

Health and Sanitation

General Health Situation

The general health situation of the City of General Trias and Province of Cavite is presented in Table 1. It presents the trend of fertility, morbidity, and mortality for the last five years in the city.

Fertility pertains to the reproductive performance of an individual, a couple, a group, or population. It also represents an addition to the population. The Crude Birth Rate (CBR) as defined by the Philippine Statistics Authority is the ratio of the number of births during a specified period (e.g., one year) to the total number of persons in the mid-period population or July 1 of the same year; where the trend in the city as reflected in the table is decreasing. General Fertility Rate, on the other hand, is calculated by dividing the number of births to women of a particular age group by the female population in that age group multiplied by 1,000, and it is also the average number of children that would be born alive to a woman (or group of women) during her lifetime if she were to pass through her childbearing years conforming to the age specific fertility rates of a given time period; wherein has an increasing trend in the last five years.

Table 1. General Health Situation for the Last Five Years

Health Indicator	City/Municipality										Provincial
	2017		2018		2019		2020		2021		2020
	No.	%	No.	%	No.	%	No.	%	No.	%	%
Fertility											
Crude Birth Rates (CBR)	5,602	32.2	5,481	29.9	3,327	17.3	3,506	15.6	2,851	11.7	10.00
General Fertility Rate (TFR)	2,992	534.1	3,899	711.4	3,313	995.8	3,485	994.0	2,837	995.1	n.d.a.
Morbidity											
General Medical	146,239		153,921		162,006		189,245		204,142		n.d.a.
Consultative Rate	116,992	117.0	123,137	123.1	129,605	129.6	151,396	151.4	163,313	163.3	n.d.a.
Hospitalization Rate	11,699	11.7	12,314	12.3	12,960	12.7	15,140	15.1	16,331	16.3	n.d.a.
Mortality											
Crude Death Rate (CDR)	1,035	5.9	988	5.4	1,158	6.0	1,508	6.7	2,339	9.6	2.00
Infant Mortality Rate (IMR)		3.5		2.8	21	6.3	18	5.1	12	4.2	2.00
Maternal Mortality Rate (MMR)		22.0		87.4	0	0.0	0	0.0	1	35.1	37.00

Note: Number of Births and Deaths recorded are individuals who are permanently residing in the city

Source: Cavite Ecological Profile, 2020; Office of the City Civil Registrar, Office of the City Health Officer, Office of the City Planning and Development Coordinator

Morbidity, the total number of cases pertaining to the leading causes of morbidity in General Trias were used, as well as the assumptions provided by the Philippine Health Development Plan to derive the General Medical, Consultation Rate, and Hospitalization Rate. Using the assumptions provided by development plan, the table below was derived:

Table 2. Assumptions for General Medical, Consultation Rate, Hospitalization Rate

Year	2017	2018	2019	2020	2021
Projected Population	348,189	366,479	385,729	450,583	486,052
42% of population	146,239	153,921	162,006	189,245	204,142

Year	2017	2018	2019	2020	2021
Projected Population	348,189	366,479	385,729	450,583	486,052
80% of the 42% usually go to government hospitals	116,992	123,137	129,605	151,396	163,313
20% of the 42% usually go to private hospitals	29,248	30,784	32,401	37,849	40,828
10% of the 80% who go to government hospitals will be confined (hospitalized)	11,699	12,314	12,960	15,140	16,331
50% of the 10% will go to primary hospitals	5,850	6,157	6,480	7,570	8,166
30% of the 10% will go to secondary hospitals	3,510	3,694	3,888	4,542	4,899
20% of the 10% will go to tertiary hospitals	2,340	2,463	2,592	3,028	3,266

Note: Projection based on Guide to Ecological Profiling (DILG)

Source: Philippine Statistics Authority, 2015 and 2020; Office of the City Planning and Development Coordinator

Mortality pertains to the occurrence of death in a population. It also represents an attrition or reduction in numbers. This includes the Crude Death Rate (CDR), Infant Mortality Rate (IMR), Child Mortality Rate (CMR), and Maternal Mortality Rate (MMR). According to Philippine Statistics Authority, CDR is the ratio of the number of deaths occurring within one year to the mid-year population expressed per 1,000 population; where the city has an increasing rate from 2018 to 2021. IMR is the probability of dying between birth and age one, expressed as the number of infant deaths or deaths occurring before reaching 12 months of life in a given period per 1,000 live births; where the city has decreasing trend from 2017 to 2018, then increased in 2019 however declined to the following years. And, MMR is the ratio between the number of women who died (for reasons of pregnancy, childbirth and puerperium) to the number of reported livebirths in a given year, expressed as the number of maternal deaths per 100,000 live births; where the city shows no maternal death in 2019 and 2020, however presented a 35.08 rate in 2021.

Facilities and Personnel

Hospitals are needed to cater to the health-related needs and concerns of the people in the city. As of 2018, there are seven (7) hospitals in General Trias wherein six (6) of these are private hospitals. The only public hospital in the city is the General Trias Medicare Hospital which is located in Brgy. Pinagtipunan.

The inventory of medical health facilities and hospital personnel is shown in Table 3. Among the six (6) private hospitals, the City of General Trias Doctors Medical Center, Inc. has the greatest number of personnel with 151 doctors, 120 nurses, 16 medical technologists, 12 radiologic technologists, 5 pharmacists, 30 nurse aides, 2 dieticians, 4 physical therapists, 14 medical secretaries, and 31 other hospital personnel, majority of which are female (see Table 4). Whereas the only public hospital in the city, General Trias Medicare Hospital, only has 4 doctors, 10 nurses, 1 midwife, 10 other hospital personnel to serve the general public who could not afford the services of private hospitals.

The City of General Trias Doctors Medical Center, Inc. has the largest authorized bed capacity with 100 beds. It is a Level 2 private hospital situated in Brgy. Manggahan and currently offers 73 hospital rooms ranging from private, semi-private, and ward. On the contrary, the General Trias Medicare Hospital in Barangay Pinagtipunan, which is an Infirmary category public hospital, offers the least number of beds (10 beds).

Moreover, Barangay Health Station (BHS) serves as the primary health care facility in the community as it covers first aid, and maternal and child health care. The services being offered at the BHS are basic health care like immunization and free dental mission. BHS is commonly staffed by the following health resource personnel: midwife, nurse, and dentist. The health resource personnel stationed at the BHS are the ones responsible in diagnosing social diseases in the community.

To summarize, General Trias has a total of 39 BHS and one (1) City Health Office (CHO) located at Barangay Pinagtipunan that caters the ten (10) Poblacion barangay. Where, all health facilities are in good operating condition, however highly susceptible in ground shaking and lowly to moderately varies in flooding, landslide and liquefaction. Additionally, BHS and CHO have totaled a number of 4 doctors, 15 nurses, 20 midwives, 4 sanitary inspectors, and 79 barangay nutrition scholars.

Aside from the City Health Office (CHO) in the Poblacion area, only Barangays Manggahan and San Francisco have their own doctors in their respective BHS. Barangay San Francisco, which is the most populous barangay in the City, has the greatest number of BHS counting to eight (8), with one (1) doctor, one (1) nurse, one (1) midwife, and 10 barangay nutrition scholars.

Not all barangays have their own nurses and midwives for their residents. Only a few barangays have their own nurses including Biclatan, Manggahan, Pasong Camachile II, Pasong Kawayan II, San Francisco, San Juan I and II, Tejero, and Poblacion. Furthermore, barangays Javalera, Manggahan, Pinagtipunan, San Juan I, and Tejero do not have their own midwives. Meanwhile in barangays Buenavista I, Panungyanan, Pasong Kawayan II, and San Juan II have scheduled midwives to cater to their needs.

Additionally, there are only four (4) health sanitary personnel employed in the city and must be shared by all barangays. The number of health personnel stationed in the barangays within the city are insufficient and lacking in number to cater to the city's growing population.

For the private health facilities and personnel, Table 5 presents the summary of number of health facilities and personnel per type of clinic and location.

Table 3. Inventory of Medical Health Facilities and Personnel, 2018

Type/ Name of Health Facility	Location (Barangay)	Owner ship/ Type	Category	Capacity (No. of Beds)	Number of Personnel										Physical Condition	Hazard Susceptibility (H/M/L)				
					Doctor		Nurse		Mid-wife		Sanitary Inspector		Others			Total	H	GS	Ln	Lq
					M	F	M	F	M	F	M	F	M	F						
HOSPITAL																				
City of General Trias Doctors Medical Center, Inc.	Manggahan	Private	Level II	100	78	73	30	90	0	0			42	72	385	O		H		
General Trias Medicare Hospital	Pinagtipunan	Public	Infirmiry	10	2	2	0	10	0	1			4	6	25	O	L	H	L	
Divine Grace Medical Center	Tejero	Private	Level II	75	62	52	25	58	0	4			60	125	386	O	L	H	M	
SSMC Satellite Center	Javalera	Private	Infirmiry	23	11	3	1	3	0	2			5	4	29	O		H		
Gentri Medical Center and Hospital Inc.	Manggahan	Private	Level II	50	6	11	8	48	0	2			17	66	158	O		H	L	
General Trias Maternity and Pediatric Hospital	Tejero	Private	Level I	50	1	6	12	26	0	1			22	36	104	O	L	H	M	
Mama Rachel's Hospital of Mercy	Navarro	Private	Infirmiry	12	2	3	1	12	1	3			3	10	35	O	L	H	L	
TOTAL				320	162	150	77	247	1	13	0	0	153	319	1,122					
CITY HEALTH CENTER																				
General Trias City Health Center	Pinagtipunan	Public			2		4		3		4		9		22	O	L	H	L	
TOTAL				0	2	0	4	0	3	0	4	0	9	0	22					
BARANGAY HEALTH STATION																				
Alingaro Barangay Health Station	Alingaro	Public			0		0		1				1		2	O		H		
Bacao I Barangay Health Station	Bacao I	Public			0		0		1				1		2	O	M	H	M	
Bacao II Barangay Health Station	Bacao II	Public			0		0		1				1		2	O	M	H	M	
Biclatan Barangay Health Station	Biclatan	Public			0		1		1				3		5	O		H		
Buenavista I Barangay Health Station	Buenavista I	Public			0		0						1		1	O		H		
Buenavista II Barangay Health Station 1	Buenavista II	Public			0		0		2				3		5	O		H		
Buenavista II Barangay Health Station 2																				
Buenavista III Barangay Health Station	Buenavista III	Public			0		0		1				2		3	O		H		
Javalera Barangay Health Station	Javalera	Public			0		0		0				9		9	O		H		
Manggahan Barangay Health Station	Manggahan	Public			1		4		0				4		9	O		H		
Navarro Barangay Health Station 1	Navarro	Public			0		0		1				3		4	O	L	H	L	
Navarro Barangay Health Station 2																				
Panungyanan Barangay Health Station	Panungyanan	Public			0		0						2		2	O		H		

