H. CLIMATE AND DISASTER RISKS ASSESSMENT

Climate Change Information

The entire Cavite province, where the City of General Trias is situated, is within the area classified as Type I under the Modified Corona's Classification of Climate, having two pronounced seasons, dry from November to April, and wet from May to October. The maximum rain period is from June to September. An average of five tropical cyclones visits the area every three years based on data regarding the frequency of tropical cyclones passing the Philippine Area of Responsibility (PAR) prepared by the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA).

The climate change projections were from the daily climatic data collected by PAGASA from Sangley Point, Cavite. The seasonal variations for the climate change projection are shown in **Table 69**.

Table 69. Seasonal Variations for Climate Change Projection

Months	Abbreviation	Season
December, January, February	DJF	Northeast monsoon locally known as "Amihan" season;
March, April, May	MAM	Summer season
June, July, August	JJA	Southwest monsoon locally known as "Habagat" season
September, October, November	SON	Transition from southwest to northeast monsoon season

Source: PAGASA (Philippine Atmospheric Geophysical and Astronomical Services Administration)

Seasonal Temperature

The monthly average temperature in the City varies per season. Based on the data from PAGASA, the highest temperature in the City was recorded during the MAM season with its peak during the month of May. In 2018, the maximum temperature was 35.5°C during May. On the contrary, the average monthly temperature decreases as the DJF season approaches. The lowest temperature recorded in 2018 was 25.4°C during the month of January (**Table 70**).

Table 70. Monthly Average Temperature (2015-2019), City of General Trias, Cavite

Month	2015	2016	2017	2018	2019
Mean Temperature (in ℃)					
January	26.6	28.3	27.4	27.9	27.8
February	27.4	27.8	27.3	28.5	28.1
March	28.6	29.6	29	28.9	29.4
April	30.6	31.4	30.5	30.8	31.4
May	33.4	31.6	31.3	32	31.1
June	31.2	30.3	30.7	29	31
July	29.5	30	29.3	28.2	29.5
August	29.7	28.9	29.8	28.9	28.6
September	29.7	29.5	29.7	29.2	28.8
October	29.4	29.3	29.1	30.1	29.9

Month	2015	2016	2017	2018	2019
November	29.6	28.4	29.1	29.5	
December	28.1	28.4	28.2	28.1	
Minimum Temperature (in ℃)					
January	23.6	25.3	25.1	25.4	24.9
February	24.1	24.9	24.5	25.4	24.6
March	25.2	26.3	25.8	25.7	25.6
April	26.8	27.9	27.2	27.2	27.3
May	31.5	28.3	28.3	28.5	27.6
June	27.7	27.2	27.8	26.5	27.4
July	26.7	27	26.8	26	26.4
August	26.7	26.7	27.1	26.6	26.3
September	26.6	26.8	27.1	26.5	25.9
October	26.7	26.7	26.6	27	26.5
November	26.5	26.1	26.5	26.6	
December	25.3	25.8	25.8	25.7	
Maximum Temperature (in ℃)					
January	29.5	31.3	29.7	30.3	30.6
February	30.7	30.8	30	31.6	31.5
March	32	32.8	32.2	32.1	33.1
April	34.4	35	33.8	34.3	35.4
May	35.2	34.8	34.4	35.5	34.5
June	34.7	33.4	33.6	31.6	34.5
July	32.3	33.1	31.8	30.4	32.5
August	32.6	31.1	32.5	31.2	30.9
September	32.9	32.3	32.2	31.8	31.7
October	32.1	32	31.6	33.1	33.2
November	32.6	30.7	31.7	32.4	
December	31	30.9	30.5	30.6	

Station: Sangley Point, Cavite City (Elevation 3.0 m; Lat: 14˚30'N; Longitude: 120˚55'E)
Source: PAGASA

Seasonal Temperature Projection

Based on the data from the PAGASA, General Trias is projected to experience an increase in the seasonal temperature by the year 2050. The March-April-May (MAM), or the summer season, projects the greatest increase to the mean temperature from a baseline of 28.2°C up to 30.5°C by 2050. On the other hand, December-January-February (DJF) season has the lowest projection of mean temperature from a baseline of 25.7°C up to 27.7°C by 2050 (**Table 71**).

Table 71. Projected Changes in Seasonal Temperature in 2050 for Cavite Relative to 1971-2000

Season	Scenario	Range	Projected Change	
			Change in ℃	Projected Seasonal Mean Temperature (℃)
December-January-February (DJF)	Moderate Emission (RCP 4.5)	Lower Bound	1.0	26.7
		Median	1.3	27.0
		Upper Bound	1.7	27.4

Season	Scenario	Range	Projected Change	
			Change in °C	Projected Seasonal Mean Temperature (°C)
Observed Baseline = 25.7 °C	High Emission (RCP 8.5)	Lower Bound	1.2	26.9
		Median	1.6	27.3
		Upper Bound	2.0	27.7
March-April-May (MAM) **Observed Baseline = 28.2 °C**	Moderate Emission (RCP 4.5)	Lower Bound	1.0	29.2
		Median	1.2	29.4
		Upper Bound	1.7	29.9
	High Emission (RCP 8.5)	Lower Bound	1.3	29.5
		Median	1.6	29.8
		Upper Bound	2.3	30.5
June-July-August (JJA) **Observed baseline = 27.3 °C**	Moderate Emission (RCP 4.5)	Lower Bound	1.0	28.3
		Median	1.2	28.5
		Upper Bound	1.8	29.1
	High Emission (RCP 8.5)	Lower Bound	1.3	28.6
		Median	1.5	28.8
		Upper Bound	2.2	29.5
September-October-November (SON) **Observed baseline = 26.9 °C**	Moderate Emission (RCP 4.5)	Lower Bound	1.0	27.9
		Median	1.1	28.0
		Upper Bound	1.8	28.7
	High Emission (RCP 8.5)	Lower Bound	1.4	28.3
		Median	1.5	28.4
		Upper Bound	2.2	29.1

Notes: Upper: 90th percentile; Median: 50th percentile; Lower: 10th percentile
Station: Sangley Point, Cavite City (Elevation 3.0 m; Lat: 14˚30'N; Longitude: 120˚55'E)
Source: PAGASA (Observed Climate Trends and Projected Climate Change in the Philippines, 2018)

For the year 2085, the City is projected to experience an even greater increase in the mean temperature. The MAM season still projects the largest increase in the mean temperature from a baseline of 28.2°C up to 32.2°C by 2085. On the other hand, the DJF season has the lowest projection of mean temperature from a baseline of 25.7°C up to 29.4°C by 2085 (**Table 72**).

Table 72. Projected Changes in Seasonal Temperature in 2085 for Cavite Relative to 1971-2000

Season	Scenario	Range	Projected Change	
			Change in °C	Projected Seasonal Mean Temperature (°C)
December-January-February (DJF) **Observed baseline = 25.7 °C**	Moderate Emission (RCP4.5)	Lower Bound	1.2	26.9
		Median	1.6	27.3
		Upper Bound	2.3	28.0
	High Emission (RCP8.5)	Lower Bound	2.2	27.9
		Median	3.0	28.7
		Upper Bound	3.7	29.4
March-April-May (MAM) **Observed baseline = 28.2 °C**	Moderate Emission (RCP4.5)	Lower Bound	1.3	29.5
		Median	1.7	29.9
		Upper Bound	2.5	30.7
	High Emission (RCP8.5)	Lower Bound	2.5	30.7
		Median	3.1	31.3

Season	Scenario	Range	Projected Change	
			Change in ℃	Projected Seasonal Mean Temperature (℃)
		Upper Bound	4.0	32.2
June-July-August (JJA) **Observed baseline = 27.3 ℃**	Moderate Emission (RCP4.5)	Lower Bound	1.4	28.7
		Median	1.6	28.9
		Upper Bound	2.4	29.7
	High Emission (RCP8.5)	Lower Bound	2.6	29.9
		Median	3.2	30.5
		Upper Bound	3.9	31.2
September-October-November (SON) **Observed baseline = 26.9 ℃**	Moderate Emission (RCP4.5)	Lower Bound	1.3	28.2
		Median	1.5	28.4
		Upper Bound	2.4	29.3
	High Emission (RCP8.5)	Lower Bound	2.6	29.5
		Median	3.0	29.9
		Upper Bound	4.0	30.9

Notes: Upper: 90th percentile; Median: 50th percentile; Lower: 10th percentile
Station: Sangley Point, Cavite City (Elevation 3.0 m; Lat: 14˚30'N; Longitude: 120˚55'E)
Source: PAGASA (Observed Climate Trends and Projected Climate Change in the Philippines, 2018)

Relative Humidity, Wind Speed and Direction

PAGASA defines Relative Humidity as the ratio of the actual vapor pressure to the vapor pressure corresponding to saturation at the prevailing temperature, or simply the percentage of saturation. The Philippines has a high relative humidity which is brought about by high temperature and the surrounding bodies of water.

In General Trias, the highest relative humidity is recorded during the months of July to September which ranges between 80-85 percent. On the other hand, relative humidity in the city is lowest during the MAM season which ranges between 66-75% (**Table 73**).

Table 73. Relative Humidity (%), 2015-2019, City of General Trias, Cavite

Month	2015	2016	2017	2018
January	79	77	78	77
February	76	77	74	77
March	75	74	73	75
April	72	70	73	69
May	73	73	75	69
June	77	79	79	82
July	82	80	83	85
August	82	85	81	82
September	82	82	80	81
October	81	82	82	75
November	76	80	80	73
December	80	79	79	78

Station: Sangley Point, Cavite City (Elevation 3.0 m; Lat: 14˚30'N; Longitude: 120˚55'E)
Source: PAGASA

In 2018, the monthly average wind speed in the City ranges from two to three meters per second (mps) with a monthly average of three meters per second. The wind direction in General Trias varies per season. Meanwhile, the wind pattern is in the east direction from October to May, while it is in the southwest direction from June to September (**Table 74**).

Table 74. Wind Speed and Direction, 2015-2019

Month	2015	2016	2017	2018
Wind Speed (in mps)				
January	3	3	3	3
February	3	4	4	3
March	2	4	4	3
April	2	4	4	3
May	2	3	3	3
June	2	3	3	3
July	3	3	3	3
August	3	3	3	3
September	3	3	3	3
October	3	3	2	3
November	3	4	3	3
December	3	3	3	2
Wind Direction				
January	140° (SE)	90° (E)	90° (E)	90° (E)
February	140° (SE)	90° (E)	90° (E)	90° (E)
March	140° (SE)	90° (E)	90° (E)	90° (E)
April	140° (SE)	90° (E)	90° (E)	90° (E)
May	220° (SW)	90° (E)	90° (E)	90° (E)
June	110° (SE)	220° (SW)	220° (SW)	220° (SW)
July	220° (SW)	220° (SW)	180° (S)	220° (SW)
August	220° (SW)	220° (SW)	220° (SW)	220° (SW)
September	220° (SW)	220° (SW)	340° (NW)	220° (SW)
October	90° (E)	220° (SW)	320° (NW)	90° (E)
November	90° (E)	90° (E)	90° (E)	90° (E)
December	90° (E)	360° (N)	90° (E)	90° (E)

Station: Sangley Point, Cavite City (Elevation 3.0 m; Lat: 14˚30'N; Longitude: 120˚55'E)
Source: PAGASA

Rainfall

Rainfall refers to the amount of precipitation occurring in an area. In General Trias, the highest volume of rainfall was observed during the months of July to September. In 2018, the highest volume of rainfall was 757.3 mm which was recorded in the month of July. On the other hand, the volume of rainfall decreases as it approached the MAM season. The lowest volume of rainfall recorded in 2018 was during the month of April which is equivalent to 0.2 mm (**Table 75**).

Table 75. Average Monthly Volume of Rainfall (in mm), 2015-2019, City of General Trias, Cavite

Month	2015	2016	2017	2018
January	31.8	1.4	52.5	16.4
February	1	80.6	5.4	0.8
March	8.8	0.2	6.4	105.8
April	0	20.2	39.3	0.2
May	10.2	161.8	186.4	20
June	166.8	182.4	105.1	723
July	352.8	302.8	467.2	757.3
August	312.6	775	323	427.2
September	359.2	145.3	382.7	194.7
October	103.6	189.36	196.1	72.8
November	9.2	88.9	116.4	13.7
December	294.7	89.8	57.1	132.9

Station: Sangley Point, Cavite City (Elevation 3.0 m; Lat: 14˚30'N; Longitude: 120˚55'E)
Source: PAGASA

Rainfall Projection

General Trias will experience the greatest volume of rainfall during the season of June-July-August (JJA) with an observed baseline of 986 millimeter. According to PAGASA, the seasonal rainfall volume during the JJA season is projected to increase up to 1,100.6 mm by the year 2050. Meanwhile, the DJF and MAM seasons have recorded the least volume of rainfall with observed baselines of 125 mm and 243 mm, respectively (**Table 76**).

Table 76. Projected Changes in Seasonal Temperature in 2050 for Cavite Relative to 1971-2000

Season	Scenario	Range	Projected Change		Projected Seasonal Rainfall (mm)
			Percent (%)	Rainfall (mm)	
Dec-Jan-Feb (DJF) **Observed Baseline = 125 mm**	Moderate Emission (RCP 4.5)	Lower Bound	8.6	10.7	135.6
		Median	12.5	15.6	140.5
		Upper Bound	55.7	69.6	194.5
	High Emission (RCP 8.5)	Lower Bound	7.8	9.8	134.7
		Median	12.8	16.0	140.9
		Upper Bound	35.9	44.8	169.7
Mar-Apr-May (MAM) **Observed Baseline = 243 mm**	Moderate Emission (RCP 4.5)	Lower Bound	0.6	1.5	244.3
		Median	6.9	16.8	259.6
		Upper Bound	17.9	43.4	286.2
	High Emission (RCP 8.5)	Lower Bound	-11.0	-26.7	216.1
		Median	3.7	9.0	251.8
		Upper Bound	33.1	80.3	323.1
Jun-Jul-Aug (JJA) **Observed Baseline**	Moderate Emission (RCP 4.5)	Lower Bound	-26.7	-263.3	722.4
		Median	-18.0	-177.6	808.1
		Upper Bound	9.4	92.9	1,078.6
	High Emission (RCP 8.5)	Lower Bound	-22.8	-224.9	760.8
		Median	-10.4	-102.5	883.2

Season	Scenario	Range	Projected Change		Projected Seasonal Rainfall (mm)
			Percent (%)	Rainfall (mm)	
= 986 mm		Upper Bound	11.7	114.9	1,100.6
Sep-Oct-Nov (SON) **Observed Baseline = 579 mm**	Moderate Emission (RCP 4.5)	Lower Bound	-7.7	-44.7	534.3
		Median	-4.1	-23.6	555.4
		Upper Bound	6.7	39.0	618.0
	High Emission (RCP 8.5)	Lower Bound	-4.3	-25.1	553.9
		Median	0.9	5.2	584.2
		Upper Bound	10.3	59.9	638.9

Notes: Upper: 90th percentile; Median: 50th percentile; Lower: 10th percentile
Station: Sangley Point, Cavite City (Elevation 3.0 m; Lat: 14˚30'N; Longitude: 120˚55'E)
Source: PAGASA (Observed Climate Trends and Projected Climate Change in the Philippines, 2018)

For the year 2085, General Trias is projected to experience similar trends. The rainfall during the JJA season is projected to increase up to 1,066.7 mm from its baseline of 986 millimeter. It is slightly lower in comparison to the 2050 projection. Moreover, for the SON season, rainfall is projected to increase up to 662.8 mm by 2085 from its baseline of 579 millimeter.

The DJF and MAM seasons have recorded the least volume of projected rainfall. During the DJF season, the projected rainfall will increase up to 257.6 mm by 2085 from its baseline of 125 millimeter. On the other hand, the rainfall amount during the MAM season is projected to increase up to 307.5 mm by 2085 from its baseline of 243 mm (**Table 77**).

Table 77. Projected Changes in Seasonal Rainfall in 2085 for Cavite Relative to 1971-2000

Season	Scenario	Range	Projected Change		Projected Seasonal Rainfall Amount (mm)
			Percent (%)	Rainfall amount (mm)	
Dec-Jan-Feb (DJF) **Observed Baseline = 125 mm**	Moderate Emission (RCP 4.5)	Lower Bound	4.0	5.0	129.9
		Median	14.2	17.7	142.6
		Upper Bound	106.3	132.7	257.6
	High Emission (RCP 8.5)	Lower Bound	-26.0	-32.4	92.5
		Median	25.4	31.7	156.6
		Upper Bound	88.5	110.5	235.4
Mar-Apr-May (MAM) **Observed Baseline = 243 mm**	Moderate Emission (RCP 4.5)	Lower Bound	-12.2	-29.6	213.2
		Median	-6.7	-16.3	226.5
		Upper Bound	9.4	22.8	265.6
	High Emission (RCP 8.5)	Lower Bound	-11.0	-26.7	216.1
		Median	2.4	5.8	248.6
		Upper Bound	26.7	64.7	307.5
Jun-Jul-Aug (JJA) **Observed Baseline = 986 mm**	Moderate Emission (RCP 4.5)	Lower Bound	-29.6	-291.6	694.1
		Median	-21.4	-210.9	774.8
		Upper Bound	3.9	38.8	1024.5
	High Emission (RCP 8.5)	Lower Bound	-40.1	-394.9	590.8
		Median	-31.1	-306.3	679.4
		Upper Bound	8.2	81.0	1066.7

Season	Scenario	Range	Projected Change		Projected Seasonal Rainfall Amount (mm)
			Percent (%)	Rainfall amount (mm)	
Sep-Oct-Nov (SON)	Moderate Emission (RCP 4.5)	Lower Bound	-9.4	-54.3	524.7
		Median	-5.1	-29.5	549.5
Observed Baseline = 579 mm		Upper Bound	11.5	66.6	645.6
	High Emission (RCP 8.5)	Lower Bound	-25.8	-149.2	429.8
		Median	-3.4	-19.8	559.2
		Upper Bound	14.5	83.8	662.8

Notes: Upper: 90th percentile; Median: 50th percentile; Lower: 10th percentile
Station: Sangley Point, Cavite City (Elevation 3.0 m; Lat: 14˚30'N; Longitude: 120˚55'E)
Source: PAGASA (Observed Climate Trends and Projected Climate Change in the Philippines, 2018)

Hazard Information

General Trias is exposed to four major natural hazards namely: flooding, landslide, liquefaction, and ground shaking. Among these, flooding is the commonly experienced hazard in many barangays. The hazard inventory summarizes all the hazards that potentially affect each barangay. It also shows various hazard susceptibility levels present in every barangay.

