PART C
ROAD NETWORK DEVELOPMENT PLAN FOR METRO BACOLOD

C1. PRESENT SET-UP

Present set-up of Metro Bacolod is as follows:

- Bacolod City is the provincial capital of Negros Occidental and the center of business, commercial and education.
- Bacolod City is functioning as the sea and air transportation hub of Negros Island.
- Sugar industry is the dominant industry in the study area.
- Metro Bacolod is a part of the Iloilo-Cebu-Tacloban Triangle Growth corridor.
- The existing Bacolod Airport will be transferred to Silay City and is scheduled to open in 2008.

C2. PHYSICAL FEATURES

Metro Bacolod study area is characterized by level plains from the coastline in the west to gently sloping terrains towards the mountainous areas in the east. Several large rivers cross the study area with Malisbog and Malogo rivers having discharges of 554 cum/s and 1450 cum/s respectively. The subsoil condition is generally characterized by the upper layer of alluvial deposits of sand, silts and clay underlain by sedimentary rocks and boulders of varying depths.

C3. SOCIO-ECONOMIC CONDITIONS: PRESENT AND FUTURE

Population of the study area will grow by about 1.46 times from 980,600 in 2000 to 1,435,500 in 2022. Bacolod City accommodates about 44% of study area population.

Number of employment (work place base) will increase by about 1.9 times from 334,000 in 2000 to 641,800 in 2022. Bacolod City absorbs about 50% of employments.

Number of employment (residence base) will increase by about 1.8 times from 356,600 in 2000 to 632,600 in 2022. About 45% of employment reside in Bacolod City.

Regional economy is expected to grow at about 5.2% per annum from 2005 to 2010, and 4.6% from 2011 to 2022.

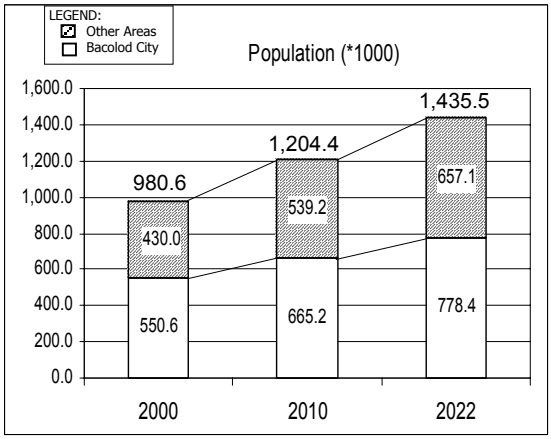
Economic Growth By Sector

Sector	2005-2010	2011-2022
Primary	3.5%	2.7%
Secondary	5.3%	4.8%
Tertiary	5.9%	5.2%
Total	5.2%	4.6%

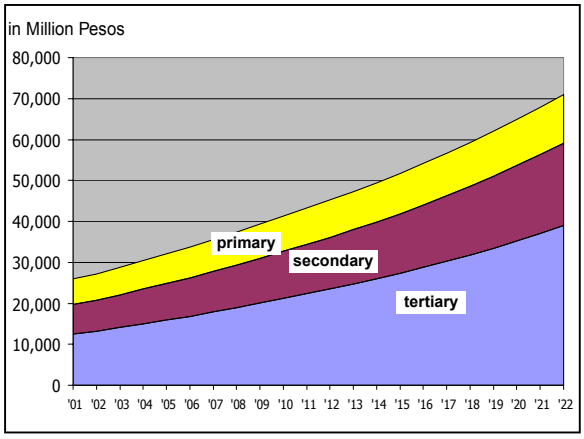
Number of vehicles in the Study Area is 34,140 in 2002 which is estimated to increase to 53,160 in 2010 and to 89,670 in 2022.

Vehicle Ownership

		2002	2010	2022
Bacolod City	No. of veh. (per 1000 persons)	28,975 (67.5)	45,275 (84.0)	76,542 (116.5)
Other Areas	No. of veh. (per 1000 persons)	5,168 (9.4)	7,892 (11.85)	13,128 (16.85)
Study Area	No. of veh. (per 1000 persons)	34,143 (34.9)	53,167 (44.4)	89,670 (62.5)



POPULATION GROWTH



ECONOMIC GROWTH

C4. LAND USE: PRESENT AND FUTURE

Present land use map (2002) prepared by each LGU was utilized with minor adjustment based on the satellite photo map.

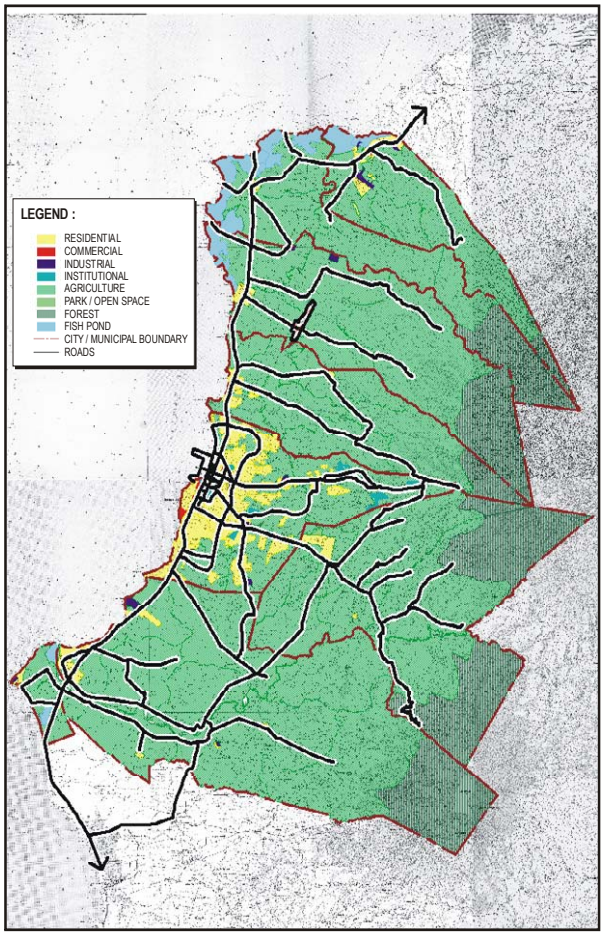
The land use plan for 2010 has been prepared by each LGU which was basically adopted by the Study Team.

The land use plan for 2022 was prepared by the Study Team based on future socio-economic framework.

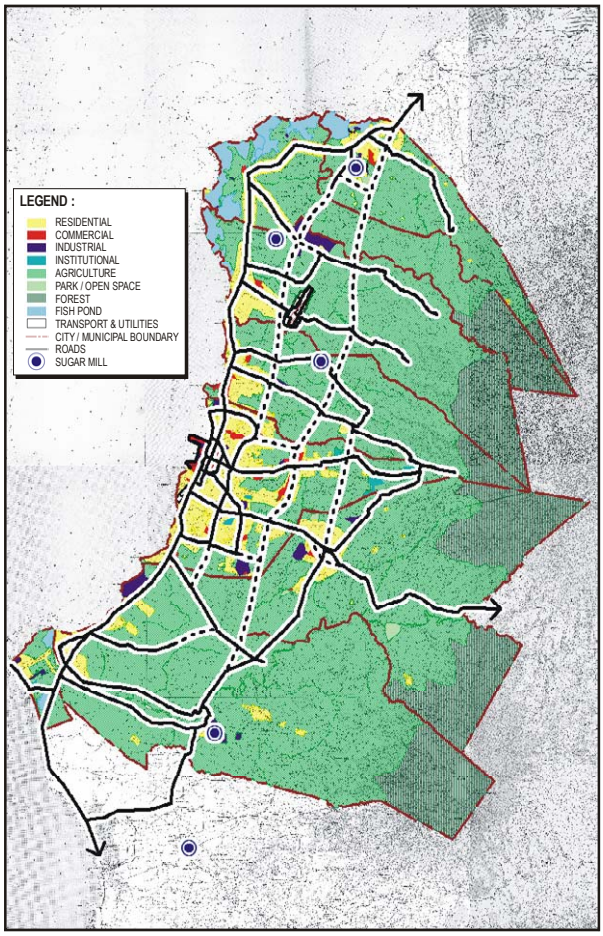
Residential area needs to be expanded by 1.7 times, commercial area by 5.5 times, and industrial area by 9.2 times of the present area.

Present and Future Land Use (sq.km)

Land Use	2003		2022		2022/2003
Residential	85.73	(5.6%)	144.42	(9.5%)	1.7
Commercial	3.58	(0.2%)	19.84	(1.3%)	5.5
Industrial	4.97	(0.3%)	45.94	(3.0%)	9.2
Institutional	4.15	(0.3%)	4.56	(0.3%)	1.1
Agriculture	1,150.83	(75.5%)	1,019.18	(66.7%)	0.9
Forest	245.04	(16.1%)	245.11	(16.0%)	1.0
Fishpond	28.93	(1.9%)	28.53	(1.9%)	1.0
Park/Open Space	1.53	(0.1%)	3.54	(0.2%)	2.3
Transport/Utilities	-	-	3.60	(0.2%)	-
Priority Development Area	-	-	13.36	(0.9%)	-
Total	1,524.76	(100.0%)	1,528.08	(100.0%)	1.0



PRESENT LAND USE (2003)



FUTURE LAND USE (2022)

C5. TRAFFIC DEMAND: PRESENT AND FUTURE

Present traffic volume is as follows:

- Roads within CBD : 8,300~34,700 veh/day
- Roads at Bacolod City Bdry. : 4,200~20,800 "
- Roads at Study Area Bdry. : 6,300~6,900 "

Total vehicle trips per day in the Study Area are 174,531 in 2003 which are estimated to grow to 241,059 in 2010 and 373,873 in 2022 with an average annual traffic growth rate of 4.7% from 2003 to 2010 and 3.7% from 2010 to 2022.

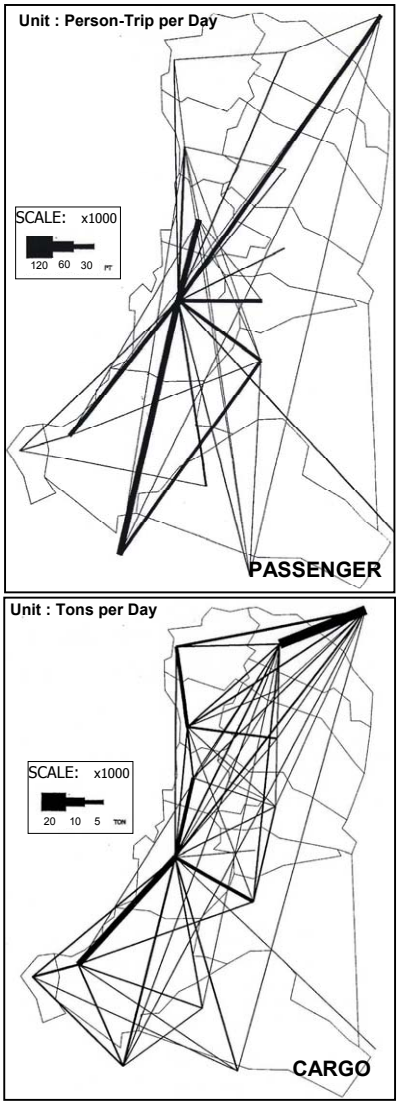
Car trips are expected to grow with the highest rate due to increased car ownership, followed by bus trips.

Trip pattern will be almost the same as present one.

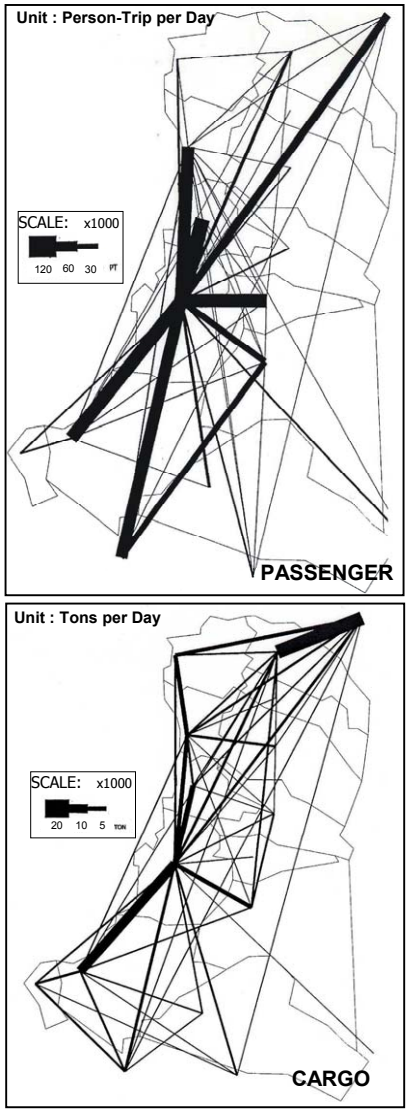
Airport related traffic will increase from 5,500 vehicle per day in 2002 to 13,150 in 2010 and 20,044 in 2022.

TRAFFIC GROWTH

Vehicle Type	Vehicle Trips / day			Average Traffic Growth Rate (%)	
	2003	2010	2022	03-10	10-22
Car	88,985	136,328	232,094	6.3	4.5
Jeepney	59,237	72,276	99,393	2.9	2.7
Bus	3,580	4,675	6,879	3.9	3.3
Truck	22,729	27,780	35,597	2.9	2.1
Total	**174,531**	**241,059**	**373,873**	**4.7**	**3.7**



PRESENT DESIRE LINE (2003)



FUTURE DESIRE LINE (2022)

C6. ROAD NETWORK ISSUES

Present Issues

a) Study Area

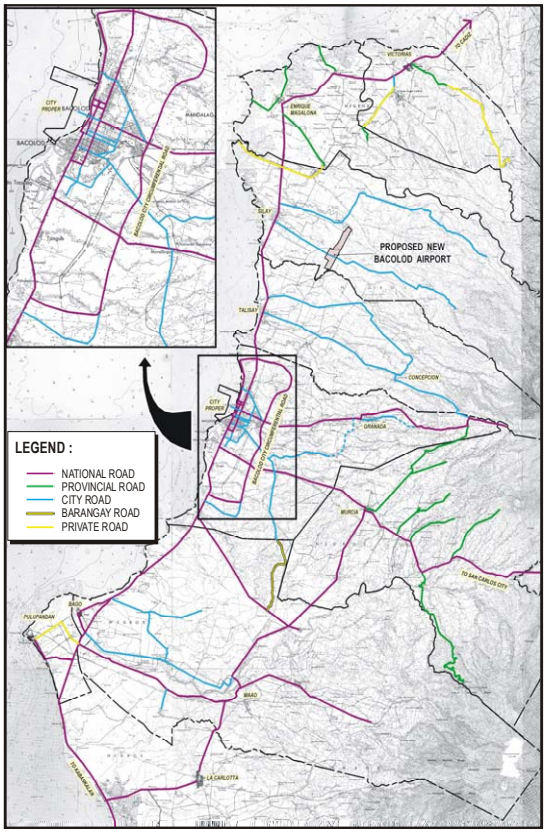
- Comb type road network exists with Bacolod Coastal Road (NS-1) as base road network running in the north-south direction.
- Bacolod-Murcia-San Carlos intercity road connecting west coast with east coast branches off from NS-1.
- Other west-east direction road branching off from NS-1 are not connected so that all inter-city, inter-municipal traffic have to pass through NS-1.
- Road density is very low.
- There are 5 sugar mills. Heavily loaded sugar trucks moving at slow speed travel on NS-1 which affect travel speed of other vehicles.
- Trip desire line shows that majority of trips concentrates to Bacolod City from the rest of areas in Metro Bacolod

b) Bacolod City Circumferential Road (BCCR)

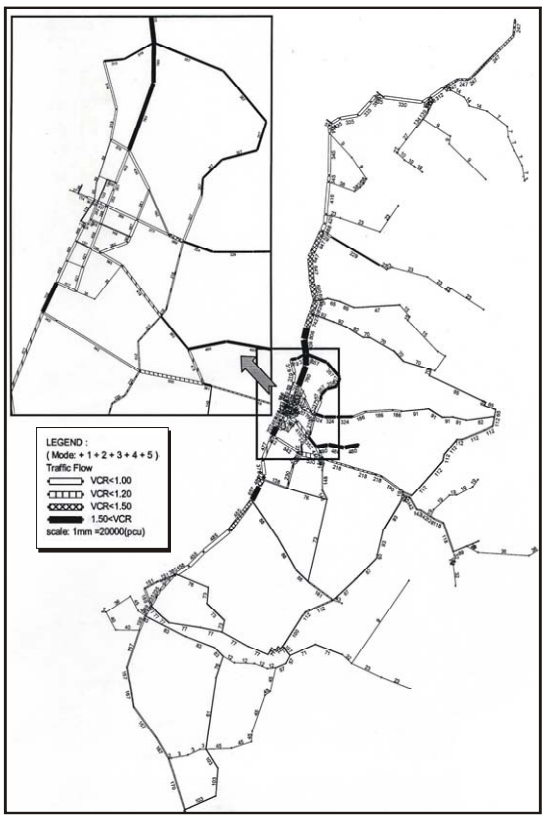
- A mesh-type road network is formed within Bacolod City Circumferential Road with most component roads having 4 lanes.
- Roadsides are densely built-up which makes widening extremely difficult due to anticipated social impact.
- Bacolod City identified three priority areas for urban development - two along BCCR and one outside BCCR.

