24.3 INDICATION OF "DO NOTHING" CASE TRAFFIC ASSIGNMENT

"Do-nothing" case traffic assignment (2030 traffic demand assigned to present road network) shows the following:

- Traffic congestion is expected on the following roads;

  - Cebu North Road up to Compostela
  - Cebu South Road up to Naga
  - Cebu Coastal Road from Jct. with Cebu North Road to Jct. with UN Ave.
  - Both First and Second Mandaue-Mactan Bridges
  - Road section between First and Second Mandaue-Mactan Bridges in Mactan Island
  - Other City Streets in Cebu, Mandaue and Talisay Cities

24.4 PROPOSED HSH NETWORK

Based on the urban center distribution, regional/urban development strategies, distribution of economic zones and tourist attraction points, topographical constraints and traffic conditions, HSH network was proposed as shown in **Figure 24.4-1**. Major concepts are as follows;

Highly Urbanized Area

- Three (3) transport axes are formed;

  - Cebu Central Transport Axis (Cebu North Road and Cebu South Road)
  - Cebu Central Transport Axis (road constructed on the reclamation land). It is extended up to Liloan (new road).
  - Cebu Hillside Transport Axis (new road along the hillside and functions as a circumferential road for traffic distribution)

Northern Area

- Cebu North Transport Axis is formed consisting of Cebu North Road and its parallel road (new road).

Southern Area

- Cebu South Transport Axis is formed consisting of Cebu South Road and its parallel road (new road).

Mactan Island

- Mactan Island Tourism Development Transport Axis (or Mactan Island circumferential road) is formed.

- Connection between Cebu Main Island and Mactan Island is strengthened.

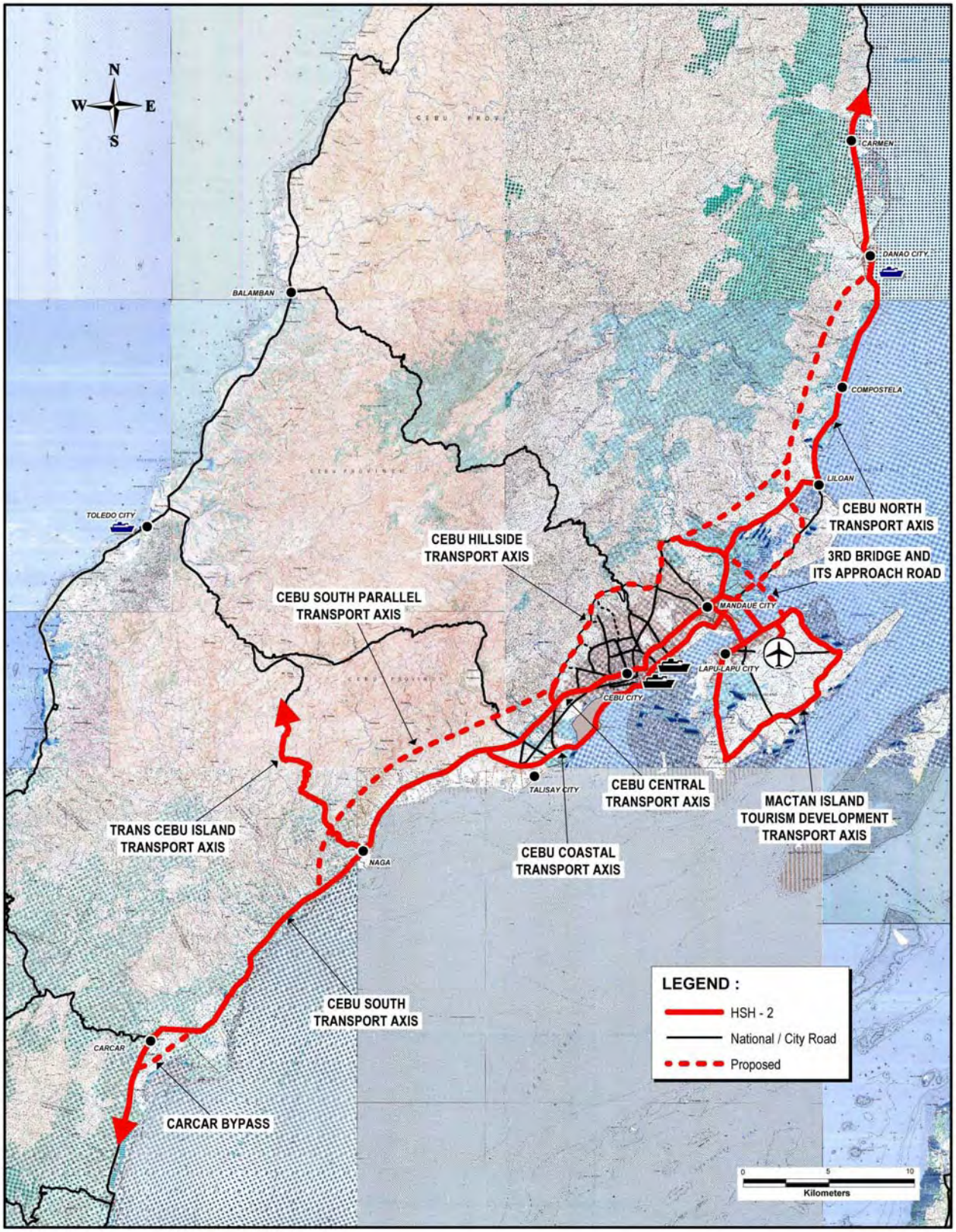


FIGURE 24.4-1 (1/2) PROPOSED HSH NETWORK: METRO CEBU

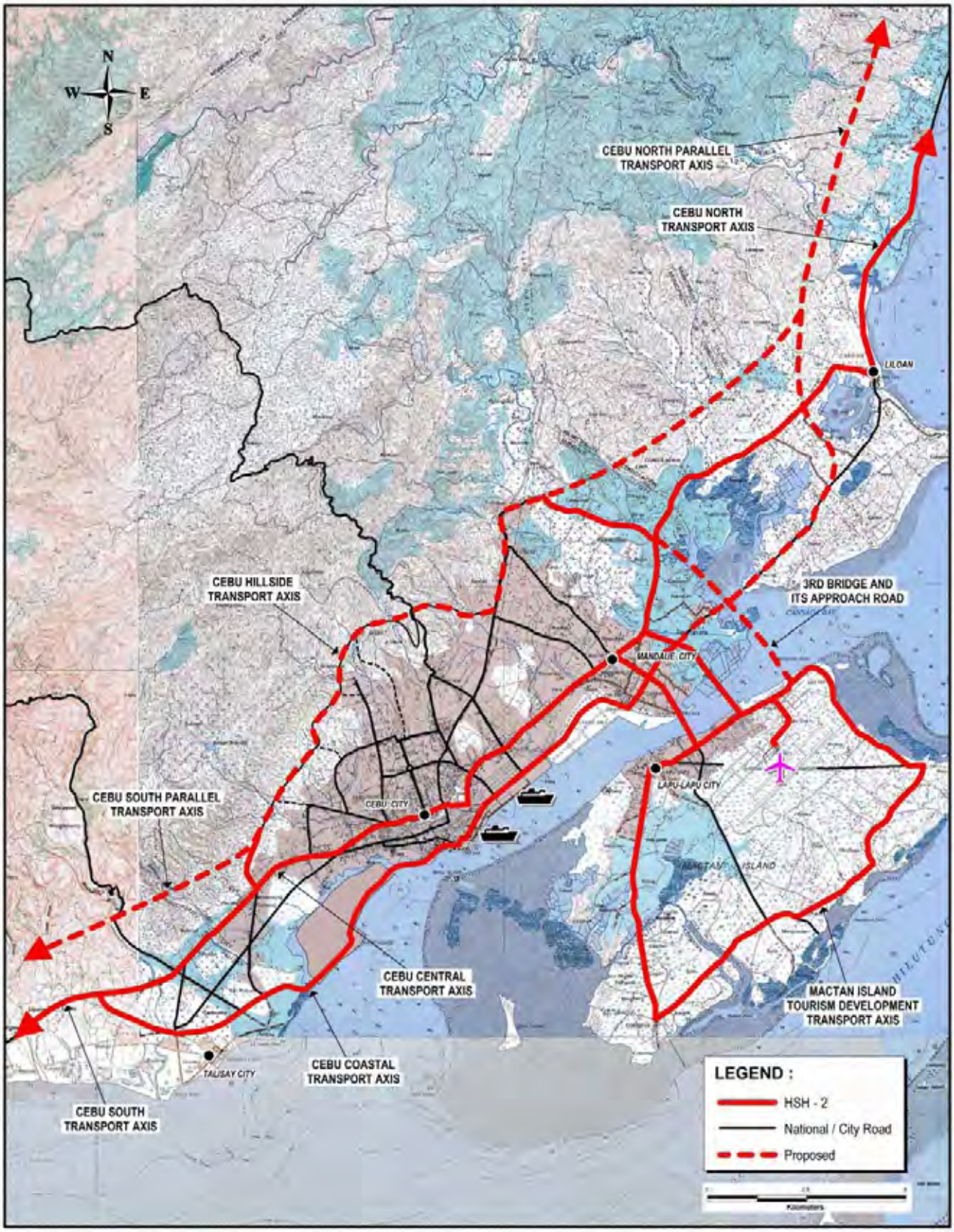


FIGURE 24.4-1(2/2) PROPOSED HSH NETWORK: HIGHLY URBANIZED AREA

24.5 IDENTIFIED HSH PROJECTS

Identified HSH projects and their implementation targets are shown in **Table 24.5-1**, and graphically shown in **Figures 24.5-1** and **24.5-2**.

TABLE 24.5-1 IDENTIFIED HSH PROJECTS

Project Name		Implementation Target	
		By 2020	By 2030
Highly Urbanized Area	(1) Extension of Cebu Coastal Road up to Liloan	• Construction of a 4-lane road	
	(2) Construction of Cebu Hillside Road and its Connector Roads	• Construction of a 2-lane road	• Widening to a 4-lane road
	(3) Flyover construction along Cebu North Road, Cebu South Roads and Coastal Road	• Construction of 4 flyovers	• Construction of 5 flyovers
Northern Area	(4) Widening of Cebu North Road	• Widening to a 4-lane road from Mandauae/ Liloan boundary to Danao City	
	(5) Construction of Cebu North Parallel Road		• Construction of a 2-lane road
Southern Area	(6) Widening of Cebu South Road from Naga to Carcar	• Widening to a 4-lane road	
	(7) Construction of Cebu South Parallel Road	• Construction of a 2-lane road	• Widening to a 4-lane road
Mactan Island	(8) Improvement of Mactan Circumferential Road	• Improvement of existing road	
	(9) Widening of First Mandaue-Mactan Bridge and its Approach Roads		• Widening to a 4-lane bridge including approach roads
	(10) Construction of 3rd Bridge and its Approach Road		• Construction of a 4-lane bridge and its Approach Road

