

Population Exposure and Risk Assessment to Hazards

Population exposure database shall indicate the baseline information of units at risk, i.e. spatial location and number of potentially affected persons. Due to the absence of an updated CBMS data, spatial location was derived from the existing residential area from the land use map. It shall also contain the demographic characteristics of local inhabitants which would be used to indicate whether they will be severely affected by hazards or impacts of climate change by analyzing on the information on the sensitivity/vulnerability and adaptive capacity.

Barangay Population, Residential Areas by Barangay, and Residential Population Density are the indicators used to identify the extent of exposed or affected area and population to such hazards. Sensitivity and Adaptive Capacity score/indicators are used to compute and identify the Vulnerability Index. Severity of Consequence is derived by factoring the hazard magnitude and vulnerability. And, risk is computed by factoring in the severity of consequence and likelihood of occurrence of hazard.

The derive exposure percentage of population is the criteria used to determine the acceptability level on disaster threshold. Where the level of priority intervention should be implemented to reduce risk to tolerable or acceptable levels as per HLURB Guidebook in Supplemental Guidelines on Mainstreaming Climate Change and Disaster Risks in the CLUP. The indicators to derive the acceptability rating in population:

Highly Unacceptable	Highly Intolerable	Tolerable	Acceptable
≥20% of population are affected and in need of immediate assistance	>10% to <20% of affected population in need of immediate assistance	>5% to 10% of affected population in in need of immediate assistance	≤5% of the affected population in need of immediate assistance

Flooding affects 13 out of 33 populous barangays which occurs to three barangays frequently at 1-3 years and to ten barangays occasionally at 10-30 years. And landslide, ground shaking, and liquefaction on the other hand rarely occurs more than 200 years. Figure 1 presents the population distribution at risk per hazard.

Population at Risk:

HAZARD	FLOOD		LANDSLIDE	GR. SHAKING	LIQUEFACTION
RISK	LOW	MOD	LOW	LOW	LOW
TOTAL	75,213	7,503	492	366,477	82,081
Vulnerable Population:					
Informal Settler Family (HH)	1,307	21	3	3,109	1,058
Young and Old Dependents	6,595	764	54	37,555	7,295
Persons with Disability	1,113	161	5	4,098	1,265
Malnourish Children	1,047	118	6	5,589	1,141