Future Issues

- Due to the effect of the new Airport, Bacolod-Silay Section of NS-1, Silay-Guimbalaon Road (from NS-1 to New Airport) will carry heavy traffic that exceeds capacity.
- Two-lane section of BCCR will attract more traffic than its capacity.
- Priority area for urban development outside BCCR will generate heavy traffic, thus new roads are required.
- Bacolod-Granada Road will attract heavy traffic. The section outside BCCR will exceed traffic capacity.
- Within BCCR, most roads will exceed capacity and level of service will be aggravated to D, E and F. On the contrary, further widening of existing road is difficult.



EXISTING ROAD NETWORK



TRAFFIC ASSIGNMENT 2022
[DO NOTHING CASE]

C7. ROAD NETWORK DEVELOPMENT OBJECTIVES AND STRATEGIES

DEVELOPMENT OBJECTIVES

- Reduction of traffic congestion in the City Proper area.
- Road network which will guide and support planned urban development.
- Formation of flexible road network which will provide alternative routes to road users.
- Road network which will contribute to the economic development of the Study Area as well as its hinterland.
- Road network which will enhance international and domestic investment in the Study Area as well as its hinterland.
- Road network which will realize expected investment effects of related projects.
- Road network development with environmental and social considerations.

DEVELOPMENT STRATEGIES

- Removal of unnecessary traffic to pass through the City Proper area.
- Full utilization of existing road stock in the city proper area.
- Providing new roads at the strategic areas.
- Improvement of transport efficiency of the routes which connect agricultural production area, agro-industry area and export facility.
- Securing of accessibility to new airport and sea port.
- Avoiding road network development in the environmentally and socially critical areas.

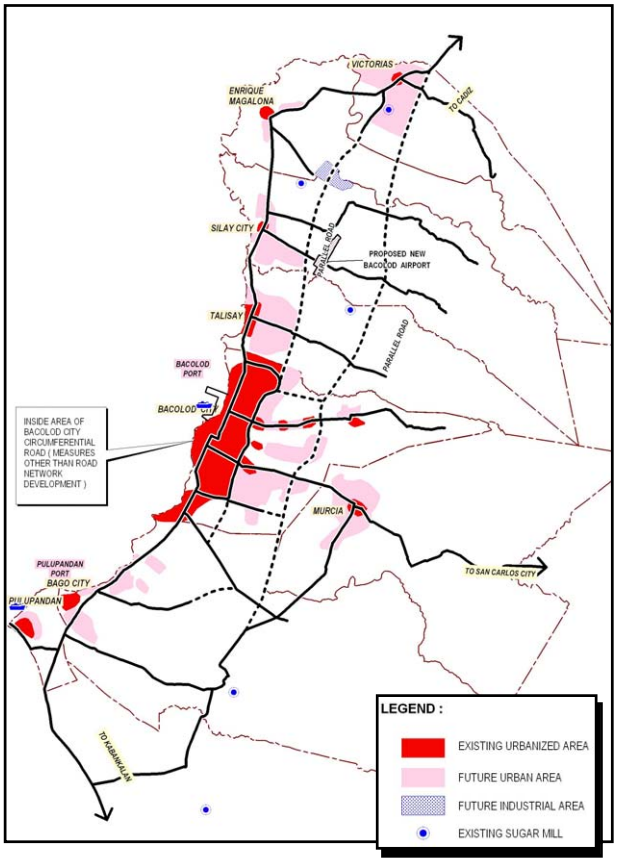
C8. BASIC CONCEPTS FOR DEVELOPMENT OF ROAD NETWORK CONFIGURATION

Inside of Bacolod City Circumferential Road (BCCR)

- Present road network is maintained, since construction of new road as well as widening of existing roads is extremely difficult due to expected social impacts.

Outside of Bacolod City Circumferential Road (BCCR)

- Road network type is to be converted from a present comb type to a ladder type to realize flexible road network for users.
- To form a ladder type of road network, one or two parallel roads to Bacolod Coastal Road (NS-1) in the north-south direction is to be constructed.
- Urbanization in Talisay and Silay is planned along NS-1 towards the east with a width of about 3 to 3.5km. A road to guide the planned urbanization expansion is to be provided.
- A road which will support and guide the planned priority urban areas of Bacolod City outside BCCR is to be provided.
- A road that will efficiently connect sugar mills with sugar cane production area is to be provided to support the sugar industry which is the major and most important industry in the island.
- A road that will provide access to the new airport is to be provided.



BASIC CONCEPT FOR FUTURE ROAD NETWORK DEVELOPMENT

C9. PROPOSED ROAD NETWORK PLAN

PROPOSED ROAD NETWORK

A ladder type of road network is proposed. In addition to the existing spine of Bacolod Coastal Road (NS-1), two spines (NS-2 and NS-3) in the north-south direction will be formed. Existing east-west direction roads will function as links to connect spines with each other. In Bacolod City, additional links will be constructed to provide access to the priority development areas.

Major components of the proposed road network are as follows:

a) New roads to be constructed

NS-2 (New Airport Access Road)	:	L=10.2km
NS-2 (North)	:	L=12.0km
NS-2 (South)	:	L= 3.8km
NS-3 (Sugar Road : North)	:	L=33.8km
NS-3 (Sugar Road: South)	:	L=12.1km
NS-4 (Murcia-Concepcion)	:	L= 9.9km
BC-4 (Bacolod Link Road)	:	L= 4.3km
BC-5 (Bacolod Link Road)	:	L= 5.0km
VT-2 (Victorias Link Road)	:	L= 5.0km
MU-1 (Murcia Bypass)	:	L= 3.5km
Total		L=99.6km

b) Widening of Existing Roads

NS-1 (Bacolod Coastal Road)	:	L= 6.7km
BC-2 (Bacolod-Granada Road)	:	L=11.0km
BC-3 (Bacolod Circumferential Rd.)	:	L=15.4km
Total		L=33.1km

c) Improvement of Existing Roads

Most of existing roads in the east-west direction.

NS-2 will provide direct access to new Bacolod Airport and guide urbanization towards inland side.

NS-3 will link existing sugar mills with sugar cane production areas, thus the sugar industry will be vitally supported and sugar cane trucks will avoid passing through urban areas.

BC-4 and BC-5 will accelerate urbanization of the priority development areas in Bacolod City.

FINANCIAL FRAMEWORK

In order to formulate realizable implementation plan, possible investment amount for each 6-year term was estimated. Due to current financial constraints of the Government, possible investment amount for the short term (2005-2010) is quite limited and estimated to be about 1 Billion Pesos for national roads.

(Unit: Million Peso)

Term	DPWH	Negros Occ. Province	Bacolod City
Short Term (05-10)	900-1040	135-161	132-173
Medium Term (11-16)	1,620-1,870	67-161	86-132
Long Term (17-22)	2,370-2,730	67-161	86-132
Total	4,890-5,640	269-483	304-437

PRIORITY OF PROJECTS

Priority of road projects were evaluated by the degree of contribution to the following factors and urgency:

- Guide and support planned urban development
- Flexibility improvement of road network
- Reduction of traffic congestion of City Proper
- Traffic efficiency improvement
- Accessibility improvement for related projects
- Economic development
- Social and environmental impacts
- Traffic safety
- Enhancement of international / local investment
- Urgency

Top five priority projects are as follows:

NS-2	:	New Airport Access Road
SI-1	:	Silay-Guimbalacion Road
BC-2	:	Bacolod-Granada Road
BC-3	:	Bacolod Circumferential Road
NS-3	:	Sugar Road (North Section)

SELECTED ROAD PROJECTS FOR F/S

Road projects subjected to a feasibility study were selected based on the following criteria:

- Priority is high
- Road ROW needs to be determined as early as possible
- The project is vitally needed to support on-going related projects

The following two projects were selected for feasibility study:

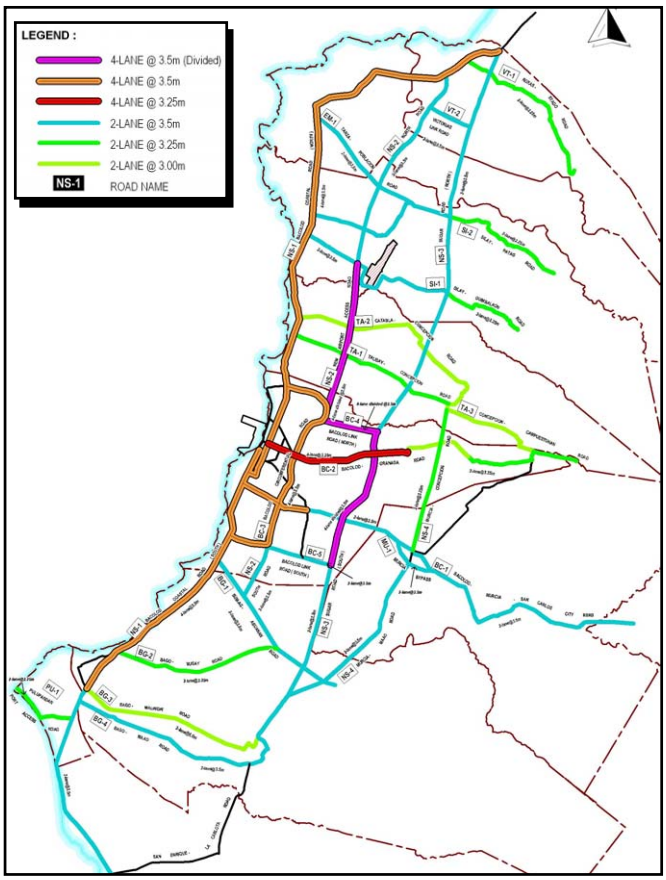
• New Airport Access Road (NS-2)	L=10.2km
• Sugar Road: North Section (NS-3)	L=33.8km
Total	L=44.0km

SI-1, BC-2 and BC-3 were not selected due to the following:

SI-1 : the type of work is improvement of existing road. F/S can be easily undertaken by DPWH.

BC-2 : DPWH already completed F/S.

BC-3 : the type of work is widening of existing road. F/S can be easily undertaken by DPWH.



PROPOSED ROAD NETWORK PLAN

PROPOSED IMPLEMENTATION SCHEDULE

	Road Name		Short-Term						Medium-Term						Long-Term						After 2022
			05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	
NS-1	Bacolod Coastal	North																			
		South																			
NS-2	New Airport Access	2-lane																			
		4-lane																			
	North Section																				
	South Section																				
NS-3	Sugar Road (North)	Sub-Urban																			
		Urban (2-lane)																			
		Urban (4-lane)																			
	Sugar Road (South)	Urban (2-lane)																			
		Urban (4-lane)																			
		Sub-Urban																			
NS-4	Murcia-Concepcion																				
BC-1	Bacolod-Murcia-San Carlos																				
BC-2	Bacolod-Granada																				
BC-3	Bacolod Circumferential																				
BC-4	Bacolod Link (North)	2-lane																			
		4-lane																			
BC-5	Bacolod Link (South)																				
TA-3	Concepcion-Compuestuhan																				
SI-1	Silay-Guimbalaon																				
SI-2	Silay-Patag																				
EM-1	Tanza-Poblacion																				
VT-1	Roxas-Stado																				
VT-2	Victorias Link																				
BG-2	Bago-Busay																				
BG-3	Bago-Malingin																				
BG-4	Bago-Maao																				
MU-1	Murcia Bypass																				
Total Investment (Million P)			1,065.3						1,807.9						3,601.2						1,723.8

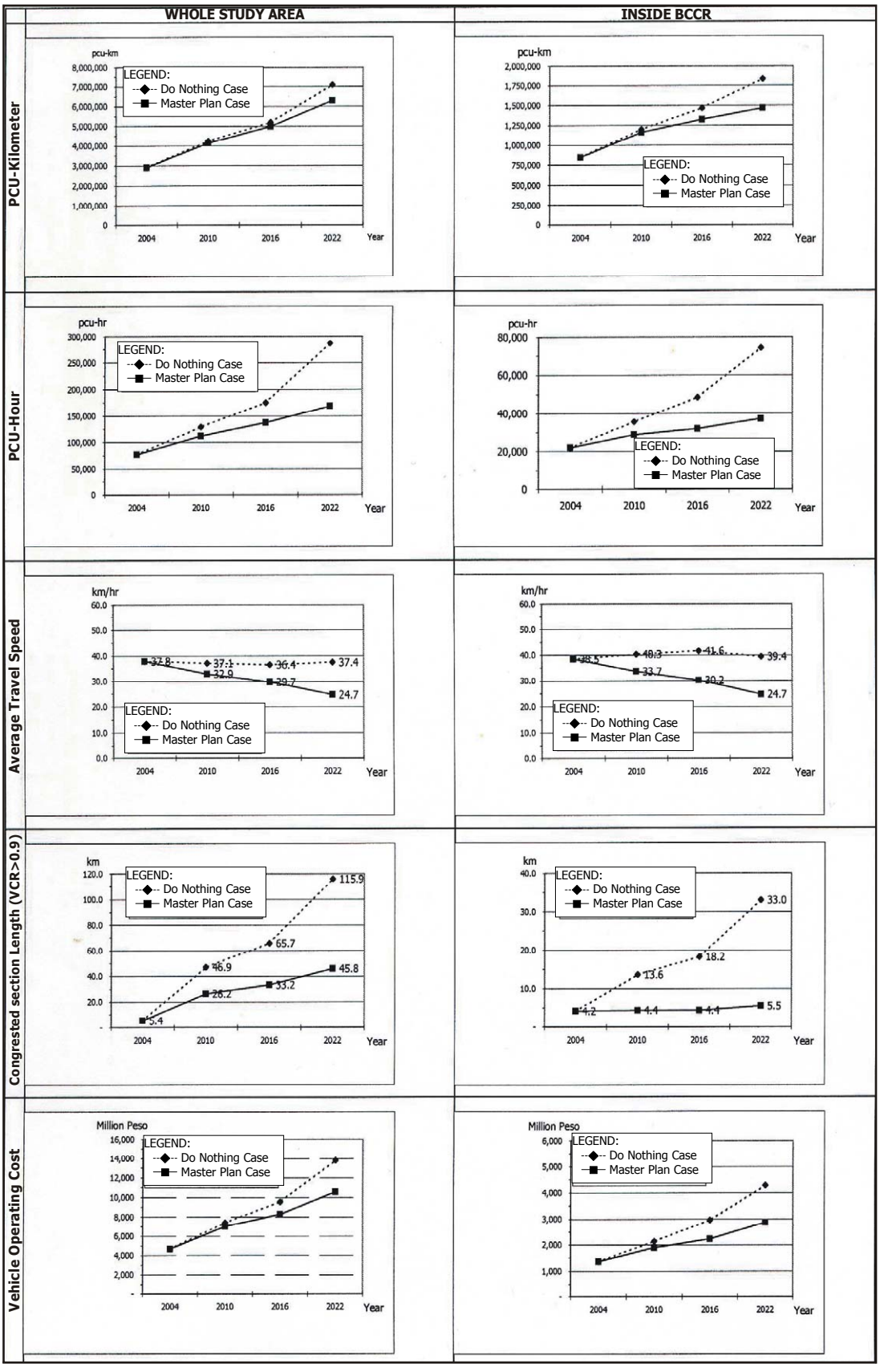
Legend: Detailed Design; ROW/Resettlement & Tendering; Construction / C/S

C10. ROAD NETWORK DEVELOPMENT BY TERM

Considering the financial constraints and priority road projects, the road network Master Plan was formulated for the following three terms: Short-Term - 2005 to 2010; Medium-Term - 2011 to 2016; Long-Term - 2017 to 2022.