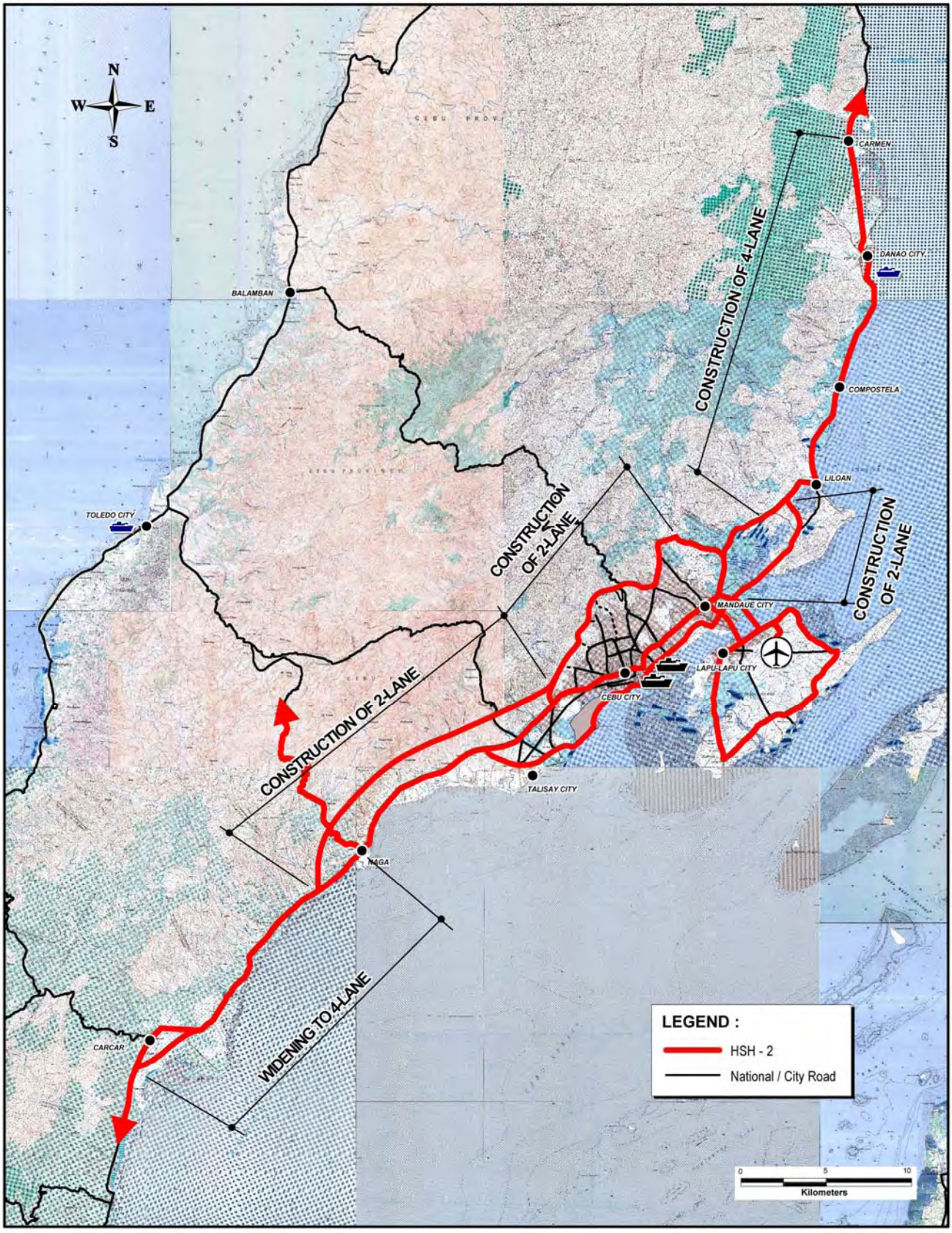


FIGURE 24.5-1 (1/2) PROPOSED 2020 HSH NETWORK: METRO CEBU

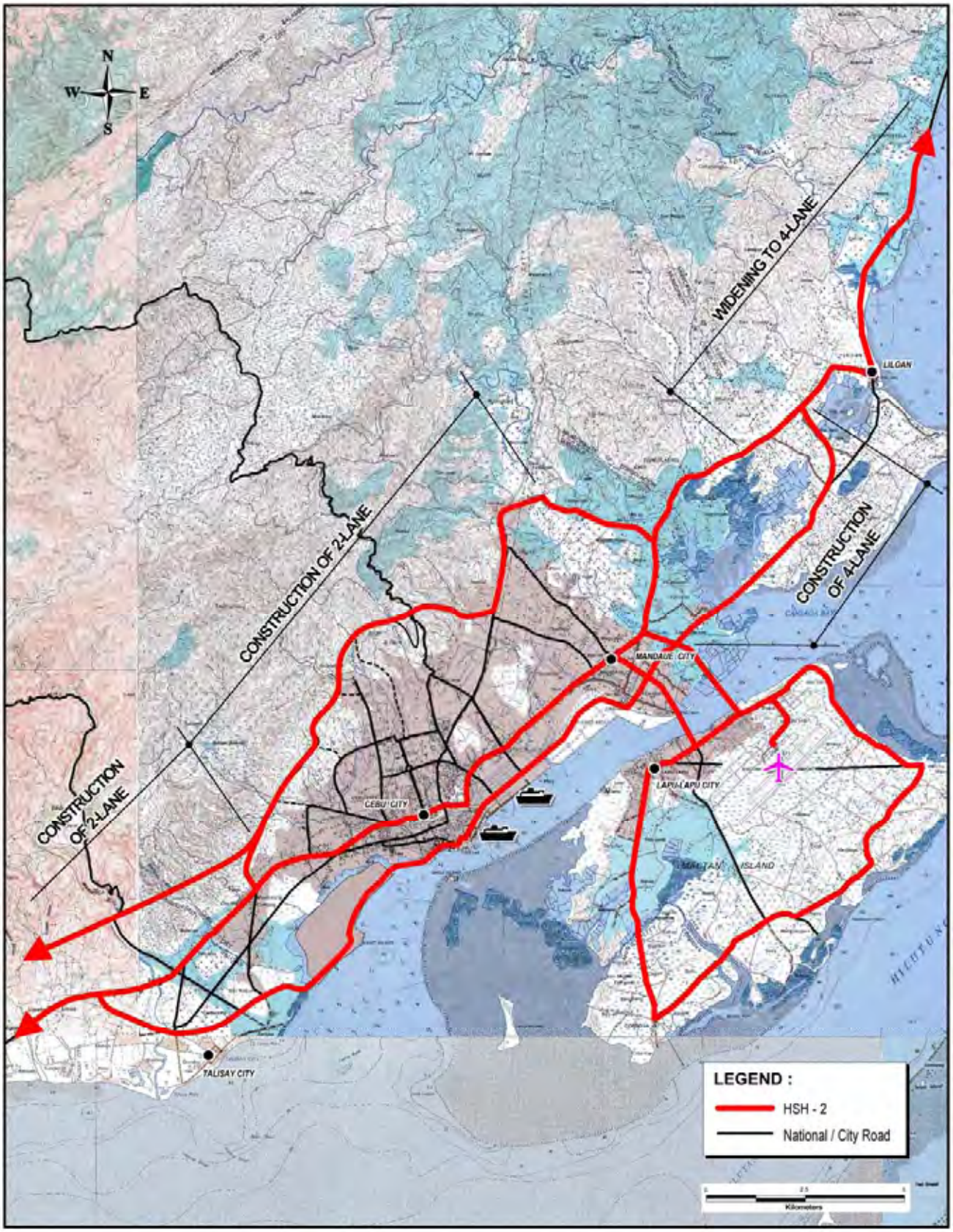


FIGURE 24.5-1 (2/2) PROPOSED 2020 HSH NETWORK: HIGHLY URBANIZED AREA

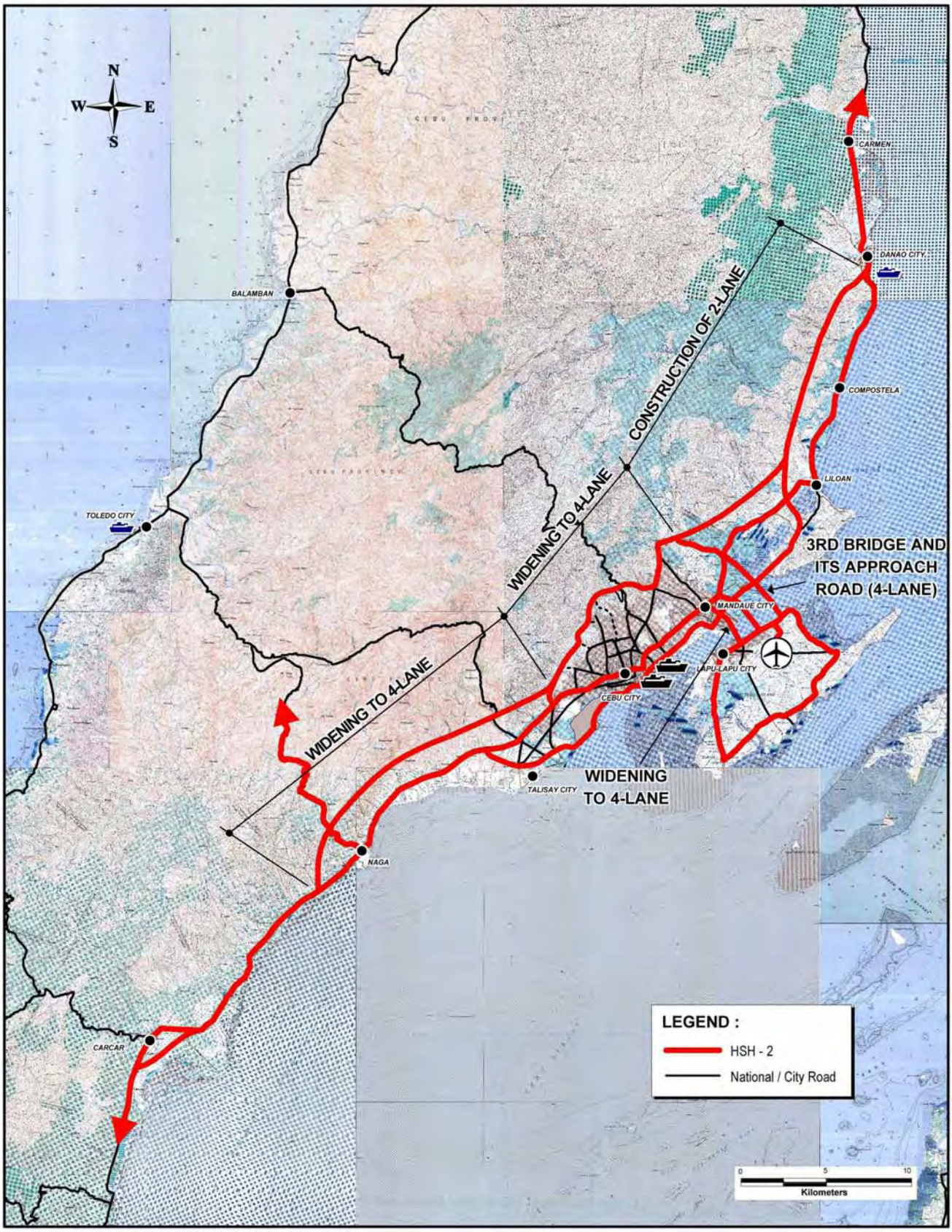


FIGURE 24.5-2 (1/2) PROPOSED 2030 HSH NETWORK: METRO CEBU

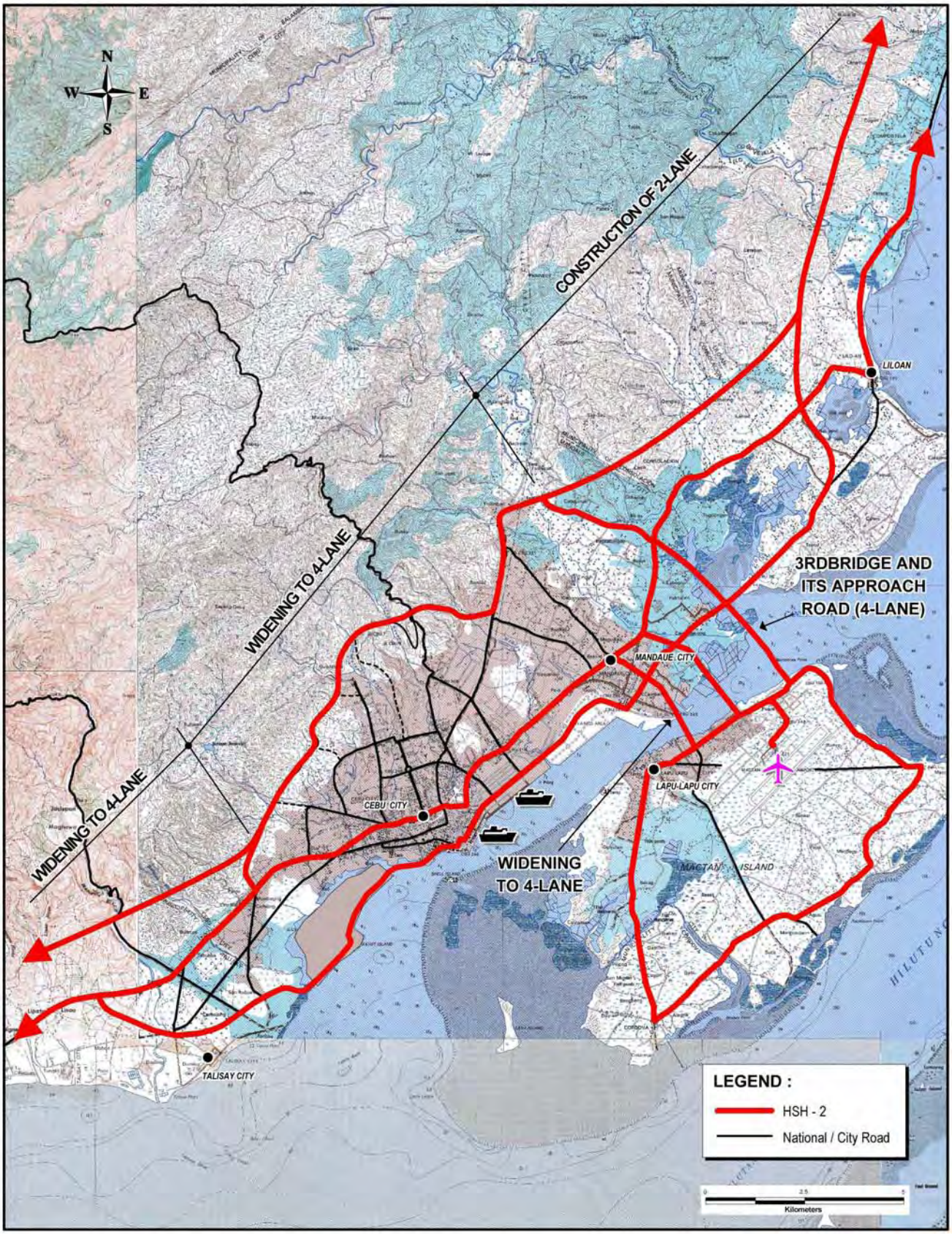
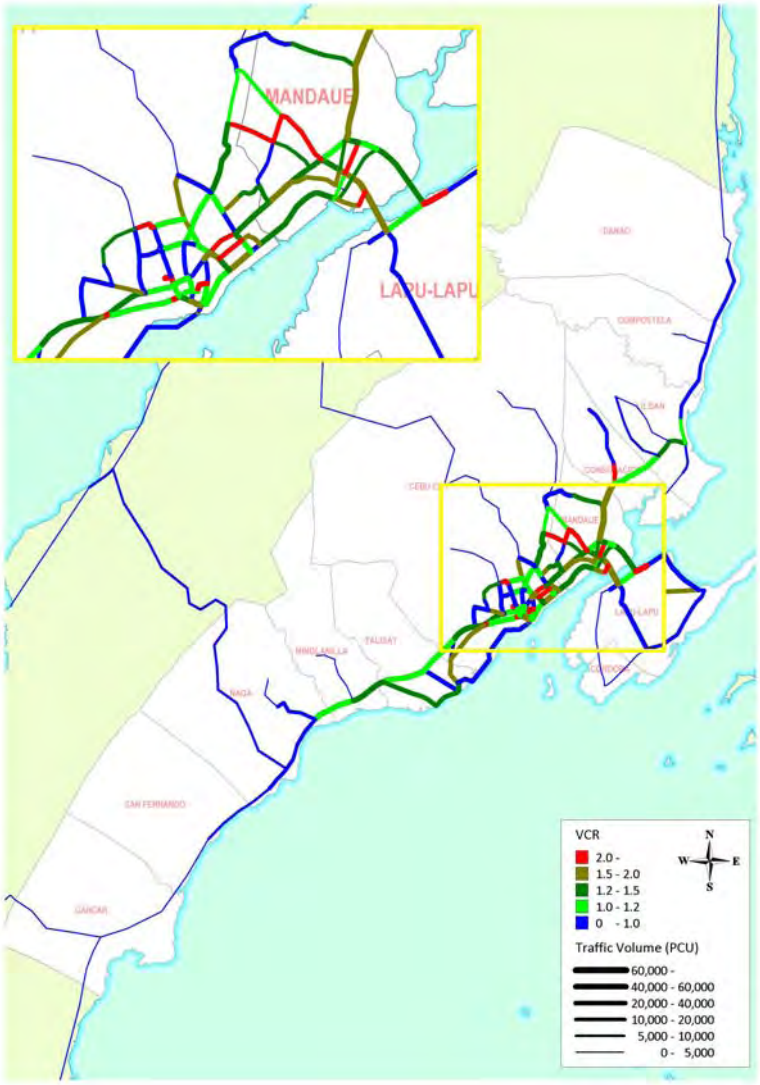


FIGURE 24.5-2 (2/2) PROPOSED 2030 HSH NETWORK: HIGHLY URBANIZED AREA

24.6 TRAFFIC ASSIGNMENTS ON 2020 NETWORK AND 2030 NETWORK

In this section, the result of traffic assignment that shows the estimated traffic volumes on each road section is displayed for the year of both 2020 and 2030. **Figure 24.6-1** shows the result of the do-nothing case and the proposed network case in 2020 and **Figure 24.6-2** shows the result of that in 2030.

DO NOTHING CASE



PROPOSED NETWORK CASE

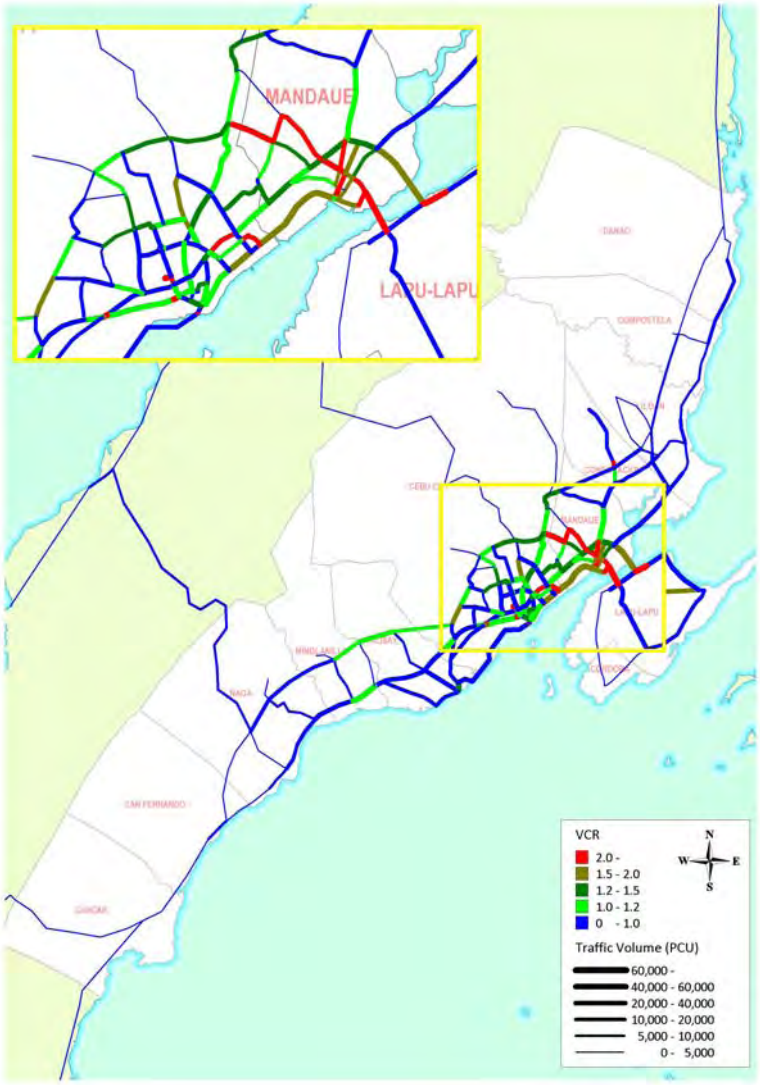
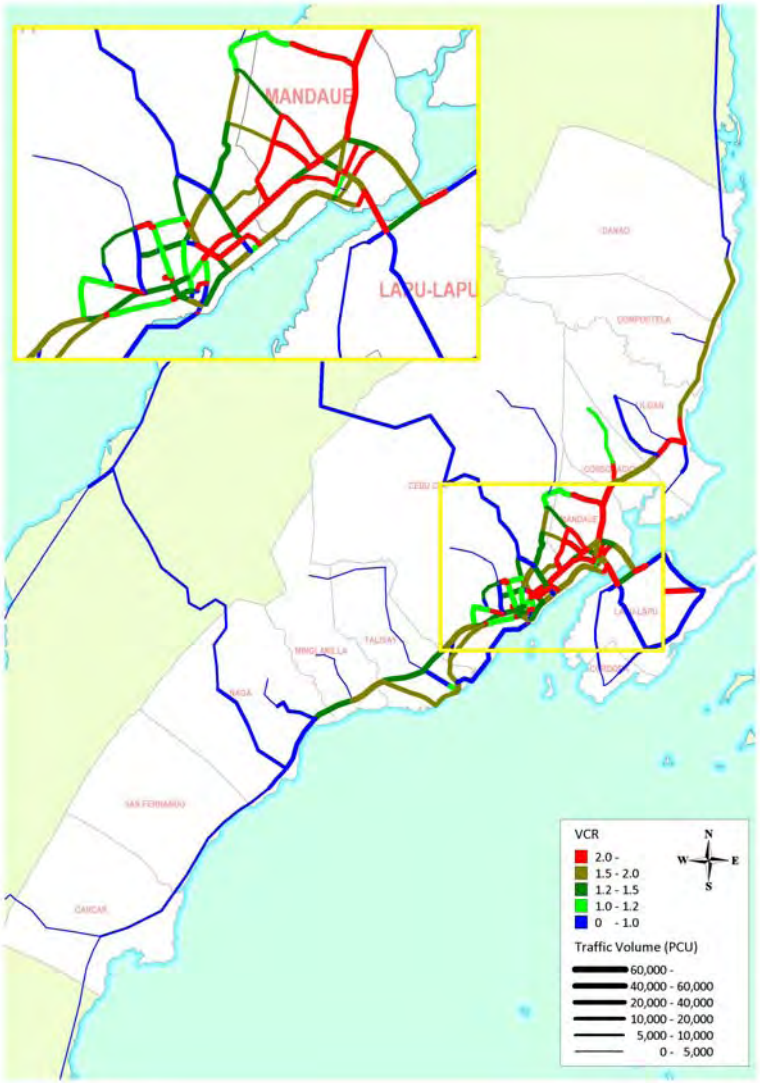


FIGURE 24.6-1 TRAFFIC ASSIGNMENT RESULT OF "DO NOTHING " CASE AND "PROPOSED" CASE IN 2020

DO NOTHING CASE



PROPOSED NETWORK CASE

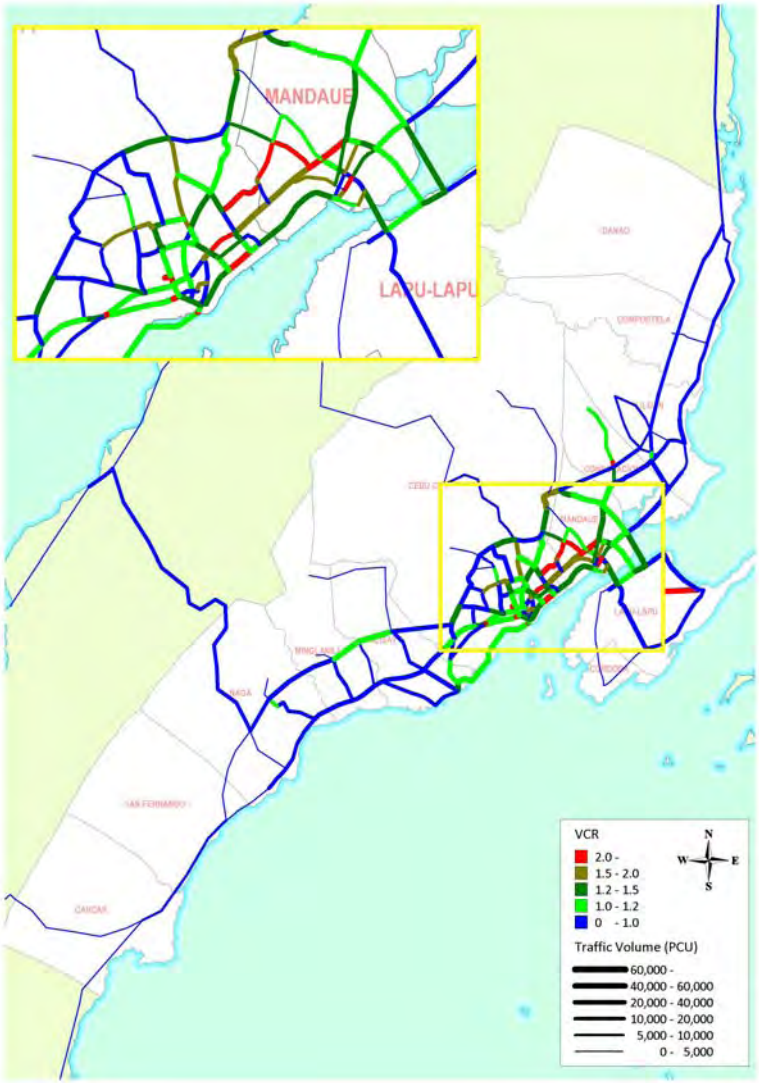


FIGURE 24.6-2 TRAFFIC ASSIGNMENT RESULT OF "DO NOTHING " CASE AND "PROPOSED" CASE IN 2030

24.7 IMPACT OF PROPOSED HSH PROJECTS

An impact of the proposed HSH network plan is analyzed by comparing network performance indicators of "Do-Nothing" case and "Proposed" case, in this section.

Table 24.7-1 summarizes the network performance indicators by traffic assignment case. The performance indicators of highway network include daily travel distance (vehicle*km), daily travel time (vehicle*hour), average volume capacity ratio, average travel speed. The following formulas describe the definition of each indicator.

Total travel distance: $TD = \sum_k V_k \cdot l_k$

Total travel time: $TT = \sum_k V_k \cdot \frac{l_k}{s_k}$

Volume capacity ratio: $VCR = \frac{TD}{\sum_k Q_k \cdot l_k}$

Average travel speed: $TS = \frac{TD}{TT}$

Where, V_k : Assigned traffic volume on link *k*

l_k : Length of link *k*

s_k : Average travel speed of assigned traffic on link *k*

Q_k : Capacity of link *k*

The impact of the proposed HSH network plan can be summarized as follows:

- The total travel distance of "Proposed" case indicates 8.5 million PCU*km. By comparing this value with that of "Do-Nothing" case, travel distance is shortened by 4%. This implicates that 4% of wasteful detour travel may be improved.

- The impact on the improvement of travel time is more remarkable than travel distance. It would be improved by 22% in 2020, and 40% in 2030 (222 thousand for "Proposed" case and 374 thousand for "Do-Nothing" case)

- Average travel speed indicates the improvement of about 62%.

TABLE 24.7.1 NETWORK PERFORMANCE BY ASSIGNMENT CASE

Item	2020		2030	
	Do-Nothing Case	Proposed Case	Do-Nothing Case	Proposed Case
Total Travel Distance (1000 PCU*km)	6,721	6,442	8,800	8,442
Total Travel Time (1000 PCU*hour)	241	189	374	222
Average Volume Capacity Ratio (volume/capacity)	0.82	0.64	1.04	0.74
Average Travel Speed (km/h)	27.9	34.2	23.5	38.1

PART IV

TAGUM - DAVAO - GEN. SANTOS (TDG) CORRIDOR

CHAPTER 25

GENERAL PROFILE OF TDG

CHAPTER 25
GENERAL PROFILE OF TDG

25.1 PHYSICAL PROFILE

25.1.1 Topography

As shown in **Figure 25.1.1-1**, Mindanao Island can be divided into eight (8) topographical divisions, namely (i) Diwata Cordillera, (ii) Agusan Plain, (iii) Davao Upland, (iv) Bukidnon Plateau, (v) Cotabato Plain, (vi) Tiruray Upland, (vii) Lanao Plateau, and (viii) Zamboanga Upland. The Diwata Cordillera is a tightly folded mountain range which runs in an almost N-S orientation. It is located east of the Agusan River. The highest mountain in the range, with an elevation of 1,837 meters above sea level (masl) is Mt. Hilonghilong. Mt. Apo, the highest peak in the Philippines, with an altitude of 2,954 masl, is found in the Davao Upland.

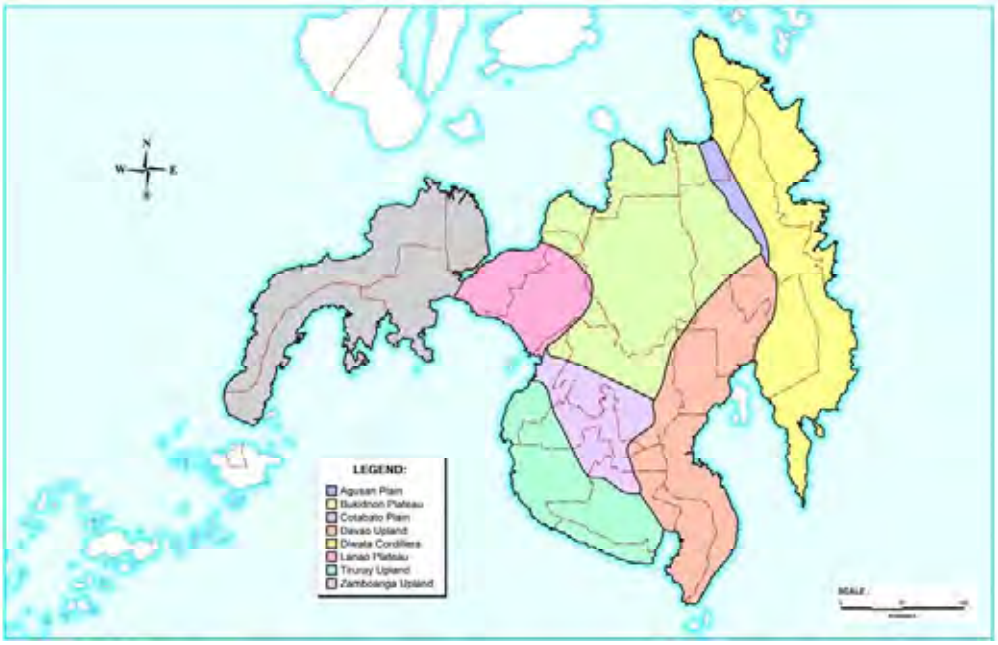


FIGURE 25.1.1-1 TOPOGRAPHICAL DIVISIONS OF MINDANAO ISLAND

The Elevation Map of Mindanao Island presented in **Figure 25.1.1-2** corroborates the topographic features mentioned above. As shown in the map, Lanao and Bukidnon plateaus, as well as the Davao and Tiruray Uplands have topographic highs with minimum elevation ranging from 500-750 masl. There are only two areas, namely the Cotabato Plain and the Agusan Valley Plain that can be considered as lowland, with elevations ranging from 0 – 250 masl. These topographic lows correspond to two (2) of the nine (9) sedimentary basins found within the Philippine Mobile Belt.

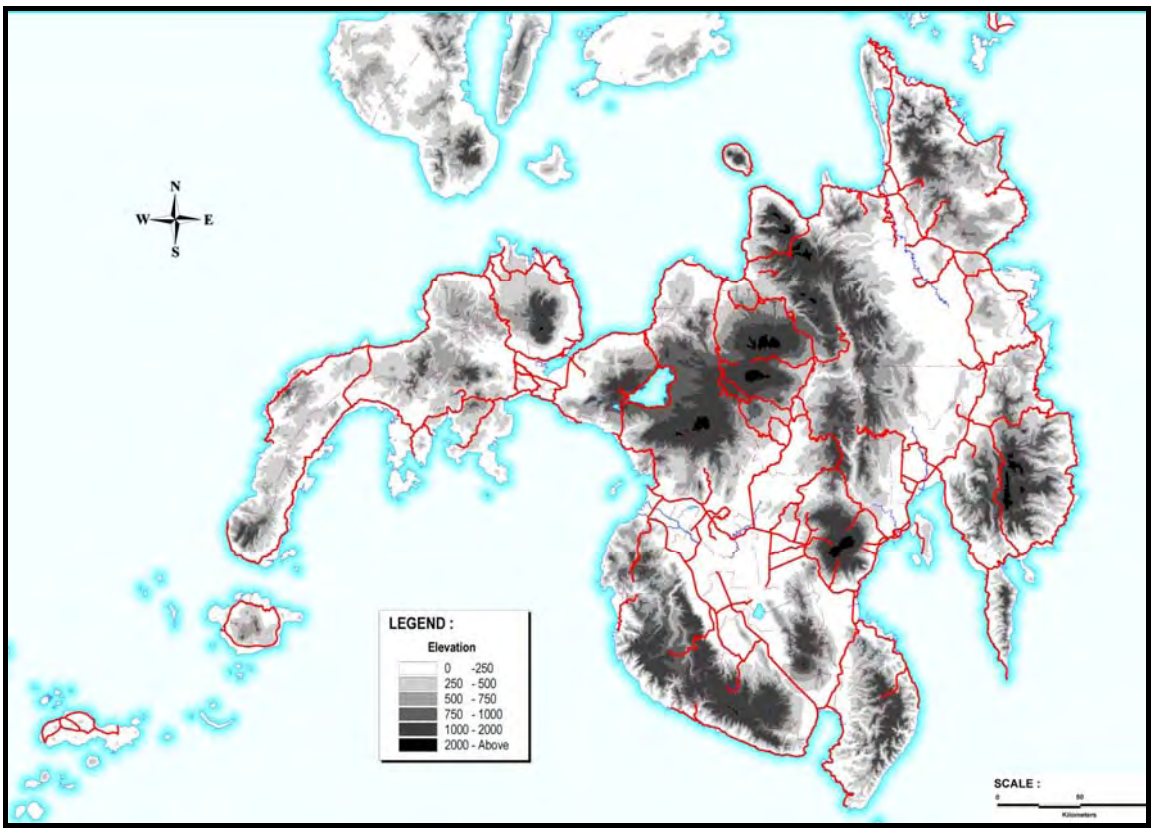


FIGURE 25.1.1-2 ELEVATION MAP OF MINDANAO ISLAND

25.1.2 Location

The Tagum-Davao-General Santos corridor traverses two regions and is located at the southeastern portion of the Mindanao Island.

