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CITY OF CALAMBA
PROVINCE OF LAGUNA



UPDATING OF COMPREHENSIVE LAND USE PLAN, CITY OF CALAMBA 2017-2026

FINAL REPORT

VOLUME 1

COMPREHENSIVE LAND USE PLAN



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& ASSOCIATES**

**CITY
CALAMBA**



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1.0 BRIEF PROFILE OF THE CITY

1.1 Brief History¹

1.1.1. Etymology of “KALAMBA”

According to legend, a *Guardia Civil* during the Spanish occupation met a young woman while making his rounds within the vicinity. The woman who had just been to a nearby river carrying a jar of water was asked for the place’s name. Mistakenly thought that she was asked for what she was carrying, she replied ‘kalan-banga’, and hurriedly went away. The guard then coined the name ‘kalamba’ that later became what is now known “Calamba”. To immortalize the town’s legend, a concrete jar with inscriptions of each barangay was constructed and erected right at the City Plaza, just across the Historical House of the Philippines’ National Hero Dr. Jose Rizal.

1.1.2. Early Settlers

Aside from Spaniards, Chinese are believed to be one of the the early dwellers of Calamba. During the Spanish occupation in 1620, Tabuco or Cabuyao in modern time was founded, and Calamba, considered a village of Tabuco, happened to be inhabited then by the Chinese. They settled in the place as compliance with Governor Hurtado de Concuera’s decree, ordering them to reside and till the land of Calamba. It was through the Chinese that the magnificent Prinza Dam was constructed purposely to regulate water for the farms.

The Chinese farmers revolted against the Spaniard’s oppression on March 19, 1639, that resulted to the death of Alcalde Mayor Arias de Mora. Other Chinese in various parts of Luzon joined the uprising until the forces of Concuera pursued the rebels up to the mountains and put an end to the upheavals. Due to rebellion, the lands of Calamba were put into auction and sold to Don Tomas de Andaya. After the Spaniards built a chapel in Calamba, the village of Tabuco became a pueblo on August 28, 1742 through a Governatorial Decree. The people of Calamba had regarded the chapel as an ‘indispensable structure.’ In fact, it served as a meeting place where political decisions were made such as the creation of Calamba as a *pueblo*.

1.1.3. Jesuits in Calamba

Don Pedro de Negrete left 125,000.00 pesos for the Jesuits (The Society of Jesus) to be used in acquiring *haciendas* for their cause. Part of this money was used to purchase the *hacienda* of Calamba from Don Manuel de Jaurie on January 29, 1759. In 1768, the Jesuits were expelled by a decree of King Charles III. The Government confiscated Jesuit lands including the Hacienda de San Juan Bautista of Calamba. Another auction was conducted for the ownership of Calamba in 1908 where Don Juan Clemente Azanza emerged as the owner. Later, Calamba was transferred to the ownership of the Dominican Order.

¹ Calamba Socio-Economic Profile, 200

1.1.4. Calamba as Described by the Early Writings

In 1860, John Foreman wrote passages that described the condition and situation of Calamba in the early days. The following are just some of the passages:

“Kalamba was a dreary-looking town. The Camino Real ran through the center of the town from the southwest to northwest, and at the northern end... To the right continuing for two kilometers parallel to the San Juan River until it reached the coarse sandy shore of Laguna de Bay.”

Other writers’ description of Calamba’s culture and environs were not far from Foreman’s description:

“Adjoining the church in Kalamba to the left was the spacious estate-house of the Dominicans, while on the right across a narrow street, was located the house of the Mercados. To one side of the parish convent and behind the house of the Mercados stood the Tribunal, a sugar camarin which served as the government center. Its dilapidated condition accurately reflected the decayed state of the Camino Real. Scattered along this main thoroughfare were the imposing houses of the leading inhabitants such as Capitan Lucas Quintos, Juan Banaten, Nicolas Llamas and Francisco Salgado who were regarded as above the Mercados in social scale because they owned considerable property around the town aside from the farm lands rented from the friars. Only a few kilometers to the South, Mt. Makiling towered above the little town of 4,000 people. The southern end of the lake carved eastward at the foot of Mt. Makiling and in the bleak distance the twin peaks of Mt. San Cristobal and Banahaw were lost in the clouds. To the distant north loomed the Antipolo range of mountains poetically named Susong Dalaga because the peak resembled the naked breast of a virgin girl in repose.” (Quirino, pp 4-5)

“The town hall was merely a sugar shed; the streets were either muddy or dusty.” (Guerrero, p 2)

“The market, held on Friday, is of considerable local importance, Filipinos coming there from great distances. The market place is, however, always dirty and disorderly...nearly all the landed properties within the jurisdiction of Calamba, as far as the town of Los Baños, belonged to the Dominican Corporation, whose administrators resided in the casa hacienda or estate-house in the town. The land was rented out to Filipino planters, chiefly for rice and sugar crops.” (Guerrero, p 14)

1.1.5. The Splendid Alligator Lake

In 1830, Father Martinez and General Lava reached a small lake in Barrios Sucol and Masili. This lake was name *La Laguna Encantada*. During the American occupation, Americans from Florida released crocodiles in this lake for the purpose of harvesting crocodile skin for bags and shoes. This lake was later called ‘Alligator Lake.’

In 1864, the first public school was opened in the beaterio of the church. The school was then called Escuela Pia.

1.1.6. New Municipal Government

Under the American rule, a new municipal government of Calamba was established in June 1901. This was done in accordance with the Municipal Law (Act No. 82) which states that a municipal government must consist of a president, vice-president and counselors to be elected by all qualified voters. Mateo Elejorde was elected as the president of the new municipal government in 1903.

1.1.7. The Japanese Invasion

Calamba was one of the towns in Luzon which suffered heavy losses in lives and properties in World War II. The Calamba town plaza became the recruiting center for military volunteers. Many Calambeños who left their town did not return home while others returned very sick and weak. On December 30, 1941 (Rizal Day) the Japanese troops entered Calamba. They occupied the town hall while Calambeños preferred to stay home. On February 10, 1945, the Japanese ordered the destruction of bridges connecting Calamba to Manila and Batangas. Likewise, guerillas who have taken control of the Southern part of Laguna destroyed the bridge linking Bay to Calauan. The towns of Calamba and Los Baños were then isolated.

In the early morning of February 12, 1945, Japanese soldiers surrounded the church. Male civilians were not allowed to leave the compound. More civilians were also transported from their barrios to the church. Later, all civilians who were detained (about 500) were transported to Barrio Real. They were detained in 13 houses and many civilians from Real were captured. At 5:00 pm women were allowed to leave. However, the men who were left behind were bayoneted to death. As it got darker, the Japanese set the houses on fire that spread to nearby houses turning Barrio Real into an inferno. About 400 residents of Calamba died that fateful evening.

1.1.8. Cityhood²

Calamba became the second component city of the Province of Laguna by virtue of Republic Act (RA) 9024, an Act Converting the Municipality of Calamba, Province of Laguna into a Component City to be known as the City of Calamba. RA 9024 was signed into law by Her Excellency President Gloria Macapagal-Arroyo on March 5, 2001 at the Malacañang Palace. The Commission on Elections (COMELEC) then set the plebiscite for Calamba's cityhood on April 21, 2001, three weeks before the local elections.

A vast majority of Calambeños took part in the historic plebiscite, which determined the destiny of Rizal's hometown. Of the total 15,056 Calambeños who voted, only 3,413 or 22.67% voted 'No.' The remaining 77.33% voted 'Yes' to Calamba's conversion into a component city.

Calamba City was declared the regional center of the Cavite – Laguna –Batangas –Rizal –Quezon (CALABARZON) region by former Pres. Arroyo by virtue of Executive Order No. 246, dated October 28, 2003. At present, Calamba is a first class city and is an acknowledged tourism, industrial, commercial, service and administrative center in CALABARZON.

² www.calambacity.gov.ph

1.2 Demographic Profile

Calamba City had a population of 454,486 in 2015. It is the most populous out of the 6 cities and 24 municipalities in the Province of Laguna. Calamba accounted for almost 15 percent of Laguna's population surpassing the cities of San Pedro, Sta. Rosa and Biñan. The city's population is about thirty times that of Famy, the least populated town in Laguna.

The City has 54 barangays of which Canlubang, Mayapa and Parian are the most populated while Mabato, Ulango and Camaligan are the least populated. The City's number of households during the 2015 census was 105,941 with an average household size of 4.3.

The gross population density of the City of Calamba in 2015 was about 34 persons per hectare³ which was much higher than its 21.16 population density in 2000. Barangay Poblacion 4 was the most densely populated with 720 persons per hectare. The next most densely populated barangays were Poblacion 2 and Palingon. Meanwhile, the least densely populated barangays were Mabato, Puting Lupa, and Ulango with only less than five persons per hectare.

Table 1. Total Population per Barangay, 2015

Barangay	Population		Land Area (ha) ⁴	Population Density (pn/ ha)
	No.	Share to total		
Bagong Kalsada	3,488	0.8%	157.8	22
Bañadero	10,412	2.3%	190.0	55
Banlic	13,681	3.0%	274.6	50
Barandal	12,526	2.8%	189.3	66
Bubuyan	2,164	0.5%	29.2	200
Bucal	12,818	2.8%	17.1	455
Bunggo	3,261	0.7%	29.8	160
Burol	2,296	0.5%	4.5	720
Camaligan	1,235	0.3%	25.6	253
Canlubang	54,943	12.1%	42.3	53
Halang	7,169	1.6%	81.8	38
Hornalan	1,736	0.4%	110.5	12
Kay-Anlog	13,946	3.1%	196.0	11
Laguerta	2,332	0.5%	265.0	48
La Mesa	14,892	3.3%	556.6	6
Lawa	11,186	2.5%	258.2	9
Lecheria	9,108	2.0%	106.5	12
Lingga	6,056	1.3%	3,912.0	14
Looc	21,754	4.8%	166.7	43

³ The gross population density of the city is still relatively low compared to neighboring cities and municipality of Laguna Province particularly those nearer Metro Manila. Cabuyao, for example had a 2015 population density of about 37 pn/ ha while Santa Rosa and Biñan had respective densities of 90 and 77 pn/ ha.

⁴ The land areas per barangay, shown in this table were obtained from data of the Philippine Statistics Authority. It should be noted that their total area does not equal that cited in Republic Act 9024 (Charter of the City of Calamba) which is '14,950 ha including the area of 14,479 has surveyed under Cad-154.' The official land area being used by the City Government is 14,480 ha which has not yet been correspondingly allocated among the barangays. It is thus recommended that a reconciliation survey be initiated by the City Government. The official total land area of 14,480 ha used by the City Government shall be used for the purpose of this Comprehensive Land Use Plan.

Barangay	Population		Land Area (ha) ⁴	Population Density (pn/ ha)
	No.	Share to total		
Mabato	687	0.2%	22.0	79
Makiling	10,760	2.4%	272.0	51
Mapagong	6,014	1.3%	294.1	51
Masili	3,680	0.8%	314.9	7
Maunong	2,164	0.5%	146.6	76
Mayapa	26,211	5.8%	157.5	58
Milagrosa	6,904	1.5%	198.4	44
Paciano Rizal	15,081	3.3%	45.0	135
Palingon	5,685	1.3%	179.1	121
Palo-Alto	15,208	3.3%	273.1	3
Pansol	10,171	2.2%	180.2	36
Parian	22,082	4.9%	465.7	23
Barangay 1 (Poblacion)	5,834	1.3%	320.8	19
Barangay 2 (Poblacion)	7,788	1.7%	32.1	115
Barangay 3 (Poblacion)	4,775	1.1%	399.2	5
Barangay 4 (Poblacion)	3,238	0.7%	116.3	225
Barangay 5 (Poblacion)	6,486	1.4%	126.8	119
Barangay 6 (Poblacion)	2,250	0.5%	15.3	372
Barangay 7 (Poblacion)	3,086	0.7%	273.7	56
Prinza	3,741	0.8%	528.2	19
Punta	4,175	0.9%	112.0	197
Puting Lupa	1,783	0.4%	95.3	39
Real	14,394	3.2%	331.0	13
Sucol	5,146	1.1%	542.0	3
Saimsim	5,828	1.3%	132.9	108
Sampiruhan	9,410	2.1%	194.5	30
San Cristobal	13,690	3.0%	81.0	116
San Jose	3,718	0.8%	119.0	115
San Juan	4,403	1.0%	89.6	41
Sirang Lupa	8,807	1.9%	15.3	288
Turbina	5,252	1.2%	31.6	163
Ulango	768	0.2%	209.4	33
Uwisan	2,519	0.6%	51.5	102
Batino	1,274	0.3%	227.6	3
Majada Labas	6,471	1.4%	78.0	32
Total	454,486	100.0%	13,285.20	34

Using an average annual growth rate (AAGR) of 2.99 percent (2010 to 2015) and an average household size of 4.3, it is estimated that Calamba City will have a population of 628,185 and approximately 146,430 households at the end of the planning period (2026). It is estimated that the city will double its 2015 population after 23 years (2038)⁵.

⁵ Doubling time, also called the Generation Time, is obtained by dividing 70 by a constant growth rate, in this case 2.51. It is based on the Rule of 70 which is a method for estimating population doubling time. The number 70 comes from the observation that the natural

Table 2. Population Projection, 2017 – 2026

Year	Population	Household
2017	482,035	112,362
2018	496,429	115,718
2019	511,253	119,173
2020	526,520	122,732
2021	542,243	126,397
2022	558,435	130,171
2023	575,110	134,058
2024	592,284	138,062
2025	609,971	142,184
2026	628,185	146,430

Source: City Planning and Development Office

1.3 Physical Features

1.3.1. Geographic Location and Territorial Jurisdiction

Calamba City is situated at the western fringe of Laguna de Bay and is located about 45 kilometers south of Metro Manila. It is geographically located at 14° and 17' and 83° latitude and 121° and 13' and 41° longitude. It is bounded at the north by Cabuyao City (Laguna Province), at the east by Los Baños (Laguna Province) and Laguna de Bay, at the south by Batangas Province (specifically by Santo Tomas, Tanauan City and Talisay), and at the west by Cavite Province (specifically by Tagaytay City and Silang). With an area of 14,480 hectares, the city accounts for about eight percent of the total land area of the Province of Laguna.

1.3.2. Barangay Subdivision

The city's 54 barangays are grouped into two districts. The largest barangay is Barangay Canlubang accounting for more the one fourth of the City's total land area, followed by barangays Puting Lupa and Mabato accounting for about 5 and 4 percent, respectively. The following table shows the land areas of the barangays.

Table 3. Barangay Land Areas

Barangay	Land Area (in has)	Share to total
Bagong Kalsada	157.8	1.19%
Bañadero	190.0	1.43%
Banlic	274.6	2.07%
Barandal	189.3	1.42%
Barangay 1 (Poblacion)	29.2	0.22%
Barangay 2 (Poblacion)	17.1	0.13%
Barangay 3 (Poblacion)	29.8	0.22%
Barangay 4 (Poblacion)	4.5	0.03%

logarithm of 2 is approximately 0.7 and, by multiplying this by 100 we obtain 70. It is a rule of thumb that roughly explains the time periods involved in exponential growth at a constant rate. This is derived from the Malthusian simple exponential growth model.

Barangay	Land Area (in has)	Share to total
Barangay 5 (Poblacion)	25.6	0.19%
Barangay 6 (Poblacion)	42.3	0.32%
Barangay 7 (Poblacion)	81.8	0.62%
Batino	110.5	0.83%
Bubuyan	196.0	1.48%
Bucal	265.0	1.99%
Bunggo	556.6	4.19%
Burol	258.2	1.94%
Camaligan	106.5	0.80%
Canlubang	3912.0	29.45%
Halang	166.7	1.25%
Hornalan	22.0	0.17%
Kay-Anlog	272.0	2.05%
La Mesa	294.1	2.21%
Laguerta	314.9	2.37%
Lawa	146.6	1.10%
Lecheria	157.5	1.19%
Lingga	45.0	0.34%
Looc	179.1	1.35%
Mabato	273.1	2.06%
Majada Labas	180.2	1.36%
Makiling	465.7	3.51%
Mapagong	320.8	2.41%
Masili	32.1	0.24%
Maunong	399.2	3.00%
Mayapa	116.3	0.88%
Milagrosa	209.4	1.58%
Paciano Rizal	126.8	0.95%
Palington	15.3	0.12%
Palo-Alto	273.7	2.06%
Pansol	528.2	3.98%
Parian	112.0	0.84%
Prinza	95.3	0.72%
Punta	331.0	2.49%
Puting Lupa	542.0	4.08%
Real	132.9	1.00%
Saimsim	194.5	1.46%
Sampiruhan	81.0	0.61%
San Cristobal	119.0	0.90%
San Jose	89.6	0.67%
San Juan	15.3	0.12%
Sirang Lupa	198.4	1.49%

Barangay	Land Area (in has)	Share to total
Sucol	31.6	0.24%
Turbina	51.5	0.39%
Ulango	227.6	1.71%
Uwisan	78.0	0.59%
Total	13,285.20	100.00%

Source of basic data: Philippine Statistics Authority

1.3.3. Hazards/Climate Change Adaptation

Situationer

Based on the study prepared by the Geoscience Foundation, Inc. for the Mines and Geosciences Bureau in December 2013, Calamba City is mainly susceptible to four hazards: flooding, liquefaction, landslide and earthquake.

Portions of 32 of the 54 barangays of the city are prone to flooding. These barangays are located at the northeastern portion of the city in areas nearest to Laguna de Bay. Elevations in these barangays are less than 10 meters above sea level. Areas with moderate to high susceptibility to flooding comprise about 7% of the city's land area.

There are also liquefaction prone areas in the city which may be found in portions of 31 barangays. These barangays are also located in the northeastern portion of the city. Locations having moderate to high liquefaction risks comprise about 11% of the city's land area.

Rain-induced landslides affect 36 barangays. Areas that are highly prone to landslides are those that are abutting the San Juan River as well as the areas with slopes greater than 18 percent. Those that are with moderate to high rain-induced landslide risks comprise about 17% of the city's land area.

Development Needs

Inasmuch as the City Government has focused its environmental efforts into three main areas: forest, freshwater and urban ecosystem, it was able to obtain a high performance index in terms of putting in place and implementing various programs and policies governing the three sectors.

Among the programs/policies that the City Government has adapted and implemented is a local Environment Code and a local Disaster Risk Reduction and Management and Climate Change Plan (DRRMCCP). The DRRMCCP has established the disaster resiliency vision of the city, identified the risks and areas exposed to the identified risks, and has defined interventions to ensure the city's resiliency to disasters and climate change impacts. On the other hand, the Environment Code of the city aims to enjoin all constituents as well as private companies located in the various industrial parks to participate in the environmental initiatives such as solid waste and hazardous waste management and urban forestry programs.

Goals

- To protect the city's natural environmental resources
- To integrate Climate Change Adaptation (CCA) and DRRM measures into land use policies and strategies
- To reduce the risk from natural hazards and climate change impacts

Objectives

- To rehabilitate the city's denuded forest and mangrove areas
- To stabilize the lakeshore and riverbanks
- To facilitate the construction of climate-resilient and hazard-proof structures
- To encourage Public-Private Partnerships in implementing CCA/ DRRM programs

Strategies

- Update the delineation of the city's protected areas: Mangrove Sanctuary, Makiling Forest
- Reserve and Upland Conservation Areas
- Development of mini-forest parks and greenbelt areas
- Establishment of Yankaw Sanctuary and Yankaw Fish Garden
- "A Tree for Every Calambeño"
- Construction of dikes along Laguna de Bay
- Riprap of riverbanks or using natural vegetation or engineering means for erosion control
- Opening/ clearing of waterways such as in Pansol and Parian
- Establishment of a Pollution Monitoring Center and Testing Laboratory
- Establishment of a Sewage Treatment Plant for the City
- Establishment of City Composting Facilities: Palingon, Canlubang, Real, Prinza
- Increase the number of and strategically locate institutional facilities that double as emergency evacuation areas
- Improve the structural features, operation and maintenance of the current government facilities
- Ensure construction/ maintenance of hazard-proof residential/ commercial/industrial/ etc. facilities, most especially in identified hazard areas, through strict enforcement of national and local policies, i.e. BP220, PD 957, National Building Code, and related laws and codes
- Update the City's Environmental Code
- Coordinate with other government agencies and neighboring government units in implementing prioritized and integrated CCA and DRRM measures

1.4 Physical/Infrastructure Resources

1.4.1. Transportation Network

Situationer

Calamba City is accessible through three exits from the South Luzon Expressway (SLEX). The first leads to Canlubang through the Silangan Industrial Park. Next is the Mayapa – Paciano Rizal Road and last through Barangay Turbina. Another major road network which links the city to Metro Manila and other Laguna cities and municipalities as well as the Bicol Region is the Manila South Road which traverses the built up areas.

Most of the roads in the city are concrete. Certain areas are asphalt and small portions are either dirt or gravel surface. Nonetheless, all roads are passable all year round. Even the bridges located in some barangays are passable anytime of the day.

Cityhood has affected Calamba, especially in the transportation sector as traffic congestion has become a daily occurrence. Gridlocks often occur along busy streets, particularly in Barangays Mayapa and Parian all the way down to the Crossing area. During summer time, traffic becomes almost unmanageable in Barangays Pansol and Bucal as visitors rush to the various hot spring water resorts.

Regional transport is expected to improve through the implementation of the Laguna Lakeshore Expressway with an exit that will connect it to Barangay Bucal and then to the SLEX. Moreover, the city also stands to benefit from the planned improvement of the Philippine National Railway (PNR) line.

The City Government has also programmed the construction of local roads to improve intra-city circulation. These include roads that will connect Parian to Sampiruhan, San Juan to Halang, San Cristobal to Mapagong and Makiling to Canlubang.

Development Needs

The long-term plan for the improvement and expansion of the City's road network should include road widening and road openings in order to ease the load of vehicles passing through the congested and busy areas.

The City Government also needs to update its baseline information by undertaking a Road Classification and Physical Inventory Survey.

Goals

- Strengthen the existing transport system of the city
- Improve accessibility within the city

Objectives

- Implement proposed road improvement and expansion projects of the National Government
- Increase the service levels of roads in the urban area
- Decongest roads in the urban area

Strategies

- With developments being concentrated within the limited urban area, there is severe congestion in the Poblacion. Additional road links should be provided in order to spread development. There are barangays whose connections with the urban districts need to be upgraded
- Traffic movement at critical sections need to be improved, necessitating the provision of traffic facilities and equipment

- To decongest the present urban area, a central transport terminal should be established outside the main Poblacion. This should be done in conjunction with plans for opening new areas for development, such as the proposed Regional Government Center
- Update baseline information by undertaking a Road Classification and Physical Inventory Survey

1.4.2. Social Service Facilities/Utilities/Amenities

HOUSING AND SETTLEMENTS

Situationer

The housing condition in the city is generally satisfactory. Catering the housing needs of Calamba City are about 260 residential subdivisions distributed in 40 barangays.

Based on the December 2015 survey conducted by the City Government’s Housing and Settlements Department, there are 24,127 families living in informal dwellings. Most informal settlements are commonly located along riverbanks, road rights-of-way, within the PNR’s easement as well as within private properties. The said department leads the implementation of the City Government’s housing and resettlement programs along with various government agencies and non-government organizations. As of December 2015, there were already 2, 093 informal settler families relocated.

Development Needs

It is estimated that by the end of the planning period, the city will need an additional 64,616 housing units brought about by the increase of population and the need to provide for those living in informal dwellings. The rest of the housing needs resulted from housing units that are dilapidated or condemned which need major repairs.

Table 4. Projected Housing Needs

YEAR	BACK-LOG		POPULATION INCREASE	ANNUAL TOTAL	TOTAL FOR THE PLANNING PERIOD	PLANNING PERIOD	TOTAL
	DISPLACED	DOUBLED UP					
2013	2,302	294	3,093	5,689	17,067	1ST	53,967
2014	2,302	294	3,093	5,689			
2015	2,302	294	3,093	5,689			
2016	2,302	294	3,391	5,987	17,960	2ND	
2017	2,302	294	3,391	5,987			
2018	2,302	294	3,391	5,987			
2019	2,302	294	3,717	6,313	18,939	3RD	
2020	2,302	294	3,717	6,313			
2021	2,302	294	3,717	6,313			

Table 4 shows that, in the City of Calamba, the total number of new units needed due to backlog and population increase for the period July 2013-June 2021 is 53,967.

Goal

- Uplift the housing situation/ condition of the constituents

Objectives

- Decrease the number of informal settlers in the city living in danger zones
- Provide affordable housing for low-income residents of Calamba

Strategies

- Lead the provision of affordable housing units and loan assistance programs
- Identify the city's informal settlers residing in different danger zones and privately owned lots.
- Construct permanent resettlement sites and prepare for relocation of informal settler families (ISFs). This include construction of single-detached row houses and medium-rise buildings including land development consisting of road and drainage construction, installation of electrical facilities, water supply systems and all other facilities necessary
- Provide housing assistance to ISFs while they are coping from relocation adjustments
- Ensure maintenance and security of the vacated areas must also be considered
- Prevent the relocation of ISFs to hazardous areas such as the ones along the Laguna de Bay shoreline
- Encourage Public-Private Partnerships in implementing housing programs

HEALTH AND SANITATION

Situationer

A. Health Facilities

Calamba City has 65 Public Health Facilities, which include two (2) Rural Health Units (Main and CUBA), two (2) Birthing Facilities and (1) District Hospital managed by the Provincial Government (JP Rizal Memorial Hospital) and 60 Barangay Health Stations (BHS) in Calamba's 54 Barangays.

There are also 6 Private Hospitals, 15 Private Clinics, 6 Diagnostic Centers, 2 Drug Testing Centers, and 18 Lying-in Clinics which supplements the City's health services.

B. Access to Safe Drinking Water and Sanitary Toilet Facilities

Ninety-eight percent of the 72,177 total households surveyed by the City Health Services Department in 2015 have access to safe water and 95 percent have sanitary toilet facilities.

C. Cemeteries

There are eight cemeteries/ memorial parks in Calamba City located in five Barangays namely, Barangay Lecheria (4) one of which is the Public Cemetery, Barangay Bañadero (1), Barangay Barandal (1), Barangay Mapagong (1), Barangay Hornalan (1).

Development Needs

A. Health Facilities

The Housing and Land Use Regulatory Board (HLURB)⁶ prescribes that each city must at least have one City Health Center to service at most 50,000 constituents as well as Barangay Health Stations servicing unit populations of 5,000. Based on this, the City Government would need to build

additional 11 City Health Centers as well as construct additional 66 Barangay Health Stations to accommodate the 2026 projected population. However, although the existing health center and health station facilities in the City did not meet the minimum prescriptions of the HLURB, several private clinics and a number of private hospitals supplement the provision of public health care services.

B. Access to Safe Drinking Water and Sanitary Toilet Facilities

Households which do not have access to adequate toilet facilities, potable water supply and proper garbage storage and disposal facilities are mostly found in informal settlements. In order to prevent the vulnerability of residents to diseases and epidemics, all households living in danger zones must be relocated for them to have adequate housing utilities and facilities.

C. Cemeteries

A conservative estimate of the future area requirement for cemeteries assumes that all residents will be availing of the memorial park services within the City. Excluding open spaces, circulation and facility requirements for memorial parks, it is estimated that a total of 0.80 ha is necessary to accommodate the projected number of deaths by the end of the planning period. This further assumes that the latest average crude death rate (CDR) of 5.24 from 2008 to 2012 prevails.

Goals

- To improve the general health status and sanitary conditions of the citizenry
- To appropriately respond to the health needs of the citizenry
- To maintain excellent Environmental Sanitation in coordination with the Community Environment and Natural Resources Office (CENRO) to avoid epidemic and endemic diseases

Objectives

- Provide accessible health facilities/institutions
- Provide adequate water and sanitation facilities to prevent the vulnerability of the constituents to diseases and epidemics
- Provide adequate burial grounds for the constituents

Strategies

- Increase the number of high quality health facilities/ institutions to improve health service delivery
- Strategically locate health facilities to maximize accessibility and delivery of health services
- Coordinate with other government agencies in implementing prioritized and integrated health and sanitation services
- Encourage Public-Private Partnerships in implementing Health Programs within the City
- Establishment of a Memorandum of Agreement (MOA) with a Hazardous Waste Hauler
- identify and develop a suitable site for a public cemetery

⁶ HLURB, *CLUP Guidebook*, Volume 2, p. 88, 200

EDUCATION

Situationer

The city has 51 public elementary schools, 20 public secondary schools, 10 of which offer Senior High school, one Stand Alone Senior High School and one public tertiary school. There are also 107 private educational institutions in the city. Of this number, 13 offer only preschool education, 36 offer both preschool and elementary education while 49 offer preschool up to secondary education, 5 offer high school only, 23 offers Senior High School and 9 has tertiary level. In, 2016, Calamba City had a total student population of 116,139 in elementary and secondary level.

Development Needs

Additional teachers and classrooms as well as continuous upgrading of teachers' skills.

Goal

- To provide quality education and ensure adequate and accessible public school

Objectives

- To achieve the minimum standard classroom-student ratio set by the Department of Education (DepEd)
- To have adequate school facilities and amenities

Strategy

- Provide enough classrooms for the growing student population
- Provide adequate education facilities and personnel
- Provide adequate and competent teachers
- Provide additional school site for expansion
- Coordinate with the barangays for schools needing expansion of school site

PROTECTIVE SERVICES

Situationer

For the facilitation of peace and order, the city has a police headquarters occupying an area of 678 square meters located in Real and eight public assistance desks strategically distributed throughout the City and a 10,000 square meter city jail in Turbina.

The City also has a central fire station in Barangay Real and one sub-station building located in Barangay Canlubang.

Development Needs

Pursuant to National Police Commission (NAPOLCOM) Resolution No. 92-36, the city's Police Station is classified as Type A which should have a standard lot area of 2,500 square meters. Its City Jail, on the other hand, should have at least a lot area of one hectare. Given these standards, the Police Station needs to expand by 1,822 square meters. On the other hand, the City Jail is compliant to the standard.

According to Section 13 of the Rules and Regulations on the Apprehension, Investigation, Prosecution and Rehabilitation of Youth Offenders, the city should have a Detention Home for minors established by the Department of Interior and Local Government.

Goal

- Promote and maintain a safe and peaceful community

Objectives

- Improve the efficiency police and fire protection services
- Increase the visibility of protective services personnel

Strategies

- Equip the protective services personnel with proper facilities which will help them protect and serve the community better
- Installation of CCTV Camera in strategic points

SPORTS AND RECREATION

Situationer

Calamba City has two main public parks, the Plaza and Calambanga Park. An on-going construction of JP Rizal Coliseum located in The Plaza with a seating capacity of 8,100 is expected to finish by 2019. Basketball courts may be found in every barangay while parks and playgrounds are present in many residential subdivisions.

Some private individuals and companies have also established several sports facilities in the city. These include the Wakeboarding Park at Nuvali in Barangay Canlubang, and two premier golf courses, the Ayala Greenfield Golf and Leisure Club situated in Barangay Puting Lupa and Canlubang Golf and Country Club in Barangay Canlubang. There is also a private driving range in Barangay Lecheria.

Development Needs

Given a minimum standard of 500 square meters of City Park per 1,000 population,⁷ it is estimated that Calamba will need approximately 31.41 hectares of land for parks and recreational purposes.

Goal

- For the constituents to be in good physical shape

Objective

- Provide residents with adequate sports and recreational facilities/activities

Strategies

- Establish parks and recreational facilities in areas which are accessible, i.e., within subdivisions and areas of activity
- Construction of Calamba Sport Stadium Complex

⁷ HLURB. CLUP Guidebook, Volume 2. 2007.

SOCIAL WELFARE SERVICES

Situationer

The 54 barangays of Calamba City have their own respective day care centers under the Early Childhood Education Program. The City Government through the City Social Services Department manages the following facilities:

- a. Calamba Children Center for Hope
- b. Second Chance Home for Children-in-Conflict with the Law
- c. Center for Street Children
- d. Drop-in/Crisis Center
- e. Community Base program for Street Children/Gulong ng Karunungan
- f. Women Crisis and Therapy Center
- g. Women Center for Competency Enhancement and Development and Hope Intervention Center for Special Children

These facilities provide shelter for abandoned, neglected, abused and mentally impaired children, women and elderly. They serve as residential facility for minors (individuals below 18 years old) who are in conflict with the law and still await court trial.

The City Government through the Calamba Manpower Development Center with its satellite training facilities support the delivery of high-quality and relevant technical-vocational trainings and programs. The Center supports the development of the city's mid-level manpower by supplying the demand for educated and skilled individuals. It promotes social equity, particularly those who are socially excluded and displaced individuals, such as: informal workers, abused women and children, persons with disabilities, OSY, jail inmates, drug dependents, etc. Moreover, the Center strives to place the low income member of the community into the society's mainstream to become active participants of the city's development. The training programs also focus on key employment generators (KEG) and development of skills relevant to the industries' needs and are implemented in community-based, center-based and industry-based settings.

Development Needs

The city's existing social welfare centers and training facilities cater to the basic needs of the society's vulnerable group which includes: children, women, elderly and youth. This should, however, be sustained and enhanced. The city also needs to pursue the accreditation of its various social welfare and training facilities.

Goals

- To address the needs of children, women, elderly and youth who are abandoned, exploited, neglected, abused and/or mentally impaired and minors who are in conflict with the law
- To address the needs of children, women, elderly and youth who are abandoned, exploited, neglected, abused and/or mentally impaired and minors who are in conflict with the law
- To make city's social welfare and training facilities compliant with the standards set by the accrediting agencies
- To address the needs of the city's growing demand of educated and skilled workforce
- To promote the development of globally competitive workforce and to equip the disadvantaged groups with skills, knowledge and technology that will help improve their chance for employment and enhance their productivity and social growth

Objectives

- Rehabilitate and provide protective custody to women and children
- Eliminate or at least reduce the number of neglected, abused and exploited women and children
- Establish training centers that will meet the criteria required for the accreditation. Improve the size of classrooms, libraries, equipment and circulation areas
- Produce a globally competitive workforce and uplift the economic well-being of the disadvantaged and vulnerable groups
- Improve the existing social welfare and training facilities by adding resources for facilities and more workers (social workers, psychologists, nurses, day care workers, trainers and manpower development officers)

Strategies

- Prioritize the basic needs of the city's vulnerable group
- Acquire support from non-government organizations, private sectors as well as national government agencies
- Allocate funds for the maintenance and operation of various social welfare and training facilities
- Allocate funds for the construction of new training centers that will meet government and industry standards
- Implement community-based or barangay-based trainings (special trainings for employment programs for fresh graduates), and establish strong linkages with various industries to provide employment

1.4.3. Utilities

WATER

Situationer

The Calamba Water District (CWD) maintains the piped water system in the city through spring and well sources located in Barangays Bucal and Barangay 1 (Crossing). These are the main water sources of the company with four pumping units in the Bucal Spring source area.

The Local Government of Calamba used to own and maintain Calamba's water supply system until it was transferred to the CWD in 1974. The CWD Board establishes the water user charges following the guidelines of the Local Water Utilities Administration (LWUA). The CWD currently serves 29 zones, with each zone being composed of one or more barangays and/or subdivisions.

Water service connections are divided into four categories: residential, government, commercial and industrial.

Industrial parks have their own Level III water supply systems using groundwater sources. These water systems are being operated and maintained by the industrial park operators. The National Water Resources Board (NWRB) has allowed these industrial parks an extraction rate of 240 liters per second or 20, 755 m³ per day.

Development Needs

In areas covered by private Level III water systems, groundwater use should be monitored to avoid over pumping. These water systems should be run by professional water system operators in order to improve the quality and reliability of service. Households that still depend on open dug well, spring, river and even from the rain as their main source of domestic water should be given access to safe water.

Goals

- Ensure that all households will have access to clean and potable water supply
- Increase and improve Level III water supply service / coverage, in particular, within the growth management areas
- Ensure rationale use of groundwater resources

Objectives

- All or 100% of households to have access to clean and potable water supply
- Improve Level III water supply service in terms of availability, quality and system pressure
- Implement stricter monitoring of groundwater use

Strategies

- The CWD is tasked with the expansion / modernization of Level III water systems in the city. Priority shall be given to the provision of Level III systems in highly populated areas which are not yet served by any Level III system, or areas that rely on point well sources.
- Water source, treatment and storage facilities shall be upgraded to improve the level of service, at least, to LWUA standards, particularly in terms of water availability (at least 200 liters per capita per day supply, 24 hours availability), system pressure, and potability (meets Philippine National Standards for Drinking Water)

SEWERAGE, SANITATION AND DRAINAGE

Situationer

The San Juan and San Cristobal Rivers and Laguna Lake serve as receiving water bodies for rainwater runoff. Rainwater drainage systems in the residential and urban areas and industrial estates convey runoff to these natural water bodies. These consist of reinforced concrete pipes, open canals, either lined or unlined, and reinforced concrete rectangular culverts. Flooding is limited to tidal flooding in the lakeshore areas and river overflow.

At present, there is no public sewerage system. Domestic wastewater is disposed through soil percolation, or through drainage canals or directly to surface water bodies. Septic tanks reduce the pollution load but these are poorly designed and constructed and have minimal maintenance. It is also noted that septic tanks are not extensively used in the rural areas.

The industrial parks operate on their own sewerage collection and treatment systems. Wastewater treatment plants have been designed and constructed in conformity to Department of Environment and Natural Resources (DENR) guidelines and standards.

Development Needs

The private and public drainage systems have to be well planned and should have adequate carrying capacities to minimize flooding.

There is also a need to prepare an as-built Plan for the city's Drainage Network as well as undertake a City Drainage Master Plan.

Goals

- Ensure that all households will have water-sealed sanitary toilet facilities
- Increase the coverage and effectiveness of sewage treatment and disposal systems
- Minimize flood risks

Objectives

- All or 100% of establishments and households in Level III water served areas to have adequate septic tank systems
- All or 100% of all industrial areas/ firms to have sewerage systems complying with DENR / LLDA effluent regulations
- All or 100% of households to have water-sealed sanitary toilets
- Develop/rehabilitate storm drainage systems in the urban and growth management areas, as well as all major roads, to accommodate at least a ten-year rainfall / flood
- Enhance the technical capabilities of the City Planning & Development Office and City Engineering Office in stormwater drainage planning and design
- Prepare a Drainage Network As-built Plan
- Prepare a City Drainage Master Plan

Strategies

The City Government of Calamba shall be mainly responsible for this sub-sector.

- The City Government shall strictly enforce the septic tank requirement, particularly in highly populated areas that are served by Level III water systems, where consumption and wastewater generation are relatively high. The City Government shall ensure that septic tanks are properly designed and well maintained, i.e., de-sludged every 3-5 years
- All industrial firms/ estates should construct, within the short-term, the necessary wastewater treatment facilities to meet the wastewater effluent standards set by the DENR. In the long-term, community sewerage systems, consisting of sewage collection lines and sewage treatment plants, shall be put up within highly populated areas
- The City Government should ensure that water-sealed sanitary toilets are available in all households and schools. Public toilets should be provided in depressed communities and public education in sanitation should be a continuing activity
- Existing drainage systems in vital areas should be upgraded to meet a ten-year rainfall/ flood, thereby ensuring minimal or no disruption of economic activities. Critical areas for drainage development / upgrading are the Growth Management Areas, the Old National Road, access roads to and from the South Luzon Expressway and roads leading to & from the industrial estates
- The stormwater drainage planning and design capabilities of the City Planning and Development Office and City Engineering Office can be enhanced through advanced technical training and provision of support computer systems. A City Drainage Master Plan should be drafted

SOLID WASTE MANAGEMENT

Situationer

The City Government is currently in contract with RC Bella Waste Management and Collection Services that serves the 54 barangays in the City. This third party collects and disposes residual waste in a sanitary landfill located in Sitio Tikad, Brgy. San Mateo, Norzagaray, Bulacan. Collection at thoroughfares is daily and once a week on subdivisions and barangay roads.

Industrial companies in the city have their own accredited waste haulers. These private companies also have their own eco-centers to comply with the provisions of their Environmental Compliance Certificates (ECCs). Monitoring is done by inspecting these businesses at least once a year.

The City Government has established eco-centers in public schools, resorts, subdivisions, hospitals and medical clinics to encourage waste segregation at source. Inside the City Hall compound is a City Hall Eco-Center (CHEC) that manages the solid wastes of the offices within. PaLiSam MRF is now operating as a composting facility and operating at the city's public market.

Hazardous and special wastes from different industries and hospitals are being collected by their own respective private haulers.

Development Needs

In order to achieve efficient and eco-friendly solid waste management and to comply with the provisions of RA 9003, the City Government should ensure the support of barangays for waste minimization, segregation and recycling.

The approved 10 year Solid Waste Management Plan of the City, including the development of 54 barangay eco-centers or recycling facilities and the establishment of 4 composting facilities in Barangays Canlubang, Prinza, Lamesa and Bañadero should be judiciously implemented.

Goal

- To improve environmental health and sanitation in the City

Objective

- To provide an adequate City Solid Waste Management System

Strategies

- Establishment of Materials Recovery Facility in every barangay.
- Establishment of City Composting Facilities in Palingon, Canlubang, Real, Prinza
- Closure and rehabilitation of existing dumpsite in Barangay Bunggo

POWER

Situationer

Electric power or electricity in the city is being distributed by the Manila Electric Company (MERALCO), which caters to all types of power supply connections to all the barangays. The entire

city is fully equipped with electricity. Industrial facilities had the largest kilowatt-hour consumption per month while domestic facilities had the most number of connections. MERALCO has two substations located in Barangay Mayapa while its administration building is situated in the Crossing area of Barangay 1.

Camelray Industrial Park in Barangay Milagrosa generates its own power purposely to supply its locators.

Development Needs

As urban areas and all barangays are adequately served with electricity, the service should be extended to cover the remaining remote sitios and households that still do not have access to power supply.

Goal

- Ensure that all households will have access to electricity

Objective

- All or 100% of households to have access to electricity

Strategy

- MERALCO is the existing power service provider to the city and its service capability is deemed adequate to meet the city's power demand. Development shall focus on ensuring system reliability and extending distribution facilities to new development areas

TELECOMMUNICATIONS

Situationer

Communication service facilities in the city include postal, internet, landline and mobile phone, and broadcast television.

Development Needs

The current telephone line density should be improved to be at par with that of Metro Manila

Goal

- Increase telecommunication service coverage

Objective

- All or 100% of households to have access to telecommunications service

Strategy

- Private sector role in the telecommunication sector is likewise deemed satisfactory and government intervention to provide similar services is not necessary. The private telecommunication firms should, however, increase system capacity to improve Calamba's telephone line density. Development shall likewise focus on ensuring system reliability and that services extend to new development areas. Furthermore, development should keep up

with the trend of changing technology and cater to the needs of export-oriented industrial firms.

1.5 The Economic Structure

1.5.1. Revenue Sources

INDUSTRY

Situationer

There are about 234 registered manufacturing industries throughout Calamba City as of December 2015. In comparison with the 214 registered manufacturers in 2014, the number slightly increase by 0.09 percent within a year. About 39.74 percent of manufacturing establishments are concentrated in Canlubang (93). Makiling, Batino, Punta, and Milagrosa have more than 10 manufacturing establishments. The rest of the 24 barangays have at least one industry operating in their areas.

There are 10 economic zones operating in Calamba City occupying 448.71 hectares of land. Most of the ecozones are engaged in manufacturing business while there are two classified as Information Technology (IT) parks.

Development Needs

Industries are considered as one of the economic drivers for economic growth. Given that the City has the capacity to accommodate diverse industries, the City Government should facilitate the entry of industrial locators that are non-pollutive, non-hazardous, light to medium and preferably semi-conductor and IT.

The City's Revenue Code, Tax Ordinance and Investments and Incentives Code need to be updated in order to spur further economic growth. It is also noted that there is no permanent facility to house the City's Business-One-Stop-Shop (BOSS).

Goals

- To provide a business friendly environment
- High occupancy rate for industrial parks

Objectives

- To establish trading and business centers at strategic locations
- To promote the industrial estates to local and foreign investors
- To amend the Calamba City Revenue Code of 2011
- To update the City's Tax Ordinance
- To amend the Calamba City Investments and Incentives Code of 2010

Strategies

- Secure the support of Department of Trade and Industry (DTI), Bureau of Local Government Finance (BLFG) and other government agencies
- Provide local investment incentives for industry players

- Create a Technical Working Group to review and recommend amendments to the Revenue Code and Tax Ordinance and have these approved by the Sangguniang Panlungsod (SP)
- Convene a new Calamba Investments and Incentives Board (CIIB) and create a Technical Working Group (TWG) to recommend amendments to the Investments and Incentives Code and have it approved by the SP
- Provide an integrated and year-round facility for BOSS by re-structuring the present Business Permits and Tricycle Franchising Office (BPTFO) Taxpayer's Lounge to accommodate the co-location of other departments using Joint Memorandum Circular (JMC)-01, S. 2016 guidelines

COMMERCE AND TRADE

Situationer

There are about 8,437 registered business establishments in Calamba as of December 2015. It is the highest number of business permits issued in the last five years. The city posted a generally increasing trend of business permits issued from 2011 to 2015.

Large commercial centers that may be found in the city include SM City Calamba in Barangay Real, two branches of Waltermart Malls in Barangays Real and Makiling, four branches of Puregold Supermarkets in Canlubang, Halang, Parian, and Barangay 1, one branch of Savemore in Parian, Wilcon Builders Depot in Halang, Liana's Discount City in Parian, Checkpoint Mall in Paciano Rizal, Carmel Mall in Canlubang, iMall in Canlubang, one public market in Barangay 5 and privately managed wet and dry markets in several barangays.

Development Needs

To further attract new investments, the City Government should address the traffic congestion problem in the commercial areas along with the frequent flooding as these hinder commercial developments. In order to build up an active business atmosphere, appropriate strategies for upgrading the overall urban atmosphere of the city must be established.

Goal

- To promote commercial growth

Objectives

- Encourage businessmen to invest in Calamba
- Diversify commercial activities in the City
- To amend the Calamba City Revenue Code of 2011
- To update the City's Tax Ordinance
- To amend the Calamba City Investments and Incentives Code of 2010

Strategies

- Acquire support from DTI, BLGF and other government agencies
- Provide skills enhancement and livelihood training
- Improve the Calamba Manpower Development Center
- Create a TWG to review and recommend amendments to the Revenue Code and Tax Ordinance and have these approved by the (SP)

- Convene a new CIIB and create a Technical Working Group to recommend amendments to the Investments and Incentives Coda and have it approved by the SP
- Provide an integrated and year-round facility for BOSS by re-structuring the present BPTFO Taxpayer's lounge to accommodate the co-location of other departments using Joint Memorandum Circular (JMC)-01, S. 2016 guidelines

AGRICULTURE

Situationer

Calamba City had an approximate agricultural production area of 1, 818.75 hectares in 2015 broken down as follows:

- Rice Area: Irrigated (lowland), 771.18 hectares in 14 barangays; Upland, 36.90 hectares in 6 barangays
- Corn Area: 650.70 hectares in 28 barangays
- High Value Commercial Crops: 1, 009.67 hectares in 30 barangays

Poultry farms are scattered in different barangays with a total production of 32, 951 heads. Broiler production is largest in Canlubang, egg production largest in Canlubang/Real area, swine production in Burol/Sirang Lupa area, goat production in Prinza, and Bucal with the highest duck production of 5,467 heads.

Development Needs

Calamba's agricultural-based activities are continuously declining due to rapid urbanization and land conversion. The preservation of agricultural production areas shall be promoted to secure food requirements and to prevent further congestion of the city. There shall also be continuous support to the existing city agricultural programs such as promotion of improved production technology; establishment of farm demonstrations, loan programs, and regular soil analysis to save the depleting agricultural resources.

Goals

- Protect prime agricultural lands
- Uplift the socio-economic status of the stakeholders in the agriculture sector

Objectives

- Pass a City Ordinance/resolution limiting land conversion to preserve remaining agricultural areas
- Provide agricultural facilities, technical, infrastructure, marketing and financial support

Strategy

- Provide incentives to the stakeholders

FISHERIES

Situationer

As of September 2016, there were 1, 646 registered fisherfolks in Calamba City. Six hundred ninety-seven were engaged in full-time capture fishing, 78 were aquaculture operators, 152 were involved in fish vending and processing, 256 were fish workers, and 472 were part-time gleaners. There was also a total of 630 municipal fishing boats registered with the City Government.

Annual municipal fisheries production in 2015 reached 2,305 mt of fish, composed mainly of tilapia, kanduli (manila catfish), ayungin (silver perch), bangus (milkfish) and shrimps.

Inland fishponds in Calamba City are mainly found in Barangays Looc, Sampiruhan, Lingga and Bucal. In 2015, a total area of 6.907 hectares inland fish pond recorded a total production of 107.10 metric tons of catfish and pangasius.

A total of 316.71 mt of fish were produced in aquaculture in Laguna de Bay. A total of 164.7 mt of bangus (milkfish) were produced last 2015. Fish cages devoted for culture of tilapia and mamale (bighead carp) had an annual production of 152.01 mt in reported area of 4.367 ha. Twenty six units of fish pens in Laguna de Bay covered a total area of 313.8 ha.

Development Needs

Decline in fish production due to proliferation of invasive knife fish, lowering water quality and presence of illegal fishing activities

Goals

- Protection and conservation of fishery resources
- Poverty reduction among fisherfolks

Objectives

- To create fishery protection areas
- To eliminate illegal fishing practices
- To create a market center for fishery products

Strategies

- Identification and establishment of fish protected areas and proper management of the existing Yankaw Fish Garden and Fish Protected Areas
- Intensive campaign against illegal fishing
- Establishment of centralized fish landing center and fish processing facility for value-adding to increase income of fishing families

TOURISM

Situationer

Calamba City is famous for being the birthplace of Dr. Jose Rizal. It is home to a famous and priceless historical landmark, the Rizal Shrine in Barangay 7.

Calamba is also endowed with natural and man-made attractions. It is known as the Hot Spring Capital of the Philippines due to the presence of numerous hot spring resorts. In 2013, there were 415 registered resorts in the City which comprised of 40 public pools and 375 private pools. Most of the resorts are located in barangays near Mt. Makiling such as Pansol, Bagong Kalsada and Bucal.

There are six tourist circuits which are being promoted by Calamba City. Among these are Rizal Shrine, Mt. Makiling Forest Reserve, Hot Spring Resorts, Industrial Park Tours, Lakefront Front, and Ornamental Plant Gardens.

Development Needs

The improvement of existing tourism sites should be given priority to create additional income and improve the morale of the city's constituents. Resort owners should be encouraged to have their resorts accredited by the Department of Tourism (DOT) every year to standardize tourism services and the facilities. Infrastructure facilities such as roads and flood control systems should also be improved to encourage investors and tourists to come in.

Goal

- To promote Calamba as a prime tourist destination in Laguna

Objectives

- Promote Industrial Park Tours
- Protect and enhance historic sites
- Promote local delicacies like espasol, buko pie, carabao's milk, etc.
- Encourage resort owners to be accredited by the Department of Tourism every year

Strategies

- Seek the assistance of DOT for the promotion of existing and potential tourism areas in the city
- Provide incentives to resort owners with accreditation

1.5.2. Labor Force

The overall dependency ratio was registered at 52 dependents (48 young dependents and 4 old dependents) for every 100 economically active persons. The sex ratio of the working population was almost 1:1 with 94.52 males for every 100 females

1.6 Existing Land Use and Land Use Trends

1.6.1. CLUDP 2000 - 2015

The predecessor Land Use Plan of the city was adopted by the then Municipal Council by virtue of Ordinance No. 256 Series of 2000. The Land Use Plan was incorporated as part of the then Municipality's Comprehensive Land Use and Development Plan (CLUDP) for the period 2000 – 2015. The said Land Use Plan employed a "policy-driven and management-oriented approach" which was anchored on flexible and performance-oriented land use planning and regulation. Instead of delineating specific areas for certain uses, the Land Use Plan allowed a selective mixture of uses

guided by a set of policies and standards to guide development applications. This approach is reflected in the land use classification system provided in the predecessor plan which is given in the table below:

Table 5. Area Allocation

Land Classification	Area (ha)	Share (%)
Urban Redevelopment Area	2,080	14.36
Growth Management Area – 1	4,199	29.00
Growth Management Area – 2	2,460	16.99
Upland Conservation Area	3,517	24.29
Forest Buffer Area	333	2.30
Makiling Forest Reservation Area	463	3.19
Agricultural Development Area	1,428	9.85
Shoreland Area		
Totals	14,480	100.00

Source: CLUDP 2000 – 2015

Land Use Plan 2000 – 2015 is presented as **Figure 1.1**.

Certain land classifications were subdivided into Development Districts such as the Urban Redevelopment Area:

Table 6. Districts in the Urban Redevelopment Area

District	Area (ha)	Share (%)
Historical Redevelopment District	39	2.00
Tourism Redevelopment District	144	7.00
General Redevelopment District	1,897	91.00
Totals	2,080	100.00

Source: CLUDP 2000 – 2015

The Historical Redevelopment District (HRD) was further categorized as Special Development Area – 1 (SDA-1) where specific regulations pertaining to architectural design, provision of landmark and public park were provided. The HRD is presented as **Figure 1.2**. The Tourism Redevelopment District (TRD) was, in turn, categorized as SDA-2 where ‘developments are encouraged to be of the low density sprawling type with plenty of green open spaces’ and where each ‘is required to plant at least ten new trees...’ (**Figure 1.3**).

The Agricultural Development Area (ADA) was also divided into two districts following the provisions of the SAFDZ Act. The ADA is presented in the table below and shown in **Figure 1.4**.

Table 7. Districts in the Agricultural Development Area

District	Area (ha)	Share (%)
Crops Production District	163	11.40
Crops/Livestock Production District	1,265	88.60
Totals	1,428	100.00

Source: CLUDP 2000 – 2015

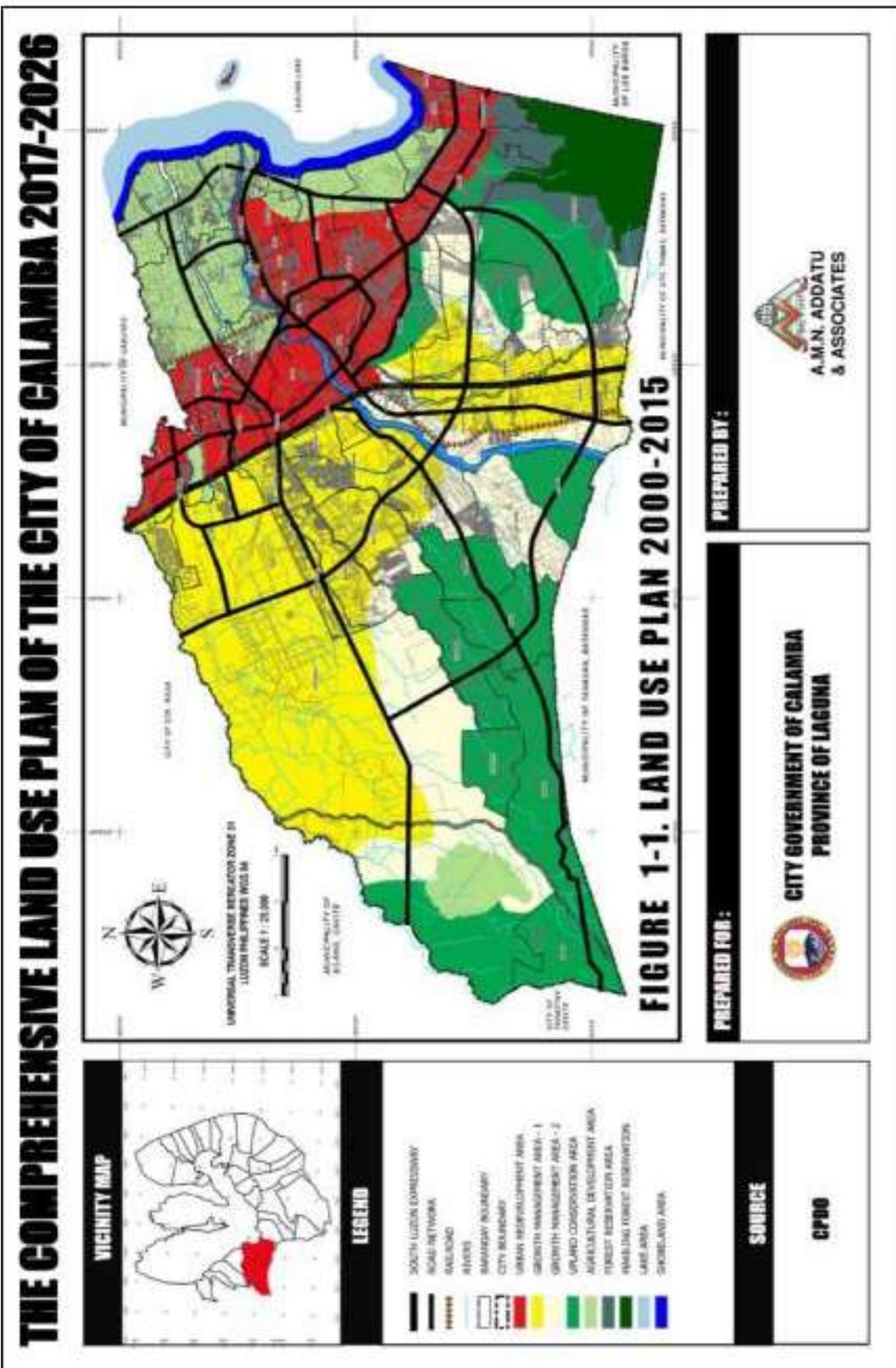


Figure 1-1. Land Use Plan 2000 - 2015

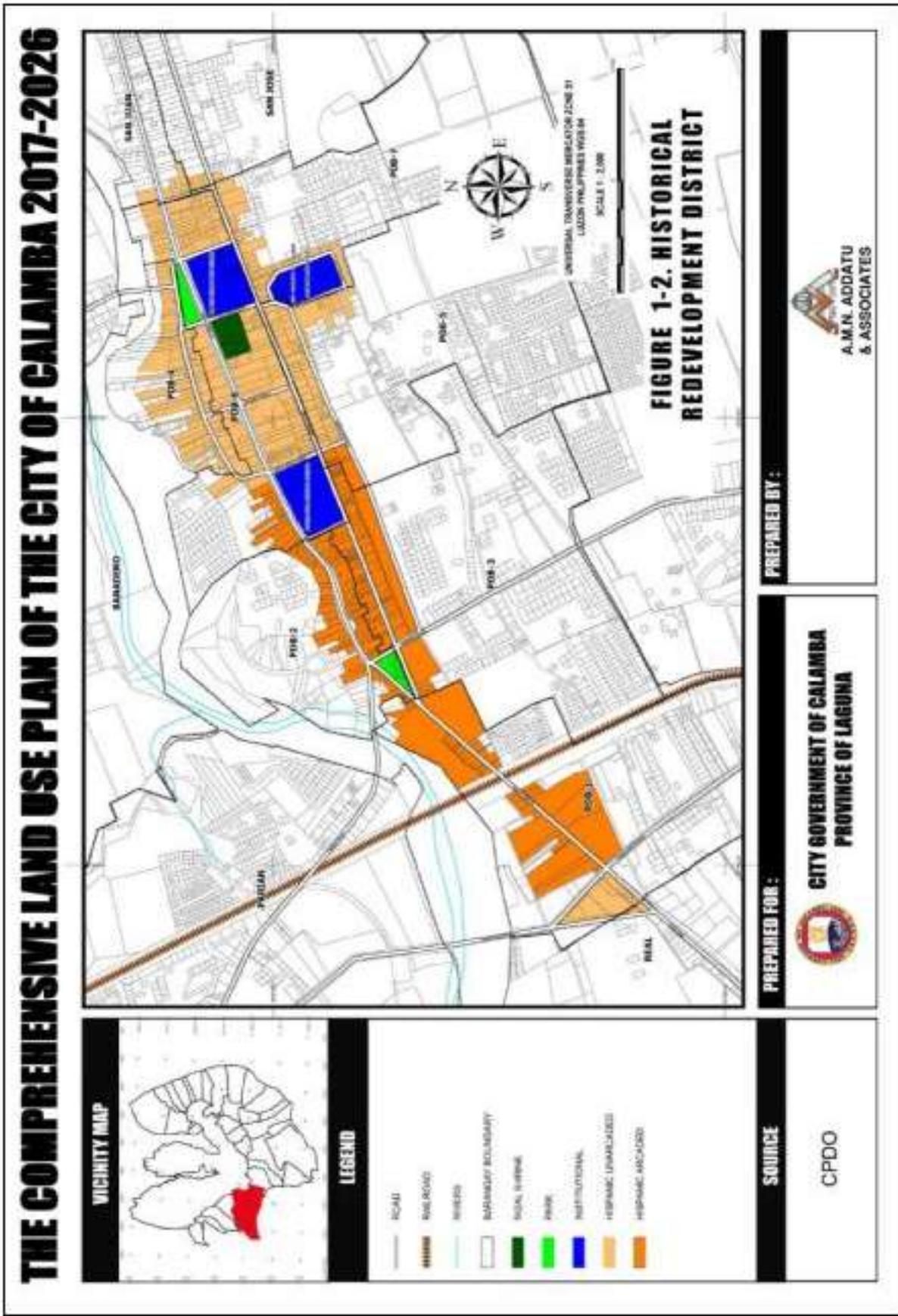
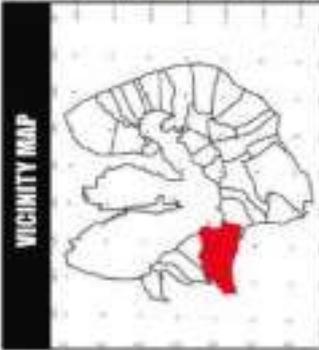
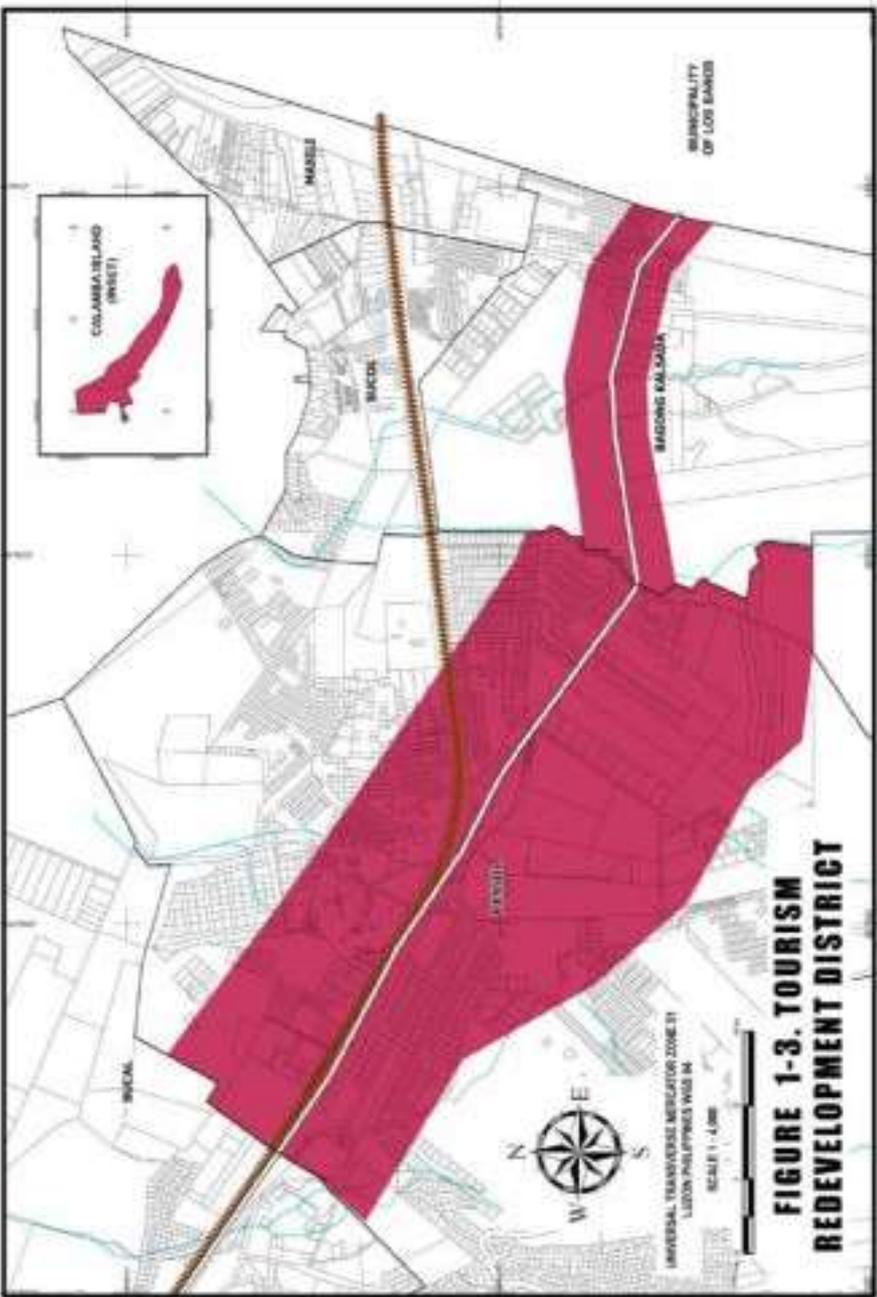


Figure 1-2. Historical Redevelopment District

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



LEGEND

	ROAD
	RAILROAD
	RIVERS
	BARANGAY BOUNDARY
	TOURISM REDEVELOPMENT ZONE

PREPARED BY:

A.M.N. ADDATU & ASSOCIATES

PREPARED FOR:

CITY GOVERNMENT OF CALAMBA
 PROVINCE OF LAGUNA

SOURCE

CPDO

Figure 1-3. Tourism Redevelopment District

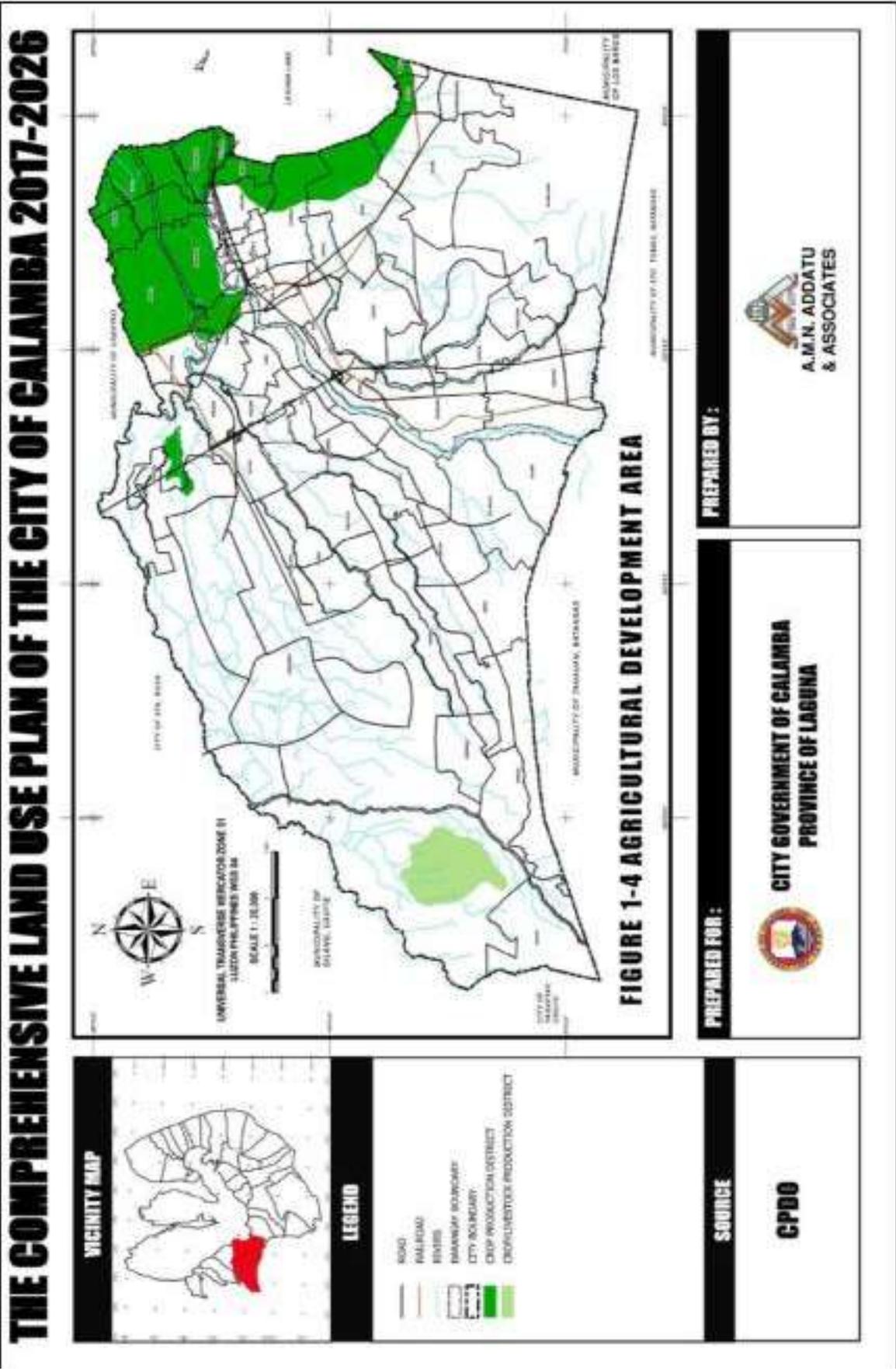


Figure 1-4. Agricultural Development Area

1.6.2. Zoning Ordinance 2000 - 2015

The CLUDP’s accompanying Zoning Ordinance was also approved under Ordinance No. 256 Series of 2000. Otherwise known as the Calamba Land Development Guidance System (LDGS), it was structured along the lines of flexible and performance zoning. Emphasis was placed on zone policies, performance standards, mixed land uses and land use intensity control ratings.