C11. TRANSPORT EFFICIENCY IMPROVEMENT BY MASTER PLAN

The transport efficiency was evaluated comparing the "Do Nothing" Case with the Master Plan using the following indicators: vehicle travel distance(pcu-km), vehicle travel time(pcu-hr), average travel speed, congested road section length, and vehicle operating cost.



C12. TRAFFIC MANAGEMENT PLAN

To make traffic flow more efficient and to enhance traffic safety in the City Proper area and its suburbs, the following measures are recommended:

a) Geometric Improvement of Intersection: Intersection geometry is to be reviewed and improved. For intersections in suburbs, paved sidewalk shall be provided.

b) Traffic Engineering Approach: Review of one-way system, banning of left turn, banning of on-street parking, truck ban, jeepney route, traffic accident analysis, and traffic safety program shall be undertaken using traffic engineering approach.

c) Enhancement of Pedestrian Environment: Removal of obstruction on sidewalk, restoring sidewalk used as parking area, and planting of trees shall be undertaken to create friendly environment for pedestrians.

d) Installation of Traffic Control and Safety Device: **Traffic sign:** Traffic signs of stop, no-parking, one-way, no entry, no left turn, no loading and unloading, etc. shall be installed.

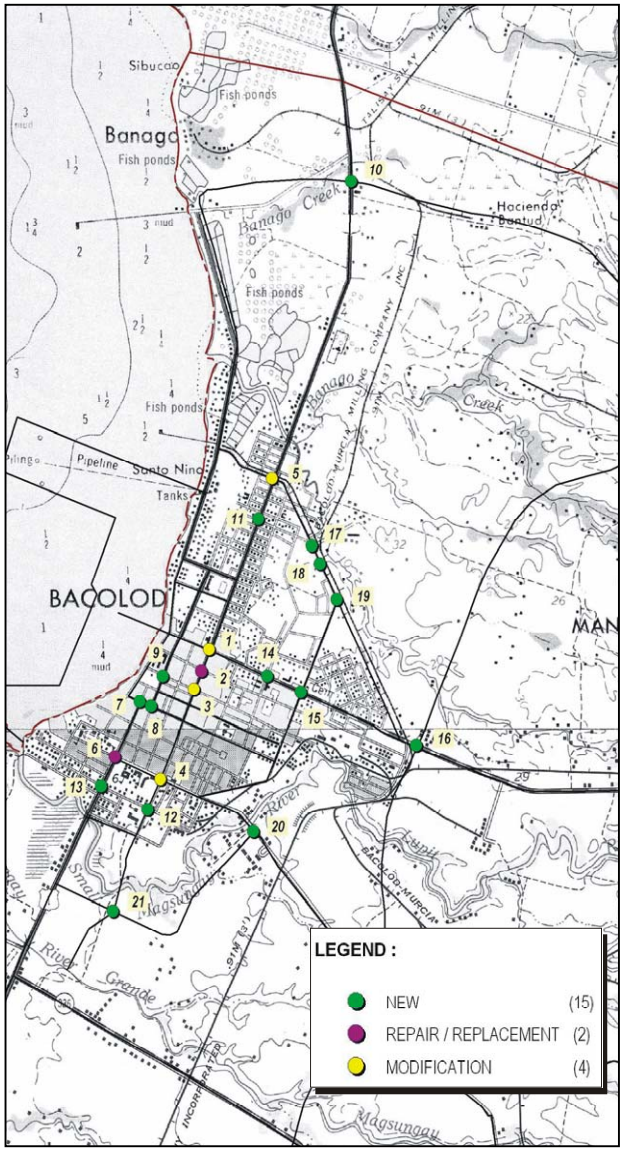
Pavement marking: Pavement markings such as stop line, pedestrian crossing, center line, lane line, etc. shall be installed on national roads and other arterial streets in Bacolod City.

Others: Chatter bar, delineator, guardrail, reflector, pavement stud, etc. be installed at locations where such devices are needed.

e) Restoration of Existing Signals and Installation of New Signals: The existing non-working signals shall be repaired urgently. New signals shall be installed at 15 locations. Those signals installed at city center where distance between intersections is short, signals must be coordinated.

f) Establishment of Parking Policy and its Implementation: A parking management policy shall be established, in which requirement of parking space for new building must be implemented strictly, parking on main streets must be prohibited, paid on-street or off-street parking must be developed and parking business by private sector is encouraged.

g) Training of Staff Engaged in Traffic Management: Training on traffic facility development and traffic operation shall be provided to traffic police, traffic aides, city hall staff engaged in traffic management.



TRAFFIC SIGNAL INTERSECTIONS

ESTIMATED COST FOR TRAFFIC MANAGEMENT IMPROVEMENT WORKS

Improvement Measure	Estimated Cost (1,000 Peso)	Remarks
Intersection Geometric Improvement	21,354	22 intersections and Lacson St.
Traffic Signal	44,869	6 existing and 15 new
Pavement Markings	34,340	34.9 km
Traffic Sign	1,541	602 traffic signs
Total	102,111	

C13. F/S OF NEW AIRPORT ACCESS ROAD

OBJECTIVES OF THE PROJECT

- To provide smooth access to new Bacolod Airport from Bacolod City
- To reduce traffic congestion of Bacolod Coastal Road: North Section
- To form a flexible road network
- To guide and support sound urbanization of Bacolod City, Talisay City and Silay City.

DESIGN CRITERIA AND ROAD ROW WIDTH

- Design adopts DPWH and AASHTO recommendations.
- Mobility-oriented design is adopted with the design speed of 80 km/hr.
- Road elevation is designed as low as possible (avoiding high embankment) to allow future urbanization along the road.
- Left turn lane provided at major intersections.
- Road ROW width: 40m (entire alignment)

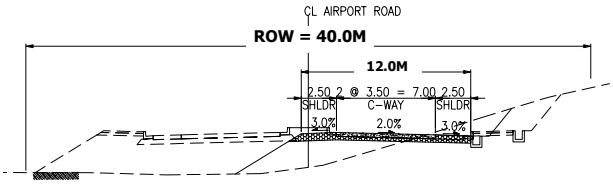
STAGE CONSTRUCTION

The road is proposed to be initially constructed as a 2-lane road, and widened to a 4-lane divided road in line with the increase in traffic demand.

- Phasing shall be : 2-lane road by 2011
  4-lane divided by 2022

ENVIRONMENTAL/SOCIAL IMPACTS

- No significant environmentally critical spot is identified.
- Land use is mostly sugar cane plantation with spotted residential areas.
- Impact to environment is minimal.
- Social acceptability is high with affirmative supports from barangays.
- Social Impact:
  - No. affected families : 9
  - No. affected houses and structures : 9
  - Land Take : 40.5 has



INITIAL STAGE TYPICAL ROAD SECTION

ESTIMATED PROJECT COST

The initial project cost for the 2-lane road is estimated as follows:

	Foreign	Local	Tax	Total
Detailed Eng.	18.9	12.0	3.4	34.3
ROW/Resettlement	-	180.6	20.1	200.7
Construction Cost	194.4	127.9	55.7	378.0
Const. Supervision	16.6	10.6	3.0	30.2
Total	229.9	331.1	82.2	643.2

ECONOMIC EVALUATION

The project was evaluated highly economically feasible with EIRR of 38.3%, which is contributed by reduction of traffic congestion along Bacolod Coastal Road, faster access to the new airport and relatively low construction cost.

Costs	Indicator	Benefits		
		20% Down	Base Case	20% Up
20% down	NPV (P million)	607.0	811.0	1,015.0
	B/C Ratio	3.92	4.90	5.87
	EIRR (%)	38.3	43.7	48.4
Base Case	NPV (P million)	555.0	759.0	962.0
	B/C Ratio	3.13	3.92	4.70
	EIRR (%)	33.4	38.3	42.6
20% up	NPV (P million)	503.0	707.0	911.0
	B/C Ratio	2.61	3.26	3.98
	EIRR (%)	29.8	34.3	38.3

NEW AIRPORT ACCESS ROAD ALIGNMENT

C14. F/S OF SUGAR ROAD

OBJECTIVES OF THE PROJECT

- To reduce traffic congestion of Bacolod Coastal Road and city proper area.
- To formulate a flexible road network.
- To support sugar industry development by providing easy access to sugar mills.
- To enhance international/domestic investment in the Study Area.
- To guide and support planned urban development in Bacolod City area.

DESIGN CRITERIA AND ROAD ROW WIDTH

- To allow smooth driving of heavily loaded sugar cane trucks, alignment should be as smooth as possible avoiding steep vertical gradient.
- Design speed is taken at 80 km/hr.
- Left turn lane provided at major intersections.
- Road finished elevation is kept as close to existing ground as possible to allow future urbanization along the road.
- Road ROW width:
  - Urban area : 40m
  - Rural area : 30m

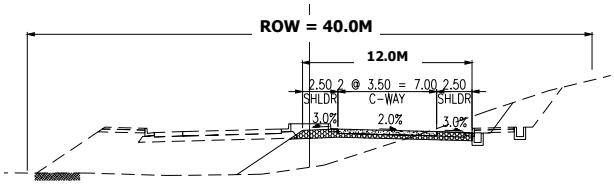
STAGE CONSTRUCTION

The road is proposed to be initially constructed as a 2-lane road along planned urban areas of Bacolod-Murcia Road and Bacolod Link Road (north). Widening of this area to 4-lane divided road is recommended by 2023.

However, the rest of the alignment along rural areas is proposed to be constructed as a 2-lane road.

ENVIRONMENTAL/SOCIAL IMPACTS

- No significant environmentally critical spot is identified.
- Land use is mostly sugar cane plantation with scattered residential areas.
- Social acceptability is high with affirmative supports from barangays.
- Social Impact:
  - No. affected families : 18
  - No. affected houses and structures : 14
  - Land Take : 107.4 has



INITIAL STAGE TYPICAL ROAD SECTION (URBAN SECTION)

ESTIMATED PROJECT COST

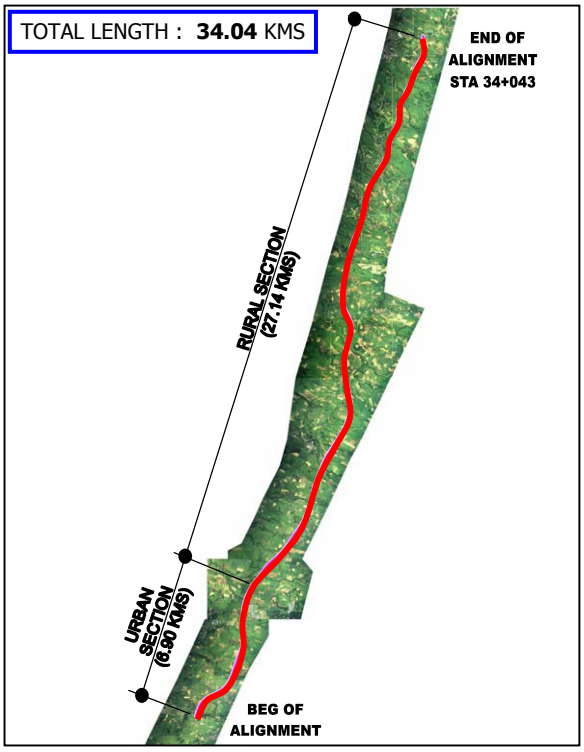
The initial project cost of the 2-lane Sugar Road is as follows:

		Foreign	Local	Tax	Total
Detailed Eng.	Phase I	18.0	11.5	3.3	32.8
	Phase II	21.1	13.5	3.8	38.4
ROW/Resettle-ment	Phase I	-	134.2	14.9	149.1
	Phase II	-	242.9	27.0	269.9
Phase I	Construction	217.9	167.4	72.5	457.8
	Const. Supv.	20.1	12.8	3.7	36.6
Phase II	Construction	463.2	347.8	148.7	959.7
	Const. Supv.	42.2	26.9	7.7	76.8
Total for Phase I & II		782.5	957.0	281.6	2,021.1

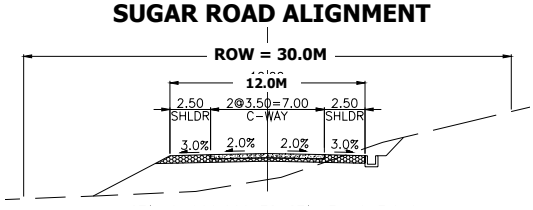
ECONOMIC EVALUATION

The project is economically feasible with EIRR of 30.7%, which is mainly contributed by shorter travel distance from the north to Bacolod City.