Davao del Norte, where Tagum locates, is situated in between latitudes 6°05'00"N and 8°00'00"N and longitudes between 125°18'25"E and 125°55'75"E.. Davao del Sur, where Digos locates, is situated in latitudes 5°22'42"N and longitudes between 125°05'42"E and 125°17'E.. General Santos City locates in between latitudes 5°58'N and 6°20'N and between longitudes 125°01'E and 125°17'E.

Davao City and General Santos City are Chartered City and politically and administratively independent from provinces. These cities are also located in strategic positions of the provinces with natural harbors and typhoon-free climate.

FIGURE 25.1.2-1 MAP OF REGION XI AND XII

25.1.3 Topographic Features

(1) Soil Types

Davao del Norte

Tagum area is mainly Alluvium type rocks and located on major sedimentary basins in the Philippines. Other major soil type observed in the area is those developed form either alluvium washed from the uplands or from materials originating from igneous or sedimentary rocks. Most of the province's soil types are the Camansa clay loam and Cabangan clay loam: the former is mainly found in hilly and mountainous area and the latter is in near the gulf. Other soil types that are observed in the region are San Miguel silty loam, Bolinao clay, Cabantian clay, hydrosols and undifferentiated mountain soils. Almost all the land with slope greater than 8% tends to be eroded.

Davao City area

Davao City consists of three major soil types: (1) soils of the plains and valleys; (2) soils in the intermediate uplands; (3) soil of hills and mountains. Type (1) is composite of San Miguel silty clay loam and Mitina clay loam which is originated from Alluvium parents rock. Type (2) is composite of various types of clays which is originated from igneous rock, soft corraline lime stone, and soft shales with mixtures of weathered gravels and pebbles. Type (3) is composite of Camansa sandy clay loam and mountain soils which is originated from shales and sandstones

with weathered gravel and sand, and various kinds of igneous and metamorphic rocks.

Davao del Sur

Most part of Sta.Cruz and Digos are located in Mt. Apo range and alluvium land. The portion of Mt. Apo range is steep formed with rocks agglomerated with volcanic flows and pyroclastic rocks. This is Pliocene-Quaternary rock formation and essentially composed of rock fragments of basillic andesite and pyroxene andesite cmented by tuffaceous matrix. Beds of tuff are horizontal to moderately dipping and are composed chiefly of consolidated volcanic ash and some tuffaceous materials. The existing national highway is running on the strip of the Alluvium formation along a sandy beach.

General Santos City Area

The land of General Santos City area is a mixture of many different types of landforms: Coastal, Broad Alluvial plain, Minor Alluvial plain, Residual terraces, Footslopes (Piedmont), Plateau, Hills. Major soil types are land clay loam, sand, and sandy loam. Total area of upland soil classified under Class B is 12,905 ha (24%) of the City.

(2) Slopes and Elevations

Davao del Norte

The topography of Tagum is generally flat with certain rolling portions in the northern side (e.g. Nueva Fuerza, San Agustin, New Balamban, Pandapan and Magdum barangys) and coastal roads in the southern portion (along barangays Liboganon, Busaon and Madaum). One hundred percent (100%) of Tagum and Carmen and 80% of Panabo City are classified as “Alienable and Disposable Lands”. The rest of Panabo city (20%) is “forestlands”.

TABLE 25.1.3-1 SLOPE DENSITY OF CITIES LOCATED IN BETWEEN TAGUM AND DAVAO CITY IN DAVAO DEL NORTE PROVINCE

	% Slope and area (km^2)						Total Area (km^2)
	“Alienable and disposable”			“Forestlands”			
	0-3%	3-8%	8-18%	18-30%	30-50%	>50%	
Tagum	168.923	10.510	2.658	0	0	0	182.09
Panabo City	130.235	37.950	49.650	1.245	36.095	0	255.18
Carmen	141.965	0.165	0.52	0	0	0	142.65

Source: PAG-ASA Agromet Station, Hijo Plantation, Madaum, Tagum City

More than 80% of total land areas in Panabo city and Carmen and 92% of Tagum are elevation less than 100m (“very low”). In Davao del Norte province itself does not have a municipality with elevation greater than 2,000m and more than 50% of land are within elevation ranged between 0m and 300m(“very low” to “low”) while about 35% are considered to be “moderately high”(500-1000m).

TABLE 25.1.3-2 ELEVATIONS OF CITIES LOCATED IN BETWEEN TAGUM AND DAVAO CITY IN DAVAO DEL NORTE PROVINCE

	Areas for different elevations (km^2)					Total (km^2)
	0-100m	100-300m	300-500m	500-1000m	>1000m	
Tagum	18,007	347	1,226	-	-	19,580
Panabo City	15,735	3,383	222	-	-	19,340
Carmen	23,669	4,439	142	-	-	28,250

Source: PAG-ASA Agromet Station, Hijo Plantation, Madaum, Tagum City

Davao City

A substantial part of Davao City is mountainous, characterized by extensive mountain ranges with uneven distribution of plateaus and lowlands. The mountain range which delimits the western boundary of the city extends as far down to South Cotabato. This mountain range nurses the highest peak in the Philippines, which is Mt. Apo located at the boundaries of North Cotabato, Davao del Sur and Davao City. Mt. Apo has an elevation of about 3,144 m above sea level. It has been considered as semi-active volcano.

Davao del Sur

Lands are classified into two major classes by degree of slopes on the Presidential Decree 705: alienable and disposable (A&D) and forestlands. The A&D is land with slope between 0 and 18% and the rests are for the forestland. Slopes in the concerned municipalities, Digos and Sta. Cruz of Davao der Sur province are summarized in the table below.

TABLE 25.1.3-3 SLOPE DENSITY OF DIGOS AND STA. CRUZ IN DAVAO DEL SUR PROVINCE

	% Slope and area (km^2)						Total Area (km^2)
	"Alienable and disposable"			"Forestlands"			
	0-3%	3-8%	8-18%	18-30%	30-50%	>50%	
Digos	73.32	9.75	34.87	11.66	90.67	47.59	267.87
Sta. Cruz	51.35	20.94	28.29	34.78	57.95	84.31	277.6

Source: Provincial development and physical framework plan, 2007-2013: Davao del Sur

Areas with critical slope (gradient of greater than 40%) are defined as Environmentally Critical Areas (ECAs) and subject to EIS and ECC for an Environmentally Critical Projects (ECPs) such as road and bridge constructions. The areas with the slope greater than 50% ("very steep") for Digos and Sta. Cruz are 18% and 30% of total areas respectively. More than 50% of total land areas of both municipalities are areas with slope greater than 30%("steep" to "very steep"). Existing road running through Sta. Cruz from Digos to Davao is located on a narrow strip of land laying in between foot of steep mountains and built-up area of substandard-houses and plantations along sandy beaches.

TABLE 25.1.3-4 ELEVATION OF DIGOS AND STA. CRUZ IN DAVAO DEL SUR PROVINCE

	Areas for different elevations (km^2)					Total (km^2)
	0-200m	200-500m	500-1000m	1000-1500m	>1500m	
Digos	121.17	49.10	49.97	34.07	13.54	267.8
Sta. Cruz	71.58	49.60	73.81	74.25	8.46	277.7

Source: Provincial development and physical framework plan, 2007-2013: Davao del Sur

Digos and Sta.Cruz municipalities are mountainous and steep: about 55% of Digos and 74% of Sta, Cruz are situated at elevation greater than 200m. About 18% of Digos and 30% of Sta.Cruz are located at elevation greater than 1000m.

General Santos City

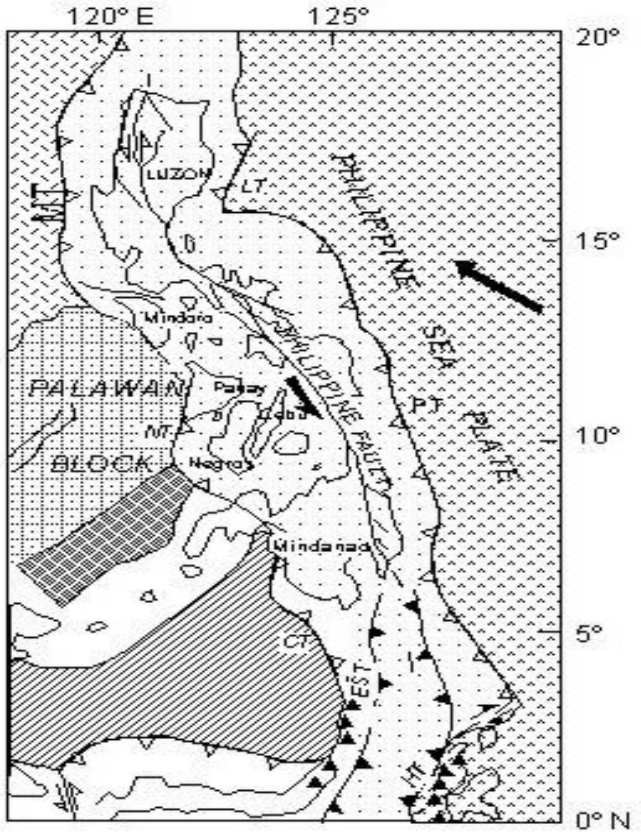
General Santos City is located in a flood plain in Sarangani Bay area. About 36% of the land (19,040 ha) is slope of 0 to 3% that is used for residential and commercial purposes. About 42% (22,996ha) is slope between 3 and 15% that is used for agricultural purpose. More than 80% of land is classified as "Alienable and disposable". Less than remaining 20% is classified as "forestlands" and used for raising live stocks and miscellaneous use.

25.1.4 Geology

(1) Seismic fault lines

The Philippine Mobile Belt

The Philippine Mobile Belt (PMB) is an actively deforming zone located between the Philippine Sea Plate and the eastern margin of the Eurasian Plate, where a complex system of subduction zones, collision zones and marginal sea basin openings are located. The subduction zones surrounding the Philippine Mobile Belt are with opposing polarities; i.e., subduction zones east of the mobile belt have westward vergence while those on the west are subducting eastward (**Figure 25.1.4-1**).



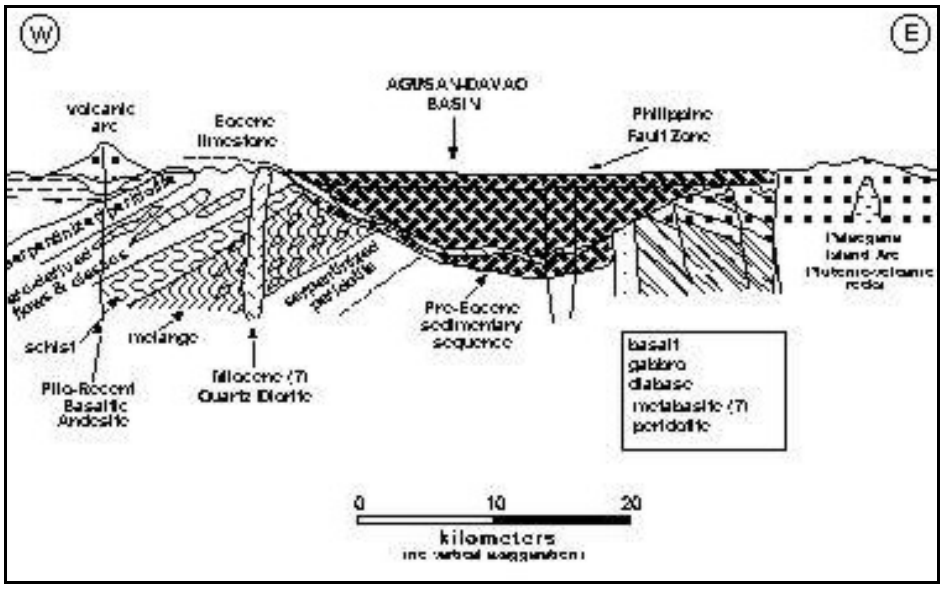
(adopted from Aurelio, 1992. Source: Geology and Mineral Resources of the Philippines, Vol. 1, Revised Edition 2004.)

FIGURE 25.1.4-1 SIMPLIFIED TECTONIC MAP OF THE PHILIPPINES

West-dipping subduction zones consist of the Philippine Trench (PT) and the East Luzon Trough (LT), whereas the Manila Trench (MT), Negros Trench (NT), and Cotabato Trench (CT) comprise the East-dipping zones.

The Agusan-Davao Basin

Among the sedimentary basins of the Philippine Mobile Belt, the Agusan-Davao basin has the thickest sedimentary fill, in places attaining a thickness of more than 12,000 m (Ranneft and others, 1960). It is formed over a mixed basement composed of ophiolitic and metamorphic rocks of unknown age, of pre-Oligocene arcs and Eocene limestones. The sedimentary fill is composed of Upper Oligocene - Lower Miocene limestones, followed by alternating layers of conglomerates, sandstones, shales and sometimes thin Middle Miocene carbonaceous layers (**Figure 25.1.4-2**). The Pliocene-Holocene cover is dominated by shallow marine deposits upgrading into fluviatile facies. The Agusan Davao-Basin follows a North-South trending axis and is traversed longitudinally by the Philippine Fault.

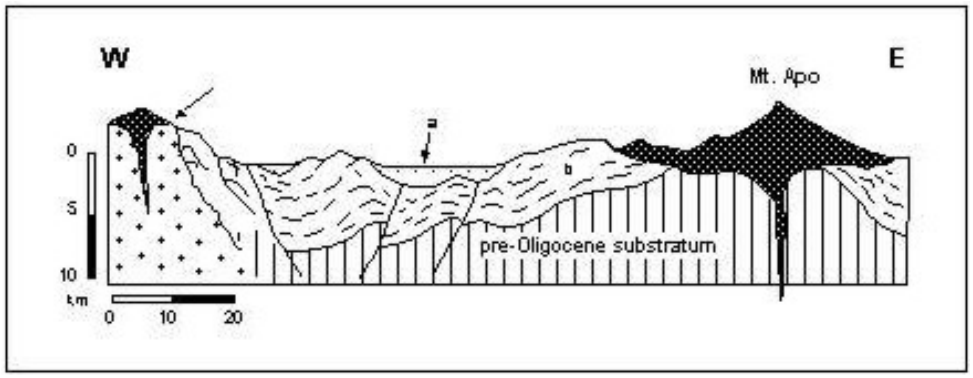


(Hawkins et al. 1985. Geology and Mineral Resources of the Philippines, Vol. 1, Revised Edition 2004.)

FIGURE 25.1.4-2 SCHEMATIC SECTION ACROSS THE AGUSAN-DAVAO BASIN SHOWING THE PHILIPPINE FAULT ZONE AS A TERRANE BOUNDARY

The Cotabato Basin

The Cotabato Basin is another sedimentary basin in the island of Mindanao. It is located between the active volcanic arcs of Cotabato and central Mindanao. The general stratigraphy is similar to that of the Agusan-Davao Basin, except that the Upper Miocene - Pleistocene portion is more exposed. This layer of the basin is composed mainly of relatively undeformed shallow marine deposits dominated by conglomerates, sandstones and shales, grading into deltaic and fluviatile characters towards the south. The more deformed lower sequence is principally composed of volcaniclastics with minor intercalations of limestones. Ranneft and others (1960) put the thickness of the sedimentary fill at about 8,000 m.



(Source: Letouzey et al, 1987, Pubellier, unpublished data, Geology and Mineral Resources of the Philippines, Vol. 1, Revised Edition 2004)

FIGURE 25.1.4-3 SCHEMATIC SECTION ACROSS THE COTABATO BASIN FLANKED TO THE WEST BY THE DAGUMA RANGE AND TO THE EAST BY THE CENTRAL MINDANO VOLCANIC ARC

The Philippine Fault and Other Active Faults

The term "Philippine Fault" refers to a fault zone cutting almost the whole length of the archipelago. It has long been the subject of discussion especially regarding its exact trace, the rate at which it is moving and its geodynamic significance. The fault and its branches traverse the Philippines from Luzon to the north to Mindanao southwards, cutting across Bicol and the Visayas. As it traverses the whole length of the archipelago, the Philippine Fault presents at least three varying structural regimes. Consequently, three major segments can be distinguished according to structural character and data availability. These are (i) Northern Segment – NW Luzon to Lamon Bay, (ii) Central Segment – Bondoc Peninsula to Leyte, and (iii) Southern Segment – Mindanao and the Moluccas.

The Southern Segment of the Philippine Fault – Mindanao and the Moluccas

The existence and character of the Philippine Fault in Mindanao are up to present very controversial. Field studies coupled with remote sensing data (Pubellier et.al, 1991) show that the fault bounds the eastern flank of the Agusan-Davao Basin. In Surigao, the fault strikes N10-20°W. In Davao, it strikes practically N-S. In Surigao, a relay zone between two branches of the fault gives rise to a pull-apart feature expressed by the present-day Lake Mainit.

South of the lake, the Lianga Fault branches out southeastwards towards the Philippine Trench. Further south in Davao del Norte, the southeast-trending Mati Fault serves as the southern most branch of the fault. Recent GPS measurements (Aurelio, 2001) indicate a southward decrease in slip rate along the fault from around 2.4 cm/yr in Surigao to about 1.0 cm/yr in Davao.

Extensive structural investigations by Quebral (1994) show that the Philippine Fault traverses a sedimentary basin (Agusan-Davao) developed over a single pre-Oligocene volcanic arc. This observation is inconsistent with the hypothesis that considers the Philippine Fault as having been inherited from an old suture zone allegedly arising from the collision of two volcanic arcs (Roeder, 1977; Silver and Moore, 1978 a and b; Moore and Silver, 1983; Hawkins et. al, 1985; Florendo, 1987). It appears instead that in Mindanao, the fault reactivates old normal faults related to the formation of the Agusan-Davao Basin and that further to the south, it traverses the basin, the basement and the old volcanic arcs.

The Mindanao Fault

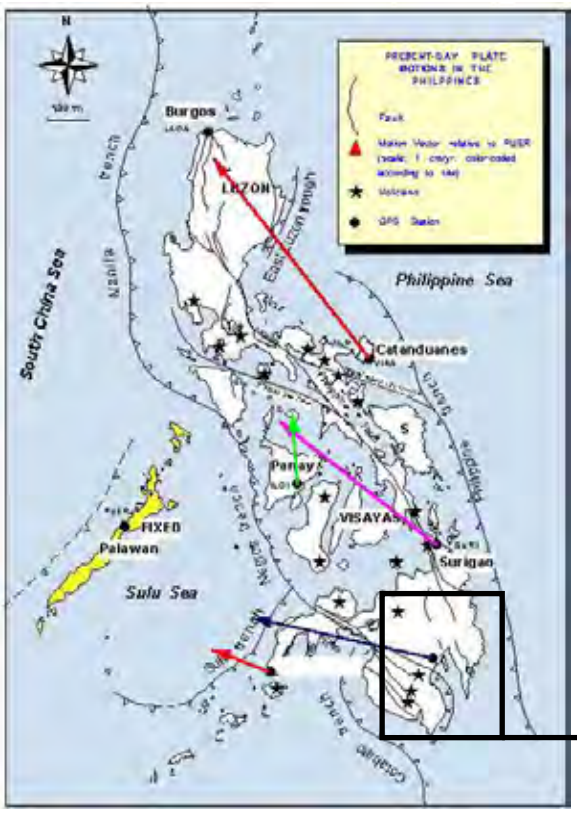
The Mindanao Fault is a prominent NW-trending linear fracture zone on the western third of Mindanao Island. It has two distinct segments, including that which separates the Daguma Range from the Cotabato Basin corresponding to the Cotabato Fault segment. This segment is highly linear and has features suggestive of normal faulting although it may have been a left lateral strike slip fault during its early history.

The Quaternary Mt. Parker volcano is located at the western end of this fault and, on radar images, seems to be cut by the fault. Terraces formed by Quaternary limestone mark the Daguma Range. These, together with the young morphology of incised river valleys, suggests a young age for the fault along which the Daguma Range was uplifted. Although Quaternary in age, it still has to be ascertained whether the fault is active or not (Quebral, 1994).

The Sindangan Fault segment represents the northern continuation of the fault towards northern Zamboanga. Focal mechanism solutions of earthquakes offshore and narrow shear zones transecting recent gravel deposits suggest active left-lateral faulting (Pubellier et. al, 1991).

(2) Present Day Plate Motions in the Philippines

Global Positioning System (GPS) measurements performed every two years since 1994 over a 42-station network distributed in Southeast Asia under the Project GEODYSSEA (Geodynamics of South and Southeast Asia) provided data for the analysis of the present-day motion of tectonic blocks in and around the Philippines. Motion vectors in the archipelago and vicinity are in the order of a few to several cm/yr. When micro-continental Palawan is held fixed, the slowest movements can be detected in Zamboanga at less than 2 ± 0.15 cm/yr westwards. Virac Island moves the fastest at over 7 ± 0.17 cm/yr northwestwards. Slower but comparable rates are detected between Surigao, Davao and Zamboanga. The largest extensional strain rate is detected on a NW-SE direction in NW Panay.



(Source: Aurelio et al., 1998. Geology and Mineral Resources of the Philippines, Vol. 1, Revised Edition 2004.)

FIGURE 25.1.4-4 MOTION VECTORS IN THE PHILIPPINES DEDUCED FROM GPS MEASUREMENTS

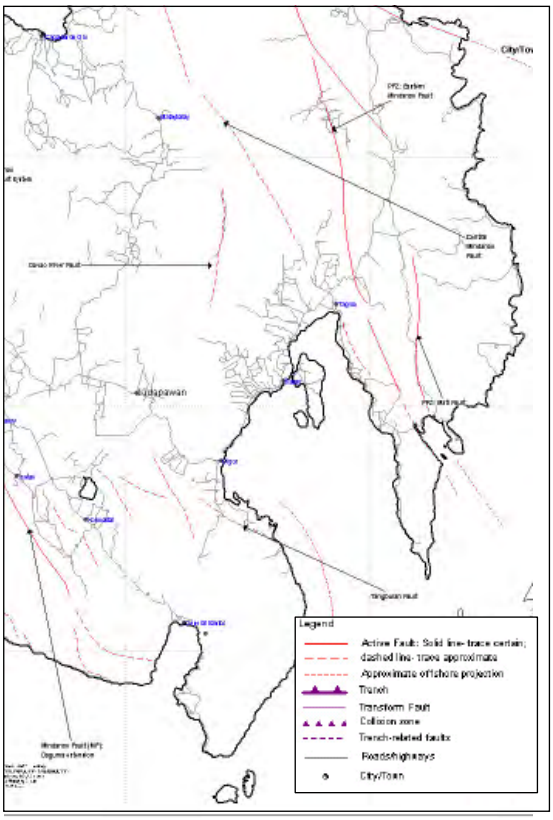


FIGURE 25.1.4-5 ACTIVE FAULTS IN GENERAL SANTOS AND DAVAO AREA IN REGION XI

Fault lines are identified in Sta.Cruz, where the proposed HSH runs through, and other municipalities in Davao del Sur province. In an event of volcanic eruption of Mt.Apo Sta.Cruz and Digos City would be affected as well as Bansalan.

