

# COMPREHENSIVE LAND USE PLAN

( 2013-2022 )



Volume 1



Republic of the Philippines  
City Government of Davao

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**COMPREHENSIVE LAND USE PLAN**

**2013-2022**

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## 1.1 HISTORICAL BACKGROUND

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The Davao Gulf Region was active in trading activities long before the arrival of the Spaniards. It participated in trading within island Southeast Asia where several powerful trading empires emerged such as the Sri Vijaya and the Majapahit. In fact, Davao Gulf traded with other distant countries as evidenced by the presence of ceramics from Vietnam, Thailand, and China in several archaeological sites in the region.

When the Spaniards arrived in the 16th century, the Davao Gulf region was under the influence of the Magindanaw Sultanate based in Cotabato. Early maps of Mindanao show Davao Gulf as Tagalook as it was known then by the local people. What is today Davao River was also called Tagalook River. The Dutch called Davao Gulf Boetuan Bay after a small settlement in today's Davao del Sur. However, the most important settlement along the Gulf was Dabu or Djabu, now the present Davao City. In the 1620s the Dutch recorded three "kings" to be ruling Dabu, signifying its important position in the Gulf. The Dabu area was home to six tribes - the Ubo Manobo, Ata Manobo, Bagobo-Tagabawa, Bagobo-K'lata, Matigsalog and Kalagan.

The main trade items from Davao were wax and sulfur. Other important exports were tortoise shells, bird's nests, dried betel nuts, and sandgold. As early as the 1700s, the Dutch had already speculated about the abundance of sandgold in the Davao region, particularly from around Iyo (Iho). Later trade items from Davao included cinnamon, biao (lumbang nuts) and almaciga resin.

However, by the 19th century, the Magindanaw Sultanate had considerably weakened due to various reasons, including frequent dynastic wars. Davao Gulf was left to the defense of Datu Bago, chief of the Davao settlement, against Spanish colonial expansionism.

In 1847, the Spanish governor general ordered Basque adventurer Jose Oyanguren to capture Davao. The few Spanish soldiers he had were not enough to defeat the native Bagobos and Manobos. His ships went first to Bislig/Gigaquit to get native troops. The Surigao natives spoke Kamayo which is similar to the Mandaya dialect used in the Davao Oriental towns of Caraya, Cateel, Manay, Mati, Kamayo and Mandaya, facing the Pacific Ocean are closely related to the dialect of the Kalagans; Muslims living in the Davao Gulf settlements of Sigaboy, Maco, Mabini and Kingking. Oyanguren's force with canons and firearms defeated the Bagobo freedom fighters armed with bows, arrows, lances and bolos. The Bagobos abandoned their fortress (Madapo Hills, Brokenshire Hospital compound) and retreated to Calinan. The following year, in 1849, the steam war boat *El Cano* with infantry support troops attacked the other resistance centers in the Gulf, thus completing Oyanguren's conquest of Davao Gulf, which was the last territory in the Philippines to be occupied by the Spaniards.

Oyanguren's troops became the masters of Davao. The Surigao Kamayo native soldiers were rewarded with large tracts of land for their services. The first Kamayos in turn brought their families and relatives to Davao and used a dialect incorrectly called dinabaw (mainly Davao Oriental's Mandaya and Surigaos Kamayo). If Oyanguren did not invade Davao, today the poblacion's old dialect would have been Bagobo Guiangan.

While in power, Oyanguren changed the name of Davao into Nueva Vergara after his hometown in Spain. He called the province that he had carved out from Surigao to Sarangani as Nueva Guipuzcoa, also after his home province in Spain. However, in the 1860s, the local people demanded the return of the original name Davao. Nueva Guipuzcua was renamed Davao Province.

The name is derived from its Bagobo origins: the Tagabawa who called the river “Dabo”, the Giangan or Diangan who called it “Dawaw”, and the Obo who called it “Davah”, with a gentle vowel ending, although later usage pronounce it with a hard “v” as in “b”.

Spanish rule in Davao from 1848 to 1899 was highly unstable. Aside from the Davao Moros, the Spaniards had to contend with sixteen to eighteen semi-nomadic tribes who refused to live in relocation sites called “reducciones” designated by the Spaniards. Meanwhile, the area under direct Spanish control became a huge penal colony where criminal and possibly political prisoners from various parts of Luzon and the Visayas were exiled.

In 1867, the original settlement by the side of Davao River (end of present Bolton Street) was relocated to its present site with the Saint Peter's church as the center edifice on the intersection of San Pedro and Claveria Streets.

During the early years of American rule which began in late December 1898 the town began to mark its role as a new growth center of the Philippines. The American settlers, mostly retired soldiers and investor friends from Zamboanga, Cebu, Manila and the U.S. mainland immediately recognized Davao's rich potential for agricultural investment. They staked their claim generally in hundreds of hectares and began planting rubber, abaca and coconuts. They contracted workers from Luzon and the Visayas, including the Japanese, many of whom were former laborers in the Baguio, Benguet road construction. Japanese immigration to Davao increased substantially from 1903 to 1925, most of these Japanese later became land-owners themselves as they acquired lands thru lease from the government or bought out some of the earlier American plantations.

The first two decades of the 20th century, found Davao one of the major producers of export products --- abaca, copra and lumber. It became a regular port of call by inter-island shipping and began direct commercial linkages abroad - US, Japan, Australia, etc. Some 40 American and 80 Japanese plantations proliferated throughout the province in addition to numerous stores and business establishments. Davao saw a rapid rise in its population and its economic progress gave considerable importance to the country's economy and foreign trade.

This was when its leaders with the encouragement of President Manuel L. Quezon, opted to create Davao as a city.

On October 16, 1936, by virtue of Commonwealth Act No. 51 otherwise known as the Charter of the City of Davao, the municipality of Davao became a city under the sponsorship of the then Assemblyman Romualdo C. Quimpo. The city was joyously inaugurated in March 1, 1937 with Hon. Elpidio Quirino, then the Secretary of Interior as President Quezon's representative in the celebration program. Davao City's territory of 244,000 hectares covered the municipality of Davao and the municipal district of Guianga. A photo taken of that inaugural ceremony held on the large stage along the steps of the City Hall - shows Secretary Quirino, Mayor Santiago Artiaga, the appointive city mayor with

member of the city council, Assemblyman Romualdo C. Quimpo, Dr. Alberto Zamora, last Municipal President of Davao, Father Reyes of the San Pedro Parish, Gen. Paulino Santos and many leading citizens of Davao. When the City of Davao began on March 1, 1937, its population was listed at about 68,000. By 1940 it increased to 98,000.

World War II brought considerable destruction to the new city and numerous setbacks to the earlier economic and physical strides made prior to the Japanese occupation. Davao was among the earliest to be occurred by the invading Japanese Forces, and they immediately fortified the city as the bastion of Japanese defense system. It was subjected by the returning forces of Gen. Mac Arthur to constant bombing, long before the American Liberation Forces landed in Leyte in October 1945.

In the US Liberation of Davao, the Japanese Forces put up their tenacious stand in countless pillboxes and tunnels. It was here where the longest battle campaign took place in the liberation of the Philippines: six months duration and the enemy holding on for over a month more following the official surrender of Japan in mid - August 1945. More lives were lost here than in any other city in the country.

After the war, the city gradually regained its status as the premier agricultural and trade center of Mindanao. Logs, lumber, plywood, copra and banana products gradually replaced abaca as the major export product. Numerous varieties of fruits have likewise been produced for country-wide consumption as some, like bananas and mangoes, are now being exported.

Today, the City of Davao looks forward to accelerating further its economic development. The lure of business opportunities with the fast rising population, along with its agricultural and industrial potentialities, has continuously brought ever increasing number of adventurous and equally ambitious investors as well as men and women of every profession, art and trade. Together with the Lumads of Davao City – the Ubo Manobo, Ata Manobo, Bagobo-Tagabawa, Bagobo-K'lata, Matigsalog and Kalagan and the other tribes from other part of Mindanao - Maguindanao, Tausug, Maranao and Sama, the Tagalogs, Pampangos, Ilocanos and Visayans have found grounds in the city wherein to start or renew their base in life. They have all molded to become Davaoños and Davao City has earned the honor and is justifiably proud to be called “the Melting Pot of the Philippines”.

\* Excerpts from a manuscript “Davao: An Introduction to its History” by Ernesto I. Corcino and “Davao : A Brief History” by Dr. Macario Tiu.

## 1.2 HUMAN RESOURCE

### a. Household Population Composition by School-Age, Working Age, Dependent-Age, Group and Sex

Total household population in Davao City was estimated at 1,443, 890 in 2010. The working age group account for 64.91 percent followed by school age (39.48 percent), and the dependent population (35.09percent). Among the school-going population, elementary comprise 30.46 percent, followed by tertiary (27.29 percent) and pre-school age (22.05 percent) while the least was the secondary age group (20.19 percent). A 1.20 per cent increase in school going population was noted from 2007 to 2010.

In 2010, for every 100 persons, there were 35 dependents (31 young and four old people) or lower than the overall dependency ratio of 56 dependents (50 young and six old people) posted in 2007.

By sex distribution, there is an almost equal share between the males and females in Davao City belonging to the working age and the labor force age brackets. Males in school going population and among the young dependents slightly outnumbered the female population while there are more female old dependents than the male old dependents.

**Table 1.1 Household Population Composition by School-Age, Labor Force, Working-Age Dependent-Age Group and Sex, 2010**

Age Group	Both Sexes		Male		Female		Sex Ratio
		%	No.	%	No.	%	
School going Population							
Pre - school (3-6)	125,712	22.05	65,212	22.83	60,500	21.27	1.07
Elementary (7-12)	173,647	30.46	89,483	31.34	84,164	29.59	1.06
Secondary (13-16)	115,067	20.19	56,587	19.82	58,480	20.56	1.04
Tertiary (17-21)	155,572	27.29	74,277	26.01	81,295	28.58	1.10
Total	569,998	100.00	285,559	100.00	284,439	100.00	1.00
Labor Force (15 and over)	990,204	68.58	487,584	49.52	502,620	50.48	1.03
Working Age (15-64)	937,212	64.91	464,077	32.14	473,135	32.77	1.02
Dependent population							
Young (0-14)	453,686	31.42	233,769	51.53	219,917	48.47	1.06
Old (65 and over)	52,992	3.67	23,507	44.36	29,485	55.64	1.25
Total	1,443,890	100.00	721,353	100.00	722,537	100.00	

Source: National Statistics Office (NSO)

### b. Household Population by Urban and Rural Barangay and Average Household Size

Approximately four-fifths of the household population is located in the urban barangays in Davao City. Among the urban barangays in the three congressional districts, District I and II already account for 46.29 percent and 40.32 percent respectively of the household population. The balance is located in District III. Average household size in these congressional districts is 4.2 individuals. Among the rural barangays in these three

congressional districts, three fourths of the household population is in District III, 21.40 percent in District II and the remaining population in District I. Among the rural barangays, the average household size is estimated at 4.5 individuals.

**Table 1.2 Household Population by Urban and Rural Barangay<sup>1</sup> and Average Household Size, 2010**

District/Barangay	Household Population	Number of Household	Average Household Size
<b>A. Urban</b>	<b>1,145,963</b>	<b>267,837</b>	<b>4.2</b>
District I	529,375	126,262	4.1
District II	462,949	106,444	4.3
District III	153,639	35,131	4.3
<b>B. Rural</b>	<b>297,927</b>	<b>66,636</b>	<b>4.5</b>
District I	6,480	1,436	4.5
District II	63,890	13,925	4.5
District III	227,557	51,275	4.4
<b>TOTAL</b>	<b>1,443,890</b>	<b>334,473</b>	

Source: National Statistics Office (NSO)

### c. Urbanization Levels for the Past 40 Years

Between 1970 and 1990, there was a steady rise in the urbanization levels in Davao City except for the decline estimated in 1975. Between 2000 and 2010, the 21.25 percentage points increase is significant as eighty percent of the total population have resided in urban areas in the city. Housing subdivisions increased in urban areas and continue to do so at the rate that encourages people to make the choice of conveniently living in the urban areas. Growth centers established in the major districts of the city is one of the factors that attract people in rural areas to move in.

**Table 1.3 Urbanization Levels for the Past 40 Years**

Year	Barangay Population			Urbanization Level (%)
	Total	Urban	Rural	
1970	392,473	178,471	214,002	45.47
1975	484,678	201,440	283,238	41.56
1980	610,375	408,775	201,600	66.97
1990	849,947	604,508	245,439	71.12
1995	1,006,840	NDA <sup>2</sup>	NDA	NDA
2000	1,147,116	666,846	480,270	58.13
2007	1,363,337	792,540	570,797	58.13
2010	1,449,296	1,150,504	298,792	79.38

Sources: NSO and OCPDC

<sup>1</sup> Urban and Rural Barangays in 2010 are identified by OCPDC based on the Guidelines of the National Statistics Office

<sup>2</sup>No data available

#### d. Overall Population Density of the City

District III has the highest built-up density even though it is not the most populous among the three districts, this is due to the smaller built-up areas within the barangays of the same district. Calinan district, having the highest built-up density in all district III urban barangays could be attributed to the concentration of urban area growth in Calinan Poblacion. But among the administrative districts, Bunawan district posted also the highest built-up density in district II at 3.16 persons per hectare considering, that most of the industries in the city are settled in the area, thus housing subdivision also flourished within the district.

For the rural barangays, district II has the highest built-up density at 2.27 persons per hectare brought about by Bunawan district which shows that the population may not be much but the built-up area is only concentrated in a few rural barangays in the district.

**Table 1.4 Population Density and Built –up Density, 2010**

District/Barangay	Population Density	Built-up Density <sup>3</sup>
<b>A. Urban</b>	<b>43.00</b>	<b>1.31</b>
District I	60.83	1.20
District II	42.02	1.38
District III	22.12	1.60
<b>B. Rural</b>	<b>1.52</b>	<b>1.43</b>
District I	4.80	0.41
District II	0.89	2.27
District III	1.86	1.39
<b>TOTAL</b>	<b>5.94</b>	<b>1.33</b>

Sources: NSO and OCPDC

#### e. Historical Growth of Population

The population of Davao City in 2010 was more than thrice its population size of 392,473 persons in 1970. Its population surpassed the half-million mark in the 1980 census and the one-million mark in the 1995 census.

From the 2000 Census of Population and Housing, Davao City's total population was 1,147,116 populations which translated to 2.36 per cent growth from 2000 to 2010. For 2007, the population count reached 1,366,153 further translated to a 2.17 per cent growth up to 2010. Although, population growth slowed down from 2007 to 2010, if the 2.36 per cent increase continues, the population of Davao City is expected to double in 32 years.

Based on the 2010 Census, Davao City accounted for 1.57 percent of the total Philippine population of 92.34 million. Davao City has the largest population in the Southern Mindanao Region cornering 32.43 per cent of the 4.46 million people in in 2010. It also shared 5.71 per cent of the total population of 25.375 million in Mindanao.

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<sup>3</sup>Three barangays, namely: Pangyan, Atan-awe and Tibuloy are excluded from the computations of built-up density in the absence of required data on road network.

**Table 1.5 Historical Growth of Population, 1970-2010**

Year	Population	Increase/Decrease	Growth Rate
1970	392,473		5.57
1975	484,678	92,205	4.31
1980	610,375	125,697	4.72
1990	849,947	239,572	3.37
1995	1,006,840	156,893	2.57
2000	1,147,116	140,276	2.83
2007	1,363,337	216,221	2.44
2010	1,449,296	85,959	2.36
Davao Region	4,468,563		
Mindanao	25,375,527		
Philippines	92,337,852		

Source: NSO

#### f. Crude Birth Rate (CBR) and Crude Death Rate (CDR)

Erratic trend in CBR can be noted from 2006 to 2010. During the period 2008-2009, significant increase of 3.84% was noted. This could be attributed to a low Contraceptive Prevalence Rate. In 2009, about 50 percent of women of reproductive age practiced Family Planning, while in 2010, the CPR increased to 59 percent.

On the other hand, it can be noted that Crude Death Rate increased from 5.16 in 2006 to 6.51 in 2009. This is due to the increasing mortality due to lifestyle related diseases such as; disease of the heart, cerebrovascular accident, atherosclerosis, renal failure and diabetes mellitus.

**Table 1.6 Crude Birth Rate (CBR) and Crude Death Rate (CDR), 2006-2010**

Period	CBR	Point Increase/ Decrease from Previous Year	CDR	Point Increase/ Decrease from Previous Year
2006	19.52		5.16	
2007	20.88	1.36	5.34	0.18
2008	20.78	(0.1)	5.54	0.20
2009	24.62	3.84	6.51	0.97
2010	20.40	(4.22)	6.16	(0.35)

Source: City Health Office (CHO)

### g. Labor Force Population by Sex, Employment and Unemployment Status

In 2010, the city's labor force was pegged at 990,204, of which 49.2 percent are males while 50.8 are females. These are those aged 15 yrs. old and above who are either employed or unemployed.

The Labor Force Participation Rate was computed at 65.60 percent using the NSO estimates of July 2009. Out of the 649,574 who are in the labor force, 602,805 (92.80 percent) are employed, thus putting the unemployment rate of the city at 7.20 percent using the NSO estimates of July 2009.

**Table 1.7 Labor Force Population By Sex, Employment and Unemployment Status, 2010**

City	Household Population 15 Yrs. & Over	In the Labor Force				Not in the Labor Force	%
		Employed	%	Unemployed	%		
Davao City							
Male	487,584	296,821	60.88	23,029	4.72	167,734	34.40
Female	502,620	305,984	60.88	23,740	4.72	172,896	34.40
<b>Total</b>	<b>990,204</b>	<b>602,805</b>	<b>60.88</b>	<b>46,769</b>	<b>4.72</b>	<b>340,630</b>	<b>34.40</b>

Sources: NSO and OCPDC

### h. Overseas Workers for the Past 5 years

The figures available for overseas workers reflect only the total of Davao del Sur. The trend of the number of overseas workers from 2006 to 2010 continually increased from 357 to 788 OFWs.

Employment opportunities increased for skilled workers, productive workers, services workers and professionals. Local capability building trainings or courses are made available to match the need of overseas employers and meet the demand on specific employment requirements. The rising pattern from 2006 to 2010 implies that the quality of human resources from the region is of international standards.

Moreover, the education level of those seeking employment overseas improved due to vocational courses/trainings available equipping those interested for them to learn new skills and compete globally.

**Table 1.8 Overseas Workers, 2006-2010**

Year	Total No. of Overseas Filipino Workers	Increase/Decrease
2006	357	
2007	498	39.49
2008	618	24.10
2009	659	6.63
2010	788	19.57

Source: Philippine Overseas Employment Administration (POEA)



### i. Household Population 5 Years Old and Over by Highest Educational Attainment

Of the 1,283,078 household population five years and older, 35.48 percent have reached high school education followed by 28.52 percent who attended elementary education, 13.98 percent (academic degree holder), and, 12.45 percent (college undergraduate). The remaining 9.57 percent have either not completed any grade, reached pre-school, or went to post baccalaureate.

More males have gone to pre-school, elementary education and post-secondary education. However, it is also important to note that more males have not completed any grade school education. On the other hand, it has been observed that more females have reached higher levels of education from high school up to post baccalaureate degree.

**Table 1.9 Household Population 5 Years Old and Over by Highest Educational Attainment, 2010**

Highest Educational Attainment	Male		Female		Both Sexes	
	No.	%	No.	%	No.	%
No Grade Completed	19,033	52.72	17,068	47.28	36,101	2.81
Pre - school	23,448	52.42	21,282	47.58	44,730	3.49
Elementary	195,273	53.35	170,724	46.65	365,997	28.52
High School	220,434	48.42	234,845	51.58	455,279	35.48
Post-Secondary	20,313	55.36	16,382	44.64	36,695	2.86
College Undergraduate	76,879	48.12	82,895	51.88	159,774	12.45
Academic Degree Holder	80,222	44.72	99,181	55.28	179,403	13.98
Post Baccalaureate	1,769	44.60	2,197	55.40	3,966	0.31
Not Stated	562	49.60	571	50.40	1,133	0.09
<b>Total</b>	<b>637,933</b>	<b>49.72</b>	<b>645,145</b>	<b>50.28</b>	<b>1,283,078</b>	<b>100</b>

Source: Census of Population and Housing 2010, NSO

## 1.3 NATURAL FEATURES

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### a. Geographical Location

Davao City is located in the southeastern part of Mindanao, lying in the grid squares of 6 58' to 7 34' N latitude, and 125 14' to 125 40' E longitude. It is bounded on the north by Davao Province; on the east partly by Davao Province and Davao Gulf; on the south by Davao del Sur; and on the west by North Cotabato. Davao City Proper is approximately 946 aerial kilometers or 588 statute miles, southeast of Manila (Figure 1.1).

Because of its strategic location, Davao City was developed as a regional trade center for Southern Mindanao; international trade center to the Southern Pacific; and Southern Gateway more particularly to and from the neighboring countries like Indonesia, Malaysia, Brunei, Australia, among others (Figure 1.2).

### b. Land Area

Davao City has an area of 244,000 hectares, or 8 per cent of the land area of Southern Mindanao Region or Region XI. It is divided into 3 congressional districts and furthermore divided into 11 administrative districts. Poblacion and Talomo Districts comprises District I, meanwhile District II is composed of the Agdao, Buhangin, Bunawan and Paquibato, District III includes Toril, Tugbok, Calinan, Baguio and Marilog (Figure 1.3).

**Table 1.10 Land Area per Barangay, Davao City**

District/Barangay	Land Area (in has.)
<b>District 1</b>	<b>10,107.70</b>
<b>Poblacion District</b>	<b>1,138.20</b>
Barangay 1-A (Pob.)	11.94
Barangay 2-A (Pob.)	16.48
Barangay 3-A (Pob.)	21.12
Barangay 4-A (Pob.)	24.22
Barangay 5-A (Pob.)	36.27
Barangay 6-A (Pob.)	15.81
Barangay 7-A (Pob.)	23.06
Barangay 8-A (Pob.)	159.13
Barangay 9-A (Pob.)	28.66
Barangay 10-A (Pob.)	28.53
Barangay 11-B (Pob.)	9.84
Barangay 12-B (Pob.)	17.91
Barangay 13-B (Pob.)	11.66
Barangay 14-B (Pob.)	18.93
Barangay 15-B (Pob.)	32.22
Barangay 16-B (Pob.)	5.65
Barangay 17-B (Pob.)	5.72
Barangay 18-B (Pob.)	13.99
Barangay 19-B (Pob.)	254.02
Barangay 20-B (Pob.)	163.97
Barangay 21-C (Pob.)	7.01
Barangay 22-C (Pob.)	5.24
Barangay 23-C (Pob.)	19.63
Barangay 24-C (Pob.)	7.99

<b>District/Barangay</b>	<b>Land Area (in has.)</b>
Barangay 25-C (Pob.)	5.47
Barangay 26-C (Pob.)	8.65
Barangay 27-C (Pob.)	30.01
Barangay 28-C (Pob.)	15.87
Barangay 29-C (Pob.)	10.19
Barangay 30-C (Pob.)	24.34
Barangay 31-D (Pob.)	10.72
Barangay 32-D (Pob.)	18.20
Barangay 33-D (Pob.)	6.35
Barangay 34-D (Pob.)	21.62
Barangay 35-D (Pob.)	7.14
Barangay 36-D (Pob.)	7.08
Barangay 37-D (Pob.)	7.11
Barangay 38-D (Pob.)	9.33
Barangay 39-D (Pob.)	8.00
Barangay 40-D (Pob.)	9.12
<b>Talomo District</b>	<b>8,969.50</b>
Bago Aplaya	221.50
Bago Gallera	760.96
Baliok	238.44
Bucana	401.87
Catalunan Grande	1,632.36
Catalunan Pequeño	617.79
Dumoy	593.17
Langub	975.50
Magtuod	376.03
Ma-a	1,014.91
Matina Aplaya	306.62
Matina Crossing	529.26
Matina Pangi	641.35
Talomo (Pob.)	659.74
<b>District 2</b>	<b>83,037.56</b>
<b>Agdao District</b>	<b>592.99</b>
Agdao Proper	38.65
Centro (San Juan)	59.44
Gov. Paciano Bangoy	87.20
Gov. Vicente Duterte	49.01
Kap. Tomas Monteverde, Sr.	20.63
Lapu-lapu	81.82
Leon Garcia, Sr.	22.42
Rafael Castillo	48.29
San Antonio	97.76
Ubalde	10.53
Wilfredo Aquino	77.24
<b>Buhangin District</b>	<b>9,508.32</b>
Acacia	947.41
Callawa	1,374.06
Communal	570.78
Waan	515.00
Buhangin (Pob.)	774.98
Cabantian	758.70
Indangan	1,562.41
Mandug	898.71
Pampanga	94.73

District/Barangay	Land Area (in has.)
Angliongto	334.48
Vicente Hizon, Sr.	212.00
Sasa	695.04
Tigatto	770.02
<b>Bunawan District</b>	<b>6,693.73</b>
Alejandra Navarro (Lasang)	643.59
Bunawan (Pob.)	774.10
Gatungan	967.20
Ilang	597.71
Mahayag	822.91
Mudiang	704.54
Panacan	726.09
San Isidro (Licanan)	677.05
Tibungco	780.54
<b>Paquibato District</b>	<b>66,242.52</b>
Colosas	13,388.43
Fatima (Benowang)	3,135.97
Lumiad	3,249.87
Mabuhay	1,440.46
Malabog	8,381.70
Mapula	9,076.95
Pañalum	1,146.87
Pandaitan	4,134.80
Paquibato (Pob.)	3,559.01
Paradise Embak	2,780.93
Salapawan	2,821.57
Sumimao	2,574.47
Tapak	10,551.49
<b>District 3</b>	<b>129,897.59</b>
<b>Baguio District</b>	<b>8,527.59</b>
Baguio (Pob.)	886.82
Cadalian	705.59
Carmen	835.26
Gumalang	1,575.64
Malagos	1,253.48
Tambobong	1,378.28
Tawan-tawan	1,080.56
Wines	811.96
<b>Calinan District</b>	<b>23,235.97</b>
Biao Joaquin	564.99
Calinan (Pob.)	853.47
Cawayan	843.69
Dacudao	1,277.29
Dalagdag	548.08
Dominga	616.69
Inayangan	1,454.94
Lacson	960.19
Lamanan	2,139.22
Lampianao	958.24
Megkawayan	1,889.70
Pangyan	726.15
Riverside	545.94
Saloy	2,346.86
Sirib	2,236.46

District/Barangay	Land Area (in has.)
Subasta	1,195.84
Talomo River	830.54
Tamayong	1,979.02
Wangan	1,268.66
<b>Marilog District</b>	<b>63,800.22</b>
Baganihan	1,077.21
Bantol	1,432.14
Buda	4,352.37
Dalag	3,227.68
Datu Salumay	2,136.44
Gumitan	5,990.72
Magsaysay	5,911.17
Malamba	11,198.98
Marilog	18,129.23
Salaysay	4,529.19
Suawan (Tuli)	4,659.74
Tamugan	1,155.35
<b>Toril District</b>	<b>18,943.28</b>
Alambre	349.80
Atan-Awe	309.19
Bangkas Heights	251.31
Baracatan	1,002.10
Bato	845.17
Bayabas	1,241.69
Binugao	502.87
Camansi	341.67
Catigan	2,365.46
Crossing Bayabas	84.01
Daliao	184.53
Daliaon Plantation	1,034.84
Eden	778.98
Kilate	641.40
Lizada	421.66
Lubogan	357.49
Marapangi	720.36
Mulig	1,050.03
Sibulan	1,693.23
Sirawan	958.25
Tagluno	521.22
Tagurano	542.27
Tibuloy	840.61
Toril (Pob.)	170.35
Tungkalan	1,734.79
<b>Tugbok District</b>	<b>15,390.53</b>
Angalan	495.28
Bago Oshiro	720.37
Balengaeng	466.10
Biao Escuela	1,314.45
Biao Guianga	502.27
Los Amigos	480.62
Manambulan	840.57
Manuel Guianga	984.32
Matina Biao	1,600.24
Mintal	768.21
New Carmen	1,140.46

<b>District/Barangay</b>	<b>Land Area (in has.)</b>
New Valencia	975.96
Santo Niño	152.81
Tacunan	822.96
Tagakpan	682.40
Talandang	1,363.51
Tugbok (Pob.)	994.85
Ula	1,085.15
<i><b>Mt. Apo Natural Park, rivers, lakes, which are not within the jurisdiction of the barangays</b></i>	<b>20,957.15</b>
<b>Total</b>	<b>244,000.00</b>

Source: National Statistics Office

### c. Topography and Natural Drain

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 10,311 feet (3,144 meters) above sea level. It has been considered as a semi-active volcano. (Figure 1.4)

The large, contiguous lowland areas of Davao City are coastal plains and valleys extending inland as gently-rising valleys. These areas are found in the eastern part of the city, in Paquibato district, which is an extension of the vast lowlands at the head of Davao Gulf. The other substantial lowland areas are located in the southeastern part of the city along the western coast of the Gulf, and are in the districts of Bunawan, Buhangin, Agdao, Poblacion, Talomo, and Toril. These lowland areas are level to nearly land with slopes ranging from 0 to 3 per cent. These are generally composed of recent alluvium consisting of clay, silt and some sand and gravel.

Topographically, only the southeast quarter is plain and slightly hilly (along the entire coast and uplands north and westwards to Calinan, with slopes generally below four to five degrees. The plains and valleys merged gradually into the uplands, and the uplands in turn into the mountains. Although the eastern part of the city is a broad lowland belt, its surface is interspersed by low hills and knobs. (Figure 1.5)

The entire land area of Davao City is drained towards the Gulf. Davao River and its numerous tributaries is the main drainage system of the city. Davao River originates from Bukidnon Province, flows towards the south meandering along the central part and finally flows eastward emptying into the Gulf at the southern periphery of the City Proper. The secondary drainage system of the city is the Talomo River which is the drainage outlets of the eastern slopes of Mt. Apo. Other major drainage system includes the Lipadas River, Matina River, Lasang River and Sibulan River. (Figure 1.6)

### d. Climate/Rainfall

Davao City enjoys a mild tropical climate. Compared with other parts of the Philippines in which there is a distinct hot and wet season. It enjoys the privilege of a climate where the days are always sunny and mild followed by nights of rain. The city is outside the typhoon belt and lacks major seasonal variations.

**Table 1.11 Annual Average Temperature, Davao City, 1990-2010**

<b>Annual Average Temperature</b>	<b>1990</b>	<b>1994</b>	<b>2003</b>	<b>2007</b>	<b>2010</b>
Annual Average Minimum Temperature	21.73	21.43	22.66	22.93	24.5
Annual Average Maximum Temperature	34.24	34.08	33.5	33.72	32.29

Source : PAGASA

The annual average minimum and maximum temperature in 2010 is 24.5 and 32.3 degrees Celsius respectively. However, the 20-year trend (1990-2010) shows that the annual average minimum temperature increased by almost 3 degrees while the annual average maximum temperature decreased by 2 degrees.

**Table 1.12 Annual Average Rainfall, Davao City, 1990-2010, PAGASA**

	1990	1994	2003	2007	2010
Annual Average Rainfall (mm)	140	159	146	152	150

Source : PAGASA

The average annual rainfall has a recorded increase by 10mm from 1990 to 2010. Although a remarkable increase was observed in 1994, it has remained in the 150mm level.

The predominant wind direction is northward from the Davao Gulf where the cooler air of the sea replaces the warm air mass over the city. A surrounding chain of mountains protect the city effectively from strong winds.

#### **e. Basic Soil Type**

The quality of the soil in Davao city differ depending on the location in terms of color, texture, depth, drainage, relief, permeability, and fertility. All of these factors are attributive to the productivity of the soil, the ease in cultivation and adaptability to agriculture. On the basis of the foregoing soil characteristics of Davao City as determined through the Land Resource Information System (LARIS), these are classified into seven series and one miscellaneous land type. These different soil series have been categorized into three groups depending on the topographic position they occupy in the landscape. These three soil groups are the following: (1) soils of the plains and valleys; (2) soils in the intermediate uplands; (3) soil of hills and mountains. These groupings are shown in Table 1.1 in which the main characteristics of the various soil types are tabulated for easy reference. Their respective location are shown in Figure 1.7.

**Table 1.13 Soil Groups by Topographic Position, Davao City**

Topography/Soil Type	Source of Parent Material	Dominant Relief	Area (Has)
<b>A. Plains and Valley</b>			
San Miguel Silty Clay Loam	Alluvium of igneous	Nearly level to level	2,882.50
Matina Clay Loam	Alluvium form limestones, shale and sandstones	Flat to gently undulating	6,649.75
<b>B. Intermediate upland</b>			
Tugbok Clay	Igneous Rock Andesites	Undulating to gently	78,545.85
Faraon Clay	Soft Corraline Limestone	Undulating to gently rolling	5,151.17
Cabantian Clay	Soft Shales with mixtures of weathered gravels and pebbles	Undulating to hilly	19,072.62



<b>C. Hills &amp; Mountains</b>			
Camansa Sandy Clay Loam	Shales& sandstones with weathered gravel and sand Different kinds of igneous and metamorphic rocks	Hilly, Mountains	49,859.43
Mountain Soils, undifferentiated		These solids are generally shallow and stony with excessive drainage: inaccessible and not suited to agriculture	80,316.62
Cabangan Clay Loam			1,522.06
<b>TOTAL</b>			<b>244,000.00</b>

Source : BSWM-XI

#### f. Hydro-Geology

Davao City is blessed with abundant fresh drinking water both ground and surface. Based on the terrain analysis conducted by the Mines and Geosciences Bureau (MGB) XI, there are different types of aquifer depending on the depth. Perched aquifers occur at 1-3 meters deep while those that occur at 5-25 meters are shallow aquifers. Moderately deep aquifers occur at 25-100 meters while very deep aquifers lie at depths greater than 100 meters. The very deep aquifers are recharged along deep river channels and cracks along large river systems in Baguio, Calinan, Tugbok and Toril Districts (Figure 1.7)

There are seven major watersheds that traverse Davao City. The southernmost is the Sibulan River Watershed having its headwaters in Davao City and draining towards the municipality of Sta. Cruz. Lipadas River Watershed cuts across from the slopes of Mt. Apo draining towards Lizada. Talomo Watershed has its headwaters in Mt. Talomo traversing parts of Calinan and Tugbok Districts flowing down to Barangay Talomo. The smallest major watershed is the Matina Pangi River Watershed which runs from Biao Escuela draining towards MatinaAplaya. The largest is Davao City Watershed which ironically has its headwaters in Bukidnon, covering parts of Marilog and Paquibato districts funneling down towards Poblacion District. Lasang River Watershed covers rivers that flow from Paquibato district entering Davao del Norte and draining back to Bunawan district. Tuganay River Watershed is almost totally part of Davao del Norte except the middle portion that enters Paquibato District.

The terrain analysis conducted by the Mines and Geosciences Bureau have classified the various land use capability units as a result of the comprehensive assessment of the geophysical environment of the watersheds by rating the various geologic factors such as slope, lithology, geomorphology, soils and hazards (Fig 1.8).

## **g. Land Use Capability and Environmental Management Classification**

### **g.1 Agricultural Land Use Capable Areas**

The agricultural land-use capable areas are divided into three classes, namely the agricultural non-tillage areas, agricultural tillage areas, and agricultural areas for rice, corn and/or fishpond.

#### **Agricultural – Non-Tillage / Agroforestry:**

These are areas that, due to environmental constraints and significance to adjacent areas, should not be tilled. Such areas should at best be developed as agro-forest areas. This type of land use is recommended for areas delineated with a moderate to high susceptibility to mass movement and erosion.

#### **Agricultural – Tillage (all types of agricultural practice):**

These areas have minimal environmental constraints and therefore could be devoted for agricultural developments that require intensive soil preparation. However, development in such areas requires strict soil conservation and management program and best industry practices should be applied.

#### **Agricultural – Rice / Corn / Fishpond:**

Areas identified as agricultural area for rice, corn and fishponds are the fluvio-alluvial plains that are occasionally flooded and/or water logged thus compatible for said land-use as they are tolerant of excessive water.

### **g.2 Conservation Areas**

These areas are delineated as such due to serious environmental constraints and their extreme importance to maintaining environmental balance. Said areas are either highly prone to mass movements, important to maintaining surface water supply, or are important recharge areas for groundwater. It is therefore necessary to manage the development therein to conform to the conservation/protection objectives. Included in the conservation area is the Mt. Apo National Park as delineated in Republic Act # 9237 approved on February 3, 2004.

### **g.3 Resource Conservation**

These areas are delineated as such due to the relative importance of the resources therein to human development activities. These are parts of the city wherein substantial deposits of limestone that could be used in the production of agricultural-lime, industrial-lime, cement and/or building blocks for agricultural, industrial, and construction industries respectively.

## **h. Geohazards**

The dominant geomorphological processes acting per terrain mapping unit were identified and evaluated by the MGB. This is very useful in determining the potential geohazards in the city.

### **h.1 Hydro Meteorological**

#### **Flooding**

Areas naturally prone to flooding are all the fluvial landforms. However, detailed analysis and study is needed to further subdivide the fluvial landform into various susceptibility and vulnerability classes. The areas delineated with high susceptibility to flooding correspond to approximately 30-50 year floods. Flooding occurring outside the delineated flood prone areas could be mainly man-induced resulting to excessive overland flow or runoff (Fig. 1.10).

#### **Mass Movement**

At least four (4) factors (soil class, slope, presence of landslide and landslide potential) were considered in the delineation of the landslide susceptibility classes (Fig. 1.11). Areas which are naturally susceptible to mass movements are the denudational landforms. However, based on landslide mapping and inventory mass movements were also noted in other areas that are moderately deep to deeply incised valleys of the volcanic landform, the structural-denudational landform and the karst landform.

#### **Erosion**

Generally the rate of erosion is controlled by slope, climate, and nature of bedrock, vegetation cover and human intervention. The delineated erosion susceptibility classes for the study area considered only the natural factors particularly the slope, soil and underlying lithology. The present land use and cultivation/farming practices could also result to induced erosion (Fig. 1.12).

### **h.2 Geologic**

#### **Earthquake-induced hazards (seismicity, liquefaction)**

Liquefaction is a geohazard that results from seismicity/earthquake and defined as the granular material in solid state, which behaves and deforms like a liquid as a consequence of increased pore-water pressure due to earthquake shaking. Generally, areas belonging to the fluvial landforms are the most susceptible to liquefaction being overlain by alluvial deposits wherein the four conditions mentioned above could be present (Fig. 1.13).

#### **Volcanism**

Mts. Sibulan, Talomo and Apo are a volcanic complex. The Sibulan-Talomo volcanic complex was previously classified as non-active cones, therefore preparation of a volcanic hazard map at this time is not necessary. Although Philvolcs consider Mt. Apo as potentially active, this has to be further studied.

## **1.4 PHYSICAL/INFRASTRUCTURE RESOURCES**

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### **a. Land Transportation Network (Internal and External Linkages)**

Presently, Davao City has three major ingress and egress points that allow linkages to other cities and provinces.

Roads in existence which have significance in the national or regional context are, namely: the Philippine-Japan Friendship Highway (PJFH) which runs through the country from Northern Luzon all the way to Southern Mindanao and also traverses along its 60-kilometer coastal area; and the segment of the Davao-Bukidnon road longitudinally traverses the city from southeast to northwest. These roads have regional significance since these provide the city with access to other municipalities and provinces within Davao Region. Currently, these major highways are mostly congested due to the increase of private vehicles and cargo trucks utilizing the road as a consequence of rapid urbanization. A proposed expressway that links Brgy.Lasang to Catigan Road Junction, Brgy. Sirawan that will connect nearby cities and municipalities without passing through the built-up areas of the city is on its pre-feasibility study stage.

The City has a total of 1,856.24 kilometers of roads and highways, 7percent are national roads, 39 percent are city roads and 54percent are barangay roads. Of the total road network, the 67 percent are paved with concrete and asphalt while the 33 percent are unpaved gravel and earth. Road density on the other hand is below the national standard of 1 kilometer per square kilometer of land. Davao City has a density of 0.83. As of 2011, there are 65 bridges in Davao City, 34 of which or 54percent of the total need replacement.

Land transport infrastructures enable vehicles and people to move and travel from one place to another. However, it is imperative to take into account the terminals where passengers transfer from one mode of transportation to another. At present, there is one overland transport terminal in the city located in Ecoland, Barangay Bucana. It has an area of 1.7 hectares and serves both the north and south bound routes. It caters more than 800 units of buses and 24-hour in operation. The establishment of additional transport terminal to cater for the north bound routes will enhance road efficiency.

## **b. Utilities**

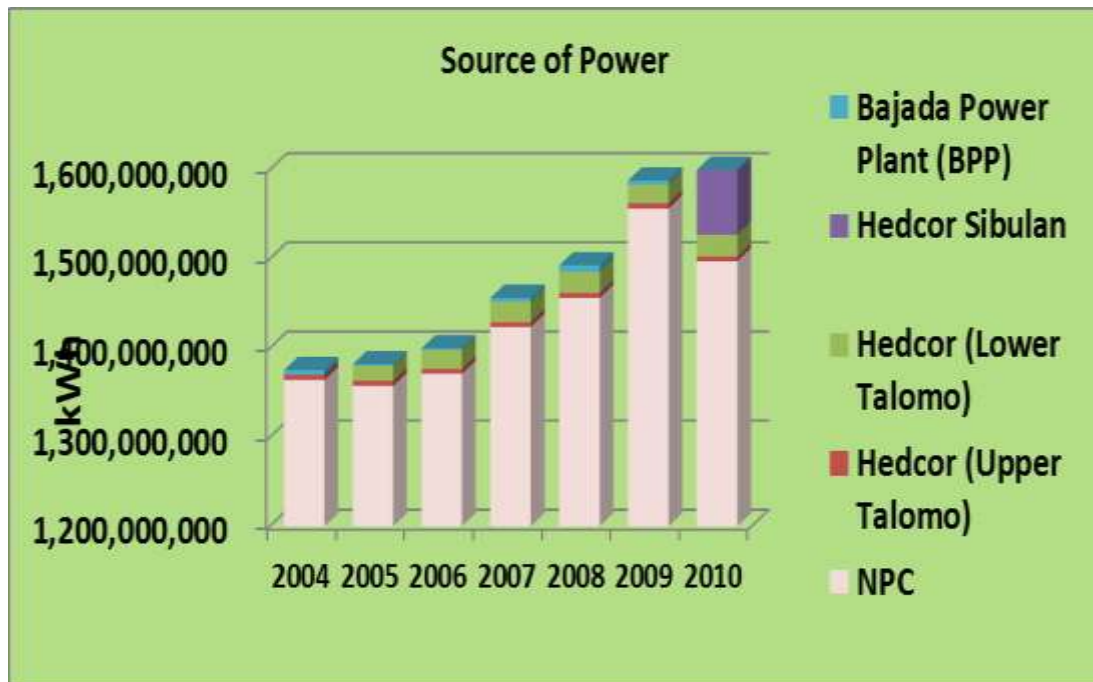
### **b.1 Power Supply System**

Energy sufficiency and reliability remain to be challenging despite the significant developments of private sector-led power generation. Efforts in harnessing alternative and renewable energy sources must be further explored to meet the current and potential power demands.

The power supply of Davao City is distributed by the Davao Light and Power Company (DLPC) which is a major provider in Davao Region and tagged as the 3<sup>rd</sup> largest privately-owned electric utility in the Philippines, with 23 substations and 19 of which are located in Davao City.

Energy supply in Davao City is generated from 5 sources, NAPOCOR (NPC) being the major supplier at 89.36 percent share in 2010. Basically, 50percent of our power source comes from Hydroelectric Power Plant which is susceptible to instability in power supply during extended dry season. The establishment of a steadier source of energy is encouraged.

**Figure 1.16 Source and Supply of Power in kWh, Davao City, 2004-2010**



Source: DOE XI

Of the 182 barangays of Davao City benefitting from the services of DLPC, only 12 barangays are still unserved. In terms of percentage of households, 82.69 percent of all Davao City households are energized (as of 2010). About 17 percent are still unenergized.