Costs	Indicator	Benefits		
		20% Down	Base Case	20% Up
20% down	NPV (P million)	564.0	772.0	981.0
	B/C Ratio	3.09	3.87	4.64
	EIRR (%)	30.7	34.7	38.2
Base Case	NPV (P million)	497.0	705.0	913.0
	B/C Ratio	2.48	3.09	3.79
	EIRR (%)	27.0	30.7	33.9
20% up	NPV (P million)	429.0	637.0	846.0
	B/C Ratio	2.06	2.58	3.09
	EIRR (%)	24.3	27.7	30.7



SUGAR ROAD ALIGNMENT



TYPICAL ROAD SECTION (RURAL SECTION)

C15. INFORMATION DISCLOSURE AND CONSULTATION MEETINGS

Information on the Study and priority projects was disclosed as follows:

Workshop/Meeting	Month	Major Topics	Participants
First Workshop	Apr. 2003	• Outline of the Study • Presentation by Bacolod City on urban problems, priority development area, road network, etc. • Road projects planned by concerned LGUs • LGU's participation in the implementation of the project	• Regional Offices of Central Government (DPWH, NEDA, DOTC, PPA, LTO) • LGUs (5 city,2 municipalities and 1 province) • Representative from Sugar Industry
Second Workshop	Oct. 2003	• Proposed road network plan • Priority of road projects and projects selected for F/S • Comments by LGUs • Announcement of social/environmental surveys requesting participation and coordination of stakeholders.	• Same as above
Barangay Level Consultation Meetings	Feb. 2004	• Objectives, needs and implementation schedule of the project. • Alignment of proposed road (1/2,500 aerial photo map with proposed ROW) • Opinions of directly and indirectly affected people.	• Barangay Captain • Directly and indirectly affected people. (25 Barangays)
Perception Survey	Feb. 2004	• Acceptability of the project • How and when did he know about the project? • Suggestions on how to make the project better for you.	• Directly and indirectly affected people.
Technical Scoping (Region)	Feb. 2004	• Level of environmental Study (IEE, EIS) • Environmental items to be focused. • EIS for Sugar Road	• EMB (Region) • Proponent (DPWH) • Environmental Consultant
Technical Scoping (Central)	Feb. 2004	• Environmental items to be assessed (Sugar Road	• EMB (Central) • Proponent (DPWH) • Environmental Consultant
Formal Scoping	Feb. 2004	• Environmental items to be assessed (Sugar Road) • Opinions of stakeholders	• EMB (Central) • Proponent (DPWH) • Environmental Consultant • Project-affected people • LGUs • Religious Group
Social Impact Survey	Feb. 2004	• Survey on affected houses and structures. • Name of owner, type of structure, floor area, photo, etc.	• All affected structures
Socio-economic Survey	Feb. 2004	• Household structure, occupation, family income and expenditure, ownership of land and house, work place/school, place, cost of transportation, period of stay, requirement for relocation.	• About 80% of directly affected households
Third Workshop	July 2004	• Selected alignment • Results of socio-environmental survey • Government's and DPWH's policies on compensation.	• Same as Second Workshop • Representatives from Barangays
Fourth Workshop	Aug. 2004	• Presentation of Draft Final Report	• Same as Third Workshop

Issues raised during consultation meetings were the same as those raised in Metro Iloilo and are presented in B16.

Number of Project-Affected Persons (PAPs)

	New Airport Access Road	Sugar Road
a) No. of Families affected		
- Severely affected	9	18
- Marginally affected	0	0
- Total	9	18
b) Average family size	5.84	5.12
c) No. of Project-affected Persons		
- Severely affected	53	92
- Marginally affected	0	0
- Total	53	92

ACCEPTABILITY OF THE PROJECT

	New Airport Access Road	Sugar Road
a) No. of Respondents		
- Directly affected	7	13
- Indirectly affected	230	558
b) Is in favor of the Project?		
Directly affected		
- Yes	71.4%	84.6%
- No	28.6%	0%
- No answer	0%	15.4%
Indirectly affected		
- Yes	88.7%	93.5%
- No	10.4%	4.5%
- No answer	0.9%	2.0%
c) Why no?		
Directly affected		
- Family, houses, properties affected	100%	0%
- Reduction of farm land	0%	0%
- Livelihood, source of income affected	0%	0%
- No answer	0%	0%
Indirectly affected		
- Family, houses, properties affected	33.3%	15.4%
- Reduction of farm land	0%	0%
- Livelihood	37.5%	42.3%
- No answer	29.2%	42.3%

MONTHLY FAMILY INCOME

	New Airport Access Road	Sugar Road
Below 10,000 Pesos	85.7%	53.8%
10,000~20,000 Pesos	14.3%	0%
20,000~40,000 Pesos	0%	0%
Above 40,000 Pesos	0%	0%
No answer	0%	46.2%
No. of Respondents	7	13

When did you hear about the project?

	New Airport Access Road	Sugar Road
• Today, this week, months ago	57.1%	15.4%
• 1 to 2 years ago	14.3%	38.5%
• More than 2 years ago	0%	0%
• No answer	28.6%	46.2%
No. of Answers	7	13

What are the good things you see about the project?

	New Airport Access Road	Sugar Road
• Easy and fast access	28.6%	38.5%
• City, barangay developed	14.3%	15.4%
• Less traffic congestion	0%	7.7%
• Chances for new business	57.1%	15.4
• Don't know	0%	0%
• No answer	0%	23.1%
No. of Answers		

What are the bad things you see about the project?

	New Airport Access Road	Sugar Road
• Increase of traffic accidents	14.3%	0%
• Increase of air and noise pollution	0%	0%
• Increase of strangers	0%	0%
• Disruption of regular activities of barangay folks	0%	7.7%
• Increase of crime rate	0%	0%
• Loss of livelihood and relocation	14.3%	7.7%
• Unfinished project	0%	0%
• None	71.4%	53.8%
• Don't know/no answer	0%	23.1%
• Others	0%	7.7%
No. of Answers	7	13

What problems do you foresee for the community?

	New Airport Access Road	Sugar Road
• Loss of properties, livelihood	0%	0%
• Flooding, erosion, landslide	14.3%	7.7%
• Corruption in government	0%	0%
• Accidents, crimes	0%	0%
• Unemployment	0%	0%
• None	57.1%	69.2%
• Don't know, no answer	0%	15.4%
• Others	28.6%	7.7%
No. of Answers	7	13

C16. IMPLEMENTATION SCHEDULE OF PROJECTS SELECTED FOR F/S

Implementation schedule was planned within the financial framework as follows:

Project	Detailed Design	ROW Acquisition	Construction
Airport Access Rd.	2007	2008-2009	2010-2011
Sugar Road (Urban)	2011	2012	2013-2015
Sugar Road (Rural)	2014	2015-2016	2017-2020

C17. RECOMMENDATIONS

DPWH

- The proposed Road Network Plan should be authorized by agencies concerned as well as LGUs concerned.
- Priority projects should be included in the DPWH Medium-Term Public Investment Program.
- Funding of Airport Access Road needs to be sourced from international agency or bi-lateral aid. Negotiation with one of the agencies or countries should start immediately and concluded within 2005.
- Silay-Guimbalaon Road (up to New Airport) should be upgraded to a national road and be improved prior to the opening of New Airport.
- ECC of priority projects should be secured as early as possible.
- DPWH should determine an implementing office of Regional Growth Center Projects as soon as possible.
- Memorandum of Agreement between DPWH and concerned LGUs should be exchanged concerning the securing of the proposed road ROW.
- For smooth implementation of priority projects, DPWH should start coordination with LGUs concerned with regard to ROW acquisition and relocation of project-affected persons.
- Road re-classification should be discussed with LGUs. Some roads should be reclassified from Provincial Road to National Road or vis-à-vis.
- DPWH should review and update proposed Road Network Plan periodically or at least every 6 years. This Plan was prepared under the present tight financial situation. When the financial situation improves, some of projects could be implemented ahead of the proposed schedule.

Concerned LGUs

- The proposed road network should be reflected in the land use plan as soon as possible. If necessary, land use along the proposed roads should be amended.
- Development within the proposed road ROW should be strictly controlled. City / municipal ordinance to control such development should be enacted as soon as possible.
- Maintenance of local roads should be intensified. Regular amount should be allocated yearly to road maintenance.
- Bacolod City Government should implement the proposed traffic management plan in the city proper area and its adjoining areas.
- Resettlement site for the project-affected persons should be secured as early as possible.

IMPLEMENTATION SCHEDULE OF PROJECT SELECTED FOR F/S

Project	Activities	Cost (Million P)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Airport Access Road	Fund Preparation	-	▪▪▪▪															
	Consultant Selection	-		▪▪▪▪														
	Detailed Design	34.3			34.3													
	ROW / Resettlement	200.7				100.3	100.4											
	Contractor Selector	-					▪▪▪▪											
	Construction	378.0						189.0	189.0									
	Const. Supervision	30.2						15.1	15.1									
	Total	**643.2**	**-**	**-**	**34.3**	**100.3**	**100.4**	**204.1**	**204.1**									
Sugar Road (Urban)	Fund Preparation	-					▪▪▪▪											
	Consultant Selection	-						▪▪▪▪										
	Detailed Design	32.8							32.8									
	ROW / Resettlement	149.1								149.1								
	Contractor Selector	-																
	Construction	457.9									152.6	152.6	152.7					
	Const. Supervision	36.6									12.2	12.2	12.2					
	Total	**676.4**	**-**	**-**	**-**	**-**	**-**	**-**	**32.8**	**149.1**	**164.8**	**164.8**	**164.9**					
Sugar Road (Rural)	Fund Preparation	-								▪▪▪▪								
	Consultant Selection	-									▪▪▪▪							
	Detailed Design	38.4										38.4						
	ROW / Resettlement	269.9											134.9	135.0				
	Contractor Selector	-												▪▪▪▪				
	Construction	959.7													239.9	239.9	239.9	240
	Const. Supervision	76.8													19.2	19.2	19.2	19.2
	Total	**1,344.8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**38.4**	**134.9**	**135.0**	**259.1**	**259.1**	**259.1**	**259.2**
Total / Annual Investment		**2,664.4**	**-**	**-**	**34.3**	**100.3**	**100.4**	**204.1**	**236.9**	**149.1**	**164.8**	**164.8**	**164.9**	**135.0**	**259.1**	**259.1**	**259.1**	**259.2**

PART D
ROAD NETWORK DEVELOPMENT PLAN FOR METRO CAGAYAN DE ORO

D1. PRESENT SET-UP

Present set-up of Metro Cagayan de Oro is as follows:

- Cagayan de Oro City is the regional capital of Region X and the center of business, commercial, administration and education.
- Cagayan de Oro City is functioning as the sea and air transport hub of the region.
- The Mindanao Container Terminal was recently completed within the PHIVIDEC Industrial Estate in Tagoloan and Villanueva.
- The existing CDO airport will be relocated to Laguindingan (30km northwest of Cagayan de Oro City) by 2010.

D2. PHYSICAL FEATURES

The topography of Cagayan de Oro City can be described as a narrow coastal plain along Macajalar Bay (with elevations of up to 10m) bounded by highlands from east to west consisting of plateaus, terraces, hills, mountains, canyons and gorges. Seven rivers, all draining to Macajalar Bay, traverse and bound the City with Cagayan River as the largest. The study area is underlain by rock formations of sedimentary and pyroclastic nature. Recent alluvial deposits are made up of aggregates of volcanic rocks, tuffaceous sand and other materials washed down by stream/rivers from higher elevations.

D3. SOCIO-ECONOMIC CONDITIONS: PRESENT AND FUTURE

Population of the study area will grow by about 1.7 times from 703,400 in 2000 to 1,199,200 in 2022. Cagayan de Oro City accommodates about 66% of study area population.

Number of employment (work place base) will increase by about 2.1 times from 319,300 in 2000 to 659,400 in 2022. Cagayan de Oro City absorbs about 68% of employments.

Number of employment (residence base) will increase by about 2.0 times from 313,500 in 2000 to 639,900 in 2022. About 63% of employment resides in Iloilo City.

Regional economy is expected to grow at about 5.0% per annum from 2005 to 2010, and 4.5% from 2011 to 2022.

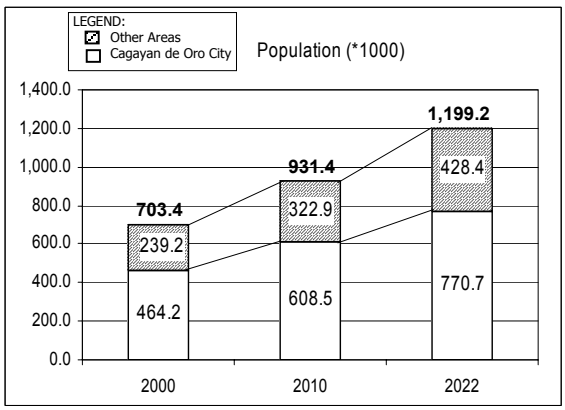
Economic Growth By Sector

Sector	2005-2010	2011-2022
Primary	4.0%	3.4%
Secondary	4.8%	4.3%
Tertiary	5.5%	5.1%
Total	5.0%	4.5%

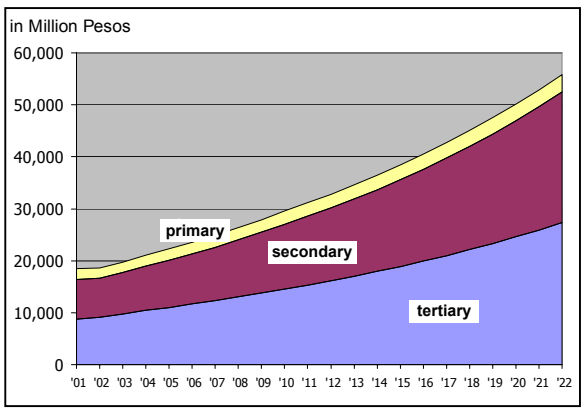
Number of vehicles in the Study Area is 22,800 in 2001 which is estimated to increase to 44,900 in 2010 and to 65,800 in 2022.

Vehicle Ownership

		2001	2010	2022
Cagayan de Oro City	No. of veh. (per 1000 persons)	19,937 (43.2)	37,847 (62.2)	53,863 (69.9)
Other Areas	No. of veh. (per 1000 persons)	2,850 (12.0)	7,036 (23.4)	11,900 (27.8)
Study Area	No. of veh. (per 1000 persons)	22,787 (32.6)	44,883 (48.2)	65,763 (54.8)



POPULATION GROWTH



ECONOMIC GROWTH

D4. LAND USE: PRESENT AND FUTURE

Present land use map (2002) prepared by each LGU was utilized with minor adjustment based on the satellite photo map.