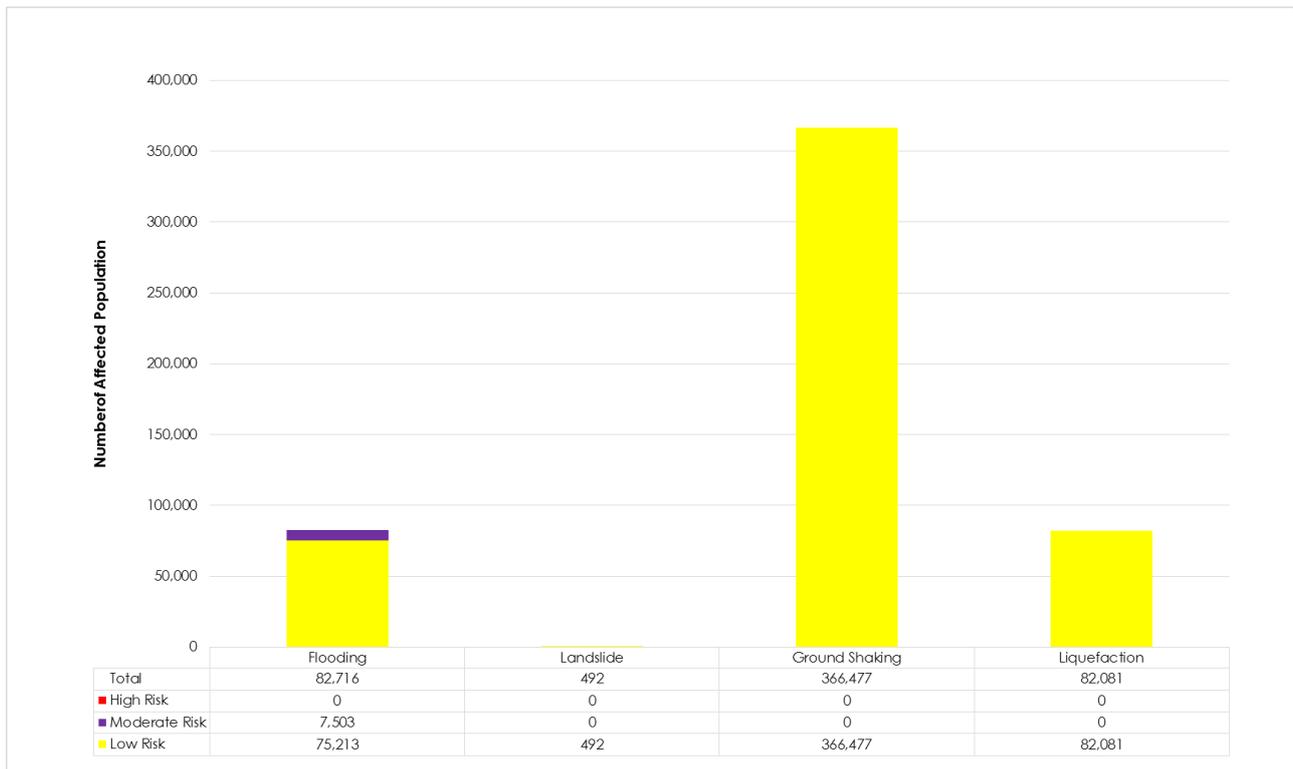


Figure 1. Total Population at Risk per Hazard

Source: City of General Trias, Climate Disaster Risk Assessment 2018

Flooding: Total land area susceptible flood hazard sums up to 580.51 hectares (20 out of 33 Barangays) in which the affected areas totaled to 469.22 hectares. This corresponds to 22.57% of the total population or 82,716 individuals (21,209 families).

Barangay Navarro have the highest number of affected populations (16,551 population) followed by Barangay Bacao II (8,915 population) and Tejero (8,190 population) which resulted to have a disaster threshold of highly unacceptable among all the barangays affected to flooding. This also means that more than 20% of the barangay population are affected to flooding.

Landslide: The calculated affected residential land area considered for landslide are those near steep slope. A total of 16 out of 33 barangays are exposed to the hazard, having a total of 1,659.37 hectares. The affected area near steep slope sums up to 3.07 hectares only, corresponding to 0.13% of the total population or 492 individuals (126 families). Among the barangay/land areas exposed, Barangay Navarro and Barangay San Francisco shows no impact on the hazard.