**Table 1.14 Barangay Energization by District, Davao City 2010**

District/Barangay	Energized
<b>DISTRICT I</b>	
<b>Talomo District</b>	
Bago Aplaya	√
Bago Gallera	√
Baliok	√
Bucana	√
Catalunan Grande	√
Catalunan Pequeño	√
Dumoy	√
Langub	√
Ma-a	√
Magtuod	√
Matina Aplaya	√
Matina Crossing	√
Matina Pangi	√
Talomo Proper	√
<b>Poblacion District</b>	
1-A	√
2-A	√
3-A	√
4-A	√
5-A	√
6-A	√
7-A	√
8-A	√
9-A	√
10-A	√
11-B	√
12-B	√
13-B	√
14-B	√
15-B	√
16-B	√
17-B	√
18-B	√
19-B	√
20-B	√
21-C	√
22-C	√
23-C	√
24-C	√
25-C	√
25-C	√
27-C	√
28-C	√
29-C	√
30-C	√
31-D	√
32-D	√
33-D	√
34-D	√
35-D	√
36-D	√
37-D	√
38-D	√
39-D	√
40-D	√

District/Barangay	Energized
<b>DISTRICT II</b>	
<b><i>Agdao District</i></b>	
Agdao Proper	√
Centro San Juan	√
Lapu-lapu	√
Leon Garcia	√
Paciano Bangoy	√
Rafael Castillo	√
San Antonio	√
Tomas Monteverde	√
Ubalde	√
Vicente Duterte	√
Wilfredo Aquino	√
<b><i>Buhangin District</i></b>	
Acacia	√
Angliongto	√
Buhangin Proper	√
Cabantian	√
Callawa	√
Communal	√
Hizon	√
Indangan	√
Mandug	√
Pampanga	√
Sasa	√
Tigatto	√
Waan	√
<b><i>Bunawan District</i></b>	
Bunawan Proper	√
Gatungan	√
Ilang	√
Lasang	√
Mahayag	√
Mudiang	√
Panacan	√
San Isidro	√
Tibungco	√
<b><i>Paquibato District</i></b>	
Colosas	√ OFF GRID
Fatima	√
Lumiad	√
Mabuhay	√
Malabog	√
Mapula	√ OFF GRID
Pandaitan	√
Pañalum	√
Paquibato Proper	√
Paradise Embak	√
Salapawan	√ OFF GRID
Sumimao	√
Tapak	√ OFF GRID
<b>DISTRICT III</b>	
<b><i>Baguio District</i></b>	
Baguio Proper	√
Cadalian	√
Carmen	√
Gumalang	√
Malagos	√



District/Barangay	Energized
Tambobong	√
Tawan-tawan	√
Wines	√
<b>Calinan District</b>	
Biao Joaquin	√
Calinan Proper	√
Cawayan	√
Dacudao	√
Dalagdag	√
Domingo	√
Inayangan	√
Lacson	√
Lamanan	√
Lampianao	√
Megkawayan	√
Pangyan	√
Riverside	√
Saloy	√
Sirib	√
Subasta	√
Talomo River	√
Tamayong	√
Wangan	√
<b>Marilog District</b>	
Baganihan	√ OFF GRID
Bantol	√ OFF GRID
Buda	√
Dalag	√ OFF GRID
Datu Salumay	√ OFF GRID
Gumitan	√ OFF GRID
Magsaysay	√ OFF GRID
Malamba	√
Marilog Proper	√ OFF GRID
Salaysay	√ OFF GRID
Suawan	√
Tamugan	√
<b>Toril District</b>	
Alambre	√
Atan-awe	√
Bangkas Heights	√
Baracatan	√
Bato	√
Bayabas	√
Binugao	√
Camansi	√
Catigan	√
Crossing Bayabas	√
Daliao	√
Daliaon Plantation	√
Eden	√
Kilate	√
Lizada	√
Lubogan	√
Marapangi	√
Mulig	√
Sibulan	√
Sirawan	√
Tagluno	√

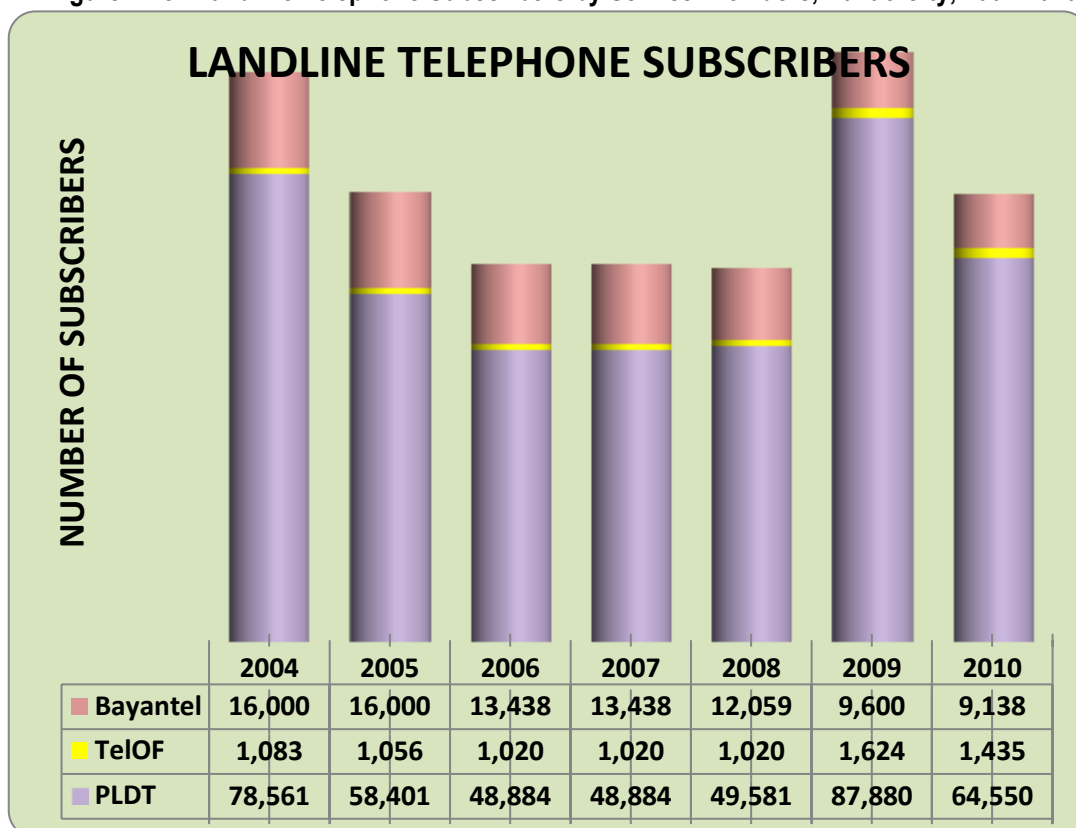
District/Barangay	Energized
Tagurano	√
Tibuloy	√
Toril Proper	√
Tunglakan	√
<b><i>Tugbok District</i></b>	
Angalan	√
Bago Oshiro	√
Balengaeng	√
Biao Escuela	√
Biao Guianga	√
Los Amigos	√
Manambulan	√
Manuel Guianga	√
Matina Biao	√
Mintal	√
New Carmen	√
New Valencia	√
Sto. Niño	√
Tacunan	√
Tagakpan	√
Talandang	√
Tugbok Proper	√
Ula	√

## b.2 Information and Communication Technologies

One of the city's identified key economic agenda is focus on developing Davao City as the new investment haven for Information and Communication Technologies (ICT) and Business Process Outsourcing (BPO). The readiness of the needed infrastructure coupled with the business- friendly environment has placed the city No. 1 among 2010's 37 Philippine outsourcing destinations.

There are 3 companies providing telephone services in the city, Bayantel, TelOf and PLDT being the principal domestic and international fixed-line provider which dominates with more than 75 percent since 2004 up to present. The use of the cellular mobile telecommunication system (CMTS) has become the most common means of communication in Davao Region. This is mainly because of its accessibility and affordability in the area through the presence of 281 cell sites in the city.

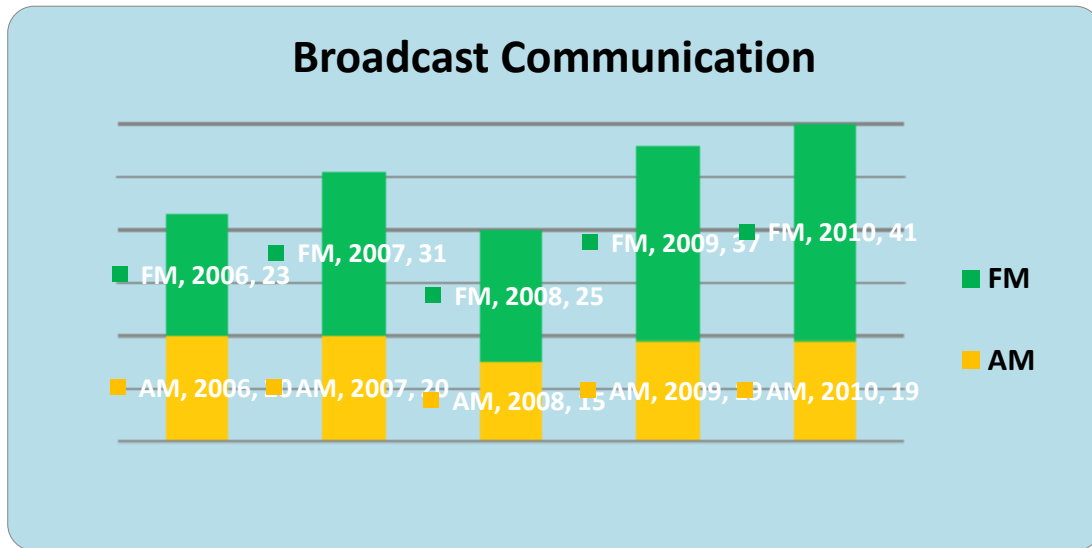
Figure 1.18 Landline Telephone Subscribers by Service Providers, Davao City, 2004-2010



Source: National Telecommunications Commission (NTC) XI

Broadcast communication covers the whole area of Davao City and plays a major role as a source of information in the far flung barangays in lieu of the absence of print media in the area.

**Figure 1.19 Broadcast Communication by Frequency, Davao City, 2006-2010**



Source: Philippine Information Agency

### **b.3 Water Supply System**

Water System in Davao City is generally served by Davao City Water District (DCWD), the biggest water district in the Philippines ever since its inception.

Of the 182 barangays, 106 were served by DCWD and the remaining 76 barangays were served by levels 1 and 2 water system that are sourced from spring, deep well and shallow well. These barangays are mostly located in District 2 and 3. DCWD has proposed for additional production wells and conducted studies for the use of development of surface water to keep up with the present and future demand levels for water. The Watershed Code of Davao City also recognizes that the watershed areas for the City's aquifers are sources of drinking water that must be protected, conserved and managed for the continued and full enjoyment of the present and future generation.

**Table 1.15 Water Supply System by Level and Type per Barangay, 2010**

Name of Barangays	Level I Water System (units)				Level II Water System (units)			
	Spring	Deep Well	Shallow Well	Total	Spring Source		Deep Well Submersible Pump	Total
					By Gravity	Pump Driven		
1 <sup>st</sup> Congressional District								
Talomo District								
Brgy. BagoAplaya	-	7	29	36	-	-	1	1
Brgy. BagoGallera	-	9	-	9	-	-	-	-
Brgy. Baliok	-	4	-	4	-	-	-	-
Brgy. Bucana	-	-	-	-	-	-	-	-
Brgy. Catalunan Grande	-	3	-	3	-	-	-	-
Brgy. CatalunanPequiño	-	4	-	4	-	-	-	-
Brgy. Dumoy	-	-	36	36	-	-	-	-
Brgy. Langub	-	2	-	2	-	-	-	-
Brgy. Ma-a	-	-	3	3	-	-	-	-
Brgy. Magtuod	-	-	-	-	-	-	4	4
Brgy. MatinaAplaya	-	-	-	-	-	-	-	-
Brgy. Matina Crossing	-	-	-	-	-	-	-	-
Brgy. Talomo Proper	-	-	-	-	-	-	-	-
Total	-	31	69	100	-	-	5	5
2 <sup>nd</sup> Congressional District								
Buhangin District								
Brgy. Acacia	-	-	1	1	-	-	4	4
Brgy. Buhangin Proper	-	-	-	-	-	-	-	-
Brgy. Cabantian	-	4	-	4	-	-	2	2
Brgy. Callawa	3	2	16	21	1	-	1	2
Brgy. Communal	-	4	-	4	-	-	1	1
Brgy. Indangan	-	4	3	7	-	-	3	3
Brgy. Mandug	-	1	10	11	4	-	1	5
Brgy. Pampanga	-	1	-	1	-	-	-	-
Brgy. Sasa	-	-	-	-	-	-	-	-
Brgy. Tigatto	-	2	2	4	-	-	4	4
Brgy. Waan	-	2	8	10	1	-	3	4
Sub-total	3	20	40	63	6	-	19	25
Bunawan District								
Brgy. Bunawan Proper	-	2	3	5	-	-	4	4
Brgy. Gatungan	-	2	3	5	-	1	2	3
Brgy. Ilang	-	3	36	39	-	-	2	2
Brgy. Lasang	-	1	1	2	-	-	1	1
Brgy. Mahayag	-	3	0	3	-	-	4	4
Brgy. Mudiang	-	3	0	3	-	-	4	4
Brgy. Panacan	-	3	4	7	-	-	1	1
Brgy. San Isidro	-	4	30	34	-	-	-	-
Brgy. Tibungco	-	6	25	31	-	-	3	3
Sub-total	-	27	102	129	-	1	21	22
Paquibato District								
Brgy. Colosas	-	-	1	1	4	-	-	4
Brgy. Fatima	-	-	-	-	3	-	-	3
Brgy. Lumiad	-	-	1	1	1	-	-	1
Brgy. Mabuhay	-	-	-	-	2	-	-	2
Brgy. Malabog	-	-	-	-	9	-	-	9
Brgy. Mapula	-	-	-	-	1	-	1	2
Brgy. Pañalum	-	-	-	-	2	1	-	3
Brgy. Pandaitan	-	-	1	1	1	-	-	1
Brgy. Paquibato Proper	-	-	-	-	4	-	-	4
Brgy. Paradise Embac	-	-	-	-	-	1	-	1
Brgy. Salapawan	-	-	-	-	1	-	-	1
Brgy. Sumimao	-	-	-	-	3	-	-	3

Name of Barangays	Level I Water System (units)				Level II Water System (units)			
	Spring	Deep Well	Shallow Well	Total	Spring Source		Deep Well Submersible Pump	Total
					By Gravity	Pump Driven		
Brgy. Tapak	-	-	-	-	2	-	-	2
<b>Sub-total</b>	<b>-</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>33</b>	<b>2</b>	<b>1</b>	<b>36</b>
<b>Total</b>	<b>3</b>	<b>47</b>	<b>145</b>	<b>195</b>	<b>39</b>	<b>3</b>	<b>41</b>	<b>83</b>
<b>3<sup>rd</sup> Congressional District</b>								
<b>Toril District</b>								
Brgy. Alambre	1	-	-	1	2	-	-	2
Brgy. Atan-awe	-	-	-	-	1	-	-	1
Brgy. Bangkas Heights	-	1	-	1	1	-	-	1
Brgy. Baracatan	-	-	-	-	1	-	-	1
Brgy. Bato	2	2	-	4	5	1	-	6
Brgy. Bayabas	-	-	-	-	8	1	-	9
Brgy. Binugao	-	1	1	2	-	4	1	5
Brgy. Camansi	-	1	-	1	-	-	1	1
Brgy. Catigan	-	-	-	-	5	-	-	5
Brgy. Crossing Bayabas	-	-	-	-	-	-	-	-
Brgy. Daliao	-	29	14	43	-	-	-	-
Brgy. Daliaon Plantation	-	-	-	-	1	-	-	1
Brgy. Eden	-	-	-	-	4	-	-	4
Brgy. Kilate	-	-	-	-	2	-	-	2
Brgy. Lizada	-	48	12	60	-	-	1	1
Brgy. Lubugan	-	3	16	19	-	-	-	-
Brgy. Marapangi	-	1	-	1	1	-	1	2
Brgy. Mulig	-	-	-	-	3	-	1	4
Brgy. Sibulan	-	-	-	-	3	-	-	3
Brgy. Sirawan	1	3	27	31	1	-	4	5
Brgy. Tagluno	-	1	-	1	-	1	-	1
Brgy. Tagurano	-	-	-	-	3	-	-	3
Brgy. Tibuloy	-	-	-	-	3	-	-	3
Brgy. TorilPoblacion	-	16	-	16	-	-	-	-
Brgy. Tungkalan	-	1	-	1	3	-	-	3
<b>Sub-total</b>	<b>4</b>	<b>107</b>	<b>70</b>	<b>181</b>	<b>47</b>	<b>7</b>	<b>9</b>	<b>63</b>
<b>Calinan District</b>								
Brgy. Biao Joaquin	-	1	-	1	-	-	5	5
Brgy. CalinanPoblacion	-	-	4	4	-	-	-	-
Brgy. Cawayan	-	-	-	-	-	-	2	2
Brgy. Dacudao	-	2	-	2	-	-	-	-
Brgy. Dalagdag	-	-	-	-	2	-	-	2
Brgy. Dominga	-	-	-	-	3	-	-	3
Brgy. Inayangan	-	-	-	-	3	-	-	3
Brgy. Lacson	-	-	-	-	1	-	-	1
Brgy. Lamanan	-	-	-	-	2	1	-	3
Brgy. Lampianao	-	-	-	-	-	1	1	2
Brgy. Megkawayan	1	-	-	1	1	-	-	1
Brgy. Pangyan	-	1	-	1	1	1	1	3
Brgy. Riverside	-	1	-	1	-	-	-	-
Brgy. Saloy	-	-	-	-	2	-	-	2
Brgy. Sirib	-	1	-	1	1	-	-	1
Brgy. Subasta	-	-	-	-	1	-	5	6
Brgy. Talomo River	-	2	-	2	-	-	5	5
Brgy. Tamayong	-	-	-	-	2	-	-	2
Brgy. Wangan	-	1	-	1	-	-	-	-
<b>Sub-total</b>	<b>1</b>	<b>9</b>	<b>4</b>	<b>14</b>	<b>19</b>	<b>3</b>	<b>19</b>	<b>41</b>
<b>Tugbok District</b>								
Brgy. Angalan	-	-	-	-	-	-	3	3
Brgy. BagoOshiro	-	-	-	-	-	-	-	-

Name of Barangays	Level I Water System (units)				Level II Water System (units)			
	Spring	Deep Well	Shallow Well	Total	Spring Source		Deep Well Submersible Pump	Total
					By Gravity	Pump Driven		
Brgy. Biao Escuela	-	7	-	7	-	-	4	4
Brgy. Balingaeng	-	-	-	-	-	1	-	1
Brgy. Biao Guianga	-	3	-	3	-	-	4	4
Brgy. Los Amigos	-	1	3	4	-	-	5	5
Brgy. Manambulan	-	-	-	-	-	-	2	2
Brgy. Manuel Guianga	-	-	-	-	1	-	2	3
Brgy. Matina Biao	-	2	-	2	-	1	2	3
Brgy. Mintal	-	-	-	-	-	-	-	-
Brgy. New Carmen	-	-	-	-	-	3	-	3
Brgy. New Valencia	-	-	-	-	-	-	2	2
Brgy. Sto. Niño	-	1	-	1	-	-	-	-
Brgy. Tacunan	-	-	-	-	-	-	-	-
Brgy. Tagakpan	-	-	-	-	-	-	4	4
Brgy. Talandang	-	4	-	4	-	1	1	2
Brgy. Tugbok Proper	-	-	-	-	-	-	1	1
Brgy. Ula	-	2	-	2	-	-	-	-
<b>Sub-total</b>	<b>-</b>	<b>20</b>	<b>3</b>	<b>23</b>	<b>1</b>	<b>6</b>	<b>30</b>	<b>37</b>
<b>Marilog District</b>								
Brgy. Baganihan	-	-	-	-	2	-	-	2
Brgy. Bantol	-	-	-	-	3	-	-	3
Brgy. Buda	-	-	-	-	3	-	-	3
Brgy. Dalag	-	-	-	-	1	-	-	1
Brgy. DatuSalumay	-	-	-	-	6	-	-	6
Brgy. Gumitan	-	-	-	-	2	-	-	2
Brgy. Magsaysay	-	-	-	-	1	-	-	1
Brgy. Malamba	-	-	-	-	2	-	-	2
Brgy. Marilog Proper	-	-	-	-	6	-	-	6
Brgy. Salaysay	-	-	-	-	4	-	-	4
Brgy. Suawan	-	-	-	-	3	-	-	3
Brgy. Tamugan	1	1	1	3	3	-	5	8
<b>Sub-total</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>36</b>	<b>-</b>	<b>5</b>	<b>41</b>
<b>Baguio District</b>								
Brgy. Baguio Proper	-	-	-	-	1	-	1	2
Brgy. Cadalian	-	-	-	-	1	-	-	1
Brgy. Carmen	-	-	-	-	1	-	-	1
Brgy. Gumalang	-	-	-	-	-	-	3	3
Brgy. Malagos	-	-	-	-	1	-	1	2
Brgy. Tambobong	-	-	-	-	1	1	-	2
Brgy. Tawan-tawan	-	-	-	-	1	-	1	2
Brgy. Wines	-	-	-	-	1	-	2	3
<b>Sub-total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>7</b>	<b>1</b>	<b>8</b>	<b>16</b>
<b>Total</b>	<b>6</b>	<b>137</b>	<b>78</b>	<b>221</b>	<b>110</b>	<b>17</b>	<b>71</b>	<b>198</b>
<b>Grand Total</b>	<b>9</b>	<b>215</b>	<b>292</b>	<b>516</b>	<b>149</b>	<b>20</b>	<b>117</b>	<b>286</b>

Source: City Engineer's Office (CEO)

**Table 1.16 DCWD Served Barangays per Congressional District and Per Political District, July 2011**

<b>DISTRICT I</b>	<b>DISTRICT II</b>	<b>DISTRICT III</b>
<b>Poblacion District</b>	<b>Agdao District</b>	<b>Toril District</b>
Barangay 1-A	Agdao Proper	Bangkas Heights
Barangay 2-A	Centro San Juan	Bato
Barangay 3-A	Gov. Paciano Bangoy	Crossing Bayabas
Barangay 4-A	Gov. Vicente Duterte	Daliao
Barangay 5-A	Tomas Monteverde	Lizada
Barangay 6-A	Lapu-Lapu	Lubogan
Barangay 7-A	Leon Garcia Sr.	Marapangi
Barangay 8-A	Rafael Castillo	Toril Poblacion
Barangay 9-A	San Antonio	
Barangay 10-A	Ubalde	<b>Bunawan District</b>
Barangay 11-B	Wifredo Aquino	Alejandro Navarro (Lasang)
Barangay 12-B		Bunawan Poblacion
Barangay 13-B		Ilang
Barangay 14-B	<b>Buhangin District</b>	Panacan
Barangay 15-B	Buhangin Poblacion	Tibungco
Barangay 16-B	Cabantian	
Barangay 17-B	Communal	<b>Calinan District</b>
Barangay 18-B	Indangan	Biao Joaquin
Barangay 19-B	Pampanga	Calinan Poblacion
Barangay 20-B	Sasa	Dacudao
Barangay 21-C	Tigatto	Lacson
Barangay 22-C	Waan	Riverside
Barangay 23-C	Angliongto	Talomo River
Barangay 24-C	Vicente Hizon	Wangan
Barangay 25-C		
Barangay 26-C		<b>Tugbok District</b>
Barangay 27-C		Bago Oshiro
Barangay 28-C		Biao Guianga
Barangay 29-C		Los Amigos
Barangay 30-C		Mintal
Barangay 31-D		Sto. Niño
Barangay 32-D		Tacunan
Barangay 33-D		Tugbok Poblacion
Barangay 34-D		Ula
Barangay 35-D		
Barangay 36-D		<b>Marilog District</b>
Barangay 37-D		Marilog Poblacion
Barangay 38-D		
Barangay 39-D		<b>Baguio District</b>
Barangay 40-D		Gumalang
<b>Talomo District</b>		Malagos
Bago Aplaya		
Bago Gallera		
Baliok		
Bucana		
Catalunan Grande		
Catalunan Pequeño		
Dumoy		
Langub		
Maa		
Magtuod		
Matina Aplaya		
Matina Crossing		
Matina Pangi		
Talomo Poblacion		

Source: EDP Department, DCWD



**Table 1.17 Inventory of Cell Sites Location**

Service Provider: **GLOBE-FB (2008)**

Number of existing cell sites: **92**

Particular	Address
LASANG BUNAWAN	Licanan, Lasang, Bunawan, D.C.
MATINA	Matina Islacom Station, Matina, D.C.
P11_Purok II	Brgy. Tibungco, D.C.
2K5_Add_MD_Calinan (MN-BTS-591)	Brgy. Calinan, D.C.
2K5_MD_BUCANA	St. John 76-A, Bucana, D.C.
2K5_MD_BUHANGIN5 (MN-BTS-525)	Talisay Ext., Zone 2, Dumanlas, Buhangin, D.C.
2K5_MD_ECOLAND SUBD., (MN-BTS-538)	Lot 22, Blk. 3, Ph. 7, Ecoland Subd., D.C.
2K5_MD_EL_RIO_VISTA (MN-BTS-533)	Lot 19, Blk. 17, Bajada Road, D.C.
AGDAO X	Monteverde Corner Lizada St., Agdao D.C.
AGDAO (MN-NO-032)	Wesson Suites Compound, R. Castillo St., Agdao D.C.
AIRPORT DRIVE	Airport Road, Brgy. Sasa, D.C.
APLAYA (MN-NO-030)	Brgy. Aplaya, D.C.
BAJADA (ML11_039)	GMA Cmpd., JP. Laurel Ave., Bajada, D.C.
BONGUY (MR11_0037)	Aplaya, Davao City
Brgy. Eden, Toril (MN-BTS-644)	Upper Bayabas, Toril, D.C.
Brgy. Indangan	Sto. Niño2, Millenium Vill., D.c.
BUHAN3 (MR11_0036)	Brgy. Buhangin, D.C.
BUHANGIN (MR11_0035)	Km. 5, Brgy. Buhangin, D.C.
BULTON (MR11_0033)	Marasigan Bldg., Bolton St., D.C.
CAMUS (MN-NO-023)	Apo View Hotel, Camus St., D.c.
CATALUNAN	Catalunan Grande, Talomo Dist., D. C.
Commun (MN-NO-021)	Catitipan Buhangin, D.C.
DACUDAO (MN-NO-045)	Amber St., RGA Vill., Bangoy, D.C.
DAVAIR (MN-NO-011)	Davao Airport, D.C.
DAVAO DOCTOR'S HOSPITAL	Along Quirino Ave., D.C.
DURIAN X	Durian Hotel Bldg., J.P. Laurel ave., D.C.
ECOLAND (MR11_0018)	# 143 Jaruda Rd., Tulip Drive, Matina. D.C.
FARMA (MN-NO-017)	Socorro Village, Diversion Rd., Brgy. Panacan, D.C.
GAISA (MN-NI-008)	Gaisano Mall of Davao, JP. Laurel Ave., D.C.
GSIL (MN-NI-009)	Gaisano Ilustre, Ilustre St., D.C.
JACINTO	89 Jacinto St., D.C.
JP LAUREL	JP. Laurel Ave., D.c.
JUNA (MN-NO-015)	Orchid St., Juna Subd., Matina, D.C.
LACCAL	Lacson Davao City
LASANG	Brgy. Alejandra Navarro (Lasang), D.C.
LAUREL (MR11_0014)	Monark Compound JP. Laurel Ave., D.C.
M_GC_TORIL	De Guzman St., D.C.
MAA (MN-NO-013)	Unit 17, Jireh Land, Maa Riverside, D.C.
MAA	Torres St., Brgy. Maa, D.C.
MAGTUOD (MN-NO-050)	Lower Dampa, Brgy. Magtuod, Talomo Dist., D.C.
MANDUG (MN-BTS-046)	Brgy. Mandug, Buhangin Dist., D.C.
MARCO POLO	Roxas Ave., cor. CM Recto St., D.C.
MATCRO (MN-NO-046)	10 San Miguel Vill. Brgy. Matina, D.C.
MATINA HILLS	Matina Shrine, Davao Day-inn Plaza Hotel
MDVO 3 X (R. CASTILLO)	R. Castillo St., Agdao, D.C.
MDVO 4 X (AIRPORT DRIVE)	Airport Road, Brgy. Sasa, D.C.
MDVO 7 X (Diversion Rd., Panacan)	Diversion Rd., Brgy. Panacan, D.C.
MDVO8-SASA HIGHWAY	National Rd., Brgy. Sasa, D.C.
MERCUR (MN-NI-004)	Mercure hotel JP. Laurel Ave., D.C.
METRO DAVAO 5	Catalunan Grande, Talomo Dist., D.C.

Particular	Address
MINTAL	Brgy. Road, Bago Oshiro Mintal D.C.
MONTEV (MN-NO-011)	Tan-Yu Bldg., Monteverde cor. Lizada St., D.C.
MONTEVERDE	Monteverde, Corner Lizada St., D.C.
NCMALL (MN-NI-010)	NCCC Mall, McArthur Highway, D.C.
OBALDE (MN-NI-010)	Brgy. Obalde, D.C.
OBRERO (MN-NO-009)	Vinzon St., Obrero, D.C.
ORANGE GROVE BUHANGIN	Buhangin, D.C.
P11_2K5_ADD_MD_BROKEN SHIRE 8 DAVAO CITY	
P11_2K5_ADD_MD_SASA	Sasa, Davao City
P11_MARAHAN	Marahan, Davao city
P11_POBLACION BUNAWAN	Brgy. Bunawan, Davao City
P11_Titogop	Malamba, Marilog Davao City
P11_276-A	Bonifacio St., D.C.
P11_APLAYA DAVAO	
P11_Bago Aplaya	Talomo Dist., D.C.
P11_Bodbod	Buhisan St., Brgy. Tibungco, D.C.
P11_Matina Aplaya Road	Davao City
P11_Purok 18 Upper Mintal	Davao City
P11_Sto. Niño	Brgy. Marilog, 3rd Dist., D.C.
P11_Ulas Proper	Brgy. Talomo, D.C.
P11_BUHANGIN 3	Brgy. San Nicolas, Buhangin, D.C.
P11_EPOL	Davao City
P11_GAISANO MALL DAVAO	
P11_VICTORIA PLAZA	Davao City
P9EXT_M DAVAO B	Torres St., Brgy. Poblacion 9-A, D.C.
PANGI-(MN-NO-007)	Ulas Proper, Talomo Dist., D.C.
Phase 11_CO_ Metro Davao3	Purok 7, Cabantian, D.C.
Phase 11_CQ_ Metro Davao	Brgy. Puan, D.C.
Phase 11_CQ_ Metro Davao	Purok 2, Brgy. Tugbok, D.C.
POHAS (MR11_0006)	#412 Narra St., Brgy. 30-C, D.C.
ROYAL MANDAYA HOTEL	Royal Mandaya Hotel, Palma Hill St., D.C.
SANDAW (MN-NO-005)	Brgy. Sandawa, Davao City
SASA 2	Km. 11, Sasa, D.C.
SASA X	Hizon Cmpd., Brgy. Pampanga, D.C.
SASA (MN-NO-004)	Beach side Resort, Bo. Pampanga, Sasa, D.C.
SMDVAO (MN-NI-005)	SM Davao, Quimpo Blvd., D.C.
TALOMO (MN-NO-002) - Metro Davao	
TALOMO	Diversion Rd., Bangkal, D.C.
TIBUNGCO	Brgy. Ilang, Tibungco, D.C.
TIGATTO (MN-NO-049)	Tigatto, Davao City
TORIL X	Toril Davao City
TORRES (MR11_0001)	Torres St., Brgy. Poblacion 9-A, D.C.

Service Provider: **SMART COMMUNICATIONS, INC.**

Number of existing cell sites: **92**

Particular	Address
127 NCCC MALL DAVAO	R. Magsaysay Ave. Cor. Lizada St.
4433 DAVAO-SALUMAY	Datu Salumay, Davao City
4434 SIRAWAN-TORIL	Brgy. Sirawan, Toril, D.C.
4442 DAVAO-TORIL 3 - PLDT	PLDT Toril Branch, Saavedra St., Brgy. Poblacion, Toril
4446 LASANG	Lasang, Davao City
4448 ELENITA HEIGHTS	Elenita Heights, Davao City
4487 BAGUIO DISTRICT-DAVAO CITY	Brgy. Poblacion, Baguio Dist., D.C.
4497 DAVAO CITY-MALABOG	Brgy. Poblacion, Malabog, D.C.

Particular	Address
4503 PILTEL-LANANG	Brgy. Pampanga, Lanang, D.C.
4514 DAVAO-CABANTIAN	Cabantian Rd., Buhangin, D.C.
4515 DAVAO-VILLA MARGARITA	Kwik Kwei Engr. Cpd. JP Laurel St., Bajada, D.C.
4539 DAVAO-PUAN	Purok 16, Sitio Durian Puan, D.C.
4564 DAVAO-TIMES BEACH	National Highway, Times Beach, Matina Aplaya, D.C.
4571 DAVAO CITY-STO. NIÑO	Sto. Niño, Brgy. Bago Gallera, D.C.
4826 DAVAO CITY-LOS AMIGOS	Tugbok, Los Amigos, D.C.
5108 DAVAO-INDANGAN	Purok Sta. Cruz, Indangan Proper, D.C.
5115 DAVAO TAMUGAN	Before DOLE Office, Brgy. Tamugan, D.C.
5149 DAVAO-GUIANGA	Purok 1, Brgy. Manuel Guianga, Tugbok Dist., D.C.
5185 DAVAO-PANORAMA	Brgy. Panorama, D.C.
5401 WATERFRONT DAVAO	Km. 7, Drive Barrio, Pampanga, D.C.
5402 DAVAO CITY-R. CASTILLO	Aquamars, R. Castillo St., Agdao
5450 PILTEL MAHAYAG	Brgy. Bunawan, Davao City
5465 DAVAO-DACUDAO	Brgy. Dacudao, Calinan Dist., D.C.
5901 PILTEL-MATINA	PILTEL Office, Matina D.C.
5902 DAVAO CHIMES PLDT	Post Fronting Chimes Store, Sales St., D.C.
5941 ATENEO DE DAVAO	Ateneo De Davao university Campus, D.C.
5945 DAVAO-USP	University of South Eastern Philippines, Trade School Drive, D.C.
6475 DAVAO-PLDT MAA	PLDT Maa, D.C.
9408 ABS-CBN DAVAO	ABS-CBN Office, Shrine Hills Matina, D.C.
A01 DAVAO-PONCE (FORMERLY DAVAO METROBANK)	Lot 172-B, D Ponce St., Brgy. Fatima 24-C, D.C.
A07 DAVAO-SHRINE	Shrine Hill, Matina, D.C.
A09 DAVAO-SASA	Km. 9 Doña Salud Subd., Sasa, D.C.
A14 DAVAO-TORIL	Lot 6 Blk 38, Barrio Bayabas Crossing Toril, D.C.
A18 DAVAO-LANANG	Mercure Hotel, J.P. Laurel Ave., Lanang, D.C.
A43 DAVAO CITY-ECOLAND	Acacia St., near Ecoland Subd., D.C.
A54 CALINAN	Pinano St., Poblacion Calinan, D.C.
A58 DAVAO-BUHANGIN	Lot 213 Buhangin Rd., D.C.
A60 DAVAO-MATINA APLAYA	Matina Aplaya (near Lanzona Subd.), D.C.
A62 DAVAO-ULAS	PLDT Village, Bo. Talomo, D.C.
A73 DAVAO-AGDAO	Banco Filipino Bldg., Dacudao Avenue cor. Lapu-lapu St., Agdao,
A74 DAVAO-DACUDAO (FORMERLY MABINI)	J.P. Laurel Cor. Buhangin Rd., (near Flyover), D.C.
A83 ILUSTRE (NEW HOTEL)	JS Gaisano Mall, Ilustre St., cor. Gen. Luna St., D.C.
A84 MINTAL	San Francisco St. cor. Champaca St., Mintal, D.C.
A85 TIBUNGCO	Purok 3, Valdez Vill., Tibungco, D.C.
A88 DAVAO-JP. LAUREL	Billboard on top of Sychar Hotel, JP Laurel Ave., Bajada, D.C.
A92 DAVAO-MAA	South Villa Heights, Maa, D.C.
A95 BUNAWAN	Davao-Agusan Highway, Barrio Bunawan, D.C.
A96 DAVAO-CATALUNAN GRANDE	Montemaria Poultry Farm, Catalunan Grande, D.C.
A97 DAVAO-CATITIPAN	Diversion Rd., Brgy. Catitipan, D.C.
A98 MANDUG	Water Tank, Palos Verdes Golf Course & Subd., Mandug, D.C.
A99 DAVAO-PANACAN	PLDT Cmpd. National Highway, Panacan, D.C.
BONIFACIO-BANGOY (PLDT POLE)	PLDT Pole at the cor. of Bonifacio & Bangoy St., D.C.
D11 DAVAO-DUMOY	Austek Compound, McArthur Highway, Dumoy, D.C.
D12 DAVAO-DVP VILLAGE	JVALL Bldg. McArthur Hi-way (Maa Crossing ), D.C.
D13 DAVAO CITY GOLF CLUB	Km. 3 Mc Arthur Highway, D.C.
D14 DAVAO-BANGKAL	McArthur Highway, Bangkal, D.C.
D15 DAVAO-TORIL 2	Sto. Cristo Corner Pasay St., Toril Dist., D.C.
D16 DAVAO-OSMEÑA PARK	Luna Bldg. San Pedro Cor. Quimpo Blvd., D.C.
D17 DAVAO-RECTO	imperial Bldg., C.M. Recto Ave., D.C.
D18 DAVAO-JACINTO	Mabini cor. Araullo St., D.C.
D20 DAVAO-MONTEVERDE	PBCOM Bldg., Monteverde Cor. Bangoy St., D.C.
D77 DAVAO-BACACA	San Roque Aley, Garcia Hts., Bajada, D.C.
D78 DAVAO-OBRERO	Opal St., obrero, D.C.

Particular	Address
DAVAO-BUHANDIN	Lot 213, Buhangin Rd., D.C.
DAVAO-PUAN	Purok 16, Sitio Durian, Puan, D.C.
E74 PDCP TOWER DAVAO	J.P. Laurel Ave., D.C.
ILUSTRE-JS GAISANO MALL (PLDT POLE)	in front of JS Gaisano Mall, ilustre, D.C.
J16 DAVAO MSC	PLDT Compound, Ponciano St., D.C.
K28 INAWAYAN	InawayanProper, Davao-Digos Highway, D.C.
K54 DAVAO SHRINE SMART OFFICE	Shrine Hill, Matina, D.C.
L29 GRAND MEN SENG HOTEL	Grand Men Seng Hotel, D.C.
L31 SM DAVAO	SM Department Store, D.C.
P72 APO VIEW HOTEL DAVAO	Legaspi St., corner Bonifacio St., D.C.
P89 ROYAL MANDAYA HOTEL	C. Bangoy corner Palma Gil St., D.C.
P91 GAISANO CITY MALL DAVAO	J.P. Laurel Ave., Bajada, D.C.
P92 VICTORIA PLAZA DAVAO	J.P. Laurel Ave., Bajada, D.C.
P93 JS GAISANO DAVAO	JS Gaisano Mall, Ilustre St., D.C.
QUIRINO-DAVAO DOCTOR'S HOSPITAL (JOINT POLE)	Center Island in front of Davao Doctor's Hospital, D.C.
QUIRINO-THE VENUE (PLDT POLE)	Jacinto Ext., cor. Quirino Ave., D.C.
R54 DAVAO-HOLY CROSS	Sta. Ana Ave., cor. De Guzman St., D.C.
R73 DAVAO-EDEN NATURE PARK	
V02 DAVAO-TAGAKPAN	Tagakpan Proper, Tugbok Dist., D.C.
V36 ASAHE BLDG.	Asahe Bldg., San Pedro St., D.C.
V37 FLORES TAILOR SHOP	Merco, Rizal cor. Bolton St., D.C.
V38 PLDT PONCIANO	PLDT Ponciano, D.C.
V39 LAPANDAY (Formely RCBC RECTO, DAVAO)	Lapanday Agri, Mandug, D.C.
V41 DAVAO-BARACATAN	Purok 6, Baracatan, Toril, D.C.
V48 SAN PEDRO HOSPITAL	in front of JJRZ Beach Resort, Times Beach, Matina Aplaya, D.C.
X150 UNION GALVA STEEL	Ilang Davao City
X1561 DAVAO-SUMIFRU MAIN OFFICE	Sumifru Corp., Brgy. Tibungco, D.C.
X1570 DAVAO CITY	
Z96 DAVAO-TAMAYONG	Upper Sirib, Brgy. Sirib, D.C.

Service Provider: **DIGITEL MOBILE PHILLIPINES, INC. (SUN)**

Number of existing cell sites: **97**

Particular	Address
Davao_Mintal	(Lagare Property), Brgy. Road, Sitio Basak, Poblacion, Mintal,
DAVAO_001	P. Reyes St., Quimpo Blvd., D.C.
DAVAO_005	E. Quirino, Davao City
DAVAO_P3_01	Carinosa corner Balitaw St., Matina, D.C.
DAVAO_P3_07	Brgy. Cabantian, Buhangin, D.C.
DAVAO_P3_09	Carlos P. Garcia National Rd., Buhangin, D.C.
MNRZ_8	Brgy. Crossing Bayabas, D.C.
MINDANAO INDOOR_01 (SM_DAVAO)	SM Davao, Quimpo Blvd., D.C.
DAV_ROLLING HILLS	Arrozal Pension House, Bacaca Rd., El Rio Subd., Brgy. 19, D.C.
DAV_TIGATTO	796 Tigatto, Buhangin Dist., D.C.
DAV_MATINA APLAYA	# 85 New Visayas, Brgy. 74-A Matina, D.C.
DAV_VINCENT HTS.	Mamay Rd., Vincent Hts. Subd., Brgy. Angliongto, D.C.
DAVAO_004	AIRPORT RD., Sasa, D.C.
DAVAO_013	University Avenue, Juna Subd., Matina, D.C.
DAVAO_007	368 Padre Gomez St., D.C.
DAVAO_006	Villa Abrille St., D.C.
DAVAO_008	Bangoy St., D.C.
DAVAO_P3_06	Ubalde Subd., Brgy. Ubalde, D.C.
Marco Polo-MDAV975	Roxas Blvd. cor. CM Recto Ave., D.C.
DAVAO-LASANG	Barrio Lasang, D.C.

Particular	Address
DAVAO-TUGBOK	Brgy. Tugbok, D.C.
WATERFRONT INSULAR HOTEL	Lanang Rd., D.C.
DAV_ECOLAND	Ecoland, D.C.
DAV_MARFORI	Blk. 4, Lot 3, Silver St., Mineral Vill., Bajada, D.C.
DAV_MAA3	Purok 10, AGT Bldg., Nacilla Maa, D.C.
DAV_MARFORI 2	Rizal Memorial College Cmpd. Lopez Jaena St., D.C.
DAV_BUHANGIN 2	Rizal Medical Center Cmpd., JP. Laurel cor. Dumanlas Ave.,
MATINA RS	Existing Sun Cellular Relay, Matina Shrine, D.C.
DAVAO_DUMOY (COMMANDANTE PROP)	Km. 10 Aplaya, Talomo Dist., D.C.
DAV714_DAV_BAGO GALLERA 1	Bago Gallera, Talomo Dist., D.C.
DAV707_DAVMALABOG	Brgy. Malabog, Paquibato Dist., D.C.
DAV_DUMOY_Davao Del Sur (DAV718)	Brgy. Baliok, D.C.
DAVAO-TORIL	Davao City
DAV_OBRERO	52 Molave St., Palm Village, Brgy. 20-B, Bajada, D.C.
DAV_BAGO APLAYA	Brgy. Bago Aplaya, D.C.
DAVAO-MAA2 (Ang's Lot)	Brgy. Magtuod, Dampa, Talomo, D.C.
X DAVAO DOCTOR'S HOSPITAL	Quirino St., Cor. Mt. Apo St., D.C.
DAV_MATINA	Telstar St., GSIS Subd. McArthur Hi-way, Matina, D.C.
DAV_PUAN	Bago Aplaya, Talomo, D.C.
Brgy. Sirawan	Toril Dist., D.C.
DAV_MANDUG	Palos Verdes Golf Club, Brgy. Mandug, D.C.
DAV_ATENEO MATINA	#3 Juna Ave., H= Juna Subd., Matina, D.C.
DAV_Elheights (DAV609)	Duyan Rd., Brgy. Catalunan Grande, D.C.
DAV_Toril2 (DAV613)	Virgin Delos Remedios, Brgy. Lubogan, D.C.
DAVAO_P3_12 (Cruz Property)	Carlos P. Garcia National Rd., Panacan, D.C.
Brgy. Baguio Proper	Baguio Dist., D.C.
DAVAO_BUNAWAN (MERALCO PROPERTY)	Gonzaga St., Bunawan, D.C.
DAVAO_003	JP. Laurel Ave., Lanang, D.C.
DAVAO_010	Gov. Sales St., Brgy. 27, D.C.
DAVAO_011	Cabaguio Ave., Agdao, D.C.
MNR3_5	Ecoland Phase 1, Matina, D.C.
DAVAO_CATALUNAN	Seminary Rd., Brgy. Catalunan Grande, Talomo Dist., D.C.
GAISANO MALL	Jose P. Laurel St., D.C.
NCCC MALL, MAA	Gen. McArthur Highway, Maa, D.C.
NCCC MALL, UYANGUREN	R. Magsaysay Ave., D.C.
VITORIA MALL	Jose P. Laurel St., D.C.
SANTIAGO'S LOT	Km. 12, Sasa, D.C.
ALZATE'S LOT	San Miguel, Bangkal, D.C.
TEFASCO'S LOT	Ilang Agri Industrial Estate Corp., D.C.
DAVAO_012	Buhangin Rd. Cor. Ladislawa Rd., D.C.
DAV_MAHAYAG 801	Mahayag, Bunawan, D.C.
DAV_MATINA 8 EX DAV_MATINA CROSSING 801	Matina Crossing, D.C.
DAV_PANACAN 801	Panacan, D.C.
APO VIEW MDAV957	Gen. Luna cor. Duterte St., D.C.
Davao Medical Center-MDAV971	Rizal Medical Center Cmpd., JP. Laurel cor. Dumanlas Ave., D.C.
DAV_OBRERO3-MDAV721	Lapu-Lapu St. Cor. Bangoy Agdao, D.C.
DAV_SASA2-DAV711	Km. 9, Brgy. Sasa, D.C.
DAV715_DAV_BAGO GALLERA2	Bago Gallera, D.C.
DAV_DAVAO801 - MDAV722	National Road of 109-Piapi Quezon Boulevard
DAV_PIER	Km. 10, Doña Salud Subd., D.C.
DAV_MATINA2	Brgy. Matina Aplaya, D.C.
DAVAO_CATALUNANPEQ WELLSRING SUBD.	Wellspring Subd., Catalunan Pequeño, D.C.
DAV_LANANG	Brgy. Angliongto, Lanang, D.C.
DAV_TORIL 4	
DAVAO_CALINAN (PRINSIPE PROPERTY)	Purok 9, Brgy. Calinan, D.C.