Performance standards were provided for aspects such as, among others, Buffer Yards, Environmental Conservation and Protection, Agricultural Land Conservation and Preservation, Historical Preservation and Conservation, and Site Performance (Planning). It is notable that Calamba was one of the first LGU’s in the country to adopt a flexible and performance zoning model.

Zone Classifications mirrored the Land Use Classifications as can be seen in the following table:

Table 8. Area Per Zone Classification

Land Classification	Area (ha)	Share (%)
Urban Redevelopment Zone	2,080	14.36
Growth Management Zone – 1	4,199	29.00
Growth Management Zone – 2	2,460	16.99
Upland Conservation Zone	3,517	24.29
Forest Buffer Zone	333	2.30
Makiling Forest Reservation Zone	463	3.19
Agricultural Development Zone	1,428	9.85
Shoreland Area		
Totals	14,480	100.00

Source: CLUDP 2000 – 2015

The Urban Redevelopment Zone was similarly subdivided into Historical Redevelopment District, Tourism Redevelopment District and General Redevelopment District. In turn, the Agricultural Development Zone was sub-classified into a Crop Production District and Crops/ Livestock Production District.

The LDGS also delineated Road-Rights-of-Way (RROW) Zones which provides that “all properties affected by the new road alignments shall be required to provide unimpeded road rights-of-way.”

The 2000 – 2015 zoning maps are presented from **Figures 1.5 to 1.9.**

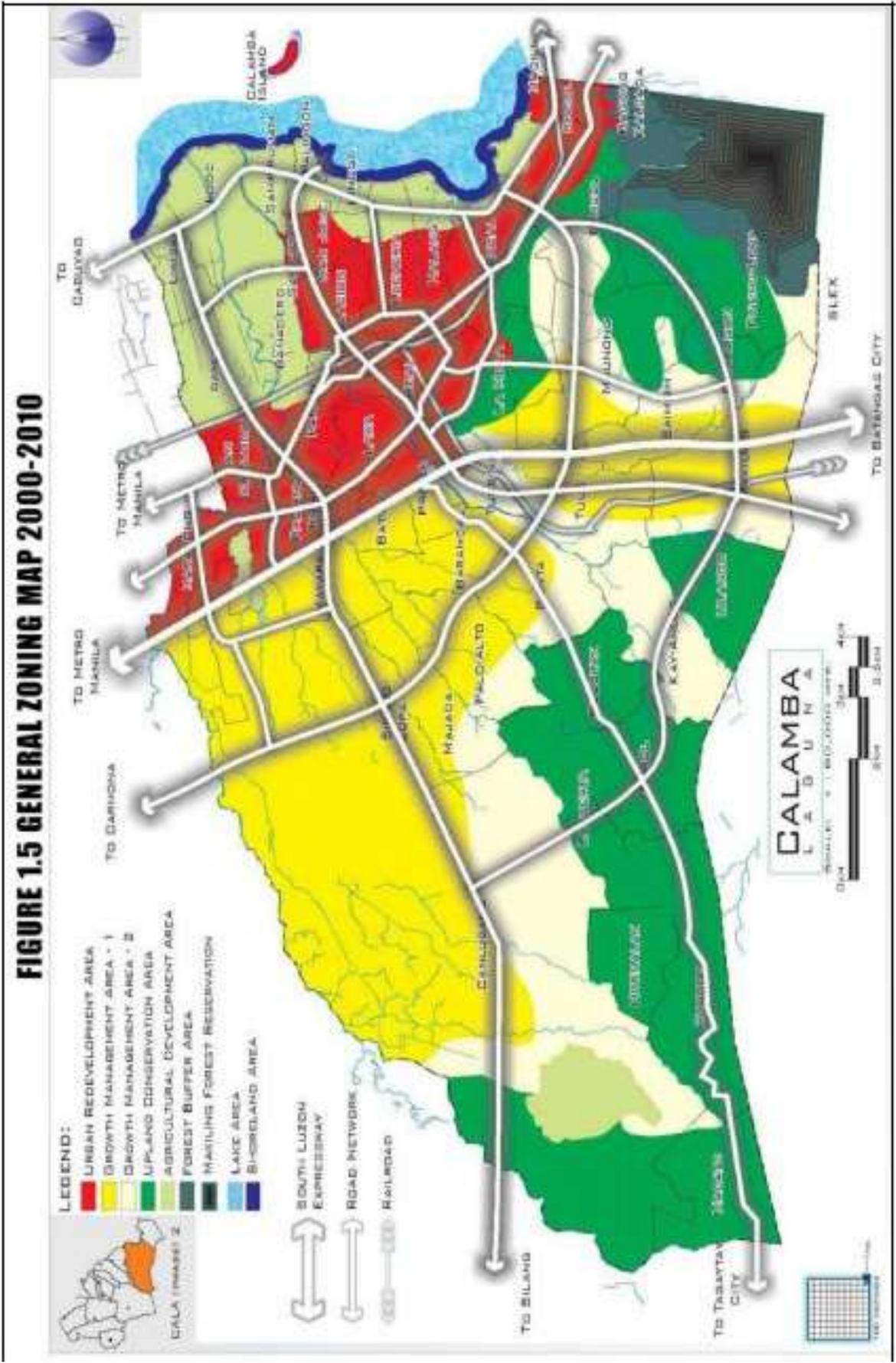


Figure 1-5. General Zoning Map 2000 – 2010

1.6.3. Existing Land Use

Overall City Form and Structure

The overall city form and structure, as defined by its major road network system, is a starfish-structure centered at the junction of the South Luzon Expressway (SLEX) and the Maharlika Highway/ Real Road in Barangay Turbina. This structure divides the City into three sectors - northeast, southeast, and west.⁸

The northeast sector is defined by areas at the east of the SLEX and north of Real Road. This is where Barangays Mapagong, Paciano, Lawa, Parian, Banlic, some Poblacion and other barangays are found. The area is characterized by broad flatlands leading to Laguna de Bay at the east. This is also where a mixture of industrial, commercial, residential and agricultural areas may be found. Corridor-type commercial developments are particularly located along the Manila South Road. This sector is also the location of the CALABARZON Regional Government Center in Barangay Mapagong.

The southeast sector are areas south of Real Road and east of SLEX. Topography in this sector is more diverse, having broad flatlands in Barangay Real going towards Poblacion on to Lecheria, Bucal and Sucol. As noted in CLUDP 2000, there remain some lands at the interior of these areas that are being used for agricultural production. The limited road infrastructure leading to these locations has constrained urban developments.

The terrain rises at the south of the sector which leads into the Mount Makiling Forest Reservation. The area also hosts some industries, notable of which is the Light Industry Science Park II. It also characterized by scattered settlements many of which are gated communities. The sector hosts the Calamba City Hall and Rizal Park. It is also the location of a significant number of resorts and other tourism establishments due to the advantage of the proximity of Mount Makiling.

The confluence of the above sectors is along Real Road where the City's Central Business District (CBD) in Barangay Poblacion 1 may be found. The CBD has been experiencing an intensification of urban growth, with demands for more building floor space due to high land values. This intensification is also being felt along its urban corridors along Real Road and Manila South Road.

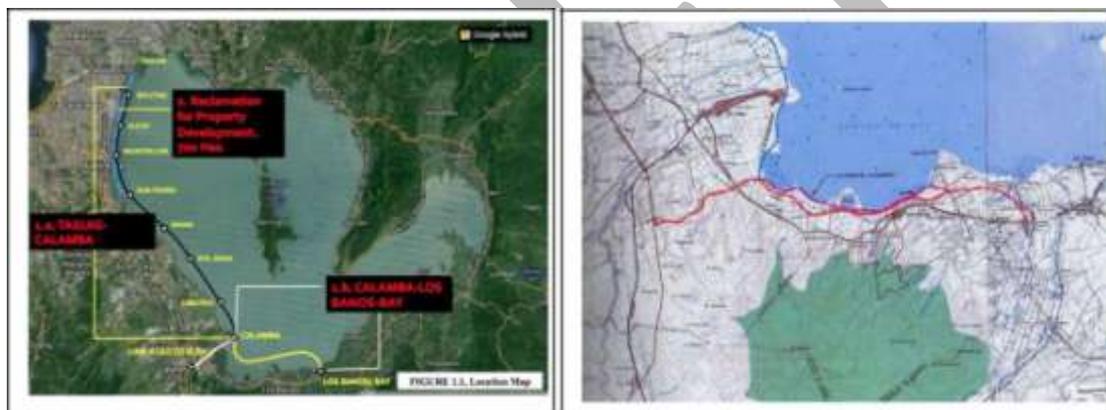
The western sector lies at the west side of the SLEX most of which is within Barangay Canlubang. As described in CLUDP 2000, this sector is 'characterized by gradually undulating terrain and rolling to steep hills.' It may be considered as the City's industrial center as this is where most of the major industrial estates may be found. These are mainly located at the northern part of Barangay Canlubang and at the south, in Barangays Milagrosa, Saimsim, Camaligan and Makiling, where an industrial belt has apparently emerged capitalizing on good accessibility provided by Maharlika Highway and SLEX. A concentration of developments is also observed along Maharlika Highway which has emerged as an intense urban corridor.

⁸ The predecessor Land Use Plan 2000 – 2015 described the overall structure of the City as having three major sectors. The extension of SLEX in 2006 affected this structure as this resulted to a distinct delineation between the southeastern and southwestern sections of the City.

The Canlubang area has also emerged as a new development area with the implementation of the state-of-the-art Nuvali project which is reputedly the largest self-sustainable eco-friendly community in the country. The area is also the site of major universities, golf courses and several smaller gated communities.

The southern part of this sector, towards Calamba’s boundary with Talisay City is characterized by agricultural areas having scattered settlement sites. Lands at the westernmost portion of this sector, towards the boundary of Tagaytay City, are mainly open/ idle with some areas planted to coconuts and other diversified crops.

It is anticipated that urban growth in the city will further accelerate with the implementation of major transportation projects such as the Laguna Lakeshore Expressway Dike, proposed Calamba-Los Baños Expressway and the North-South Railway Project. The latter will include a 56 km. commuter railway operations from Tutuban, Manila and Calamba City, a 478 km. long-haul railway operations between Tutuban and Legazpi City in Albay with a possible extension on the branch line between Calamba and Batangas City. These projects will strengthen the city’s regional and international linkages.



Laguna Lakeshore Expressway Dike Project
 Source: www.dpwh.gov.ph

Calamba – Los Baños Toll Expressway Project
 Source: www.dpwh.gov.ph

The City’s Structural Framework is given as **Figure 1.10**.

Land Use Distribution

The Existing Land Use Map 2015 is presented in **Figure 1.11** while the area coverage of existing land uses are shown in the table below:

Table 9. Existing Land Uses, 2015

Land Use	Area (Ha)	Share To Total
Open-Idle	3,016.22	20.83%
Agriculture	4,554.45	31.45%
Residential	4,078.18	28.16%
Socialized Housing	80.75	0.56%
Commercial	335.34	2.32%
Agri-Industrial	1.25	0.01%

Land Use	Area (Ha)	Share To Total
Industrial	1,132.84	7.82%
Institutional	144.72	1.00%
Parks & Recreation	126.05	0.87%
Cemetery	28.18	0.19%
Dumpsite	5.66	0.04%
Makiling Forest Reservation (MFR)	591.94	4.09%
MFR Buffer Zone	384.43	2.65%
Total	14,480.00	100.00%

Source: Consultant

Land Use Change

It may be observed that the built-up areas significantly increased from the calculated 3,535 ha in 1999 to 4,178.86 ha in 2015. While there are variances due to more precise mapping information and technology used in 2015, the significant increase may be attributed to rapid urban growth as well as the entry of large-scale projects such as Nuvali and Ayala- Greenfield. There was also an observed increase in the calculation of the extent of the Agricultural Area, from 4,217 ha in 1999 to 4,311.97 in 2015. This may also be attributed to more precise GIS assisted cadastral mapping used in 2015 at it may be observed that the extent of Open/ Idle Areas have expanded in what before were Agricultural Areas especially at the western portion of the city.

The Existing Land Use Map 1999 is presented in **Figure 1.12** while tables showing the extents of general and existing land uses in 1999 are given below:

Table 10. Existing General Land Uses, 1999

Classification	Area (ha)	Share (%)
Built-Up	3,535.27	24.41
Quarry	35.59	0.25
Agricultural	4,217.81	29.13
Idle/Grassland	6,297.09	43.49
Forest Reserve	394.25	2.72
TOTAL	14,480.00	100.00

Source: CLUDP 2000 – 2015

Table 11. Existing Urban Land Uses, 1999

Classification	Area (ha)	Share (%)
Residential	1,702.03	48.14
Commercial	102.19	2.89
Industrial	1,540.27	43.57
Institutional	29.95	0.85
Recreational	41.98	1.19
Mixed Use	110.61	3.13
Cemetery	8.23	0.23
TOTAL	3,535.27	100.00

Source: CLUDP 2000 - 2015

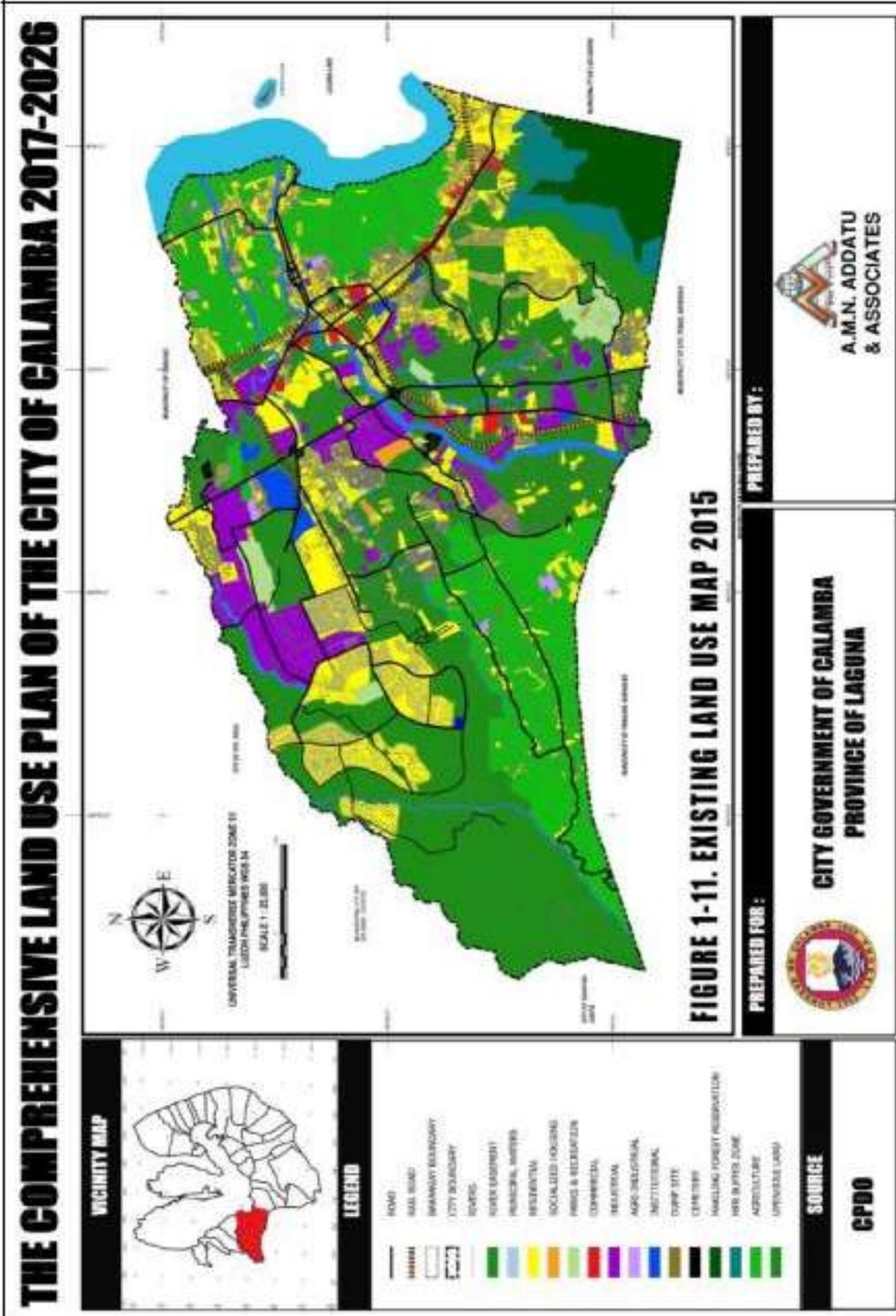


Figure 1-11. Existing Land Use Map 2015

1.6.4. Suitable Lands for Urban Development

Land to accommodate future urban growth should be directed to suitable locations. To determine this, areas with environmental constraints and/or are protected by existing statutes should be withheld from urban development. There are several land constraints in Calamba which include the following:

- Rivers and river easements
- Areas that are flood prone
- Areas are liquefaction prone
- Areas that are moderately to highly prone to rain induced landslide
- Areas along the fault line (5m each side)
- Areas with slopes equal to or greater than 18%
- MFR and Buffer Zone
- Remaining SAFDZ areas (Existing Agricultural)

Considering the above, lands in the city that are suitable for urban development may mostly be found at the western portion such as in Barangays Canlubang, Majada, Palo Alto, Barandal, Hornalan, Bubuyan and adjoining barangays. Others may also be found at the east of SLEX such as Barangays Mapagong, Paciano, Lawa, La Mesa, Camaligan and nearby barangays. These have an approximate area of 8,059.33 ha. The map showing the suitable lands for urban development is given as

Figure 1.13.

Vacant suitable lands that are still available for urban development may be found mostly in Barangays Majada, Palo Alto, Hornalan, Buroi, Kay-Anlog and adjacent barangays. To the east of the SLEX, these may mainly be found in portions of Brgy. Makiling, Saimsim, Paciano, Mapagong and adjoining barangays. These vacant lands have a total area of approximately 1,465.77 ha.

1.6.5. Urban Land Requirements

Calamba's population by the year 2026 is expected to reach 628,185. This will be an increase of 173,699 from the estimated population of year 2015. An indication of how much urban land may be needed to accommodate this population increase may be obtained by calculating the current built-up area density and multiplying it by the estimated increase of population. The current (2015) built-up area totals to about 4,724.88 ha or 47.25 sq km. Thus, the 2015 built-up area density is about 9,619 persons per sq km.

The nearest comparison in the Philippine context is the built-up area density of Cagayan de Oro which was reported to be at 9,900 persons per sq km and that of Iloilo City 8,600 person per sq km in 2016.⁹ To compare with an international city, Calamba's density is still lower than that of Singapore's 11,100 per sq km.

⁹ Demographia World Urban Areas, 12th Annual Edition: 2016.04

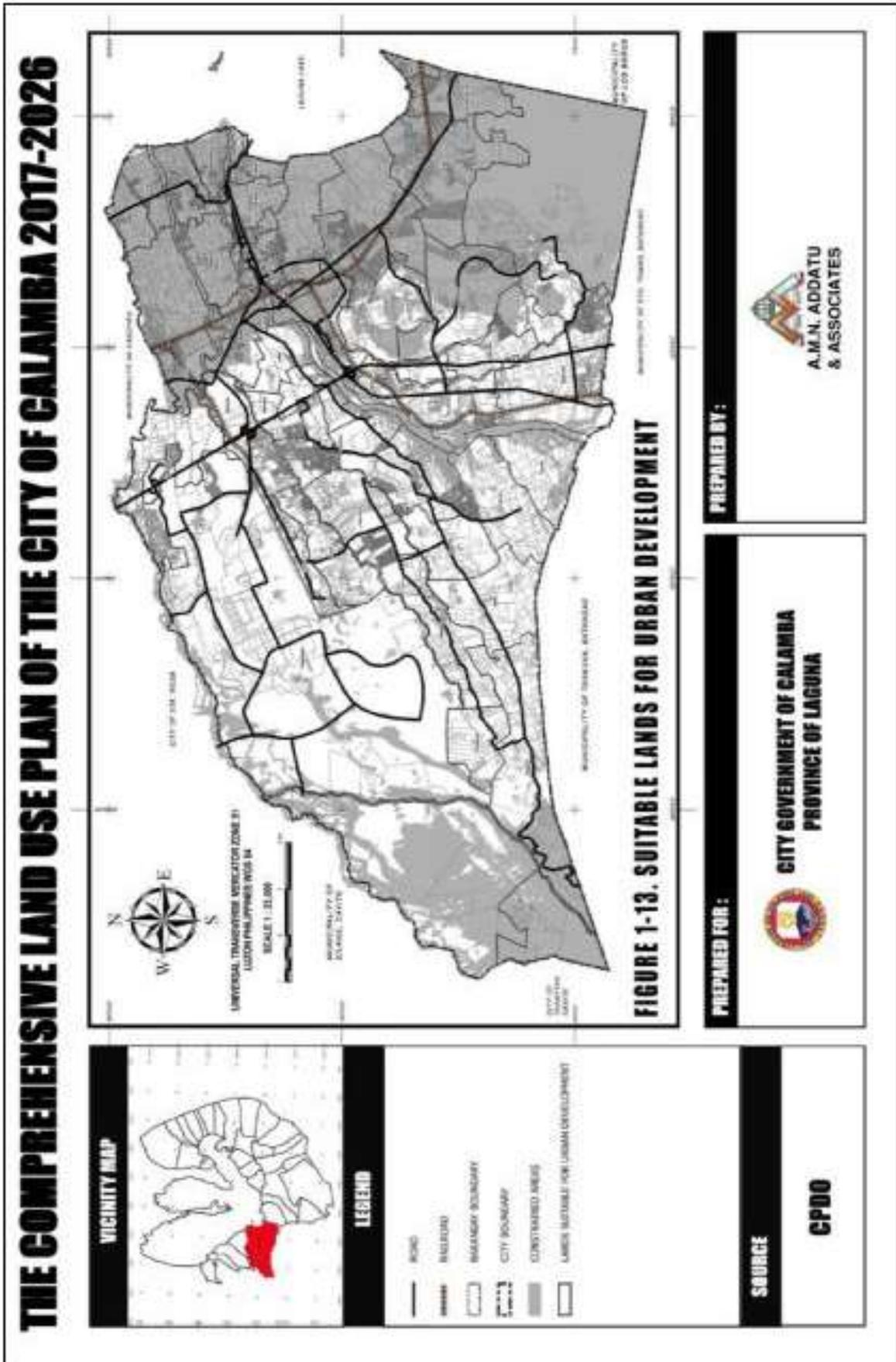


Figure 1-13. Suitable Lands for Urban Development

Assuming this density is maintained throughout the planning period, the city will need 1,806 ha of land to accommodate future urban growth. This is 327 ha more than the estimated 1,466 ha of lands suitable for urban development. What this implies is the possibility for the city to use up all its horizontal space, including portions of the Upland Conservation Area, and still come up with a deficit of 327 ha. This further implies a tendency for further urban sprawl resulting to a set of development issues such as creating strains to the provision of urban services and infrastructure and loss of open spaces, among others.

Such scenario calls attention on the need for the City Government to strongly establish 'urban limits,' promote urban in-fill development and allow building density increases in selected urban locations. An illustration of how the city might look like if its density increases is provided by Davao City which was recorded to have had a built-up area density of 17,300 persons per sq km in 2016.¹⁰

1.7 Comparative/ Competitive Advantage

Calamba City's comparative/competitive advantages that were intimated as its Strengths and Opportunities in CLUDP 2000 – 2015 essentially remain the same, if not more entrenched after 15 years of implementation.

1.7.1. Industrialization and Sub-urbanization

- Presence of industries and logistics such as industrial estates, and container cargo terminals
- Presence of well-developed service facilities such as major learning institutions, health facilities and commercial establishments
- Good human resource base with a literacy rate of over 97%
- Major upcoming transport projects such as the Laguna Lakeshore Expressway Dike, proposed Calamba-Los Baños Expressway and the North-South Railway Project that will strengthen the City's regional and international linkages
- Major real estate development projects such as Nuvali and Ayala-Greenfield

1.7.2. Tourism Development

- Presence of well-established tourism area capitalizing on hot springs and MFR
- Strong historic character being the hometown of Dr. Jose Rizal

1.7.3. Seat of Regional Government

- Officially declared as the seat of Regional Government

¹⁰ *Ibid.*

1.8 Weaknesses: Priority Issues and Concerns

Calamba's priority issues and concerns may also be taken in light of those identified in CLUDP 2000 – 2015. Some weaknesses have remained while others pertained to the increasing demand of a growing population.

1.8.1. Industrialization and Sub-urbanization

- The intensification of developments in the CBD and the opening up of new development areas are constrained by the inadequacy of local roads. These have manifested in traffic congestion at the CBD and a leap-frogging pattern of urban growth. The latter may be attributed to the situation that most of the significant new developments are led by large real estate corporations
- The rapid growth of population creates a continuous high demand for accompanying public social services and infrastructure
- Environmental concerns revolve around the availability of groundwater, saltwater intrusion and flooding in lakeside barangays, absence of a sanitary landfill and industrial pollution

1.8.2. Tourism Development

- While there has been a substantial increase and upgrading of tourism establishments, eco-tourism and heritage tourism have not been fully tapped
- The traditional resort area in Pansol also has to be upgraded in terms of roads and drainage infrastructure

1.9 Functional Roles of the City

Considering Calamba's resource endowments and comparative/competitive advantages, its functional roles could be summarized as follows:

- Seat of Regional Government
- Center of Regional Industrial and Commercial Development
- Regional Trading Centre/ Transshipment Hub
- Center of Heritage Development
- Center of Regional Tourism Circuit

2.0 THE COMPREHENSIVE LAND USE PLAN

2.1 Vision, Mission, Goals and Objectives

2.1.1. Development Vision

The City's overall Development Vision was collectively agreed upon in the multi-sectoral stakeholders' Strategic Planning Workshop held at the Calamba City Hall on September 8, 2014. Vision 2026 is presented below:

VISION 2026

Calamba is a GLOBALLY-COMPETITIVE GREEN CITY with a progressively inclusive economy and resilient community, where God-centered people learn, live and work in a safe, secured and healthy environment, and ably led by proactive and integrity-driven leaders.

2.1.2. Mission Statement

The city government's mission statement was likewise defined in the said workshop:

MISSION STATEMENT

Work in partnership with its citizenry to deliver exceptional, effective, fiscally responsible and gender-responsive services while preserving and protecting the environment and enhancing a high standard of community living.

2.1.3. Land Use Objectives

The Objectives of the Comprehensive Land Use Plan (CLUP) were also determined in the said workshop. These are presented below:

1. To provide a coherent urban structure and quality of the living environment
2. To make available justification with factual and objective basis to support zoning decisions while encouraging controlled and properly designed commercial and industrial development areas as designated in the plan
3. To afford a means by which the city can balance competing demands on land use by private interests to avoid nuisance and conflicts
4. To promote further economic development by providing valuable information that drives the location decision of prospective firms
5. To guide future growth in a coordinated and managed approach and provide logical transitional uses between residential and non-residential areas
6. To ensure that developments are matched with existing and proposed public infrastructure and services
7. To regenerate old built-up areas into economically and socially vibrant neighborhoods through infrastructure upgrading, innovative building regulations and fiscal assistance

8. To promote the development of multi-functional areas in order to create compact communities, minimize travel time, save on transportation costs and reduce the causes of air pollution
9. To ensure that public as well as private recreational open spaces are accessible to population centers
10. To maintain an improved review system to ensure that all developments create positive social, environmental, economic and fiscal impacts to the community

2.2 Structure Plan 2017

The Structure Plan envisaged in Land Use Plan (LUP) 2000 remains valid. This was anchored on a Multi-Polar Structure which called for:

- Activity Centers for Urban Redevelopment, or the existing hubs of development at that time, comprising Poblacion-Crossing Area, San-Cristobal-Mayapa Area, and Resort Area in Brgy. Palingon where the policy was to enhance economic potentials through urban renewal efforts
- Activity Centers for New Developments, or emerging urban growth areas, comprising the Ferry Station in Brgy. Palingon, Saimsim-Milagrosa-Turbina Area, and Canlubang Estate.

The Activity Centers shall be complemented by an inter-connected network of Movement Systems. These include a modified grid network of roads, a railway line and a ferry system. The intention was to create strong inter-regional and intra-city linkages laid out in a manner that 'will fully exploit the potentials of the Activity Centers as well as provide opportunities to disperse development into the other parts of Calamba.' Structure Plan 2000 is given in **Figure 2.1**.

After 15 years of plan implementation, Structure Plan will be updated to include:

- The Urban Redevelopment Area (URA) and General Redevelopment Area (GRD) into Urban Development Area (UDA) and General Development District (GRD), respectively. This reflects the emphasis of the City Government which is to aggressively promote urban growth in this area.
- The GDD forms the city's urban core and hosts the central business district (CBD) and its peripheral mixed-use residential areas. Structure Plan 2017 calls for the increase of allowable land use intensities in this district. The intention is to encourage urban growth in the CBD thus reducing urban pressure in the rural areas. This strategy also recognizes the increasing demand for building floor space as well as increasing land values in the city center which demand more intense use of land. This phenomenon has largely been triggered by the development of the new City Hall Complex and the Regional Government Center which have been catalyzing growth in the GRD.

The strategy also anticipates the rehabilitation of the PNR line which, coupled with the presence of container terminals and possible rehabilitation of the train station, will strengthen the centrality of the GDD. The plan thus lays down the foundation of the future design of Transit-Oriented Development (TOD) plans within the GRD.

In order to rationalize anticipated growth, more specific districts such as commercial, residential, institutional and parks and recreation shall be delineated.

- Major industrial sites within the Growth Management Areas shall be carved out and delineated as part of an Industrial Zone. This will facilitate more specific land development controls that pertain to allowable uses, densities and environmental safety, among others.
- The northern portion of the Agricultural Area delineated in Structure Plan 2000 shall be labeled Controlled Growth Area. The intention is to disallow urban expansion therein since these are environmentally sensitive locations and valuable agricultural lands.
- The Municipal Waters, comprising the portion of Laguna Lake within the jurisdiction of Calamba, are now provided with policy directions thus imbuing CLUP 2017 with a holistic, ridge-to-reef approach to planning and development control.
- The major road network layout has also been modified to reflect those that have already been implemented, such as the extension of SLEX, Nuvali Avenue and Ayala Greenfield Road. It also considers the Laguna Lakeshore Expressway Dike including spur road to connect to SLEX and Calamba-Los Baños Expressway.

The map showing Structure Plan 2017 is given as **Figure 2.2**.

2.3 Land Use Plan, 2017 - 2026

2.3.1. General Policies

The general policies provided in LUP 2000 remain observed. These are cited below:

Growth-Orientation

As a general policy, the production potentials of Calamba's land resources shall be maximized through an environment that is highly conducive to economic growth. The Local Government Unit adopts **a market-based land management policy**, putting a premium on individual property rights, the proper harnessing of which can drive the economic growth of the city.

Ecological Balance

The City Government adopts a policy of **growth with environmental integrity**. The ecological balance of the city shall at all times be maintained in order to achieve a sustainable pattern of development.

Social Responsibility

The City Government adopts a policy of **socially - responsible** development with the end view that the fruits of economic growth shall accrue to the community. This shall be ensured through the judicious exercise of the police functions of the state: the guidance, regulation and management of development to ensure that it redounds to the common good.

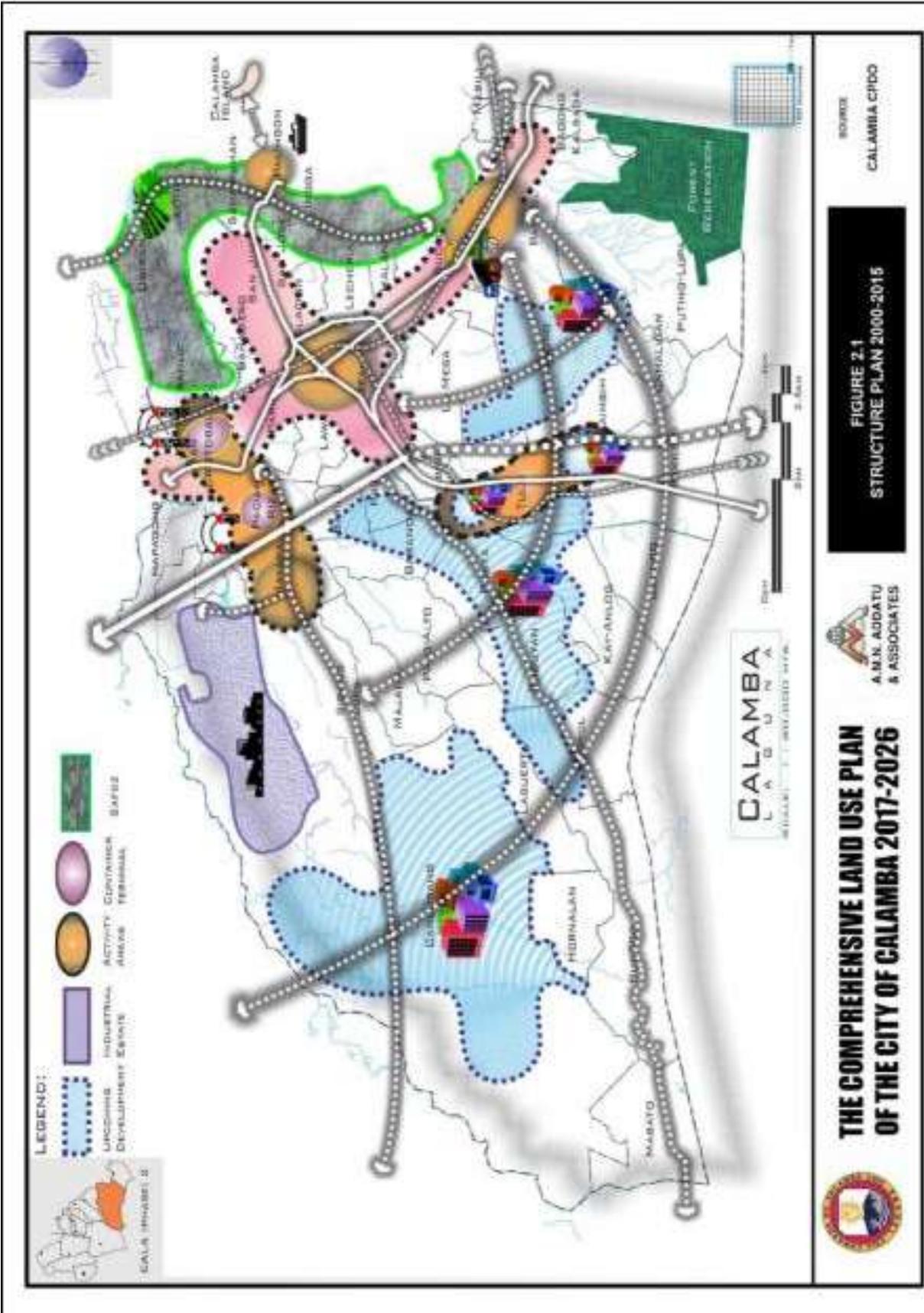


Figure 2-1. Structure Plan 2000 - 2015



Figure 2-2. Structure Plan 2017 - 2026

2.3.2. Land Use Classification

CLUP 2017 generally adopts the land use classification scheme of CLUDP 2000. Modifications revolve around the adjustments to Structure Plan 2000 and in carving out more specific areas and districts from the broad zones provided in LUP 2000. This is to equip the City Government with a stronger tool to guide developments to desired locations as well as provide a basis for more precise land development controls. The HLURB’s CLUP Guidebook 2014 was used as reference in delineating the new areas. The following table presents the land use classification of CLUP 2017. The Proposed General Land Use Plan 2017 is, in turn, given in **Figure 2.3**.

Table 12. Land Use Classification, CLUP 2017

Land Use Classification	Area (ha)	Share (%)
Urban Development Area	2,238.98	15.46%
Growth Management Area – 1	2,801.32	19.35%
Growth Management Area – 2	2,839.20	19.61%
Controlled Urban Growth Area	571.04	3.94%
Medium Industrial Area	2,259.61	15.61%
Socialized Housing Area	36.70	0.25%
Utilities, Transportation and Services Area	68.29	0.47%
General Institutional Area	152.28	1.05%
Parks and Recreation Area	351.14	2.42%
Cemetery/ Memorial Park Area	32.51	0.22%
Upland Conservation Area	742.90	5.13%
Forest Buffer Area	383.04	2.65%
Makiling Forest Reservation Area	592.56	4.09%
Agricultural Development Area	1,410.45	9.74%
Total Land Area	14,480.00	100.00%
Municipal Waters	2,513.55	

Source: Consultant’s computation

In general, the Area-specific policies of LUP 2000 shall be adopted by CLUP 2017. These policies are provided below:

Urban Development Area

- Area Characteristics

The area classified as Urban Redevelopment Area (URA) in CLUDP 2000 – 2015 is now re-named Urban Development Area (UDA). The UDA’s boundaries are generally the same as that of the former URA except with the carving out of the industrial, cemetery, institutional and utility areas as well as the expansion of the tourism area.

The UDA is part of the northeast sector as described in the Structural Framework. This area has moderate development capability with limitations due to flooding and limited infrastructure capacities. The terrain is friendly (0% to 5% slope) but is slightly to moderately susceptible to flooding.

The various parts of the UDA are presently used as either residential, industrial, agro-industrial, commercial, mixed-use, and tourism-recreational with a very small agricultural portion. It covers the following barangays, wholly or in part: Mapagong, San Cristobal, Paciano Rizal, Parian, Lawa, Real, La Mesa, Bucal, Pansol, Sucol, Masili, Halang, Lecheria, Poblacion, San Jose and San Juan.

- Policy Direction

The change of name from URA is to UDA is due to a shift in the City Government’s policy to increase the area’s capacity for urban growth while maintaining the stability of existing residential neighborhoods and enhancing the character of its historic and tourism sites. The UDA comprises the city’s CBD and major urban corridors, adjoining residential areas as well as its historic precinct and tourism hub. The policy of CLUP 2017 is to allow the intensification of land uses in largely commercial areas, control developments in established residential areas, preserve the historic sites and promote a high-quality environment in the tourist areas.

- Development Districts

The UDA is subdivided into three Development Districts, as presented in the following table while the map showing the UDA and its Development Districts is given as **Figure 2.4**.

Table 13. Districts in the Urban Development Area

District	Area (ha)	Share (%)
Historical Development District	6	0.29
Tourism Development District	324	14.49%
General Development District	1,908	85.23%
Totals	2,239	100.00

The *Historical Development District (HDD)* encompasses areas along Del Pilar, J.P. Rizal, Burgos, Pabalan and Gen. Lim Streets from the Crossing Area up to the Brgy. Poblacion – San Juan/San Jose boundary. The design and construction of all buildings, structures and other facilities therein shall observe a Hispanic Architectural motif, circa 1800s and must remain compatible with the architecture of the Rizal Shrine. Buildings along J.P. Rizal, Burgos and Pabalan Streets from the Crossing up to L. Jaena Street shall be arcaded and provided uniform columniation.

A historic archway shall be built along J.P. Rizal Street near the entry point from the Crossing Area. The triangular island at the intersection of J.P. Rizal, Burgos and Santos streets shall be converted into a park with Hispanic motif. Along with these two landmarks, the district’s focal point shall be the Rizal Shrine. Within the HDD, no large commercial signage and/or pylon, which will be detrimental to the skyline, shall be allowed. The blow-up map showing the HDD is given as **Figure 2.5**.

The *Tourism Development District (TDD)* includes the portions of Brgy. Pansol within the URZ, Bagong Kalsada, Sucol and Bucal along the Highway as well as Calamba Island. This district shall be developed as the premiere resort and recreational area of Calamba. As such, developments are encouraged to be of the low density sprawling type with plenty of green open spaces. Each developer in the district are required to plant at least ten new trees in their vicinity. The blow-up map showing the TDD is given as **Figure 2.6**.

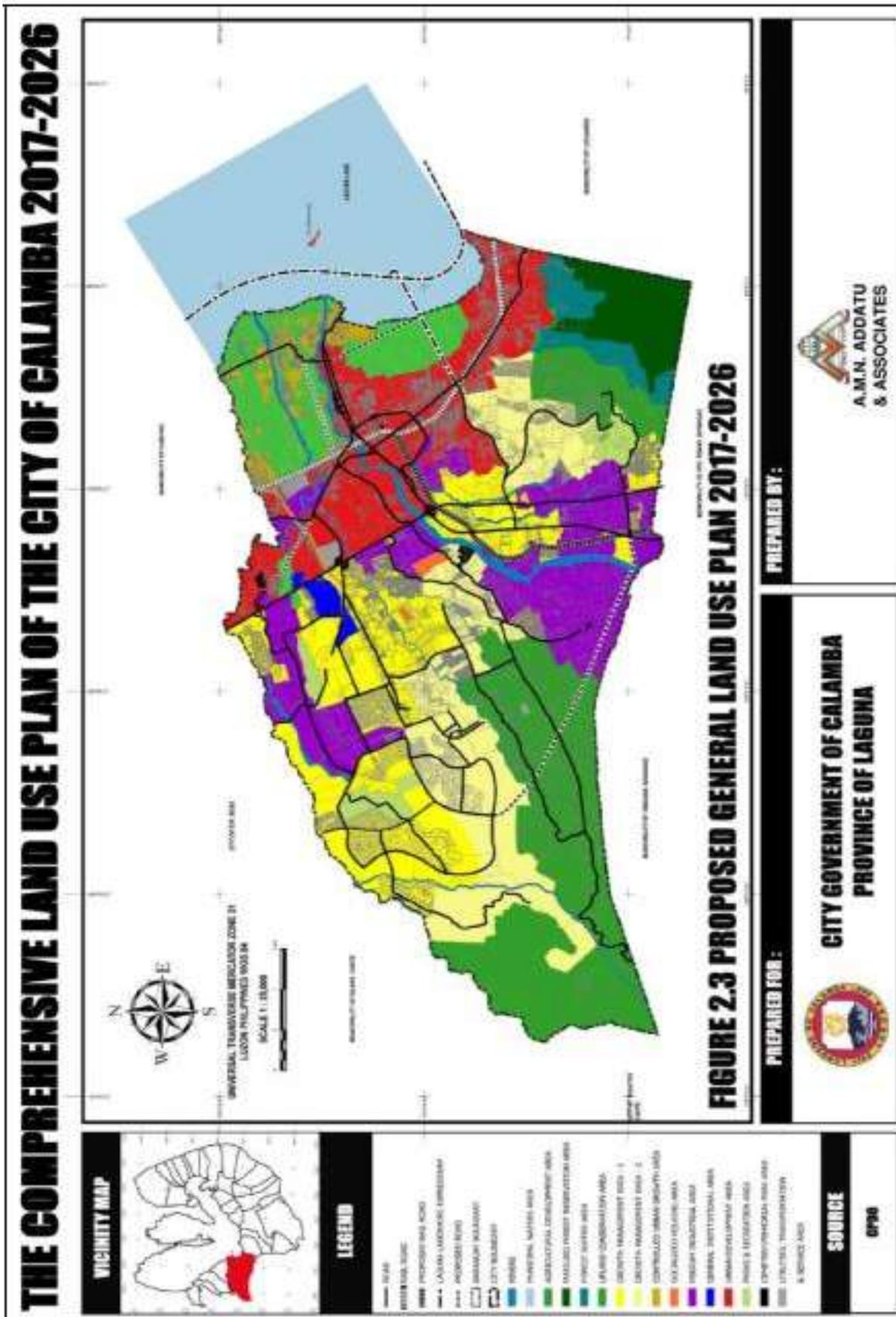


Figure 2-3. Proposed General Land Use Plan 2017 – 2026

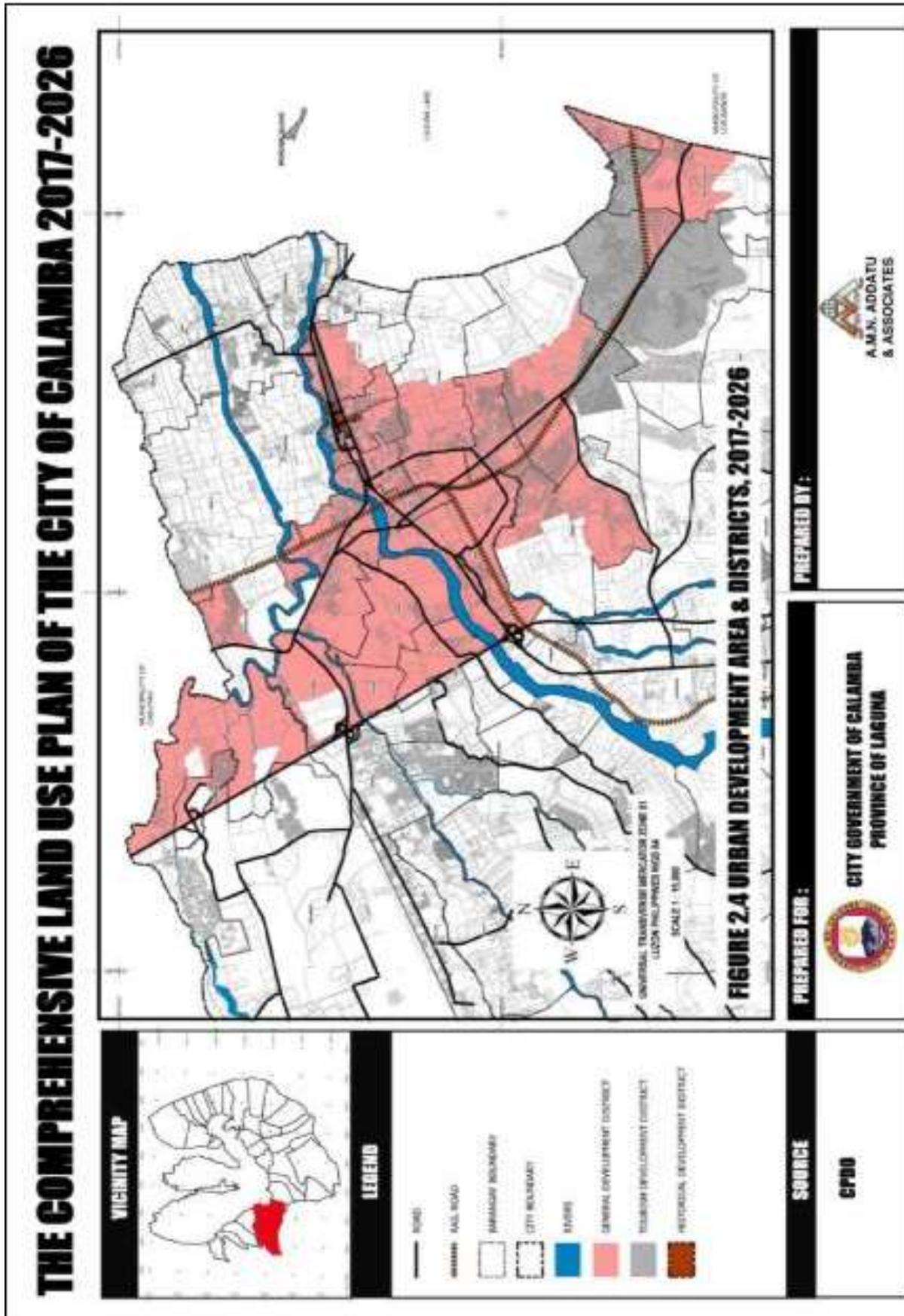


Figure 2-4. Urban Development Area & Districts, 2017-2026

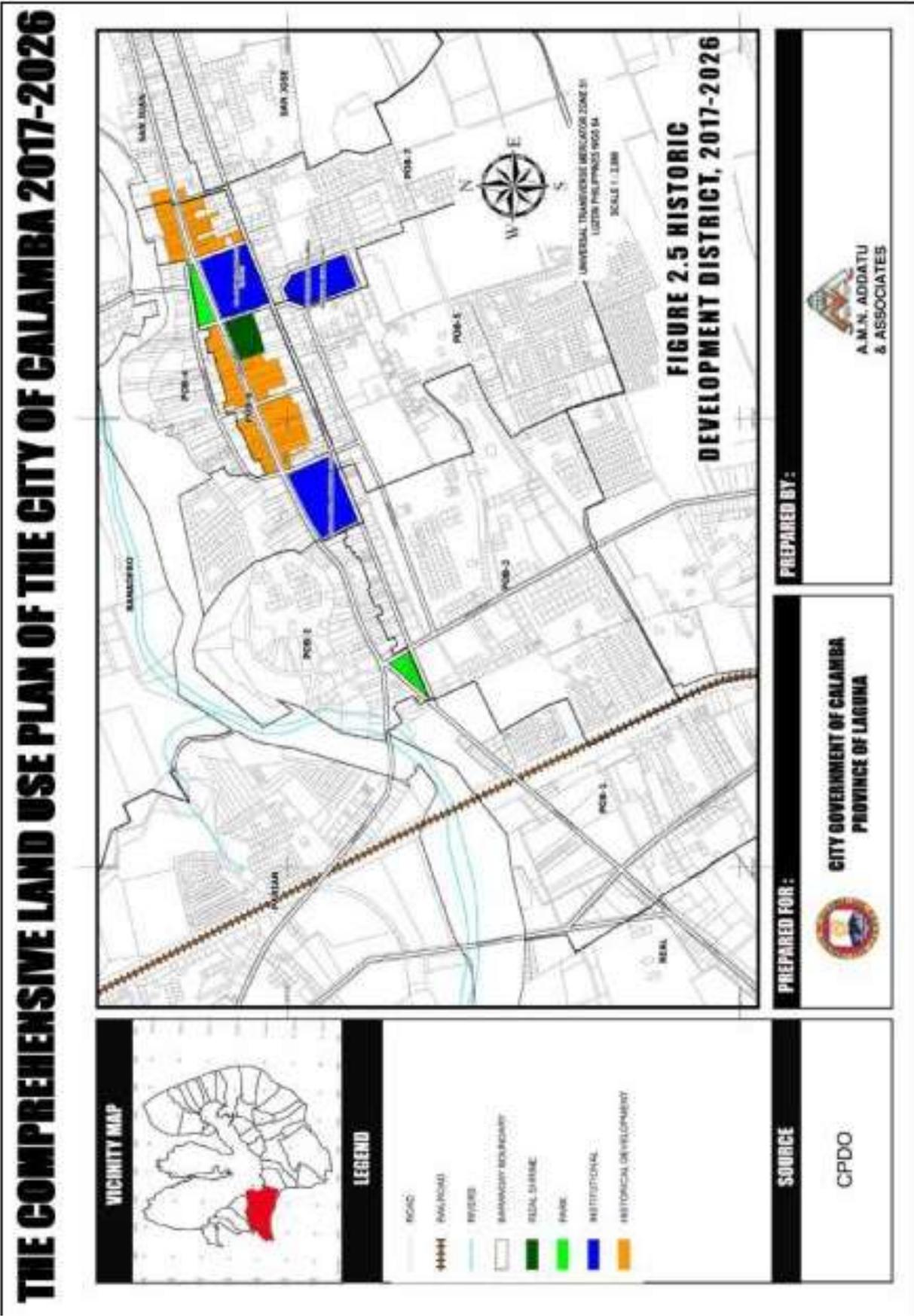


Figure 2-5. Historic Development District 2017- 2026

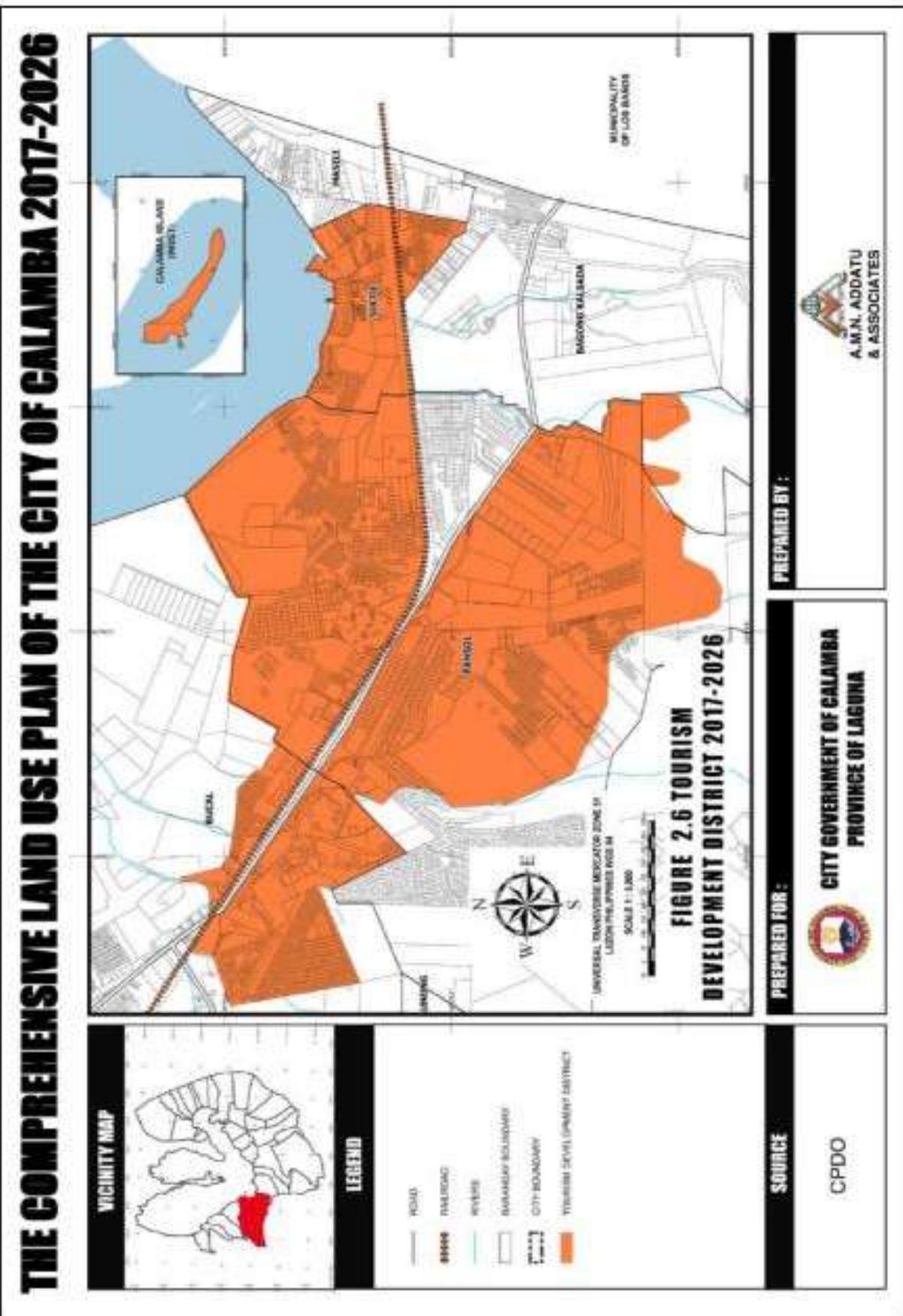


Figure 2-6. Tourism Development District 2017-2026

The *General Development District (GDD)* is the city’s CBD. It includes the areas of the UDA outside the HDD and TDD. CLUP 2017 provides for the division of the GDD into the following Sub-Districts:

Table 14. Sub-Districts in the General Development District

Sub-District	Area (ha)	Share (%)
Commercial – 3	358	18.74%
General Residential	1,537	80.54%
General Institutional	9	0.48%
Parks and Recreation	5	0.24%
Totals	1,908	100.00

The blow-up map showing the GDD and its Sub-Districts is given as **Figure 2.7**.

- Allowed Uses

The preferred uses in the GDD include Commercial, Residential, Institutional, as well as Parks and Open Spaces, in conformity to the stated policy guidelines and performance requirements that are expounded in the accompanying zoning regulations. Industrial uses are discouraged in this area.

Growth Management Area – 1

- Area Characteristics

Growth Management Area – 1 (GMA – 1) is composed of, wholly or in part, by Brgys. Canlubang, Mapagong, Mayapa, Batino, Prinza, Barandal, Punta, Palo Alto, Majada and Sirang Lupa as well as La Mesa, Milagrosa, Maunong, Saimsim, Makiling and Kamaligan.

This area is rated as highly suitable for urban development with friendly slopes (0% to 5% range) and without flooding hazard. Presently, it hosts residential areas, gated communities, universities, recreational facilities, etc.

- Policy Direction

GMA – 1 is intended to accommodate the urban expansion requirements of the City, directing it away from the more environmentally-sensitive lands. A mixed use high-intensity type of development with plenty of open spaces is envisioned on this area.

- Allowed Uses

The preferred uses in GMA -1 include Commercial, Residential, Institutional, Recreational as well as Parks and Open Spaces.

