CHAPTER 8

FUTURE LAND USE PLAN AND SOCIO-ECONOMIC FRAMEWORK

8.1 FUTURE URBAN DEVELOPMENT VISIONS AND STRUCTURE

8.1.1 Possible Future Development Patterns

As described before, the existing physical urban structure of Metro Iloilo is a five-fingered radial pattern focused at the city proper of Iloilo City as the metropolitan center. This urban structure gives rise to traffic congestion on the radial roads and on streets within the city proper.

For dealing with the existing and future urban problems anticipated, the following three development patterns are presented as shown in Figure 8.1-1.

- Local Community Development Pattern
- Airport Axis Development Pattern
- Circumferential Road Development Pattern

1) Local Community Development Pattern

This development pattern intends every city/municipality to independently make efforts to improve the road network under its jurisdiction and to render better public services to the local residents. All barangays are connected with the poblacion or the market place by a paved road network. Public service facilities with enough manpower and equipment are located at main barangay centers.

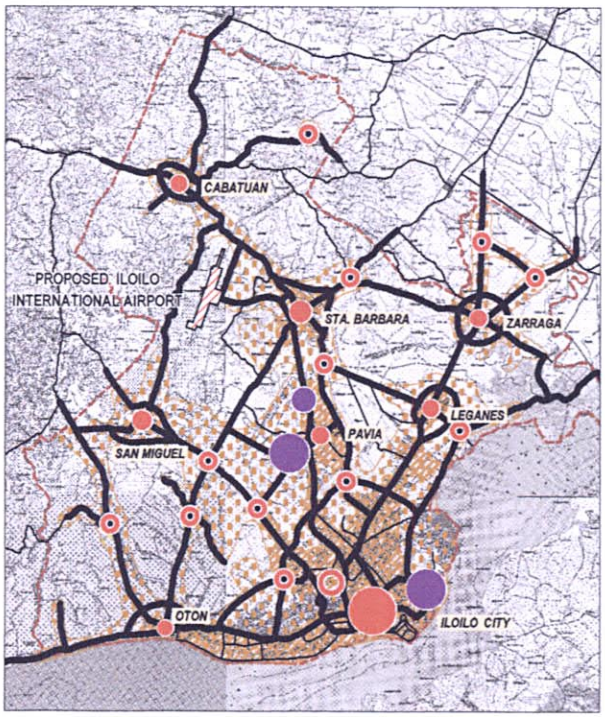
In addition, the local government tries hard to attract industrial or commercial investments, intending to expand job opportunities for local residents.

2) Airport Axis Development Pattern

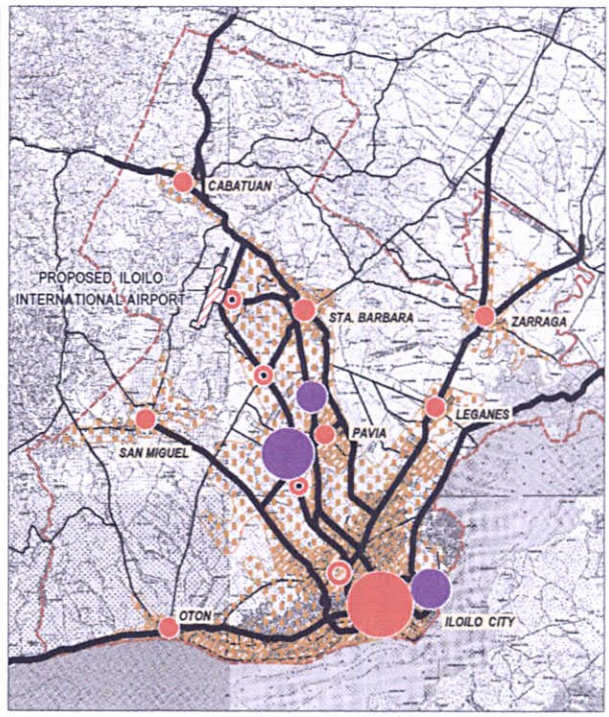
This development pattern is to develop an urban axis between the proposed new airport and Iloilo City. According to the present plan, the new airport located in Cabatuan will be connected with Iloilo City through R-3 (Iloilo-Sta. Barbara-Kalibo Road) and New Airport Access Road. And parallel to R-3, there is another road S-2 (Jaro-Sta. Barbara Road).

Along this corridor RAIC is designated in Pavia. However, occupancy rate of the planned industrial area is still only about 10%. The new airport is expected to attract more industries and various airport-related service activities.

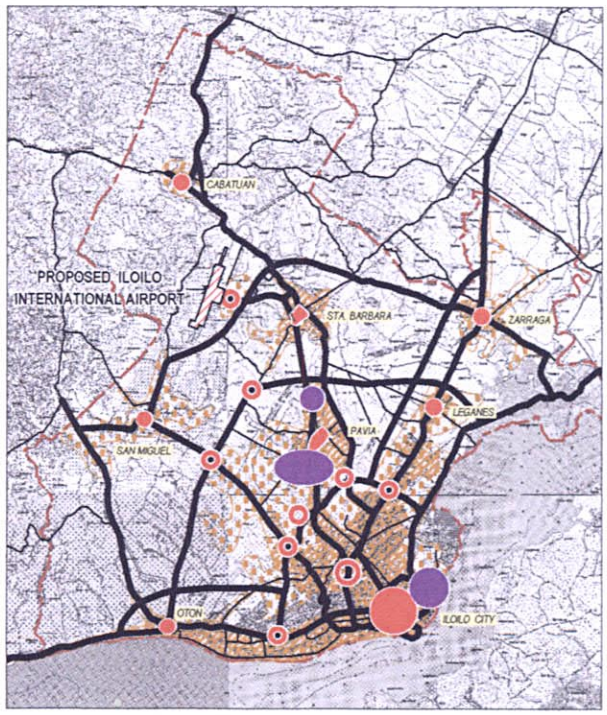
By constructing a new radial arterial road, the transport conditions of Iloilo City-Pavia-Sta. Barbara-Airport axis will be improved greatly. To alleviate the present traffic congestion in Iloilo City Proper, some regional offices of the national government agencies and a part of the provincial government offices shall be relocated along the axis.



LOCAL COMMUNITY
DEVELOPMENT PATTERN



AIRPORT AXIS
DEVELOPMENT PATTERN



CIRCUMFERENCIAL ROAD
DEVELOPMENT PATTERN

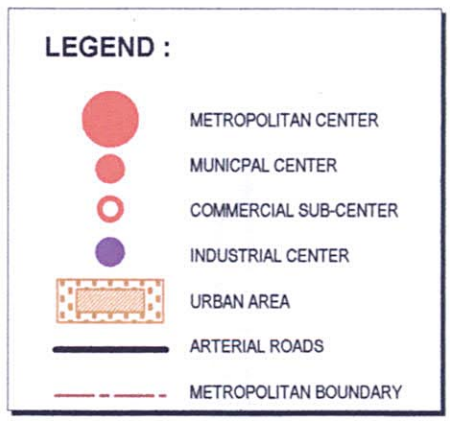


FIGURE 8.1-1 FUTURE URBAN DEVELOPMENT PATTERN ALTERNATIVES

3) Circumferential Road Development Pattern

As described in Section 1.3.1, the existing radial urban structure causes traffic congestion in the city proper. For the improvement of this situation, construction of circumferential roads with economic activities along them will be effective. Three or four circumferential roads are to be constructed. The most inner circumferential road (C-1) will be constructed along the planned floodway, boundary between Iloilo City and Pavia, and the boundary between Iloilo City and Oton.

To build a circumferential corridor along C-1, two areas for planned unit development (PUD) will be developed as metropolitan cores for the tertiary sector activities. One PUD will be located in Iloilo City and another in Pavia.

8.1.2 Selection of Future Urban Development Pattern

The evaluation of the three urban development patterns is presented in Table 8.1-1. From the standpoint of project formation intending to achieve the respective future urban pattern under a limited financial capacity, the evaluation is carried out based on the project evaluation method used in the Project Cycle Management (PCM), which is adopted by JICA. Table 8.1-1 shows the evaluation result.

According to the evaluation table, the circumferential road development pattern will give benefits to all LGUs comprising Metro Iloilo, with comparatively small amount of road investment. It was selected as the best one for the target future.

8.2 FUTURE LAND USE PLAN

8.2.1 Institutional System of Land Use Planning in the Philippines

Pursuant to the Local Government Code of 1991, cities and municipalities shall continue to prepare their respective comprehensive land use plans (CLUPs) enacted through zoning ordinances. The Housing and Land Use Regulatory Board (HLURB) is the government's regulatory body responsible for land use and housing. It is mandated to formulate land use planning guidelines and standards. A city/municipality with rural areas within its jurisdiction prepares its CLUP (General Land Use Plan and Urban Land Use Plan) based on the guidelines of HLURB. The general land use plan covers the whole area of the LGU. The urban land use plan is for the built-up area (the poblacion and its vicinity). The formulated CLUP is translated into a new zoning ordinance of the LGU. The zoning ordinance is enforced through the approval of the Planning Office of the province and the signature of the HLURB.