Southern Philippines

A strong westerly relative plate motion component is observed on the southernmost station in Davao. This direction is almost perpendicular to the Philippine Fault and Cotabato Trench but oblique to the Cotabato Fault Zone. While this may imply frontal subduction along the trench, the computed motion vector may also mean that there is practically no lateral movement along the Philippine Fault along this segment.

Further north in Nabunturan town, however, there are clear indications of recent activity along the fault (e.g. overturned Holocene alluvial deposits, Pleistocene anticlines cut by fault) while to the south in Mati and offshore Pujada, earthquakes possibly generated by a branch of the fault there, have been recorded for the past 100 years. From the Surigao station in the north of Mindanao Island, a significant movement of the Philippine Fault in the order of 2 cm/yr is registered.

To the west, it is interesting to note the occurrence of the Cotabato Fault, a prominent NW-SE trending structure also believed to be a left-lateral strike-slip fault (Pubellier et al., 1991; 1993),

located behind the east-dipping Cotabato Trench. Seismicity along this subduction area is fairly high, although it is only known to occur on the northern segments of the Cotabato Fault Zone.

Active Volcanoes in the Philippines

Volcanic activity has been continuously active since Cretaceous times as suggested by the presence of magmatic belts of Cretaceous, Eocene, Oligo-Miocene and Plio-Holocene ages. At present, the Philippine Institute of Volcanology and Seismology lists 22 active volcanoes and 27 inactive ones in the archipelago. Apo and Balut are two volcanic mountains in Davao area.

25.1.5 Rainfall and Temperature

Based on a recent study by PAGASA, about 50% of the annual average rainfall in the Philippines is attributed to the occurrence of tropical cyclones in its vicinities. Wettest parts consist of the northernmost part of Cagayan, Infanta, Polilio Island, eastern coasts of Leyte Island, Siargao Island, and Surigao del Sur with annual average rainfall of more than 4,000 mm. On the other hand, driest are the valleys in the Cordillera and the Sierra Madre ranges, the Central Plains of Luzon, Bataan, Batangas, Palawan, most parts of Region VII (southern portion of Cebu, most parts or Negros Oriental, and Bohol), the entire southern part of Mindanao including the southern tip of Zamboanga provinces and Basilan, Lanao del Norte, Misamis Occidental and parts of Misamis Oriental.

Average monthly and annual rainfall and temperatures obtained from various weather stations in the Study Area are presented in **Table 25.1.5-1**.

TABLE 25.1.5-1 AVERAGED MONTHLY AND ANNUAL RAINFALL AND TEMPERATURES FOR DAVAO DEL NORTE, GENERAL SANTOS, AND DAVAO DEL SUR

Period	Precipitation (mm)			Temperature (^{o}C)		
	Gen San	Tagum	Davao del Sur	Gen San	Davao del Norte (inc.Tagum)	Davao del Sur
	1971-2000	1996-2005	2007	1971-2000	2001-2004	2007
Jan	67	235.03	74	27.5	27.4	32.9
Feb	60.6	167.64	14	27.7	26.7	32.9
Mar	41.7	203.17	37	28.3	27.5	33.6
Apr	55.4	171.67	40	28.6	28.2	35.3
May	65.9	221.87	177	28.3	28.2	34.4
Jun	114.5	178.23	210	27.4	27.7	33.7
Jul	101.4	168.06	104	27	27.7	32.8
Aug	82	186.54	66	27.1	27.6	32.5
Sep	85.4	231.07	122	27.3	27.5	34.2
Oct	101.8	229.93	50	27.5	27.9	34.1
Nov	82.2	173.84	56	27.7	27.8	34.2
Dec	67.7	177.55	132	27.6	27.3	34
Cumm.	925.6	2,344.6	1,082	N/A	N/A	N/A
Max	114.5	229.93	210	28.6	28.2	35.3
Min	41.7	167.64	14	27.1	26.7	32.5
Average	77.1	195.38	90.2	27.67	27.63	33.72

Sources: Source :PAG-ASA Agromet Station

Davao del Norte

The climate of Davao del Norte province is type IV that no pronounced wet and dry season but has steady rain falls throughout a year. Typhoon does not affect this area due to preferable physical location of the region. Cumulative amount of precipitation is 2344.6 mm on average in Tagum City. According to Regional NDER's report[1] the wettest months in the province typically occur from November to February. Monthly average of precipitation observed for five years is about 176mm/mo for the province while that of Tagum City is 195.38mm/mo.

Davao del Sur

Davao del Sur is located in the same climate zone as Davao del Norte. Amount of precipitation in this province is about half of Davao del Norte, 90.2mm/mo on average. Ambient temperature is very steady throughout a year with an annual average of 33.7^{o}C, which is about 6 degree higher than Davao del Norte.

General Santos City

General Santos City is also located in type IV climate zone. Amount of precipitation in this province is even lower than Davao del Sur, 77.1mm/mo on average. Ambient temperature is relatively stable year round; the averaged annual temperature of 27.7^{o}C, close to that of Davao del Norte.

25.1.6 Watershed and Flood Prone Area

Davao del Norte

15 rivers and 12 creeks traverse the province, such as the Lasang, Tuganay, Libuganon and Saug Rivers. All these rivers flow into Davao Gulf. The province has plenty of water which contributes to economic growth while it also negatively impact to local economy when floods.

Flooding can be classified as slight, moderate and severe. About 85% of the total provincial lands are subjected to slight flooding. This occurs mostly in the municipalities of Asuncion, Kapalong, St. Tomas, and the Island Garden City of Samal. A total of 17,743 ha (4.63 % of the province) experiences moderate flooding which largely occurs in Asuncion, New Corella, Tagum City and St. Tomas. Severe flooding affects an area of 39,565 hectares or 10.32 percent of the total area, and typically occurs in Asuncion, Carmen, Kapalong, Tagum City and Panabo City[2].

Tagum River, which is the main drainage of Saug and Libuganon Rivers, Magugpo, Mankilam and Cuambogan Creeks, and Hijo River locate in Tagum city area (**Figure 25.1.6-1(ii)**). Flood prone areas which are considered environmentally critical areas locate in barangays Cuambogan, San Miguel, Canocotan, Pagsabangan, Bincungan, Libuganon and Madaum. It was reported that the total area that flood frequently is about 7,000 hectors. The causes of flood are both natural and manmade: the path and shape of the rivers, continuous precipitation, sedimentation, high tidal level, and denuded upland/deforestation. Severe flooding affects an area of 39,565 hectares or 10.32 percent of the total area, and is known to occur in Asuncion, Carmen, Kapalong, Tagum City and Panabo City. The area along the last 36km stretch of the Tagum-Libuganon River, which is located to the southwest of Tagum City, is predicted to be a frequent flooding area (**Figure 25.1.6-1(iii)**).

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1 Davao del Norte: Profile 2001. Department of Environment and Natural Resources, Provincial Environment and Natural Resource Office.

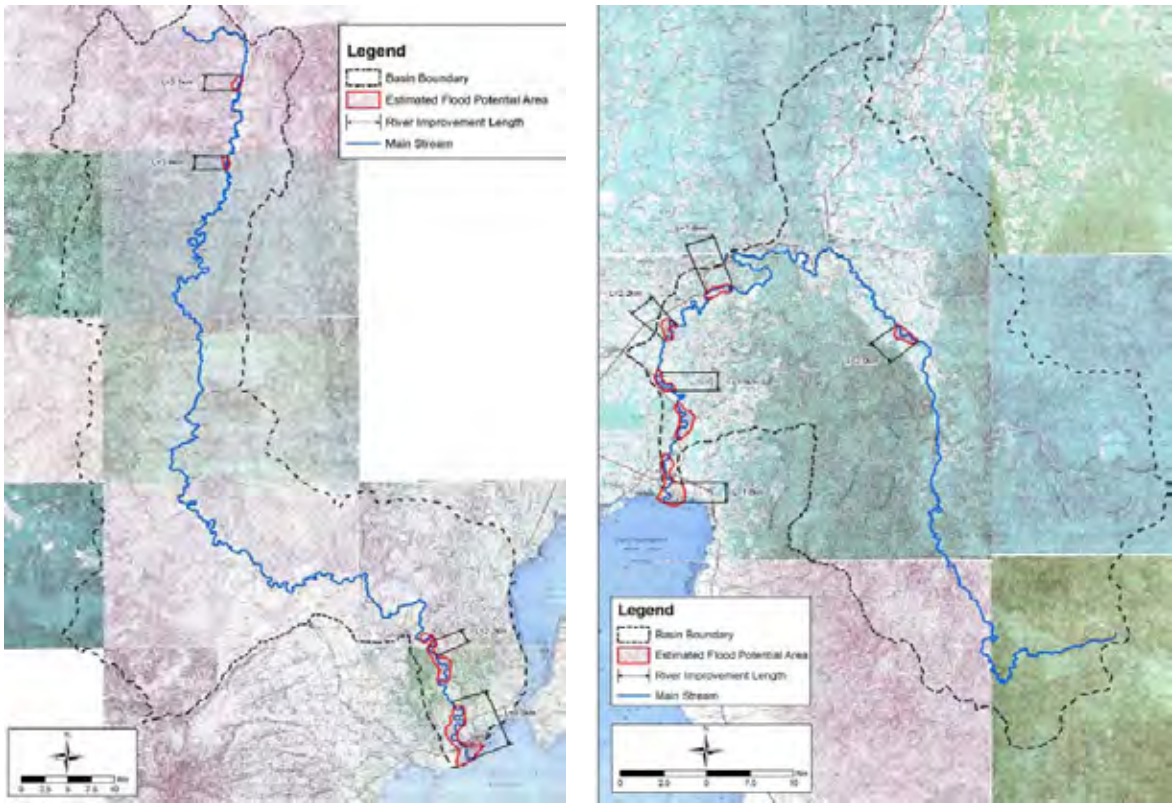
2 Socio-economic profile, Davao del Norte

Davao del Sur

The province of Davao del Sur has total of 40 watersheds which include three major watersheds locating in Sta.Cruz, Digos, and Padada. The largest watershed is the Padada Mainit River watershed with a total catchment area of 1,220 km^2. Several flood prone areas were identified in the Padada Mainit River watershed that is located in the south of Digos (**Figure 25.1.6-1(v)**). Balutakay River watershed, the second major watershed, contains Digos. Sibulan River watershed, the third largest, and Digos River watershed cover both Digos and Sta. Cruz.

General Santos City

There is no official comprehensive yearly record of flood event and damage in the City. The Study Team identified that a flood plain forming on last 2km of the Buayan-Malungun River in Sarangani Bay area and a 5 km-stretch section of about 10km-upper stream of the river as flood prone areas (**Figure 25.1.6-1(vi)**).

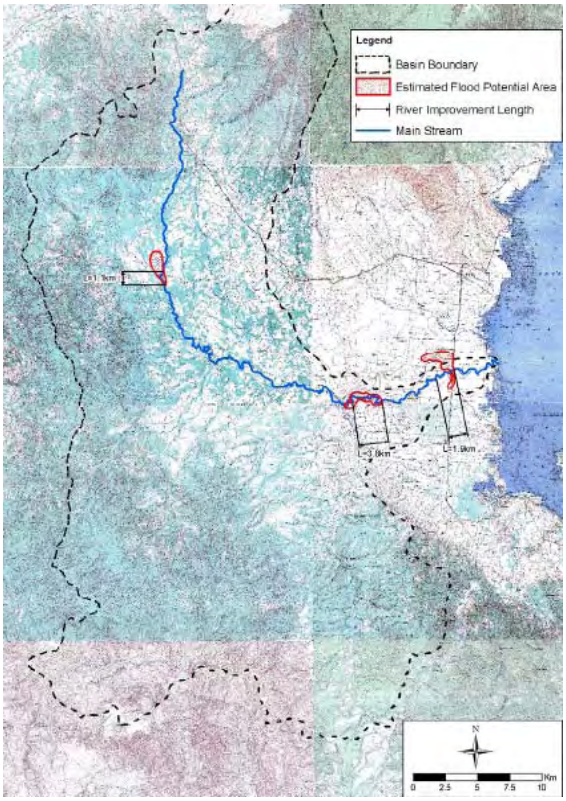


(i) Davao area: The Davao River Basin (ii) Tagum area: The Hijo River Basin

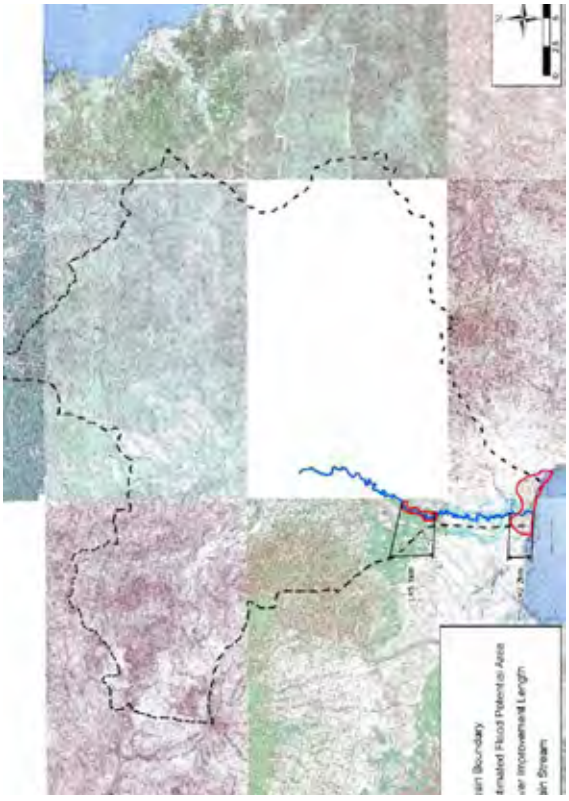
FIGURE 25.1.6-1 ESTIMATED FLOOD POTENTIAL AREAS

(iii) The Tagum-Libuganon River Basin

(iv) Tagum area: The Maco River Basin



(v) Digos area: The Padada Mainit River Basin (South of Digos)



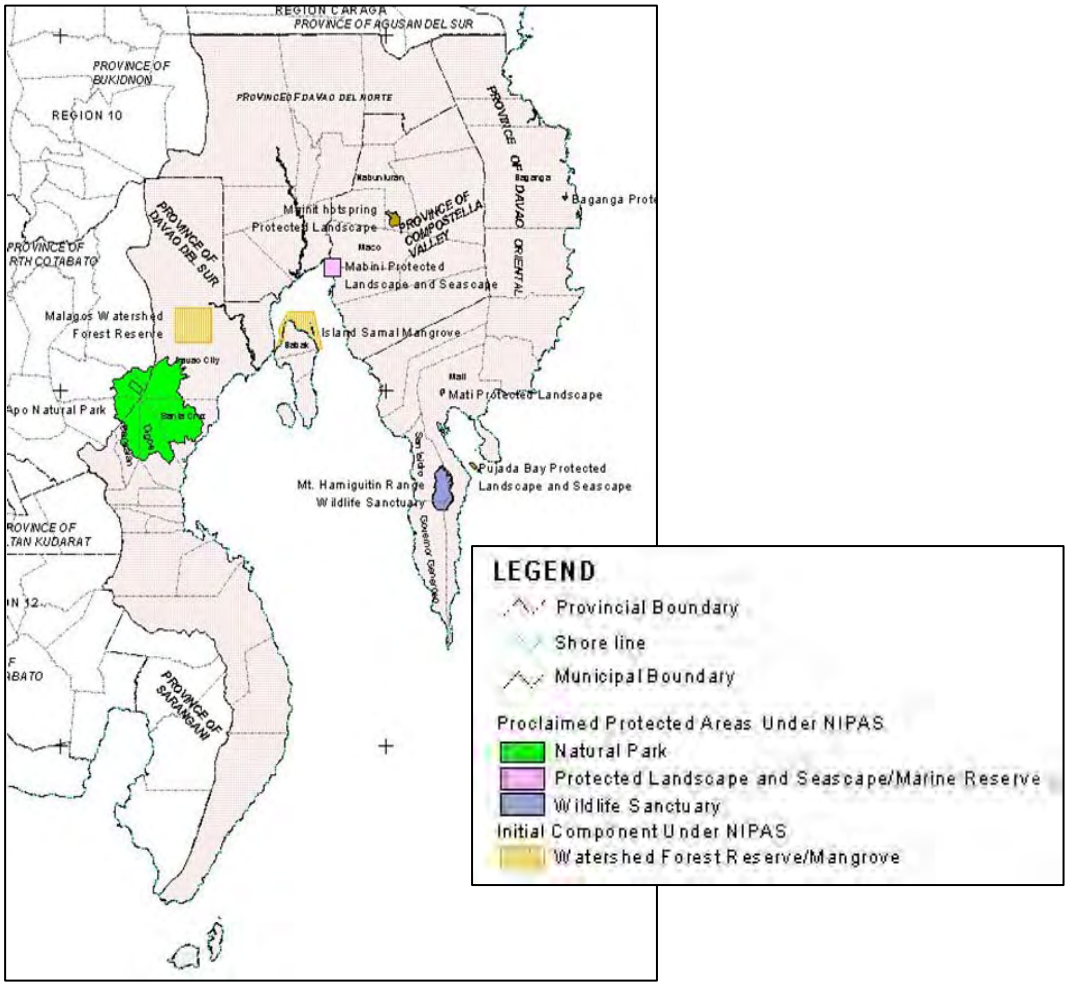
(vi) General Santos/Sarangani Bay area: the Buayan-Malungun River basin

Source: The Study team

FIGURE 25.1.6-1 ESTIMATED FLOOD POTENTIAL AREAS

25.1.7 Protected Area

Protected areas in Region XI is shown in **Figure 25.1.7-1**.



Source: "Map Showing Protected areas in Region 11". The Department of Environment and Natural Resources

FIGURE 25.1.7-1 PROTECTED AREAS IN REGION XI

Davao del Norte

For Davao del Norte, an only identified protected area is the Samal Island Mangrove Swamp Reserve (Proposed Babak Protected Landscape and Seascape). The protected landscape and coastline forms a part of Davao Gulf. Ten (10) hectares of open area are being considered for rehabilitation. Some reforested small mangrove colonies were observed from the existing national highway in between Tagum and Davao cities.

Indigenous people ("IP") and cultural communities are found mostly in the forest area including Ata, Manobo, Dibabawon, Mandaya, Isamal, Mansaka and Mangguwangan. The IPs' rights and mandates are protected by the Indigenous People's Rights Act (IPRA) Law on October 27, 1997. Government programs under the control of DENR shall only be implemented in an ancestral domain if there is consent from majority of the recognized leaders of the community. A total of 102 Certificates of Ancestral and Domain Claims (CADC) covering an area of 65,683 hectares have been awarded to 1,656 beneficiaries (Ata-Manobo Tribe) of Talaingod.

Davao del Sur

Two national parks(NPs), one wildness area, three watershed forest reserves, and one mangrove swamp forests reserve locate in the region XI Mainit hot spring NP and Mt. Apo NP are located in Compostela and in Sta. Cruz area of Davao del Sur respectively. The wildness area is located in Davao gulf and on island of Pandasan. Makagos watershed reservation is in Davao City and other two watershed, Mati and Banganga watersheds are in Davao Orient, off the scope of the proposed HSH route. The mangrove swamp area is laying from Baculin point to Lakud point, Tanuip point to Kinablangan Island, and the island of Samal. None of the mangrove forests are located on the proposed HSH area.

General Santos City

One game range and bird sanctuary, three watershed forests, eight national parks, two watershed reserves, and one mangrove forests reserve are located in Region XII. Sarangani Bay is also included in protected areas based on NIPAS law. Although no environmentally protected area is located in the land of General Santos City, several eco-parks, caves, falls, beaches, resorts areas and El Minit Geyser, which is the only the geyser in the Philippines, are located in and around the City. Some Mangrove swam is located along the shoreline of Bula, Baluan, Lbangal and Tambler bagangais. Moreover activities on the land eventually affect status and quality of Sarangani Bay. Integrated Social Forestry Program is undertaken by DENR in Upper labay, Conel, Olympag, San Jose, Sinawal, mabuhay, and Bawung barangays in the City. Other tourists' destinations are Pedro St., Barangay Lagao, and Sarangani Highlands in Barangay Tambler, a few beaches (Dolores Tropicana Resort, Water Gran Beach Resort, London Beach Resort, Maharlika Beach Resort, T'boli Beach Resort, Rajah Beach Resort and Family Beach Resort) and spring resorts (Lagare Swimming Resort, and Olaer Swimming Resort).

25.2 PRESENT REGIONAL AND URBAN DEVELOPMENT

Similar to this project's study areas in Luzon and Central Visayas, the Tagum-Davao-GenSan corridor is considered to be a growing economic belt in Mindanao. It connects two of the developing regions in Mindanao, Southern Mindanao (Davao region or Region XI) and Central Mindanao (SOCCSKSARGEN or Region XII). The former is considered as the gateway of Mindanao, while the latter is among the country's growing regions in terms of regional economic development.

Apart from agricultural resources, both regions have mineral resources that are regarded as contributing to the national economy. These define the respective land use patterns of the two regions. Basically, the two regions are contiguous and to some extend complement each other. There were instances in the past that some provinces of Central Mindanao were part of the Southern Mindanao region.

Primarily, the Tagum-Davao-GenSan corridor passes through predominantly agricultural (including forest), tourism, highly urbanized Davao City, and industrial areas from Compostela Valley, Davao del Sur to South Cotabato. Similarly, the corridor is adjacent to areas that have potential mineral resources development in both regions. Likewise, the proximity of the corridor to coastal areas is another economic source or stimulus for the two regions. For this note, the corridor can be defined as a growing economic belt in Mindanao.