Particular	Address
DAVAO_TIBUNGCO (DELES PROPERRTY)	Km. 19 Purok 5, San Juan, Brgy. Tibungco, D.C.
DAV_PAMPANGA 801	54-A Falcata St. Novatierra Villages, Lanang, D.C.
DAV_MATINAGSIS AGL & Sons Inc.	McArthur Highway, Brgy. 74-A, Matina, D.C.
DAV_CATALUNAN GRANDE 801	Sitio Toril, Catalunan Grande, Talomo Dist., D.C.
DAV_COMMUNAL 801	Communal Road, Buhangin Dist., D.C.
DAV_MAGTUOD 801	Purok 46, Kapundok Alvarez Compound, Ma-a, D.C.
DAV_ECOLAND 3	Progress Bldg. Back of Jergo 4x4 Shop, Quimpo Ave., Matina,
DAV_SANDAWA	Sandawa McArthur Highway, Matina, D.C.
DAV_SASA 801	Diversion Road, Relocation, Panacan, D.C.
DAV_STO. NIÑO 801	Evergreen St., Brgy. Sto. Niño Mintal, Tugbok Dist., D.C.
DAV_TALOMO 801	Diversion Road, Bangkal, D.C.
DAV_TORIL 3	Macleod St., Brgy. Toril Poblacion, Toril Dist., D.C.
DAVAO_MAA 1 (COVINGTON PROPERTY)	P-7, Sto. Niño Subd., Brgy. Maa, D.C.
XGAISANOSOUTH	Ilustre St., Davao City
DAV_MAA 4	Purok 44, Marañon Cmpd., D.C.
3G_DAVAO_MAA 2 (Ang Property)	Maa Road, Sitio Bugac, Brgy. Maa, D.C.
3G_DAV_ELHEIGHTS_Lydia Ingle	Lydia Ingle, Duyan Rd., Brgy. Catalunan Grande, D.C.
3G_MNR2_BABUDE PROPERTY	Ferriols Compound, Brgy. Toril, D.C.
3G_DAV_BAGO APLAYA	APO Golf Club, Brgy. Bago Aplaya, Talomo Dist., D.C.
3G_DAV_TIGATTO	Brgy. Tigatto, Buhangin, D.C.
3G_DAVAO_005 Davao Doctor's Bldg.	E. Quirino Ave., D.C.
3G_DAV_MARFORI	Pertila Valeroso, Circumferential Rd., Brgy. 19-B, D.C.

Source : National Telecommunications Commission, XI

## **1.5 THE ECONOMIC STRUCTURE**

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Davao City operates on a flexible market-oriented economy where the private investments are encouraged by the government to address the current needs of the population. The resilience of the government continually opens doors of opportunities to investors from micro to large-scale enterprises.

### **a. Revenue Sources**

Records show that Davao City has a steadily growing economy due to various factors that contribute to the influx of investments such as the provision of infrastructure support and utilities, investment incentives, land area commensurate to the needs of investors, and human resource to serve the employment requirements of establishments and sound peace and order situation.

Revenue sources of Davao City are from establishments and activities ranging from micro to large-scale enterprises covering agriculture, commerce and trade, industry and tourism. These major sectors of the economy operate by pouring investments that continue to grow annually in number and capitalization.

Having an annual growth rate of 15.98 percent from 2006 to 2010 in terms of capitalization of micro, small, medium and large-scale establishments or a total of P 182 billion in 2010 from P 109.0 billion in 2006, revenues also proved to increase annually. Commerce and trade posted an annual growth rate of 3.81 percent in revenues for the same period while industries registered 6.12 percent.

Business Bureau recorded the number of establishments in 2006 at 24,638 which rose to 29,542 in 2010. The annual growth rate was computed at 4.70 percent which covers all categories in terms of capitalization.

The implication of the continual pouring in of investments to the economy of the City highlights the healthy business environment where revenues are sure to come in.

### **b. Employment**

The total number of employees recorded by the Business Bureau was 179,277 in 2010 for all the categories of establishments.

The annual growth rate from 2006 to 2010 was posted at 25.14 percent wherein 30.01 percent came from firms under the micro category translating to 129,800 employees or 72.40 percent of the total number, followed small-scale establishments covering 16.46 percent, medium-scale at 6.19 percent and large-scale at 4.96 percent.

The growth rate for the period 2006 to 2010 for small, medium and large-scale categories are 17.26 percent, 17.11 percent and 25.72 percent, respectively. The growth rate for the same period is high due to the annual rise in number to almost double every year from 2008 to 2010.

The 179,277 declared employees of business establishments comprise only 29.74 percent of the total employed population of the city.

**c. Average Family and Expenditure vis-a-vis Poverty Level**

According to the National Statistical Coordination Board (NSCB), the average income for a family of six was pegged at P166,000.00 in 2009 compared to P135, 000.00 in 2006, posting a growth rate of 22.9 percent during the period. On the other hand, the annual family expenditure was noted at P142,000.00 in 2009, depicting an increase of 23.5 percent compared to that of P115, 000.00 in 2006. Generally, it can be said that in Davao Region, a family has an average annual savings of P24,000.00.

The poverty incidence in Davao Region was 25.6 percent in 2009. This means that for every 100 families in Davao Region, almost 26 are considered poor with income below the poverty threshold of P102,240 per annum or an annual per capita threshold of P17,040.00. In 2006, poverty incidence in all areas was 26.2 percent. The annual family poverty threshold then was set at P80, 804 or P13, 469 per person.



## 1.6 Social Sector Facilities

### Education

Education services are provided in all levels in Davao City, from the preschool, elementary, high school, to the tertiary levels. There are 271 preschool, 453 elementary, 146 secondary, 47 tertiary and 104 technical-vocational institutions operating in the city. Vocational and technical education, including education to other special groups, such as the Muslim population (through the madaris), indigenous peoples, out-of-school youths and adults (through alternative learning schemes), among others. These education services are extended both by the government and private sector, with the latter running majority of schools for preschools, high school, college, and vocational and technical education.

**Table 1.18 Inventory of Schools by Congressional District, Level, Area Occupied and Facilities and Conditions SY 2009-2010**

Location by Congressional Districts	Level	Type	
		Public	Private
District I	Pre-school		
	Elementary	46	85
	Secondary	12	39
	Tertiary	-	31
	Vocational/Technical	2	68
	<b>Total</b>	60	223
District II	Pre-school		
	Elementary	91	57
	Secondary	20	27
	Tertiary	-	7
	Vocational/Technical	-	23
	<b>Total</b>	111	114
District III	Pre-school		
	Elementary	149	25
	Secondary	38	10
	Tertiary	6	2
	Vocational/Technical	2	9
	<b>Total</b>	195	46
	<b>TOTAL</b>	<b>366</b>	<b>383</b>

*Source: Department of Education, City Schools Division*

### Health and Sanitation

Public and private health services are provided in the city, with government delivering most of the primary health care services through the City Health office and its Nutrition Office. Davao City has an existing 160 Barangay Health Stations, 11 Satellite Health Stations and 16 Rural Health Units.

The city hosts the Southern Philippines Medical Center (SPMC), one of the largest public medical centers in the country. The SPMC maintains a psychiatric hospital also known as the Davao Mental Hospital. The city operates the Paquibato District Hospital, the only public hospital in the city aside from the SPMC. The city has one birthing home (Tibungco Lying-In) and one district hospital (Paquibato District Hospital). Other health facilities include: Dispensary, Animal Bite Center, Medico-Legal, Chest Center-PPMD, Reproductive Health & Wellness Center, Laboratory and Dental Division.

**Table 1.19 Summary of Health Facilities, by Category of Ownership, Davao City, 2012**

Category	Type of Health Facility	Number
Public	Barangay & Satellite Health Stations	171
	Rural Health Stations or Main Health Centers	16
	District Hospital	1
	Birthing Facility	1
	Tertiary Hospital (SPMC)	1
	Primary Hospital – Camp Panacan	1
Private	Hospitals	
	Level 1	14
	Level 2	5
	Level 3	5
	Level 4	4
	Lying-In	126

*Source: City Health Office*

## **Social Welfare**

Day Care services are provided in 175 barangays of the city. On the average, each of the served barangay has about 3 day care facilities. There were at least 7 residential centers maintained by the city that provide services for abused female children, women and children who are victims of violence, male children needing special protection, mentally challenged male children and youth, male children in conflict with the law, male and female adult drug dependents, and abandoned male and female senior citizens.

Other welfare centers in the city are managed by the DSWD Regional Field Office XI. These include those that serve women aged 18-59 years old who are in difficult circumstances, children aged 16-18 years old who are in conflict with the law, and abandoned children aged 0-6 years old.

**Table 1.20 Social Welfare Facilities, Services and Clientele, 2012, Davao City**

Facilities	Number	Services	Type of Clientele	Organization/ Service Provider	Staff Compliment
<b>Day care</b>	643	Day care	Children 3-5 years old	LGU	595 Day Care Workers
<ul style="list-style-type: none"> <li>Center-based</li> <li>Home-based</li> </ul>	553 90				
<b>Residential Centers</b>	10				
<ul style="list-style-type: none"> <li>BalayDangupan-Crisis Intervention Center</li> </ul>		Residential care, case mgt, family life & education, counselling, educational assistance, self & social enhancement	Abused female children	LGU	1 nurse 1 psychologist 5 social workers 6 house parents 2 guards 1 admin asst
<ul style="list-style-type: none"> <li>Sidlakan Women Crisis Center</li> </ul>			Victims of violence against women	LGU	3 social workers 5 house parents 2 admin asst 2 guards
<ul style="list-style-type: none"> <li>Group Home for Girls</li> </ul>		Protection & rehabilitation of women in especially difficult circumstance; temporary substitute home care	Women in especially difficult circumstances 18-59 years old	DSWD RFO XI	15 staff - center head - social workers - house parents
<ul style="list-style-type: none"> <li>Paginhawaan Drop-In Center</li> </ul>		Residential care, case mgt, family life & education, counselling, educational assistance, self & social enhancement	Male children needing special protection	LGU	2 social workers 8 house parents 1 admin staff
<ul style="list-style-type: none"> <li>LingapCenter</li> </ul>		Residential care, case mgt, family life & education, counselling, educational assistance, self & social enhancement	Mentally-challenged male children & youth	LGU	2 social workers 3 house parents 1 admin asst 5 admin staff
<ul style="list-style-type: none"> <li>LamdagsaKabataan</li> </ul>		Residential care, case mgt, family life & education, counselling, educational assistance, self & social enhancement	Male children in conflict with law awaiting court disposition of their cases	LGU	3 social workers 7 house parents 2 admin staff 1 driver

Facilities	Number	Services	Type of Clientele	Organization/ Service Provider	Staff Compliment
• Regional Rehabilitation Center for the Youth		Homelife, productivity, educational, spiritual, socio-cultural & recreational, dietetics, medical / dental & judicial liaison services	Children in conflict with the law bet. 16-18 y.o. committed by the courts of justice	DSWD RFO XI	23 staff - center head - social workers - psychologist - nurse - house parents
• Reception and Study Center for Children		Social, homelife, health, educational and training services	Abandoned / foundling, neglected or involuntary committed, surrendered or voluntary committed children 0-6 y.o.	DSWD RFO XI	30 staff - center head - nurse - teacher - social workers - caregivers - admin support staff
• Davao City Treatment and Rehabilitation Centre for Drug Dependents (DCTRCD)		Residential care, family life, education and counseling, rehabilitation services	Male & female adults drug dependents  Male & female minor	LGU	6 plantilla personnel 2 detailed-in personnel 49 contract-of-service
• Co Su Gian Center for the Elderly		Residential care, case mgt, self & social enhancement services	Abandoned male and female elderly	LGU	4 social workers 5 house parents 4 admin staff
<b>Total</b>	<b>653</b>				

Sources: City Social Services and Development Office, Davao City Treatment and Rehabilitation Center for Drug Dependents, Department of Social Welfare RFO XI

## **Housing**

Davao City is addressing its people's housing needs in conformity with the Urban Development Housing Act or RA 7279. It has an approved Shelter Code and is currently implementing housing programs, such as provision of loan assistance to qualified community associations to acquire their own relocation sites, the Localized Community Mortgage Program, and provision of resettlement sights, among others. The City has total of 11 resettlement sites. Of the 11 resettlement sited, 9 were acquired through purchase and three were from donations received in 1996, 1999 and 2009. The city likewise encouraged private developers to allocate socialized housing units in their land and housing development ventures in the city.

Like any other urban centers in the country, the city continues to face threats to its peace and security from common criminality, insurgency and in more recent years, terrorism which are in most cases, instigated by foreign-based groups. These threats are being addressed

by the police and the Philippine armed forces, with support from units providing fire prevention services (public and private), security services (public and private) and jail management services. Davao City Police Office (DCPO) has 12 Police Stations (PS), 25 Police Outposts/ COMPAC (Community Public Assistance Center), and three Operating Units namely; Public Safety Command Unit, Mobile Patrol Group, and Traffic Group. It has also one Fire District, a major component of the Bureau of Fire Protection (BFP) with 11 sub-station strategically spread-out in the three (3) Congressional Districts. Davao City has also its Public Safety Command Center (PSCC) serves as a Traffic Monitoring Center equipped with the most advanced and state-of-the-art traffic monitoring facilities and serves as command center of the city's security surveillance. The city's Communication and Emergency Response Center or Central 911 serves as a place for a centralized control for all the emergency calls in the city concerning law enforcement, fire and medical emergency, search and rescue and K9 unit for security concerns. Three (3) satellite stations were also constructed at Sasa, Calinan and Toril accommodate citizens needing emergency response residing in far-flung barangays.

The city has several outdoor and indoor sports facilities. Majority of outdoor facilities, particularly basketball courts, are provided by the city. Except for the Almendras Gym which the city owns, other sports and recreation facilities requiring large investments are provided by the private sector. Majority of these sports and recreation facilities are concentrated in its central business district and suburbs. But almost all the barangays in the city have covered courts which are used for various sports activities and at times serve as venues for assemblies and evacuation centers, among others. Public and private schools also have sports facilities like gymnasiums, track ovals and courts. The city until now, however, does not have a modern sports complex, with complete facilities that could host national and international sports events.

## **1.7 EXISTING LAND AND WATER USE**

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### **a. Land Use**

#### **a.1 Residential Use**

Residential areas make up 3.44% or 8,382 hectares of the city's total area. High-density residential area is concentrated in the CBD and urban centers where real estate values are relatively high and land utilization maximized. Within and surrounding the CBD are low density subdivisions that still have a considerable area for development such as Juna Subdivision, Insular Village, Ladislawa Village among others. Midrise residential buildings have been constructed in the past ten years particularly in the vicinities of Ecoland Subdivision, City Hall area and in the Buhangin Area.

The developments of residential areas in the Central Business District have spilled over to the adjacent districts of Talomo and Toril on the south and Buhangin-Agdao on the north. The barangay with the biggest residential area is Talomo.

But settlements in the outlying barangays of the city remains marginal accounting only 243 hectares.

Issues that affect the residential zones include the intrusion of commercial and industrial types of uses. This generates complaints from the residents as it affects the tranquil environment of the subdivisions. The continued undeveloped lots of subdivisions continue to prevail as land banking and speculation from the private owners are undertaken. This limits that available land as well as distorts the market values of the available lands that contribute to the unaffordable land for residential use. With the limited affordable residential lots, many households from the lower income groups have resorted to informal settling or building their houses along buffer zones along rivers and shorelines. This exposes them to geohazards brought about by flooding and storm surges.

Various residential areas particularly along the major water systems of the city have been affected by flash floods damaging property and claiming lives. Many informal settlers living along these waterways have seen their houses washed away by the strong currents whenever riverbanks overflow.

#### **a.2 Commercial Use**

The area occupied for commercial use is 0.65% or 1,583.32 hectares of the total land area of the city. The Central Business District is the center of commerce and trade, with commercial structures built along major roads and highways indicating a "ribbon type" developmental pattern in the place. The commercial establishments vary from generally small, medium and large commercial complexes. In the past ten years the expansion of the commercial establishments in the areas of Matina, Lanang and Buhangin was led by the construction of malls. These malls were developed by local and Manila based companies. The introduction of two latest

malls – Abreeza and SM Lanang Premier points to the growing middle class of the city as these mall target middle to high income groups as their main clients.

Many of the residences in the Central Business District are increasingly improved into mixed use: residential building also provide commercial space to take advantage of their prime location.

Commercial development has been concentrated along major roads of the city, without proper mitigating measures have created packets of congestion during the peak hours of traffic. The development of commercial zones along the Diversion Road could increase the likelihood of road accidents since mitigation measures like pedestrian walks and barriers have not been installed in the area. To mitigate the conflicting uses of residential and commercial activities particularly in tourism related activities, the city has enacted an anti nuisance ordinance that seeks to prevent the intrusion of commercial activities especially noise pollution beyond their property lines.

### **a.3 Industrial Use**

Industrial use reached 853 hectares or 0.35 percent of its total land area for various industries. There are 2,420 small to large scale industries of which 44.05% are in Congressional District 1 while 36.16% are in District II and another 19.79% are in District III. . Many large scale industries are along the coastal areas of Pampanga, Sasa, Panacan, Tibungco and Bunawan. Industrial utilization in some parts of Malagamot, Panacan have encroached to portion of Agricultural areas. This is because of the favorable road infrastructure of the area and the presence of utilities like three phase electric power which is one of the basic requirements for industries. Some industrial allocated areas do not have the desired infrastructure and utilities needed for industries.

A significant portion of industries of the city is into agro processing. Raw materials from the agriculture sector such as fruits are processed into high value products. While there is a slow growth in the utilization of the lands allotted for industrial use, various manufacturing firms have been established. This creates more opportunities for the local citizens in job generation.

The past trends on the utilization of industrial lands have been surpassed by the rapid population growth necessitating the various rezoning of such for residential purposes. Pockets of housing projects were established within the industrial zones to provide residential land to those in need of housing. This situation could create possible conflicts in the future. The disposal of industrial wastes remains a problem. Issues on the dumping of untreated wastes into the rivers and other water bodies are often raised by communities surrounding these manufacturing plants.

#### **a.4 Institutional Use**

Institutional areas comprise 629 hectares or 0.26 percent of the city's total land area. The existing institutions include government structures, churches/mosques, hospitals and schools. City regional government offices are found mostly in the Poblacion and in the major urban centers of the city. Most of the major educational institutions, religious buildings, and military reservations are found in these areas as well. Included in this category are special institutional uses which are intended for orphanage, home for the aged, rehabilitation center, city jail and mental hospital located in the urban areas of the city.

Expansion of institutional uses remains a problem in the CBD owing to the limited size of lots. However, vertical development should be encouraged to maximize the utilization of the land. Elementary and high schools can expand their classrooms by having three storey building schools to accommodate other school activities like a gymnasium or playground.

The expansion of some private educational and health facilities have created traffic congestion in their surrounding areas because of the lack of parking spaces and loading and unloading zones for public vehicles. More than often, these institutions do not provide space for their clients who end up using public road space resulting to traffic congestion.

#### **a.5 Parks and Recreation**

Parks and recreation uses occupied 61.73 hectares or 0.03 % of the city's total land area. These include the Quezon Park in front of the City Hall Building; the nearby Rizal Park and Osmeña Park in the vicinity of the Sangguniang Panlungsod Building; the Freedom Park in front of the Ateneo de Davao University; and the famous Magsaysay Park. Pocket parks are also found in some areas of the Central Business District. The latest addition is the People's Park along Palma Gil Street. It is the city's biggest park attraction where thousands of people flock daily.

There are still a number of undeveloped city owned parks. These parks lie idle awaiting for funds to develop its needed infrastructures and facilities. Among these parks are those in Toril and Calinan. The private sector for its part has developed recreational facilities that incorporate the park concept in its development.

#### **a.6 Infrastructure and Utilities**

The infrastructure and utilities use makes up 209 hectares or 0.09 percent of the city's total land area. These include the Davao City Overland Transport Terminal, Davao City International Airport, Sta. Ana Wharf, Sasa Wharf, Daliao Fish Port and other privately-owned sea ports and piers. This also includes other utilities such as power substations, water system/reservoirs and Information communication technologies/cellsites located in different districts of the city. The road network totaling 7,901 hectares is already included in the area computed for the various land uses it traverses.



The road network of the city extends up to the upland areas of Marilog and Paquibato districts. These are farm to road systems designed to provide better access of farm produce to the markets in the lowlands. However, the roads are, mostly of soil and gravel surface thus limiting its access during rainy seasons. Furthermore, this situation forces the farmers of Paquibato to go directly to the markets of Panabo City since there is better connectivity to their areas. On the urban situation, the residential areas are now being located at the Mintal –Tugbok area which is far from the CBD. The traffic generated by these areas converge in the Matina area together with traffic coming from the Toril district. This results in traffic congestion along the McArthur Highway in the Matina area. The same is true in the Buhangin area where residential development is along a narrow road connecting Buhangin and Tibungco. Traffic congestion is a regular occurrence in this area.

For the drainage systems in the urban area of the city, flashfloods continue to occur in the residential and commercial areas whenever there is heavy downpour. The current drainage systems that are combined systems for both wastewater and run-off cannot cope with heavy precipitation. In the rural areas, overflows from the river affect settlements usually informal along the riverbanks. The situation is often aggravated by the heavy siltation of our drainage systems because of the soil erosion in the upland areas of the city. Human activities like agriculture and other related activities like charcoal making has resulted to wide deforestation. With the reduced vegetative growth in the steep slopes of the area, topsoil erosion occurs and ends as silt in the river systems. In the urban areas, silt is mixed with garbage from households impeding the flow of drainage canals that result to reduce capacity during rains. Invert elevation of major storm drains outfall to the gulf are at mean sea level or lower and for this reason discharge capacities depend on the tide level.

## **a.6 Agriculture Use**

Davao City's total developed agricultural land area is 73,086 hectares or 29.95 percent of the city's total land area. Sectoral studies show that out of this developed agricultural land, 44,748.23 hectares is production area for crops excluding plantations. The potential area for agricultural use could actually be greater than the present figure as shrublands and grasslands can further offer potential for agricultural use especially for fruit crops. These are most extensive in the districts of Marilog and Paquibato. About 210 hectares are developed fishponds located mainly in Tugbok and partly in Toril and Bunawan.

The terrain analysis conducted by the MGB provides guidance on the agriculture practice suitability of the soil to protect the natural resources. It has provided areas where tillage and non-tillage practices can be done. Moreover, mono cropping practices are currently being discouraged by the city to avoid the use of harmful chemicals that may affect the health of surrounding communities and groundwater. Inefficient farm practices can still be observed in some areas.

### **a.7 Forest**

Forest areas are those covered with woody type of vegetation whether natural or planted forest. This covers about 39,917 hectares or 16.36 percent of the city's total land area. Natural forest is most extensive in Baguio, Marilog and Paquibato.

Forest especially production forest species continue to diminish as these are harvested by communities for their use. Some of the tree species are indiscriminately harvested to make charcoal to be sold in the lowlands. Biodiversity has not been considered a priority thus reforestation projects often only include one or two species of hardwood which may not be beneficial for animals. Some forest areas are also part of ancestral domains of the IP and may need management programs for such. The forest land use plan of the city still needs to be crafted as well as watershed plans for its numerous watersheds that will integrate the forest management, land use and the ancestral domain sustainable development protection plan.

The DENR has identified and delineated areas classified as Forestland or Timberland which covers 147,548 hectares. The remaining 96,552 hectares are classified as Alienable and Disposable.

### **a.9 Agro-Industrial**

These areas occupied 168 hectares located in barangays Sirawan, and Binugao, The dominant use in these areas are modern livestock farming with related facilities and amenities.

The city exports meat products to other regions. The industrial farms generate wastes that can be harmful to the environment if not properly disposed of. In the past years, some large farm operators have installed biogas systems to generate gas for fuel for cooling and power. This has greatly reduced the amount of odours and wastes from farms. With such technology, the hazards and pollution produced by such activities will be reduced and allows more compatibility with other land uses like residential area.

### **a.10 Grassland/Pasture**

There are 116,832.08 hectares or 47.88 percent of the total land area identified as grassland and shrubland. A computed area of 17,209 hectares is considered pasture land as derived using the standard of one hectare per one cattle/carabao. Grassland however, can offer potential for agriculture use which are most extensive in the districts of Marilog and Paquibato.

### **a.11 Planned Unit Development (PUD)**

Planned Unit Development comprised of 77 hectares. These are the existing development of Rancho Palos Verdes which covers portion of barangays Indangan and Mandug in Buhangin District, a residential subdivision with golf course amenity. Another existing PUD is the Riverfront located in Barangay Ma-a, which comprises

residential, institutional, commercial, open space and tourism related facilities. Some of the PUD areas that were classified in 1996 have not been developed.

#### **a.12 Open space**

Open space or undeveloped areas totaled to 1,258.80 hectares or 0.52 per cent of the city's total land area. At the back of SM Premier or portion of the former Lanang Country Club as well as properties near the Davao City Water District in Bajada are among these areas.

#### **a.13 Special Use**

Special use areas comprise 342.09 hectares of land area. This is the Sanitary Landfill, existing cemeteries and golf course.

Special use activities have often been put in the limelight especially those concerning cemeteries because of their proposed location. It is feared that these will contaminate the groundwater supply of the city. There should be an area allotted for uses that deal with the urban wastes. The expansion of the site of the current sanitary landfill can be expanded to accommodate similar activities.

#### **a.14 Tourism Development**

The city has a total of 200 hectares developed for tourism activities. These are tourism-related facilities such as various inland resorts located in the different parts of the city. The Eden Nature Park, Malagos Gardens and the Crocodile Park are some examples of private parks where people can enjoy leisure activities.

Tourism development zones in the Toril district were identified in the 1996 zoning ordinance and have not yet taken off. A master plan has been done in the area that includes proposed land uses within the tourism development zone. The development of the area is hampered by the lack of infrastructures particularly water supply since this is an upland barangay. The indigenous peoples of the city exemplify the rich culture and heritage of the city. To preserve as well as showcase their heritage is a problem since there is no venue for this purpose. Cultural villages can be established to allow interaction between the IPs and the tourists.

#### **a.15 Quarrying**

The quarrying sites of the city totaled to 157.14 hectares or 0.06 percent of the entire land area. A greater portion of these sites produce limestone which can be found in Bunawan District.

## **b. Water Uses:**

### **b.1 Mangrove**

Areas planted with mangroves cover 33.78 hectares located in coastal barangays in Bucana, Punta Dumalag, Matina Aplaya, Lasang, Tibungco, and Talomo. The expansion of informal settlements along the shoreline has affected the efforts to reestablish mangrove forests in the city. Mangrove trees need to be protected from human damage and eventual cutting to utilize the wood.

### **b.2 Marine Protected Area**

Marine Protected Area - A total of 415 hectares that includes three areas particularly in the coastal waters off the following barangays: Bunawan, Centro and Matina Aplaya, . This area is a combination of mangrove habitat management and fish sanctuary. This area should be conserved to sustain their biological importance for foraging, spawning, mating and growth of rare threatened, endangered, and ecologically and economically –significant species.

### **b.3 Fish Pond**

Inland water use refers to the existing fish ponds and bodies of water which include rivers and streams consisting to about 210 hectares. These fish ponds are located at Los Amigos, Tugbok, and at the different coastal areas in the city, namely: Lasang, Bunawan, Dumoy, Lizada and Binugao.

**Table 1.21 Existing Land Use, Davao City, 2011**

<b>Land Use Categories</b>	<b>Area (in hectares)</b>	<b>Percent to Total</b>
Urban Use Areas		
Residential	8,382.38	3.44%
Commercial	1,583.32	0.65%
Infrastructure/Utilities	208.62	0.09%
Institutional	629.03	0.26%
Parks/Playgrounds and other recreational spaces	61.73	0.03%
Industrial	853.02	0.35%
Planned Unit Development	76.86	0.03%
Open Space	1,258.80	0.52%
Agriculture	73,086.05	29.95%
Forest and forest use categories	39,916.94	16.36%
Mining/Quarrying	157.14	0.06%
Grassland/Pasture	116,832.08	47.88%
Agro-industrial	168.36	0.07%
Tourism	200.08	0.08%
Special Use	342.09	0.14%
Water Uses (Fishponds / Mangroves)		
Fishpond (Inland water use)	209.98	0.09%
Mangrove forests	33.91	0.01%
<b>TOTAL</b>	<b>244,000.00</b>	<b>100.00%</b>
Water Use (Marine Protected Area)	415.00	

#### **b.4 Other Coastal Resources**

- **Fishing Communities and Practices**

There are 2,559 registered fisherfolk in the City. Of the total population of fisherfolks, 873 are full-time fishermen, 698 are part-time and 988 are involved in shell gathering, fish selling (middlemen fish vendors) and fish processing. These figures are minimum estimates given that there are still about 20-25% of the fisherfolk who are not yet registered.

There are 1,552 fishing bancas listed in the City Agriculturist Office as per Fisherfolk Registration conducted in 2005. 864 are motorized while 688 are non-motorized. Motorized bancas land an average of 3-5 kilos of fish per fishing trip while non-motorized bancas produces 2-3 kilos per trip.

The major fishing gears used by municipal fishermen from Davao City are the hook and line (pasal, palangre, undak-undak, sagiwsiw), gill nets (palaran, panamban, pante) and fish traps (bentol, bubo, bunsod) with an average fishing trip of 6 hours. The reported fishing areas for the different types of gears indicate extensive use of city waters for fishing activities, including gleaning for seashells which supplements the daily food requirements of coastal communities.

Fishermen use the coastal waters of Davao City as a common fishing ground. Information gathered during the Barangay Consultation of 2005 show that fishers in a certain locality are not confined in their coastal barangay for their fishing operations. For example, a fisherman using hook & line, gill net and fish traps from Brgy. Centro operates as far as Lasang in the North, Talomo Bay in the South or even in the municipal waters of Samal Island.

- **Aquaculture Fisheries**

Aquaculture fisheries activities of the City are fish culture in brackish water fishponds, sea cages, and seaweed farming.

- **Inland Fishpond Culture**

As of 2005, there are 124 hectares of brackish water fishponds producing bangus and tilapia. These fishponds are located in Bunawan, Lasang, Dumoy, Lizada, Binugao and Sirawan. Small-scale fishponds are also found in Barangays Bucana, Los Amigos and Dumoy culturing bangus, hito and tilapia. Crab culture in ponds is also practiced in Lasang and Barangay Bucana. Likewise, culture of bangus fry up to fingerling stage exists in Barangays Bucana and Lasang.

- **Mariculture**

Mariculture activities in the City waters are usually conducted from October to June because during the prevalence of the southwest monsoon or “habagat” in July to September, the sea is rough and unsuitable for both fish cage culture and seaweed farming.

- **Fish Cages**

As of 2005, fish cage culture within city waters cover a total area of 200 m<sup>2</sup>. These fish cages are in Barangays Sasa, Agdao Centro, Matina Aplaya, Bunawan and Daliao. Bangus and siganids are the usual fish species cultured in floating fish cages. Groupers and lobsters have been tried as culture species but due to scarcity of fry/fingerlings of the said species coupled with very high cost of feeds; these were stopped in favor of Bangus and Siganids.

- **Seaweed Farming**

As of 2010, a total of 20 hectares are used for seaweed production. These seaweed production areas are located in Barangays Bunawan, Lasang, Tibungco, Ilang and Panacan. Seaweed species cultured are the *Eucheuma* spp. and *Kappaphycus* spp. Average annual production of seaweeds ranges from 8 to 10 mt per ha.

- **Coral Reef Areas**

Coral reefs in Davao City estimated from satellite images taken in 2000, cover a total area of about 130 has. Based on the Participatory Coastal Resource Assessment (PCRA) conducted last 2002, majority of these are in poor condition except for those found in Daliao that are still in good condition while the corals in Dumoy and Ilang are in fair condition.

The biggest coral areas found during the 2005 survey in 10 barangays were in Barangays Daliao, Sirawan and Lizada. These coral areas approximately measure 30.6 hectares which are observed to be in poor condition, while in Barangay Matina Aplaya, corals are found to be in fair condition with an approximate area of 29.75 hectares.

- **Seagrasses**

The estimated total seagrass areas within Davao City waters from satellite images taken in 2000 are about 190 hectares. The seagrass areas in 10 coastal barangays during the field surveys in 2005 are estimated to be about 130 hectares. The major species reported are *Enhalusacoroides*, *Cymodocearotundata* and *Halophila ovalis*. Majority of these seagrasses are in Barangays Bunawan and Lasang.

## 1.8 LAND USE TREND

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There is a remarkable transformation in land utilization in 2011 compared to 1994. The urban area increased to 13,874 hectares. Trends of different land use utilization are shown in Table 1.22.

### a. Residential Use

High demand for land area for residential use is vastly evident by housing expansion both in south and north side of the city specifically – in the Districts of Tugbok, Toril and Buhangin.

By 2011, developed residential area totaled 8,382 hectares of land which is 3.43% of city's total land area. This is a 99.78% increase from 4,129 hectares.

Recent years have seen the construction of medium to high rise residential units within and along the fringes of the Central Business Districts. These high-density residential projects are currently located in Pichon Street, Ecoland Drive and along J.P. Laurel Avenue in Bajada.

However, it can be observed that informal settlements are multiplying especially along the city's coastlines and the riverbanks.

### b. Commercial Use

During the past 17 years until 2011, there was a major increase in utilization of commercial spaces in Davao City. Developed commercial area swelled by 206% to 1,583 hectares.

The consistent increase signifies the improvement of business environment in the City as well as enhanced consumer welfare. The government performs its part by putting up infrastructure support facilities to sustain the operation of establishments providing goods and services to the general public.

As consumer needs change, the business environment in the city has become more dynamic responding well to the needs of the buying public. Adaptability to market trends on consumer products is evident as commercial establishments update themselves according to the latest fashion, technology and innovations available.

District II posted the highest growth rate in commercial use, posting 396.02 percent. The highest increase is particularly noted in Buhangin wherein the commercial area increased by 741.77 percent. Agdao and Bunawan also posted an increase of 200.76 percent and 260.34 percent respectively. The dramatic increase in Buhangin stemmed from the influx of entertainment and retail establishments.

Commercial areas in District I also more than doubled, with 158.73 percent increase. Talomo posted the highest increase with 434.56 percent while Poblacion registered an increase of 84.84 percent.

District III posted the average growth rate in commercial area with only 80.12 percent, the lowest in the entire city. The highest rate of increase is found in Calinan with 259.65 percent.

In 1994, District I cornered 65.95 percent of the total land area utilized for commercial use, 78.87 percent of which were in Central Business District while the remaining 21.13 percent are in Talomo. District II followed, by comprising 23.82 percent, with Agdao cornering more than half of the area, with 52.13 percent. It is followed by Buhangin (34.63 percent) and Bunawan (13.24 percent).

Only 10.05 percent of Davao City's commercial areas are found in District III with Toril cornering the bulk 75.33 percent while the rest or 24.67 percent was divided by Calinan (16.79 percent) and Tugbok (7.88 percent).

In 2011, District I remained dominant by cornering 55.66 percent of the total land area utilized for commercial uses, exactly 56.34 percent of which are found in Poblacion while the remaining 43.66 percent in Talomo.

District II still ranked second as it comprised 38.44 percent of the entire commercial area In Davao City. The landscape at the district level, however, actually changed as Buhangin outpaced Agdao by cornering 58.77 percent while Agdao comprised only 31.61 percent. Bunawan cornered the remaining 9.62 percent.

District III only got 5.9 percent of the total area utilized for commercial uses in the city with Toril still leading with 54.50 percent followed by Calinan with 33.53 percent. Tugbok got the remaining 11.97 percent.

In terms of number of barangays which registered increases in the hectarage of land utilized for commercial use, District I topped with 39 out 49 followed by District II with 16 out 35 and District III with 8 of 10 barangays.

### **c. Industrial Use**

Between 1994 and 2011, the industrial areas in Davao City increased by 59% to 853 hectares. District III posted the highest with 186.22 percent. The increase is specifically found in Bunawan District which surged from 1.62 hectares to 188.76 hectares in 1994 or an increase of 306.51 percent.

The industrial areas in Districts I and III decreased by 12.56 and 39.42 per cent, respectively,. The decrease is attributed to the reclassification of land use to residential uses in the Zoning Ordinance conforming to the activities within both districts.



#### **d. Tourism Development**

There is an ongoing boom of construction of hotels and resorts in the city. The large development projects of Ayala and SM Lanang have incorporated hotels within their areas. These are expected to be completed by 2013. New small and boutique hotels are mostly concentrated in both Bajada and Lanang areas.

While tourism master plan has already been developed for the Catigan – Tagurano – Eden TRIAD area however tourism facilities development in the area is still slow paced.

Resorts and recreational establishments are now accessible to the CBD with the establishment of the Crocodile Park, Japanese Tunnel and other resorts (D'Leonor). Tourism activities and facilities are being planned in Marilog as the new highland destinations of the city.

#### **e. Agriculture**

Under the 1996-2021 land use plan, 67.19% (163,937 hectares) of the total land area of the city are identified as suitable for agricultural use. But the actual land cultivated for agriculture production totaled only to 45% (73,086 hectares) of Agriculture Zone. Some of these areas are grass land/ bush lands or underdeveloped lands which can either be cultivated or planted with fruit-bearing trees.

Agriculture land converted to urban uses is minimal. These were usually converted for residential use.

Because of apparent ill-effects of chemicals used in agriculture crop on people particularly the agricultural workers, the City passed an ordinance that effectively prohibits the use of aerial spray in applying pesticides and chemicals on agriculture crops. Organic agriculture is being pursued by the local government.

#### **f. Forest**

Agro-forestry is now being intensified with permanent multi-crops to increase agriculture productivity in the uplands as well as promote watershed development. Recommended agro forestry products include – coconut, durian, rubber, cacao and coffee.

#### **g. Institutional**

After 17 years, there is an increase of 82 hectares or 15 percent of institutional use in 2011. Within the CBD there is already limited room for expansion for government institutions, however this can be overcome thru vertical development.

There are now academic institutions that have purchased lots in the Tugbok district and Buhangin district. A few institutions have started to undertake their expansion in the said area while some is planning to expand 3 years from now. This will complement the residential development of the vicinity.

## **h. Parks and Recreation**

The newest public park to be developed was the People's Park last 2007. This was the former PTA sports complex. Various parks in the CBD like the Rizal Park and Quezon Park were further enhanced in 2011 to accommodate gatherings.

## **i. Coastal area**

There are identified marine protected areas (MPAs) covering with a total area of 415 hectares. Informal settlements are encroaching the foreshores and on the easements of the city adding to the pollution of the beaches. Recent ports and other new shipping infrastructure development are located in Bunawan district.

**Table 1.22 Comparative Urban Land Use 1994 and 2011**

Land Use	Area (Has.)		Increase/Decrease	
	1994	2011	Difference	%
Residential	4,129	8,382.38	4,246	103
Commercial	520	1,583.32	1,071	206
Infrastructure/Utilities	-	208.62	250	0
Institutional	539	629.03	82	15
Parks & Recreations	202	61.73	184	91
Industrial	536	853.02	320	59
PUD	-	76.86	77	0
Open	-	1,258.80	1,260	0
Agriculture		73,086		
Forest		39,916.94		
Mining/Quarrying		157.14		
Grassland/Pasture		116,832.08		
Agro-industrial		168.36		
Tourism	38	200.08	163	428
Special Use	-	342	14	0
Inland water/fishpond	183	209.98	26	
Mangrove forests	-	34	34	0
<b>TOTAL</b>	<b>244,000.00</b>	<b>244,000.00</b>	<b>7,727</b>	<b>126</b>

Source : CPDO

## 1.9 COMPARATIVE COMPETITIVE ADVANTAGE

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These strengths are derived from different sectors wherein these are said to be unique and where the city has performed better than other cities and regions in the Philippines.

### NATURAL

- Vast agriculture lands is available for primary production
  - The city has earmarked 67 percent (163,936.74 hectares) of its land area for agriculture and agro-forestry (1996-2021 Land Use Plan). At present, 44 percent are already cultivated which still leaves a vast area uncultivated. This may provide potential expansion area for the high value crops production.
- Long coastline
  - The coastline is 60.1 kilometers with some areas ideal for berthing facilities
- Aquifers
  - The water coming from the aquifers of the city is rated as among the best tasting in the world. These aquifers can supply the needs of the city in the future.
- Numerous surface water resources
  - The city has seven major river systems which provide waters for its agriculture needs and may serve as source of potable water in the future.
- Climate is steady throughout the year
  - Except for extreme weather conditions, the climate of the city is steady with no pronounced dry or wet season. This makes it ideal for agriculture and fruit tree production

### SOCIO-ECONOMIC

- Adequate Information Communication Technology infrastructure
  - Due to the quality of workforce and infrastructures, the city has been designated as the Next Wave City of the Philippines for the Business Processing and Outsourcing (BPO) industry.
- **Adequate tourism infrastructures and attractions**
  - The city boasts of the different tourist destinations from the highlands to the islands. This offers tourists with a variety of adventures and itinerary. There are a total of 4,690 hotel rooms available for tourists. With the opening of new convention centers, the City is now able to host large national and international conventions.
- Top producer of Agriculture products
  - Durian
    - The city produces more than half of the total production of Durian in the Philippines
  - Cacao
    - The city produces at least 24% of the region's total production and the buying station of the Mars Corporation located in the city.
  - Agro-processing plants are located in the area. Coconut oil plants, mango processing plants and other food processing industry

- Educational hub of Southern Mindanao
  - There are 2 state universities (University of Southeastern Philippines and University of the Philippines - Mindanao) and 44 private tertiary level colleges and universities.
- Presence of High Quality tertiary health services
  - The city is the host of the Southern Philippines Medical Center which is the primary government hospital catering to the needs of the island.
  - More private hospitals are upgrading their services. Davao Doctors Hospital of the MVP Group of Companies and Metro Davao Medical & Research Center aims to provide medical services that are of international standards
- Presence of commercial malls of Gaisano, Ayala and SM
  - The city enjoys the confidence of the main retail and mall industry players of the country. The two corporations have set up their development projects that include commercial malls, BPO centers, hotels and condominium units in the city.
- Presence of projects of well-known real estate developers.
  - The city has attracted developers from outside of the city to set up their projects in the city. They are now engaged in all levels of housing projects from the low cost housing to the high end condominium projects

## **INFRASTRUCTURE**

- Presence of an International Airport
  - The Davao International Airport can handle wide bodied aircraft and has direct flights to major cities of the Philippines. International flights at present connect the city to Singapore. Future plans include direct flights to other ASEAN cities.
- Presence of International seaports
  - Davao City has two government seaports – the international-standard Sasa Wharf at Kilometer 10 and the Sta. Ana Wharf and 15 privately-owned ports.
- Good Road connectivity
  - The Philippine- Japan Friendship Highway traverses the city, making the city accessible to all points of the island.
- Presence of telecommunication services
  - All telecommunication corporations serve the needs of the city with both cellular and internet connections.
- Operation of Sanitary Landfill
  - The city has a 5-hectare sanitary landfill, the only one in operation in Mindanao.
- Operation of the Davao City Overland Transportation Terminal
  - The overland transportation services 874 trips a day to transport people and goods to other cities and regions.
- Public Safety and Security Command Center
  - The Public Safety and Command Center serves as the nerve center for the city to monitor and coordinate different agencies concerned in keeping Davao City safe from both man-made and natural threats and hazards.