TABLE 8.1-1 EVALUATION OF THREE URBAN DEVELOPMENT PATTERNS

	Local Community Development Pattern	Airport Axis Development Pattern	Circumferential Road Development Pattern
Relevance	In accordance with the policies for poverty alleviation and improvement of living standards in rural communities	In accordance with the policy for development of regional growth centers and improvement of traffic conditions of Metro Iloilo	In accordance with the policy for development of regional growth centers and improvement of road network as a whole in Metro Iloilo
Effectiveness	It is necessary for each LGU to have enough administrative, financial and technical capacity for the road construction and creation of job opportunities	There are strong development seeds such as the new airport and the RAIC. When improvement of arterial roads and development of commercial / institu-tional centers along the corridor, the project purpose can be achieved.	C-1 and two PUD areas will be developed in near future. C-2 also can be constructed connecting the existing arterial roads. When development of commercial/institutional centers are developed along C-2 and C-3, the project purpose can be achieved.
Efficiency	The total length of the roads to be improved is very long and costs for roads will be large even at the minimum standard. So necessary inputs are too much for getting expected outputs.	The length of the roads to be constructed and improved is not long and costs for roads are not large. Expected outputs are large for the related LGUs along the axis. However, the other LGUs cannot receive the benefits directly.	The length of roads to be constructed and improved is not long and costs for roads are not large by utilizing the existing roads. Outputs can be received by all LGUs included in Metro Iloilo.
Impact	Direct impacts of the road improvement are exclusion of through traffic from the municipal center by construction of by-pass and rise in transport conditions of rural communities to and from the municipal center by the improvement of municipal arterial roads. In addition, the efforts made by LGUs for the attainment of the goal will have politically, institutionally, socially, economically and technically good and important impacts on the local community.	Direct impacts of the road construction and improvement are the alleviation of traffic congestion on R-3 and S-2, and betterment of transport conditions between the new airport and Iloilo City Proper. Development of commercial /institutional centers will create employment and have economic and social impacts on the LGUs along the axis.	Direct impacts of road construction and improve-ment are the alleviation of traffic congestion in the Iloilo City Proper and betterment of transport conditions among LGUs comprised in Metro Iloilo. Development of commer-cial/institutional centers will create employment and have economic and social impacts on all the LGUs within Metro Iloilo.
Sustainability	In order for LGUs to keep up with the capacity for conducting such kind of projects, financial and technical supports by related national and provincial agencies are necessary.	The national and provincial agencies and related LGUs will coordinate with each other based on existing regulatoins and guidelines.	The national and provincial agencies and all LGUs will coordinate with each other based on existing regulations and guidelines.

8.2.2 Land Use Plan for 2010

Iloilo City and the municipalities comprising Metro Iloilo have already prepared their CLUPs based on the ordinary legal and institutional procedures mentioned above. Figure 8.2-1 shows an integrated illustration of these CLUPs.

8.2.3 Land Use Plan for 2022

Figure 8.2-2 shows a land use plan for Metro Iloilo based on the projected population and employment distribution described in the following sections. For the formulation of the land use plan, the targeted urban development pattern of the "circumferential road development pattern" is considered.

8.3 FUTURE SOCIO-ECONOMIC FRAMEWORK

8.3.1 Population

Future population projection for Metro Iloilo is carried out as a revision of the NSO projections (Medium Assumption) for the national, provincial and city/municipality levels based on the 1995 Census. The medium assumption (moderate pace of fertility decline) assumes that the Net Reproduction Rate (NRR) = 1 will be realized in 2020. Projection results are shown in Table 8.3-1.

TABLE 8.3-1 FUTURE POPULATION PROJECTION BY CITY/MUNICIPALITY

	Projected Population					Annual Average Growth Rate (%)			
	2000	2003	2010	2016	2022	2000-03	2003-10	2010-16	2016-22
Philippines	76,786,119	81,546,617	92,395,353	100,952,019	108,482,296	2.03	1.80	1.49	1.21
Region VI	6,224,185	6,555,498	7,305,688	7,872,316	8,346,675	1.74	1.56	1.25	0.98
P. of Iloilo	1,931,339	2,034,139	2,266,612	2,443,578	2,593,657	1.74	1.56	1.26	1.00
Metro Iloilo	620,817	656,834	738,839	802,633	858,670	1.90	1.69	1.39	1.13
Iloilo City	366,949	389,402	440,739	481,420	517,734	2.00	1.78	1.48	1.22
Oton	65,691	69,727	78,958	86,282	92,828	2.01	1.79	1.49	1.23
Sta. Barbara	46,315	48,213	52,375	55,112	57,118	1.35	1.19	0.85	0.60
Cabatuan	46,067	47,792	51,538	53,848	55,403	1.23	1.08	0.73	0.48
Pavia	33,056	35,474	41,111	45,804	50,189	2.38	2.13	1.82	1.54
Zarraga	18,278	19,196	21,250	22,759	24,011	1.65	1.46	1.15	0.90
Leganes	23,637	25,069	28,341	30,927	33,228	1.98	1.77	1.47	1.20

1) Projections at the national to provincial level to 2020 are based on the revision results of the NSO's "1995 Census-Based National, Regional and Provincial Population Projections", taking into account of the results of 2000 Census.

2) From 2020 to 2022, the changing trends from 2015 to 2020 are extended.

3) Projections at the city/municipality level to 2010 are based on the revision results of the NSO's "1995 Census-Based City/Municipality Population Projections", taking into account of the results of 2000 Census.

4) From 2010 to 2022, the changing trends of the percentages to the provincial projections from 2000 to 2010 are extended and applied.