Flooding

Flood hazard affects all 33 barangays of the City at varying susceptibility levels. The areas for each susceptibility level were generated with the use of Geographic Information System (GIS) by overlaying the flood hazard map and the barangay boundary map. The total area affected by flooding sums up to 1,963.18 ha. which is equivalent to 22.08% of the total land area of General Trias.

Areas with low susceptibility comprises 18.40% (1,653.35 ha.) of the total land area of General Trias. The areas with moderate and high susceptibility to flooding comprises 1.09% (96.71 ha.) and 2.40% (213.12 ha.), respectively.

Landslides

Based on GIS computation, 17 barangays are affected by landslide. Collectively, the total affected area sums up to 6,923.91 ha. which is equivalent to 77.88% of the total land area of the City while the remaining 22.12% are not susceptible to such hazard.

Meanwhile, small portion of Barangays Alingaro, Javalera and Panungyanan has areas that are highly susceptible to landslide. When combined, these high susceptible areas sum up to 16.39 ha. which comprises 0.18% of the total land area.

Ground Shaking

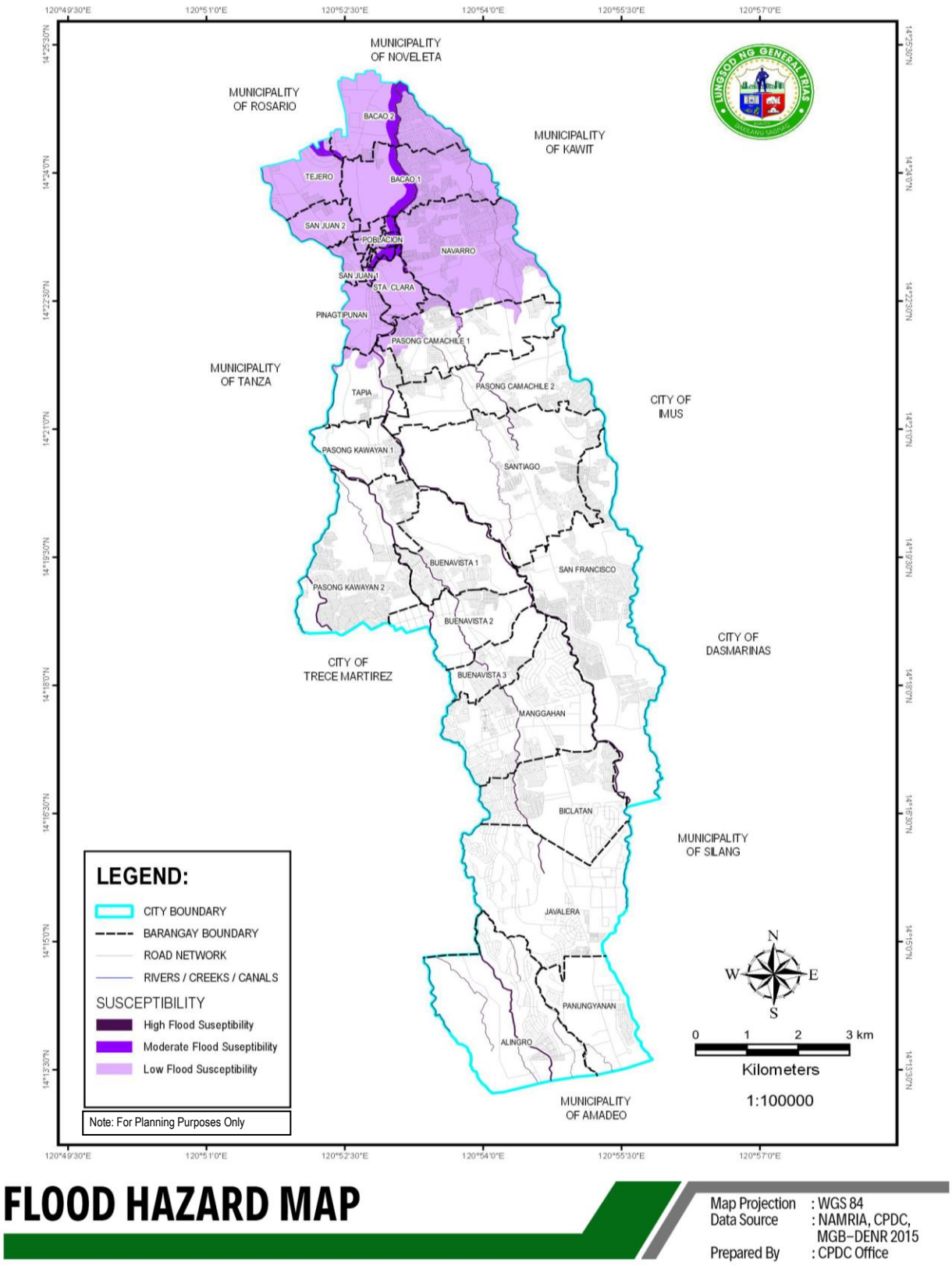
Like other cities and municipalities in the Province of Cavite, General Trias is also classified as a volcanic region. It is underlain by volcanic ejecta deposits that are characteristically water-laid and its soil structure is predominantly composed of consolidated alluvial materials, yet it is considered less susceptible to seismic structure.

The City is also located outside the recognized hazard area of Taal Volcano; however, few incidences of ash falls were recorded in 1911 and 2020. The earliest recorded destructive earthquake that happened in General Trias were in 1880, when San Francisco de Malabon Parish Church was partially damaged, and in 1990 where the epicenter of ground shaking was in Baguio City and felt in the City but caused no major damage.

The entire City is susceptible to ground shaking with a magnitude of PEIS Intensity VIII and above. Hence, the total affected area sums up to 8,890 hectares. To minimize the negative impacts of ground shaking, General Trias has initiated several mitigating measures which include the regular conduct of earthquake drills, Information and Education Campaign (IEC), and periodic inspection of all buildings and infrastructure.

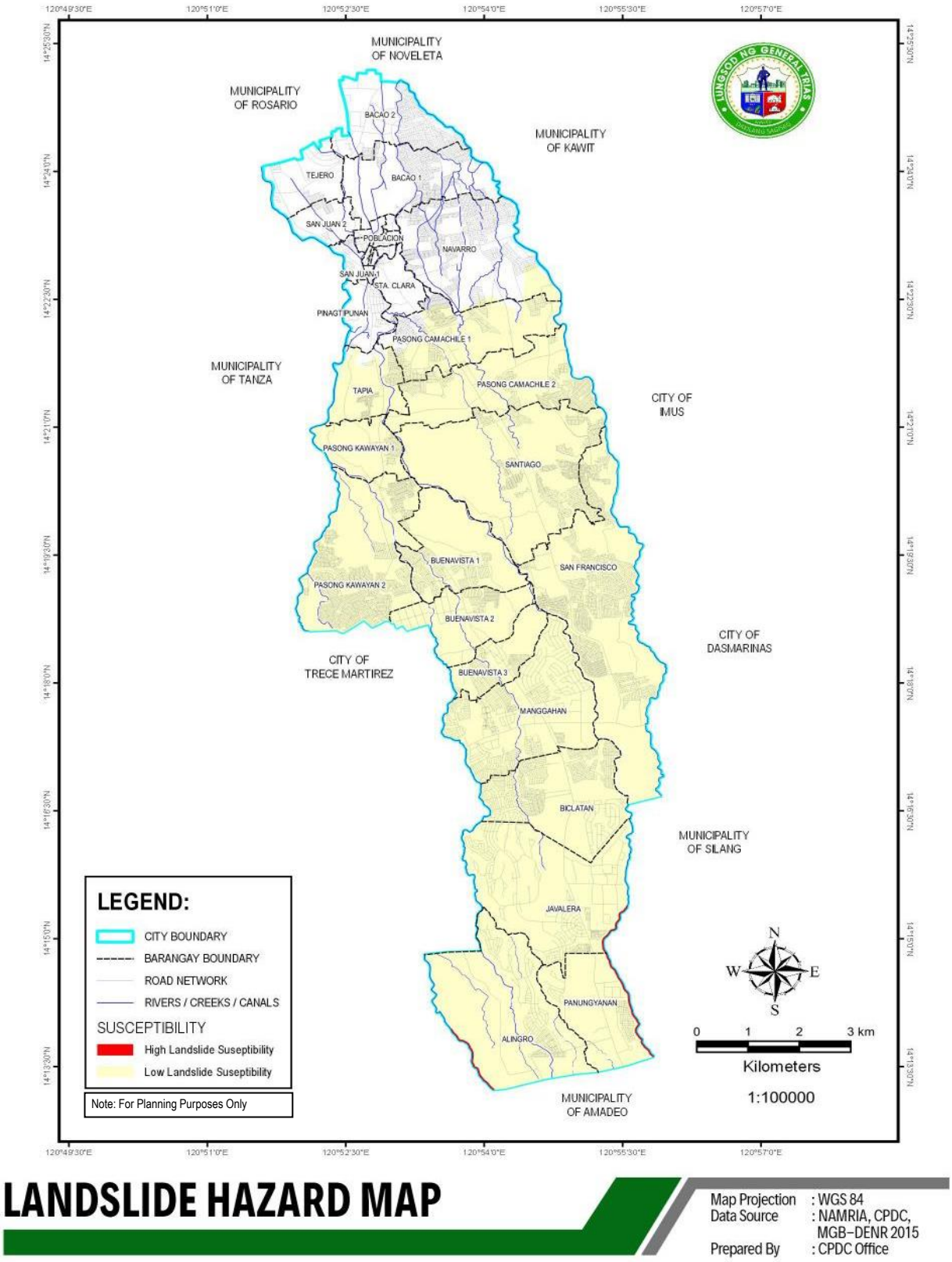
Liquefaction

Only the northern portion of General Trias is susceptible to liquefaction hazard affecting a total land area of 1,774.40 ha. or 19.96% of the total land area of the City. Majority of these affected areas are considered as moderately susceptible. At present, there is no recorded occurrence of liquefaction in the City.



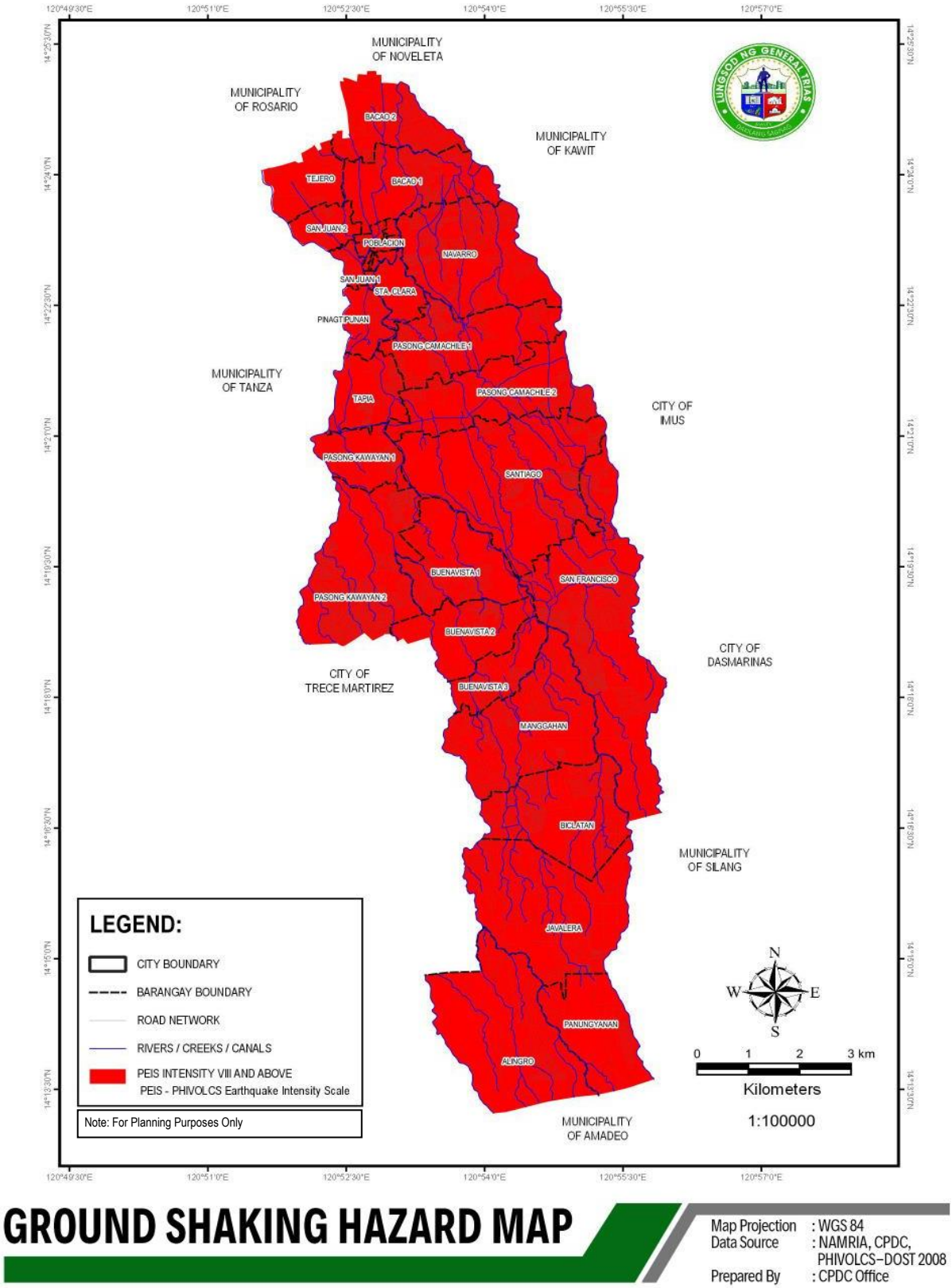
Map 17. Flood Hazard Map, City of General Trias, Cavite

Source: CPDO, City of General Trias, Cavite

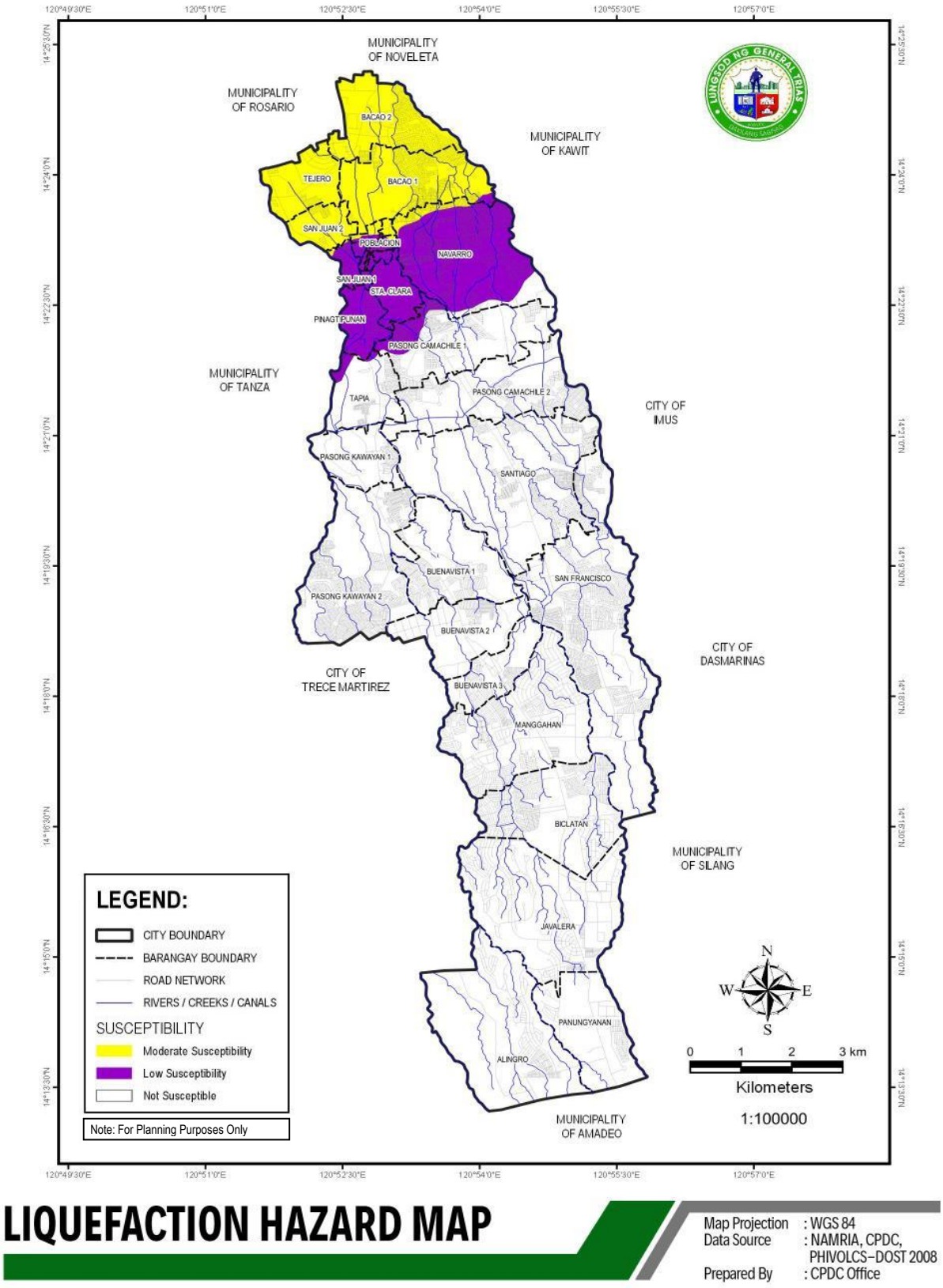


Map 18. Landslides Hazard Map, City of General Trias, Cavite

Source: CPDO, City of General Trias, Cavite



Map 19. Ground Shaking Hazard Map, City of General Trias, Cavite
Source: CPDO, City of General Trias, Cavite



Map 20. Liquefaction Hazard Map, City of General Trias, Cavite

Source: CPDO, City of General Trias, Cavite

City of General Trias Multi-System Climate Change Impact

The impact chain analysis shows the probable effects of climate change variable, namely sea level rise, extreme daily rainfall/ increased rainfall, temperature rise, and drought to different systems of interest such as coastal ecosystem, agriculture, health, water resources, fishery production, forest ecosystem, lowland agriculture, and urban areas.

The City of General Trias like any other locality in the Philippines, also experiences climate change and has long been particularly vulnerable to extreme weather conditions. But in recent years, the City has suffered from even more violent typhoons like Typhoon Haiyan (Milenyo). From 1948 to 2016 there were about 25 tropical cyclones that crossed Cavite Province and have affected the City of General Trias due to its geographical location. It has been observed that over the past decade, these tropical storms have struck the province more often and more severely, scientists believe, because of climate change. **Table 78** summarizes the potential impacts of specific climate variables to different sectors or exposure units: Population, Natural Resource-Based Production Areas, Urban Use Areas, Critical Point Facilities, Infrastructure and Utilities.