- Presence of Climate / Weather Stations of PAGASA to address needs arising from Climate Change and Disaster Risks.
  - The DOST has installed devices/facilities for disaster risk and climate change monitoring.
- Advanced Traffic Signalization System
  - The City has an advanced computerized traffic signalization system that relies on smart technology as well as CCTV cameras to monitor traffic flow in the city.
- Central 911
  - The city has the only 911 emergency response systems outside North America. The emergency services were patterned after the US model. Medical, Police, Fire, Urban Search and Rescue and K9 units provide services to the general public for free.
- Presence of Power Plants
  - The City currently has a standby diesel fired power plant and will have a coal-fired plant by 2016. This will ensure continued power supply in the future.

## **INSTITUTIONS**

- Location of Mindanao and regional offices
  - Regional Offices of various national government agencies hold their offices in the city. Mindanao Development Agency (MinDA) has its main office in the city
- Active Business groups
  - The Davao City Chamber of Commerce and Industry (DCCCI), Filipino Chinese groups, and many other business groups have always been partners of the city in many of its projects.
- Active civil society organizations
  - The City has active civil society organizations. There are more than 80 organizations that have officially registered and are part of the city development council
- Integrated peace and security forces coordination
  - There is an existing structure that allows smooth coordination between peace and security forces like the Eastern Mindanao Command, Philippine National Police, PSSCC and Task Force Davao
- Local Government Responsive to Good Governance
  - The following are some of the awards received by the City as evidence to its good governance

**Table 1.23 Awards received by City Government of Davao, 1995-2012**

<b>Year</b>	<b>Particulars</b>	<b>Awarded by</b>
1995	**1995 Most Outstanding Accounting Office Award	Assoc. of Gov't. Accountants of the Philippines
1996	**1996 Most Outstanding Accounting Office Award	Assoc. of Gov't. Accountants of the Philippines
1997	**1997 Most Outstanding Accounting Office Award	Assoc. of Gov't. Accountants of the Philippines
	1997 Kalakbay Award for Tourism Destination of the Year	
	Best City Police Office in the Country in 1997	PNP National Headquarters
1998	Winner for the Search for Child Friendly Municipalities and Cities, Highly Urbanized Category, 1998	President Joseph Ejercito Estrada
	**1998 Hall of Fame - Most Outstanding Accounting Office Award for three consecutive years 1996, 1997, and 1998	Assoc. of Gov't. Accountants of the Philippines
	***Plaque of Recognition – Office of the City Accountant for garnering the highest honors being the 1st to submit complete financial statements among the city governments throughout Region XI for CY 1998	Awarded by Commission on Audit Regional Office XI
1999	***Plaque of Recognition – Office of the City Accountant, for garnering the highest honors in the liquidation of cash advances at 99.16% of the total cash advances in 1999 and the previous years, in support to the thrust of the Commission in Audit	Commission on Audit Regional Office XI
	19th Most Livable City in Asia in 1998 and 18th Most Livable City in Asia in 1999	Asiaweek Magazine
	2nd Place, 1999 Most Outstanding Local Government Unit, National Literacy Awards	Literacy Coordinating Council
	Regional Winner in the Highly Urbanized City Category of the Search for Child Friendly Municipalities and Cities (Region XI), 1999	President Joseph Ejercito Estrada
	Winner for the Search for Child Friendly Municipalities and Cities, Highly Urbanized Category, 1999	President Joseph Ejercito Estrada
	1999 Gawad Pangulo sa Kapaligiran (Panlungsod Category), Highly Urbanized City	Hon. Gemma Cruz Araneta, Department of Tourism
1999	City Police Office of the Year - 1999	Napolcom / PNP-XI
	The Cleanest and Greenest Highly Urbanized City of Region XI, 1999 Gawad Pangulo sa Kapaligiran	DILG, DENR, DOT, PIA, DOH, DCWD & IPHC
	1st Runner-Up for its performance as First Best Winner in the DA-RFU XI Gawad Saka Search for 1999-2000 Outstanding Agri-Achievers	Dept. of Agriculture and Regional Agriculture & Fishery Council, RXI
2000	*Best City Police Office - 2000	PNP National Headquarters
	Most Outstanding City Library in the Philippines in 2000	National Commission for Culture and the Arts (NCCA) & the Phil. Libraries Association of the Philippines
2001	1st Runner-up, Best City Police Office - 2001	Napolcom / PNP-XI
	2nd Runner-up in the Search for the 2001-2002 Gawad Saka Outstanding Agri Achievers in Region XI	Department of Agriculture and Regional Agriculture & Fishery Council, RXI, Rodolfo N. Lopez, RAFC XI Chairman & Roger C. Chio, Regional Executive Director
	Second Runner-Up (Cleanest & Greenest), Highly Urbanized City Category, 2001 Gawad Pangulo sa Kapaligiran	President Gloria Macapagal Arroyo
	*Most Peaceful City in the Philippines - 2001	
	***City Treasurer's Office, Plaque of Recognition for the successful implementation of revenue generation project, Bureau of Local	

Year	Particulars	Awarded by
	Government Finance	
	*Gawad Alab ng Haraya - Outstanding Library and Information Services - 2001	National Commission for Culture and the Arts (NCCA)
2002	Most Competitive Metro City in the Philippine Cities Competitiveness Ranking 2002	Asian Institute of Management (AIM) Policy Center and the Department of Trade and Industry (DTI), April 26, 2002
	Best City Police Office in the Country in 2002	PNP National Headquarters
	3rd Runner-Up - Gawad Saka Search for Outstanding Agri-Achievers of Region XI for CY 2002-2003	Dept. of Agriculture and Regional Agriculture & Fishery Council, RXI
	Second Runner-Up (Cleanest & Greenest), Highly Urbanized City Category, 2002 Gawad Pangulo sa Kapaligiran	President Gloria Macapagal Arroyo
	"1st in Overall Tax Payments in 2002"	Department of Finance Revenue Region No. 19
2003	National Finalist, Highly Urbanized City Category, 2003 Gawad Pangulo sa Kapaligiran	President Gloria Macapagal Arroyo
	***Plaque of Recognition – City Accounting Office, for being the 1st (City Category) to submit complete, accurate and qualitative 2003 Year End Trial Balance of the City Government of Davao to COA among all Local Government Units under the audit jurisdiction of the COA Local Government Sector Mindanao	Commission on Audit, Office of the Cluster Director Local Government Sector Mindanao COA Regional Office XI
	Second Runner-Up (Cleanest & Greenest), Highly Urbanized City Category, 2003 Gawad Pangulo sa Kapaligiran	President Gloria Macapagal Arroyo
	Top 25 Best Practices in the Philippines - Central 911	League of Cities in the Philippines
	Best Police Unit in the Police Regional Office Category in 2003	PNP National Headquarters
	*PO3 Cristuto Pelenio as one of the Ten Outstanding Policemen in the Philippines - 2003	
2004	Hall of Fame Award For Best Peace and Order Council - Regional Peace and Order Council Region XI (Winner for three consecutive in 1999-2002)	National Police Commission, National Peace and Order Council
	One of the Top Ten Outstanding Programs in the Philippines - Mainstreaming Gender and Development in the L.G.U. of Davao City	Gawad Galing Pook 2004, Pres. Gloria Macapagal Arroyo
2004	Special Citation on Gender Responsive Governance (Trailblazing Program)	Gawad Galing Pook 2004, Pres. Gloria Macapagal Arroyo
	2nd Runner-Up - 2004-2005 Gawad Saka Outstanding Agri-Achievers in Region XI	Dept. of Agriculture and Regional Agriculture & Fishery Council, RXI
	*Third Place - Most Competitive Metro City in the Philippine Cities Competitiveness Ranking 2004	Asian Institute of Management (AIM) Policy Center and the Department of Trade and Industry (DTI)
	*Most Outstanding KBP Chapter in the Philippines - 2004	Kapisanan ng mga Broadkaster ng Pilipinas (KBP)
	First Runner-Up (Cleanest & Greenest), Highly Urbanized City Category, 2004 Gawad Pangulo sa Kapaligiran	President Gloria Macapagal Arroyo
	*Regional Green Banner Award in recognition of the City Nutrition Committee's exemplary performance in managing the nutrition program of the city, thereby contributing to the improvement of the nutritional status of its constituents - 2004	The National Nutrition Council
	"Top Government Withholding Agent" in 2004 & 1st Semester of 2005	Department of Finance Revenue Region No. 19, Revenue District No. 113
2005	"Good Practices on Gender and Development (GAD) promoting gender equality and women's empowerment and resulting to significant improvements in the situation of women and men in its	Office of the President, National Commission on the Role of Filipino Women (NCRFW), Philippine

Year	Particulars	Awarded by
	locality"	Machinery for the Advancement of Women, Canadian International Development Agency (CIDA)
	Champion - 2005-2006 Gawad Saka Outstanding Agri-Achievers in Region XI	Department of Agriculture and Regional Agriculture & Fishery Council R-XI
	2005 Regional Literacy Awards, Most Outstanding Local Government Unit, Highly Urbanized City Category	Department of Education
	Most Outstanding Regional Peace and Order Council 2005 (Region XI)	National Police Commission, National Peace and Order Council
2005	**Gawad Kalasag - City Disaster Coordinating Council, Davao City as Best Prepared City Disaster Coordinating Council CY 2005, Highly Urbanized City	Regional Disaster Coordinating Council - XI
	2nd Place in the 2005 National Literacy Awards under the Highly Urbanized City category	Department of Education
	*2005 Best City Police Office	PNP National Headquarters
	Green Banner Award - 2005	National Nutrition Council (NNC)
	***Best City Jail Award (BJMP), best among 100 jails nationwide (BJMP)	
	***Cleanest Air in the World (Launched as the second pilot area of the clean Cities Program DOE-USAID)	
	***Most Outstanding Chamber Award in the Philippines and the Asia Pacific Region	
2006	2006 National Kabalikat Awardee (Local Government Unit Category) for the exemplary contribution in the advancement of technical vocational education and training in the country	Technical Education and Skills Development Authority (TESDA)
	2nd Runner-Up, CY 2006-2007 Gawad Saka Search for Outstanding Agri-Achievers	Dept. of Agriculture XI, Regional Agricultural & Fishery Council XI
	*Most Competitive Metro City in the Philippine Cities Competitiveness Ranking 2006	Asian Institute of Management (AIM) Policy Center and the Department of Trade and Industry (DTI)
	National Gawad Saka Awardee (Fish Capture Category and Corn Category) - 2006	Department of Agriculture
	*Green Banner Award - 2006	National Nutrition Council (NNC)
	Best City to Implement Food Fortification Program in Region XI	Neophyte on Food Fortification Program of the Department of Health
2007	Seven Achiever Government Agencies Award	Government Service Insurance System (GSIS)
2007	"The Consistent Regional Outstanding Winner in Nutrition (CROWN) Award for having won the Green Banner Award for three consecutive years - 2004, 2005, 2006 for its exemplary leadership in, and contribution to the improvement of the nutrition situation in Davao Region"	National Nutrition Council
	Local Government Unit with the Most Updated Financial Statements	Commission on Audit (COA)
	First City to Implement the electronic New Government Accounting System (e-NGAS)	Commission on Audit (COA)
	2nd Runner-up, Regional Winner in the Gawad Saka Search for Outstanding Agri-Achievers of Region XI for 2007-2008	Dept. of Agriculture XI, Regional Agricultural & Fishery Council XI
	**Gawad Kalasag to the City Disaster Coordinating Council, Davao City as Best Prepared City Disaster Coordinating Council, Category - Highly Urbanized City 2007	Regional Disaster Coordinating Council - XI
	**Manuel L. Quezon Award to Davao City Health Office during the culmination program of the observance of the Lung Month with the	DOH Center for Health Development, Davao Region



Year	Particulars	Awarded by
	theme "TB Kahit Sino, Kahit Saan, Tutok Gamutan (DOTS) lang yan!"	
	***Plaque of Recognition – Office of the City Assessors, for the support of Revenue Generation Program of the Bureau of Local Government Finance, Department of Finance, for CY 2007, enabling the city to exceed Real property Tax Collection (RPT) Target for CY 2007	Department of Finance, Bureau of Local Government Finance Region XI
2008	2nd Runner-Up in the 2008-2009 Gawad Saka Search for Outstanding Agri-Achievers of Region XI	Dept. of Agriculture XI, Regional Agricultural & Fishery Council XI
	***2008 National Literacy Award for Outstanding Local Government Unit - Highly Urbanized City Category	Literacy Coordinating Council
2008	***Plaque of Recognition – Office of the City Assessors, for invaluable support to BLGF-DOF which immensely contributed to the successful implementation of Revenue Generation Program through hundred percent collection efficiency of its assigned RPT Target CY 2008	Awarded by Department of Finance, Bureau of Local Government Finance Region XI
	***Ranked 3rd in Best Places List	Business Magazine, Money Sense
	*2008 Best City Police Office	PNP National Headquarters
	*Hive Five and Star Performer - Public and Private Mix Dots (PPMD), City Health - 2008	
	*Most Competitive Metro City in the Philippine Cities Competitiveness Ranking 2008	Asian Institute of Management (AIM) Policy Center and the Department of Trade and Industry (DTI)
	*Global Smoke-Free Partnership (GSFP) Award to Davao Anti-Smoking Task Force, 2008	Global Smoke-Free Partnership (GSFP)
2009	World Theatre Day 2009 Recognition, Outstanding Culture Friendly LGU Official	National Commission for Culture and the Arts (NCCA), ITI, OPAC, UNESCO, UNRC, UNACOM
	2nd Runner-Up in the 2009-2010 Gawad Saka Search for Outstanding Agri-Achievers Region XI	Dept. of Agriculture XI, Regional Agricultural & Fishery Council XI
	Global Smoke-Free Partnership (GSFP) Award to Davao Anti-Smoking Task Force, 2009	Global Smoke-Free Partnership (GSFP)
	The Special Award for Best Documentation - Philippine Cities Competitiveness Ranking Project 2009 among Metropolitan Growth Centers	AIM, AIM Policy Center, USAID, GTZ
	The Special Award for Best Compliance w/ Government Mandated Plans -- Philippine Cities Competitiveness Ranking Project 2009 among Metropolitan Growth Centers	AIM, AIM Policy Center, USAID, GTZ
2009	Davao City's outstanding performance in the Philippine Cities Competitiveness Ranking Project 2009 for the category Quality of Life among Metropolitan Growth Centers	AIM, AIM Policy Center, USAID, GTZ
	***Plaque of Recognition – Office of the City Assessors, for invaluable support to Revenue Generation Program which immensely contributed to the successful implementation of Revenue Generation Program of the Bureau of Local Government Finance for CY 2009	Awarded by Department of Finance Region XI
	**Gawad Kalasag "Search for Excellence in Disaster Risk Management and Humanitarian Assistance" to Davao City Central 911 for its exemplary performance in the area of disaster risk management and in saving lives and properties to the disaster stricken areas during the emergency response and rescue operations, thus making the organization as the Best Government Emergency Manager Category in the region during the Gawad	Regional Disaster Coordinating Council Region XI

Year	Particulars	Awarded by
	Search for Excellence in Disaster Risk Management and Humanitarian Assistance CY 2009	
	**Gawad Kalasag - Search for Excellence in Disaster Risk Management and Humanitarian Assistance" to Davao City - Best City Disaster Coordinating Council (Highly Urbanized City Category) for its outstanding performance in the pursuit for excellence in the area of disaster risk management and for its continuous commitment in providing its people an efficient and effective system of disaster preparedness, mitigation, response and rehabilitation	Regional Disaster Coordinating Council Region XI
	*3rd Place Best Cost Effectiveness, 2009	Foreign Direct Magazine, December 2009 issue
	*Hall of Fame Awardee - City Health - 2009	
2009	*Outstanding Library in the Philippines - 2009	National Committee on Library and Information Services of the National Commission of Culture and the Arts (NCCA)
	*Most Culture Friendly City - 2009	National Commission of Culture and the Arts (NCCA), UNESCO
	*2009 Best City Police Office	PNP National Headquarters
2010	Top Ten Next Wave Cities 2010 Award	The Commission on Information and Communications Technology, The Business Processing Association of the Philippines and the Department of Trade & Industry
	***Plaque of Recognition – City Treasurer’s, for the successful implementation of the Revenue Generation program CY 2010 by exceeding the Real Property tax target set	Department of Finance, Bureau of Local Government Finance, Region XI
	***Certificate of Appreciation – City Assessor’s Office, in grateful appreciation of its invaluable support to the successful implementation of the Revenue Generation Program CY 2010 of the Bureau of Local Government Finance, Department of Finance, that contributed in exceeding the assigned RPT target.	Department of Finance, Bureau of Local Government Finance, Region XI
	Presidential Trophy awarded by Pres. Benigno Simeon C. Aquino, III to Davao City for winning 1st Prize in the 2010 National Literacy Award for Outstanding Local Government Unit, Highly Urbanized City	Office of the President
	1st Prize Winner in the 2010 National Literacy Award for Outstanding Local Government Unit, Highly Urbanized City Category	Literacy Coordinating Council
2010	1st Place, Most Outstanding Local Government Unit, National Literacy Awards (NLA) CY 2010, Highly Urbanized City Category	Department of Education XI, ALS, Literacy Coordinating Council
	Trophy awarded to Davao City for winning the Travel Fair People's Choice award during the 2010 21st Philippine Travel Mart	PHILTOA
	Trophy awarded to Davao City for winning the Best Booth-1st Place Travel Fair City award during the 2010 21st Philippine Travel Mart	PHILTOA
	*Champion Caravan of Hope Campaign Award to City Health - 2010	
	*DOH Red Orchid Awards 2010 for 100% Tobacco-Free Environment	DOH
	*Top 5 Performing Local Government Unit based on the Areas of Good Governance in Highly Urbanized and Independent Component Cities Category - 2010	Department of the Interior and Local Government (DILG)
	*National Finalist Among the Outstanding Legislative Bodies - City Council of Davao - 2010	Department of the Interior and Local Government (DILG), in partnership with the Philippine Councilors League

Year	Particulars	Awarded by
		(PCL)
	***Entrepreneurs' Award for the Most SMED Friendly	
2011	Citation to Davao City PESO, nominated for the 2011 National Best PESO Award for the Highly Urbanized City Category	Dept. of Labor and Employment (DOLE)
2011	***Plaque of Recognition – City Treasurer's Office Mr. Rodrigo Riola and Staff, for the successful implementation of the Revenue Generation program for CY 2011 by exceeding the total revenue targets in all four major resources (Real Property Tax, Business Tax, Fees and Charges and Economic Enterprises)	Department of Finance, Bureau of Local Government Finance, Region XI
	***Plaque of Recognition – City Treasurer's Office for the successful implementation of the Revenue Generation Program CY 2011 by exceeding the Real Property Tax target set	Department of Finance, Bureau of Local Government Finance, Region XI
	Best Practice Award for LGU HIV Prevention - For the outstanding performance, commitment and contribution to the activities of the Global Fund Round 6 HIV Project in the field of HIV Prevention	DOH
	2nd Runner-Up in the 2011-2012 Gawad Saka Search for Outstanding Agri-Achievers of Region XI	Dept. of Agriculture XI, Regional Agricultural & Fishery Council XI
	*Ease of Dealing with Construction Permits in Doing Business in the Philippines in 2011	International Finance Corporation and World Bank
	*Trophy awarded to Davao City for winning the Travel Fair People's Choice award during the 2011 22nd Philippine Travel Mart	PHILTOA
	*Trophy awarded to Davao City for winning the Best Booth-1st Place Travel Fair City award during the 2011 22nd Philippine Travel Mart	PHILTOA
	*DOH Red Orchid Awards 2011 for 100% Tobacco-Free Environment	DOH
	Best Practice Award - Drive Against Professional Squatters and Squatting Syndicates to the Local Government of Davao City	National Drive Against Professional Squatters and Squatting Syndicates (NDAPSSS)
	Consistent performing LGU in the country for the period 2009 to 2011 in the Department-administered Local Governance Performance Management System (LGPMS)	DILG
2011	Seal of Good Housekeeping in recognition of its efforts in advancing the principles of accountability and transparency in local governance - 2011	DILG - Sec. Jesse Robredo
2012	DOH Red Orchid Awards 2012 for 100% Tobacco-Free Environment	Department of the Health (DOH)
	1st Place, Most Outstanding Local Government Unit, National Literacy Awards (NLA) CY 2012 - Regional Level, Highly Urbanized City Category	Department of Education XI, ALS, Literacy Coordinating Council
	National Champion for Best PESO (Public Employment Service Office) in Highly Urbanized City Category - 2012	Dept. of Labor and Employment (DOLE)
	Davao City Health Office - The Most Outstanding Healthy Lifestyle Advocate	Department of Health (DOH) and World Health Organization (WHO) during the Second Outstanding Healthy Lifestyle Advocacy Awards (OHLAA).
	*****Best performing city police in the country	NAPOLCOM
	1st Prize Winner in the 2012 National Literacy Award for Outstanding Local Government Unit, Highly Urbanized City Category	Literacy Coordinating Council
	Finalist to the 2012 Presidential Award for the Child Friendly Municipalities and Cities and in recognition of its efforts in Institutionalizing child friendly governance	Council for the Welfare of Children
2012	2012 Presidential Award for Child-Friendly Municipalities and Cities Winner, Highly Urbanized City Category	Office of the President of the Republic of the Philippines

## **1.10 WEAKNESSES: PRIORITY ISSUES AND CONCERNS**

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### **a. Priority Development Issues and Concerns**

#### **a.1 Natural Hazards**

- Large areas highly susceptible to geohazards
  - Based on geohazards map from the Mines and Geoscience Bureau, 1,377 hectares of the low lying coastal areas and areas near the major rivers have high susceptibility to flooding, while 788 hectares are within areas that are highly/very highly susceptible to landslides.
- Parts of upland area are denuded
  - A large percentage of upland areas with 18% and above slopes are denuded and susceptible to landslide. In recent years, second growth forests through planting programs have countered the impact of denuded lands but may need more reforestation efforts to further stabilize these slopes.
- Coastal waters are polluted
  - With the absence of wastewater and septage treatment plants in the city, the resulting runoff from the drainage systems and open sewer canals dump untreated wastes to the river systems that eventually end up in the gulf. The high incidence of E. coli along the coastal waters of the city is evidence of such problem.

#### **a.2 Socio-Economic Challenges**

- Lack of Employment Opportunities
  - While the city produces large numbers of college graduates, there continues to be a mismatch between the supply and the demand of the labor force. This results to overqualified applicants and unqualified applicants as well.
- Lack of Housing for urban poor and informal settlers
  - Despite the numerous housing projects of the private sector, the continued proliferation of informal housing remains. They are usually located in marginal lands that are susceptible to natural hazards like flooding and storm surges.
- Inadequate Health facilities in some areas
  - There is a lack of health personnel and infrastructure in the hinterlands where accessibility is an issue.
- Inadequate Protective services
  - For a highly urbanized city, the existing ratio of police to population is low. Force multipliers such as barangay police, anti-crime units and Task Force Davao augment this.
  - For fire protection, the Bureau of Fire Protection is in need of additional equipment and fire trucks to address the growing population and expanse of the city.

### **a.3 Infrastructure**

- Poor accessibility between production areas and CBD
  - The poor road network connecting the upland areas of the 2<sup>nd</sup> and 3<sup>rd</sup> congressional districts to the urban centers and the Central Business District remains to be a problem. This situation hampered productivity of our upland agriculture areas.
- No existing waste water and septage treatment plants
  - While the city has infrastructures in place for the solid wastes it produces, the same is not true for its wastewater and septage discharges. There is a need to set up treatment plants that will mitigate the pollution of the city's waters and aquifers.
- Inadequate floodwater and urban drainage systems
  - Recent flooding along natural waterways and urban drainage systems show the inadequacy of existing drainage infrastructure to cope with the increase in precipitation. This is complicated by the tidal flows and the rise in the sea level in the outflows of the system.

### **a.4 Institutional Capabilities**

- Delivery of services is not in its optimal level
  - The delivery of services is constantly hampered by the lack of coordination between offices. There is no interconnectivity between databases and this result in the longer processing of documents.
- Lack of capacitated barangay governments
  - There is a need to upgrade the capacities of the local barangay officials and work force to enable them to meet the growing needs of their local government units. They must be constantly updated with the latest technology, policies and directives from the national, regional and city level to enable them to deliver effective and efficient services at their level.
- Inadequate participation from the Civil Society Organizations
  - The CSOs while present in the local bodies are not able to participate in a meaningful manner because they lack orientation on the local government system and cycles.
- Inadequate capacity and skills upgrading programs for front line service providers
  - Local government employees are not regularly updated on the latest technologies and service paradigms involving their areas of responsibilities, This may result in inefficiency and slow adoption of new practices and technologies

## **b. Opportunities**

### **b.1 Ongoing Peace talks**

The ongoing peace talks is hoped to be successful. This will result on renewed investor interest in the development the whole island. For Davao City, this will result to more trading opportunities, better supply chain management and increased tourism arrivals.

**b.2 Tourism is a major priority of the National Government**

The ongoing national drive of the National Government to increase the tourist arrivals to 10 million by year 2016 will provide Davao City with its much needed tourist arrivals since the national marketing strategy includes the promotion of the City.

**b.3 BPO companies are continuing to invest in the Philippines**

The IT-BPO industry is forecasted by the Business Processing Association of the Philippines to grow at a compounded annual growth rate of 20 percent up to 2016. The government and private sectors initiatives and designation of Davao City as the Next Wave City for BPO will offer the local talent pool.

**b.4 Public Infrastructure Investment by the National Government**

The National Government is currently upgrading the transportation networks of Mindanao. Highways are being cemented and upgraded, bridges are being constructed and seaports and airports are being developed. Improved infrastructure will allow better access to different markets and production areas of the island.

**c. Threats**

**c.1 Climate Change may result to increased risk of Flooding**

Based on the projections of PAGASA, there will be an increase in precipitation between the months on December to February that may induce overflow of the rivers that will impact of the settlements of the city. The large areas that were determined to have high susceptibility to flooding will encounter more frequent flooding in their areas.

**c.2 Unrest in other parts of Mindanao**

The various armed groups that may incite violence within Mindanao are a threat to the economy of the city. While the peace and order can be maintained within the city. Incidents of violence may discourage tourists and investors from visiting the city since it is part of the region.

**c.3 Uneven Regional Development of Mindanao**

Should development in Mindanao be limited to a few cities and provinces, the migration of rural workers to the cities may increase. The threat of the influx of migrants into the city may tax its capacity to provide better services to its citizens. This can result to more informal settlements in the city because the migrants may not be able to afford the formal housing programs.

**c.4 Unforeseen changes in Global Economy**

The dynamic behavior of the world economy makes it difficult to predict the longevity of a particular market or supply. This can greatly affect the population that depends on these industries.

**Table 1.21 SWOT ANALYSIS MATRIX**

	<b>STRENGTHS</b>	<b>WEAKNESSES</b>
	<ul style="list-style-type: none"> <li>o Large tracts of available agriculture land</li> <li>o Long coastline</li> <li>o Presence of Aquifers</li> <li>o Adequate information communication technology infra</li> <li>o Adequate tourism infra and attractions</li> <li>o Top producers of durian and cacao</li> <li>o Presence of agro processing plants</li> <li>o High quality secondary and tertiary educational institutions</li> <li>o High quality tertiary health services</li> <li>o Presence of major players in commercial and retail industry</li> <li>o Presence of international airport and seaport</li> <li>o Sanitary Landfill</li> <li>o Presence of Public safety and security command center</li> <li>o Presence of power plants</li> <li>o Central 911</li> <li>o Location of Mindanao and regional offices</li> <li>o Active business and CSO groups</li> <li>o Local government responsive to good governance</li> <li>o Presence of facilities for disaster risk monitoring (e.g., Philippine Science High School is the mirror database of PhiVolcs Manila)</li> </ul>	<ul style="list-style-type: none"> <li>o Significant areas affected by geo-hazards</li> <li>o Denuded upland areas</li> <li>o Polluted coastal waters</li> <li>o Lack of employment opportunities</li> <li>o Lack of adequate housing for urban poor</li> <li>o Inadequate social service facilities in some areas</li> <li>o Inadequate protective services</li> <li>o Poor accessibility between production areas and CBD</li> <li>o No existing waste water and septage treatment plants</li> <li>o Inadequate floodwater and urban drainage systems</li> <li>o Lack of capacitated barangay government</li> <li>o Delivery of services is not in optima level</li> </ul>
<b>OPPORTUNITIES</b>	<b>SO</b>	<b>WO</b>
<ul style="list-style-type: none"> <li>o Ongoing peace talks</li> <li>o Tourism as a priority of national government</li> <li>o BPO companies continued investment</li> <li>o Public infrastructure investment by national government</li> </ul>	<ul style="list-style-type: none"> <li>o Intensify drive to increase production of high value crops like durian, cacao, rubber and other agroforestry products</li> <li>o Intensify tourism promotion activities to increase tourist arrivals</li> <li>o Encourage medical tourism and retirement haven tourism strategy</li> <li>o Encourage private sector to establish IT parks for BPOs</li> <li>o Encourage educational institutions to focus on developing high quality workforce for tourism, BPO and agriculture industries</li> <li>o Develop more air linkages to other countries</li> </ul>	<ul style="list-style-type: none"> <li>o Install waste water and septage facilities to clean up coastal areas for tourism purposes</li> <li>o Access national government funds for development of more farm to market roads and flood control projects</li> <li>o Encourage tourism related industries at the community level to increase livelihood opportunities</li> <li>o Promote BPO as an entry level job opportunity for college level and graduates</li> </ul>
<b>THREATS</b>	<b>ST</b>	<b>WT</b>
<ul style="list-style-type: none"> <li>o Climate change</li> <li>o Lack of peace in certain areas of Mindanao</li> <li>o Uneven regional development</li> </ul>	<ul style="list-style-type: none"> <li>o Encourage educational institutions to research on the possible impacts of climate change on the agriculture sector</li> <li>o Intensify security efforts to protect the city from external threats</li> <li>o Promotion of agro forestry as a climate change mitigation strategy</li> <li>o Encourage peace building efforts in the city in partnership with the CSOs</li> <li>o ensure that the standards of the infrastructures and the building structures of the different sectors are disaster and climate change ready</li> </ul>	<ul style="list-style-type: none"> <li>o Prepare for new development sites for communities living in areas with high susceptibility to geo-hazards</li> <li>o Conduct agro forestry activities for livelihood and environmental enhancement</li> <li>o Increase security capabilities to neutralize threats to peace and security</li> <li>o Increase livelihood opportunities through development of micro and small enterprises to address unemployment</li> <li>o Prepare relocation and affordable housing development for the poor</li> </ul>

## **1.11 FUNCTIONAL ROLE OF THE CITY**

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### **Functional Role of the City in the International, National and Regional Scene**

#### **International Role**

Davao City when fully developed could serve as a center for manufacturing and services for the EAGA economic influence area with special reference to Indonesia, Malaysia, Brunei, Papua New Guinea, Guam, Australia and New Zealand.

#### **National Role**

The National Framework Plan envisions the development of Davao City as the metropolitan center in Mindanao. This premier city in the south is designated as one of the priority areas for investment and location for the dispersal of commerce and industries. The rationale behind is to achieve a balanced development and promote regional equity in the country.

Furthermore, the city has been designated as one of the major tourist destinations in the country.

#### **Regional Role**

The City of Davao is the Regional Capital of Region XI and the established government center of the region. It is also the center of services, education, recreation, commerce and industry in the area. Likewise, Davao City is also the center of transportation and communication in Region XI. Major road and communication systems lead to or originate from this place. Cacao - Durian



## **CHAPTER II: THE COMPREHENSIVE LAND USE PLAN**

## **2.1 Vision**

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Davao City is the Premier Socio-economic, Investment, Tourism Center in Mindanao, East ASEAN Growth Area (EAGA) and the Asia-Pacific Region propelled by enlightened leaders and empowered citizenry and committed to sustainable social growth and development, and economic growth without compromising the environment under the guidance of Divine Providence.

## **2.2 Mission**

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Our mission is to transform Davao City into a modern, vibrant, and a well-planned settlement and investment center in Mindanao and the Asia-Pacific region, propelled by socially enlightened leaders and empowered citizenry, spiritually committed to attain sustainable growth and optimum development within the context of balance ecology.

## **2.3 GOALS**

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### **a. SOCIAL SECTOR**

- a.1 Ensure adequate delivery of health services in the community, providing equitable, sustainable and quality health among the people of Davao
- a.2 Adopt education development priorities and strategies that will address the challenges to human resource development.
- a.3 Promote a healthy environment and active community through conduct of various athletic and recreational activities, improvement of sports facilities and conservation and beautification of all parks with the full cooperation and involvement of all sectors.
- a.4 Improve the living conditions of the economically, physically and socially disadvantaged population of Davao City, as well as the Indigenous People, facilitating their integration into the mainstream society and maximizing their contribution to the gender responsive city development efforts and ultimately attain better quality of life.
- a.5 Create a healthy, viable and eco-friendly environment that enable every household the choice of a secured and decent dwelling unit consistent with economics and human settlement needs.
- a.6 Maintain peace and order, ensure public safety and internal security and uphold disaster preparedness with the active support and participation of the community.

### **b. ECONOMIC SECTOR**

#### **b.1 Crops**

- Ensure sufficient supply of rice and corn to address food security (availability, accessibility and affordability of rice) and increase farmers' productivity.
- Revitalize the coconut industry in Davao City to generate jobs for the farmers and landless.
- Sustain and expand areas planted with fruit trees especially those categorized as "Export Winners" to generate more earnings for Davao City and increase farmers' productivity.
- Sustain and expand suitable areas for vegetables production to increase supply in support to food security and increase farmers' productivity and profitability.
- Sustain and expand areas planted with industrial crops to agroforestry areas for environment protection as well as increasing farmers' productivity and increase export earnings for Davao City.
- Protect and conserve environment through organic farming

#### **b.2 Livestock and Poultry**

- Increase production of livestock, poultry and improve meat quality and attain the requirements of agri-industrialization and consumption of the populace.

#### b.3 Industry and Services

- Increase global competitiveness of the industry and services sectors.
- Increase industrial activities
- Increase agro-processing activities
- Provide better service and infrastructure

#### b.4 Tourism

- Be known internationally in areas of hosting local, regional, national, and international conventions
- Sustain tourism in the city which provides significant employment opportunities
- Provide authentic experiences to tourists by capitalizing on a range of special places and its unique natural and cultural assets;
- 

#### b.5 Business Process Outsourcing

- Become a preferred destination for Information and Communications Technology (ICT) investments and activities in an environment of healthy and competitive dynamics among players with focus on harnessing available resources, job generation, socio-economic gains, and sustainability.

### c. INFRASTRUCTURE

- c.1 Provide comfortable, efficient and affordable transportation system that is people-oriented within the city and to other cities.
- c.2 Ensure adequate, safe and potable water supply to all Davao City residents (both rural and urban).
- c.3 Establish a drainage system to mitigate the effects of climate change.
- c.4 Guarantee steady and sufficient supply of power with the aid of renewable energy for the whole Davao City.
- c.5 Build a reliable and affordable communication system that engages people and information conveniently.

### d. ENVIRONMENT

- d.1 Enhance and maintain good ambient air quality.
- d.2 Ensure the health of the Davao City's natural environment through the protection and conservation of wildlife, wildlife habitat, groundwater recharge zones, geologic hazard areas among others
- d.3 Safeguard public health by promoting and maintaining a clean and healthy urban environment
- d.4 Ensure the safety of communities from natural hazards

## 2.4 OBJECTIVES

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### a. SOCIAL SECTOR

#### a.1 Health Services

- Increased availability of fortified staple food
- Reduced morbidity and mortality from environmental health hazards
- Increased access to safe food sources
- Increased HH access to sanitary toilet facilities and sewerage system
- Improved health care facilities in terms of quality health care services

#### a.2 Education

- Improved school size by attaining the space standards
- Improved education facilities by achieving the standards and improved education services
- Sustained lifelong learning
- Increased access to higher education
- Delivered effective, efficient and responsive quality TVET

#### a.2 Social Welfare

- Expanded services in areas with greatest unmet needs and target underserved age groups
- Established at least one preschool classroom with complete basic amenities and program materials in every public school and additional Day Care Centers in areas with greatest need.
- Rehabilitated and upgraded all Day Care Centers
- Protected and preserved cultures and rights of Indigenous People
- Institutionalized community based mapping as basis for identifying disadvantaged sectors.

#### a.3 Sports and Recreation

- Established and maintained parks and playgrounds in all barangays of the city.
- Improved parks & playgrounds.
- Established modern city sports complex and track and field.
- Developed the potential of Davaoenos to excel in sports.

#### a.4 Housing

- Ensured affordable decent housing units and basic services to all residents.
- Provided adequate, safe and sustainable relocation/dwelling sites to all bonafide and qualified residents.

#### a.5 Protection Services

- Incorporated public safety in every urban design
- Provided protective services to tourists and agricultural zones in the city especially areas with existing threats of insurgency
- Improved jail facilities by attaining the standard of 3 sq.m. per inmate and improved security services.
- Improved and developed disaster resiliency of the city and minimized damage to property and loss of lives.

### b. ECONOMIC

#### b.1 Crops

- Optimized production of rice and corn in suitable areas.
- Expanded areas suitable for fruit production.

- Increased/expanded suitable areas planted to vegetables.
- b.2 Livestock and Poultry
  - Upgraded existing slaughterhouses to “AAA” category
  - Managed hog waste to prevent contamination of water supplies and waterways (e.g. canals, creek, rivers, etc.) and causes of other environmental pollutions
- b.3 Fishery
  - Regulated conversion of shoreline or coastal areas into tourism, beach resort, urban and industrial development.
- b.4 Industry and Services
  - Intensified promotion of the city in all venues and for a as a tourist friendly city and the Gateway to Mindanao and the BIMP-EAGA.
  - Developed infrastructure and other site improvement to attract private sector investments.
- b.5 Tourism
  - Enhanced city’s tourism appeal by ensuring a quality environment, easy transport system, cultural revitalization initiatives; and
  - Provided infrastructure which supports private sector activity and investment in tourism.
- b.6 Business Process Outsourcing
  - Provided greater access and connectivity to ICT services (telephony, broadcast, Internet) for all
  - Focused on needed infrastructure improvement, incentives and services, and an environment conducive to ICT
- b.7 Manufacturing
  - Ensured adequate supply of industrial land
  - Protected areas identified for industrial use
  - Calinan can be a consolidation area for agri-industrial products prior to their delivery for processing in Toril

## **c. INFRASTRUCTURE**

- c.1 Transportation
  - Encouraged Commuter and Pedestrian-Friendly Communities
  - Promoted use of environment-friendly transportation modes
  - Provided Safe and reliable air transport system
  - Upgraded existing sea port facilities in collaboration with the private sector
  - Adopted mass transport system
- c.2 Water Supply
  - Provided better access to potable water supply to HHs in Districts 2 and 3.
- c.3 Drainage
  - Provided necessary flood protection for infrastructures and resilience to potential climate change flooding, while seeking to maintain the natural flow system.
- c.4 Power
  - Accelerated Rural Electrification
  - Developed renewable energy efficient practices
- c.5 Communications
  - Expanded communication facilities to ensure connections between cities, districts and barangays.

#### **d. ENVIRONMENT**

##### **d.1 Air**

- Ensured strict compliance of all vehicles and industries on the emission standards of the Clean Air Act.
- Adopted environment-friendly technologies particularly in power generation.

##### **d.2 Watershed**

- Promoted survival of endemic flora and fauna in the city
- Ensured involvement of stakeholders in the management of our watersheds
- Conducted continuing studies on watershed management
- Increased forest cover especially in areas where most needed
- Ascertained environment management on a per watershed basis

##### **d.3 Solid Waste Management**

- Expanded if not maximized or extended the lifespan of the sanitary landfill
- Adopted new technologies on solid waste management

##### **d.4 Water Quality**

- Ensured strict compliance of all industries on the provisions of the Clean Water Act.
- Adopted mechanisms that coincide with the National Sewerage and Septage Management Program of the national government
- Adopted / implemented cheaper technologies in treating wastewater

##### **d.5 Coastal zone**

- Increased mangrove forest cover
- Promoted equitable / rational use of coastal waters among fisherfolk and marine life
- Protected/Conserved/managed marine life/species
- Regulated development in coastal areas

##### **d.6 Disaster Risk / Climate Change**

- Reduced risks or hazards from disasters caused by floods and landslides
- Adopted technologies or steps to mitigate / reduce the effects of disasters
- Built resilient communities

## 2.5 STRATEGIES

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### a. SOCIAL SECTOR

#### a.1 Health Services

- Construction and upgrading of health facilities
- Improvement of accessibility to Geographically Isolated Difficult Areas (GIDA) for better delivery of health services.
- Water quality surveillance

#### a.2 Education

- Increasing accessibility particularly schools located in the rural areas.
- Construction and upgrading school facilities.
- Provision of additional classrooms equivalent to sixty-nine (69) hectares

#### a.3 Social Welfare

- Provision of job opportunities for the marginalized sector and Indigenous People
- Expansion of ECCD Home-Based Program.
- Generation of various resources for the reconstruction of at least four (4) pre-school classrooms in every school district on an annual basis.
- Establishment and improvement of both public and private welfare facilities.

#### a.4 Sports and Recreation

- Utilization of public idle lands in barangays into parks and playground
- Development of open spaces/plazas and greenbelts
- Maintenance & rehabilitation of existing public parks & playgrounds.
- Establishment of a modern sports complex.

#### a.5 Housing

- Updating of the Davao City Comprehensive Shelter Plan
- Formulation of the City Resettlement Action Plan for families affected or to be affected by government infrastructure projects, natural or man-made disasters/calamities, those occupying danger zones, public areas and private lots especially with court-ordered demolition and eviction
- Upgrading of on-site resettlement areas
- Rehabilitation of the existing blighted and urban slum areas to minimize displacement of dwellings
- Securing land tenure through the various modes of land acquisition
- Formulation of an appropriate scheme for transition housing to address the emergency shelter needs of victims of natural and man-made calamities
- Provision of a staging area/temporary housing area for program beneficiaries in relocation sites while they are constructing their dwelling units

#### a.2 Protection Services

- Provision of more efficient protective, investigative and monitoring services especially in precincts with more crime incidence (Sta. Ana, San Pedro, Talomo & Toril)
- Improvement of Fire Stations and construction of additional Fire Stations (FS) especially in areas with high concentration of residential and commercial structures and with high incidence of fire
- Improvement of response time by strategically locating 911 satellite stations in Sasa, Calinan & Toril



- Full implementation of R.A. 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010 especially the establishment of Local Disaster Risk Reduction and Management Office (LDRMO)

## **b. ECONOMIC SECTOR**

### **b.1 Crops**

Enforcement of policy to regulate conversion of existing suitable irrigated rice production areas.

Promotion and development of agri-processing industries.

Formulation of crop zoning.

Full implementation of organic farming ordinance

Development and promotion of organic fertilizer and bio-pesticide production.

### **b.2 Industry and services**

- Maximize potentials of Davao as the hub and gateway for Mindanao and BIMP-EAGA.
- Upgrading of standards and expansion of existing tourism services, facilities and utilities.

### **b.5 Tourism**

- Creation of visitor destinations that provide memorable experiences.
- Conservation of city's history and heritage as a tourism feature
- Provision of appropriate support infrastructure for tourism.
- Strengthen tourism programs by promoting city as a sustainable city.
- Enhancement of facilities for people with disabilities.

### **b.6 Business Process Outsourcing**

- Ensuring availability of computers and internet access in all public libraries in the city.
- Modernization of public library systems such as local publications, research works, and other scholarly articles are made available online.

### **b.7 Manufacturing**

- Provision of well-serviced industrial areas (including transport system for industrial workers, power supply, water and so on)
- Encouragement of private warehouses and manufacturing firms to design their properties to accommodate their cargo trucks and avoid traffic obstructions along the highways.