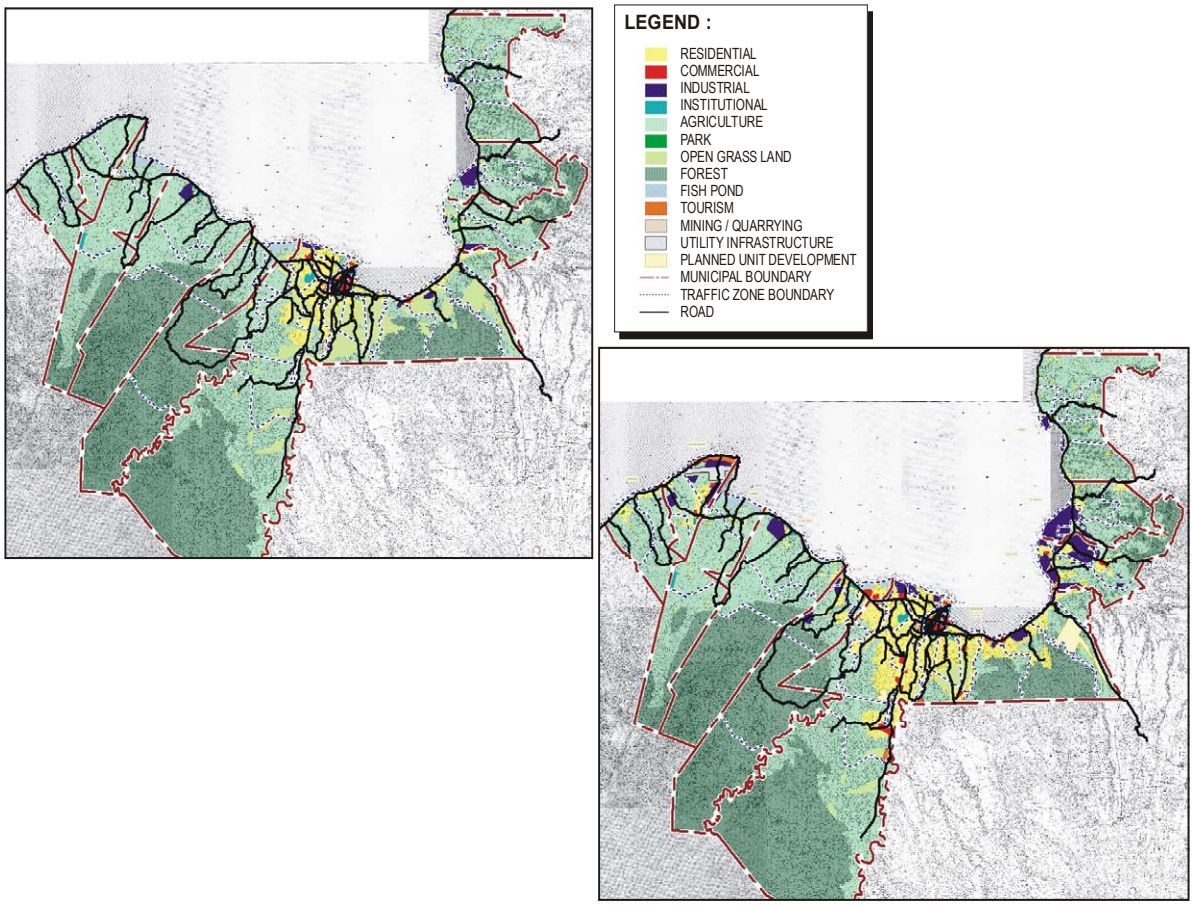
The land use plan for 2010 has been prepared by each LGU which was basically adopted by the Study Team.

The land use plan for 2022 was prepared by the Study Team based on future socio-economic framework.

Residential area needs to be expanded by 2.4 times, commercial area by 2.1 times, and industrial area by 3.8 times of the present area.

Present and Future Land Use (sq.km)

Land Use	2003		2022		2022/2003
Residential	49.77	(4.46%)	118.28	(10.62%)	2.4
Commercial	6.21	(0.56%)	12.75	(1.15%)	2.1
Industrial	9.71	(0.87%)	36.78	(3.30%)	3.8
Institutional	3.74	(0.33%)	6.46	(0.58%)	1.7
Agriculture	552.32	(49.46%)	471.51	(42.35%)	0.9
Park	0.21	(0.02%)	0.30	(0.03%)	1.4
Open Grassland	54.11	(4.85%)	14.18	(1.27%)	0.3
Forest	433.00	(38.78%)	433.05	(38.89%)	1.0
Fishpond	5.29	(0.47%)	4.02	(0.36%)	0.8
Tourism	0.08	(0.01%)	4.30	(0.39%)	53.8
Mining/Quarrying	0.61	(0.05%)	-		-
Infrastructure/Utility	1.57	(0.14%)	3.44	(0.31%)	2.2
Planned Unit Development	-		8.39	(0.75%)	-
Total	1,116.62	(100.0%)	1,113.46	(100.0%)	1.0



PRESENT LAND USE (2003) **FUTURE LAND USE (2022)**

D5. TRAFFIC DEMAND: PRESENT AND FUTURE

Present traffic volume is as follows:

- Roads within CBD : 16,000~42,000 veh/day
- Roads at CDO City Boundary : 6,400~13,100 "
- Roads at Study Area Boundary: 3,800~4,600 "

Total vehicle trips per day in the Study Area are 314,440 in 2003 which are estimated to grow to 433,420 in 2010 and 753,260 in 2022 with an average annual traffic growth rate of 4.7% from 2003 to 2010 and 4.7% from 2010 to 2022.

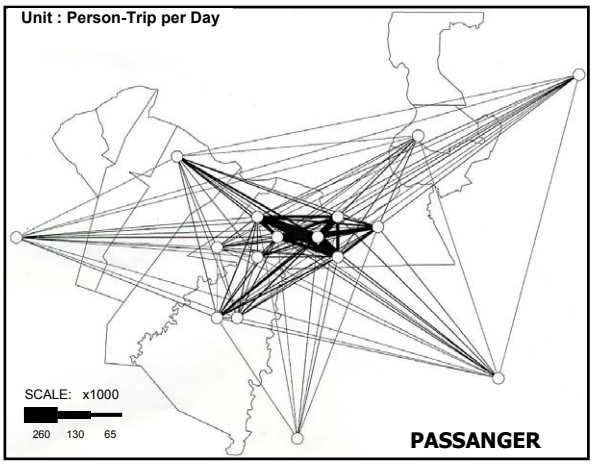
Car trips are expected to grow with the highest rate due to increased car ownership, followed by truck trips.

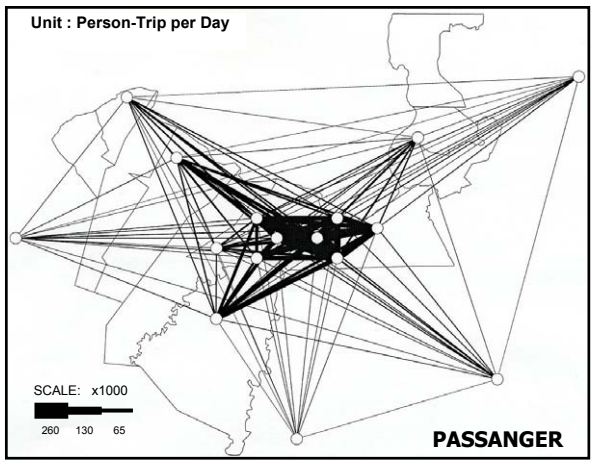
Trip pattern will be almost the same as present one.

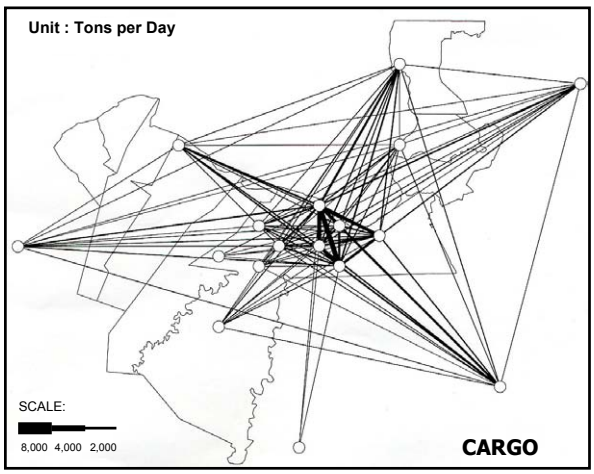
Airport related traffic will increase from 2,280 veh/day in 2002 to 3,290 in 2010 and 5,730 in 2022.

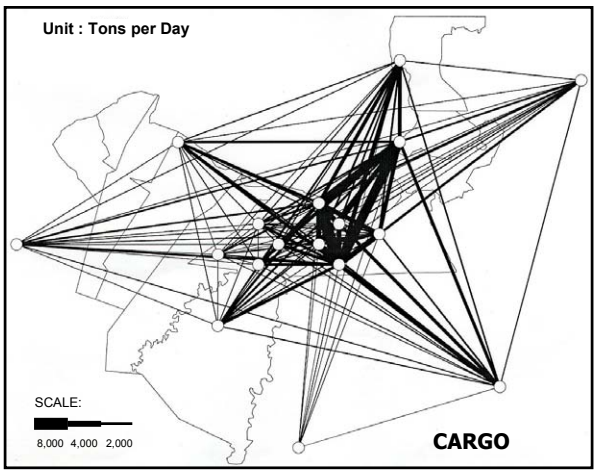
TRAFFIC GROWTH

Vehicle Type	Vehicle Trips / day			Average Traffic Growth Rate (%)	
	2003	2010	2022	2003-10	2010-22
Car	177,720	236,350	429,2904	4.2	5.1
Jeepney	108,400	155,960	252,720	5.3	4.1
Bus	3,050	4,200	6,170	4.7	3.3
Truck	25,270	36,9100	65,080	5.6	4.8
Total	**314,440**	**433,420**	**753,260**	**4.7**	**4.7**









PRESENT DESIRE LINE (2003)

FUTURE DESIRE LINE (2022)

D6. ROAD NETWORK ISSUES

Present Issues

a) Study Area

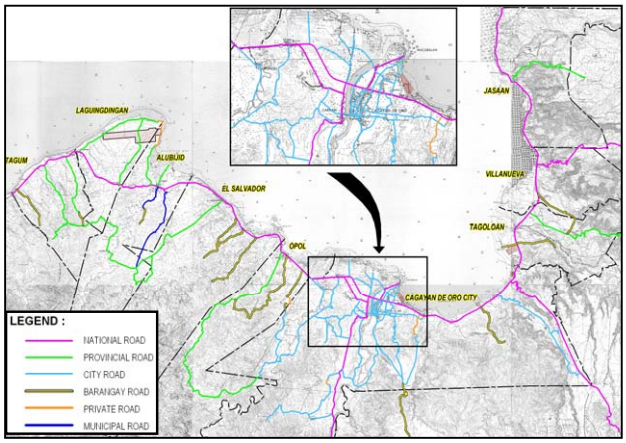
- A comb type road network exists with Iligan-CDO-Butuan Road in the east-west direction along the coast as base of road network.
- A comb type network is not flexible and relies heavily on Iligan-CDO-Butuan Road for traffic efficiency.
- To convert the comb type to ladder type road network is quite difficult due to topographical constraints.
- Urban structure is formed along the coast line in the east-west direction, therefore, strengthening this east-west transport axis is the key issue in this study.
- Among the north-south connection of the coastal flat area to hinterland agricultural plateau area, Syre Highway is the most important but climbs up to steep slopes with many sharp curves - thus limiting its traffic capacity.

b) Cagayan de Oro City

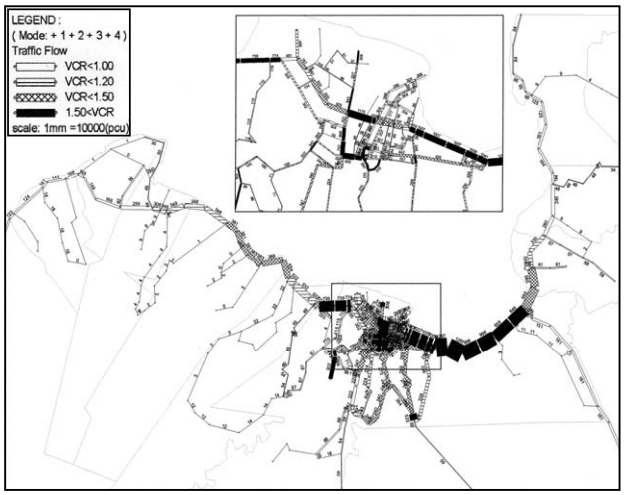
- The city center section of Iligan-CDO-Butuan Road is heavily congested due to traffic concentration and several intersections at short interval. Strengthening of this road and/or additional alternative routes are needed.
- Although the 4th bridge was completed in 2003 and the 3rd bridge is under construction, traffic concentrates at Marcos Bridge and Carmen Bridge. Additional bridge crossings are needed to disperse traffic to/from CBD / Port areas.
- West Plateau Area, West Bank Area, and East Bank Area where rapid urbanization is progressing are served only by one 2-lane road in each area. Inter-linkage between these roads is not made, making all of them congested at the entrance to CBD. Alternative route(s) accessible to CBD is (are) needed.
- West Coastal Area is served by only narrow streets, a trunk road needs to be formed.
- Crossed by Iponan River, both Iponan Area and Opol Municipality, where urbanization is progressing, rely on Iligan-CDO-Butuan Road. Additional access road to Cagayan de Oro City Center is needed.
- Construction of additional roads within CBD / Port Area is difficult. Traffic management measures need to be strengthened.

Future Issues

- Iligan-CDO-Butuan Road will be heavily congested with V/C ratio of more than 1.2, except sections in Laguindingan and Gitagum in the west and Villanueva and Jasaan in the east.
- Most roads in CBD / Port Area and its adjacent areas will also suffer heavy traffic congestion.
- Three roads accessing to East Plateau, where large scale urban development is planned, will experience traffic congestion. Development of the said area needs to be made harmoniously with road improvement.
- P.N. Roe Secured Valley Subdivision / CDO Resettlement Project area will generate high traffic and the access road to the area will have traffic capacity problem.
- The steep slope section of Syre Highway will suffer traffic congestion.



EXISTING ROAD NETWORK



TRAFFIC ASSIGNMENT 2022
[DO NOTHING CASE]

D7. ROAD NETWORK DEVELOPMENT OBJECTIVES AND STRATEGIES

DEVELOPMENT OBJECTIVES

- Reduction of traffic congestion in the Iligan-CDO-Butuan Road and roads accessing to CBD/Port Area.
- Road network which will guide and support planned urban development.
- Formation of flexible road network which will provide alternative routes to road users.
- Road network which will contribute to the economic development of the Study Area as well as its hinterland.
- Road network which will enhance international and domestic investment in the Study Area as well as its hinterland.
- Road network which will realize expected investment effects of related projects.
- Road network development with environmental and social considerations.

DEVELOPMENT STRATEGIES

- Strengthening of E-W transport axis.
- Improvement of accessibility to CBD.
- Full utilization of existing road stock in CBD / Port Area.
- Strengthening and improvement of transport efficiency of the routes which connect agricultural production area, agro-industrial area and export facility.
- Strengthening of accessibility to new airport and container terminal port.
- Avoiding road network development in the environmentally and socially critical areas.

D8. BASIC CONCEPT FOR DEVELOPMENT OF ROAD NETWORK CONFIGURATION

Due to physical constraints and wide spread urban areas in the narrow coastal plain, a systematic road network such as radial and circumferential network cannot be formed, thus the road network configuration was planned focusing on how to remedy the weakness of the existing road network.

Key issues are as follows:

- How to strengthen East-West transport axis
- How to improve accessibility to CBD
- How to improve accessibility to Mindanao International Container Terminal and PHIVIDEC Industrial Area.
- How to improve accessibility to New Airport

D9. POTENTIAL ROAD PROJECTS AND THEIR EVALUATION

1) Strengthening of East-West Transport Axis

In the Eastern Area of CBD

- Widening of Existing CDO-Butuan Road (EW-1): this is the most important road in the Study Area. Widening of the road to 4-lane with PUV loading/unloading lane needs to be continuously implemented.
- New Coastal Reclamation Road: the project greatly contribute to decongestion of CDO-Butuan Road, but estimated cost is huge at 3.94 Billion Pesos and encounter relocation of 1,060 houses. The project should be considered as long term one (beyond 2022).
- CDO Flyover Project: the project is to construct a 2,795 m flyover over CDO-Butuan Road. It will cause further concentration of traffic on CDO-Butuan Road, thus not improve transport efficiency so much. Estimated cost is high at 1.38 Billion Pesos. The project is not recommended.
- J.R. Borja Extension (EW-2): this is the extension of J.R. Borja St. along the foot of mountain slope, and will contribute to decongestion of traffic on CDO-Butuan Road. Recommended.
- Bypass Road at Plateu Area: due to severe topographic condition, substandard horizontal and vertical alignments are required to be adopted, thus not recommended.