Based on the observed daily climatic data from PAGASA, it is projected that there will be an increase in the volume of rainfall and increase in temperature. The increase in rainfall will occur all seasons but is most likely to increase for the JJA and SON season.

The increased rainfall and temperature will result to extreme rainfall events which in turn can cause flooding and landslide. According to the hazard maps, flood is considered to be one of the five(5) hazards that General Trias is susceptible to while only a small portion of General Trias is susceptible to landslide. However, land, beside rivers, are highly susceptible to rain-induced landslide should the rainfall be extremely excessive. This can result to damaged natural resource area especially loss of production areas that are situated beside these rivers.

As for flood, a large portion of General Trias is susceptible to flood which are mostly located at the northern portion of the City. Flooded lifeline utilities and critical point facilities will cut off services which may result to increased morbidity/ mortality especially to the vulnerable population such as the elderly, children, underprivileged population, persons with disabilities, and informal settlers. Flooded production areas will result to decreased harvest and loss of food supply resulting to a loss of income and increased poverty. Increased flooding can also result to an increase of vector borne diseases such as dengue and leptospirosis and result to increased morbidity/ mortality.

Poor or clogged drainage facilities can worsen the said hazard and its impacts and cause damage to the population, the agricultural sector and to properties. Clogged canals were also identified as one of the contributing factors why water does not subside as fast as it is expected to.

The average mean temperature is expected to increase for all seasons and more so in the MMA season translating to hotter days and nights especially in the months of MAM. This will impact heat related stress which may result to higher morbidity / mortality especially for the vulnerable sectors such as the elderly, children, and disabled (**Table 79**).

Table 78. Summary of Climate Change Effects and Impacts to Development Sectors (2020), City of General Trias, Cavite

Systems	Climate Variable	General Changes in Climate Variable	Climate Change Effects	Climate Change Impacts
Human Health	Temperature	Increase	Hotter days	More heat-related stress, particularly among the elderly, the poor, and the vulnerable population
	Rainfall	Increase	Flooding	Increase in vector-borne diseases
Agriculture Crop Production	Temperature	Erratic rain patterns; Too little rainfall; Too much rain; Early onset of rainy season; Late onset of rainy season	Drought; Flooding; Rain-induced landslides	Crops submerged in water; Wilting of planted crops; Changes in crop yields; Diminishing harvest; Reduction in farmers' income; Increased risk of pest outbreaks and weeds; Damaged road transportation network
	Rainfall	Increase	Drought	Increased demand for irrigation due to longer and warmer growing season; Inability to plant especially in times when rains are too little; Poorer quality of agricultural products (e.g. less grain filling in rice, smaller coconut fruits)
Fishery Production	Temperature	Increase	Decrease water surface	Decreased water security; Reduction in fisheries income
	Rainfall	Decrease		
Livestock and Poultry Production	Temperature	Increase	Hotter Days	More heat-related stress
	Rainfall	Increase	Flooding	Increase in vector-borne diseases
Water Resources	Rainfall	Decrease	Drought	Increased competition for water (irrigation and water consumption); Changes in water quality
	Extreme Rainfall	More events	Flooding	Changes in water quality
Infrastructure	Extreme Rainfall	More events	Flooding; Rain-induced landslide	More travel disruptions associated with landslides and flooding; Damage to flood control facilities
Business	Extreme rainfall	More events	Flooding	Impacts on business infrastructure located in floodplains; Increased insurance premiums due to more extreme weather events

Source: Climate and Disaster Risk Assessment, City of General Trias, Cavite

Table 79. Climate Change Impacts to Sectoral Elements (2020), City of General Trias, Cavite

Climate Variable	General Changes Expected in Climate Variables	Information About Patterns of Change	Population	Natural Resource-Based Production Areas	Critical Point Facilities	Urban Use Areas	Lifeline Utilities	Potential Impact Areas
Temperature	Increase in average temperature for all seasons.	Heavy typhoon/ rains in 2030 and 2040	Increase in heat-related stress and disease especially to the vulnerable population	Low productivity due to yield loss; Increase in pests and diseases occurrence on crops and livestock; River oxygen depletion	Increase demand for health facilities	Low economic activity; Water shortage Indirect health effects	None	All Barangay
Rainfall	Increase in rainfall for all seasons, especially for the JJA and SON seasons.	Increase in rainfall	Increase in vector-borne diseases	Decrease in crop production due to crop damage; Increased production cost; Increase in flooding incidence	Damage to properties (Schools, Hospitals and other gov't bldgs.); Disrupting key service delivery	Flooding; Health related problems; Generate different kind of wastes, accumulation of run-off soil on waterways; Disrupting urban area activities.	Damage of roads and bridges; Clogging of drainage system; Water contamination; Decrease of power supply; Loss of communication signals	All Barangay
Number of Hot days	Increased number of hot days in 2030 to 2040 especially in the MAM season.	Increase in number of hot days	Heat-related medical cases; High Demand of medical supplies	Decrease in water supply; Soil Infertility; Damage to crops/ livestock; Decrease in production output; Insufficient supply of foods	Damage to properties (Schools, Hospitals and other gov't bldgs.); Disrupting key service delivery from the government	Disrupting of urban area activities; increase of operational cost	Damage to roads and bridges; Increase in power and water consumption; Depletion of water source	All Barangay

Climate Variable	General Changes Expected in Climate Variables	Information About Patterns of Change	Population	Natural Resource-Based Production Areas	Critical Point Facilities	Urban Use Areas	Lifeline Utilities	Potential Impact Areas
Number of Dry days	Decreasing number of dry days	Minimal decrease of dry days; There will be more days with rainfall (less days without rainfall compared to baseline)	None	None	None	None	None	None
Extreme daily Rainfall Events	Heavy daily rainfall increasing in 2030 and 2040.	More extreme daily rainfall expected in 2030 and 2040 but more or less the same compared to baseline.	Loss of life; Loss of income	Decrease in crop production due to crop damage; Increased production cost; Increase in the incidence of flooding	Damage to properties (Schools, Hospitals and other gov't bldgs.); Disrupting key service delivery	Flooding; Health-related problems; Generate different kind of wastes; Accumulation of run-off soil on waterways; Disrupting urban area activities	Damage to roads and bridges; Clogging of drainage system; Water contamination; Decrease of power supply; Loss of communication signals	All Barangay
Typhoon/ Super typhoon	Tropical storm on all seasons (DJF-MAM-JJA-SON)	Flooding Landslide	Loss of income	Decrease in crop production due to crop damage; Increased production cost; Increase in the incidence of flooding	Damage to properties (Schools, Hospitals and other gov't bldgs.); Disrupting key service delivery	Flooding; Health-related problems; Generate different kind of wastes; Accumulation of run-off soil on waterways; Disrupting urban area activities	Damage to roads and bridges; Clogging of drainage system; Water contamination; Decrease of power supply; Loss of communication signals	All Barangay

Source: Climate and Disaster Risk Assessment, City of General Trias, Cavite

Hazard Exposure

The exposure database indicates the baseline information of elements or units at risk including sensitivity, exposure, and adaptive capacity elements of the exposed units in the City of General Trias. The exposed units according to the guidelines of HLURB (2015) are classified into five: (1) Population, (2) Urban Use Areas, (3) Natural Resource-Based Production Areas, (4) Critical Point Facilities, (5) Lifeline Utilities.

Population Exposure to Hazards

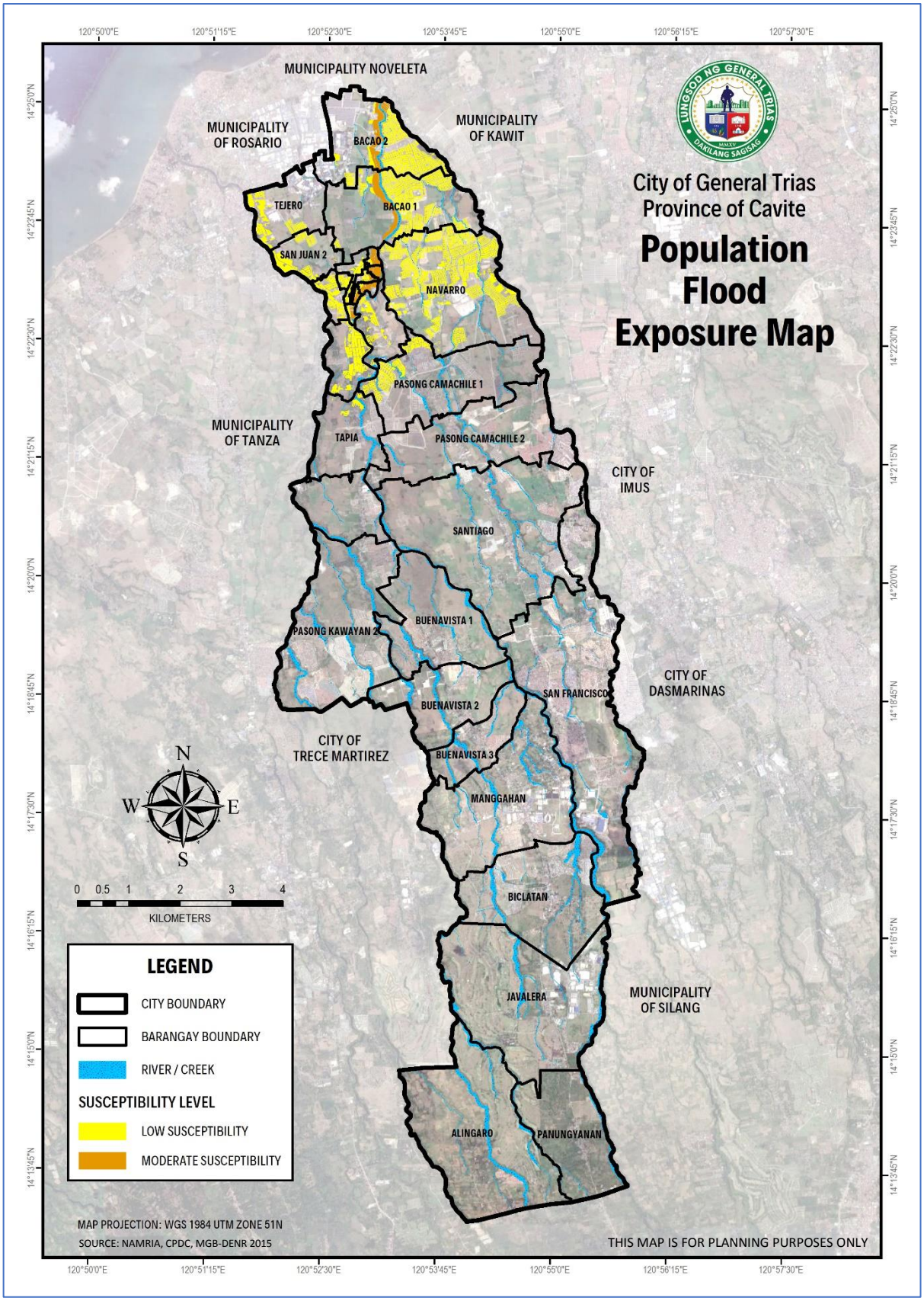
Population exposure is derived by using an accurate and up-to-date household map or residential land use map and overlaying it to different hazard maps to determine the number of households that are affected and to what extent.

For flood hazard, the total residential area in barangays that are susceptible to flooding sums up to 580.51 hectares. Upon overlay analysis, 80.83% or 469.22 ha. is directly affected by the hazard where 21,209 HHs are currently situated. All barangays shown in **Annex 1** have exposed population count exceeding 20% of the barangay population.

For landslide hazard, only the residential areas near steep slopes are considered in the computation of affected areas and households. The total residential area in barangays that are susceptible to landslide is equivalent to 1,659.37 hectares. Upon overlay analysis, only about 0.19% or 3.07 hectares is directly affected by the hazard where 126 households are currently situated. All barangays shown in **Annex 2** have low exposure score of one (1) indicating a low percentage of less than 5% of population are exposed to hazard.

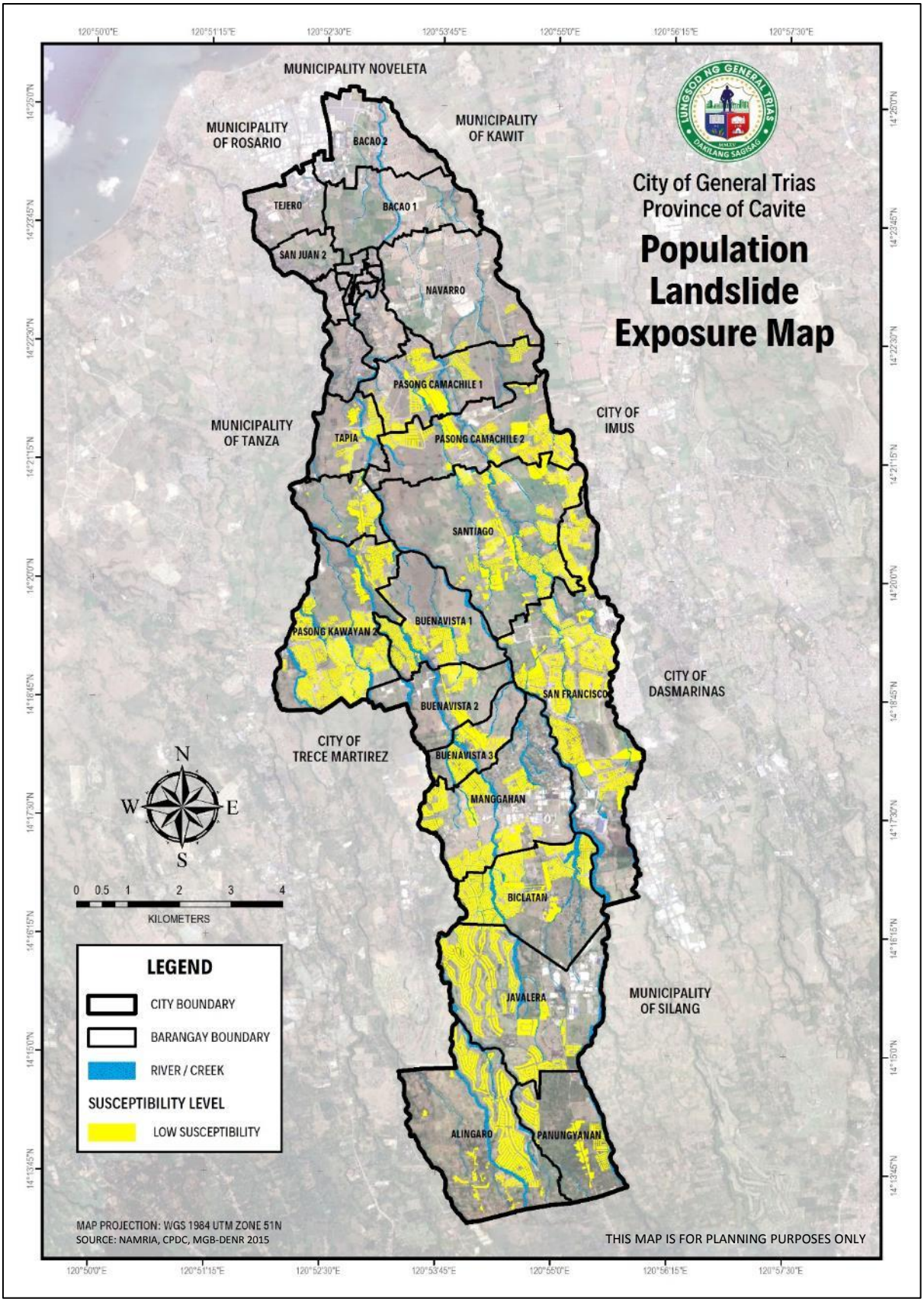
For liquefaction hazard, the total residential area in barangays that are susceptible to flooding adds up to 845.27 hectares. Upon overlay analysis, 55.03% or 465.15 hectares is directly affected by the hazard where 21,046 households are currently situated. Among all barangays shown in **Annex 3**, only Barangay Tapia has a low exposure score of one (1) while other barangays have a very high exposure score of four (4) indicating that more than 20% of the population are exposed to hazard.

Lastly, for the ground shaking hazard which affects the entire city, the total affected residential area is equivalent to 1,955.47 hectares while the total affected households sum up to 93,968. All barangays shown in **Annex 4** have a very high exposure score of four (4) which means that the exposed population count exceeded 20% of the barangay population.