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

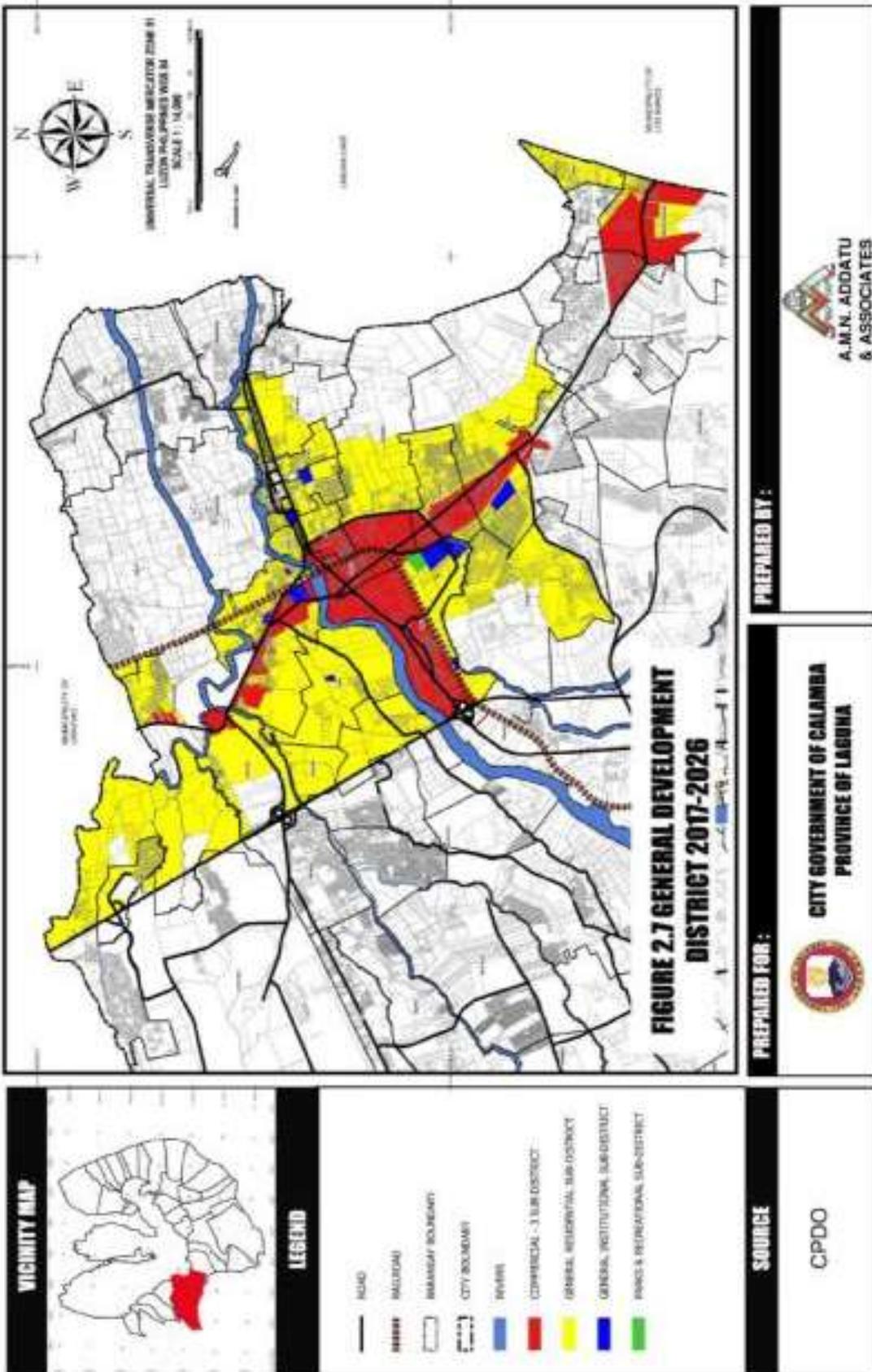


Figure 2-7. General Development District 2017-2026

Growth Management Area – 2

- Area Characteristics

Growth Management Area – 2 (GMA –2) is composed of, wholly or in part, Brgys. Canlubang, Majada, Palo Alto, Punta, Turbina, Milagrosa, Kay Anlong and Makiling as well as Bucal, Pansol, Maunong, Saimsim, Camaligan, Makiling and Puting Lupa.

It has moderate development capability and the limitations are due to less friendly terrain (undulating to rolling) with slopes ranging from 5% to 18%.

- Policy Direction

GMA –2 shall serve as a ‘transition’ urban area with moderate intensity, low-rise development focusing on erosion mitigation techniques. Impervious surface conditions shall be minimized, in order to help mitigate the excessive flow of surface water into the low-lying areas.

- Allowed Uses

The preferred uses in GMA -2 include those that are of low to moderate intensity Commercial, Residential, Institutional, Recreational as well as Parks and Open Spaces.

Controlled Urban Growth Area

- Area Characteristics

The Controlled Urban Growth Area (CUGA) was carved out of the Agricultural Development Area (ADA) delineated in CLUP 2000. It is composed of, wholly or in part, Brgys. Banlic, Uwisán, Looc, Bañadero, Sampiruhan, Palingon, San Jose, Lingga, Lecheria and Bucal. It has low development capability as most parts are susceptible to flooding and liquefaction.

- Policy Direction

CUGA considers the urban growth that has transpired near the lakeshore area along with the need to ensure that this is appropriately controlled. It is delineated to establish ‘urban limits’ in this environmentally-sensitive location. CLUP 2017 delineates these limits within the existing built-up areas while consolidating urban growth in pockets that have been wedged in-between.

- Allowed Uses

The preferred uses in CUGA include those that are of low intensity Commercial, Residential, Institutional, Recreational as well as Parks and Open Spaces.

Medium Industrial Areas

- Area Characteristics

The Medium Industrial Area (MIA) comprise existing industrial areas such as those in Canlubang, Mapagong, Paciano, San Cristobal, Batino, La Mesa, Punta, Milagrosa, Makiling, Kay-Anlog and Ulango.

These are located in areas that are rated as moderately to highly suitable for urban development with slopes ranging from 0% - 8% and without identified geo-hazards.

- Policy Direction

These areas shall be for medium-industry manufacturing or production industries. The intent is to consolidate the location of industrial facilities in the city thus facilitating development control, environmental management and provision of government services.

- Allowed Uses

The preferred land uses in MIA are light and medium types of industries which are:

1. Pollutive/ non-hazardous; and
2. Pollutive/ hazardous.

General Institutional Area

- Area Characteristics

General Institutional Areas (GIA) are found in Barangays Mapagong and Canlubang. These are areas hosting the Regional Government Center and Camp Vicente Lim.

- Policy Direction

The GIA is intended for general types of institutional establishments such as government offices, police, fire fighting and other related facilities

- Allowed Uses

Allowed uses in the GIA include government offices, police, fire fighting and other related facilities.

Socialized Housing Areas

- Area Characteristics

Socialized Housing Areas (SHA) are found in Barangays Barandal, Palo Alto, Mayapa, Paciano and San Cristobal that are rated as highly suitable for urban development with friendly slopes (0% to 5% range) and without identified geo-hazards.

- Policy Direction

Following the Urban Development and Housing Act (UDHA), SHAs are designated to housing programs and projects covering houses and lots or home lots only undertaken by the Government or the private sector for the underprivileged and homeless citizens. CLUP 2017 provides that new socialized housing developments shall comprise only of medium-rise housing.

- Allowed Uses

Allowed uses in the SHA are those that are in accordance with the provisions of Batas Pambansa 220 or the Economic and Socialized Housing Act of 1982 and its Implementing Rules and Regulations as well as those under the Community Mortgage Program.

Utilities, Transportation and Services Areas

- Area Characteristics

The Utilities, Transportation and Services Areas (UTSA) comprise the existing Dumpsite in Barangay Buro and the container terminals in Barangays Paciano and San Cristobal.

- Policy Direction

The UTSA is intended for utilitarian/ functional uses such as for waste-to-energy and composting facility (existing dumpsite), and transportation depots.

- Allowed Uses

Allowed uses in the UTSA include waste-to-energy and container terminal facilities.

Parks and Recreation Area

- Area Characteristics

Parks and Recreation Areas (PRA) comprise the Plaza across City Hall, the major golf courses in Barangays Canlubang and Puting Lupa, and other recreational facilities in the city such as basketball courts, badminton courts, parks in the barangays and legal easements along rivers and surface water bodies.

- Policy Direction

CLUP 2017's policy is to preserve these major PRAs since they provide valuable urban amenities.

As applicable, PRAs shall be made to double as emergency evacuation centers. New PRAs may be acquired by the City Government using its own funds, National Disaster Risk Reduction and Management Council (NDRRMC) funds, and other sources.

- Allowed Uses

Allowable uses shall be for parks and recreational uses.

Cemetery/ Memorial Park Areas

- Area Characteristics

Cemetery/ Memorial Park Areas (C/MPA) may be found in Barangays Barandal, Mapagong, Lecheria, Bañadero and Kay-anlog.

- Policy Direction

These areas are intended for the interment of the dead.

- Allowed Uses

Allowed uses in the C/MPA include memorial parks, cemetery, columbarium, crematorium, ossuary and customary accessory uses.

Upland Conservation Area

- Area Characteristics

The Upland Conservation Area (UCA) is composed of, wholly or in part, Brgys. Canlubang, Mabato, Bunggo, Hornalan, Laguerta, Burol, Bubuyan, Ulango, Puting Lupa, Camaligan, Saimsim, Pansol, Bucal and La Mesa. The Strategic Crops/ Livestock Development Area in CLUP 2000 located in Brgy. Canlubang has been part of the UCA in CLUP 2017. This considers that the area is mainly devoted to upland crops such as coconuts and fruit trees.

It has low development potential due to less friendly terrain (undulating to steep hills), unconsolidated land (especially Barangays Bunggo, Hornalan, Laguerta, Burol and Bubuyan) and slopes greater than 18%. This area is best left in a vegetative state due to its steep slopes and the instability of its soils.

- Policy Direction

The UCA is delineated in order to protect and/or conserve the environmentally-sensitive upland areas of Calamba. It shall define the urban edge of the City and shall be maintained in a low development density, preferably rural state.

- Allowed Uses

The preferred uses in the UCA are generally those of low intensity such as agricultural, forestry, single-detached residential, recreation and open space. The more intensive residential, commercial, institutional and industrial uses are discouraged in the zone.

Forest Buffer Area

- Area Characteristics

The Forest Buffer Area (FBA) is defined by Proclamation No. 1257 which designated ‘certain areas surrounding the Makiling Forest Reserve as Buffer Zone...’ The area has low development capability and is limited mainly by its steep slopes. It is composed of, wholly or in part, Barangays Puting Lupa, Pansol and Bagong Kalsada.

- Policy Direction

The FBA shall function as a protective barrier to prevent encroachments into the Makiling Forest Reservation per Proclamation No. 1257. The proclamation was enacted to, among others, ‘avoid further encroachment on the Makiling Forest Reserve that would create disturbance or damage on the ecology of the area; and to reconcile socio-economic undertakings and environmental protection on the use of the buffer area in order to minimize negative off-site effects of land development therein.’ Further to the said proclamation, the FBA shall be for very low intensity development in order to enhance the protection of the Makiling Forest Reservation Area.

- Preferred Uses

Per Proclamation No. 1257, following are the projects/undertakings allowed in the FBA:

1. Projects which are environment-friendly and which implementation will further enhance the environment within the reserve (e.g. aviary, orchidarium, ecological centers, research and development projects).
2. Those developments which are in harmony with the environmental settings and general land use of the area and which could promote the advancement of scientific and technical knowledge.
3. Non-environmentally critical projects, such as but not limited to agro-forestry, reforestation, eco-tourism, production forest, protection areas and small-scale livelihood projects (e.g. handicraft, cut flower and other ornamental plant production, existing upland agriculture) provided that effective soil and water conservation measures shall be adopted.
4. Low density residential houses, commercial buildings, parks and outdoor recreation establishments where the land use has been designated for such purposes provided that technical studies prove its suitability. Provided further, that it is in accordance with the comprehensive land use plan and zoning ordinance of the city.

Makiling Forest Reservation Area

- Area Characteristics

The Makiling Forest Reservation (MFR) is a protected area. The control and jurisdiction of the MFR Area has been vested to the University of the Philippines at Los Baños (UPLB) by virtue of Republic Act 6967.

- Policy Direction

Per the said Act, the MFR shall be 'conserved primarily as a training laboratory for research, instruction and extension to promote scientific and technical knowledge particularly in the preservation, protection, conservation and development of the forest, flora and fauna, and other natural resources in the interest and for the general welfare of the Filipino people.' The City Government shall co-ordinate closely with UPLB regarding the management requirements of the MFR, particularly in the areas within its political and jurisdiction.

- Preferred Uses

Following are the various zones in the MFR and the allowed activities therein (ref: Land Use and Property Policies of UPLB):

1. The Forest Reserve Watershed 'shall be managed primarily for soil and water conservation and other compatible uses.'
2. The Makiling Botanic Garden is 'established to support professional instruction and research in forestry and plant sciences, and to serve the educational and recreational needs of the general public.'
3. The Rainforest Park shall be 'used primarily as a site for conducting studies related to park management and outdoor recreation. It will also be used for tourism and other forms of outdoor recreation.'
4. The Wilderness is 'intended to promote and preserve biodiversity, provide game and wildlife refuge and other similar purposes. This area shall not be subject to any form of human intervention, except for purposes of research approved by the University.'
5. The Social Forestry Area is 'intended for social forestry, agroforestry and other people-based forest development practices and studies.'
6. Special Uses 'comprise areas leased to other institutions and the hydrothermal sites...'

Agricultural Development Area

- Area Characteristics

The Agricultural Development Area (ADA) includes the declared Strategic Agricultural and Fisheries Development Zones (SAFDZ) - Crops and Livestock as provided in the Agriculture and Fisheries Modernization Act (AFMA) of 1997 or Republic Act No. 8435. It is composed of, wholly or in part, Brgys. Banlic, Uwisán, Looc, Sampiruhan, Palingon, Lingga, San Jose, Lecheria, Halang, Bucal, and Pansol.

CLUP 2017 unifies the previous districts (Crop Production and Crop/ Livestock Production) of the ADA. The intent is to provide uniform protection policy and regulations to these two areas.

- Policy Direction

Per the said Act, the SAFDZs 'shall serve as centers where development in the agriculture and fisheries sectors are catalyzed in an environmentally- and socio-culturally sound manner...' In support of this, the City Government adopts the policy of protecting its remaining prime agricultural lands.

The ADA shall be devoted primarily to the cultivation of crops such as rice, corn, camote, cassava and the like, growing of diversified plants such as fruit and flower bearing trees, coffee, tobacco, etc. and pastoral activities such as goat raising, cattle fattening, the raising of fowls and other livestock/poultry. These include, in whole or in part, Brgys. Brgys. Banlic, Uwisan, Looc, Sampiruhan, Palingon, Lingga, San Jose, Lecheria, Halang, Bucal, and Pansol.

This is an area of low density and developments that shall be limited to the customary support facilities such as palay dryers, rice threshers, storage barns and ancillary dwelling units/farmhouse for owners, tillers and laborers.

Municipal Waters Area

- Area Characteristics

The Municipal Waters Area (MWA) is the portion of Laguna Lake that is within the jurisdiction of the City of Calamba. Laguna Lake, or Laguna de Bay, is defined in Republic Act 4850 or the Laguna Lake Development Authority Act (as amended) as 'that area covered by the lake water when it is at the average annual maximum level of elevation 12.50 meters, as referred to a datum 10.00 meters below mean lower low water (MLLW). Lands located at and below such elevation are public lands, which form part of the bed of said lake.' (Section 4.D). Laguna Lake thus includes the Shoreland Area.

By virtue of said Act, the Laguna Lake Development Authority (LLDA) is vested with the 'exclusive jurisdiction to issue new permit for the use of the lake waters for any projects or activities in or affecting the said lake including navigation, construction, and operation of fishpens, fish enclosures, fish corrals and the like...' (Section 4.J.).

RA 4850 also requires Calamba City to pass an appropriate zoning ordinance and other regulatory measures necessary to carry out the objectives of LLDA and enforce the same with the assistance of the LLDA (Section 4.L.).

- Policy Direction

CLUP 2026 adopts the national policy 'to promote, and accelerate the development and balanced growth of the Laguna Lake area ... with due regard and adequate provisions for environmental management and control, preservation of the quality of human life and ecological systems, and the preservation of undue ecological disturbances, deterioration and pollution.' (RA 4850 Section 1).

- Subdivision and Allowed Uses

The LLDA has designated a Shoreland Area and a Zoning and Management Plan (ZOMAP) for Laguna Lake. In turn, the City Government, per City Ordinance No. 495 Series of 2011, declared a 5 hectare portion of Laguna Lake as a Protected Area for fisheries.

Shoreland Area

The Laguna de Bay Shoreland Area (SA) is defined by LLDA Resolution No. 248 Series of 2005 – Providing Guidelines on the Use of Shoreland Areas Surrounding the Laguna de Bay¹¹ as “that part of the lake bed along the lakeshore lying at elevation 12.50 meters and below and alternately submerged or exposed by the normal annual rising and lowering of the lake levels. Datum elevation is a point 10.00 meters below Mean Lower Low Water (M.L.L.W).”

The same resolution prescribed the following conditions regarding uses, plans and designs of structures in the SA to be as follows:

1. Prescribed Uses

Any activity that will pose pollution and cause ecological disturbance to the lake, as determined by the LLDA shall be strictly prohibited.

2. Plan and Design

The design of the landscape must adopt the wetland / biological park concept (e.g., Geelong Waterfront in Australia, Lake Biwa and Lake Kasimigaura Bio-parks in Japan, among others)

3. Facilities / structures maybe allowed to be established in the SA, provided that such facilities or structures will be built on the following conditions:

- a. It will ensure soil stability at the project site
- b. Semi- permanent/ permanent structures maybe allowed provided the following are adhered to:
 - Concept of ‘face the lake design’
 - Color hues as may be recommended by the LLDA
 - Sound structural design criteria and standards as well as material specifications.

4. Backfilling will be regulated to mitigate project areas from the following:

- a. Rising of lake water
- b. Shoreline embankment protection
- c. Health risks

The regulation of backfilling is also intended to protect crops and facilities. Whenever allowed, earth materials should be sourced within the Laguna de Bay Region and no materials will be used without LLDA’s evaluation and approval.

Laguna de Bay Zoning and Management Plan

The ZOMAP (2003) delineated a Fishcage Belt and a Navigational Lane for the Laguna de Bay Ferry System near the city. The Laguna Lake ZOMAP is given as **Figure 2.7**.

¹¹ This resolution amended Board Resolution No. 23 Series of 1996, or the Implementing Rules and Regulations of Republic Act No. 4850, the Act that created the Laguna Lake Development Authority.

Protected Area

City Ordinance No. 495 prohibits the following activities in the Fishery Refuge and Sanctuary area:

1. Catching of fish in any manner
2. Throwing of waste of any form to include allowing discharging of wastewater
3. Throwing of industrial wastes and used oil
4. Quarrying of stones, gravel, sand, etc. without the permission of the City Mayor, City Council and other concerned government agencies
5. Construction of structures without the permission of the City Mayor and City Council
6. Use of the Protected Area as swimming grounds for ducks, turkey, etc.
7. Introduction of fish species without clearance from the Bureau of Fisheries and Aquatic Resources (BFAR) or City Agriculture Office

2.3.3. Comparison of LUP 2000 and CLUP 2026

The comparative presentation of existing and proposed land uses is shown in the table below.

Table 15. Comparison of Existing and Proposed Land Uses

Land Use Classification	PCLUP 2000 - 2015		PCLUP 2017 - 2026		Change
	Area (ha)	Share (%)	Area (ha)	Share (%)	
Urban Development Area ¹	2,080	14.36%	2,238.98	15.46%	7.64%
Growth Management Area – 1	4,199	29.00%	2,801.32	19.35%	-33.29%
Growth Management Area – 2	2,460	16.99%	2,839.20	19.61%	15.41%
Controlled Urban Growth Area ²			571.04	3.94%	
Medium Industrial Area ³			2,259.61	15.61%	
Socialized Housing Area ⁴			36.70	0.25%	
Utilities, Transportation and Services Area ⁵			68.29	0.47%	
General Institutional Area			152.28	1.05%	
Parks and Recreation Area			351.14	2.42%	
Cemetery/ Memorial Park Area ⁶			32.51	0.22%	
Upland Conservation Area ⁷	3,517	24.29%	742.90	5.13%	-78.88%
Forest Buffer Area	333	2.30%	383.04	2.65%	15.03%
Makiling Forest Reservation Area	463	3.20%	592.56	4.09%	27.98%
Agricultural Development Area	1,428	9.86%	1,410.45	9.74%	-1.16%
Total Land Area	14,480	100.00%	14,480.00	100.00%	
Municipal Waters			2,513.55		

Notes:

¹ Formerly URA of CLUP 2000

² Carved out of ADA of CLUP 2000

³ Carved out of GMA-1, GMA-2, and UCA CLUP 2000

⁴ Carved out of GMA-1 and former URA of CLUP 2000

⁵ Carved out of former URA and UCA of CLUP 2000

⁶ Carved out of GMA-1 and URA of CLUP 2000

⁷ Part of the UCA of 2017 was carved out of ADA of CLUP 2000

Some incongruences may be observed in the comparative table of areas above. While the boundaries of the Forest Buffer and Makiling Forest Reservation Areas were maintained as set by their respective legal issuances, the presented area computations show different values. These may be attributed to the use of different software and references in generating the maps. The land areas in 2017 are more precise due to the use of GIS-assisted mapping based on electronic copies of the city's cadastral maps. These tools and information were not available when CLUP 2000 was prepared. Areas in CLUP 2000 were calculated based on AutoCAD software and on tracing hand drawn maps available from the City Planning and Development Office.

It may further be noted that there is a decrease of about 1.16% in the coverage of the Agricultural Development Area from CLUP 2000 to CLUP 2017. This is within the 10% reclassification limit set for total agricultural lands by the Local Government Code for Calamba, being a component city.

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THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

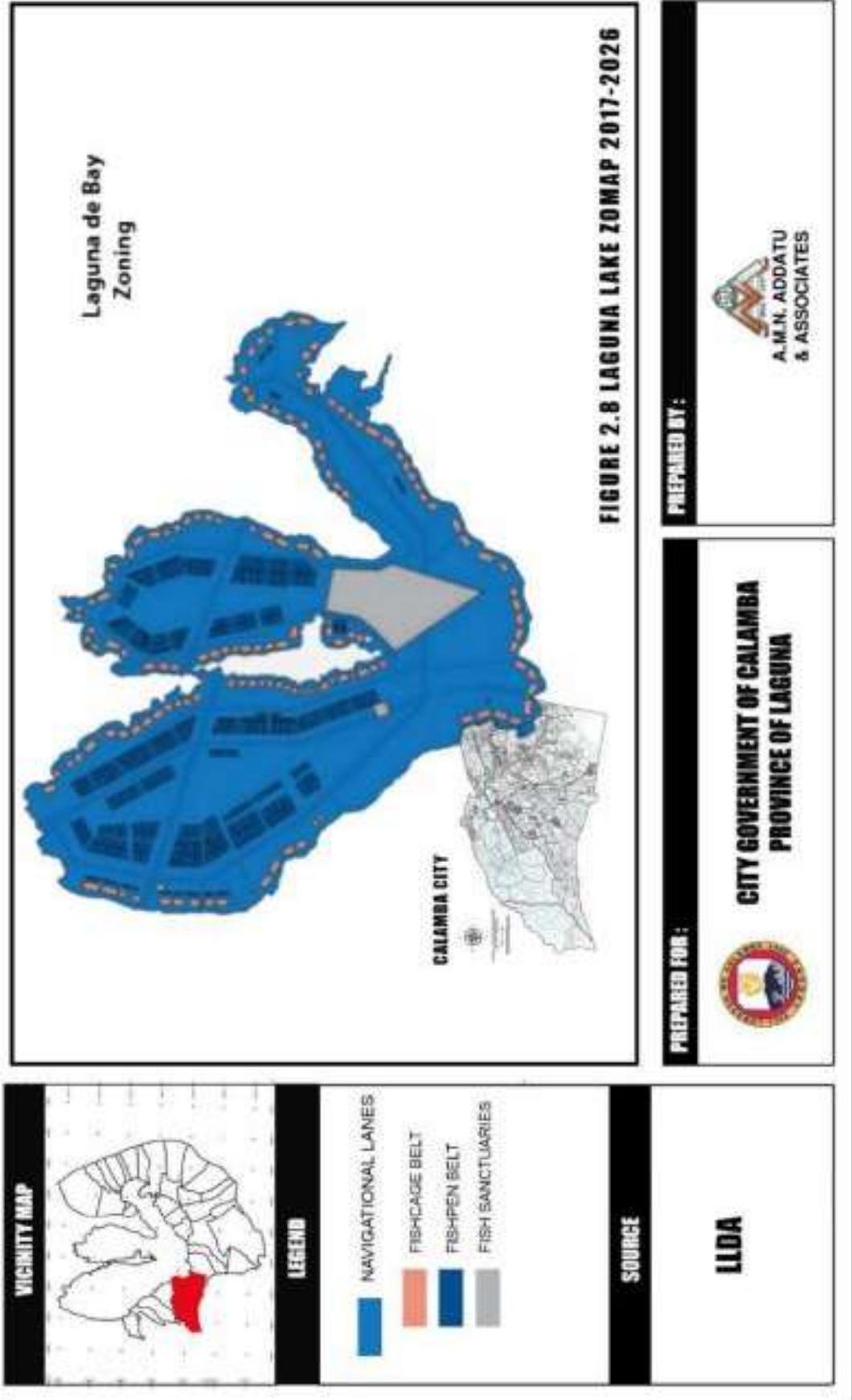


Figure 2-8. Laguna Lake ZOMAP



REPUBLIC OF THE PHILIPPINES
CITY OF CALAMBA
PROVINCE OF LAGUNA

**UPDATING
OF COMPREHENSIVE LAND
USE PLAN, CITY OF CALAMBA
2017 - 2026**

FINAL REPORT

VOLUME 2

ZONING ORDINANCE



**A.M.N. ADDATU
& ASSOCIATES**



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RESOLUTION NO. xxx
Series of xxx

On motion of Kagawad _____ duly seconded by Kagawad _____, be it resolved as it is hereby resolved to approve the Updated Comprehensive Land Use Plan (CLUP) and to adopt the Revised Zoning Ordinance of the City of Calamba, Laguna, to wit:

CITY OF CALAMBA
ORDINANCE NO. XXX
Series of XXX

**AN ORDINANCE AMENDING THE LAND DEVELOPMENT GUIDANCE SYSTEM
OF THE CITY OF CALAMBA AND PROVIDING FOR THE
ADMINISTRATION, ENFORCEMENT AND AMENDMENT THEREOF
AND FOR THE REPEAL OF ALL ORDINANCES IN
CONFLICT THEREWITH.**

Be it ordained and enacted by the *Sangguniang Panlungsod* of Calamba:

WHEREAS, Section 20-c of the Local Government Code provides that local government units shall continue to prepare their respective Land Use Plans enacted through Zoning Ordinances which shall be the primary and dominant bases for the future use of land resources;

WHEREAS, the City Government of Calamba, in pursuit of its development goals and objectives, updated its Comprehensive Land Use Plan which would require the enactment of regulatory measures to translate its planning goals and objectives into reality;

WHEREAS, this Revised Zoning Ordinance is one such regulatory measure which is an important tool for the implementation of the updated Comprehensive Land Use Plan;

NOW THEREFORE, the *Sangguniang Panlungsod* of Calamba in a session assembled hereby **adopts** the following Revised Zoning Ordinance.

ARTICLE I. TITLE OF THE ORDINANCE

Section 1. Title of the Ordinance.

This Ordinance shall be known as the **Calamba Revised Zoning Ordinance** and shall hereinafter be referred to as the **RZO**.

ARTICLE II. AUTHORITY AND PURPOSE

Authority.

The RZO is enacted pursuant to the provisions of the Local Government Code of 1991, R.A. 7160 Section 458 (2 ix) authorizing the City through the Sangguniang Panlungsod to adopt a Revised Zoning Ordinance in consonance with the approved updated Comprehensive Land Use Plan and in conformity with Executive Order No. 72.

Section 3. Purpose.

The RZO is enacted for the following purposes:

1. Promote and protect the health, safety, peace, comfort, convenience and general welfare of the inhabitants of the City;
2. Guide the growth and development of Calamba in accordance with its Comprehensive Land Use Plan;
3. Provide the proper regulatory environment to maximize opportunities for creativity, innovation and make ample room for development within the framework of the City's over-all goals and objectives;
4. Protect the character and stability of residential, commercial, industrial, institutional, open space and other functional areas within the City and promote the orderly and beneficial development of the same; and
5. Guide the City Government, other government agencies, and the private sector in their development decisions.

Section 4. General Principles.

The RZO is based on the approved *Updated Calamba Comprehensive Land Use Plan* as per Resolution No. ___ dated _____.

1. The RZO reflects the City's vision to be "a GLOBALLY-COMPETITIVE GREEN CITY with a progressively inclusive economy and resilient community, where God-centered people learn, live and work in a safe, secured and healthy environment, and ably led by proactive and integrity-driven leaders;"
2. The RZO provides that developments should be designed, built and operated in a manner that contributes to a Globally-Competitive Green City that is pedestrian-friendly, and with buildings that utilize green infrastructures.
3. The RZO recognizes that any land use is a use by right but provides however that the exercise of such right shall be subject to the review standards of the RZO;
4. The RZO gives the free market the maximum opportunity to spur the City's development within a framework of environmental integrity and social responsibility;
5. The RZO has been designed to encourage the evolution of high-quality developments rather than regulating against the worst type of projects;
6. The RZO has been crafted in a manner that it is fully responsive to the ever-changing conditions that the City continually face;
7. The RZO functions as a tool for informed decision making on the part of the land use administrators by way of providing specific criteria to judge the acceptability of developments;
8. The RZO provides a direct venue for community empowerment where the stakeholders become involved especially in critical development decisions; and
9. The regulations in the RZO are considered as land use management tools that are necessary to provide a clear guidance to land development in order to ensure the community's common good.

ARTICLE III. DEFINITION OF TERMS

The definition of the technical terms used in the RZO shall carry the same meaning given to them in already approved codes and regulations, such as but not limited to, the National Building Code, Water Code, Philippine Environmental Code and the Implementing Rules and Regulations promulgated by the Housing and Land Use Regulatory Board (HLURB). The words, terms and phrases enumerated hereunder shall be understood to have the corresponding meaning indicated as follows:

Absolute Majority Vote - means that the "in favor" votes represent more than 50 percent of the valid votes. This is also called the 50% + 1 vote.

Accessory Use - pertains to those that are customarily associated with the Principal Use application (such as a garage is accessory to a house).

Actual Use – refers to the purpose for which the property is principally or predominantly utilized by the person in possession of the property.

Adaptive Reuse – utilization of buildings, other built-structures, and sites of value for purposes other than that for which they were originally intended, in order to conserve the site, its engineering integrity and authenticity of design.

AFMA – shall refer to the Agriculture and Fisheries Modernization Act of 1997 or RA 8435.

Agricultural Activity – per the Comprehensive Agrarian Reform Law of 1988 (RA 6657), means the cultivation of the soil, planting of crops, growing of fruit trees, raising of livestock, poultry or fish, including the harvesting of such farm products, and other farm activities and practices performed by a farmer in conjunction with such farming operations done by persons whether natural or juridical.

Agricultural Land – per RA 6657, refers to land devoted to agricultural activity and not classified as mineral, forest, residential, commercial or industrial land.

Agricultural Land Use Conversion – per RA 6657, refers to the process of changing the use of agricultural land to non-agricultural uses.

Agro-Forestry – land management which combines agricultural crops with tree crops and forest plants and/or animals simultaneously or sequentially and applies management practices which are compatible with the cultural patterns of the local population.

Agro-Industrial Zone – an area intended primarily for integrated farm operations and related product processing activities such as plantation for bananas, pineapple, sugar, etc.

Agro-Processing Activities – "refers to the processing of raw agricultural and fishery products into semi-processed or finished products which include materials for the manufacture of food and/or non-food products, pharmaceuticals and other industrial products." (AFMA)

Allowable Uses- uses that conform to those allowed in a specific zone.

Base Flood Elevation – the elevation to which floodwater is expected to reach during flood events as calculated by the regional office of the Department of Public Works and Highways (DPWH).

Base Zone - refers to the primary zoning classification of areas within the City and that are provided with a list of allowable uses and regulations on building density and bulk, among others.

Buffer Area - these are yards, parks or open spaces intended to separate incompatible elements or uses and to control pollution/nuisance.

Building Height Limit (BHL) - per the National Building Code (NBC), this is “the maximum height to be allowed for buildings/ structures...and shall be generally measured from the established grade line to the topmost portion of the proposed building/structure. (Rule VIII Sec. 803, The 2004 Revised IRR of P.D. No. 1096). If applicable, the BHL may be subject to clearance requirements of the Civil Aviation Authority of the Philippines (CAAP) or the concerned military/security authorities.” BHL is expressed as the number of allowable storeys/ floor above established grade.

Certificate of Non-Conformance – certificate issued to Owners of non-conforming uses as provided in this Zoning Ordinance.

Central Business District - shall refer to areas designated principally for trade, services and business purposes.

Certificate of Non-Conformance - certificate issued to owners of all uses existing prior to the approval of the RZO which do not conform to the provisions herein provided.

Commercial – 1 Uses – low density commercial uses intended for neighborhood or community scale trade, service and business activities.

Commercial – 2 Uses – medium to high density commercial uses intended for trade, service and business activities performing complementary/supplementary functions to the CBD.

Commercial – 3 Uses – high density commercial uses intended for regional shopping centers such as large malls and other commercial and business activities which are regional in scope or where market activities generate traffic and require utilities and services that extend beyond local boundaries and requires metropolitan level development planning and implementation.

Commercial Garage – a garage where automobiles and other motor vehicles are housed, cared for, equipped, repaired or kept for remuneration, for hire or sale.

Compatible Uses - uses or activities capable of existing together harmoniously e.g. residential use and parks and playground uses subject to the conditions stipulated in this RZO.

Comprehensive Development Master Plan (CDMP) – a unitary development plan/ site plan that permits flexibility in planning/urban design, building/structure siting, complementary of building types and land uses, usable open spaces for general public uses services and business activities and the preservation of significant land features (NBC) and may also be referred to as a Master Development Plan.

Conflicting Uses - uses or activities with contrasting characteristics sited adjacent to each other e.g. residential units adjacent to industrial plants.

Conforming Use - a use that is in accordance with the zone regulations as provided for in this RZO.

Deed Restrictions - written agreements that imposes limitations on the use of property in order to maintain the intended character of a neighborhood.

Easement - open space imposed on any land use/activities sited along waterways, road-right-of-ways, cemeteries/memorial parks, utilities and the like.

Ecotourism – a form of sustainable tourism within a natural and cultural heritage area where community participation, protection and management of natural resources, culture and indigenous knowledge and practices, environmental education and ethics, as well as economic benefits are fostered and pursued for the enrichment of host communities and the satisfaction of visitors.” (Tourism Act and DENR AO2013-19 Guidelines on Ecotourism Planning and Management in Protected Areas)

Environmentally Constrained Areas – areas prone to natural hazards, such as those related to weather, hydrologic, and geologic disturbances. These hazards cover those that are weather and water-related, earthquake-induced, volcanic and erosion-related.

Environmentally Critical Areas - refers to those areas which are environmentally sensitive and are listed in Proclamation 2146 dated 14 December, 1981, as follows:

- a. All areas declared by law as national parks, watershed reserves, wildlife preserves and sanctuaries;
- b. Areas set aside as aesthetic potential tourist spots;
- c. Areas which constitute the habitat for any endangered or threatened species of indigenous Philippine wildlife (flora and fauna);
- d. Areas of unique historic, archaeological, or scientific interests;
- e. Areas which are traditionally occupied by cultural communities or tribes;
- f. Areas frequently visited and/or hard-hit by natural calamities (geologic hazards, floods, typhoons, volcanic activity, etc.);
- g. Areas classified as prime agricultural lands;
- h. Recharge areas of aquifers;
- i. Water bodies characterized by one or any combination of the following conditions:
 - tapped for domestic purposes;
 - within the controlled and/or protected areas declared by appropriate authorities; and
 - which support wildlife and fishery activities.
- j. Mangrove areas characterized by one or any combination of the following conditions:
 - with primary pristine and dense young growth;
 - adjoining the mouth of major river systems;
 - near or adjacent to traditional productive fry or fishing grounds;
 - which act as natural buffers against shore erosion, strong winds and storm floods; and
 - on which people are dependent on their livelihood.
- k. Coral reef characterized by one or any combination of the following conditions:
 - with 50% and above live coralline cover;
 - spawning and nursery grounds of fish; and
 - which acts as natural breakwater of coastlines.

Environmentally Critical Projects - refer to those projects which have high potential for negative environmental impacts and are listed in Presidential Proclamation 2146 dated 14 December 1981, as follows:

- a. Heavy industries

- non-ferrous metal industries;
 - iron and steel mills;
 - petroleum and petro-chemical industries including oil and gas; and
 - smelting plants.
- b. Resource extractive industries
- major mining and quarrying projects; and
 - forestry projects such as logging, major wood processing, introduction of fauna (exotic animals) in public/private forests, forest occupancy, extraction of mangroves and grazing.
- c. Fishery projects
- dikes for/and fishpond development projects
- d. Infrastructure projects
- major dams;
 - major power plants (fossil-fueled, nuclear-fueled, hydroelectric or geothermal); and
 - major roads and bridges.

Environmental Impact Statement (EIS) System – pursuant to PD 1586 of 1978, refers to the entire process of organization, administration and procedure institutionalized for the purpose of assessing the significance of the effects of physical developments on the quality of the environment. Projects that fall within the purview of the EIS System include:

- a. Environmentally Critical Projects
- b. Projects located in Environmentally Critical Areas

Established Grade – the finish ground level of a proposed development which shall be determined according to the provisions of the latest edition of the NBC.

Exception- a device which grants a property owner relief from certain provisions of the RZO where because of the specific use would result in a particular hardship upon the owner, as distinguished from a mere inconvenience or a desire to make more money.

Fisheries Code – shall refer to the Philippine Fisheries Code of 1998 (RA 8550).

Flood Overlay Zone (FLD-OZ) – areas in the city that have been identified as prone to flooding and where specific regulations are provided in order to minimize its potential negative effect to developments.

Flood Protection Elevation (FPE) – the minimum elevation to which developments are required by this Ordinance to be elevated, with reference to the Base Flood Elevation, in order to be flood proofed.

Floor/Area Ratio (FAR) - is the ratio between the Gross Floor Area of a building and the area of the lot on which it stands. Determined by dividing the Gross Floor Area of the building and the area of the lot. The Gross Floor Area of any building should not exceed the prescribed floor area ratio (FAR) multiplied by the lot area.

General Commercial Uses – land uses for trading, services and business purposes.

General Institutional Uses – uses that are area principally for general types of institutional establishments e.g. government offices, schools, hospitals/clinics, academic/research, convention centers.

General Residential Uses – uses that are principally for dwelling/housing purposes.

Gross Floor Area (GFA) - the GFA of a building is the total floor space within the perimeter of the permanent external building walls (inclusive of main and auxiliary buildings), occupied by:

- a. Office areas;
- b. Residential areas;
- c. Corridors;
- d. Lobbies;
- e. Mezzanine;
- f. Vertical penetrations which shall mean stairs, fire escapes, elevator shafts, pipe shafts, vertical shafts, vertical ducts, and the like and their enclosing walls;
- g. Machine room and closets;
- h. Storage rooms and closets;
- i. Covered balconies and terraces; and
- j. Interior walls and columns, and other interior

features. Excluding the following:

- k. Covered areas used for parking and driveways, including vertical penetrations in parking floors where no residential or office units are present; and
- l. Uncovered areas for AC cooling towers, overhead water tanks, roof decks laundry areas and cages, wading or swimming pools, whirlpool or jacuzzis, gardens, courts or plazas.

Heritage Act – shall mean the National Cultural Heritage Act of 2009 or RA 10066.

Historic Center – 1) historic zone, district, core, precinct, town, legacy zone, heritage area, zone or town; 2) a designated area with historical and other special significance, consisting of buildings or group of buildings and their environs that collectively contribute to the area's importance and character; 3) a place where a significant event in history occurred; 4) any town, district, or ancient settlement site with specific history and/or cultural significance. Historic centers are sometimes called living museums, outdoor museums, or museum preserves. Whether inhabited or un-inhabited, historic centers are preservation areas. (Heritage Act)

HLURB - shall mean the Housing and Land Use Regulatory Board.

Impervious Surface - type of man-made surface which does not permit the penetration of water.

Innovative Design – introduction and/or application of new/creative designs and techniques in development projects e.g. Planned Unit Development.

Landslide Overlay Zone (LSD-OZ) – areas in the city that have been identified as highly susceptible to landslides and where specific regulations are provided in order to minimize its potential negative effect to developments.

Land Use Intensity Controls (LUIC) - refer to controls on building bulk (MAPSO and FAR), building height (BHL) and impervious surfaces (USA). The LUIC is imposed to control, among others, traffic generation, requirements on utilities, over-building, over-crowding, and visual access and to attain the desired zone character.

For residential and commercial subdivisions that have been subdivided into individual lots/parcels, the LUIC shall apply to individual lot parcels. Gross open spaces (defined as common areas, roads, etc.) shall be governed by PD 957, BP 220 and related regulations.

For a Planned Unit Development (PUD) or a parcel of land that has no lot/ parcellary subdivisions, the LUIC shall apply to the gross lot area of the PUD or parcel and the gross floor area of the buildings to be put up therein. For a PUD with lot subdivisions, the LUIC shall apply to the gross lot area of the PUD and the gross floor area of the buildings to be put up therein, subject to the following conditions:

- a. The FAR of all the individual lots in the PUD, derived by dividing the total gross floor area of the individual lots in the PUD by their total gross land area, shall not exceed the maximum FAR (as prescribed in Article VIII of this Ordinance) that applies to the entire PUD, or, in equation form:

$$\frac{\text{Total gross area of individual lots in PUD}}{\text{land area of individual lots in PUD}} < \text{Maximum FAR for entire PUD Total gross}$$

- b. No individual lot shall exceed an FAR that is three times the maximum FAR that applies to the entire PUD.
- c. The owner/developer of the subdivided PUD shall show and declare in the development plan that it submits to the LGU that such subdivision is part of a PUD development.
- d. MAPSO, BHL, and USA controls shall apply to the PUD.

Light Industrial Zone Use (I-1 Uses) – industrial uses that are:

- a. non-pollutive/non-hazardous
- b. non-pollutive/hazardous

Local Zoning Board of Appeals (LZBA) – a local special body created by virtue of this Ordinance mandated to, among others, handle appeals for Variances and Exceptions.

Locational Clearance (LC) – a clearance issued by the Zoning Officer to a project that is allowed under the provisions of this Ordinance.

Locational Clearance (Variance) (LC-V) – a clearance issued by the LZBA to a project that is allowed under the Mitigating Device/Variance provision of this Ordinance.

Locational Clearance (Exception) (LC-E) – a clearance issued by the LZBA to a project that is allowed under the Mitigating Device/Exception provision of this Ordinance.

Maximum Percentage of Site Occupancy (MAPSO) - defined in the NBC as the area of ground coverage of the Allowable Maximum Building Footprint, expressed as a percentage of the total lot area (Rule VIII Sec. 083, The 2004 Revised IRR of P.D. No. 1096)

Medium Industrial Uses (I-2 Uses) – industrial uses that are:

- a. pollutive/non-hazardous
- b. pollutive/hazardous

Mining Act –shall refer to the Philippine Mining Act of 1995 or RA 7942.

Mitigating Device - a means to grant relief in complying with certain provisions of the Ordinance such as, but not limited to, those pertaining to use, building bulk and density, and performance standards.

Network of Protected Areas for Agriculture and Agro-Industrial Development (NPAAAD) – per AFMA, refers to agricultural areas identified by the Department of Agriculture in coordination with the National Mapping and Resource Information Authority in order to ensure the efficient utilization of land for agriculture and agro-industrial development and promote sustainable growth. The NPAAAD covers the following:

- a. All irrigated areas;
- b. All irrigable lands already covered by irrigation projects with firm funding commitments;
- c. All alluvial plain land highly suitable for agriculture whether irrigated or not;
- d. Agro-industrial croplands or lands presently planted to industrial crops that support the viability of existing agricultural infrastructure and agro-based enterprises;
- e. Highlands or areas located at an elevation of 500 meters or above and have the potential for growing semi-temperate and high-value crops;
- f. All agricultural lands that are ecologically fragile, the conversion of which will result in serious environmental degradation; and
- g. Mangrove areas and fish sanctuaries.

NIPAS Act – shall refer to the National Integrated Protected Areas System Act of 1992 or RA 7586.

Non-Conforming use - uses existing prior to the approval of this Zoning Ordinance that are not in conformity with its provisions but are allowed to operate subject to the conditions of this RZO.

Notice of Non-Conformance – notice issued to owners of all uses existing prior to the approval of the Ordinance which do not conform to the provisions herein provided.

Official Zoning Map - a duly authenticated map delineating the different zones into which the whole City is divided into.

Overlay Zone – a “transparent zone” that is overlain on top of the Base Zone or another Overlay Zone that provides an additional set (or layer) of regulations.

Parks and Recreation Uses - uses designed for diversion/amusements and for the maintenance of the ecological balance of the community.

Planned Unit Development (PUD) – a land development scheme wherein a project site is comprehensively planned as an entity via a unitary site plan which permits flexibility in planning/design, building siting, complementarity of building types and land uses, usable open spaces, and the preservation of natural land features.

Reclassification of Agricultural Lands – “the act of specifying how agricultural lands shall be utilized for non-agricultural uses such as residential, industrial, and commercial as embodied in the CLUP” (Local Government Code and Memorandum Circular No. 54)

Residential-1 Uses – low density residential uses. Per the NBC, R-1 uses are characterized mainly by low-rise single-detached and duplex residential buildings for exclusive use as single (nuclear) family dwellings.

Residential-2 Uses – for medium density residential uses. Per the NBC, R-2 Uses are characterized mainly by low-rise single-attached, duplex or multi-level structures residential buildings for exclusive use as multi-family dwellings.

Residential-3 Uses – medium to high density residential uses. Per the NBC, R3 Uses are characterized mainly by low-rise or medium-rise residential buildings for exclusive use as multi-family dwellings with mixed housing types.

Residential-4 Uses – medium to high density residential use. Per the NBC, R4 Uses are characterized mainly by low-rise townhouse buildings/structures for exclusive use as multiple family dwellings.

Residential-5 Uses – very high density residential use. Per the NBC, R4 Uses are characterized mainly by medium-rise or high-rise condominium buildings/structures for exclusive use as multiple family dwellings.

Rezoning – a process of introducing amendments to or change in the text and maps of the Zoning Ordinance. It also includes amendment or change in view of reclassification under Section 20 of Republic Act 7160.

Setback - the open space left between the building and lot lines.

Socialized Housing – refers to housing [programs and] projects covering houses and lots or home lots only undertaken by the Government or the private sector for the underprivileged and homeless citizens (Urban Development and Housing Act)

Socialized Housing Uses – uses that are principally for socialized housing projects.

Strategic Agriculture and Fisheries Development Zone (SAFDZ) – refers to “areas within the NPAAAD identified for production, agro-processing and marketing activities to help develop and modernize, with the support of government, the agriculture and fisheries sectors in an environmentally and socio-culturally sound manner” (AFMA).

Sustainable Urban Drainage System (SUDS) – a low impact system intended to drain surface water run-off through a series of collection, storage and cleaning stages before it is released back into the environment.

Tourism Act – shall mean the Tourism Act of 2009 or RA 9593.

UDHA – shall mean the Urban Development and Housing Act of 1992 or RA 7279.

Urban Corridor Overlay Zone (UCD-OZ) - an area in a city which are along major transport routes and where specific regulations are provided that is intended to minimize roadside friction, maintain pedestrian walkways, etc.

Unpaved Surface Area (USA) – as defined in the NBC, USA is the “true open space” which should be of exposed soil and planted (Rule VIII Section 803, The 2004 Revised IRR of P.D. No. 1096).

Utilities, Transportation and Services Uses – “a range of utilitarian/ functional uses or occupancies, characterized mainly as a low-rise or medium-rise building/structure for low to high intensity community support functions, e.g. terminals, inter-modals, multi-modals, depots, power and water generation/distribution facilities, telecommunication facilities, drainage/wastewater and sewerage facilities, solid waste handling facilities and the like” (NBC).

Variance - a Special Locational Clearance granting a property owner relief from certain provisions of the RZO where, because of the particular physical surrounding, shape or topographical conditions of the property, compliance on height, area, setback, bulk and/or density would result in a particular hardship upon the owner, as distinguished from a mere inconvenience or a desire to make more money.

Warehouse – refers to a storage and/or depository of those in business of performing warehouse services for others, for profit.

Water Code – shall mean the Water Code of the Philippines (Presidential Decree 1067)

Yard – as defined in the NBC, this is “the required open space left between the outermost face of the building/ structure and the property lines, e.g. front, rear, right and left side yards. The width of the yard is the setback.”

Zone/ District/ Sub-District – areas within the city for specific land uses as defined by manmade or natural boundaries.

Zoning Officer – a city government employee responsible for the implementation/enforcement of the Zoning Ordinance.

Zoning Certificate – a document issued by the Zoning Officer citing the zoning classification of the land based on this Ordinance.

ARTICLE IV. ZONE CLASSIFICATIONS

Section 5. Division into Zones.

The City of Calamba is hereby divided into 15 Base Zones, namely:

1. Urban Development Zone
2. Growth Management Zone – 1
3. Growth Management Zone – 2
4. Controlled Urban Growth Zone
5. Medium Industrial Zone
6. General Institutional Zone
7. Socialized Housing Zone
8. Utilities, Transportation and Services Zone
9. Parks and Recreation Zone
10. Cemetery/ Memorial Park Zone
11. Upland Conservation Zone
12. Forest Buffer Zone
13. Makiling Forest Reservation Zone
14. Agricultural Development Zone
15. Municipal Waters Zone

Said divisions are for the purposes of the following:

1. implementing the updated Calamba Comprehensive Land Use Plan (CLUP) 2017 - 2026;
2. defining specific areas of the City of Calamba, each requiring different standards of development to meet different circumstances present within the zone; and
3. serving the purposes and intent of the RZO as outlined in Article II.

Section 6. Description of Zones.

The intent and purpose of each zone is described below.

1. Urban Development Zone

The Urban Development Zone (UDZ) is the Urban Development Area (UDA) described in CLUP 2017 - 2026. The City Government's policy for the UDZ is to increase its capacity for urban growth while maintaining the stability of existing residential neighborhoods and enhancing the character of its historic and tourism sites. The UDZ comprises the City's central business district (CBD) and major urban corridors, adjoining residential areas as well as its historic precinct and tourism hub. The policy of CLUP 2017 - 2026 is to allow the intensification of land uses in largely commercial areas, control developments in established residential areas, preserve the historic sites and promote a high-quality total environment in the tourist areas.

The UDZ has moderate development capability with limitations due to flooding and limited infrastructure capacities. The terrain is friendly (0% to 5% slope) but is slightly to moderately susceptible to flooding.

The UDZ covers the following barangays, wholly or in part: Mapagong, San Cristobal, Paciano Rizal, Parian, Lawa, Real, La Mesa, Bucal, Pansol, Sucol, Masili, Halang, Lecheria, Poblacion, San Jose and San Juan.

The UDZ is further subdivided into three Districts:

a. Historical Development District

The Historical Development District (HDD) encompasses areas along Del Pilar, J.P. Rizal, Burgos, Pabalan and Gen. Lim Streets from the Crossing Area up to the Bgy. Poblacion – San Juan/San Jose boundary. This area is delineated to enhance the heritage development of the City.

The boundaries of the HDD shall be construed as being one-lot deep on both sides of J.P., Rizal Avenue.

b. Tourism Development District

The Tourism Development District (TDD) includes the portions of Bgy. Pansol within the UDZ, Bagong Kalsada, Sucol and Bucal along the Highway as well as Calamba Island. This district shall be assisted to develop as the premiere resort and recreational area of Calamba.

c. General Development District

The General Development District (GDD) is the City's CBD. It includes the areas of the UDZ outside the HDD and TDD. It is further sub-divided into four Sub-Districts:

- i. Commercial 3 Sub-District
- ii. General Residential Sub-District
- iii. General Institutional Sub-District
- iv. Parks and Recreation Sub-District

2. Growth Management Zone – 1

Growth Management Zone – 1 (GMZ-1) is described as Growth Management Area – 1 in CLUP 2017 – 2026. It is composed of, wholly or in part, by Bgys. Canlubang, Mapagong, Mayapa, Batino, Prinza, Barandal, Punta, Palo Alto, Majada and Sirang Lupa as well as La Mesa, Milagrosa, Maunong, Saimsim, Makiling and Kamaligan.

This area is rated as highly suitable for urban development with friendly slopes (0% to 5% range) and without flooding hazard. Presently, it hosts residential areas, gated communities, universities, recreational facilities, etc.

GMZ – 1 is intended to accommodate the urban expansion requirements of the City, directing it away from the more environmentally sensitive lands. A mixed-use high-intensity type of development with plenty of ground open spaces is envisioned for this area.

3. Growth Management Zone – 2

Growth Management Zone – 2 (GMZ-2) is described as Growth Management Area – 2 in CLUP 2017 - 2026. It is composed of, wholly or in part, Brgys. Canlubang, Majada, Palo Alto, Punta, Turbina, Milagrosa, Kay Anlong and Makiling as well as Bucal, Pansol, Maunong, Saimsim, Camaligan, Makiling and Puting Lupa.

It has moderate development capability and the limitations are basically due to less friendly terrain (undulating to rolling) with slopes ranging from 5% to 18.

GMZ –2 shall serve as a “transition” urban area with moderate intensity, low-rise development focusing on erosion mitigation techniques. Impervious surface conditions shall be minimized, in order to help mitigate the excessive flow of surface water into the low-lying areas.

4. Controlled Urban Growth Zone

Controlled Urban Growth Zone (CUGZ) is described as the Controlled Urban Growth Area in CLUP 2017 – 2026. It is composed of, wholly or in part, Bgys. Banlic, Uwisan, Looc, Bañadero, Sampiruhan, Palingon, San Jose, Lingga, Lecheria and Bucal.

It has low development capability as most parts are susceptible to flooding and liquefaction.

CUGZ considers the urban growth that has transpired near the lakeshore area along with the need to ensure that this is appropriately controlled. It is delineated to establish “urban limits” in this environmentally-sensitive location. CLUP 2017 - 2026 delineates these limits to be within the existing built-up areas while consolidating urban growth in pockets that have been wedged in-between these.

5. Medium Industrial Zone

The Medium Industrial Zone (MIZ) is described as the Medium Industrial Area (MIA) in CLUP 2017 – 2026. These zones are located in, wholly or in part, Brgys. Canlubang, Mapagong, Paciano, San Cristobal, Batino, La Mesa, Punta, Milagrosa, Makiling, Kay-anlog and Ulango.

MIZs are located in areas that are rated as moderately to highly suitable for urban development with slopes ranging from 0% - 8% and without identified geo-hazards.

These zones shall be for medium-industry manufacturing or production industries. The intent is to consolidate the location industrial facilities in the City thus facilitating development control, environmental management and provision of government services.

6. General Institutional Zone

General Institutional Zones (GIZ) are found in Barangays Mapagong and Canlubang. These are areas hosting the Regional Government Center and Camp Vicente Lim.

The GIZ is intended for general types of institutional establishments such as government offices, police, fire fighting and related facilities.

Allowed uses in the GIA include government offices, police, fire fighting and related facilities.

7. Socialized Housing Zone

The Socialized Housing Zone (SHZ) is described as the Socialized Housing Area (SHA) in CLUP 2017 – 2026. These zones are found in Barangays Barandal, Palo Alto, Mayapa, Paciano and San Cristobal.

SHZs are located in areas that are rated as highly suitable for urban development with friendly slopes (0% to 5% range) and without identified geo-hazards.

Following the Urban Development and Housing Act (UDHA), SHZs are designated to housing programs and projects covering houses and lots or home lots only undertaken by the Government or the private sector for the underprivileged and homeless citizens. Only medium-rise developments shall be allowed in SHZs.

8. Utilities, Transportation and Services Zone

The Utilities, Transportation and Services Zone (UTSZ) is described as the Utilities, Transportation and Services Areas (UTSA) in CLUP 2017 – 2026. These zones comprise the existing Dumpsite in Barangay Buro and the container terminals in Barangays Paciano and San Cristobal.

The UT SZ is intended for utilitarian/ functional uses such as for waste-to-energy and composting facility (site of existing dumpsite), and transportation depots.

9. Parks and Recreation Zone

The Parks and Recreation Zone (PRZ) is described as the Parks and Recreation Areas (PRA) in CLUP 2017 – 2026. These zones comprise the Plaza across City Hall, the major golf courses in Brgy. Canlubang and Puting Lupa, other recreational facilities in the City such as basketball courts, badminton courts, parks in the barangays and legal easements along rivers and surface water bodies.

The City Government's policy is to preserve these major PRZs since they provide valuable urban amenities.

10. Cemetery/ Memorial Park Zone

The Cemetery/ Memorial Park Zone (C/MPZ) is described as the Cemetery/ Memorial Park Areas (C/MPA) in CLUP 2017 – 2026. These zones may be found in Barangays Barandal, Mapagong, Lecheria, Bañadero and Kay-anlog.

The C/MPZs are intended for the interment of the dead.

11. Upland Conservation Zone

The Upland Conservation Zone (UCZ) is described as the Upland Conservation Area (UCA) in CLUP 2017 - 2026. These zones are located in, wholly or in part, Brgys. Canlubang, Mabato, Bunggo, Hornalan, Laguerta, Buroi, Bubuyan, Kay-Anlog, Ulango, Puting Lupa, Camaligan, Saimsim, Pansol, Bucal and La Mesa.

These areas have low development potentials due to less friendly terrain (undulating to steep hills), unconsolidated land (esp. Bgys. Bunggo, Hornalan, Laguerta, Buroi and Bubuyan) and slopes greater than 18%. These are best left in a vegetative state due to steep slopes and instability of soils.

The UCZ is delineated in order to protect and/or conserve the environmentally-sensitive upland areas of Calamba. It shall define the urban edge of the City and shall be maintained in a low development density, preferably rural state.

12. Forest Buffer Zone

The Forest Buffer Zone (FBZ) is the Forest Buffer Area described in CLUP 2017-2026. It is defined by Proclamation No. 1257, which designated “certain areas surrounding the Makiling Forest Reserve as Buffer Zone...”

The proclamation was enacted to, among others, “avoid further encroachment on the (Makiling Forest) Reserve that would create disturbance or damage on the ecology of the area; and to reconcile socio-economic undertakings and environmental protection on the use of the buffer area in order to minimize negative off-site effects of land development therein.” Further to the said proclamation, the FBZ shall be for very low intensity development in order to enhance the protection of the Makiling Forest Reservation Area.

The zone has low development capability and is limited mainly by its steep slopes. It is composed of, wholly or in part, Bgys. Puting Lupa, Pansol and Bagong Kalsada.

13. Makiling Forest Reservation Zone

The control and jurisdiction of the Makiling Forest Reservation Zone (MFRZ) has been vested on the University of the Philippines at Los Baños (UPLB) by virtue of Republic Act 6967.

Per the said Act, the MFR shall be “conserved primarily as a training laboratory for research, instruction and extension to promote scientific and technical knowledge particularly in the preservation, protection, conservation and development of the forest, flora and fauna, and other natural resources in the interest and for the general welfare of the Filipino people.”

14. Agricultural Development Zone

The Agricultural Development Zone (ADZ) is the Agricultural Development Area (ADA) provided in CLUP 2017 - 2026. It is composed of, wholly or in part, Bgys. Banlic, Uwisan, Looc, Sampiruhan, Palingon, Lingga, San Jose, Lecheria, Halang, Bucal, and Pansol at the east.

15. Municipal Waters Zone

The Municipal Waters Zone (MWZ) covers areas of Laguna Lake that are within the jurisdiction of the City. Laguna Lake, or Laguna de Bay, is defined in Republic Act 4850 or the Laguna Lake Development Authority Act (as amended) as “that area covered by the lake water when it is at the average annual maximum level of elevation 12.50 meters, as referred to a datum 10.00 meters below mean lower low water (MLLW). Lands located at and below such elevation are public lands, which form part of the bed of said lake.” (Section 4.D). Laguna Lake thus includes the Shoreland Area.

By virtue of said Act, the Laguna Lake Development Authority (LLDA) is vested with the “exclusive jurisdiction to issue new permit for the use of the lake waters for any projects or activities in or affecting the said lake including navigation, construction, and operation of fishpens, fish enclosures, fish corrals and the like...” (Section 4.J.).

CLUP 2017 - 2026 adopts the national policy “to promote, and accelerate the development and balanced growth of the Laguna Lake area ... with due regard and adequate provisions for environmental management and control, preservation of the quality of human life and ecological systems, and the preservation of undue ecological disturbances, deterioration and pollution.” (RA 4850 Section 1).

Section 7. Overlay Zones.

The following are designated as Overlay Zones:

1. Flood Overlay Zone (FLD-OZ)

These cover areas that were determined moderately to highly prone to flood. The intent is to minimize the possible adverse impacts of flood to developments.

2. Liquefaction Overlay Zone (LF-OZ)

These cover areas that were determined to be moderately to highly susceptible to ground liquefaction. The intent is to minimize the possible adverse effects of liquefaction to developments.

3. Landslide Overlay (LSD-OZ)

These cover areas that were determined to be moderately to highly susceptible to rain induced landslide. The intent is to minimize the potential effects of developments to the surrounding terrain and/ or to minimize incidence of landslides affecting said developments.

4. Faultline Overlay Zone (FLT-OZ)

These cover areas that were determined to be traversed by faultlines. The intent is to ensure the provision and maintenance of the five-meter mandatory easement along the faultlines.

5. Urban Corridor Overlay Zone (UC-OZ)

These cover all properties fronting Manila South Road, Real Road (from SLEX to its junction with Chipeco Avenue), Burgos Street (from Real Road to its junction with Chipeco Avenue) and Maharlika Highway. The intentions for this zone are:

- To minimize roadside friction by reducing contact between vehicular through traffic and vehicle movement to and from individual properties
- To ensure that pedestrians walks are free from encroachments of parked vehicles; and
- To ensure a friendly and green urban environment by reducing the rigidity of streetscapes.

Section 8. Zoning Maps.

It is hereby adopted as an integral part of the RZO, the Official Zoning Maps of the City, duly signed by the Mayor and authenticated by the Sangguniang Panlalawigan. The designation, location and boundaries of the zones herein established are shown and indicated in the said Official Zoning Maps. The following Appendices show the various Zones of the City:

- Appendix A: General Zoning Map 2017 – 2026
- Appendix B: Urban Development Zone and Districts 2017 – 2026
- Appendix C: Historic Development District 2017 – 2026
- Appendix D: Tourism Development District 2017 – 2026
- Appendix E: General Development District and its Sub-Districts, 2017 – 2026
- Appendix F: Flood Overlay Zone
- Appendix G: Liquefaction Overlay Zone
- Appendix H: Landslide Overlay Zone
- Appendix I: Faultline Overlay Zone

Section 9. Zone Boundaries.

The locations and boundaries of the above mentioned zones into which the City has been subdivided are presented in the attached Zoning and District Maps. In order to determine where individual lot parcels fall, the Municipal Tax Map shall be overlain to the said Zoning and District Maps.

The boundaries of the following have been determined by previous legislation:

Shoreland Zone	:	LLDA Resolution No. 248, Series of 2005
Forest Buffer Zone	:	Proclamation No. 1257
Makiling Forest Reservation Zone	:	Republic Act 6967

Section 10. Interpretation of the Zone Boundary.

In the interpretation of the boundaries for any of the zones indicated on the Official Zoning Maps, the following rules shall apply:

1. Where zone boundaries are so indicated that they approximately follow the center of streets or highway, the street or highway right-of-way lines shall be construed to be the boundaries.
2. Where zone boundaries are so indicated that they approximately follow barangay boundary lines, the delineation shall be based on those indicated on the cadastral maps.
3. Where zone boundaries are so indicated that they are approximately parallel to the center lines or right-of-way lines of streets and highways, such zone boundaries shall be construed as being parallel thereto and at such distance therefrom as indicated in the Official Zoning Maps. If no distance is given, such dimension shall be determined by the use of the scale shown in said zoning map.

4. Where the boundary of a zone follows a stream, lake or other bodies of water, said boundary line should be deemed to be at the limit of the political jurisdiction of the community unless otherwise indicated. Boundaries indicated as following shorelines shall be construed to follow such shorelines and in the event of change in the shorelines, shall be construed as moving with the actual shorelines. Boundaries following bodies of water shall be subject to public easement requirements as provided in the Water Code, in the provisions of this ordinance and with other applicable regulations.
5. Where a zone boundary line divides a lot of single ownership, as of record at the effective date of the RZO, the lot shall be construed to be within the zone where the major portion of the lot is located. In case the boundary line bisects the lot, it shall fall in the zone where the principal structure falls.
6. Where a zone boundary is said to be “one lot deep,” this shall be construed as lateral boundary of the parcel from the reference road, river or others mentioned in the RZO and shall further be based on the technical description/ lot plan of the said parcel, duly certified by a licensed Geodetic Engineer and certified by the Land Registration Authority, at the time of the passage of the RZO.
7. Where zone boundaries are said to be as indicated in the Official Zoning Map, the location of the parcel in consideration shall be determined by overlaying the cadastral map to the former.
8. The mapped location of the property in consideration shall prevail over that of the textual description.