In the Western Area of CBD

- Western Coastal Road (EW-3): this will be connected to the 3rd Bridge which is under construction, thus improve accessibility to Port Area and CBD and decongest Iligan-CDO Road. It will also support sound urbanization of the western area. Recommended.
- Opol Diversion Road (EW-4): this will decongest Iligan-CDO Road and accelerate the sound urbanization of western inland area. Recommended, though it is not so urgent.

2) Improvement of Accessibility to CBD

In order to improve accessibility to CBD, more bridges over Cagayan de Oro River are needed. Since road network of CBD consists of narrow roads with 2-lanes, bridges to be constructed should be 2-lane bridges.

Traffic volume crossing Cagayan de Oro River and number of 2-lane bridges required are estimated as follows:

	Present	2016	2022
Traffic Vol. (pcu/day)	100,500	180,400	240,400
Existing Bridge Capacity (pcu/day)	150,000	150,000	150,000
Excess Traffic Volume (pcu/day)	-	30,400	90,400
No. of 2-lane bridge required	-	2	4

Note: Exsiting bridge includes the 3rd Bridge
2-lane bridge capacity = 30,000 pcu/day
v/c ratio = 0.8

Following bridges are recommended to be constructed:

- 5th Bridge (CU-1) : Extension of Old National Road
- 6th Bridge (CU-2) : Extension of J.R.Borja Street
- 7th Bridge (CU-3) : At about 400m upstream of Carmen Bridge
- 8th Bridge (CU-4) : At about 1,800m upstream of Carmen Bridge

In addition to the above bridges, recommended is West Diversion Road (NS-5) which will distribute traffic in the western area to an optimum route accessing to CBD and Port Area.

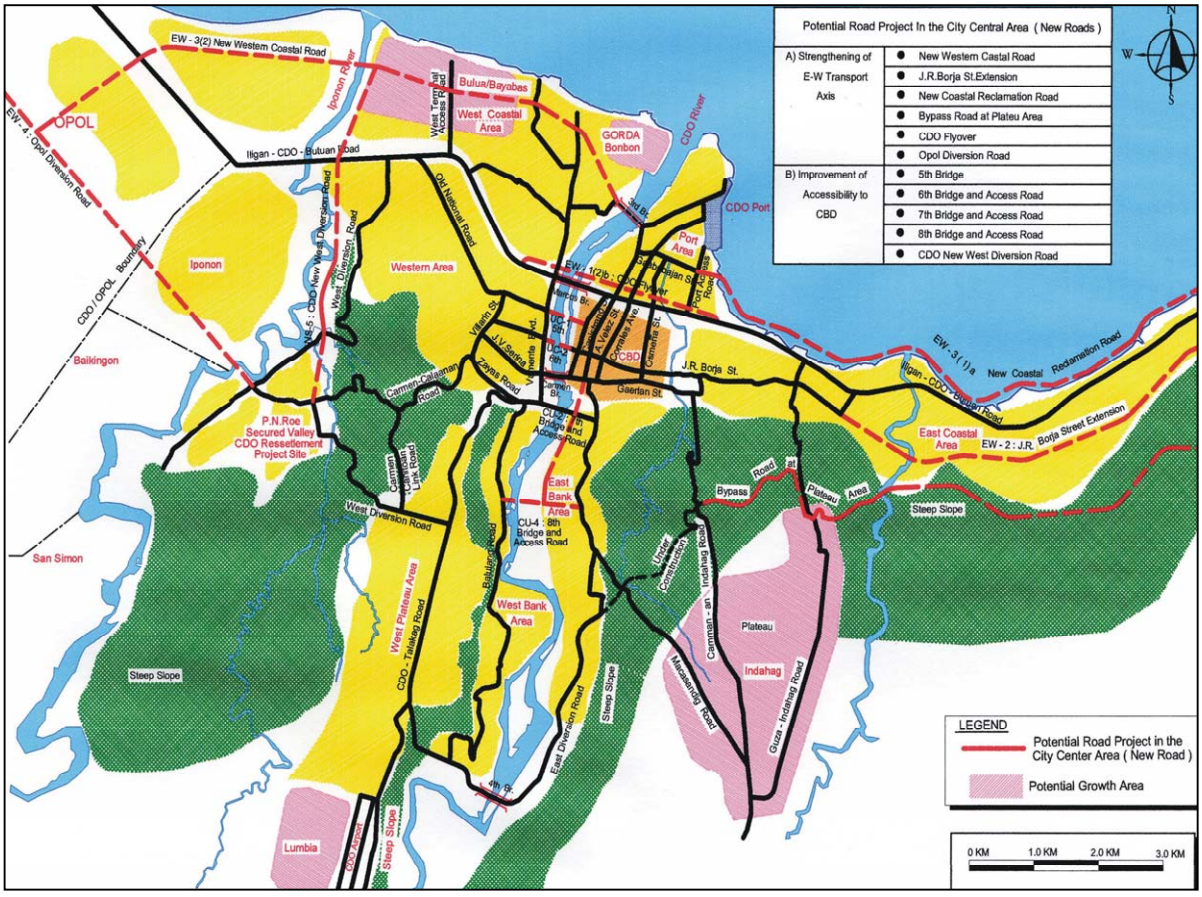
3) Accessibility Improvement to Mindanao International Container Terminal and PHIVIDEC Industrial Area

Access is mainly provided by Iligan-CDO-Butuan Road of which widening is proposed. To improve accessibility from the southern area such as Bukidnon Province, two projects were recommended:

- Syre Highway Parallel Road (NS-3)
- Mindanao Container Terminal-Bukidnon Link Road (NS-4)

4) Accessibility Improvement to New Laguindingan Airport

Access is mainly provided by Iligan-CDO-Butuan Road of which widening is proposed.



POTENTIAL ROAD PROJECTS

D10. PROPOSED ROAD NETWORK PLAN

In accordance with the basic concepts for development of road network configuration and assessment of potential road projects, a road network which will remedy the weakness of the existing road network was proposed.

Major components of the proposed road network are as follows:

a) New roads to be constructed

EW-2	: L= 7.7 km
EW-3	: L= 9.3 km
EW-4	: L= 9.1 km
CU-1 (Bridge/Approach)	: L= 0.5 km
CU-2 (Bridge/Approach)	: L= 0.5 km
CU-3 (Bridge/Approach)	: L= 1.0 km
CU-4 (Bridge/Approach)	: L= 3.8 km
NS-4	: L=13.5 km
NS-5	: L= 5.0 km
Total	L=50.4 km

b) Widening of existing roads

EW-1	L=49.4 km
Total	L=49.4 km

c) Improvement of existing roads

CU-5	: L= 1.5 km
NS-3	: L= 16.2 km
NS-6	: L= 5.8 km
PHIVIDEC-1	: L= 3.7 km
PHIVIDEC-2	: L= 5.3 km
Other Sub-urban roads	: L=113.3 km
Total	L=145.8 km

FINANCIAL FRAMEWORK

In order to formulate realizable implementation plan, possible investment amount for each 6-year term was estimated. Due to current financial constraints of the Government, possible investment amount for the short term (2005-2010) is quite limited and estimated to be about 1 Billion Pesos for national roads.

(Unit: Million Peso)

Term	DPWH	Misamis Oriental Province	Cagayan de Oro City
Short Term (05-10)	970-1,110	66-74	165-252
Medium Term (11-16)	1,740-1,990	37-66	126-165
Long Term (17-22)	2,550-2,910	37-66	126-165
Total	5,260-6,010	140-206	417-582

PRIORITY OF PROJECTS

Priority of road projects were evaluated by the degree of contribution to the following factors and urgency:

- Guide and support planned urban development
- Flexibility improvement of road network
- Reduction of traffic congestion of:
  - Iligan-CDO-Butuan Road
  - Roads accessing to CBD/Port Area
- Accessibility improvement for related projects
- Economic development
- Social and environmental impacts
- Enhancement of international / local investment
- Urgency

Top five priority projects are as follows:

EW-3 :	Western Coastal Road
EW-2 :	J.R. Borja Extension
EW-1 :	Iligan-CDO-Butuan Road
CU-3 :	7th Bridge
NS-5 :	West Diversion Road

SELECTED ROAD PROJECTS FOR F/S

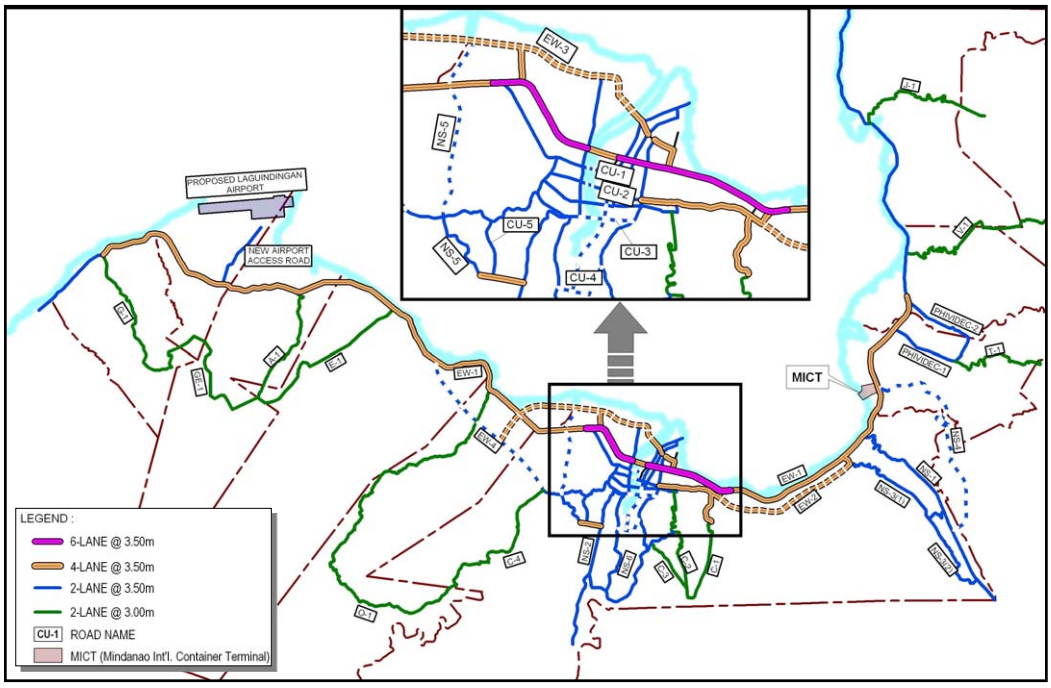
Road projects subjected to a feasibility study were selected based on the following criteria:

- Priority is high
- Road ROW needs to be determined as early as possible
- The project is vitally needed to support on-going related projects

Following four projects were selected for a feasibility study:

• Western Coastal Road (Phase-1)	L=7.6 km
• J.R. Borja Extension	L=7.7 km
• 7th Bridge	L=1.0 km
• West Diversion Road	L=5.0 km
Total :	L=21.3 km

EW-1 was not selected for a feasibility study, as it is widening of an existing road and DPWH can easily undertake a study.



PROPOSED ROAD NETWORK PLAN

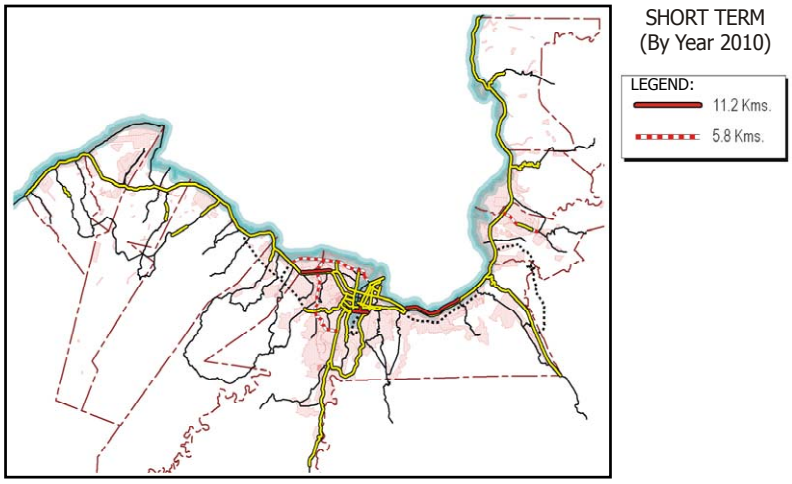
PROPOSED IMPLEMENTATION SCHEDULE

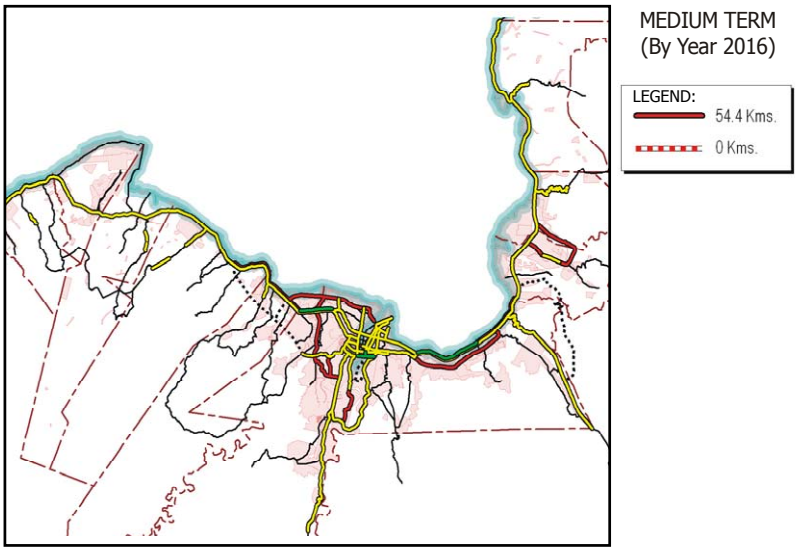
	Road Name	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	After 2022
		Medium-Term												Long-Term						
EW-1	CDO-Butuan Road																			
EW-1	Iligan-CDO																			
EW-2	J.R.Borja Extension																			
EW-3	Western Coastal Road (I)																			
EW-3	Western Coastal Road (II)																			
EW-4	Opol Diversion Road																			
CU-1	5th Bridge																			
CU-2	6th Bridge																			
CU-3	7th Bridge																			
CU-4	8th Bridge																			
CU-5	Canitoan-Carmen																			
NS-3	Syre Highway Parallel (I)																			
NS-3	Syre Highway Parallel (II)																			
NS-4	Container Terminal-Bukidnon																			
NS-5	West Diversion Road																			
NS-6	West River Bank Road																			
PHIVIDEC-1	Sta. Ana Road																			
PHIVIDEC-2	San Martin-Sta.Ana Road																			
J-1	Jasaan Mountain Access																			
V-1	Villanueva Mountain Access																			
T-1	Tagoloan Mountain Access																			
C-1	Guza-Carmen																			
C-2	Camama-an-Indahag																			
C-3	Macasandig-Indahag Road																			
C-4	Canitoan-Balulang																			
O-1	Opol Mountain Road																			
E-1	El Salvador Mountain Road																			
A-1	Alubijid Mountain Road																			
G-1	Gitagum-El Salvador																			
GE-1	Gitagum-El Salvador Mountain																			
Total Investment (Million P)		988.4						2,913.4						2,820.0						2,421.2

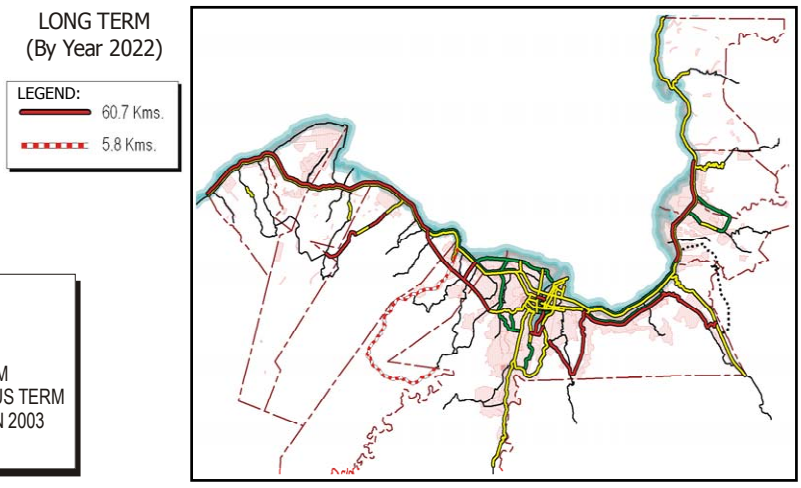
Legend : Detailed Design ROW/Resettlement & Tendering Construction / C/S

D11. PROPOSED ROAD NETWORK PLAN BY TERM

Considering the financial constraints and priority road projects, the road network Master Plan was formulated for the following three terms: Short-Term - 2005 to 2010; Medium-Term - 2011 to 2016; Long-Term - 2017 to 2022.