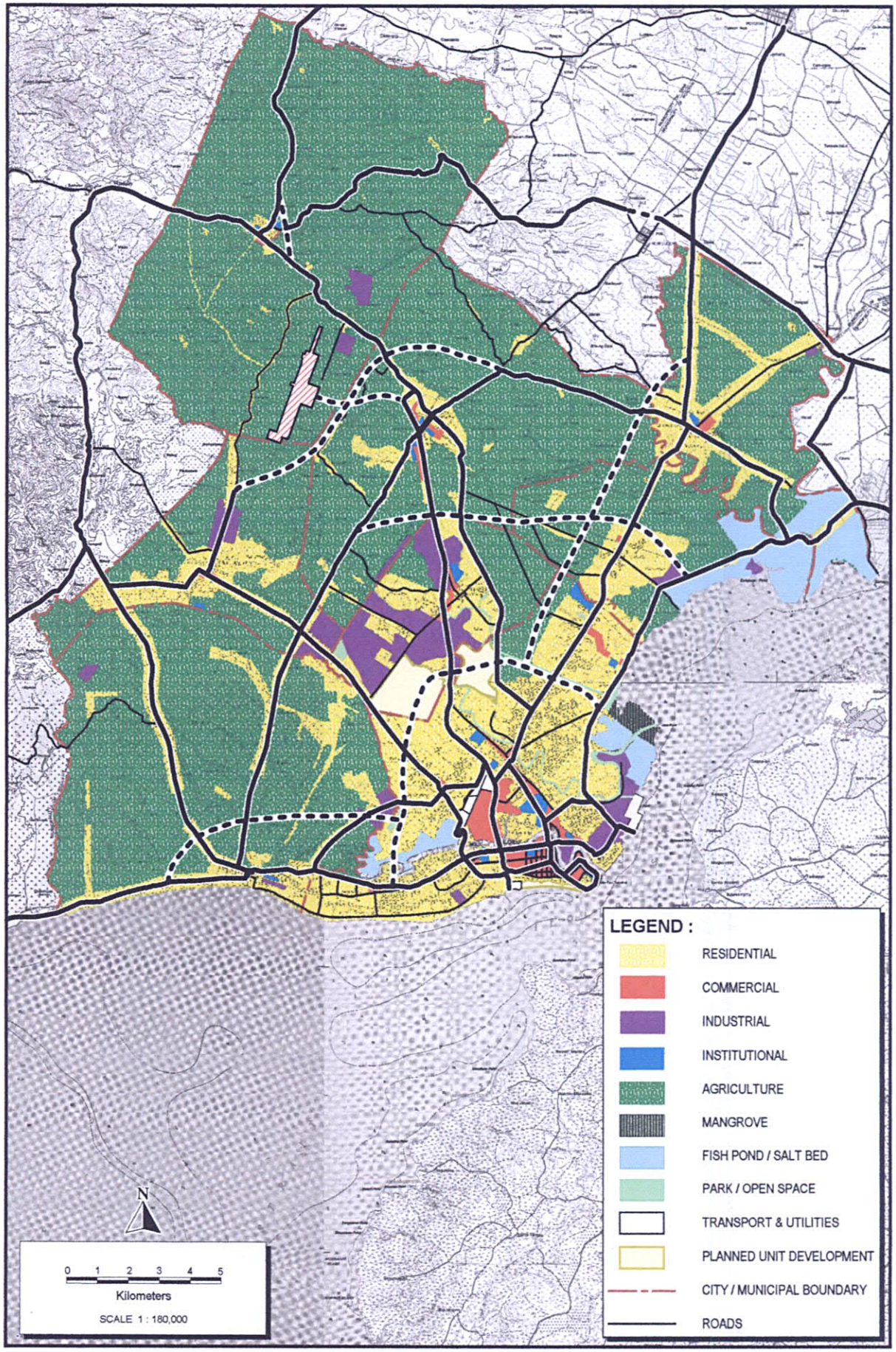


FIGURE 8.2-1 METRO ILOILO FUTURE LAND USE MAP : 2010

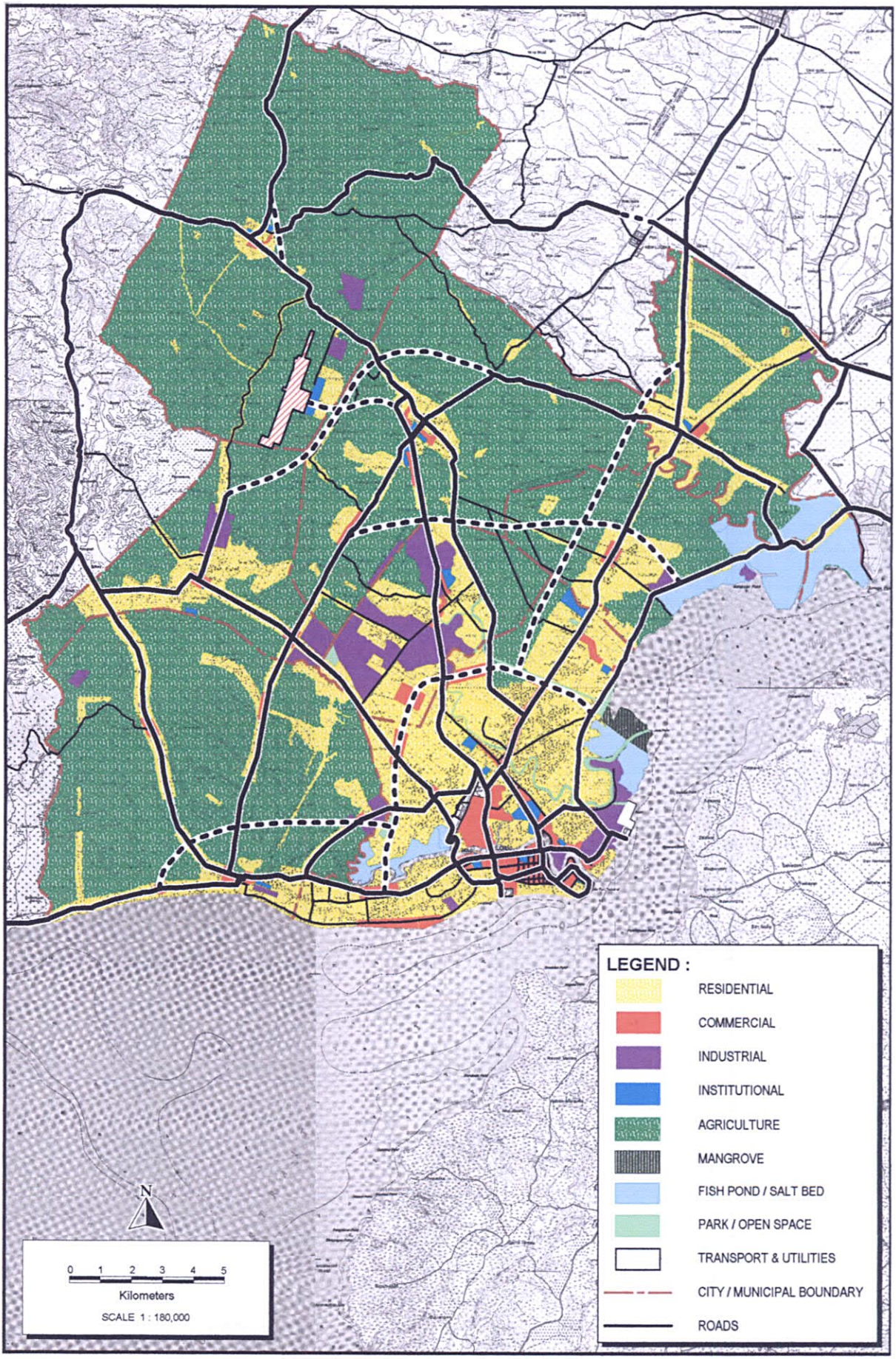


FIGURE 8.2-2 METRO ILOILO FUTURE LAND USE MAP : 2022

For the preparation of the CLUP, city/municipalities adopted the constant population growth rate method based on their respective population growths during the 1990s. Accordingly, the projected future population in this Study is lower than those used in CLUPs.

The future populations of city / municipalities are broken down to the traffic zones, considering the past trend and population density. The results are shown in Figure 8.3-1.

8.3.2 GRDP

The Gross Regional Domestic Product (GRDP) of Region VI (Western Visayas) has steadily grown during the past decade with an average annual growth rate of 3.3 %. Particularly the region's economy has shown resiliency in the recent three years from 1998 to 2001 after the financial crisis, with slightly higher growth rate than the national total. This is mainly attributed to the rapid recovery and further growth in the agriculture sector as well as the manufacturing sector including agro-industries.

According to the Western Visayas Regional Development Plan, 2001-2004, the region's development effort will be focused on the agro-industry and tourism. It may have positive influences on the related industries, particularly manufacturing and service sectors. On the other hand, the region's economy is inevitably depending on the national economic growth, since the domestic market has the predominant share in these sectors.

In November 2001, the National Economic Development Authority (NEDA) published the Medium Term Development Plan for 2001 – 2004, including the Philippines economic growth targets till the year 2006, which were recently revised slightly downward based on the actual economic growth rate in the year 2001.

Table 8.3-2 shows the GDP projection for the coming 20 years by making use of the revised target growth rates developed by NEDA. For the years from 2001 to 2004, NEDA has projected the annual economic growth as 4.3%, 5.2% and 5.5%. According to the latest National Accounts of the Philippines published by National Statistical Coordination Board (NSDB), the actual economic growth in 2002 was 4.56%, which was slightly higher than the NEDA's projection. Therefore, the NEDA's projection for the years 2003 and 2004 seems to be attainable targets, even though the growth rate is increasing year by year. In the long run, however, it may be difficult to keep high economic growth continuously, judging from the past trend during the last two decades: only 1% for the 1980's and 3.3% for 1990's in terms of average annual growth rate.

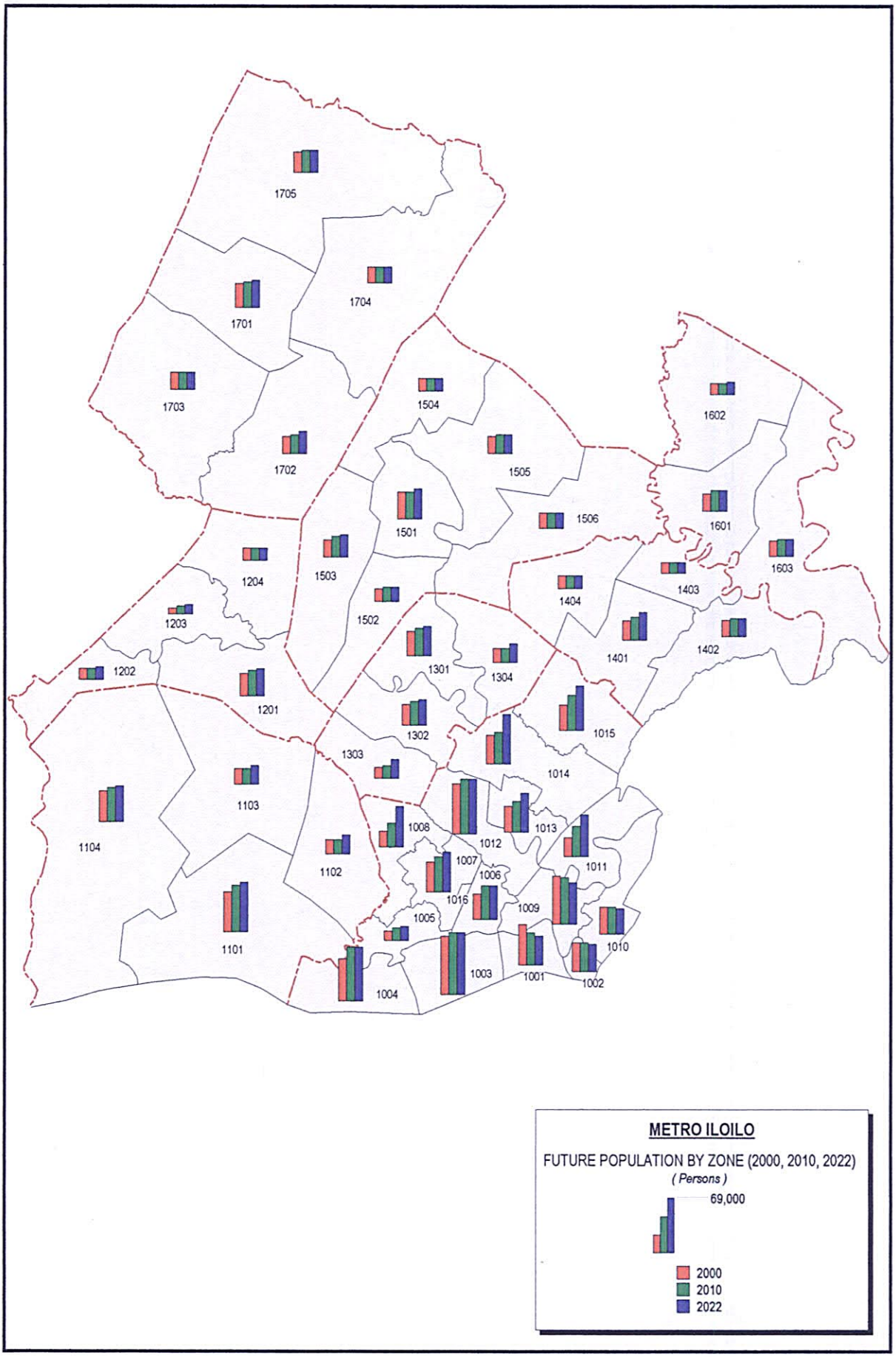


FIGURE 8.3-1 FUTURE POPULATION BY ZONE

TABLE 8.3-2 GDP PROJECTION (IN 1985 PRICES)

Sector		GDP (million pesos)							Average Annual Growth Rate					
		1991	2001	2002	2003	2004	2010	2022	'91-'01	'01-'02	'02-'03	'03-'04	'05-'10	'11-'22
Primary	High						293,274	508,901					4.7%	4.7%
	Med	162,937	197,737	204,690	212,694	222,635	281,704	418,330	2.0%	3.5%	3.9%	4.7%	4.0%	3.4%
	Low						270,518	343,082					3.3%	2.0%
Secondary	High						534,536	1,016,264					5.5%	5.5%
	Med	248,718	336,697	348,906	367,545	387,670	513,606	851,220	3.1%	3.6%	5.3%	5.5%	4.8%	4.3%
	Low						496,213	715,768					4.2%	3.1%
Tertiary	High						759,857	1,528,981					6.0%	6.0%
	Med	304,867	454,824	478,051	505,533	535,669	740,706	1,337,823	4.1%	5.1%	5.7%	6.0%	5.5%	5.1%
	Low						721,959	1,169,288					5.1%	4.1%
Total	High						1,587,667	3,054,146					5.6%	5.6%
	Med	716,522	989,258	1,031,647	1,085,772	1,145,974	1,536,016	2,607,373	3.3%	4.3%	5.2%	5.5%	5.0%	4.5%
	Low						1,488,690	2,228,138					4.5%	3.4%

Note: The figures in 1991 and 2001 are actual, those from 2002 to 2004 and others are projected by NEDA and Study Team respectively.