The tourism areas are composed of nature-rich tourism products in the mountain, forest, aquatic and coastal areas. As such, the tourism development of the corridor can be categorized as agri-eco-tourism and coastal tourism that is supported by indigenous cultural heritage. Furthermore, agricultural development is anchored not only on cultivated products but also forest,

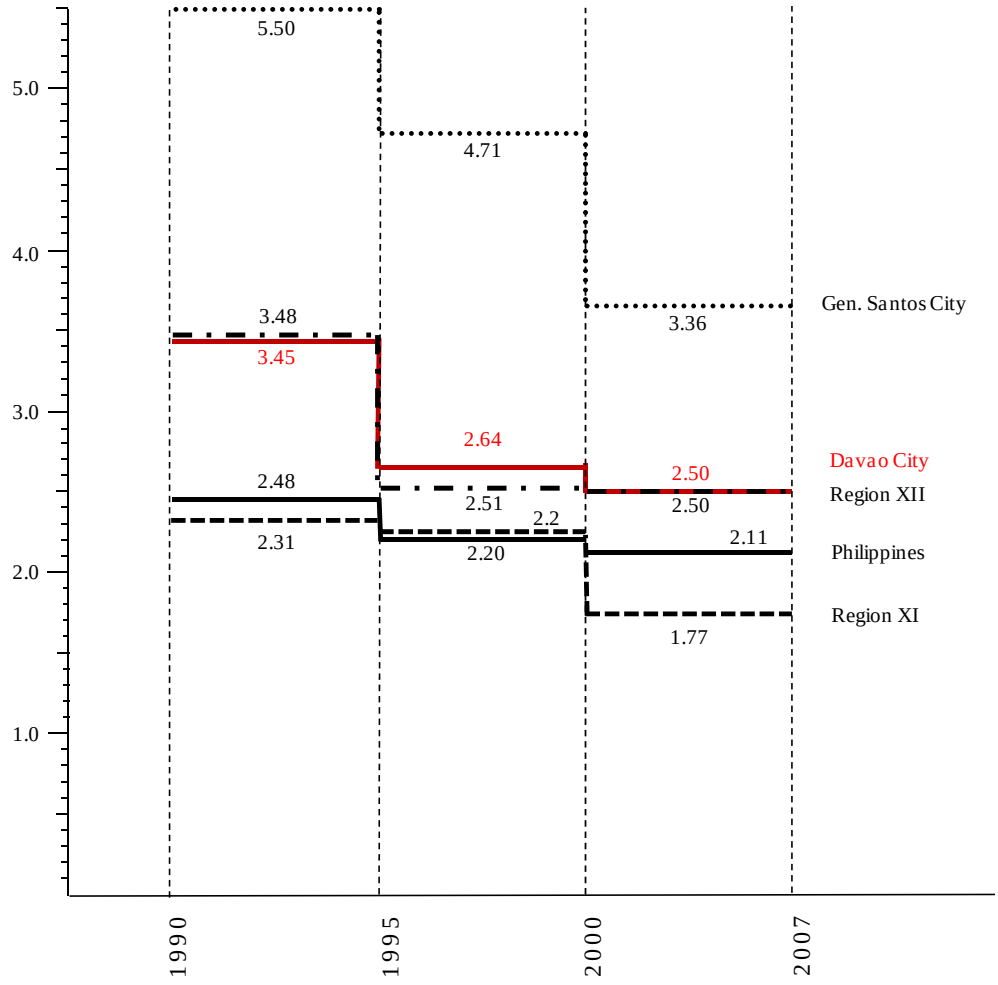
aquatic and marine developments. The corridor is situated where marine fishery is abundant, such as tuna.

The corridor is also part of the BIMP-EAGA subregion and as such plays an important role in the subregional economic cooperation among Brunei, Indonesia, Malaysia and the Philippines. This is also one positive point that needs to be considered.

25.3 SOCIO-ECONOMIC PROFILE

25.3.1 Demographic Trend

Past demographic trend of Regions in Mindanao is shown in **Table 25.3.1-1**. Average annual population growth rate of Regions XI and XII, Davao City and Gen. Santos City is shown in **Figure 25.3.1-1**.



Source: NSO, 2007

FIGURE 25.3.1-1 AVERAGE ANNUAL POPULATION GROWTH RATE OF REGIONS XI, XII, DAVAO CITY AND GENERAL SANTOS CITY

TABLE 25.3.1-1 PAST DEMOGRAPHIC TREND: MINDANAO

Region	Province	Actual Population				Land Area	Density (persons/sq km)				Past Annual PGR		
		1990	1995	2000	2007	(sq km)	1990	1995	2000	2007	1990-1995	1995-2000	2000-2007
Philippines		60,703,206	68,616,536	76,504,077	88,574,614	340,575	178	201	225	260	2.48	2.20	2.11
9 Zamboanga Peninsula		2,221,382	2,567,651	2,831,412	3,230,094	17,047	130	151	166	189	2.94	1.97	1.90
10 Northern Mindanao		2,811,646	3,197,059	3,505,558	3,952,437	20,496	137	156	171	193	2.60	1.86	1.73
11 Davao		2,933,743	3,288,824	3,676,163	4,156,653	20,357	144	162	181	204	2.31	2.25	1.77
	Compostela Valley	466,286	520,110	580,244	637,366	4,480	104	116	130	142	2.21	2.21	1.35
	Davao (Davao del Norte)	590,015	671,333	743,811	847,440	3,427	172	196	217	247	2.62	2.07	1.88
	Davao del Sur	632,798	677,069	758,801	822,406	6,771	93	100	112	121	1.36	2.31	1.16
	Davao Oriental	394,697	413,472	446,191	486,104	5,680	69	73	79	86	0.93	1.53	1.23
	Davao City	849,947	1,006,840	1,147,116	1,363,337	2,211	384	455	519	617	3.45	2.64	2.50
12 Soccsksargen		2,399,953	2,846,966	3,222,169	3,829,081	22,513	107	126	143	170	3.48	2.51	2.50
	Cotabato(North Cotabato)	763,995	862,666	958,643	1,121,974	9,009	85	96	106	125	2.46	2.13	2.27
	Saranggani	283,141	367,006	410,622	475,514	3,601	79	102	114	132	5.33	2.27	2.12
	South Cotabato	539,458	621,155	690,728	767,254	4,429	122	140	156	173	2.86	2.15	1.51
	Sultan Kudarat	435,905	522,187	586,505	675,644	5,298	82	99	111	128	3.68	2.35	2.04
	Cotabato City	127,065	146,779	163,849	259,153	176	722	834	931	1,472	2.93	2.22	6.77
	Gen. Santos City	250,389	327,173	411,822	529,542	423	592	773	974	1,252	5.50	4.71	3.66
13 CARAGA		1,764,297	1,942,687	2,095,367	2,293,480	21,478	82	90	98	107	1.95	1.52	1.30
ARMM		2,075,238	2,362,300	2,803,045	4,120,795	33,511	62	70	84	123	2.63	3.48	5.66
Minadanao Total		14,206,259	16,205,487	18,133,714	21,582,540	135,403	662	756	842	986			

Region XI

- Population in 2007 was 4.2 million.
- Population density was 2.04 persons/ha. which is lower than the national average.
- Population growth rate has been lower than the national average for the period from 2000 to 2007.

Davao City

- Population reached to 1.4 million in 2007.
- Population density was 6.17 persons/ha. which is higher by about 2.4 times than the national average.
- Population growth rate has been higher than the national average due to in-migration of people to the city.

Region XII

- Population reached to 3.8 million in 2007.
- Population density was 1.70 persons/ha. in 2007 which is less than the national average.
- Higher population growth rate than that of the country was recorded since 1990 to 2007.

Gen. Santos City

- Population of the city in 2007 was 0.5 million.
- Population density was higher than the national average by about 4.8 times.
- Quite high population growth rate was recorded since 1990 to 2007. In-migration of people to the city has been continuing.

25.3.2 Economic Trend

GDP and GRDP of Region XI and XII and the industrial structure and growth rate is shown in **Table 25.3.2-1** and **25.3.2-2**, respectively. Region's GRDP and sectoral growth rate is shown in **Figure 25.3.2-1** to **25.3.2-4**.

TABLE 25.3.2-1 GDP AND GRDP : REGION XI AND REGION XII

		GDP & GRDP in Billion Pesos at Current Price					Regional Share (%)				
		2003	204	2005	2006	2007	2003	2004	2005	2006	2007
GDP		4,316.4	4,871.6	5,444.0	6,032.8	6,648.2	100%	100%	100%	100%	100%
GRDP	Region XI	187.3	215.4	240.2	263.7	295.4	4.3%	4.4%	4.4%	4.4%	4.4%
	Region XII	139.2	160.7	174.9	195.5	220.3	3.2%	3.3%	3.2%	3.2%	3.3%
	Sub-total	326.5	376.1	415.1	459.2	515.7	7.5%	7.7%	7.6%	7.6%	7.7%

SOURCE: 2008 Philippine Statistical Yearbook

TABLE 25.3.2-2 INDUSTRIAL STRUCTURE AND GROWTH RATE

Region	Sector	Sectoral GRDP (Billion Pesos at Constant Price)					Sectoral Economic Growth Rate				
		2003	2004	2005	2006	2007	2003	2004	2005	2006	2007
Region XI	Total	49.9 (100%)	53.3 (100%)	55.5 (100%)	57.9 (100%)	61.8 (100%)	6.04	6.63	4.13	4.30	6.73
	Primary Sector	13.9 (27.9%)	14.9 (28.0%)	15.2 (27.4%)	15.7 (27.1%)	16.0 (25.9%)	5.48	7.20	2.58	3.02	2.06
	Secondary Sector	15.8 (31.7%)	16.6 (31.1%)	17.4 (31.4%)	17.9 (30.9%)	20.1 (32.5%)	6.62	5.00	5.04	2.78	11.90
	Tertiary Sector	20.2 (40.5%)	21.8 (40.9%)	22.8 (41.1%)	24.2 (41.8%)	25.7 (41.6%)	6.08	7.53	4.50	6.43	5.91
Region XII	Total	41.0 (100%)	43.4 (100%)	44.4 (100%)	47.5 (100%)	51.4 (100%)	10.50	6.07	2.16	6.95	8.36
	Primary Sector	16.8 (41.0%)	17.9 (41.2%)	17.5 (39.4%)	18.6 (39.2%)	20.0 (39.1%)	4.97	6.13	-2.29	6.42	7.87
	Secondary Sector	13.7 (33.4%)	14.6 (33.6%)	15.4 (34.7%)	16.7 (35.2%)	18.7 (36.4%)	23.40	6.82	4.89	8.92	11.60
	Tertiary Sector	10.4 (25.4%)	10.9 (25.1%)	11.5 (25.9%)	12.1 (25.5%)	12.7 (24.7%)	4.74	4.97	5.79	5.13	4.64

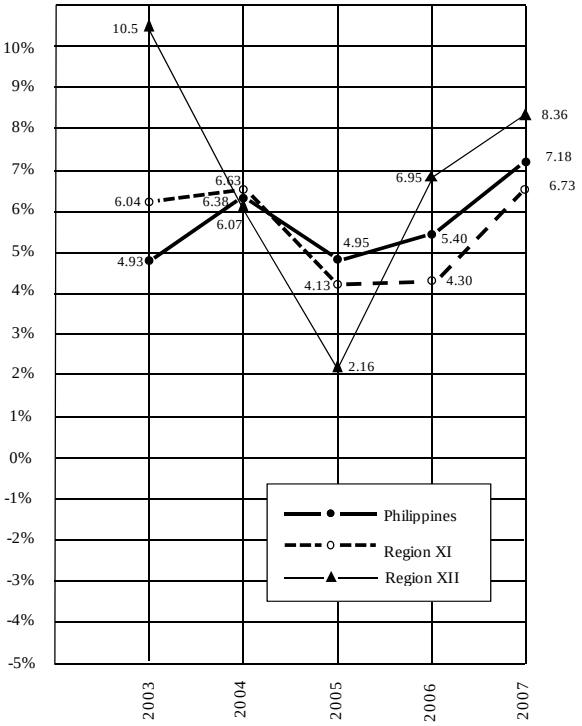


FIGURE 25.3.2-1 GDP AND GRDP (REGIONS XI & XII) GROWTH RATE

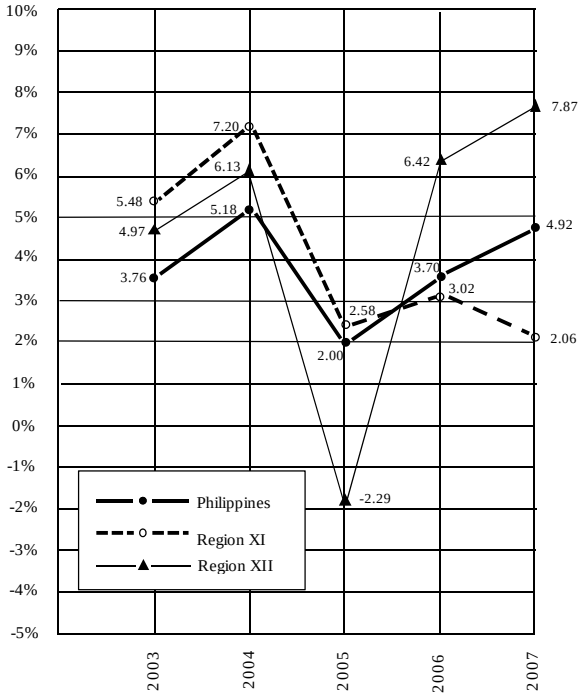


FIGURE 25.3.2-2 PRIMARY SECTOR GROWTH RATE (REGIONS XI & XII)

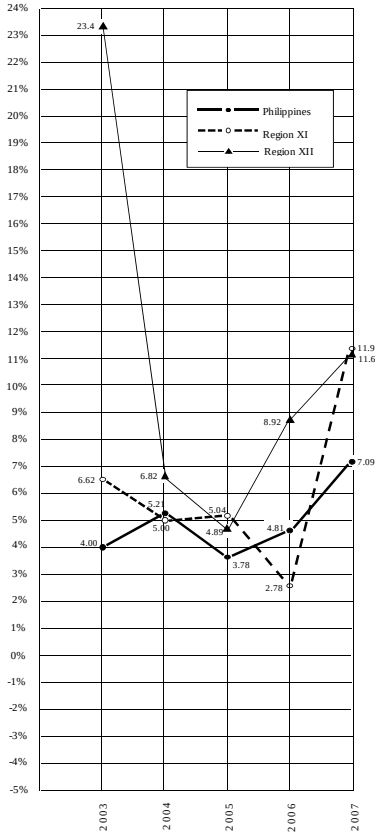


FIGURE 25.3.2-3 SECONDARY SECTOR GROWTH RATE (REGIONS XI & XII)

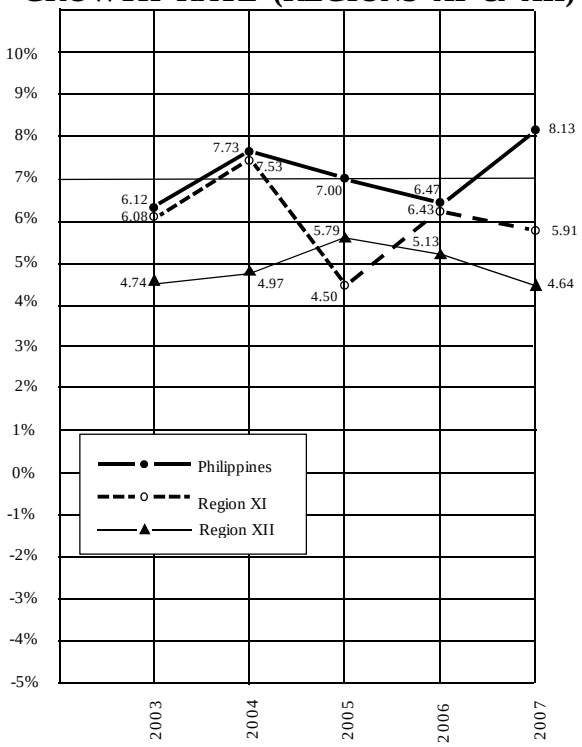


FIGURE 25.3.2-4 TERTIARY SECTOR GROWTH RATE (REGIONS XI & XII)

Source: Data of all above figures were taken from NSCB, 2008

Region XI

- Region XI shares about 4.4% of the country's economic output.
- Region's economic growth followed more or less the country's performance with slightly lower level than the country.
- Industrial structure of the Region is as follows;
  Primary Sector - - - - - - - - - - 26%
  Secondary Sector - - - - - - - - - - 32%
  Tertiary Sector - - - - - - - - - - 42%
- Primary sector economic growth recorded higher level than the country in 2003, 2004, and 2005, but recorded lower level in recent 2 years (2006 and 2007).
- Secondary sector growth rates showed decreasing trend from 2003 to 2006, but drastically recovered in 2007 and recorded much higher growth rate the country in 2007.
- Tertiary sector made steady growth from 2003 to 2007, but with lower level than the country.

Region XII

- Region XII's economic output shares about 3.3% of the country.
- Region XII made higher economic growth than the country, except year 2005.
- Industrial structure of the Region is as follows;
  Primary Sector - - - - - - - - - - 39%
  Secondary Sector - - - - - - - - - - 36%
  Tertiary Sector - - - - - - - - - - 25%
- Primary sector recorded negative growth in 2005, however, it made quite high growth in other years.
- Secondary sector made quite high growth from 2003 to 2007.
- Tertiary sector's growth was steady from 2003 to 2007, however, growth rate was lower than the country.

25.3.3 Employment

(1) Employed Persons by Major Industrial Group

Employed persons by major industrial group is shown in **Table 25.3.3-1** and summarized as shown in **Table 25.3.3-2**.

TABLE 25.3.3-1 EMPLOYED PERSONS BY MAJOR INDUSTRY: MINDANAO

Major Industry	Year 2007			Year 2005		
	Philippines	Region XI	Region XII	Philippines	Region XI	Region XII
Industry	33,672	1,686	1,477	32,875	1,655	1,511
Agriculture, Hunting and Forestry	10,768	721	738	10,763	685	755
Fishing	1,393	41	62	1,408	39	64
Sub - Total (Primary)	12,161	762	800	12,171	724	819
Mining and Quarrying	135	36	3	116	21	4
Manufacturing	3,060	95	80	3,043	95	84
Electricity, Gas and Water	141	4	1	108	7	6
Construction	1,740	67	29	1,616	62	33
Sub - Total (Secondary)	5,076	202	113	4,883	185	127
Wholesale and Retail, Repair of Motor Vehicles, *	6,176	301	237	6,215	330	233
Hotel and Restaurants	907	37	24	871	35	19
Transport, Storage and Communication	2,600	102	93	2,471	95	83
Financial Intermediation	384	17	11	337	16	9
Real Estate, Renting and Business Activities	881	27	15	736	25	28
Public Administration & Defense, Compulsory Social Security	1,569	69	72	1,494	72	64
Education	1,043	40	37	989	50	44
Health & Social Work	396	18	9	362	11	12
Other Community, Social & Personal Service Activities	779	37	22	781	35	28
Private Household With Employed Persons	1,699	74	47	1,561	74	44
Extraterritorial Organizations & Bodies	3	1	-	3	1	-
Sub - Total (Tertiary)	16,437	723	567	15,820	744	564

Source: National Statistics Office, 2008

TABLE25.3.3-2 SUMMARY OF EMPLOYED PERSONS BY MAJOR INDUSTRIAL GROUP

Unit: 1,000 persons

	Philippines		Region XI		Region XII	
	2005	2007	2005	2007	2005	2007
Primary Sector	12,171 (1.00)	12,161 (1.00)	724 (1.00)	762 (1.05)	819 (1.00)	800 (0.98)
Secondary Sector	4,883 (1.00)	5,076 (1.04)	185 (1.00)	202 (1.09)	127 (1.00)	113 (0.89)
Tertiary Sector	15,820 (1.00)	16,437 (1.04)	723 (1.00)	744 (1.03)	564 (1.00)	567 (1.00)
Total	32,875 (1.00)	33,672 (1.02)	1,655 (1.00)	1,686 (1.02)	1,511 (1.00)	1,477 (0.98)

Source: National Statistics Office

(2) Number of Establishments

Table 25.3.3-3 shows number of establishments and number of employed persons at establishments.

TABLE 25.3.3-3 NUMBER OF EMPLOYMENTS AND ESTABLISHMENTS BY REGION/PROVINCE: MINDANAO

REGION/PROVINCE	No. of Establishments			No. of Employments		
	2005	2006	2007	2005	2006	2007
PHILIPPINES	782,980	783,065	783,869	5,479,297	4,984,883	5,187,793
9 ZAMBOANGA PENINSULA	25,277	25,278	25,281	112,334	90,746	90,965
10 NORTHERN MINDANAO	29,419	29,403	29,378	174,557	156,560	157,755
11 DAVAO REGION	36,704	36,708	36,732	247,294	224,083	232,736
DAVAO DEL NORTE	6,821	6,820	6,822	56,981	50,766	50,135
DAVAO DEL SUR	23,751	23,754	23,771	164,911	152,080	159,843
DAVAO ORIENTAL	2,891	2,892	2,893	11,323	9,106	8,993
COMPOSTELA VALLEY	3,241	3,242	3,246	14,079	12,131	13,765
12 SOCCSKSARGEN	26,625	26,610	26,622	156,526	139,101	150,997
NORTH COTABATO	8,287	8,281	8,281	32,176	27,128	24,616
SOUTH COTABATO	10,889	10,879	10,889	91,636	84,504	98,984
SULTAN KUDARAT	3,826	3,825	3,824	15,072	12,124	12,185
SARANGANI	2,034	2,036	2,037	8,506	7,234	7,157
MAGUINDANAO (Cotabato City)	1,589	1,589	1,591	9,136	8,111	8,055
13 CARAGA	13,560	13,549	13,558	66,985	57,748	59,244
AUTONOMOUS REGION IN MUSLIM MINDANAO	8,280	8,280	8,274	36,363	29,500	27,132
MINDANAO TOTAL	826,829	826,910	827,712	5,662,175	5,134,263	5,332,513

Source :
NATIONAL STATISTICS OFFICE
Industry and Trade Statistics Department
Statistical Sampling and Operations Division
2000 List of Establishments

25.3.4 Per Capita GDP and GRDP

Per capita GDP and GRDP at current price and at constant price is shown in **Table 25.3.4-1** and **25.3.4-2**, respectively.

TABLE 25.3.4-1 PER CAPITA GRDP IN CURRENT PRICE: 2003 – 2007

unit: Peso

Region		2003	2004	2005	2006	2007	
Philippines		52,718	58,149	63,556	69,365	74,947	1.00
NCR	National Capital Region	148,743	165,814	184,758	205,117	223,332	2.98
CAR	Cordillera Administrative	66,749	71,247	75,556	82,523	85,319	1.14
Region I	Ilocos	27,943	30,725	33,405	35,996	38,063	0.51
Region II	Cagayan Valley	26,829	30,474	30,369	33,799	36,605	0.49
Region III	Central Luzon	39,407	42,256	45,789	49,469	52,351	0.70
Region IV-A	CALABARZON	50,997	55,213	59,320	63,640	67,466	0.90
Region IV-B	MIMAROPA	36,538	38,710	43,406	45,420	49,331	0.66
Region V	Bicol	21,991	24,277	26,316	27,983	31,314	0.42
Region VI	Western Visayas	42,556	46,875	51,872	56,523	61,382	0.82
Region VII	Central Visayas	48,573	54,008	59,272	64,261	69,797	0.93
Region VIII	Eastern Visayas	25,743	29,225	31,223	33,480	33,645	0.45
Region IX	Zamboanga Peninsula	31,946	34,678	38,386	41,899	45,864	0.61
Region X	Northern Mindanao	52,436	58,329	62,850	69,197	75,883	1.01
Region XI	Davao Region	48,176	54,419	59,971	64,520	71,100	0.95
Region XII	SOCCSKSARGEN	39,960	45,019	47,826	52,384	57,708	0.77
Region XIII	Caraga	12,193	14,050	15,161	32,493	40,012	0.53
ARMM	Muslim Mindanao	24,531	26,449	28,194	16,303	16,829	0.22

Source: National Statistical Coordination Board.