ARTICLE V. GENERAL REGULATIONS

Section 11. General Provision.

The City recognizes that any land use is a use by right but provides that the exercise of such right shall be subject to the review standards of the RZO.

Section 12. Height Regulations.

Notwithstanding the Building Height provisions of this Ordinance, building heights should also conform to the height restrictions and requirements of the Civil Aviation Authority of the Philippines (CAAP) or concerned military/ security authorities.

Exempted from the imposition of height regulations in residential zones are the following: towers, church, steeples, water tanks and other utilities and such other structures not covered by the height regulations of the National Building Code (NBC) and/or the CAAP or concerned military/ security authorities.

Section 13. Area Regulations.

Area regulations in all zones shall conform to the applicable minimum requirements of existing laws, codes and regulations such as:

1. PD 957 or “Subdivision and Condominium Buyers’ Protective Law” and its revised implementing rules and regulations
2. Batas Pambansa 220 or “Promulgation of Different Levels of Standards and Technical Requirements for Economic and Socialized Housing Projects” and its revised implementing rules and regulations

3. PD 1096 or National Building Code
4. Rules and Regulations of HLURB with regard to Locational Guidelines and latest CLUP guidelines of land use planning and zoning
5. CA 141 or Public Land Act
6. PD 705 or Revised Forestry Code
7. RA 6967 Declaring the Makiling Forest Reservation (MFR) as a Protected Area
8. Proclamation No. 1257 designating certain areas surrounding the MFR as Buffer Zone
9. RA 7586 or National Integrated Protected Areas System Act of 1992
10. PD 1076 or Water Code of the Philippines
11. RA 6657 or Comprehensive Agrarian Reform Law
12. PD 1586 or Environmental Impact System Law
13. RA 8749 or Clean Air Act
14. RA 9003 or Ecological Solid Waste Management Act
15. RA 7586 or National Integrated Protected Areas Act
16. RA 7942 or Philippine Mining Act
17. RA 8435 or Agriculture and Fisheries Modernization Act (AFMA)
18. RA 8550 or Revised Fisheries Code
19. RA 9593 or Philippine Tourism Act
20. RA 10066 or Philippine Cultural Heritage Act
21. Other relevant guidelines promulgated by the national agencies concerned and deemed applicable by the Zoning Officer

Section 14. Easement.

All developments shall provide the following mandatory easements:

1. Pursuant to the provisions of the Water Code, the banks of rivers and streams and the shores of Laguna de Bay throughout their entire length and within a zone of 3 meters in urban areas, 20 meters in agricultural areas and 40 meters in forest areas, along their margins, are subject to easement of public use in the interest of recreation, navigation, floatage, fishing and salvage.

No person shall be allowed to stay in this zone longer than what is necessary for space or recreation, navigation, floatage, fishing or salvage or to build structures of any kind.

2. Easements similar to the above are required along the banks of major National Irrigation Authority canals (equal to or wider than 2 meters) throughout their entire length.
3. Mandatory five-meter easement on both sides of earthquake fault traces on the ground identified by PHIVOLCS.
4. Road right-of-way easement according to the National or City Government's current and future road widening and road construction program.

Section 15. Advertising, Billboards and Business Signs.

No advertising, billboards or business signs whether on or off premises of an establishment shall be displayed or put up for public view without locational clearance from the Zoning Officer. Locational Clearance for such signs or billboards may be granted only when the same is appropriate for the permitted use for a zone and the size thereof is not excessive, taking into account the bulk or size of the building or structure and the business practices or usages of the locality and the same shall in no case obstruct the view of any scenic spot.

Obnoxious signs that would constitute nuisance to adjoining property owners, distract motorists or constitute as hazards to public safety shall not be allowed in any area. No sign should project to public property unless expressly allowed by the Zoning Officer. Temporary signs and billboards for not more than two months may be allowed by the Zoning Officer upon payment of corresponding fees to the City. The permit for such sign shall indicate the location, size, slope, contents and type of construction.

It shall be unlawful to maintain an obsolete sign by reason of discontinuance of business, service or activity for more than 60 days there from.

ARTICLE VI. SPECIFIC ZONE REGULATIONS

Section 16. Classification of Uses.

Development proposals shall be classified according to the following uses:

- Residential -1 Uses
- Residential – 2 Uses
- Residential – 3 Uses
- Residential – 4 Uses
- Residential – 5 Uses
- Commercial – 1 Uses
- Commercial – 2 Uses
- Commercial – 3 Uses
- General Institutional Uses
- Special Institutional Uses
- Parks and Recreation Uses
- Light Industrial Uses
- Medium Industrial Uses
- Utilities, Transportation and Services Uses
- Cemetery/ Memorial Park Uses
- Protection Agriculture Uses

The list of allowable uses within each classification as provided by the HLURB is adopted in this Ordinance and are exhibited in **Appendix J**.

Section 17. Urban Development Zone (UDZ) Guidelines

1. Historical Development District

a. Allowable Uses

- Commercial – 1 Uses
- Residential – 2 Uses
- General Institutional Uses
- Parks and Recreation Uses

b. Building/ Structure Regulations

- The Building Height Limit shall be three storeys or 15 meters from highest finish grade to top most roof apex line.
- The design and construction of all buildings, structures and other facilities therein shall observe a Hispanic Architectural motif, circa 1800s and must

remain compatible with the architecture of the Rizal Shrine. Buildings along J.P. Rizal, Burgos and Pabalan Streets from the Crossing up to L. Jaena Street shall be arcaded and provided with uniform columniation.

- No large commercial signage and/or pylon, which will be detrimental to the skyline, shall be allowed.

2. Tourism Development District

a. Allowable Uses

- Commercial – 1 Uses
- Residential – 2 Uses
- General Institutional Uses
- Parks and Recreation Uses

b. Building/ Structure Regulations

- The Building Height Limit shall be four storeys.

3. General Development District

a. Commercial -3 Sub-

District Allowable Uses

- Commercial – 3 Uses

b. General Residential Sub-

District Allowable Uses

- Residential-5 Uses

c. General Institutional Sub-

District Allowable Uses

- General Institutional Uses

d. Parks and Recreation Sub-

District Allowable Uses

- Parks and Recreation Uses

Section 18. Growth Management Zone - 1 (GMZ - 1) Guidelines

1. Allowable Uses

All uses allowed under the following classifications of the HLURB:

- Residential-5 Uses
- Commercial-3 Uses
- General Institutional Uses
- Special Institutional Uses

- Parks and Recreation Uses

Section 19. Growth Management Zone – 2 (GMZ - 2) Guidelines

1. Allowable Uses

All uses allowed under the following classifications of the HLURB:

- Residential-5 Uses
- Commercial-2 Uses
- General Institutional Uses
- Parks and Recreation Uses

Section 20. Controlled Urban Growth Zone (CUGZ) Guidelines

1. Allowable Uses

All uses allowed under the following classifications of the HLURB:

- Residential – 1 Uses
- Commercial - 1 Uses
- Parks and Recreation Uses

2. Building/ Structure Regulations

- The Building Height Limit shall be two storeys.

Section 21. Medium Industrial Zone (MIZ) Guidelines

1. Allowable Uses

All uses allowed under the following classifications of the HLURB:

- Medium Industrial Uses
- Light Industrial Uses

Section 22. General Institutional Zone (GIZ) Guidelines

1. Allowable Uses

All uses allowed under the following classifications of the HLURB:

- General Institutional Uses

Section 23. Socialized Housing Zone (SHZ) Guidelines

1. Allowable Uses

- All uses allowed according to the provisions of BP 220.

Section 24. Utilities, Transportation and Services Zone (UTSZ) Guidelines

1. Allowable Uses

- Container terminal

- Waste to energy facility
- Composting facility

Section 25. Parks and Recreation Zone (PRZ) Guidelines

1. Allowable Uses

- Parks and Recreation Uses

Section 26. Cemetery/ Memorial Park Zone (C/MPZ) Guidelines

1. Allowable Uses

- Cemetery/ Memorial Park Uses

Section 27. Upland Conservation Zone (UCZ) Guidelines

1. Allowable Uses

All uses allowed under the following classifications of the HLURB:

- a. Residential-1 Uses
- b. Commercial-1 Uses
- c. General Institutional Uses
- d. Special Institutional Uses
- e. Protection Agriculture Uses
- f. Parks and Recreation Uses

2. Land Use Intensity Control Ratings

Following is the LUIC rating that shall be observed in the UCZ:

Maximum Percentage of Site Occupancy (PSO)	Maximum Floor Area Ratio (FAR)	Minimum Unpaved Surface Area (USA)
40%	2.0	30%

For Parks and Recreation Uses, the LUIC ratings shall be per the provisions of the NBC.

3. Intensity Bonus

The following Intensity Bonus applies to developments in the UCZ:

PSO Reduction (%)	Additional FAR (%)
10 to 19	5
20 to 29	7
30 to 39	10
40 to 49	12
50 to 59	15
60 to 69	17
70 to 80	20

The resultant FAR should not exceed those allowed in the NBC.

Section 28. Forest Buffer Zone (FBZ) Guidelines.

1. Allowable Uses

All uses allowed under the following classifications of the HLURB:

- Residential – 1 Uses
- Commercial - 1 Uses
- General Institutional Uses
- Special Institutional Uses
- Protection Agriculture Uses
- Parks and Recreation Uses

3. Land Use Intensity Control Ratings

Following is the LUIC rating that shall be observed in the FBZ:

MAPSO	Maximum FAR	Minimum USA
30%	1.0	40%

For Parks and Recreation Uses, the LUIC ratings shall be per the provisions of the NBC.

Section 29. Makiling Forest Reservation Zone (MFRZ) Guidelines.

1. Allowable Uses

- In accordance with the latest version of the Land Use and Property Policies of UPLB with regards to the MFR

Section 30. Agricultural Development Zone (ADZ) Guidelines.

1. Allowable Uses

- Protection Agriculture Uses

2. Building/ Structure Regulations

- The Building Height Limit shall be three storeys.

Section 31. Municipal Waters Zone (MWZ) Guidelines.

1. Allowable Uses

- In accordance with the latest rules and regulations of LLDA with regard to Laguna Lake and Shoreland areas.

Section 32. Regulations in Overlay Zones.

The following additional regulations shall apply to developments located in Overlay Zones.

Section 34.1. Flood Overlay Zone (FLD-OZ)

1. Allowable Uses

- Allowable uses on properties shall be as provided in the respective Base Zones.

2. Building Density and Bulk Regulations

- The MAPSO shall be:
 - Not more than 50% for all types of uses

The MAPSO shall include all buildings and structures built or to be built on the lot.

- The USA shall be:
 - Not less than 40% for Parks and Recreation Uses
 - Not less than 30% for all other uses/ activities

3. Site Development and Building/ Structure Design Regulations

Buildings shall be made flood proof through any or combination of the following means:

- Sites shall not be altered, filled and/or built upon without proper drainage design and without proper consideration of possible inundation effects on nearby properties
- Raising the lowest floor line at or above the Flood Protection Elevation (FPE) as determined by the Department of Public Works and Highways (DPWH) either through fill or by using stilts
- Providing roof decks that can be used for evacuation purposes
- Building utility connections such as those for electricity, potable water and sewage shall be located at elevations higher than the FPE
- Natural drainage patterns should not be altered
- Use sustainable urban drainage systems (SUDS) to include rainwater storage tanks, green roofs, etc. that can decrease the flow and make productive use of storm water run-off

Section 34.2. Liquefaction Overlay Zone (LF-OZ)

1. Allowable Uses

- Allowable uses on properties shall be as provided in respective Base Zones.

2. Building Density and Bulk Regulations

- The MAPSO shall be:
 - Not more than 50% for all types of uses

The MAPSO shall include all buildings and structures built or to be built on the lot.

- The USA shall be:
 - Not less than 40% for Parks and Recreation Uses
 - Not less than 30% for all other uses/ activities

3. Geo-technical Report

- Proposals that are within the LF-OZ shall submit a certification from the Mines and Geo-sciences Bureau regarding soil and related conditions along with a separate geo-technical report signed and sealed by a licensed Civil Engineer.

Section 34.3. Landslide Overlay (LSD-OZ)

1. Allowable Uses

- Allowable uses shall be as provided in the Base Zone.

2. Building Density and Bulk Regulations

- The MAPSO shall be:
 - Not more than 20% for Parks and Recreation uses
 - Not more than 30% for all other uses/ activities

The MAPSO shall include all buildings and structures built or to be built on the lot.

- The USA shall be:
 - Not less than 50% for all uses/ activities

3. Site Development and Building/ Structure Design Regulations

Site development shall be designed with consideration to avoiding/minimizing (1) risks that it will be affected by landslides; (2) its adverse impacts to the soil; (3) and risks that it will cause landslides to nearby areas/properties.

- Buildings and structures should be laid out and designed to harmonize with the terrain to minimize earth moving activities
- Appropriate slope, erosion and soil stabilization measures shall be applied, either through hard or soft engineering measures
- Indigenous and mature vegetation should be retained
- Natural drainage patterns should not be altered
- Use sustainable urban drainage systems (SUDS) to include rainwater storage tanks, green roofs, etc. that can decrease the flow and make productive use of storm water run-off

Section 34.4. Faultline Overlay Zone (FLT-OZ)

1. Allowable Uses

Only the following uses shall be allowed within the FLT-OZ:

- Parks, playgrounds, pocket parks, parkways, promenades and play lots
- Legal easements

The above uses supersede the list of Allowed Uses in the Base Zones affected by FOZs.

2. Building Density and Bulk Regulations

No permanent buildings/structures shall be built within the FLT-OZ.

Section 34.5. Urban Corridor Overlay Zone (UC-OZ)

1. Allowable Uses

Allowable uses as provided in the Base Zone.

2. Building Density and Bulk Regulations

As provided in the Base Zone.

3. Vehicle Parking Design Regulations

a. Lots having frontages of 10 meters and wider

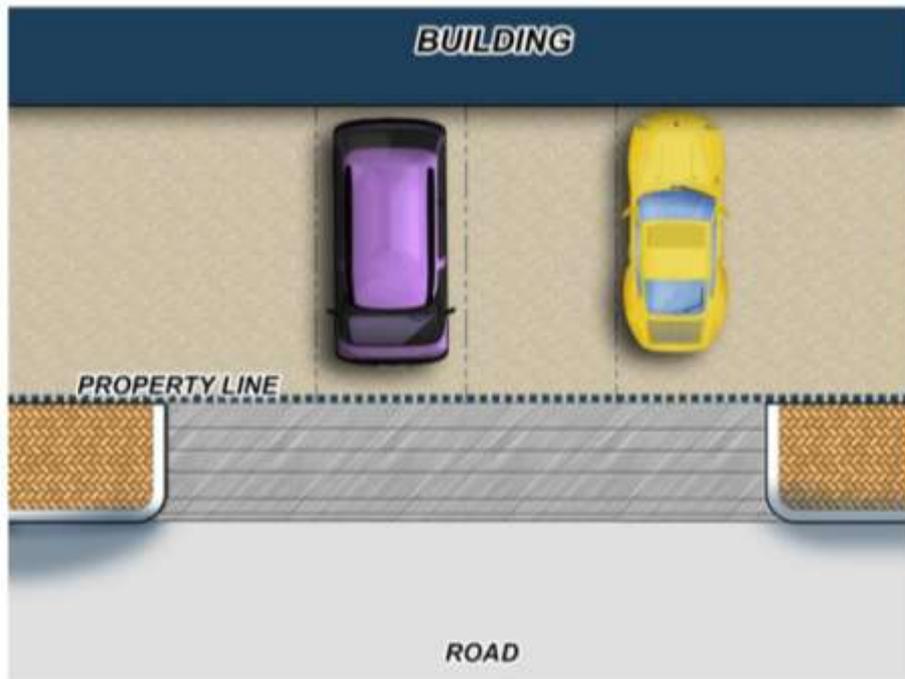
Parking spaces shall be provided with distinct entry and exit points, i.e. through driveways. Parking layouts that cause the backing of vehicles onto these roads shall not be allowed.



Parking layout on lots with frontages of 10m and wider

b. Lots having frontages of less than 10 meters

Parking spaces may be laid out along the building frontage within the property line.



Parking layout on lots with frontages of less than 10m

Section 34.6. Properties with two or more Overlay Zones.

For properties that have two or more Overlay Zones, such as located in both FLD-OZ and LF OZ, the combined set of regulations shall apply. In cases of regulations pertaining to MAPSO and USA, the more stringent regulation shall apply.

ARTICLE VII. PERFORMANCE STANDARDS

Section 33. Application of Performance Standards.

The following performance standards are intended to ensure land use and neighborhood compatibility. Proposed developments shall comply with the applicable performance standards which shall form part of the requirements for Locational Clearance. These standards are by no means exhaustive or all inclusive. The Local Zoning Board of Appeals (LZBA) may require other standards, when deemed necessary, to ensure land use and neighborhood compatibility.

Section 34. Buffers.

Building setbacks shall be considered as buffer yards. Aside from providing light and ventilation, buffers can mitigate adverse impacts and nuisances between two adjacent developments. Whenever necessary, buffers shall be required to be extended and/or provided with planting materials in order to ameliorate said negative conditions such as, but not limited to, noise, odor or danger from fires and explosions. A buffer may also contain a barrier, such as a berm or a fence, where such additional screening is necessary to achieve the desired level of buffering between various activities.

1. Buffers between adjoining properties. Between two different developments, e.g. General Residential and General Commercial, the more intense land use shall provide the proper buffer design and materials. If a development shall occur beside a vacant lot, the owners of the properties in consideration may submit a contractual

agreement whereby the required buffer for the first area to develop shall be reduced or waived. If additional buffer will be required at the time the vacant lot develops, it shall be provided by the latter development.

2. Buffers on simultaneous developments. The more intense use shall provide the necessary buffer in cases when two developments occur simultaneously.
3. Location of buffers. The building setbacks shall serve as buffer locations, at the outer perimeter of a lot or parcel. In no case shall buffers occupy public or private street rights-of-way.
4. Types of buffers. Landscaped buffers with suitable foliage are encouraged. On developments where it may not be possible to put in landscaped buffers (such as narrow lots), the developer may put up a fence provided the fencing material is compatible with the design of the building.
5. Land uses in buffer yards. Buffers are part of yards and open spaces and in no case shall buildings encroach upon it. It may, however, be used for passive recreation such as gardening, pedestrian trails, etc.

Section 35. Environmental Conservation and Protection Standards.

It is the intent of the RZO to protect the natural resources of the City. In order to achieve this objective, all development shall comply with the following regulations:

1. Views shall be preserved for public enjoyment especially in sites with high scenic quality by closely considering building orientation, height, bulk, fencing and landscaping.
2. Deep wells shall not be allowed unless a Water Permit is obtained from the National Water Resources Board.
4. Land use activities shall not cause the alteration of natural drainage patterns or change the velocities, volumes, and physical, chemical, and biological characteristics of storm water. Streams, watercourses, wetlands, lakes or ponds shall not be altered, re-graded, developed, piped, diverted or built upon.

All developments shall ensure that storm water runoff shall be controlled through appropriate storm water drainage system design.

5. All developments shall undertake the protection of rivers, streams, lakes and ponds from sedimentation and erosion damage.
6. The internal drainage systems of developments shall be so designed as not to increase turbidity, sediment yield, or cause the discharge of any harmful substances that will degrade the quality of water. Water quality shall be maintained according to DENR's latest Revised Water Usage and Classification/Ambient Water Quality Criteria.
7. Municipal and industrial wastewater effluents shall not discharge into surface and groundwater unless it is scientifically proven that such discharges will not cause the deterioration of the water quality. Effluents shall be maintained according to DENR's latest Effluent Quality Standards for Class "C" Inland Waters.

8. Developments that generate toxic and hazardous waste shall provide appropriate handling and treatment facilities which should be in accordance with the requirements of and approved by the DENR.
9. All developments, particularly those in sloping areas, shall undertake adequate and appropriate slope and erosion protection as well as soil conservation measures.
10. Facilities and operations that cause the emission of dust, dirt, fly ash, smoke, gas or any other air polluting material that may have harmful effects on health or cause the impairment of visibility are not permitted. Air quality at the point of emission shall be maintained at specified levels according to DENR's latest Air Quality Standards.
11. Developments that generate a significant volume of solid waste shall provide appropriate solid waste collection and disposal systems and facilities.
12. Industrial processes/activities should not cause negative impacts to the environment. The Zoning Officer may request for descriptions of these as part of the requirements for Locational Clearance.
13. Mature trees or those equal to or greater than 12 inches caliper measured 14 inches above the ground shall not be cleared or cut.

Section 36. Agricultural Land Conservation and Preservation Standards.

Agricultural lands are recognized as valuable resources that provide employment, amenity and bio-diversity. All agricultural lands in the City shall not be prematurely re-classified. Requests for re-classification shall be evaluated on the merits of conditions prevailing at the time of application, compatibility with the CLUP, and subject to the provisions of Memorandum Circular No. 54 Prescribing the Guidelines Governing Section 20 of RA 7160, Authorizing Cities and Municipalities to Reclassify Agricultural Lands into Non-Agricultural Uses.

Re-classified agricultural lands, if undeveloped for a period of one year upon re-classification, shall be reinstated to agricultural classification.

Section 37. Network of Green and Open Spaces.

The City intends to develop a network of green and open spaces as a way to minimize the occurrence of urban heat islands. Developments shall conform to the following provisions, as applicable:

1. All residential, commercial, industrial and mixed-use subdivisions, in compliance with the rules and regulations of PD 1216, PD 953, PD 957 and BP 220, are respectively required to provide tree-planted strips along their internal roads.
2. Similar developments shall also be required to provide landscaped tree parks that may be made part of the open space requirements mandated by PD 957, BP 220 and related laws. These mandated open spaces shall be classified as non-alienable public lands, and non-buildable.
3. Roof decks of all buildings shall be landscaped.
4. Parking lots having at least 20 car parking slots shall be:

- a. Landscaped with suitable trees. The minimum height of trees at the time of securing an Occupancy Permit shall be 1.80 meters from the base to the crown
- b. 50% paved with permeable or semi-permeable materials such as grass, gravel, grass pavers and the like

Section 38. Historical Sites and Facilities Preservation and Conservation Standards.

Historic sites and facilities shall be conserved and preserved. These shall, to the extent possible, be made accessible for the educational and cultural enrichment of the general public.

The following shall guide the development of historic sites and facilities:

1. Sites with historic buildings or places shall be developed to conserve and enhance their heritage values
2. Historic sites and facilities shall be adaptively re-used

Section 39. Site Performance Standards.

The City considers it in the public interest that all projects are designed and developed in a safe, efficient and aesthetically pleasing manner. Site development shall consider the environmental character and limitations of the site and its adjacent properties. All project elements shall be in complete harmony according to good design principles and the subsequent development must be visually pleasing as well as efficiently functioning especially in relation to the adjacent properties and bordering streets.

The quality of every neighborhood shall always be enhanced. The design, construction, operation and maintenance of every facility shall be in harmony with the existing and intended character of its neighborhood. It shall not change the essential character of the said area but will be a substantial improvement to the value of the properties in the neighborhood in particular and the community in general.

Further, designs should consider the following:

1. The height and bulk of buildings and structures shall be so designed that it does not impair the entry of light and ventilation, cause the loss of privacy and/or create nuisances, hazards or inconveniences to adjacent developments.
2. Abutments to adjacent properties shall not be allowed without the neighbor's prior written consent which shall be required by the Zoning Officer prior to the granting of a Locational Clearance.
3. The capacity of parking areas/lots shall be per the minimum requirements of the NBC. These shall be located, developed and landscaped in order to enhance the aesthetic quality of the facility. In no case shall parking areas/lots encroach into road rights-of-way.
4. Developments, such as shopping malls, schools, places of worship, markets, sports stadia and the like, which attract a significant volume of transportation, such as public utility vehicles (PUVs) and, private vehicles shall provide adequate on-site parking for the same. These should also provide vehicular loading and unloading bays so as through street traffic flow will not be impeded.
5. Buffers, silencers, mufflers, enclosures and other noise-absorbing materials shall be provided to all noise and vibration-producing machinery. Noise levels shall be

maintained according to levels specified in DENR Department Administrative Order (DAO) No. 30 - Abatement of Noise and Other Forms of Nuisance as Defined by Law.

6. Glare and heat from any operation or activity shall not be radiated, seen or felt from any point beyond the limits of the property.
7. Fencing along major roads shall be see-through. Side and rear fencing between adjacent lots (not facing a road) may be of opaque construction materials. These roads are the following:
 - a. Manila South Road
 - b. Real Road
 - c. Maharlika Highway
 - d. Jose P. Rizal Road
 - e. Parian Road
 - f. Burgos Street – San Jose Road
 - g. Looc Main Road - Narra Street
 - h. Chipeco Avenue
 - i. Bacnotan Road
 - j. Ayala Greenfield Road
 - k. Mayapa – Canlubang Road
 - l. Calamba-Tagaytay Road
 - m. Silangan Industrial Park Road
 - n. C.A. Yulo Avenue
 - o. Jose A. Yulo Boulevard
 - p. Progress Avenue
 - q. Don Bosco Street
 - r. Palo Alto Road
 - s. Batino Road
 - t. Ciudad de Calamba Road
 - u. BuroI Road
 - v. Makiling Drive
 - w. Others as may be identified by the City Government

Section 40. Infrastructure Capacities.

All developments shall not cause excessive requirements at public cost for public facilities and services. All developments shall exhibit that their requirements for public infrastructure (such as roads, drainage, water supply and the like) are within the capacities of the system/s serving them.

The Zoning Officer shall require the following:

1. Drainage Impact Statement

All development proposals in flood prone areas and all major proposals likely to affect the existing drainage regime, including commercial-residential buildings or condominiums, shopping malls, public markets, schools, universities, residential and industrial, and other similar developments shall be required to submit Drainage Impact Statements. These should be prepared, signed and sealed by duly licensed Civil Engineers or Sanitary Engineers.

2. Traffic Impact Statement

Major, high intensity facilities such as commercial-residential buildings or condominiums having four floors and above, shopping malls, public markets, transportation terminals/ garages, schools, universities, residential and industrial subdivisions, cock fighting arena, sports stadia and other similar developments shall be required to submit Traffic Impact Statements. Other traffic generating developments, as determined by the Zoning Officer/Zoning Officer, shall be required to submit the same. Traffic Impact Statements should be prepared, signed and sealed by duly licensed Environmental Planners.

Section 41. Socio-Economic Impact Assessment.

Major developments such as industrial estates, industrial establishments, shopping centers and/or similar facilities that require 50 or more employees during operations shall be required to submit Socio-Economic Impact Assessments which shall form part of the requirements for Locational Clearance. Proponents shall establish that their developments shall cause direct socio-economic benefits to the City such that they prioritize the hiring of qualified residents of the City, provide relevant employee housing facilities/assistance and/or prioritize the sourcing of materials and supplies from the City. Socio-Economic Impact Assessment should be prepared, signed and sealed by duly licensed Environmental Planners.

ARTICLE VIII. MITIGATING DEVICES

Section 42. Deviation.

Variances and/ or Exceptions from the provisions of this Ordinance may be allowed by the Local Zoning Board of Appeals (LZBA) only when the following terms and conditions exist:

1. Variances (deviation from applicable Building Bulk and Density Regulations, Building Design Regulations and Performance Standards)

Variance may be allowed provided that proposals satisfy all of the following provisions:

- a. Conforming to the provisions of this Ordinance will cause undue hardship on the part of the owner of the property due to physical conditions of the property (topography, shape, etc.), which is not self-created
 - b. The proposed variance is the minimum deviation necessary to permit reasonable use of the property
 - c. The variance will not alter the intended physical character of the zone and adversely affect the use of the other properties in the same zone such as blocking-off natural light, causing loss of natural ventilation or encroaching in public easements and the like
 - d. That the variance will not weaken the general purpose of this Ordinance and will not adversely affect the public health, safety or welfare
 - e. The variance will be in harmony with the spirit of this Ordinance
2. Exceptions (deviations from Allowable Use provisions) Exceptions may be allowed provided that proposals satisfy all of the following conditions:
 - a. The exception will not adversely affect the public health, safety and welfare and is in keeping with the general pattern of development in the community

- b. The proposed project shall support economic based activities/provide livelihood, vital community services and facilities while at the same time posing no adverse effect on the zone/community
- c. The exception will not adversely affect the appropriate use of adjoining properties in the same zone such as generating excessive vehicular traffic, causing overcrowding of people or generating excessive noise and the like
- d. The exception will not alter the essential character and general purpose of the zone where the exception sought is located

Section 43. Procedures for Evaluating Variances and/ or Exceptions.

The procedure for evaluating applications for Variances and/or Exceptions is as follows:

1. The project proponent shall file a written application for Variance and/or Exception with the LZBA citing the section(s) of this Ordinance under which the same is sought and stating the ground/s thereof
2. Upon filing of application, a visible project sign, (indicating the name and nature of the proposed project) shall be posted at the project site. This sign shall be maintained until the LZBA has rendered a decision on the application
3. The LZBA shall conduct preliminary studies on the application. These application papers shall be made accessible to the public
4. A written affidavit of no objection to the project by the owners of the properties immediately in front of and abutting the project site shall be filed by the applicant with the LZBA within fifteen (15) days upon filing of application
5. The LZBA shall hold public hearing(s) to be held in the concerned barangay
6. At the hearing, any party may appear in person, or be represented by agent/s. All interested parties shall be accorded the opportunity to be heard and present evidences and testimonies
7. The LZBA shall render a decision within thirty (30) days from the filing of the application, exclusive of the time spent for the preparation of written affidavit of non-objection and the public hearing(s). All expenses to be incurred in evaluating proposals for Variances and/ or Exceptions shall be shouldered by the project proponent.

ARTICLE IX. ADMINISTRATION AND ENFORCEMENT

Section 44. Approved Zoning Maps.

The Approved City Zoning Maps, printed in standard color codes and with minimum dimensions of 1.20m x 1.20m, shall be posted at the following offices:

- Office of the Mayor
- City Planning and Development Office
- City Assessor's Office
- City Engineer's Office
- Municipal Agrarian Reform Office
- City Agriculture Office
- City Environment Office

Zoning maps for each barangay shall be posted at respective barangay halls for public information and guidance of barangay officials. These should similarly be printed in standard color codes and minimum dimensions of 1.20m x 1.20m.

Section 45. Locational Clearance.

All owners/developers shall secure Locational Clearance from the Zoning Officer or, in cases of Variances and/or Exceptions, from the LZBA prior to conducting any activity or construction on their property/land. This will include property/ land located in areas administered by national and special agencies, except for facilities for national security as certified by the Department of National Defense.

Section 46. Projects of National Significance.

Based on established national standards and priorities, the HLURB shall continue to issue locational clearances for projects considered to be of vital and national or regional economic or environmental significance. Unless otherwise declared by the NEDA Board, all projects shall be presumed locally-significant. (Para. 2 Section 3a, of EO 72).

Section 47. Major and/ or Innovative Projects.

The Zoning Officer or the LZBA, as the case may be, may seek the assistance of the HLURB or external consultants in the evaluation of proposed Major and/ or Innovative Projects such as seaports, airports, oil depots, reclamation areas, shopping malls, special economic zones, tourism enterprise zones, and the like.

Section 48. Subdivision Projects.

All owners and/ or developers of subdivision projects shall, in addition to securing a Preliminary Approval for Locational Clearance, be required to secure a Development Permit pursuant to the provisions of PD 957 and its Implementing Rules and Regulations or BP 220 and its Implementing Rules and Regulations and in accordance with the procedures laid down in EO 71, Series of 1993.

Proposed subdivision projects shall prepare their respective Deed Restrictions (to include, among others, regulations pertaining to allowable uses within their project sites. The list of allowable uses within subdivisions shall be within the list of allowable uses within the Zone. Proof of compliance of future projects with the provisions of the Deed Restrictions for the said subdivision shall form part of the requirements for Locational Clearance.

The Zoning Officer shall, in accordance with EO 71 series of 1993, monitor the nature and progress of approved land development and/ or housing projects to ensure compliance with the conditions of the Development Permit, and impose appropriate measures to enforce compliance therewith.

Section 49. Planned Unit Development Projects.

Proposed Planned Unit Development (PUD) projects shall be accompanied by Comprehensive Development Master Plans (CDMPs) showing, at the minimum, proposed land uses, building density and bulk, road network layout, road and sidewalk section details, and master layouts of all utilities such as those for potable water, storm drainage, sewerage, power supply, telecommunication and solid waste management.

CDMPs shall also be provided with Deed Restrictions where, upon approval of the Zoning Officer or LZBA, as the case may be, proof of compliance of future projects on the said PUD site shall form part of the requirements for Locational Clearance.

Section 50. Environmental Compliance Certificate.

No Locational Clearance shall be issued to proposals covered by the EIS System unless the requirements of ECC have been complied with.

Section 51. Building Permit.

No Building Permit shall be issued by the City Building Official without a valid Locational Clearance in accordance with the RZO.

Section 52. Business Permit.

The Business Permits and Licensing Office shall require a Locational Clearance for new developments.

Should there be any change in the activity or expansion of the area subject of the Locational Clearance, the owner/developer shall apply for a new Locational Clearance.

Section 53. Certificate of Occupancy.

No Certificate of Occupancy shall be issued by the City Building Official without certification from the Zoning Officer that the building has complied with the conditions stated in the Locational Clearance.

Section 54. Validity of Locational Clearance.

Upon issuance of an LC, the grantee thereof shall have one year within which to commence or undertake the use, activity or development covered by such clearance on his property. Non-use of LC within said period shall result in its automatic expiration, cancellation and the grantee shall not proceed with his project without applying for a new clearance.

Should there be any change in the activity or expansion of the area subject of the Locational Clearance, the owner/developer shall apply for a new Locational Clearance.

Section 55. Notice of Non-Conformance.

Upon approval of this Ordinance, the Zoning Officer shall immediately issue Notices of Non-Conformance to existing non-conforming uses, buildings or structures. The said Notice of Non-Conformance shall cite provisions of this Ordinance to which the existing use, building or structure does not conform to. The same Notice shall also inform the owner of said non-conforming use, building or structure of the conditions for the continued use of the same as provided in the following section.

It may also provide conditions by which the non-conforming use can reduce its nonconformity.

Section 56. Existing Non-Conforming Uses, Buildings and Structures.

The lawful uses of any building, structure or land at the time of adoption or amendment of this Ordinance may be continued, although such uses do not conform to the provisions of the RZO, provided:

1. That no such non-conforming use shall be expanded or extended to occupy a greater area of land than that already occupied by such use at the time of the adoption of this Ordinance or moved in whole or in part, to any other portion of the lot or parcel of land where such non-conforming use exists at the time of the adoption of this Ordinance
2. That no such non-conforming use which has ceased operation for more than one (1) year be again revived as non-conforming use
3. A vacant/idle building or structure may not be used for non-conforming activity
4. That any non-conforming building/structure which has been damaged maybe reconstructed and used as before provided that such reconstruction is not more than fifty percent (50%) of the replacement cost. That should such non-conforming portion of any building/structure be destroyed by any means to an extent of more than fifty percent (50%) of its replacement cost at the time of destruction, it shall not be reconstructed except in conformity with the provisions of this Ordinance
5. That no such non-conforming use maybe moved to displace any conforming use
6. That no such non-conforming use and/or structure may be expanded or altered in a way which increases its non-conformity, but any structure or portion thereof may be altered to decrease its non-conformity
7. That should such use and/or structure be moved for any reason to whatever distance, it shall thereafter conform to the regulation of the zone in which it is moved or relocated
8. That such non-conforming use and/or structure should not cause nuisance effects to its neighborhood, such as but not limited to pollution of whatever form (air, noise, land, water, etc.), undesirable traffic (whether vehicular or pedestrian) and the like and should further not pose health and safety hazards and as further provided in the Performance Standards provision of this Ordinance
9. The owner of a non-conforming use and/or structure shall program the phase-out and relocation within ten (10) years from the effectivity of this Ordinance

Section 57. Responsibility for Administration and Enforcement.

This Ordinance shall be enforced and administered by the Local Chief Executive through the Zoning Officer who shall be appointed by the former in accordance with existing rules and regulations on the subject.

Section 58. Powers and Functions of the Zoning Officer.

Pursuant to the provisions of EO 72 implementing RA 7160 in relation to Sec. 5, Paragraph a and d, and Section 7 of Executive Order No. 648 dated 07 February 1981, the Zoning Officer shall perform the following:

1. Enforcement
 - a. Act on all applications for Locational Clearance
 - b. Issuance of Notice of Non-Conformance to owners/ operators of uses, buildings or structures that are non-conforming to the applicable provisions of this Ordinance.

- c. Monitor on-going/existing projects
- d. Issue Notices of Violation and Show Cause Order to owners, developers, or managers of projects that are in violation of the provisions of the RZO.
- e. Coordinate with the Philippine National Police (PNP) for enforcement of all orders and processes issued in the implementation of this Ordinance.
- f. Coordinate with the City Fiscal and/or City Legal Officer for other legal actions/remedies relative to the foregoing.

2. Planning

Coordinate with the Regional Office of the HLURB regarding proposed amendments to the RZO prior to adoption by the Sangguniang Panlungsod.

Section 59. Complaints and Oppositions.

A complaint for violation of any provision of the RZO or any clearance or permit issued pursuant thereto shall be filed with the LZBA.

Oppositions to applications for Locational Clearance, Variance or Exception shall be treated as a complaint and shall likewise be filed with the LZBA.

Section 60. Functions and Responsibilities of the Local Zoning Board of Appeals.

There is hereby created a LZBA which shall perform the following functions and responsibilities:

1. Act on applications of the following nature:
 - a. Variances
 - b. Exceptions
 - c. Non-Conforming Uses
 - d. Complaints and oppositions to application/s
2. Act on appeals on Grant or Denial of Locational Clearance by the Zoning Officer
3. Act on appeals regarding the non-conformity of existing uses, buildings or structures to the applicable provisions of this Ordinance
4. Decisions of the LZBA shall be carried by an absolute majority vote (50% + 1) of its members

Section 61. Appeals to LZBA Decisions.

Decisions of the LZBA shall be appealable to the Sangguniang Panlungsod (SP).

Section 62. Composition of the Local Zoning Board of Appeals (LZBA).

The LZBA shall be composed of the following members:

1. City Mayor as Chairman
2. SP Committee Chairperson on Land Use/Zoning
3. City Legal Officer
4. City Assessor
5. City Engineer
6. City Planning and Development Coordinator

7. City Environment and Natural Resources Officer/Disaster Risk Reduction and Management Officer
8. Two (2) representatives of the private sector nominated by their respective organizations
9. Two (2) representatives from non-government and civil society organizations nominated by their respective organizations.

The City Planning and Development Office shall serve as the Secretariat to the LZBA.

The LZBA may invite resource persons in support of the performance of its functions.

Section 63. Review of the Zoning Ordinance.

The Local Zoning Review Committee (LZRC) is hereby created under the City Development Council, to review the RZO considering the CLUP, based on the following reasons/ situations:

1. Updating/Revision of the CLUP
2. Introduction of projects of national and/ or local significance
3. Force majeure events with City-wide land use implications
4. Petition for re-zoning/re-classification with City-wide implications
5. Increasing number of applications/issuances invoking Variances and Exceptions

Section 64. Composition of the Local Zoning Review Committee (LZRC).

The Local Zoning Review Committee shall be composed of sectoral experts.

1. Sangguniang Panlungsod Chairperson on Land Use/Zoning (or equivalent committee)
2. City Planning and Development Coordinator
3. City Zoning Officer
4. City Assessor
5. City Legal Officer
6. City Engineer
7. City Community Environment and Natural Resources Officer/Disaster Risk Reduction and Management Officer
8. City Agriculturist
9. Municipal Agrarian Reform Officer
10. President, Association of Barangay Captains
11. Three (3) Private Sector Representatives such as from Local Chamber of Commerce, local housing industry, federation of homeowner's associations, and academe.
12. Two (2) non-government and civil society organization representatives

The City Planning and Development Office shall serve as the Secretariat to the LZRC.

The LZRC may invite resource persons in support of the performance of its functions.

Section 65. Functions of the Local Zoning Review Committee.

The Local Zoning Review Committee shall have the following functions:

1. Review the RZO for the following purposes:
 - a. Determine amendments or revisions necessary in the RZO because of changes that might have been introduced in the CLUP

- b. Recommend changes to be introduced in the CLUP and RZO in the light of permits granted such as variances and exceptions, and increasing applications for rezoning and reclassification
2. Recommend to the Sangguniang Panlungsod necessary legislative amendments and to the local planning and development staff the needed changes in the plan as a result of the review conducted
3. Coordinate with HLURB of the recommended changes to the RZO as a result of its review

Section 66. Amendments to the RZO.

Changes in the RZO, as a result of the review by the LZRC shall be treated as an amendment, provided that any proposed amendment to the Zoning Ordinance or provisions thereof shall be subject to public hearing and shall be carried out through a three-fourths vote of the Sangguniang Panlungsod.

Any amendment shall take effect only after approval and authentication by the Sangguniang Panlalawigan.

Section 67. Violation and Penalty.

Any “natural or juridical” person who violates any of the provisions of this Ordinance, shall, upon conviction, be punished by a fine not exceeding P5,000.00 or an imprisonment for a period not exceeding six months or a closure order, in case of business establishments, or a combination of these at the discretion of the Court. In case of violation by a corporation, partnership or association the penalty shall be imposed upon the erring officers thereof.

Moreover, such violations shall be subject to administrative penalties, to include administrative fines, to be imposed by the City Government. Such administrative penalties shall be in accordance with the HLURB's latest Schedule of Fees and Fines and Guidelines for its imposition.

Section 68. Suppletory Effect of Other Laws and Decrees.

The provisions of this Ordinance shall be without prejudice to the application of other laws, presidential decrees, letters of instruction and other executive or administrative orders vesting national agencies with jurisdiction over specific land areas, which shall remain in force and effect, provided that land use decisions of the national agencies concerned shall be consistent with the CLUP.

Section 69. Separability Clause.

Should any section or provision of this Ordinance be declared by the Courts to be unconstitutional or invalid, such decision shall not affect the validity of the Ordinance as a whole or any part thereof other than the part so declared to be unconstitutional or invalid.

Section 70. Repealing Clause.

All ordinances, rules or regulations in conflict with the provisions of this Ordinance are hereby repealed, provided that the rights that are vested upon the effectivity of this Ordinance shall not be impaired.

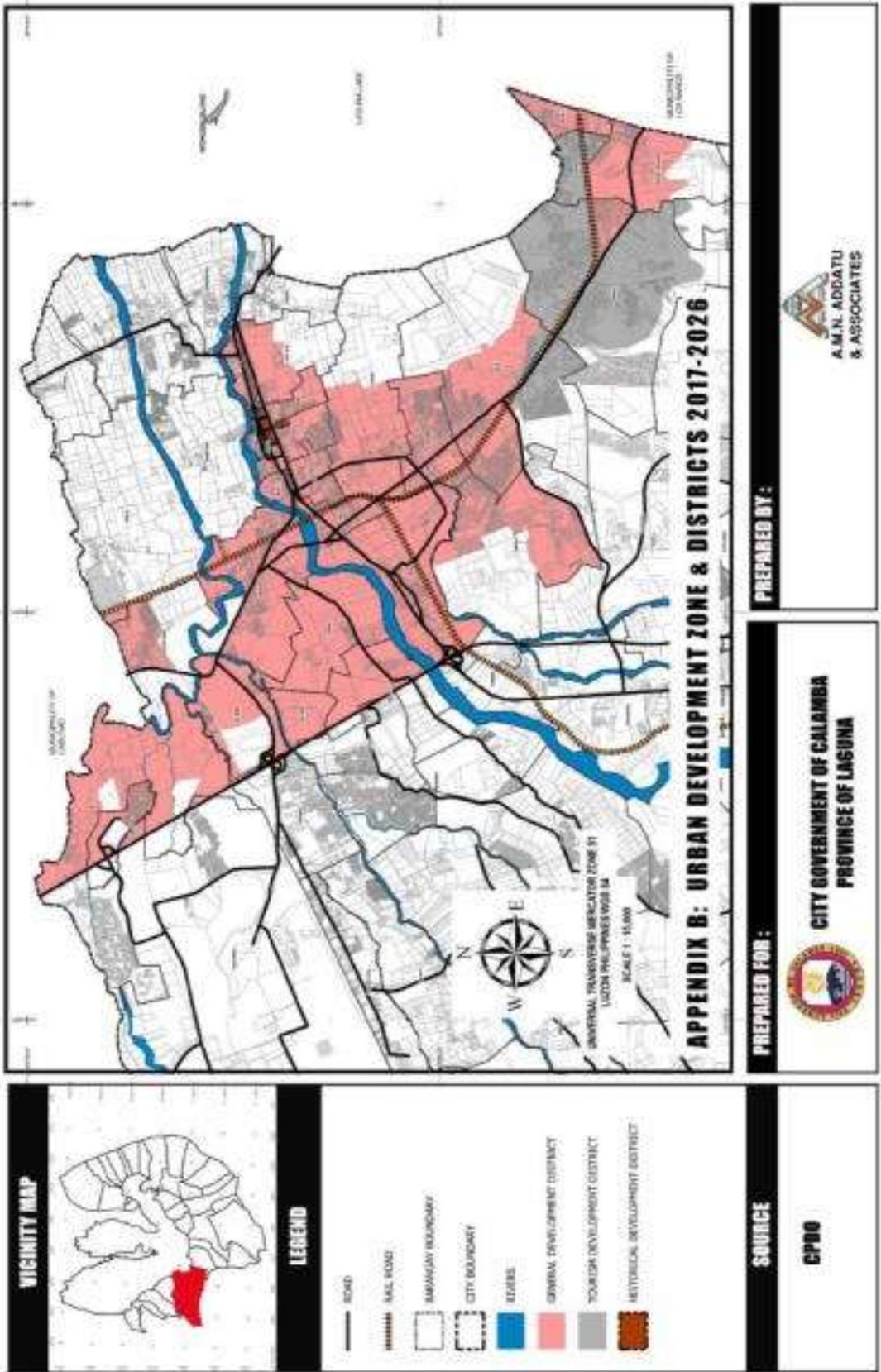
Section 71. Effectivity Clause.

This Zoning Ordinance takes effect upon approval by the Sangguniang Panlalawigan and after compliance with the publication requirements of the Local Government Code.

APPROVED ON: xxxxx

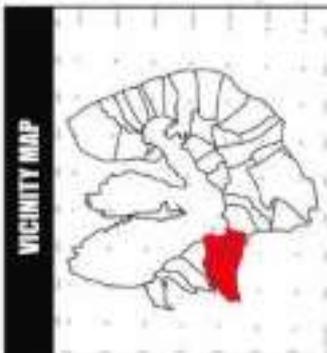
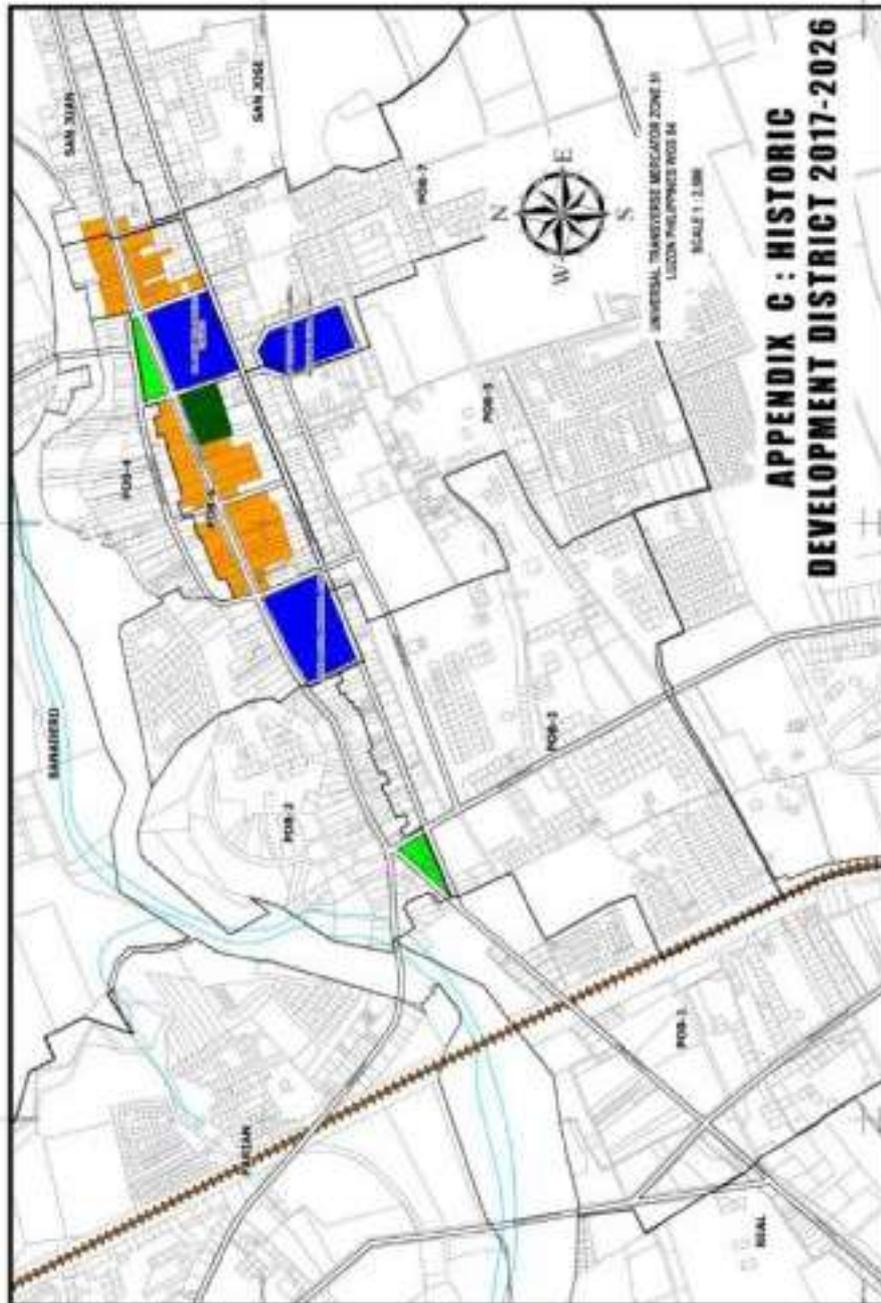
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THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



Appendix B: Urban Development Zone and Districts 2017 – 2026

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



LEGEND

	ROAD
	RAILROAD
	RIVER
	MUNICIPAL BOUNDARY
	RESIDENTIAL
	INSTITUTIONAL
	HISTORICAL DEVELOPMENT

SOURCE

CPDO

PREPARED FOR :

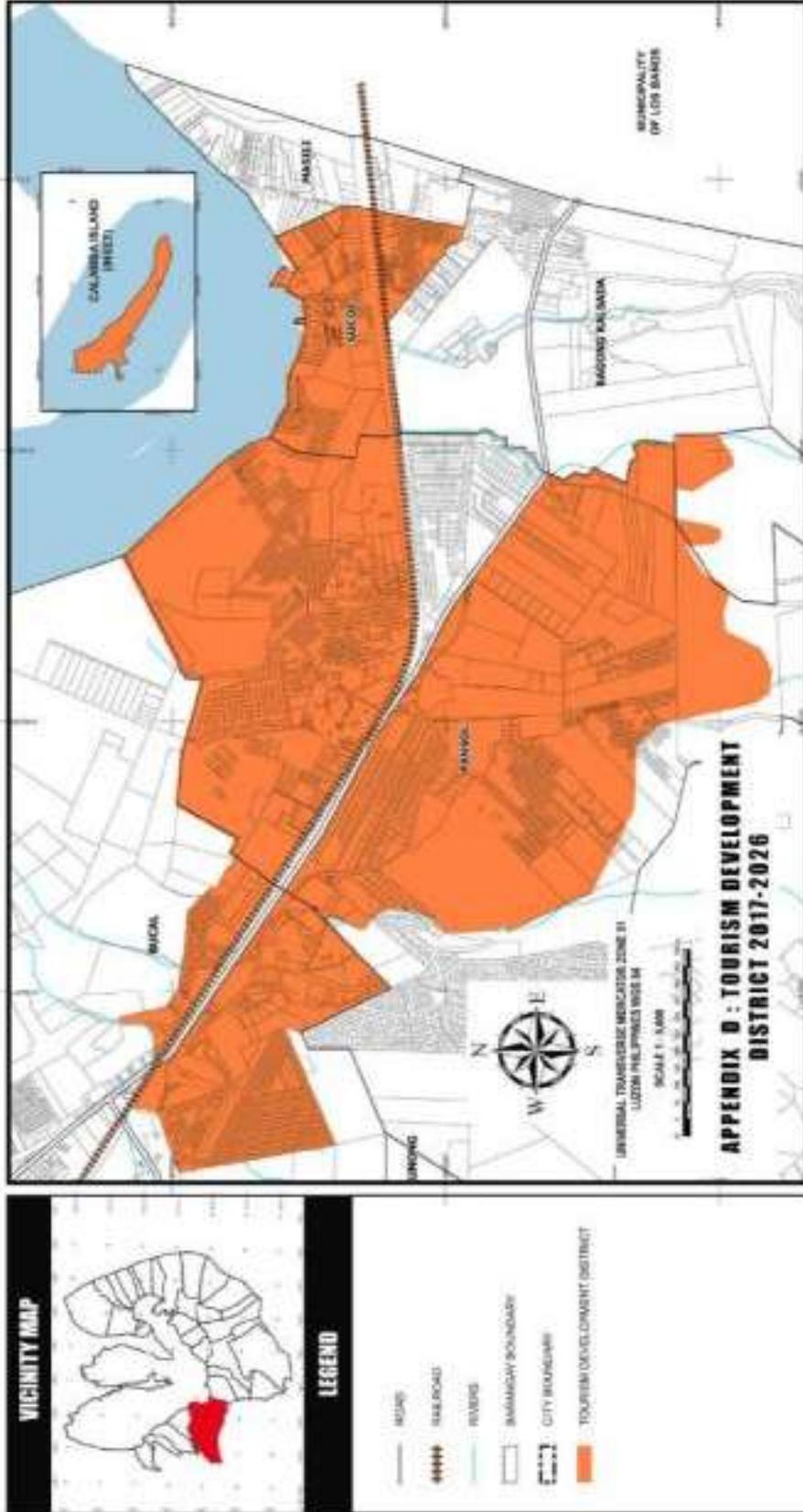
CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA

PREPARED BY :

A.M.M. ADDATU
& ASSOCIATES

Appendix C: Historic Development District 2017 – 2026

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



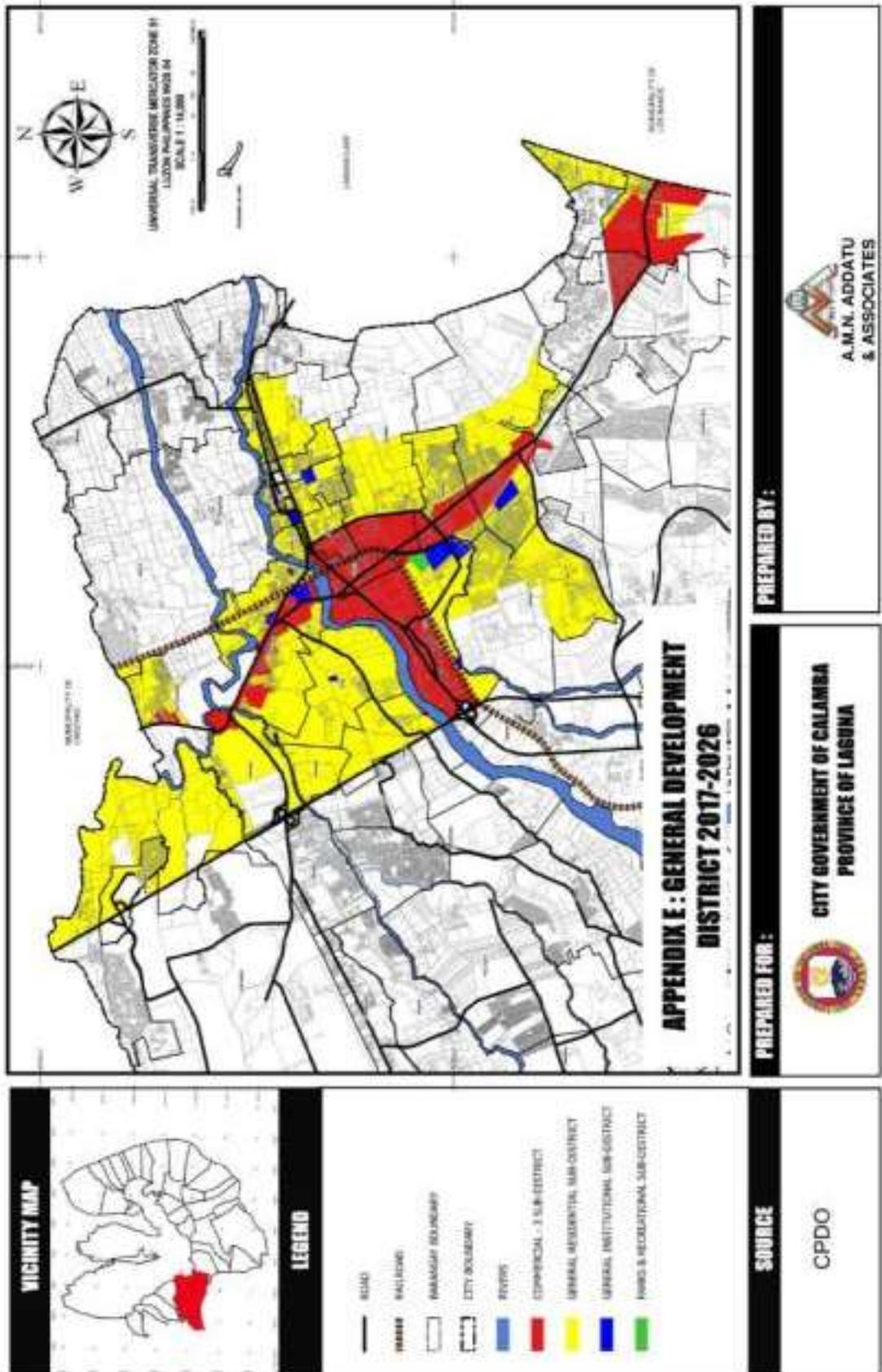
- LEGEND**
- ROAD
 - RAILROAD
 - RIVERS
 - SHAREDWAY BOUNDARY
 - CITY BOUNDARY
 - TOURISM DEVELOPMENT DISTRICT

APPENDIX D : TOURISM DEVELOPMENT DISTRICT 2017-2026

SOURCE	CPDO
PREPARED FOR :	 <p>CITY GOVERNMENT OF CALAMBA PROVINCE OF LAGUNA</p>
PREPARED BY :	 <p>A.M.N. ADDATU & ASSOCIATES</p>

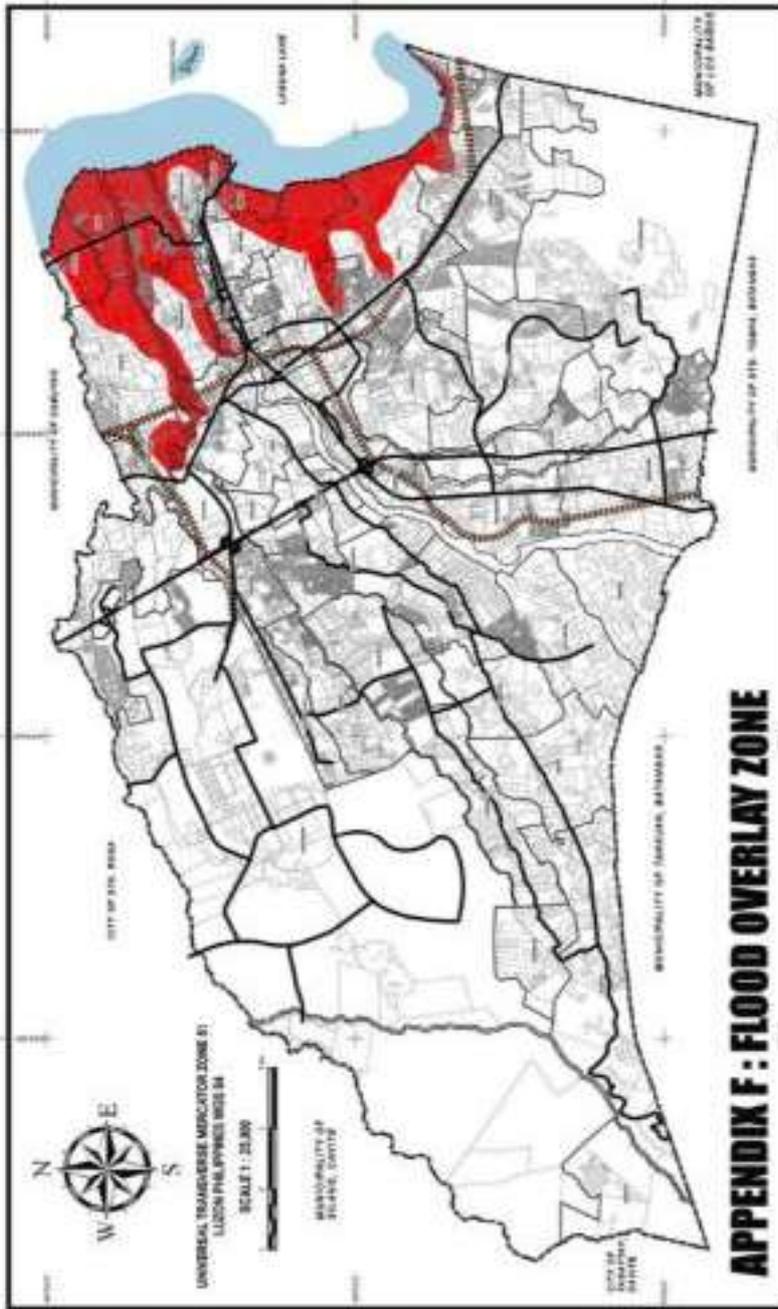
Appendix D: Tourism Development District 2017 – 2026

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

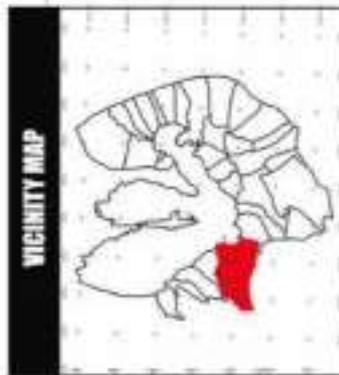


Appendix E: General Development District and its Sub-Districts, 2017 – 2026

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



APPENDIX F : FLOOD OVERLAY ZONE



LEGEND

- Road boundary
- FAIRROAD
- BARRIAGE BOUNDARY
- CITY BOUNDARY
- FLOOD OVERLAY ZONE

SOURCE
CPDO

PREPARED BY :



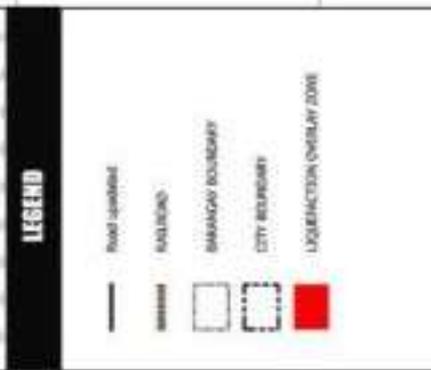
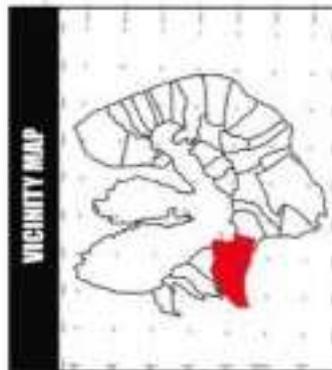
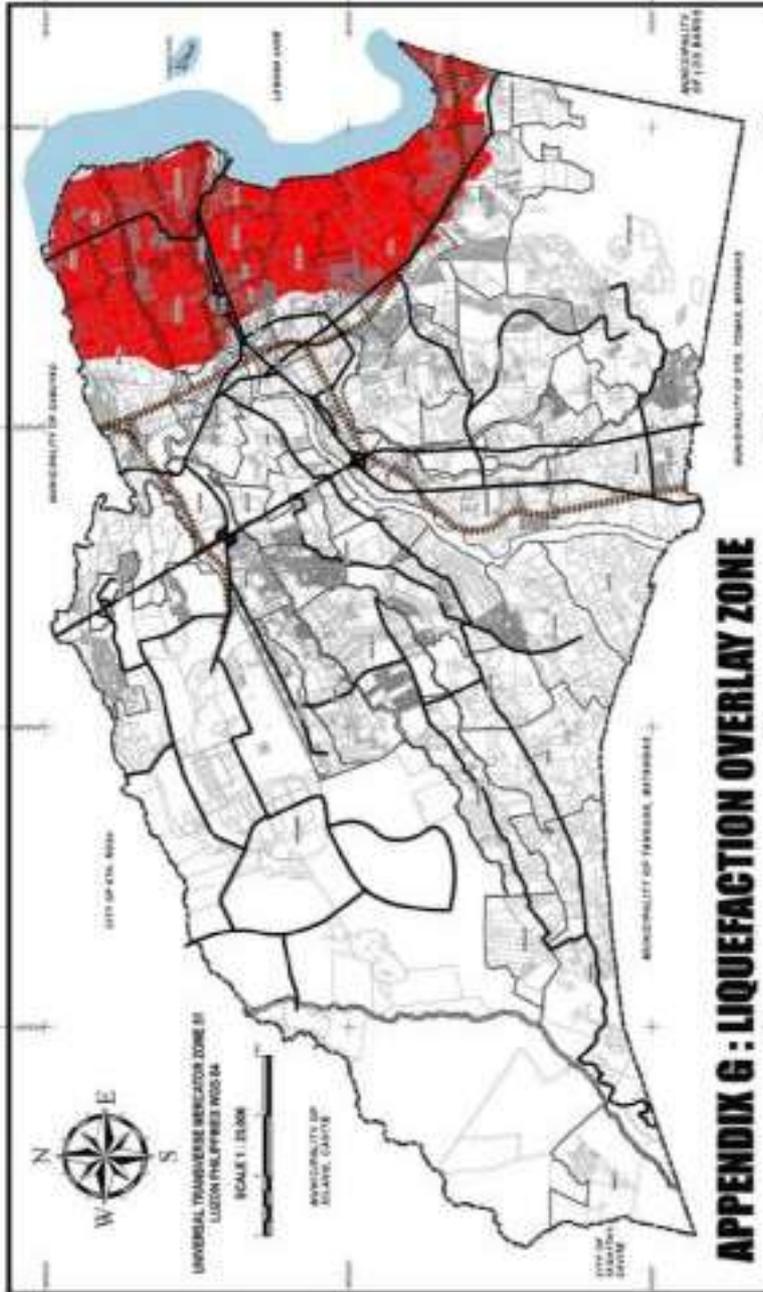
PREPARED FOR :



**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

Appendix F: Flood Overlay Zone

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



PREPARED BY :



A.M.N. ADDATU & ASSOCIATES

PREPARED FOR :

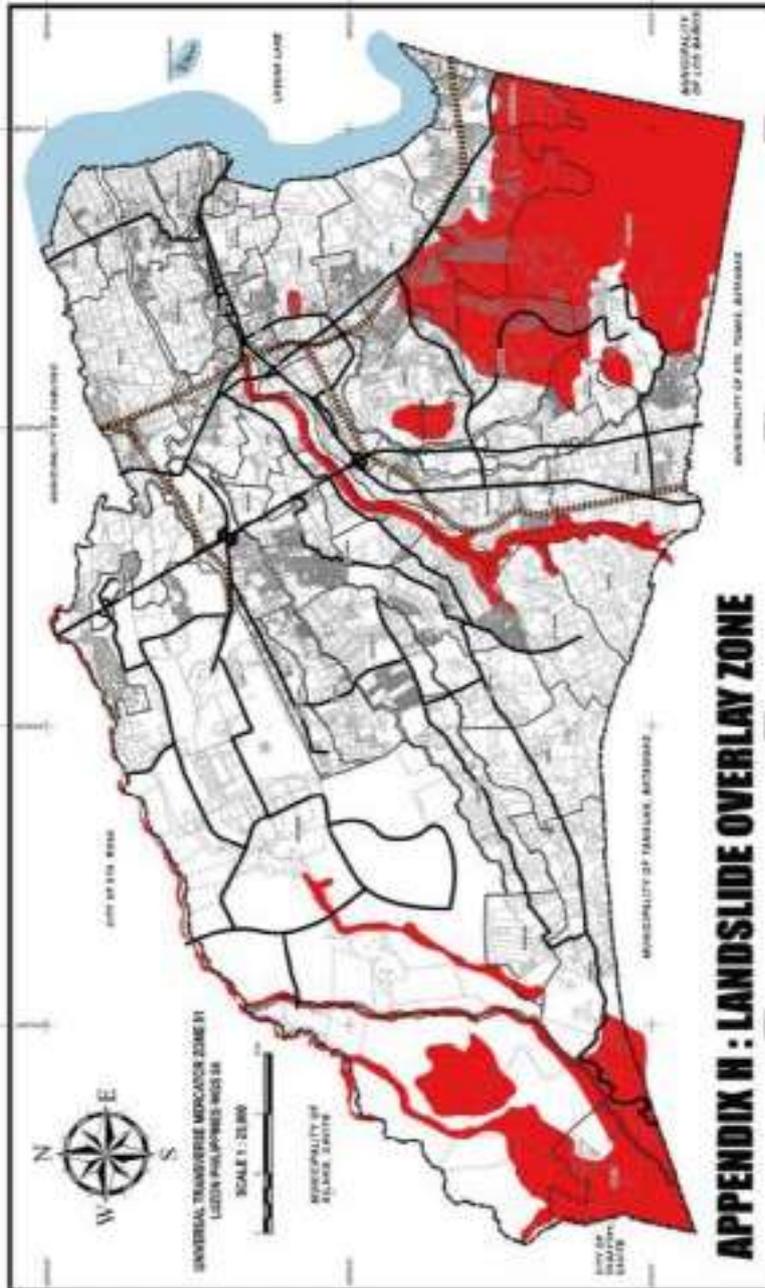


**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

SOURCE
CPDO

Appendix G: Liquefaction Overlay Zone

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



PREPARED BY:



A.M.N. ADDATU & ASSOCIATES

PREPARED FOR:



**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

SOURCE
CPDO

Appendix H: Landslide Overlay Zone

Appendix J. List of Allowable Uses

A. PROTECTION AGRICULTURE USES

- Cultivation, raising and growing of staple crops such as rice, corn, camote, cassava and the like
- Growing of diversified plants and trees, such as fruit and flower bearing trees, coffee, tobacco, etc.
- Silviculture, mushroom culture and the like
- Pastoral activities such as goat and cattle raising
- Fishpond activities
- Backyard raising of livestock and fowl, provided that:
 - For livestock – maximum of 1 sow and 10 heads
 - For fowl – a maximum of 500 heads

- Single-detached dwelling units of landowners
- Customary support facilities such as palay dryers, rice threshers and storage barns and warehouses
- Ancillary dwelling units/farmhouses for tenants, tillers and laborers
- Engaging in home businesses such as dressmaking, tailoring, baking, running a sarisari store and the like provided that:
 - The number of persons engaged in such business/industry shall not exceed five, inclusive of owner;
 - There shall be no change in the outside appearance of the building premises;
 - No home occupation shall be conducted in any customary accessory uses cited above;
 - No traffic shall be generated by such home occupation in greater volume than would normally be expected in a residential neighborhood and any need for parking generated by the conduct of such home occupation shall be met off the street and in a place other than the required front yard; and
 - No equipment or process shall be used in such home occupation which creates noise, vibration, glare, fumes, odors and electrical interference detectable to the normal senses and visual or audible interference in any radio or television receiver or causes fluctuations in line voltage off the premises.