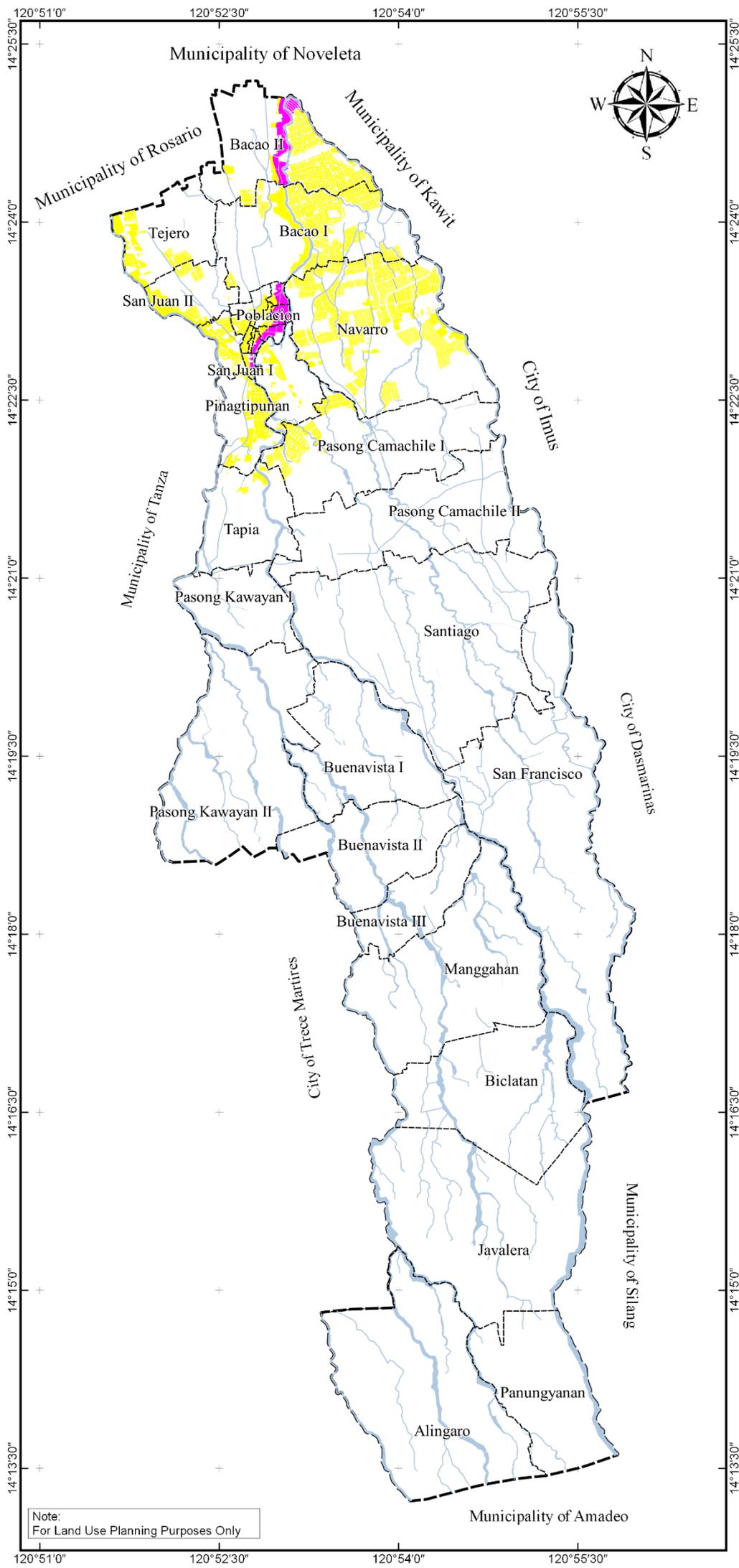
Barangay Pasong Kawayan II, Pasong Camachile II, and Santiago has the highest number affected population with 128, 88, and 90 individuals, respectively. Nevertheless, the percentage to total population resulted to only less than 1% thus showing a disaster threshold of acceptable to landslide.

Ground Shaking: The intensity of ground shaking in General Trias is identified at more than eight wherein the entire city is highly susceptible. A total of 1,955.47 hectares of residential area are affected, 100% of the total population or 366,477 individuals (93,968 households).

Whilst the barangays are totally exposed to hazard, it manifests a disaster threshold to population of highly unacceptable. This means that all inhabitants need immediate assistance. However, as the likelihood of the hazard to happen is very low as well as its vulnerability to hazard, the risk of this hazard is also low.

Liquefaction: There are 20 barangays susceptible to liquefaction. A total of 580.51 hectares of residential area are exposed, affecting 80.13% or 465.15 hectares, about 82,081 individuals (21,046 families).

Barangays Navarro, Bacao II and Tejero have the highest number of affected populations with 16,719, 8,915, and 8,190 population, respectively. They have a disaster threshold of highly unacceptable among all other barangays affected to liquefaction, this means that more than 20% of the barangay population are affected. While, in Barangay Tapia, 100 individual or 3.24% of the total barangay population are affected thus resulting to a disaster threshold of acceptable.