Accordingly, the growth rates by industry for 2003-2004 projected by NEDA is employed as a high case scenario for the years 2005 – 2022. As a low case scenario, the growth rate is assumed to eventually approach to the average growth rate in the past 10 years.

As for the GRDP of the Region VI, the percentage share to the national total, GDP, has been almost stable within the range from 7.0% to 7.2% during the past decade as seen in Table 8.3-4.

Assuming that the economic contribution of the Region VI to the national total will be maintained at the level of 2001 with due consideration of past growth tendency by sector, the GRDP of Region VI is projected as shown in Table 8.3-3.

As a result, the GRDP of Region VI is expected to grow from about 70 billion pesos in 2001 to 218 billion pesos as the high growth case and 159 billion pesos as the low growth case in the year 2022.

TABLE 8.3.3 PROJECTED GRDP OF REGION VI (IN 1985 PRICES)

Sector		GRDP (million pesos)							Annual Growth Rate					
		1991	2001	2002	2003	2004	2010	2022	'91-'01	'01-'02	'02-'03	'03-'04	'05-'10	'11-'22
Primary	High						29,327	47,328					4.2%	4.1%
	Med	17,599	20,552	21,242	22,004	22,977	28,170	38,905	1.6%	3.4%	3.6%	4.4%	3.5%	2.7%
	Low						27,052	31,907					2.8%	1.4%
Secondary	High						29,399	58,943					6.0%	6.0%
	Med	10,651	17,617	18,365	19,527	20,767	28,248	49,371	5.2%	4.2%	6.3%	6.4%	5.3%	4.8%
	Low						27,292	41,515					4.7%	3.6%
Tertiary	High						54,710	111,616					6.4%	6.1%
	Med	22202	31,389	33,240	35,406	37,792	53,331	97,661	3.5%	5.9%	6.5%	6.7%	5.9%	5.2%
	Low						51,981	85,358					5.5%	4.2%
Total	High						113,437	217,887					5.7%	5.6%
	Med	50,452	69,558	72,847	76,937	81,536	109,750	185,937	3.3%	4.7%	5.6%	6.0%	5.1%	4.5%
	Low						106,325	158,779					4.5%	3.4%

Note: The figures in 1991 and 2001 are actual, those from 2002 to 2004 and others are projected by NEDA and Study Team respectively.

TABLE 8.3-4 SHARE OF GRDP IN REGION VI TO GDP

Sector	1991	1996	2001	2002	2003	2004	2010	2022
Primary	10.8%	10.8%	10.4%	10.4%	10.3%	10.3%	10.0%	9.3%
Secondary	4.3%	4.9%	5.2%	5.3%	5.3%	5.4%	5.5%	5.8%
Tertiary	7.3%	7.4%	6.9%	7.0%	7.0%	7.1%	7.2%	7.3%
Total	7.0%	7.2%	7.0%	7.1%	7.1%	7.1%	7.1%	7.1%

Source: NSCB, Study Team

With regard to the provincial GRDP, there is no published data available. Assuming that the labor productivity is proportionally reflecting the average income level, the GRDP of Iloilo province is estimated as shown in Table 8.3.5, where the medium economic growth rates by industry of the Region VI are employed for the future projection .

Consequently, the GRDP of Iloilo Province will increase from 30,277 million pesos in 2001 to 48,456 million pesos in 2010 and 83,475 million pesos in 2022 in terms of 1985 prices. The per capita GRDP will grow approximately 1.4 times in 2010 and 2.1 times its current value in 2022.

TABLE 8.3-5 GRDP OF ILOILO PROVINCE (IN 1985 PRICES)

	GRDP (million pesos)						Ave. Annual Growth Rate				
Sector	2001	2002	2003	2004	2010	2022	'01-'02	'02-'03	'03-'04	'05-'10	'10-'22
Primary	6,850	7,080	7,334	7,659	9,390	12,968	3.4%	3.6%	4.4%	3.5%	2.7%
Secondary	7,711	8,038	8,547	9,090	12,364	21,609	4.2%	6.3%	6.4%	5.3%	4.8%
Tertiary	15,716	16,643	17,727	18,922	26,702	48,898	5.9%	6.5%	6.7%	5.9%	5.2%
Total	30,277	31,762	33,609	35,670	48,456	83,475	4.9%	5.8%	6.1%	5.2%	4.6%
Population ('000)	1,965	1,999	2,034	2,066	2,267	2,594	1.7%	1.7%	1.6%	1.6%	1.1%
Per capita (pesos)	15,408	15,886	16,522	17,267	21,378	32,184	3.1%	4.0%	4.5%	3.6%	3.5%

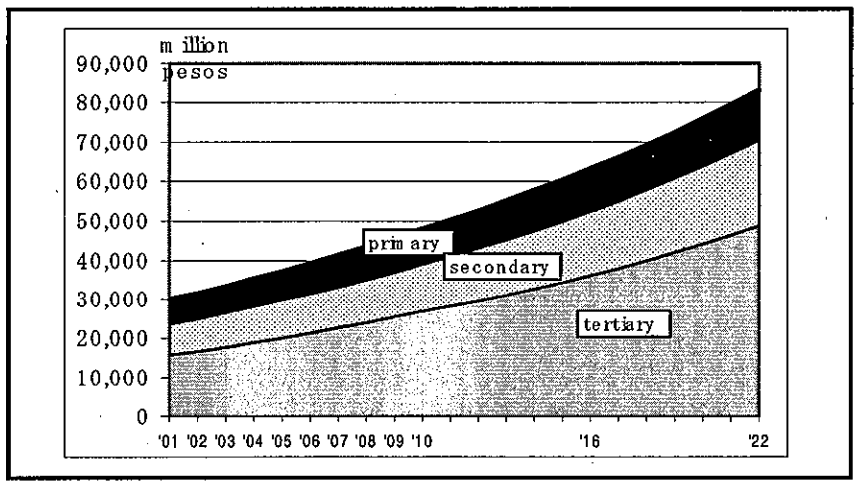


FIGURE 8.3-2 FUTURE TREND OF PROVINCIAL GRDP BY SECTOR

8.3.3 Employment

Based on the projected provincial GRDP, population, labor force participation rates, employment rates and labor productivity by sector, future employment by sector at the provincial level is first estimated. Then, it is broken down to the city/municipality level considering the ratios of city/municipal employment by sector to that of the province on residence base. Applying the ratios of employment on workplace base to that on residence base obtained from 2000 Census, the employment on workplace base is estimated. The results are shown
in Figure 8.3-3. Future employment by sector and by zone (workplace base) is shown in Figure 8.3-4.

8.3.4 Vehicle Ownership Projection

Future vehicle ownership is estimated by using the relationship between family income and vehicle ownership, which has been already explained in Chapter 1. Future family income growth can be obtained by using the growth rate in the per capita GRDP of Region VI and the changes in the number of household members.

As a result, the number of vehicles in the Metro Iloilo Region is forecasted to grow 1.5 times in 2010 and 2.6 times the current number of vehicles in 2022.

Therefore, the vehicle ownership will increase from 50 vehicles /1000 persons in 2002 to 65 vehicles/1000 persons in 2010 and 94 vehicles/1000 persons in 2022.

It indicates that the vehicle ownership will be one vehicle per 2.5 households in Metro Iloilo and one vehicle per 1.7 households in Iloilo City in 2022.

TABLE 8.3-6 FUTURE VEHICLE OWNERSHIP IN METRO ILOILO

City / Municipality	2002		2010		2022	
	No. of Vehicles	Vehicles / 1000 persons	No. of Vehicles	Vehicles / 1000 persons	No. of Vehicles	Vehicles / 1000 persons
Iloilo City	28,095	76.8	43,053	97.7	72,546	140.1
Oton	757	11.6	1,179	14.9	2,030	21.9
Sta. Barbara	522	11.3	803	15.3	1,380	24.2
Cabanatuan	553	12.0	782	15.2	1,189	21.5
Pavia	376	11.5	657	16.0	1,321	26.3
Zarraga	201	11.0	307	14.4	521	21.7
Leganes	390	16.6	652	23.0	1,247	37.5
San Miguel	291	14.0	446	18.2	614	21.8
Total	31,185	50.4	47,879	64.8	80,848	94.2