Type/ Name of Health Facility	Location (Barangay)	Ownership/ Type	Category	Capacity (No. of Beds)	Number of Personnel										Physical Condition	Hazard Susceptibility (H/M/L)					
					Doctor		Nurse		Mid-wife		Sanitary Inspector		Others			Total	Fl	GS	Ln	Lq	
					M	F	M	F	M	F	M	F	M	F							
Pasong Camachile I Barangay Health Station	Pasong Camachile I	Public			0		0		2				2		4	O		H			
Grand Riverside Health Center																					
Pasong Camachile II Barangay Health Station	Pasong Camachile II	Public			0		1		1				12		14	O		H			
Marycris Complex Health Center 1																					
Marycris Complex Health Center 2																					
Pasong Kawayan I Barangay Health Station	Pasong Kawayan I	Public			0		0						1		1	O		H			
Pasong Kawayan II Barangay Health Station 1	Pasong Kawayan II	Public			0		1		1				5		7	O		H			
Pasong Kawayan II Barangay Health Station 2																					
Pasong Kawayan II Barangay Health Station 3																					
Pinagtipunan Barangay Health Station	Pinagtipunan	Public			0		0		0				2		2	O	L	H		L	
Sitio Elang Health Center	San Francisco	Public			1		1		1				10		13	O		H			
Tropical Village Health Center																					
Sunny Brooke II-A Health Center																					
Sunny Brooke II-B Health Center																					
San Francisco Barangay Health Station 1																					
San Francisco Barangay Health Station 2																					
San Francisco Barangay Health Station 3																					
San Francisco Barangay Health Station 4																					
San Juan I Barangay Health Station	San Juan I	Public			0		1		0				1		2	O	L	H		L	
San Juan II Barangay Health Station	San Juan II	Public			0		1						1		2	O	L	H		M	
Sta. Clara Barangay Health Station	Sta. Clara	Public			0		0		1				1		2	O	L	H		L	
Santiago Barangay Health Station	Santiago	Public			0		0		2				2		4	O		H			
Parklane Health Center																					
Tapia Barangay Health Station	Tapia	Public			0		0		1				1		2	O		H			
Tejero Barangay Health Station	Tejero	Public			0		1		0				2		3	O	L	H		M	

Type/ Name of Health Facility	Location (Barangay)	Owner ship/ Type	Category	Capacity (No. of Beds)	Number of Personnel										Physical Condition	Hazard Susceptibility (H/M/L)				
					Doctor		Nurse		Mid-wife		Sanitary Inspector		Others			Total	FI	GS	Ln	Lq
					M	F	M	F	M	F	M	F	M	F						
TOTAL				0	2	0	11	0	17	0	0	0	70	0	100					

Notes: Other Personnel in Hospitals - Dentist, Medical Technologist, Radiologic Technologist, Pharmacist, Nurse Aide, Dietician, Physical Therapist, Medical Secretary, etc.; Other Personnel in Barangay Health Station/City Health Center - Barangay Nutrition Scholars; Physical Condition - Operational (O), Needs Repair (NR), Not Operational (NO); Hazard Susceptibility - High (H), Moderate (M), and Low (L); Type of Hazards - Flood (FI), Ground Shaking (GS), Landslide (Ln), and Liquefaction (Lq)

Source: Actual Survey, Office of the City Planning and Development Coordinator; Office of the City Health Officer

Table 4. Number of Other Hospital Personnel by Sex, 2018

Name of Hospital	No. of Other Hospital Personnel															
	Medical Technologist		Radiologic Technologist		Pharmacist		Nurse Aide		Dietician		Physical Therapist		Medical Secretary		Other Personnel	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
City of General Trias Doctors Medical Center, Inc.	4	12	5	7	1	4	9	21	0	2	2	2	0	14	21	10
General Trias Medicare Hospital	0	0	0	0	0	0	2	1	0	0	0	0	0	0	2	5
Divine Grace Medical Center	2	15	5	8	1	3	3	23	0	2	3	8	0	0	46	66
SSMC Satellite Center	1	2	2	0	0	1	0	0	0	1	0	0	0	0	2	0
Gentri Medical Center and Hospital Inc.	0	18	5	4	0	5	4	10	0	1	2	1	0	1	6	26
General Trias Maternity and Pediatric Hospital	2	8	1	6	0	4	2	7	0	1	0	0	1	8	16	2
Mama Rachel's Hospital of Mercy	1	3	1	1	0	1	0	1	0	1	0	0	0	1	1	2
Total	10	58	19	26	2	18	20	63	0	8	7	11	1	24	94	111

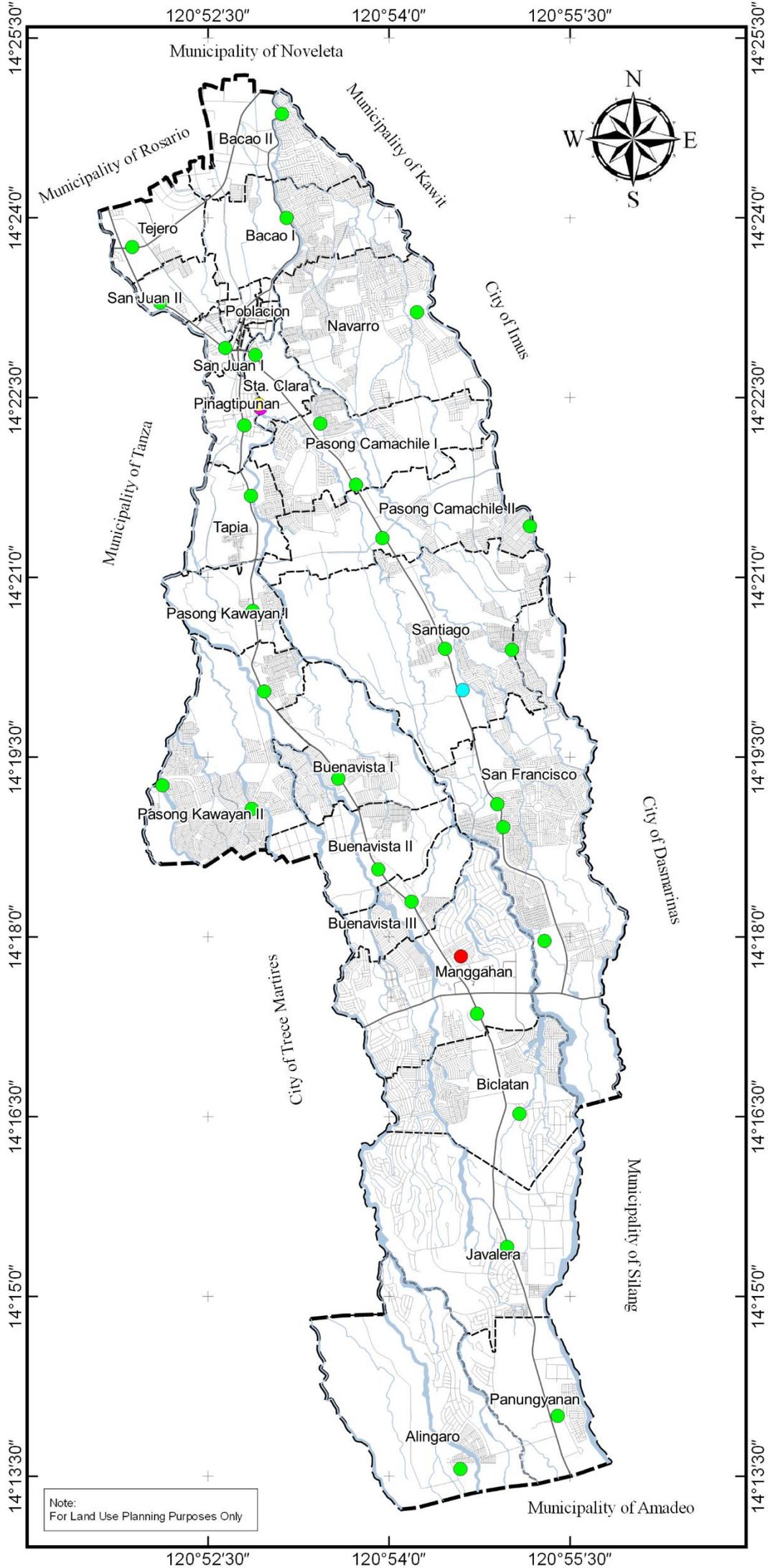
Source: Actual Survey, Office of the City Planning and Development Coordinator; Office of the City Health Officer

Table 5. Number of Private Health Facilities and Personnel, 2018

Type of Health Facility	Number of Health Facility by Location		Facility		Total Number of Personnel	
	No.	Location	No. of bed/chairs	Physical Condition	Male	Female
Medical Clinic	1	Tejero	1 bed	Good		5
	3	Manggahan	2 beds	Good	5	14
	1	Bagumbayan	0 bed	Good		1
	1	1896 th	0 bed	Good	1	4
	1	Vibora	0 bed	Good		4
	1	San Francisco	0 bed	Good	1	3
Lying-in Clinic	1	Bacao 2	1 bed	Good	1	2
	1	Alingaro	2 beds	Good		2
	1	Biclatan	4 beds	Good	3	5
	1	Manggahan	7 beds	Good		8
	1	1896 th	6 beds	Good	2	6
	2	Santiago	7 beds	Good	2	30
	2	San Francisco	3 beds	Good		10
Dental Clinic	1	Pasong Camachile II	2 beds	Good		2
	1	Bacao 1	3 dental chairs	Good	1	6
	4	Tejero	7 dental chairs	Good	3	10
	1	Biclatan	1 dental chair	Good		2
	10	Manggahan	13 dental chairs	Good	7	18
	1	Sampaluca	1 dental chair	Good	1	
	2	San Gabriel	2 dental chairs	Good		2
	3	Gov. Ferrer	3 dental chairs	Good		4
	2	San Juan I	2 dental chairs	Good		15
	2	Santiago	2 dental chairs	Good	2	
	9	San Francisco	9 dental chairs	Good	1	9
	1	Buenavista II	1 dental chair	Good		2
	2	Buenavista III	2 dental chairs	Good	1	1
	1	Pasong Camachile I	1 dental chair	Good		1
2	Pasong Camachile II	2 dental chairs	Good		2	
Optical Clinic	1	Sta. Clara	1 dental chair	Good		2
	4	Tejero	0 bed	Good	10	13
	1	Pasong Kawayan II	0 bed	Good		1
	1	Manggahan	0 bed	Good	1	3
	1	1896 th	0 bed	Good	1	
Dermatological Clinic	1	Pasong Camachile II	0 bed	Good		1
	2	Tejero	14 beds	Good	1	12
	2	Manggahan	3 beds	Good	1	4
	1	Sampalucan	4 beds	Good		4
	1	San Francisco	2 beds	Good		3
Veterinary Clinic	1	Sta. Clara	3 beds	Good		2
	1	Tejero	0 bed	Good	3	4
	3	Manggahan	0 bed	Good	7	2
	1	San Juan I	0 bed	Good	2	1
	3	San Francisco	0 bed	Good	2	4
	1	Navarro	0 bed	Good	3	1
	1	Pasong Camachile II	1 bed	Good	1	2
Miscellaneous Clinics	1	Pasong Camachile I	2 beds	Good	1	2
	2	Manggahan	10 beds	Good	33	54
	1	1896 th	2 beds	Good		3
	1	Corregidor	0 bed	Good	1	2
	1	Gov. Ferrer	0 bed	Good	2	5
	2	Tejero	4 beds	Good	1	7
5	San Francisco	9 beds	Good	16	37	
		2 dental chairs	Good			

Type of Health Facility	Number of Health Facility by Location		Facility		Total Number of Personnel	
	No.	Location	No. of bed/chairs	Physical Condition	Male	Female
	1	Buenvista III	1 bed	Good	1	2
	4	Pasong Camachile II	5 beds	Good	8	9

Source: Actual Survey, Office of the City Planning and Development Coordinator



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

1:70000



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

Public Health Facilities Map

Legend:

- City Boundary
- Barangay Boundary
- Rivers / Creeks / Canals
- Road Network
- Barangay Health Station
- City Health Center Main
- City Health Center Sub Station
- Medicare Hospital
- Isolation Facility

Prepared By:

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

Assisted By:

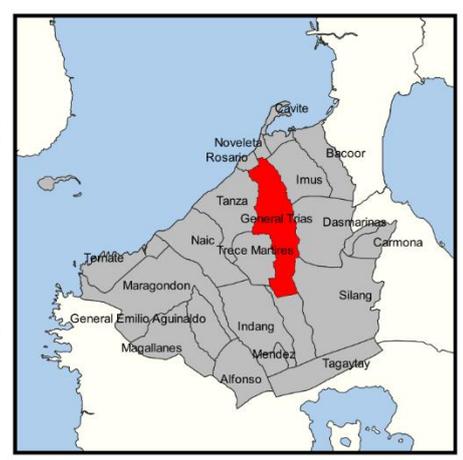
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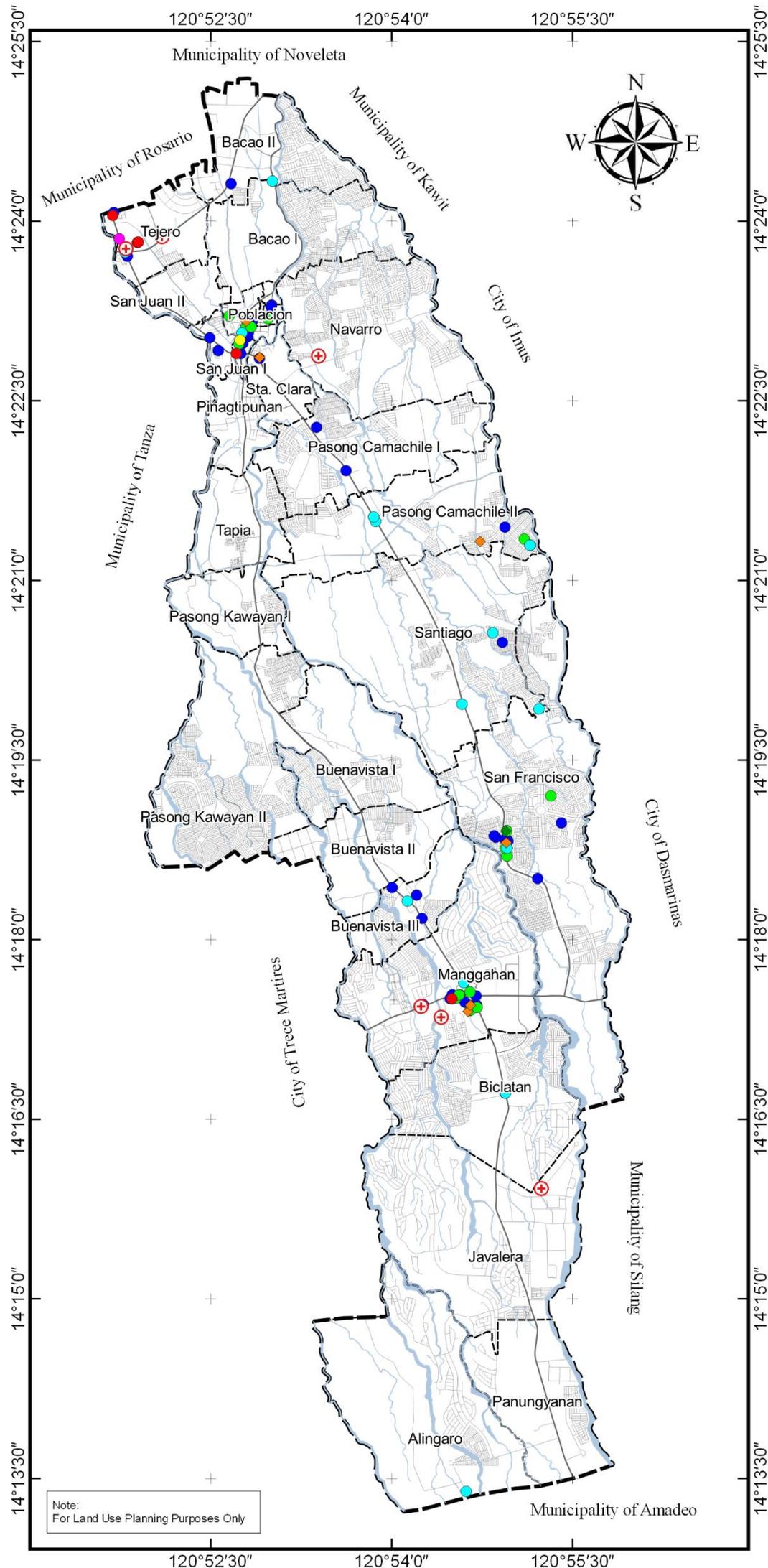


Sources:

National Mapping and Resource Information
 Authority
 Google Earth 2021
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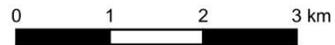
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City of General Trias
 Province of Cavite
 Region IV-A (CALABARZON)

1:70000



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

Private Health Facilities Map

Legend:

- City Boundary
- Barangay Boundary
- Rivers / Creeks / Canals
- Road Network
- DENTAL CLINIC
- DIAGNOSTIC CLINIC
- EYE CLINIC
- HOSPITAL
- LYING-IN CLINIC
- NEURO PSYCHIATRY CLINIC
- PEDIATRIC CLINIC
- SKIN CLINIC
- ULTRASOUND CLINIC

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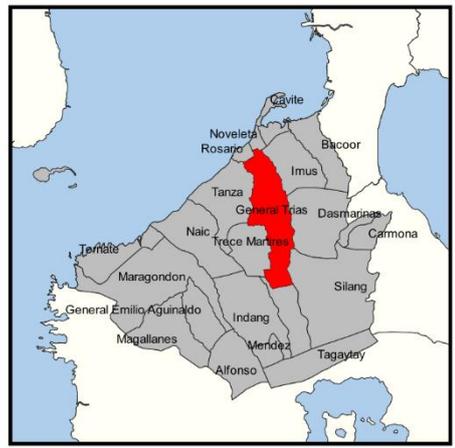
City Technical Working Group for
 Comprehensive Land Use Plan
 (2022-2030)

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Department of Human Settlements
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 Region IV-A

Sources:

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Leading Cause of Morbidity

Morbidity refers to the condition of being ill, diseased or unhealthy. It includes acute and chronic illnesses. An acute illness that has a sudden onset and improve or worsen in a short period of time (i.e. flu, broken arm etc.), chronic illness (i.e. cancer and diabetes), which can be present and progress slowly over a long period of time. A person can live for several years with one or more morbidities; existing morbidity may lead to another morbidity.

The statistics on morbidity provides basic information for the management of healthcare system and for planning and evaluation of health service delivery. Other acute lower respiratory infection was the leading cause of morbidity in General Trias in 2021 and followed by hypertensive disease. And for the past five years (2017-2021), the topmost causes of morbidity, or life-threatening diseases in the city were caused by acute upper respiratory infection, hypertensive disease, other acute lower respiratory infection, general symptoms and signs, certain early complications of trauma, symptoms and signs involving the circulatory and respiratory system, injuries to unspecified part of trunk, limb or body region, and cough. Other causes of morbidity are listed in Table 6.

Leading Cause of Mortality

Mortality and morbidity statistics are essential in determining the appropriate healthcare programs and services that must be offered. The information that they provide are also of help for the planning and evaluation of the health services being delivered.

Mortality Rate, according to World Health Organization (WHO), is a measure of the number of deaths in a particular population, scaled to the size of population, per unit of time. Mortality rate value in the Philippines was 8.0 as of 2021. According to the survey by the Philippine Statistics Authority, deaths due to ischemic heart diseases were the biggest contributors among the total deaths in 2021, and followed by deaths due to cerebrovascular diseases (including stroke) and mortality due to Corona virus disease 2019 (Covid-19) (identified and not identified).

The leading causes of mortality in the city are often related with cardiovascular and respiratory diseases. The number of cases per cause of mortality for the past five (5) years are shown in Table 7, it also presents the lists of the following notifiable diseases which have been taken note by the Office of the City Health Officer due to the nature of their communicability.

The leading causes of mortality are acute myocardial infarction, shock (not elsewhere classified), pneumonia (organism unspecified), complications and ill-defined description of heart disease, other septicemia, respiratory failure (not elsewhere classified), other nutritional deficiencies, adult respiratory distress syndrome (acute respiratory distress syndrome), stroke (not specified as hemorrhage or infarction), and cerebral infarction.

Table 6. Ten Leading Causes of Morbidity for the Past Five Years, 2017-2021

#	Causes	Number of Cases															Grand Total
		2017			2018			2019			2020			2021			
		M	F	Sub-total	M	F	Sub-total	M	F	Sub-total	M	F	Sub-total	M	F	Sub-total	
1	Acute Upper Respiratory Infections (J00-J06)	2,904	3,056	5,960	2,263	2,401	4,664	2,201	2,329	4,530	567	594	1,161	96	94	190	16,505
2	Hypertensive Disease (I10-I15)	1,157	1,978	3,135	1,058	1,904	2,962	845	1,390	2,235	267	405	672	174	243	417	9,421
3	Other Acute Lower Respiratory Infection (J20-J22)	1,437	1,452	2,889	995	1,057	2,052	1,196	1,239	2,435	223	233	456	216	228	444	8,276
4	General Symptoms and Signs (R50-R69)	949	919	1,868	848	1,044	1,892	1,029	1,036	2,065	252	381	633	126	149	275	6,733
5	Certain Early Complications of Trauma (T79)	918	710	1,628	750	628	1,378	649	596	1,245	282	242	524	90	73	163	4,938
6	Symptoms and Signs Involving the Circulatory and Respiratory System (R00-R09)	402	406	808	321	342	663	624	653	1,277	428	446	874	64	73	137	3,759
7	Injuries to Unspecified Part of Trunk, Limb or Body Region (T08-T14)	644	523	1,167	386	324	710	303	252	555	494	433	927	99	91	190	3,549
8	Injuries Involving Multiple Body Regions (T00-T07)	0	0	0	422	222	644	412	309	721	420	233	653	78	51	129	2,147
9	Infections of the skin and subcutaneous tissue (L008-L08)	352	332	684	219	249	468	303	303	606	142	141	283	29	37	66	2,107
10	Other disease of Urinary System (N30-N39)	191	458	649	109	304	413	225	319	544	74	174	248	45	65	110	1,964
Other notable causes of Morbidity for the past five years																	
11	Cough (R05)	0	0	0	0	0	0	624	653	1,277	396	411	807	64	69	133	2,217
12	Diseases of oral cavity, salivary glands and jaws (K00-K14)	242	294	536	167	195	362	145	169	314	111	97	208	27	33	60	1,480
13	Other Disease of Intestines (K55-K63)	79	65	144	298	209	507	182	162	344	83	82	165	25	27	52	1,212
14	Bacterial, viral and other infectious agents (B95-B98)	135	160	295	310	334	644	25	19	44	0	0	0	10	20	30	1,013
15	Post Traumatic Wound Infection, not elsewhere classified (T79.3)	0	0	0	0	0	0	0	0	0	281	245	526	90	73	163	689
16	Acute Nasopharyngitis (J00)	0	0	0	0	0	0	0	0	0	276	303	579	52	52	104	683
17	Influenza, Virus not identified (J11)	27	25	52	0	0	0	0	0	0	172	181	353	1	2	3	408
TOTAL		9,437	10,378	19,815	8,146	9,213	17,359	8,763	9,429	18,192	4,468	4,601	9,069	1,286	1,380	2,666	67,101