## **c. INFRASTRUCTURE**

### **c.1 Transportation**

- Conduct of Transport Study
- Fast track the implementation of Roads and Bridges projects
- Build and maintain sidewalks and waiting sheds to provide a safe, permanent and free from obstacles, holes, and other hazards
- Require big scale commercial corporations to provide a protected crossing for pedestrians
- Promotion of use of Electronic vehicles in the Central Business Districts
- Development of Bike Lanes
- Upgrading of existing rural road networks to all weather roads
- Rehabilitation of priority bridges to RCDG
- Upgrading of airport equipments to ensure safety
- Expansion of Sasa Wharf

- Development of Sta. Ana Wharf into Eco-Tourism Port Complex
- c.2 Water Systems
  - Expand water connections in unserved areas
  - Tap all possible water resources to augment present water supply especially in the upland barangays
  - Development of surface water as a source of supply
- c.3 Drainage
  - Construction and maintenance of drainage structure in areas identified as Flood-Prone
  - Construction of additional main drainage waterways identified in the Drainage Masterplan
  - Rehabilitation and improvement of all existing drainage structures
  - Desiltation of natural waterways and drainage canals.
  - Imposition of the rainwater harvesting ordinance in all development projects
- c.4 Power
  - Utilization renewable and other diversified energy sources
  - Engagement in sustainable approach to rural electrification.
- c.5 Telecommunications
  - Establishment of barangay telecommunication centers
  - Improvement of Cell sites coverage to reach unserved barangays

#### **d. ENVIRONMENT**

- d.1 Air
  - Crafting of an Air Quality Management Plan or Ordinance in consonance with Clean Air Act
  - Promotion of the use of alternative energy sources for housing units and commercial buildings
- d.2 Watershed
  - Conduct of biodiversity inventory particularly in eco-tourism
  - Development of open areas such as grasslands/shrublands
  - Involvement of Indigenous People in developing the watersheds
  - Co-management of Timberland areas with other government agencies (DENR, et al)
  - Conduct of Forest Land Use Planning
  - Sustain profiling(characterization)of watersheds(geophysical/socio-economic)
- d.3 Solid Waste Management
  - Establishment of an appropriate MRF in each barangay
  - Establishment of a composting facility in each barangay
  - Establishment of on-site disposal system and technologies for barangays outside the collection area of the CENRO
  - Conduct of study and assessment of applicable / feasible technologies in solid waste management
  - Expansion of five (5) hectares sanitary landfill.

d.4 Water Quality

- Review status and collaborate with DPWH on the National Sewerage and Septage Program
- Establishment of baseline data on domestic wastewater
- Conduct study on (natural) methods on wastewater management
- Require waste water treatment/ management to projects, activities and developments that pose danger to the environment

d.5 Coastal zone

- Rehabilitation of mangroves
- Conduct biodiversity inventory of marine life
- Full implementation of MPA Ordinance
- Strict evaluation, implementation and monitoring of FLAs and ECCs
- Zoning of coastal waters and coastal areas to include restrictions
- Regulation of activities that contribute to water pollution
- Strict implementation of pertinent provisions of PD 705 (DENR AO 97-05) on lake, river protection and coastal easements

d.6 Disaster Risk / Climate Change

- Ensure that all waterways remain clear of obstructions
- Reduction of risk factors in urban environment through mitigation
- Intensification of tree-planting along riverbanks and when applicable in hazard areas
- Conduct research on applicable methods on risk reduction
- Regulation of economic activities within geohazard areas that may contribute to increased hazards.
- Enhance capability and coordination with National Agencies on forecasting weather and responding to potential disasters.

## 2.6 SCALOGRAM

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The Scalogram shows the hierarchy of settlements in the various urban centers and administrative districts of the city. The Scalogram shows the major settlements as inferred by its current population size and the corresponding infrastructure, services, and facilities existing within. The facilities used in the Scalogram analysis as can be seen in the matrix are categorized under the following broad sectors:

- Economy (includes Service and Trading)
- Transport (land, sea, and air transport system)
- Health (includes primary, secondary and tertiary health facilities)
- Education (includes Day Care Centers, Elementary, Secondary, Skills Training, Undergraduate and Graduates Studies)
- Social Welfare
- Religion (Churches)
- Power Supply (electricity)
- Water and Sanitation
- Banking
- Employment Opportunities (includes Business Process Outsource)
- Post and telecommunication
- Security services (Fire, Police)
- Judiciary
- Tourism
- Local and National Administration
- Settlement (Suburban, Subdivision, Socialized Housing)
- Parks/Open Space (includes memorial parks)
- Recreation (include Sport Facilities)
- Shopping
- Entertainment/Leisure
- Public/Private Market
- Warehouse
- Tourist/Visitor Accommodation
- Culture and Arts (includes Festivities)

On analyzing the Scalogram, the Central Business District emerges as the main preference for settlement and business because of proximity to employment, service, and high quality facilities such as hospitals, malls, and accommodations for visitors and tourists. CBD has experienced double digit growth in settlement (including informal settlements) in the past decade. In terms of employment, CBD has the highest concentration of employment opportunities, which is expected to continue to register a faster growth in the coming years compared to other urban centers and districts.

CBD houses the local government administration, and regional offices of leading national agencies: the top tier, modern, up to date, health facilities; and the first class accommodation for business executives and tourists.

In term of settlement, Talomo and Buhangin districts are in the top tier. This is because in the 1996 comprehensive land use plan designated big swat of zone for the settlement requirements of the city. These districts also scored high in terms of high quality services and quality facilities although many of these urban centers and districts scored low in local

and national administration because most of them are located in the CBD, except in areas of sanitation, research especially in farm and crop research centers, which are located outside the CBD.

However, CBD has a more room for growth potential. CBD also presents opportunities to further increase residential density to minimize impact on the outlying areas identified for primary productions, eco-tourism, and to maximize use of existing infrastructure, services and facilities. In this way, we hope to achieve a balance between demand for space for human use and the need to conserve the limited natural resources.

#### RANKING BASED ON THE SCALOGRAM

1. CENTRAL BUSINESS DISTRICT
2. TALOMO DISTRICT
3. TORIL DISTRICT
4. CALINAN URBAN CENTER
5. AGDAO DISTRICT
6. BUHANGIN URBAN CENTER
7. TIBUNGCO DISTRICT
8. BUNAWAN URBAN CENTER
9. TUGBOK DISTRICT
10. CATIGAN-EDEN-BAGANIHAN-TAGURANO TOURISM DEVELOPMENT ZONE
11. PAQUIBATO DISTRICT
12. MARILOG DISTRICT
13. BAGUIO DISTRICT

Also, the Scalogram have identified areas where investment for facilities for higher health institution, educational facilities, drinkable water supply, protective services, employment opportunities, recreation, governance, financial and personal services needs to be addressed.

Figure 1.20 SCALOGRAM

DISTRICTS	POPULATION as of 2010	ECONOMIC ACTIVITIES		TRANSPORT		HEALTH			EDUCATION				SOCIAL WELFARE	DRUGSTORES	CHURCHES	POWER SUPPLY	WATER SYSTEM		COMMUNICATION	PROTECTIVE SERVICES		EMPLOYMENT OPPORTUNITIES	RESIDENTIAL	CEMETERY/ MEMORIAL PARKS	
		SERVICE	TRADING	ROAD	SEA	AIR	PRIMARY	SECONDARY	TERTIARY	DAYCARE CENTER TO ELEMENTARY	SECONDARY	VOCATIONAL/ SKILLS TRAINING	COLLEGE/ UNIVERSITY/ GRADUATE				LEVEL 1	LEVEL 3	POSTAL OFFICE	CELLULAR SERVICES/ INTERNET CAFÉ	POLICE	FIRE STATIONS		SUBDIVISION	LOW COST HOUSING
CENTRAL BUSINESS DISTRICT	156,450	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BUHANGIN URBAN CENTER	61,461	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CALINAN URBAN CENTER	22,979	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BUNAWAN URBAN CENTER	20,950	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TORIL URBAN CENTER	11,889	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TALOMO DISTRICT	376,160	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BUHANGIN DISTRICT	240,530	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BUNAWAN DISTRICT	123,893	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AGDAO DISTRICT	99,406	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TORIL DISTRICT	70,675	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TUGBOK DISTRICT	51,418	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MARILOG DISTRICT	45,125	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PAQUIBATO DISTRICT	39,698	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CALINAN DISTRICT	28,087	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BAGUIO DISTRICT	3,885	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CATIGAN -EDEN -BAGANIHAN -TAGURANO TOURISM DEVELOPMENT ZONE	7,437	✓	✓	✓			✓		✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

DISTRICTS	SPORT AND RECREATION		GOVERNMENT	WHOLESALE/ RETAIL STORES		MARKET	BANKS/ FINANCIAL INSTITUTIONS	WAREHOUSE	OFFICES	PERSONAL SERVICES	GAS FILLING STATIONS	MOTOR REPAIR SHOPS	BUSINESS CENTERS	ENTERTAINMENT/ LEISURE		CONVENTION TOURISM	CULTURE AND ARTS	VISITOR/ TOURIST ACCOMODATION	BUSINESS PROCESS OUTSOURCE	PARKS/ OPEN SPACE	DUMP/ LANDFILL SITE	BUSTERMINALS CITY JAIL	
	WITHOUT AMENITIES	WITH AMENITIES		WITHOUT AMENITIES	WITH AMENITIES									WITHOUT AMENITIES	WITH AMENITIES								
CENTRAL BUSINESS DISTRICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
BUHANGIN URBAN CENTER	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
CALINAN URBAN CENTER	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
BUNAWAN URBAN CENTER	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
TORIL URBAN CENTER	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
TALOMO DISTRICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
BUHANGIN DISTRICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
BUNAWAN DISTRICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
AGDAO DISTRICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
TORIL DISTRICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
TUGBOK DISTRICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MARILOG DISTRICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
PAQUIBATO DISTRICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
CALINAN DISTRICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
BAGUIO DISTRICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
CATIGAN -EDEN -BAGANIHAN -TAGURANO TOURISM DEVELOPMENT ZONE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓

## 2.7 URBANIZATION AND SETTLEMENT PATTERN

The city's physical development has generally followed a multi-nodal pattern as set out in the 1996 Comprehensive Development Plan. Settlements are highly concentrated in the Central Business District and the Urban Centers where jobs, services, facilities and utilities and infrastructure are located. Between 2000 and 2010, housing subdivisions increased in urban areas and continue to do so at the rate that encourages people to make the choice of conveniently living in the urban areas. Growth centers are established in the major districts of the city which is one of the factors that attract people in rural areas to move in.

In terms of suburb settlement, Talomo and Buhangin districts are in the top tier. This is where large areas for the settlement requirements of the city were designated under the 1996-2021 Comprehensive Development Plan. These districts also scored high in terms of high quality services and facilities although many of these urban centers and districts scored low in local and national administration because most of them are located in the CBD.

### Urbanization Levels for the Past 40 Years

Between 1970 and 1990, there was a steady rise in the urbanization levels in Davao City except for the decline estimated in 1975 as shown in Table 1.2.3. Between 2000 and 2010, the 21.25 percentage points increase were significant as four-fifths of the total population resided in urban areas in the city. To date, urbanization level continues to increase due to the preference of people from rural areas to settle in urban growth centers to have more access to employment, housing, education and transportation opportunities and facilities. Housing subdivisions increased in urban areas and continue to rise at the rate that encourages people to make the choice of conveniently living in the urban areas. Growth centers are established in the major districts of the city which is one of the factors that attract people from rural areas to move towards the urban centers (Table 3.3).

**Table 1.24 Urbanization Levels for the Past 40 Years**

Year	Barangay Population			Urbanization Level (%)
	Total	Urban	Rural	
1970	392,473	178,471	214,002	45.47
1975	484,678	201,440	283,238	41.56
1980	610,375	408,775	201,600	66.97
1990	849,947	604,508	245,439	71.12
1995	1,006,840	NDA <sup>4</sup>	NDA	NDA
2000	1,147,116	666,846	480,270	58.13
2007	1,363,337	792,540	570,797	58.13
2010	1,449,296	1,150,504	298,792	79.38

Sources: NSO and OCPDC

<sup>4</sup>No data available



## Population Density and Built-up Density<sup>5</sup>

**Population density**—In Davao City, population density was placed at 5.94 persons per hectare in 2010. Among urban barangays, population density reached 43 persons per hectare against the estimated population density of 1.52 persons per hectare among rural barangays. Population density in urban barangays in District I was notably highest at 60.88 persons per hectare.

**Built-up density** - Built-up density in the city was estimated at 1.33 persons per hectare. For urban barangays, District III had the highest built-up density due to the smaller built-up areas within its barangays (Table 3.4).

The concentration of urban growth in Calinan Poblacion was a factor for the highest built-up density 20.01 persons per hectare registered for Calinan District in District III. But among the administrative districts, Bunawan District also posted the highest built-up density in District II at 3.16 persons per hectare considering, that most of the industries in the city here, thus, housing subdivisions also flourished within this district. For the rural barangays, District II had the highest built-up density at 2.27 persons per hectare brought about by the concentration of built-up areas in Bunawan District.

Being the largest city in the world in terms of land area, the spatial urban pattern and structure in Davao City are concentrated in designated areas within the congressional districts, well divided to give access to its residents and bringing the population closer to urban centers. Annex 3.2 provides more data on population density and built-up density, urban and rural population per barangay.

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<sup>5</sup>Population Density is the ratio of the total population of an area (say barangay, city or municipality) to the total land area. Built-up area is defined as an area with contiguous grouping of 10 or more structures on it. Hence, built-up area is not defined as a political administrative area but is a delineated built-up area derived from aerial photo and/or land use survey. Built-up density is the ratio of the total population in built-up area to the total built-up land area.

**Table 1.25 Population Density and Built –up Density, 2010**

District/Barangay	Population Density	Built-up Density <sup>6</sup>
<b>C. Urban</b>		
District I	60.83	1.20
District II	42.02	1.38
District III	22.12	1.60
<b>Sub- Total</b>	<b>43.00</b>	<b>1.31</b>
<b>D. Rural</b>		
District I	4.80	0.41
District II	0.89	2.27
District III	1.86	1.39
<b>Sub- Total</b>	<b>1.52</b>	<b>1.43</b>
<b>TOTAL</b>	<b>5.94</b>	<b>1.33</b>

Sources: NSO and OCPDC

## Historical Growth of Population, 1970-2010

The population of Davao City in 2010 was more than thrice its population size of 392,473 persons in 1970. Its population surpassed the half-million mark in the 1980 census and the one-million mark in the 1995 census. From the 2000 Census of Population and Housing, total population reached 1,147,116 which translated to a 2.36 per cent growth from 2000 to 2010. For 2007, the population count reached 1,366,153 further translated to a 2.17 per cent growth up to 2010. Although, population growth slowed down from 2007 to 2010, if the 2.36 per cent growth continues, the population of Davao City is expected to double in 32 years.

Based on the 2010 Census, Davao City constituted 32.43 per cent of the total population in the Southern Mindanao Region; 5.71 per cent of the total population in Mindanao; and, 1.57 per cent of the total Philippine population (Table 3.5).

**Table 1.26 Historical Growth of Population, 1970-2010**

Year	Population	Increase/Decrease	Growth Rate
1970	392,473		5.57
1975	484,678	92,205	4.31
1980	610,375	125,697	4.72
1990	849,947	239,572	3.37
1995	1,006,840	156,893	2.57
2000	1,147,116	140,276	2.83
2007	1,363,337	216,221	2.44
2010	1,449,296	85,959	2.36
Davao Region	4,468,563		
Mindanao	25,375,527		
Philippines	92,337,852		

Source: NSO

<sup>6</sup>Three barangays, namely: Pangyan, Atan-awe and Tibuloy are excluded from the computations of built-up density in the absence of required data on road network.

## **Existing Settlement Pattern**

The increased importance of the growth centers of the city are attributed to economic growth. The existing settlement pattern is planned in the 1996-2021 Comprehensive Development Plan

The hierarchy of urban settlements in Davao City are categorized into:

1. Barangay Urban Centers
2. District Urban Centers
3. Main Urban Center (Poblacion)

### **a. Barangay Urban Centers**

These centers which are mostly located within the city's agricultural or production areas, shall serve as the first level service center for the outlying barangays in the city. It is envisioned that by the end of the planning period (2021), each of these centers shall have already been provided with the basic socio-economic support facilities and utilities such as farm to market roads, power, water, communication facilities, health center, elementary school, recreational facilities, community-based protective services and a well equipped barangay government. Thus, appropriate urban land uses in compact settlement pattern, at least within a 500-meter radius from a school site, shall have to be established to ensure maximization of the city's agricultural or production area.

### **b. District Urban Centers**

The primary role of the District Urban Centers is to act as second level service center for the city's rural population. Among others, amenities/community facilities within these centers shall be of medium scale urban facilities and services such as commercial, industrial, secondary or tertiary school, a district hall, a hospital, integrated food and transport terminals and other similar activities that are deemed necessary in these centers. Each of these growth centers perform the following essential functions:

#### **b.1 Calinan Urban Center**

This area was primarily designated in the plan as the new center for agri-based industrial activities in order to accelerate economic growth and development in the place. This existing urban center is strategically located within the productive agricultural areas of the city.

#### **b.2 Mintal-Tugbok Urban Center**

Due to the geographical advantage and existing high level educational institutions in this area, this growth center serves as the center for other higher level education, bio-technology research and development for Mindanao.

#### **b.3. Toril Urban Center**

This center primarily serves as the city's alternate central business district of the City, having the advantages of the existence of amplified urban facilities and services and proximity from several existing resorts and recreational centers.

#### **b.4 Marilog-Paquibato Economic Zone**

These two hinterland centers was primarily designated as center for all community-based agro-forestry development programs and upland agricultural development.

#### **b.5 Eden-Catigan-Tagurano-Tourism Development Zone**

When fully developed, this center shall serve as the mountain resort and agri-tourism capital for Mindanao and the influence area of the EAGA family.

#### **b.6 Bunawan Urban Center**

The Bunawan-Lasang area has been designated as the city's main industrial/manufacturing center based on the existing land use patterns, wind direction, topographic condition, convenient access to major air, sea, land transportation networks and comparatively low land values.

#### **c. The Main Urban Center (Poblacion)**

The Poblacion is primarily characterized by vertical expansion with commercial and residential land use of higher density will continue to exist.

## Proposed Settlement Pattern

The proposed settlement pattern shall be the same pattern with the existing. It is still a multi nodal spatial strategy similar to the 1996-2021 spatial pattern. However, Calinan urban center will be downgraded to minor agri processing area, and Toril Urban center will become not only secondary growth center but will accommodate agro-processing activities.

**Table 1.27 Existing and proposed settlement pattern, Davao City, 2013-2022**

Settlement Pattern	Existing (District)	Proposed (District)
Major Growth Center	CBD	CBD
Minor Growth Centers	Toril Bunawan Calinan Mintal –Tugbok Catigan-Eden-Tagurano Tourizm Zone Baguio Marilog Paquibato	Toril Bunawan Calinan Mintal-Tugbok Catigan-Eden-Tagurano Tourism Zone Baguio Marilog Paquibato
Emerging Growth Centers	Talomo Agdao Buhangin Tibungco	Talomo Agdao Buhangin Tibungco
Satellite Growth Centers	Marilog Paquibato	Marilog Paquibato

Source: OCPDC

## 2.8 THE LAND USE PLAN

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### a. Land Use Plan Rationale

The Comprehensive Land Use Plan embodies the physical development framework, and the development principles and policies of the City. It seeks to accomplish the following:

- Contribute to the realization of city's vision of becoming the premier socio-economic and investment center in Mindanao and East ASEAN Growth Area inclusive of environmental sustainability and providing quality life to all.
- Map out the overall development strategies in attaining economic growth by becoming a well-planned investment center in Mindanao, EAGA, and the Asia Pacific economic region.
- Manage the land use sector of the city in the next ten years (2013-2022) and make sure their use will ensure sustainable and balanced development, and will not weaken the sustainability of the city's natural resources.
- Plan and implement the much-needed climate-change resilient major infrastructure such as road network, communications services, power supplies, support facilities and utilities after they have been identified that their functions and ideal locations in pursuits to socio-economic development can be sustained within the principle of sustainable development.
- Provide development strategies and framework policies that would enhance current efforts to restore damaged natural resources, ensure optimum utilization of the city's natural resources such as space as well as adapt and mitigate climate change.
- Promote sustainable environment, healthy populace, clean city, peaceful/crime-free place, easy access, and happiness of residents.
- Take account of the interrelationships between people, resources, environment and development by achieving a balance of the three.

In formulating the updated comprehensive land use plan, many factors are taken into consideration such as:

- Davao City's role as socio-economic center,
- Human needs for food, shelter and work
- Basic needs like food and its attending effect on existing agricultural land,
- Impact of land usage on people as identified in the framework of human needs
- Impact of climate change and incorporating alleviative and mitigating measures
- Hazardous areas predisposed to flooding, landslide and other calamities (MGB)
- Increasing influx of domestic and foreign tourists and its consequence on the natural habitat of flora and fauna
- Increasing demand for Industrial, Commercial, Agriculture, Services/ Business Process Outsourcing, and other industries
- Existing and future Transport system

## **b. Land Use Plan Objectives**

It is the city's objectives to:

- Build All-Encompassing and Vibrant City
- Create A Sustainable City
- Establish An Accessible, Attractive And Lively City
- A Climate-Change Resilient City

## **c. Methodology**

The Land Use Plan was evolved as a result of the integrated analyses of data relevant to slope and drainage patterns, conservation areas like Network of Prime Agricultural Areas for Development (NPAAD) and Strategic Agriculture and Fisheries Development Zone (SAFDZ), National Integrated Protected Areas System (NIPAS), Comprehensive Agrarian Reform Program (CARP), water and sewer availability, geohazard, soil characteristics, vegetation cover, the spatial distribution of population, social services and economic activities, the location and characteristics of transportation and utility networks, current land use patterns, land values, and existing zoning configurations. Land capacity studies and projections regarding the land requirements of the Davao City population in the year 2022 were prepared as rudimentary step for a Land Use Plan for the city. Additionally, the city's Geographic Information System (GIS) have also been intensively utilized in the study decision-support system particularly in matters of policy formulation and decision making.

### **a. Research and Surveys**

Information was obtained through existing tabular statistics, thematic and derivative maps, aerial satellite photos and actual field verifications and observations conducted by the Planning Team itself. Secondary data essential in the thorough analysis of the existing situation in the physical sector included demographic data, such as population profiles and projections from which can be inferred trends in population growth, movement, population densities per specific area, economic base, rate of urbanization, etc. Maps and aerial photos, on the other hand, provided information on built up areas, past, existing, and emerging land uses, extent of urbanization, urban form, land and water resources, natural drainage system, topography, soils and vegetation.

Actual surveys, observations, and interactions were conducted by the physical planning team to fill data gaps. Field surveys and observation tours yielded first-hand information regarding modes of transportation, transportation infrastructure and routes, imageability, state of degradation of the natural resources, etc.

### **b. Analysis**

Based on the population, socio-economic situation, strategic development thrusts of the city and existing land use trends, a quantitative forecast of future land use requirements by category, was developed. This quantitative forecast determined

spatial distribution of zones needed to meet the various needs of the city up to end of the planning period. Suitability of certain land uses were then determined through analytical and evaluative tools, such as sieve mapping carrying capacity techniques.

### **c. Plan Formulation**

The physical development plan is made up of the land use plan and the physical components of the land use plan including road network, vertical infrastructure, image and the utilities system.

Matching the suitability of various areas with the projected need for specific land uses evolved the proposed land use plan.

The proposed land use plan was subjected to series of sectoral consultative workshop prior to public hearings, which are part of the evaluation and refinement process. The reception of the audience in the above cited process approximated the resistance or the acceptability of the land use plan. These fora also offered more insights and opportunities for the planners to discuss imperfections of the current plan and the virtues of the land use plan.

### **d. Planning Considerations**

#### **a. Population Projection**

The 2000 and 2010 population surveys indicate that the Central Business District and the adjacent coastal barangays are the most densely populated areas. The Poblacion alone has a total population of 156,450 or 10.79 percent of city's total population based on the 2010 enumeration. The city is projected to have 1.925 million population in the year 2022. Doubling time is expected to come in 30 years.

Like most highly urbanized cities throughout the Philippines, the city's population is concentrated in its urban areas. Since the 2010 Population Census, Davao City continues to grow rapidly way above the regional population growth (1.97%) and the national population growth (2.04%), and has the largest population in Southern Mindanao.

Barangay Bucana in the Poblacion District area is the most populous barangay among the 182 barangays.

In the 2010 Population Census, Davao City's population reached 1,449,296. To abate the ill effects of rapid urbanization such as traffic congestion, urban blight, informal settlements, unrestrained population growth that may lead to the breakdown of services, the development in the Central Business District must be rationally dispersed to the adjacent and outlying urban centers. Thus, the plan basically calls for a spatial development strategy in addressing these problems. This can be accomplished by rationally distributing infrastructure, economic activities, opportunities and basic services throughout the city.



## b. Development Constraints

All initiatives for the development of the city should recognize the constraints present and the limitations of the locality to pursue with its perceived vision. The urban developmental constraints facing Davao City include:

1. The very steep and mountainous part of the city's territory with a slope of 30-50 percent which covers 42,952 hectares.
2. Flood-prone areas (high susceptibility) comprising about 7,546 hectares of land mostly adjacent to creeks and riverbanks and also caused by accumulation of rain water run-off.
3. Landslide prone areas (high and very high susceptibility) mostly in the upland barangays comprising 101,006 or 41.56% of the total land area.
4. National Integrated Protected Areas System (NIPAS) covers 11,137 hectares located in Mt. Apo National Park and the Malagos Watershed.

**Table 1.28 Declared Protected Areas within Davao City  
(National Integrated Protected Area System)**

Area	Location	Area (Hectares)	Area in Davao City (Hectares)
Malagos Watershed Reservation	Malagos, Baguio District	235	235
Mt. Apo Natural Park	Kidapawan, Makilala, Magpet, Cotabato; Sta. Cruz, Bansalan, Digos City and Davao City, Davao del Sur	57,974	11,137

Source : DENR

5. Certificate of Ancestral Domain Titles (CADTs) covers 72,794 hectares.

**Table 1.29 Approved CADT's, Davao City, as of December 2012, NCIP**

CADT Title No. & Description	Area in Hectares (Davao City Jurisdiction)	Barangays Covered (Davao City Jurisdiction)	Remarks
1. Ancestral Domain of the MATIGSALUG-MANOBO Tribe (CADT No. R10-KIT-0703-0011)	26,632.85	Barangays Buda, Baganihan, Datu Salumay, portion of Brgy. Magsaysay and portion of Brgy. Gumitan, all of Marilog Dist., & portion of Tapak, Paquibato Dist., all of Davao City	Part of the entire claim of the Matigsalug-Manobo's 102,324.8186
2. Ancestral Domain of the BAGOBO-TAGABAWA Tribe (CADT No. R11-SCR-1005-034)	11,000.00	Portion of Barangay Sibulan, Toril District, Davao City	Part of the entire claim of the Bagobo-Tagabawa's 40,733.38 hectares)
3. Ancestral Domain of the OBUMANUVU Tribe (CADT No. R11-DAV-1108-091)	35,160.92	Barangay Marilog Proper, portions of Barangay Salaysay, portions of Barangay Suawan, portions of Barangay Bantol,	

CADT Title No. & Description	Area in Hectares (Davao City Jurisdiction)	Barangays Covered (Davao City Jurisdiction)	Remarks
		portions of Barangay Malamba, portions of Barangay Tambobong, portions of Barangay Carmen, whole areas of Barangays Dalag-Lumot and Magsaysay in the Districts of Baguio and Marilog, all of Davao City	
<b>Total</b>	<b>72,793.77</b>		

Source : NCIP

6. Strategic Agriculture and Fisheries Development Zone (SAFDZ)
7. CARP-covered land comprising 21,874 hectares located in barangays Daliaon Plantation, Tawan-tawan, Tamayong, Bago Aplaya, Callawa, Talandang and Malamba. These areas only has constraints in land use but not in development. CARP areas can still be developed as agriculture.
8. Official data from the DENR-XI shows that there are 147,854 hectares of declared Timberland within Davao City. Majority of these areas cover Marilog and Paquibato Districts. However, based on the GIS-calculated area, there are 116,039 hectares of land classified as Timberland. Only 6,813 hectares or 5.87 percent are currently used for agriculture while 83,435 hectares or 71.9 percent are considered brushland or grassland. Around 25,759 hectares or 22.2 percent are covered with forest.

**Table 1.30 Existing Land Use within Timberland Area, 2011**

Category	Area (Has)	Percentage
Agricultural Use	6,813	5.87%
Brushland/Shrubs/Grassland	83,435	71.90%
Forest	25,759	22.20%
Residential	16	0.01%
Tourism	16	0.01%
	116,039	100.00%

Source : DENR / CPDO

9. Existing built-up areas covers 13,838 hectares

Due to these constraints, particularly in geo-hazards, and the impact of climate change related hazards, additional mitigating measures and restrictions are needed to be introduced. The city has to capacitate itself to adapt to these hazards. Other protected areas with existing uses will be improved and guided by introducing hazard management plans/programs and hazard alleviating projects. Development in these areas must be controlled and alleviating measures must be put in place. Residential areas that were zoned prior to the Mines and Geosciences geohazard mapping but have not yet been developed will be rezoned in other compatible uses.

### **c. Hazard Profiling/Hazard Characterization**

Vulnerability and Adaptation Assessment report of Davao City, in a joint initiative by the city and the UN-Habitat and World Food Program in climate change adaptation program, has identified the city's hazards as Sea Level Rise, Flooding, Landslides, Storm Surge and drought. The vulnerable areas to flooding are those areas along the water ways and along coastline where large number of informal settlements in easements of these waterways are most vulnerable/are at risk. Identified vulnerable areas to flooding, sea level rise and storm surge are located in proximity to the Central Business District and socio-economic activities. top seven (7) hotspot barangays namely, Bucana, Ma-a, Matina Pangi, Tigatto, Talomo, Matina Crossing and Matina Aplaya are located along the major water ways of the city - the Davao River, Talomo river and Matina Pangi river.

The Hazards that may impact the city are :

- Flooding
- Landslide
- Storm Surge
- Sea Level Rise
- Drought
- Strong Winds

**Table 1.31 Natural Conditions of a Place as a Factor of Vulnerability**

<b>Hazards</b>	<b>Conditions</b>	<b>General Impact</b>
Flood	<p>The following conditions make an area more vulnerable to flooding:</p> <ul style="list-style-type: none"> <li>• Low-lying parts of major floodplains beside river or creek systems</li> <li>• Areas where there is steep topography, little vegetation and experience high-intensity, short duration rain may be susceptible to flashfloods</li> <li>• Urban areas or places with highly impermeable surfaces</li> <li>• Areas with constricted river channels due to human activities (e.g. informal settlement, structures creating blockage)</li> <li>• Deforestation, land use/crop conversion</li> </ul>	<ul style="list-style-type: none"> <li>• Creeping or sudden erosion of river and creek areas may cause downstream sections to shallow and be constricted and hence magnify flood volumes or flow rates.</li> <li>• Damage to infrastructures and property, disruption of services.</li> </ul>
Rain-induced landslides	<ul style="list-style-type: none"> <li>• Intense or prolonged rainfall usually triggers slope failure resulting to landslides</li> <li>• Destabilization of slopes to a point of failure</li> <li>• Lack of vegetation / slope protection</li> </ul>	<ul style="list-style-type: none"> <li>• Damage to property and disruption of services and even loss of lives.</li> <li>• Mud and debris causing flow down slopes and through river and creek channels and through low lying areas. It may cause blockage, possible flashfloods.</li> </ul>
Storm surge	<ul style="list-style-type: none"> <li>• Settlements in low lying coastal areas and areas with poor communications or warning systems.</li> <li>• Lightweight structures, older construction, poor quality masonry, infrastructural elements, fishing boats and maritime industries</li> </ul>	<ul style="list-style-type: none"> <li>• Much of the structural damage to property, either from typhoon winds or storm surges occurs along the coast, often in foreshore areas or in houses within 100 meter of the shore.</li> </ul>
Strong Winds	<ul style="list-style-type: none"> <li>• Lightweight structures, older construction, poor quality masonry, infrastructural elements, fishing boats and maritime industries</li> </ul>	<ul style="list-style-type: none"> <li>• Much of the structural damage to property, occurs along the coast, often in foreshore areas.</li> </ul>
Droughts / Temperature Increase	<ul style="list-style-type: none"> <li>• Areas with low soil water moisture retention</li> </ul>	<ul style="list-style-type: none"> <li>• Crop damage and loss of livestock, loss of income and food security problem.</li> </ul>
Sea-Level Rise	<ul style="list-style-type: none"> <li>• Settlements in low lying coastal areas</li> </ul>	<ul style="list-style-type: none"> <li>• Structural damage to properties along the coast</li> </ul>

The severity of the impact of these hazards on various sectors and the physical framework and infrastructure are non-quantifiable. However, an emerging pattern seems to point that the intensification of these hazards will likely occur in the coming years. It is encouraged that the city will include policies and programs that will make the city climate change resilient in the coming century. Table 1.26 shows the initial identification of barangays exposed or susceptible to various hazards.

**Table 1.32 Inventory of Hazard Exposure / Susceptibility by Barangay**

Hazard	Flooding	Drought	Storm Surge	Sea-level Rise	Landslide	Strong Wind
<b>Poblacion District</b>						
Brgy. 1	X					
Brgy. 2	X					
Brgy. 3	X					
Brgy. 4						X
Brgy. 5	X					
Brgy. 6						
Brgy. 7						
Brgy. 8	X					X
Brgy. 9						
Brgy. 10	X					
Brgy. 11						
Brgy. 12						
Brgy. 13						
Brgy. 14						
Brgy. 15						
Brgy. 16						
Brgy. 17						
Brgy. 18	X					
Brgy. 19	X				X	
Brgy. 20						X
Brgy. 21	X		X	X		
Brgy. 22			X	X		
Brgy. 23	X		X	X		
Brgy. 24						
Brgy. 25						
Brgy. 26						
Brgy. 27						
Brgy. 28						
Brgy. 29						
Brgy. 30						
Brgy. 31	X		X	X		
Brgy. 32						
Brgy. 33						
Brgy. 34						
Brgy. 35	X					
Brgy. 36						
Brgy. 37						
Brgy. 38						
Brgy. 39	X					
Brgy. 40	X					
<b>Agdao District</b>						
Agdao Proper						
Wilfredo Aquino						

Hazard	Flooding	Drought	Storm Surge	Sea-level Rise	Landslide	Strong Wind
Paciano Bangoy						
Rafael Castillo						
Centro			X	X		
Gov. Vicente Duterte			X	X		
Leon Garcia Sr.						
Lapu - Lapu			X	X		
Tomas Monteverde						
San Antonio						
Ubalde						
<b>Baguio District</b>						
Baguio					X	
Cadalian					X	
Carmen	X	X			X	
Gumalang	X				X	X
Malagos	X				X	X
Tambobong	X				X	X
Tawan-Tawan	X				X	X
Wines					X	
<b>Buhangin District</b>						
Acacia					X	
Buhangin	X				X	
Cabantian					X	X
Callawa	X				X	
Communal					X	X
Indangan					X	
Mandug	X				X	
Pampanga						
Sasa			X	X		
Tigatto	X				X	
Waan	X				X	
A. Angliongto						
V. Hizon			X	X		
<b>Bunawan District</b>						
Bunawan	X				X	
Gatungan	X				X	
Ilang						
Lasang	X					
Mahayag	X				X	
Mudiang					X	
Panacan					X	
San Isidro	X					
Tibungco			X	X		X
<b>Calinan District</b>						
Biao Joaquin					X	X
Calinan	X	X			X	
Cawayan					X	

Hazard	Flooding	Drought	Storm Surge	Sea-level Rise	Landslide	Strong Wind
Dacudao	X	X			X	
Dalagdag	X				X	
Dominga	X				X	
Inayangan	X				X	
Lacson	X				X	
Lamanan					X	
Lampianao					X	
Megkawayan	X	X			X	
Pangyan	X	X			X	
Riverside	X					
Saloy	X	X			X	
Sirib	X	X			X	
Subasta					X	
Talomo River	X				X	
Tamayong	X	X			X	
Wangan	X					
Marilog District						
Baganihan	X	X			X	
Bantol	X				X	
Buda	X	X			X	
Dalag Lumot	X	X			X	
Datu Salumay	X	X			X	
Gumitan	X	X			X	
Magsaysay	X	X			X	
Malamba	X	X			X	X
Marilog	X	X			X	X
Salaysay					X	
Suawan	X				X	X
Tamugan	X				X	X
Paquibato District						
Colosas	X	X			X	
Fatima		X			X	
Lumiad	X	X			X	
Mabuhay					X	
Malabog	X	X			X	
Mapula	X	X			X	
Pandaitan		X			X	
Pañalum	X	X			X	
Paquibato	X	X			X	
Paradise Embac		X			X	
Salapawan		X			X	
Sumimao	X	X			X	
Tapak	X	X			X	
Talomo District						
Bago Aplaya	X					
Bago Gallera	X					

Hazard	Flooding	Drought	Storm Surge	Sea-level Rise	Landslide	Strong Wind
Baliok						
Bucana	X		X	X		X
Catalunan Grande	X				X	
Catalunan Pequeño	X					X
Dumoy	X					
Langub					X	
Ma-A	X				X	
Magtuod					X	
Matina Aplaya	X					
Matina Crossing	X				X	
Matina Pangi	X				X	
Talomo	X				X	
<b>Toril District</b>						
Alambre						X
Atan-Awe					X	
Bankas Heights	X					
Baracatan						
Bato	X				X	
Bayabas	X				X	
Crossing Bayabas	X					X
Binugao	X					
Camansi					X	
Catigan	X	X			X	
Daliao						
Daliaon Plantation	X	X			X	
Eden	X	X			X	X
Kilate					X	
Lizada	X					X
Lubogan	X					
Marapangi	X				X	
Mulig						
Sibulan	X	X			X	X
Sirawan	X					X
Tagluno	X				X	
Tagurano	X	X			X	
Tibuloy						
Toril						
Tungkalan		X			X	
<b>Tugbok District</b>						
Angalan						
Bago Oshiro						
Balengaeng	X				X	
Biao Escuela					X	
Biao Guianga						
Matina Biao					X	
Los Amigos	X				X	



Hazard	Flooding	Drought	Storm Surge	Sea-level Rise	Landslide	Strong Wind
Manambulan					X	
Manuel Guianga					X	
Mintal	X					
New Carmen					X	
New Valencia					X	
Sto. Niño						X
Tacunan	X					
Tagakpan					X	
Talandang	X				X	X
Tugbok	X					
Ula	X				X	

**Table 1.33 Records of Previous Disasters, Davao City 2000-2012**

**Floods**

DATE	LOCATION	NO. OF AFFECTED			NO. OF CASUALTIES			NO. OF HOUSES DAMAGED		Est Cost of Damage
		Family	Dependents	Individual	Dead	Injured	Missing	Totally	Partially	
2/16/2000	Talomo Proper, Matina Crossing, Matina Pangi, Catalunan Grande, Bago Aplaya	3,938	14,511	25	2			155	155	10,150,995
3/15/2000		3,682	8,935	191				6	6	
4/20/2000	9-A, 34-D, Maa, 76-A, Talomo Proper, Matina Crossing, Sto. Niño, Crossing Bayabas	223	651					2	1	130,075
6/4/2000	Maa, Bago Aplaya	30	119	10						
6/7/2000	Marapangi, Sirawan, Cyphone, Lizada, Bago Gallera, Bago Gallera	91	383	2	2			3	5	101,000
7/6/2000	La Verna, San Isidro, San Vicente	87	77							519,000
10/5/2000	Matina Pangi, Matina Crossing, Talomo Proper	95	347					10	6	267,800
11/18/2001	Dumoy	15	69					4	11	580,000
11/21/2001	Lizada, Crossing Bayabas, Marapangi, Daliao, Sirawan, Bayabas, Tagluno & Tungkalan	2,428	11,697		1			24	52	5,522,017
1/4/2002		18,110	75,007		7	18	1	149	480	12,577,950
5/7/2003	Tugbok Proper, Mintal	16	45					1	2	24,000
6/1/2003	Mintal	4	13					2	3	195,000
8/20/2003	Maa	6	16					5	6	
4/16/2004	Matina Pangi, Brgy 74-A	14	56					1	1	174,000
1/26/2006	Bunawan Proper	2	10					2		12,500
3/2/2006	Crossing Bayabas	2	7					7		16,000
3/5/2006	Talomo Proper	1,047								
6/18/2007	Saloy	1			1	6		1		85,000
8/29/2007	Catalunan Pequeño	306	1,055			2		19	25	
3/17/2008	Calinan Proper, Riverside, Wangan, Baguio Proper, Malagos, Los Amigos									28,686,008
6/7/2008	San Antonio, Cabantian	25	140					4	9	97,000
6/18/2008	Maa, Los Amigos	140								
6/29/2009	Balengaeng, Los Amigos, Talomo	162						5	14	

DATE	LOCATION	NO. OF AFFECTED			NO. OF CASUALTIES			NO. OF HOUSES DAMAGED		Est Cost of Damage
		Family	Dependents	Individual	Dead	Injured	Missing	Totally	Partially	
	Proper, Marapangi, Crossing Bayabas, Lizada									
6/29/2009	Los Amigos, Mintal , Ula, Tugbok Proper, Manambulan	520						2	7	55,000
1/17/2010	Calinan Proper, Riverside	83								
9/13/2010	Sirawan, Magsaysay, Marilog Proper, Salaysay	77	184					17	11	744,000
9/13/2010	Malamba	4	9					1		54,000
9/21/2010	Mandug	19	57					19		540,000
10/16/2010	Tigatto	2						1		25,000
11/29/2010	Camansi	22	66		1			7	5	
12/6/2010	Calinan Poblacion	192	960					2	6	
1/16/2011	Km. 10 P 16. Tigatto, Prk. 13, 3A, 1	4	12		1			1	2	1,733,000
1/17/2011	Prk. 2A, 4, 5B, 7, 4, Mandug/ Tigatto, Marapangi, Bayabas, Lizada, Inayangan	1,317	4,036	329				17	28	145,000
3/30/2011	Poblacion/ Tamayong									
4/5/2011	Communal, Tigatto, P-26, Riverside, _____, Bunawan	889	22					13	458	7,408,550
4/10/2011	P-9, Gumalang	2	7							19,200
4/19/2011	Pañalum									1,166,320
4/21/2011	Talandang, Tigatto, P-6, Gumalang, P-35 & 6, Pangyan, Purok Imburnal, Tambobong	29	14					7	13	5,398,860
4/22/2011	Sitio Salab, Malamba	1	4					2		20,000
4/25/2011		3	7							50,000
5/4/2011	Panacan, Mahayag, Pampanga	620	3,777		1				2	40,000
5/5/2011	P-2, Malagos	2	4						2	36,000
6/2/2011	P-3, Vicente Fermer	4						2	2	
6/3/2011	P-4, Barangay Dominga	1						1		
6/8/2011	Purok Tulo Tulo, Nara, Brgy. Tapak, P-Capricorn, Lasang	21						7	3	
6/9/2011	P- 3, Gumitan Proper, Sitio, Davao Gulf, Brgy. Tamugan, P-Scorpio, Lasang, Sto. Niño Bucana, Lasang,	336	102					6	4	

DATE	LOCATION	NO. OF AFFECTED			NO. OF CASUALTIES			NO. OF HOUSES DAMAGED		Est Cost of Damage
		Family	Dependents	Individual	Dead	Injured	Missing	Totally	Partially	
	Paquibato Proper, P-Narra									
6/12/2011	Brgy. Buda	6						1		
6/13/2011	Sitio Turuyan, Brgy. Tamugan	1						1	5	
6/14/2011	Bayanihan Riverside, Brgy. Mandug	14						14		
6/29/2011	NHA, Bangkal, Matina Aplaya, Matina Crossing, Matina Pangi, Maa	3,207			30		1	572	193	
7/3/2011	P-9, Nagkabu, Brgy. Bunawan	1						1		
7/10/2011	Brgy. Magsaysay	1						1		
10/7/2011	P-13, Bugac, Maa	3						2	1	
11/6/2011	Sitio Sta. Cruz, Brgy. Binugao, P-4, Sitio _____, Brgy. Sirawan	3						3		
2/25/2012	Poblacion Calinan, Wangan Centro Purok 1	52								425,870
2/27/2012	Tawan-tawan	32								73,324
2/28/2012	Saloy	135								873,960
3/23/2012	Brgy. Tugbok		29							140,440
4/8/2012	Brgy. Marapangi, Purok 9	3	8					2		45,000
7/4/2012	Zone 5, North San Juan	1	3					1		8,000
7/23/2012	Sitio Kamaymara, Brgy. Magsaysay, Sitio Babanglasan, Datu Salumay	17	70					17		150,040
7/24/2012	Gumitan, Sitio Dumalogdog									24,000
7/26/2012	Sitio Kulalo, Magsaysay	17	69					7	10	302,200
12/4/2012	Agdao, Tibungco, Bunawan, Lasang, Toril, Marilog, Marahan, Baganihan, Talomo, Matina Crossing	798	4,425					7	25	409,500
12/7/2012	Paquibato Proper	3								9,000
7/19/2013	Brgy. Bantol	5						4	1	
		<b>38,871</b>	<b>127,003</b>	<b>557</b>	<b>46</b>	<b>26</b>	<b>2</b>	<b>1,138</b>	<b>1,554</b>	<b>79,034,609</b>

## Landslides

DATE	LOCATION	NO. OF AFFECTED			NO. OF CASUALTIES			NO. OF HOUSES DAMAGED		Est Cost of Damage
		Family	Dependents	Individual	Dead	Injured	Missing	Totally	Partially	
1/4/2002		2,697	10,481					7	2	306,000
3/2/2006	Carmen	101								100,000
10/30/2006	San Isidro	2	6		1					40,000
11/21/2006	Marilog Proper	11						5		1,106,945
7/4/2007	Maa	10	46		1	2				5,000
7/7/2007	Tamugan									150,000
1/14/2008	Matina Pangi	6	19					2	2	100,000
9/10/2011	km. 6, Diversion Road, Bangkal	5						5		
3/21/2012	Brgy. 20-B	10	29						10	278,000
4/2/2012	Brgy. Mandug	1	4					1		92,000
4/23/2012	P-25, Upper Malagamot	2	4					2		39,000
5/15/2012	P-8, Brgy. 39-D	1	4					1		90,000
6/1/2012	St. Micheal, Barangay Daliao	4	8							95,000
7/12/2012	Beside Blue Post Bar, Buhangin	2	3					2		14,000
8/29/2012	Maglana, Buhangin Proper	3	14					3		115,000
10/10/2012	Purok North San Juan, Brgy.	10	16					10		1,737,000
10/15/2012	North San Juan, Brgy. Centro	5	16					5		1,270,000
		<b>2,870</b>	<b>10,650</b>	<b>-</b>	<b>2</b>	<b>2</b>	<b>-</b>	<b>43</b>	<b>14</b>	<b>5,537,945</b>

A total of 1,377 hectares of the 13,874 hectares built-up areas of the city are within areas that are considered to be highly susceptible to flooding. Aside from floods, there are other rain-induced hazards like landslide and erosion. There are 788 hectares of built-up areas that are within areas that are considered highly and very highly susceptible to landslides. In terms of households, there are 146,930 households at risk from floods and 8,970 households at risk from landslides.