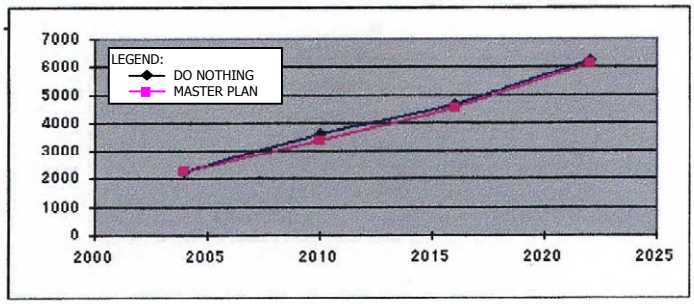
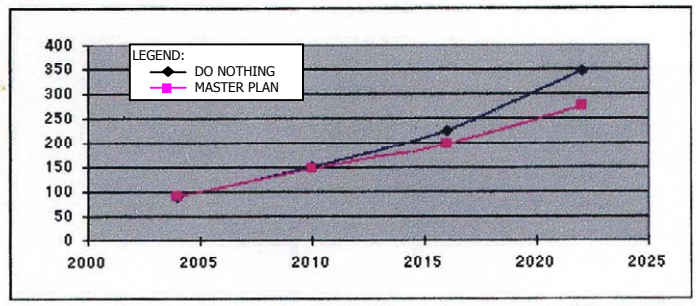
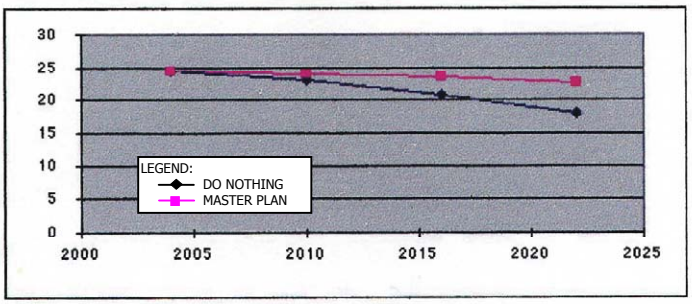
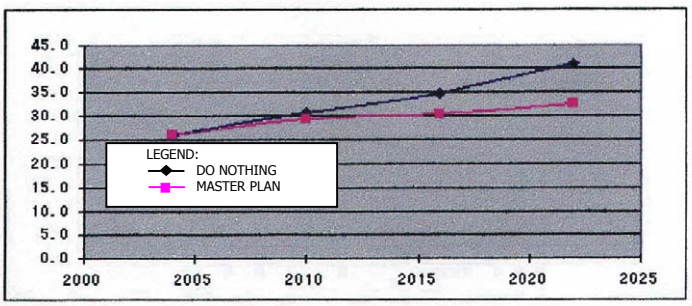
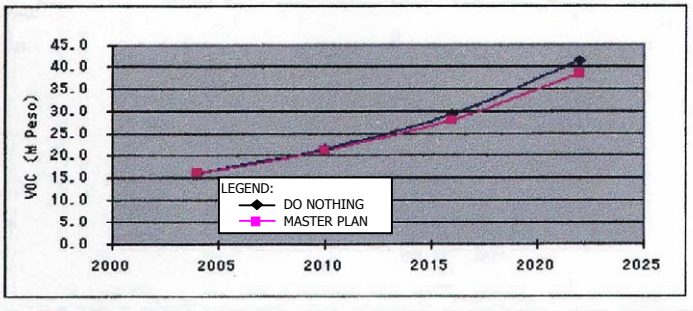


LEGEND :

- COMPLETED DURING THE TERM
- ON-GOING AS OF END OF THE TERM
- COMPLETED DURING THE PREVIOUS TERM
- PAVED IN GOOD/FAIR CONDITION IN 2003
- PLANNED URBAN AREA

D12. TRANSPORT EFFICIENCY IMPROVEMENT BY MASTER PLAN

The transport efficiency was evaluated comparing the "Do Nothing" Case with the Master Plan using the following indicators: vehicle travel distance(pcu-km), vehicle travel time(pcu-hr), average travel speed, congested road section length, and vehicle operating cost.

PCU Kilometer ('000)	
PCU Hour ('000)	
Average Travel Speed	
Average Travel Time	
Vehicle Operating Cost	

D13. TRAFFIC MANAGEMENT PLAN

To make traffic flow more efficient and to enhance traffic safety in the City Proper area and its suburbs, the following measures are recommended:

a) Geometric Improvement of Intersection: Intersection geometry is to be reviewed and improved. For intersections in suburbs, paved sidewalk shall be provided.

b) Traffic Engineering Approach: Review of one-way system, banning of left turn, banning of on-street parking, truck ban, jeepney route, traffic accident analysis, and traffic safety program shall be undertaken using traffic engineering approach.

c) Enhancement of Pedestrian Environment: Removal of obstruction on sidewalk, restoring sidewalk used as parking area, and planting of trees shall be undertaken to create friendly environment for pedestrians.

d) Installation of Traffic Control and Safety Device:

Traffic sign: Traffic signs of stop, no-parking, one-way, no entry, no left turn, no loading and unloading, etc. shall be installed.

Pavement marking: Pavement markings such as stop line, pedestrian crossing, center line, lane line, etc. shall be installed on national roads and other arterial streets in Cagayan de Oro City.

Others: Chatter bar, delineator, guardrail, reflector, pavement stud, etc. shall be installed at locations where such devices are needed.

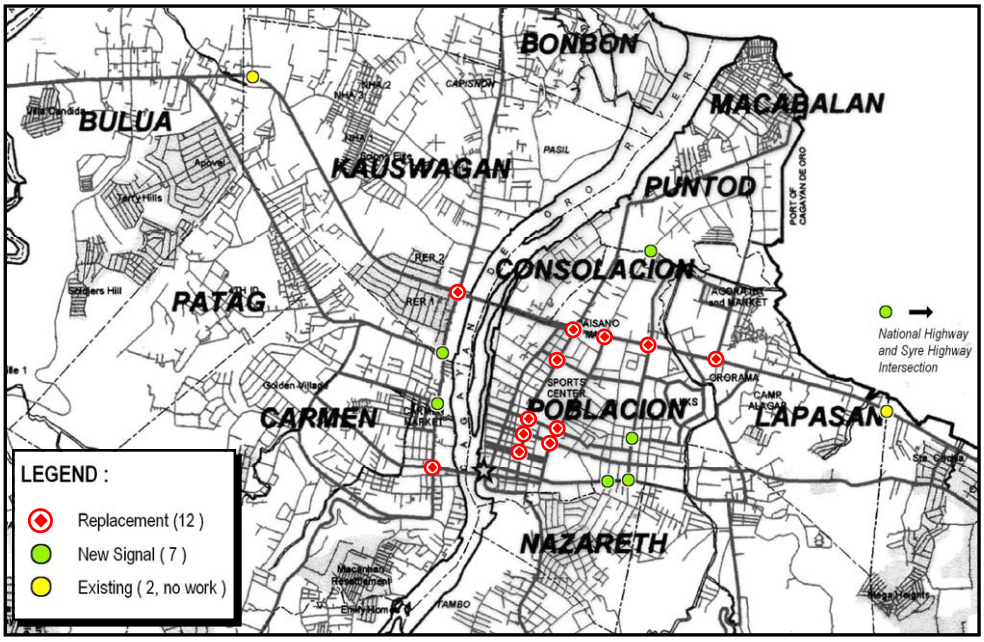
e) Restoration of Existing Signals and Installation of New Signals: The existing non-working signals shall be repaired urgently. New signals shall be installed at 7 locations. Those signals installed at city center where distance between intersections is short, signals must be coordinated.

f) Establishment of Parking Policy and its Implementation: A parking management policy shall be established, in which requirement of parking space for new building must be implemented strictly, parking on main streets must be prohibited, paid on-street or off-street parking must be developed and parking business by private sector is encouraged.

g) Training of Staff Engaged in Traffic Management: Training on traffic facility development and traffic operation shall be provided to traffic police, traffic aides, city hall staff engaged in traffic management.

ESTIMATED COST FOR TRAFFIC MANAGEMENT IMPROVEMENT WORKS

Improvement Measure	Estimated Cost (1,000 Peso)	Remarks
Intersection Geometric Improvement	7,091	8 intersections & 2 streets
Traffic Signal	52,155	12 existing and 7 new
Pavement Markings	57,582	124 km
Traffic Sign	3,028	1,183 traffic signs
Total	119,857	



TRAFFIC SIGNAL INTERSECTIONS

D14. F/S OF WESTERN COASTAL ROAD

OBJECTIVES OF THE PROJECT

- To reduce traffic congestion of Iligan-CDO Road;
- To guide and accelerate sound urbanization in the Western Coastal Area of CDO City;
- To provide direct access from the Western area to the Port Area;
- To enhance international / domestic investment by providing easy access to industrial areas and CDO Port as well as New Airport in Laguindingan.

DESIGN CRITERIA AND ROAD ROW WIDTH

- Design speed of 60 km/hr is selected to minimize adverse social impact in determining horizontal alignment.
- To allow future urbanization along the roadsides, road elevation is designed as low as possible.
- The road section is a 4-lane divided road consistent with the section of the 3rd Bridge.
- Left turn lane provided at major intersections.
- Road ROW width:
  - Standard section : 35.0m
  - Socially critical areas : 24.6m

ENVIRONMENTAL/SOCIAL IMPACTS

- No significant environmentally critical spot is identified.
- Land use along the alignment is a mixture of fish ponds, agricultural and residential with plans for conversion to industrial.
- Impact to environment is minimal.
- Social acceptability is high with strong support from LGUs.
- Social Impact:
  - No. affected families : 59
  - No. affected houses and structures : 73
  - Land Take : 24.1has

ESTIMATED PROJECT COST

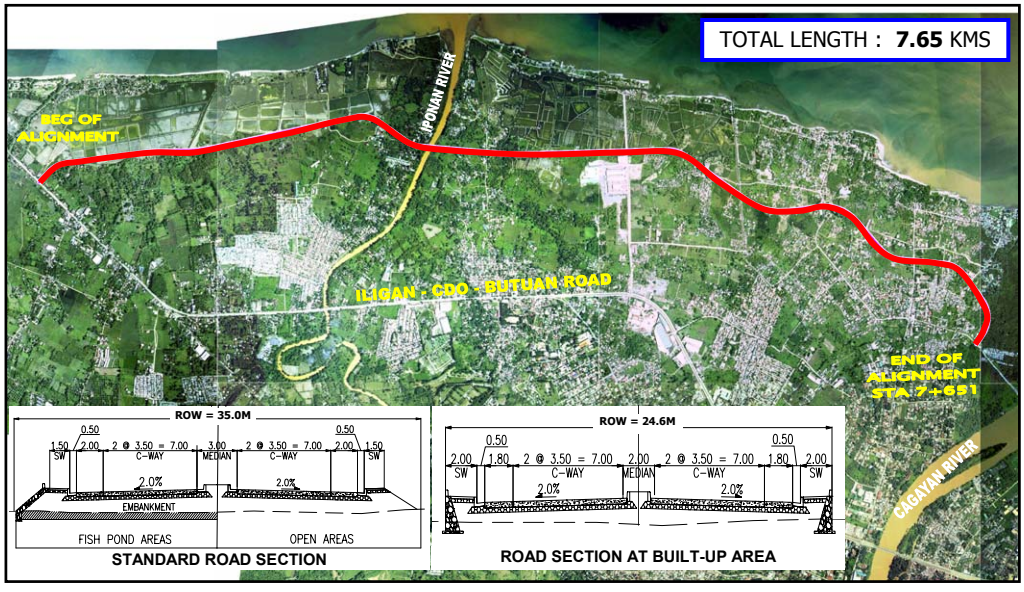
The initial project cost for the 4-lane divided road is estimated as follows:

	Foreign	Local	Tax	Total
Detailed Eng.	13.3	8.4	2.4	24.1
ROW/Resettlement	-	78.6	8.7	87.3
Construction Cost	320.4	193.8	89.4	603.6
Const. Supervision	26.6	16.9	4.8	48.3
Total	360.3	297.7	105.3	763.3

ECONOMIC EVALUATION

The Project was evaluated economically feasible with EIRR of 29.0%, which is the second lowest among the F/S projects under this study. Relatively low economic return is due mainly to high construction cost of a 4-lane road.

Costs	Indicator	Benefits		
		20% Down	Base Case	20% Up
20% down	NPV (P million)	370.0	514.0	657.0
	B/C Ratio	2.81	3.51	4.21
	EIRR (%)	29.0	32.7	36.0
Base Case	NPV (P million)	319.0	462.0	606.0
	B/C Ratio	2.25	2.81	3.37
	EIRR (%)	25.5	29.0	32.0
20% up	NPV (P million)	268.0	411.0	555.0
	B/C Ratio	1.87	2.34	2.81
	EIRR (%)	22.9	26.1	29.0



WESTERN COASTAL ROAD ALIGNMENT

D15. F/S OF 7TH BRIDGE

OBJECTIVES OF THE PROJECT

- To reduce traffic congestion of existing Carmen Bridge;
- To improve accessibility to CDO CBD;
- To guide and accelerate sound urbanization in the eastern area of Cagayan River.

DESIGN CRITERIA AND ROAD ROW WIDTH

- Design speed of 50km/hr is selected as governed by existing connecting roads.
- To minimize adverse social impact at the west bank side area and reduce ROW width, slope protection works are to be adopted.
- Carmen Bridge and the 7th Bridge are planned to be operated as one-way bridges.
- Left turn lane provided at major intersections.
- Construction shall be one stage 2-lane road and bridge.
- Standard ROW including access road is 20m.