- Home Industry classified as cottage industry provided that:
 - Such home industry shall not occupy more than thirty percent of the floor area of the dwelling unit.
 - There shall be no change or alteration in the outside appearance of the dwelling unit and shall not be a hazard or nuisance; and
 - Such shall consider the provisions pertaining to customary accessory uses, traffic and equipment as enumerated under Home Occupation of this section.

B. RESIDENTIAL – 1 USES

- Single-detached dwelling units
- Semi-detached family dwelling units, e.g. duplex
- Residential Subdivisions approved per P.D. 957 standards
- Home occupation for the practice of one's profession such as offices of physicians, surgeons, dentists, architects, engineers, lawyers, and other professionals or for engaging home business such as dressmaking, tailoring, baking, running a sari-sari store and the like, provided that:
 - The number of persons engaged in such business/industry shall not exceed five (5), inclusive of owner;
 - There shall be no change in the outside appearance of the building premises;

- That in no case shall more than 20% of the building be used for said home occupation;
 - No home occupation shall be conducted in any customary accessory uses cited above;
 - No traffic shall be generated by such home occupation in greater volume than would normally be expected in a residential neighborhood and any need for parking generated by the conduct of such home occupation shall be met off the street and in a place other than the required front yard; and
 - No equipment or process shall be used in such home occupation which creates noise, vibration, glare, fumes, odors and electrical interference detectable to the normal senses and visual or audible interference in any radio or television receiver or causes fluctuations in line voltage off the premises.
- Home Industry classified as cottage industry, provided that:
 - Such home industry shall not occupy more than thirty percent (30%) of the floor area of the dwelling unit. There shall be no change or alteration in the outside appearance of the dwelling unit and shall not be a hazard or nuisance;
 - It shall be classified as non-pollutive/non-hazardous as provided in this RZO; t Allotted capitalization shall not exceed the capitalization as set by the DTI; and
 - Such shall consider the provisions pertaining to customary accessory uses, traffic and equipment/process under Home Occupation of this section.
 - Recreational facilities for the exclusive use of the members of the family residing within the premises, such as:
 - Swimming pool
 - Tennis courts
 - Basketball courts
 - Parks and Open Spaces
 - Nursery/Elementary School
 - Tutorial services
 - Sports club
 - Religious use
 - Multi-purpose/Barangay hall
 - Clinic, nursing and convalescing home, health center
 - Plant nursery
 - Customary accessory uses incidental to any of the principal uses provided that such accessory uses shall not include any activity conducted for monetary gain or commercial purposes such as:
 - Servants quarters
 - Private garage
 - Guardhouse
 - Laundries
 - Non-commercial garages
 - Houses for pets such as dogs, birds, rabbits and the like of not more than 4.00 sq. m. in floor area
 - Pump houses
 - Generator houses

C. RESIDENTIAL – 2 USES

- All R-1 Uses
- Apartments
- Boarding houses

- Dormitories
- Museums
- Libraries
- High School
- Vocational School

D. RESIDENTIAL – 3 USES

- All R-1 and R-2 Uses
- Residential condominiums
- Pension houses
- Hotel apartments or apartels
- Hotels
- Parking buildings (aboveground/ underground)

E. RESIDENTIAL – 4 USES

- All R-1, R-2 and R-3 Uses
- Townhouses

F. RESIDENTIAL – 5 USES

- All R-1, R-2, R-3 and R-4 Uses

G. COMMERCIAL – 1 USES

- Retail stores and shops like:
 - Department stores
 - Bookstores and office supply shops
 - Art supplies and novelties
 - Home appliance stores
 - Car display and dealer stores
 - Photo shops
 - Flower shops
 - Curio or antique shops
 - Pet shops and aquarium stores
 - Jewelry shops
 - Consumer electronics such as cellular phones, cameras, laptops, home appliances and the like
 - Drugstores
- Food market and shops like:
 - Bakery, cake, pastry and delicatessen shops
 - Liquor and wine stores
 - Groceries
 - Supermarkets
 - Convenience stores
- Product showroom/display store
- Warehouse/storage facility for non-pollutive/non-hazardous finished products
- Personal service shops like:
 - Medical, dental, and similar clinics
 - Beauty parlor

- Barber shop
- Wellness facilities such as sauna, spa, massage and facial clinics
- Dressmaking and tailoring shop

- Bayad centers
- Laundries
- Internet café and cyber stations
- Photo/video, lights & sounds services
- Catering services
- Event planners
- Water stations
- Courier services
- Security agencies
- Janitorial services
- Travel agencies
- Photo and portrait studios
- Repair shops like:
 - House furniture and appliances repair shops
 - Motor vehicles and accessory repair shops
 - Battery shops and repair shops
 - Bicycle repair shops
 - Repair shops for watches, bags, shoes, cellular phones, cameras, computers and the like

- Recreational centers/establishments like
 - Play courts e.g. tennis court, bowling lane, billiard hall
 - Swimming pool
 - Gymnasium

- Restaurants and other eateries
- Lotto terminals, off-fronton, on-line bingo outlets and off-track betting stations
- Parks, playgrounds, pocket parks, parkways, promenades and play lots
- Plant nurseries
- Vocational/technical school
- Special Education (SPED) school
- Short term special education like:
 - Dance schools
 - Schools for self-defense
 - Driving school
 - Speech clinics
 - Tutorial centers

- Embassies/consulates
- Libraries/museums
- Financial institutions/services like:
 - Banks
 - Stand-alone automated teller machines
 - Insurance
 - Foreign exchange
 - Money lending
 - Pawnshops

- Offices
- Parking lots/garage facilities

- Parking buildings (aboveground/underground)
- Auto repair, tire, vulcanizing shops and car wash
- Engraving, photo developing and printing shops
- Printing, publication and graphics shops
- Manufacture of insignia, badges and similar emblems except metal
- Construction supply stores/depots
- Funeral parlors (Category II and III)
- Commercial housing like:
 - Hotel t Apartment
 - Apartel
 - Boarding house
 - Dormitory
 - Pension house
- All uses allowed R-1 Zones
- Customary accessory uses incidental to any of the above uses such as:
 - Staff houses/quarters
 - Parking lots/Building garage
 - Storerooms and warehouses but only as may be necessary for the efficient conduct of the business
 - Pump houses
 - Generator houses

H. COMMERCIAL – 2 USES

- All C-1 Uses
- Wholesale stores
- Wet and dry markets
- Shopping centers, malls and supermarkets
- Recreational center/establishments like:
 - Movie house/theater
 - Stadium, coliseum
 - Tennis courts and sports complex
 - Billiard halls, pool rooms and bowling alleys
 - Sports clubhouses
 - Other sports and recreational establishments
- Bars, sing-along lounges, bistros, pubs, beer gardens, disco, dance halls
- Exhibit halls
- Convention centers and related facilities
- Business Process Outsourcing services
- Radio and television stations
- Transportation terminals/garage with and without repair
- Display for cars, tractors, etc.
- Motorpool
- Hauling services and garage terminals for trucks, tow trucks and buses
- Auto sales and rentals, automotive handicraft, accessory and spare parts shops, marine craft and aircraft sales yards
- Boat storage
- Vehicle emission testing center
- Gasoline filling stations/services stations
- Machinery display shop/center
- Welding shops
- Machine shop service operation (repairing/rebuilding or custom job orders)

- Welding shop
- Medium scale junk shop
- Glassware and metalware stores, household equipment and appliances
- Signboard and streamer painting and silk screening
- Printing/typesetting, copiers and duplicating services
- Recording and film laboratories
- Gravel and sand stores
- Lumber/hardware
- Paint stores without bulk handling
- Gardens and landscaping supply/contractors
- Manufacture of ice, ice blocks, cubes, tubes, crush except dry ice
- Lechon stores
- Chicharon factory
- Biscuit factory—manufacture of biscuits, cookies, crackers and other similar dried bakery products
- Doughnut and hopia factory
- Other bakery products not elsewhere classified (n.e.c.)
- Shops for repacking of food products e.g. fruits, vegetables, sugar and other related products
- Manufacture of wood furniture including upholstered
- Manufacture of rattan furniture including upholstered
- Manufacture of box beds and mattresses
- Funeral parlors (all categories)
- Commercial condominium (with residential units in upper floors)
- Commercial housing like:
 - t Motel t Condotel
- All R-1 and R-2 Uses

I. COMMERCIAL – 3 USES

- All C-1 and C-2 Uses
- All R-3, R-4 and R-5 Uses
- Regional shopping malls/centers

J. GENERAL INSTITUTIONAL USES

- Government or civic centers to house national, regional or local offices in the area
- Police and fire stations
- Other types of government buildings
- Colleges, universities, professional business schools, vocational and trade schools, technical schools and other institutions of higher learning
- Learning facilities such as training centers, seminar halls and libraries
- Scientific, cultural and academic centers and research facilities except nuclear, radioactive, chemical and biological warfare facilities
- Museums, exhibition halls and art galleries
- Convention center and related facilities
- Civic centers and community centers
- General hospitals, medical centers, specialty hospitals, medical, dental and similar clinics,
- Places of worship, such as churches, mosques, temples, shrines, chapels
- Seminaries and convents
- Embassies/ consulates

- Parking buildings
- Parks, playgrounds, pocket parks, parkways, promenades and playlots

K. SPECIAL INSTITUTIONAL USES

- Welfare home, orphanages, boys and girls town, nursing homes, homes for the aged and the like
- Rehabilitation and vocational training centers for ex-convicts, drug addicts, unwed mothers, physically, mentally and emotionally handicapped, ex-sanitaria inmates and similar establishments
- Military camps/ reservations/ bases and training grounds
- Jails, prisons, reformatories and correctional institution
- Penitentiaries and correctional institutions
- Leprosaria
- Psychiatric facilities, such as mental hospitals, mental sanitaria/ asylums,
- Parks, playgrounds, pocket parks, parkways, promenades and playlots
- Subject to national locational guidelines and standards of concerned agencies

L. PARKS AND RECREATION USES

- Parks, playgrounds, pocket parks, parkways, promenades and playlots, gardens
- All types of resort complexes such as those providing accommodation, sports, dining and other leisure facilities
- Open air or outdoor sports activities and support facilities, including low rise stadia, gyms, amphitheaters and swimming pools
- Ball courts, skating rinks and similar uses
- Memorial/ Shrines monuments, kiosks and other park structures
- Sports clubs
- Parking structures/ facilities
- Open space buffers and easements

M. LIGHT INDUSTRIAL USES

Non-Pollutive/ Non-Hazardous Industries

- Drying fish
- Biscuit factory – manufacture of biscuits, cookies, crackers and other similar dried bakery products
- Doughnut and hopia factory
- Manufacture of macaroni, spaghetti, vermicelli and other noodles
- Other bakery production not elsewhere classified (n.e.c.)
- Life belts factory
- Manufacture of luggage, handbags, wallets and small leather goods
- Manufacture of miscellaneous products of leather and leather substitute and n.e.c.
- Manufacture of shoes except rubber, plastic and wood
- Manufacture of slipper and sandal except rubber and plastic
- Manufacture of footwear parts except rubber and plastic
- Printing, publishing and allied industries and those n.e.c.
- Manufacture or assembly of typewriters, cash registers, weighing, duplicating and accounting machines
- Manufacture or assembly of electronic data processing machinery and accessories
- Renovation and repair of office machinery
- Manufacture or assembly of miscellaneous office machines and those n.e.c.

- Manufacture of rowboats, bancas and sailboats
- Manufacture of animal-drawn vehicles
- Manufacture of children vehicles and baby carriages
- Manufacture of laboratory and scientific instruments, barometers, chemical balance, etc.
- Manufacture of measuring and controlling equipment, plumb bob, rain gauge, taxi meter, thermometer, etc.
- Manufacture or assembly of surgical, medical, dental equipment and medical furniture
- Ice plants and cold storage buildings
- Quick freezing and cold packaging for fish and other seafoods
- Quick freezing and cold packaging for fruits and vegetables
- Popcorn/ rice factory
- Manufacture of medical/ surgical supplies, adhesive tapes, antiseptic dressing, sanitary napkins, surgical gauge, etc.
- Manufacture of orthopedic and prosthetic appliances (abdominal supporter, ankle supports, arch support, artificial limb, kneecap supporters, etc.)
- Manufacture of photographic equipment and accessories
- Manufacture or assembly of optical instruments
- Manufacture of eyeglasses and spectacles
- Manufacture of optical lenses
- Manufacture of watches and clocks
- Manufacture of pianos
- Manufacture of string instruments
- Manufacture of wind and percussion instruments
- Manufacture or assembly of electronic organs
- Manufacture of sporting gloves and mitts
- Manufacture of sporting balls (not of rubber or plastic)
- Manufacture of gym and playground equipment
- Manufacture of sporting tables (billiards, pingpong, pool)
- Manufacture of other sporting and athletic goods n.e.c.
- Manufacture of toys and dolls except rubber and mold plastic
- Manufacture of pens, pencils and other office and artist materials
- Manufacture of umbrella and canes
- Manufacture of buttons except plastic
- Manufacture of brooms, brushes and fans
- Manufacture of needles, pens, fasteners and zippers
- Manufacture of insignia, badges and similar emblems (except metal)
- Manufacture of signs and advertising displays (except printed)
- Small-scale manufacturing of ice cream
- Dairies and creameries
- Warehouse/ Storage facility for non-pollutive/ non-hazardous industries

Non-Pollutive/ Hazardous Industries

- Manufacture of house furnishing
- Textile bag factories
- Canvass bags and other canvass products factory
- Jute bag factory
- Manufacture of miscellaneous textile goods, embroideries and weaving apparel
- Manufacture of fiber batting, padding and upholstery filling except coir
- Men's and boys' garment factory
- Women's and girls' and ladies' garments factory

- Manufacture of hats, gloves, handkerchief, neckwear and related clothing accessories
- Manufacture of raincoats and waterproof outer garments except jackets
- Manufacture of miscellaneous wearing apparel except footwear
- Manufacture of miscellaneous fabricated mill work and those n.e.c.
- Manufacture of wooden and cane containers
- Sawali, nipa and split cane factory
- Manufacture of bamboo, rattan and other cane baskets and wares
- Manufacture of cork products
- Manufacture of wooden shoes, shoe lace and other similar products
- Manufacture of miscellaneous wood products and those n.e.c.
- Manufacture of miscellaneous furniture and fixture except primarily of metals and those n.e.c.
- Manufacture of paper stationery, envelopes and related articles
- Manufacture of dry ice
- Repackaging of industrial products e.g. paints, varnishes and other related products
- Pumping plants [water supply, storm drainage, sewerage, irrigation and waste treatment plants]
- Warehouse/ Storage Facility for non-pollutive/ hazardous industries
- Parks, playgrounds, pocket parks, parkways and promenades

N. MEDIUM INDUSTRIAL USES

Pollutive/ Non-Hazardous Industries

- Manufacturing and canning of ham, bacon and native sausage
- Poultry processing and canning
- Large-scale manufacturing of ice cream
- Ice plants and cold storage
- Corn mill/ rice mill
- Chocolate and cocoa factory
- Candy factory
- Chewing gum factory
- Peanuts and other nuts factory
- Other chocolate and confectionery products
- Manufacturing of flavoring extracts
- Manufacture of food products n.e.c. (vinegar, vetsin)
- Manufacture of fish meal
- Oyster shell grading
- Manufacture of medicinal and pharmaceutical preparations
- Manufacture of stationery, art goods, cut stone and marble products
- Manufacture of abrasive products
- Manufacture of miscellaneous non-metallic mineral products n.e.c.
- Manufacture of cutlery, except table flatware
- Manufacture of hand tools
- Manufacture of general hardware
- Manufacture of miscellaneous cutlery hand tools and general hardware n.e.c.
- Manufacture of household metal furniture
- Manufacture of office, store and restaurant metal furniture
- Manufacture of metal blinds, screens and shades
- Manufacture of miscellaneous furniture and fixture primarily of metal n.e.c.
- Manufacture of fabricated structural iron and steel

- Manufacture of architectural and ornamental metal works
- Manufacture of boilers, tanks and other structural sheet metal works
- Manufacture of other structural products n.e.c.
- Manufacture of metal cans, boxes and containers
- Manufacture of stamped coated and engraved metal products
- Manufacture of fabricated wire and cable products
- Manufacture of heating, cooking and lighting equipment except electrical
- Sheet metal works generally manual operation
- Manufacture of other fabricated metal products except machinery and equipment n.e.c.
- Manufacture or assembly of agricultural machinery and equipment
- Native plow and harrow factory
- Repair of agricultural machinery
- Manufacture or assembly of service industry machines
- Manufacture or assembly of elevators and escalators
- Manufacture or assembly of sewing machines
- Manufacture or assembly of cooking ranges
- Manufacture or assembly of water pumps
- Refrigeration industry
- Manufacture or assembly of other machinery and equipment except electrical n.e.c.
- Manufacture or assembly of electrical apparatus
- Manufacture or assembly of electrical cables and wires
- Manufacture of other electrical industrial machinery and apparatus n.e.c.
- Manufacture or assembly of electric equipment – radio, television, tape recorder, stereo
- Manufacture or assembly of radio and television transmitting, signaling and detection equipment
- Manufacture or assembly of telephone and telegraphic equipment
- Manufacture of other electronic equipment and apparatus n.e.c.
- Manufacture of industrial and commercial electrical appliances
- Manufacture of household cooking, heating and laundry appliances
- Manufacture of other electrical appliances n.e.c.
- Manufacture of electric lamp fixtures
- Warehouse/ Storage Facility for pollutive/ non-hazardous
- Parks, playgrounds, pocket parks, parkways and promenades

Pollutive/ Hazardous Industries

- Flour mill
- Cassava flour mill
- Manufacture of coffee
- Manufacturing of unprepared animal feeds, other grain milling n.e.c.
- Production prepared feeds for animals
- Grains and cement silos
- Cigar and cigarette factory
- Curing and redrying tobacco leaves
- Miscellaneous processing tobacco leaves n.e.c.
- Textile and fiber spinning mills
- Weaving hemp textile
- Jute spinning and weaving
- Miscellaneous spinning and weaving mills n.e.c.

- Hosiery mill
- Underwear and outerwear knitting mills
- Garment and undergarment factories
- Fabric knitting mills
- Miscellaneous knitting mills n.e.c.
- Manufacture of mats and mattings
- Manufacture of carpets and rugs
- Manufacture of cordage, rope and twine
- Manufacture of related products from abaca, sisal, henequen, hemp, cotton, paper, etc.
- Manufacture of linoleum and other surface coverings
- Manufacture of artificial leather, oil cloth and other fabrics except rubberized
- Manufacture of coir
- Manufacture of miscellaneous textile n.e.c.
- Manufacture of rough lumber, unworked
- Manufacture of worked lumber
- Re-sawmills
- Woodworking establishments, lumber and timber yards
- Planing mills and sawmills, veneer plants
- Manufacture of veneer, plywood and hardwood
- Manufacture of doors, windows and sashes
- Treating and preserving of wood
- Wood drying kilns
- Manufacture of charcoal
- Manufacture of wood and cane blinds, screens and shades
- Pulp, paper and paperboard factories
- Manufacture of containers and boxes of paper and paper boards
- Wood and cardboard box factories
- Manufacture of miscellaneous pulp and paper products n.e.c.
- Manufacture of perfumes, cosmetics and other toilet preparations
- Manufacture of waxes and polishing preparations
- Manufacture of candles
- Manufacture of inks
- Manufacture of miscellaneous chemical products n.e.c.
- Tire retreating and rebuilding
- Manufacture of rubber shoes and slippers
- Manufacture of industrial and molded rubber products
- Manufacture of plastic footwear
- Manufacture of plastic furniture
- Manufacture of other fabricated plastic products n.e.c.
- Manufacture of table and kitchen articles
- Manufacture of pottery, china and earthen ware n.e.c.
- Manufacture of flat glass
- Manufacture of glass containers
- Manufacture of miscellaneous glass and glass products n.e.c.
- Manufacture of clay bricks, clay tiles and hollow clay tiles
- Manufacture of miscellaneous structural clay products n.e.c.
- Manufacture of structural concrete products
- Manufacture of asbestos products
- Manufacture of engines and turbines except motor vehicles, marine and aircraft
- Manufacture of metal cutting, shaving and finishing machinery
- Manufacture of wood working machinery

- Manufacture, assembly, rebuilding, repairing of food and beverage making machinery
- Manufacture, assembly, rebuilding, repairing of textile machinery and equipment
- Manufacture, assembly, rebuilding, repairing of paper industry machinery
- Manufacture, assembly, rebuilding, repairing of trade machinery and equipment
- Manufacture of rice mills
- Manufacture of machines for leather and leather products
- Manufacture of construction machinery
- Manufacture of machines for clay, stove and glass industries
- Manufacture, assembly, repair and rebuilding of miscellaneous special industrial machinery and equipment n.e.c.
- Manufacture of dry cells, storage battery and other batteries
- Boat building and repairing
- Ship repairing industry, dock yards, dry dock, shipways
- Miscellaneous shipbuilding and repairing n.e.c.
- Manufacture of locomotives and parts
- Manufacture of railroad and street cars
- Manufacture or assembly of automobiles, cars, buses, trucks and trailers
- Factories for engines and turbines and attached testing facilities
- Hangars
- Manufacture and assembly plants of aircraft engine
- Repair and testing shops for aircraft engines and parts
- Manufacture of wood furniture including upholstered
- Manufacture of rattan furniture including upholstered
- Manufacture of box beds and mattresses
- Dry cleaning plants using flammable liquids
- Paint stores with bulk handling
- Paint shops and spray painting rooms
- Signs and billboards painting shops
- Warehouses where highly combustible materials are stored
- Factories where loose combustible fiber or dirt are manufactured, processed or generated
- Warehouse for pollutive/ hazardous
- Parks, playgrounds, pocket parks, parkways and promenades

O. UTILITIES, TRANSPORTATION AND SERVICES USES

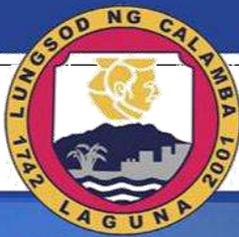
- Bus and railway depots and terminals
- Port facilities
- Airports and heliport facilities
- All other types of transportation complexes
- Power plants (thermal, hydro, geothermal, wind, solar)
- Pumping plants [water supply, storm drainage, sewerage, irrigation and waste treatment plants]
- Liquid and solid waste management facilities
- Climate monitoring facilities
- Telecommunication facilities such as cell (mobile) phone towers
- All other types of large complexes for public services

P. CEMETERY/ MEMORIAL PARK USES

- Memorial Parks
- Cemetery

- Columbarium
- Crematorium
- Ossuary
- Customary accessory uses such as crypts, chapels, parks, playgrounds, pocket parks, parkways, promenades, parking, and toilet facilities

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REPUBLIC OF THE PHILIPPINES
CITY OF CALAMBA
PROVINCE OF LAGUNA

UPDATING
OF COMPREHENSIVE LAND
USE PLAN, CITY OF CALAMBA
2017 - 2026

FINAL REPORT

VOLUME 3

SECTORAL STUDIES



**A.M.N. ADDATU
& ASSOCIATES**



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1.0 DEMOGRAPHY

1.1 Population Levels and Distribution

Calamba City has been the most highly populated city in Laguna Province in the last four census years. Its total population in 2015 accounted for almost 15 percent of the province's total population and was about thirty times that of Famy, the least populated town in Laguna. The following table presents the total population of the component cities and municipalities of Laguna.

Table 1. Total Population per City and Municipality in Laguna

City/ Municipality	Total Population			
	01-May-90	01-May-00	01-May-10	01-Aug-15
Alaminos	27,412	36,120	43,526	47,589
Bay	32,535	43,762	55,698	62,143
City of Biñan	134,553	201,186	283,396	333,028
Cabuyao City	66,975	106,630	248,436	308,745
City of Calamba	173,453	281,146	389,377	454,486
Calauan	32,736	43,284	74,890	80,453
Cavinti	15,131	19,494	20,809	21,702
Famy	7,928	10,419	15,021	16,587
Kalayaan	13,118	19,580	20,944	23,269
Liliw	21,911	27,537	33,851	36,582
Los Baños	66,211	82,027	101,884	112,008
Luisiana	14,241	17,109	20,148	19,720
Lumban	19,773	25,936	29,470	30,652
Mabitac	11,444	15,097	18,618	20,530
Magdalena	13,450	18,976	22,976	25,266
Majayjay	15,875	22,159	26,547	27,792
Nagcarlan	37,696	48,727	59,726	63,057
Paete	20,579	23,011	23,523	25,096
Pagsanjan	25,024	32,622	39,313	42,164
Pakil	13,438	18,021	20,822	20,659
Pangil	15,212	20,698	23,201	24,274
Pila	27,467	37,427	46,534	50,289
Rizal	9,501	13,006	15,518	17,253
San Pablo City	161,630	207,927	248,890	266,068
San Pedro City	156,486	231,403	294,310	325,089
Santa Cruz	76,603	92,694	110,943	117,605
Santa Maria	20,525	24,574	26,839	30,830
City of Santa Rosa	94,719	185,633	284,670	353,767
Siniloan	22,759	29,902	35,363	38,067
Victoria	21,847	29,765	34,604	39,231
LAGUNA	1,370,232	1,965,872	2,669,847	3,034,001

Source: Philippine Statistics Authority

The population of the city is widely distributed among its 54 urban barangays. The most populated barangays as per 2015 census were Canlubang, Mayapa and Parian while the least populated were Mabato, Ulango and Camaligan. The city's number of households during the 2015 census was 105,941 with an average household size of 4.

The gross population density of the City of Calamba in 2015 was about 34 persons per hectare¹ which was higher than its 21.16 population density in 2000. Barangay Poblacion 4, which is part of the old city center, was the most densely populated with 720 persons per hectare. The next most densely populated barangays were Poblacion 2 and Palingon which fringe the old town center. On the other hand, the least densely populated barangays were Mabato, Puting Lupa, and Ulango, with only less than five persons per hectare, and are located in the city's rural areas. The following table presents the land area and population density of the barangays as of 2015 census while **Figure 1.1** illustrates the spatial distribution of the population.

Table 2. Total Population per Barangay, 2015

Barangay	Population		Land Area (ha) ²	Population Density (pn/ha)
	No.	Share to total		
Bagong Kalsada	3,488	0.8%	157.8	22
Bañadero	10,412	2.3%	190.0	55
Banlic	13,681	3.0%	274.6	50
Barandal	12,526	2.8%	189.3	66
Bubuyan	2,164	0.5%	29.2	200
Bucal	12,818	2.8%	17.1	455
Bunggo	3,261	0.7%	29.8	160
Burol	2,296	0.5%	4.5	720
Camaligan	1,235	0.3%	25.6	253
Canlubang	54,943	12.1%	42.3	53
Halang	7,169	1.6%	81.8	38
Hornalan	1,736	0.4%	110.5	12
Kay-Anlog	13,946	3.1%	196.0	11
Laguerta	2,332	0.5%	265.0	48
La Mesa	14,892	3.3%	556.6	6
Lawa	11,186	2.5%	258.2	9
Lecheria	9,108	2.0%	106.5	12
Lingga	6,056	1.3%	3,912.0	14
Looc	21,754	4.8%	166.7	43
Mabato	687	0.2%	22.0	79
Makiling	10,760	2.4%	272.0	51
Mapagong	6,014	1.3%	294.1	51
Masili	3,680	0.8%	314.9	7

¹ The gross population density of the city is still relatively low compared to neighboring cities and municipality of Laguna Province particularly those nearer Metro Manila. Cabuyao, for example had a 2015 population density of about 37 pn/ ha while Santa Rosa and Biñan had respective densities of 90 and 77 pn/ ha.

² The land areas per barangay, shown in this table were obtained from data of the Philippine Statistics Authority. It should be noted that their total area does not equal that cited in Republic Act 9024 (Charter of the City of Calamba) which is '14,950 ha including the area of 14,479 has surveyed under Cad-154.' The official land area being used by the City Government is 14,480 ha which has not yet been correspondingly allocated among the barangays. It is thus recommended that a reconciliation survey be initiated by the City Government. The official total land area of 14,480 ha used by the City Government shall be used for the purpose of this Comprehensive Land Use Plan.

Barangay	Population		Land Area (ha) ²	Population Density (pn/ha)
	No.	Share to total		
Maunong	2,164	0.5%	146.6	76
Mayapa	26,211	5.8%	157.5	58
Milagrosa	6,904	1.5%	198.4	44
Paciano Rizal	15,081	3.3%	45.0	135
Palingon	5,685	1.3%	179.1	121
Palo-Alto	15,208	3.3%	273.1	3
Pansol	10,171	2.2%	180.2	36
Parian	22,082	4.9%	465.7	23
Barangay 1 (Poblacion)	5,834	1.3%	320.8	19
Barangay 2 (Poblacion)	7,788	1.7%	32.1	115
Barangay 3 (Poblacion)	4,775	1.1%	399.2	5
Barangay 4 (Poblacion)	3,238	0.7%	116.3	225
Barangay 5 (Poblacion)	6,486	1.4%	126.8	119
Barangay 6 (Poblacion)	2,250	0.5%	15.3	372
Barangay 7 (Poblacion)	3,086	0.7%	273.7	56
Prinza	3,741	0.8%	528.2	19
Punta	4,175	0.9%	112.0	197
Puting Lupa	1,783	0.4%	95.3	39
Real	14,394	3.2%	331.0	13
Sucol	5,146	1.1%	542.0	3
Saimsim	5,828	1.3%	132.9	108
Sampiruhan	9,410	2.1%	194.5	30
San Cristobal	13,690	3.0%	81.0	116
San Jose	3,718	0.8%	119.0	115
San Juan	4,403	1.0%	89.6	41
Sirang Lupa	8,807	1.9%	15.3	288
Turbina	5,252	1.2%	31.6	163
Ulango	768	0.2%	209.4	33
Uwisan	2,519	0.6%	51.5	102
Batino	1,274	0.3%	227.6	3
Majada Labas	6,471	1.4%	78.0	32
Total	454,486	100.0%	13,285.20	34

Source of basic data: Philippine Statistics Authority

1.2 Population Composition

The nature of the composition of the city's population may be observed from the results of the 2010 census where it was observed that about 65.61% of its population was part of the working age group.³ This proportion was much higher than the national's 62.30 percent and slightly higher than the provincial's 65.30 percent. The age dependency ratio⁴ of the city in the said census was reported at 52 dependents (48 young dependents and 4 old dependents) for every 100 economically active persons. The sex ratio of the working population was almost 1:1 with 94.52 males for every 100 females while the dependent population had a sex ratio of 101.60 males for every 100 females. There were generally more males in the younger age-groups and generally more females than males in the older age groups. Overall, the females slightly outnumbered their male counterparts with a sex ratio of 96.90 males for every 100 females.

Approximately 57 percent (112,652) of the female population belonged to the reproductive age group of 15 to 49 years old while nine percent (18,443) were at the onset of the childbearing span of 10 to 14 years of age. The following table presents the population composition while the population pyramid is shown in **Figure 1.2**.

Table 3. Population Composition by School-Age, Working Age, Dependent-Age Group and Sex, 2010

Broad Age Groups	Both Sexes	Male		Female		Sex Ratio
		Number	%	Number	%	
<i>School Going Population</i>						
Pre-School (3-6)	33,645	17,339	9.07	16,306	8.53	106.34
Elementary (7-12)	47,301	24,212	12.66	23,089	12.07	104.86
Secondary (13-16)	28,493	14,596	7.63	13,897	7.27	105.03
Tertiary (17-21)	39,126	18,755	9.81	20,371	10.65	92.07
<i>Working Population</i>						
15-64	254,979	123,896	64.78	131,083	68.54	94.52
<i>Dependent Population</i>						
0-14	122,252	62,943	32.91	59,309	31.01	106.13
65 and over	11,419	4,424	2.31	6,995	3.66	63.25
<i>Labor Force (15 and over)</i>	266,398	128,320	67.09	138,078	72.19	92.93

Philippine Statistics Authority

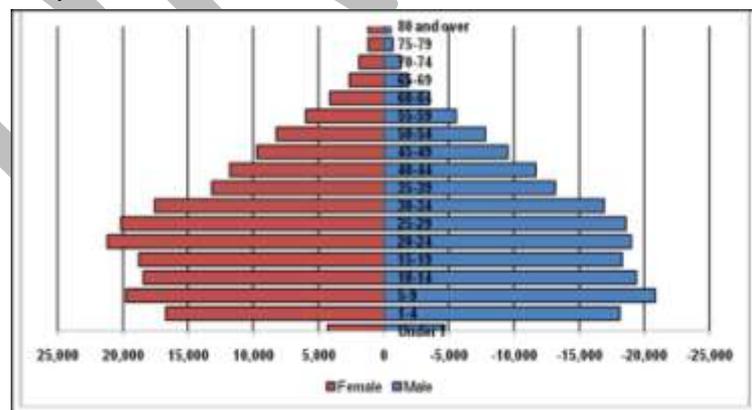


Figure 1-2. Population Pyramid, 2010

Source: Philippine Statistics Authority

³Population 15-64 years old. (CLUP Guidebook Volume 2, A Guide to Sectoral Studies in the CLUP Preparation, Housing and Land Use Regulatory Board, 2007)

⁴The extent to which those who are too young (population below 15 years) and too old (population 65 years and above) to earn a living depend for support on those who work. (*Ibid*)

1.3 Population Growth Trends

The 2015 population of Calamba City was a 16.7 percent increase from its 2010 population and nearly 56 times of its 1903 population. Although relatively faster than the provincial (2.27%) and national (1.72%) rates, the 2.99 percent average annual growth rate (AAGR) of the city's population from 2010 to 2015 was recorded to still be one of the lowest since the 1903 census. The highest AAGR of the city was recorded at 5.53 percent from 1903 to 1918 while the lowest was recorded at 1.37 percent from 1939 to 1948. The city's AAGR has been generally declining since 2000. The following table and **Figure 1.3** present the historical growth of the city's population and average annual growth rates.

Table 4. Historical Growth of Population, 1903-2015

Year	Calamba City			AAGR	
	Total Population	Increase/ (Decrease)	AAGR	Laguna	National
1903	8,058				2.87
1918	18,062	10,004	5.53	1.85	2.03
1939	32,363	14,301	2.82	1.72	2.11
1948	36,586	4,223	1.37	1.56	2.07
1960	57,715	21,129	3.87	3.26	2.89
1970	82,714	24,999	3.66	4.01	3.8
1975	97,432	14,718	3.33	2.81	2.78
1980	121,175	23,743	4.46	3.90	2.71
1990	173,453	52,278	3.65	3.48	2.35
1995	218,951	45,498	4.77	3.55	2.32
2000	281,146	62,195	5.13	3.80	2.36
2007	360,281	79,135	3.61	3.34	2.04
2010	389,377	29,096	2.62	2.58	1.90
2015	454,486	65,109	2.99	2.47	1.72

Source: Philippine Statistics Authority

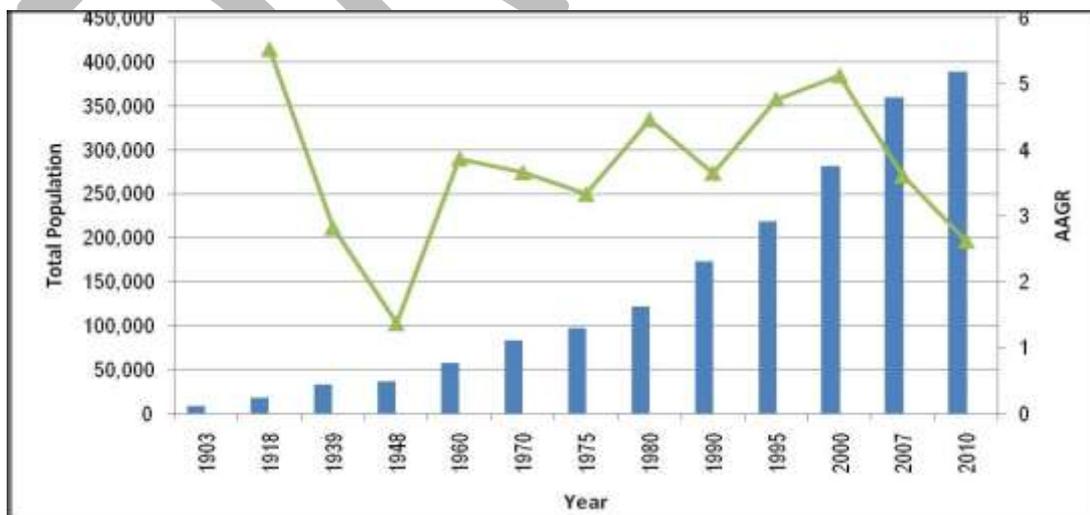


Figure 1-3. Total Population and Average Annual Growth Rates, 1903 to 2010

Source: Philippine Statistics Authority

1.4 Population Characteristics

In 2000, the city's 97.09 literacy rate or proportion of household population ten years old and over who were able to read and write was relatively higher compared to the regional (94.00%) and national (92.30%) rates. Following regional and national trends, the proportion of males (97.20%) who were literate were slightly higher than the females (96.98%).

Table 5. Literacy of Population Ten Years Old and Over, by Sex, 2000

Descriptor	Male		Female		Both Sexes	
	Number	Percentage	Number	Percentage	Number	Percentage
Population ten years old and over	102,631	48.61	108,503	51.39	211,134	100.00
Literate	99,760	48.67	105,223	51.33	204,983	97.09
Illiterate	2,871	46.68	3,280	53.32	6,151	3.00
Literacy Rate	97.20		96.98		97.09	

Source: Philippine Statistics Authority

Only 65 percent of the city's total labor force population were actively employed or were looking for work. The city's Labor Force Participation Rate⁵ was slightly higher than the region's 64.8 percent but lower than the country's 67.1 percent. On another note, the city's employment and unemployment rates were not as good as the regional and national rates but its visible underemployment rate⁶ of 1.3 percent was relatively better than the country's 10.5 percent.

Table 6. Labor Force Population and Employment, 2003

Indicator	Calamba	Region IV-A	Philippines
Total Population 15 Years Old and Over (1,000)	189	6,240	51,596
Labor Force Participation Rate	65	64.8	67.1
Employment	79.3	86.3	87.8
Unemployment Rate	20.7	13.7	12.2
Visible Underemployment Rate	1.3	7.1	10.5

Source: Philippine Statistics Authority

The highest educational attainment of majority of the household population five years old and over was high school followed by college. Only about 11.72 percent were able to get an academic degree.

Table 7. Household Population Five Years Old and Over by Highest Educational Attainment, 2010

Educational Attainment	Male	Female	Both Sexes
Total Population	168,502	176,317	344,819
No Grade Completed	4,092	3,724	7,816
Preschool	5,573	5,252	10,825
Grade 1	5,545	5,033	10,578
Grade 2	5,452	5,154	10,606
Grade 3	5,601	5,672	11,273
Grade 4	5,629	5,488	11,117
Grade 5	6,473	6,391	12,864
Grade 6	151	163	314
Elementary Graduate	13,205	14,486	27,691

⁵ Labor Force Participation Rate is defined by the Philippine Statistics Authority as the "percentage of the total number of persons in the labor force to the total population 15 years old and over."

⁶ Visible Underemployment Rate is defined by the Philippine Statistics Authority as the "Percentage of the total number of visibly underemployed persons to the total number of employed persons."

Educational Attainment	Male	Female	Both Sexes
1st Year High School	5,605	5,425	11,030
2nd Year High School	7,412	7,175	14,587
3rd Year High School	6,884	6,652	13,536
High School Graduate	49,804	55,629	105,433
1st Year Post Secondary	473	268	741
2nd Year Post Secondary	510	314	824
3rd Year Post Secondary	58	36	94
Post-Secondary Graduate	8,566	5,920	14,486
1st Year College	5,344	6,059	11,403
2nd Year College	8,510	8,430	16,940
3rd Year College	5,316	5,370	10,686
4th Year College	301	299	600
5th Year College	36	26	62
6th Year College or Higher	3	3	6
Academic Degree Holder	17,566	22,832	40,398
Post Baccalaureate	254	372	626
Not Reported	139	144	283

Source: Philippine Statistics Authority

1.5 Population Projections

Using the AAGR of 2.99 percent (2010 to 2015) and an average household size of 4.3, it is estimated that Calamba City will have a population of 628,337 and approximately 146,466 households at the end of the planning period (2026). It is estimated that the city will double its 2015 population after 23 years (2038)⁷.

Table 8. Population Projection, 2017 – 2026

Year	Population	Household
2017	482,073	112,371
2018	496,469	115,727
2019	511,294	119,183
2020	526,605	122,752
2021	542,330	126,417
2022	558,525	130,192
2023	575,203	134,080
2024	592,427	138,095
2025	610,118	142,219
2026	628,337	146,466

Source: City Planning and Development Office

It is further estimated that at the end of the planning period, the city's gross population density will be 47 persons per hectare. On the assumption that the respective present shares of the barangays remain constant, the projected population per barangay and their respective population densities are presented in the table below. The projected population density per barangay is also illustrated in **Figure 1.4**.

⁷ Doubling time, also called the Generation Time, is obtained by dividing 70 by a constant growth rate, in this case 2.51. It is based on the Rule of 70 which is a method for estimating population doubling time. The number 70 comes from the observation that the natural logarithm of 2 is approximately 0.7 and, by multiplying this by 100 we obtain 70. It is a rule of thumb that roughly explains the time periods involved in exponential growth at a constant rate. This is derived from the Malthusian simple exponential growth model.

Table 9. Barangay Population Forecast, 2026

Barangay	Projected Population	Population density (pn-ha)
Bagong Kalsada	4,821	31
Banadero	14,391	76
Banlic	18,910	69
Barandal	17,313	91
Barangay 1 (Poblacion)	8,064	276
Barangay 2 (Poblacion)	10,764	630
Barangay 3 (Poblacion)	6,600	221
Barangay 4 (Poblacion)	4,476	995
Barangay 5 (Poblacion)	8,965	350
Barangay 6 (Poblacion)	3,110	74
Barangay 7 (Poblacion)	4,265	52
Batino	1,761	16
Bubuyan	2,991	15
Bucal	17,717	67
Bunggo	4,507	8
Burol	3,174	12
Camaligan	1,707	16
Canlubang	75,942	19
Halang	9,909	59
Hornalan	2,399	109
Kay-Anlog	19,276	71
La Mesa	20,584	70
Laguerta	3,223	10
Lawa	15,461	105
Lecheria	12,589	80
Lingga	8,371	186
Looc	30,068	168
Mabato	950	3
Majada Labas	8,944	50
Makiling	14,872	32
Mapagong	8,312	26
Masili	5,086	158
Maunong	2,991	7
Mayapa	36,229	312
Milagrosa	9,543	46
Paciano Rizal	20,845	164
Palingon	7,858	514
Palo-Alto	21,020	77
Pansol	14,058	27
Parian	30,521	273
Prinza	5,171	54
Punta	5,771	17

Barangay	Projected Population	Population density (pn-ha)
Puting Lupa	2,464	5
Real	19,895	150
Saimsim	8,055	41
Sampiruhan	13,006	161
San Cristobal	18,922	159
San Jose	5,139	57
San Juan	6,086	398
Sirang Lupa	12,173	61
Sucol	7,113	225
Turbina	7,259	141
Ulango	1,062	5
Uwisan	3,482	45
Total	628,185	47

Source: Author's computation

Note: Densities were computed using land areas from Philippine Statistics Authority

Assuming further that the participation rate in 2010 will prevail, it is estimated that Calamba City will have 46,940 pre-school students, 65,992 elementary students, 39,752 high school students and 54,586 college students at the end of the planning period. About 371,663 will be part of the labor force population of which 355,732 will be part of the working population and 15,931 will be part of the dependent population.

Table 10. Projected School-Age Population, Labor Force and Dependent Population

Broad Age Groups	2010 Population	PR ⁸	Projected Population					
			2021	2022	2023	2024	2025	2026
<i>School Going Population</i>								
Pre-School (3-6)	33,645	0.09	48,802	50,259	51,760	53,306	54,897	56,537
Elementary (7-12)	47,301	0.12	65,069	67,012	69,013	71,074	73,197	75,382
Secondary (13-16)	28,493	0.07	37,957	39,090	40,258	41,460	42,698	43,973
Tertiary (17-21)	39,126	0.1	54,224	55,844	57,511	59,228	60,997	62,819
<i>Working Population</i>								
15-64	254,979	0.66	357,880	368,567	379,573	390,907	402,581	414,602
<i>Dependent Population</i>								
0-14	122,252	0.31	168,095	173,115	178,284	183,608	189,091	194,737
65 and over	11,419	0.03	16,267	16,753	17,253	17,769	18,299	18,846
<i>Labor Force Population</i>								
15 and over	266,398	0.69	374,148	385,320	396,826	408,676	420,880	433,448

Source: Author's Computation

⁸ Participation Rate is the ratio or percent share of a particular segment of population to the total population. It provides disaggregated projections such as population per age group.

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

VICINITY MAP

LEGEND

- ROAD
- INTERNATIONAL ROAD
- PROPOSED MAIN ROAD
- LAGUNA LAKESHORE EXPRESSWAY
- PROPOSED ROAD
- BIHANGAY PALISADAY
- CITY BOUNDARY
- ROADS
- PRINCIPAL WATERWAYS
- 1:ST
- 2:ND
- 3:RD
- 4:TH
- 5:TH
- 6:TH
- 7:TH
- 8:TH
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- 10:TH
- 11:TH
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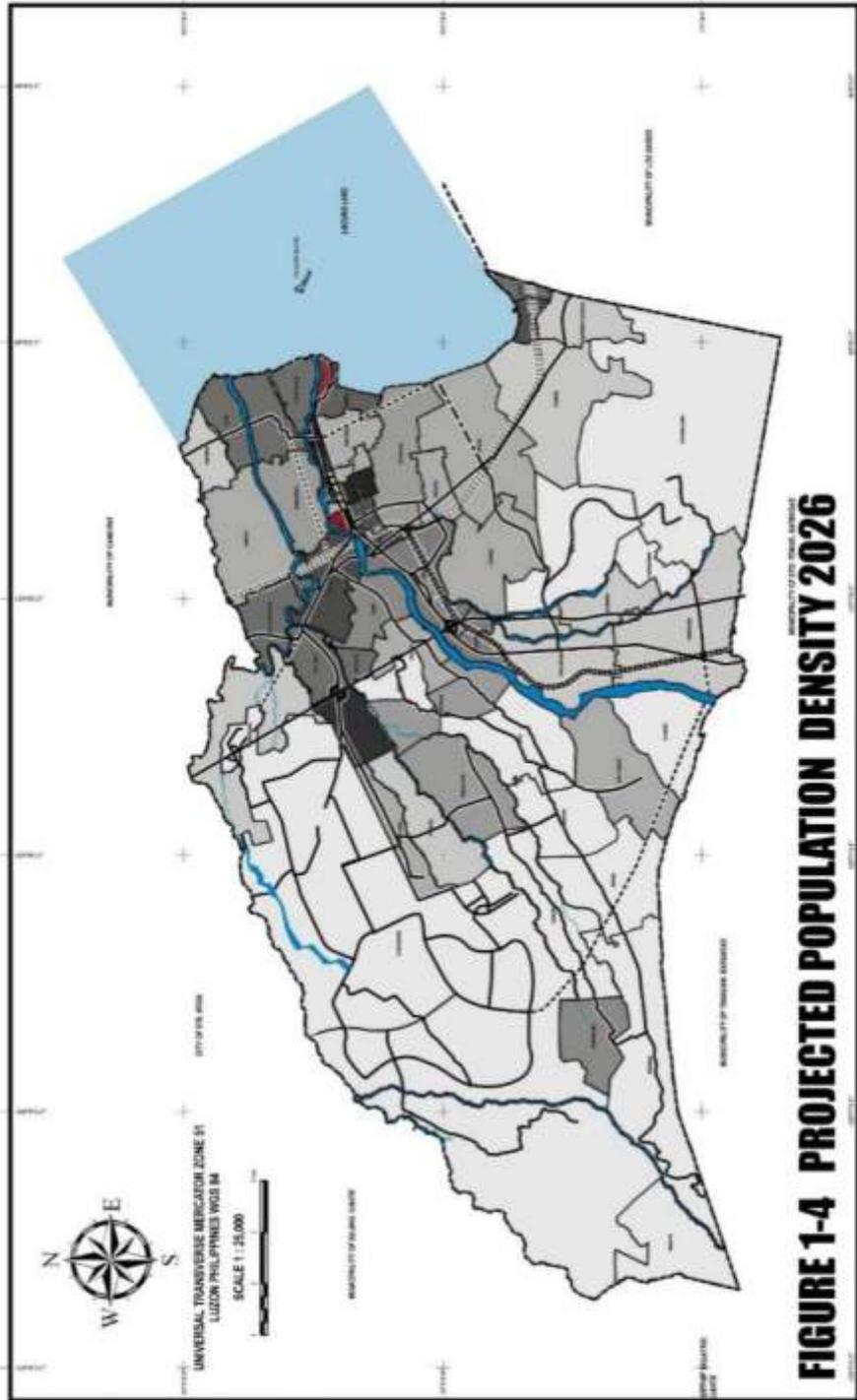


FIGURE 1-4 PROJECTED POPULATION DENSITY 2026

PREPARED FOR:

**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

PREPARED BY:

**A.M.N. ADDATU
& ASSOCIATES**

Figure 1-4. Projected Population Density (2026)

2.0 PHYSICAL ENVIRONMENT

2.1 Physical Characteristics

2.1.1. Geographical Location

Calamba City is about 45 kilometers or an hour drive from Metro Manila. Geographically positioned at the southern terminus of the South Luzon Expressway, it serves as a gateway to the southern provinces of Luzon. It lies at the western fringe of Laguna de Bay, one of the largest inland water body in Asia, and is bounded at the north by Cabuyao City (Laguna Province), at the east by Los Baños (Laguna Province) and Laguna de Bay, at the south by Batangas Province (specifically by Santo Tomas, Tanauan City and Talisay), and at the west by Cavite Province (specifically by Tagaytay City and Silang). It is geographically located at 14° and 17' and 83° latitude and 121° and 13' and 41° longitude. **Figure 2.1** presents the location map of the city.

Calamba is one of the six component cities of Laguna Province along with Biñan, Cabuyao, San Pablo, San Pedro and Santa Rosa. It is a first class city of the second district of Laguna.

With an area of 144.80 square kilometers, it is considered as the second largest city accounting for eight percent of the Province's total land area. This also makes it 75 percent the area of San Pablo City, the largest in the Province, and about seven times larger than Victoria, the smallest municipality in Laguna.

Table 11. Land Area of the Province of Laguna and Calamba City

Focus	Land Area (in ha)
Calamba City	14,480
Laguna	175,973

Source: Calamba City and National Statistics Coordination Board

The city is politically subdivided into 54 barangays which are grouped into two districts. The largest barangay is Barangay Canlubang with 3,912 hectares or nearly 30 percent of the total land area of Calamba City. The smallest, in turn, is Poblacion IV with only 4.5 hectares or less than one percent of the city's total land area. The following table shows the land areas of the barangays while their geographical locations are illustrated in **Figure 2.2**.

Table 12. Barangay Land Areas

Barangay	Land Area (in has)	Share to total
Bagong Kalsada	157.8	1.19%
Bañadero	190.0	1.43%
Banlic	274.6	2.07%
Barandal	189.3	1.42%
Barangay 1 (Poblacion)	29.2	0.22%
Barangay 2 (Poblacion)	17.1	0.13%
Barangay 3 (Poblacion)	29.8	0.22%
Barangay 4 (Poblacion)	4.5	0.03%
Barangay 5 (Poblacion)	25.6	0.19%
Barangay 6 (Poblacion)	42.3	0.32%

Barangay	Land Area (in has)	Share to total
Barangay 7 (Pob.)	81.8	0.62%
Batino	110.5	0.83%
Bubuyan	196.0	1.48%
Bucal	265.0	1.99%
Bunggo	556.6	4.19%
Burol	258.2	1.94%
Camaligan	106.5	0.80%
Canlubang	3912.0	29.45%
Halang	166.7	1.25%
Hornalan	22.0	0.17%
Kay-Anlog	272.0	2.05%
La Mesa	294.1	2.21%
Laguerta	314.9	2.37%
Lawa	146.6	1.10%
Lecheria	157.5	1.19%
Lingga	45.0	0.34%
Looc	179.1	1.35%
Mabato	273.1	2.06%
Majada Labas	180.2	1.36%
Makiling	465.7	3.51%
Mapagong	320.8	2.41%
Masili	32.1	0.24%
Maunong	399.2	3.00%
Mayapa	116.3	0.88%
Milagrosa	209.4	1.58%
Paciano Rizal	126.8	0.95%
Palingon	15.3	0.12%
Palo-Alto	273.7	2.06%
Pansol	528.2	3.98%
Parian	112.0	0.84%
Prinza	95.3	0.72%
Punta	331.0	2.49%
Puting Lupa	542.0	4.08%
Real	132.9	1.00%
Saimsim	194.5	1.46%
Sampiruhan	81.0	0.61%
San Cristobal	119.0	0.90%
San Jose	89.6	0.67%
San Juan	15.3	0.12%
Sirang Lupa	198.4	1.49%
Sucol	31.6	0.24%
Turbina	51.5	0.39%

Barangay	Land Area (in has)	Share to total
Ulango	227.6	1.71%
Uwisan	78.0	0.59%
Total	13,285.20	100.00%

Source of basic data: Philippine Statistics Authority

2.1.2. Geophysical Attributes

Topography and Slope

The highest point of elevation in Calamba City is about 560 meters located in Barangays Mabato and Puting Lupa (**Figure 2.3**). The city has level to hilly and mountainous slopes from zero to higher than 18 percent. The southwestern and southeastern portions of the city have slopes above eight percent while majority of the area have slopes less than eight percent. **Figure 2.4** and the table below present the slope characteristics of the city.

Table 13. Slope Features of the Land

Slope Range	Area (ha)	Share to total
< 8.00	9,985.81	68.96%
8.00 - 18.00	2,073.47	14.32%
18.00 - 30.00	947.32	6.54%
30.00 - 50.00	909.51	6.28%
> 50.00	563.88	3.89%
Total	14,480.00	100.00%

Source: GIS Mapping

Note: Areas were adjusted to equal the official city total.

Physiography

The city has three general land types: soils of fresh water marshes, soils of the plains and soils of the rolling areas, hills and mountains. Given these different soil formations, 11 different soil profiles/ classifications may be found in the area. These include the Hydrosol, Lipa Loam, Lipa Loam (Deep Phase), Macolod Clay Loam, Macolod Clay Loam (Steep Phase), Macolod Soil (Undifferentiated), Quingua Silt Loam, Taal Fine Sandy Loam, Tall Loam, Tagaytay Loam and Tagaytay Sandy Loam. About 55 percent of the City has Lipa Loam which is a residual soil representing the decomposition products of the underlying volcanic tuff material. It has a dark brown color, very friable, mellow and easy to cultivate. It has been said that this type of soil has the best physical characteristics and is representative of lasting soil fertility (**Figure 2.5**).

Table 14. Soil Types in Calamba City

Soil Type	Location	% Share
Hydrosol	Sucol, Pansol, Masili, Masili, Lecheria, Halang, Lingga, San Jose, Bagong Kalsada	2.02
Lipa Loam	Bagong Kalsada, Barandal, Barangay 1 (Pob.), Barangay 2 (Pob.), Batino, Bubuyan, Bucal, Canlubang, Halang, Hornalan, Kay-Anlog, La Mesa, Laguerta, Lawa, Lecheria, Majada Labas, Makiling, Mapagong, Masili, Maunong, Mayapa, Paciano Rizal, Palo-Alto, Pansol, Parian, Prinza, Punta, Real, Saimsim, San Cristobal, Sirang Lupa, Sucol, Milagrosa, Turbina, Ulango	52.24
Lipa Loam (Deep Phase)	Burol, Camaligan, Kay-Anlog, Makiling, Saimsim, Ulango	3.17
Macolod Clay Loam	Bucal, Camaligan, Halang, La Mesa, Lecheria, Maunong, Pansol, Puting Lupa, Saimsim	4.30

Soil Type	Location	% Share
Macolod Clay Loam (Steep Phase)	Bagong Kalsada, Bucal, Camaligan, La Mesa, Maunong, Pansol, Puting Lupa, Saimsim, Sucol	7.17
Macolod Soil (Undifferentiated)	Camaligan, Canlubang, Mabato, Puting Lupa	7.72
Quiangua Silt Loam	Banadero, Banlic, Barangay 1 (Pob.), Barangay 2 (Pob.), Barangay 3 (Pob.), Barangay 4 (Pob.), Barangay 5 (Pob.), Barangay 6 (Pob.), Barangay 7 (Pob.), Halang, Lawa, Lecheria, Lingga, Looc, Paciano Rizal, Palingon, Parian, Real, Sampiruhan, San Cristobal, San Jose, San Juan, Uwisan	10.19
Taal Fine Sandy Loam	Bubuyan, Bunggo, BuroI, Canlubang, Hornalan, Kay-Anlog, Laguerta, Punta	3.70
Taal Loam	Bunggo, BuroI	1.75
Tagaytay Loam	Bunggo, Mabato	2.13
Tagaytay Sandy Loam	Bunggo, Canlubang, Hornalan, Mabato	5.62

Land Formations

The following table presents the three land formations in the city.