**Table 1.34 Built-up Areas within Geohazard Areas**

<b>Hazard Areas</b>	<b>Total Area</b>	<b>Within Built-up areas (Has)</b>
<b>Hydro-meteorological hazards</b>		
High Susceptibility - Floods	7,546	1,377
High & Very High Susceptibility – Landslide	151,289	788
Very High Susceptibility – Erosion	103,245	571
<b>Geologic Hazards</b>		
Liquefaction Prone	216,867	6,163

*Source : MGB-XI, CPDO*

There were 70 recorded occurrences of floods in the city from 2000-2012 affecting a total of 39,316 families, 2,492 structure and causing damages totalling to PhP 79.6 million. These floods caused 46 recorded deaths. A more recent large flooding of Davao River occurred last January 20, 2013 which affected 5,165 families.

A more recent large flooding of Davao River occurred last January 20, 2013 which affected 5,165 families.

#### d. Land Use Issues and Problems

The most serious problems include:

- Rapid population growth
- Incidence of poverty is found in both urban and rural areas
- Proliferation of informal settlers on the city's urban areas including shorelines, banks of rivers and creeks and along road right of ways of major highways
- Increase in motor vehicle traffic leading to traffic congestion
- Continued ecological and/or environmental degradation especially in the upland areas
- Lack of road networks connecting major districts
- Flash flood incidents in some parts of the Poblacion and in its immediate environs
- The lack of public parks and open recreational spaces, especially in the Central Business District (CBD) and other Urban Center areas in the city.
- Improper use of lands for agricultural purposes
- Inappropriate academic program for local industry
- Lack of commercial spaces for lower income entrepreneurs
- Existing land use regulation are not reasonable and flexible
- Rest and recreational facilities are inadequate
- Roads and public open spaces are inadequate
- Polluted coastal waters
- Vulnerable areas to climate change hazards

#### e. Urbanizable land and absorptive capacity

Urbanizable lands refers to sites and land areas which, considering present characteristics and prevailing conditions, display a marked and high probability of becoming urban lands within the period of ten years.

The city has around 13,624.82 hectares of urbanizable land. These are areas that are relatively flat, safe from climate change and/or geo-hazards, and outside of special protection /conservation areas of the city. Thus, these areas are suitable for urban development.

**Table 1.35 Protection and Conservation Areas, 2013-2022**

<b>Description</b>	<b>Land area in hectares</b>
Conservation /forest	55,421
SAFDZ & NIPAS	43,636
NPAAD	15,526
Flood prone areas	7,546
CADTs	72,794
<b>Total combined area</b>	<b>216,501.18</b>

Source : OCPDC

Total land area of the city	= 244,000 hectares
Protection and Conservation areas	= 216,501 hectares
Urban use areas	= 13,874 hectares
Urbanizable land	= 244,000-(216,501+13,874)
Urbanizable land	= 13,625 hectares

#### **f. Pertinent Government Policies (Laws /Issuances)**

##### **Policies affecting land uses :**

Relevant legislation pertaining to land use planning is also considered in order to attain a harmonious future desirable use of various land uses such as:

Watershed Code	The city has passed a watershed code in 2007 identifying protected areas, conservation areas that will limit or prohibit development in areas deemed as crucial for aquifer recharging.
Terrain Analysis Study of Davao City, EO 25 series of 2005	The city is currently utilizing the geohazard data obtained from MGB since 2005. This serves as a basis in granting locational clearances and development permits for development in the city.
Fisheries Management Code	An Ordinance No. 117-01 in 2008 providing for the sustainable development, conservation, and management of the fisheries and aquatic resources in the city of Davao
Marine Protected Area	City Ord. No. 0375 in 2009, Establishment and management of Davao City Marine Protected Areas
Solid Waste Management Act of 2003	
Ord. No. 031-07, s. 2007	Regulation on the Operation of travel Agencies, Tour Operators and Tour Guides in the City of Davao



Ord. No. 1650, s. 1994	Regulating the Operation of small scale fishing and commercial fishing within the territorial Jurisdiction of Davao City Waters
Ord. No. 179-03, s. 2003	Creation of Chinatown Development Council
Ord. No. 441, s.1965	Regulating the Use of roof gardens of Buildings
Ord. No. 418, s.1983	Requiring owners of commercial buildings whose building permits were issued pursuant to the National Building Code, to provide sufficient lighting facilities at the parking lots thereof
Ord. No. 999, s.1974	Prohibiting the construction of houses and/or buildings within the 50-meter distance from the highest tide level along the seashore of Talomo Beach
Ord. No. 0280-06,s. 2006	The Anti-Smoke Belching Ordinance- Protection of the air quality of Davao City
R.A. 6657 (07/26/85)	- Otherwise known as the Comprehensive Agrarian Reform Law of (1988 (CARL) empowers the Department of Agrarian Reform to authorize, under certain conditions, the classification or conversion of land s awarded to agrarian reform beneficiaries
R.A. 7160 (10/10/91)	- Local Government  Code of 1991 states that; " Subject to applicable laws, rules and regulations, cities and municipalities shall continue to prepare their respective land use plans enacted through zoning ordinances" which shall be the primary bases for the future use of land resources;
R.A. 7279	- Otherwise known as the Urban development and Housing Act of 1992 - Art. IV, Section 7 - mandates the various local government units to conduct inventory of lands for socialized housing and their integration into Comprehensive Land Use Plans and Zoning Ordinances of their respective cities and municipalities. This shall adhere to the site criteria. - Section 8 - Identification of Sites for Socialized Housing and resettlement for the immediate and future needs of the underprivileged and homeless in the urban areas taking into consideration the degree of : a. Availability of basic services/facilities b. Accessibility c. Proximity to job sites and economic opportunities
R.A. 7586	- Otherwise known as the NIPAS Act - An act providing for the Establishment and Management of National Integrated Protected Areas System in order to maintain the essential ecological processes and life support system, to preserve genetic diversity, to ensure sustainable use of resources found therein, and to maintain their natural conditions to the greatest extent

possible;

- P.D. 389        -    Otherwise known as the Forestry Reform Code authorizes the President of the Philippines by proclamation upon recommendation of the Director to declare all lands of the public domain eighteen percent (18%) in slope or over as permanent forests or forest reserves, regardless of the condition of the vegetation cover, occupancy or use any kind, and thereafter such forest reserves shall not be alienated or disposed of, but shall remain in public ownership as such as forest uses.

Section 18 - Areas within timber concessions between 18% in slopes which are timbered and/or have adequate residual stocking and presently supporting a processing plant shall not be released as alienable and disposable but shall remain as part of the permanent forest land.

Section 22 - Local government may acquire private or public land for the purposes of establishing a municipal or city forest, tree park, watershed or pasture land.

Parcels of land less than 18% in slope and less than 250 hectares, regardless of size which are founded within or surrounded wholly or partly by a body of public forest purposes shall be considered as part thereof.

Areas along streams or rivers maybe utilized as kaingin relocation centers, forest villages. A strip of land 50 meters above normal high water line on each side of rivers and streams which channels less than 5 meters wide shall be retained as permanent forest for streams bank protection. Strips of land, mangrove and swampland not less than 50 meters from the shoreline shall be retained as permanent forest for shoreline protection.

A possession of thirty (30) years or more is needed for existing alienable or disposable lands even if 18% in slope or over but covered by approved public land application, the possession being actual, continuous and adverse and public.

- P.D. 705        -    Amends Forestry Reform Code  
This provides for system of land classification into agricultural, industrial or commercial, residential, resettlements, mineral, timber or forest and grazing lands, and into such other classes as nor or may hereafter be provided by laws, rules and regulations. Section 15 further states that no land of the public domain 18% in slope or over shall be classified as alienable and disposable, nor any forest land 50% or over in slope as grazing land.

- P.D. 635        -    This amended Section 112 of R.A. 141, as amended. This section shall now read as follows:

Section 12 - said land shall further be subject to a right-of-way not exceeding sixty (60) meters in width for public highways, railroads, irrigation, ditches, aqueducts, telegraph and telephone lines, and similar works as the government or any public service enterprise, including mining for carrying their business, with damages for the improvements only.

Lands eighteen percent (18%) in slope or over which have already been declared as alienable and disposable shall be reverted to the classification of forest lands by the Department Head, to form part of the forest reserves, unless they are already covered by existing titles or approved public land application, or actually occupied publicly for a period of not less than thirty (30) years of the effectivity of this code, where the occupant is qualified for a free patent under the Public Act Land: Provided, that said lands which are not yet part of well-established communities, shall be kept in a vegetative condition sufficient to prevent erosion and adverse effects on the lowlands and streams: Provided, further, that when public interest so requires, steps shall be taken to expropriate, cancel defective titles, receive public land applications, or reject occupants thereof.

#### Section 16 - Areas needed for forest purposes

The following lands, even if they are below eighteen percent forest purposes, may not, therefore, be classified as alienable or disposable land, to wit :

Areas less than 250 hectares which are far from or are not contiguous with any certified alienable and disposable;

Isolated patches of forest of at least five (5) hectares with rocky terrain, or which protect a spring for communal use;

Areas which have already been forested;

Areas within forest concessions which are timbered or have good residual stocking to support an existing, or approved to be established, wood processing plant;

Ridge tops and plateaus regardless of size found within by forest lands where headwater emanate;

Appropriately located road-right-of-way;

Twenty-meter strips of land along the edge of the normal water line of rivers and streams with channels of at least 5 meters wide;

Strips of mangrove or swampland at least twenty (20) meters wide, along shoreline facing oceans, lakes and other bodies of water, and strips of lands at least twenty (20) meters facing lakes;

Areas needed for other purposes, such as national parks, national historical sites, games and refuges and wildlife sanctuaries, forest station sites, and others of public interests; and

Areas previously proclaimed by the President as forest reserves, national parks, game refuge, bird sanctuaries, national shrines, national historic sites.

- P.D. 1151 - Philippine Environmental Code - mandates the undertaking of environmental impact assessments for all projects which may significantly affect the environment.
- P.D. 1152 - Established specific environment management policies and prescribes environmental quality standards to provide the structure to pursue a comprehensive program on environmental management.

- P.D. 1586 - Establishing an environmental impact statement (EIS) system.
- P.D. 296 - This decree directs all persons, natural or juridical, to renounce possession and move out of portions of rivers, creeks, esteros, drainage, channels, and other similar waterways and encroached upon by them.
- P.D. 772 - A decree penalizing squatting and other similar acts.
- P.D. 619 - Authorizing the reclassification, reservation and development of public lands such as grazing reserve for large-scale ranching projects.
- P.D. 861 - Authorizing pasture lessees to use their pasture lands for agricultural purposes under certain conditions.
- P.D. 856 - Sanitation Code of the Philippines - places responsibility on local government units for the provision of an adequate solid waste disposal system in their area of jurisdiction.
- P.D. 1067 - Water Code of the Philippines - prohibit the introduction of sewage, industrial wastes, or any substance that may pollute a source of water supply. It also penalizes dumping of mine tailings and sediments into rivers and waterways.

For easement requirements:

Along banks of rivers, streams and other waterways :

1. The banks of river, streams and other waterways shall have the following easement throughout their entire lengths for maintenance and emergency operation purposes:

- For creeks in urban and rural areas and subject to overbank flows, a minimum easement of 4.50 meters shall be provided measured from the edge of the existing bank of the improved bank.
- Rivers, esteros and navigation canals, not subject to overbank flows, shall have minimum easements of 5.50 meters measured from the edge of the existing bank or the improved bank.

These above easements may, however, be increased depending upon the type of channel improvement that will be instituted if the waterway overflows its banks for the design flood and also on the public improvement plans that will be proposed for the strip of land bordering the waterways.

2.10 In agricultural and forested areas, a minimum of 20 meters and 40 meters easements, respectively, shall be required measured from the upper banks of the rivers or streams. (Art. 51)

2.11 Along Shores of Lakes, Seas and Other Inland Bodies of Water:

The shores of lakes, seas and other inland bodies of water shall have the following easements throughout their entire lengths for purposes of recreation, flood control, etc.

1. In urban and rural area, a three (3) to six (6) meter easement shall be provided measured from the water edge at minimum water level or tide level.

2. For agricultural and forested areas, twenty (20) meters and forty (40) meter easements, respectively, shall be provided, measured from the water edge at maximum water level or tide level.
- |                        |  |
|------------------------|--|
| A.O. 20<br>(10/07/92)  | - Interim guidelines on Land Use Conversion provide that all irrigated and economically irrigable lands covered by irrigation project with firm funding commitment shall non-negotiable for conversion.  |
| M.C. 54<br>(06/08/93)  | <p>- Prescribing the guidelines governing Section 20 of R.A. 7160, otherwise known as the Local Government Code of 1991 authorizing cities and municipalities to reclassify agricultural lands into non-agricultural uses, however, Section C and I, states that such reclassification shall be limited to a maximum of the percentage of the total agricultural land of a city or municipality at the time of the passage of the Ordinance as follows :</p> <p style="margin-left: 40px;">2.11.4 For highly urbanized and independent component cities, 15%</p> <p style="margin-left: 40px;">2.11.5 For component cities and first class municipalities, 10%</p> <p style="margin-left: 40px;">2.11.6 For fourth to sixth class municipalities, 5%</p> <p>Provided that agricultural lands distributed to agrarian reform beneficiaries pursuant to Republic Act 6657, otherwise known as the Comprehensive Agrarian reform Law shall not be affected by said reclassification and the conversion of such lands into other purposes shall be governed by Section 65 of said act.</p> |
| E.O. 72<br>(03/25/93)  | - Providing for the preparation and implementation of the Comprehensive Land Use Plans of Local Government Units pursuant to the Local Government Code of 1991 and other pertinent laws and mandated the establishment of a Provincial Land Use Committee in every province to assist the Sangguniang Panlalawigan in reviewing the Comprehensive Land Use Plans of component cities and municipalities;   |
| E.O. 124<br>(09/08/93) | - Establishing priorities and procedures in evaluating areas proposed for land conversion in Regional Agra-Industrial Centers, Tourism Development Areas and Sites for Socialized Housing projects.  |
| RA 8371                | Indigenous People's Right Act (IPRA) mandates the formulation of ADSDPP  |

## 2.9 DEVELOPMENT STRATEGY/DEVELOPMENT THRUST

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### a. Alternative Development Strategies

Davao City as the region's center has accumulated a number of comparative and competitive advantages as outlined in the SWOT analysis of the land use plan.

While a comprehensive intervention to solve all problems is ideal, this is severely limited by the constraints that exist in the city such as financial, infrastructure and human resources to tackle all these at the same time.

While there are a number of development strategies that can be pursued by the city, it is best that each will be assessed to ensure that its limited resources are maximized and its inherent comparative and competitive advantages are fully realized.

The following are the development options that Davao City can undertake in the next ten years

- **Agriculture-led development**

Davao City has a large agricultural area where high value crops are grown. These crops are mainly fruit crops that may be sold as fresh or processed. Existing within the city are various processing plants mainly on coconut, cacao, banana, mango.

The strategy calls for the focus in the agriculture sector in terms of investing in rural infrastructure, upgrading of farm technology, improvement of the value chain of major agricultural products, extension of credit for farm inputs, and development of food processing industries.

Planting materials of key high value crops will be made available and dispersed for planting by the farmers especially in the non-tillage agriculture zones of the city. Permanent crops like rubber, cacao, coffee, coconut and durian will be prioritized since these will allow the farmers with better return of investments

Farm-to-market roads in the major food production districts of Marilog, Paquibato, Baguio, Calinan and Tugbok will be improved to connect them better to markets of the CBD and Toril. Farm mechanization appropriate for the upland and small farms of the farmers will be distributed in terms of loans to cooperatives and farmers associations. More agriculture technologists and extension specialists will be hired to provide trainings and consultations to the local farmers so that technology is adopted. The manufacturing sector will be encouraged to invest in food processing to add value to the agriculture outputs of the farms.

- **Industrial development**

Davao City as the center of the region has a large number of manufacturing firms within its jurisdiction. This is served by the international airport and seaports

located in the city. The biggest manufacturing plant is engaged into non-metallic mining or cement manufacturing.

Manufacturing of the various agriculture products as well as assembly plants will be encouraged to provide employment for the citizens. Special emphasis will be given to manufacturing industries like textile and food industries that utilize low skilled workers to harness the excess labor force from the rural areas. Electronics and car assembly plants that will be set up in Davao City can employ skilled workers that will be trained by setting up technical vocational schools.

Industrial parks will be developed in cooperation with the private sector so government can offer incentives for the locators. The port areas of the city will be improved to allow better transportation facilities for the import and export of the goods needed and produced by the manufacturing plants.

Food processing plants such as canning and bottling of food will be encouraged to add value to the fresh products coming from the different districts of the city as well as regions of Mindanao. With the consolidation of these food products in the city, the industries will be assured of a steady supply of inputs for their manufacturing plants.

- **Combination of agriculture, tourism and ICT**

Considering that number of comparative advantages of the city and the various recognitions that have been bestowed by the various organizations to the city, the economic sectors of agriculture, tourisms and ICT will be provided priority for public investments.

## **b. Selection of Development Strategy**

A modified selection process was utilized to choose the most appropriate development strategy for the next ten years.

Each alternative development strategy was discussed and then characteristics of the preferred development strategy were articulated. Based on the findings during the discussions, each was ranked accordingly with one (1) as the highest rank and three (3) as the lowest rank. Upon summation of the results, the development option with the lowest score was selected.

**Table 1.36 Ranking of Development Strategies**

<b>Characteristics</b>	<b>Alternative 1 Agriculture-led development</b>	<b>Alternative 2 Industrial-led development</b>	<b>Alternative 3 Agriculture, Tourism and ICT-led development</b>
<b>Cost</b>			
How much time will it take to realize the projects	Long gestation period before harvesting crops. Consolidation of crops issue for processing	Depends on the investors to construct manufacturing plants  May take at least two years of planning to construction of manufacturing plants	Long gestation period for agriculture  ICT can set up centers within months  Tourism facilities can be constructed within a year
RANK	2	3	1
Cost of new infrastructures for the development	Need for more farm to market roads in second and third districts	Available roads. Expansion of seaport needed	Farm to market roads Tourism facilities are mostly located within city proper with ready infra ICT parks are already available in the city
RANK	3	2	1
Pollution derived from the strategy	Water pollution from chemicals	Air pollution, water pollution	Chemical pollution mostly from agri
RANK	2	3	1
Amount of land that will be utilized, maximum profit per hectare	Large areas of land need to be cultivated to meet economies of scale	Large tracts of land may be needed for manufacturing plants	Except for agriculture, land usage can be minimal since vertical development can be utilized
RANK	3	1	2
Enforcement of the regulations	Agriculture and environment inspectors are needed to cover large area	More technical personnel will be needed to monitor pollution levels	Personnel will be needed to monitor agriculture development, city based infra of tourism and ICT are accessible to inspection personnel
RANK	3	2	1
Traffic congestion generated	Minimal traffic congestion generated	With its big trucks, these will cause traffic congestion in main highways	For agriculture minimal traffic congested but vicinities' within tourist attractions may experience traffic congestion.
RANK	2	3	1
<b>Benefits</b>			
Employment generated	Mostly from the rural areas will benefit Less people in rural areas	People with technical-vocational skills will have jobs	Both rural population due to agriculture and urban population especially



Characteristics	Alternative 1 Agriculture-led development	Alternative 2 Industrial-led development	Alternative 3 Agriculture, Tourism and ICT-led development
		Mostly in urban areas	college level population can enter ICT
RANK	2	3	1
Revenues generated	From High value crops and processing of agri products	From manufacturing and exporting of products. Will depend on the world market and export demand	From the use of human capital BPO centers are earning big Tourism is the largest industry in the world
RANK	3	1	2
Enhancement of attractiveness of the city	Will enhance the air quality of the city. Will create green fields and carbon sinks	Will provide the look of a modern city as long as pollution is controlled	Tourism will enhance attractiveness bec it will emphasize urban design and cleanliness' for tourists
RANK	2	3	1
Balanced development between urban and rural	Most of the development will focus in the rural areas	Most of the development will focus on the urban area	Will create opportunities in both rural and urban areas
RANK	3	2	1
Potential for sustained growth	Food will always be a need in cities and other countries	Manufactured goods will depend on the demand in the market	The projections for tourism and ICTs are on the positive side for the next ten years
RANK	2	3	1
Enhancement of Davao City's role	Will maintain the city's reputation as a top producer of fruits and vegetables in the region	Will enhance the city's role as the center of manufacturing in the region	Will enhance the role of the city as a major hub in tourism development and ICT in the country
RANK	2	3	1
Ability to contribute to adaptive capacity of the city against Climate change	May stabilize the slopes of the upland areas and minimize flooding	Contributes to green house gas emission	May stabilize slopes in the upland areas but may also disturb upland area due to tourism development projects.
RANK	1	3	2
<b>TOTAL</b>	<b>30</b>	<b>32</b>	<b>16</b>

## **Preferred Development Thrust of Davao City**

The combination of Agriculture, Tourism and ICT as engines of growth to balance development between the rural and the urban economy is the preferred development strategy of the city. These sectors will allow the city to maximize the usage of the whole land area of the city to earn revenue for its people at the same time provide employment opportunities for the populace in both the rural and urban areas.

**Agriculture/Agro-processing** will allow the rural areas of the city particularly the administrative districts of the Marilog and Paquibato to establish themselves as the sources of agricultural products needed by the agro processing plants.

Permanent crops planted in multilayer will be encouraged to maximize the land areas and as well provide additional income for the farmers. Multi crops will enable the farmers to have a diversified source of income. Priority crops for these areas will be coffee, cacao, rubber, durian, coconut and banana.

These districts have been identified also as prone to landslide as well as part of the Davao river watershed. Re-establishing the vegetative cover through agro forestry will stabilize the steep slopes against erosion and landslide. This additional ground cover by permanent high value crops will also rejuvenate the soil's soaking capacity to reduce the run-off and possible reduce the risks of flooding in the downstream of the city.

More infrastructure development such as roads and bridges will be needed to allow better access between the production areas and the market.

**Tourism** activities allow the development in both the urban and rural areas because of proliferation of both natural and man-made attraction in the city. Eco-tourism which may include agri tourism is a potential that can be maximized to promote development in the coastal and upland areas of the city. Present natural attractions in the rural areas will allow the local economy in those areas to flourish. The Eden-Catigan and Tagurano tourism development area will be further developed through infrastructure development to attract investors in the area as well as surrounding communities. The development of a tourism zone in Baganihan will enable the upland barangay to develop into a future minor growth area should tourism activities thrive. In the CBD and its neighboring districts, the shopping destinations and convention sites the city hosts provide the urban populace with the urban services and amenities. Tourism related industries such as hotels and restaurants will be encouraged to be established inside the urban areas while resorts and nature parks will be encouraged to be located in its periphery. These urban tourism attractions will create opportunities for entrepreneurs and job seekers alike.

Tourism promotion activities will be embarked on to reach existing and new markets to promote Davao as a destination. Infrastructure development to access attractions in the rural areas will be pursued.

**Information and Communication Technology (ICT)** economic activities of the city are more on the business processing and outsourcing (BPO) industries. To date, Philippines remains to be a top BPO center in the world providing both voice and non voice transactions for other countries. Davao City has been designated as the next wave city of the Philippines

in terms of BPO industries. With the presence of the high quality secondary and tertiary levels of education, the human resource potential of the city is an attraction itself. Concentrating on attracting BPO companies to set up shop within the CBD and Talomo, Agdao Buhangin Districts to enjoy the benefits of agglomeration and provide employment opportunities for the urban dwellers of the city especially for its young work force. Different developers are presently construction commercial spaces that will accommodate new BPO players

### **c. Preferred Spatial Development Strategies**

Davao City with its 244,000 hectares of land areas shall have a spatial strategy that would suit the needs of its people as well as recognize the development constraints of the area. Considering that the 1996-2021 spatial strategy has already been implemented and that the city continues to develop as projected by the 1996-2021 plan, the 2013-2022 will complement the spatial strategy but will also integrate new areas of growth that have emerged since 1996.

The City will continue with its **multi-nodal spatial** strategy with the Poblacion district as its Central Business District. Various growth areas have been identified to function as complete communities where the locals' needs for residential, commercial, social and the like are available within proximity. However, high level services and goods would still be obtained in the central business district.

Linear development or development along the main roads will be discouraged to prevent traffic congestion. Development permits will have to be accompanied with proper traffic impact assessment so that traffic mitigating measures will be integrated into the plans of the private development projects

## **2.10 THE STRUCTURE PLAN OF DAVAO CITY**

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The Land Use Plan needs to produce a structural plan that is robust and flexible enough to accommodate and adapt to a range of future circumstances and future scenarios. It is a conceptual framework that has been designed to reflect the existing urban structure and identify the common land-use patterns that will accommodate a range of population projections, and the possible resultant housing, employment and service needs.

The Structure Plan was developed through a process which involved extensive use of existing spatial data and the creation of several new layers representing key directions.

The development of the structure plan was guided by the need to incorporate future growth within the Urban Centers. The structure plan seeks to maximize the use of existing infrastructure and facilities in a way that minimizes energy and natural resource (e.g. water) consumption. It promotes future growth in selected locations with capacity for additional growth, well served (or with the potential to be well served) by appropriate transport corridors (e.g. freight routes for industry; public transport for residential development) and other essential services and facilities such as Information and Communication Technologies. Targeting growth will also assist in protecting sensitive areas from inappropriate development and can maintain and build upon city's comparative advantages.

The Structure Plan continues the established cascade of growth centers Central Business District to urban centers namely Toril, Calinan, Bunawan, Buhangin and Mintal. In particular, the Structure Plan features a potential for increased focus on transit oriented development within urban centers and transit focused development in settlement areas.

It is important to recognize that the structure plan is conceptual only and has a long-term outlook. While it indicates the possible location of future development derived from planning approach, change and refinement will occur through:

- negotiations with local government and detailed consultation with communities, particularly in regard to location identification, projected impact on local character and required changes to development policy to facilitate any new development
- Ongoing monitoring of the success and impacts of strategies for urban containment.

It is expected that the existing settlement pattern of the city will continue in the next decade.

### **a. Central Business District**

CBD will continue to be the prime meeting place and cultural focus for the people of Davao City, Region XI and Mindanao. Also, CBD will continue to enjoy as the major focus for commerce, tourism, conventions, leisure, entertainment, sport and recreation, education, cultural development, the arts, and health industries. The CBD will continue to be the biggest employment opportunities generator.

The CBD and its surrounding neighbors of Buhangin, Talomo and Agdao districts shall be hosts of facilities hosting Information, Communications Technology particularly the Business Processing and Outsourcing industry. The agglomeration of the needed facilities to operate 24-hour workforce within the CBD is complemented by the presence of urban infrastructures and services not only in utilities but in peace and order as well.

The future growth of the Central Business District will primarily be characterized by vertical expansion. Urban renewal will likely take place while residential land use of higher density will continue to be developed in this vicinity.

In order for the city to serve as a viable major service and investment center for the EAGA in the coming decades, the CBD which includes the Chinatown must be able to deliver a wider range of urban facilities and amenities. Special attention shall be given to such uses as recreational open spaces, civic center, pocket parks, parking facilities, and other related uses which are all important in any location.

#### **b. Urban Centers**

The primary role of the Urban Centers and District Urban Centers is to act as second level service center for the city's residents and visitors. Among others, amenities/community facilities within these centers shall be of medium scale urban facilities and amenities such as commercial, industrial, secondary or tertiary school, a district hall, a hospital, integrated food and transport terminals and other similar activities that are deemed necessary in these centers. These centers shall be connected with each other and the Central Business District, by major roads to ensure efficient flow of goods and people.

By the year 2022, the Central Business District may continue to accommodate a major share of the city's population. However, to attain a more balanced spatial distribution of population throughout the city, the plan suggests the development of the designated City's existing urban district centers of Calinan, Mintal-Tugbok, Toril, Marilog-Paquibato, Panacan-Bunawan and the Tourism Development area of Eden-Catigan-Tagurano as the City's growth centers.

The development of these centers has to be maximized through the improvement and expansion of urban services and facilities. Each of these growth centers is anticipated to complementarily perform the following essential functions

##### **Calinan**

This existing urban center is strategically located within the productive agricultural areas of the city. It shall be enhanced as the center for agro-based and industrial activities as well as center for trade and services in order to accelerate economic growth and development in the place and create more employment. Thus, the same may further be considered as the city's main center for consolidating agricultural products coming from the districts of Marilog, Paquibato and Baguio, and also some of the barangays belonging to Cotabato and Bukidnon Provinces.

### **Mintal-Tugbok**

Due to the geographical advantage and existing high level educational institutions in this area, this growth center may serve as the center for other higher level education, bio-technology research and development for Mindanao and the EAGA. Residential areas will continue to be developed in the area owing to its accessibility to educational facilities and its relatively low land values. These residential developments will offer opportunities for the surrounding farmlands to supply for the food requirements of the area. It is expected that the demand for commercial areas in Mintal will increase while the existing tourist attractions in Los Amigos and surrounding barangays in Tugbok district will enjoy new customers.

It is also envisioned that this center shall serve as the site for a world-class sports complex that is capable of accommodating local as well as international sports events.

### **Toril Urban Center**

This center shall primarily serve as the city's alternate central business district of the City, having the advantages of the existence of urban facilities and services and its proximity to several existing resorts and recreational centers. This center will likewise serve to complement for the tourism related activities in the Triad tourism area by providing the commercial and services needed by the populace of the surrounding areas. This area shall also accommodate marine based industries due to the existence of a major fish landing facilities in the place. Agro-industrial plants, food processing industries and food terminals will be encouraged to locate in the area to take advantage of its accessibility to the products coming from Region 12 and ARMM. Consolidated and semi-processed agriculture products coming from Marilog-Paquibato area will be transported straight to these processing plants through an alternate road system parallel to the Bukidnon-Davao Highway.

### **Marilog-Paquibato Economic Zone**

These two hinterland centers shall primarily be designated as focus areas for agro-forestry development programs and upland agricultural development since most of these areas have been identified to be prone to landslide. Enhancing vegetation through agro-forestry will stabilize slopes against landslide and erosion. These areas are expected to provide for the industrial crops and food products for the food requirements of the citizens as well as the raw material needs of the agro-industrial and food processing plants of the city. These areas shall also be capable of accommodating small food processing plants compatible with the agriculture zones to enhance the productivity of the existing IP settlements in the area. The barangays of Baganihan and portion of Datu Salumay will be designated as tourism development zones to harness the tourism opportunities of the area. Development in the area will conform to tourism standards on eco-tourism and cultural tourism.

## **Eden-Catigan-Tagurano Tourism Development**

When fully developed, this center shall serve as the mountain resort and agro-tourism capital for Mindanao and the influence area of the EAGA family. Its tourism development potentials in terms of its natural landscape, strategic location, panoramic sceneries and its climate can easily offer a favorable and enduring impression among tourists. The Triad area (Eden-Tagurano and Catigan) will be developed as an alternative highland area of Mt. Apo. Resorts, hotels, recreational facilities that adhere to ecotourism standards will be encouraged in the area. This will provide livelihood opportunities for these communities living in the foot of Mt. Talomo. Various land uses may be introduced to the area as long as the carrying capacity of the area as well as aesthetics and tourism value are integrated into the development.

## **Bunawan Urban Center**

In order to minimize the disruptive effects of the increasing industrial activities in the city environs, the Land Use Plan proposes for the centralization of light, medium and heavy industries from Panacan to Lasang, rather than the dispersal, concept of locating the same. The Bunawan-Lasang area has been designated as the city's main industrial/manufacturing center based on the existing land use patterns, wind direction, topographic condition, and convenient access to major air, sea, land transportation networks. Manufacturing activities will serve as livelihood opportunities for the people of the district. Activities that provide value to the local products in the agricultural sector will be encouraged to provide value enhancing to our local products.

### **c. Emerging Districts**

#### **Buhangin Urban center**

The new Urban Center in District 2 as identified based on the Scalogram is Buhangin. Characterized primarily by the expanding residential subdivisions, this area is traversed by the Philippine Japan Friendship Highway that connects National Highway from the south and the north part of the city. This is also proximate the Davao International Airport. This is an elevated area with good and complete service facilities and utilities. This center is already connected to Bunawan Center by a Provincial road or alternative road from Buhangin to Bunawan.

Buhangin Urban center will be a main residential growth area owing to the residential development opportunities in Cabantian. High-end medium rise residential areas will be likewise encouraged to take advantage of new commercial activities in the area. . The area will likewise be an expansion area of commercial activities as well as ICT industries especially in the Lanang.

### **Agdao Urban Center**

Agdao district is another emerging urban center identified in the Scalogram due to the presence of the secondary facilities and services. It is located along Davao Gulf in District 2 of the city. This center is nearest to CBD and a primary supplier of workers for different industries in the CBD. It has a total population of 99,406.

The Agdao district will be encouraged to develop its residential areas to accommodate more of its residents. The urban center will continue to play host to various warehouses that supply the CBD with goods from the agriculture areas of the city as well as other parts of the country. The commercial areas like the Dacudao property which plays host to SM Lang premiere will serve as a magnet for commercial development in the area.

### **Talomo Urban Center**

Another new urban center in 1<sup>st</sup> congressional district of the city is the Talomo identified as an emerging district. It has 382,652 population with second level of facilities and services and amenities present.

The area will serve as hosts to the expansion of the CBD to the south of the city and will play a vital role in accommodating more residential projects close to the city center. The district can develop ecotourism sites since there areas located in Langub and Magtuod that may accommodate low impact activities like hiking trails, bike trails and such.

## **d. Specific Land Uses and Roles of Administrative Districts**

### **Baguio District**

#### **Existing**

Baguio district is composed of 8 barangays that are primarily agriculture and forest. More than half of the area is devoted to agriculture (13,153.70 hectares) supplying the city with various fruits such as durian and pineapple. A large area (930 hectares) of the district is also a part of the Mt. Apo Natural Park. Located in the district are some popular tourism facilities particularly the Malagos Gardens Resort and the Philippine Eagle Breeding Center. 8,857 hectares or 47.29% of Baguio district are within the ObuManuvu CADT. Currently, the district supplies the city with some of its food requirements as well as providing recreational facilities for its citizens and tourists alike.

At present, agriculture lands can be observed as developing near the slopes of the Mt. Apo National Park.

#### **Proposed**

The land use capability map has identified large areas of the area as conservation areas since these are crucial to the watershed areas. Tillage Agriculture practices are likewise recommended in some portions of the district.



A large part (12,326 hectares) of the district is now classified as conservation zone, owing to it being a part of the Mt. Apo Natural Park as well as having recharge areas of the city's aquifers. Agriculture lands have been reduced by 1,118 hectares since those were classified as conservation areas. Zones with geo-hazard were identified so that development restrictions can be enforced. Settlements within the district are largely confined within the rural settlement areas where the barangay poblacion are located.

The Baguio district will develop to continue its support to the agriculture sector for food for the whole city as well as a provider of inputs for the food processing industries in the Calinan and Toril Districts. The tourist attractions of the district will provide the visitors with eco and agri-tourism activities.

There are large portions of the proposed conservation areas (8,707 hectares) that lie within the CADTs which will allow the IP communities to participate in the protection of our watersheds.

### **Paquibato District**

#### **Existing**

The Paquibato District with its 65,240 hectares has 53,040 classified as brush lands and grass lands. Forest cover occupies 10,492 hectares and the rest of 1,733 as agriculture land.

These lands are presently occupied by mostly Indigenous People particularly the Atas and other the upland farmers. Its main agriculture products are mostly fruits and vegetables. Rice and corn are grown in the few flatlands of the largely mountainous district.

The expansion of tillage agriculture on the steep slopes is a concern since these tend to increase the rate of soil erosion in the district. The lack of all-weather roads in the district makes it difficult for the transport of farm produce to the markets of Davao City. More than often, farmers market their products to Panabo City since this is more accessible. Development of settlements is constrained by the steep mountain slopes in the area which may present risks to landslides.

#### **Proposed**

While the land for Forest use will be reduced to 9,030 hectares, the conservation areas where development is not allowed will cover 12,894 hectares. Agriculture practices especially agri forestry and non-tillage agriculture will be allowed in 41,327 hectares of Paquibato district. A total of 1,158 hectares of landslide and Floodway zones have been identified and will be managed with development restrictions.

The district with its potential as a major agriculture production area will serve as the supplier of food and agricultural products for the processing plants in Bunawan and Toril. Fresh produce from the district will be consolidated in Toril as well as the warehouses of the Agdao district. As in Marilog area, permanent crops like rubber, durian, cacao, coffee and banana will be prioritized as agri forestry crops. Road systems that will connect the Paquibato District to Calinan and Buhangin Districts will be built so that farm produce can be transported directly to the local markets.

The Ata CADT covers 59,578 hectares of Paquibato District. 36,383 hectares are classified as agricultural while 12,604 hectares are classified as Conservation. Another 8,785 hectares are classified as Forest zone.

## **Marilog District**

### **Existing**

Marilog District has a total of 12 barangays under its administrative district covering a total of 62,885 hectares. It has an existing 11,102 hectares of forest cover and 45,713 hectares and 6,071 hectares can be classified as brush lands and agricultural lands respectively.

The area serves as a major production area of the city owing to its agro-forestry products. Tree plantations and fruit tree plantations can be found in this district. In the uplands, tourists attractions like caves and waterfalls make it a natural tourist destination. Lowlanders have leased lands in the area for their weekend houses to enjoy the district's cool climate.

Despite of being a part of ancestral domains of the IP, There have been encroaching in the area by leasing some of the land and converting these into residential uses for their weekend getaways. As to MGB's terrain analysis, a large part of the district has geo-hazards due to steep slopes that limit development of the area.

### **Proposed**

A total of 26,159 hectares of the district's land will be allotted for agriculture practices particularly agro forestry. Owing to geo-hazards and other constraints, forest area will be decreased to 4,423 hectares however, 19,950 hectares will be zoned as conservation or no development zones. Landslide zones where settlements will be restricted comprise of 9,548 hectares. Tourism development zone will include 2,137 hectares.

The Marilog district will remain to be a major production area of the city. Development of agri-forests will be encouraged to plant permanent crops in the area to help stabilize the slopes and prevent further soil erosion. Priority permanent crops are durian, coffee, cacao, rubber, banana and coconut. The reforestation of the area through agro forestry enables the locals to earn income while enhancing the watershed. Barangay Baganihan and Datu Salumay will be promoted as tourism development zone with eco tourism as well as cultural tourism as their strategies. This will allow compatible uses and activities to the land capability as well as cultural sensitivity.

There are 24,613 hectares that fall within the ObuManuvu CADT where 14,850 hectares are classified as agricultural to allow IP communities to engage in activities to improve their economic state. 7,365 hectares of declared as conservation areas are also within this CADT.

There are also 24,382 hectares of Marilog District that are within the Matigsalug-Manobo CADT where 7,774 are declared as conservation and 5,308 hectares as agricultural. 8,171 hectares in this CADT are areas classified as landslide prone.

## **Calinan District**

### **Existing**

The district straddles the two watershed areas of Davao River and Talomo River systems. Existing land uses of the district are mainly agriculture with 13,154 hectares classified as agricultural and 8,580 hectares as shrub lands. There is approximately 31 hectares of commercial lands in the area followed by approximately 11 hectares of residential lands scattered around the Calinan Poblacion area. Currently, residential areas are being developed in barangay Riverside.

The barangay Calinan has a bustling commercial center that serves the barangays of Marilog, Baguio, Calinan and Tugbok. The barangay also serves as a transportation hub for its surrounding areas.

The district was allotted industrial land for the expected industrial activities to locate in the area to process the agriculture products of the surrounding districts. However, there were no industrial locators in the area for the past 10 years. The barangay Calinan and several other barangays have been affected by some flooding incidents in the last ten years. The 1996-2021 Zoning Ordinance designated the area surrounding Barangay Calinan as mostly residential however, according to the MGB geohazard study these areas are now classified as highly susceptible to flooding.

### **Proposed**

The agricultural area of the Calinan district will be increased to 15,981 hectares as classified in the land capability map. Owing to the presence of recharge zones of Davao City's aquifer, 3,783 hectares will be zoned as conservation areas while those that are highly susceptible to flooding will be classified as Floodway zones where residential development will be restricted. Residential areas will be increased in safe lands to 245 hectares while the remaining industrial zones will be rezoned into residential and agro industrial zones.

The district will serve as the semi-processing and consolidation area of agricultural products to be delivered later to the main processing area of Toril. The district will continue to serve as a minor urban area catering to the urban needs of its surrounding area. Commercial activities will be encouraged to provide service to the largely agriculture-based population.

## **Tugbok District**

### **Existing**

Tugbok district with its total land area of 14,858 hectares has 13,694 hectares dedicated to agriculture. Institutional lands of the Department of Agriculture's Bureau of Plant Industries and Philippine Coconut Authority plus the University of the Philippines occupy around 229 hectares of the district. As of now, residential projects in Barangays Tugbok, Los Amigos, Mintal and Sto. Nino are increasing, presently occupying 573 hectares of the district. On the other hand, New Carmen hosts the sanitary landfill of the city which occupies around 5 hectares of the barangay.

The city has identified the district as its expansion area in terms of its institutional uses more specifically on education. The district currently host two state universities

and a science high school in its district. The expansion of private high schools in the area and its neighbouring districts makes the area more attractive for residential areas. Barangay Mintal likewise plays a central figure for the district in becoming its commercial district providing for the much needed commercial services to its district.

While the district has relatively large flat lands, these are vulnerable to floods as cited in the terrain analysis. At least 617 hectares have been identified as having high susceptibility to flooding. Current developments in the area are now replacing lands that are presently used for agriculture purposes, these lands though have already been zoned for residential purposes. Commercial development along the Davao Bukidnon Highway is generating traffic congestion in some hours in Mintal because of the lack of parking spaces by commercial buildings along the highway.

### **Proposed**

To accommodate the expansion of the residential areas in the district, 2,178 hectares is allotted for residential purposes. This is followed by 9,960 hectares for agriculture uses. A total of 617 hectares and 146 hectares is zoned as Floodway and Conservation respectively. Institutional zone is brought up to 558 to accommodate the relocation of the schools and universities and other institutional uses in the area. Industrial land to accommodate light industrial activities will be located within a 72-hectare area which is far less than the previous industrial land allotted in the area.

The Tugbok district provides a key expansion area for the residential development of the city. Most of the middle class housing developments are fast rising in the area to take advantage of its relatively lower land prices. This however may pose a problem in terms of traffic congestion if all residents will avail of their urban needs in the CBD. Commercial development will be encouraged to serve the needs of the present and future residents. This will lessen the need for the district's residents to travel to the CBD just to avail of basic commercial goods and services. As the institutional centre of the city, research and development facilities will be encouraged to locate in this area to take advantage of the existing academic institutions. As the population of the district increases, it is expected that more educational institutions will put up their facilities in the area.

## **Toril District**

### **Existing**

Toril District encompasses 29,685 hectares of Davao City. Agriculture lands cover 17,157 hectares while forests of the Mt. Apo Natural Park occupy 10,716 hectares. The district hosts the largest concentration of tourism areas especially in the Eden-Tagurano-Catigan with 197 hectares, while residential lands occupy 935 hectares of its territory. Also located in the district is an agglomeration of agro industrial activities particularly in the Sirawan area where poultry and swine farm abound. Nearby, the coal fire-powered plant is being constructed which is expected to be completed on 2016.