City of General Trias
Province of Cavite
Region IV-A (CALABARZON)

1:50000



Projection: Transverse Mercator
Geographic Coordinate System: GCS WGS 1984
Datum: D WGS 1984

**Population
Risk to Flood Map**

Legend:

- City Boundary
- Barangay Boundary
- Rivers / Creeks / Canals
- Risk Category**
- Low
- Moderate
- High

Prepared By:

City Technical Working Group for
Comprehensive Land Use Plan
(2022-2030)

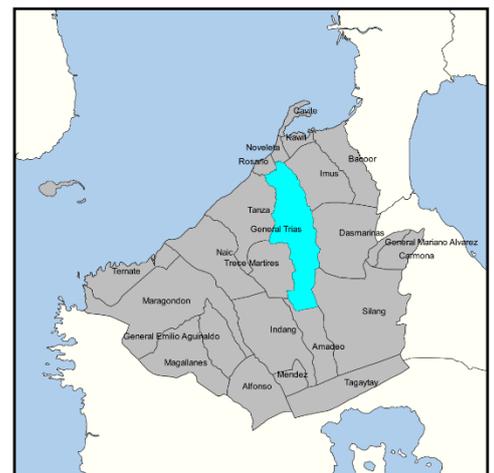
Assisted By:

Department of Human Settlements and
Urban Development
Region IV-A

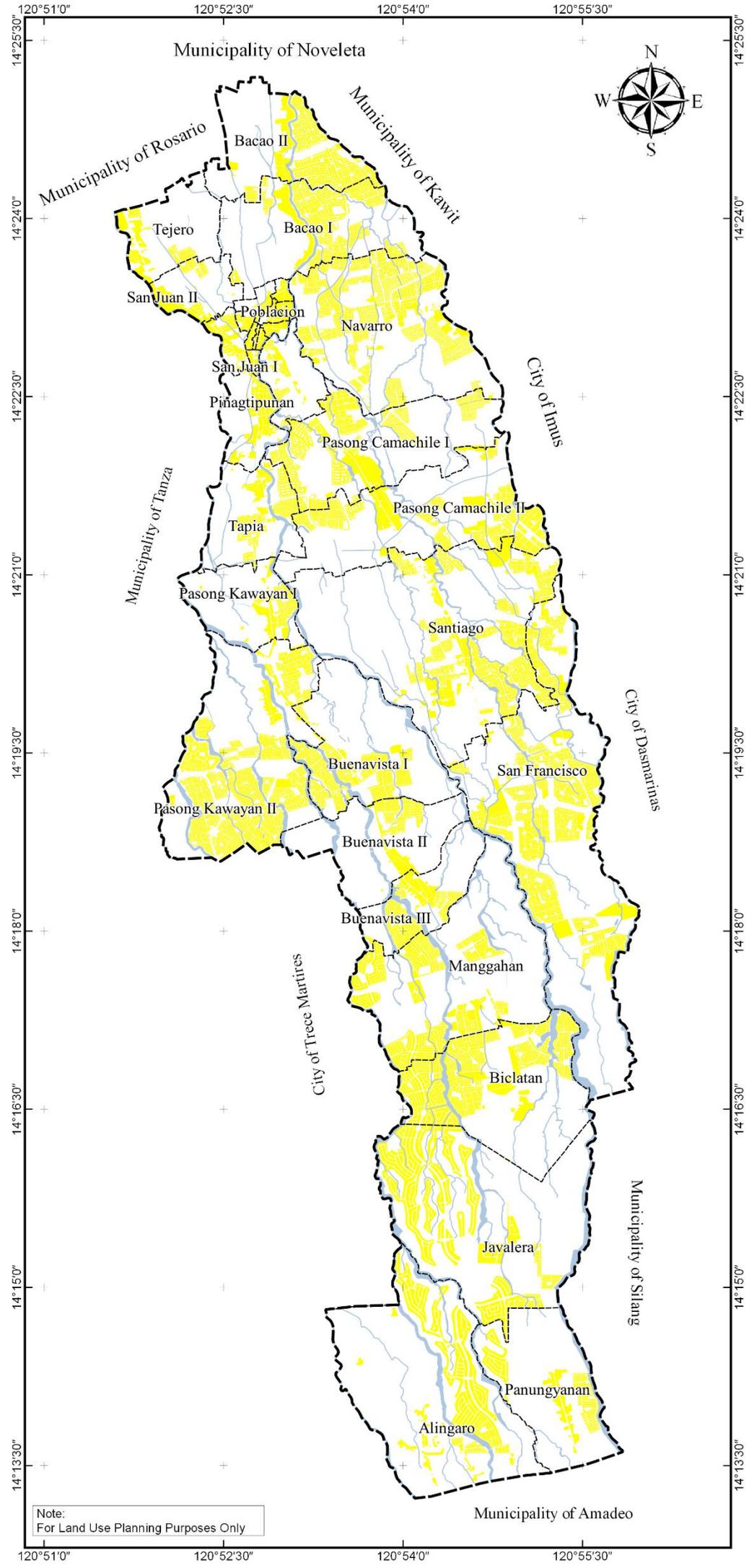


Sources:

National Mapping and Resource Information Authority