TABLE 25.3.4-2 PER CAPITA GRDP IN CONSTANT PRICE: 2003 - 2007

unit: Peso

Region		Per Capita GRDP					Growth Rate
		2003	2004	2005	2006	2007	2003-2007
Philippines		13,252	13,789	14,186	14,681	15,429	3.87
NCR	National Capital Region	31,730	33,867	35,742	37,856	40,252	6.13
CAR	Cordillera Administrative	17,848	18,111	17,919	18,208	19,120	1.74
Region I	Ilocos	7,209	7,442	7,727	7,988	8,286	3.54
Region II	Cagayan Valley	7,590	8,228	7,649	8,122	8,511	2.91
Region III	Central Luzon	11,092	11,054	11,142	11,448	11,904	1.78
Region IV-A	CALABARZON	13,853	14,068	14,159	14,439	14,891	1.82
Region IV-B	MIMAROPA	12,120	12,284	12,735	12,603	13,431	2.60
Region V	Bicol	6,214	6,442	6,632	6,691	7,067	3.27
Region VI	Western Visayas	11,699	12,347	12,825	13,100	13,842	4.29
Region VII	Central Visayas	12,419	13,010	13,518	13,917	14,829	4.54
Region VIII	Eastern Visayas	6,362	6,555	6,678	6,846	6,922	2.13
Region IX	Zamboanga Peninsula	9,482	9,672	10,159	10,147	10,679	3.02
Region X	Northern Mindanao	13,904	14,587	14,829	15,651	16,537	4.43
Region XI	Davao Region	12,842	13,455	13,892	14,157	14,866	3.73
Region XII	SOCCSKSARGEN	11,112	11,487	11,477	11,982	12,505	3.00
Region XIII	Caraga	6,516	6,589	6,690	6,994	7,452	3.41
ARMM	Muslim Mindanao	3,290	3,382	3,433	3,479	3,582	2.15

Source: National Statistical Coordination Board.

Per capita GRDP of Region XI and Region XII is lower than the national average. Growth rate of per capita GRDP of Region XI and Region XII is also lower than that of the country.

CHAPTER 26

PRESENT TRAFFIC CONDITIONS OF TDG

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PRESENT TRAFFIC CONDITIONS OF TDG

26.1 DISTRIBUTION OF TRAFFIC GENERATION SOURCES

26.1.1 Distribution of Population

Figure 26.1.1-1 reflects the distribution of population of the Tagum-Davao-Gen. Santos City Corridor. Davao city is the most populated city in the study area followed by General Santos city and then by Tagum City. In between these major urban centers are small and medium cities with population of between 50,000 to 200,000.

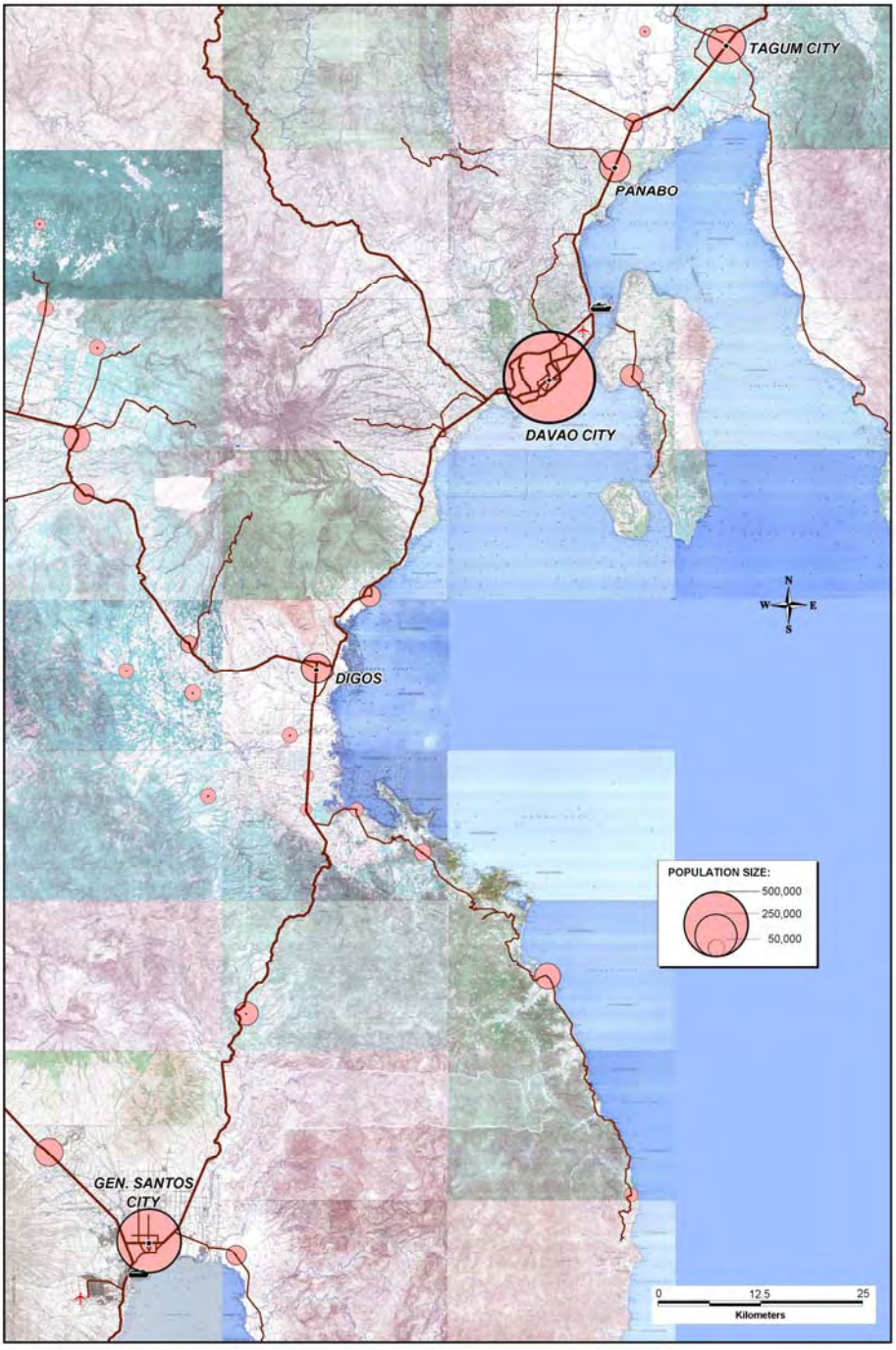


FIGURE 26.1.1-1 DISTRIBUTION OF POPULATION

26.1.2 Major Transport Facilities

(1) International Ports

There are two (2) international ports within the study area, namely Davao (or Sasa) Port and Gen. Santos Port. Port statistics are shown in **Table 26.1.2-1** and graphically presented in **Figure 26.1.2-1** to **26.1.2-3**.

TABLE 26.1.2-1 PORT STATISTICS (2007)

		Davao Port	Gen. Santos Port
No. of Ship calls	Domestic	538	1,150
	Foreign	373	410
	Total	911	1,560
Cargo Traffic (1,000 M. T.)	Domestic	1,655	501
	Foreign	1,652	134
	Total	3,307	635
No. of Passengers (1,000)		1,557	119

Source: Port Interview by JICA Study Team

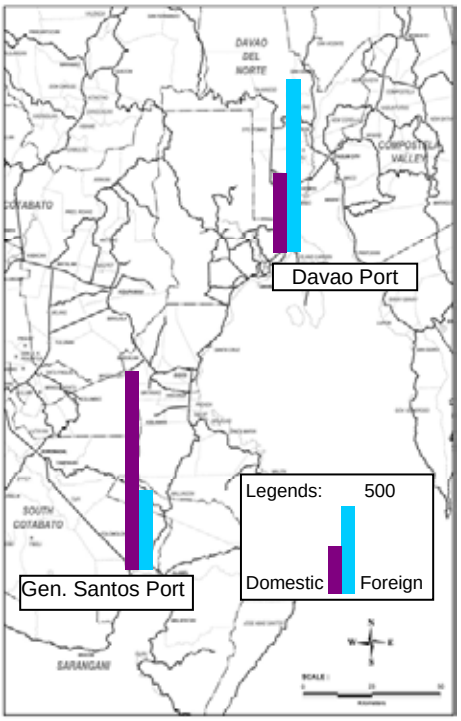


FIGURE 26.1.2-1 NUMBER OF SHIP CALLS

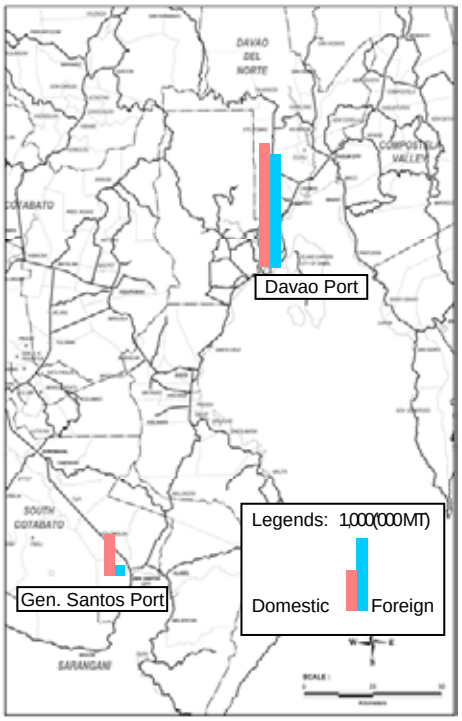


FIGURE 26.1.2-2 CARGO TRAFFIC

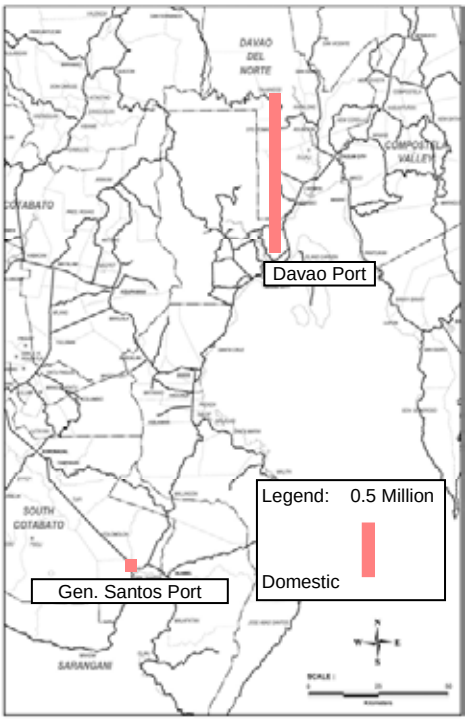


FIGURE 26.1.2-3 NUMBER OF PASSENGERS

(2) Airports

There are two (2) major airports within the Study Area, namely Davao International Airport and Gen. Santos Airport. Airport statistics are shown in **Table 26.1.2-2** and graphically shown in **Figures 26.1.2-4** to **26.1.2-6**.

TABLE 26.1.2-2 AIRPORT STATISTICS (2007)

		Davao International Airport	Gen. Santos Airport
No. of Flights	Domestic	11,314	2,326
	Foreign	1,126	-
	Total	12,440	2,326
No. of Passengers (in 1,000)	Domestic	1,480	309
	Foreign	54	-
	Total	1,534	309
Cargo Traffic (M.T.)	Domestic	45,536	10,014
	Foreign	-	-
	Total	45,536	10,014

Source: Airport Interview by JICA Study Team

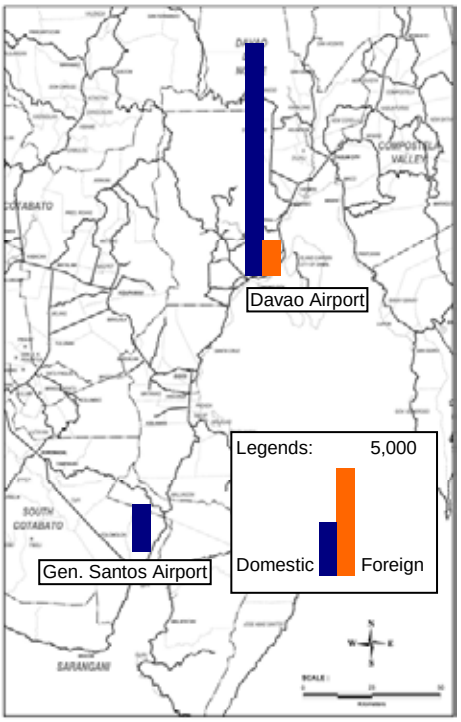


FIGURE 26.1.2-4 NUMBER OF FLIGHTS

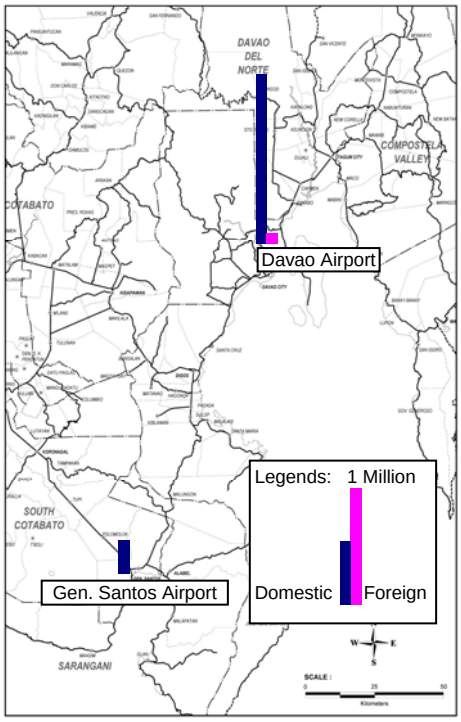


FIGURE 26.1.2-5 NUMBER OF PASSENGERS

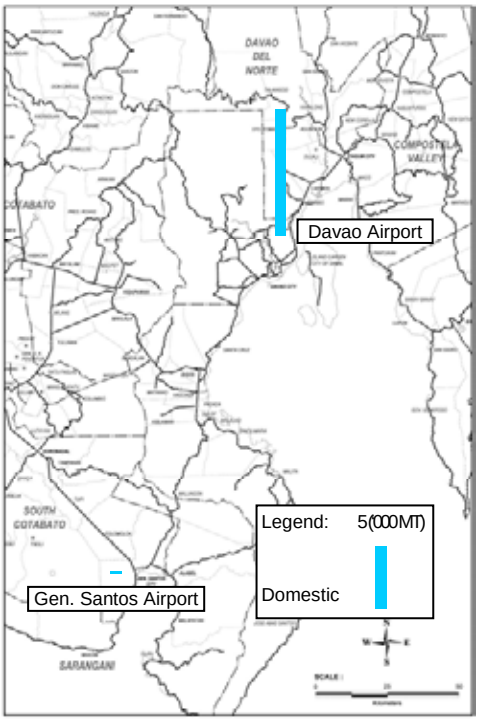


FIGURE 26.1.2-6 CARGO T RAFFIC

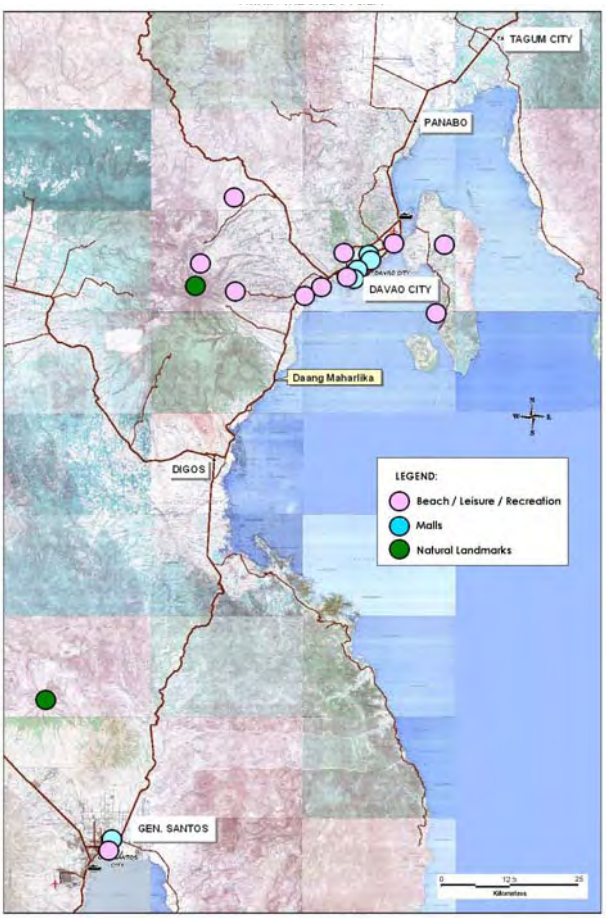
26.1.3 Location of Economic Zones, Major Shopping Malls, Interest Spots

Figure 26.1.3-1 shows the distribution of economic zone / industrial parks in the Tagum-Davao-Gen. Santos City corridor based on the records of Philippine Economic Zone Authority (PEZA). Of the four (4) ecozones in Davao, three ecozones are related to Information Technology (I.T.) and their sizes are relatively small when compared to that located in Luzon's (for instance, land area of Damosa I.T. Parks is just 22,983 sq. m.).

Shopping malls, beaches and other interest spots were also plotted as shown in **Figure 26.1.3-2.** As shown in the figure, the places of interest are located mostly in and around Davao City.

Source: Prepared by the Study Team based on the data of Philippine Economic Zone Authority (PEZA), 2008

FIGURE 26.1.3-1 ECONOMIC ZONES / INDUSTRIAL PARKS



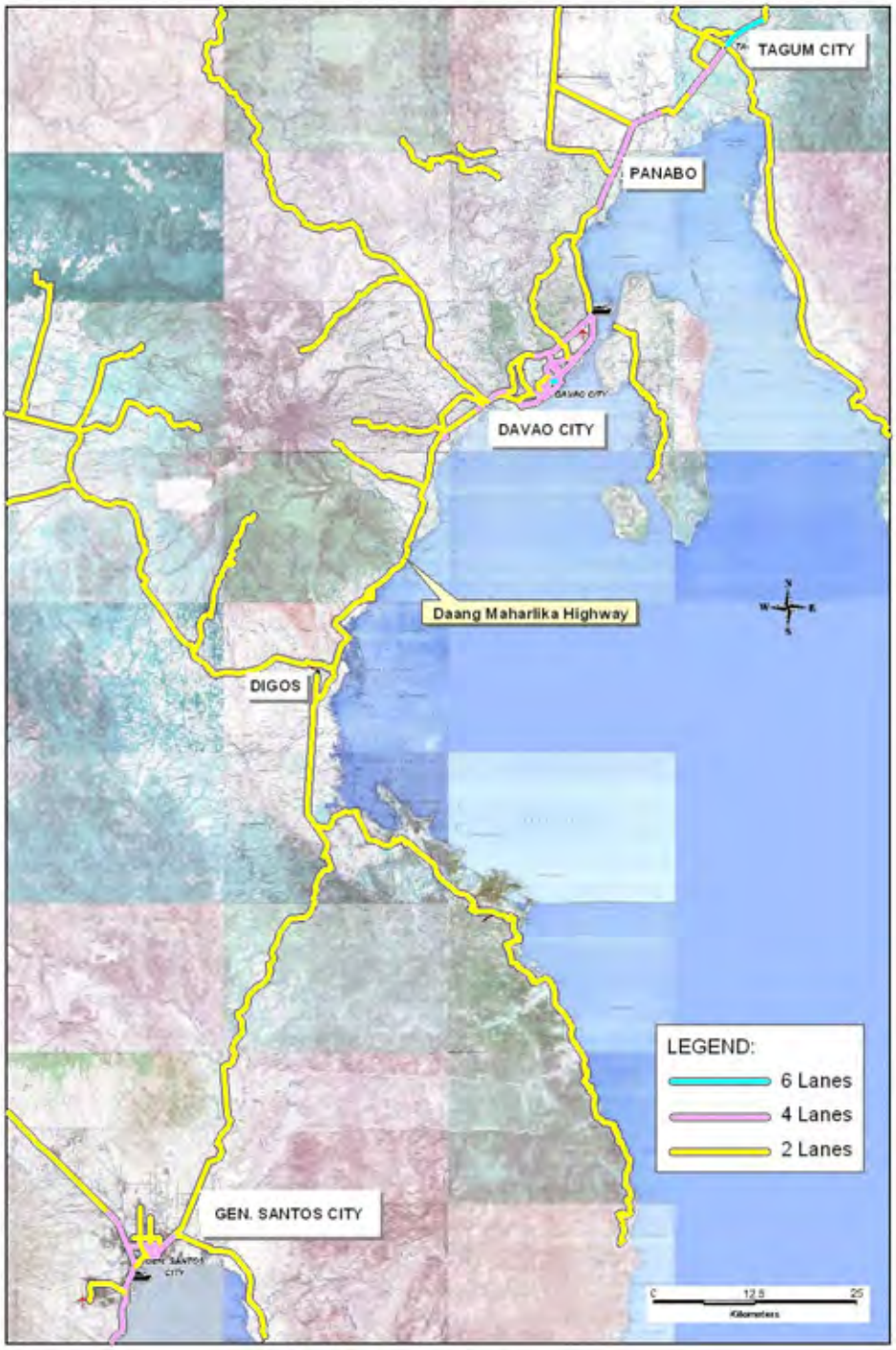
Source: Various maps and Department of Tourism (DOT) data

FIGURE 26.1.3-2 DISTRIBUTION OF INTEREST SPOTS

26.2 ROAD TRAFFIC CONDITIONS

26.2.1 Road Conditions

The number of lanes of the existing Tagum-Davao-Gen. Santos road corridor is shown in **Figure 26.2.1-1**. As seen in the Figure, the corridor has basically 2-lanes with some sections having four (4) lanes in the city and town centers.



Source: DPWH Atlas, 2007

FIGURE 26.2.1-1 NUMBER OF LANES OF TAGUM-DAVAO-GEN. SANTOS CORRIDOR

26.2.2 Traffic Conditions

(1) Traffic Volume

The traffic volume on the Tagum – Davao – Digos – Gen. Santos corridor is presented in **Figure 26.2.2-1**. Taking into account traffic between cities, high vehicle volumes are observed in the following sections: Carmen – Panabo, Panabo – Davao City and Davao City – Digos.

Traffic volume inside Davao City is observed to be high especially at the Quirino Avenue where local traffic merges with regional traffic coming from as far as Cotabato City and General Santos City. Traffic at the diversion road is quite significant also almost as high as the traffic registered at MacArthur Highway which runs parallel to the diversion road. City traffic of General Santos on the hand is rather low compared to that in Davao City. City streets with significant traffic are: Pioneer Avenue, P. Acharon Boulevard, Davao – Gen. Santos City road, and Gen. Santos – Cotabato City road.

(2) Hourly Variation of Traffic

The hourly variation of traffic is available from **Figure 26.2.2-2** to **Figure 26.2.2-4** (see Annex 26.1 for hourly traffic variation of other traffic survey stations). Traffic in the Surigao – Davao road is observed to peak at 8AM and considerable traffic is still observed at 8PM as shown in **Figure 26.2.2-2**. Traffic in the Davao – Gen. Santos road and Gen. Santos – Cotabato corridors, on the other hand, have their peak hour starts earlier at 7AM and sharp decline of traffic is observed as early as 5PM. Although both are inter-city traffics, the difference in traffic characteristics might have to do with the peace and order in the area. Perhaps motorists leaving from Davao to northern towns are quite comfortable traveling in the evening due to relatively peaceful environment. On the other hand, travelers from Davao City to Gen. Santos City and from Gen. Santos to Cotabato City are trying to avoid night time journey for security reasons.