Currently the Toril district especially Barangay Toril serves as the secondary growth center of the City. With more than 50 hectares of commercial areas and newly built commercial malls, these serve a large population spanning Toril District, and parts of Tugbok and Talomo districts. With the Daliao fish port, it supplies the city with fishery

products from the sea. The district also hosts the Tourism Development Zone comprising of three barangays of Eden-Catigan-Tagurano where upland ecotourism activities can be enjoyed by locals and tourists alike.

Current conflicts in land use are mostly between residential and agro-industrial activities. The pollution coming from farms must be managed through environmental mitigating measures. The development of tourism facilities in the upland areas is hampered by the lack of water facilities. Farm-to-market roads are still needed to connect the roads system to allow better access of farm produce to the markets of Toril and the city.

### **Proposed**

To meet the requirements of the city, Toril District is proposed to accommodate 2,203 has. of residential lands to meet future needs. To provide employment in the urban areas, agro-industrial areas are allocated 808 hectares and industrial land to 433 hectares. To allow expansion of the commercial activities 233 hectares of land will be zoned as commercial land. The forestland plus the recharge zones within the area will comprise the conservation zone of 11,565 hectares of the district. Of the whole district 1,434 hectares will be zoned as landslide mitigating zones where development will be limited. The whole barangays of Eden-Catigan –Tagurano are designated as tourism development zone with an area of 3,545 hectares.

As the secondary growth center of the city, Toril district will be developed to serve the as an alternate site of the urban amenities of city. The district will focus in agro-industrialisation as well as eco-tourism to propel the development of the city. The district will serve as the food processing area of the city where fruits, meat and vegetables from other districts as well as other regions will be consolidated and processed so that these can be exported to other parts of the city and the region.

The ObuManuvu CADT covers only 527 hectares in Toril District which is classified as Conservation area. The Bagobo-Tagabawa CADT covers Barangay Sibulan and portions of Mt Apo Natural Park with an area of 4,701 hectares Toril District and 2,904 hectares of which is classified as Conservation with only 60 hectares allotted for agricultural use.

## **Bunawan District**

### **Existing**

Bunawan District with its 6,393 hectares is lies along the border of Panabo City. Currently, there are 4,700 hectares that are being used for agriculture. The district hosts the largest concentration of industrial activities comprising of 465 hectares and to complement the need for workers 706 hectares of residential areas exist in the district. There are 155 hectares of land that are being utilized for quarrying activities specifically limestone for the nearby cement factory. Even so, the district boasts of fishponds and mangrove stands along the coastline.

The district serves as the manufacturing hub of the city. It hosts medium to heavy industries that are engaged cement manufacturing, steel plants and food processing plants. Likewise, relocation sites of the city are located in the area to provide job opportunities for the urban poor.

Conflicts between land uses often arise between residential areas and the manufacturing plants. While most of the area was zoned as industrial, settlements continued to proliferate in the zone to take advantage of the employment opportunities. Flooding occurs in the area as a result of the overflow of the riverbanks affecting mostly informal settlements.

### **Proposed**

With the expected rise in the demand for industrial lands by foreign locators, it is proposed that 2,625 hectares of land be allotted for industrial uses. Agricultural lands will be reduced to 1,321 hectares to accommodate the need for agro-industrial and industrial lands. Settlements will be increased to 890 hectares but will be managed with proper buffer zones to prevent future conflicts between residential and industrial uses.

The District will continue its role as the manufacturing hub of the city. Medium and heavy industries will be directed to locate within this district. Agriculture products from Paquibato district will serve as raw materials for the food processing plants of the district. This will provide employment opportunities for the residential district of Buhangin and the socialized housing projects within the district. The district will also host the port facilities of various banana companies that use the district as their logistics center to export fresh fruits to other countries.

### **Buhangin District**

#### **Existing**

Buhangin District has 9,473 hectares of land under its jurisdiction. More than half of the district is engaged in agriculture with 4,959 hectares utilized as such. Residential area is 2,345 has. making it the second largest district in terms of residential area in the city. Commercial areas occupy 328 has while industrial areas comprise 139 has of the district's land.

The district has enjoyed a rapid growth in its commercial and residential development. The commercial development along its main roads like the Diversion Road and the JP Laurel Road provides the expansion area for the Poblacion district. The development of residential housing in Barangays Cabantian and Tigatto in the recent years has allowed the middle class to own houses near the CBD. There continue to exist high-end subdivisions in the district and recent developments for planned communities have been undertaken by development corporations. The district plays host to the Davao International Airport and the International Seaport. Warehouses and container yards for the import and fresh fruit export businesses are located along the shorelines of the district.

Owing to the intensity of the urban uses, various land use issues often arise. The competition between residential land and industrial land often arises when industrial zones are converted in to subdivisions. The succeeding industrial development are then held hostage by these residential development even if they are in the right zone. Commercial development along the main roads of the district is aggravating the traffic flow within the district. Furthermore, the commercial zones along the Diversion Road have increased the frequency of traffic congestion and even accidents. Traffic mitigating measures must be put in place to ensure minimal traffic disturbance. The district is furthermore threatened by geohazards present in the area especially along

the Davao River. The flood prone zone is approximated as covering 1,285 hectares of the district and residential areas are often affected by floodwaters whenever Davao River overflows.

### **Proposed**

The residential zone of the district will be expanded to 3,865 hectares to absorb the city's need for residential areas. Property developers have been provided for 487 hectares of Planned Unit Development zones where they can develop mixed-use areas for their clients. Agriculture lands were reduced to 2,395 has to accommodate the residential areas so that these will not enter the Floodway zones of the district. Industrial and commercial areas will also be expanded to accommodate the district's needs.

The district plays a critical role in the development of the city since it hosts that major linkages of the city to the outside world. The Buhangin district serves as the expansion area for the residential areas in the northern part of the CBD. The ICT industry is mostly concentrated in this district with the IT parks located in Damosa area and along JP Laurel highway. Likewise the district hosts major tourism facilities like hotels, resorts and golf courses. The district also serve as the bridge between the CBD and the Paquibato area since roads leading from the CBD to the Paquibato District will be passing through the Buhangin district.

### **Agdao District**

#### **Existing**

The District has the least area occupied at 530 hectares, 190 hectares of which is currently being utilized for commercial purposes. 251 hectares are currently being used for residential and 34 hectares for industrial activities.

The District currently serves as a warehouse district where goods imported from other districts are stored for distribution to other parts of the city as well as a consolidation center where agriculture products from all over the the city as well as regions outside the city converge to be exported to other regions. Within the district is the wharf of Sta. Ana which used to serve as the main port of the city. The wharf is currently used as a jump off point for tours to the Samal Island although it still handles limited commercial cargo for some establishments. In Magsaysay Ave., commercial establishments selling affordable goods from other regions and countries serve as shopping areas for people looking for bargains.

However in Lanang area, high end commercial malls like the SM Lanang Premiere together with its hotels are located. Residential areas that need upgrading can also be found in the district. The density pattern of the district is found to be the highest in the whole city. Also found within the district is one of the main urban parks of the city – the Magsaysay Park.

The encroaching commercial activities within the residential areas of the district remains to be an issue of conflict. The need for new commercial spaces within the district rapidly changes the uses within designated residential areas to the detriment of the households. The lack of commercial spaces for the micro entrepreneurs are forcing them to occupy sidewalks and streets. Incidents of landlessness in the

district has developed informal settlements particularly along the coastal areas of the district. Industrial areas within the district are now being surrounded by informal settlers thus endangering the businesses and households alike. The Magsaysay Park needs refurbishing and upgrading to develop its premises into an area where people can relax.

### **Proposed**

To develop its commercial potential, previously designated residential areas will now be zoned to allow commercial uses in their areas expanding the commercial area to 228 hectares. Industrial activities which are very vital to employment generation will be expanded to 106 has of the district while purely residential zones will be reduced from 251 hectares to 148 has. The reduction of residential zones does not mean the removal of residential units but it now allows these areas to have commercial activities within. The Magsaysay Park and the Sta. Wharf area is being targetted for development to handle tourism related activities. The park will be developed into a tourist attraction while the wharf will accommodate commercial activities that will complement the park as well as handle tourist oriented water transportation systems for the region.

The role of the Agdao district will be to serve as a commercial expansion area of the Poblacion District owing to its proximity. The expansion of commercial areas and industrial areas within the district will allow employment opportunities for locals living with the Agdao district as well as its neighboring districts. The district with a developed Sta. Wharf will serve as the jump off point of the tourists who would want to explore other parts of the region like Samal Island. However, Agdao District will continue to be the warehouse center for goods coming from the port areas for distribution to the rest of the region.

### **Talomo District**

#### **Existing**

The Talomo district has experienced a surge in residential expansion these past years. With its 8,558 hectares, a total of 2,907 hectares of residential areas exist within the district. Agricultural activities consume 3,837 hectares while 382 hectares are used for commercial activities. The presence of mostly educational institutions occupy 145 hectares of the district's land.

The district of Talomo is known for its large residential areas especially in Bucana, Matina Crossing, Matina Aplaya and Catalunan Grande. The district supplies most of the drinking water of the city because most of the DCWD production wells are located in Barangay Dumoy. Educational insitutions like primary and secondary schools and few univerities are also located in Barangay Matina Crossing of the the district. Its commercial areas are mostly located along the Matina Crossing area of MacArthur Highway and in Bucana along Quimpo Boulevard. The district also accommodates tourism activities especially in its coastal barangays of Matina Aplaya, Dumoy and Talomo. Industrial activities of the district are confined in the barangays of Maa and along the MacArthur Highway in Talomo. The Matina Aplaya area hosts to mangrove stands that may be considered as one of the most diverse mangrove environment in the area owing to the number of species found there.



The area experiences various land use issues as it continues to be a preferred area for expansion of residential areas. It also hosts some of the city's informal communities especially in its coastal barangays. With the lack of good sanitary practices by many households in these communities, pollution from these areas now affects the coastal waters of the district. Commercial development may run in conflict with these informal communities when the landowners would like to expand their commercial interests in their properties. The District hosts three watersheds making it vulnerable to the floods that come occasionally.

Barangay Talomo Proper is often affected since it stands between two river systems – Talomo River and Matina River. The communities of Barangay Maa and Bucana are affected whenever the Davao River overflows. Another concern is the existence and expansion of residential areas within the areas of the production wells of DCWD since many of the houses have not installed proper sewage systems to protect the ground waters of the district.

### **Proposed**

The district is proposed to have 5,067 hectares of its land zoned as residential to accommodate the expansion of the city's residents. Commercial zones within these residential zones will be encouraged to provide the basic services need by the households and prevent additional trips to the CBD that create traffic congestion. A special Urban Ecological Enhancement zone will be assigned to the Shrine Hills area to mitigate the development of the area since it is classified as a landslide prone area by MGB. This will be developed into a green park and eco tourism site where low impact activities will be done to prevent instability on its slopes. A total of 954 hectares will be classified as Floodway zone to prevent residential development along these areas.

Talomo has become an emerging growth area of the city. Its main role will be to absorb the expansion of residential growth of the city. The district is expected to absorb the lower and middle class residential needs of the city. It is expected that medium rise residential buildings will be developed in barangays that are near the CBD. Middle class housing will also be developed in the barangays of Catalunan Pequeno and Catalunan Grande. As for the commercial areas, commercial malls will serve as the growth areas of commercial development. However commercial development along the highways is still expected but proper traffic mitigating measures should be undertaken by the developers to minimize traffic congestion. The revival of the Times Beach area as tourism zones is needed. It is foreseen that tourism oriented restaurants can be re-established in the area as long as the proper sanitation and waste water treatment plants are put in place to minimize the pollution of the waters. The Talomo Bay will continue to be strategic in the fisheries sector by maintaining the marine protected areas and its fishing grounds. Recreational facilities are expected to be established in the Talomo and Matina Aplaya area.

## **Poblacion District**

### **Existing**

The Poblacion district occupies 1,144 hectares of the city and bounded on the west by the Davao River. Its commercial area is 511 hectares with residential areas covering 433 hectares. Institutional areas occupy 98 hectares of the entire district.

The district currently hosts the major institutions in terms of trade and commerce, education and health, administrative and transportation services. Commercial establishments crowd the main streets of San Pedro up to JP Laurel and the main market place of the city – Bankerohan is also located in the Poblacion. The main branches of different banks are located along the CM Recto Avenue. The district serves as the main commerce and trade center of the city where goods and services are exchanged. The Chinatown area hosts mostly retail and hardware shops. Aside from being the CBD, the Poblacion also serves as the central administrative district where the main offices of the local government and national agencies like the City Hall complex, San Pedro Cathedral and Central Bank are located. Main educational and health institutions from the private and public sectors are concentrated in this area. In transportation, the district functions as the main hub for the city where all routes of different types of transportation start or end and for the region because of the Davao City Overland Transportation Terminal.

With the expanding CBD, the residential areas surrounding the CBD are now being converted to commercial establishments. The CBD is now facing competition from the commercial malls located in other districts like Agdao and Buhangin and may lose its competitiveness if it cannot upgrade its facilities. The commercial buildings are now old and dilapidated and may need to be rebuilt to expand its area and accommodate new types of commercial activities. Vertical development is now being undertaken by different institution to maximize their location but many fail to provide adequate parking spaces within the lots. Parking issues along the streets of the city is now increasing as the need to utilize them for moving vehicles become apparent. Open spaces in the city need to be refurbished to maximize their potentials to provide recreational activities for the citizens. Residential areas will continue to be converted into commercial areas but vertical residential spaces can complement this development. The infrastructures and utilities of the district are now getting old and need upgrading. During heavy rainfall, the drainage systems of the district are overwhelmed resulting in flashfloods in commercial and residential areas. Areas along the Davao River are constantly threatened by floodwaters whenever there are heavy rains in the Davao River watershed.

### **Proposed**

The expansion of the Poblacion will not be horizontal but vertical wherein medium rise to high rise buildings are expected to be built to maximize the location's centrality. Commercial areas will be increased slightly to 530 hectares to accommodate some expansion. It is seen that most expansion will come from vertical development to maximize the limited spaces within the CBD. Residential areas will be reduced and restricted especially those along the riverbanks of Davao River. A total of 259 hectares of the district will be declared as Floodway zones thereby restricting residential development on such. Institutional areas will be slightly increased to 82 hectares while the Chinatown area with 63 hectares will be made

into a tourism development zone where commercial development will be made compatible with the Chinatown design concept of the area.

The Poblacion area will function as the major growth area of the city. This will be the major trading center of goods and services especially on the banking and finance sectors serving all administrative districts of Davao City. The Poblacion district will continue to provide the highest quality service on health and education owing to the presence of tertiary level hospitals and universities. The City Hall as the main administrative center of the city will continue to be located within the district and vertical development will be considered if there is a need to build more institutional spaces.

## 2.11 BALANCING LAND SUPPLY AND DEMAND

### a. Available Land Supply

A critical element of the successful governance of the plan will be improving the effectiveness of the management of land supply for various uses such as residential, commercial and industrial purposes.

The city has a vast land area for development. Available land supply suitable for development/urbanizable land is the result after taking out Conservation Areas and other Special Interest Areas such as National Integrated Protected Areas System (NIPAS), Ancestral Domain, Network of Prime Agricultural Areas for Development (NPAAD), Primary Forest and other forest types and Critical Watersheds. The 1996-2021 land use plan has provided 36,916.74 hectares land area for Davao City's urban development. In 2011, developed urban land account only 13,743 hectares. Therefore the city still has available land area of 23,173.74 hectares for its urban development.

### b. Additional Area Requirement

Davao City has considered only four (4) major land use classifications in the computation of the future land requirements for urban uses for residential, commercial, industrial and parks and open spaces. The computation is according to the HLURB standard using the Davao City's average household rate of 4.3 as shown in table 1.4.

**Table 1.37 Physical Planning Standards, Davao City**

Classification	Standard
Residential	200 sq.m. per household (4.3 persons her household)
Commercial	1.5 hectares per 1000 population
Industrial	2.4 hectares per 1000 population
Parks/Open Spaces	500 sq.m. per 1000 population

Source: As recommended by the Housing and Land Use Regulatory Board

As stated in the sectoral studies, Davao City should allocate an additional land area for an estimated 134,356 new residential dwellings by 2022.

ULRP program of the City and the private developers form the settlement/housing supply to cover Urban and Rural areas of the City. The employment component is to include industrial, commercial and retail developments. The plan would ensure that there is land capacity to meet the annual housing and employment targets.

Table 1.25 shows that 2013-2022 population projection needs 1,928.11 hectares for residential, 621.8 hectares for commercial, and 20 hectares for parks/open spaces.

In 1996, NSO statistical projection showed that Davao City will have a total population of 2,300,989 by the year 2021 with an annual growth rate of 3.37 percent. Using the HLURB

standards, for the period of twenty five (25) years, the total urban land requirements of the city indicates a total additional area of 36,916.74 hectares.

However the 2010 NSO census, the population growth rate of Davao City slowed down to 2.36% per annum. This translates to a much lower total projected population for 2021 at 1,493,543 or 807,446 less individuals than the original projection.

The City, in its 1996 CDP provided 11,512 hectares for residential use wherein 2,246 hectares of such is within the geohazards. The 2013-2022 additional residential requirement for its projected population will be around 2,086 hectares. As such, there is an additional of more or less 1,202 hectares for residential use for the planning period 2013-2022. The proposed commercial area allocation reduced to 2,638 hectares from 3,800 hectares in the 1996-2021 plan because the projected additional commercial requirement for the next ten years is only 622 hectares. Proposed industrial use allocation also reduced from 6,550 hectares in the 1996-2021 plan to 3,724 hectares in the next ten years. Institutional use also reduces from 2,152 hectares in the previous plan to 1,287 hectares for 2013-2022. However, open space increased from 420 hectares to 582 hectares.

**Table 1.38 Additional Urban Land Requirements, 2013-2022, Davao City**

Land Use Classification	Land Area Demand (in hectares)
Residential	2,086.00
Commercial	621.80
Industrial	994.90
Institutional	69.18
Open/parks	25.00
<b>Total</b>	<b>3,796.88</b>

Source, OCPDC

**Table 1.39 Available Urban Land Supply and projected Urban Land Demand, 2013-2022, Davao City  
(Hectares)**

Land Use	Allocated Land (1996-2021)	Geo-Hazard	Available Land Excluding Geohazards	Existing Occupied Land	Available - Existing	Projected Additional Land Req't	Gap	Proposed
Residential	11,512	2,246	9,266	8,382	884	2,086	(1,1202)	15,452
Commercial	3,800	324	3,476	1,583	1,893	622	1,271	2,638
Industrial	6,550	268	6,282	853	5,429	995	4,434	3,724
Institutional	2,152	99	2,053	629	1,424	69	1,355	1,287
Open Space / Parks & Recreation	420	100	320	1,321	(1,001)	25	(1,026)	582

Source: OCPDC

## **c. Strategic Interventions for the Availability of Lands**

### **Eminent Domain**

Eminent Domain is strategic intervention that allows the city government to expropriate land if such land has been determined or proved to have a use that would benefit a better majority. This implementation tool would be exercised to carry out plans and programs articulated in the town plan.

Lands which are subject to acquisition by the local government include:

1. Properties which are traversed by the proposed roads and bridges reflected in the road network plan;
2. Areas identified as part of the system of parks, open spaces, conservation areas and easements;
3. Properties where proposed public buildings are to be located;
4. Lands identified for socialized housing, resettlement, and relocation sites for informal settlers.

The process of expropriation would need legislative action to authorize the acquisition and to release the funds for the purchase.

### **The Zoning Ordinance**

The Zoning Ordinance shall serve as the strategic intervention in the implementation of the Land Use Plan. It is a regulatory measure which is enacted to identify the various land use districts or zones, designate the allowable uses therein and prescribe physical and performance standards based on the approved general and urban land use plans as reflected in the Comprehensive Land Use Development Plan of the City.

### **The Local Development Investment Program (LDIP)**

Local Development Investment Program (LDIP) is a three (3) year rolling plan that details the cost of projects, equipment and other items necessary to implement programs and projects stipulated in the town plan. Based on the general experience of local governments, financial resources are never enough, it is vital therefore that the LDIP be prepared with utmost care. Before sectoral projects are listed or even formulated, these projects must be checked whether there are overlapping efforts by other entities such as departments and agencies at the national or regional level.

The LDIP CY for the year 2014-2016 shall list down sectoral projects such as infrastructure, utilities, housing, livelihood, health care and other social services. The LDIP also include capital outlays of various equipment needed for the effective operations of the various offices of the city government. Financial support needed for implementing the plan may either come from the local, national or other source.

### **Increase Density of Zones to accommodate more development**

The existence of low density residential areas offers opportunity to accommodate more residences in previously zoned areas. Many of these low-density residential subdivisions

are just in the outskirts of the CBD and are now slowly accommodating townhouses and apartments. These show that there is interest from the landowners to accommodate more residences within their subdivisions. This offers an opportunity for compact development and shorter commuting distances for residents who will live in the apartments or townhouses.

### **Encourage medium to high rise mixed use buildings within the CBD**

To maintain the attractiveness of the Central Business District, mixed type of development should be encouraged in the area. The reintroduction of residential areas or buildings within the CBD will enliven the commercial and service industries even after the regular working hours. It is seen that the current trend of establishing medium to high rise residential buildings within the CBD will revitalize the original downtown area of the city. More restaurants and shops that will cater the needs of these residents are expected to be reestablished in the area.

### **Promote reuse of old buildings or structures to accommodate new uses**

Existing buildings and structures have a life about a half century, these can be retrofitted to accommodate present trends in development and zoning. Case in points are the movie theaters of the 1980s that have been redeveloped into shopping centers or entertainment centers. After an inventory of idle buildings, the local government can offer incentives to building owners for their redevelopment. These will allow the reutilization of existing commercial areas to accommodate new activities.

### **Encourage redevelopment of the original CBD**

The reestablishment of the original CBD as the prime commercial district will counter the magnets created by the malls in the outskirts of the city. With downtown redevelopment strategies, it is expected that commercial and residential buildings will be reestablished in the area. This will serve as a counter magnet against the urban sprawl that may result from the malls located far from the CBD.

### **Taxation**

Taxes are considered revenue generating measures to finance the programs and projects of the city development plan but also as a way to encourage and discourage certain activities in the city. With the enactment of the Local Government Code of 1991, local governments today retain more of its revenues than it did before projects were identified in the sector plans. The system of tax collection, however, should be improved to recover taxes lost due to inefficiency. Aside from financing programs and projects, taxation has the added purpose of influencing types of development in specific areas. For example, tax exemption or tax holidays can be granted in new development in undeveloped areas. Idle Land taxation should be implemented to prevent speculation in the land market which tends to distort the supply and demand of land in the city. Updating of the valuation of the lands of the city approaching near its market values must be prioritized to encourage the landowners to

maximize the productivity of their lands and also enable the city to raise funds for its various urban projects

### **Police Power**

One of the implementation tools of the local government is its police power. City ordinances would protect the safety, health, welfare and interest of its constituency. Police power covers such regulatory measures as zoning, building and subdivision standards, grant or deny issuance of city permits and environmental protection ordinances, etc. The police power regulations are usually enforced through the issuance or non-issuance of permits to applicants who want to build on, develop, improve or change the land uses of his property. Of course, the local government must make an effort and allocate enough financial resources to maintain an effective enforcement arm to monitor and enforce these ordinances.



## 2.12 PROPOSED LAND AND WATER USE ANALYSIS

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### a. Residential Areas

To cater to the projected increase of population, the city proposes a total area of 15,452 hectares for dwelling /housing purposes. Residential areas should include a range of services and facilities, such as public open space, education facilities, local community facilities, local shops and offices, housing, streets and pedestrian paths. Building height restrictions should follow standards of CAAP. These residential areas are categorized into four (4) land use classifications, as to density, namely:

- a.1 Low Density Residential (R-1) covers 2,829.78 hectares. Development of these areas allows a maximum of 20 dwelling unit in a hectare. These are located in
- a.2 Medium Density Residential (R-2) covers 9,162 hectares or 3.75 per cent of the city's total land area. These areas shall be for housing purposes and some basic neighborhood services which also needs to be controlled.
- a.3 High Density Residential (R-3) covers 2,899 hectares. The development of this area shall be use principally for dwelling purposes with density of 66 housing units or more per hectare. Basic services and other uses compatible with dwelling shall be allowed and needs to be controlled.
- a.4 Socialized Housing (SHZ) will occupy 489.67 hectares distributed in the different districts of the city. This area will address the demand for socialized housing needs and/or resettlement of the underprivileged which are located in the danger zones of the city for the next ten years. Housing program and projects covering housing and lots or homelots only undertaken by the government or the private sector for the underprivileged and homeless citizens, which shall include site development, long-term financing, liberalized terms of interest, and other benefits in accordance with the provision of this Act.

Residential development in areas with high susceptibility to flooding shall be discouraged. However, in special cases, mitigating measures shall be incorporated in the residential development plan. While existing residential developments in flood-prone areas will be encouraged to incorporate mitigating measures and flood proofing technologies into their structures.

The residential expansions are almost equitably distributed in the three (3) congressional districts of the city. The industrial districts at Panacan to Lasang also gets a substantial share of the residential expansion provided with appropriate buffer zones to accommodate the residential needs of the workers in the nearby factories/industries.

### b. Commercial Areas

The proposed area for commercial purposes provides a total area of 2,638 hectares taking stock of the city's role as the center for commerce, trade and industry in the region. The commercial areas provide two (2) land use classifications, namely:

- b.1 Minor Commercial - these areas cover 600.76 hectares. Uses falling under this category include all types of conglomeration of wholesale, retail and service-related activities. The Central Business District (CBD) has the highest share of

land allocation for this purpose, where the city's business establishments and activities are concentrated.

- b.2 Major Commercial - this covers 2,024.72 hectares distributed in the 3 congressional districts. There shall be no expansion or addition to existing ribbon-type development areas. Commercial areas shall be situated in the different areas/districts of the city to avoid much concentration of commercial activities in the CBD. These areas shall be a quasi-trade business activities and service industries performing complimentary and supplementary functions to the Central Business district (CBD). Uses under this area should be regulated and controlled accordingly.

Commercial activities within very high to high susceptibility to flooding will have additional restrictions to prevent disasters should floodwaters enter their establishments.

### **c. Industrial Areas**

The industrial areas of the city totaled to about 3,724 hectares. Establishments in these areas should provide waste treatment facilities and mitigation on pollution control in accordance with the rules and regulations of the different government agencies. These industrial areas are categorized into three (3) classifications namely:

- c.1 Light Industrial area will cover 847 hectares. The plan provides ample areas for non-pollutive/non-hazardous and non-pollutive/hazardous industrial activities in the different areas of the city such as: the 200-meter strip of land along the national highway from Barangays Binugao, Sirawan and Lubogan; the coastal portion of R. Castillo St., portions of Barangays Sasa, and Panacan.
- c.2 Medium Industrial area has a share of 1,942.36 hectares. These medium industrial areas are for pollutive/non-hazardous and pollutive-hazardous industries mostly located at the coastal barangays of Binugao, Sirawan and Lizada for food based industries and on the other hand, the barangays of Ilang, Tibungco and Bunawan for non-food related industries.
- c.3 Heavy Industrial area has a share of 917.73 hectares. The Bunawan-Lasang areas are designated areas for large scale highly pollutive/non-hazardous, highly pollutive/hazardous; highly pollutive/extremely hazardous; non-pollutive/extremely hazardous and pollutive/extremely hazardous industries

Industrial activities within high susceptibility to flooding will have additional restrictions to prevent environmental disasters should floodwaters enter their establishments. Industrial activities like chemical manufacturing and the like that may pollute the water systems if affected by flooding will be disallowed within these areas susceptible to geohazard.

### **d. General Institutional Areas**

A total of 1,038.38 hectares is allocated for institutional use. These are major public institution in the designated urban area. These include the educational center at Mintal; proposed government center at Magtuod; Southern Philippines Medical Center; military reservations at Mintal, Catitipan and San Pedro St.; the Hall of Justice at Ecoland and the

City Hall and sites of other government agencies operating in the city. This area will answer the projected space requirement of 11.55 hectares for health and sanitation facilities and 57.68 hectares for schools/classrooms.

These also include various public school sites dispersed in the different barangays of the urban area; and the sites for barangay halls and health centers; privately-owned institution sites; and sites for different places of worship in the city.

Public institutions especially education and health facilities as well as protective services will not be allowed to locate within areas that are highly susceptible to flooding.

#### **e. Open Spaces/Easement**

A total of 400.95 hectares shall be designated as open space/easements along riverbanks and/or waterways and easements of coastal waters. This is based on the proper delineation of these easement areas shall be determined and a management plan for protection and rehabilitation as well as climate change adaptation options and policies should be imposed.

#### **f. Infrastructure/Utilities**

Approximately 750 hectares are allocated for infrastructure/utilities usage. These include the proposed two (2) major land transport terminals, airports the existing and expansion of seaports (government and private owned), the proposed By Pass Road that traverse from Toril to Bunawan and the proposed radial road parallel to existing Diversion Road. This also includes other utilities like reservoirs, power substation and Telecommunications

Development along major roads and corridors of the city will be strictly regulated to prevent traffic congestion. Establishments along these roads must provide a wider setback, sidewalks, off-street parking and loading and unloading areas to minimize their traffic impact on the urban road system.

Road Right Of Way: There should be no structure allowed to be constructed within the road-right-of-way (RROW). The width of the RROW reckoned from the center line should measure 30 meters for national road, 20 meters for city road and 10 meters for barangay road.

#### **g. Inland Water Use**

About 69.58 hectares is water use areas. These are the same areas utilized for fish ponds located at Tugbok, Toril and Bunawan areas. The plan does not include expansion of the fish pond areas considering that these are all privately-owned.

#### **h. Planned Unit Development (PUD)**

Planned Unit Development comprised of 884.68 hectares. This can be a mixed use development which includes residential, commercial, institutional, tourism and industrial. The city identified four locations for this purpose, one in Panacan, Lanang, Talomo and Cabantian. The real estate company should submit a development master plan of the area subject for a technical review of the City Planning Office in accordance with the rules and

regulations of the HLURB and different government agencies. The CPDO shall recommend the application to Sangguniang Panlungsod for their review and approval.

#### **i. Agro-Industrial**

These areas consist of 1,735.13 hectares land area located in Toril District. Under the new CLUP, the Sirawan, Binugao and portion of Bunawan shall be designated as Agro-Industrial since dominant land use is modern livestock farming with related facilities and amenities. Agro-Industrial area in Sirawan and Binugao will also serve as buffer from the Coal fired plant in the nearby area. The area shall be planted with thick trees to intensify oxygen and greening and serving also as buffer zone to shield the Muslim Community at Barangay Sirawan and the neighboring Residential Subdivisions.

Agro-industries shall install appropriate wastewater and waste treatment facilities to abate contamination to aquifer and minimize disturbance to nearby land use such as subdivisions and ethnic community.

#### **j. Special Use Areas**

A total of 339 hectares is allocated for special use . The development of these areas include projected additional sanitary landfill of 5 hectares, memorial parks/cemetery, funeral parlor, golf course, and other projects with socio economic significance. Development of these areas are strictly controlled and managed in accordance with management plans and policies.

#### **k. Agricultural Use**

The city has a total of 111,387.49 hectares for Agricultural use or 45.65 per cent to city's total land area. Due to the physical characteristic of these lands based on the Terrain Analysis studies of MGB, the agricultural use shall be divided into three classes, namely;

- k.1** Agriculture-Non Tillage- these are agricultural areas with higher slope and with moderate to high susceptibility to mass movement or erosion. Most of these areas are located in the districts of Toril, Marilog and Calinan. To ensure health and sustainability of the watershed areas of the city, restrictions apply in the use of these areas. These areas should not be tilled and should be developed as agro-forest. Prohibited acts in accordance with the Watershed code should be observed.
- k.2** Prime Agriculture- The city government recognizes the vast potentials of its prime agricultural areas for economic development subject to rules and regulations of environmental protection to sustain the health and sustainability of the watershed areas and the city sources of water. This area is identified and delineated by MGB as such for all types of agricultural activities provided that a zoning plan shall be adopted to promote a sustainable and environment-friendly diversified agri-industry. The plan shall provide for the rational land use and utilization for economic development, sustainable and organic upland agriculture, crop diversification, zoning for crop suitability and profitability for large scale agriculture and subsistence farmers.

## **I. Conservation**

The city has identified 60,135.90 hectares allocated as Conservation areas. These are environmentally Critical Areas (ECA) in the watershed Code of Davao City and areas declared by laws as Natural Parks, watershed reserves, wildlife preserves and sanctuaries including recharge areas for water requirement where rainwater or seepage actually enters the aquifers. This watershed area has been identified and delineated in the Terrain Analysis Study conducted by MGB. These are located in Tamugan-Panigan Watershed areas, Tamugan-Davao River flood plains, Suawan flood plains, Mts. Makabol-Alikoson Area, Upper Talomo River, Subasta- Sirib, Tagakpan, Tagurano and Lipadas Areas, Tagluno Creek, Kilate-Bato and Banod area, Bayabas area, Sibulan –Baracatan (Davao City side) and Mt. Apo Natural Park (Davao City side). The use of these areas shall be accompanied with corresponding responsibilities and accountabilities, in accordance with the Watershed Code of Davao City. Acts like Land Conversion, Commercial farming, Dumping of any waste products, destroying/altering objects of natural beauty and Exploitation of quarry resources and other acts stated in the Code are prohibited. However it is encouraged that the area will be developed and maintained as Natural Park. The existing cultural settlements particularly the Bagobo-Tagabawa tribe within Sibulan, Toril District, should be preserved and protected in accordance with the plans and program of ADSDPP. An improved agroforestry development projects will be implemented.

### **m. Easement / Buffer**

The city has a total of 43.86 hectares identified areas that serve as buffer along the periphery of the development site, 20 meters strip between two conflicting uses; (such as to protect the residential development adjacent to existing industry). A share of land is provided as such in order to promote a sense of privacy and minimize the potential nuisances such as dirt, litter and unsightly views. This should be planted with thick trees and shall be maintained to increase balance in ecology. These are mostly located in Bunawan District where existing residential developments are adjacent to industrial activity.

### **n. Forest land**

Davao City has identified 13,995 hectares or 5.74 per cent of the city's total land area intended for forest management. These are located in Marilog, Paquibato and Toril Districts. Massive reforestation project shall be undertaken in these areas to be carried out by the City Environment and Natural Resources in coordination with the Non –Government Organizations and People's Organizations as stated in the Watershed Code. A Watershed Management related activities and ecological revolution program are to be undertaken by the government with or without the cooperation of NGOs and POs. Existing Ethnic and cultural settlements of indigenous community shall be protected. CADT areas belonging to indigenous tribes should be developed in accordance with the plans and programs of ADSDPP. Pursue the formulation of Forest Land Use Plan. This is a tool that promotes stable and self-sufficient communities through a sustainable environment and institutionalized participatory management and improving the socio-economic conditions of indigenous people or other people occupying forest lands.

### **o. Special Institution**

Special land uses covers 243 hectares of land area. These areas are intended for orphanage, home for the aged, rehabilitation center, the correctional center at Ma-a; and

mental hospital. located in the urban areas of the city. Development in these areas shall follow the standards of the different government agency specially in mitigation and risk reduction policy.

#### **p. Environment Management Area**

Davao City has identified and delineated areas which are susceptible to flooding and landslide based on the Terrain Analysis Study conducted by the Mines and Geosciences Bureau (MGB) in 2007. These are special treatment areas for risk reduction of landslide and flooding, in order to reduce risks associated to landslide and flooding phenomena to which some inhabitants of the city are exposed. The land areas prone to landslide and flood hazards shall be under Environment Management which shall be subjected to special environmental management plans and programs.

It is recognized that portions of flood and landslide prone areas are also a valuable land resource where development may still be introduced but restricted and that all development applications shall be assessed accordingly taking into account the ecological factors as well as social and economic. Habitation in such areas will be encouraged to adopt mitigating measures in order to reduce the impact of flooding and landsliding on individual owners and occupants of flood and landslide prone properties, and to reduce private and public losses resulting from the mentioned hazards. The level of disaster preparedness is a major factor in mitigation of natural disasters. Mitigation of the effects of the disasters and protection against hazards require both structural and non-structural measures. Therefore these areas should have a strict management plan and policies for settlements. The Urban Environment Management areas are defined as follows:

- p.1 Floodway Mitigation Area – Davao City has 6,696.55 hectares of lands that are highly susceptible to flooding as determined by the Mines and Geosciences Bureau studies. Based on the study and history of flooding events, flood prone are usually low lying areas along the riverbanks. For the past five to ten years, residential, commercial and other land uses are affected when Davao River, Talomo River and Matina Pangi River overflowed caused by longer heavy rain in the lowlands and uplands. The incidents resulted to millions of peso damaged to properties and lost of lives. Therefore, development of these areas would have significant adverse impacts upon flood behavior which in turn may result in adverse effects on other development and the community. Development of flood prone areas would also expose occupants and their property to significant levels of flood danger and damage. Therefore there should be a strict implementation on flood management plans /programs and policies as well as mitigation measures which require both structural and non-structural .
- p.2 Landslide Mitigation area- Davao City has 12,934.71 hectares of land that are very high susceptible to landslide as identified by the MGB studies. These are located in the upland areas with steep slopes (30 degrees and up). These areas are prone to mass movement which can be triggered by rain. Areas which are naturally susceptible to mass movements are the denudational landforms. These areas are found mostly in Marilog and Paquibato districts. Such mitigation measures should be integrated with the normal developmental activities. The city has experienced isolated incidents of landslide in Paquibato and Marilog districts. CADT areas within these areas shall be managed in accordance with the programs of ADSDPP.

p.3 Urban Ecological Enhancement area- this area covers 222.62 hectares of land that refers to the Shrine Hills area which is delineated by MGB as susceptible to landslide on both sides of the hill -facing Ma-a and facing Matina Pangi. Portion on top of this hill is relatively flat. This area is proposed to be developed by some of the real estate company, however, MGB has declared that portion of the Shrine Hills are High susceptible to landslide. Therefore, development of this area must be carefully studied in coming up of its best and suitable project with respect to the condition of the area. It must be strictly managed with the best mitigating measures and provisions to protect the areas from landslide. The area should have a management plan adopting mitigation measures that may require both structural or non-structural strategies in accordance with the rules and regulations of different government agencies.

#### **q. Parks and recreation**

The city has a total of 110 hectares of parks and recreation. This includes the existing parks in the urban areas of the city like Rizal Park, Quezon Park, Osmena p-ark, Freedom Park, Mabini Pocket Park, Magsaysay Park and the latest and active Peoples' Park among others. The city has also considered the sites allocated for parks and playground of the different subdivisions established in the city, especially those subdivisions which are already turned-over to the city government, as additional areas for parks and playgrounds.

#### **r. Tourism Development**

A share of 5,834.51 hectares of land is for Tourism development use. This refers to areas where major tourism projects or tourist related activities shall be allowed provided that the same shall follow standards and guidelines of the government agencies and shall also be subjected to environmental impact and vulnerability assessment specially on eco-tourism, agri-tourism, resort and theme parks. These areas are located in Eden, Tagurano, Catigan, Baganihan, Datu Salumay, ChinaTown and Beach areas in Talomo District. Development of CADT areas within barangays Datu Salumay and Baganihan shall conform with the plans and programs of ADS DPP.

#### **s. Rural Settlement Areas**

The city has identified 5,464.85 hectares of land area allotted for settlement use in the rural barangays of the city. Fifty-eight (58) rural barangays of the city has settlement areas that measures 500 meter radius from the existing school site of a barangay. The allocated area can be developed for a mix use such as; housing, basic services, institution and other incidental facilities compatible with the overall characteristic of the area. However, Certificate of Ancestral Domain Titles which fall within these Rural Settlement Areas shall be subjected to the plans and programs of the Ancestral Domain for Sustainable Program and Projects (ADS DPP). CADT areas are located in Barangays Buda, Baganihan, Datu Salumay, portion of Brgy. Magsaysay and portion of Brgy. Gumitan, all of Marilog Dist., & portion of Tapak, Paquibato District, portion of Barangay Sibulan, Toril District, Barangay Marilog Proper, portions of Barangay Salaysay, portions of Barangay Suawan, portions of Barangay Bantol, portions of Barangay Malamba, portions of Barangay Tambobong, portions of Barangay Carmen, whole areas of Barangays Dalag-Lumot and Magsaysay in the Districts of Baguio and Marilog, all of Davao City (as described in fig. 1.24 ).

#### **t. Water Use/Coastal Resources:**

Coastline of the city which is around 61 kilometers and the ocean itself needs to be protected and conserved as well as the other natural habitat areas. This is one of the beautiful features of the city. The plan encourages to protect and conserve the coastal resources for the public's right to use them. Apparently, the public has the right to be on the beaches, enjoy them and use them for recreation. Therefore beaches can't be fenced off. It is also encourage not to allow building on most of the city's beaches and sandbanks.

- a. Ocean's resources are affected of what happens to the land and coastal lands. Discharging of effluent and wastes and improper waste disposal are just some of the ocean's activities. This is a call for close coordination with the community and different government agencies concerned for a coastal management plans/program and/or protected area development. Plans and inventories of coastal uses must be identified, delineated and be specified how certain types of resources are to be protected. Watershed Management Ordinance should be implemented.
- b. Marine Protected Area - A total of 415 hectares in the Northern part of the city streches from Sitio Bucana in Barangay Lasang to Sitio Budbud in Barangay Bunawan, Tibungco, Matina Aplaya and Agdao Centro. These areas are combination of mangrove habitat management and fish sanctuary. The area should be conserved to sustain their biological importance for foraging, spawning, mating and growth of rare threatened , endangered , and ecologically and economically –significant species.
- c. Mangrove Rehabilitation Area- this includes the existing mangrove area consisting of 21 hectares located from Daliao down to Matina aplaya and in Bucana area. This could be expanded by rehabilitating the the adjacent areas suitable for mangrove plantation which depends on site suitability assessment to be part in the protected area development and management plan/program.
- d. Aquaculture Area- These are located in Bunawan down to Sasa and in Talomo marine water areas.
- e. Fishing Area – the city has three (3) fishing area within the city waters. These are located in Talomo-Toril, Bucana and Bunawan district gulf areas.
- f. Fish Sanctuary- These areas encompasses the sizable portion of the seagrass beds and coral reef areas identified which consist of 26 hectares located in Agdao, Daliao and Lizada. Restrictions apply for protection and preservation of these areas.
- g. Multiple Use Area- These areas are located along the coastline of Poblacion up to Panacan area. Uses such as wharf, seaport,
- h. Port-wharf Area- these are areas in the city with landing stage for loading and unloading ships. This comprise government and private ports for local, national and international.
- i. Eco-Tourism and Research- These are areas of the city with and for major tourism projects or tourist related activities. These areas are located in the beaches of Talomo district and Toril.
- j. Recreation Area- This area is located in Talomo District. This is where people can enjoy and relax for recreation and feel the beauty of the beaches and the ocean as natural resources.



**Table 1.40 Land Use Area, Distribution, and Percent to Total (2013-2022)**

Land Use Categories	Area (in hectares)	Percent to Total
<b>Residential</b>		
Low Density Residential	2,830	1.16
Medium Density Residential	9,164	3.76
High Density Residential	2,904	1.19
Socialized Housing	490	0.20
<b>Commercial</b>		
Minor Commercial	600	0.25
Major Commercial	2,025	0.83
<b>Infrastructure/Utilities</b>	750	0.31
<b>Institutional</b>		
General Institutional	1,038	0.43
Special Institutional	243	0.10
<b>Industrial</b>		
Light Industrial	847	0.35
Medium Industrial	1,942	0.80
Heavy Industrial	918	0.38
Parks and Recreation	110	0.04
Planned Unit Development	885	0.36
Tourism Development	5,834	2.39
Open Space	418	0.17
Easement/Buffer	44	0.02
Special Use	237	0.10
Agricultural	111,466	45.66
Agro-Industrial	1,720	0.70
Forest	13,996	5.74
Conservation	60,136	24.65
Rural Settlement Area	5,465	2.24
<b>Environment Management</b>		
Floodway	6,697	2.74
Landslide Prone	12,935	5.30
Urban Ecological Enhancement	223	0.09
Waste Management, Treatment, Utilization and Disposal	18	0.01
Inland Water	70	0.03
<b>Total</b>	<b>244,000</b>	<b>100.00</b>
<b>Water Use</b>		
Aquaculture area	705	
Eco-tourism and Research	75	
Fish Sanctuary	231	
Fishing Area	6,494	
Mangrove Rehabilitation Area	219	
Marine Protected Area	415	
Multiple Use Zone	279	
Recreation Area	312	
<b>Total</b>	<b>8,731</b>	

**Table 1.41 Proposed (2013-2022) and Existing (2011) Land Uses**

Land Use Categories	Area (in Hectares)		Increase / (Decrease)
	Existing (Actual)	Proposed	
Urban Use Areas			
Residential	8,382	15,387	7,005
Commercial	1,583	2,624	1,041
Infrastructure/Utilities	209	750	541
Institutional	629	1,281	652
Parks/Playgrounds and other recreational spaces	62	110	48
Industrial	853	3,707	2,854
Planned Unit Development	77	885	808
Open Space	1,259	418	(841)
Agriculture	73,086	111,466	38,380
Forest and Forest Use Categories	39,917	13,995	(25,922)
Mining/Quarrying	157		(157)
Grassland/Pasture	116,832		(116,832)
Agro-industrial	168	1,720	1,552
Tourism	200	5,834.51	5,635
Easement/Buffer		44	44
Conservation		60,136	60,136
Rural Settlement Area		5,465	5,465
Special Use	342	255	(87)
Urban Environment Management			
Flood Way		6,697	6,697
Landslide Mitigation		12,935	12,935
Urban Ecological Enhancement		224	224
Water Uses	243	70	(173)
Fishpond (Inland water use)			
Mangrove forests			
<b>Total</b>	<b>244,000</b>	<b>244,000</b>	
<b>Water Use</b>			
Aquaculture area	705		
Eco-tourism and Research	75		
Fish Sanctuary	231		
Fishing Area	6,494		
Mangrove Rehabilitation Area	219		
Marine Protected Area	415		
Multiple Use Zone	279		
Recreation Area	312		
<b>Total</b>	<b>8,731</b>		

## Proposed Land Use in Timberland Areas

In the proposed land use for 2013-2022, there will be 54,250 hectares of land intended for agricultural use that is within Timberland Area. While there is only 13,099 hectares intended for forest use, there will be 39,161 hectares is considered as Conservation areas. There are also areas which will be designated as Environment Management Areas because of its susceptibility to landslides (5,808 hectares). 2,472 hectares of the total 5,834 hectares of land indented for Tourism Development are inside Timberland.