Table 15. Land Formations in Calamba City

Land Formation	Description	Location
Lacustrine	Seasonally inundated margins, levees, alluvial soils, succession from open water through mixed herbaceous vegetation such as water lilies and hyacinths forest on margins and levees	Uwisan, Looc, Sampiruhan, Lingga, Halang, Bucal, Pansol and Masili
Broad Alluvial Plains	Consists of higher and more arable floodplains and involve moderately well-drained soil	Majority of barangays
Residual Soils	Unstable plains and meandering channels, levees and unstable lower flood plains; moderately well drained alluvial soils subject to flooding caused by river overflow during monsoon months	Bunggo, Bubuyan, Laguerta, Hornalan and Ulango

Source of Basic Data: Calamba City Socio-Economic Profile

Land Capability

Land capability is the inherent capacity of land to sustain a range of land uses and management practices without degradation to soil, land, air and water resources. Given that more than 83 percent of Calamba's land is categorized as moderately good to very good land, it can be said that Calamba is highly practicable for cultivation. The following table presents the land capability classes in the city.

Table 16. Land Capability Classes in Calamba City

Land Capability Classes	Area	% Share
Very Good Land (A)	1,087.61	10.29
Good Land (Ba)	2,594.05	24.55
Good Land (Bw)	2,310.35	21.86
Moderately Good Land (Co)	2,825.94	26.74
Fairly Good Land (Da)	790.95	7.48
Steep Land (M)	351.44	3.33
Very Steep Land (N)	379.89	3.59
Level Land (X)	227.77	2.16

Source of Basic Data: Calamba City Socio-Economic Profile

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

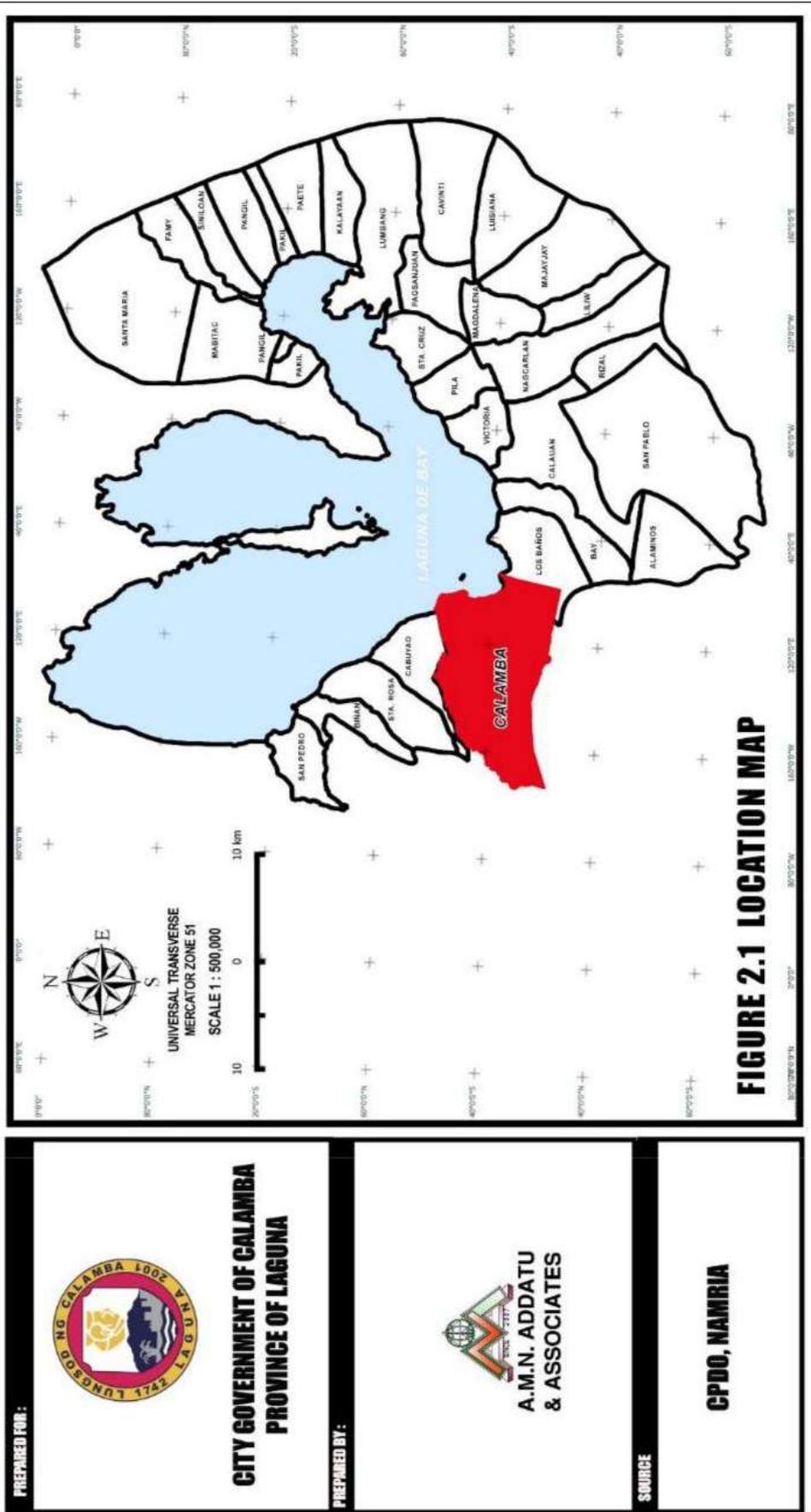


Figure 2-1 Location Map

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

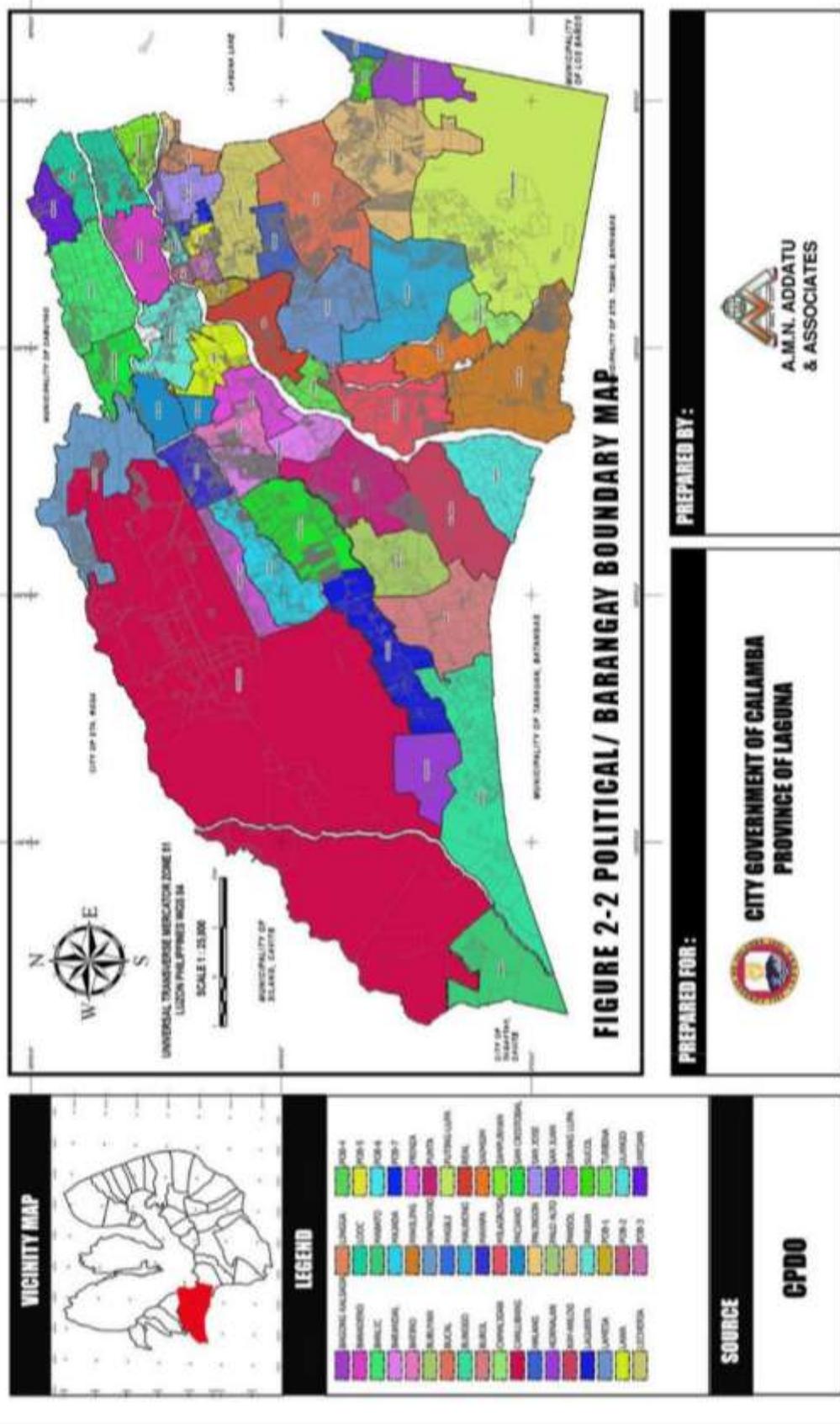
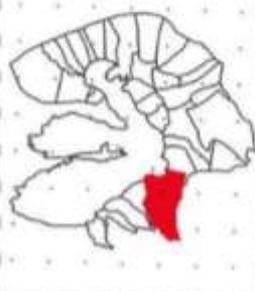


Figure 2-2 Political/Barangay Boundary Map

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

VICINITY MAP

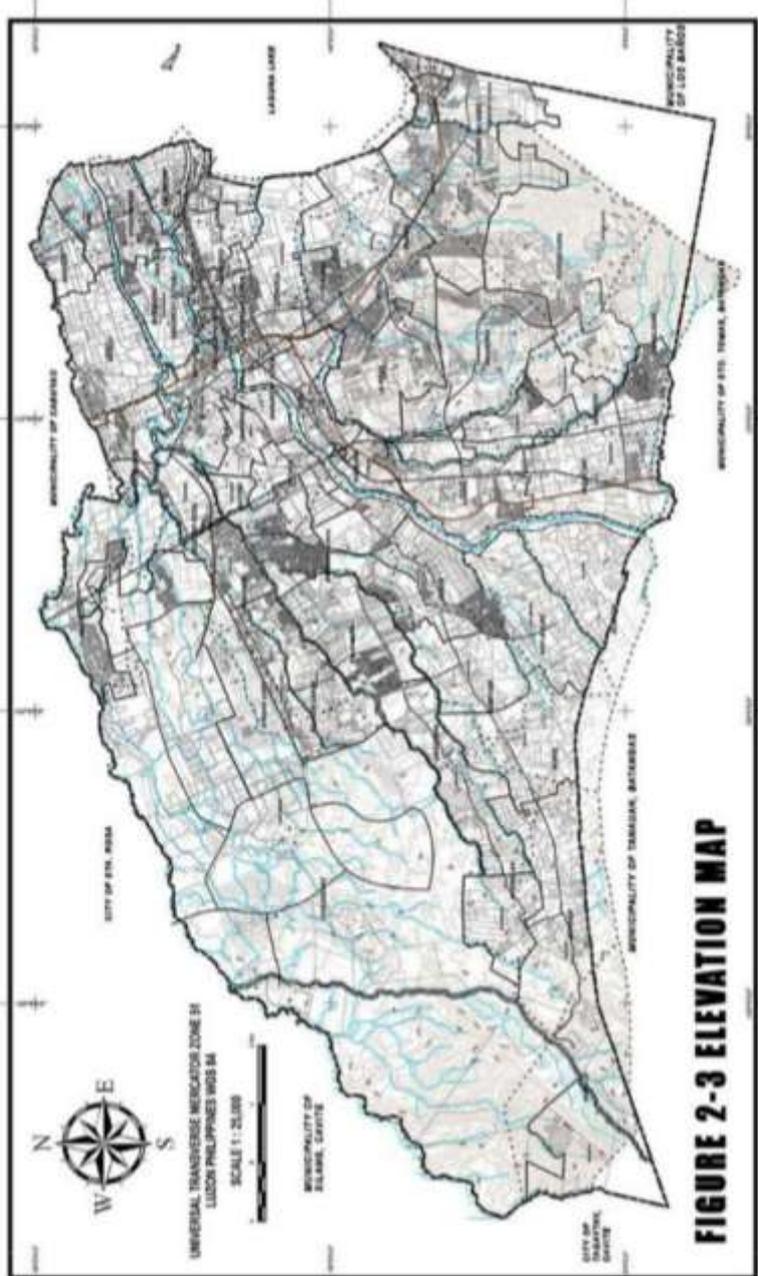


LEGEND

- ROAD
- RAILROAD
- RIVERS
- CONTOURS
- SEMPANGAY BOUNDARY
- CITY BOUNDARY

SOURCE

NAMRIA TOPOGRAPHIC MAP



PREPARED BY:



**A.M.N. ADDATU
& ASSOCIATES**

PREPARED FOR:



**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

Figure 2-3 Elevation Map

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

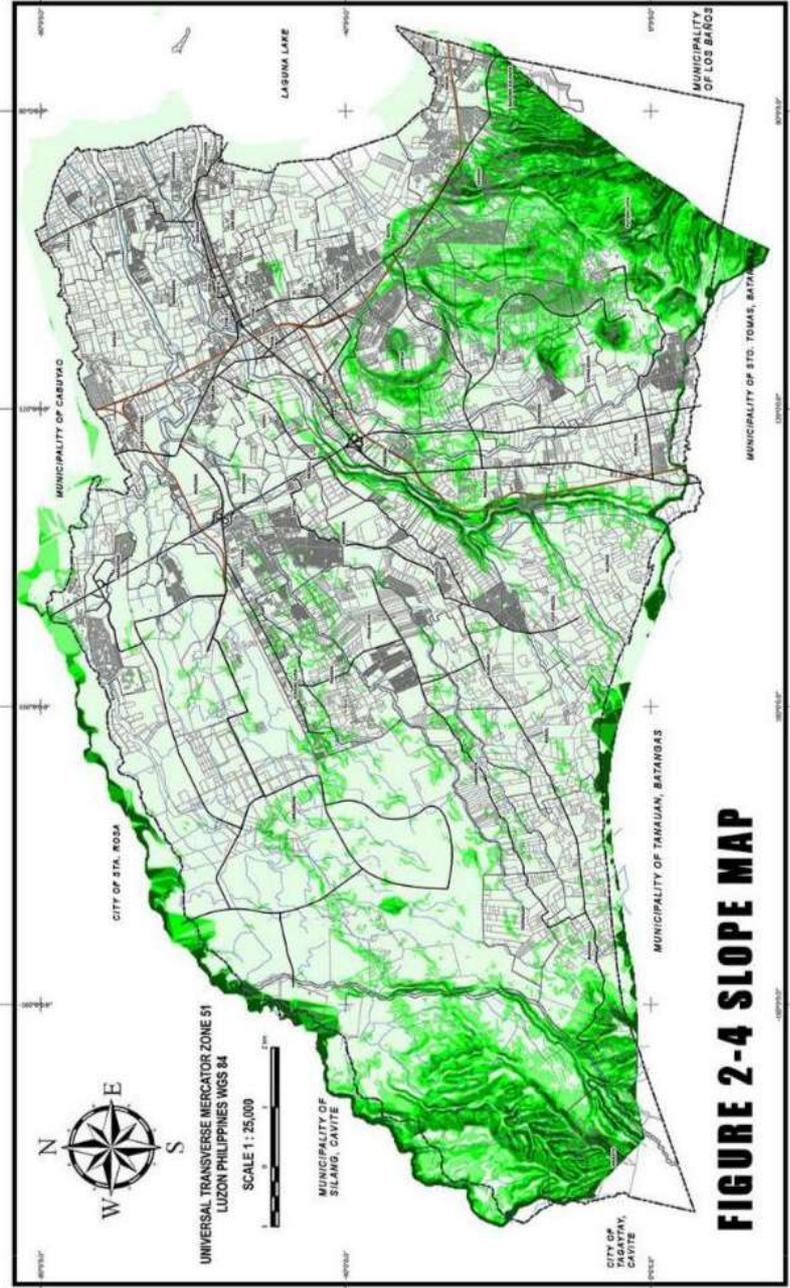
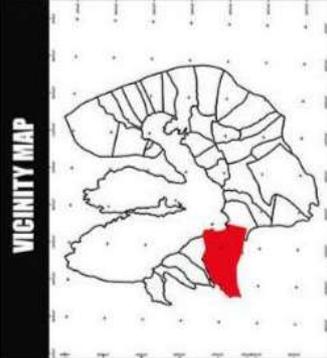


FIGURE 2-4 SLOPE MAP



SOURCE

NAMRIA TOPOGRAPHIC MAP

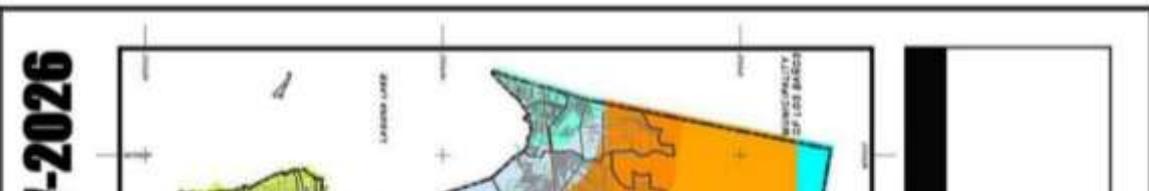
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Figure 2-4 Slope Map



DRAFT

Figure 2-5. Soil Map

Land Cover

Built-up areas cover about 43 percent of Calamba City and are present in every barangay other than Calamba Island and Ulango. The second largest land cover classification in the city is Annual Crop which covers one fourth of the city or 25.81 percent, followed by Grassland with about 10.14 percent. There are still forest areas in the city which only cover about 3.66 percent of the total land area. The city's Land Cover and Land Type Maps are presented in **Figures 2.6** and **2.7** while the location and area coverage of each Land Cover Type is presented in the following table:

Table 17. Land Cover Classification in Calamba City

Land Cover	Location	Area (in ha)
Closed Forest	Camaligan, Puting Lupa	205.29
Open Forest	Bagong Kalsada, Camaligan, Puting Lupa	324.71
Shrubs	Bagong Kalsada, Barandal, Bucal, Camaligan, Kay-Anlog, La Mesa, Makiling, Masili, Maunong, Pansol, Punta, Puting Lupa, Saimsim, Sucol, Milagrosa, Turbina, Ulango	738.34
Wooded grassland	Camaligan, Mabato, Puting Lupa	217.45
Grassland	Canlubang, Hornalan, Laguerta, Maunong, Turbina	1,468.51
Annual Crop	Banadero, Banlic, Barandal, Barangay 5 (Pob.), Bubuyan, Bucal, Bunggo, Burol, Camaligan, Canlubang, Halang, Hornalan, Kay-Anlog, Laguerta, Lecheria, Lingga, Looc, Mabato, Majada Labas, Makiling, Mapagong, Mayapa, Paciano Rizal, Palingon, Palo-Alto, Pansol, Parian, Punta, Saimsim, Sampiruhan, San Cristobal, San Jose, San Juan, Sucol, Milagrosa, Ulango, Uwisan	3,737.77
Perennial Crop	Bunggo, Canlubang, Hornalan, Kay-Anlog, Mabato, Milagrosa	1,391.62
Built-up	Bagong Kalsada, Banadero, Banlic, Barandal, Barangay 1 (Pob.), Barangay 2 (Pob.), Barangay 3 (Pob.), Barangay 4 (Pob.), Barangay 5 (Pob.), Barangay 6 (Pob.), Barangay 7 (Pob.), Batino, Bubuyan, Bucal, Bunggo, Burol, Camaligan, Canlubang, Halang, Hornalan, Kay-Anlog, La Mesa, Laguerta, Lawa, Lecheria, Lingga, Looc, Mabato, Majada Labas, Makiling, Mapagong, Masili, Maunong, Mayapa, Paciano Rizal, Palingon, Palo-Alto, Pansol, Parian, Prinza, Punta, Puting Lupa, Real, Saimsim, Sampiruhan, San Cristobal, San Jose, San Juan, Sirang Lupa, Sucol, Milagrosa, Turbina, Uwisan	6,261.56
Annual Crop	Bunggo, Burol, Kay-Anlog, Ulango	74.43
Built-up	Mabato, Ulango	1.01
Inland Water	Banadero, Banlic, Barandal, Barangay 2 (Pob.), Barangay 5 (Pob.), Barangay 6 (Pob.), Kay-Anlog, Lawa, Looc, Makiling, Palingon, Parian, Prinza, Punta, Real, Sampiruhan, San Juan, Milagrosa, Turbina, Ulango	59.30

2.1.3. Meteorology

Wind Speed and Direction

From September to July, the prevailing wind direction in the city is in the east direction while in August, the prevailing wind is from the southwest. The annual wind speed ranges from two to four meters per second with a monthly average of three meters per second.

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

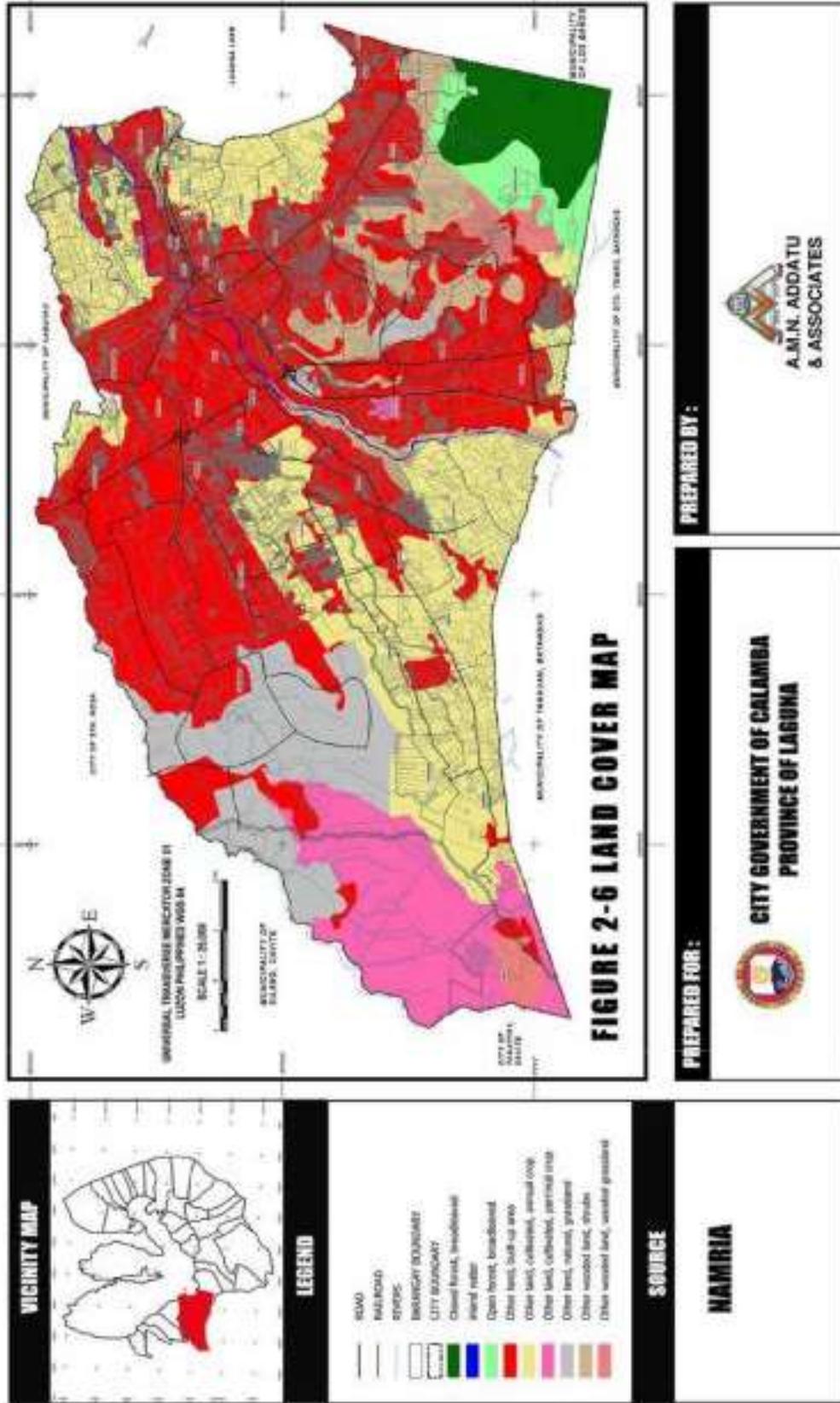


Figure 2-6 Land Cover Map

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

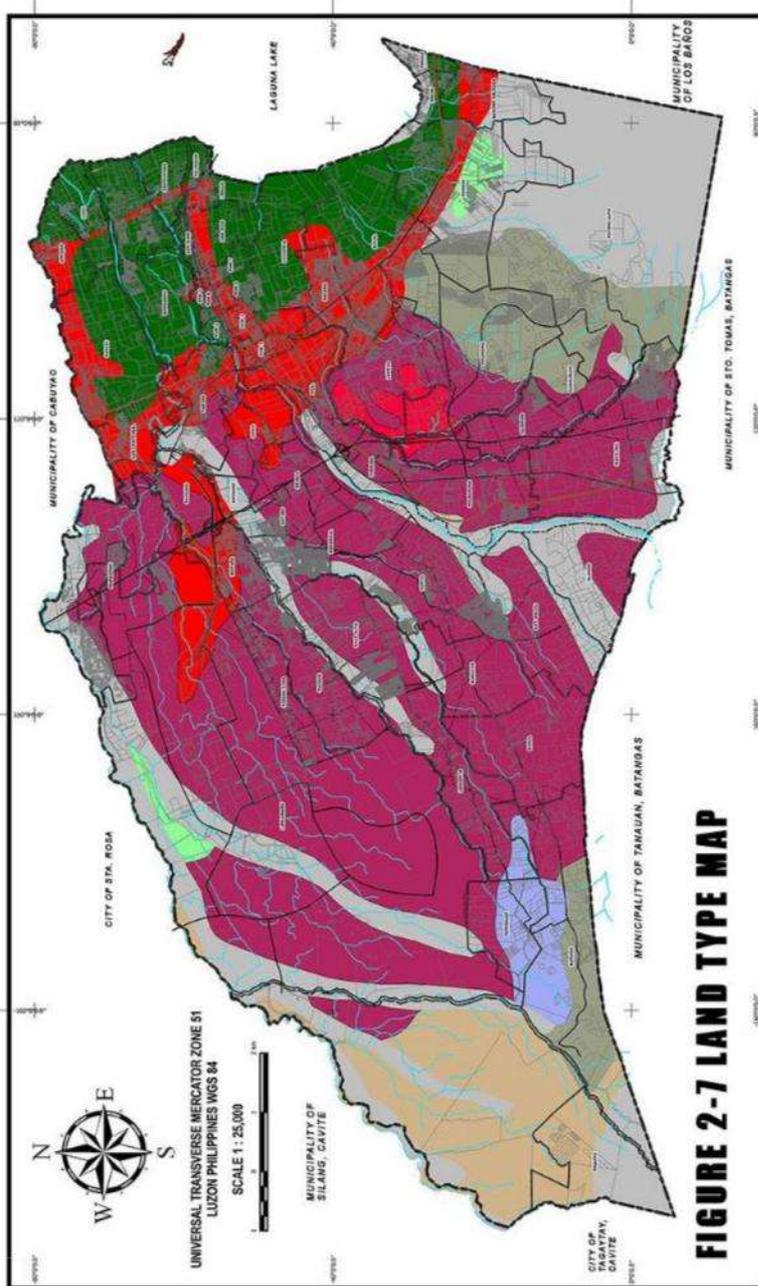
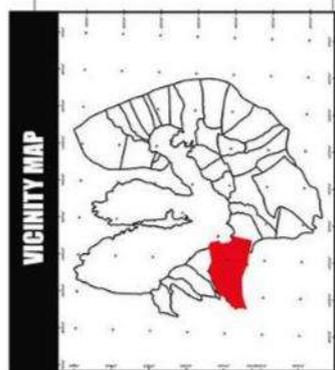


FIGURE 2-7 LAND TYPE MAP



LEGEND

	ROAD
	RAILROAD
	RIVERS
	BARANGAY BOUNDARY
	CITY BOUNDARY
	Alluvial Lands (Paddy rice irrigated)
	Present Agro-industrial areas
	Erodible Lands
	Highlands
	Lake areas
	Expansion areas
	Non-Agricultural Used
	Pasture land
	Potential Agro-industrial areas
	Built-up Areas

SOURCE

CPDO

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**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

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**A.M.N. ADDATU
& ASSOCIATES**

Figure 2-7. Land Type Map

Climate

Under the Modified Coronas Classification System (**Figure 2.8**) of the Philippines' climate, Calamba's climate is classified as Type I. It has two pronounced seasons which is dry from December to April and wet for the rest of the year. On average, the city is visited by five typhoons in every three years.

Temperature and Humidity

The annual average temperature in the city ranges from 20.8°C to 34.6°C with a mean of 29.3°C. Relative humidity, on the other hand, varies from 74 to 84 percent with an average of 80.5 percent a year. Humidity is low from December to May due to the northwest monsoon and trade winds and high from June to November due to the southwest monsoon.

Rainfall

It is estimated that the city has 169 rainy days in a year with an average rainfall of 1,965 millimeters. The highest rainfall recorded was during the month of October at 396.5 millimeters.

2.1.4. Water Resources

Laguna de Bay

The Laguna de Bay watershed region is an important source of livelihood for the fishing sector and helps facilitate irrigation, transportation, energy generation and other industrial uses. In 1983, a Fishery Zoning and Management Plan (ZOMAP) for the lake was developed to rationalize the management and regulate the utilization of the lake's fishery resources. The ZOMAP was also created to resolve the equity problems among large-scale fish pen operators and small-scale fishermen dependent upon open water catch. The ZOMAP was revised in 1996 and, in 1999 LLDA Board Resolution No. 95, s.99 placed the implementation of the ZOMAP under the Laguna Lake Development Authority's (LLDA) Lake Management Division. Areas were allotted for fish pens, fish cages, fish sanctuaries and open fishing. Navigation lanes and Barangay access lanes were also identified.

In addition to the ZOMAP, through LLDA Board Resolution No. 23, s.96, a shoreland management program was institutionalized which defines and regulates the use and/ or occupancy of the lake's shoreland areas. The implementation of this was placed under the LLDA Special Concerns Division.

San Cristobal and San Juan River

San Cristobal River and San Juan River in Calamba are among the 21 major tributaries of Laguna de Bay. According to the standard water quality criteria or water usage and classification scheme for fresh waters of the Department of Environment and Natural Resources (DENR), San Cristobal is worse than class D while San Juan is Class D. Class D waters are suitable for agriculture, irrigation, livestock watering, and industrial water supply class II uses.

FIGURE 2.8 CORONAS MAP OF THE PHILIPPINES

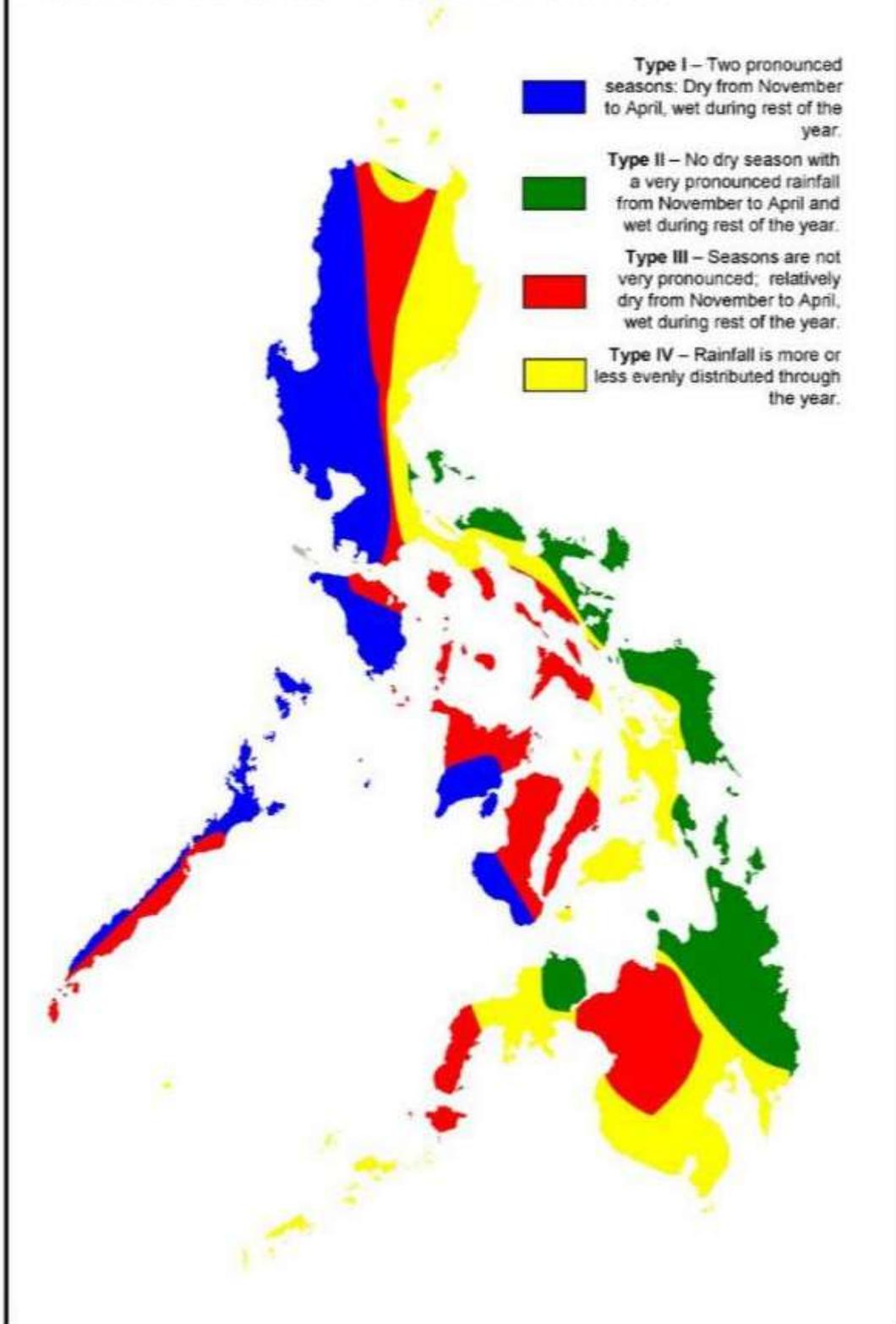


Figure 2-8. Coronas Map of the Philippines

The city is mainly drained by these two major rivers. Given the slopes and elevation of the city, surface runoff drains northeastward towards Laguna de Bay. Barangays at the eastern portion is drained by the San Juan River while barangays at the western portion are drained by the San Cristobal River. **Figure 2.9** presents the river networks found in the city.

Baranca de Sipit and Pinagsipitan Creeks

The Baranca de Sipit Creek has a length of about nine kilometers while Pinagsipitan Creek has a length of about five kilometers. The two tributaries originate from the foot of the Mt. Makiling Forest Reserve in Barangay Puting Lupa and pass through 11 other barangays before reaching Laguna de Bay. The 11 barangays that the two tributaries traverse include Lupa, Camaligan, Saimsim, Maunong, Makiling, Milagrosa, La Mesa, Turbina, Real, Lecheria and Halang.

2.2 Natural Hazards

Based on the study prepared by the Geoscience Foundation, Inc. for the Mines and Geosciences Bureau in December 2013, Calamba City is mainly susceptible to four hazards: flooding, liquefaction, landslide and earthquake.

2.2.1. Flood Hazard

32 of the 54 barangays or about 17 percent of the city are prone to flooding. These barangays are located at the northeastern portion of the city in areas nearest to Laguna de Bay. Elevations in these barangays are less than 10 meters above sea level.

Table 18. Flood Prone Areas in Calamba City

Affected Barangays	Magnitude	% Share
30 Barangays: Bagong Kalsada, Banadero, Banlic, Barangay 1 (Pob.), Barangay 2 (Pob.), Barangay 3 (Pob.), Barangay 4 (Pob.), Barangay 5 (Pob.), Barangay 6 (Pob.), Barangay 7 (Pob.), Bucal, Halang, La Mesa, Lawa, Lecheria, Lingga, Masili, Paciano Rizal, Palingon, Pansol, Parian, Prinza, Puting Lupa, Real, San Cristobal, San Jose, San Juan, Sucol, Turbina, Uwisan	Low	10.09
16 Barangays: Bagong Kalsada, Banadero, Banlic, Bucal, Halang, Lecheria, Lingga, Looc, Masili, Palingon, Pansol, Sampiruhan, San Jose, San Juan, Sucol, Uwisan	Moderate	3.51
19 Barangays: Banadero, Banlic, Barangay 2 (Pob.), Barangay 5 (Pob.), Barangay 6 (Pob.), Barangay 7 (Pob.), Halang, Lecheria, Lingga, Looc, Paciano Rizal, Palingon, Pansol, Parian, Sampiruhan, San Cristobal, San Juan, Sucol, Uwisan	High	3.73

Source: Mines and Geosciences Bureau

About 881 hectares of the city's annual croplands are prone to flooding. In addition to the impact to crop production, flooding also hampers businesses in the affected built-up areas, damages properties and can possibly displace about 40 percent of the population.

Aggravating these causes of flooding are siltation, indiscriminate dumping of solid waste into rivers, creeks and canals as well as the inability of the existing drainage system to cope with increasing water discharges and surface run-off.

Figure 2.10 presents the flooding map of the city.

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

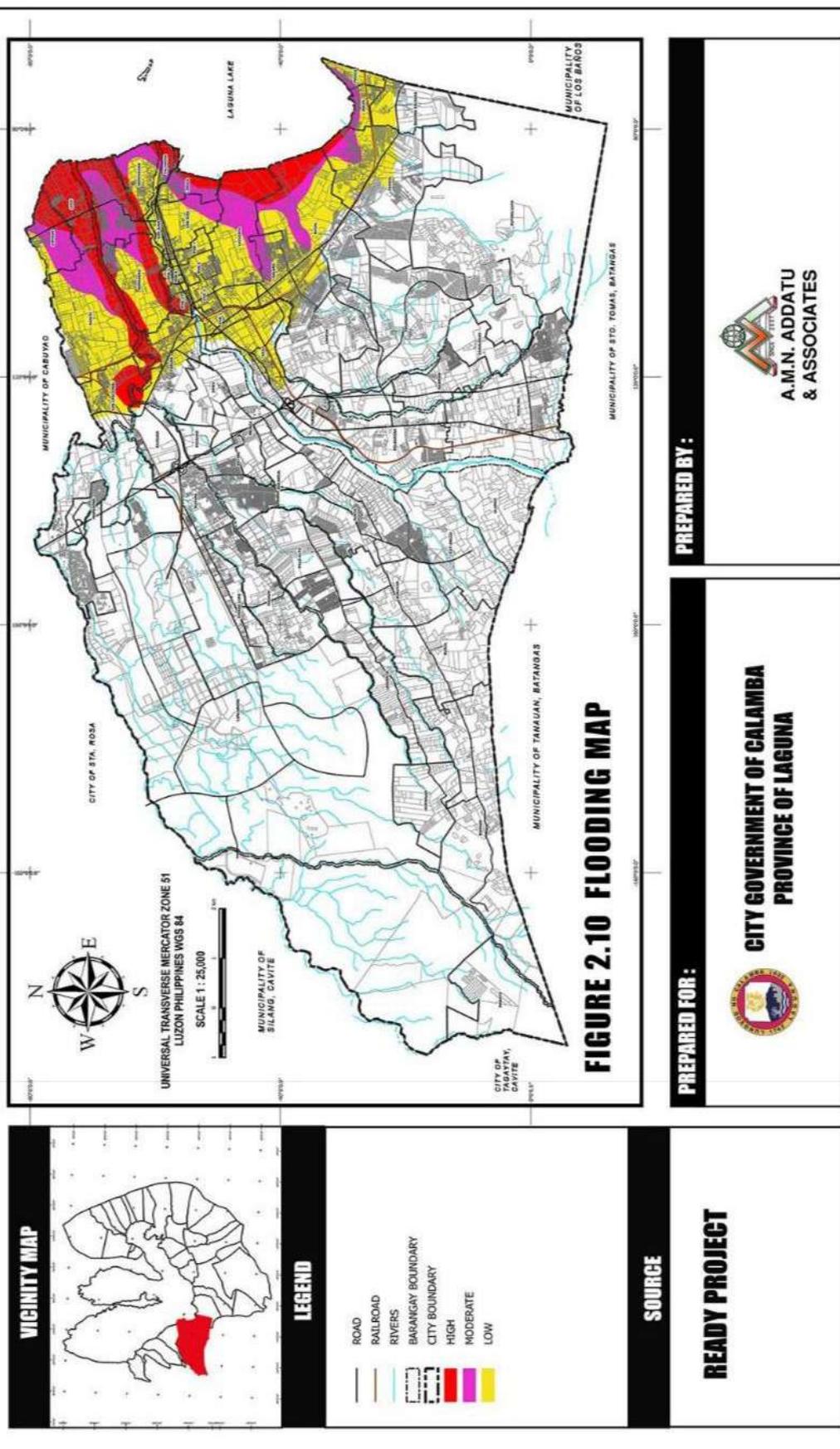


Figure 2-10. Flooding Map

2.2.2. Liquefaction

There are also liquefaction prone areas in the city which may be found in 31 barangays. This translates to about 2,408 hectares or nearly 17 percent of the total land area. These barangays are also located in the northeastern portion of the city.

Liquefaction is the transformation of solid land into a liquid form which usually occurs after a massive earthquake.

Table 19. Liquefaction Prone Areas in Calamba City

Affected Barangays	Magnitude	% Share
13 Barangays: Bañadero, Banlic, Barangay 5 (Pob.), Calamba Island, Halang, Lecheria, Lingga, Looc, Palingon, Sampiruhan, San Jose, San Juan, Uwisan	High	5.01
19 Barangays: Bagong Kalsada, Banadero, Banlic, Barangay 2 (Pob.), Barangay 3 (Pob.), Barangay 4 (Pob.), Barangay 5 (Pob.), Barangay 6 (Pob.), Barangay 7 (Pob.), Bucal, Halang, Lecheria, Masili, Pansol, Parian, San Jose, San Juan, Sucol, Uwisan	Moderate	6.58
17 Barangays: Banlic, Barangay 1 (Pob.), Barangay 2 (Pob.), Barangay 3 (Pob.), Barangay 4 (Pob.), Barangay 6 (Pob.), Barangay 7 (Pob.), Bucal, Halang, La Mesa, Lawa, Lecheria, Mapagong, Paciano Rizal, Parian, Real, San Cristobal	Low	4.83

Figure 2.11 presents the liquefaction prone areas in the city.

2.2.3. Landslides

There are 36 barangays that were determined to be moderately to highly prone to rain-induced landslides. Areas that are highly prone to landslides are those that are abutting the San Juan River as well as the areas with slopes greater than 18 percent. These represent 24 barangays or about nine percent of the city's total land area.

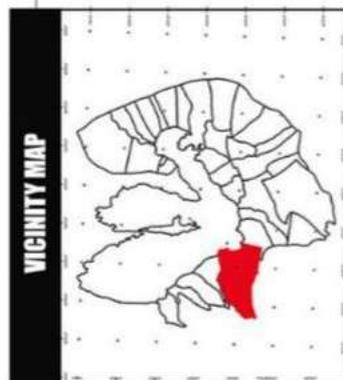
Table 20. Rain-Induced Landslide Areas of Calamba City

Affected Barangays	Magnitude	% Share
24 Barangays: Bagong Kalsada, Barandal, Barangay 2 (Pob.), Bunggo, Camaligan, Canlubang, Hornalan, Kay-Anlog, La Mesa, Lawa, Mabato, Makiling, Mapagong, Maunong, Pansol, Parian, Prinza, Punta, Puting Lupa, Real, Sucol, Milagrosa, Turbina, Ulango	High	9.06
12 Barangays: Bagong Kalsada, Bucal, Camaligan, Canlubang, La Mesa, Lecheria, Mabato, Maunong, Pansol, Puting Lupa, Saimsim, Sucol	Moderate	8.17
30 Barangays: Camaligan, Barandal, Batino, Bubuyan, Bunggo, Burol, Canlubang, Hornalan, Kay-Anlog, La Mesa, Laguerta, Lawa, Lecheria, Mabato, Majada Labas, Makiling, Mapagong, Maunong, Mayapa, Paciano Rizal, Palo-Alto, Prinza, Punta, Puting Lupa, Real, Saimsim, Sirang Lupa, Milagrosa, Turbina, Ulango	Low	45.14

Other than being landslide prone, barangays Camaligan, La Mesa, Puting Lupa and Saimsim are also possible areas where landslide debris may accumulate. Areas where debris accumulation may occur total 22.67 hectares and have a perimeter of nearly six kilometers.

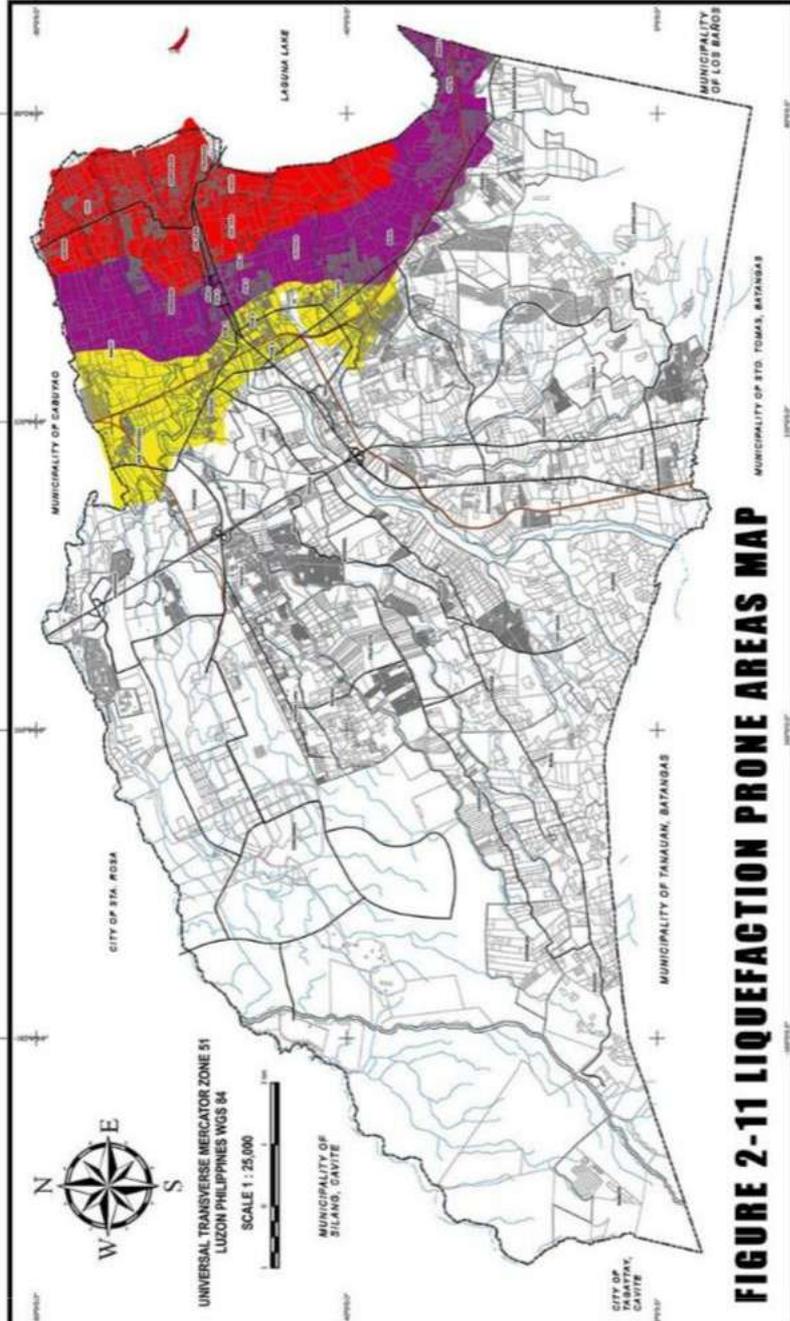
Figures 2.12 and **2.13** show the landslide prone areas and areas where landslide debris may accumulate.

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



LEGEND

- ROAD
- RAILROAD
- RIVERS
- BARANGAY BOUNDARY
- CITY BOUNDARY
- LOW
- MODERATE
- HIGH



SOURCE

READY PROJECT

PREPARED FOR :



**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

PREPARED BY :



**A.M.N. ADDATU
& ASSOCIATES**

Figure 2-11. Liquefaction Prone Areas Map

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

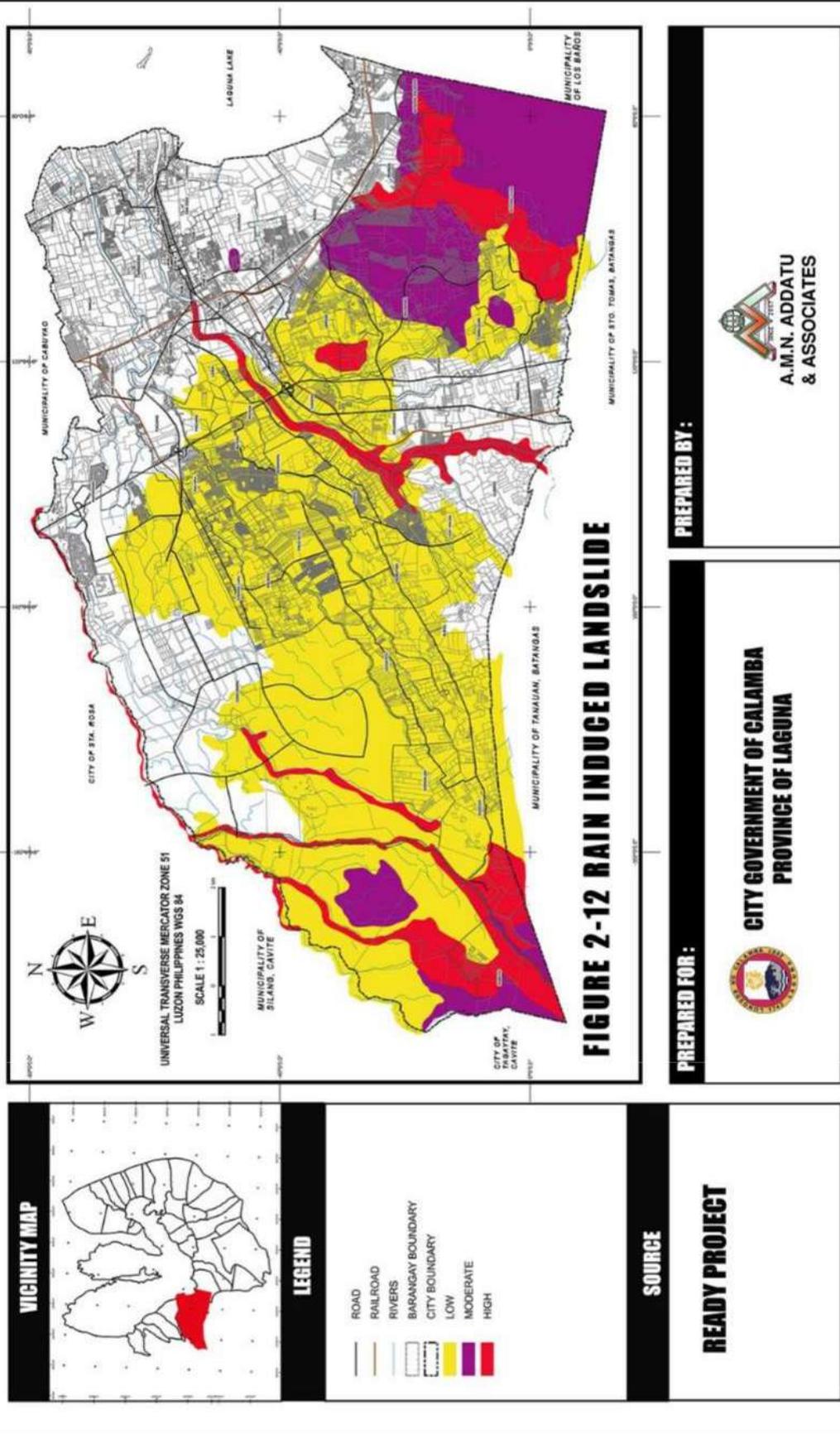
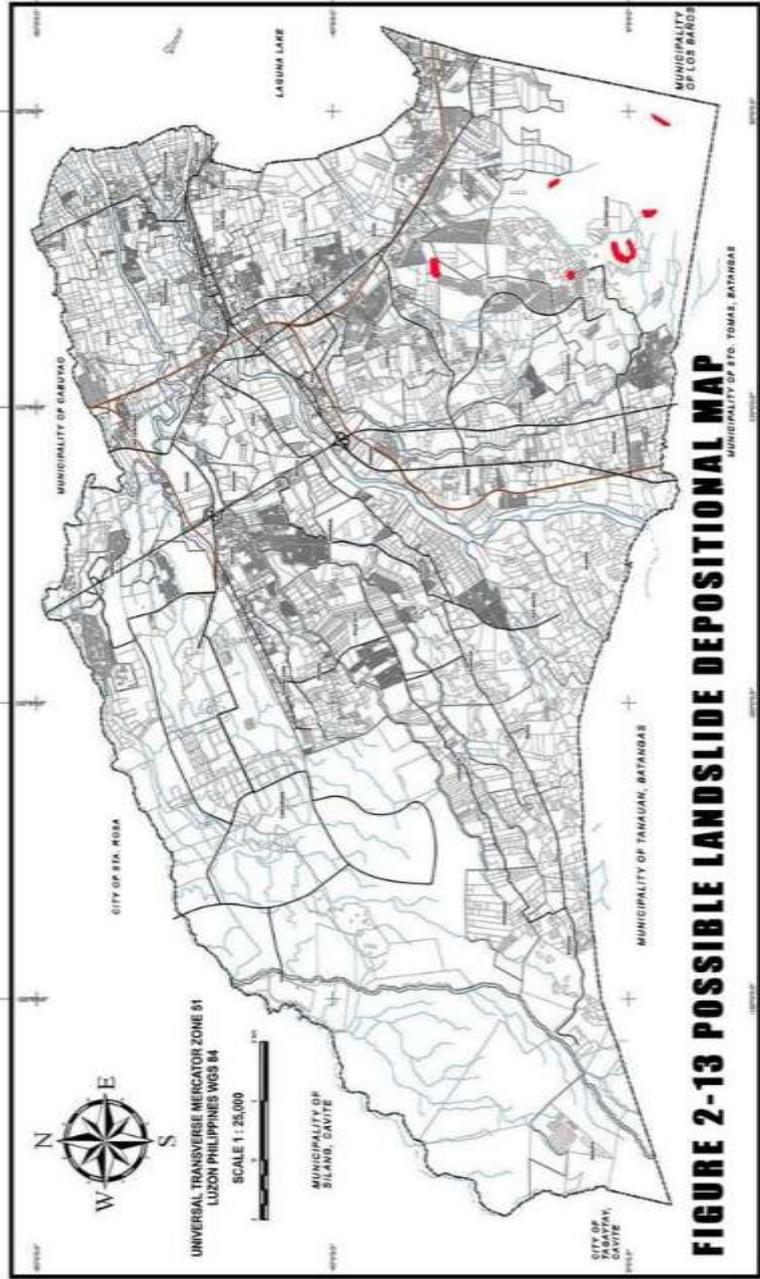


Figure 2-12. Rain Induced Landslide

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



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& ASSOCIATES**

Figure 2-13. Possible Landslide Depositional Map

2.2.4. Seismic Characteristics

Information gathered from the Philippine Institute of Volcanology and Seismology (PHIVOLCS) shows that the Valley Fault System (formerly Marikina Fault line) traverses barangays Bunggo, Canlubang and Bunggo in Calamba City.

The fault line has four streaks totaling 4.3 kilometers. The longest streak, which has a length of about 1,120 meters, traverses barangays Canlubang and Bunggo. The shortest streak, on the other hand, has a length of about 436 meters and is found in Barangay Canlubang. The locations of the seismic belts in the City are shown in **Figure 2.14**.

DRAFT

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

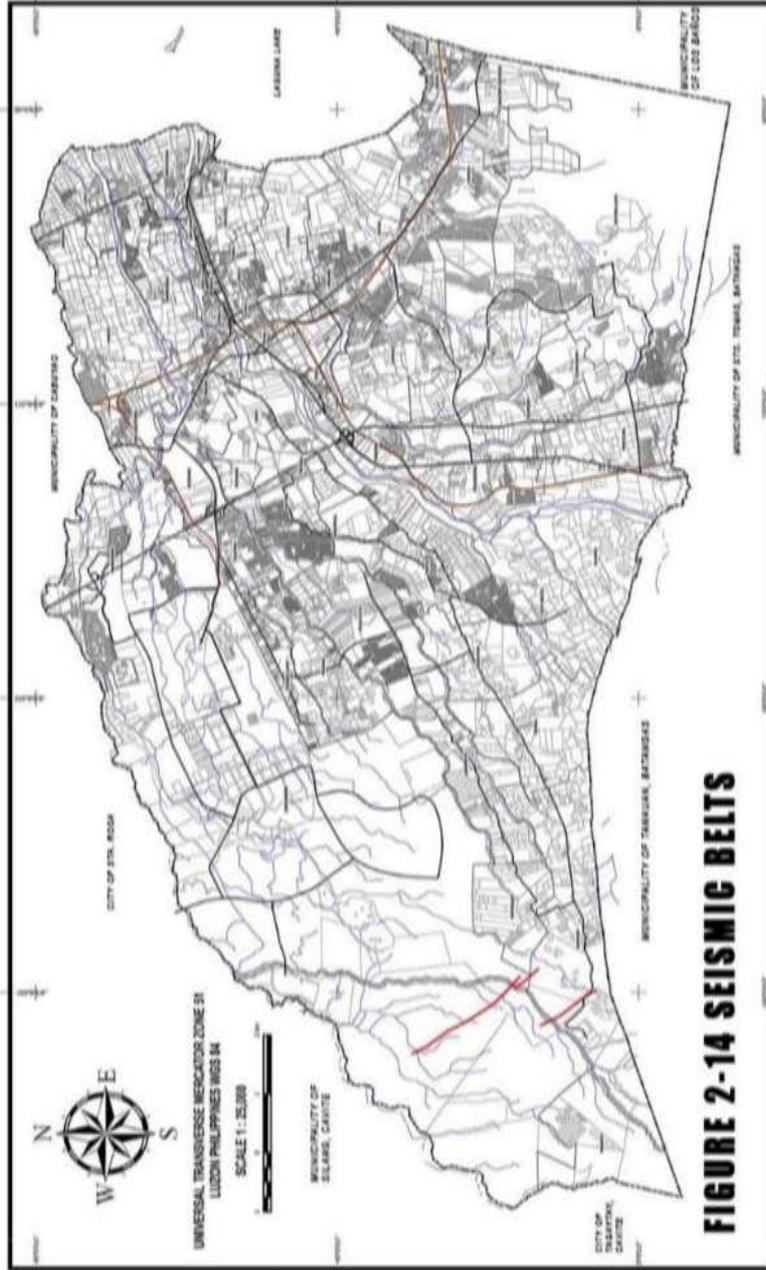
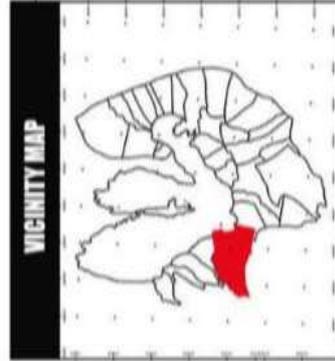


FIGURE 2-14 SEISMIC BELTS



LEGEND

- ROAD
- ELEVATIONS
- RAILROAD
- RIVERS
- SARANGANI BOUNDARY
- CITY BOUNDARY
- FAULT LINE

SOURCE

CALAMBA READY PROTECT

PREPARED FOR :



**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

PREPARED BY :



**A.M.N. ADDATU
& ASSOCIATES**

Figure 2-14. Seismic Belts

3.0 SOCIAL SECTOR

3.1 Housing

3.1.1. Situationer

Housing Backlog

The city had a backlog of 9,056 housing units as per the 2010 census of NSO. Majority of the backlog was attributed to housing units which needed major repairs comprising 98.65 percent of the total.

Table 21. Housing Backlog, 2010

Item	Number	Percentage
Needs Major Repair	8,934	98.65
Dilapidated/ Condemned	122	1.35
Total	9,056	100.00

Source: Philippine Statistics Authority

Tenurial Status

Based on the 2010 NSO census, about 52.6 percent of the total occupied housing units in Calamba City were either owned or amortized while about 20.8 percent were rented. Majority of them reported owning the lots on which their houses were built upon. The table below shows information on the tenurial status of occupied housing units in 2010.

Table 22. Households in Occupied Housing Units by Tenure Status of Lots, 2010

Tenure of Status	Number of Households	Percentage
Owned/Being Amortized	53,978	52.6
Rented	21,354	20.8
Being Occupied for Free With Consent of Owner	13,136	12.8
Being Occupied for Free Without Consent of Owner	1,793	1.7
Not reported	11,942	11.6
Not applicable	437	0.4
Total	102,640	100.0

Source: Philippine Statistics Authority

Condition of Occupied Housing Units

The following table presents the general condition of the occupied housing units during the 2010 census. A vast majority (84.85%) was reported as either not needing or needed only minor repairs. About 1,936 housing units either needed major repair (11.50%) or dilapidated/condemned (0.17%).

Table 23. Occupied Housing Units by Condition (State of Repair) of the Building and Year Built, 2010

Housing Condition	Year Built							
	2006 - 2010	2001 - 2005	1991- 2000	1981- 1990	1980 or Earlier	Not Applicable	Don't Know	Not Reported
Needs No Repair/Needs Minor Repair	14,075	13,352	29,126	12,868	11,046	0	7,385	3,869

Housing Condition	Year Built							
	2006 - 2010	2001 - 2005	1991- 2000	1981- 1990	1980 or Earlier	Not Applicable	Don't Know	Not Reported
Needs Major Repair	1,908	1,546	2,012	1,192	1,431	0	712	133
Dilapidated/Condemned	28	17	13	8	19	0	27	10
Under Renovation/Being Repaired	41	26	75	52	33	0	8	3
Under Construction	78	29	43	8	10	35	4	0
Unfinished Construction	188	116	180	99	40	17	17	0
Not Applicable	0	0	0	0	0	4	0	0
Not Reported	270	80	170	74	74	0	32	57
Total Occupied Housing Units	16,588	15,166	31,619	14,301	12,653	56	8,185	4,072

Source: Philippine Statistics Authority

Informal Settlements

The city has a total of 24,127 families living in informal dwellings. Most informal settlements are commonly located along riverbanks, road rights-of-way, within the Philippine National Railways' easement as well as within private properties. Those living along railways are prevalent in Barangay Bucal. As of December 2015, there were already 2,093 informal settler families relocated. The following table presents the summary of informal settlements in the city.