Hourly variation of traffic to city traffic of Davao is available in Annex 26.1. Traffic at the MacArthur Highway has almost the same volume in both directions and the high volume of traffic is almost continuous throughout the daytime. The same traffic characteristics are observed on the traffic recorded in the city of Gen. Santos (see Annex 26.1 for the graph).

(3) Travel Time

Observed travel speed is along the Tagum – Davao – Digos corridor is depicted in **Figure 26.2.2-5**. Travel speed inside Davao City on the other hand is presented in **Figure 26.2.2-6** while **Figure 26.2.2-7** shows travel speed in Gen. Santos City. Details on each route are discussed below:

- Route 1 – Travel speed in this route is rather good except for the sections approaching the diversion road of Davao City and the inside the Tagum city.
- Route 2 – There is no major interruption to vehicular movements in this route except those motorists entering Davao City where they are expected to experience traffic congestions at the section before the diversion road.
- Route 3 – Congested section in this route is between Gabantian Road and D. Quiniones Road where travel speed is expected to just higher than 20 km/hr.
- Route 4 – This is a very congested route where slow vehicular movement is experienced from the approach section of the diversion road until Ecoland drive. Except to the Roxas Avenue – Agdavo Avenue Section, all other sections have travel speed of between 20 km/hr to 30 km/hr.
- Route 5 – This is the most congested route where motorists' movement is expected to be interrupted from Agdao Ave. to Ma-a road.
- Route 6 – Generally, this route has no major traffic problem except to the section of Cahisot – Bula Amao road of the P. Acharon Boulevard.

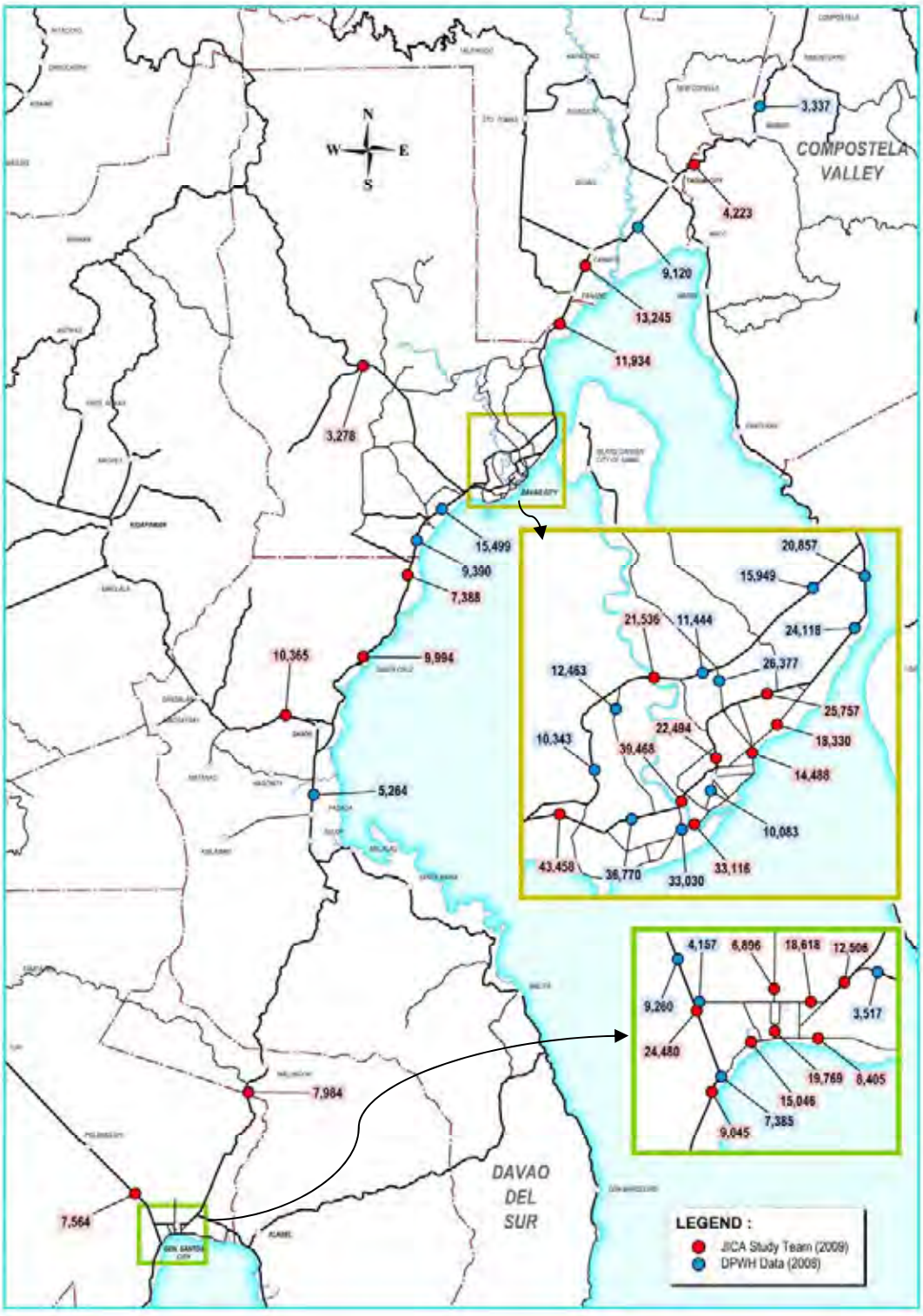


FIGURE 26.2.2-1 TRAFFIC VOLUME AT TAGUM-DAVAO-DIGOS-GEN. SANTOS CORRIDOR

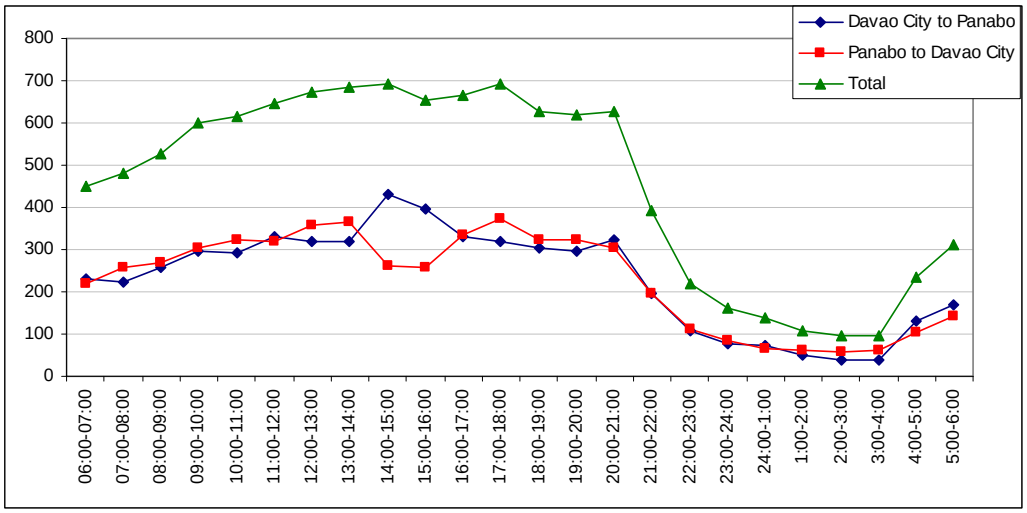


FIGURE 26.2.2-2 HOURLY TRAFFIC VARIATION OF DAVAO - SURIGAO ROAD

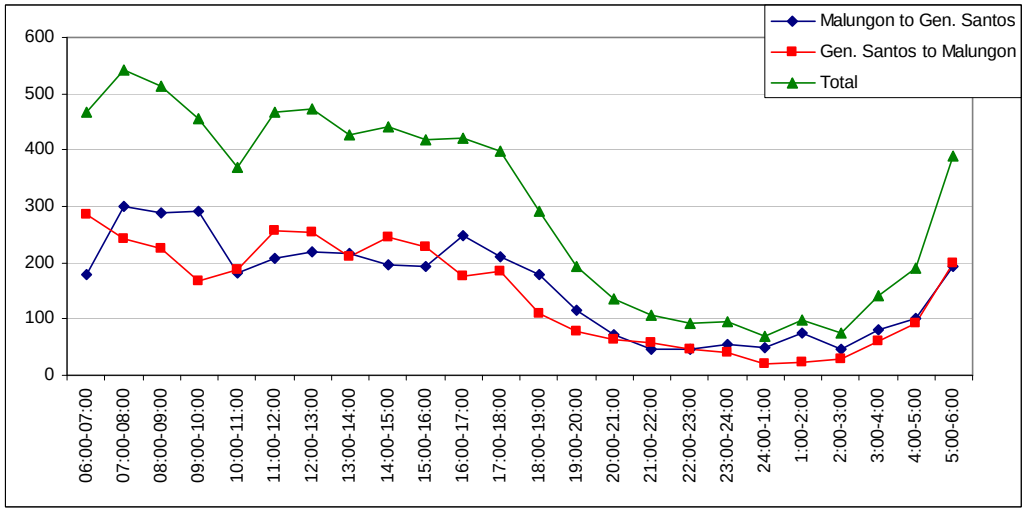


FIGURE 26.2.2-3 HOURLY TRAFFIC VARIATION OF DAVAO-GEN. SANTOS ROAD

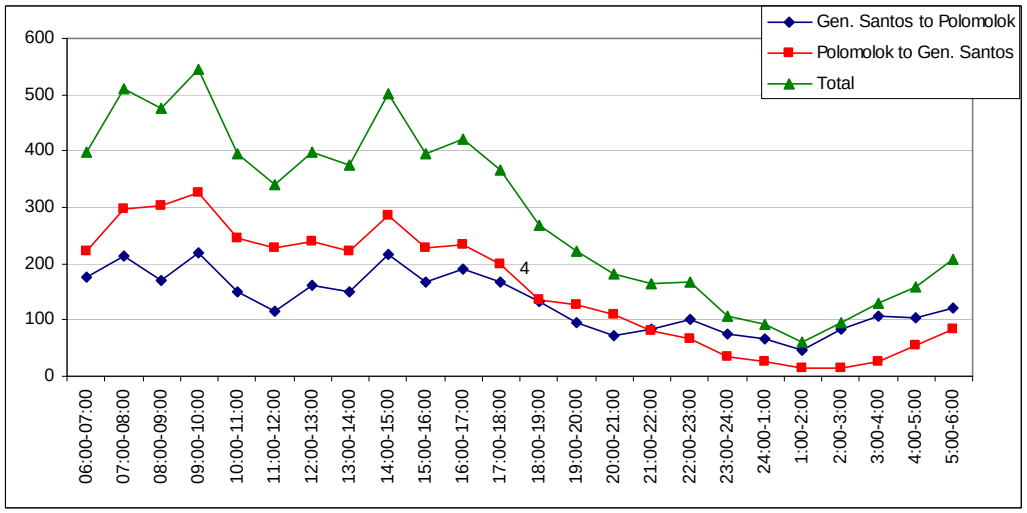


FIGURE 26.2.2-4 HOURLY TRAFFIC VARIATION OF GEN. SANTOS - COTABATO ROAD

FIGURE 26.2.2-5 TRAVEL SPEED ON TAGUM – DAVAO – DIGOS CORRIDOR

FIGURE 26.2.2-6 TRAVEL SPEED IN DAVAO CITY

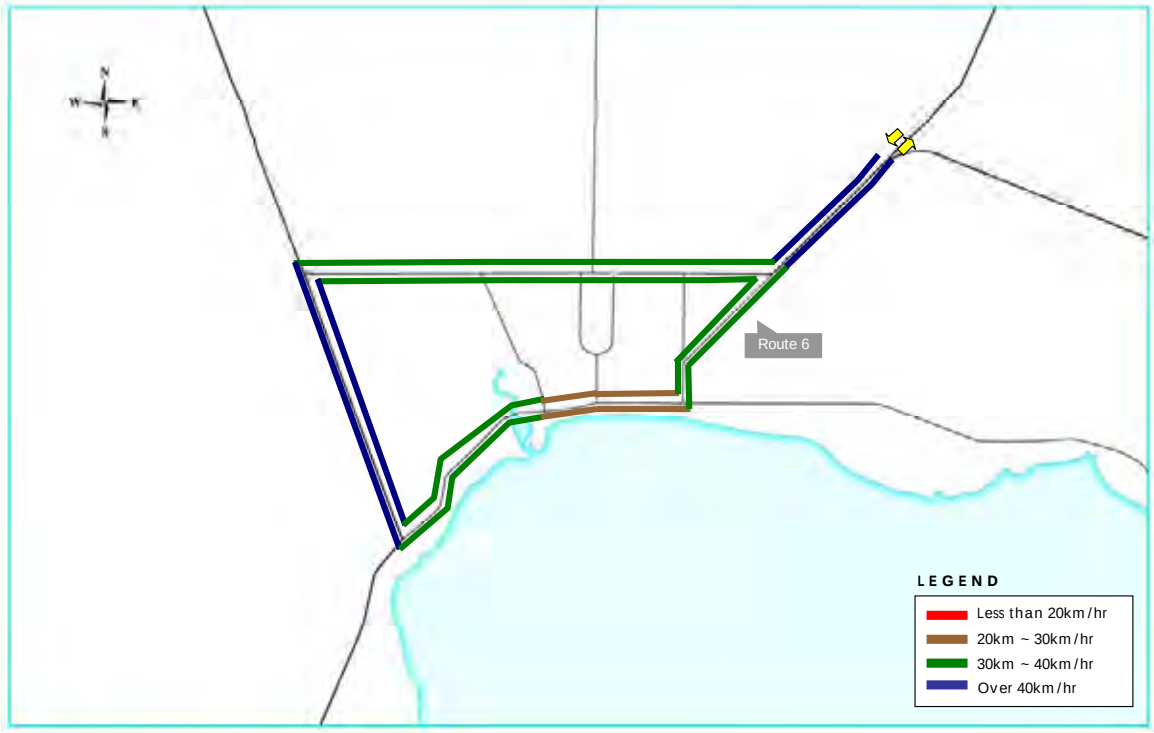


FIGURE 26.2.2-7 TRAVEL SPEED IN GEN. SANTOS CITY

(4) Vehicle Composition

The shares of each vehicle type are shown in **Figure 26.2.2-8** and **Figure 26.2.2-9**. Number of traffic sharply increases at the urban center as observed from the two figures. Traffic recorded at the border between Carmen and Tagum is less than 10,000 vehicles but this number increases to almost double (18,944) at the center of the municipality. Most of the traffic, however, is local traffic (tricycles) which has a share of 44%. The same can be said of **Figure 26.2.2-16** where traffic at the border of Carmen and Tagum is just 9,511 vehicles, but this number increases to almost 25,000 at the urban center of Tagum City. Again, most of the traffic registered is local traffic (tricycles) which accounted for 62% to the total traffic.

The accumulation of a large volume of traffic on the national road at the urban center creates a chaos where local and through traffic is competing for road space. This seriously affects the movement of vehicles especially the through traffic that intends to reach Davao City. Improving the vehicle flow at the urban center requires serious efforts such as enhancement of traffic signals and perhaps even construction of bypass roads to separate regional traffic (or through traffic) from the local traffic.

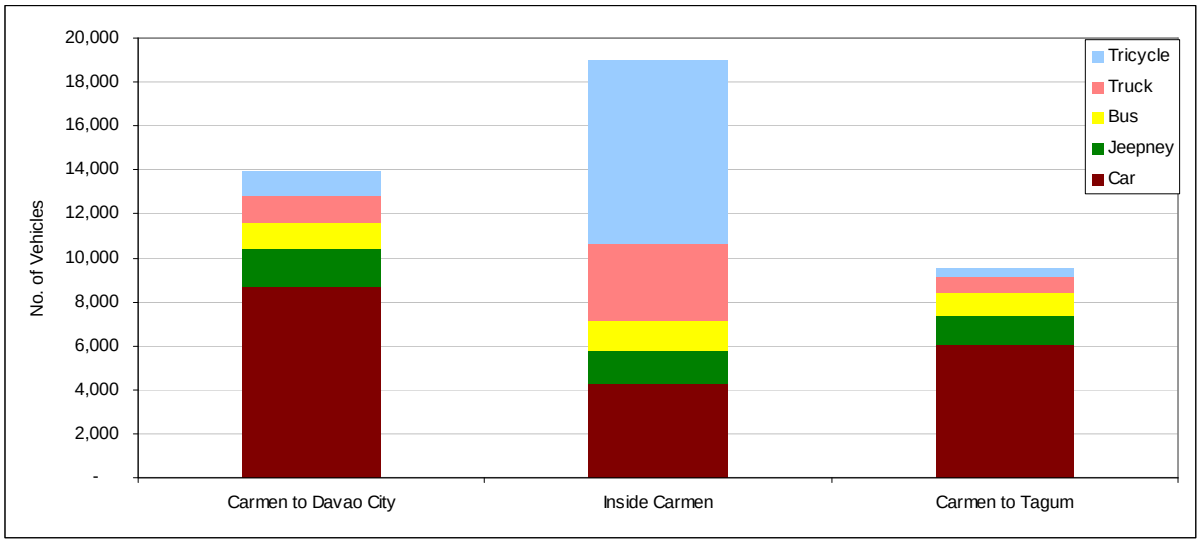


FIGURE 26.2.2-8 TRAFFIC COMPOSITION AT REGIONAL URBAN CENTERS (CARMEN): PAN PHILIPPINE HIGHWAY - (BUTUAN – DAVAO ROAD)

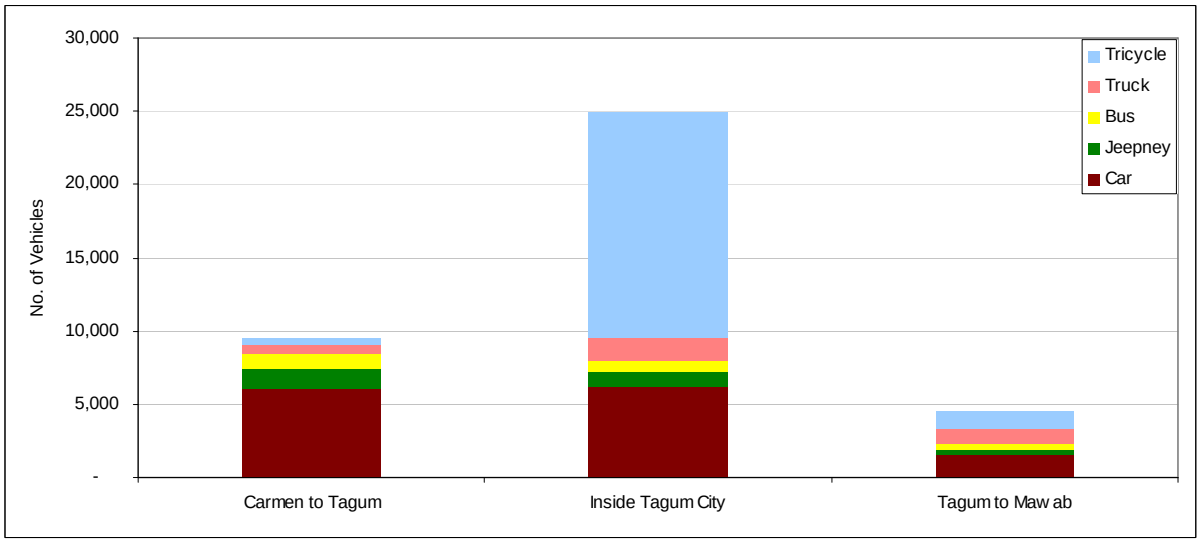


FIGURE 26.2.2-9 TRAFFIC COMPOSITION AT REGIONAL URBAN CENTERS (TAGUM CITY): PAN PHILIPPINE HIGHWAY - (BUTUAN – DAVAO ROAD)

26.3 FREIGHT MOVEMENT AND LOGISTICS CORRIDORS

26.3.1 Port/Airport Related Freight Movement

The truck OD survey was carried-out at Davao (Sasa) Port, Gen. Santos Port, Davao International Airport and Gen. Santos Airport. Desire line maps of trucks related to ports/Airports were prepared as shown in **Figure 26.3.1-1** (see Annex 26.2 for individual desire line of port and airport).

- Number of trucks related to ports/airports is still small.
- Both ports in Davao City and Gen. Santos City have rather limited service areas.
- Davao International Airport has wide service areas.
- Gen. Santos Airport has very limited service area.

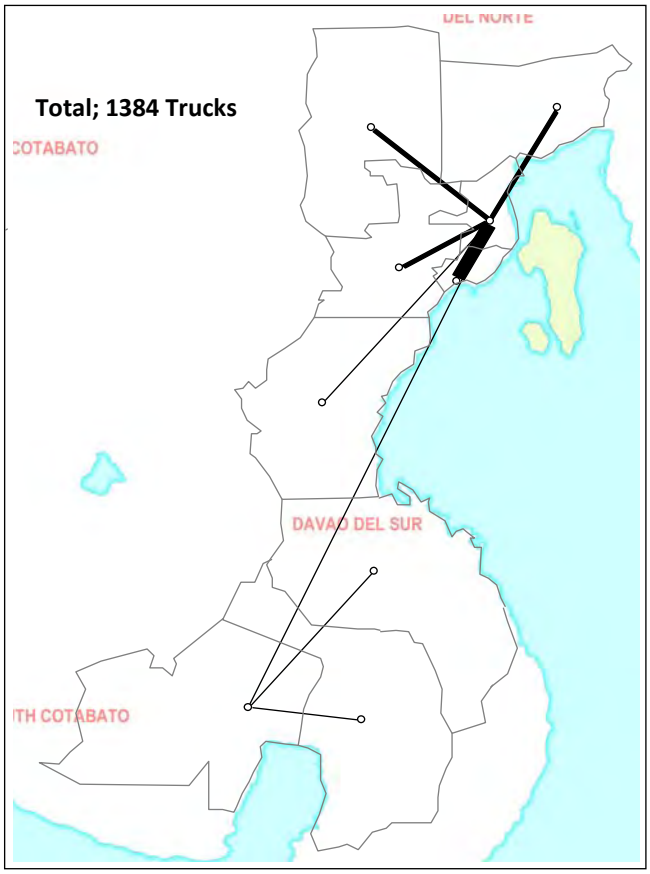


FIGURE 26.3.1-1 PORT/AIRPORT RELATED TRUCK MOVEMENTS

26.3.2 Logistic Corridors of Manufacturing Companies

Officials of manufacturing companies were interviewed to obtain information on the source of their raw materials as well as destination of their final products. Through this survey, routes utilize by these companies were identified. Results of an interviewed company are shown in **Figures 26.3.2-1** (see Annex 26-3 for routes of other manufacturing companies).