Mines and Geosciences Bureau
Google Earth 2021
Office of the City Planning and Development Coordinator
/ Zoning Administrator



Note:
For Land Use Planning Purposes Only



City of General Trias
 Province of Cavite
 Region IV-A (CALABARZON)

1:50000



Projection: Transverse Mercator
 Geographic Coordinate System: GCS WGS 1984
 Datum: D WGS 1984

Population Risk to Ground Shaking Map

Legend:

- City Boundary
- Barangay Boundary
- Rivers / Creeks / Canals
- Risk Category**
- Low
- Moderate
- High

Prepared By:

City Technical Working Group for
 Comprehensive Land Use Plan
 (2022-2030)

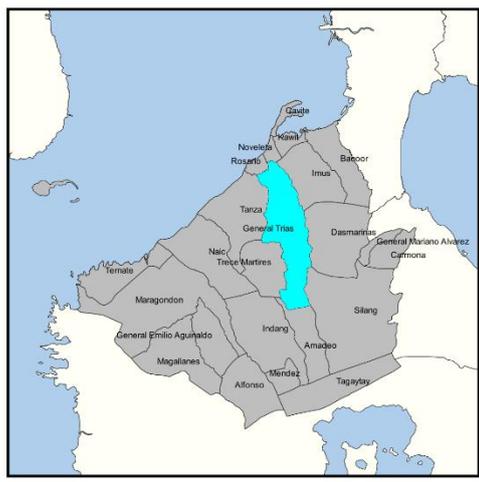
Assisted By:

Department of Human Settlements and
 Urban Development
 Region IV-A

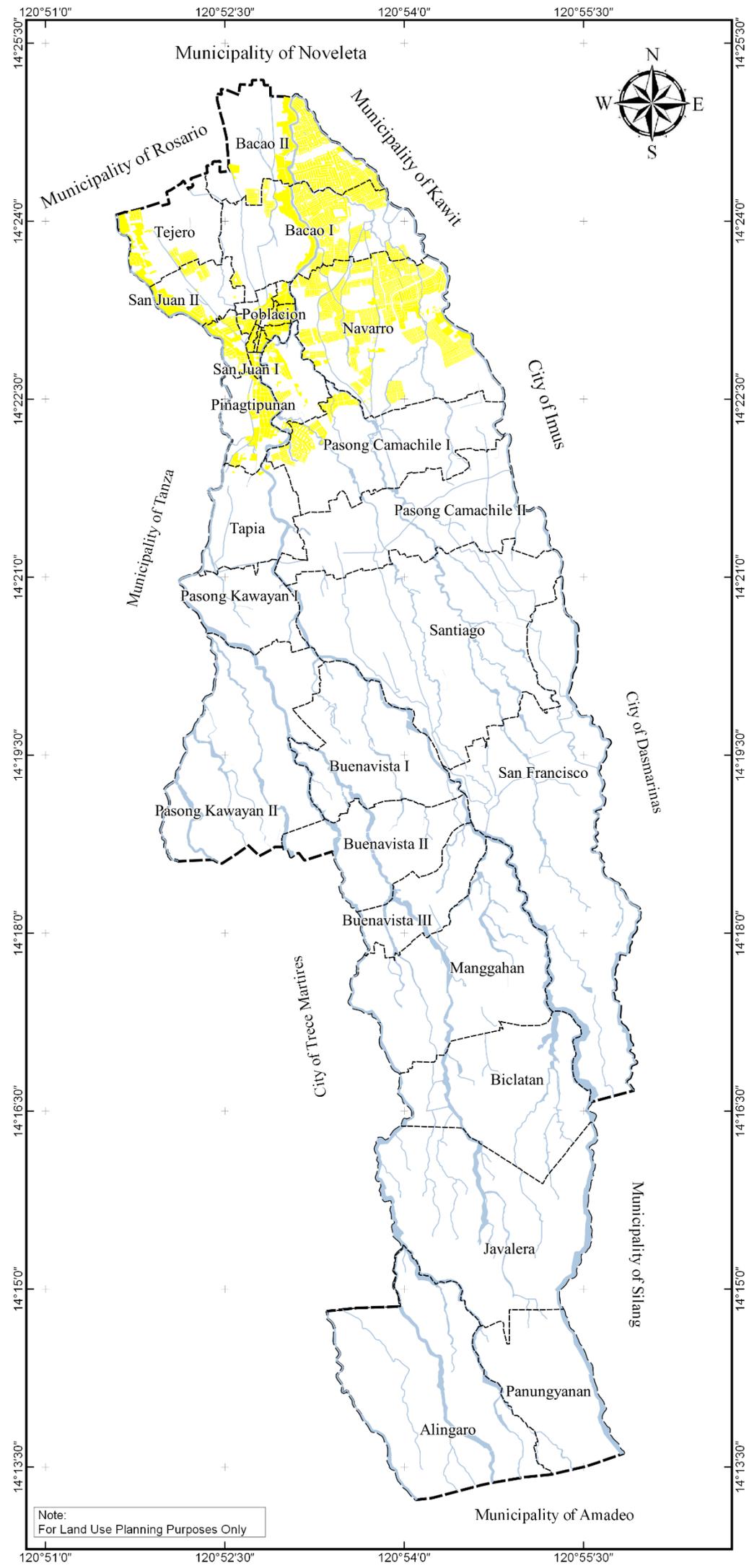


Sources:

National Mapping and Resource Information Authority
 Philippine Institute of Volcanology and Seismology
 Google Earth 2021
 Office of the City Planning and Development Coordinator
 / Zoning Administrator



Note:
 For Land Use Planning Purposes Only



City of General Trias
Province of Cavite
Region IV-A (CALABARZON)

1:50000



Projection: Transverse Mercator
Geographic Coordinate System: GCS WGS 1984
Datum: D WGS 1984

Population Risk to Liquefaction Map

Legend:

- City Boundary
- Barangay Boundary
- Rivers / Creeks / Canals
- Risk Category**
- Low
- Moderate
- High

Prepared By:

City Technical Working Group for
Comprehensive Land Use Plan
(2022-2030)

Assisted By:



Department of Human Settlements and
Urban Development
Region IV-A

Sources:

National Mapping and Resource Information Authority
Philippine Institute of Volcanology and Seismology
Google Earth 2021
Office of the City Planning and Development Coordinator
/ Zoning Administrator



Note:
For Land Use Planning Purposes Only