Note: Excluding vehicles for hire and motorcycles / tricycles

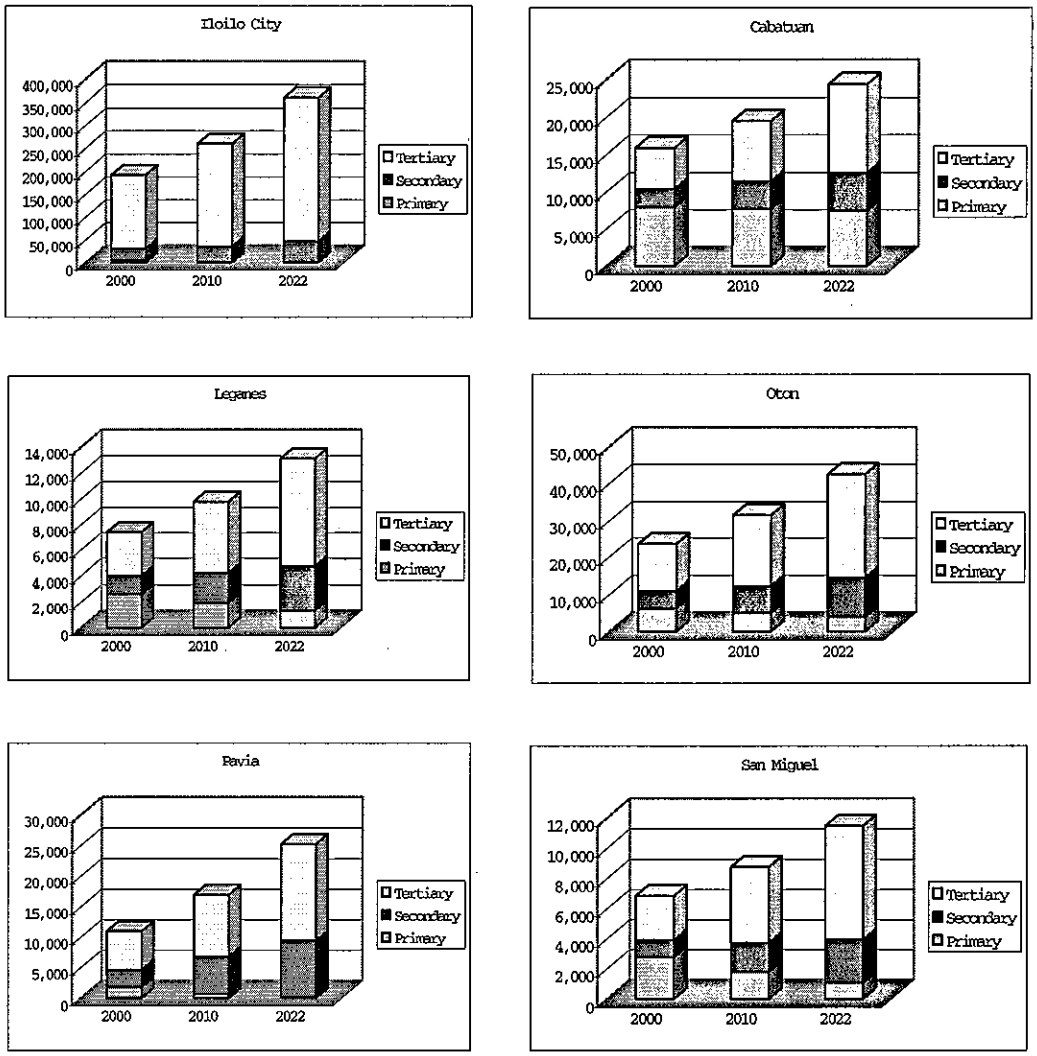


FIGURE 8.3-1 FUTURE NO. OF EMPLOYED PERSONS BY SECTOR (Workplace Base), Metro Iloilo

Employment by traffic zone is estimated based on the following assumptions:

a. The number of employed persons in the primary sector on workplace base is the same as that on residence base.
b. Employment of the primary sector will reduce parallel to reduction in agricultural land
c. The secondary and tertiary sector employment is classified into two categories: barangay level service (for example, bakeries in the secondary sector and sari-sari store in the tertiary sector) and city/municipality level and above
d. The barangay level employment on workplace base is the same as that on residence base.
e. The secondary sector employment at the city/municipality level is divided into two categories: construction and manufacturing (mining and electric/gas/water are negligible).
f. Employment in the construction industry is distributed to the poblacion and commercial zones.
g. Employment in the manufacturing industry is distributed to the industrial zones.
h. The tertiary sector employment at the city municipality level is distributed to the poblacion, commercial/institutional zones

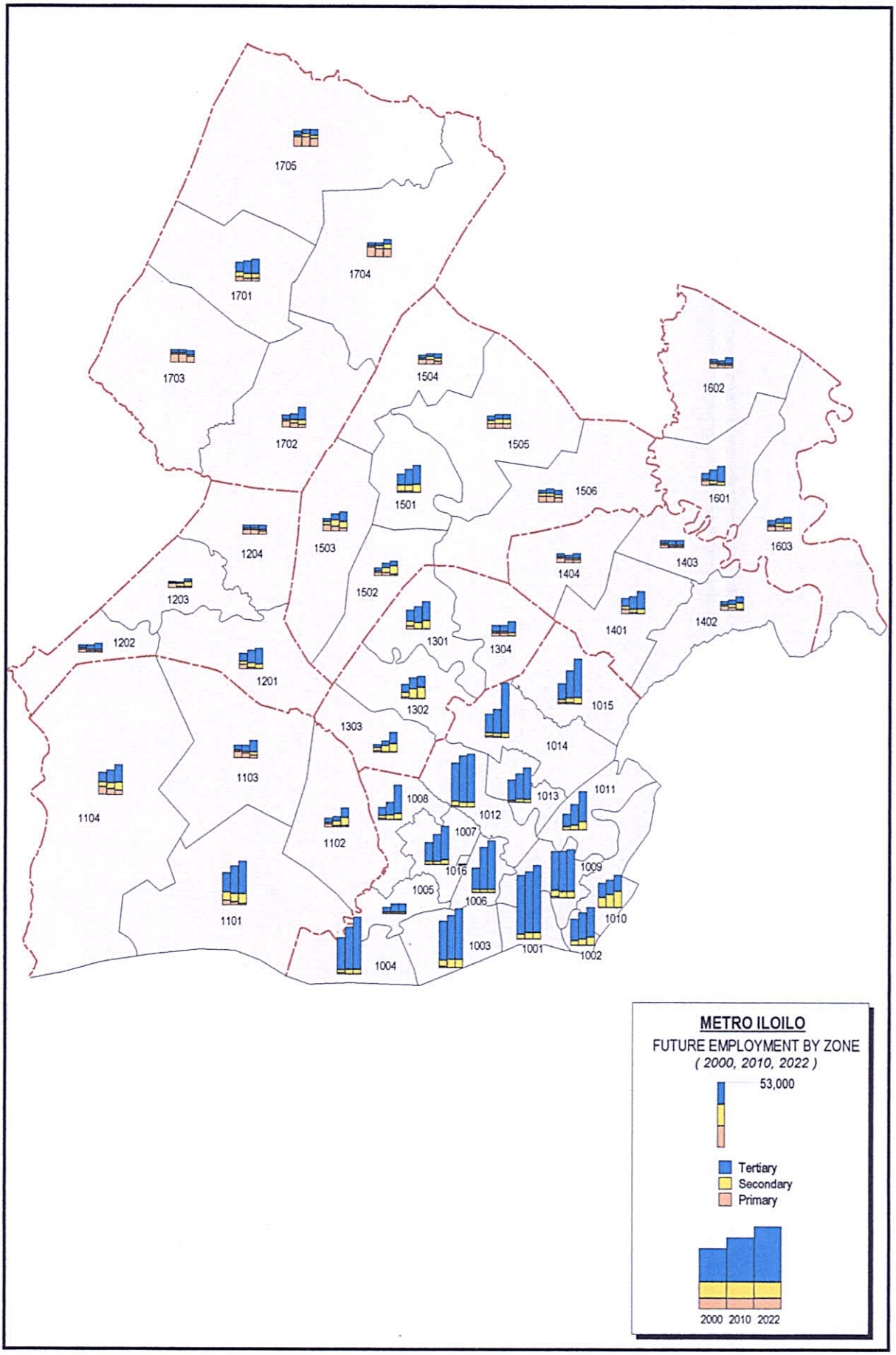


FIGURE 8.3-4 FUTURE EMPLOYMENT BY ZONE

CHAPTER 9
TRAFFIC DEMAND FORECAST

9.1 DEMAND FORECAST MODELS

9.1.1 Traffic Generation/Attraction Models

After examining various explanatory variables, the most appropriate ones were selected. Consequently, the traffic generation/attraction models were established as follows:

TABLE 9.1-1 GENERATION / ATTRACTION MODELS

	Generation/ Attraction Models
Person Trips	Gi, Ai = a_1Xi + a_2Di Where Gi, Ai: Trip Generation/Attraction in Zone i Xi: Total Employment at Working Place in Secondary and Tertiary Sectors in Zone i Di: Dummy Variable a_1: 3.511 a_2: 99.775 R^2: Multiple Correlation Coefficient: 0.972
Cargo Movement	Gi, Ai = a_1Xi + a_2Di Where Gi, Ai: Cargo Generation/Attraction in Zone i Xi: Total Employment at Working Place in Secondary and Tertiary Sectors in Zone i Di: Dummy Variable a_1: 0.0498 a_2: 877.8 R^2: Multiple Correlation Coefficient: 0.976

9.1.2 Trip Distribution Model

As a trip distribution model, the gravity model was employed, taking into account that the current distribution pattern among zones will remain in the future. Simultaneously, new linkage pattern was created reflecting the development of new growth centers located along new highways.

The gravity model is expressed by the following formula:

$$Tij = K \cdot Gi^{\alpha} Aj^{\beta} / dij^{\gamma}$$

Where Tij: Person Trip or Cargo Volume between Zone i and Zone j
Gi: Person Trip or Cargo Volume Generation in Zone i
Aj: Person Trip or Cargo Volume Attraction in Zone j
dij: Travel Time Distance between Zone i and Zone j
K, α, β, γ: parameters as shown in the following table

R^2: Multiple Correlation Coefficient

	K	α	β	γ	R^2
Passengers	0.000743	0.558	0.556	1.300	0.737
Cargo	0.1695	0.263	0.260	1.433	0.627

9.1.3 Modal Split Model

As already explained in Chapter 2 of Part A, the modal split between private vehicles and public transport is determined by the vehicle ownership and trip production rate per vehicle in the Metro Iloilo. Accordingly, the total number of future person trips by private vehicles is obtained by the following formula:

$$Xv = V \cdot r \cdot N$$

Where Xv: Total Number of Person Trips by Private Vehicles
V: Total Number of Private Vehicles
r: Trip Production Rate per Private Vehicle (= 3.75)
N: Average Vehicle Occupancy (= 2.22 persons/vehicle)

The modal split between bus and jeepney was estimated by using the relationship between zones i and zone j in distance, calculated on the basis of the present OD matrices.

Figure 9.1-1 represents the modal share of jeepney to the public transport trips.

