map 47: Critical Facilities Ground Shaking Vulnerability Map of Alaminos, Laguna



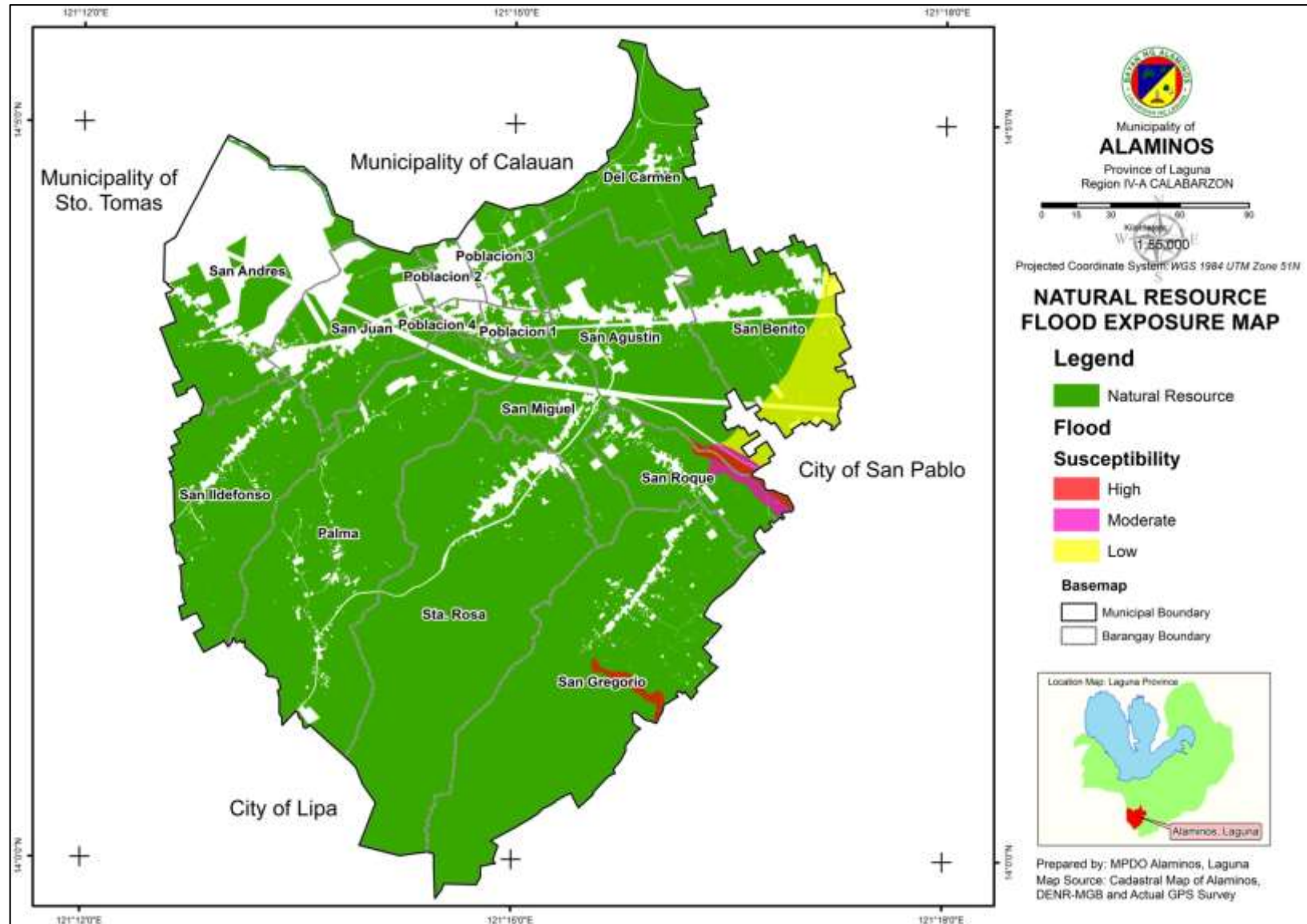
Map 48: Critical Facilities EIL Vulnerability Map of Alaminos, Laguna



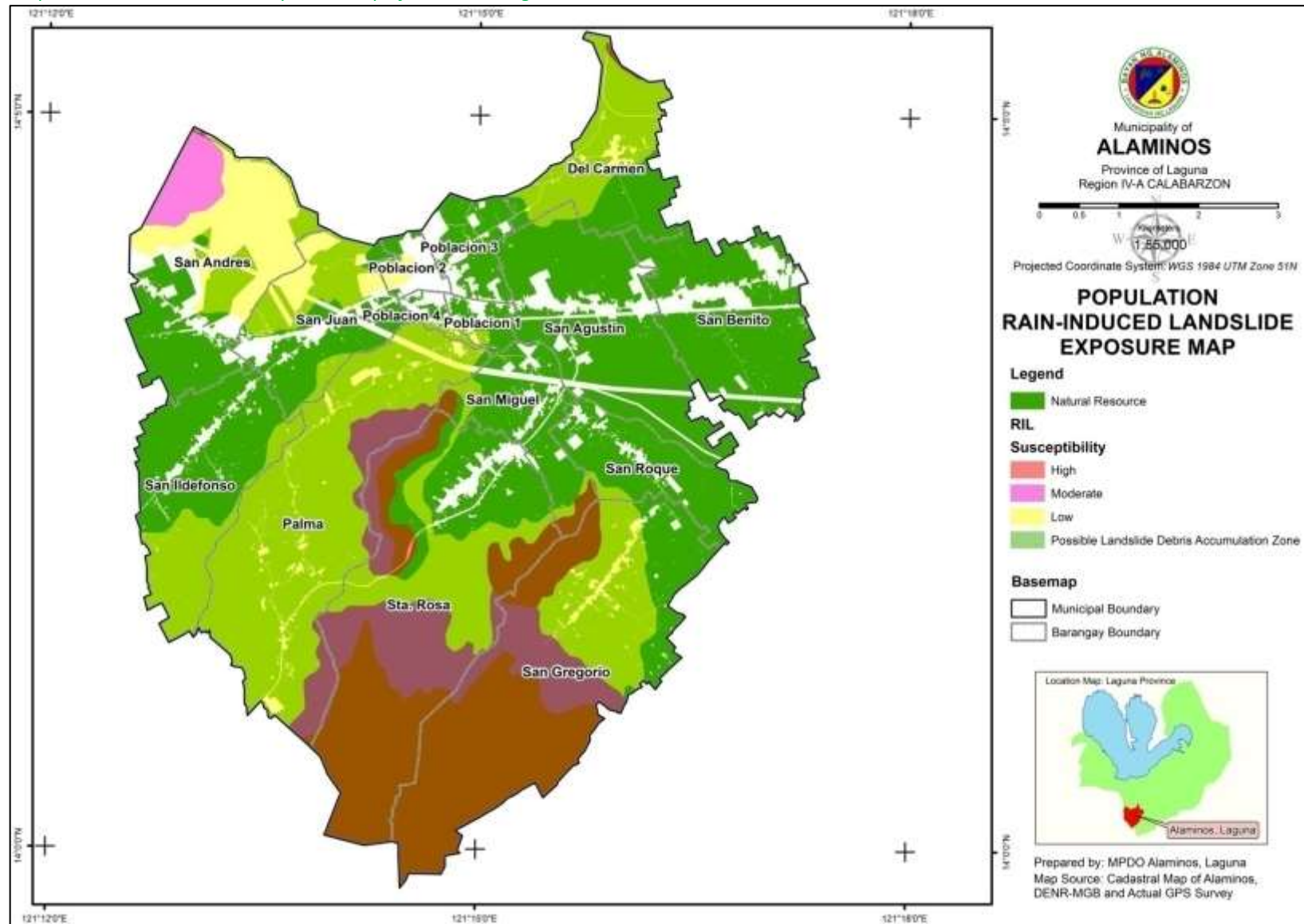
Map 49: Critical Facilities Soil Erosion Vulnerability Map of Alaminos, Laguna



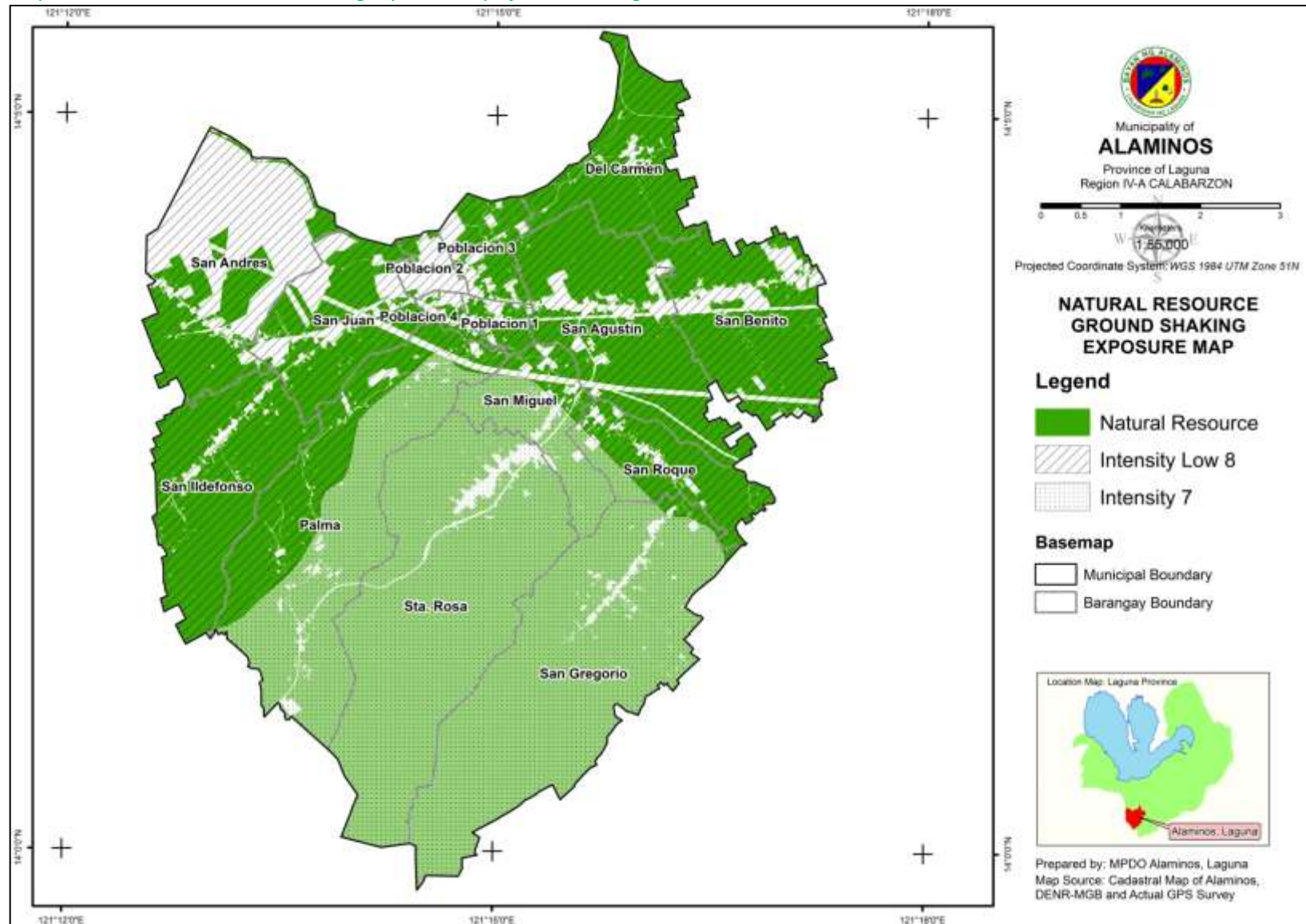
Map 50: Production Area Flood Exposure Map of Alaminos, Laguna



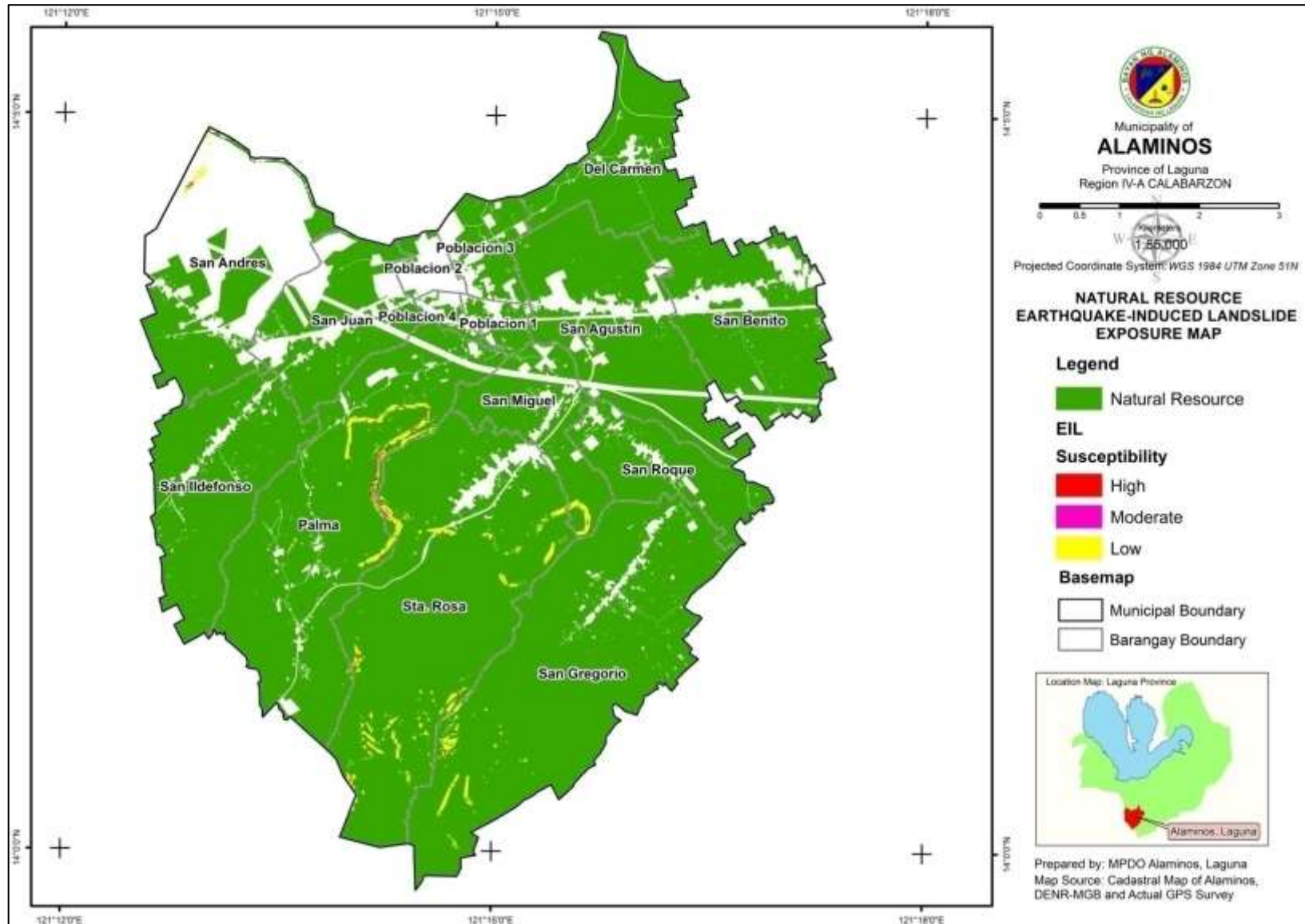
Map 51: Production Area RIL Exposure Map of Alaminos, Laguna