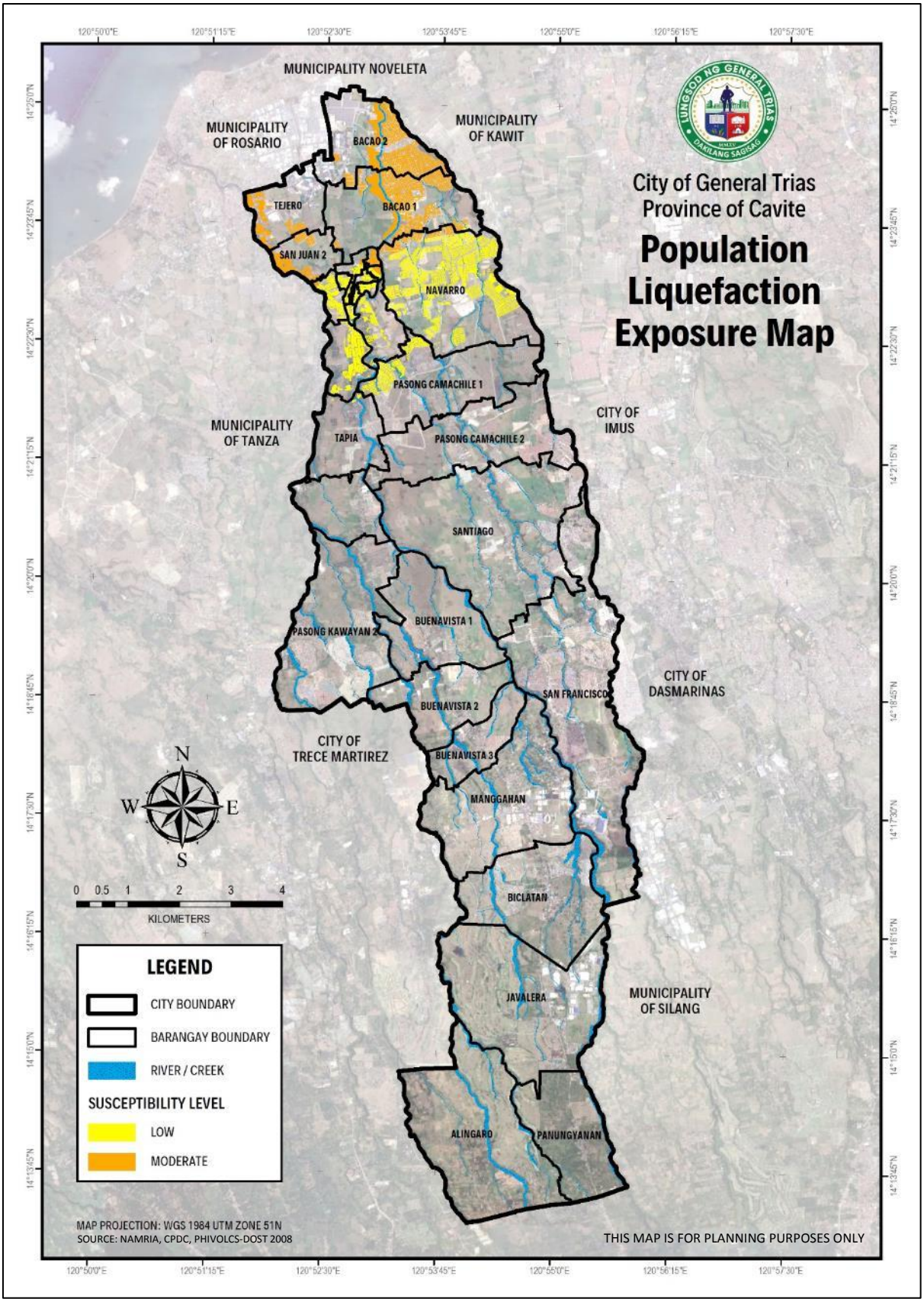
Map 21. Population Flood Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



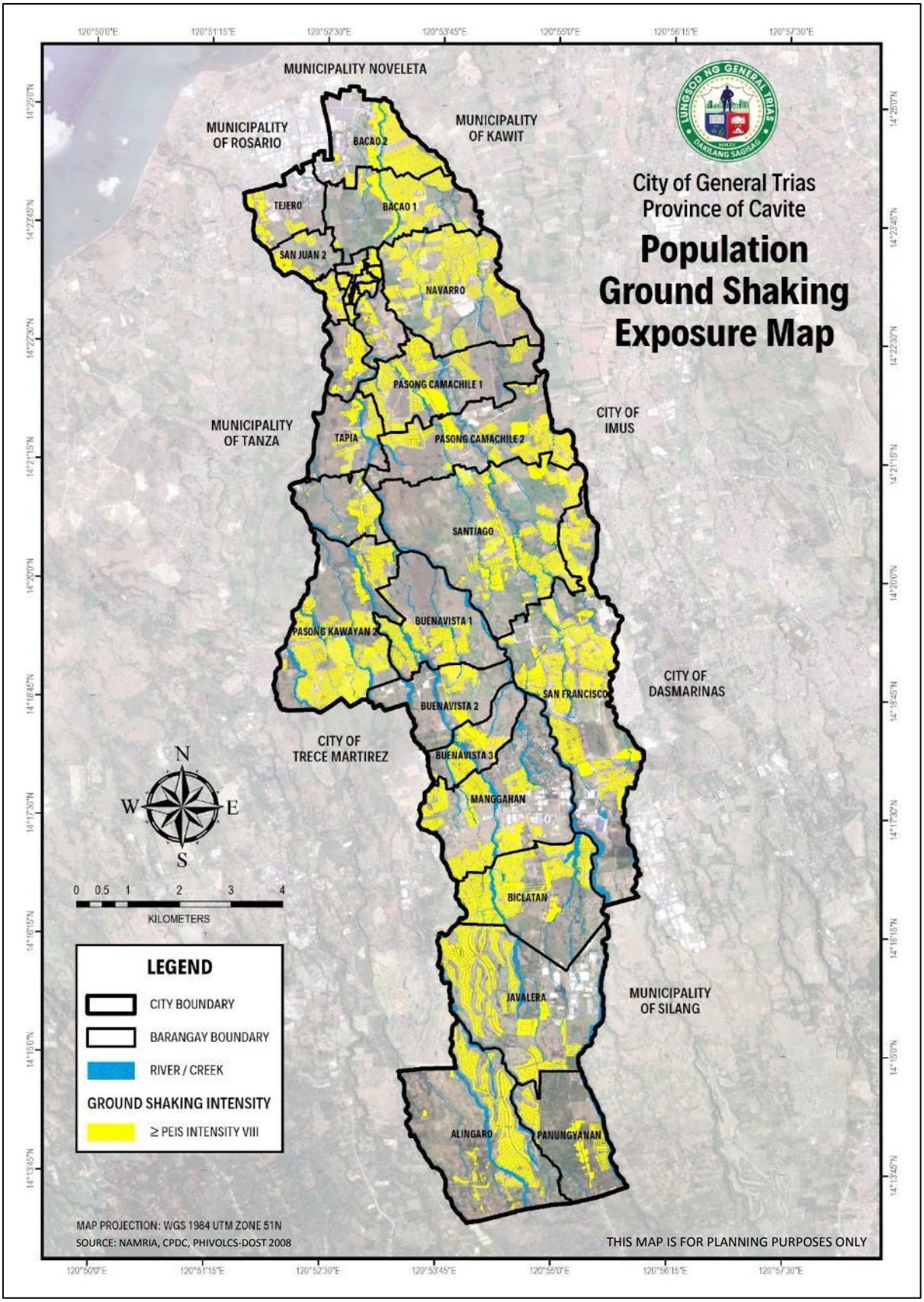
Map 22. Population Landslides Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



Map 23. Population Liquefaction Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



Map 24. Population Ground Shaking Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software

Urban Land Use Exposure to Hazards

Indicators used for urban use exposure are land use categories as well as their corresponding land areas in hectares. Urban land uses are agri-industrial, commercial, cemetery, easement, industrial, institutional, parks and recreational areas, Planned Unit Development (PUD), private disposal site, residential, reclassified lands, tourism, and quarry. In addition, the replacement cost is also included in the indicators which is expressed in a per square meter unit.

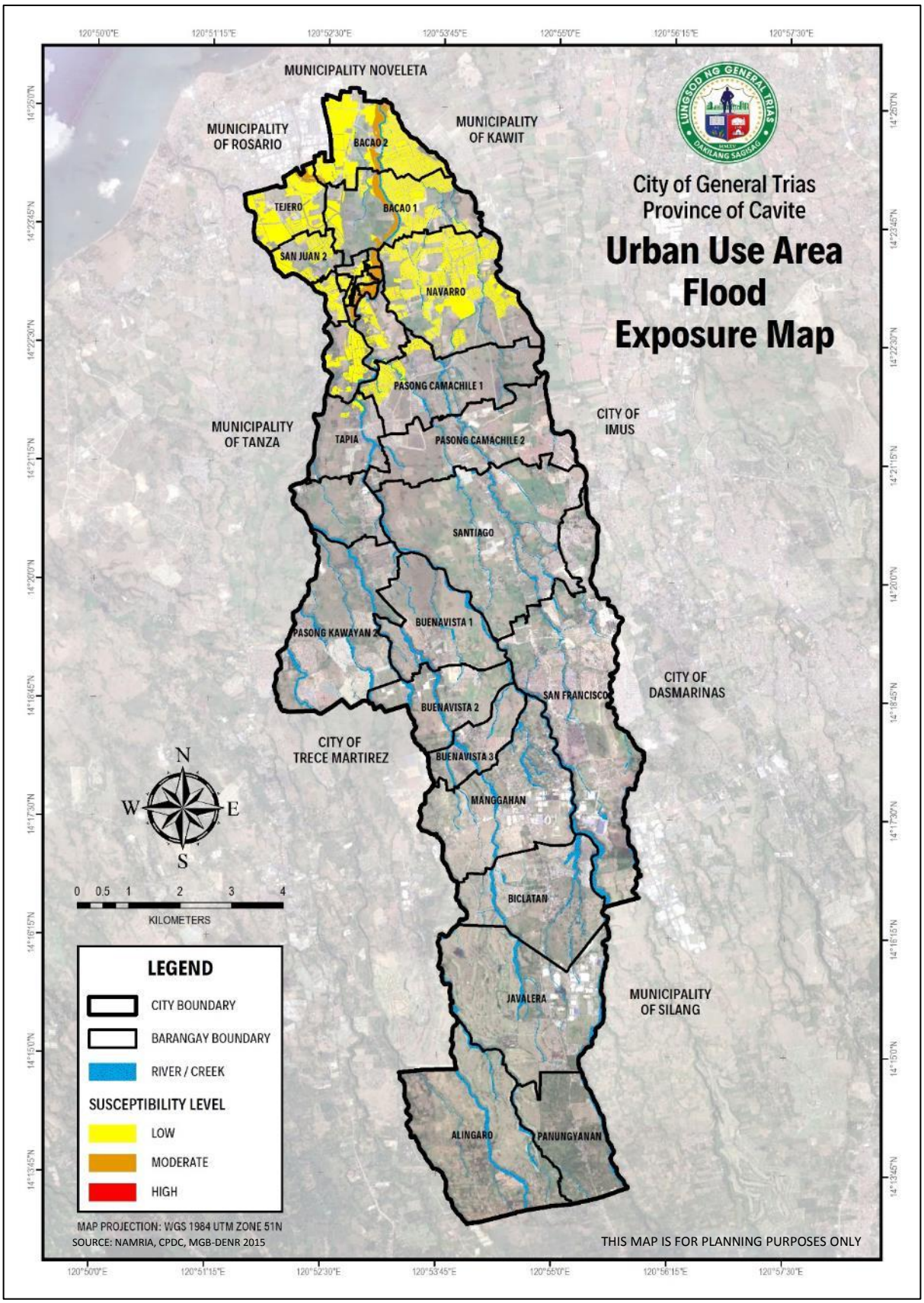
To identify the extent of the exposed urban use areas to hazards, the land use map was overlaid on the hazard maps, thus computing the affected urban use areas per land use classification. The Average Exposure Score was formulated by computing for the average of the corresponding exposure scores of the affected value and the affected areas.

For flood hazard, the following land uses are affected: cemetery (79.69% of the total cemetery land use area), commercial (75.23%), easement (51.93%), industrial (50.22%), parks and recreational area (48.84%), planned unit development (99.73%), residential area (50.86%), and tourism (100%). The residential land use has the greatest amount of affected value which is equivalent to PhP 315,314,496. It is followed by the commercial area with PhP 230,611,530 (**Annex 5**).

For landslide hazard, the following land uses are affected: agri-industrial (100% of the total agri-industrial area), cemetery (100%), commercial (99.96%), easement (89.58%), industrial (100%), parks and recreational area (90.07%), planned unit development (99.46%), private disposal site (100%), residential area (89.57%), and tourism (100%). The easement land use has the greatest amount of affected value which is equivalent to PhP 141,660,000. It is followed by the residential area with PhP 20,469,120 (**Annex 6**).

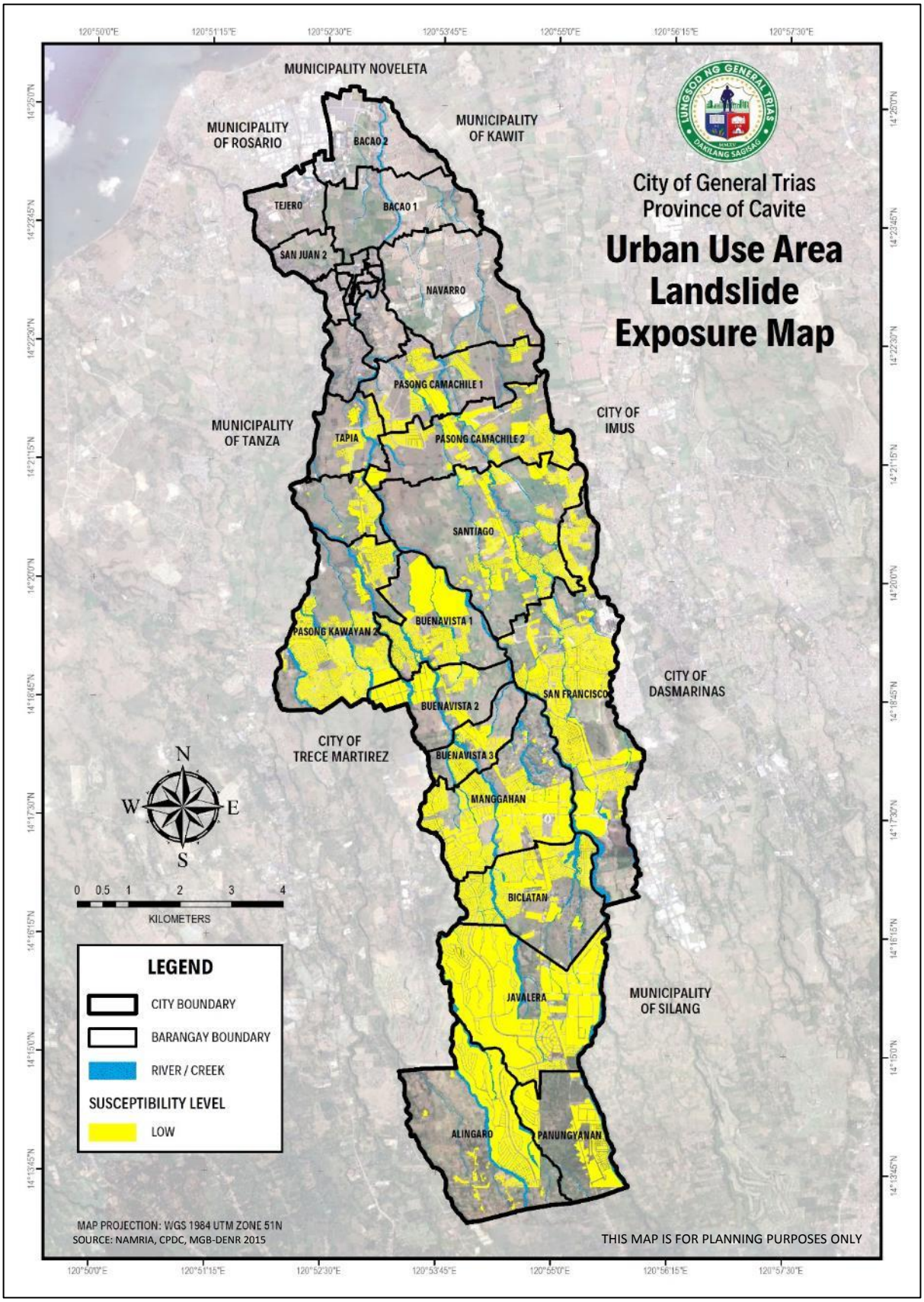
For liquefaction hazard, the following land uses are affected: cemetery (100% of the total cemetery land use area), commercial (98.90%), easement (56.13%), industrial (100%), parks and recreational area (52.97%), planned unit development (93.51%), residential area (55.03%), and tourism (100%). The residential land use has the greatest amount of affected value which is equivalent to PhP 3,125,834,880. It is followed by the commercial area with PhP 923,373,600 (**Annex 7**).

Lastly, the ground shaking hazard affects all the urban use areas within the entire city. The residential land use has the greatest amount of affected value which is equivalent to PhP 13,140,724,800. It is followed by the agri-industrial area with PhP 1,412,640,000 (**Annex 8**).



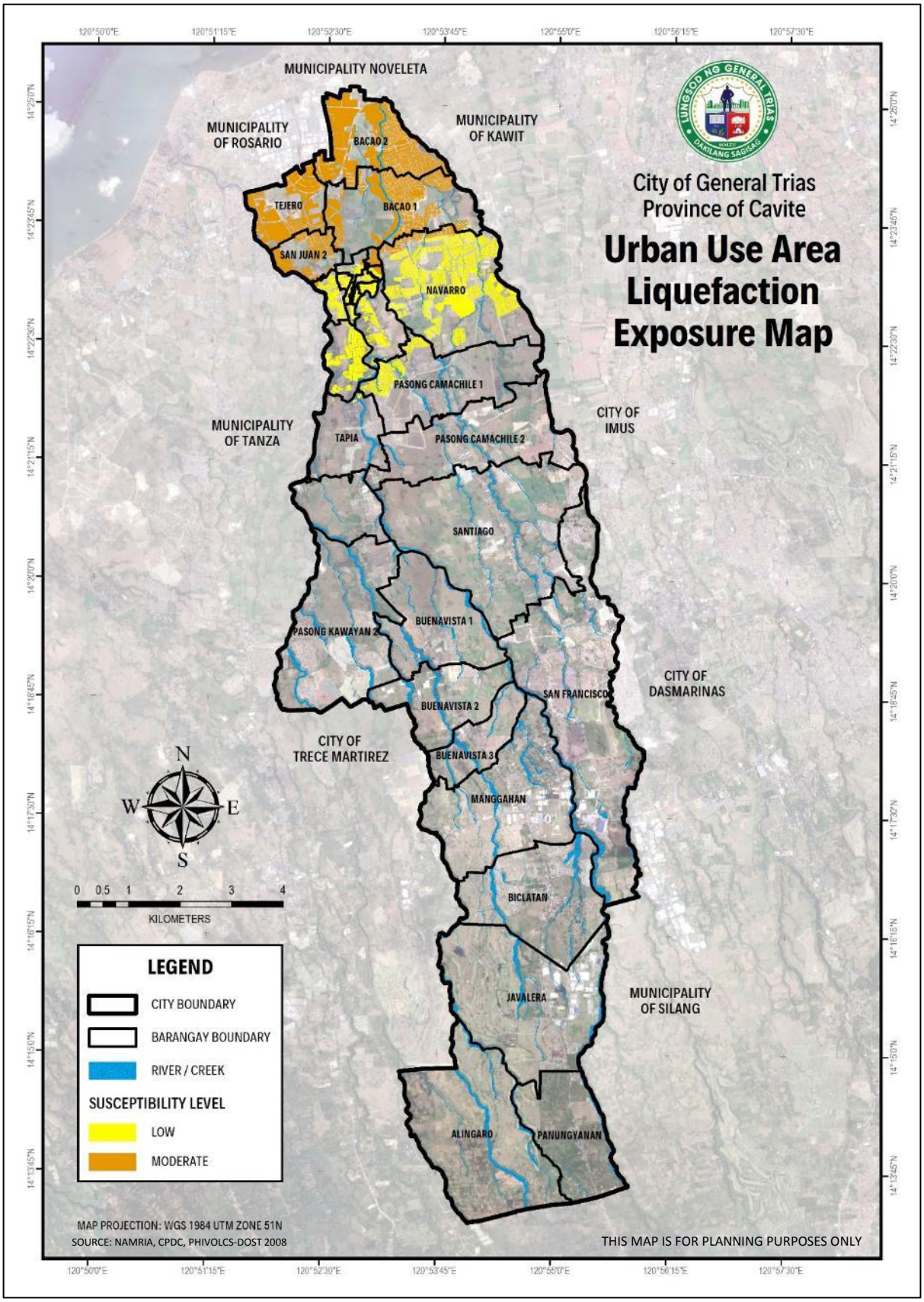
Map 25. Urban Use Area Flood Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