Source: Office of the City Health Officer, 2022

Table 7. Ten Leading Causes of Mortality for the Past Five Years, 2017-2021

#	Causes	Number of Cases													
		2017	2018	2019				2020				2021			
		Subtotal	Subtotal	M	F	Subtotal	%	M	F	Subtotal	%	M	F	Subtotal	%
1	I21: Acute Myocardial Infarction	144	272	174	112	286	6.0%	38	36	74	1.6%	290	220	510	17.0%
2	J96: Respiratory Failure, not elsewhere classified	44	108	117	101	218	4.6%	24	27	51	1.1%	137	78	215	7.2%
3	R57: Shock, not elsewhere classified	106	96	94	69	163	3.4%	11	6	17	0.4%	80	53	133	4.4%
4	I63: Cerebral Infarction	59	29	30	22	52	1.1%	8	3	11	0.2%	163	140	303	10.1%
5	A41: Other Septicemia	64		65	67	132	2.8%	13	11	24	0.5%	94	84	178	5.9%
6	J80: Adult Respiratory Distress Syndrome (Acute Respiratory Distress Syndrome)			-	-	-	-	-	-	-	-	135	90	225	7.5%
7	E63: Other Nutritional Deficiencies		36	-	-	-	-	12	17	29	0.6%	71	96	167	5.6%
8	I46: Cardiac Arrest		37	46	20	66	1.4%	-	-	-	-	57	35	92	3.1%
9	I51: Complications and Ill-Defined description of heart disease	97	77	40	17	57	1.2%	-	-	-	-	64	35	99	3.3%
10	J18: Pneumonia, Organism Unspecified	104	60	64	53	117	2.5%	7	5	12	0.3%	-	-	-	-
Other notable causes of Mortality for the past years															
11	E87: Other Disorders of Fluid, Electrolyte and Acid-Based balance	58		9	10	19	0.4%	3	1	4	0.9%	50	62	112	3.7%
12	I64: Stroke, not specified as hemorrhage or infarction			2	3	5	0.1%	31	17	48	1.0%	2	3	5	0.2%
13	S09: Other and Unspecified Injuries in the Head			37	6	43	0.9%	4	0	4	0.9%	12	4	16	0.5%
14	R09: Other Symptoms and Signs Involving the Circulatory and Respiratory System		48	14	19	33	0.7%	4	0	4	0.9%	14	16	30	1.0%
15	N18: Chronic Renal Failure			5	5	10	0.2%	14	6	20	0.4%	20	4	24	0.8%
16	I61: Intracerebral Hemorrhage			4	6	10	0.2%	10	2	12	0.3%	19	5	24	0.8%
TOTAL		676	763	701	510	1,211		179	131	310		1,208	925	2,133	

Source: Office of the City Health Officer, 2022

Total Number of Deaths

Data records from Office of the CHO and City Registrar may differ due to patients/client's preference to visit public or private health facility.

Among the 33 barangays in the city, the topmost barangays that recorded a highest number of deaths for the past five years, 2017-2021, are Pasong Kawayan II, Pasong Camachile II, San Francisco, Navarro, Santiago, and San Gabriel.

Total Number of Infant Deaths

The trend of infant deaths (below 1-year old) for the past five years, 2017-2021, has declined for the first 2-years, but it increased the following year, then declined again. Further, the number of barangays with infant death records increase from 5 barangays in 2017 to 15 barangays in 2021.

The leading barangays with records of infant deaths from 201-2021 are the following: San Francisco, Manggahan, Tejero, San Juan I, Pasong Camachile I, Biclatan, Santiago, Pasong Camachile II, Buenavista I and II, and Navarro.

Total Number of Maternal Deaths

Maternal death, as defined by the World Health Organization, pertains to the death of woman while pregnant or within 42 days of termination of pregnancy. It involves deaths related to pregnancy or its management during the said duration irrespective of site except deaths caused by accidents or incidents. Due to the health programs being implemented in the city, years 2019 to 2020 have zero (0) record of maternal death. However, there is a lone case of in 2017 at Barangay Manggahan and in 2021 at Barangay Tejero; and a total of 4 maternal deaths in 2018 from Barangay Manggahan, Santiago, and San Francisco.

Total Number of Neonatal Deaths

Neonatal death pertains to the death of babies during their first 28 days of life. Babies that are prematurely born, have low birthweight, or have birth defects are more at risk. Neonatal deaths may also be caused by complications during pregnancy such as problems with the placenta, infection, or lack of oxygen during birth.

For the past five years (2017-2021), the records of neonatal deaths have been declining, from 36 to 5 neonatal deaths at a rate of -86.11%. However, prominent barangays with a consecutive record of neonatal deaths are: Manggahan (with highest registered neonatal deaths), Tejero, and San Francisco.

Total Number of Deaths (50y/o and above)

According to the World Health Organization, the life expectancy for Filipinos in 2018 is up to 66 years old for males, while it is 73 years old for females. The elderly is more vulnerable to illnesses and diseases. Over the years, number of deaths for 50y/o and above have been increasing.

Total Number of Deaths with Medical Attendance

In 2021, the greatest number of deaths belong to the age group of 70-74 years old. Significant number of deaths are also apparent starting at age 60. Most cases are associated to heart disease, pneumonia, lung disease and vascular problems.

Table 8. Number of Deaths by Barangay, 2017-2021

Barangay	Year 2017, Number of Deaths:												Year 2018, Number of Deaths:											
	Mortality			Infant Mortality			Maternal Mortality			Neonatal Mortality			Mortality			Infant Mortality			Maternal Mortality			Neonatal Mortality		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
1896	2	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Alingaro	12	5	17	-	-	-	-	-	-	-	-	-	4	6	10	-	-	-	-	-	-	-	-	
Arnaldo	2	3	5	-	-	-	-	-	-	-	-	-	2	1	3	-	-	-	-	-	-	-	-	
Bacao I	17	20	37	-	-	-	-	-	-	-	-	-	6	6	12	-	-	-	-	-	-	-	-	
Bacao II	13	12	25	-	-	-	-	-	-	-	1	1	13	15	28	-	-	-	-	-	-	-	-	
Bagumbayan	3	3	6	-	-	-	-	-	-	-	-	-	3	3	6	-	-	-	-	-	-	-	-	
Biclatan	24	21	45	-	-	-	-	-	-	1	-	1	19	17	36	-	1	1	-	-	-	-	-	
Buenavista I	12	3	15	-	-	-	-	-	-	-	-	-	11	9	20	-	-	-	-	-	-	-	-	
Buenavista II	12	16	28	-	-	-	-	-	-	-	-	-	22	13	35	-	-	-	-	-	-	1	1	
Buenavista III	8	10	18	-	-	-	-	-	-	-	1	1	12	15	27	-	-	-	-	-	-	-	-	
Corregidor	2	-	2	-	-	-	-	-	-	-	-	-	2	3	5	-	-	-	-	-	-	-	-	
Dulongbayan	7	5	12	-	-	-	-	-	-	-	-	-	1	3	4	-	-	-	-	-	-	-	-	
Gov. Ferrer	1	-	1	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	
Javalera	12	4	16	-	-	-	-	-	-	-	-	-	7	8	15	-	-	-	-	-	-	-	-	
Manggahan	24	22	46	4	2	6	-	1	1	12	5	17	34	19	53	3	3	6	-	1	1	5	12	17
Navarro	25	29	54	-	-	-	-	-	-	-	-	-	31	34	65	-	-	-	-	-	-	1	-	1
Panungyanan	3	4	7	-	-	-	-	-	-	-	-	-	3	1	4	-	1	1	-	-	-	-	-	-
Pasong Camachile I	28	23	51	-	-	-	-	-	-	-	-	-	35	17	52	1	-	1	-	-	-	1	-	1
Pasong Camachile II	49	24	73	-	-	-	-	-	-	-	-	-	41	25	66	-	-	-	-	-	-	-	-	-
Pasong Kawayan I	15	10	25	-	-	-	-	-	-	-	1	1	15	7	22	-	-	-	-	-	-	-	-	-
Pasong Kawayan II	45	35	80	-	-	-	-	-	-	-	-	-	60	29	89	-	-	-	-	-	-	-	-	-
Pinagtipunan	19	24	43	-	-	-	-	-	-	-	-	-	27	15	42	-	-	-	-	-	-	-	-	-
Prinza	2	3	5	-	-	-	-	-	-	-	-	-	1	2	3	-	-	-	-	-	-	-	-	-
Sampalucan	5	1	6	1	-	1	-	-	-	-	-	-	6	5	11	-	-	-	-	-	-	-	-	-
San Francisco	40	26	66	4	2	6	-	-	-	1	-	1	44	28	72	2	-	2	-	2	2	1	-	1
San Gabriel	127	90	217	-	-	-	-	-	-	-	-	-	120	89	209	-	-	-	-	-	-	-	-	-
San Juan I	25	16	41	1	-	1	-	-	-	-	-	-	10	13	23	-	-	-	-	-	-	-	-	-
San Juan II	8	7	15	-	-	-	-	-	-	-	-	-	8	7	15	-	-	-	-	-	-	-	-	-
Santiago	4	5	9	-	-	-	-	-	-	-	1	1	5	5	10	-	-	-	-	1	1	-	-	-
Sta. Clara	4	3	7	-	-	-	-	-	-	-	-	-	4	8	12	-	1	1	-	-	-	-	-	-

Barangay	Year 2017, Number of Deaths:											Year 2018, Number of Deaths:												
	Mortality			Infant Mortality			Maternal Mortality			Neonatal Mortality			Mortality			Infant Mortality			Maternal Mortality			Neonatal Mortality		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Tapia	11	5	16	-	-	-	-	-	-	-	-	-	9	6	15	-	-	-	-	-	-	-	-	-
Tejero	18	17	35	1	1	2	-	-	-	11	2	13	7	7	14	1	-	1	-	-	-	8	1	9
Vibora	4	4	8	-	-	-	-	-	-	-	-	-	5	4	9	-	-	-	-	-	-	-	-	-
Others (Non-residents)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	583	452	1,035	11	5	16	-	1	1	25	11	36	567	421	988	7	6	13	-	4	4	17	13	30

Source: Office of the City Registrar, Office of the City Health Officer

Table 8. Number of Deaths by Barangay, 2017-2021 (continuation)

Barangay	Year 2019, Number of Deaths:											Year 2020, Number of Deaths:												
	Mortality			Infant Mortality			Maternal Mortality			Neonatal Mortality			Mortality			Infant Mortality			Maternal Mortality			Neonatal Mortality		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
1896	4	1	5	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-
Alingaro	6	9	15	-	-	-	-	-	-	-	-	-	5	6	11	-	1	1	-	-	-	-	-	-
Arnaldo	4	1	5	-	-	-	-	-	-	-	-	-	2	1	3	-	-	-	-	-	-	-	-	-
Bacao I	12	12	24	-	-	-	-	-	-	-	-	-	12	16	28	2	-	2	-	-	-	-	-	-
Bacao II	14	8	22	1	-	1	-	-	-	-	-	-	14	16	30	-	-	-	-	-	-	-	-	-
Bagumbayan	6	6	12	-	-	-	-	-	-	-	-	-	6	3	9	-	-	-	-	-	-	-	-	-
Biclatan	35	18	53	2	1	3	-	-	-	-	-	-	38	31	69	-	1	1	-	-	-	-	-	-
Buenavista I	12	10	22	1	1	2	-	-	-	-	-	-	13	10	23	1	-	1	-	-	-	1	-	1
Buenavista II	18	12	30	1	2	3	-	-	-	-	-	-	21	20	41	3	1	4	-	-	-	1	-	1
Buenavista III	14	12	26	-	-	-	-	-	-	-	-	-	19	15	34	2	2	4	-	-	-	-	1	1
Corregidor	3	-	3	-	-	-	-	-	-	-	-	-	4	4	8	-	-	-	-	-	-	-	-	-
Dulongbayan	3	3	6	-	-	-	-	-	-	-	-	-	2	4	6	-	-	-	-	-	-	-	-	-
Gov. Ferrer	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	-	-	-	-	-	-	-	-	-
Javalera	9	5	14	-	-	-	-	-	-	-	-	-	16	13	29	1	-	1	-	-	-	-	-	-
Manggahan	41	15	56	1	1	2	-	-	-	6	3	9	33	28	61	-	2	2	-	-	-	4	2	6
Navarro	38	44	82	1	-	1	-	-	-	-	-	-	65	48	113	5	1	6	-	-	-	-	1	1
Panungyanan	8	4	12	-	-	-	-	-	-	-	-	-	7	6	13	-	-	-	-	-	-	-	-	-
Pasong Camachile I	31	42	73	-	1	1	-	-	-	-	-	-	39	41	80	1	-	1	-	-	-	-	-	-
Pasong Camachile II	51	26	77	3	2	5	-	-	-	-	-	-	92	55	147	3	1	4	-	-	-	-	-	-
Pasong Kawayan I	5	16	21	1	1	2	-	-	-	-	1	1	22	16	38	-	1	1	-	-	-	-	-	-