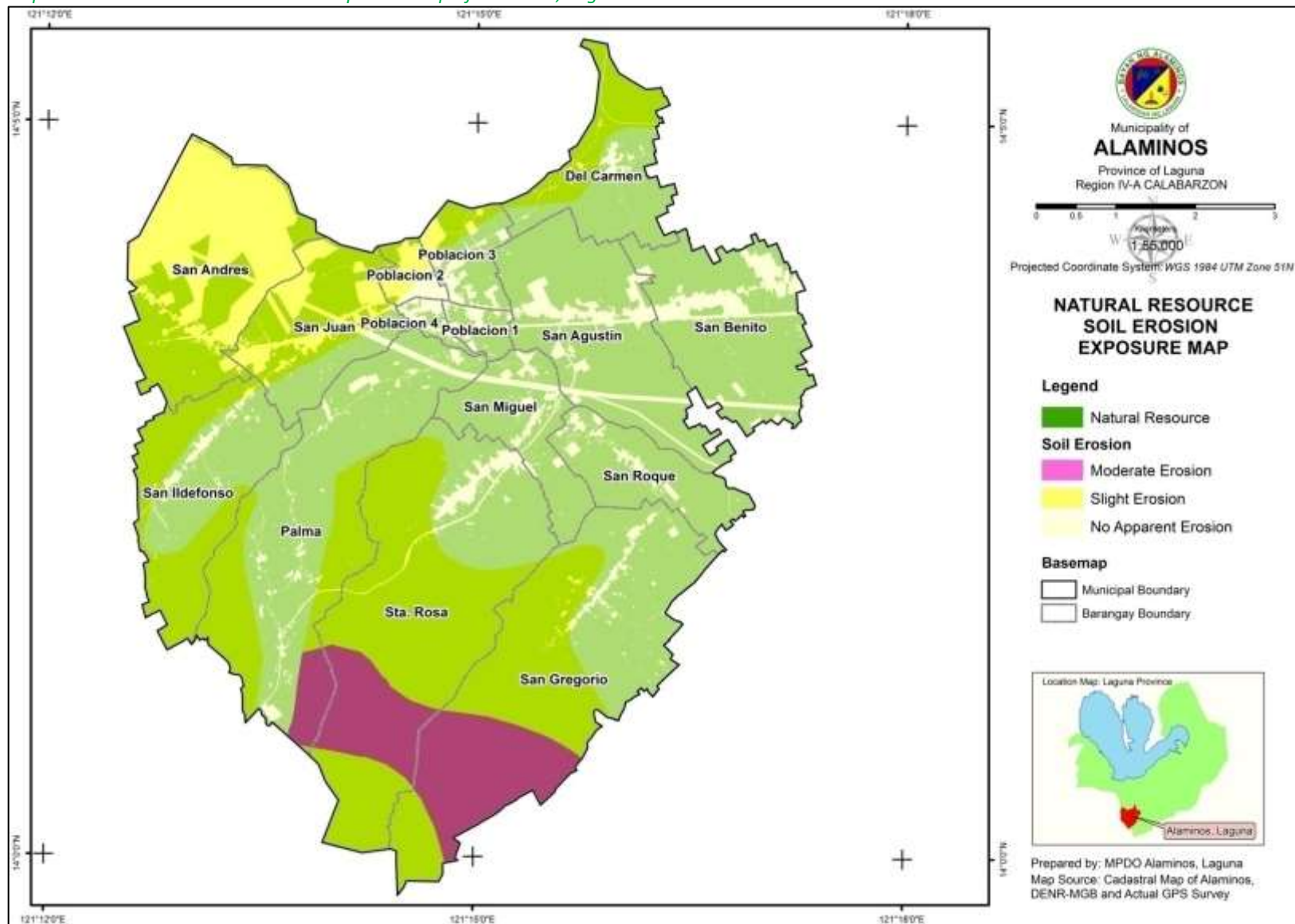
Map 52: Production Area Ground shaking Exposure Map of Alaminos, Laguna



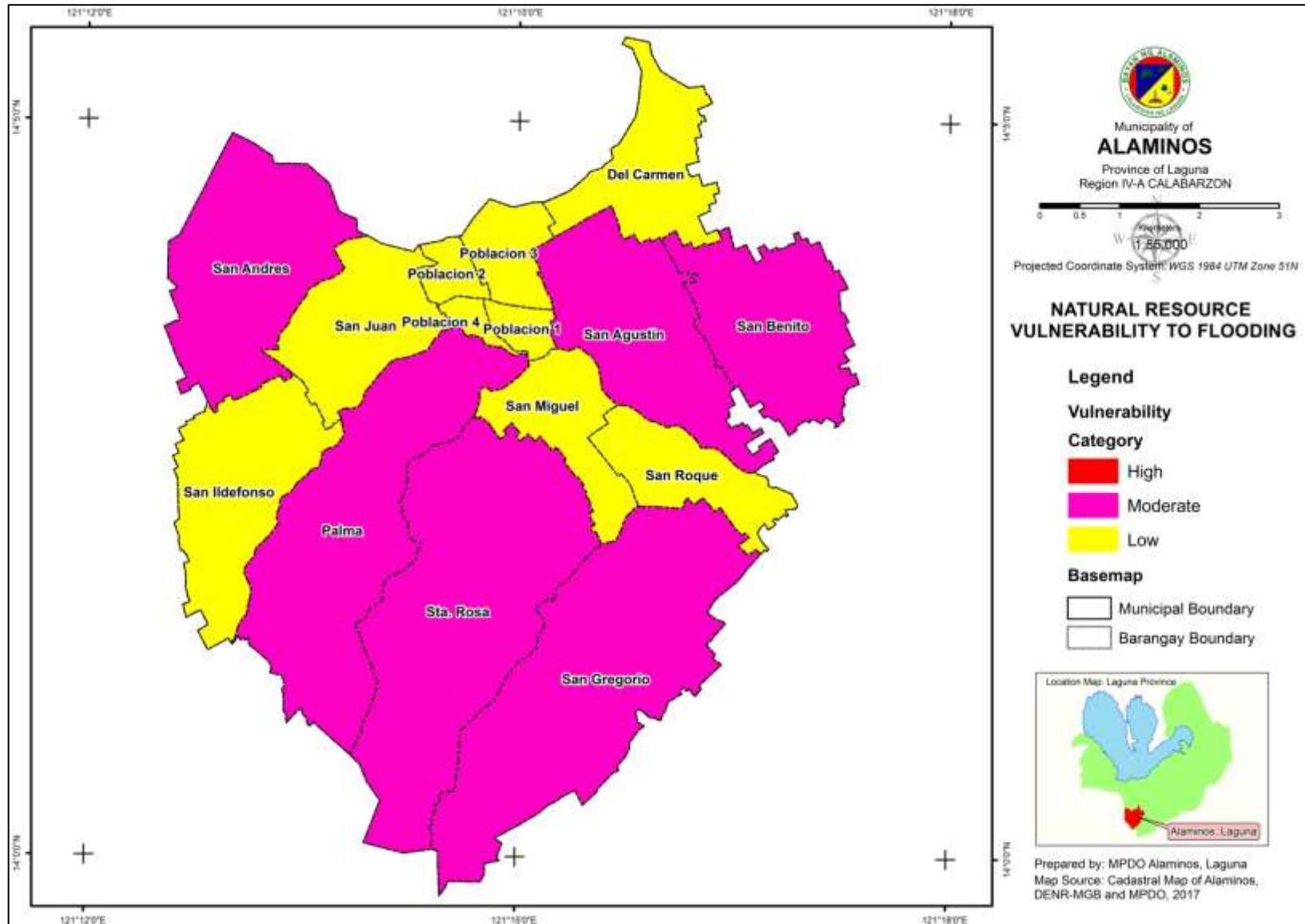
Map 53: Production Area EIL Exposure Map of Alaminos, Laguna



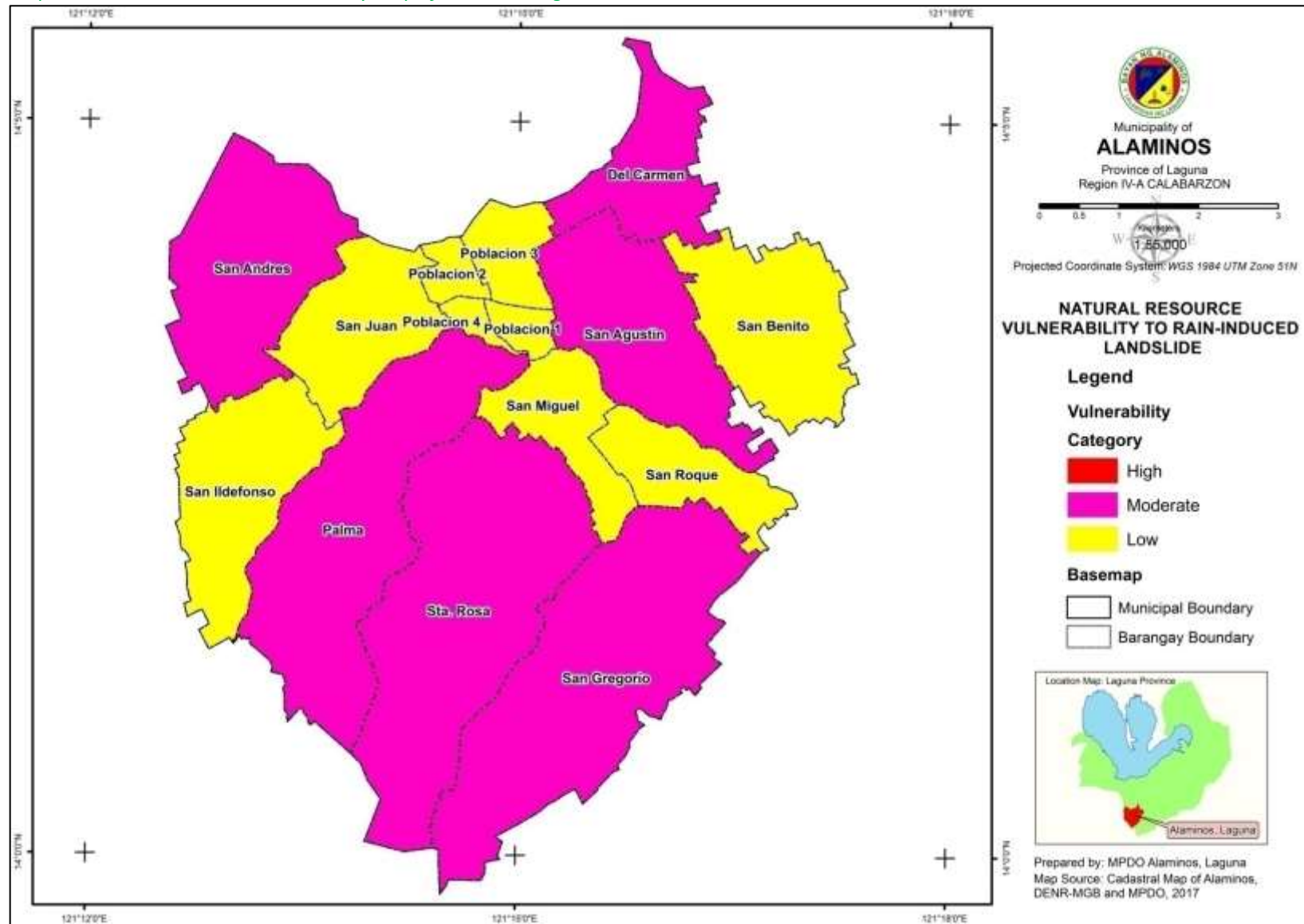
Map 54: Production Area Soil Erosion Exposure Map of Alaminos, Laguna



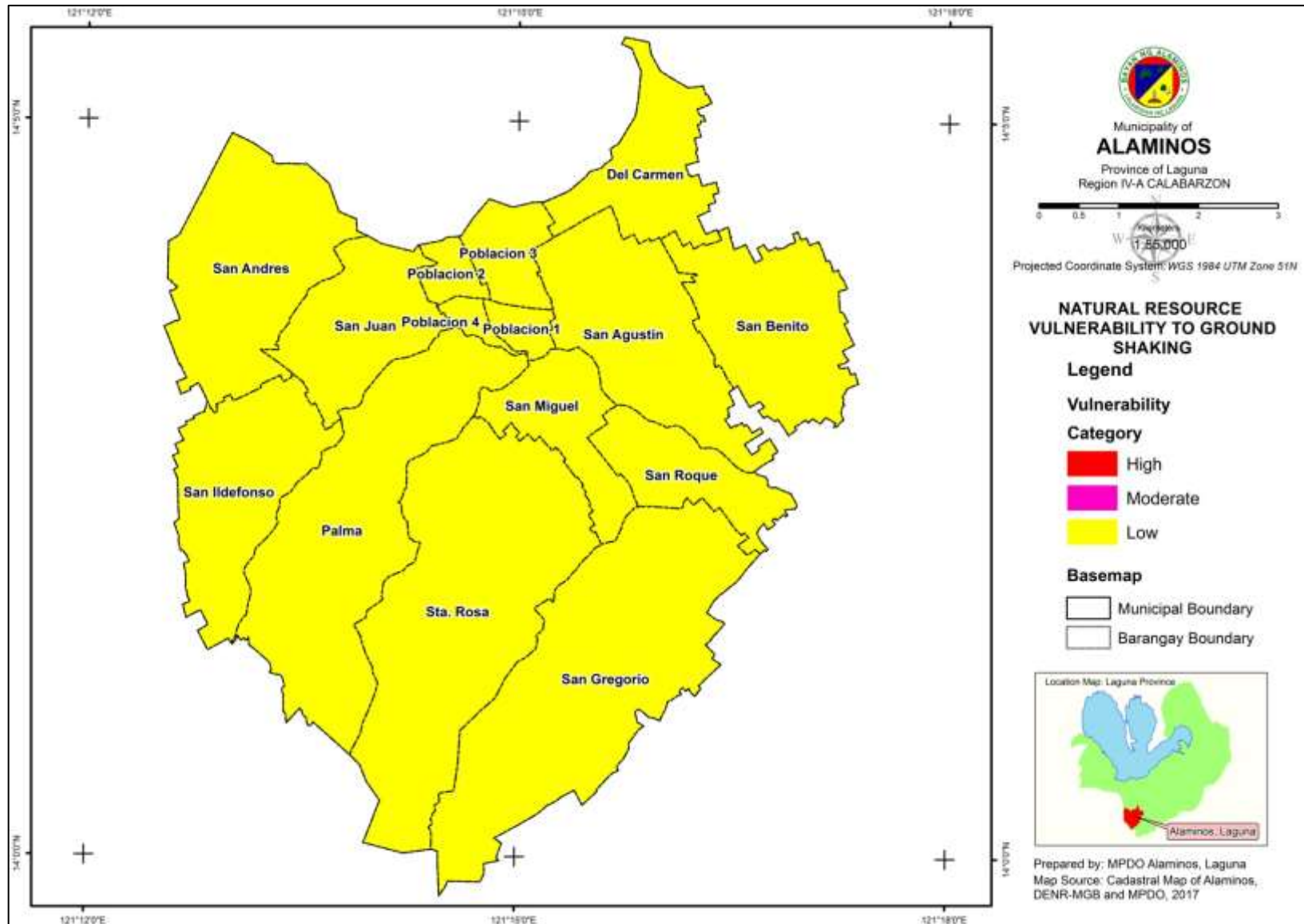
Map 55: Production Area Flood Vulnerability Map of Alaminos, Laguna