Based on the said interview, logistics corridors are as follows;

- Pan Philippine Highway (Davao-Butuan)
- Davao – Cagayan de Oro Road
- Davao – Digos – Cotabato Road
- Davao – Digos – Gen. Santos Road

26.3.3 Comments on Problems Made by Manufacturing Companies, Trucking / Logistics Companies

The problems identified by interviewed manufacturing companies and trucking and logistics companies related to transportation of their cargoes are summarized below:

Manufacturing Companies

- Frequent delayed arrival of vessels
- Late delivery to clients due to poor road condition, traffic congestion, and poor traffic regulations
- Parked vehicles on road shoulders (on-street parking) is causing traffic congestion

Trucking Companies

- There is heavy traffic congestion on highways passing public markets. Relocation of these markets is necessary.
- National road from Digos City to General Santos is in poor condition and with potholes. These cause road accidents.
- Plenty of potholes along Mabini Street and other city roads of Davao City which creates traffic congestion
- There is also heavy traffic congestion between Paracan and Tibungco in Davao City which affect transportation of cargoes
- Long waiting time of trucks inside the port due to frequent delayed arrival of vessels
- Heavy congestion is experienced at the port's access road during morning and afternoon rush hours

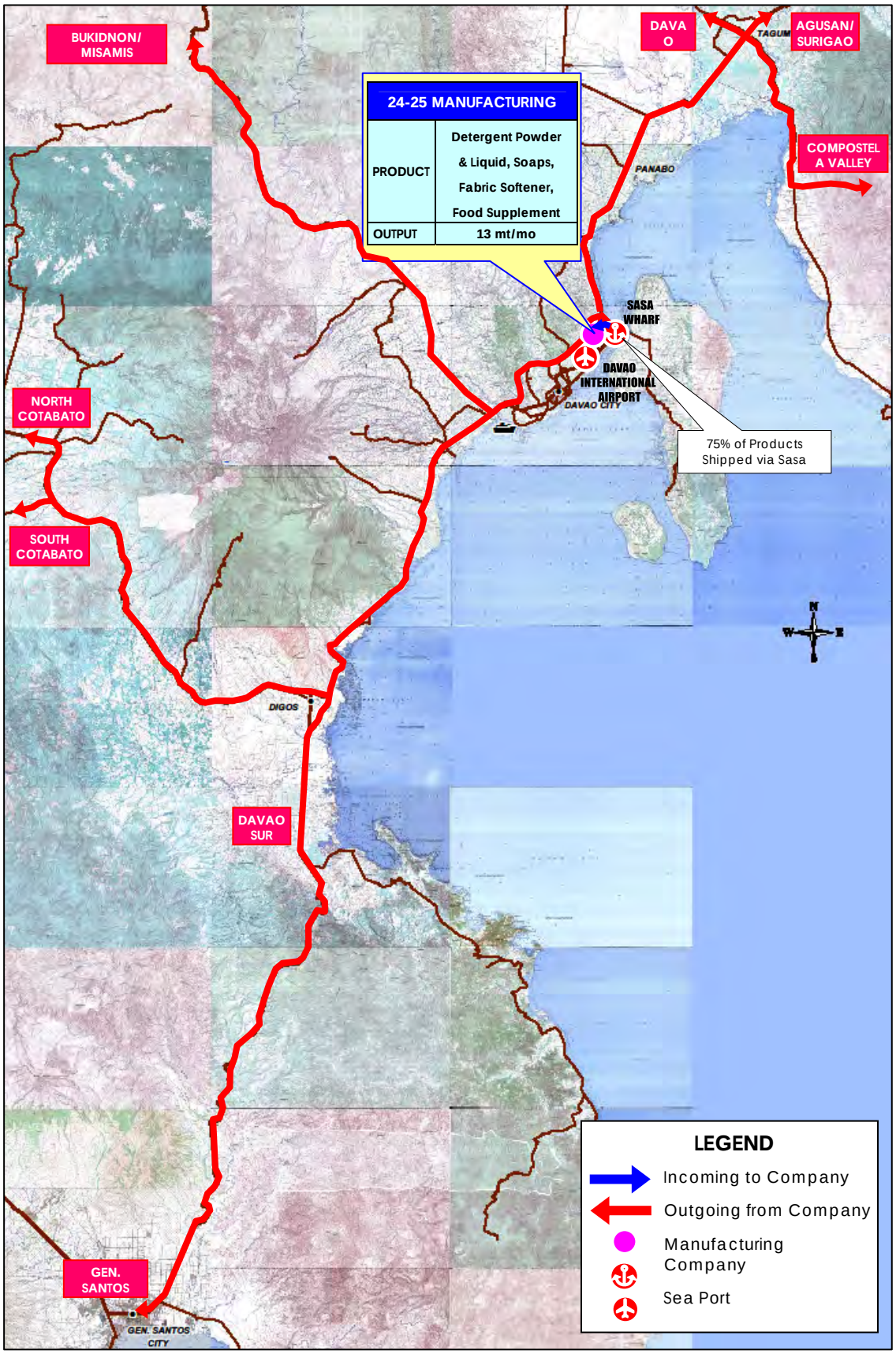


FIGURE 26.3.2-1 (24-25) MANUFACTURING COMPANY – ROUTES AND DESTINATION OF PRODUCTS

CHAPTER 27

FUTURE SOCIO-ECONOMIC FRAMEWORK AND REGIONAL DEVELOPMENT SCENARIO OF TDG

CHAPTER 27
FUTURE SOCIO-ECONOMIC FRAMEWORK AND REGIONAL DEVELOPMENT SCENARIO OF TDG

27.1 FUTURE SOCIO-ECONOMIC FRAMEWORK

27.1.1 Future Population

The same methodology as described in Section 10.1.1 was adopted.

Population growth rate adopted for Regions XI and XII is shown in **Figure 27.1.1-1** and **27.1.1-2**, respectively. Projected population is shown in **Table 27.1.1-1**.

TABLE 27.1.1-1 POPULATION PROJECTION: MINDANAO

(thousands)

Region/Province		Population Projection						
		2009	2010	2015	2020	2025	2030	2030/2009
Philippines		92,171	94,024	103,201	112,276	121,013	129,213	1.40
9 Zamboanga Peninsula		3,354	3,418	3,746	4,095	4,466	4,859	1.45
10 Northern Mindanao		4,089	4,159	4,522	4,909	5,304	5,693	1.39
11 Davao		4,303	4,378	4,765	5,169	5,566	5,971	1.39
	Compostela Valley	655	664	709	757	807	859	1.31
	Davao (Davao del Norte)	879	895	980	1,072	1,172	1,279	1.46
	Davao del Sur	841	851	900	951	1,004	1,059	1.26
	Davao Oriental	498	504	536	569	604	641	1.29
	Davao City	1,430	1,464	1,640	1,820	1,980	2,133	1.49
12 Soccsksargen		4,013	4,109	4,613	5,162	5,774	6,417	1.60
	Cotabato(North Cotabato)	1,173	1,199	1,337	1,487	1,650	1,826	1.56
	Saranggani	496	506	562	622	689	762	1.54
	South Cotabato	790	802	864	930	1,000	1,075	1.36
	Sultan Kudarat	703	717	791	873	962	1,060	1.51
	Cotabato City	283	296	360	427	495	561	1.98
	Gen. Santos City	568	589	699	823	977	1,133	1.99
13 CARAGA		2,351	2,381	2,527	2,676	2,826	2,977	1.27
ARMM		4,543	4,770	4,770	4,770	4,770	4,770	1.05

Source: JICA Study Team.

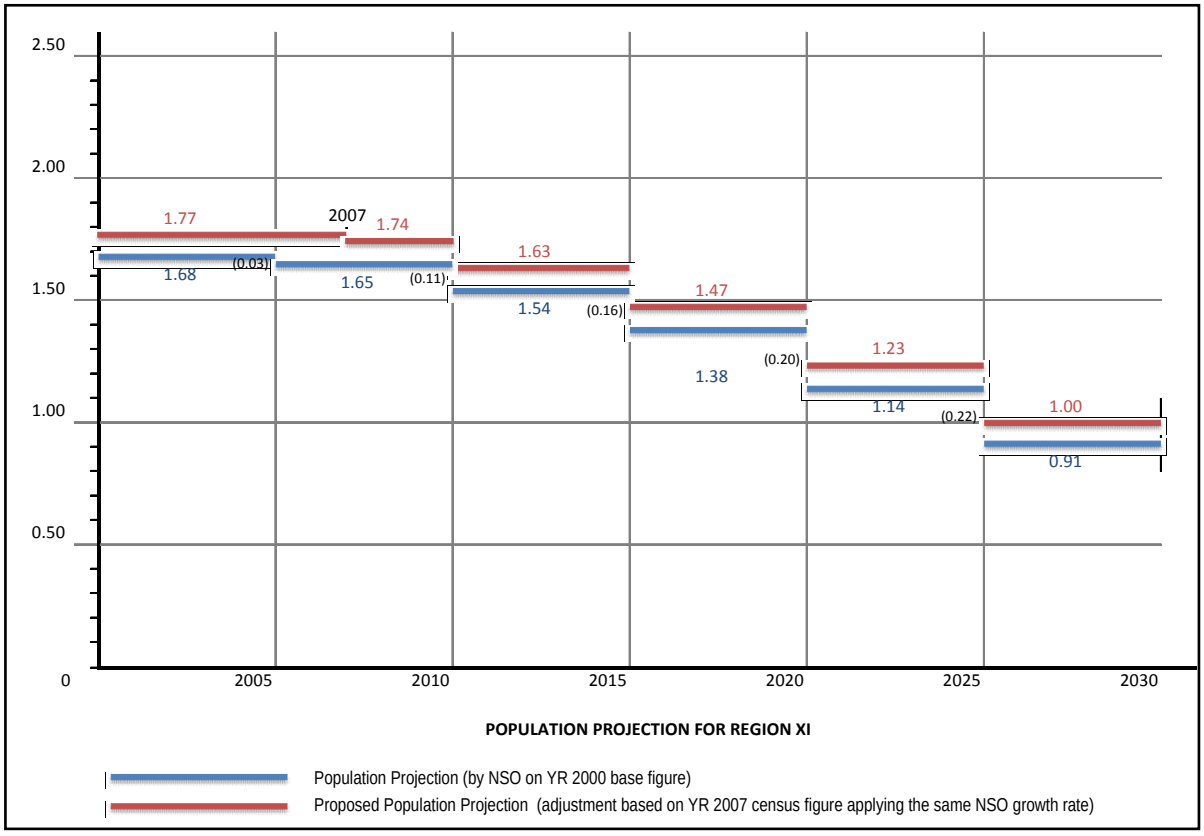


FIGURE 27.1.1-1 POPULATION GROWTH RATE PROJECTION: REGION XI

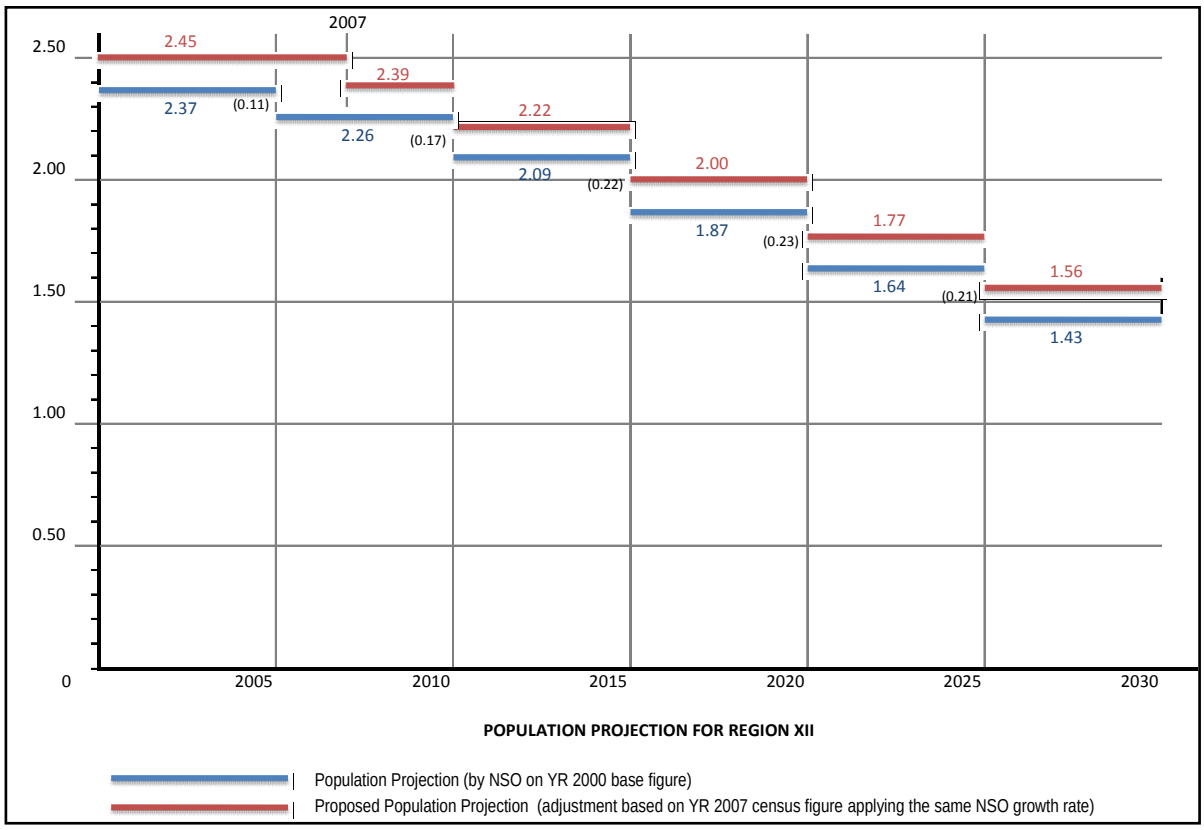


FIGURE 27.1.1-2 POPULATION GROWTH RATE PROJECTION: REGION XII

27.1.2 Economic Framework

Discussed in Section 10.1.2 of Chapter 10.

27.1.3 Employment at Job Site

The same methodology as described in Section 10.1.3 of Chapter 10 was adopted. Projected employment at job site is shown in **Table 27.1.3-1**.

TABLE 27.1.3-1 PROJECTED EMPLOYMENT AT JOB SITE: MINDANAO

Region/City/Municipality	Employment Projection (thousands)						2030/2009
	2009	2010	2015	2020	2025	2030	
PHILIPPINES	22,881	23,443	26,524	29,645	32,730	35,696	1.56
9 ZAMBOANGA PENINSULA	569	575	605	636	662	682	1.20
10 NORTHERN MINDANAO	1,007	1,034	1,251	1,481	1,698	1,895	1.88
11 DAVAO REGION	968	998	1,197	1,368	1,616	1,819	1.88
DAVAO DEL NORTE	215	221	263	300	352	395	1.84
DAVAO DEL SUR	652	671	808	927	1,099	1,240	1.90
DAVAO ORIENTAL	40	41	49	55	65	73	1.83
COMPOSTELA VALLEY	62	64	77	86	100	111	1.79
DAVAO CITY	502	517	622	714	846	955	1.90
12 SOCCSKSARGEN	719	743	897	1,036	1,238	1,413	1.97
NORTH COTABATO	132	136	163	189	225	256	1.94
SOUTH COTABATO	457	472	572	663	795	910	1.99
SULTAN KUDARAT	58	60	72	83	98	110	1.89
SARANGANI	34	35	42	48	57	65	1.92
MAGUINDANAO (Cotabato Ci	38	39	48	54	63	72	1.89
GENERAL SANTOS CITY	2,002	2,066	2,493	2,873	3,423	3,893	1.94
13 CARAGA	676	685	724	765	800	828	1.23
ARMM	237	241	254	269	281	291	1.23
MINDANAO TOTAL	4,176	4,276	4,928	5,554	6,294	6,927	1.66

27.2 REGIONAL DEVELOPMENT SCENARIO

27.2.1 Trend and Direction of Regional Development

Chapter 25 has provided a position of socioeconomic development of the regions traversed by the Tagum-Davao-GenSan corridor. It is expected that there will be no major shift in the comprehensive development approach for Central and Southern Mindanao. Their regional development will not have significant makeover but instead more focused on their strengths that are inclined on agricultural development, coastal development, agri-forestry and mineral development with major tourism development. Clustering development approach is one facet of regional development in the two regions, same as in the other study areas.

Furthermore, Davao City and General Santos City will still continue to expand their urbanization. Metropolitanization is now being promoted for Davao City and its environs. General Santos City, together with the other provinces in the region adheres to clustering development and corridor growth approach.

Tourism development is toward the advantage of the two regions' coastal and forest areas and indigenous cultural heritage. Their cultural heritage is manifested by the presence of tri-people (Muslims, Lumads and Christian settlers) influence. Same as in the two study areas, clustering of tourism spots are encouraged being encouraged.

Urban and regional development initiatives by the private sector have started and are expected to continue.

Finally, subregional cooperation in the context of the BIMP-EAGA is another factor in the two regions' comprehensive development framework.

27.2.2 Regional Development Scenario

Characteristics of the Corridor, Metro Davao and Mero Gen. Santos can be summarized as follows;

The Corridor

- The corridor except Metro Davao and Metro Gen. Santos is basically for agro-fishery production and agro-fishery based industry.
- Food supply from the corridor to Luzon and Visayas Regions is expected to be the major role of the corridor.
- Export oriented agro-fishery based industry is expected to grow in this area.
- To provide efficient and reliable means of transportation of agri-fishery products is a key to support the agri-fishery industry.

Metro Davao

- Metro Davao is the center of business/commercial/finance and education of entire Mindanao.
- Metro Davao is the core center of BIMP-Eastern ASEAN Growth Area (EAGA).
- In order to achieve integrated development of Mindanao, improvement of connection/linkage between Metro Davao and other urban centers of Mindanao such as Metro Gen. Santos, Metro Cagayan de Oro, Metro Butuan, Metro Cotabato and Metro Zamboanga is a key.
- Metro Davao has been developed at the narrow coastal plain. Topographical constraints force the concentration of socio-economic activities at the narrow coastal areas.
- Metro Davao has rich tourist attraction resources which should be further developed.
- Metro Davao is the base for exporting, agricultural products such as bananas, coconut oils, etc.

Metro General Santos

- Metro Gen. Santos is basically the base of export of fishery products and agricultural products such as tunas, pineapples, rice, etc.
- Metro Gen. Santos is the center of regional urban growth.

Based on the above characteristics of the corridor, the development strategy was established as shown in **Figure 27.2.2-1**.

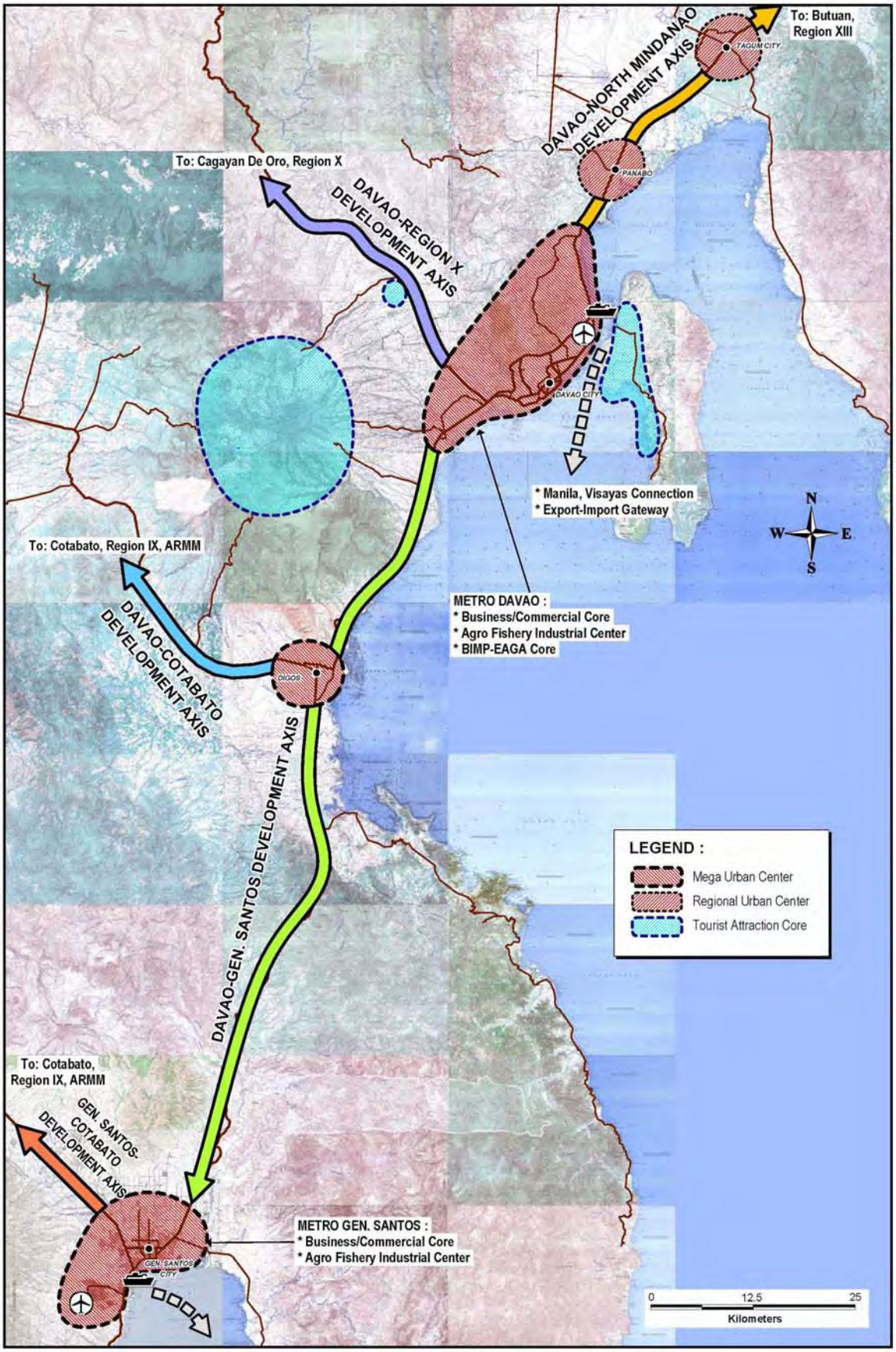


FIGURE 27.2.2-1 DEVELOPMENT STRATEGY: TAGUM-DAVAO-GEN. SANTOS CORRIDOR

- Metro Davao shall grow as the business, commercial, industrial and educational core of the entire Mindanao.

- In order to achieve the integrated development of Mindanao, the linkage/connection between Metro Davao and other major urban centers in Mindanao shall be strengthened.

- To strongly support the development of agri-fishery industry in Mindanao, transport axes connecting major urban centers with Metro Davao shall developed.

    - Davao-North Mindanao development axis
    - Davao-Region X development axis
    - Davao-Cotabato development axis
    - Davao-Gen. Santos development axis
    - Gen. Santos-Cotabato development axis

- As the core center of BIMP-EAGA, Metro Davao's urban function shall be further developed.

- As the regional urban center, Metro Gen. Santos' urban function shall be further developed.