Table 24. Inventory of Informal Settlers, as of December 2016

Danger Zones	Gov't	Private	Unidentified	Total
Along San Juan River	2,089	1,030	488	3,607
Along San Cristobal River	1,170	902	897	2,969
Along Laguna de Bay	1,331	1,600	1,077	4,008
Creek	493	868	748	2,109
Waterways-NIA Canal	310	58	123	491
Roadways	78	21	20	119
Railroad	4,645	0	0	4,645
Total	10,116	4,479	3,353	17,948
No. of Relocatees				1,639
Not in Danger Zones				
Parian, Uwisan, Real, Banadero	582	0	0	582
Brgy. I, Brgy. VI, Brgy II, Parian, Looc, Makiling, Bubuyan, Punta, Palingon, Looc, Bagong Kalsada, Saimsim, Lecheria, Bucal, Mayapa, La Mesa, Real, Makiling, Paciano, BuroI, Kay-Anlog, Canlubang	0	2,958	0	2,958
Other Areas (Profiled in the Office)	0	0	3,069	3,069
Arambulo Property, Brgy. San Juan	0	121	0	121
TOTAL	582	3,079	3,069	6,730
No. of Relocatees				1,031
SUMMARY				
Total No. of Surveyed ISF within Danger Zones				17,948

Danger Zones	Gov't	Private	Unidentified	Total
Total No. of Surveyed ISF Not in Danger Zones				6,730
Total No. of Relocated ISF				3,839
Grand Total of Surveyed ISF as of December 31, 2016				24,678

Source: City Housing and Settlements Department

Subdivisions

Calamba City has 260 residential subdivisions located in 40 barangays (see table below). Barangay Canlubang has the most number with 41 subdivisions followed by Barangay Looc with 20 subdivisions. Socialized housing sites are found in Banlic, Barandal, Palo-Alto, Looc, Kay Anlog, Laguerta, Uwisan, and Putting Lupa. **Figure 3.1** presents the density of residential subdivisions per barangay.

Table 25. Inventory of Residential Subdivisions, 2013

Barangay	Total No. of Subdivisions	Subdivisions with No. of Lots/Area	No. of Lots	Area (Has.)
Bagong Kalsada	2	2	182	9.93
Banadero	9	9	3,207	23.67
Banlic	6	6	4,122	46.24
Barandal	13	12	6,685	101.58
Barangay 2	1	1	19	0.22
Barangay 4	1	1	83	2.59
Barangay 5	1	1	82	0.99
Batino	1	1	771	13.08
Bubuyan	2	2	2,766	22.96
Bucal	12	12	4,627	129.26
Bunggo	3	3	752	93.91
Burol	2	2	5,260	31.41
Canlubang	41	40	26,101	1,136.22
Halang	7	7	856	16.38
Kay Anlog	8	8	8,993	83.00
La Mesa	5	4	603	9.11
Laguerta	6	3	727	5.13
Lawa	2	2	464	4.44
Lecheria	13	13	1,123	20.15
Lingga	1	1	149	3.00
Looc	20	20	6,962	64.64
Majada Labas	14	12	2,594	37.41
Makiling	5	5	4,357	95.69
Masili	2	2	117	0.32
Maunong	5	5	1,494	449.90
Mayapa	1	1	67	0.95
Palingon	1	1	147	3.00
Palo Alto	11	11	6,710	49.99
Pansol	9	9	1,007	35.62
Parian	16	16	4,198	96.60
Prinza	1	1	684	6.00
Punta	7	6	2,777	59.30
Real	7	7	576	7.21
Saimsim	1	1	1,316	9.38
Sampiruhan	2	2	278	5.88
San Cristobal	2	2	602	5.45
San Jose	1	1	165	3.75
Sirang Lupa	1	1	225	2.00

Barangay	Total No. of Subdivisions	Subdivisions with No. of Lots/Area	No. of Lots	Area (Has.)
Sucol	5	5	586	11.83
Milagrosa	9	9	4,724	79.94
No location	4	4	398	6.40

Source: City Housing and Settlements Department

Note: No location includes: Dennis Village, Family Homes, St. John Homes Subdivision, and Villa Rizza Subdivision.

3.1.2. Development Needs

It is estimated that by the end of the planning period, the city will need an additional 64,616 housing units brought about by the increase of population and the need to provide for those living in informal dwellings. The rest of the housing needs resulted from housing units that are dilapidated or condemned which need major repairs.

Table 26. Projected Housing Need

Backlog	Number	Percentage
Needs Major Repair (2010)	8,934	12.1
Dilapidated/ Condemned (2010)	122	0.2
Future Need (2026)	40,489	55.0
Families in Informal Dwellings	24,127	32.7
Total Backlog	73,762	100.00

Source: Author's Computation

3.2 Health

3.2.1. Situationer

General Health Situation

The crude birth rate in Calamba City has been uneven in the last five years of record. Its highest rate posted at 35.94 in 2011 while the lowest rate was in 2010 at 16.04. Further, the crude death rate showed an increasing trend since 2008 from 4.33 to 6.07 in 2012. Maternal mortality rate was highest in 2012 while its lowest rate was observed in 2011.

Table 27. General Health Situation for the Last Five Years, 2008 - 2012

Health Indicator	Rate				
	2008	2009	2010	2011	2012
Crude Birth Rate (CBR)	20.01	19.49	16.04	35.94	24.65
Crude Death Rate (CDR)	4.33	4.93	5.83	5.05	6.07
Infant Mortality Rate (IMR)	7.17	9.43	12.55	9.88	4.68
Maternal Mortality Rate (MMR)	-	-	0.36	0.31	0.46

Source: City Health Services Department

Health Facilities

Calamba City has 65 Public Health Facilities, which include two (2) Rural Health Units (Main and CUBA), two (2) Birthing Facilities and (1) District Hospital managed by the Provincial Government (JP Rizal Memorial Hospital) and 60 Barangay Health Stations (BHS) in Calamba's 54 Barangays. (Refer to the following table).

Six private hospitals are supplementing the city's health services. Two of these hospitals are found in Parian, and the rest are found in Barangay 6, Mayapa, Real and Halang. Other private health facilities such as private clinics (15), lying-in clinics (17), diagnostic centers (6), rehabilitation clinic (1) and drug testing centers (2) are located in 16 barangays. Barangays Halang has the most number of private clinics while Barangay Palo Alto has the most number of lying-in clinics.

Table 28. Inventory of Health Facilities in Calamba City, 2014

Health Facilities	Location
Public	
Dr. Jose P. Rizal Memorial District Hospital	Brgy Bucal.
Punta Public Hospital	Punta
58 Barangay Health Stations	Bagong Kalsada, Banadero, Banlic, Barandal, Barangay 1, Barangay 2, Barangay 3, Barangay 4, Barangay 5, Barangay 6, Barangay 7, Batino, Bubuyan, Bucal, Bunggo, Buroc, Camaligan, Canlubang, Halang, Hornalan, Kay-Anlog, La Mesa, Laguerta, Lawa, Lecheria, Lingga, Looc, Mabato, Majada Labas, Makiling, Mapagong, Masili, Maunong, Mayapa, Paciano Rizal, Palingon, Palo-Alto, Pansol, Parian, Prinza, Punta, Puting Lupa, Real, Saimsim, Sampiruhan, San Cristobal, San Jose, San Juan, Sirang Lupa, Sucol, Milagrosa, Turbina, Ulango, Uwisan
Private	
Gomez Hospital	Barangay 6
San Jose Hospital & Medical Center	Mayapa
Calamba Doctor's Hospital	Parian
St. John The Baptist Medical Center	Parian
Calamba Medical Center	Real
Pamana Golden Care Medical Center	Halang
15 Private Clinics	Barangay 1 (1), Bucal (1), Canlubang (3), Halang (4), La Mesa (1), Looc (1), Mayapa (2), Real (1), San Juan (1)
17 Lying-In Clinics	Barandal (1), Barangay 4 (1), Barangay 6 (1), Bucal (3), Canlubang (2), Halang (1), Looc (1), Paciano Rizal (1), Palo Alto (4), Prinza (1), San Juan (1)
6 Private Diagnostic Centers	Barangay 1 (2), Barangay 4 (1), Mayapa (2), Paciano Rizal (1)
1 Rehabilitation Center	Pansol (1)
2 Drug Centers	Bucal (1), Lecheria (1)

Source: Bureau of Permit and Licensing Office, 2013 and City Health Services Department

Figure 3.2 presents the location of health facilities in the City.

A total of 628 public health personnel served the city's residents in 2015 giving a personnel-to-population ratio of 1:702. Health practitioners from private hospitals, clinics and medical laboratories supplement this number. Majority of the public health personnel are barangay health workers assigned to the 58 health centers in the City.

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

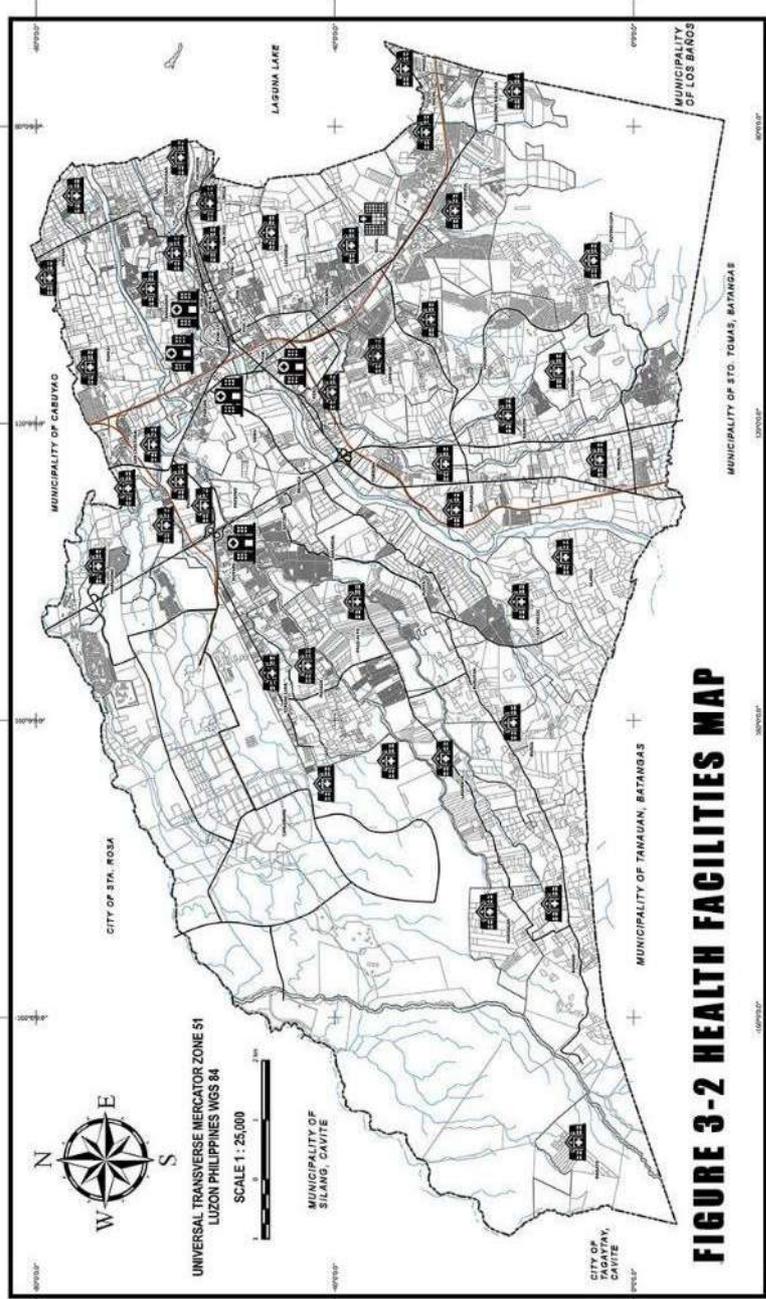
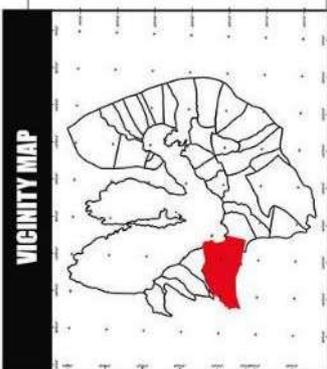


FIGURE 3-2 HEALTH FACILITIES MAP



- LEGEND**
- ROAD
 - RAILROAD
 - RIVERS
 - BARANGAY BOUNDARY
 - CITY BOUNDARY
 - PUBLIC HOSPITAL
 - PRIVATE HOSPITAL
 - BARANGAY HEALTH STATIONS
 - MEDICAL CLINICS
 - MATERNAL CLINICS
 - DIAGNOSTIC CENTERS
 - LABORATORY CENTERS
 - DRUG CENTERS
 - REHABILITATIONS

SOURCE
READY PROJECT

PREPARED BY:



A.M.N. ADDATU & ASSOCIATES

PREPARED FOR:



CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA

Figure 3-2 Health facilities in the city

Table 29. Inventory of Public Health Personnel, 2015

Personnel	Number
Doctors	5
Nurses	23
Midwives	63
Dentists	3
Sanitary Inspector	6
Medical Technologists	3
Nutritionists	3
Laboratory Aide / Dental Aide	1
Barangay Health Workers	394
Barangay Nutrition Scholars	75
Administrative	23
Job Order	18
Fumigator	4
Health Education and Promotion Officer	1
Nursing Aide	6
Total	628

Source: City Health Services Department

Leading Causes of Morbidity

Most of the ten leading causes of morbidity in the city are caused by infections. These are upper respiratory tract infections, acute rhinitis, influenza, hypertension and gastroenteritis. Cases of upper respiratory tract infections have tremendously increased by 255 percent during the last five years of record from 10,151 in 2008 to 35,986 cases in 2012.

Leading Causes of Mortality

Pneumonia is the leading cause of mortality in Calamba City. Deaths due to this illness increased to about 177 percent in 2012 from its lowest record in 2008. On the other hand, death cases in 2012 due to hypertensive heart disease dropped by about 65 percent from its highest record in 2010. Other cases of mortality are due to pulmonary tuberculosis (PTB), cancer and diabetes.

Table 30. Ten Leading Causes of Morbidity for the Last Five Years, 2008-2012

Causes	No. of Cases					Average
	2008	2009	2010	2011	2012	
1. Upper Respiratory Tract Infection	10,151	5,407	13,028	20,780	35,986	17,070
2. Acute Rhinitis / Coryza	403	4,150	12,773	17,179	34,436	13,788
3. Influenza	302	0	12,364	15,621	2,772	6,212
4. Hypertension	6,430	971	5,792	4,598	1,572	3,873
5. Gastroenteritis	204	1,898	1,055	4,081	241	1,496
6. Headache (Cephalgia)	1,579	588	409	2,449	1,567	1,318
7. Asthma	761	878	984	1,855	302	956
8. Animal Bite	85	120	827	1,346	1,560	788
9. Post-traumatic wound infection	299	0	1,236	2,036	199	754
10. Tonsillitis	470	433	458	804	980	629

Source: City Health Services Department

Table 31. Ten Leading Causes of Mortality for the Last Five Years, 2008 - 2012

Causes	No. of Cases					
	2008	2009	2010	2011	2012	Average
1. Pneumonia	105	111	126	111	291	149
2. Hypertensive Heart Disease	13	131	268	153	94	132
3. Cardio Vascular Disease	175	93	172	166	41	129
4. Acute Myocardial Infarction	145	68	203	101	120	127
5. PTB All forms	122	139	114	120	128	125
6. Cancer (All Forms)	1	111	56	110	187	93
7. Diabetes Mellitus (type II)	6	117	95	118	102	88
8. Arteriosclerosis / Heart Diseases	143	0	79	96	40	72
9. Chronic Ischemic Heart Disease	6	10	3	87	251	71
10. Congestive Heart Failure	75	56	51	46	38	53

Source: City Health Services Department

Nutritional Data

Malnutrition has been a prevalent problem among young children with ages zero to seven years old. The number of children with low malnutrition level went down by 7 percent in 2010 but increased by about 6 percent in 2012. On the other hand, the number of children with very low malnutrition level continuously increased from 99 in 2010 to 161 cases in 2012.

Table 32. Malnourished Children for the Last Three Years, 2010 - 2012

Degree of Malnutrition	No. of Children				
	2010	2011	Inc./ Dec. from Previous Year	2012	Inc./ Dec. from Previous Year
Below Normal, Low	1,498	1,398	↓ 7%	1,478	↑ 6%
Below Normal, Very Low	99	101	↑ 2%	161	↑ 59%
Total	1,597	1,499	↓ 6%	1,639	↑ 9%

Source: City Health Services Department

Household Facilities and Utilities

- Access to Safe Water

Household facilities and utilities help provide households with easier access to proper sanitation. About 73,700 or 84.61 percent of the total households surveyed in 2012 have access to safe water. The following table presents the number of households with access to safe water.

Table 33. Number of Households in Occupied Housing Units by Access to Safe Water, 2012

Total No. of Household	No. of HH Actual Surveyed	No. of HH with Access to Safe Water Supply	Household without Access	
			Number	Percent (%) to Total HH Surveyed
93,198	87,107	73,700	13,407	15.39

Source: City Health Services Department

- Access to Sanitary Toilets

A survey made by the City Health Services Department (CHSD) in 2012 showed that all (100%) of the households surveyed in Calamba City have access to toilet facilities. Information on households' access to toilet facilities are shown below.

Table 34. Number of Households in Occupied Housing Units by Access to Toilet Facilities, 2012

Total No. of Household	No. of HH Actual Surveyed	No. of HH with Sanitary Toilet	Household without Sanitary Toilet	
			Number	Percent (%) to Total HH Surveyed
93,198	86,715	73,700	13,015	15.01

Source: City Health Services Department

Cemeteries

There are eight cemeteries/ memorial parks in Calamba City located in five barangays namely, Barangay Lecheria (4) one of which is the Public Cemetery, Barangay Banadero (1), Barangay Barandal (1), Barangay Mapagong (1), and Barangay Hornalan (1). Their locations are shown in Figure 3.3.

3.2.2. Development Needs

Health Facilities

The HLURB's CLUP Guidelines⁹ provides that each city must at least have one City Health Center to service at most 50,000 constituents as well as Barangay Health Stations servicing unit populations of 5,000. Based on this, the city would need to build additional 11 City Health Centers as well as construct additional 66 Barangay Health Stations to accommodate the 2026 projected population.

In order to sufficiently cater the health care needs of its constituents, the number of health personnel should be commensurate to the population size. The projected health personnel requirements at the end of the planning period are shown on the following table. These requirements were calculated based on the provisions of R.A. 7305 or the Magna Carta of Public Health Workers.

Table 35. Projected Health Personnel

Health Personnel	Current Number	Prescribed Ratio	Requirements		Surplus/ (Deficit)
			2017	2026	
Doctor	5	2:50,000	19	25	(20)
Nurse	23	4:50,000	39	50	(27)
Midwives	63	4:50,000	39	50	20
Sanitary Inspector	6	3:50,000	29	38	(32)

Source: Author's Computation

⁹ HLURB, *CLUP Guidebook*, Volume 2, p. 88, 2007.

Cemeteries

A conservative estimate of the future area requirements for cemeteries assumes that all residents will be availing of the memorial park services within the city. Excluding open spaces, circulation and facility requirements for memorial parks, it is estimated that a total of 0.80 ha is necessary to accommodate the projected number of deaths by the end of the planning period. This further assumes that the average CDR of 5.24 from 2008 to 2012 remains constant until the end of the planning period. The following table presents the projected land requirement for cemeteries.

Table 36. Projected Cemetery Land Requirement

Year	Population	Projected No. of Deaths	Plot Area of Burial Grounds (ha)
2017	482,035	2,526	0.62
2018	496,429	2,601	0.63
2019	511,253	2,679	0.65
2020	526,520	2,759	0.67
2021	542,243	2,841	0.69
2022	558,435	2,926	0.71
2023	575,110	3,014	0.74
2024	592,284	3,104	0.76
2025	609,971	3,196	0.78
2026	628,185	3,292	0.80

Source: Author's Computation

3.3 Education

3.3.1. Situationer

School Facilities

The city has 51 public elementary schools (ES) distributed in the following districts: 25 in West District and 26 in East District. Largely populated barangays have at least two elementary schools such as Lecheria, Mapagong and Canlubang, the latter having five elementary schools. Calamba ES is the largest in terms of land area approximating 21,500 sq. followed by Post ES (20,000 sq.m) and Canlubang ES (18,700 sq.m).

In 2012, there were 967 instructional classrooms in public elementary schools. A library, canteen, clinic, and science and computer laboratories are the common facilities found in public schools. However, elementary schools in Barangays Barandal, BuroI, Kay-Anlog, Laguerta, Mapagong, Majada, Palo Alto, Hornalan, Ulango, and Uno only have comfort rooms in addition to their classrooms. Information on the city's public elementary schools are presented in the following table while their locations are shown in **Figure 3.4**.

Table 37. Public Elementary Schools by Area, Location and Facilities, 2012

Name of School	Area Occupied (sq.m)	Barangay	No. of Class-rooms	Facilities Available
WEST DISTRICT				
1. Barandal ES	500	Barandal	6	6 CR
2. Bubuyan ES	3,831	Bubuyan	8	10 CR, canteen
3. Bunggo ES	5,000	Bunggo	12	14 CR, laboratory, canteen
4. Buntog ES	4,064	Canlubang	9	11 CR, library
5. Burol ES	5,000	Burol	5	5 CR
6. Canlubang ES	18,700	Canlubang	33	36 CR, laboratory, canteen, library, clinic
7. <small>San Ramon ES</small>	2,852		8	9 CR
8. Laguerta ES	5,000	Laguerta	7	7 CR
9. Latian ES	1,500	Mapagong	7	7CR
10. Lawa ES	6,000	Lawa	18	18 CR, canteen, library
11. Mabato ES	3,400	Mabato	4	2 CR, laboratory
12. Majada In ES	5,000	Majada IN	18	18 CR
13. Majada Out ES	5,062	Majada Out	12	12 CR, laboratory, canteen
14. Mangumit ES	1,000	Canlubang	6	10 CR, laboratory, canteen, library
15. Mapagong ES	500	Mapagong	6	6 CR
16. Mayapa ES	4,438	Mayapa	35	38 CR, canteen
17. Paciano Rizal ES	3,099	Paciano Rizal	22	25 CR, laboratory, canteen
18. Palo Alto ES	4,000	Palo Alto	22	23 CR
19. Post ES	20,000	Mayapa	34	34 CR, laboratory
20. Punta ES	9,043	Punta	12	13 CR, canteen
21. Putol In ES	5,000	Canlubang		no data
22. Putol Out ES/ Hornalan ES	5,000	Hornalan	6	7 CR
23. San Ramon ES	10,000	Canlubang	49	50 CR, laboratory, 1 canteen
24. Sirang Lupa ES	500	Sirang Lupa	16	18 CR, laboratory, canteen
25. Ulango ES		Ulango	3	3 CR
EAST DISTRICT				
1. Banlic ES	2,291	Banlic	28	32 CR, laboratory, canteen
2. Bucal ES	9631	Bucal	29	32 CR, laboratory, canteen, library
3. Calamba ES	21,500	Cinco	50	56 CR, laboratory, canteen, library
4. Crossing ES	516	Uno	17	18 CR
5. E. Barretto ES	7,495	Pansol	27	26 CR, laboratory, canteen, clinic
6. Halang ES	4,084	Halang	24	27 CR, laboratory, canteen
7. J. Platon ES	2,500	Saimsim	14	16 CR, laboratory, canteen
8. JRMS ES	15,501	Sais	101	112 CR, laboratory, canteen, library, clinic
9. La Mesa ES	4,842	La Mesa	10	12 CR, laboratory, canteen
10. Lecheria ES	5,186	Lecheria	19	21 CR, laboratory, canteen
11. Lingga ES	1,999	Lingga	25	32 CR, laboratory, canteen
12. Looc ES	5,000	Looc	29	23 CR, laboratory, canteen, clinic
13. Makiling ES	2,362	Makiling	18	17 CR, laboratory, canteen
14. Maunong ES	2,000	Maunong	9	10 CR, laboratory, canteen, library
15. Palingon ES	12,952	Palingon	12	14CR, laboratory, canteen, library
16. Parian ES	4,739	Parian	37	38CR, laboratory, canteen, clinic
17. Puting Lupa ES	7,495	Puting Lupa	7	12 CR, laboratory, canteen, library, clinic

Name of School	Area Occupied (sq.m)	Barangay	No. of Class-rooms	Facilities Available
18. Real ES	8,436	Real	25	28 CR, laboratory, canteen
19. Ronggot ES		Lecheria	1	no data
20. Sampurihan ES	9,883	Sampuruhan	20	22 CR, laboratory, canteen, library, clinic
21. San Cristobal ES	3,800	San Cristobal	21	21 CR, laboratory, canteen
22. San Juan ES	3,647	San Juan	14	18 CR, laboratory, canteen
23. Tiyani ES	4,432	Masili	30	33 CR, laboratory, canteen, library
24. Milagrosa ES	4,364	Milagrosa	19	23 CR, laboratory, canteen, library, clinic
25. Turbina ES	2,965	Turbina	11	10 CR, laboratory
26. Uwisan ES	2,335	Uwisan	12	16 CR, laboratory, canteen
Total	278,444		967	

Source: DepEd-Region IV-A

There are also 20 public secondary schools with a total area of 99,416 sq. in the city. Calamba Bayside National High School (NHS) in Palingon, occupying a total area of 17,145 sq., is the largest in terms of land area followed by CVL NHS (9,858 sq.), Punta NHS Main (9,043 sq.) and Calamba NHS (6,001).

Only 18 of the City's barangays have secondary schools providing 298 instructional classrooms to secondary students. Barangay Canlubang had the most number of four public secondary schools. In Barangay 3, a science high school was also established by the City Government. The Calamba City Science High School provides science-oriented curriculum to academically excellent students. The table below and **Figure 3.5** refer.

Table 38. Public Secondary Schools by Area, Location and Facilities, 2012

Name of School	Area Occupied (sq.)	Barangay	No. of Class-rooms	Facilities Available
Bubuyan NHS	3,831	Bubuyan	4	16 CR, laboratory, canteen, library, clinic
Bunggo NHS	5,000	Bunggo	8	8 CR, canteen
Buntog NHS	3,510	Canlubang	4	8 CR, laboratory, canteen, library
Calamba Bayside NHS	17,145	Palingon	49	48 CR, laboratory, canteen, library
Calamba NHS	6,001	Bañadero		no data
	500	San Cristobal	11	12 CR, laboratory, canteen
CVL NHS	9,858	Mayapa		no data
Canlubang NHS	1,000	Canlubang		no data
E. Barretto NHS	4,500	Pansol	33	28 CR, laboratory, canteen
Lecheria NHS	845	Lecheria	13	15 CR, laboratory, canteen
Kapayapaan NHS	4,695	Canlubang	29	29 CR, laboratory, canteen
	1,000	Canlubang		no data
Looc NHS	508	Looc	19	26 CR, laboratory, canteen, library, clinic
Mabato NHS	1,000	Mabato	4	8 CR, laboratory, canteen
Majada In NHS	5,000	Majada In	10	14 CR, laboratory, canteen, library, clinic
Makiling NHS	3,857	Makiling	27	29 CR, laboratory, canteen
Palo Alto NHS	6,000	Palo Alto	25	29 CR, laboratory, canteen, library
Punta NHS Main	9,043	Punta	21	21 CR, laboratory, canteen
Lawa NHS	5,015	Lawa	12	14 CR, laboratory, canteen, library
Castor Alviar NHS	5,333	Sucol	21	24 CR, laboratory, canteen

Name of School	Area Occupied (sq.)	Barangay	No. of Class-rooms	Facilities Available
Calamba City Science HS	5,775	Barangay 3	8	12 CR, laboratory, canteen, library
Total	99,416		298	

Source: DepEd-Region IV-A

Private schools supplement the educational requirements of the city's residents. A total of 107 private educational institutions are recorded to be operating in Calamba City as of 2016. Of this number, 16 offer only preschool education, 37 offer both preschool and elementary education while 44 offer preschool up to secondary education. Private schools are mostly found in Canlubang (19), while Barandal, Barangay 1, Bucal, Halang, Looc, and Parian each have five private schools. The table below and **Figure 3.6** refer.

Table 39. Inventory of Private Schools by Level and Barangay, 2012

Barangay	Level					Total
	Preschool	Secondary	Preschool/ Elementary	Elementary/ Secondary	Preschool/ Elem/Secondary	
Bagong Kalsada	1					1
Banadero	2		1			3
Banlic	1		1		1	3
Barandal			3		2	5
Barangay 1		1			4	5
Barangay 3			1		1	2
Barangay 4			1			1
Barangay 5	1					1
Barangay 5	1					1
Barangay 6					1	1
Bubuyan			1			1
Bucal			3		2	5
Bunggo			1			1
Canlubang		2	5	1	11	19
Halang	1	1	1		2	5
Kay-Anlog	1					1
Laguerta					1	1
Lamesa	1		3			4
Lawa	1		2			3
Lecheria	1		1			2
Lingga	1				2	3
Looc	2		2		1	5
Makiling		1	1		1	3
Mayapa					3	3
Paciano Rizal					2	2
Palo-Alto					3	3
Pansol			1			1
Parian	1		2		2	5
Punta			2			2
Real	1		1			2
Saimsim		1	1		1	3
Sampiruhan					1	1
San Cristobal					2	2
San Jose			1			1
Sirang-Lupa	1				1	2
Sucol			2			2
Total	16	6	37	1	44	104

Source: DepEd-Region IV-A

Tertiary education is also available in the city. The City College of Calamba is the only one out of the 19 tertiary schools that is under the management of the City Government. The Calamba Manpower Development Center which is also under the management of the City Government offers vocational courses. The rest of the tertiary schools are privately-owned. Parian has the most number of tertiary schools (6) followed by Canlubang (3) and Makiling (2). The inventory of tertiary schools in the city is shown below while **Figure 3.7** shows their locations.

Table 40. Inventory of Tertiary Schools, 2013

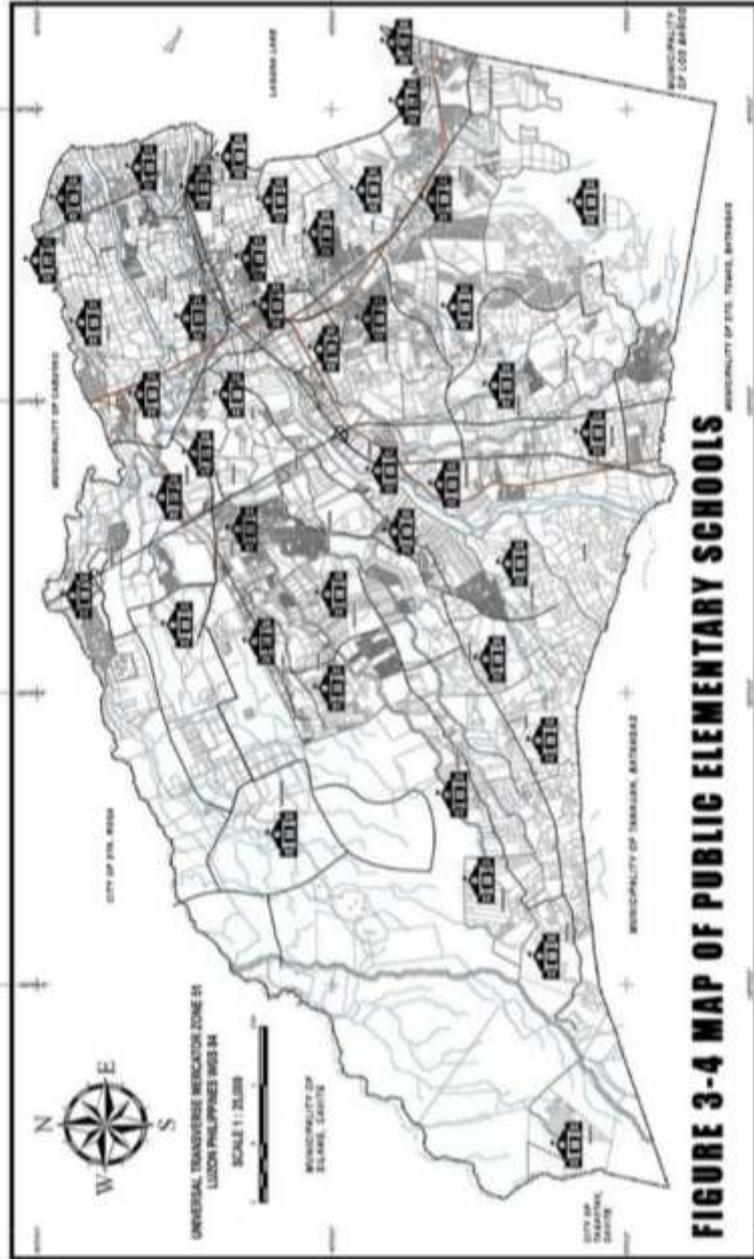
Name of School	Location	Type
City College of Calamba	Barangay 7	Public
Rizal College of Laguna Inc.	Parian	Private
AMA Comp College Calamba Inc.	Parian	Private
Asian Computer College Inc.	Mayapa	Private
Lyceum of The Philippines - Laguna	Makiling	Private
LPU - St Cabrini College of Allied Medicine Inc.	Makiling	Private
Philippine Women's University	Barangay 1	Private
Philasia Center for Science & Technology Inc.	Halang	Private
STI Education Svcs Group Inc.	Barangay 1	Private
Asian Institute of Computer Studies Central Inc.	Barangay 1	Private
Asian Computer College Inc.	Punta	Private
Calamba Institute	Halang	Private
Rizal Institute Canlubang Foundation Inc.	Canlubang	Private
Jesus Is Lord Colleges Foundation Inc.	Parian	Private
Calamba Doctors' College	Parian	Private
St. Augustine School of Nursing	Parian	Private
St. Mary Magdalene Colleges of Laguna Inc.	Uwisan	Private
Don Bosco College Inc.	Canlubang	Private
Colegio De San Juan De Letran Inc.	Bucal	Private

Source: Business Permits and Tricycle Franchising Office

Enrolment Population

Student population in public schools has generally increased for the last three years reaching a total of 73,318 enrollees in 2012 and 116,139 in 2016 at the elementary and secondary levels. Elementary and secondary school enrolment population both showed increasing trends since 2010. Enrolment data from school year 2010 to 2012 are given in the following tables.

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



PREPARED BY:



A.M.N. ADDATU
& ASSOCIATES

PREPARED FOR:



CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA

SOURCE

DEPED-REGION IV-A

Figure 3-4 Map of Public Elementary Schools

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

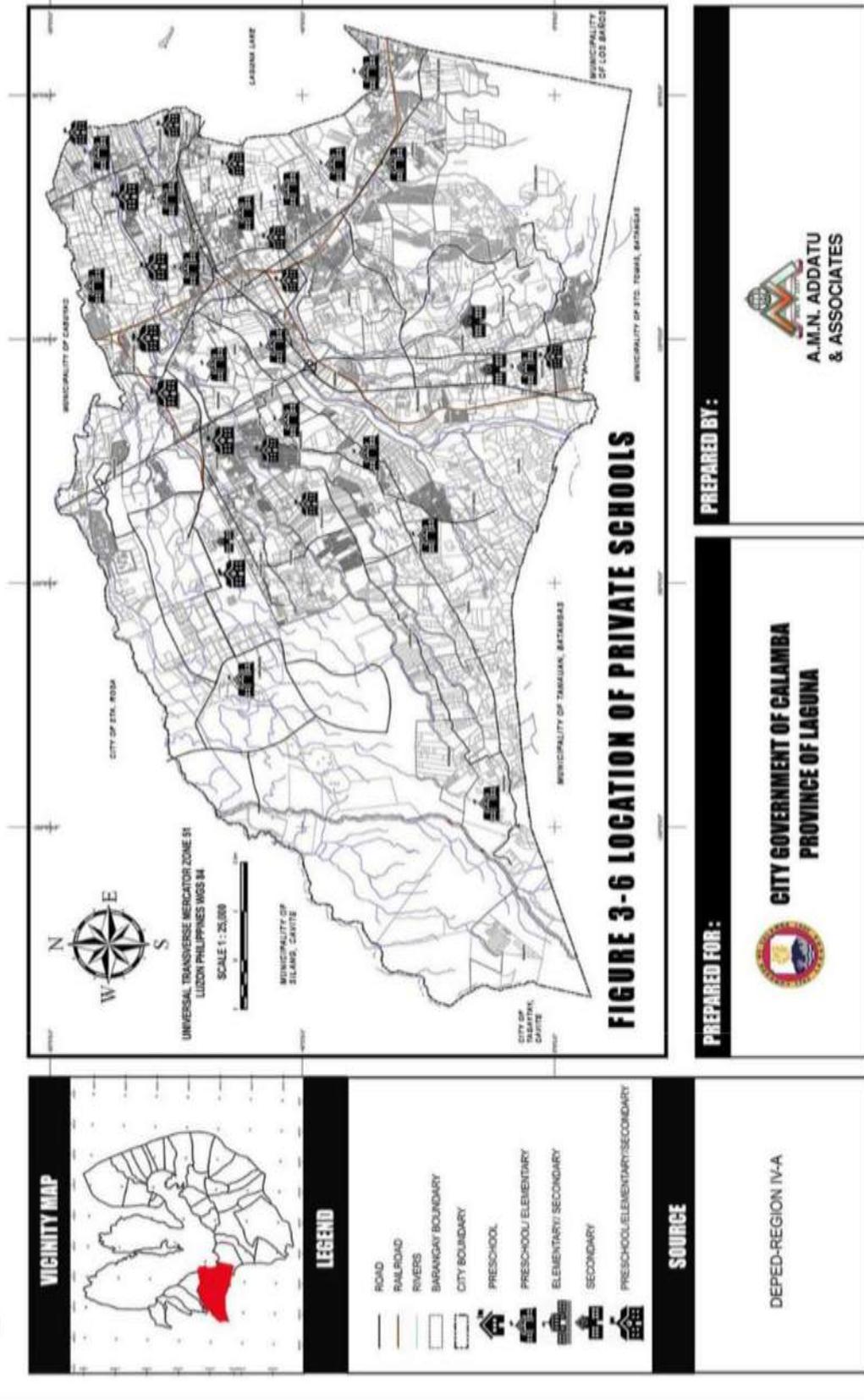
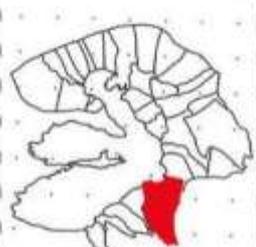


Figure 3-6 Location of Private Schools

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

VICINITY MAP

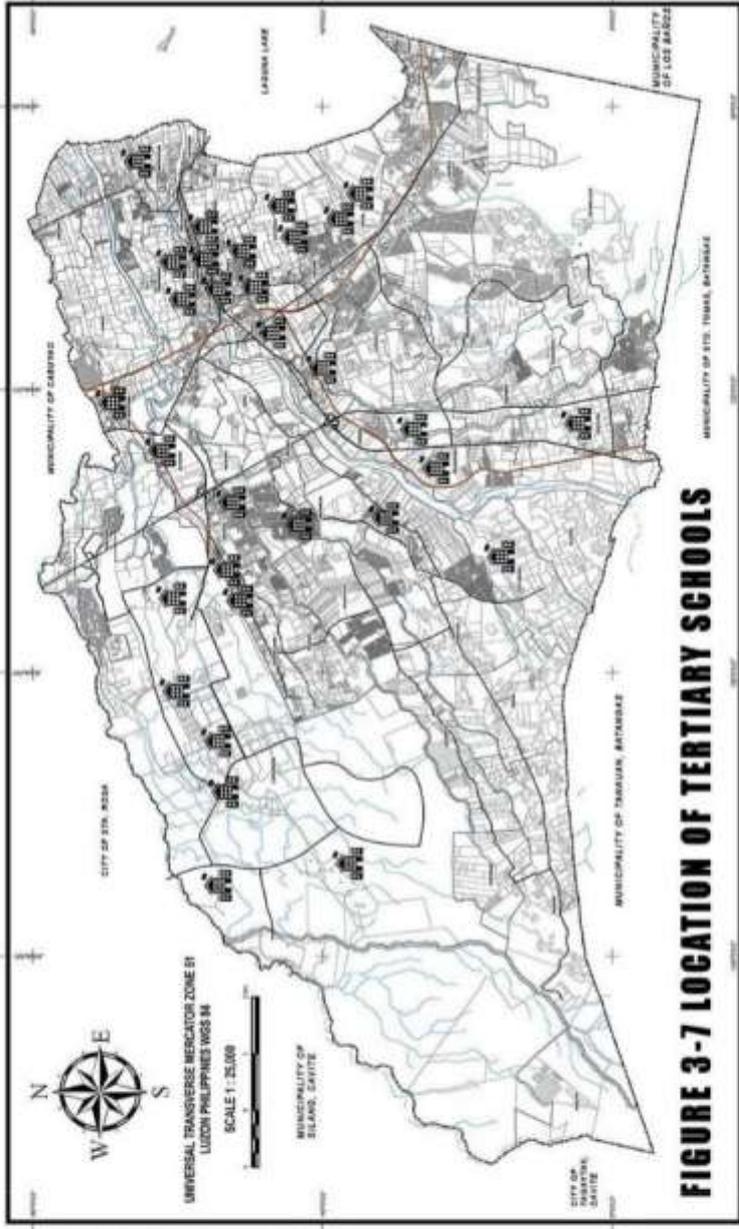


LEGEND

- ROAD
- RAILROAD
- RIVERS
- BARANGAY BOUNDARY
- CITY BOUNDARY
- TERTIARY SCHOOLS

SOURCE

CITY PLANNING AND DEVELOPMENT OFFICE



PREPARED BY:



A.M.N. ADDATU & ASSOCIATES

PREPARED FOR:



CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA

Figure 3-7. Location of Tertiary Schools

Table 41. Historical Enrolment in Public Kinder and Elementary Schools for the Last Three Years

Levels	2010			2011			2012		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Kinder	2,003	1,954	3,957	2,318	2,265	4,583	2,796	2,646	5,442
Elementary	23,094	21,878	44,972	23,899	22,593	46,492	24,860	23,293	48,153
Grade I	4,964	4,326	9,290	5,296	4,527	9,823	5,472	4,649	10,121
Grade II	4,195	3,763	7,958	4,078	3,787	7,865	4,575	4,029	8,604
Grade III	3,967	3,791	7,758	4,054	3,757	7,811	3,898	3,736	7,634
Grade IV	3,481	3,648	7,129	3,850	3,725	7,575	3,875	3,707	7,582
Grade V	3,303	3,337	6,640	3,454	3,545	6,999	3,789	3,710	7,499
Grade VI	3,184	3,013	6,197	3,167	3,252	6,419	3,251	3,462	6,713

Table 42. Historical Enrolment in Public Secondary Schools for the Last Three Years

Levels	2010			2011			2012		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Secondary	9,152	8,803	17,955	9,626	9,209	18,835	9,947	9,776	19,723
First Year	2,667	2,475	5,142	2,897	2,554	5,451	2,853	2,780	5,633
Second Year	2,440	2,345	4,785	2,502	2,429	4,931	2,682	2,472	5,154
Third Year	2,159	2,056	4,215	2,324	2,254	4,578	2,347	2,402	4,749
Fourth Year	1,886	1,927	3,813	1,903	1,972	3,875	2,065	2,122	4,187
Total	34,249	32,635	66,884	35,843	34,067	69,910	37,603	35,715	73,318

Source: DepEd-Region IV-A

3.4 Protective Services

3.4.1. Situationer

Facilities and Equipment

- Police

About 163 police personnel of the Calamba City Police Station maintain peace and order in the city. The Police Headquarters, occupying an area of 678 square meters, is located in Barangay Real. There are also eight public assistance centers strategically distributed within the city. The City Government has equipped the 4 Public Assistance Centers with at least one mobile patrol vehicle, aside from other equipment used by the police force. Calamba City also hosts Camp Vicente Lim in Barangay Mayapa where the PNP - Region IV-A office is located at.

The policeman to population ratio in the city is 1: 3,303 which is below the standard requirement of one police personnel for every 1,000 population. The following table presents information on the city's protective facilities and personnel.

Table 43. Police Service Facilities by Location, Area and Number of Personnel, 2013

Facilities	Location	Approx. Area (sq.)	No. of Personnel	Facilities/ Equipment
Headquarters				
Calamba City Police Station	Brgy. Real	678	130	vehicle (9)
Public Assistance Center				
PAC - Canlubang	Brgy. Canlubang	-	5	

Facilities	Location	Approx. Area (sq.)	No. of Personnel	Facilities/ Equipment
PAC - Makiling	Brgy. Makiling	-	4	vehicle (1)
PAC - Cuba	CUBA (Calamba Upland Barangays Association)	-	4	vehicle (1)
PAC - Batino	Brgy. Batino	-	4	
PAC - Light Industry & Science Park II	Brgy. Real	-	4	
PAC - Carmelray Industrial Park	Brgy. Canlubang	-	4	
PAC - Nuvali	Brgy. Canlubang	-	4	vehicle (1)
PAC - Palisam	PALISAM (Palingon, Lingga, Sampiruhan)	-	4	vehicle (1)
Total			163	

Source: Calamba City Police Station

The 10,000 square meter City Jail in Brgy. Turbina housed around 800 inmates in 2012 and was manned by 50 jail personnel. Information on the City Jail is shown on the table below.

Table 44. Jail Management Facilities by Location, Area and Number of Personnel, 2012

Facilities	Location	Approx. Area (sq.)	No. of Personnel	Facilities/ Equipment
City Jail	Turbina	10,000	50	(2) vehicles

Source: BJMP, Calamba City

- Fire

The Central Fire Station is located in Barangay Real. There is also one sub-station building located in Barangay Canlubang. The city has 44 fire personnel yielding a ratio of one fireman per 8,849 population. This is below the national standard of one fireman for every 2,000 population. The following table shows information of the city's fire protection facilities and personnel while the location of the city's protective facilities is shown in **Figure 3.8**.

Table 45. Fire Protection Service Facilities by Location, Area and Number of Personnel, 2013

Facilities	Location	No. of Personnel	Facilities/ Equipment
Headquarters			
Central Fire Station	Brgy. Real	39	Fire trucks/tankers (4), fire hoses (36), fire coats (9), fire boots (7), fire ladder (4)
Sub-station			
Canlubang Sub-Fire Station	Brgy. Canlubang	5	
Total		44	

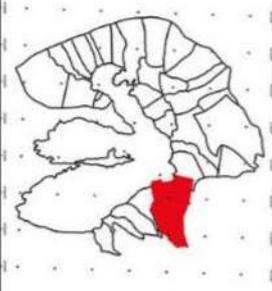
Source: Calamba City Fire Station

Crime Incidence

Physical injuries, theft, murder, rape, and robbery were the most common crimes committed in Calamba City from January 2013 to October 2013. The total number of cases filed in the same period was 289, of which 245 were immediately solved. This is equivalent to a crime solution rate of 84.78 percent. Crime incidence data is shown on the following table.

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

VICINITY MAP

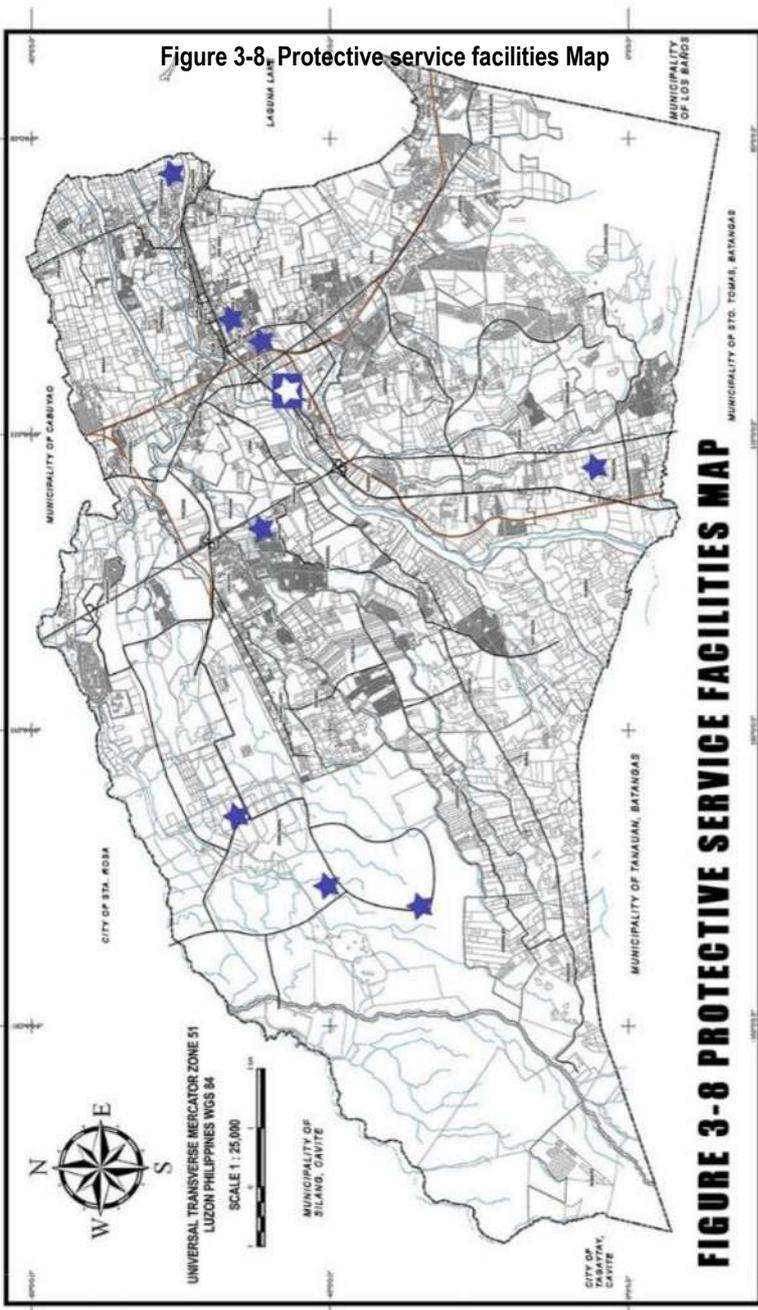


LEGEND

- ROAD
- RAILROAD
- RIVERS
- BARANGAY BOUNDARY
- CITY BOUNDARY
- HEADQUARTERS
- PUBLIC ASSISTANT CENTER

SOURCE

BUSINESS PERMITS AND TRICYCLE FRANCHISING OFFICE
SOCIO ECONOMIC PROFILE, 2007



PREPARED FOR:



CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA

PREPARED BY:



A.M.N. ADDATU
& ASSOCIATES

Table 46. Crime Incidence by Type of Offense and Frequency of Occurrence for Jan - Oct 2013

Type of Offenses	2013
Murder	45
Homicide	6
Physical Injuries	62
Rape	41
Robbery	39
Theft	61
RA 6539 "Anti-Carnapping Act of 1972"	35
Total	289

Source: Calamba Police Station, City

Fire Incidents

The incidents of fire in Calamba City have increased over the last four years. There were 373 fire incidents recorded in the last four years. The highest number of such incidents was in January - September 2013 while the lowest was recorded in 2011 with only 39 cases. Fire incidence data by frequency of occurrence is shown below.

Table 47. Fire Incidence by Frequency of Occurrence for the Last Four Years

Year	Frequency of Occurrence
2010	85
2011	39
2012	118
2013 (as of Sept.)	131
TOTAL	373

Source: Calamba City Fire Station

3.4.2. Development Needs

Pursuant to NAPOLCOM Resolution No. 92-36, the City's Police Station is classified as Type A and should have a standard lot area of 2,500 square meters. Its City Jail, on the other hand, should have at least a lot area of one hectare. Given these standards, there is a need to expand the police station by 1,822 square meters. The City Jail's site area is compliant to the standard.

In terms of personnel, the city needs to deploy 456 more policemen and 270 more firemen in order to achieve the minimum standard of policeman- and fireman-to-population ratio by the end of the planning period. Projections on the required number of protective service personnel are presented below.

Table 48. Projected Protective Services Personnel

Protective Services Personnel	Current Number	Prescribed Ratio	Requirements		Surplus/ (Deficit)	
			2017	2026	2017	2026
Policemen	163	1:1,000	482	628	(319)	(465)
Firemen	44	1:2,000	241	314	(197)	(270)
Jail Guard	50	1:2,000	241	314	(191)	(264)

Source: Author's Computation

3.5 Sports and Recreation

3.5.1. Situationer

Calamba City has two main public parks, one is called The Plaza located in Barangay Real just across the New City Hall where the tallest Rizal monument can be found and the other one is the Calabanga Park in Barangay 7 near the famous Rizal Shrine. The City Government envisions to construct its first Sport Stadium Complex near the City Hall Complex in the coming year. There are also 54 basketball courts that can be found in all barangays which are utilized for all sports and recreation activities and community assemblies. Parks and playground are present in many residential subdivisions.

Some private individuals and companies have also established several sports facilities in the city. These include the Wakeboarding Park at Nuvali in Barangay Canlubang, and badminton centers in the same barangay and in Halang. Boxing and fitness gyms, and billiard halls may also be found in several barangays. Calamba City also houses two of the country's premier golf courses, the Ayala Greenfield Golf and Leisure Club situated in Barangay Puting Lupa and Canlubang Golf and Country Club in Barangay Canlubang. There is also a private driving range in Barangay Lecheria.

Apart from these recreation facilities, there are 415 registered resorts in the city. These resorts are equipped with swimming pools and picnic grounds suitable for recreation particularly during summer. Most of the resorts and private pools are located in Barangays Bucal, Pansol and Bagong Kalsada. There are also two private cockfighting arenas.

The following table presents the sports and recreation facilities by barangay as of 2013 while their locations are shown in **Figure 3.9**.

Table 49. Inventory of Existing Sports and Recreation Facilities by Barangay, 2013

Barangay	Sports/ Recreation Facilities	Ownership
Bagong Kalsada	1 basketball	Public
Banadero	1 basketball	Public
Banlic	1 basketball	Public
Barandal	1 basketball	Public
Barangay 1 (Poblacion)	1 basketball	Public
Barangay 2 (Poblacion)	1 basketball	Public
Barangay 3 (Poblacion)	1 basketball	Public
Barangay 4 (Poblacion)	1 basketball	Public
Barangay 5 (Poblacion)	1 basketball	Public
Barangay 6 (Poblacion)	1 basketball	Public
Barangay 7 (Poblacion)	1 basketball, 1 public park	Public
Batino	1 basketball	Public
Bubuyan	1 basketball	Public
Bucal	1 basketball	Public
Bunggo	1 basketball	Public
Burol	1 basketball	Public
Camaligan	1 basketball	Public
Canlubang	1 basketball	Public

Barangay	Sports/ Recreation Facilities	Ownership
	1 badminton center	Private
	1 golf course	Private
	1 wakeboarding park	Private
Halang	1 basketball	Public
	1 badminton center	Private
	1 cockpit arena	Private
Hornalan	1 basketball	Public
Kay-Anlog	1 basketball	Public
La Mesa	1 basketball	Public
Laguerta	1 basketball	Public
Lawa	1 basketball	Public
Lecheria	1 basketball	Public
	1 driving range	Private
Lingga	1 basketball	Public
Looc	1 basketball	Public
Mabato	1 basketball	Public
Majada Labas	1 basketball	Public
	1 cockpit arena	Private
Makiling	1 basketball	Public
Mapagong	1 basketball	Public
Masili	1 basketball	Public
Maunong	1 basketball	Public
Mayapa	1 basketball	Public
Paciano Rizal	1 basketball	Public
Palingon	1 basketball	Public
Palo-Alto	1 basketball	Public
Pansol	1 basketball	Public
Parian	1 basketball	Public
Prinza	1 basketball	Public
Punta	1 basketball	Public
Puting Lupa	1 basketball	Public
	1 golf course	Private
Real	1 basketball, 1 public park, 1 Sport Stadium Complex	Public
Saimsim	1 basketball	Public
Sampiruhan	1 basketball	Public
San Cristobal	1 basketball	Public
San Jose	1 basketball	Public
San Juan	1 basketball	Public
Sirang Lupa	1 basketball	Public
Sucol	1 basketball	Public
Milagrosa	1 basketball	Public
Turbina	1 basketball	Public
Ulango	1 basketball	Public

Barangay	Sports/ Recreation Facilities	Ownership
Uwisan	1 basketball	Public

Source: Business Permits and Tricycle Franchising Office and City Socio-Economic Profile 2007

3.5.2. Development Needs

Given a minimum standard of 500 square meters of City Park per 1,000 population¹⁰, it is estimated that Calamba will need approximately 31.41 hectares of land for parks and recreational purposes by 2027.

3.6 Social Welfare

3.6.1. Situationer

All barangays have their own day care center under the Early Childhood Education Program of the City Government. Aside from these day care centers, the City Government also manages the following social welfare facilities:

- Calamba Children Center for Hope
- Second Chance Home for Children-in-Conflict with the Law
- Center for Street Children
- Drop-in/Crisis Center
- Community Based program for Street Children/Gulong ng Karunungan
- Women Crisis and Therapy Center
- Women Center for Competency Enhancement and Development
- Hope Intervention Center for Special Children

The City Government has been implementing social welfare programs for the following clientele groups: children, youth, women, family, persons with disabilities and older person. As of November 2013, the most number of clienteles served were older persons (25,000) and persons with disabilities (10,035).

The following table presents information on the City's social welfare facilities and services while **Figure 3.10** shows the location of these facilities.

Table 3.30 Social Welfare Facilities, Services and Clientele, 2015

Barangay	Facilities	Services Rendered
Bagong Kalsada	(1) Day Care Center	Child Development Program
Banadero	(1) Day Care Center	Child Development Program
Banlic	(2) Day Care Center	Child Development Program
Barandal	(1) Day Care Center	Child Development Program
Batino	(1) Day Care Center	Child Development Program
Bubuyan	(1) Day Care Center	Child Development Program
Bucal	(1) Day Care Center	Child Development Program Youth Development Program
Bunggo	(1) Day Care Center	Child Development Program
Burol	(1) Day Care Center	Child Development Program
Camaligan	(1) Day Care Center	Child Development Program
Canlubang	(18) Day Care Centers	Child Development Program

¹⁰ HLURB. CLUP Guidebook, Volume 2. 2007.

Barangay	Facilities	Services Rendered
		Youth Development Program
Halang	(1) Day Care Center, (1) Hope Intervention Center on Special Children	Child Development Program
Hornalan	(1) Day Care Center	Child Development Program
Kay-Anlog	(3) Day Care Centers	Child Development Program
Laguerta	(1) Day Care Center	Child Development Program
La Mesa	(2) Day Care Centers	Child Development Program
Lawa	(1) Day Care Center	Child Development Program
Lecheria	(2) Day Care Centers	Child Development Program Youth Development Program
Lingga	(1) Day Care Center	Child Development Program
Looc	(2) Day Care Centers	Child Development Program Youth Development Program
Mabato	(1) Day Care Center	Child Development Program
Majada Labas	(1) Day Care Center	Child Development Program
Makiling	(1) Day Care Center	Child Development Program
Mapagong	(1) Day Care Center	Child Development Program
Masili	(1) Day Care Center	Child Development Program Youth Development Program
Maunong	(1) Day Care Center	Child Development Program
Mayapa	(1) Day Care Center	Child Development Program
Paciano Rizal	(1) Day Care Center	Child Development Program
Palingon	(1) Day Care Center	Child Development Program
Palo-Alto	(1) Day Care Center	Child Development Program
Pansol	(1) Day Care Center	Child Development Program Youth Development Program
Parian	(1) Day Care Center	Child Development Program Youth Development Program
Barangay 1 (Pob.)	(1) Day Care Center	Child Development Program Youth Development Program
Barangay 2 (Pob.)	(1) Day Care Center	Child Development Program
Barangay 3 (Pob.)	(1) Day Care Center	Child Development Program
Barangay 4 (Pob.)	(1) Day Care Center	Child Development Program
Barangay 5 (Pob.)	(1) Day Care Center	Child Development Program
Barangay 6 (Pob.)	(1) Day Care Center	Child Development Program
Barangay 7 (Pob.)	(1) Day Care Center	Child Development Program
Prinza	(1) Day Care Center	Child Development Program
Punta	(1) Day Care Center	Child Development Program
Puting Lupa	(1) Day Care Center	Child Development Program
Real	(2) Day Care Centers	Child Development Program
Sucol	(1) Day Care Center	Child Development Program Youth Development Program
Saimsim	(1) Day Care Center	Child Development Program
Sampiruhan	(1) Day Care Center	Child Development Program
San Cristobal	(1) Day Care Center	Child Development Program
San Jose	(1) Day Care Center	Child Development Program
San Juan	(1) Day Care Center	Child Development Program Youth Development Program
Sirang Lupa	(1) Day Care Center	Child Development Program
Milagrosa	(1) Day Care Center	Child Development Program
Turbina	(1) Day Care Center	Child Development Program
Ulango	(1) Day Care Center	Child Development Program
Uwisan	(1) Day Care Center	Child Development Program

Source: City Planning and Development Office

3.6.2. Development Needs

The existing social welfare facilities of the city meets the basic needs of the society's more vulnerable groups – elderly, women and youth. These should, however, be sustained and enhanced. The city also needs to pursue the accreditation of its various social welfare and training facilities.