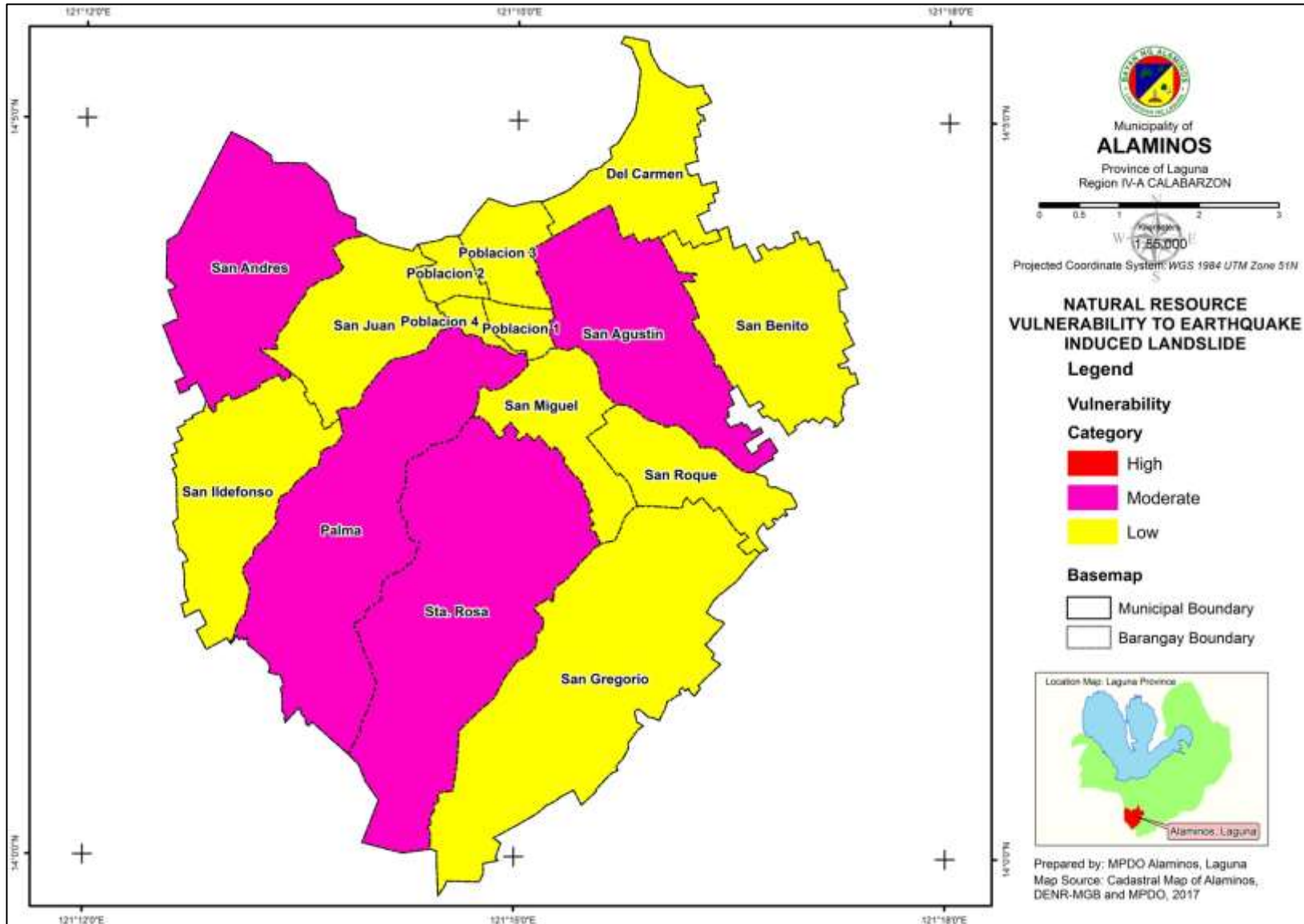
Map 56: Production Area RIL Vulnerability Map of Alaminos, Laguna



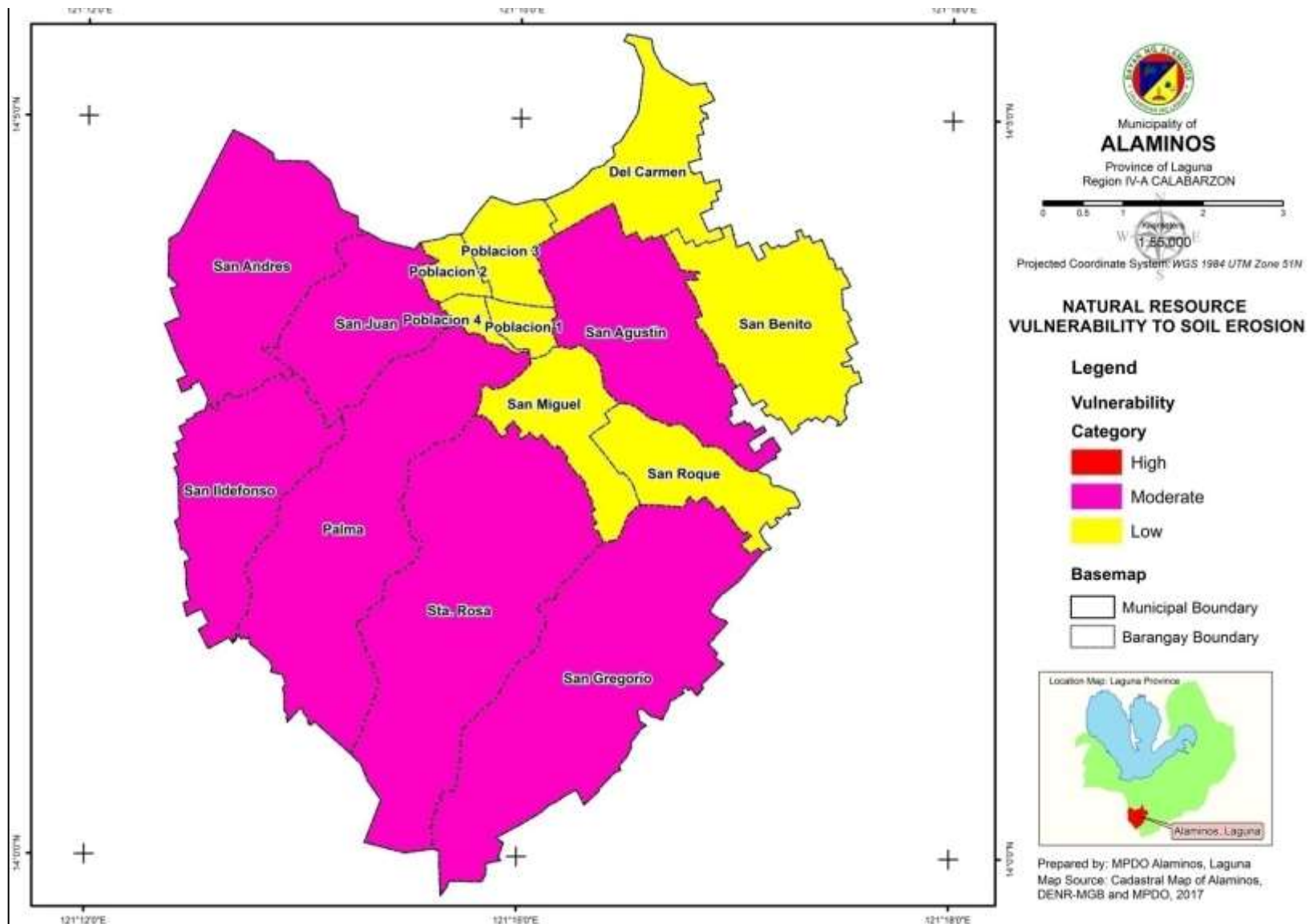
Map 57: Production Area Ground Shaking Vulnerability Map of Alaminos, Laguna



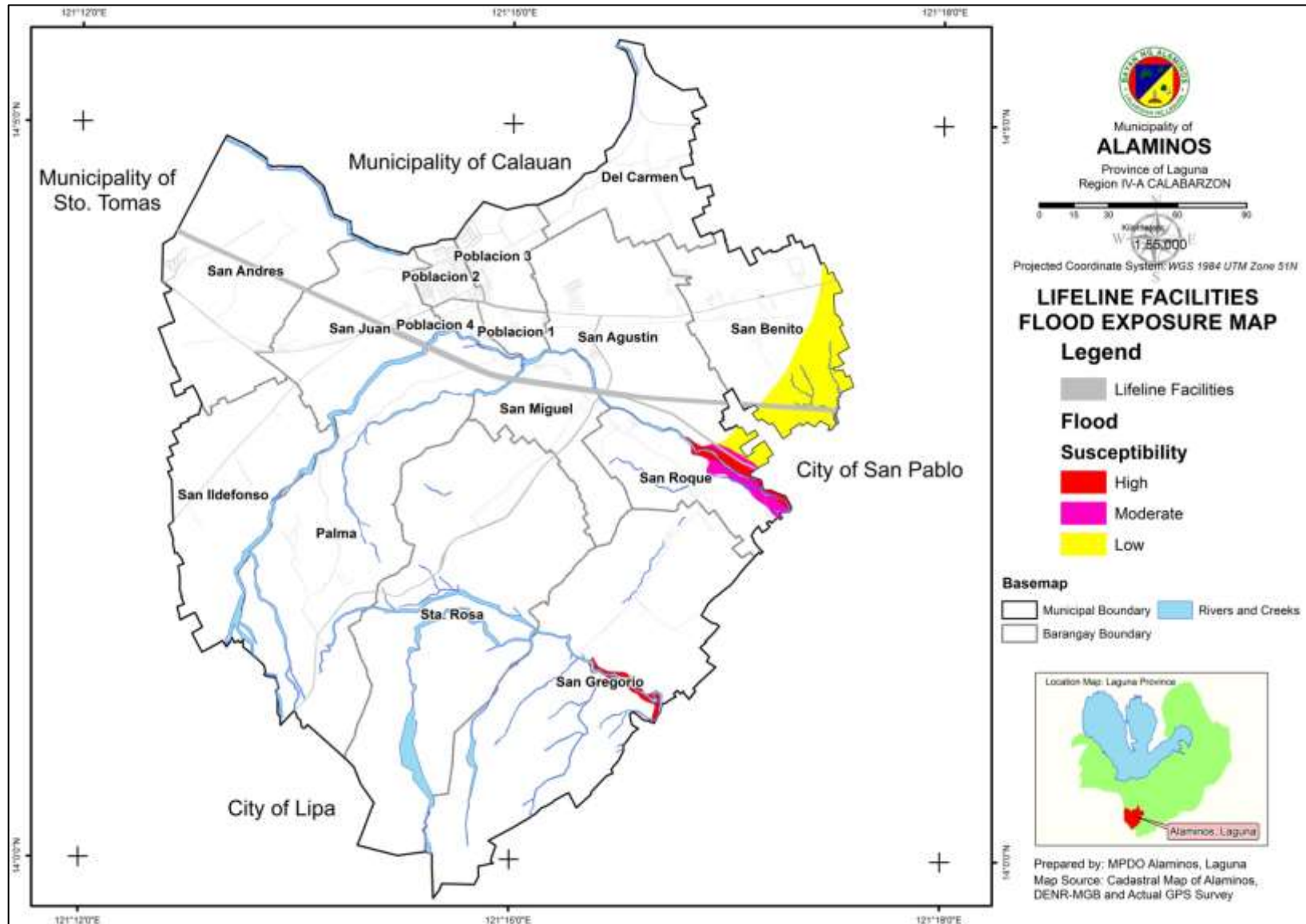
Map 58: Production Area EIL Vulnerability Map of Alaminos, Laguna



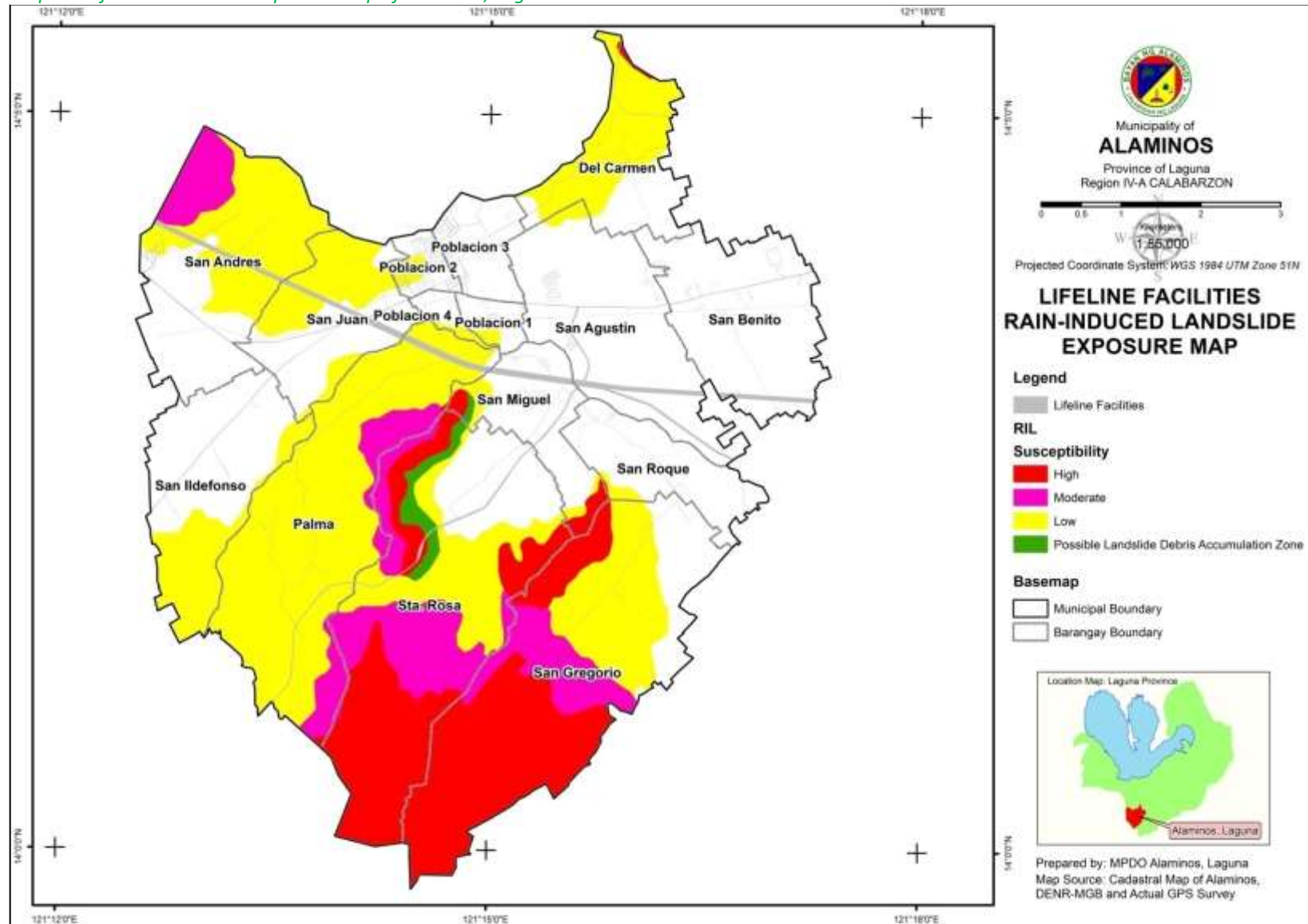
Map 59: Production Area Soil Erosion Vulnerability Map of Alaminos, Laguna