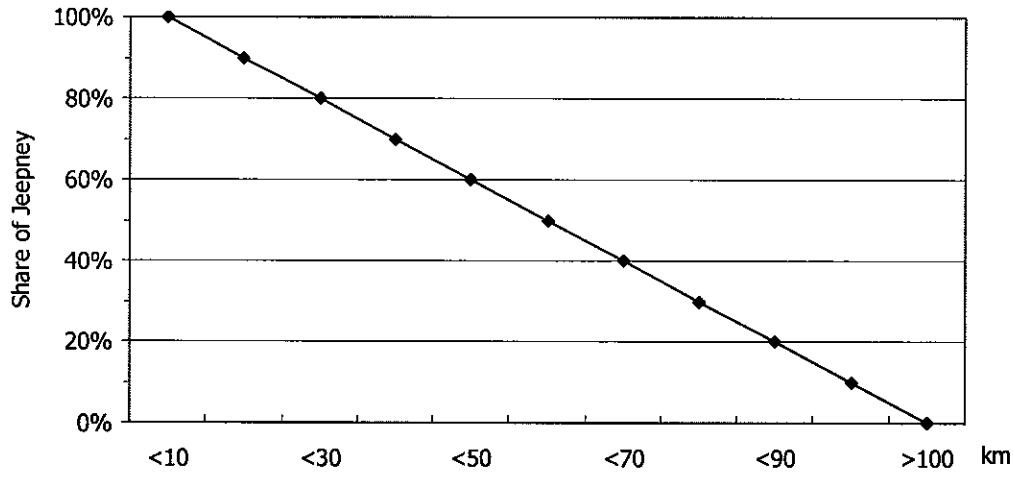


FIGURE 9.1-1 MODAL SHARE OF JEEPNEY TRIPS TO TOTAL PUBLIC TRANSPORT TRIPS

9.2 FUTURE TRAFFIC DEMAND

The future traffic demand is estimated by using the forecast models elaborated in the previous section. The target years are assumed as 2010, 2016, and 2022.

9.2.1 Passenger Trip

1) Total Demand

The future passenger trips related to the Metro Iloilo Area were estimated as shown in Table 9.2-1. The total passenger demand is forecasted to grow as much as 1.8 times during the coming two decades from 1.27 million trips in 2003 to 1.63 million trips in 2010, 1.95 million trips in 2016, and 2.33 million trips in 2022. Iloilo City will be functioning as the center of the Metro Iloilo Area in the future as well. The share of Iloilo City related trips to total trip generation in Metro Iloilo will slightly decrease in the future, but will be continuously predominant, and making up about 86% of the total trips in Metro Iloilo even in 2022. It is also noted that among others, Pavia, San Miguel and Leganes show high growth during the coming two decades. More than 3.5 times of the current demand will be expected owing to the new industrial centers to be developed along the Iloilo - Sta. Barbara Road near the New Iloilo Airport and the new commercial development along the main corridor to Roxas. Figure 9.2-1 shows the growth of trip generation by integrated zone.

TABLE 9.2-1 PASSENGER TRIPS IN METRO ILOILO AREA

City/Municipality	Passenger Trips (1,000 persons/day)				Growth Ratio		Average Growth Rate	
	2003	2010	2016	2022	'03-'10	'03-'22	'03-'10	'03-'22
Iloilo City	1,123.6	1,407.1	1,678.3	2,001.8	1.25	1.78	3.3%	3.1%
Oton	9.8	17.8	21.1	25.1	1.81	2.57	8.9%	5.1%
San Miguel	9.5	20.8	26.4	33.5	2.19	3.52	11.9%	6.9%
Pavia	7.8	18.7	23.2	28.8	2.41	3.71	13.4%	7.2%
Leganes	7.9	18.2	23.1	29.2	2.30	3.69	12.6%	7.1%
Santa Barbara	12.3	19.9	23.3	27.2	1.63	2.22	7.2%	4.3%
Zarraga	15.9	25.4	30.3	36.2	1.60	2.28	6.9%	4.4%
Cabatuan	3.5	6.9	8.2	9.8	1.96	2.78	10.1%	5.5%
External Area	78.7	96.6	114.0	134.6	1.23	1.71	3.0%	2.9%
Total	1,269.0	1,631.4	1,948.0	2,326.3	1.29	1.83	3.7%	3.2%

2) Transport Mode

The passenger trips by transport mode in the Metro Iloilo Area are shown in Table 9.2-2. The share of private vehicles is expected to grow from 22% in 2003 to 29% in 2022, while the shares of jeepneys and buses are predicted to decline.

TABLE 9.2-2 PASSENGER TRIP BY TRANSPORT MODE

Transport Mode	2003		2010		2022		Growth Ratio		Average Growth Rate	
	Trips ('000)	%	Trips ('000)	%	Trips ('000)	%	'03-'10	'03-'22	'03-'10	'10-'22
Private Vehicles	274.5	21.6	399.1	24.5	673.6	29.0	1.45	2.45	5.5%	4.5%
Jeepney	962.0	75.8	1,192.2	73.1	1,598.8	68.7	1.24	1.66	3.1%	2.5%
Bus	32.4	2.6	40.1	2.5	53.8	2.3	1.24	1.66	3.1%	2.5%
Total	1,269.0	100.0	1,631.4	100.0	2,326.3	100.0	1.29	1.83	3.7%	3.0%

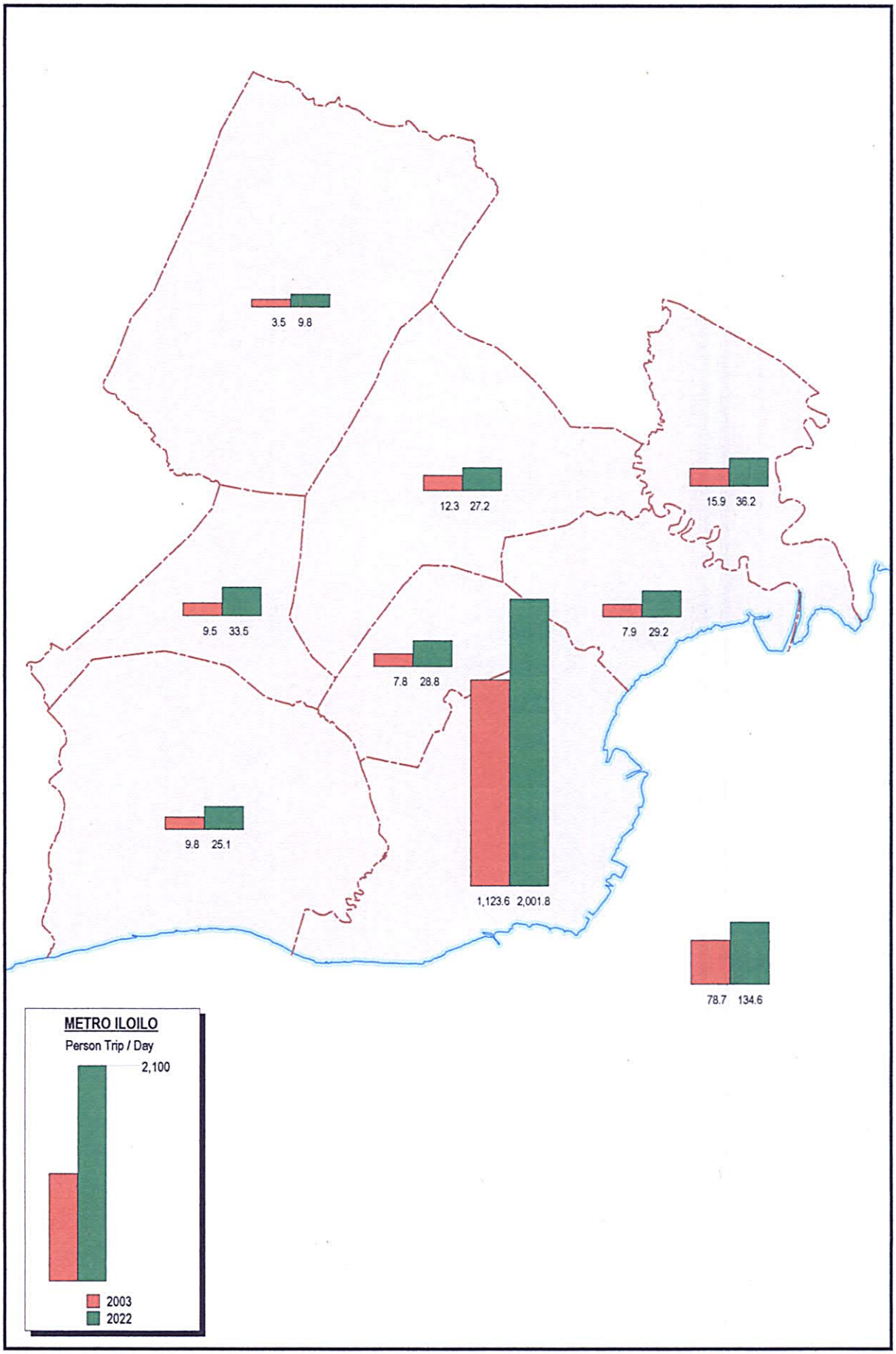


FIGURE 9.2-1 PASSENGER TRIP GROWTH BY INTEGRATED ZONE

3) Desired Line of Passenger Trips

The desired line of passenger trips in 2022 is shown in Figure 9.2-2, which represents a quite similar pattern as 2003. The predominant passenger movement is found among the sub-district zones inside the Iloilo City. Even the volume between two sub-districts in the City, for instance, Jaro and Mandurriao becomes more than 200,000 person trips per day in 2022. Although the growth rate is not so high in the Iloilo City, the incremental volume is substantially large. Other prominent characteristics are radial pattern movements focusing to the Iloilo City from the surrounding municipalities. Most of the OD pairs in the radial direction will become double or triple the present demand. In addition to these radial trip patterns, some new OD patterns are found among the local zones such as Cabatuan - San Miguel, Santa Barbara - Zarraga, Santa Barbara - San Miguel etc. Those are considered as a demand for circumferential movements.