Barangay	Year 2019, Number of Deaths:												Year 2020, Number of Deaths:											
	Mortality			Infant Mortality			Maternal Mortality			Neonatal Mortality			Mortality			Infant Mortality			Maternal Mortality			Neonatal Mortality		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Pasong Kawayan II	58	44	102	4	2	6	-	-	-	-	-	-	71	40	111	-	-	-	-	-	-	1	-	1
Pinagtipunan	15	15	30	-	-	-	-	-	-	-	-	-	15	19	34	-	-	-	-	-	-	-	-	-
Prinza	2	1	3	-	-	-	-	-	-	-	-	-	1	2	3	-	-	-	-	-	-	-	-	-
Sampalucan	2	5	7	-	-	-	-	-	-	-	-	-	5	3	8	-	-	-	-	-	-	-	-	-
San Francisco	140	74	214	8	5	13	-	-	-	-	-	-	179	117	296	5	4	9	-	-	-	-	-	-
San Gabriel	9	6	15	-	-	-	-	-	-	-	-	-	3	4	7	-	-	-	-	-	-	-	-	-
San Juan I	16	9	25	-	-	-	-	-	-	-	-	-	11	14	25	1	-	1	-	-	-	-	-	-
San Juan II	7	5	12	-	1	1	-	-	-	-	-	-	14	4	18	-	-	-	-	-	-	-	-	-
Santiago	49	38	87	7	-	7	-	-	-	-	-	-	70	64	134	2	1	3	-	-	-	-	-	-
Sta. Clara	20	11	31	1	1	2	-	-	-	-	-	-	24	13	37	-	1	1	-	-	-	-	-	-
Tapia	6	5	11	-	-	-	-	-	-	-	-	-	7	7	14	-	-	-	-	-	-	-	-	-
Tejero	13	5	18	-	2	2	-	-	-	6	-	6	14	10	24	1	-	1	-	-	-	3	1	4
Vibora	7	1	8	1	-	1	-	-	-	-	-	-	3	4	7	1	-	1	-	-	-	-	-	-
Others (Non-residents)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	658	463	1,121	32	20	52	-	-	-	12	4	16	828	637	1,465	28	16	44	-	-	-	10	5	15

Source: Office of the City Registrar, Office of the City Health Officer

Table 8. Number of Deaths by Barangay, 2017-2021 (continuation)

Barangay	Year 2021, Number of Deaths:											
	Mortality			Infant Mortality			Maternal Mortality			Neonatal Mortality		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
1896	-	-	-	-	-	-	-	-	-	-	-	-
Alingaro	15	6	21	2	-	2	-	-	-	-	-	-
Arnaldo	2	2	4	-	-	-	-	-	-	-	-	-
Bacao I	35	27	62	-	1	1	-	-	-	-	-	-
Bacao II	30	24	54	-	-	-	-	-	-	-	-	-
Bagumbayan	7	9	16	-	-	-	-	-	-	-	-	-
Biclatan	69	61	130	-	-	-	-	-	-	-	-	-
Buenavista I	21	22	43	1	-	1	-	-	-	-	-	-
Buenavista II	34	26	60	1	1	2	-	-	-	-	-	-
Buenavista III	25	22	47	-	-	-	-	-	-	-	-	-

Barangay	Year 2021, Number of Deaths:											
	Mortality			Infant Mortality			Maternal Mortality			Neonatal Mortality		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Corregidor	2	10	12	1	-	1	-	-	-	-	-	-
Dulongbayan	8	4	12	-	-	-	-	-	-	-	-	-
Gov. Ferrer	2	1	3	-	-	-	-	-	-	-	-	-
Javalera	25	17	42	-	-	-	-	-	-	-	-	-
Manggahan	48	44	92	-	1	1	-	-	-	1	-	1
Navarro	107	78	185	1	2	3	-	-	-	-	-	-
Panungyanan	13	10	23	1	-	1	-	-	-	-	-	-
Pasong Camachile I	74	56	130	2	2	4	-	-	-	-	-	-
Pasong Camachile II	106	65	171	2	1	3	-	-	-	-	-	-
Pasong Kawayan I	32	21	53	-	-	-	-	-	-	-	-	-
Pasong Kawayan II	129	94	223	2	-	2	-	-	-	1	-	1
Pinagtipunan	38	35	73	-	-	-	-	-	-	-	-	-
Prinza	5	7	12	-	-	-	-	-	-	-	-	-
Sampalucan	9	5	14	-	-	-	-	-	-	-	-	-
San Francisco	247	155	402	6	3	9	-	-	-	1	-	1
San Gabriel	13	14	27	-	-	-	-	-	-	-	-	-
San Juan I	26	21	47	1	-	1	-	-	-	-	-	-
San Juan II	15	14	29	-	-	-	-	-	-	-	-	-
Santiago	107	95	202	1	3	4	-	-	-	-	-	-
Sta. Clara	26	10	36	-	-	-	-	-	-	-	-	-
Tapia	25	5	30	2	-	2	-	-	-	1	-	1
Tejero	25	14	39	-	-	-	-	1	1	-	1	1
Vibora	3	7	10	-	-	-	-	-	-	-	-	-
Others (Non-residents)	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	1,323	981	2,304	23	14	37	-	1	1	4	1	5

Source: Office of the City Registrar, Office of the City Health Officer

Table 9. Number of Deaths by Age-group, 2017-2021

Age-group	Year 2017, Number of Deaths (residents only):						Year 2018, Number of Deaths (residents only):						Year 2019, Number of Deaths (residents only):					
	Deaths (50y/o and above)			Deaths w/ Medical Attendance			Deaths (50y/o and above)			Deaths w/ Medical Attendance			Deaths (50y/o and above)			Deaths w/ Medical Attendance		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Under 1						20						18						17
1-4						6						4						1
5-9						10						2						1
10-14						6						6						2
15-19						11						9						1
20-24						14						6						5
25-29						16						7						5
30-34						9						20						6
35-39						24						28						7
40-44						27						32						5
45-49						39						56						7
50-54	43	39	82			78	44	23	67			57	58	23	81			12
55-59	51	32	83			77	62	36	98			86	59	46	105			20
60-64	70	35	105			93	60	43	103			94	75	41	116			25
65-69	61	49	110			101	64	36	100			93	81	54	135			23
70-74	59	39	98			91	61	54	115			105	81	47	128			18
75-79	60	48	108			95	40	43	83			68	60	52	112			23
80 and over	63	120	183			128	55	103	158			118	67	113	180			24
TOTAL	407	362	769			845	386	338	724			809	481	376	857			202

Source: Office of the City Registrar, Office of the City Health Officer

Table 9. Number of Deaths by Age-group, 2017-2021 (continuation)

Age-group	Year 2020, Number of Deaths (residents only):						Year 2021, Number of Deaths (residents only):					
	Deaths (50y/o and above)			Deaths w/ Medical Attendance			Deaths (50y/o and above)			Deaths w/ Medical Attendance		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Under 1						24						9
1-4						5						3
5-9						3						3
10-14						1						3
15-19						4						2

Age-group	Year 2020, Number of Deaths (residents only):						Year 2021, Number of Deaths (residents only):					
	Deaths (50y/o and above)			Deaths w/ Medical Attendance			Deaths (50y/o and above)			Deaths w/ Medical Attendance		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
20-24						5						14
25-29						5						7
30-34						8						12
35-39						9						13
40-44						12						19
45-49						14						25
50-54	84	44	128			25	117	69	186			26
55-59	100	51	151			24	143	85	228			30
60-64	110	54	164			25	136	100	236			34
65-69	86	77	163			21	163	93	256			34
70-74	89	86	175			23	165	130	295			44
75-79	46	63	109			18	123	115	238			25
80 and over	81	149	230			20	150	237	387			20
TOTAL	596	524	1,120			246	997	829	1,826			323

Source: Office of the City Registrar, Office of the City Health Officer

Table 10. Malnourished Children for The Past Five Years, 2017-2021

Degree of Malnutrition	City/Municipality													
	2017		2018			2019			2020			2021		
	No.	% to Total Children	No.	% to Total Children	Increase/Decrease (%)	No.	% to Total Children	Increase/Decrease (%)	No.	% to Total Children	Increase/Decrease (%)	No.	% to Total Children	Increase/Decrease (%)
Underweight + Severely Underweight	1,595	6.18%	1,337	5.01%	-16.18%	1,304	4.91%	-2.47%	710	4.24%	-45.55%	1,124	4.23%	+58.31%
Stunted + Severely Stunted	3,151	12.22%	2,726	10.21%	-13.49%	2,126	8.00%	-22.01%	1,320	7.89%	-37.91%	2,088	7.85%	+58.18%
Wasted + Severely Wasted	1,942	7.53%	1,526	5.71%	-21.42%	1,440	5.42%	-5.64%	682	4.08%	-52.64%	1,021	3.84%	+49.71%
TOTAL	6,688	25.93%	5,589	20.93%	-16.43%	4,870	18.33%	-12.86%	2,712	16.21%	-44.31%	4,233	15.92%	+56.08%
Total No. of Children (0-15 y/o)	25,795		26,702			26,562			16,726			26,585		

Source: City Social and Welfare Development Office – Nutrition Unit

Nutritional Status

Malnutrition is a body condition caused by deficient, excess, or imbalance in one or more nutrients sustained by the body. It is categorized into three (3) forms - undernutrition, overnutrition, and micronutrient deficiency. Undernutrition is defined as a condition resulting from the intake of inadequate amount of food over an extended period of time, while overnutrition is the opposite; wherein the consumption of food is in excess quantity over an extended period of time. On the other hand, micronutrient deficiency is a result of sustaining inadequate or excess quantity of certain micronutrients (vitamins and minerals).

Operation Timbang + or commonly known as OPT+ is the method of measuring the weight and length/height of children ages 0-71 months. The data collected were used to determine whether the children are underweight, stunted, wasted, or overweight. The prevalence rates of malnutrition were computed after determining the number of malnourished children in the City of General Trias. Prevalence refer to the number of both old and new cases in a population at a specified period of time. It is important to measure the prevalence to determine the health and nutrition needs of the population.

The number of malnourished children and the prevalence rate of malnutrition in the past five (5) years in the city, from 2017 to 2021, is presented in Table 10. It shows that from 2017 the prevalence decreased on the succeeding years, however, it suddenly increased in year 2021. The contributing factors are the global pandemic, hoarding and increase of basic food prices; thus, the sudden increase of malnourishment.

Projected Requirements for Barangay Health Facilities

The projected requirements for barangay health facilities as per DHSUD guideline were computed based on ratio of one (1) Barangay Health Station (BHS) per 5,000 population, and using the projected population by barangay in demographic study. Likewise, the ratio is used to determine the current needs, this means that the city has either enough or has a shortage in numbers of health center facility by barangay.

Due to rapid increase of population in the city and high demand of barangay health center, framers of CLUP made different approach in projecting demands on health centers. It is desirable and economical to project the demand on health center facility of neighboring large barangays/ populous barangay using the ratio for City Health Center of 1:50,000.