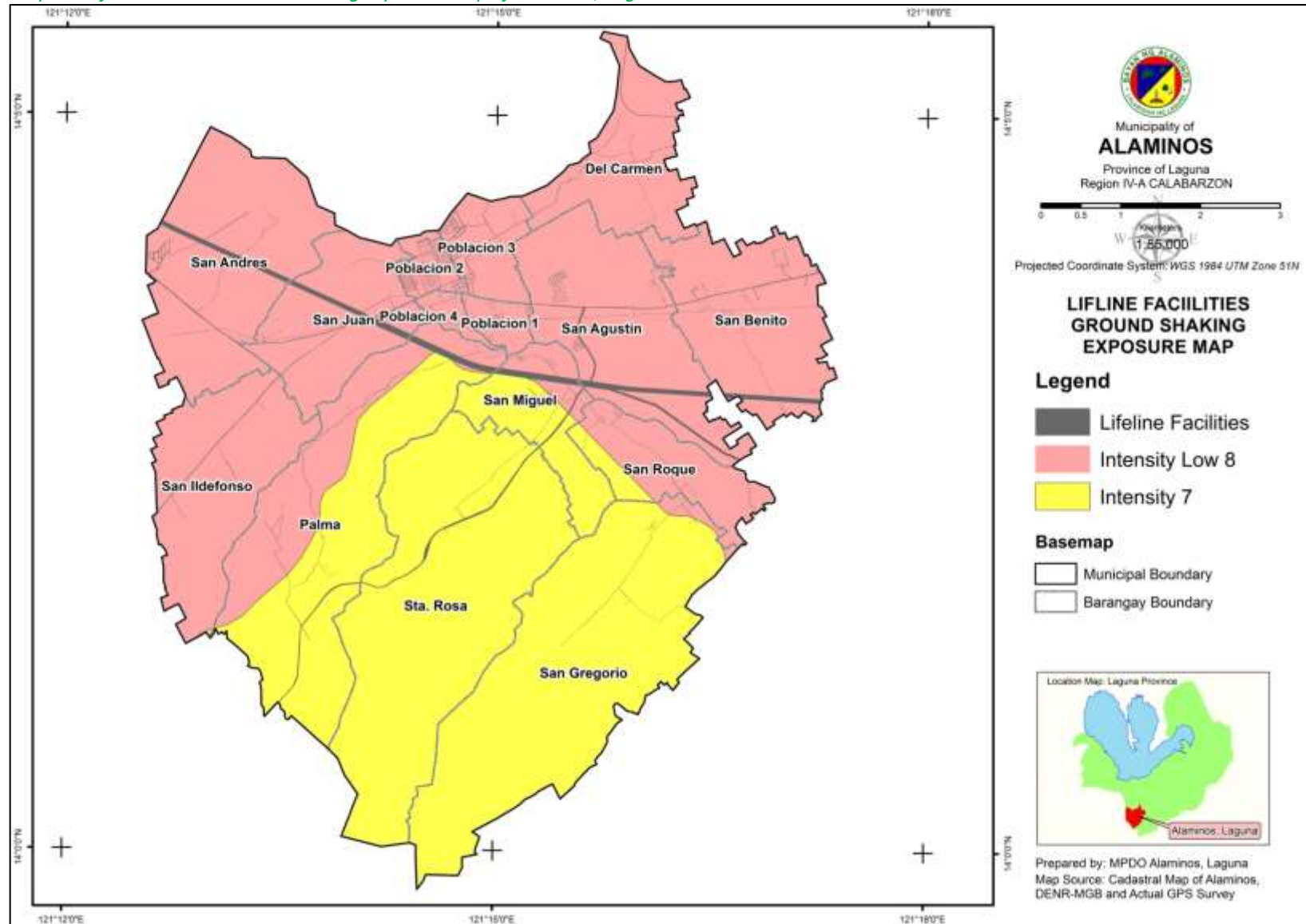
Map 60: Lifeline Utilities Flood Exposure Map of Alaminos, Laguna



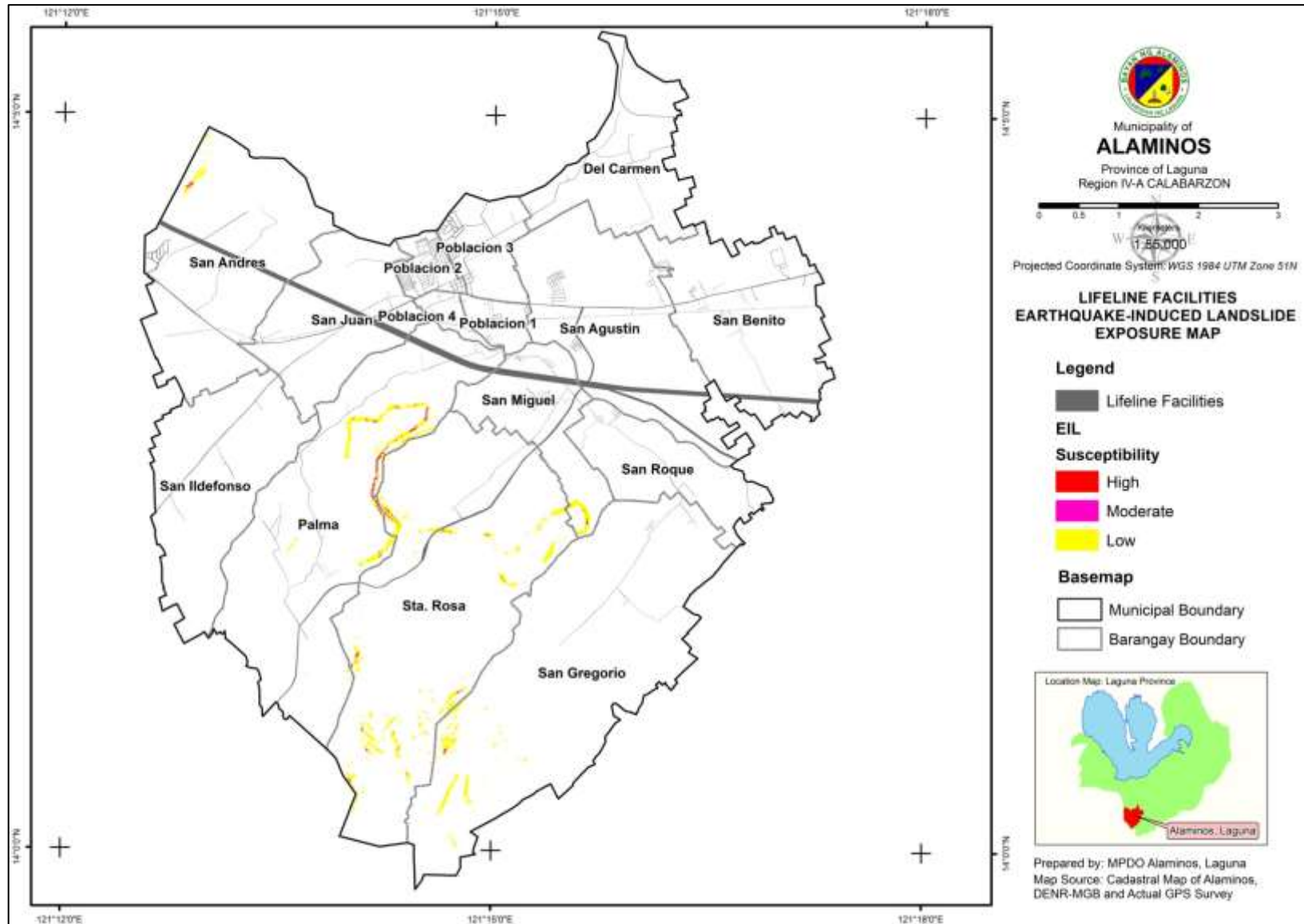
Map 61: Lifeline Utilities RIL Exposure Map of Alaminos, Laguna



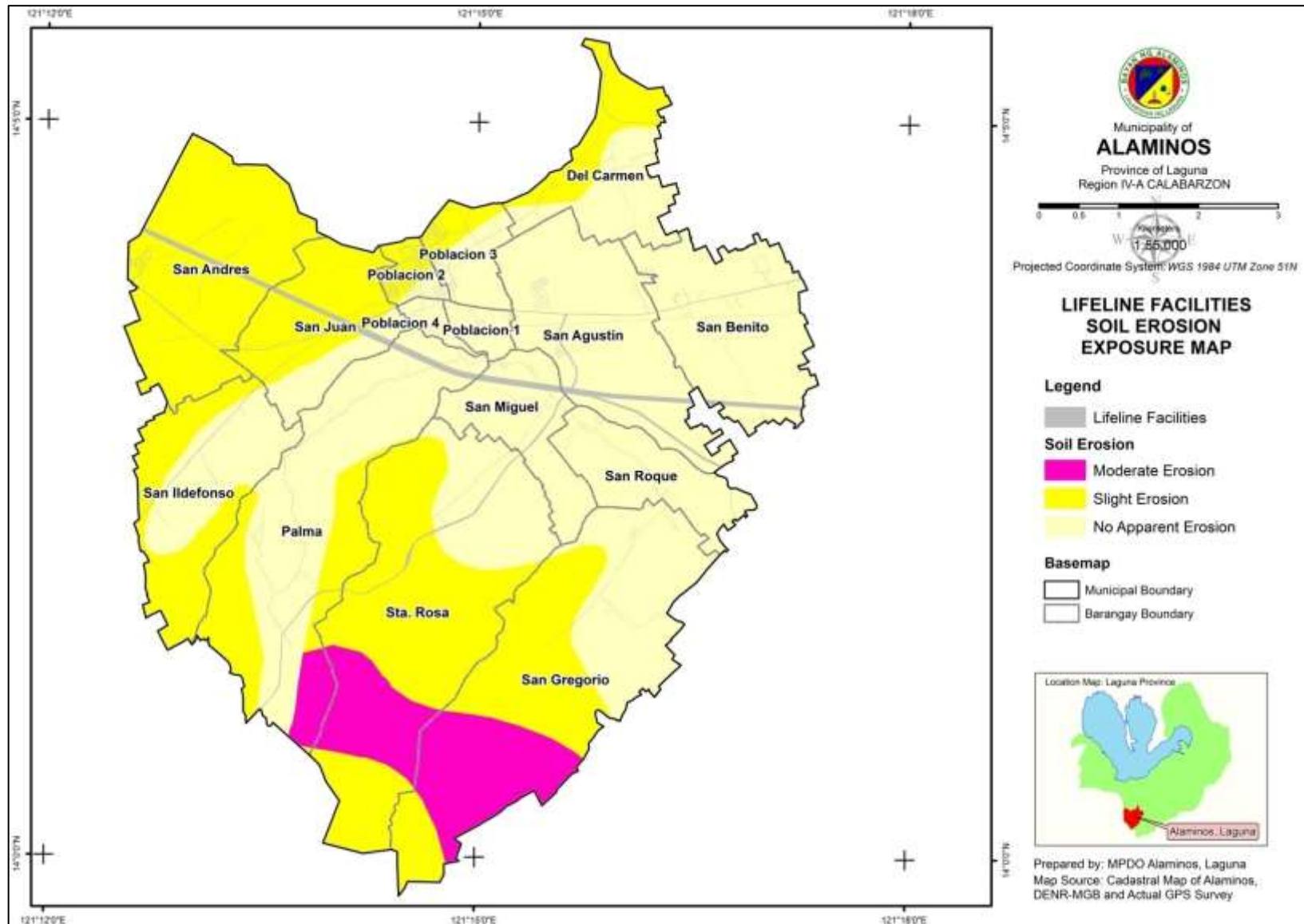
Map 62: Lifeline Utilities Ground shaking Exposure Map of Alaminos, Laguna



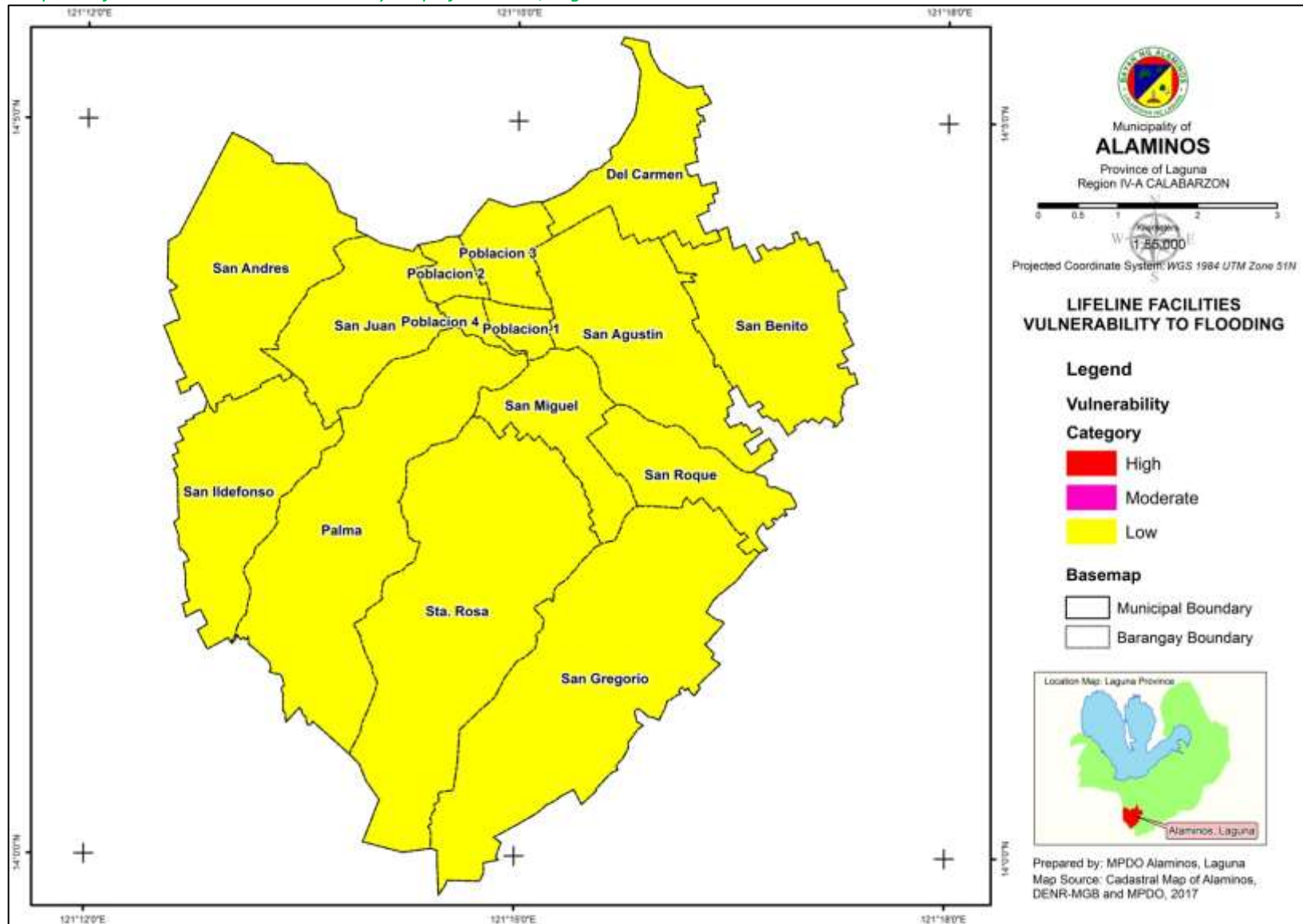
Map 63: Lifeline Utilities EIL Exposure Map of Alaminos, Laguna