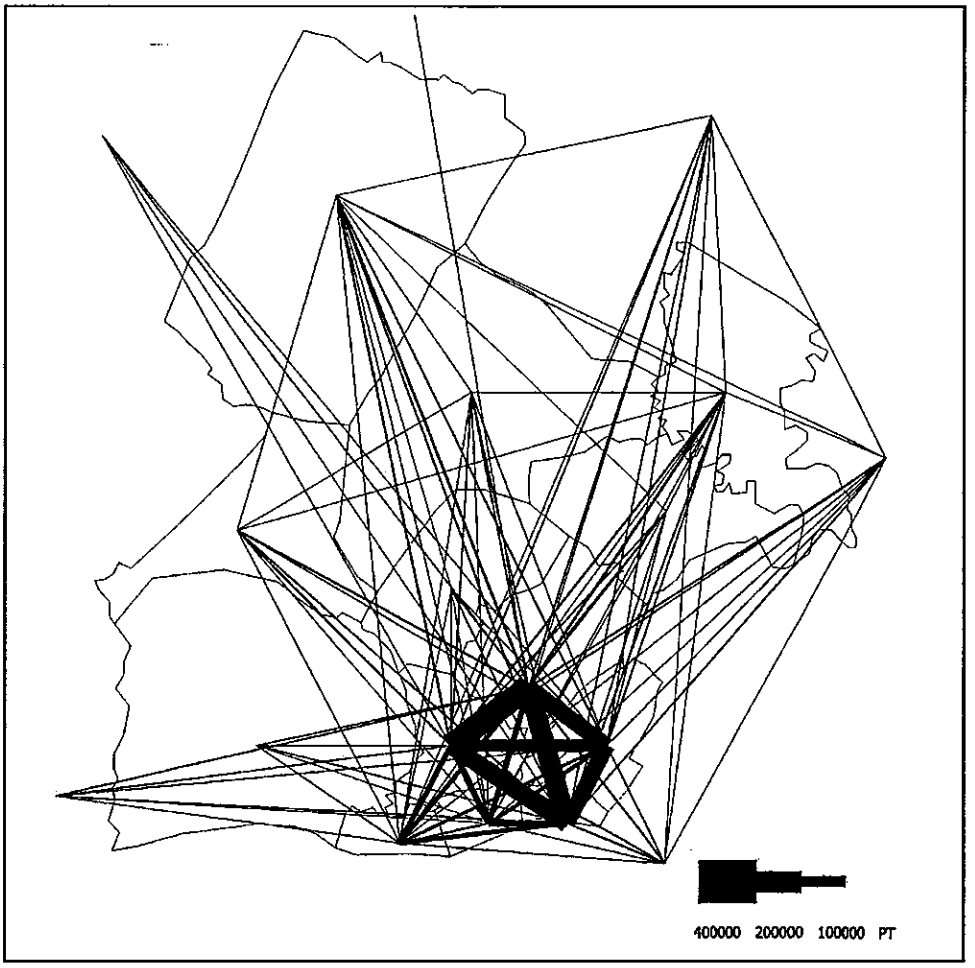


FIGURE 9.2-2 DESIRED LINE FOR PASSENGER TRIP: 2022

9.2.2 Cargo Flow

Table 9.2-3 shows the total generation of cargo demand in the Metro Iloilo Area. The total cargo volume related to the Metro Iloilo is expected to increase from 24,000 ton per day in 2003 to 34,000 ton per day in 2010, and 51,000 ton per day in 2022.

Approximately two thirds of the total cargo movements will be continuously generated and/or attracted within Iloilo City. The second largest demand generated area is Pavia, where numbers of agro-industries are being accumulated.

TABLE 9.2-3 CARGO DEMAND GENERATION IN METRO ILOILO AREA

City/Municipality	Cargo Demands (ton/day)				Growth Ratio		Average Growth Rate	
	2003	2010	2016	2022	'03-'10	'03-'22	'03-'10	'03-'22
Iloilo City	15,622	21,642	26,549	32,571	1.39	2.08	4.8%	3.9%
Oton	515	697	836	1,002	1.35	1.95	4.4%	3.6%
San Miguel	587	1,084	1,415	1,848	1.85	3.15	9.2%	6.2%
Pavia	1,918	2,971	3,694	4,592	1.55	2.39	6.5%	4.7%
Leganes	415	614	776	979	1.48	2.36	5.7%	4.6%
Santa Barbara	469	614	715	833	1.31	1.78	3.9%	3.1%
Zarraga	527	800	962	1,157	1.52	2.19	6.1%	4.2%
Cabatuan	207	276	329	393	1.34	1.90	4.2%	3.4%
External Area	3,916	5,315	6,456	7,847	1.36	2.00	4.5%	3.7%
Total	24,176	34,012	41,731	51,221	1.41	2.12	5.0%	4.0%

Figure 9.2-3 illustrates the outline of cargo flow in the Metro Iloilo Area. The cargo movements inside the Iloilo City will be continuously dominant until 2022. However, a higher growth is expected for the demand between Iloilo City and the surrounding municipalities of the Metro Iloilo Area as well as the external area. As seen in Figure 9.2-4, the desired line shows that the cargo flows are expressed by a radial pattern with the focus at Iloilo City. The cargo transport demand related to Pavia and San Miguel will be one of the main cargo flows in the Metro Iloilo Area, owing to the development of agro-industry in Pavia and new growth center in San Miguel.

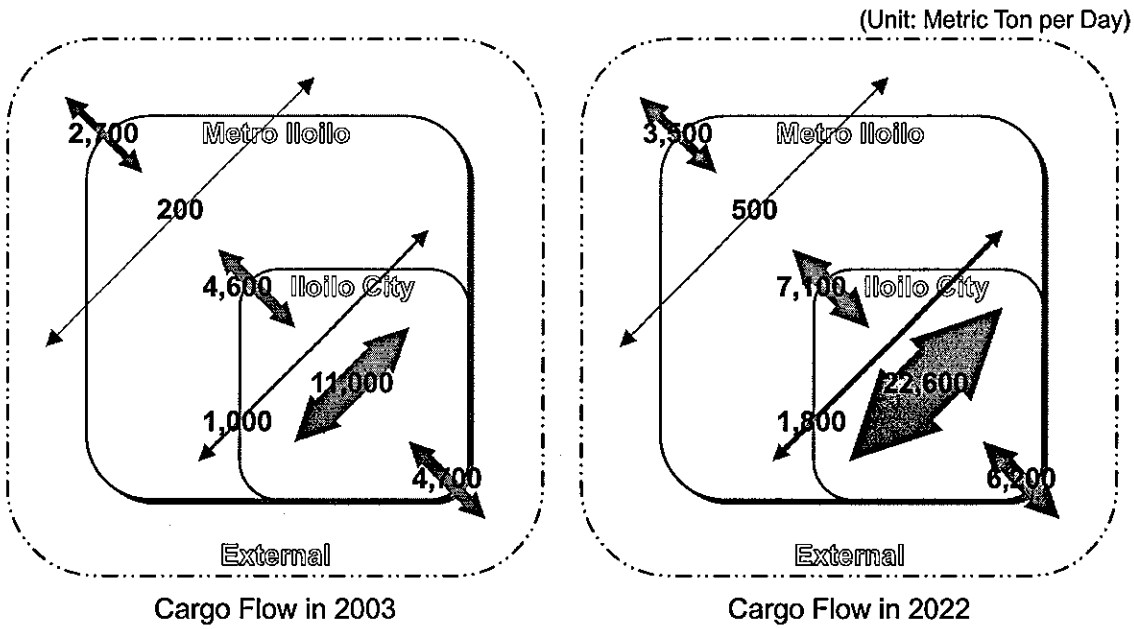


FIGURE 9.2-3 OUTLINE OF CARGO MOVEMENTS IN THE METRO ILOILO AREA

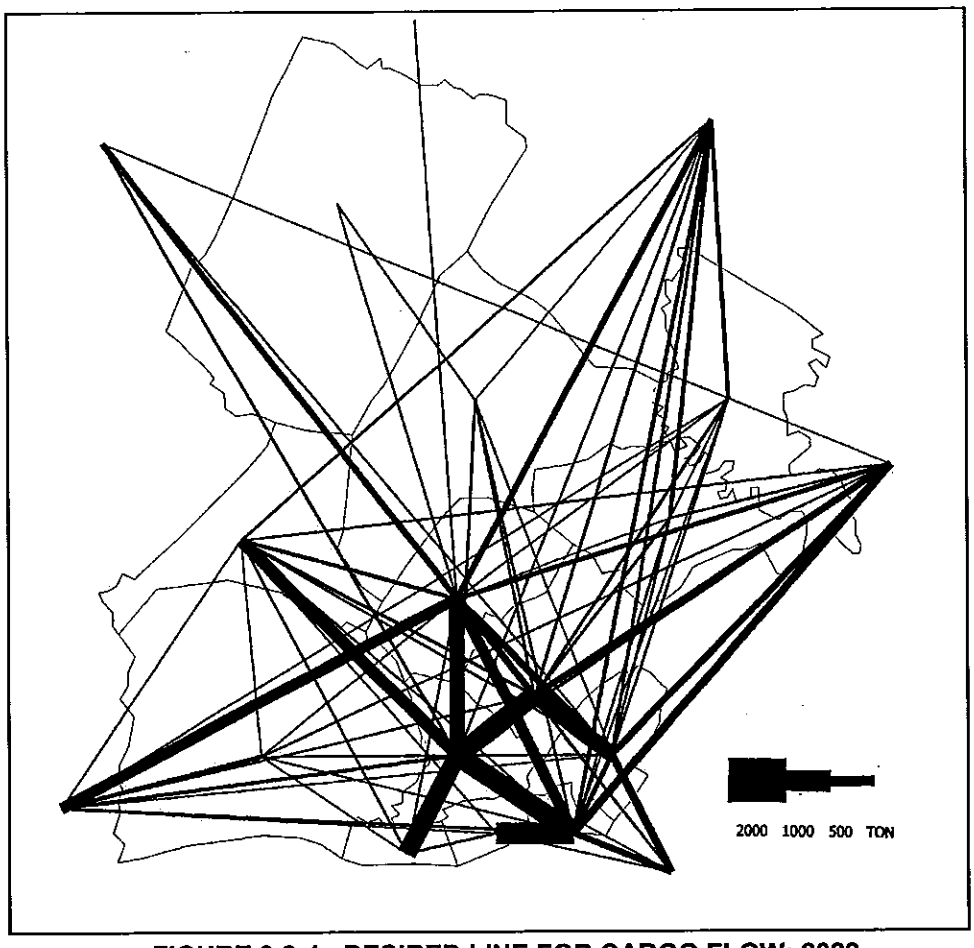


FIGURE 9.2-4 DESIRED LINE FOR CARGO FLOW: 2022

9.2.3 Airport and Port Related Traffic

1) Airport

As for the future passengers and cargo volume related to the Iloilo Airport, the projection made by the DOTC is employed. The growth rate for the passengers in the projection seems to be quite high when compared to the past growth during the recent five years. However, the number of passengers may be suddenly jumping up when the New Iloilo Airport is opened, owing to the new airport facilities, which will be able to accommodate much larger aircrafts like B767/B777. As a result, the number of passengers on board will grow from 0.68 million persons per annum (or 2,300 persons per day) in 2002 to 1.74 million persons per annum (or 5,800 persons per day) in 2022. Air cargo will be also expected to increase from 30 tons per day in 2002 to 49 tons per day in 2022.