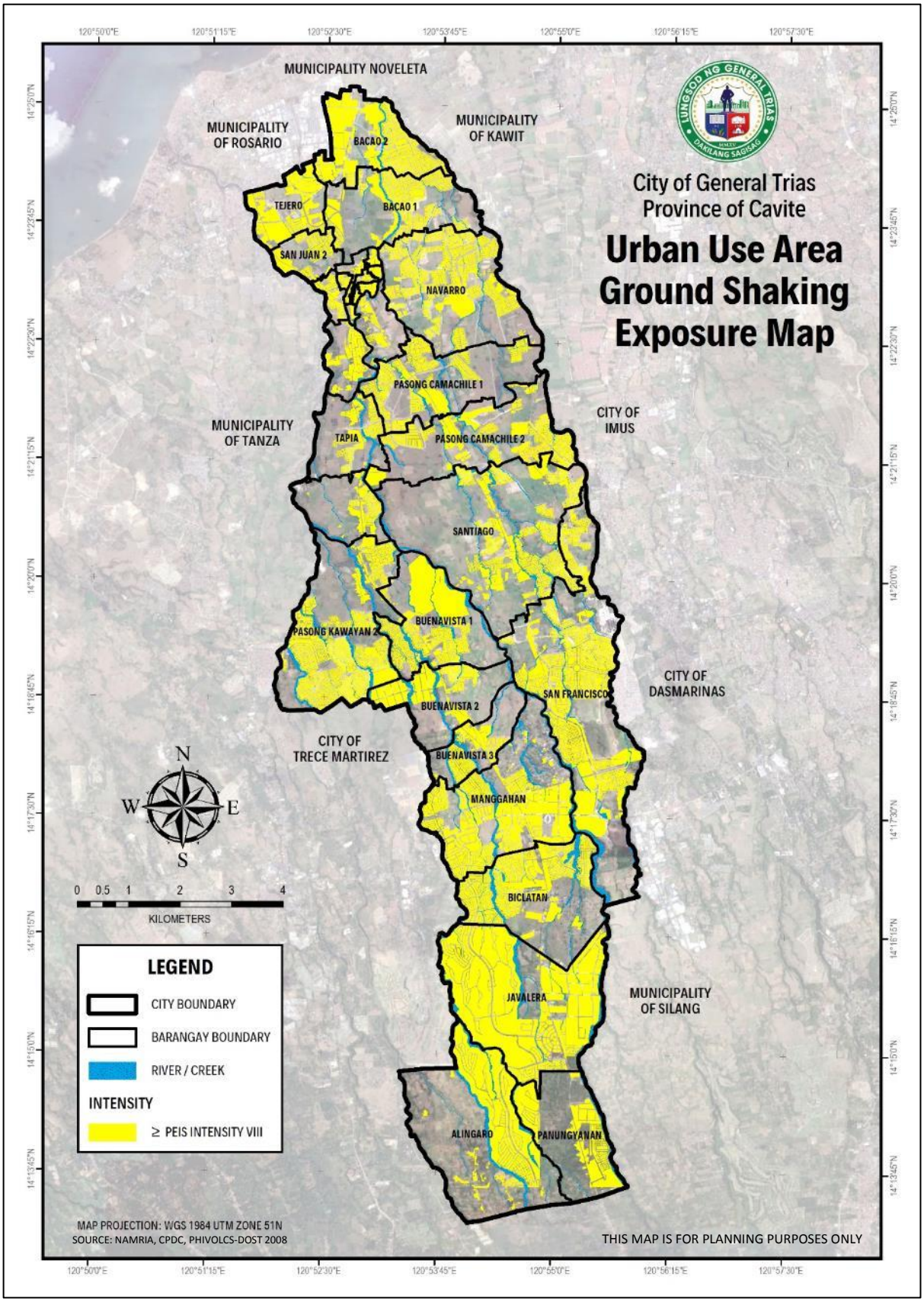
Map 26. Urban Use Area Landslides Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



Map 27. Urban Use Area Liquefaction Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



Map 28. Urban Use Area Ground Shaking Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software

Natural Resource-Based Production Area Exposure to Hazards

Indicators used for natural resource-based production area exposure are the area allocated for agricultural production. These were based on the following land use categories: cultivated agricultural crop lands, forest, fishpond, and grassland/ pastureland. Another part of the exposure indicators are the dominant crops cultivated, and average potential income per hectare.

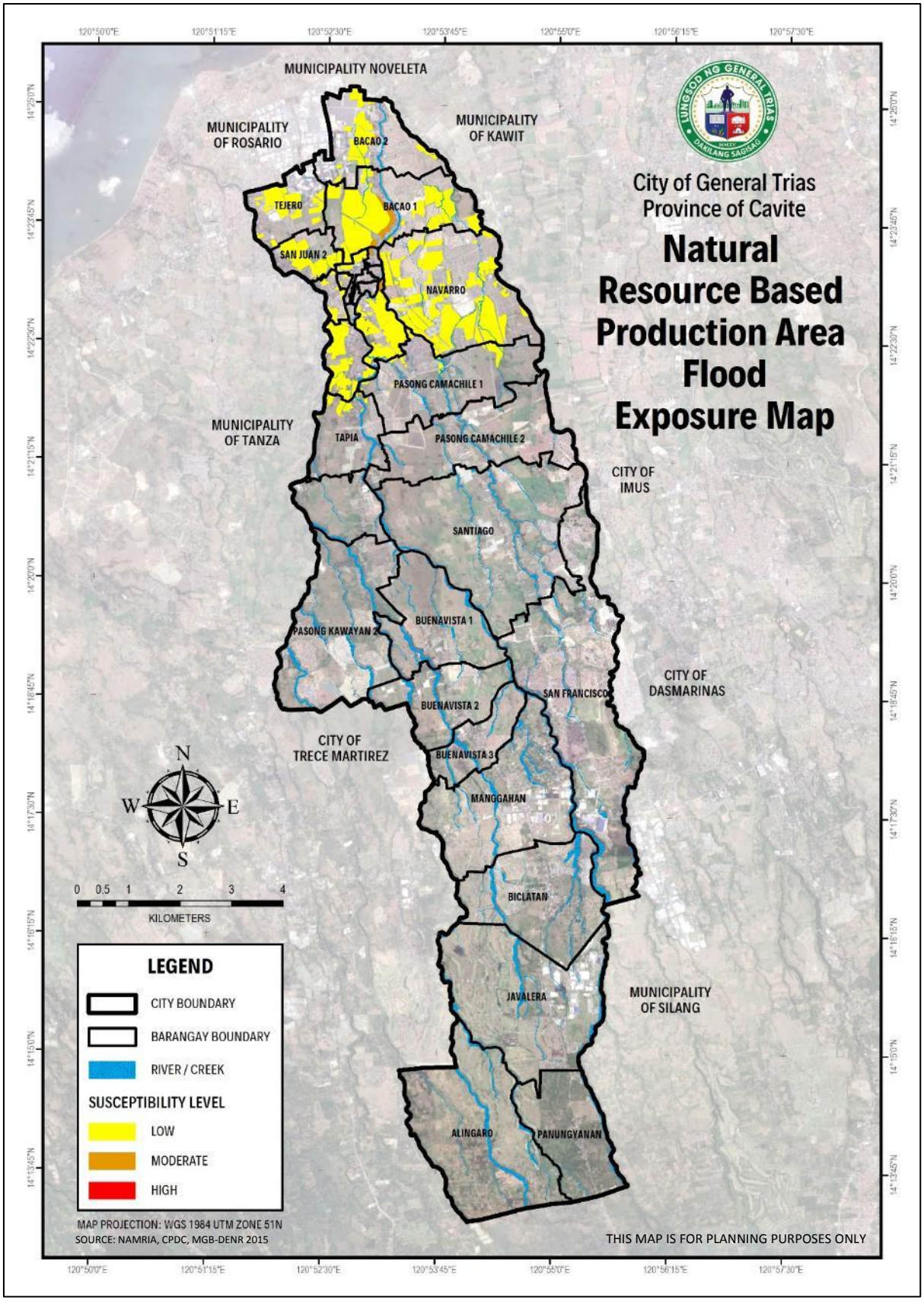
To identify the extent of the exposed natural resource-based production areas to hazards, the agricultural land use map was overlaid on the hazard maps, thus computing the affected areas per agricultural land use classification. The Average Exposure Score was formulated by computing for the average of the corresponding exposure scores of the affected value and the affected areas.

For flood hazard, the following land uses are affected: cultivated agricultural crop lands (51.32% of the total land area), fishpond (100%), and grassland/ pastureland (43.59%). The grassland/ pastureland use has the greatest amount of probable damage which is equivalent to PhP 74,674,040 (**Annex 9**).

For landslide hazard, the following land uses are affected: cultivated agricultural crop lands (6.51% of the total land area), forest (4.16%), and grassland/ pastureland (0.91%). The cultivated agricultural crop land use has the greatest amount of probable damage which is equivalent to PhP 3,173,524 (**Annex 10**).

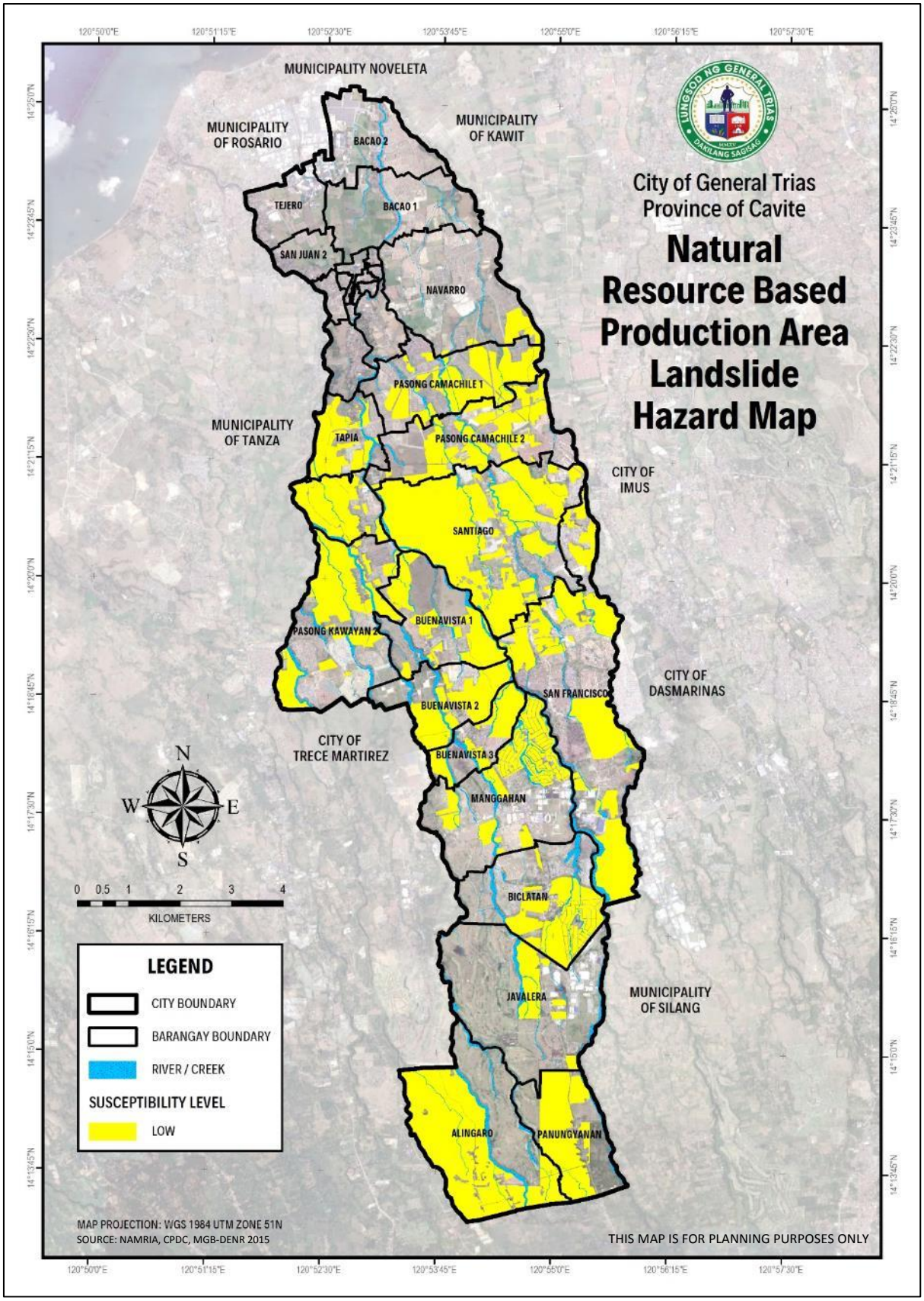
For liquefaction hazard, the following land uses are affected: cultivated agricultural crop lands (84.27% of the total land area), fishpond (74.01%), and grassland/ pastureland (48.81%). The grassland/ pastureland use has the greatest amount of probable damage which is equivalent to PhP 22,366,090 (**Annex 11**).

Lastly, the ground shaking hazard affects all the urban use areas within the entire city. The grassland/ pastureland use has the greatest amount of probable damage which is equivalent to PhP 968,038,148. It is followed by the cultivated agricultural crop land areas with PhP 46,713,484 (**Annex 12**).



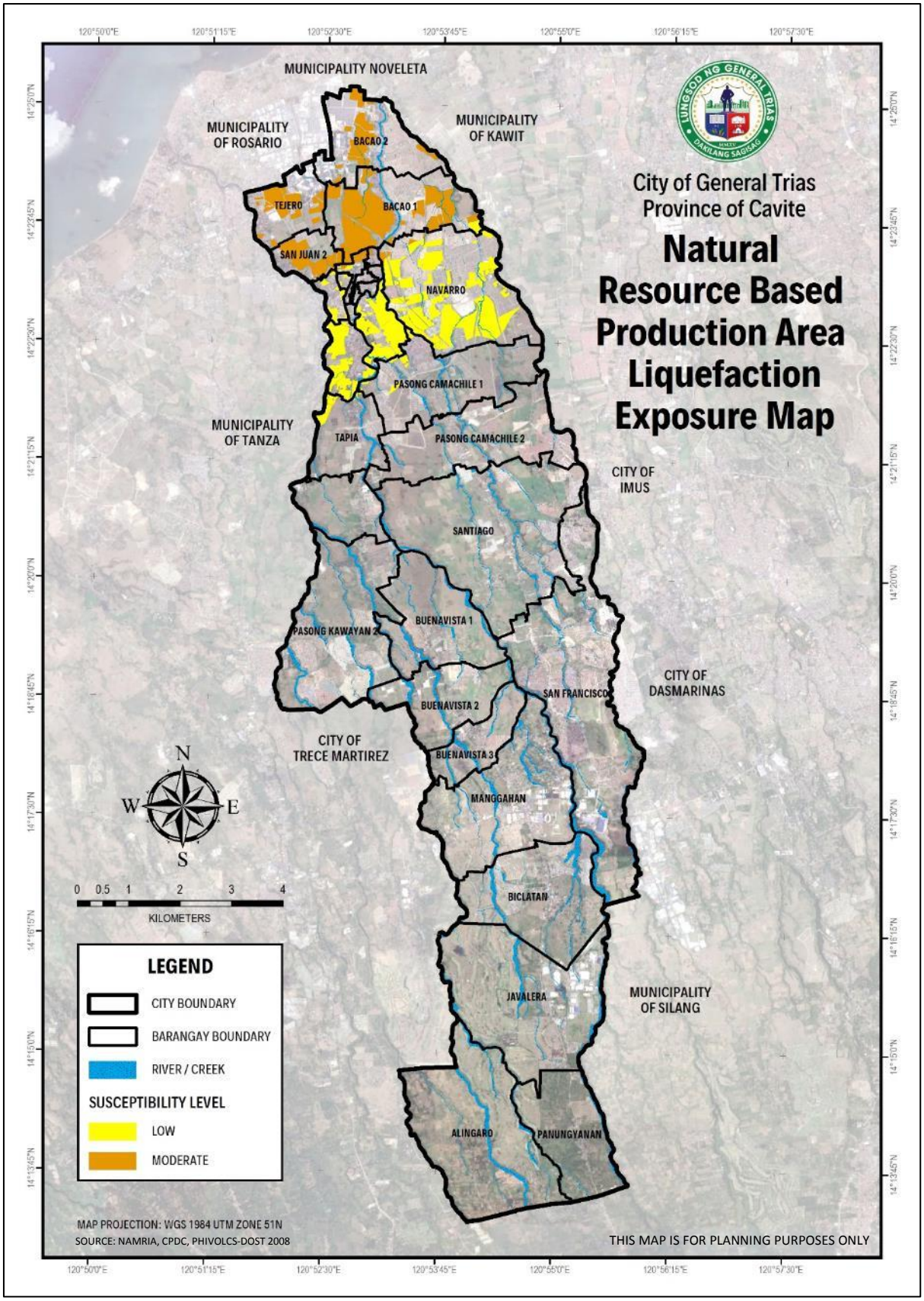
Map 29. Natural Resource-Based Production Area Flood Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