Currently, according to the recently conducted City of General Trias Community-Based Monitoring System (CBMS) Census 2020-2021, the city has a total of 38 BHS and two (2) operating City Health Centers located at Barangay Manggahan and Pinagtipunan. CHC at Barangay Pinagtipunan mostly caters citizenry in Poblacion barangays.

Presented in Table 11 the demand of barangay health station for the next years to come. On the other hand, shown in Table 12 the demand of city health center. Apparently, the current need of facilities for CHC is high, however, with the existing number of BHS in these barangays, the need for facility on health-related concern may be sufficient, and the demand shows the most cost-effective results. However, it is also evident that there is zero (0) current need in Poblacion, Manggahan, and other barangays as shown in the tables. This may imply that there is still sufficiency in health facility in these barangays in 2021.

Assuming that all current needs of health facility in 2021 are met, the demand (additional) health center facilities by the end of planning period totaled to 31 for BHS and 10 for CHC.

Table 11. Projected Requirements for Barangay Health Facilities, 2022-2026 and 2030

Barangay	BHS, 2020	Current Need, 2021	Total Demand of Barangay Health Station by Year					
			2022	2023	2024	2025	2026	2030
Alingaro	1	0	1	1	1	1	2	2
Bacao I	1	2	2	2	2	3	3	5
Bacao II	1	1	1	1	1	2	2	3
Javalera	1	0	1	2	2	2	2	3
Panungyanan	1	0	1	1	1	1	1	2
Pasong Kawayan I	1	0	2	2	2	2	2	3
Pinagtipunan	1	0	2	2	2	2	2	3
San Juan I	1	0	1	1	1	2	2	2
San Juan II	1	0	2	2	2	2	2	3
Sta. Clara	1	0	1	1	1	1	1	1
Tapia	1	0	1	1	1	1	2	2
Tejero	1	1	1	1	1	1	2	2
Total	12	4	15	17	18	20	22	31

Note: BHS ratio 1:5,000; Projection based on DHSUD Guidelines

Source: City of General Trias Community-Based Monitoring System, 2020-2021; Office of the City Planning and Development Coordinator

Table 12. Projected Requirements for City Health Center, 2022-2026 and 2030

Barangay	CHC, 2020	Current Need, 2021	Total Demand of City Health Center by Year					
			2022	2023	2024	2025	2026	2030
Poblacion (1896 th , Arnaldo, Bagumbayan, Corregidor, Dulongbayan, Gov. Ferrer, Prinza, Sampalucan, San Gabriel, Vibora)	1	0	0	0	0	0	0	0
Buenavista III, Manggahan, Biclatan	1	0	1	1	1	2	2	2
Navarro, Pasong Camachile I	0	1	1	1	1	1	1	2
Santiago, San Francisco, Pasong Camachile II	0	3	1	1	1	2	2	4
Pasong Kawayan II, Buenavista I, Buenavista II	0	2	0	0	0	0	0	1
Total	2	6	3	3	4	5	6	10

Note: CHC ratio 1:50,000; Projection based on DHSUD Guidelines

Source: City of General Trias Community-Based Monitoring System, 2020-2021; Office of the City Planning and Development Coordinator

Inventory of Cemeteries and Memorial Parks

Currently, there are 10 cemeteries and memorial parks present in the city which is shown in Table 13. Collectively, the total land area of memorial parks and cemeteries measures up to 36.415 hectares. Out of these, 25.21% are owned publicly by the City of General Trias equivalent to 9.1811 hectares. On the other hand, the remaining 74.79% are privately owned equivalent to 27.23 hectares.

The Paradise Garden Memorial Park, a privately-owned cemetery, has the largest land area among all the listed memorial parks having a total land area of 12.41 hectares. Conversely, the Buenavista II Public Cemetery is the smallest with a total land area of 0.49 hectares.

Currently, the capacity of public cemetery is not adequate enough for new burials. Most of the existing burial site that are already accommodated are re-opened and re-used after allowable years prior to last use of burial. Himlayang General Trias, on the other hand, have few plots left as it were already bought/ accommodated. For the private cemeteries, burial site is still adequate for new burials, however most of its lots are possibly already purchased.

Table 13. Cemeteries and Memorial Parks, 2018

No.	Name of Cemetery Memorial Parks	Barangay	Type of Ownership	Area (has.)	Capacity		No. of Burials (2021)	
					Land Area (has.)	Approx. No. of Burial Site	Resident	Non-Resident
1	Bacao I Public Cemetery	Bacao I	Public	0.9691	0.8237	3,375	150	0
2	Beatriz Memorial Garden	Bacao I	Private	2.0592	1.7503	7,173	14	0
3	Buenavista II Public Cemetery	Buenavista II	Public	0.487	0.0414	169	96	0
4	Buenavista II Public Cemetery (Expansion)	Buenavista II	Public	1.8259	1.552	6,360		
5	Heavenly Peace Memorial Garden	Buenavista III	Private	0.8783	0.7466	3,059	6	0
6	Himlayang General Trias	Pasong Camachile II	Public	4.2396	3.6037	14,769	430	2
7	Paradise Garden Memorial Park	Manggahan	Private	12.4117	10.5499	43,237	132	7
8	Saint Francis of Assisi Memorial Park	Pinagtipunan	Private	7.2784	6.1866	25,355	136	2
9	Vibora Public Cemetery	Vibora	Public	1.6595	1.4106	5,781	170	1
10	Way of the Cross-Memorial Park	Pasong Kawayan II	Private	4.6063	3.9154	16,046	46	0

Notes:

1. Capacity Land Area is computed at 85% of the Total Land Area as per IRR of the National Building Code of the Philippines (PD 1096); and Approximate Number of Burial Site is mathematically expressed as Capacity (Land Area) divided by the standard plot size (2.44 square meters).
2. The discrepancy on the declared total number of deaths to the number of burials are due to remains that were chosen to be buried outside General Trias

Source: Office of the City Planning and Development Coordinator, Office of the Civil Registrar

Household Distribution by Type of Toilet Facility

Adequate sanitation and toilet facilities are needed to ensure and promote health. Generally, households in General Trias have access to basic toilet facilities and complied with safe and health standard for sanitary system as presented in Table 14. However, there is an evident number of households without to inadequate sanitation (closed pit, open pit, pail system and others) that sum up to 1,107.

Table 14. Number of Households with Access to Basic Toilet Facility, 2020

Water Sealed Toilet Facility	No. of Household
Water-sealed, sewer septic tank own	114,371
Water-sealed, sewer septic tank, shared	7,876
Water sealed, other depository, own	1,434

Water Sealed Toilet Facility	No. of Household
Water-sealed, other depository, shared	787
Closed pit	454
Open pit	19
Others (pail system, and others)	224
None	410
Total	125,575

Source: City of General Trias Community-Based Monitoring System, 2020-2021

Solid Waste and Wastewater Facilities

Alongside industrial developments were emerging environmental issues such as air, land and water pollution. Focusing on the goal for a cleaner and greener General Trias City and taking on the responsibility as good steward of the environment, the city has initiated the implementation of various environmental projects to prevent the adverse effects of development to the nature.

The City Environmental and Natural Resources Office (CENRO) has implemented a new and improved system of garbage collection and solid waste management. In the efforts of the local government to maintain balance between industrialization and environmental preservation, it continuously expands its green areas through a series of tree planting activities, planting more than 1,000 different species of trees. To further support its advocacy in environment preservation, awareness through the conduct of Solid waste Management Seminars, regular clean-up drives, annual celebration of Earth were being observed. These activities have won the participation of more than a thousand volunteers from different sectors.

With the increasing population and the considerable growth of commercial and industrial establishments in the city, solid waste management would continue to pose serious problems if no appropriate action is taken. The local government should identify and develop a sufficient landfill that would cater to the bulging wastes generated by the city.

Solid Waste Generation and Treatment

General Trias has formulated its Solid Waste Management Plan to ensure solid waste is managed in such a way that protect both public health and the environment. It will serve as a basis of effective management paired with sufficient organizational capacity to implement the proposed reduction, recycling, reusing and composting improvements. The plan approval and implementation must be undertaken by the Solid Waste Management Board together with the City Environment and Natural Resources Office. Substantial changes to current practices are required and commitment is needed on the part of the stakeholders who will share in the responsibility of achieving the outcomes of the plan.

Strategies

- Source Reduction – catalyze shifts in consumer, business, product manufacturing, and solid waste processing practices that reduce the amount and toxicity of waste generated in General Trias.
- Recycling and Composting – move aggressively to strengthen Gen. Trias public and private reuse, recycling and composting efforts and infrastructure to increase the quantity and quality of recovered materials and to build resilient, highly efficient and continually improving programs to reduce the amount of solid waste Gen. Trias disposes. Therefore, Gen. Trias needs to maximize recycling and composting for all types of solid waste generated in the city.

- Information. Education and Communication – significantly increase awareness and understanding of waste management needs, impacts and the critical social, economic, and environmental issues facing General Trias, and build support for programs to engage citizens in actions needed to maximize waste reduction and recycling and minimize the need for additional disposal facility.
- Program Planning, Evaluation and Management – enhance all barangay units planning measurement and program evaluation practices to drive continual progress towards achieving General Trias waste management goals.
- Permitting and Enforcement – ensure that permitting and enforcement decisions promote the goals of the Plan and are made in a manner that is fully protective of people’s health and the environment; achieve the highest level of environmental compliance through predictable, timely, and consistent enforcement and effective compliance assistance where appropriate; and improve communication with barangays, business, industry and the public on the regulatory process in order to facilitate and improve with environmental requirements.
- Funding – adopt stable, long-term funding mechanisms that provide sufficient revenue for local programs while providing incentives source reduction and recycling.

Collection and Disposal

At present the CENRO is in-charge of the daily collection of garbage servicing the 33 barangays in the city. The frequency of garbage collection ranges from twice to thrice a week. For households located in non-populated areas, a minimum of twice a week collection is implemented. On the other hand, thrice a week collection is implemented in more populated areas. As shown in Table 15, majority of the garbage volume from 2014-2018 are generated in areas outside the Poblacion.

Table 15. Volume of Garbage Produced, 2014-2018

Location	Total Population	Garbage Volume (tons)	Percentage
2014			
Poblacion	12,113	1,090.17	3.96%
Outside Poblacion	294,023	26,462.07	96.04%
Total	306,136	27,552.24	100%
2015			
Poblacion	12,446	1,120.18	3.96%
Outside Poblacion	301,857	27,167.09	96.04%
Total	314,303	28,287.27	100%
2016			
Poblacion	13,100	1,179.02	3.96%
Outside Poblacion	317,713	28,594.15	96.04%
Total	330,813	29,773.17	100%
2017			
Poblacion	13,788	1,240.95	3.96%
Outside Poblacion	334,401	30,096.06	96.04%
Total	348,189	31,337.01	100%
2018			
Poblacion	14,513	1,306.13	3.96%
Outside Poblacion	351,966	31,676.98	96.04%
Total	366,479	32,983.11	100%

Source: Office of the City Environmental and Natural Resources Officer

In terms of segregation at source of garbage, City of General Trias passed an ordinance that it shall be of the responsibility of each household upon garbage collection. Implementation and monitoring shall be in charge of CENRO.

Garbage collection, utilizes 24 vehicles, where city has 13 LGU-owned garbage collection vehicles and are composed of two (2) units of forward trucks and 11 units of elf trucks. In addition, the LGU also uses privately-owned vehicles including four (4) units of forward trucks, four (4) units of elf trucks, and two (2) units of long dump trucks. The total garbage capacity of the LGU-owned garbage collection vehicles amounts to 15,914.90 kilograms while for the privately-owned vehicles, it amounts to 45,076.01 kilograms.

Due to rapid urbanization and industrialization, quite a number of environmental concerns mushroomed in the city such as the proliferation of illegal settlers, illegal dumping of domestic waste (liquid and solid) along river easements and air and noise pollution from the increasing number of industries.