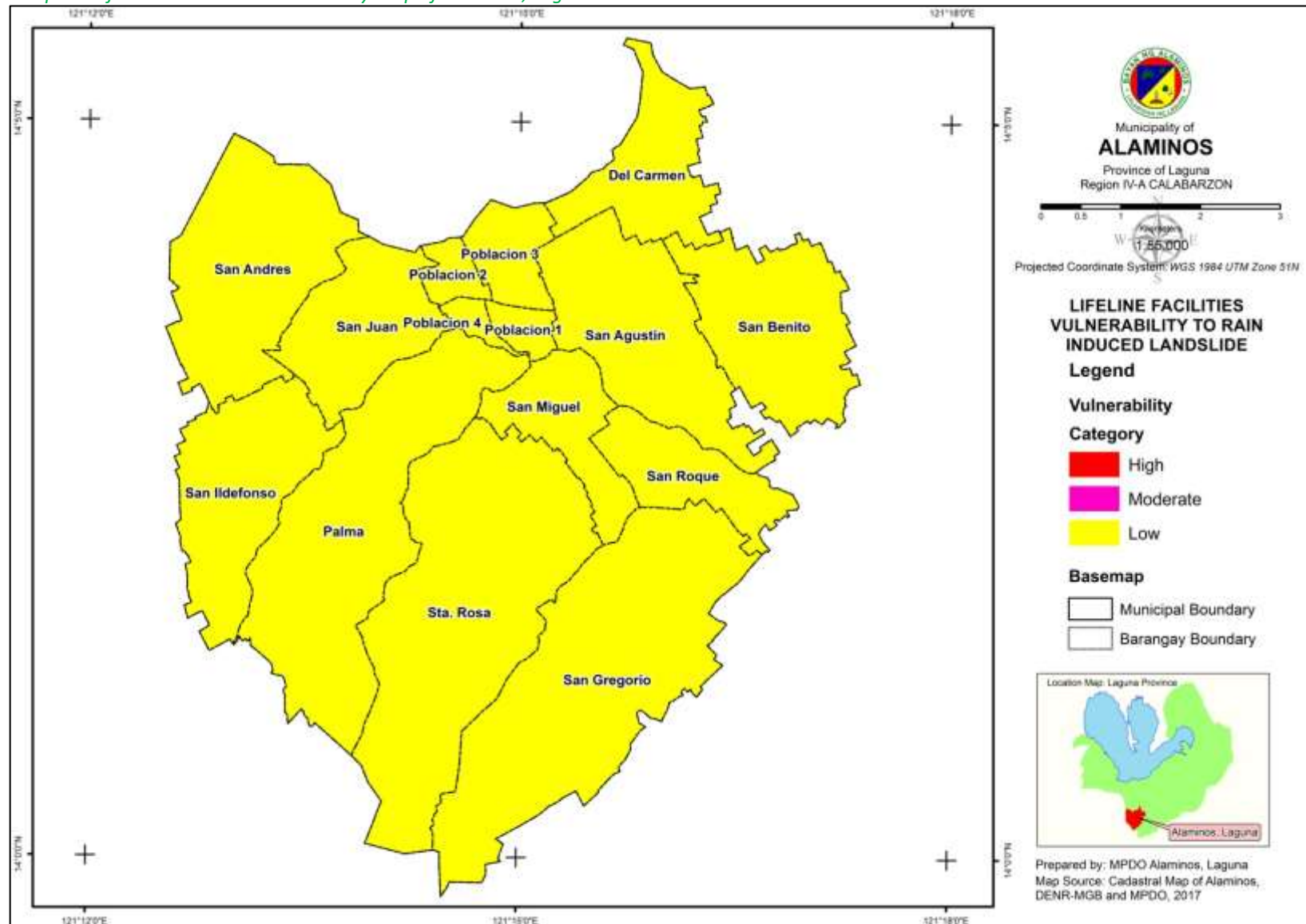
Map 64: Lifeline Utilities Soil Erosion Exposure Map of Alaminos, Laguna



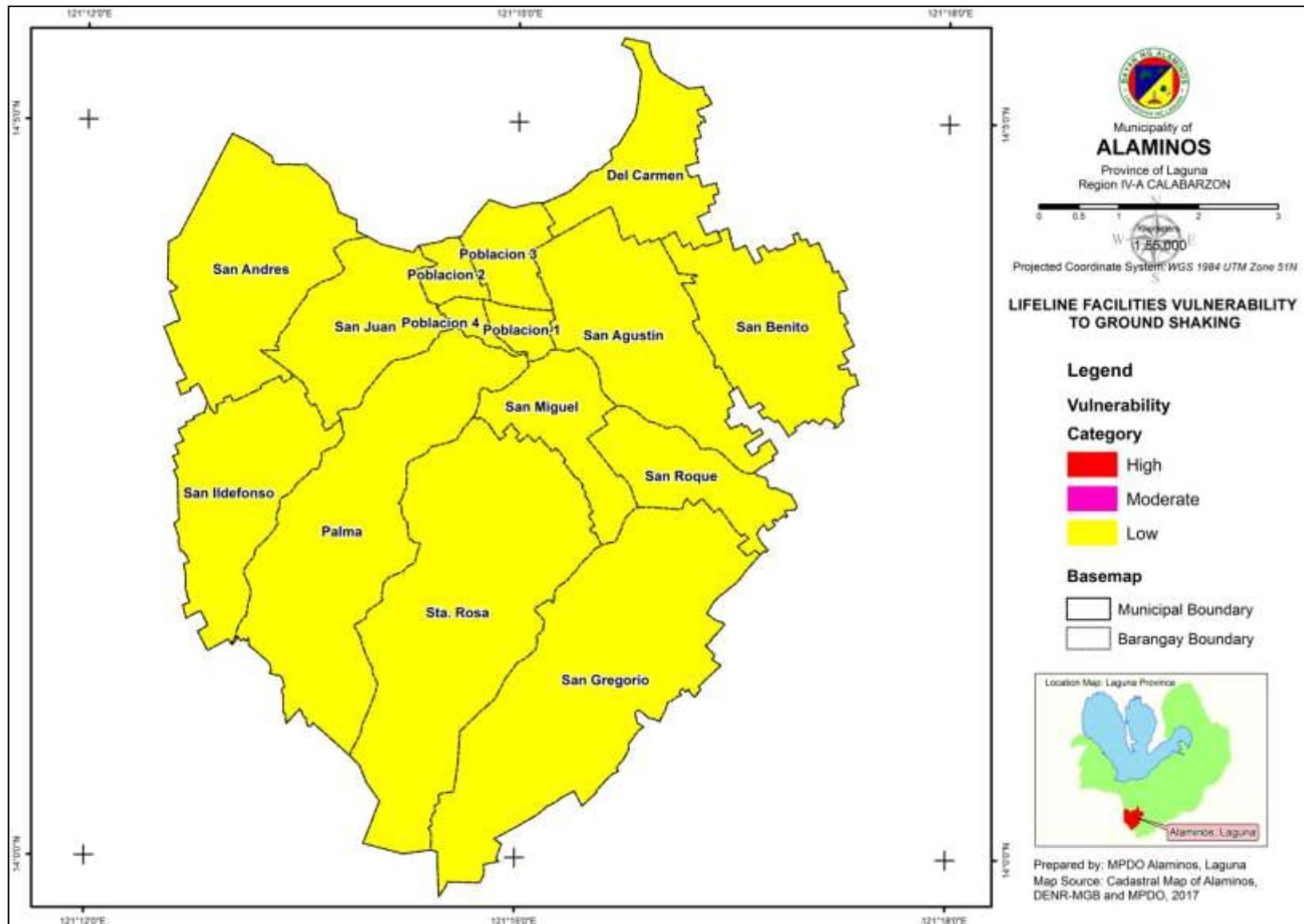
Map 65: Lifeline Utilities Flood Vulnerability Map of Alaminos, Laguna



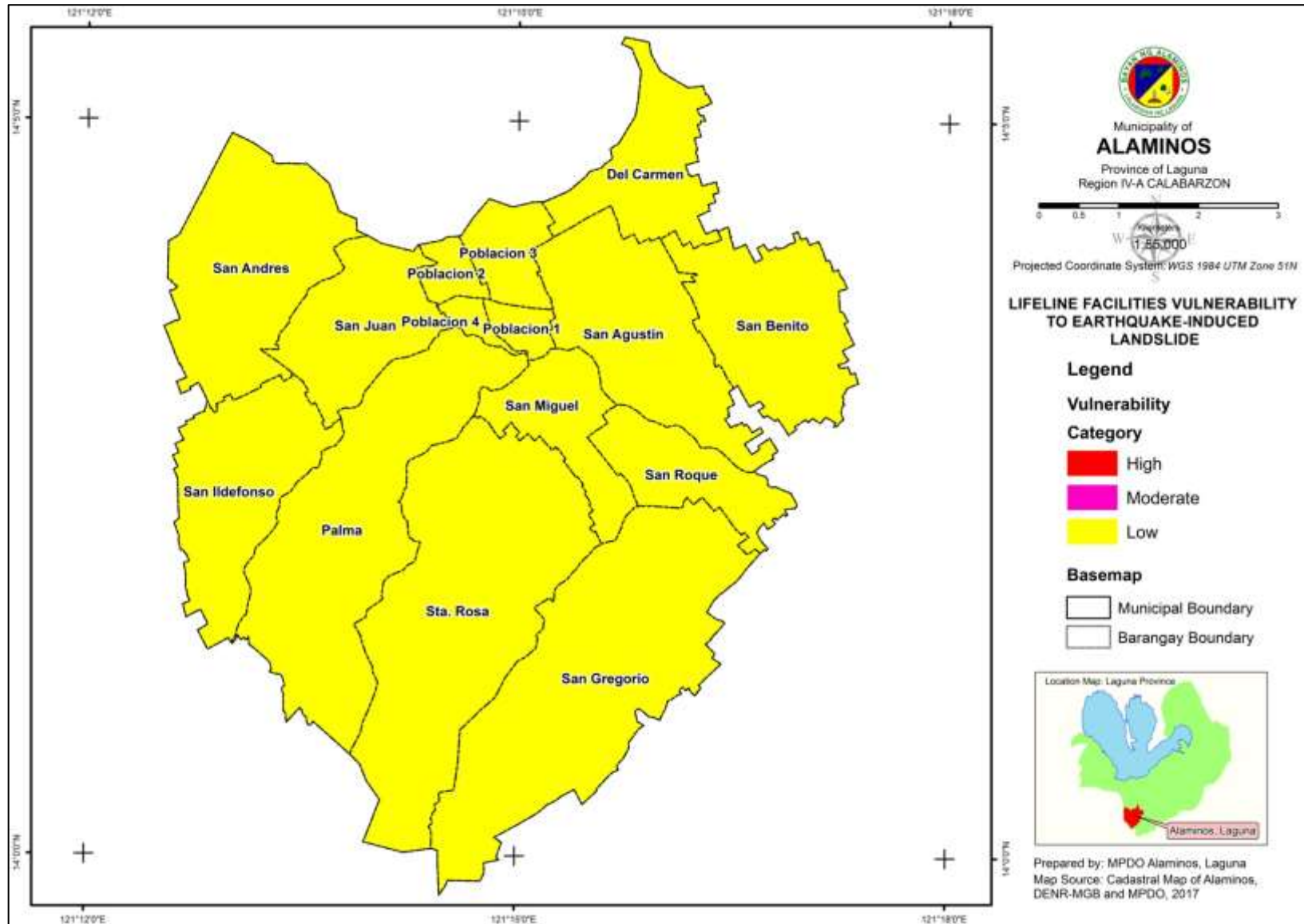
Map 66: Lifeline Utilities RIL Vulnerability Map of Alaminos, Laguna