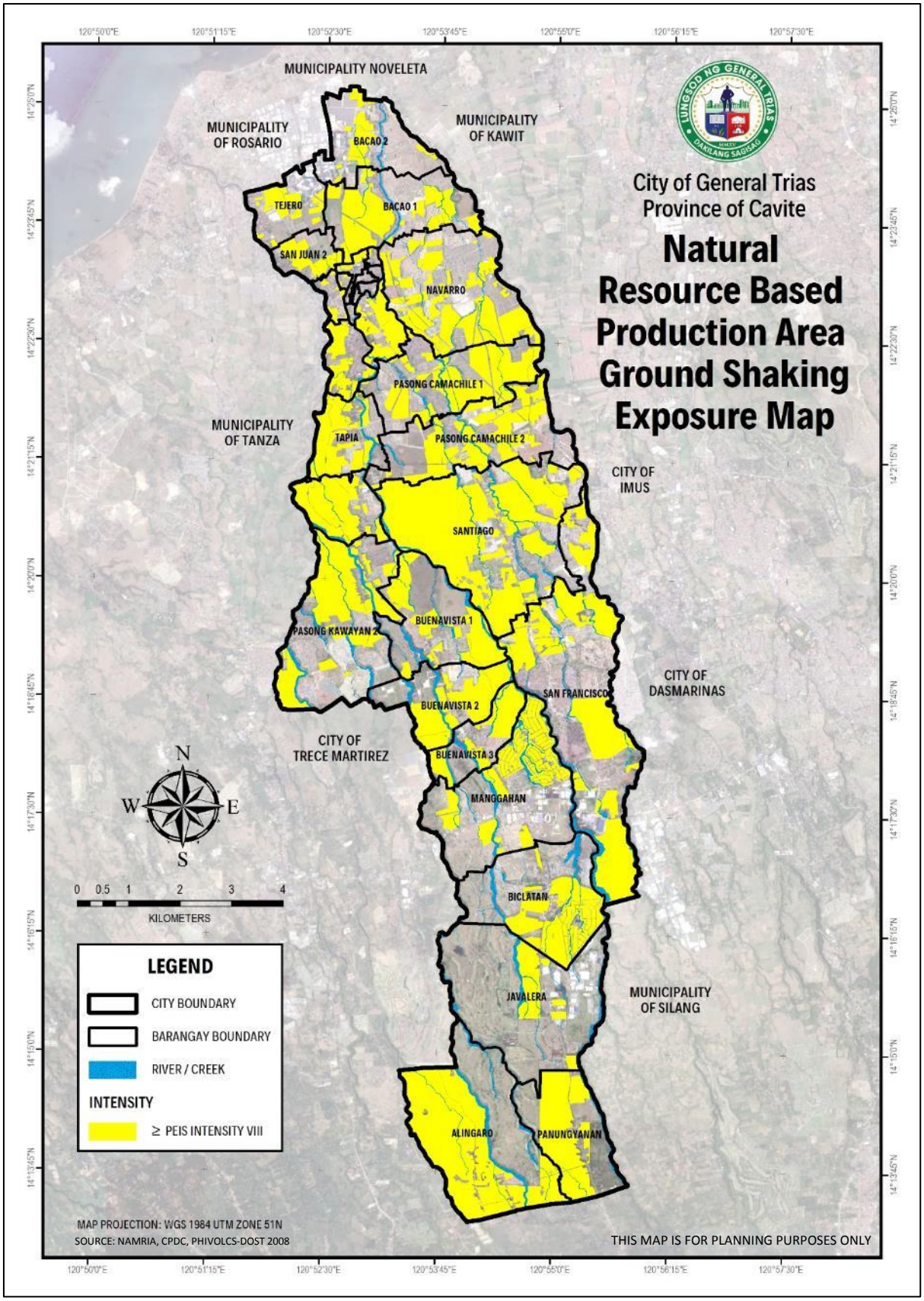
Map 30. Natural Resource-Based Production Area Landslides Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



Map 31. Natural Resource-Based Production Area Liquefaction Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



Map 32. Natural Resource-Based Production Area Ground Shaking Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software

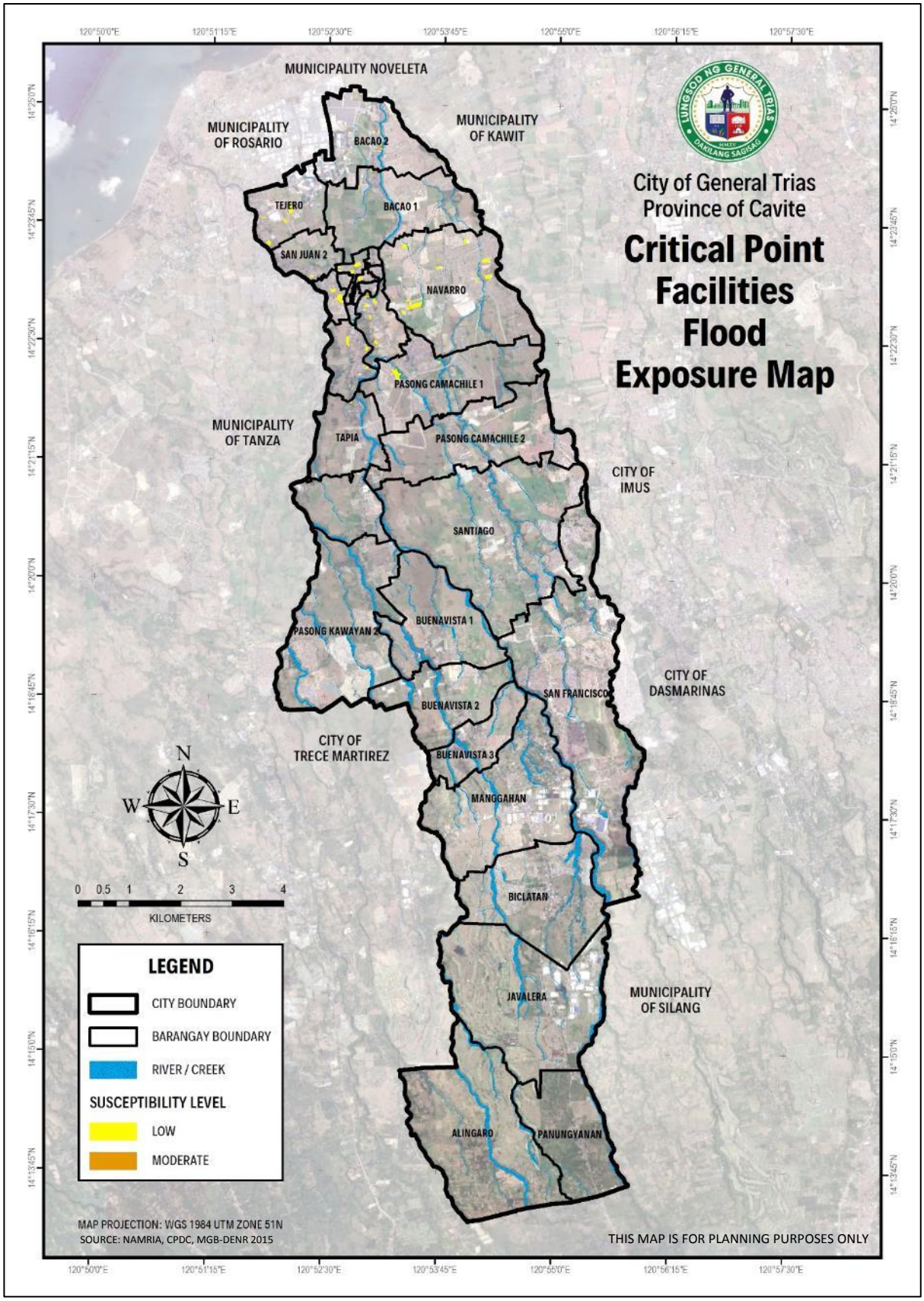
Critical Point Facilities Exposure to Hazards

Indicators used for critical point facilities exposure are facility type, number of storeys, and the total area of the facility. To identify the critical point facilities exposed to hazards, the critical facilities location map was overlaid on the hazard maps, thus computing the affected areas of these facilities. The Average Exposure Score was formulated by computing for the average of the corresponding exposure scores of the affected value and the affected areas.

For both flood and liquefaction hazard, the largest critical point facilities exposed are the following: retarding basin in Barangay Bacao I with an area of 123,894 sq. m; school (14,766 sq. m) and hospital (14,214 sq. m) in Barangay Navarro (**Annex 13** and **Annex 15**).

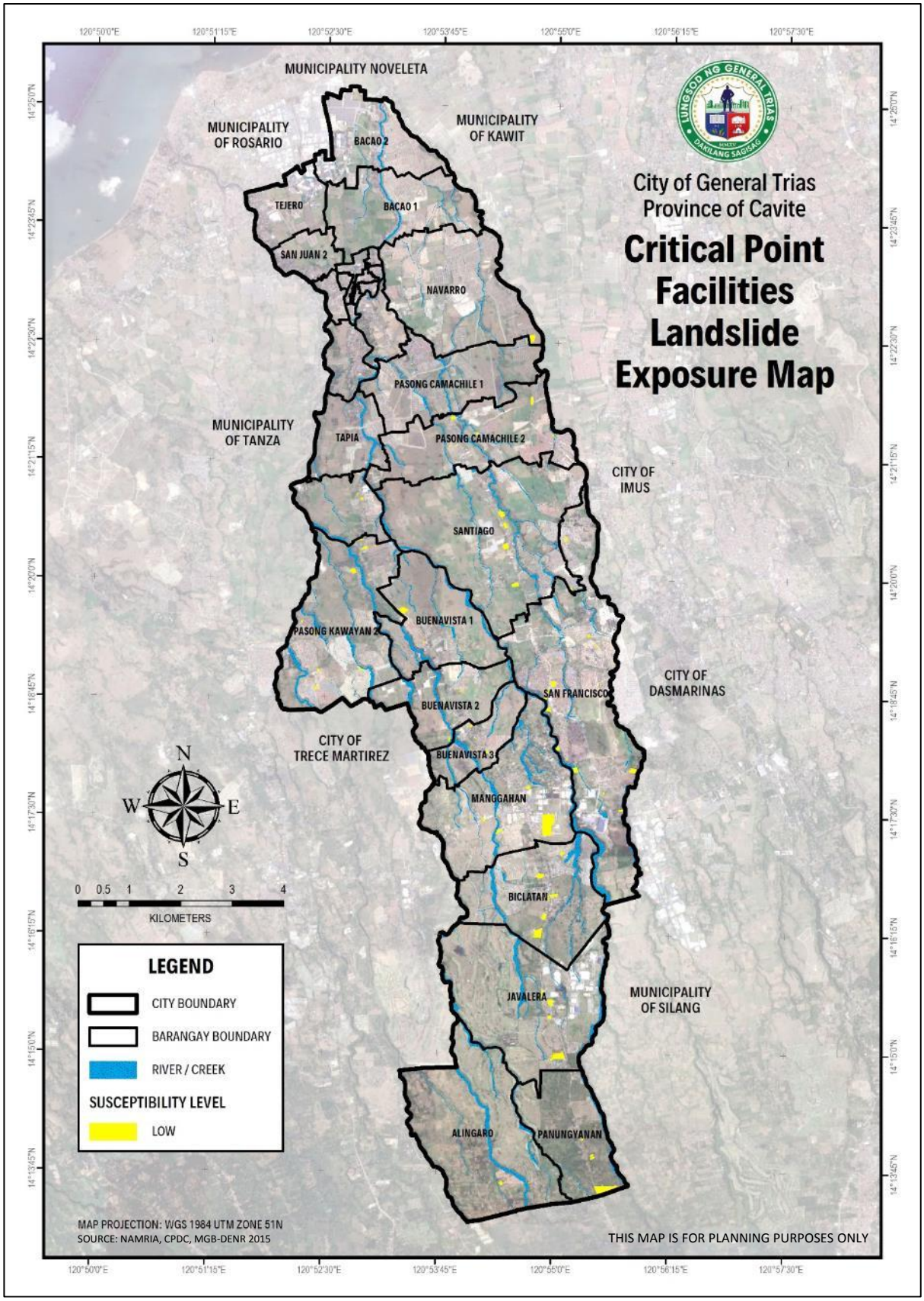
For landslide hazard, the largest critical point facilities exposed are the following: retarding basing in Barangay Tapia with an area of 718.80 sq. m, school in Barangay San Francisco (550.80 sq. m), water tank in Barangay Javalera (378.60 sq. m, and school in Barangay Pasong camachile II (352.80 sq. m) (**Annex 14**).

Lastly, for the ground shaking hazard, the largest critical point facilities exposed are the following retarding basins in Barangay Pasong Camachile II (221,808 sq. m), Bacao I (123,894 sq. m), and Tapia (68,382 sq. m) (**Annex 16**).



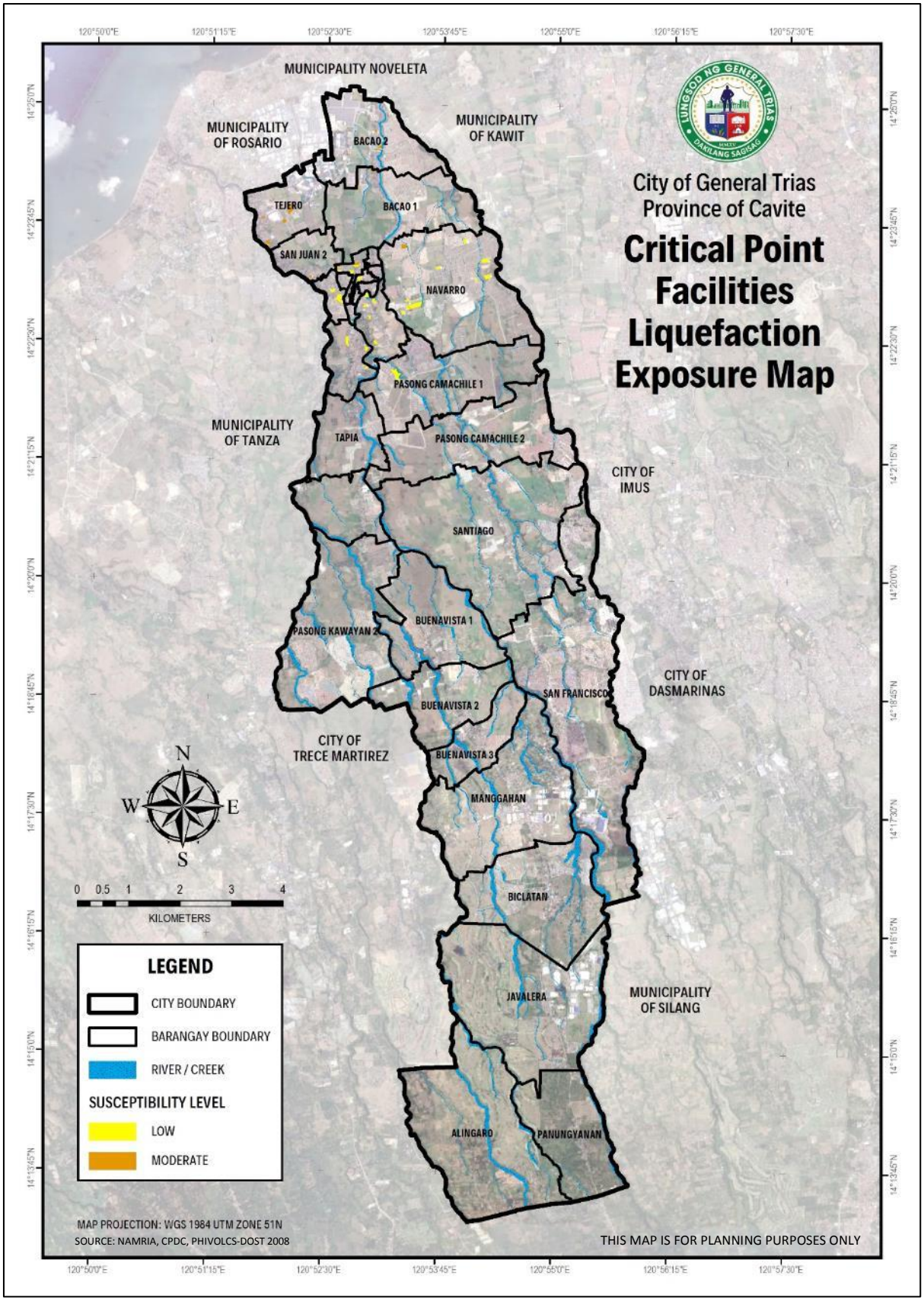
Map 33. Critical Point Facilities Flood Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



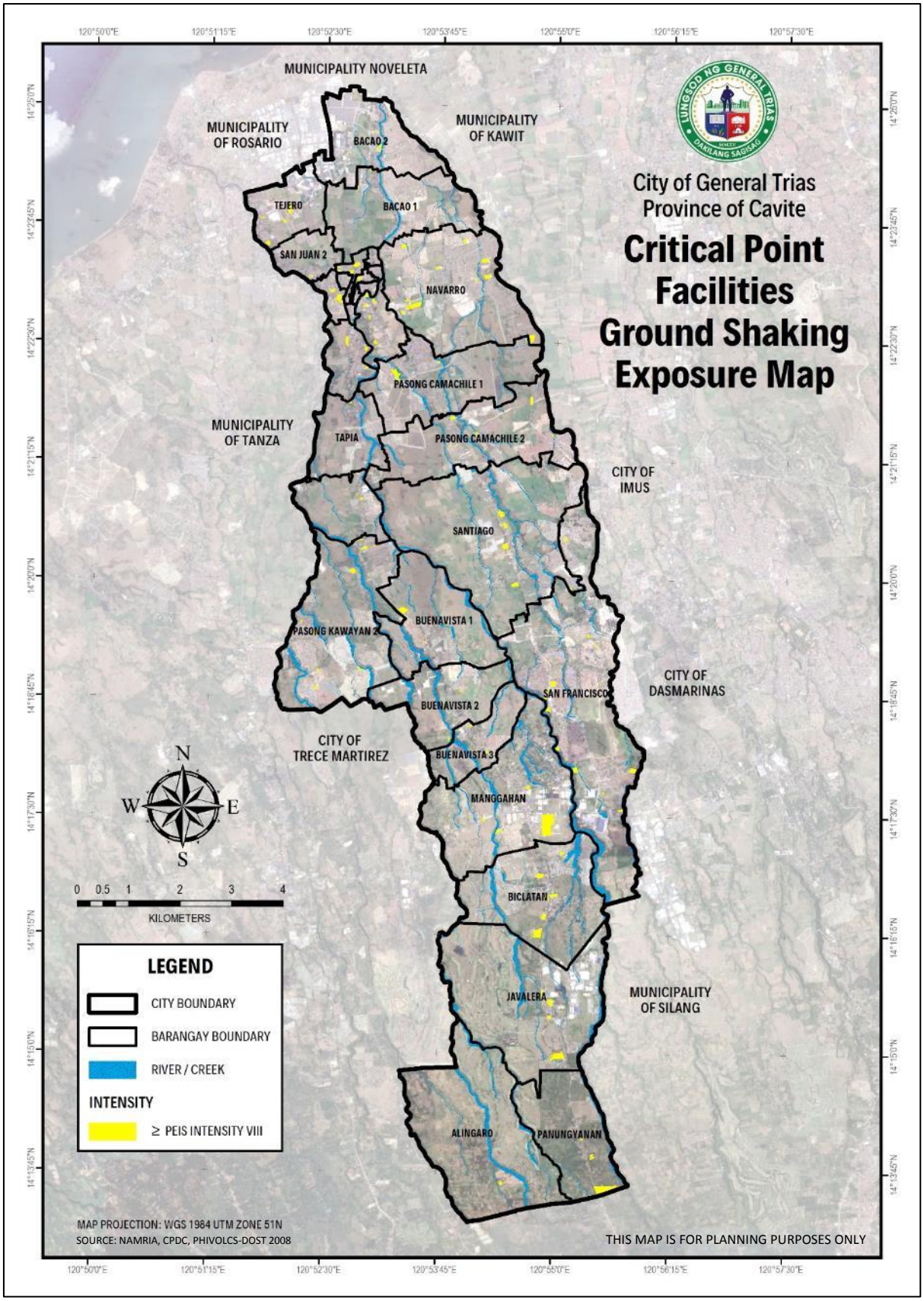
Map 34. Critical Point Facilities Landslides Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