Based on 2018 data in Table 16, 97.12% of the total garbage are disposed through hygienic landfill. Meanwhile, only 2.73% are disposed through recycling/reusing and 0.15% through composting. The recycling and composting are done in the Materials Recovery Facility (MRF) of the city which is located beside the General Trias Public Market in Barangay Sampalucan.

Table 16. Types of Garbage Disposal, 2018

Type of Garbage Disposal	Amount Disposed Through the Said Manner (tons)	% to Total
Recycling and Reusing	1,000.85	2.73%
Composting	53.19	0.15%
Hygienic Landfill	35,545.96	97.12%
Total	36,600	100%

Source: Office of the City Environmental and Natural Resources Officer

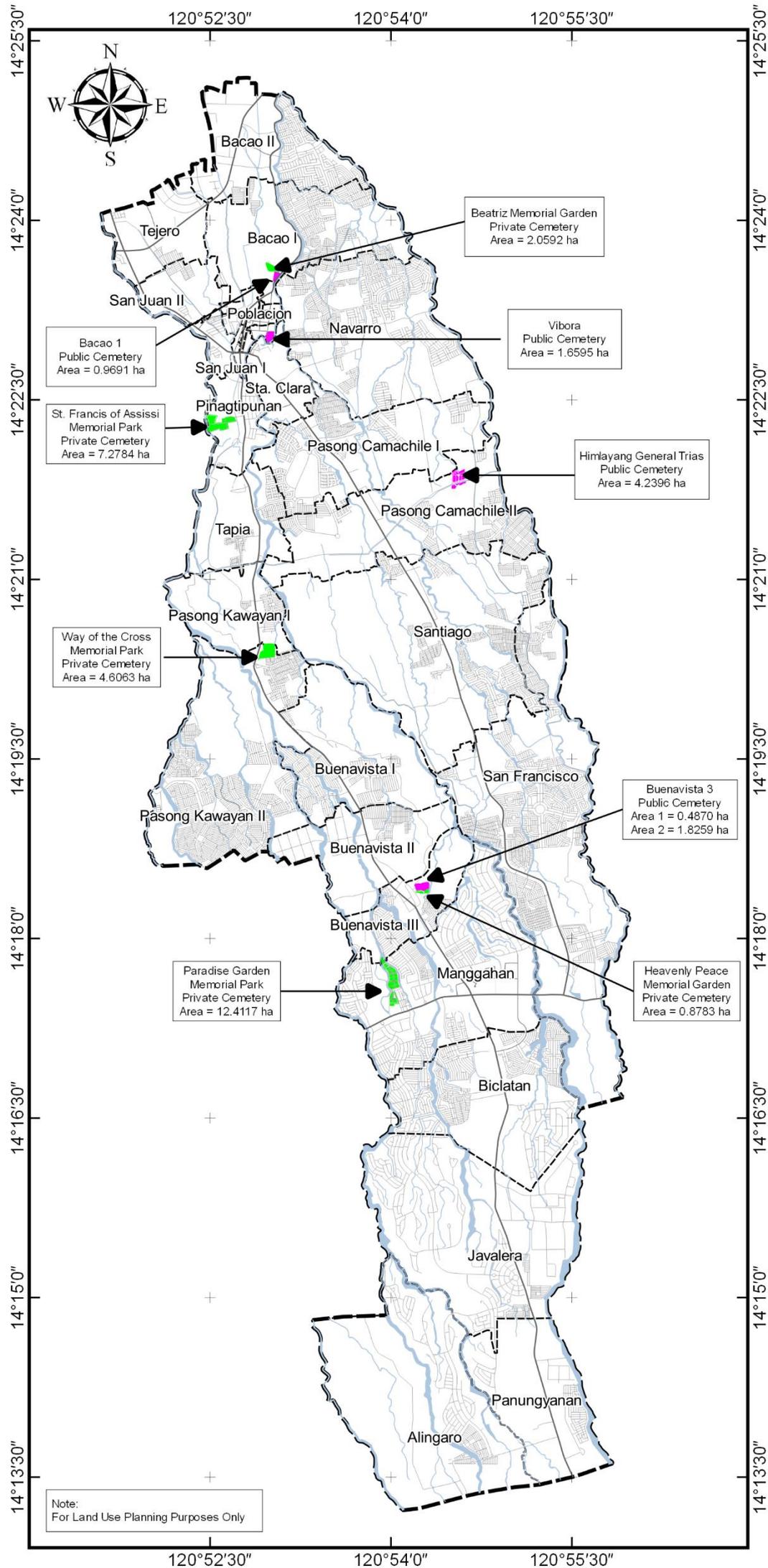
General Trias is one the local government units in Cavite that utilize sanitary landfill of other LGU outside of Cavite on a service contract basis. The City Government is presently managing the 4700 sq. meter waste transfer station that operates in Barangay Navarro before the reduced volume of waste is hauled to Laguna. The City Environment and Natural Resources Office (CENRO) of General Trias has put its Solid Waste Management Board and Environmental Code in place, and has prepared a Solid Waste Management Plan (2012-2021) that is now on the stage of revision after waste characterization is completed.

In its bid to reduce solid waste needing final disposal, LGU will require commercial establishment to improve their waste volume generation through re-use, recycling, and composting activities and other resource recovery activities and allot own garbage hauling system. General Trias is also planning to develop Wastewater Treatment Facility, City Eco-Park and the establishment of the large-scale City MRF with its primary function to recover recyclable materials and to compost biodegradable organic materials all over the city.

Wastewater Generation and Treatment

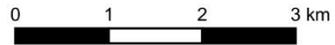
There is no designated site for centralized city liquid waste disposal and treatment. Majority of households discharge their waste into pits, drainage, or irrigation canals. Barangays located near the upstream portion of the rivers are susceptible to pollution caused by industries along that area. Mid-stream and downstream barangays however are, in turn, usually affected by surface runoffs from agricultural lands. The illegal and rampant dumping of domestic waste along river easements is expected to continue to degrade the quality of water in the area.

To use wider range/ coverage, it shall be mandatory to provide wastewater treatment in the master plan of every development in respect to the Solid Waste Management Act (RA 9003) and DENR Administrative Order No. 2016-08 "Water Quality Guidelines and General Effluent Standards of 2016". Wastewater treatment shall be strictly monitored by the CENRO and/or WQMA.



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

1:70000



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

Cemetery Map

Legend:

- City Boundary
- Barangay Boundary
- Rivers / Creeks / Canals
- Road Network
- Private Cemetery
- Public Cemetery

Prepared By:

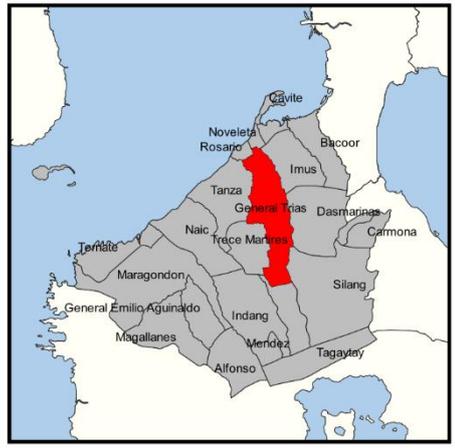
City Technical Working Group for
 Comprehensive Land Use Plan
 (2022-2030)

Assisted By:

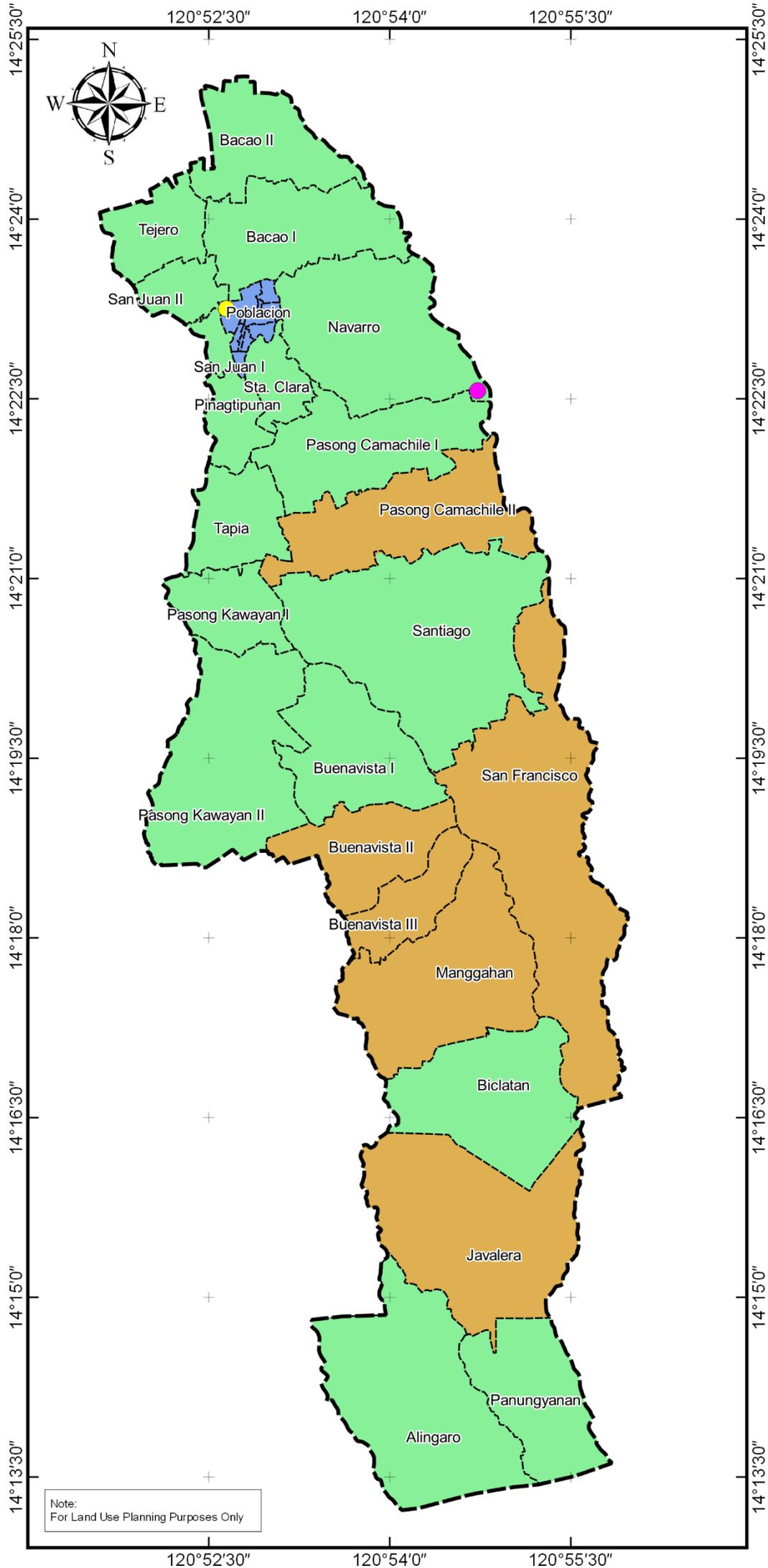
Department of Human Settlements
 and Urban Development
 Region IV-A

Sources:

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

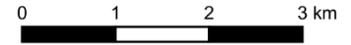


Note:
 For Land Use Planning Purposes Only



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

1:70000



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

Solid Waste Facilities Map

Legend:

- City Boundary
- Barangay Boundary
- Solid Waste Facility**
 - Composting Facility
 - Waste Transfer Center
- Segregation Structure per Barangay**
 - Centralized MRF (Poblacion)
 - Material Recovery Facility (MRF)
 - Material Recovery Receptacle

Prepared By:

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

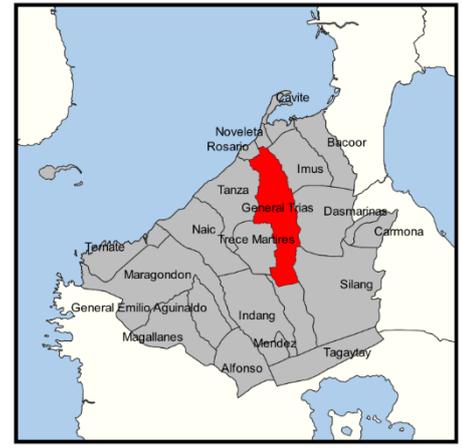


Assisted By:

Department of Human Settlements
 and Urban Development
 Region IV-A

Sources:

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Note:
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Current and Projected Needs

Health Resources

The standard ratio for public health personnel are: one (1) doctor per 20,000 population, one (1) nurse per 20,000 population, one (1) midwife per 5,000 population, one (1) rural health inspector per 20,000 population, and one (1) dentist per 50,000 population.