DRAFT

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

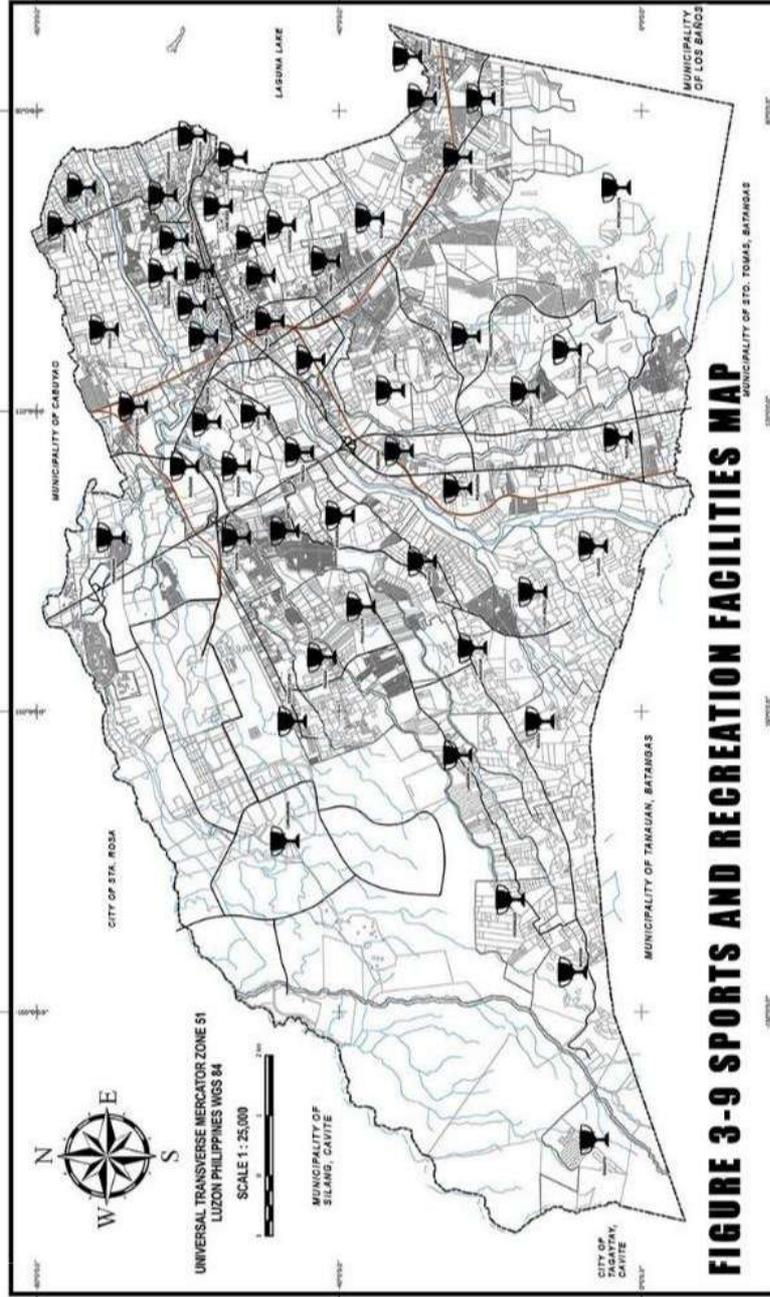
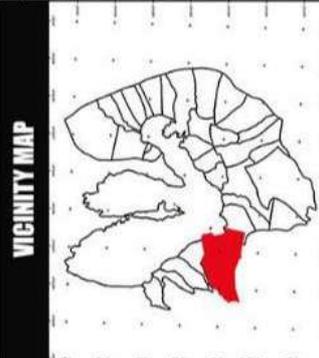


FIGURE 3-9 SPORTS AND RECREATION FACILITIES MAP



- LEGEND**
- ROAD
 - RAILROAD
 - RIVERS
 - BARANGAY BOUNDARY
 - CITY BOUNDARY
 - BADMINTON CENTER
 - BASKETBALL
 - BASKETBALL/PUBLIC PARK
 - COCKPIT ARENA
 - DRIVING RANGE
 - GOLF COURSE
 - SPORT STADIUM COMPLEX
 - WAKEBOARDING PARK

SOURCE

READY PROJECT

PREPARED BY:

A.M.N. ADDATU & ASSOCIATES

PREPARED FOR:

**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

Figure 3-9. Sports and Recreation Facilities Map

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

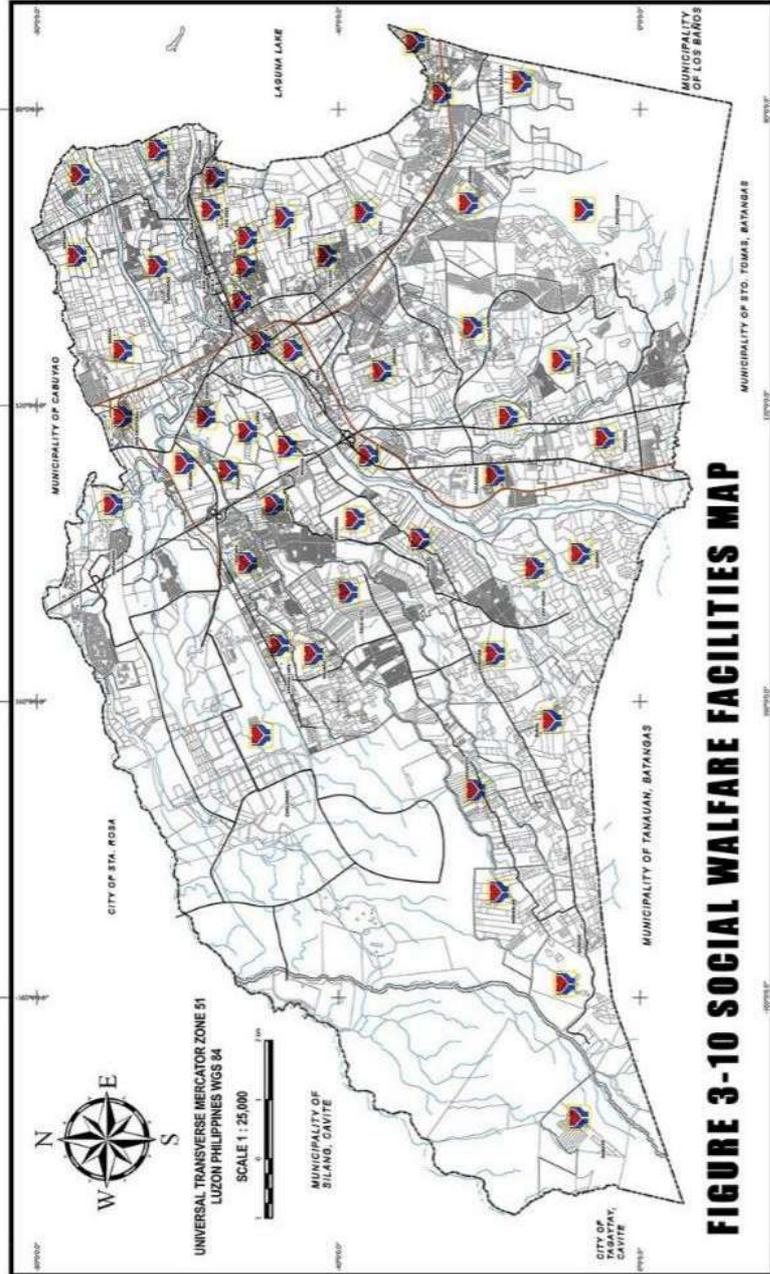
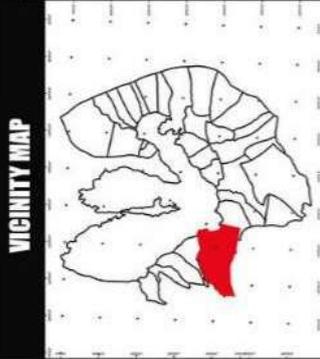


FIGURE 3-10 SOCIAL WELFARE FACILITIES MAP



VICINITY MAP

LEGEND

- ROAD
- RAILROAD
- RIVERS
- BARANGAY BOUNDARY
- CITY BOUNDARY
- SOCIAL WELFARE FACILITIES

SOURCE

CITY SOCIAL WELFARE & DEVELOPMENT OFFICE

PREPARED FOR:



**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

PREPARED BY:



**A.M.N. ADDATU
& ASSOCIATES**

Figure 3-10. Social Welfare Facilities Map

4.0 ECONOMIC SECTOR

4.1 Industry

4.1.1. Situationer

Based on the records provided by the Business Permits and Tricycle Franchising Office, there were about 234 registered manufacturing industries establishments throughout Calamba City in 2015. In comparison with the 214 registered manufacturers in 2014, the number slightly increased by .09 percent within a year.

About 39.74% of manufacturing establishments were concentrated in Canlubang (93). Makiling, Batino, Punta, and Milagrosa have more than 10 manufacturing establishment. The other 24 barangays have at least one industry operating in their areas. The following table presents the number of registered manufacturing industries by barangay while **Figure 4.1** illustrates the density of industries per barangay.

Table 50. Inventory of Registered Manufacturing Industries by Barangay, 2015

Barangay	2015	
	Number of Manufacturer	% Share
Banlic	1	0.43
Barandal	2	0.85
Barangay 1	1	0.43
Barangay 7	1	0.43
Batino	17	7.26
Bucal	2	0.85
Camaligan	1	0.43
Canlubang	93	39.74
Halang	5	2.14
Lamesa	8	3.42
Lawa	1	0.43
Looc	1	0.43
Majada	3	1.28
Makiling	17	7.26
Masile	1	0.43
Mayapa	5	2.14
Milgrosa	15	6.41
Paciano Rizal	7	2.99
Parian	2	0.85
Prinza	1	0.43
Punta	20	8.55
Real	10	4.27
Sainsim	6	2.56
Sampiruhan	1	0.43

Barangay	2015	
	Number of Manufacturer	% Share
San Cristobal	3	1.28
Sirang-Lupa	4	1.71
Sucol	1	0.43
Turbina	4	1.71
Uwisan	1	0.43
Total	234	100.00

Source: Business Permits and Tricycle Franchising Office

Based on the 2013 records of Philippine Economic Zone Authority, there were 10 economic zones operating in Calamba City occupying 448.71 hectares of land. Most of the ecozones were engaged in manufacturing businesses while there were only two classified as Information Technology (IT) Parks. Among the ecozones, Calamba Premiere International Park in Barangays Batino, Parian and Barandal had the most number of locators, comprising 27.88% of the total 448 locators. The largest ecozone is Carmelray Industrial Park II in Barangay Canlubang covering a total of 143.03 hectares. The table below presents the list of industrial estates and their number of locators.

Table 51. Inventory of Economic Zone and Number of Locators, as of May 2015

Name of Ecozone	Barangay	Developer/Operator	Total Area (Has)	Number of Locators	Nature
Allegis Information Technology Park	Milagrosa	Allegis Realty Holdings Corp.	5.71	4	IT Park
Calamba Premiere International Park	Batino, Parian and Barandal	Starworld Corporation	65.63	124	Manufacturing
Carmelray Industrial Park	Canlubang	Carmelray Industrial Corporation	89.29	81	Manufacturing
Carmelray Industrial Park II	Punta and Milagrosa	Carmelray - JTCI Corporation	143.03	115	Manufacturing
Carmelray International Business Park	Canlubang	Carmelray Industrial Corporation	40.00	4	Manufacturing
Filinvest Technology Park - Calamba	Punta, Buroi and Bubuyan	Filinvest Land Inc.	51.07	36	Manufacturing
Light Industry & Science Park II	Real and La Mesa	LISP-II Locators' Association, Inc.	68.01	70	Manufacturing
NYK-TDG I.T. Park	Canlubang	NYK-Transnational Land Corporation	2.00	2	IT Park
SMPIC Special Economic Zone	Paciano Rizal	Taurus First Properties, Inc.	3.31	1	Manufacturing
YTMI Realty Special Economic Zone	Makiling	YTMI Realty Corporation	20.66	11	Manufacturing
TOTAL			488.71	448	

Source: Philippine Economic Zone Authority

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

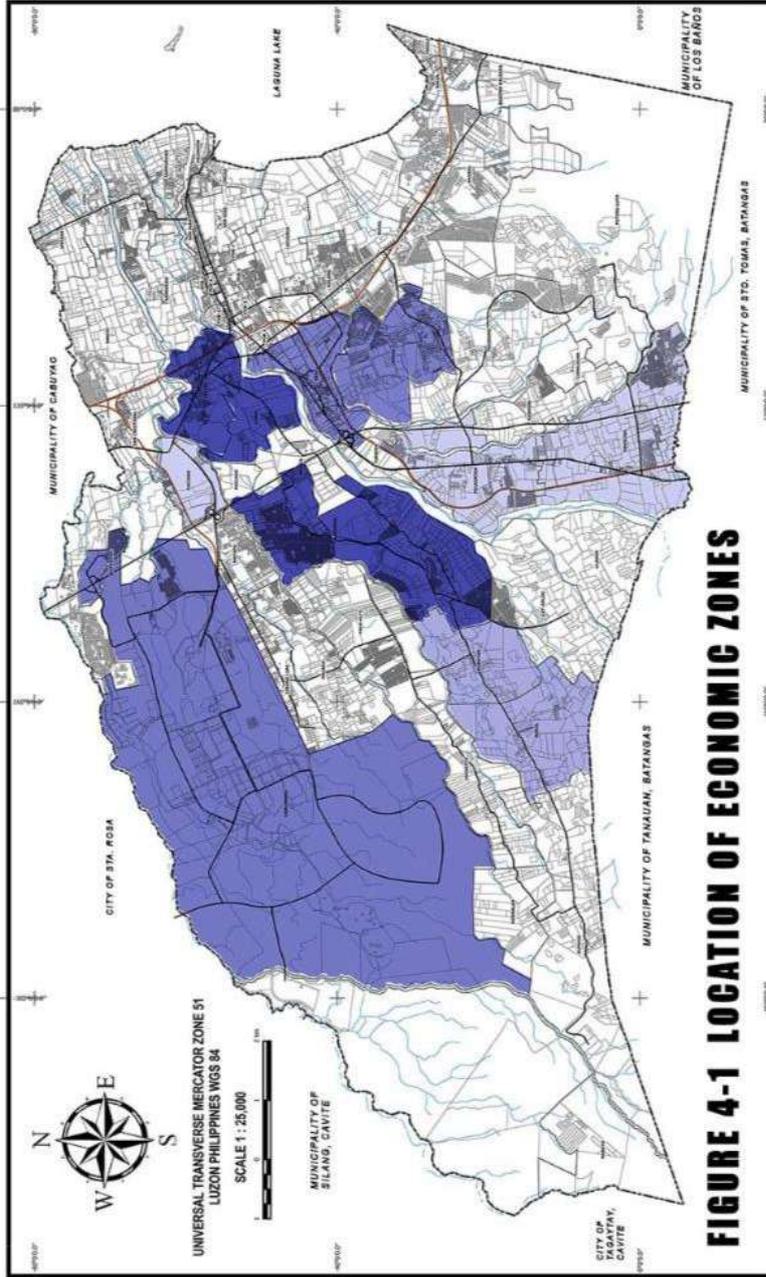
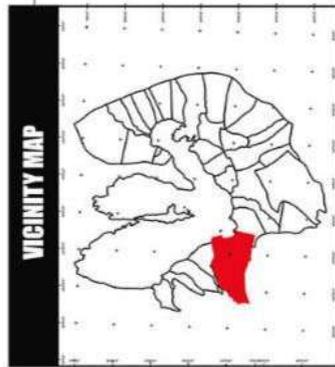


FIGURE 4-1 LOCATION OF ECONOMIC ZONES



LEGEND

- ROAD
- RAILROAD
- RIVERS
- BARANGAY BOUNDARY
- CITY BOUNDARY
- AREAS : NUMBER OF LOCATORS
- < 0
- 1-20
- 21-66
- 67-112
- 113-158

SOURCE

PHILIPPINE ECONOMIC ZONE AUTHORITY

PREPARED BY :



PREPARED FOR :



**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

Figure 4-1 Location of Economic Zones

4.1.2. Development Needs

Industries are considered as one of the economic drivers for economic growth. Given that the city has the capacity to accommodate other warehousing and industrial facilities, the City Government should facilitate the entry of other types of industries in order to further diversify the local economy.

The City's Revenue Code, Tax Ordinance and Investments and Incentives Code need to be updated in order to be able to spur further economic growth. It is also noted that there is no permanent facility to house the City's Business-One-Stop-Shop (BOSS).

4.2 Commerce and Trade

4.2.1. Situationer

In 2015, there were 8,437 registered business establishments in Calamba. It is the highest number of business permits issued in the last five years. The City posted a generally increasing trend of business permits issued from 2011 to 2015.

Table 52. Summary of Registered Business Establishment

Year	Registered Business Establishments
2011	6,866
2012	7,510
2013	7,629
2014	8,242
2015	8,437

Source: Business Permits and Tricycle Franchising Office

Large commercial centers that can be found in the city include SM City Calamba in Barangay Real and the two Waltermart Malls in Barangays Real and Makiling. These house most of the city's food shops, retail and service shops, including a supermarket, cinemas and other amusement establishments. Other commercial centers include four branches of Puregold Supermarkets in Canlubang, Halang, Parian, and Barangay 1, two branches of Savemore in Halang and Parian, Wilcon Builders Depot in Halang, Liana's Discount City in Parian, Checkpoint Mall in Mayapa, and Carmel Mall and iMall in Canlubang.

There are four privately-managed wet and dry markets that are located in Canlubang, Barangay 1 and Makiling. The only public market in Calamba City that is being managed by the City Government is found in Barangay 5. The following table refers.

Table 53. Inventory of Markets, 2013

Barangay	Name of Markets
Public Market	
Barangay 5	Pamilihang Bayan ng Calamba
Private Market	
Canlubang	Mahogany Land Inc.
Barangay 1	Calamba Realty & Trade Center Inc.
Makiling	Chefs And Cooks Market Corp
Barangay 1	Bagong Palengke Sa Crossing Ng Calamba

Source: Business Permits and Tricycle Franchising Office

4.2.2. Development Needs

To be able to attract new investments to Calamba, the City Government should address the traffic congestion problem in the city's commercial areas and frequent flooding as these hinder commercial developments. In order to build an active business atmosphere, appropriate strategies for upgrading the overall urban atmosphere of the city must also be established.

4.3 Agriculture

4.3.1. Situationer

Calamba City had an approximate agricultural production area of 2,147 hectares in 2012. Majority (65.79%) of the crop production areas in 46 barangays were cultivated with high value commercial crops while the rest were planted with rice and corn.

High Value Commercial Crops production such as vegetables, root crops, sugar cane, fruits and coffee are generally grown in 28 barangays. These had a total production yield of 17,086.90 metric tons in 2012. Barangay Hornalan had the largest area planted to high value commercial crops. There were 872 farmers engaged in these types of crop production.

Rice is the second major agricultural crop produced in Calamba City. These were planted in 14 irrigated lowland barangays and three upland barangays. In 2012, a total production of 4,921.48 metric tons was recorded to have been produced. Barangays Banlic and Lecheria had the largest areas for rice production with 173.26 ha and 173.85 ha, respectively. There were also 2,107 farmers engaged in rice production.

Corn was cultivated in 29 barangays and a yield of 3,963.42 metric tons was recorded in 2012. Barangay Hornalan had the largest area planted to corn. There were about 662 farmers engaged in planting corn. The following table presents the crop production area and volume of production in year 2012.

Table 54. Crop Production Area and Volume of Production, 2012

Barangay	Area (Has.)	Number of Farmers	Volume of Production (M.T)
Irrigated Lowland Area (Rice)			4921.48
Bañadero	77.01	44	
Banlic	173.26	130	
Bucal	69.07	48	
Halang	56.30	41	
Lecheria	173.85	95	
Lingga	45.90	13	
Looc	18.31	13	
Mapagong	23.13	18	
Pansol	6.50	4	
Parian	19.59	14	
Real	23.94	14	
San Cristobal	8.40	7	
San Jose	64.40	39	
Uwisan	69.96	49	
Subtotal	829.62	529	
Upland (Rice)			0

Barangay	Area (Has.)	Number of Farmers	Volume of Production (M.T)
Makiling	7.15	8	
Kay Anlog	5.00	7	
Ulango	28.50	29	
Subtotal	40.65	44	
Total	870.27	573	
Corn			3,963.42
Barandal	6.00	2	
Batino	2.64	4	
Bubuyan	32.20	43	
Bunggo	74.60	70	
Burol	58.18	47	
Camaligan	20.40	12	
Canlubang (Mangumit)	8.00	16	
Hornalan	84.60	86	
Kay-Anlog	49.20	39	
La Mesa	11.65	16	
Laguerta	14.11	27	
Lawa	0.80	2	
Looc	7.00	5	
Mabato	14.70	15	
Majada Out	10.00	7	
Majada In	9.00	4	
Makiling	29.60	13	
Mapagong	13.08	20	
Maunong	4.25	8	
Mayapa	8.00	6	
Paciano	18.00	6	
Palo-Alto	68.95	84	
Prinza	4.50	9	
Punta	6.40	12	
Saimsim	17.13	29	
Siranglupa	2.20	2	
Milagrosa	6.60	10	
Turbina	4.10	17	
Ulango	42.70	51	
Total	628.59	662	
High Value Commercial Crops			17,086.90
Barandal	0.50	1	
Batino	0.30	3	
Bubuyan	31.10	42	
Bunggo	74.60	70	
Burol	43.23	47	
Camaligan	9.50	27	
Hornalan	84.60	145	
Kay-Anlog	40.40	33	
La Mesa	8.55	21	
Laguerta	14.11	27	
Lawa	0.90	3	
Looc	53.60	43	
Mabato	70.44	95	
Majada In	4.70	6	
Majada Out	6.00	11	
Makiling	31.50	30	
Mapagong	12.78	19	
Maunong	31.10	64	

Barangay	Area (Has.)	Number of Farmers	Volume of Production (M.T)
Palo-Alto	35.65	34	
Parian	0.28	8	
Prinza	5.40	14	
Punta	5.20	17	
Saimsim	18.00	19	
Sampiruhan	12.20	13	
Siranglupa	3.30	6	
Milagrosa	5.30	12	
Turbina	2.55	11	
Ulango	42.70	51	
Total	648.49	872	
GRAND TOTAL	2,147.35	2,107	25,971.80

Source: Agricultural Services Department, 2012

The amount of land devoted to agriculture in Calamba City was reduced from 3,939.13 hectares in 2006 to 2,306.74 in 2012 representing a 41 percent decrease. There was also noticeable decreases in high value commercial crops and rice annual production, at 18 and 30 percent, respectively. Despite the decline in corn production area by about 62%, production was still up by 4 percent in 2012. The decrease of agricultural production areas could be attributed to the conversion of agricultural lands to non-agricultural uses brought about by urban growth. The table below presents the different areas and volume of production per crop from 2005 to 2012.

Table 55. Comparative Agricultural Crop Areas and Production, 2005-2012

Major Crops	Area (has.)					Volume of Production (M.T.)				
	2005	2006	Inc./Dec.	2012	Inc./Dec.	2005	2006	Inc./Dec.	2012	Inc./Dec.
HVCC	758.27	729.73	↓ 4%	676.23	↓ 7%	9,263.14	9,849.70	↑ 6%	18,034.92	↓ 18%
Rice	1,802.32	1,811.90	↑ 0.5%	1,102.01	↓ 39%	8,323.05	7,053.26	↓ 15%	4,921.48	↓ 30%
Corn	525.50	1,397.50	↑ 166%	528.50	↓ 62%	2625.4	2,932.50	↑ 12%	3,045.40	↑ 4%
Total	3,086.09	3,939.13	↑ 28%	2,306.74	↓ 41%	20,211.59	19,835.46	↓ 2%	26,001.80	↓ 19%

Source: Agricultural Services Department, 2012 and Socio-Economic Profile, 2007

In 2015, the extent of the city's agricultural production area was recorded at about 1,818.75 hectares. These were mainly used for the following purposes:

- Rice Area: Irrigated (lowland), 771.18 hectares in 14 barangays; Upland, 36.90 hectares in 6 barangays
- Corn Area: 650.70 hectares in 28 barangays
- High Value Commercial Crops: 1, 009.67 hectares in 30 barangays

Livestock Production

Cattle, carabao, swine, goat and horse were the major livestock raised in Calamba City. Livestock and poultry raisers may be found in 43 barangays. Canlubang had the highest production of cattle with 391 heads and the most number of carabaos produced with 39 heads in 2015. Those in Barangays Prinza and Canlubang had the largest volume of production of goats and horses, with 744 and 25 heads, respectively. Piggery farms within the city had a total annual production of 13,089 heads. Barangay BuroI had the highest production of swine in 2015 with 8,731 heads.

Poultry farms are scattered in different barangays with a total production of 22,077 heads. Broiler production is largest in Bunggo, egg production largest in Canlubang/Real area, swine production in Burol/Sirang Lupa area, goat production in Prinza, and duck production in Bucal with 5,467 heads. Barangay-wise data on livestock and poultry product were available for the year 2015. These are given in the table below.

Table 56. Number of Livestock and Poultry, 2015

Barangay	Livestock					Poultry			
	Cattle	Carabao	Swine	Goat	Horse	Broiler	Layer	Native	Ducks
Bagong Kalsada	6	-	10	37	1	85	360	-	69
Bañadero	79	3	137	49	-	43	21	346	238
Banlic	31	-	618	16	-	2	6	45	214
Barandal	4	-	44	68	-	10	80	123	95
Brgy. IV	-	-	-	-	-	29	29	-	45
Bubuyan	57	-	17	10	-	-	-	180	-
Bucal	8	2	-	35	-	-	-	25	5,467
Bunggo	93	23	157	36	3	452	236	339	38
Buntog	-	-	-	-	-	-	-	698	24
Burol	8	-	8,731	34	-	64	21	255	13
Camaligan	83	6	-	9	-	-	-	43	-
Canlubang	391	39	39	318	25	314	1596	-	186
Halang	3	4	-	17	4	18	86	-	24
Hornalan	118	24	12	69	1	180	-	168	2
Kay-anlog	75	3	91	95	-	127	51	13	16
Laguerta	26	4	24	23	-	-	-	-	-
La Mesa	23	4	31	9	-	-	312	179	65
Lawa	183	-	32	111	-	169	135	469	102
Lecheria	2	-	64	6	-	-	-	20	-
Lingga	4	5	31	9	-	26	56	47	198
Looc	22	23	904	1	-	-	-	32	72
Mabato	105	48	25	-	-	-	1	551	-
Majada Out	145	3	309	93	-	120	419	942	45
Majada In	149	-	-	4	-	-	-	-	-
Makiling	40	19	76	64	-	-	-	239	10
Mapagong	15	-	6	30	-	-	-	35	54
Maunong	107	6	60	-	4	-	-	-	-
Mayapa	23	-	38	16	-	-	-	69	33
Palo-Alto	117	3	91	11	-	-	-	-	-
Pansol	27	2	33	3	-	47	8	50	2
Parian	4	9	37	3	-	-	-	20	140
Prinza	25	-	22	744	-	80	-	140	26
Punta	90	-	124	112	-	99	180	613	6
Real	2	-	39	58	-	203	954	14	317
Saimsim	47	1	38	21	-	-	-	119	-
Sampiruhan	14	6	102	26	-	100	-	45	91
San Cristobal	11	8	86	11	-	23	24	22	12
Sirang Lupa	32	2	579	78	-	40	6	434	139
Sucol	-	-	11	-	-	-	-	18	82
Milagrosa	9	-	20	28	-	67	257	-	133
Turbina	2	-	397	5	-	10	30	29	22
Ulango	55	7	34	23	-	-	-	367	12

Barangay	Livestock					Poultry			
	Cattle	Carabao	Swine	Goat	Horse	Broiler	Layer	Native	Ducks
Uwisan	8	8	16	6	-	41	46	60	73
TOTAL	2,785	283	13,089	2,424	43	2,349	4,914	6,749	8,065

Source: City Veterinary Services Department, 2015

The location of poultry and livestock farms are presented in **Figures 4.2 and 4.3**, respectively.

As of September 2016, there is a total of 1, 646 registered fisher folk in Calamba City. 697 were engaged in full-time capture fishing, 78 were aquaculture operators, 152 were involved in fish vending and processing, 256 were fish workers, and 472 were part-time gleaners. There were a total of 630 municipal fishing boats registered with the City Government.

Annual municipal fisheries production for 2015 were 2,305 metric tons of fish, composed mainly of tilapia, kanduli (manila catfish), ayungin (silver perch), bangus (milkfish) and shrimps.

Inland fishponds in Calamba City are mainly found in Barangays Looc, Sampiruhan, Lingga and Bucal. In 2015, a total area of 6.9 hectares of inland fish pond recorded a total production of 107.10 metric tons of catfish and pangasius.

A total of 316.71 metric tons of fish were produced through aquaculture in Laguna de Bay. Twenty six units of fish pens in Laguna de Bay covered a total area of 313.8 hectares. A total of 164.7 metric tons of bangus (milkfish) were produced last 2015. Fish cages devoted for culture of tilapia and mamale (bighead carp) had an annual production of 152.01 metric tons in reported area of 4.367 hectares.

Barangay-wise aquaculture production data were available for year 2012. These are given in the table below while their locations are presented in **Figure 4.4**.

Table 57. Aquaculture Production, 2012

Barangay	No. of Fishermen	Area (Ha.)	Volume of Production (M.T)
Inland Fish Land			42.07
Bucal	22	1.041	
Lingga	5	0.365	
Looc	24	6.48	
Sampiruhan	29	1.8	
Uwisan	19	2.94	
Other (Banlic, Mapagong)		15	
Sub-Total	99	27.626	
Fish pen/Cages			474.03
Bucal	4	1.03	
Lingga	9	0.12	
Masili	22	81.75	
Palingon	8	2.80	
Pansol	4	0.20	
Sucol	65	149.73	
Sub-Total	112	235.63	
Open Lake Fisher folks			63.89
Bucal	73		
Lecheria	39		

Barangay	No. of Fishermen	Area (Ha.)	Volume of Production (M.T)
Lingga	76		
Looc	99		
Masili	85		
Palingon	64		
Pansol	49		
Sampiruhan	55		
Sucol	110		
Uwisan	43		
Sub-Total	693		
GRAND TOTAL	904	263.25	579.99

Source: Agricultural Services Department, 2012

Post-harvest Facilities

Post-harvest facilities and services available in Calamba include shellers, hydro tillers, mills, threshers, tractors, and warehouses (see table below). These are distributed in several barangays and are all operational. Bignay has a rice mill while warehouses can be found in Lingga, Parian, and San Jose. Warehouses in Parian have storage capacities ranging from 300 to 500 sacks. **Figure 4.5** presents the location of agro-industrial facilities in Calamba City.

Table 58. Agricultural Support Facilities and Services, 2012

Post-harvest facilities and support services	Location	Number	Remarks
Corn Sheller	Bunggo	1	Operational
	Burol	1	Operational
	Kay-anlog	1	Operational
Hydro tiller	Lingga	4	Operational
	San Jose	9	Operational
Rice Mill	Banlic	1	Operational
Thresher	Banlic	5	Operational
	Halang	12	Operational
	Lecheria	2	Operational
	Lingga	6	Operational
	San Jose	14	Operational
	Bunggo	3	Operational
Tractor (four-wheel)	Burol	3	Operational
	Hornalan	2	Operational
	Lawa	1	Operational
	Mapagong	1	Operational
	Palo-alto	2	Operational
	Bunggo	2	Operational
	Laguerta	1	Operational
Tractor (hand type)	Lecheria	12	Operational
	Lingga	4	Operational
	Mapagong	3	Operational
	San Jose	10	Operational
	Bañadero	2	Operational
	Laguerta	1	Operational
Warehouse	Prinza	1	Operational
	Lingga	3	Operational
	Parian	1	Operational
	San Jose	2	Operational

Source: Agricultural Services Department, 2012

4.3.2. Development Needs

Calamba's agricultural based activities are continuously declining due to rapid urbanization and land conversion. The preservation of agricultural production areas should be promoted to secure food requirements and to prevent further congestion of the city. There should also be continuous support to the City Government's existing agricultural programs such as promotion of improved production technology, establishment of demonstration farms, loan programs, and regular soil analysis to save the depleting agricultural activities.

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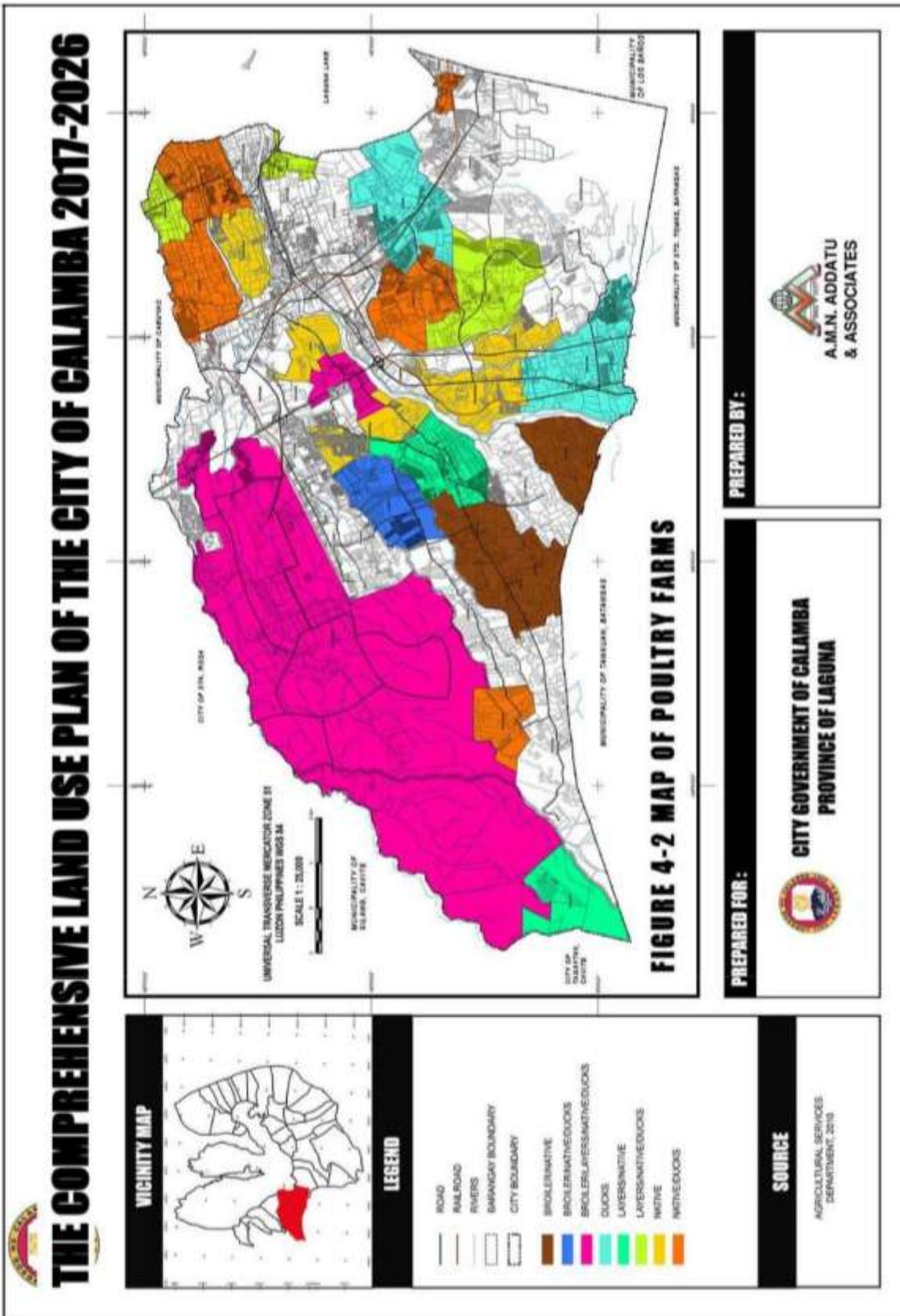
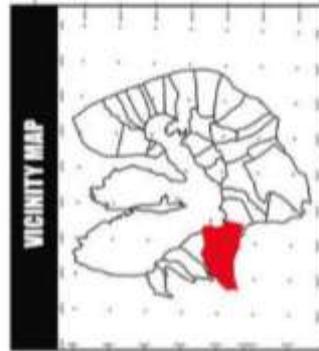
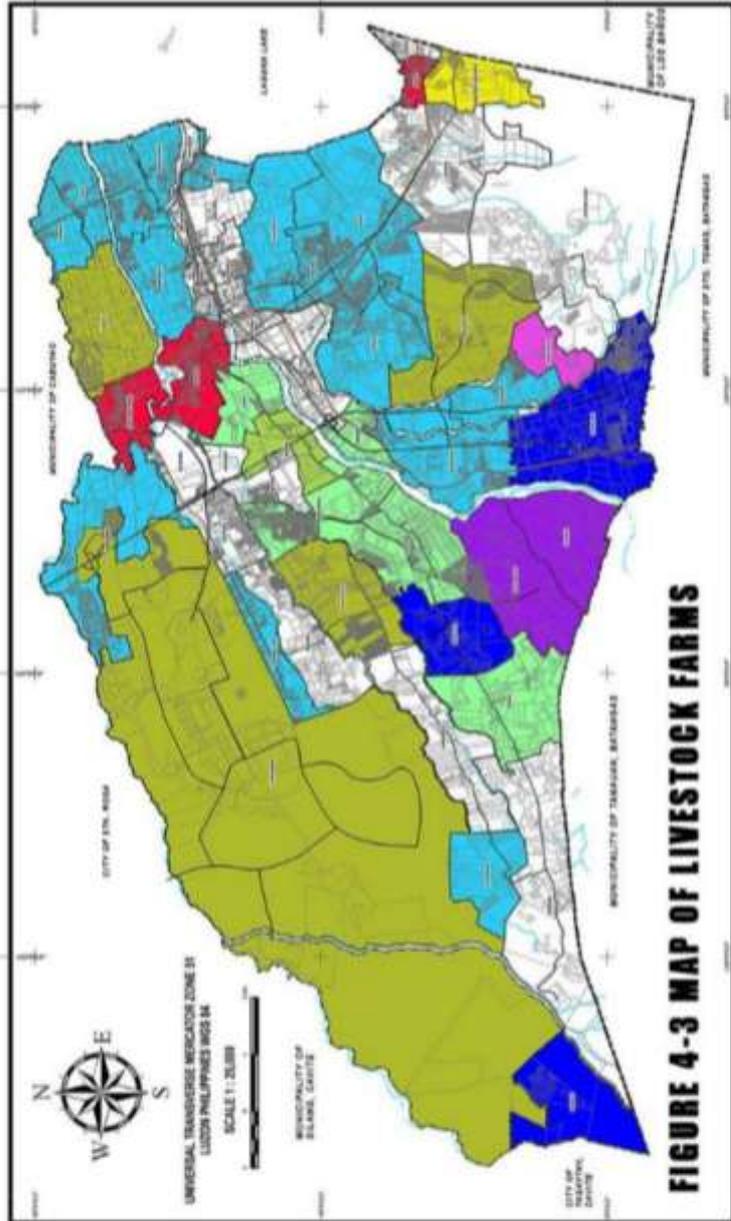


Figure 4-2. Map of Poultry Farms

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



LEGEND

ROAD	RAILROAD	WATER	WATER BOUNDARY MAP	CITY BOUNDARY
Cattle/Carabao	Cattle/Carabao/Goat	Cattle/Carabao/Swine	Cattle/Carabao/Swine/Goat	Cattle/Carabao/Swine/Goat/Horse
Cattle/Goat	Cattle/Swine/Goat	Cattle/Swine/Goat/Horse	Goat	Swine/Goat

SOURCE
CPDO

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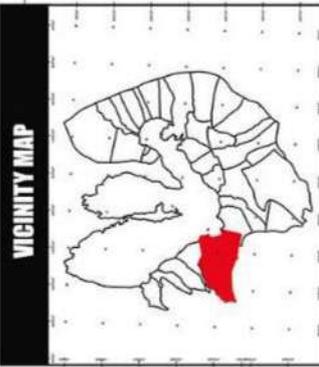
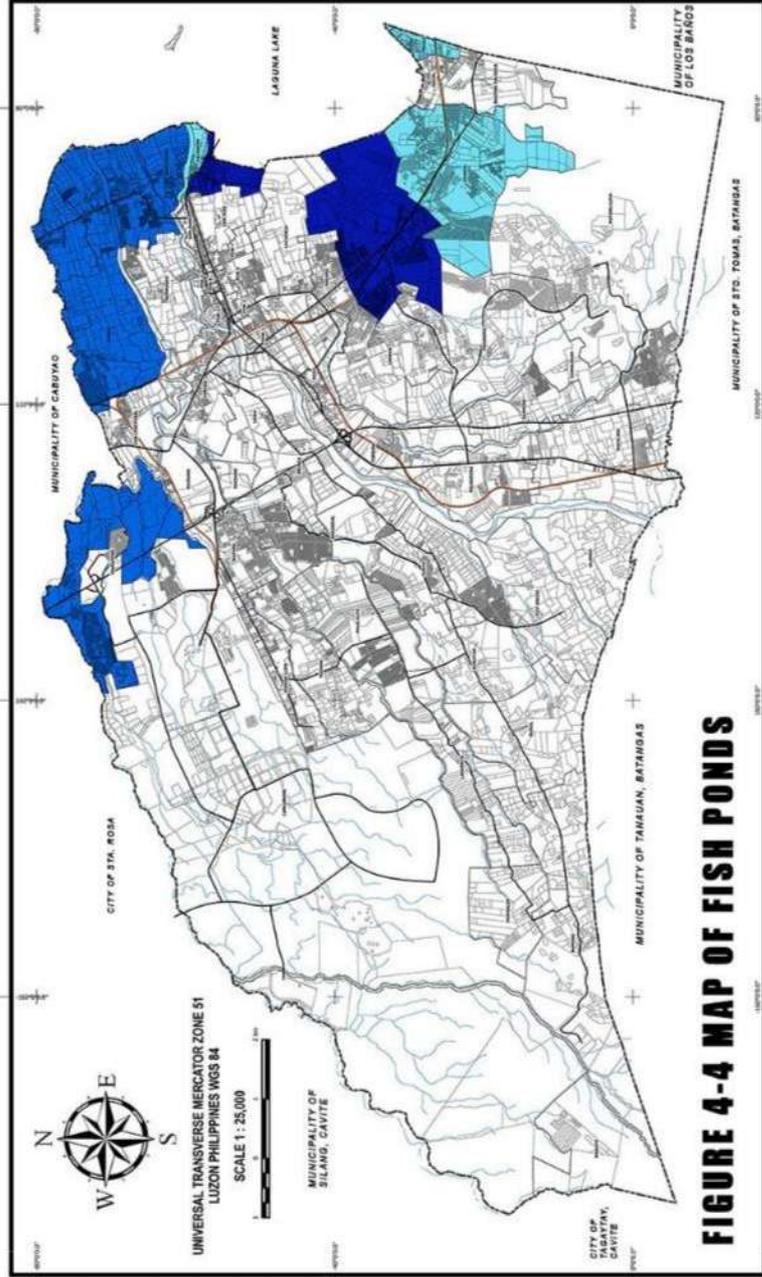


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Figure 4-3. Map of Livestock farms

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



LEGEND

	ROAD
	RAILROAD
	RIVERS
	BARANGAY BOUNDARY
	CITY BOUNDARY
	FISHPENCAGES
	INLAND FISH LAND
	INLAND FISH LAND/FISHPENCAGES

SOURCE

SOCIO-ECONOMIC PROFILE
2007

PREPARED BY :

A.M.N. ADDATU
& ASSOCIATES

PREPARED FOR :

CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA

Figure 4-4. Map of Fish Ponds

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

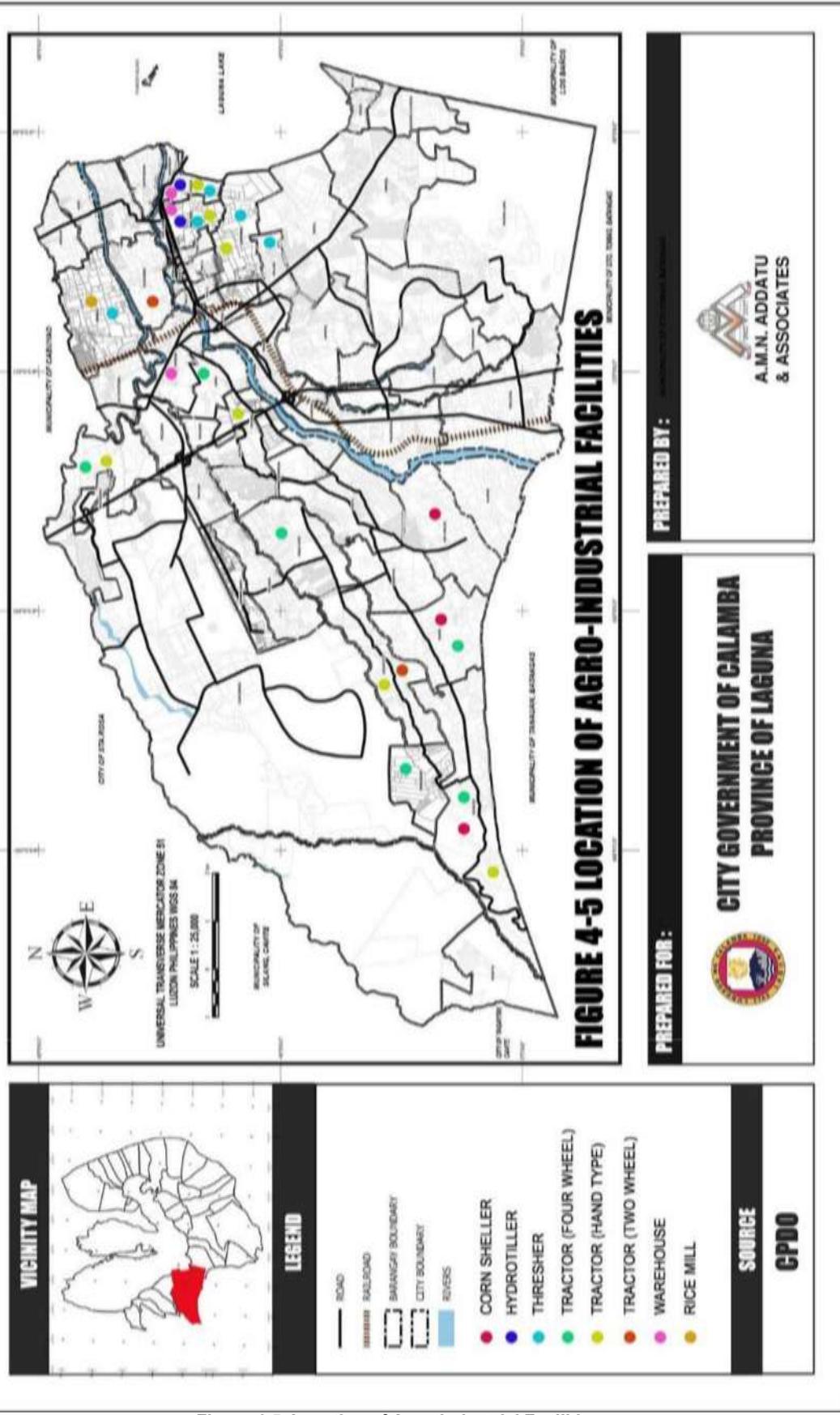


Figure 4-5. Location of Agro-Industrial Facilities

4.4 Tourism

4.5.1. Situationer

Calamba City is famous for being the birthplace of Dr. Jose Rizal, the national hero of the Philippines. The city is home to a famous and priceless historical landmark - the Rizal Shrine in Barangay 7. The Shrine is a favorite venue for educational tours among the different schools and is one of the city's prominent tourist attractions. Right across the Rizal Shrine is the heritage church of St. John the Baptist. At the plaza in front of the City Hall stands the tallest 80 feet monument of Dr. Rizal.

Aside from historical attractions, Calamba is also endowed with natural and man-made attractions. It is known as the Hot Spring Capital of the Philippines due to the presence of numerous hot spring resorts. Most of the resorts are located in barangays near Mt. Makiling such as Pansol, Bagong Kalsada and Bucal. Based on the 2013 list of business establishments by the Business Permits and Tricycle Franchising Office, there were 415 registered resorts in the city which comprises 40 public and 375 private pools. However, records from the Department of Tourism (DOT) Region IV-A showed that there is only one resort in Calamba City that is accredited with it as of August 2013. The map showing the tourism/ historic landmarks in the city is given as **Figure 4.6**.

There are six tourist circuits which are being promoted by the City Government (**Figure 4.7**). Among these are Rizal Shrine, Mt. Makiling Forest Reserve, Hot Spring Resorts, Industrial Park Tours, Lakefront, and Ornamental Plant Gardens.

The tourist destinations and their significance are detailed in table below.

Table 59. Inventory of Tourist Destinations, 2013

Tourism	Location	Significance
Rizal Shrine	Barangay 7	A replica of the Spanish style house where Dr. Jose Rizal was born. Reconstructed in 1949 and maintained by the National Historic Institute. The house showcases the paintings, furniture, clothes, kitchenware, the famous wishing well and the writings of Rizal.
Church of St. John the Baptist	Barangay 7	Located near the Rizal Shrine. It is a century-old church built in 18th century. This is where Padre Rufino Collantes baptized Jose Rizal in 1861.
Calambanga Park	Barangay 7	The park features the world's biggest clay pot. It is known as Calambanga. The pot or banga symbolizes the origin of the name of Calamba. The name of Calamba City derived from the two words, " <i>kalan</i> " and " <i>banga</i> ". Around the clay pot, names of all 54 barangays of the city were inscripted.
80 feet Monument of Dr. Jose Rizal	Real	It is the tallest Rizal monument in the country. The park serves as venue for relaxation, recreation, social interaction, and other public gatherings.
Mt. Makiling Forest Reserve	Makiling	This site is ideal to commune with nature and do nature tripping activities such as mountain climbing and camping. It is home also to the different forest birds making it ideal for bird watching.

Tourism	Location	Significance
Hot Springs	Pansol, Bagong Kalsada and Bucal	The different resorts in Calamba offer the best resort accommodations with modern facilities and amenities. It serves as a place to unwind, to relax, and make family bonding.
Industrial Parks	Different Barangays	The presence of different industrial parks serve as an ideal venue for factory tourism, wherein factories open their doors to visitors. The highlight of the tour is that visitors have chance to witness how certain products are being made and assemble. Presently, there are several factories offering this kind of educational tour.
Ornamental gardens	Pansol, Bagong Kalsada and real	This caters for plant lovers and enthusiast. Aside from showcasing different kind of flowering plants, trees and shrubs. Garden owners are also selling various species of plants and give insightful tips on proper method of planting. These Ornamental Gardens can be found in Barangays Pansol, Bagong Kalsada and Real.
Lakefront Area	Lakefront Barangays	Since Calamba City is situated along Laguna de Bay, making it ideal to the different water sport activities like jet-ski, kayaking, sailing, fishing and boating. In fact there is a small island resort located in the lake named Wonder Island Resort wherein it attracted tourist all year round.

Source: Socio-Economic Profile, 2007

4.5.2. Development Needs

The improvement of existing tourism sites should be focused on in order to garner additional income and improve the morale of the city's constituents. Resort owners should be encouraged to have their resorts accredited by the DOT every year to standardize tourism services and facilities. Infrastructure facilities such as roads and flood control systems should also be improved to encourage investors and tourists to come in.

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026

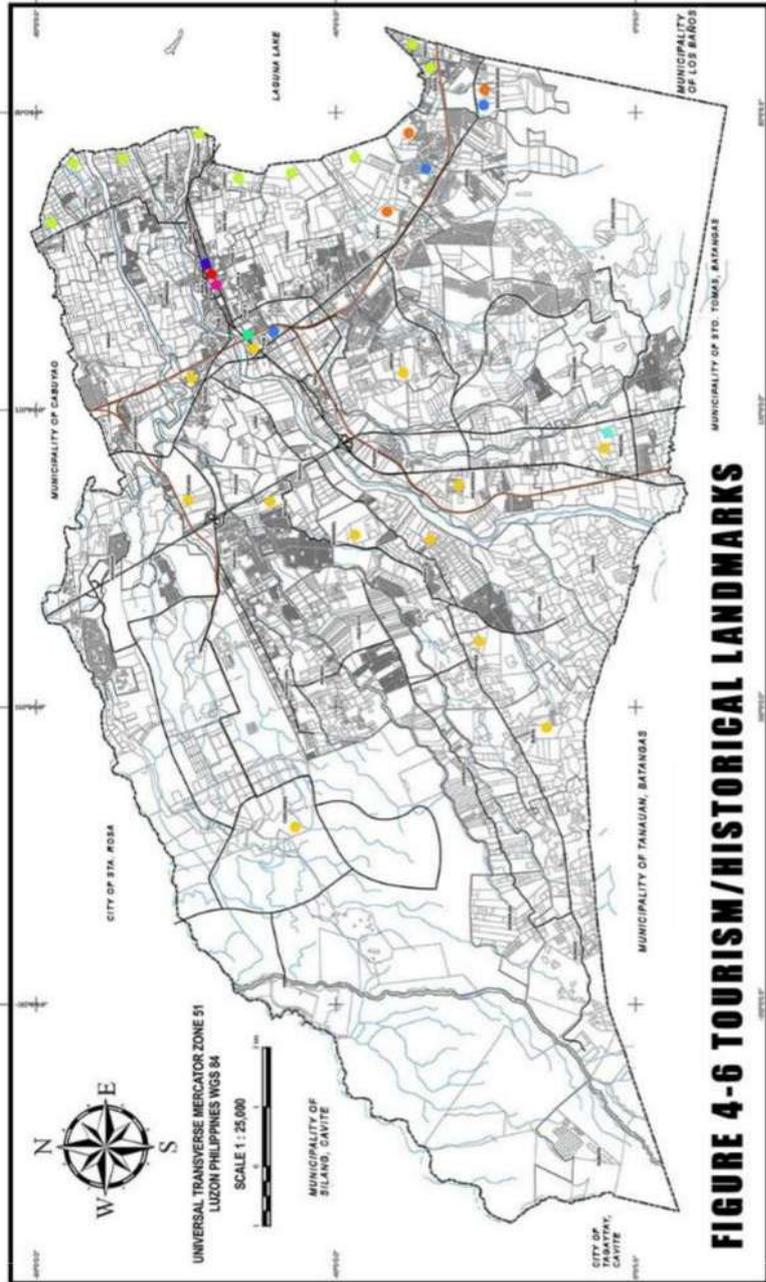


FIGURE 4-6 TOURISM/HISTORICAL LANDMARKS

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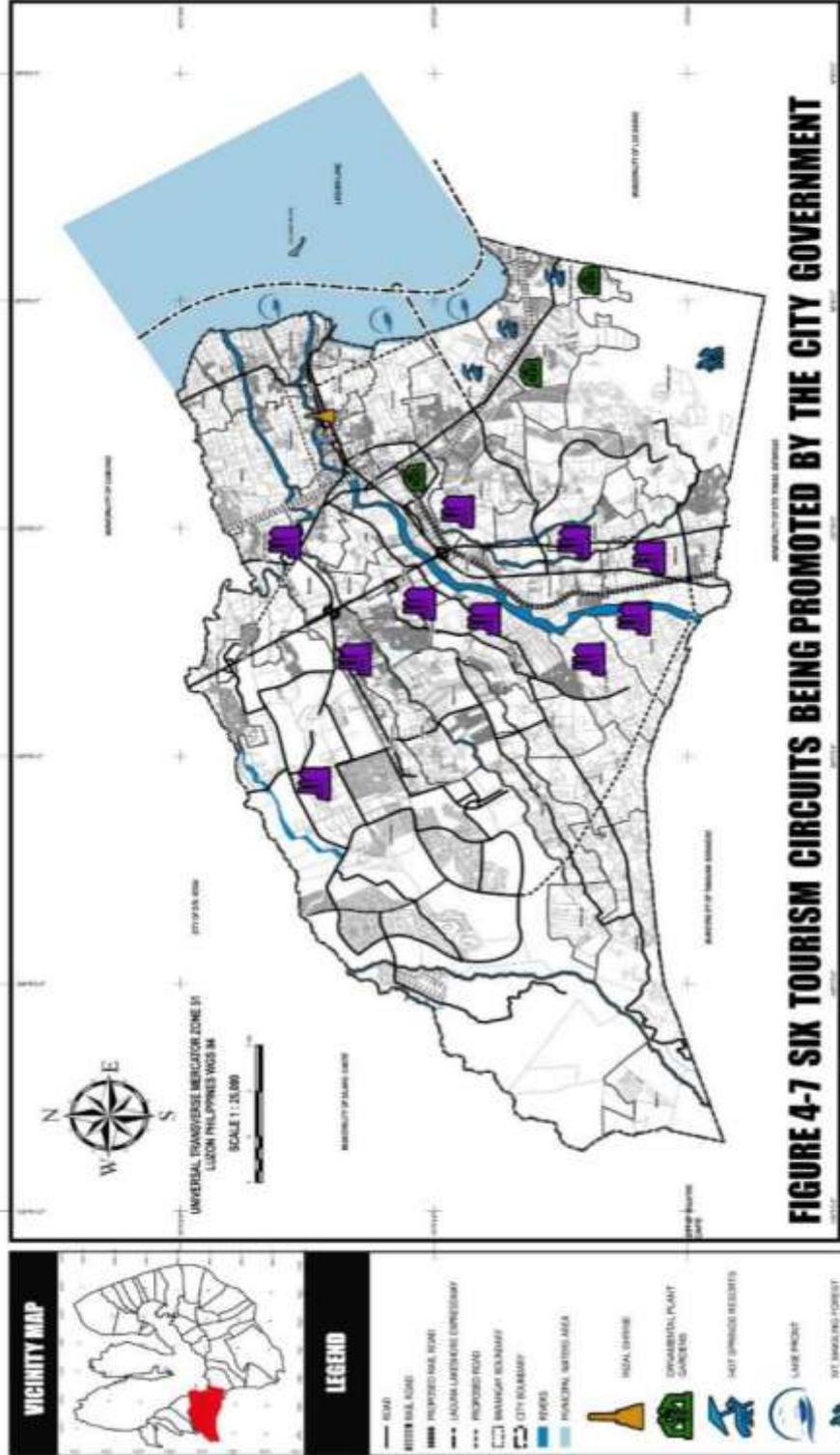
**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

SOURCE

SOCIO ECONOMIC PROFILE, 2007

Figure 4-6. Tourism/Historical Landmarks

THE COMPREHENSIVE LAND USE PLAN OF THE CITY OF CALAMBA 2017-2026



PREPARED BY:



A.M.N. ADDATU & ASSOCIATES

PREPARED FOR:



**CITY GOVERNMENT OF CALAMBA
PROVINCE OF LAGUNA**

Figure 4-7. Six tourist circuits being promoted by the City Government

5.0 INFRASTRUCTURE AND UTILITIES

5.1 Transportation

5.1.1. Situationer

Road Network

Calamba City is accessible through three exits from the South Luzon Expressway (SLEX). The first leads to Canlubang through the Silangan Industrial Park. Next is the Mayapa – Paciano Rizal Road and last through Barangay Turbina. Another major road network which links the city to Metro Manila and other Laguna cities and municipalities as well as the Bicol Region is the Manila South Road which traverses the built up areas.

The road networks within the city are classified into national, provincial, city and barangay. The total road length of Calamba is 143.5 km, of which, 16.5 km are national roads and 8.0 km are provincial roads.

There are eleven major bridges in the city located in Looc, San Cristobal, Bucal, Mayapa, Pansol, Real, Parian and Banadero. Minor bridges interconnect adjoining barangays and sitios. These are in Canlubang, Palo-Alto, Majada Labas, Sirang Lupa, Lamesa Bunggo, Halang, Makiling, Pulang Lupa, Saimsim, Paciano Rizal, Sampiruhan and Uwisan.

The existing transport network map is presented in **Figure 5.1**.

Road Conditions

Most of the roads in the city are concrete. Certain areas are asphalt and small portions are either dirt or gravel surface. Nonetheless, all roads are passable all year round. Even the bridges located in some barangays are passable anytime of the day.

Traffic Congestion

Cityhood has affected Calamba especially in the transportation sector as traffic congestion has become a daily occurrence. Gridlocks often occur along busy streets, particularly in Barangays Mayapa and Parian all the way down to the Crossing area. During summer time, traffic becomes almost unmanageable in Barangays Pansol and Bucal as visitors rush to the various hot spring water resorts.

The City Government has correspondingly exerted its resources to implement programs to counter traffic congestion. Short and long-term plans were formulated to address the various issues and traffic rules are being strictly implemented.

Mode of Transportation

Commuters going in and out of the city take advantage of the various bus lines in operation or those buses coming from nearby towns. Some of the existing bus companies are St. Rose and JAM Liner, which have terminals in the Crossing Area in Barangay 1.

For passengers travelling within the city, jeeps and tricycles are the major modes of transportation and are available anytime of the day.

A further development is the provision of bus lines going to the Bicol area. Its terminal is located in Barangay Turbina where other buses also await passengers going to the southern part of Luzon.

5.1.2. Development Needs

The long-term plan for the improvement and expansion of the city's road network should include road widening and road openings in order to ease the load of vehicles passing through the congested and busy areas.

5.2 Potable Water Supply

5.2.1. Situationer

The Calamba Water District (CWD) maintains the piped water system in the city through spring and well sources located in Barangays Bucal and Barangay 1 (Crossing). These are the main water sources of the company with four pumping units in the Bucal Spring source area.

The Local Government of Calamba used to own and maintain Calamba's water supply system until it was transferred to the CWD in 1974. The CWD Board establishes water user charges following the guidelines of the Local Water Utilities Administration (LWUA). The CWD currently serves 29 zones, with each zone being composed of one or more barangays and/or subdivisions.

Water service connections are divided into four (4) categories: residential, government, commercial and industrial.

Industrial parks have their own Level III water supply systems using groundwater sources. These water systems are being operated and maintained by the industrial park operators. The National Water Resources Board (NWRB) has allowed these industrial parks an extraction rate of 240 liters per second or 20, 755 m³ per day.

5.2.2. Development Needs

In areas covered by private Level III water systems, groundwater use should be monitored to avoid over pumping. These water systems should be run by professional water system operators in order to improve the quality and reliability of service. Households that still depend on open dug well, spring, river and even from the rain as their main source of domestic water should be given access to safe water.

5.3 Power Supply

5.3.1. Situationer

Electric power in the city is being distributed by the Manila Electric Company (MERALCO), which caters to all types of power supply connections and to all the barangays. The entire city is fully equipped with electricity. Industrial facilities had the largest kilowatt-hour consumption per

month while domestic facilities had the most number of connections. MERALCO has two substations located in Barangay Mayapa while its administration building is situated in the Crossing area of Barangay 1.

Camelray Industrial Park in Barangay Milagrosa generates its own power purposely to supply its locators.

5.3.2. Development Needs

As the urban areas and all barangays are adequately served with electricity, the service need to be extended to cover the remaining remote sitios and households that still do not have access to power supply.

5.4 Communications

5.4.1. Situationer

Communication service facilities in the city include postal, internet, land based and mobile phone, and broadcast television.

Postal Services

The Philippine Postal Corporation (Philpost), located behind the City Hall complex, handles the postal affairs of the city. It serves not only the residents but also existing business and institutional establishments. However, due to Philpost's limited number of postmen, postal delivery to residents is confined to only five kilometers radius from the Post Office, and those in the upland areas would have to get their mails personally.

Private companies, such as LBC, DHL and JRS Express, augment the growing needs for efficient communication and mail delivery services.

Internet

The city is effectively linked to the world through various internet service providers. Among these are the Digital Subscriber Line or DSL provided by the Philippine Long Distance Telephone Company (PLDT), which operates nationally, and DIGITEL. Numerous internet cafes are visible, specifically in areas proximate to schools.

Telephone

Land-based telephone services in the city are being provided by PLDT, PT&T and DIGITEL. PLDT has the largest number of subscribers, followed by PT&T. These telecommunications firms offer direct distance dialing (DDD) services.

Mobile telecommunications services, on the other hand, are provided by Smart Communications, Globe Telecom and Sun Cellular, and they are the best alternatives for those that cannot be reached by landline services. As telecommunications is considered a necessity rather than luxury, more and more people are equipped with mobile phones, especially those who do not have landline facilities.

Broadcast and Television

Radio broadcasts are received from stations based in Metro Manila. Television programs are also received from stations based in Metro Manila.

5.4.2. Development Needs

The current telephone line density should be improved to be at par with Metro Manila.

5.5 Drainage and Sewerage

5.5.1. Situationer

The San Juan and San Cristobal rivers and the Laguna Lake serve as receiving water bodies for rainwater runoff. Rainwater drainage systems in the residential and urban areas and industrial estates convey runoff to these natural water bodies. These consist of reinforced concrete pipes, open canals, either lined or unlined, and reinforced concrete rectangular culverts. Flooding is limited to tidal flooding in the lakeshore areas and river overflow.

At present, there is no public sewerage system. Domestic wastewater is disposed through soil percolation, or through drainage canals or directly to surface water bodies. Septic tanks reduce the pollution load but these are poorly designed and constructed and have minimal maintenance. It is also noted that septic tanks are not extensively used in the rural areas.

The industrial parks operate on their own sewerage collection and treatment systems. Wastewater treatment plants have been designed and constructed in conformity to DENR guidelines and standards.

5.5.2. Development Needs

The private and public drainage systems have to be well planned and should have adequate carrying capacities to minimize flooding.

5.6 Solid Waste Management

5.6.1. Situationer

The City Government of Calamba is currently in contract with RC Bella Waste Management and Collection Services that serves the 54 barangays in the City. This third party collects and disposes residual waste in a sanitary landfill located in Sitio Tikad, Brgy. San Mateo, Norzagaray, Bulacan. Collection at thoroughfares is daily and once a week in subdivisions and along barangay roads.

Industrial companies in the city amounting to more than 300 have their own accredited waste haulers. These private companies also have their own eco-centers to comply with the provisions of their Environmental Compliance Certificates (ECCs). Monitoring is done by inspecting these businesses at least once a year.

The City Government had established eco-centers in public schools, resorts, subdivisions, hospitals and medical clinics to encourage segregation of waste at source. Inside the City Hall compound is a City Hall Eco-Center (CHEC) that manages the solid wastes of the offices within.

PaLiSam Materials Recovery Facility (MRF) is now operating as a composting facility and is now operating at the city's public market.

Hazardous and special waste from different industries and hospitals are being collected by their own respective private haulers.

5.6.2. Development Needs

In order to achieve efficient and ecological needs of managing solid waste and to comply with the provisions of RA 9003, the City Government has to have the support of barangays for waste minimization, segregation and recycling.

The approved 10 year Solid Waste Management Plan of the City Government which includes the development of barangay eco-centers or recycling facilities and the establishment of 4 composting facilities in Barangays Canlubang, Prinza, Lamesa and Bañadero should be judiciously implemented.

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