Map 35. Critical Point Facilities Liquefaction Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



Map 36. Critical Point Facilities Ground Shaking Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software

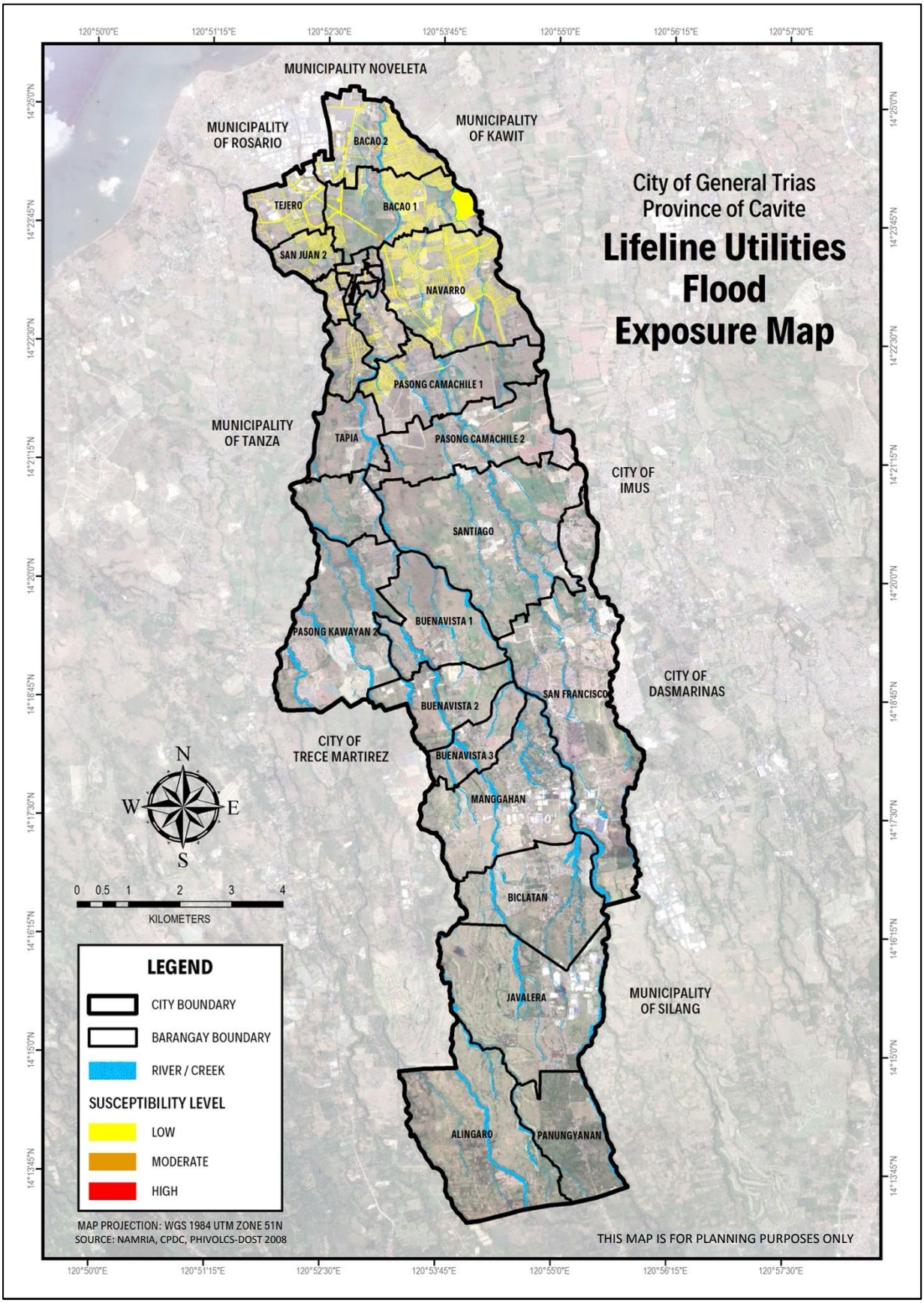
Lifeline Utilities Exposure to Hazards

Lifeline utilities exposed indicators are areas of roads and their corresponding name, classification, length, and replacement cost per linear kilometer. To identify the lifeline utilities exposed to hazards, the road map was overlaid on the hazard maps, thus computing the affected lifelines. The Average Exposure Score was formulated by computing for the average of the corresponding exposure scores of the affected value and the affected areas.

For both flood and liquefaction hazard, the longest roads affected are private roads located within Antel Grand Village in Barangay Bacao 2 (26,870.88 m) and Bacao 1 (24,953.08 m) (**Annex 17** and **Annex 19**)

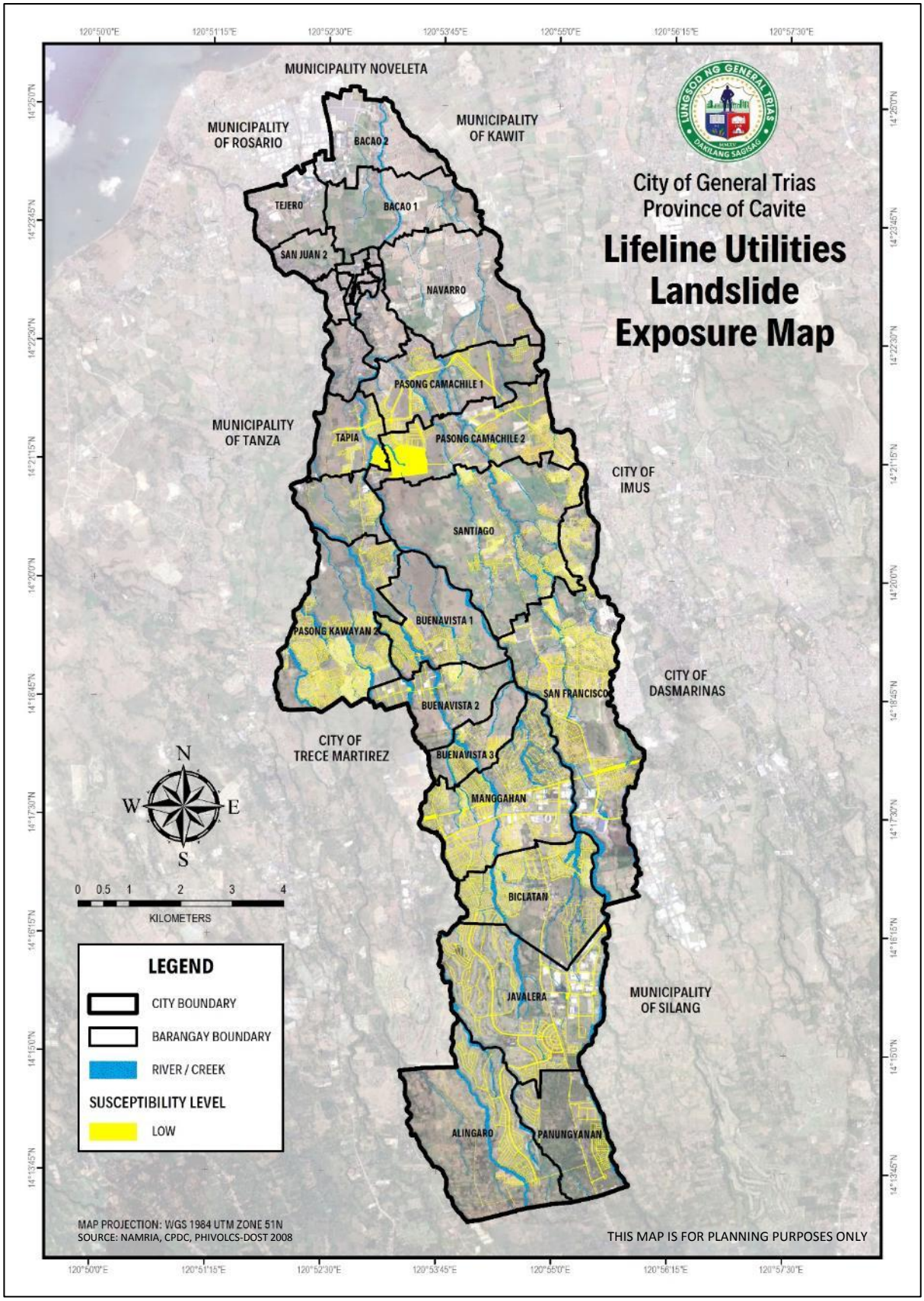
For landslide hazard, the longest roads affected are private roads located within Tierra Nevada in Barangay San Francisco (30,642.46 m), Eagle Ridge in Barangay Javalera (28,575.57 m), and Governor Hills in Barangay Biclatan (18,371.58 m) (**Annex 18**).

Lastly, for the ground shaking hazard, the largest critical point facilities exposed are the following retarding basins in Barangay Pasong Camachile II (221,808 sq. m), Bacao I (123,894 sq. m), and Tapia (68,382 sq. m) (**Annex 20**).



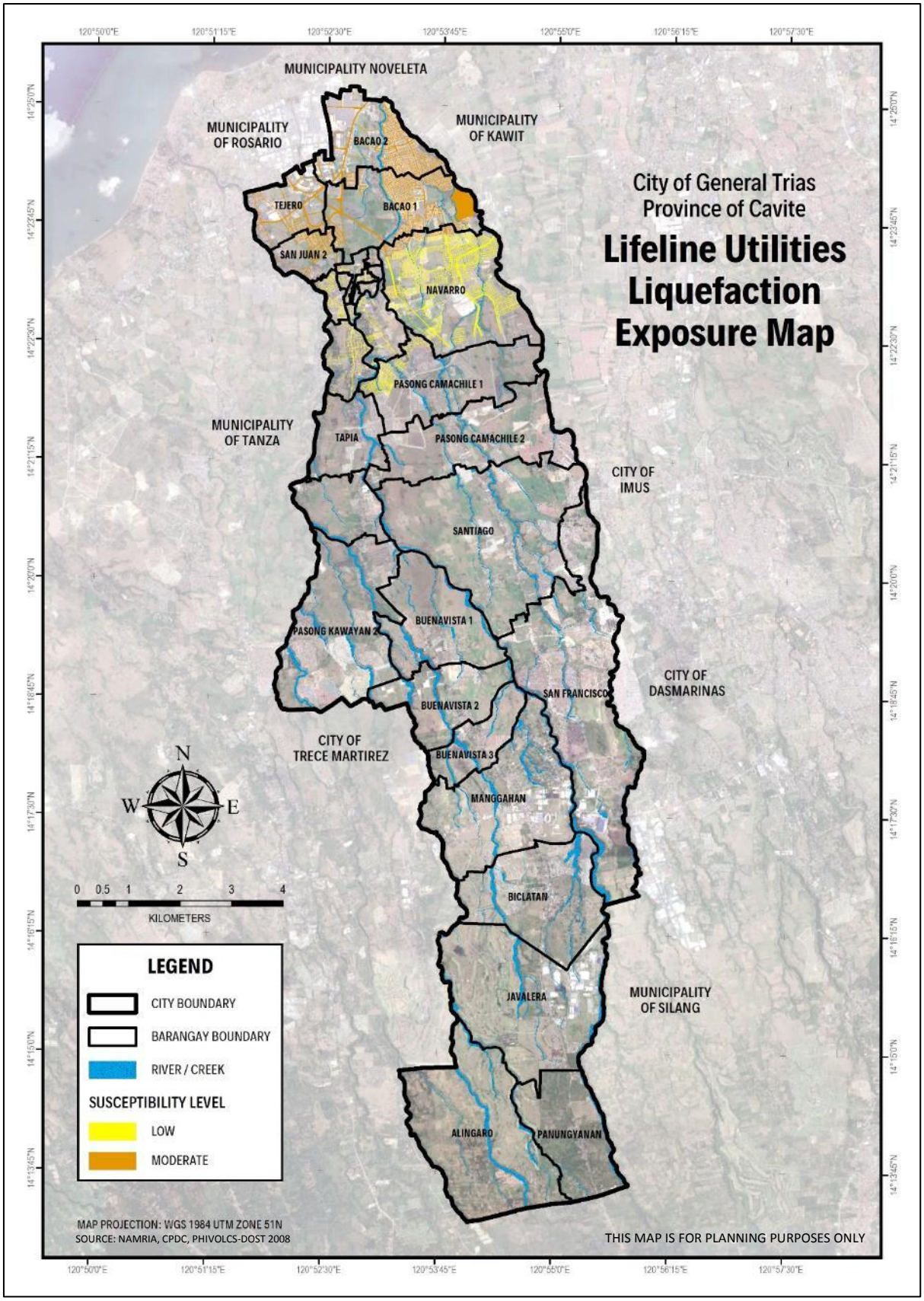
Map 37. Lifeline Utilities Flood Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



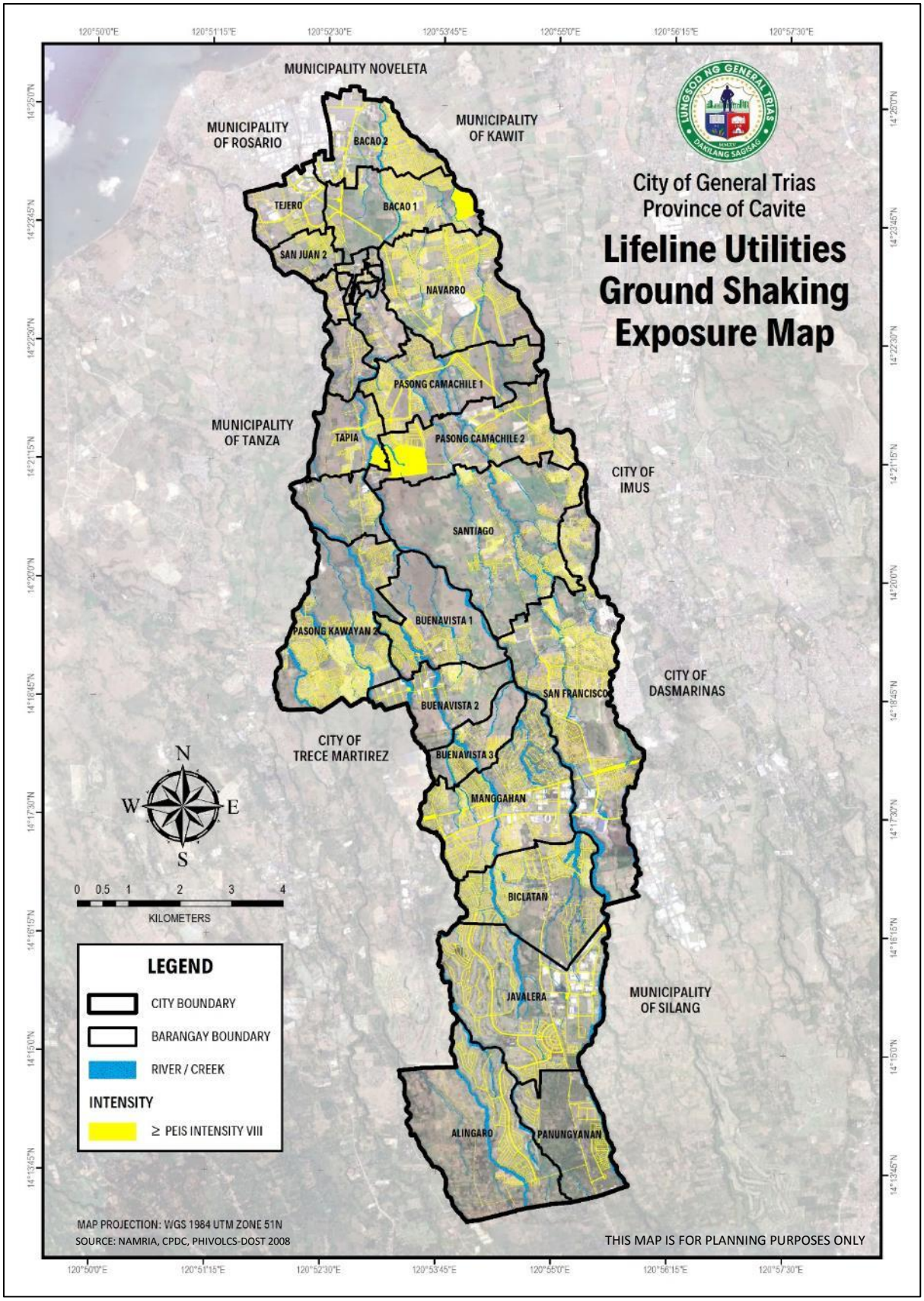
Map 38. Lifeline Utilities Landslides Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



Map 39. Lifeline Utilities Liquefaction Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software



Map 40. Lifeline Utilities Ground Shaking Hazard Exposure Map, City of General Trias, Cavite

Source: Map was generated using Geographic Information System (GIS) Software

I. INSTITUTIONAL MACHINERY

Political Subdivisions

General Trias is politically subdivided into thirty three (33) barangays, which are all classified as urban barangays according to the Provincial declaration.

According to the NSCB Resolution No. 11, series of 2003, (1) if a barangay has a population size of 5,000 or more, then a barangay is considered urban, or (2) if a barangay has at least one establishment with a minimum of 100 employees, a barangay is considered urban, or (3) if a barangay has 5 or more establishments with a minimum of 10 employees, and 5 or more facilities, then a barangay is considered urban. Note that if the facility is not present in the barangay, presence of facilities within the two kilometer radius from the barangay hall is considered.

Organizational Framework

The constituents of the City are served by 735 tenured employees that are distributed in 18 different departments and 23 divisions/units performing various tasks and functions in response to their needs (**Table 80**). The Office of the City Mayor has the biggest employment share with a total of 309 employees (42.04%). Among all divisions/sections, the Administrative Unit have the greatest number of employees, which accounts for 51.46% of the total number of employees in the City Mayor's Office. Another dominant division in terms of employment share is the City Security Services Division which currently has 58 employees which is equivalent to 18.77% of the City Mayor's Office.

Table 80. City Employees by Tenure Status (2018), City of General Trias, Cavite

Tenure Status	Number of Employees	% to Total
Permanent	686	93.33
Temporary	0	0
Casual/ Contractual	0	0
Coterminous	35	4.76
Elected	14	1.90
Total	**735**	**100.00**

Source: City Human Resources Development and Management (CHRDM), City of General Trias, Cavite

On the other hand, the following divisions/sections have the least number of employees in the Office of the City Mayor: City Building Regulatory Division (0.32%), Sports and Youth Development Unit (0.32%), City Disaster and Risk Reduction Management Division (1.29%), Community Affairs Division (1.29%), and City Cooperative Development Section (1.29%) (**Table 81**).