Currently, the present count of public doctor, nurse, midwife, and hospital beds appear to be inadequate when compared to population-based standard ratios as shown at the current needs in Table 17. In order to respond to the rising needs of the citizenry for an expanded health care services, the required health personnel on the plan period should be met. These requirements are based on the projected population of the city.

At the end of the planning period, 34 doctors, 48 nurses, 123 midwives, 31 rural sanitary inspectors, and 13 dentists are needed to cater the city residents in need of health care. Likewise, the hospital bed ratio of (1) per 2,000 population shows a higher requirement of 265 beds to accommodate the average number of patients to be admitted in the next nine (9) years.

Table 17. Projected Requirement for Public Health Personnel, 2022-2026 and 2030

Health Personnel	Ratio	Base Data, 2018	Current Need, 2021	Total Demand of Public Health Personnel by Year					
				2022	2023	2024	2025	2026	2030
Doctor	1:20,000	8	15	12	14	16	18	21	34
Nurse	1:20,000	25	-2	26	28	31	33	35	48
Midwife	1:5,000	21	69	36	44	53	63	73	123
Rural Health Inspector	1:20,000	5	18	9	11	13	15	18	31
Dentist	1:50,000	3	6	4	5	6	7	8	13
Bed Capacity	1:2,000	10	215	47	68	90	114	140	265

Note: Ratio and Projection based on DHSUD Guidelines

Source: City of General Trias, Ecological Profile 2018; Office of the City Planning and Development Coordinator

Burial Grounds

In 2021, the total number of death and burials recorded in General Trias are 2,339 and 1,192, respectively, and population is projected to be 486,052. These number implies that the crude death rate in the city is at 4.81 which is used to estimate the total number of deaths, and then multiplied to the participation rate of 192.22% and to the minimum lot size of 1.0 meter by 2.44 meters (excluding open spaces, circulation, and facility requirements) (based on DHSUD Guidelines) to determine the required area of burial ground.

The participation rate is the percentage of death that are buried in the city cemeteries. High result of participation rate in the city (with over 100%) may be brought by the Global Covid-19 Pandemic. Hence, giving us a significant number of deaths projected at 4,626 and a demand of burial ground at the end of planning period of 2.21 hectares.

Conversely, using the participation rate of 100%, less than the result from 2021 (assuming that the number of deaths due to the global pandemic) the area demand of burial ground by 2030 decreased to 1.13 hectares. With this, the planning team proposes for the expansion of Bacao I Public Cemetery and to acquire new burial land at Barangay San Francisco.

Table 18. Projected Area Requirement for Burial Ground, 2030

Year	Total Population	Number of Deaths		Projected Area Requirement for Burial Ground	
		Actual	Projected	(sq. m)	(hectares)
2020	450,583	1,508		7,220.13	0.7220
2021	486,052	2,339		11,198.87	1.1199
2022	524,314		2,523	12,080.42	1.2080
2023	565,587		2,722	13,031.38	1.3031
2024	610,109		2,936	14,057.19	1.4057
2025	658,136		3,167	15,163.75	1.5164
2026	709,943		3,416	16,357.41	1.6357
2027	765,829		3,685	17,645.04	1.7645
2028	826,114		3,975	19,034.04	1.9034
2029	891,144		4,288	20,532.37	2.0532
2030	961,294		4,626	22,148.64	2.2149

Note: Projection based on DHSUD Guidelines

Source: City of General Trias, Ecological Profile 2018; Office of the City Planning and Development Coordinator

Area Requirement for Disposal Site

The estimated area required for disposal site is based on the one-hectare wide of dumping ground that will provide as a catchment for a 30,000 population. It is elaborated in Table 19. Based on the table, the projected area required for a disposal site in the city will increase to approximately 23.66 hectares by year 2026. Similarly, disposal site area is projected to continuously increase to 32.04 hectares by year 2030.

Table 19. Projected Land Area Requirement for Disposal Site, 2030

Year	Total Population	Disposal Site Area Requirement (Hectares)
2020	450,583	15.0194
2021	486,052	16.2017
2022	524,314	17.4771
2023	565,587	18.8529
2024	610,109	20.3370
2025	658,136	21.9379
2026	709,943	23.6648
2027	765,829	25.5276
2028	826,114	27.5371
2029	891,144	29.7048
2030	961,294	32.0431

Note: Ratio used is 1 hectare per 30,000 population

Source: City of General Trias, Ecological Profile 2018; Office of the CENRO

Area Requirement for Landfill

Based on the standard solid waste generation per capita of 0.50kg/capita per day and a population of 450,583 for base year 2020, the estimated quantity of waste generated is 82,231,397.50 kilograms yearly (see Table 20). This is estimated to increase to 175,436,068.16 kg in 2030. Considering this, the city will need to provide additional spaces to accommodate this huge waste generated in the years to come.

Table 20. Projected Solid Waste Generation Profile and Future Area Requirements for Sanitary Landfill, 2030

Year	Total Population	Waste Generation (kg/year)	Land Area Demand per Year (sq.m)	Total Land Area Demand per Year (hectares)
2020	450,583	82,231,397.50	249,186.05	37.3779
2021	486,052	88,704,528.64	268,801.60	40.3202
2022	524,314	95,687,214.87	289,961.26	43.4942
2023	565,587	103,219,567.59	312,786.57	46.9180
2024	610,109	111,344,855.71	337,408.65	50.6113
2025	658,136	120,109,754.21	363,968.95	54.5953
2026	709,943	129,564,612.26	392,620.04	58.8930
2027	765,829	139,763,742.42	423,526.49	63.5290
2028	826,114	150,765,732.67	456,865.86	68.5299
2029	891,144	162,633,782.94	492,829.65	73.9244
2030	961,294	175,436,068.16	531,624.45	79.7437

Notes: Projection based on DHSUD Guidelines

Total land area requirement needs to be increased by 50% to allow for daily cover, roads, receiving areas, fencing, etc.

Constants:

Landfill depth = 10m

Residence Time = 10years

Waste density = 330kg/cu.m

Waste per Capita Generated = 0.5kg/capita/day

Source: Office of the City Planning and Development Coordinator

In compliance with the Republic Act No. 9003: An Act Providing For An Ecological Solid Waste Management Program, Creating The Necessary Institutional Mechanisms And Incentives, Declaring Certain Acts Prohibited And Providing Penalties, Appropriating Funds Therefor, And For Other Purposes, Section 20: Establishing Mandatory Solid Waste Diversion “ ... the LGU shall divert at least 25% of all solid waste from waste disposal facilities through re-use, recycling, and composting activities and other resource recovery activities: Provided, That the waste diversion goals shall be increased every three (3) years thereafter ... “. Its primary goal is to lessen the waste that is disposed to sanitary landfill and to improve waste diversions. In Table 21, the percentage of target waste diversion for the next 9-years and its volume and area of sanitary landfill equivalent is shown.

Waste diversion through waste segregation at source program including shall be in coordination and involvement with the barangay. All existing policy shall be reviewed, and through the passed ordinance of the City, CENRO together with Barangay Officials shall implement the and strictly monitor the waste segregation at source. Currently, LGU requires material recovery facility/ waste segregation facility in all residential subdivision.

Table 21. Volume and Area Required for Sanitary Landfill respecting Target Waste Diversion, 2030

Year	Population Projected	PCG (kg/capital/day)	Projected Quantity of Solid Waste			Target Waste Diversion (%)	Weight to be Diverted (kg/year)	Weight to be Disposed (kg/year)	Volume Equivalent (Waste to be Disposed) of Sanitary Landfill		Area Demand (sq.m)	
			Daily (kg/day)	Annual (kg/year)	Accumulated (kg)				Normally Compacted Solid Waste (Typical)		Area to be filled	Total Area
									(cu.m/day)	(cu.m/year)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2020	450,583	0.5	225,291.50	82,231,397.50	82,231,397.50	0.66	54,272,722.35	27,958,675.15	2,321.19	847,232.58	84,723.26	127,084.89
2021	486,052	0.5	243,026.11	88,704,528.64	170,935,926.14	0.70	62,093,170.05	26,611,358.59	2,209.33	806,404.81	80,640.48	120,960.72
2022	524,314	0.5	262,156.75	95,687,214.87	266,623,141.01	0.72	68,894,794.71	26,792,420.16	2,224.36	811,891.52	81,189.15	121,783.73
2023	565,587	0.5	282,793.34	103,219,567.59	369,842,708.60	0.72	74,318,088.66	28,901,478.92	2,399.46	875,802.39	87,580.24	131,370.36
2024	610,109	0.5	305,054.40	111,344,855.71	481,187,564.30	0.72	80,168,296.11	31,176,559.60	2,588.34	944,744.23	94,474.42	141,711.63
2025	658,136	0.5	329,067.82	120,109,754.21	601,297,318.52	0.72	86,479,023.03	33,630,731.18	2,792.09	1,019,113.07	101,911.31	152,866.96
2026	709,943	0.5	354,971.54	129,564,612.26	730,861,930.78	0.72	93,286,520.83	36,278,091.43	3,011.88	1,099,336.10	109,933.61	164,900.42
2027	765,829	0.5	382,914.36	139,763,742.42	870,625,673.20	0.72	100,629,894.54	39,133,847.88	3,248.97	1,185,874.18	118,587.42	177,881.13
2028	826,114	0.5	413,056.80	150,765,732.67	1,021,391,405.87	0.72	108,551,327.52	42,214,405.15	3,504.72	1,279,224.40	127,922.44	191,883.66
2029	891,144	0.5	445,572.01	162,633,782.94	1,184,025,188.81	0.72	117,096,323.72	45,537,459.22	3,780.61	1,379,923.01	137,992.30	206,988.45
2030	961,294	0.5	480,646.76	175,436,068.16	1,359,461,256.97	0.72	126,313,969.08	49,122,099.09	4,078.21	1,488,548.46	148,854.85	223,282.27

Notes: (1) 9-year planning period: 2022-2030

(2) Projected Population, AGR = 7.87%

(3) As utilized by DHSUD; Constant

(4) = (2) x (3); Assuming PCG is not increasing yearly

(5) = (4) x 365days

(6) = Total annual accumulated solid waste from year 1

(7) = Percentage based on City of General Trias SWMP 2015-2024, in compliance to RA 9003 [27.75% of waste are residual and has no means to be diverted, thus the max target waste diverted is at 72.25%]

(8) = (5) x (7)

(9) = (5) - (8)

(10) = (9) / Density * 10years / 365days

(11) = (9) * 10years; or (10) * 365days

(12) = (11) / 10meters

(13) = (12) + (12) * 50%; 50% allowance for daily cover, roads, receiving areas, fencing, etc.

Source: Office of the CENRO; Office of the City Planning and Development Coordinator