**Table 1.42 Proposed Land Use within Timberland Area (2013-2022)**

Category	Area (Has)	Percentage
Agricultural	54,250	46.75%
Conservation	39,161	33.74%
Flood Prone	304	0.26%
Forest	13,100	11.29%
Infrastructure/Utilities	8	0.01%
Landslide Prone	5,808	5.00%
Medium Density Residential	28	0.02%
Planned Unit Development	46	0.04%
Tourism Development	2,472	2.13%
Rural Settlement Area	877	0.76%
<b>TOTAL</b>	<b>116,054</b>	<b>100.00%</b>

*Source : DENR / CPDO*

## Proposed Land Use in CADT Areas

A total of 139,273 hectares of Davao's land are within approved CADT Areas. These areas traverse Paquibato District, Marilog District, Baguio District down to Toril District. Within these CADT areas, 65,737 hectares are designated for Agricultural use while 2,139 hectares are designated for Tourism Development. There will be a total of 1,484 hectares intended for Rural Settlement Areas to allow barangays to have a central area for basic commercial services and residential development. A total of 69,914 hectares area areas categorized as Conservation (44,618 hectares), Forest (13,424 hectares), Floodway (674 hectares) and Landslide Prone (11,198 hectares).

There are two Ancestral Domain areas being processed which will cover areas in Toril. These are the Bagobo-Klata and the Bagobo-Tagabawa (Davao side).

**Table 1.43 Proposed Land Use within CADT Area (2013-2022)**

<b>Category</b>	<b>Bagobo Tagabawa, Mt. Apo - ADs-1104- 0004-Gni</b>	<b>Matigsalug- Manobo - ADs-10- 00011-Gni</b>	<b>Obu-Manuvu - ADs-1102- 0012-Gni</b>	<b>Ata CADT</b>	<b>Total</b>
Agricultural	60	5,405	15,040	45,232	<b>65,737</b>
Conservation	2,905	7,983	16,656	17,074	<b>44,618</b>
Flood Prone	-	-	-	674	<b>674</b>
Forest	286	1,137	700	11,301	<b>13,424</b>
Landslide Prone	1,425	8,171	1,154	449	<b>11,198</b>
Rural Settlement Area	-	112	368	1,004	<b>1,484</b>
Tourism Development	26	1,887	226	-	<b>2,139</b>
<b>Grand Total</b>	<b>4,702</b>	<b>24,695</b>	<b>34,144</b>	<b>75,733</b>	<b>139,273</b>

Source : NCIP XI

## **2.13 LAND USE AND LAND USE POLICIES**

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### **Land Use Principles**

- Opportunities for land use to deliver multiple benefits should be encouraged.
- Where land is highly suitable for a primary use (for example food production, flood management, and water catchment management) this value should be recognized in decision-making.
- Land use decisions should consider the functioning of the ecosystems and the benefits they provide.
- Land use decisions should consider the opportunities and threats brought about by the changing climate. Greenhouse gas emissions associated with land use should be reduced and land should continue to contribute to delivering climate change adaptation and mitigation objectives.
- Outdoor recreation opportunities and public access to land should be developed.
- Foster distinctive, attractive communities with a strong sense of place.
- Preserve open space, agricultural land, natural beauty and critical environmental areas.
- Strategically direct and manage redevelopment opportunities within existing areas.
- Connect people, goods and services locally, regionally and globally.

### **General Land Use Policies**

Land use planning primarily considers the provision for an ideal area needed for each particular land uses compatibility, as well as, its suitability and sustainability in the proposed land use.

A set of general land use policies are drawn up to guide the preparation of the city's updated land use plan to:

- Promote development while minimizing adverse effect to environment
- Enable land to be efficiently and effectively used for its intended use;
- Enable development that is energy efficient; and
- Enforce development that enhances the public environment by providing sufficient open space for greenery
- To complement and enhance the existing landscape character; and
- Provide amenity for residents.
- Ensure that developments along the road-right of-way comply the minimum requirement of road setbacks.

## Land Use Objectives

It is the city's objective through land use to:

- 1. BUILD ALL-ENCOMPASSING AND VIBRANT CITY through the following policies;**
  - a. simplify opportunities for good quality city living including affordable housing choices;
  - b. enforce safe and vital environments that enliven the city
  - c. promote activity and interaction; and
  - d. facilitate the development of adequate social support services for a diverse population.
- 2. CREATE A SUSTAINABLE CITY through the following policies:**
  - a. promote development that minimizes adverse effects on the environment;
  - b. set in environmental performance in assessment of all new and existing buildings;
  - c. ensure that development supports a balance in the movement system between the needs of pedestrians (including differently abled and senior citizens), cyclists, private vehicles and public transport.
- 3. ESTABLISH AN ACCESSIBLE, ATTRACTIVE AND LIVELY CITY through the following policies:**
  - a. Encourage development that provides for convenient, safe and enjoyable meeting places and travel experiences;
  - b. Reflect the city's role as the central transport hub and interchange for Mindanao
  - c. Promote pedestrian safety and accessibility;
  - d. Support development that promotes the growth of educational, cultural, entertainment, recreation, retail, business and employment activities
- 4. INTEGRATE LAND USE PLANNING, TRANSPORT PLANNING, WATER PLANNING, ENERGY PROVISION AND INFRASTRUCTURE PLANNING, through the following policies:**
  - a. Encourages the design and layout of development to minimize energy use and facilitate the use of renewable energy sources. The integration of transport and land use provides one way of reducing energy use, but also has a range of other positive outcomes for communities, including:
    - i. Improved air quality
    - ii. Reduced greenhouse gas emissions
    - iii. Greater accessibility for communities
    - iv. Better use of existing infrastructure
    - v. Cost savings for business and industry through improvements to transport logistics
    - vi. Improved health due to greater participation in walking and cycling.
  - b. Land Use and Transport Integration  
The transport system is an essential component of urban development and land use planning. Maximize coordination between land use and

transport planning and processes plays an important role in delivering sustainable outcomes. It also serves to underpin the success of business and commerce, and hence the city's economy.

An equitable transport system can reduce locational disadvantage and enable people to participate in a range of social, economic, recreational and other activities. It is therefore a critical component of social inclusion.

c. Water and Land Use Integration

This includes water conservation, water use efficiency and augmenting existing potable supplies with local supplies, such as rainwater, storm water and treated wastewater. It seeks to promote water conservation through well designed urban area principles into the land use planning to reduce water use and maximize opportunities for re-use. It also seeks improve the quality surface and coastal waters of the city by minimizing pollution.

d. Protect Prime Agricultural Land and Land Of High Biodiversity Value

Prevent unnecessary intrusion of development into primary production areas and areas of high biodiversity value by seeking to protect the integrity and capacity of natural resources.

## **URBAN LAND USE**

### **General Policies for Urban Areas**

The City aims to encourage growth in urban areas by providing a mix of land uses within urban center, including commercial, retail and residential where appropriate, which are supplementary to and compatible with the primary land use (e.g. industrial zone) through the following urban centers policies:

- Promote high-density accommodation that is associated with the primary land use (zone) within the urban center, with medium-density housing in surrounding areas where possible and appropriate.
- Enhance and strengthen the Urban Centers by encouraging the expansion of the existing facilities, adding related business activity, incorporating a mix of other uses including after hours' activities and further housing opportunities, and improving access to and within the urban centers.
- Promote more 'live near work' opportunities by increasing the level of medium-density housing matched to the types of employment activity created.
- Ensure commercial and industrial activity within urban centers has regard to the amenity of adjacent residential areas.
- Provide retail development at urban centers that either directly supports activities or amenities of residents within the area.
- Prepare with structured, planned development within urban centers
- Discourage 'ribbon type' development along main roads.
- Encourage transit oriented development (TOD) in urban centers where appropriate.
- Ensure that there is no reclassification and / or rezoning from one use to another for a period of five years.
- Ensure that there is no exemption for a period of three years.

#### **a. Residential Use**

Residential use comprise a significant proportion of the total built-up area. Although the scale, intensity and density of residential zone will vary, they should all include a range of services and facilities, such as public open space, education facilities, local community facilities, local shops and offices, housing, streets and pedestrian paths. Public transport should be within easy walking distance.

#### **Residential Subdivision**

Residential Subdivisions need to accommodate a range of community needs and be adaptable to change over time in response to cyclical changes in demographics and household size, as well as the condition of housing standard.

A development plan should include a community center that is walkable that provides the basic needs and services of the community. This includes shops, clinic, and school for preparatory and / or elementary depending on the size of the subdivision.



The development plan of the subdivision should also provide a safe entrance, loading/ unloading bays; it must not provide commercial lots/activities along the major route to prevent congestion of the existing route and to maximize the use of existing infrastructure.

### **Transit-focused Neighborhoods**

Transit-focused neighborhoods are neighborhoods located within a walkable distance of public transport facilities and may include some mixed-use or higher density residential development.

### **Housing**

Appropriate and accessible housing is essential to individual and community wellbeing. Housing provision covers issues related to location, access to public transport and community services, and flexibility of design and energy efficiency.

## **POLICIES**

1. Ensure land is used appropriately to meet projected housing demands and satisfy varied housing preferences and incomes.
  - Identify areas for residential uses that should be well serviced, appropriately zoned and capable of accommodating projected housing demand.
  - Prepare structure plans for residential development for inclusion in Land Use Plans as areas suitable for additional residential opportunities are identified and evaluated.
  - Promote higher densities of residential development in appropriate locations to significantly increase the average dwelling rates.
  - Develop innovative, affordable and sustainable housing.
2. Accommodate a range of facilities in neighborhoods to increase the diversity of activities within walking distance of housing.
  - Allow the establishment of home businesses which are compatible with the local area to encourage working from home.
  - Locate and arrange community and recreation facilities in residential areas to encourage participation in community life.
3. Maximize use of existing infrastructure and ensure the provision of suitable infrastructure to support the function of residential areas.
  - Target locations for more compact and mixed-use forms of housing including conversion of existing dwellings and non-residential buildings to maximize the use of existing infrastructure capacity, services and facilities.
  - Provide infrastructure in a timely, cost-efficient and effective manner, ensuring that all communities have access to services and facilities they need.
  - Ensure that development does not exceed the environmental capability and infrastructure capacity of residential areas and that it contributes to necessary upgrades and improvements as community needs change.

- Adapt existing community facilities and ensure new facilities are designed and managed to be more multifunctional and adaptable in their use.
  - Encourage connections to, and use of, information technology and communications infrastructure within residential areas to facilitate working from home.
4. Provide a range of medium-to-high-density housing forms in targeted locations to maximize the use of existing infrastructure, services and facilities, including public transport, schools and open space.
    - Target increased housing densities:
      - within and around urban centers
      - in transit-focused neighborhoods within walking distance of selected high-frequency public transport routes and transit nodes
      - around public open spaces in locations where convenient access to public transport and community services and facilities is provided.
    - Locate, position and design housing subdivisions to maximize compatibility between living environments and strategic roads, and freight routes.
  5. Develop transit-focused residential areas which provide opportunities for people to walk to public transport and other services and facilities.
    - Encourage higher housing densities in transit-focused residential areas while preserving local qualities such as residential areas character and heritage and safety.
    - Design housing in transit-focused residential areas to ensure adequate separation from the transport route, and utilize a range of noise attenuation measures to prevent impacts associated with noise and air quality.
    - Improve the safety and appearance of public spaces and recreation areas and the permeability, legibility of transit-focused residential areas to facilitate safe and convenient access to public transport, particularly in areas within walking distance of stops.
  6. Improve the accessibility of residential areas by creating safe, convenient and pleasant environments for walking, cycling and public transport use.
    - Promote more compact residential areas, particularly around urban centers, to reduce travel.
    - Ensure linkages are provided between residential areas.
    - Design neighborhoods (subdivisions) to minimize walking distances to destinations through the provision of direct pedestrian linkages and short street blocks.
    - Minimize the impact of traffic in residential areas, while maintaining an adequate level of low-speed private vehicle access.
    - Maximize access and use of neighborhood street environments for all users, including the disabled, elderly.
    - Ensure safe, legible and active pedestrian environments through the provision of appropriate pavement and footpath treatments, crossing points, and sign-posting, lighting and street equipment, to encourage walking including access of persons with disabilities.
    - Provide safe and convenient pedestrian access to public transport stops, activity centers and other services and facilities, particularly in transit-focused subdivisions.

7. Provide a network of parks and recreation areas within subdivisions which offer a variety of safe, useable, appropriate and attractive public open spaces.
  - Ensure accessible public open spaces within walking distance of residential subdivisions, particularly in higher-density areas where private open space provision is limited.
  - Encourage more usable and attractive public spaces to maximize use of the public space and improve amenity.
8. Design and develop residential zones in an ecologically sustainable manner.
  - Ensure that subdivisions developments and housing units are energy-efficient and water-efficient and enable the use of renewable resources.
  - Provide for a more comprehensive approach to the design of public space for urban water management at the subdivision level.
  - Locate, design and subdivisions to take into account environmental limitations and hazards, including urban storm water runoff and water catchment.
9. Improve the integration of ecologically sensitive design principles into housing development.
  - Promote the use of construction techniques and materials which minimize the use of energy and water and the generation of waste material.
  - Design housing and associated internal and external infrastructure to maximize energy efficiency and water conservation and re-use.
10. Encourage the provision of a range of housing types to meet the needs of future residents and enable people to remain within their community as their housing needs change.
  - Provide a diverse and adaptable range of accommodation for older people and people with a disability located close to Urban Centers, health services and frequent public transport services.
  - Ensure that zoning promotes housing choice and encourages the inclusion of a range of affordable and high need housing, in terms of size, style and density, in areas accessible to public transport and close to employment opportunities, appropriate services and activity centers.
  - Provide a broad distribution of social and community housing that is located close to a range of services and facilities.
11. Residential development in areas with high susceptibility to flooding and landslide shall be discouraged.
  - If cannot be avoided, mitigating measures shall be incorporated in the residential development plan.
  - Residential zones that were zoned prior to the Mines and Geosciences geo-hazard mapping but have not yet been developed will be considered for reclassification of land use to other compatible uses
  - Existing residential developments shall be required/advised to adapt and implement mitigating measures such as flood proofing technologies and other appropriate protective actions.

## **b. Commercial Use**

The commercial area's primary land use is commercial activities and is primary location of establishments like shopping malls, shops, offices, theaters, restaurants personal services establishments, motor repair stations, service trade premises, and business transaction centers and so on.

Commercial activities include the buying and selling of goods and services in retail businesses, wholesale buying and selling, financial establishments, and wide variety of services that are broadly classified as "business".

## **POLICIES**

1. Locate commercial zones in suitable areas and avoid as much as possible "ribbon type" development, where housing or establishment are built in continuous row along major roads causing inefficient use of resources (roads, water, power) and traffic congestion.
  - Office development should be located in urban centers CBD and discourage ribbon development along major roads.
  - Provide strong connecting linkages between office development, public transport and residential development.
  - The CBD should remain the principal focus of high office developments,
  - Positive encouragement should be given to the location of major office facilities in the CBD and Urban Centers
  - Small to medium office developments are encouraged in CBD or Urban Centers and proximity to Urban Centers and on roads well served with public transport.
2. Commercial Zone should have the following characteristics:
  - It is connected with existing transport nodes like the major roads
  - Suitable public transport is available in close proximity
  - It will have no significant adverse traffic impacts on adjoining areas
  - There is adequate road capacity and the function and safety of the road and walkway are not impaired
  - They do not contribute to the overall number and length of car trips or may lead to a reduction in car use
  - The proposed development is part of a comprehensive transport oriented development, if there is any, which increases housing numbers.
3. Ensure that commercial uses, particularly offices and other high traffic generating uses, are located or designed to maximize the use of the public transport network, walking and cycling.
4. Locate and design commercial zone to incorporate appropriate service vehicle access to minimize the impact on the safety and amenity of the surrounding area.
5. Design commercial zone so they are functional and attractive.

### **c. Industrial Zone**

The City has provided and committed to protect areas identified for industrial use. It should be well-serviced (including transport system for industrial workers, power supply, and so on) industrial areas that meets projected demands in terms of its location, quantity and quality. Industrial land uses include light industrial, medium industrial, heavy industrial zone.

Through this plan, the city ensures an adequate supply of industrial land and protects industrial land for future longer term needs. The City will continue to provide infrastructure to:

- Promote more industrial activities;
- Encourage growth in industries with export potentials;
- Support and enhance existing service and infrastructure;
- Implement service and knowledge-based industries such as information technology and education as they increasingly important contributors to export income;
- Ensure increase production from agriculture sector which also presents opportunities, with growth expected in the areas of horticulture and food processing;
- To enhance capacities of local industries and small businesses which are also expected to grow and provide a range of goods and services to meet local demand.

### **POLICIES**

1. Protect and ensure a timely supply of well sited industrial land to meet projected demand.
  - Identify strategic industrial zone to include lands near supply chains, infrastructure and skilled workforces.
  - Ensure existing industrial zone can accommodate forecast demand and meets the projected location and quality requirements of industry.
  - Manage the demand for land for industrial uses by ensuring industries is provided with operational advantages at existing locations.
  - Provide a variety of industrial zones to cater for a range of industries from small industries to large export-focused industries and provide opportunities for business clustering.
  - Ensure the identification and availability of suitable land for industrial development.
  - Pursue the current industrial area for heavy industrial development.
  - Capitalize on opportunities for economic growth and industrial development associated with existing transport networks (the airports and the Sasa Port).
2. Assess, monitor and provide infrastructure to support industrial activities.
  - Focus development in areas where there is adequate infrastructure (power, water, transport).

- Provide appropriate infrastructure in industrial zone to meet the desire of industrial companies,
  - Use on-site generation of alternative energy and/or water resources where energy or water infrastructure is the limiting factor to development.
  - Encourage on-site generation of alternative energy and/or water resources for all developments.
  - Ensure infrastructure planning is conducted in advance of anticipated demand.
3. Consolidate and strengthen key industrial areas to achieve operational advantages and the efficient provision of infrastructure.
- Protect and improve key industrial areas, by adding the required infrastructure and preventing further intrusion of incompatible land uses.
  - Reinforce industrial areas by improving access to energy, water, waste management and telecommunications infrastructure; a skilled population; research and development facilities; transport; storage; and logistics.
  - Ensure local industrial activities are dispersed across the area to maintain local employment and, in turn, support other locally dependent economic activities.
  - Assist the clustering of complementary businesses in specialized zone (mixed use zone) to allow more effective industrial activity, leading to competitive advantage, particularly the business clusters.
  - Promote tertiary education establishments and hospitals as the nuclei for related professional and technical services and industries.
4. Promote sustainable industrial practices, such as industrial ecology, and facilitate the co-location of businesses that can share their operations.
- Promote increased re-use and recycling of waste products and facilitate the commercial recycling of waste streams, including rainwater.
  - Foster cooperation among various industries whereby the waste or by-product of one production process becomes an input to another.
  - Ensure that prevailing environmental conditions support the health and safety of workers within industrial centers.
5. Manage and prevent conflicts between industry and other uses.
- Protect industrial zones from incompatible activities such as the establishment or intensification of adjacent housing.
  - Ensure incompatible development does not encroach on industrial zones by introducing separation distances and/or buffers and other design measures to manage impacts at both sides.
  - Locate industrial activities, in particular potentially hazardous industries, away from sensitive land uses such as residential areas.
  - Support the expansion of existing industries outside industry zones, only where it is strategically significant; environmental improvements may be achieved as part of the expansion; and the expansion will not affect surrounding land uses including public health.
  - Enforce industry incorporates noise reduction measures in its design where sensitive land uses are closely located.

- Guarantee access arrangements for industries are designed to minimize the impact of freight movement on adjoining areas/zone (residential or high traffic areas).
- Take into account impact on development potential of industries when approving uses on adjacent land.

#### **d. Parks /Recreation Areas**

Open space plays an important role in protecting and enhancing the environment and providing opportunities for recreation and sporting activities. By providing open space we can help improve the health, fitness and general wellbeing of communities.

Quality open space:

- provides a visual contrast to the built environment
- contributes to a sense of place and character
- provides opportunities for biodiversity conservation.

One of the key uses of open space is for recreation and sporting activities. These activities may require the development of facilities outside of designated open space areas such as recreation centers, pools and stadiums for events and sports. Any future facilities must be socially inclusive and provide a range of recreation, sporting and tourism opportunities.

### **POLICIES**

1. Provide and develop quality open space featuring major environmental initiatives including the urban forest biodiversity.
2. Ensure that places where people can be active are available, conducive to, and safe for, that activity (e.g. parks, beaches, sporting facilities).
3. Design open space and recreation facilities to cater for people with special needs, including people of different cultures, ages or with disabilities.
4. Support the development of major facilities and strategic open space for public use and capitalize on the economic opportunities they present, such as tourism, recreation and increased land values.
5. Protect scenic routes and landscapes of cultural or amenity value.
6. Ensure that open space development enhances and incorporates the surrounding environment without modifying or compromising conservation, recreation and landscape values.
7. Develop and maintain waterway linear parks along the Davao river
8. Ensure that open spaces in new developments maximize linkages to existing networks of open space.
9. Consider the establishment and development of community gardens, particularly in areas with minimal local open space.

10. Promote public access to, and enjoyment of, the coast for recreation and tourism.
11. Design and locate recreation facilities to contribute to the social, economic and environmental values associated with the coast.
12. Maximize conservation and open space opportunities along the coast.
13. Protect and improve areas of significant ecological and cultural value.
14. Provide a shared-use pathway along the coast, linking coastal features, places of interest.
15. Ensure that land is identified and reserved for the development of major recreation and sport facilities, and investigate the provision of facilities through involvement with the private development industry and major sporting bodies.
16. Design and locate recreational activities to minimize adverse impacts on fauna, flora or other features of the natural environment, while protecting areas of high natural or biodiversity value.
17. Provide a range of sporting and recreational opportunities for all ages that minimize negative impacts on the environment and local community and promote safe physical activity.

#### **e. Agricultural Areas**

Lands under agriculture comprise the biggest portion of the total land area of the city. This is so because the city relies primarily on agriculture for food, feeds and raw materials for agricultural industries and other industries. It is encouraged to optimize the viability of the agriculture sector by protecting the agricultural areas from incompatible uses that would adversely affect the long-term economic viability of the area.

The city:

- Aims to maintain and enhance agricultural production areas to enable them to continue providing goods for local, national and international markets.
- Shall safeguard these areas from urban intrusion by identifying the urban boundaries,
- Shall resolve issues such as the allocation of water, access to production facilities, transportation of goods, and access to a workforce, to ensure the viability of the agriculture sector.
- Shall identify and recognize the tourism value of these areas.

#### **POLICIES**

1. Identify and protect areas of agriculture production.
  - Prevent incompatible activity by applying stricter controls to forms of development not directly related to agriculture production or its value-adding activities.



- Reassure the establishment of enterprises that value-add to agriculture primary industry.
  - Allow for the development of small value-adding activity, such as packing sheds and processing facilities, which complement the agriculture industry in the local area.
  - Maximize the use of productive land by encouraging the location of large-scale, value-adding activities outside areas of agriculture production.
  - Examine opportunities for co-location of intensive agriculture industries and compatible processing activities to reduce land use conflict and achieve efficiencies in production, processing, distribution, energy efficiency and waste recycling, taking into account environmental infrastructure and rural amenity issues.
2. Facilitate the provision of necessary infrastructure and services.
    - Monitor the needs of agriculture industry to ensure infrastructure is of a suitable standard and can sustain long-term investment and growth.
    - Provide priority transport routes for agriculture industry freight movement, particularly in non-urban areas.
  3. Identify and plan for future viable and sustainable agriculture industry.
    - Develop comprehensive, measurable planning policies that reflect agriculture industry requirements, land capabilities, environmental characteristics and ecologically sustainable development.
    - Consider the impact that agriculture industry development may have on road infrastructure and freight routes.
    - Protect and support field vegetable or greenhouse production
  4. Promote sustainable management of natural resources for agriculture production.
    - Pursue opportunities for agriculture production to take advantage of possible re-use of rainwater to replace or augment traditional water supplies.
    - Locate and design agriculture industry and associated uses to minimize potential hazards, such as chemical spills, particularly onto productive land and watercourses.
    - Develop programs with agriculture industries to address drainage.
  5. Manage the boundary between agriculture industry and urban/rural residential areas.
    - Use appropriate alignment of boundaries within new development to manage the boundary between agriculture industry and urban/rural residential areas to protect the economic potential and viability of agriculture industry.
    - Prevent incompatible and conflicting uses from locating in or near areas of agriculture industry activity.
  6. Enforce land productivity.
  7. Ensure that there is no reclassification of agriland to non-agricultural use for five (5) years. After five years, reclassification must be in consultation with Department of Agriculture (DA) and Department of Agrarian Reform (DAR) and the DAR requirement for conversion of agricultural land to other uses, and section 20 of RA 7160 otherwise known as the Local Government Code

of 1991 limiting reclassification to a maximum of the percentage of the total agricultural land of the city to (15%) for highly urbanized city and must strictly comply with the provisions of the Joint Memorandum Circular NO. 54 of the Housing Land Use Regulatory Board (HLURB), Department of Agriculture (DA) and Department of Interior and Local Government (DILG). Reclassification from agricultural use to non-agricultural use shall be approved by the Sangguniang Panlungsod.

**f. Tourism Development Zone**

Tourism Development Zone refers to tracts of land with defined boundaries, suitable for development into an integrated resort complex, with prescribed carrying capacities of tourist facilities and activities, such as, but not limited to, resorts and recreation centers, accommodations, convention and cultural facilities, food and beverage outlets, commercial establishments and other special interest and attraction activities/ establishments, and provided with roads, water supply facilities, power distribution facilities, drainage and sewage systems and other necessary infrastructure and public utilities.

The TDZ shall:

- Be creative innovative and sustainable tourism for the city which provides significant employment opportunities;
- Be able to provide authentic experiences to tourists by capitalizing on a range of special places and its unique natural and cultural assets;
- Have identified City's tourism advantages and the ease of access around the city.
- Be a site of heritage, of galleries and museums if appropriate, a center of excellent restaurants and opportunities for outdoor eating.
- 

Having a strong and vibrant city is important to the health of tourism. The City is the gateway to many other tourist areas within the city and nearby provinces. This creates opportunities to encourage visitors to stay for a few days and explore the city's attractions.

City shall aspire to be renowned internationally in areas of hosting local, regional, national, and international conventions; of innovative, well organized, quality festivals and events involving food and flowers.

Attractive festivals and events and the growth of city's share of the convention market is critical to increase visitor numbers and create a vibrant and colorful city.

To enhance city's tourism appeal it is important to:

- Ensure a quality environment;
- Build upon and encourage increased activity within existing special places and properties;
- Provide easy transport system (improve the connections) between them.
- Support cultural revitalization initiatives; and

- Provide infrastructure which supports private sector activity and investment in tourism.
- Developments should recognize the rights of indigenous cultural communities to their ancestral lands and domains in consideration of sustainable management of natural resources.
- CADT areas should be developed according to plans and program of ADSDPP.

## **POLICIES**

1. Create visitor destinations that provide memorable experiences.
  - Ensure that the CBD is a key visitor destination by providing a range of high-quality facilities, including accommodation and convention facilities.
  - Develop the coastal line and river banks and enhance the development of focal points which provide complementary recreational and leisure activities.
  - Reinforce CBD as a key meeting and gathering place and an accommodation and entertainment hub.
  - Highlight Sta. Ana wharf as a center for maritime tradition by encouraging a dynamic mix of water-based, environmental, retail and cultural heritage tourism experiences.
  - Strengthen Rizal park/Magsaysay park as one of the park focal points and as a family leisure and recreational 'resort'.
  - Establish Baganihan, Buda, Eden, Catigan, and Chinatown as recreation parks with a mix of recreational, leisure and eco-tourism opportunities.
2. Enforce pleasant and memorable visitor experiences.
  - Enhance key gateway points and passenger routes such as the airport and route to the city, interregional bus terminals and key regional road links to ensure that visitors' first impressions of the city are positive.
  - Protect enhances and maintains the attractive landscape character parks and other tourism facilities.
  - Improve the viability of tourism development through the agglomeration, co-location and connection of cultural institutions, attractions, recreational and sporting facilities.
  - Include tourism objectives in revitalization projects and initiatives.
  - Conserve and present city's history and heritage as a tourism feature.
  - Develop green pedestrian and cycle linkages between key focal points which can be further enhanced by public art and informational techniques.
3. Facilitate the provision of appropriate support infrastructure for tourism.
  - Promote greater integration and connectivity of transport modes and ensure that passenger terminals are functional, attractive, safe and memorable.
  - Enhance key access routes to other regions.
  - Encourage specialty accommodation to meet different visitor needs.
  - Develop and maintain appropriately located wharfing and associated facilities to support tourism, fishing and aquaculture industries.
4. Boost tourism by promoting city as a 'sustainable city'.

- Integrate ecologically sustainable development criteria into new tourism initiatives.
  - Urge rigorous site analysis and an innovative design response for any tourism development in sensitive areas such as heritage, coastal and conservation areas.
  - Promote the development of strategically located eco-tourism opportunities such as Philippine Eagle Center.
  - Consider the potential impact of development, including change of use of land, on tourism.
5. Enhance the city to be accessible by people with disabilities.
- Ensure the appropriate design of tourism facilities to provide for access by people with disabilities.

## **g. Environment Management Areas**

The government recognizes that portions of flood and landslide prone land are also valuable land resource where development may still be introduced but restricted and that all development applications shall be assessed accordingly taking into account the ecological factors as well as social and economic. Habitation in such areas will be encouraged to adopt mitigating measures in order to reduce the impact of flooding and landsliding on individual owners and occupants of flood and landslide prone properties, and to reduce private and public losses resulting from the mentioned hazards. The level of disaster preparedness is a major factor in mitigation of natural disasters. Mitigation of the effects of the disasters and protection against hazards require both structural and non-structural measures.

### **Objectives**

1. To reduce the impact of flooding and landslide on individual owners and occupants of flood and landslide prone properties.
2. To reduce private and public losses resulting from floods and landslides.

### **g.1 Floodway Mitigation Area**

Flood prone areas are lands that are highly susceptible to flooding as determined by the Mines and Geosciences Bureau studies. Based on the history of flooding events, these are usually low lying areas along the riverbanks. Development of these areas would have significant adverse impacts upon flood behavior which in turn may result in adverse effects on other development and the community. Development of flood prone areas would also expose occupants and their property to significant levels of flood danger and damage.

The government recognizes that flood prone land is also a valuable land resource where development may still be introduced but restricted and that all development applications shall be assessed accordingly taking into account ecological factors as well as social and economic and ecological factors.

To balance protection of existing and future inhabitants from flood hazard and the potential danger and damage associated with use of the flood prone land, there

should be a manual that promotes the appropriate use of flood prone land. It is proposed to identify and conduct extensive assessment of these areas by breaking it down into areas depending on frequency of flood and flood hazard. This is to assist the City Planning Office in shaping applicable development parameters to reflect the variation in flood risk across flood prone land and the associated consequences on residents and their property.

**Policy:**

1. Flooding concerns shall be weighed up at all times in view of all development applications in flood prone areas taking into account social, economic and ecological factors
2. Impact of flooding on existing developed areas shall be reduced by flood mitigating measures, risk preparedness plans and development rules.
3. Potential for losses caused by flooding in all areas proposed for development or re-development shall be controlled by way of ecologically balance development and development rules.
4. Residential development will be prohibited and discouraged within the zone to prevent loss of lives.
5. Other uses like parks and recreation facilities and other commercial uses that do not involve habitation of the zone will be encouraged
6. Public service infrastructures like schools, protective services and the like will be discouraged from locating within the zone
7. Mitigating measures shall be introduced to reduce potential damage in existing developed areas.
8. The government shall formulate a flood risk management plan.
9. There shall be regular updating by the MGB on the scope of the flood prone area to determine changes in the susceptibility of the area.

**g.2 Landslide Mitigation Area**

These are located in the upland areas with steep slopes (30 degrees and up) which are prone to mass movement which can be triggered by rain. The area should have a management plan adopting mitigation measures that may require both structural or non-structural strategies.

- a. Landslide concerns shall be weighed up at all times in view of all development applications in landslide prone areas taking into account social, economic and ecological factors
- b. Impact of landslide on existing developed areas shall be reduced by landslide mitigating measures, risk preparedness plans and development rules.
- c. Potential for losses caused by landslide in all areas proposed for development or re-development shall be controlled by way of ecologically balance development and development rules.
- d. All types of structures within the landslide prone area will be prohibited and discouraged within the zone to prevent loss of lives.
- e. All uses in a forest or conservation areas and agri non-tillage area will be encouraged .
- f. Public service infrastructures like schools, protective services and the like will be discouraged from locating within the areas.

- g. Geological studies and mitigating measures shall be required in all development within the zone to reduce potential damage.
- h. The government shall formulate a landslide risk management plan.
- i. There shall be regular updating by the MGB on the scope of the landslide prone areas to determine changes in the susceptibility of the area.
- j. Developments should recognize the rights of indigenous cultural communities to their ancestral lands and domains in consideration of sustainable management of natural resources.
- k. CADT areas should be developed according with the plans and programs of ADSDPP.

### **g.3 Ecological Enhancement Area**

Shrine hill is a prominent urban area of Davao City. It served as urban carbon sink and urban recreational area. Its high in accessibility offers urban dwellers a good vantage point in viewing the whole city. Therefore eco-tourism facilities that are low impact with proper mitigating measures against landslide maybe allowed in the stable portion of the hill. A massive greening program for ecological enhancement in major urban areas is encourage as precautionary and pro-active approach to climate change adaptation and part of risk reduction management program against landslide. Development of this area must be carefully studied with respect to the condition of the area. It must be strictly managed with the best provisions to protect the areas from landslide. Management plan adopting mitigation measures that may require both structural or non-structural, in accordance with the rules and regulations of different government agencies.

#### **Policies:**

- 1. Policies under landslide prone areas shall be adopted.
- 2. All uses under forest zone and conservation zone shall be observed.
- 3. Improvement and maintainance of all waterway easement is encouraged
- 4. Implement reforestation development projects.
- 5. Promote greening programs which includes enhancement of bio-diversity projects

### **h. Waste Management**

Development should sustain local environmental quality, promotes waste reduction, re-use and recycling and encourages re-use and does not generate unacceptable levels of air, liquid or solid pollution.

#### **Policies:**

- 1. Strict implementation of Solid Waste Waste Management Ordinance.
- 2. Ensure strict implementation on treatment and handling of medical, toxic and hazardous solid and liquid waste before its disposal in accordance with RA 6969.
- 3. An area for on-site collection and sorting of recyclable materials and garbage should be provided within all new development.

4. A dedicated area for the collection and sorting of construction waste and the recycling of building materials during construction should be provided and screened from public view.
5. Development should not result in emission of atmospheric, liquid or other pollutants, or cause unacceptable levels of smell and odor which would detrimentally affect the amenity of adjacent properties or its locality. Land uses such as restaurants, shops, cafes or other uses that generate smell and odor should:
  - (a) ensure extraction vents, ventilation and plant equipment are located in appropriate locations that will not detrimentally affect the convenience of adjacent occupiers in terms of noise, odors and the appearance of the equipment.
  - (b) ensure ventilation and extraction equipment and ducting have the capacity to clean and filter the air before being released into the atmosphere.

#### **i. Forestland and Conservation**

The protection of environmental assets in forestland and conservation areas of the city is essential. A healthy ecology and rich biodiversity not only achieve environmental protection in their own right, but also create a more liveable city, which strengthens the city's competitive advantage. Climate change will severely affect the health of the natural environment. It is critical to intervene now to protect and enhance the city's environmental assets so that they are more resilient to the risks of climate change. Areas of high environmental significance, protected public lands -Mt. Apo Natural Parks and Watershed areas. These areas will be protected from development unless a specific regulatory exemption applies.

##### **Objectives:**

1. To manage the effects of cumulative environmental change from resource management and other human activities.
2. To provide resilience and adaptability of ecological systems and human communities in the face of climate change.
3. To enable a greener economy while safeguarding our natural life support systems.

##### **Policies:**

1. Encourage reforestation, forest protection, and improving the socio-economic conditions of the people occupying forest lands.
2. Follow prescribed management system which involved, soil conservation, agroforestry, tree planting, and forest protection.
2. Establish tree farms or tree plantations on open and denuded public forest lands and idle private lands through cooperation between national government agencies, local communities and the private sector.
3. Promote stable and self-sufficient communities through a sustainable environment and institutionalized participatory management.
4. Protect Watershed as the basic land management unit.
5. Recognize and support the capacities of local communities unit (upland and indigenous) to protect, rehabilitate, develop, utilize, and manage forest lands and relate resources.

6. Establish a resources management framework plan to sustainably manage the forest resources
7. Recognize the rights of indigenous cultural communities to their ancestral lands and domains in consideration of the sustainable management of natural resources
8. Development of CADT areas should recognize ADSDPP.

**j. Water Resource Area**

Water Resource Area are those areas on top of identified location of principal source of drinking water of Davao City containing huge volumes of water available for appropriation where the Davao City District has existing planned/proposed production wells with 350 meter buffer areas provision. The policies governing over the identified area are as follows:

Policies:

1. Water especially groundwater is a very valuable resource of Davao City and should be protected for the use of the present and future generations
2. Human activities over the area must be strictly managed to ensure that the aquifers will not be affected
3. Water-extractive activities will be strictly regulated to prevent over extraction
4. All structures built over the identified water resource area must have proper sanitation facilities to manage their wastes especially septage and wastewater
5. Activities that are highly pollutive will be prohibited over the identified water resource area



## **PRIORITY PROGRAMS AND PROJECTS for 2013-2022**

**Table 1.44 Priority Social Development Programs and Projects**

Program	Implementing Agency/Partner		
	LGU	National Gov't	Private Sector/C SO
Renovation/improvement/construction of RHUs, District hospitals and lying-in for BEMONC	X		
Septage Management program	X	X	
Upgrading of 4 Rural Health Units for BEMONC (Calinan, Baguio, Mintal, Toril)	X		
Upgrading of Barangay Health stations	X		
Upgrading of 2 district hospitals, 2 lying ins	X		
Construction of 11 RHUs for BEMONC (Bunawan, Marahan, Puan, Tomas C., Jacinto, Agdao, Talomo, Sasa, Garcia Heights, Mini-forest, Buhangin)	X		
Construction of Day Care Centers in barangays where there is no day care center like Brgy. 8-A, 19-B and additional day care centers in Brgy 5-A, 23-C, 31-D and Brgy Pampanga	X		X
E-library – provision of virtual library in every school district and mobile e-library to far flung area	X		
Development of at least 1 public open space into plaza/ playground or tree park per barangay	X		
Development of open spaces in subdivision as green parks based on HLURB Guidelines	X		
Development of bay walks and parks in riverbanks	X	X	
Regulate a proper area for entrepreneurial activity within the CBD	X		
Construction of Davao City Sports Complex and training facilities	X		
Conversion of Paginhawaan Drop-In Center as holding facility for children in conflict with law	X		X
Establishment of reformatory / rehabilitation center for CICL's	X	X	X
Establishment of care centers for persons with disability and children with special needs at the barangay level / communities	X		X
Setting up of SPED schools in the 3 congressional districts	X	X	
Identification of socialized housing sites	X		X
Low Cost Housing Program	X	X	X
Land banking Program for future resettlement areas	X		
Slum upgrading and renewal of areas declared as Areas for Priority Development (APDs)	X	X	

**Table 1.45 Priority Economic Program and Projects**

Program	Implementing Agency/Partner		
	LGU	National Gov't	Private Sector/C SO
Organic Farming Development Program:	X		X
Cereals Production Enhancement program;	X	X	
Coconut Farms Productivity Improvement Program	X	X	
Fruit Development Program:	X	X	
Vegetable Enhancement Program (VEP)	X	X	
Agro-forestry Development Program	X		X
Industrial and Commercial Crop Development Program Coffee, cacao and rubber expansion project	X		
Upgrading of a class “AAA” slaughterhouse with complete facilities	X	X	
Poultry Development Program	X		
Marine Resources Conservation Program	X	X	X
Davao City Mountain Resort Project	X		
TRIAD-Three Ridges Integrated Area Development Project	X		X
Integrated Davao River Development Program	X	X	
Development of Cultural Villages in Marilog and Paquibato Districts	X		X
Formulation of the Davao City Master Tourism Plan	X		
Construction and operation of the Daliao Food Exchange Terminal	X	X	X
Development of Economic Zones for both manufacturing and BPO industries that are accredited by PEZA	X		X
Development of Tourism Enterprise Zones	X	X	X

**Table 1.46 Priority Infrastructure Programs and Projects**

Program	Implementing Agency/Partner		
	LGU	National Gov't	Private Sector/C SO
Conduct Transport Study	X	X	X
Development of a Strategic Urban Infrastructure Plan	X		
Promotion of non-motorized infrastructure development – sidewalks and bikelanes	X		X
Promote the use of Electronic vehicles in the Central Business Districts	X		X
Replace and Rehabilitate priority bridges	X	X	
Upgrading/Conversion of Bailey Bridges to RCDG	X	X	
Construction of road bridges( flyovers) over key intersections of the cuity		X	
Sasa Wharf expansion and modernization		X	
Sta. Ana Wharf Eco-Tourism Port Complex	X	X	
Davao River Ferryboat System Terminals	X		
Priority Road Development Projects			
High Standard Expressway from Tibungco to Toril	X	X	
Paquibato to Lacson Road	X	X	
Paquibato to Callawa Road	X	X	
Davao Coastal Road	X	X	
Extension of the Diversion Road from Langub to the existing Libby road (9 kms)	X	X	
Calinan-Tibungco Highway (C-3)	X	X	
Eden-Catigan-Baracatan-Tagurano Road	X	X	
Davao Riverside Boulevard	X		
Formulation of an Updated DRAINAGE MASTERPLAN	X	X	
Completion of additional main drains identified in the current master drainage plan	X		
Construction of bank/shore protection and river flood control structures on highly populated areas with high flood susceptibility .	X	X	
Urban Energy Efficiency Infrastructure project – Conversion of sodium Lights into LED Street Lamps	X		
Promotion of Renewable Energy program .	X		
Wastewater and Treatment System Development	X		
Septage Treatment and Management Program	X		
Establishment of industrial waste treatment plant	X		
New Local Government Center or Building	X		
Conduct of Road Inventory and Road Surface Condition Survey	X	X	

**Table 1.47 Priority Environmental Programs and Projects**

Program	Implementing Agency/Partner		
	LGU	National Gov't	Private Sector/C SO
Biodiversity Index Development	X	X	X
Natural Resources Conservation	X	X	X
Craft Watershed Management Plans per watershed	X		X
Forest Rehabilitation and Management	X	X	X
Sanitary Landfill Project	X		
Waste To Energy Project	X		X
SWM Modernization and Enhancement	X	X	
Pollution Control and Monitoring Program	X	X	
Surface Water Development	X		X
Adoption of Integrated Water Resources Management	X		X
Water Quality Monitoring Project	X		
Wastewater Management Research	X		X
Coastal Pollution Control and Monitoring Program	X	X	X
Coastal Zoning	X		X
Coastal Resource Management Project	X		X
Mangrove Rehabilitation	X		X
Mangrove Nursery Development	X		
Expansion of the Rain-harvesting ordinance	X		
Updating of the Drainage Master Plan	X		
Disaster Risk Reduction Community Planning	X	X	
Community Strengthening on disaster risk and response	X		X
Disaster Preparedness Enhancement	X		X
Real-time River Water Level Monitoring	X	X	