In terms of civil service eligibility status, the Office of the City Mayor has the greatest number of employees with Professional eligibility status at 28 employees followed by the Office of the City Treasurer at 12 employees. There is a total of 107 employees who have Bar/Board Eligibility Status pursuant to RA No.

1080. Most of them are employed in the Office of the City Health Services (44 employees) and the Office of the City Mayor (22 employees) (**Table 82**).

Meanwhile, employees from select national government offices located within the City such as the Philippine National Police (PNP), Bureau of Fire Protection (BFP), Bureau of Internal Revenue (BIR), Philippine Post Office (PhilPost), Commission on Audit (COA) and City Trial Court provide services to the Gentriseños as well.

Table 81. City Employees by Tenure Status by Department (2018), City of General Trias, Cavite

LGU Office / Department	Tenure Status					Total Occupied Positions (by Department)	% Distribution to Total
	Permanent	Temporary	Casual/ Contractual	Coterminous	Elected		
Office of the City Mayor	**289**	**0**	**0**	**19**	**1**	**309**	**42.04**
Office of the City Vice Mayor	**48**	**0**	**0**	**15**	**1**	**64**	**8.71**
Office of the Sangguniang Panlungsod	**51**	**0**	**0**	**1**	**12**	**64**	**8.71**
Physical / Infrastructure							
Office of the City Information and Communication Technology Officer	0	0	0	0	0	0	0
Office of the City Engineer	14	0	0	0	0	14	1.90
Environmental Governance							**0**
Office of the City Environmental and Natural Resources Officer	8	0	0	0	0	8	1.09
Office of the City Veterinarian	0	0	0	0	0	0	0
Social Governance							
Office of the City Social Welfare and Development Officer	74	0	0	0	0	74	10.07
Office of the City Civil Registrar	10	0	0	0	0	10	1.36
Office of the City Health Services	52	0	0	0	0	52	7.07
Economic Governance							
Office of the City Budget Officer	9	0	0	0	0	9	1.22
Office of the City Accountant	8	0	0	0	0	8	1.09
Office of the City Agriculturist	12	0	0	0	0	12	1.63

LGU Office / Department	Tenure Status					Total Occupied Positions (by Department)	% Distribution to Total
	Permanent	Temporary	Casual/ Contractual	Coterminous	Elected		
Office of the City Assessor	17	0	0	0	0	17	2.31
Office of the City Treasurer	29	0	0	0	0	29	3.95
Administrative Governance							
Office of the City Human Resource Development and Management	12	0	0	0	0	12	1.63
Office of the City Legal Officer	0	0	0	0	0	0	0
Office of the City Planning and Development Coordinator	11	0	0	0	0	11	1.50
Office of the City Information and Tourism Officer	0	0	0	0	0	0	0
Office of the City General Services Officer	42	0	0	0	0	42	5.71
Total	**686**	**0**	**0**	**35**	**14**	**735**	**100.00**

Source: CHRDM, City of General Trias, Cavite

Table 82. Number of Employees per Department by Civil Service Eligibility Status (2018), City of General Trias, Cavite

LGU Office / Department	Sub-Professional	Professional	RA 1080 Eligibility	Others	None	Total
Office of the City Mayor	7	28	22	105	147	**309**
Office of the City Vice Mayor	0	3	0	34	27	**64**
Office of the Sangguniang Panlungsod	3	7	6	13	35	**64**
Physical / Infrastructure						
Office of the City Information and Communication Technology Officer	0	0	0	0	0	**0**

LGU Office / Department	Sub-Professional	Professional	RA 1080 Eligibility	Others	None	Total
Office of the City Engineer	0	2	5	2	5	**14**
Environmental Governance						
Office of the City Environmental and Natural Resources Officer	0	2	2	1	3	**8**
Office of the City Veterinarian	0	0	0	0	0	**0**
Social Governance						
Office of the City Social Welfare and Development Officer	3	2	7	4	58	**74**
Office of the City Civil Registrar	0	4	1	0	5	**10**
Office of the City Health Services	1	1	44	3	3	**52**
Economic Governance				0		**0**
Office of the City Budget Officer	2	4	1	1	1	**9**
Office of the City Accountant	2	3	1	1	1	**8**
Office of the City Agriculturist	0	2	8	0	2	**12**
Office of the City Assessor	4	4	1	1	7	**17**
Office of the City Treasurer	5	12	4	3	5	**29**
Administrative Governance						
Office of the City Human Resource Development and Management	3	4	0	1	4	**12**
Office of the City Legal Officer	0	0	0	0	0	**0**
Office of the City Planning and Development Coordinator	3	2	5	1	0	**11**
Office of the City Information and Tourism Officer	0	0	0	0	0	**0**
Office of the City General Services Officer	1	2	0	22	17	**42**
Total	**34**	**82**	**107**	**192**	**320**	**735**

Source: CHRDM, City of General Trias, Cavite

Human Resource Management

The Civil Service Commission (CSC) provides assistance to national government agencies and LGUs in the assessment and development of their human resource management competencies, systems and practices toward HR excellence. This mechanism is dubbed as PRIME-HRM or Program to Institutionalize Meritocracy and Excellence in Human Resource Management.

The program assesses the maturity level of an agency or LGU's competencies, systems, and practices in the following human resource (HR) systems:

1. Recruitment, Selection, and Placement (RSP);
2. Learning and Development (L&D);
3. Performance Management (PMS); and
4. Rewards and Recognition (R&R).

CSC has identified four (4) varying maturity levels which serve as measures of how an agency or LGU can sustainably produce or achieve their target outcomes through their current behaviors, practices, and processes. Prior to the conduct of the assistance program, the City of General Trias has been assessed to have a maturity level of 1, the lowest among the four (4) ratings. Under Level 1 – Basic Proficiency Level of Competency, an agency or LGU possesses an understanding of the basic principles of work and personnel management. However, the potential to perform HRM tasks more effectively can be realized if they are provided with the appropriate technical assistance or direction.

Current progress and status of the PRIME-HRM Assistance Plan for the City of General Trias is itemized in the succeeding table. The City provided assessment ratings for each HR system prior to the conduct of the assistance program. Among the four (4) HR systems, the City provided the highest rating for its Recruitment, Selection, and Placement (RSP) system which scored above 90% for all indicators, namely Systems and Competency.

Average rating was given to the Performance Management System (PMS) of the City, with ratings ranging from 73% to 83%. With the activities listed under the action plan for PMS awaiting to be completed, the full implementation of these activities is seen to cause positive effect to the ratings of the PMS of the City.

Conversely, both Learning and Development (L&D) and Rewards and Recognition (R&R) systems bore the lowest assessment scores, with ratings below 75%. Said evaluation were based on the following factors: lack of ample time to review policies; communication problems encountered with HR partners; and inadequate equipment and manpower needed for data recording and processing. In effect, this led to the partial and incomplete implementation of the activities related to the L&D. Meanwhile, despite full implementation of the action plan under R&R, the rating for this competency is still below 65%. As corrective measure, a regular monitoring and evaluation of the action plans should be in place to complement the full implementation of the R&R action plan (**Table 83** and **Table 84**).

Table 83. Assessment Rating Before Assistance (2019), City of General Trias, Cavite

Human Resource Area	Assessment Rating	Rating
1. Recruitment, Selection, and Placement (RSP)	Systems	96.15
	Competency	92.31
	Practice	N/A
2. Performance Management System (PMS)	Systems	72.92
	Competency	83.33
	Practice	N/A
3. Learning and Development (L&D)	Systems	68.75
	Competency	71.43
	Practice	N/A
4. Rewards and Recognition (R&R)	Systems	75.00
	Competency	64.29
	Practice	N/A

Source: CHRDM, City of General Trias, Cavite

Table 84. Assistance Plan per Human Resource Area (2020), City of General Trias, Cavite

Items Overall Target Date: 30 September 2020	Status		
	Fully	Partially	Not Implemented
1. RSP			
Reconstitute Human Resource Merit Promotion and Selection Board (HRMPSB)	✓		
Prepare Turn-around Time (TAT)	✓		
Preparation of Computer-based system in maintaining RSP data and documents	✓		
Include EEOP statement on other appropriate publication modes and ARP	✓		
Formulate a Customized Merit Selection and Placement (MSP) with explicit guidelines on Equal Employment Opportunity Plan (EEOP), Person with Disability (PWD), Indigenous People (IPs), and others		✓	
Prepare of Staffing Plan	✓		
Prepare Annual Recruitment Plan (ARP)	✓		
Prepare proof of documents on posting and publication	✓		
Document Selection criteria based on updated JOs/PDFs	✓		
Prepare EEOP tools for RSP	✓		
Prepare Documentation on Basic Orientation Program	✓		
Prepare documents for assessment and Selection Process	✓		
2. PMS			
Preparation of Customized Strategic Performance Management System (SPMS) with Equal Opportunity Provision (EOP)		✓	

Items Overall Target Date: 30 September 2020	Status		
	Fully	Partially	Not Implemented
Prepare Documents on Review Element for SPMS		✓	
Formulate Table of Major Final Output (MFO) w/ Performance Standards (PS) Scoring (Quantity, Efficiency, Time)		✓	
Preparation on Documents on process of establishment clarification of specific Performance Standards for individual positions		✓	
Preparation on the conduct of periodic review to track individual performance using customized tools and coaching tools forms		✓	
Preparation of Individual Development Planning Tools (IDP)		✓	
3. L&D			
Prepare the City Government of General Trias (CGGT) Learning and Development (L&D) Policy with specific guidelines on Equal Opportunity Plan (EOP)		✓	
Establish tracking system to measure the efficiency of L&D processes, and prepare recommendation to the City Mayor policy enhancement (if necessary)		✓	
Execution of L&D		✓	
Reconstitution of Human Resource Development Committee	✓		
Establish a Strategic L&D Plan with alignment on EOP		✓	
Establish Planning, Monitoring, and Evaluation System		✓	
Prepare the L&D Database	✓		
Establish Monitoring and Evaluation on the efficiency and effectiveness of L&D	✓		
4. R&R			
Establish an " ON THE SPOT" incentive and recognition program		✓	
Track Information needed in the Annual R&R Budget utilization vis-à-vis R&R implemented programs		✓	
Prepare R&R data /documents and develop a computer-based system for the storage of said data		✓	
Establish planning, monitoring and evaluation		✓	
Reconstitute the composition of Programs on Awards for Service Excellence (PRAISE) Committee		✓	
Prepare Customized Rewards and Recognition (R&R) policies and processes to include specific guidelines in the application of Equal Opportunity Plan (EOP)		✓	
Established R&R Process Flow Chart		✓	

Source: CHRDM, City of General Trias, Cavite

Financial Status

For the period 2015-2019, the local government of General Trias has only regular income coming from the Internal Revenue Allotment (IRA), tax revenues and non-tax revenues such as fees, service and business income. There was an increasing trend in the annual total revenue of the City based on the Local Government Financial Performance Monitoring System (LGFPMS) of the Department of Finance (DOF) and Local Finance Offices between 2015 to 2019. Individually, the local and external sources are steadily increasing. There was, however, a decrease in the self-reliance index of the City from 65.21% in 2015 to 58.77% in 2019. Self-reliance index is the proportion of the share of income generated from local sources and the total revenue generated from all sources. This means that the IRA-dependence of the City increased from 34.79% in 2015 to 41.23% in 2019 (**Table 85**).

While the Local Government Code (LGC) provides for the automatic release of the IRA and the Supreme Court has disapproved of various steps that the national government had taken in the past to reduce or delay IRA releases, there is still a provision in the LGC that in the event of an unmanageable public sector deficit, the President, following certain procedures, may still reduce the IRA allocation to as low as 30%. Thus, it is imperative to strengthen the financial capacity of the City by improving its locally-sourced revenues. Programs, projects and activities that increase these locally-sourced revenues must be prioritized.

In 2019, the City of General Trias spent PhP 1.849 Billion as current expenditures. About 79% of which were spent for general public services. Whilst 12% were spent for social services and 9% for economic services.

Comparison of the current income and expenditures of the City for the period 2015 to 2019 as shown in **Figure 9** informs that there is constant surplus in the revenues. Although, 2019 has the lowest amount.

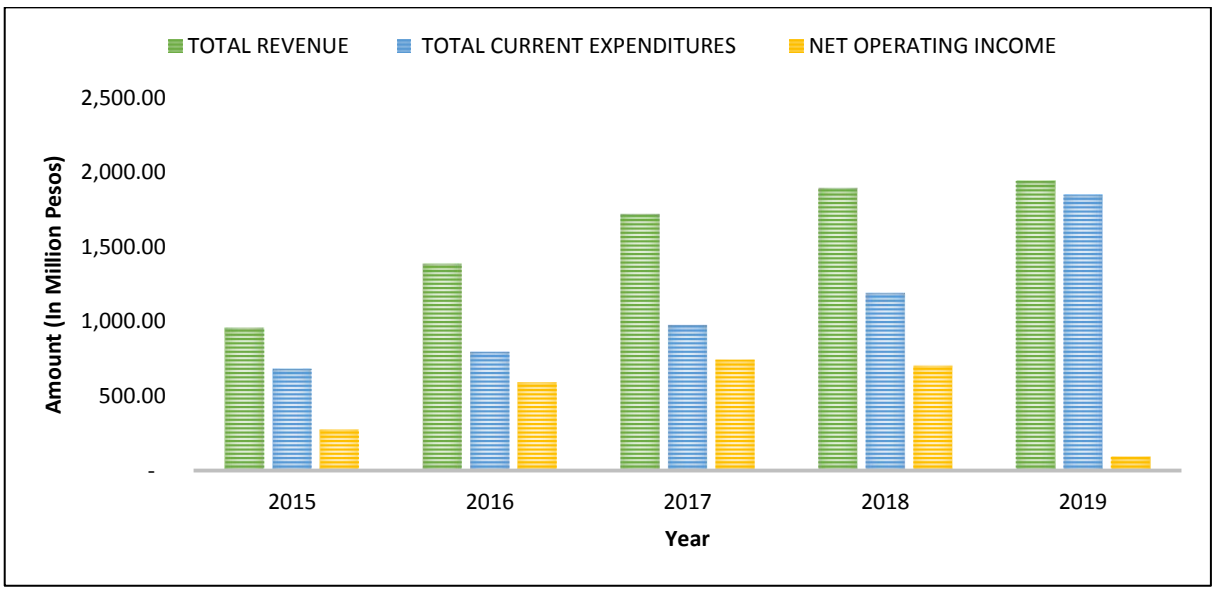


Figure 9. Revenues, Expenditures, Net Operating Income (2015-2019), City of General Trias, Cavite

Source: DOF-LGFPMS (2015-2018); Local Finance Offices (2019), City of General Trias, Cavite (2019)

Table 85. Total Current Operating Income (2019), City of General Trias, Cavite

Current Income	2015	2016	2017	2018	2019
Tax Revenue	549,667,233.69	737,685,955.82	926,508,128.28	1,029,013,997.43	1,041,305,844.00
Non-Tax Revenue	74,428,013.26	102,115,464.84	97,967,606.08	108,464,507.95	100,668,000.00
Total Local Sources	**624,095,246.95**	**839,801,420.66**	**1,024,475,734.36**	**1,137,478,505.38**	**1,141,973,844.00**
Internal Revenue Allotment	320,842,955.00	538,512,338.00	675,072,970.00	725,261,519.04	799,113,655.00
Other Shares from National Tax Collections	12,161,015.35	7,342,348.81	19,528,236.95	30,781,162.44	2,000,000.00
Total External Sources	**333,003,970.35**	**545,854,686.81**	**694,601,206.95**	**756,042,681.48**	**801,113,655.00**
TOTAL CURRENT OPERATING INCOME	**957,099,217.30**	**1,385,656,107.47**	**1,719,076,941.31**	**1,893,521,186.86**	**1,943,087,499.00**
Self-Reliance Index	**65.21%**	**60.61%**	**59.59%**	**60.07%**	**58.77%**
IRA-Dependence	**34.79%**	**39.39%**	**40.41%**	**39.93%**	**41.23%**

Source: DOF-LGFPMS (2015-2018); Local Finance Offices, City of General Trias, Cavite (2019)

There were no observed general trends describing the variance between actual income collected against projected income collection from 2015 to 2019. However, sharp dips in actual tax collection occurred in 2016 and 2017 where tax collections fell short by 61.20% and 15.27%, respectively. Highest income collection vis-a-vis projection was recorded in 2016 while the lowest was in 2015.

Table 86. Statement of Income (Projected vs Actual) (2015-2019), City of General Trias, Cavite

Year	Taxes			Business, Service and Other Income			Total		
	Projected	Actual	% Change	Projected	Actual	% Change	Projected	Actual	% Change
2015	743,146,196.60	813,103,533.79	9.41%	82,300,000.00	83,434,969.41	1.38%	825,446,196.60	896,538,503.20	8.61%
2016	863,099,558.00	334,899,587.20	-61.20%	84,325,000.00	893,346,075.28	959.41%	947,424,558.00	1,228,245,662.48	29.64%
2017	527,090,000.00	446,593,413.59	-15.27%	754,077,302.00	1,088,881,971.85	44.40%	1,281,167,302.00	1,535,475,385.44	19.85%
2018	385,780,000.00	481,763,176.37	24.88%	1,077,329,519.00	1,218,380,753.10	13.09%	1,463,109,519.00	1,700,143,929.47	16.20%
2019	523,734,415.50	990,769,779.48	89.17%	1,240,781,655.00	1,014,046,464.53	-18.27%	1,764,516,070.50	2,004,816,244.01	13.62%

Source: Local Expenditure Program (2020)

National Government Agencies in the City of General Trias

In addition to the City employees, there are also select national government agencies located within the city which provide additional support services to the local population of the General Trias (**Table 87**).

These are the Philippine National Police (PNP), Bureau of Fire Protection (BFP), Bureau of Internal Revenue (BIR), Philippine Post Office (PhilPost), Commission on Audit (COA), and the City Trial Court.

Table 87. National Government Agencies (2020), City of General Trias, Cavite

National Government Agency	Contact Address and Numbers
1. Philippine National Police Station	Poblacion, Gen. Trias / 437-7306
2. Gen. Trias Fire Station	Poblacion, Gen. Trias / 437-7625
3. Bureau of Internal Revenue	G/F City Hall, Gen. Trias / 509-5260
4. Philippine Post Office	Gen. Trias Public Market
5. Commission on Audit Office	4/F City Hall, Gen. Trias, / 509-4505
6. City Trial Court	3/F City Hall, Gen. Trias, / 437-7865

Source: Ecological Profile of the City General Trias