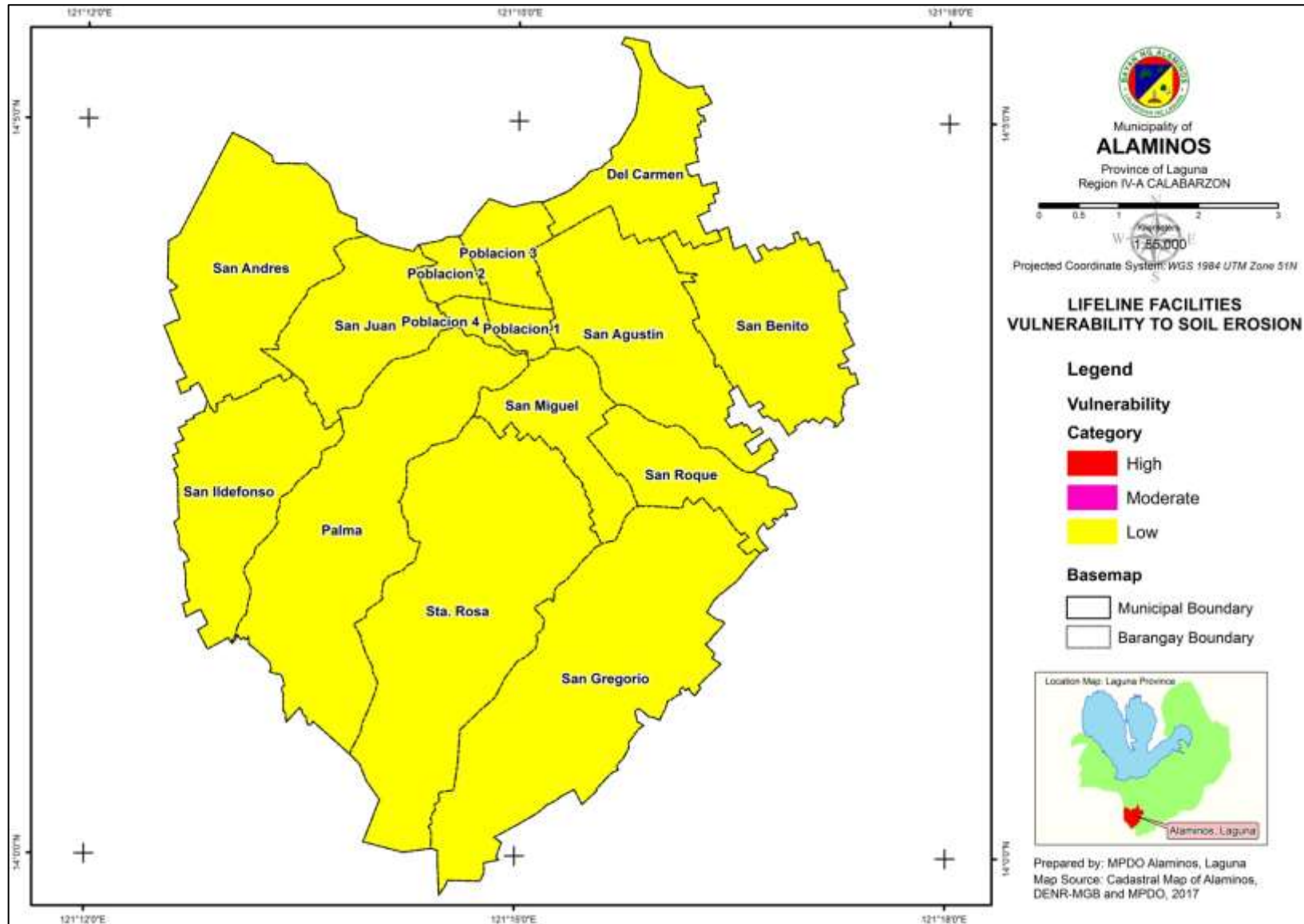
Map 67: Lifeline Utilities Ground Shaking Vulnerability Map of Alaminos, Laguna



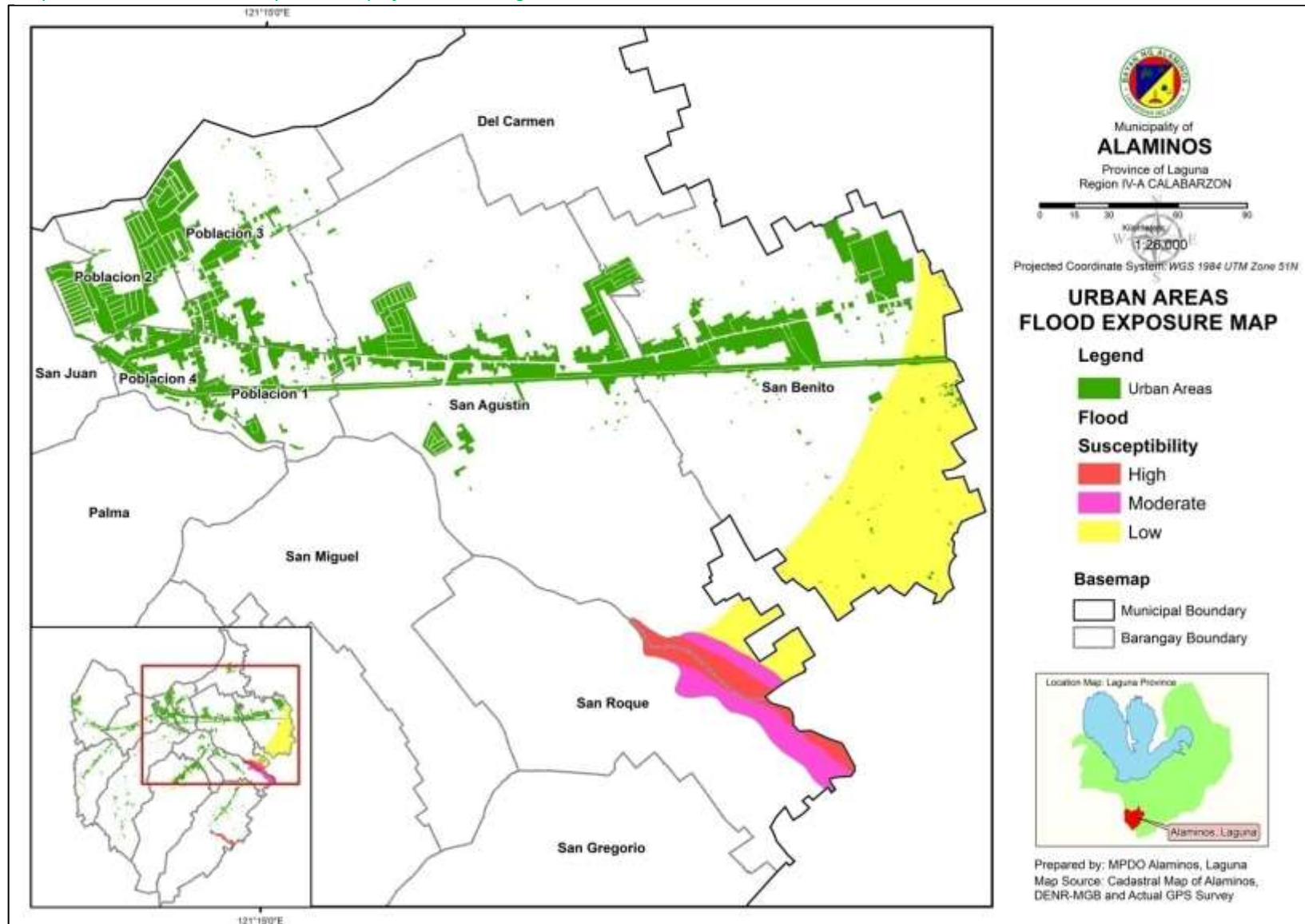
Map 68: Lifeline Utilities EIL Vulnerability Map of Alaminos, Laguna



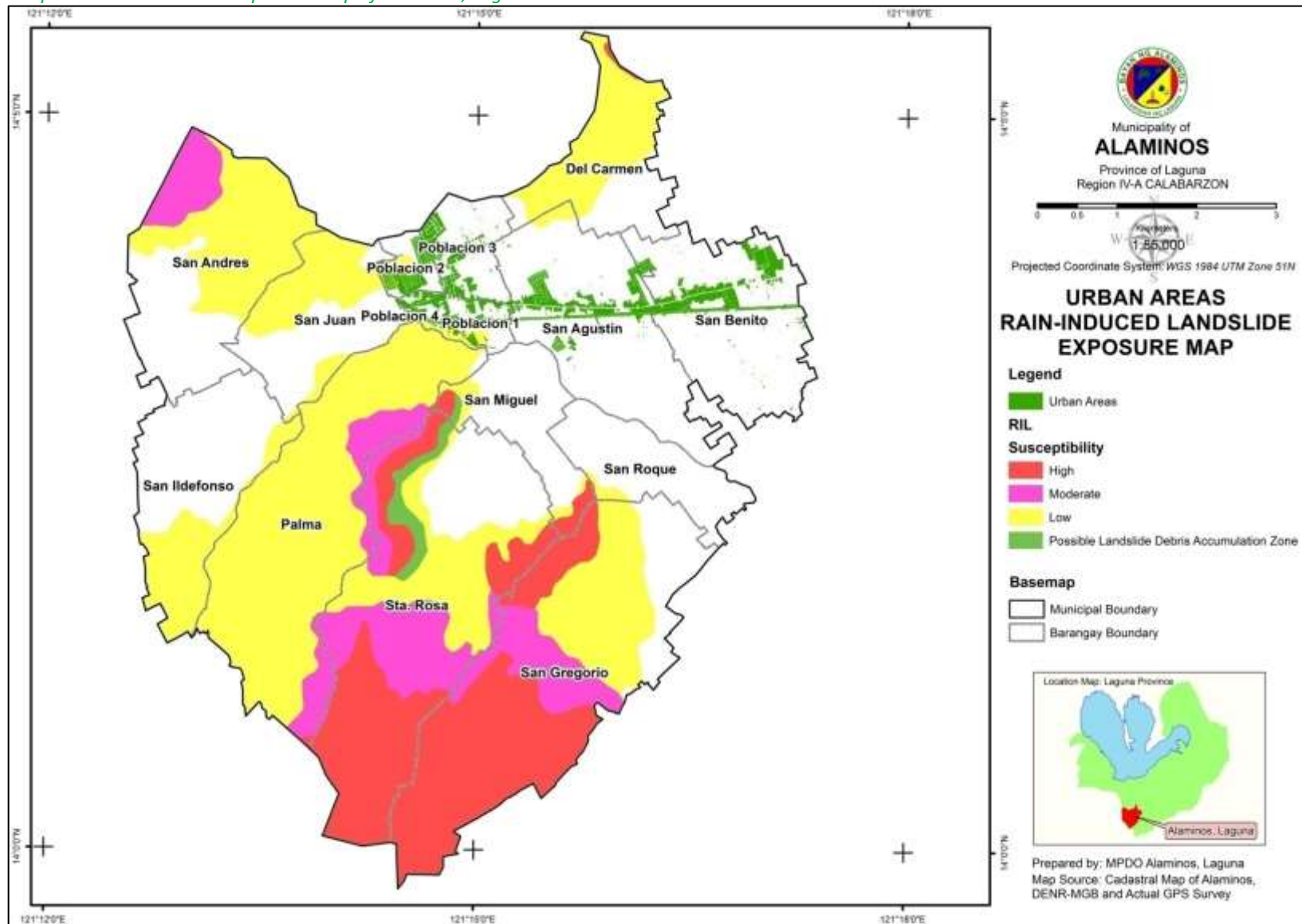
Map 69: Lifeline Utilities Soil Erosion Vulnerability Map of Alaminos, Laguna



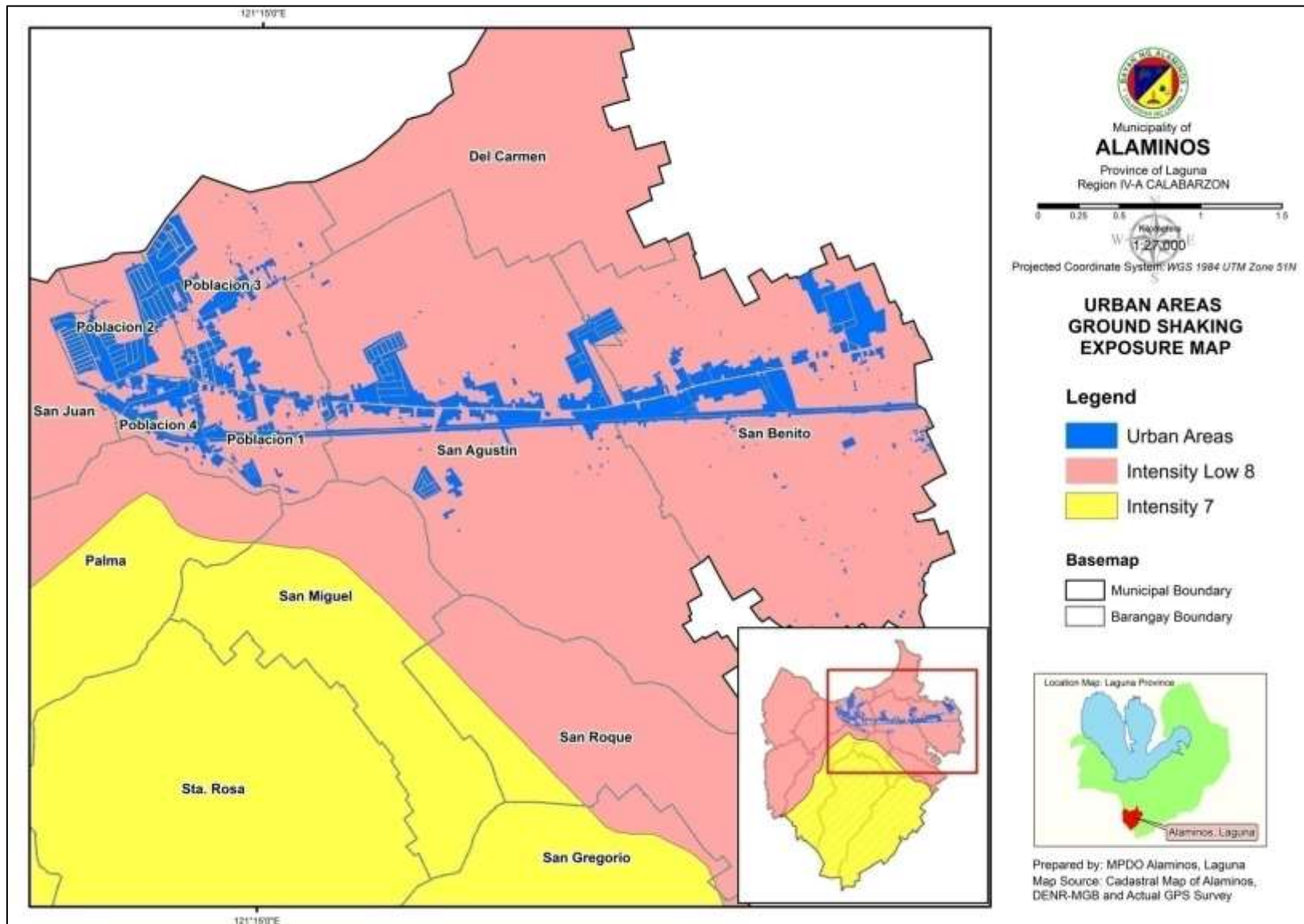
Map 70: Urban Areas Flood Exposure Map of Alaminos, Laguna