In addition, airport related trip productions will grow from 9.0 thousand vehicle-trips per day (or 20.4 thousand person-trips per day) in 2002 to 23.1 thousand vehicle-trips per day (or 52.3 thousand person-trips per day), when sending-off and welcoming individuals or airport employees movements are taken into account as same level as present. (Refer section 4.2.3)

TABLE 9.2-4 PROJECTION OF FUTURE PASSENGERS AND CARGO MOVEMENTS AT ILOILO AIRPORT

Departure / Arrival Total		2002	2010	2015	2020	2002	Annual Growth Rate	
							'02-'10	'10-"22
Passengers (persons)	Annual Total	676,663	1,222,000	1,431,000	1,639,000	1,738,000	7.7%	3.0%
	Daily Average	2,300	4,100	4,800	5,500	5,800		
Cargo (tons)	Annual Total	8,890	11,500	13,000	14,200	14,800	3.3%	2.1%
	Daily Average	29.6	38.3	43.3	47.3	49.3		
Daily Trip Production	Vehicle Trip	9,000	16,200	19,000	21,800	23,100	3.98	veh/pax
	Person Trip	20,400	36,800	43,100	49,400	52,300	9.04	pax/pax

Data Source: Projection from 2010 to 2020: Projected by Department of Transportation and Communication

Projection in 2022: Projected by Using the Growth Rate from 2010 to 2020

Daily Vehicle & Person Trip Productions are based on the Airport Related Traffic Survey (See Table 4.2-12)

2) Port

(a) Passengers

The number of passengers at Iloilo Ports is forecasted by using the elasticity of passenger growth to the population growth in the Metro Iloilo Area. As for the Loboc / International Port (RC-4), the number of future passengers is assumed the same level at the present. As a result, the total number of passengers is expected to grow from 2.5 million in 2002 to 3.1 million in 2010, and 4.2 million in 2022.

In addition, ports related trip productions will grow from 7.4 thousand vehicle-trips per day (or 27.1 thousand person-trips per day) in 2002 to 12.3 thousand vehicle-trips per day (or 45.0 thousand person-trips per day), when sending-off and welcoming individuals or port employees movements are taken into account as same level as present. (Refer section 4.2.3)

TABLE 9.2-5 PROJECTION OF PASSENGERS AT ILOILO PORTS

Port Terminal		Passengers			Growth Ratio		Annual Growth Rate	
		2002	2010	2022	'02-'10	'02-'22	'02-'10	'10-'22
RC-2 Fort San Pedro		690,741	863,000	1,184,000	1.25	1.71	2.8%	2.7%
(Manila/Mindanao)		2,300	2,900	3,900				
RC-3 Muelle Loney		1,819,012	2,236,000	2,990,000	1.23	1.64	2.6%	2.5%
(Bacolod)		6,100	7,500	10,000				
RC-4 Loboc		10,278	10,000	10,000	0.97	0.97	-0.3%	0.0%
(International/Others)		30	30	30				
Annual Total		2,520,031	3,109,000	4,184,000	1.23	1.66	2.7%	2.5%
Daily Average		8,400	10,400	13,900				
Daily Trip Production	Vehicle Trip	7,400	9,200	12,300	0.88		veh/pax	
	Person Trip	27,100	33,400	45,000	3.23		pax/pax	

Data Source: '02: Philippine Ports Authority, '10 & '22: Study Team Estimate

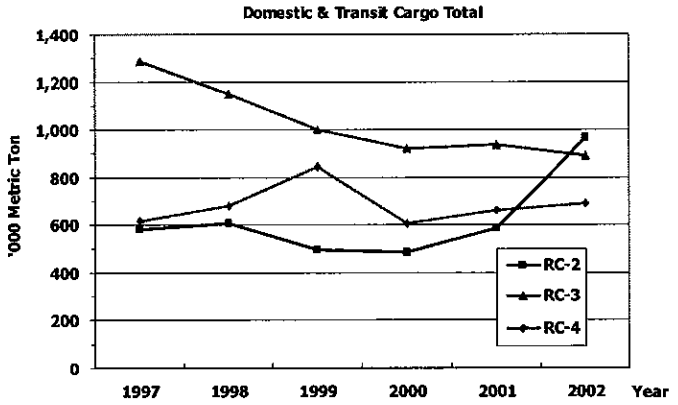
Note: Guimaras Ferry Users are discarded due to lack of Annual Statistical Data

(b) Cargo

The volume of cargo in the future is projected for domestic and foreign cargo separately. The past trend of cargo handled at each terminal is shown in Fig.9.2-5. In case of Fort San Pedro (RC-2), accommodating the vessels for long distance

together with the International ones, the cargo volume suddenly jumped up in 2002, while the cargo at the Loboc / International Port (RC-4) has a rather stagnant trend. On the other hand, the cargo handled by Muelle Loney (RC-3), serving for the vessels for neighboring area such as Bacolod, Guimaras etc., has a declining tendency.

Such tendencies may last for the next few years. However, it will be not appropriate to assume the same trend for the long-term projection. Since more active trade with neighboring areas can be expected in accordance with the port development in sense of improved port facilities and cargo handling efficiency as well as the regional development in the Metro Iloilo and the Metro Bacolod.



Data Source: Philippine Ports Authority

FIGURE 9.2-5 PAST TREND OF DOMESTIC CARGO BY TERMINAL AT ILOILO PORTS

Accordingly, the projection of domestic cargo demand was made in terms of total volume of the three terminals, and then distributed them into each port by using sharing trend. The growth of the total domestic cargo during the period from 1990 to 2002 was 3.2% per annum, while the Region VI's GRDP growth was 3.1% per annum during the same period. By using the cargo growth elasticity to GRDP growth, the future domestic cargo is projected as shown in Table 9.2-6. Total domestic cargo at the Iloilo Ports is forecasted to grow from 2.5 million tons in 2002 to about 6.9 million tons in 2022.

TABLE 9.2-6 PROJECTION OF DOMESTIC CARGO AT ILOILO PORTS

Port Terminal	Domestic Cargo Throuput (m.t.)			Growth Ratio		Annual Growth Rate	
	2002	2010	2022	'02-'10	'02-'22	'02-'10	'10-'22
RC-2 Fort San Pedro	963,000	1,143,000	2,088,000	1.19	2.17	2.2%	5.1%
(Manila/Mindanao)	3,200	3,800	7,000				
RC-3 Muelle Loney	892,000	1,456,000	2,311,000	1.63	2.59	6.3%	3.9%
(Bacolod/Guimaras)	3,000	4,900	7,700				
RC-4 Loboc	690,000	1,330,000	2,463,000	1.93	3.57	8.5%	5.3%
(Other Domestic)	2,300	4,400	8,200				
Annual Total	2,546,000	3,928,000	6,861,000	1.54	2.69	5.6%	4.8%
Daily Average	8,500	13,100	22,900				

Data Source: '02: Philippine Ports Authority, '10 & '22: Study Team Estimate

With regard to the foreign cargo, it is projected by assuming that the current share of the Iloilo Port to the national total foreign cargo will be maintained in the future. The

national total cargo volume is forecasted by using the elasticity of foreign cargo growth to the GDP growth. Consequently, the foreign cargo handled by Loboc / International Cargo Port (RC-4) is estimated to grow from 303 thousand tons in 2002 to 416 thousand tons in 2022.

TABLE 9.2-7 PROJECTION OF FOREIGN CARGO AT ILOILO PORTS

Port Terminal	International Cargo Throughput (m.t.)			Growth Ratio		Annual Growth Rate	
	2002	2010	2022	'02-'10	'02-'22	'02-'10	'10-'22
RC-4 Loboc	303,000	357,000	416,000	1.18	1.37	2.1%	1.3%
(International)	1,000	1,200	1,400				

Data Source: '02: Philippine Ports Authority, '10 & '22: Study Team Estimate

9.2.4 Vehicle Trip

The vehicle trips in the Metro Iloilo Area are estimated by converting the passenger trips and cargo flow into equivalent number of vehicle traffic.

As shown in Table 9.2-8, the total vehicle trips in the Metro Iloilo Area by applying average passenger occupancy and loading weight are estimated to be 474 thousand trips per day in 2022, which will be about 2.1 times of the current demand. Among them, the growth rate of the passenger car trips will be remarkably high, therefore, the modal share of passenger car to the total vehicle trips increases from 55% at present to 64% in 2022.

TABLE 9.2-8 TOTAL VEHICLE TRIPS IN METRO ILOILO

Type of Vehicle	2003		2010		2022		Average Growth Rate	
	Trips	Share	Trips	Share	Trips	Share	'03-'10	'10-'22
Car	123,704	55.3%	179,800	58.9%	303,558	64.0%	5.5%	4.5%
Jeepney	88,910	39.8%	110,234	36.1%	147,878	31.2%	3.1%	2.5%
Bus	1,175	0.5%	1,430	0.5%	1,937	0.4%	2.8%	2.6%
Truck	9,717	4.3%	13,686	4.5%	20,606	4.3%	5.0%	3.5%
Total	223,506	100.0%	305,150	100.0%	473,979	100.0%	4.5%	3.7%