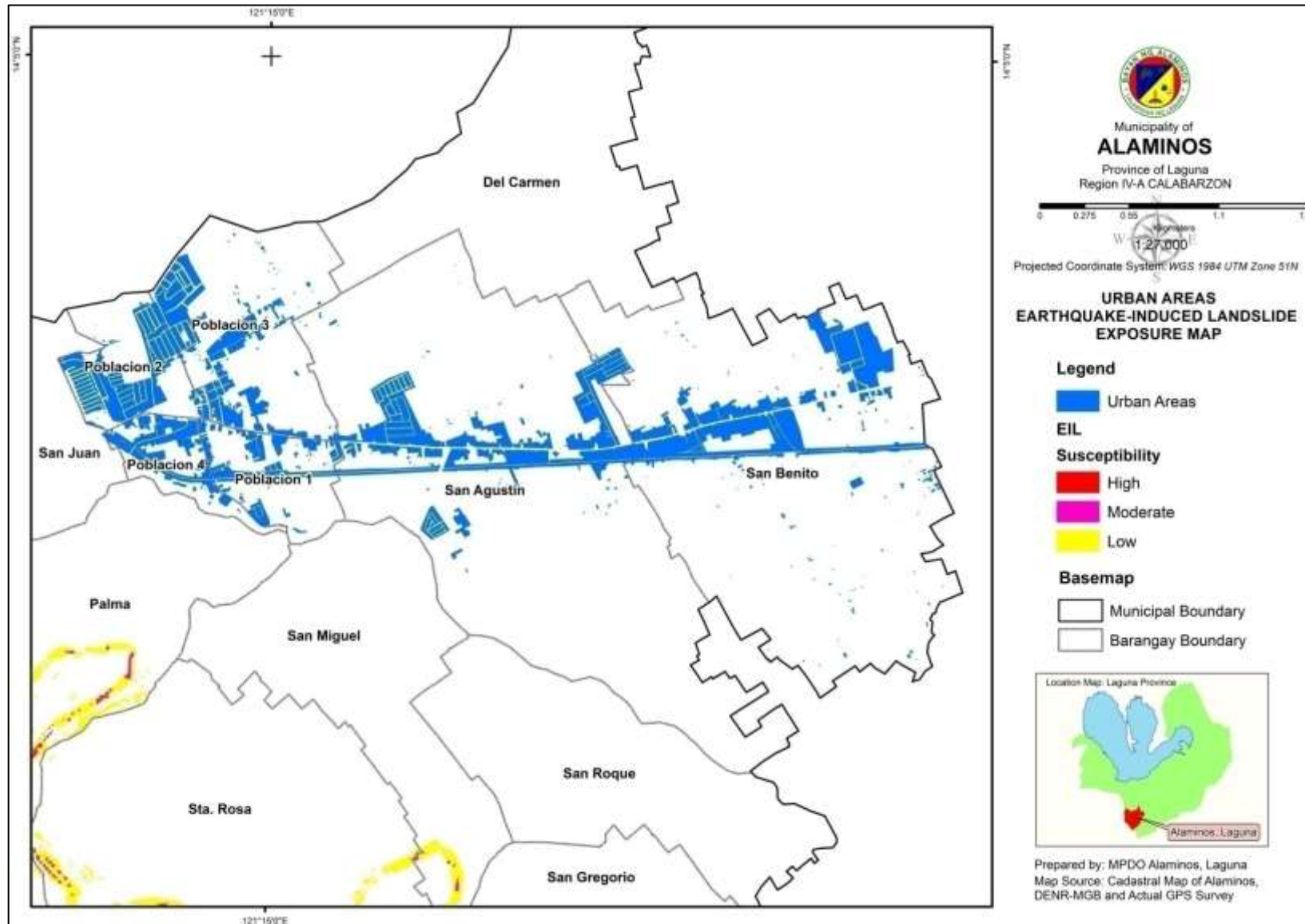
Map 71: Urban Areas RIL Exposure Map of Alaminos, Laguna



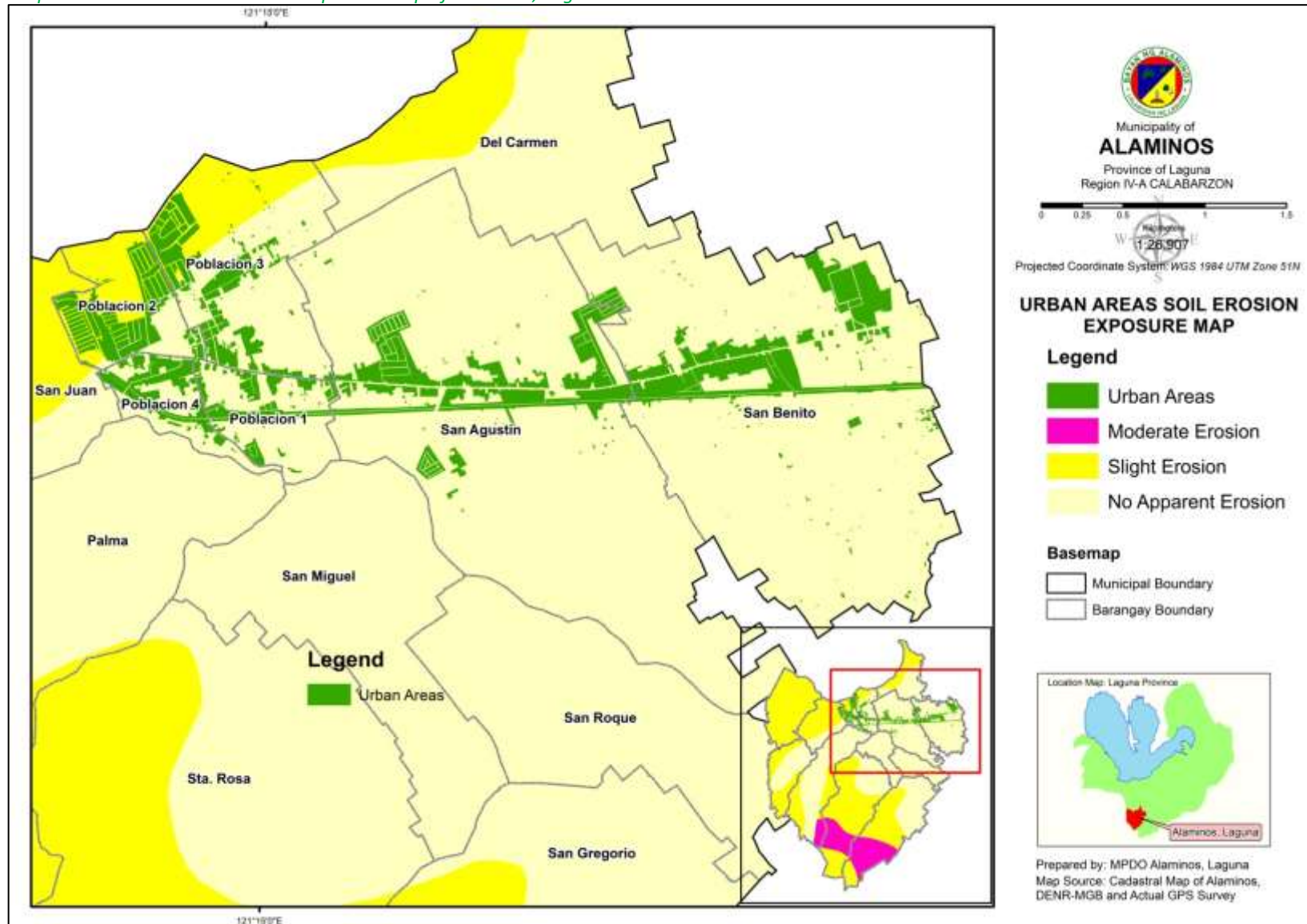
Map 72: Urban Areas Ground shaking Exposure Map of Alaminos, Laguna



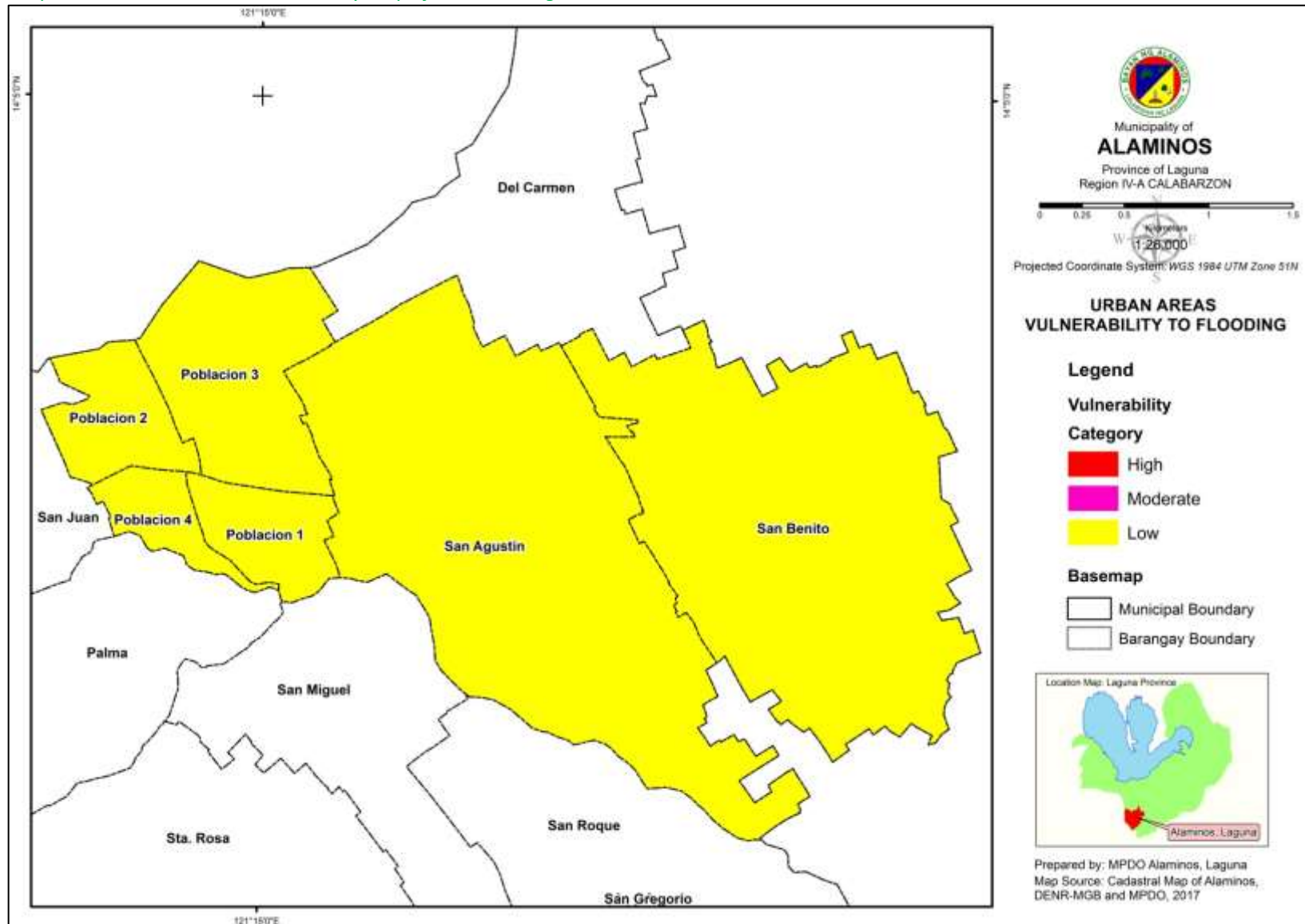
Map 73: Urban Areas EIL Exposure Map of Alaminos, Laguna



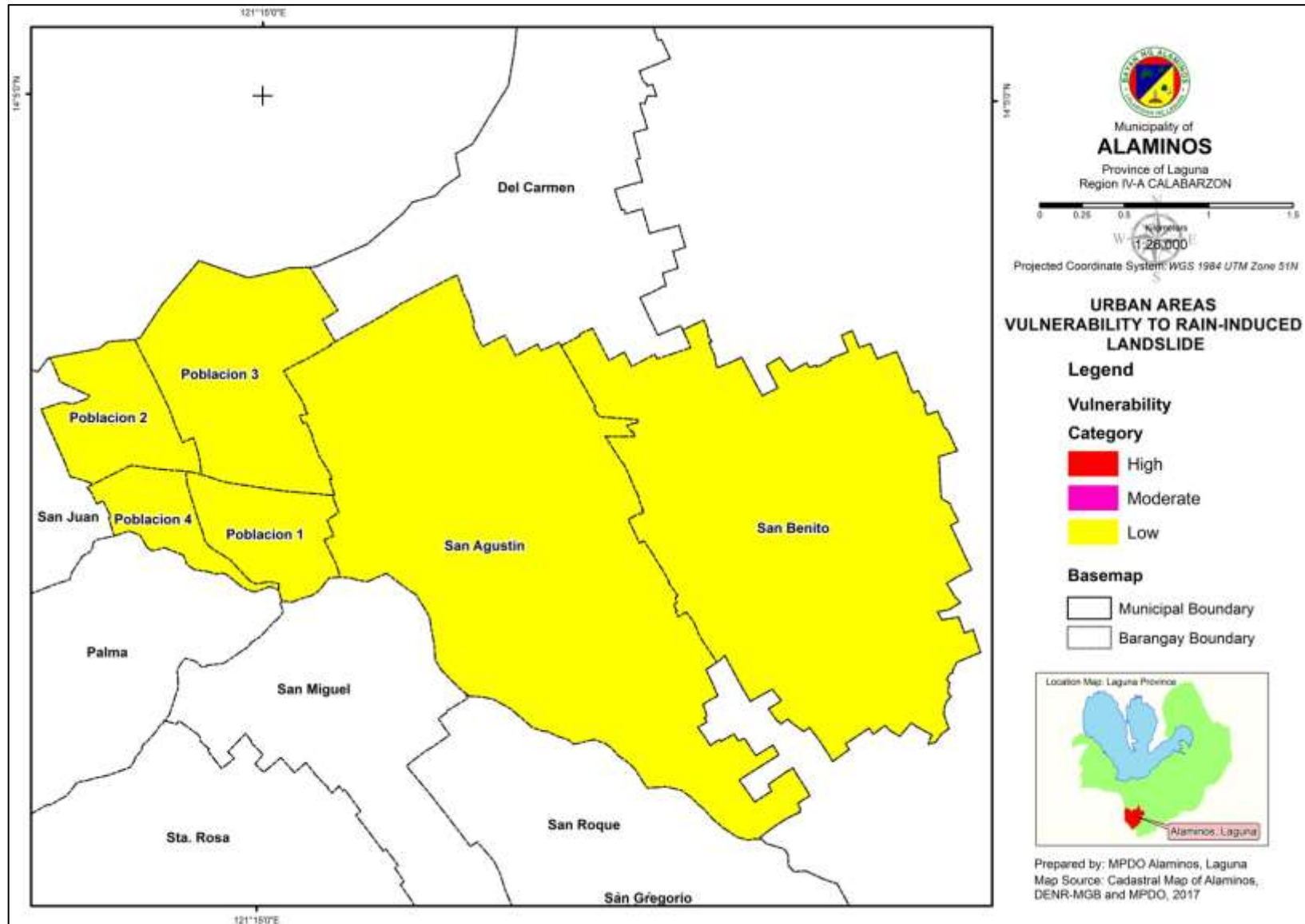
Map 74: Urban Areas Soil Erosion Exposure Map of Alaminos, Laguna



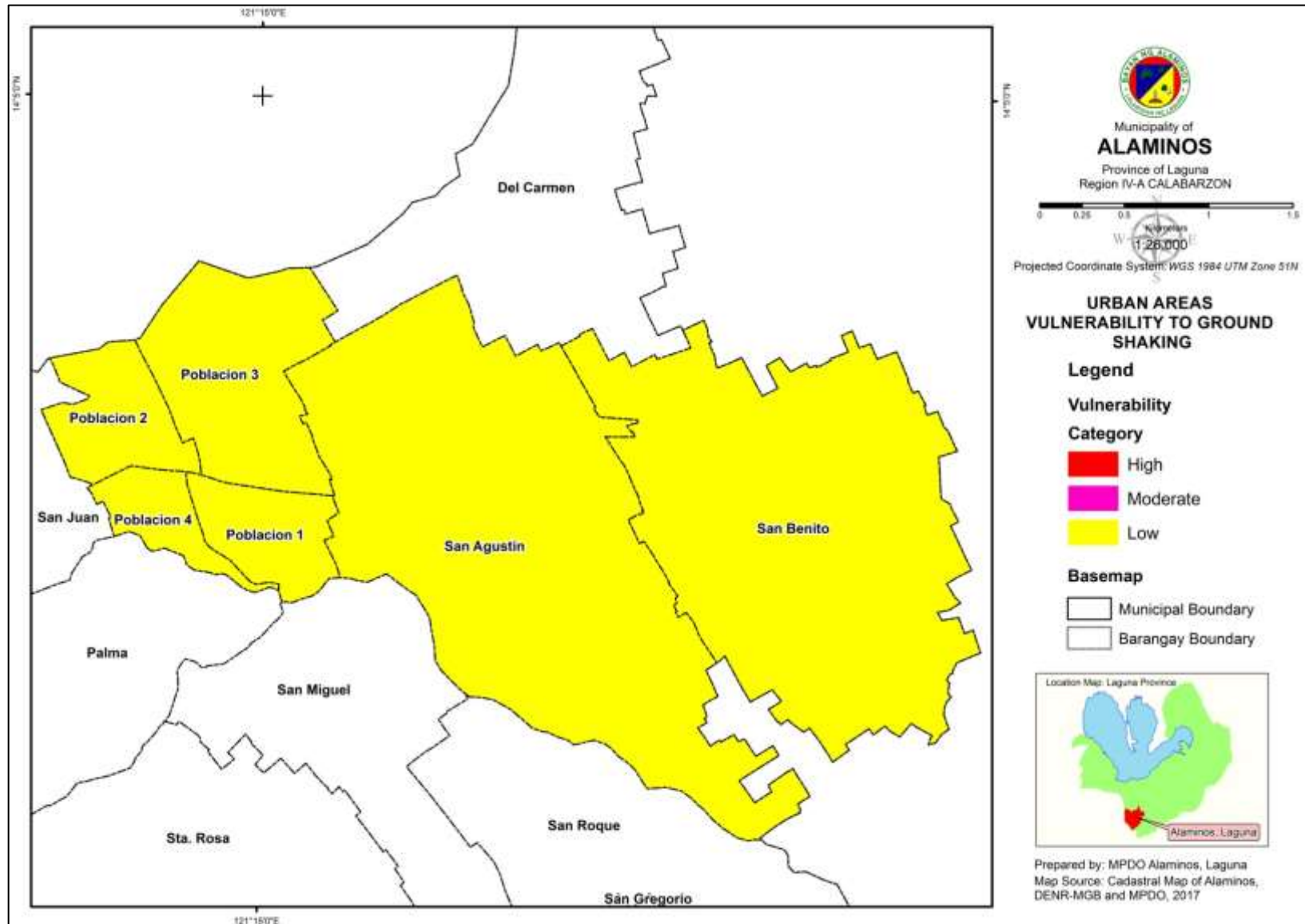
Map 75: Urban Areas Flood Vulnerability Map of Alaminos, Laguna



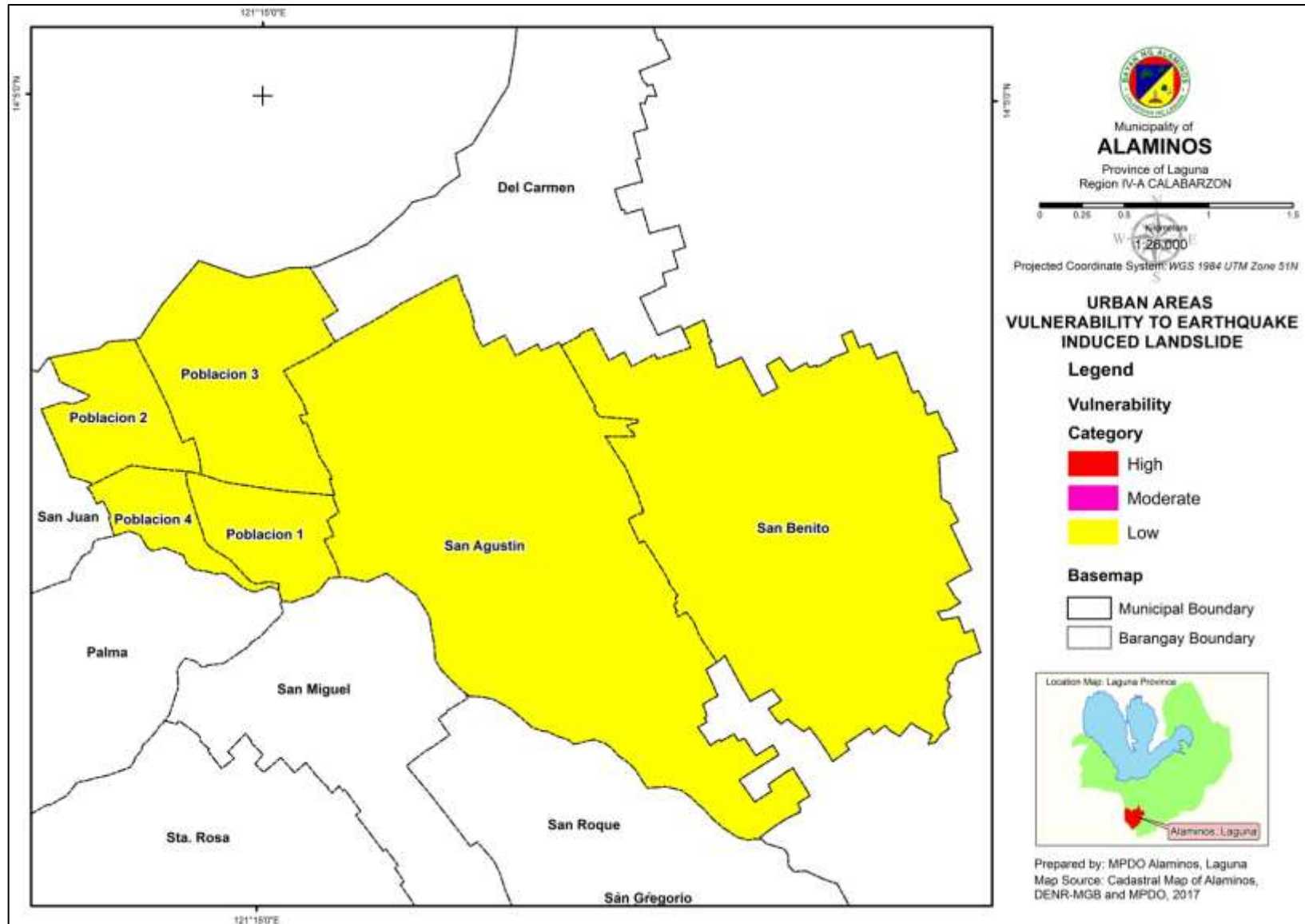
Map 76: Urban Areas RIL Vulnerability Map of Alaminos, Laguna



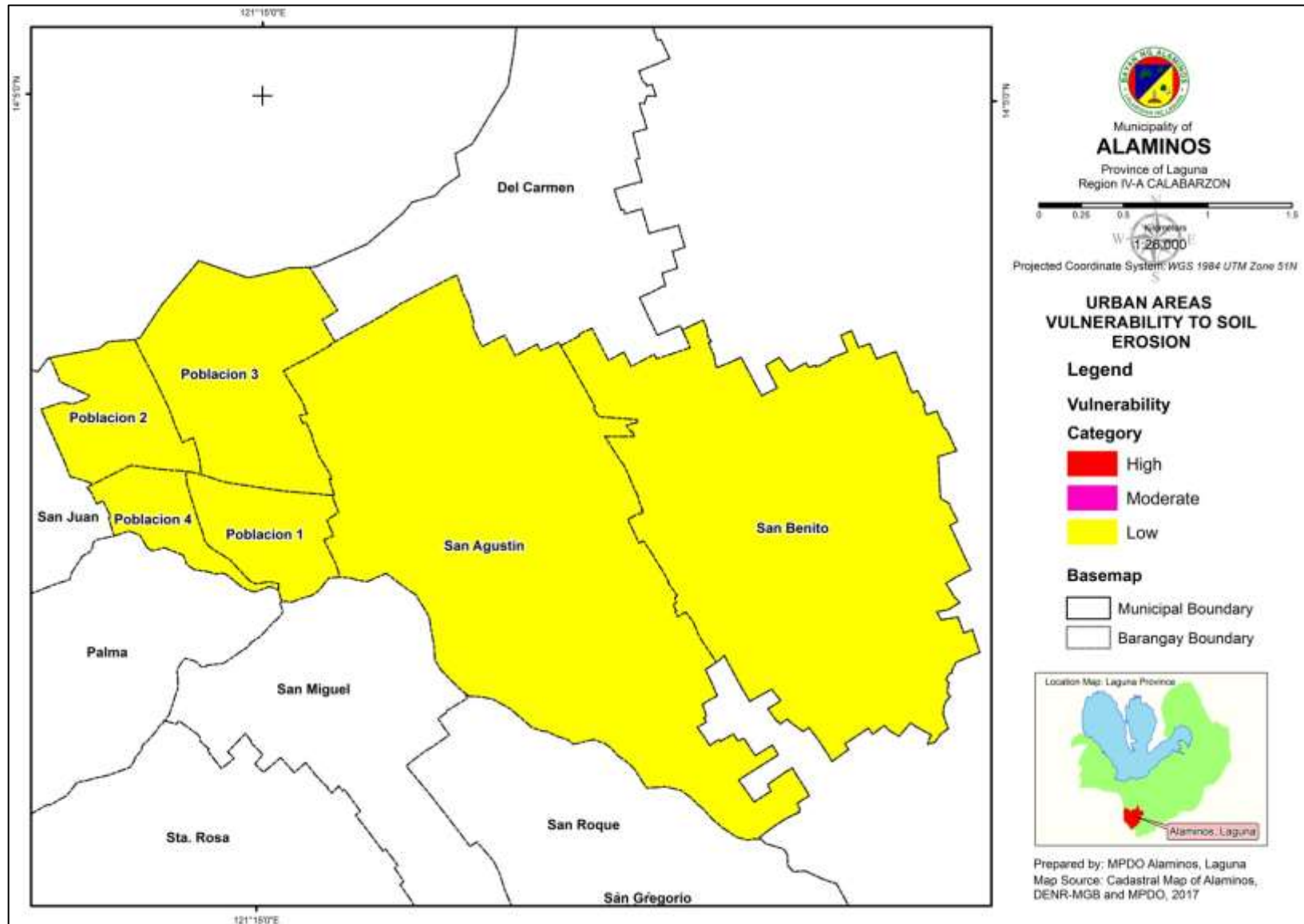
Map 77: Urban Areas Ground Shaking Vulnerability Map of Alaminos, Laguna



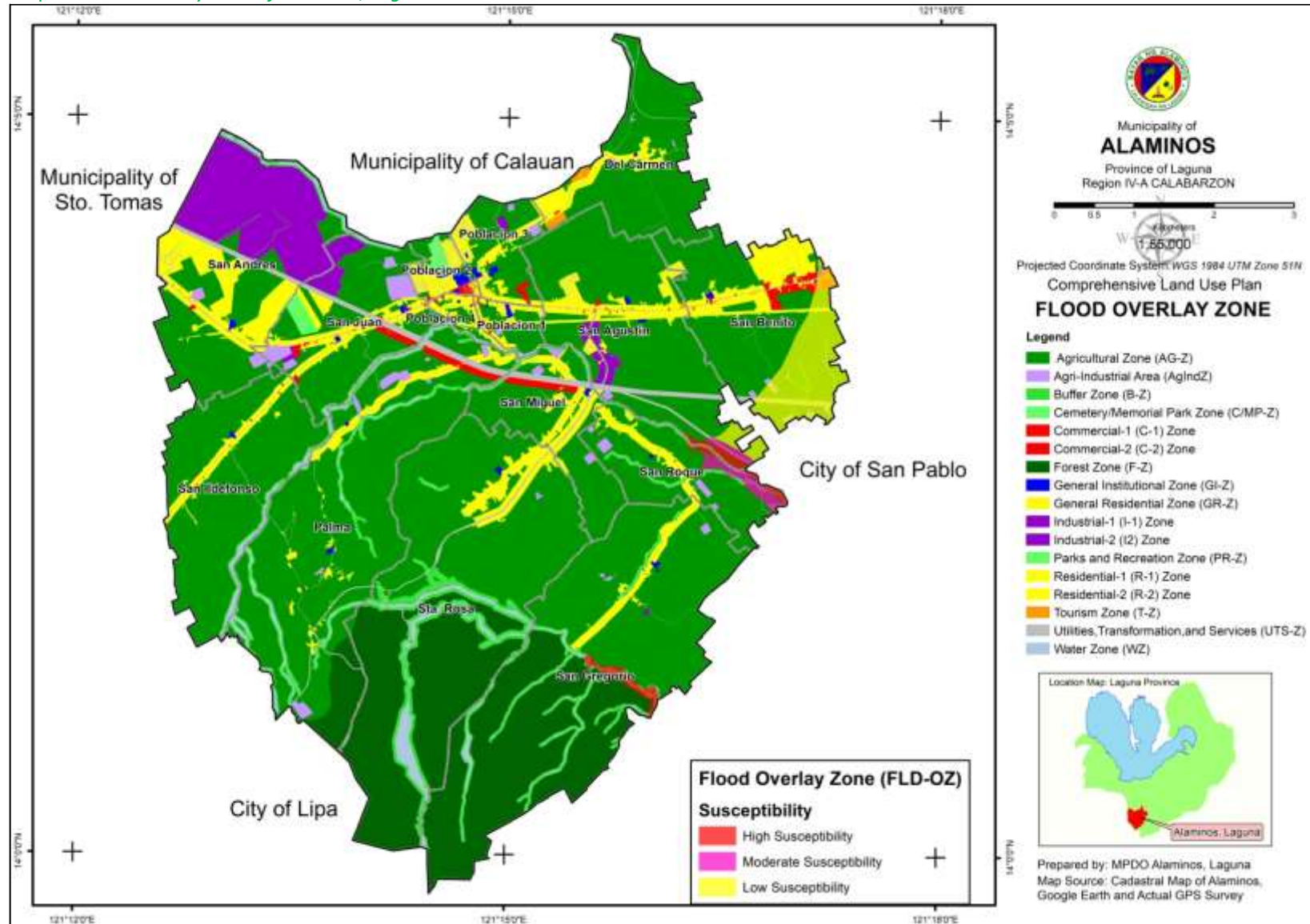
Map 78: Urban Areas EIL Vulnerability Map of Alaminos, Laguna



Map 79: Urban Areas Soil Erosion Vulnerability Map of Alaminos, Laguna



Map 80: Flood Overlay Zone of Alaminos, Laguna



Map 81: Landslide Overlay Zone of Alaminos, Laguna