ENVIRONMENTAL/SOCIAL IMPACTS

- No significant environmentally critical spot is identified.
- Land use in the West side of Cagayan River is predominantly residential while the east lowland is open with some commercial establishments along the existing CBD road.
- Impact to environment is minimal.
- Negotiations for ROW have been initiated by CDO City with some voluntary land donations on the eastern side.
- Social Impact:
  - ♦ No. affected families : 32
  - ♦ No. affected houses and structures : 33
  - ♦ Land Take : 1.9 has

ESTIMATED PROJECT COST

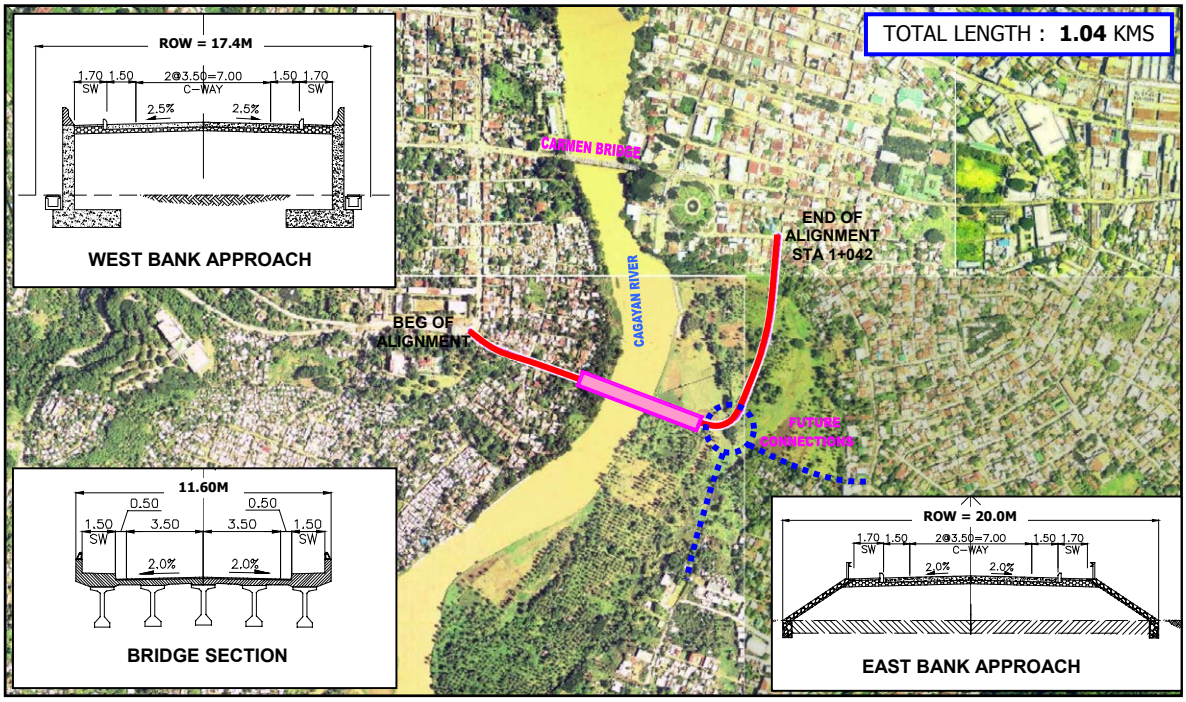
The project cost of the 2-lane road and bridge is estimated as:

	Foreign	Local	Tax	Total
Detailed Eng.	4.2	2.7	0.8	7.7
ROW/Resettlement	-	21.3	2.4	23.7
Construction Cost	81.5	82.5	29.5	193.5
Const. Supervision	8.5	5.4	1.6	15.5
Total	94.2	111.9	34.3	240.4

ECONOMIC EVALUATION

The project is highly feasible with EIRR of 36.4%. High economic return is contributed by reduction of traffic congestion of Carmen Bridge and easier access to CBD.

Costs	Indicator	Benefits		
		20% Down	Base Case	20% Up
20% down	NPV (P million)	174.0	238.0	301.0
	B/C Ratio	3.18	3.97	4.76
	EIRR (%)	36.4	42.5	48.1
Base Case	NPV (P million)	154.0	217.0	281.0
	B/C Ratio	2.54	3.18	3.81
	EIRR (%)	31.0	36.4	41.3
20% up	NPV (P million)	134.0	198.0	261.0
	B/C Ratio	2.12	2.65	3.18
	EIRR (%)	27.2	31.9	36.4



D16. J.R. BORJA EXTENSION

OBJECTIVES OF THE PROJECT

- To reduce traffic congestion of the CDO-Butuan Road.
- To form flexible road network which provides alternative route to road users.
- To enhance international/domestic investment in the Study Area.
- To realize expected investment effects of related projects such as Mindanao International Container Terminal and PHIVIDEC Industrial area.

DESIGN CRITERIA AND ROAD ROW WIDTH

- Design speed of 50 km/hr. is selected to minimize adverse social and natural environment impacts in determining horizontal and vertical alignments.
- Link roads to connect this road with CDO-Butuan Road are planned, so that both roads will be utilized efficiently.
- Left turn lane provided at major intersections.
- Road ROW width:
  - ♦ Standard section : 35m
  - ♦ Socially critical areas : 25m
- The 4-lane divided road shall be constructed in only one stage.

ENVIRONMENTAL/SOCIAL IMPACTS

- No significant environmentally critical spot is identified.
- Land use along the alignment is a mixture of residential, commercial, warehouses, and industrial area.
- Social acceptability is high with strong supports from LGUs.
- Social Impact:
  - ♦ No. affected families : 215
  - ♦ No. affected houses and structures : 235
  - ♦ Land Take : 54.8 has

ESTIMATED PROJECT COST

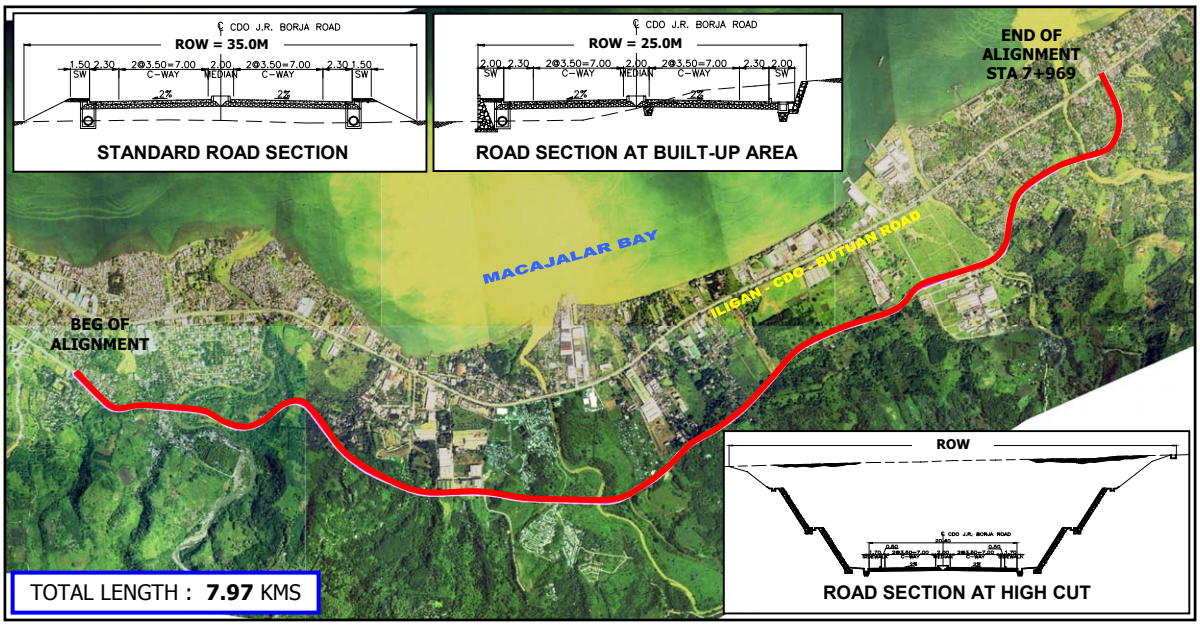
The initial project cost for the 4-lane divided road is estimated as follows:

	Foreign	Local	Tax	Total
Detailed Eng.	26.0	16.5	4.7	47.2
ROW/Resettlement	-	158.3	17.6	175.9
Construction Cost	543.2	453.8	182.8	1,179.8
Const. Supervision	51.9	33.1	9.4	94.4
Total	621.1	661.7	214.5	1,497.3

ECONOMIC EVALUATION

The Project was evaluated economically feasible with EIRR of 24.2% which is the lowest among F/S projects under this study. Relatively low economic return is due mainly to high construction cost.

Costs	Indicator	Benefits		
		20% Down	Base Case	20% Up
20% down	NPV (P million)	293.0	437.0	580.0
	B/C Ratio	2.04	2.55	3.06
	EIRR (%)	24.2	27.6	30.6
Base Case	NPV (P million)	222.0	366.0	606.0
	B/C Ratio	1.63	2.04	3.37
	EIRR (%)	21.0	24.2	32.0
20% up	NPV (P million)	152.0	296.0	439.0
	B/C Ratio	1.36	1.7	2.04
	EIRR (%)	18.7	21.6	24.2



J.R. BORJA EXTENSION ALIGNMENT

D17. WESTERN DIVERSION ROAD

OBJECTIVES OF THE PROJECT

- To reduce traffic congestion of CDO-Iligan Road and CDO-Talakag Road by distributing traffic onto other major roads;
- To improve accessibility to CBD and Port Area;
- To formulate flexible road network which will provide alternative routes to road users;
- To guide and support planned urban development.

DESIGN CRITERIA AND ROAD ROW WIDTH

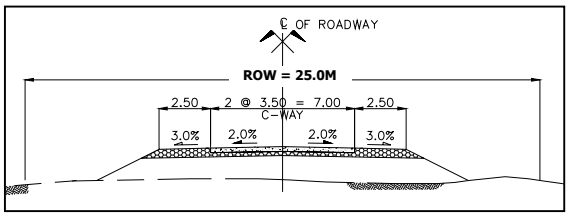
- Design speed of 60 km/hr. is selected to minimize adverse social and environmental impacts in determining horizontal and vertical alignments.
- Future widening to a 4-lane road is considered in the initial stage design.
- To allow future urbanization in the planned urban area, road elevation is designed as low as possible.
- Left turn lane provided at major intersections.
- Standard ROW width of 25m is established in consideration of future widening. ROW in cut section shall accommodate future 4-lane road.

STAGE CONSTRUCTION

The road is initially constructed as a 2-lane road and planned to be widened to a 4-lane divided road to cope with the increase in future traffic.

ENVIRONMENTAL/SOCIAL IMPACTS

- No significant environmentally critical spot is identified.
- Land use is predominantly coconut plantation with scattered residential areas and commercial/residential areas near CDO-Iligan Road area.
- Impact to environment is minimal.
- Social acceptability is high with affirmative supports from barangays.
- Social Impact:
  - ♦ No. affected families : 39
  - ♦ No. affected houses and structures : 46
  - ♦ Land Take : 13.2 has



STANDARD ROAD SECTION

ESTIMATED PROJECT COST

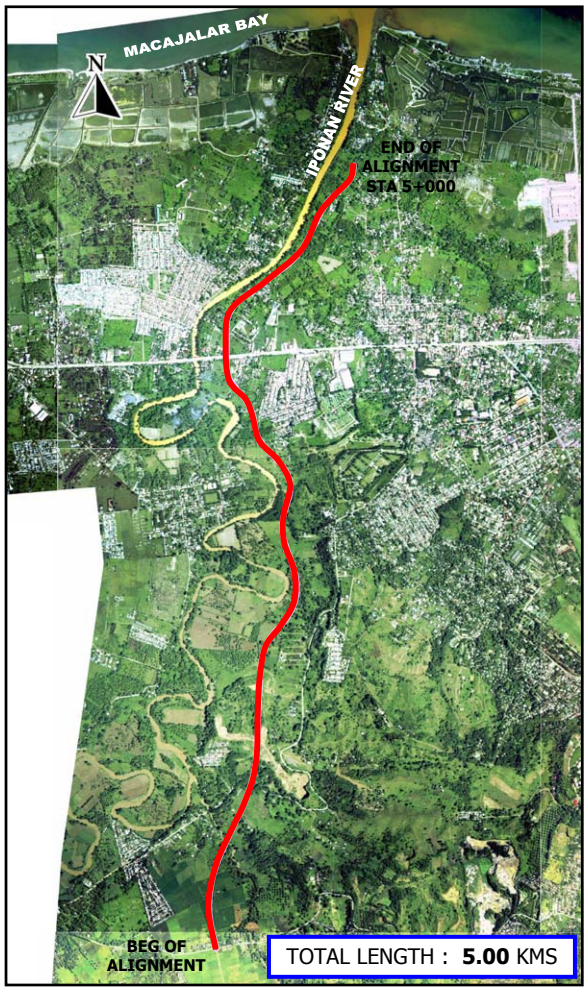
The initial 2-lane road project cost is estimated as follows:

	Foreign	Local	Tax	Total
Detailed Eng.	5.0	3.2	0.9	9.1
ROW/Resettlement	-	44.9	5.0	49.9
Construction Cost	115.5	76.5	35.6	227.6
Const. Supervision	10.0	6.4	1.8	18.2
Total	130.5	131.0	43.3	304.8

ECONOMIC EVALUATION

The project was evaluated economically feasible with EIRR of 36.4%. High economic return is mainly contributed by the traffic distribution effects of this road.

Costs	Indicator	Benefits		
		20% Down	Base Case	20% Up
20% down	NPV (P million)	205.0	273.0	341.0
	B/C Ratio	4.10	5.13	6.15
	EIRR (%)	36.4	41.0	45.1
Base Case	NPV (P million)	189.0	257.0	324.0
	B/C Ratio	3.28	4.10	4.92
	EIRR (%)	32.2	36.4	40.1
20% up	NPV (P million)	172.0	240.0	308.0
	B/C Ratio	2.73	3.42	4.10
	EIRR (%)	29.0	32.9	36.4



WEST DIVERSION ROAD ALIGNMENT

D18. INFORMATION DISCLOSURE AND CONSULTATION MEETING

Information on the Study and priority projects was disclosed as follows:

Workshop/Meeting	Month	Major Topics	Participants
irst Workshop	Nov. 2003	• Outline of the Study • Presentation by Cagayan de Oro City • on urban problems, priority • development area, road network, etc. Road projects planned by concerned LGUs LGU's participation in the implementation of the project	• Regional Offices of Central Government (DPWH, NEDA, DOTC, PPA, LTO) • LGUs (1 city, 8 municipalities and 1 province)
Second Workshop	March 2004	• Proposed road network plan • Priority of road projects and projects selected for F/S • Comments by LGUs • Announcement of social/environmental surveys requesting participation and coordination of stakeholders.	• Same as above • Private subdivision developers.
Barangay Level Consultation Meetings	June 2004	• Objectives, needs and implementation schedule of the project. • Alignment of proposed road (1/2,500 aerial photo map with proposed ROW) • Opinions of directly and indirectly affected people.	• Barangay Captain • Directly and indirectly affected people. (16 Barangays)
Perception Survey	June 2004	• Acceptability of the project • How and when did he know about the project? • Suggestions on how to make the project better for you.	• Directly and indirectly affected people.
Technical Scoping	June 2004	• Level of environmental Study (IEE, EIS) • Environmental items to be focused.	• EMB (Region) • Proponent (DPWH) • Environmental Consultant
Social Impact Survey	June 2004	• Survey on affected houses and structures. • Name of owner, type of structure, floor area, photo, etc.	• All affected structures
Socio-economic Survey	June 2004	• Household structure, occupation, family income and expenditure, ownership of land and house, work place/school, place, cost of transportation, period of stay, requirement for relocation.	• About 80% of directly affected households
Third Workshop	July 2004	• Selected alignment • Results of socio-environmental survey • Government's and DPWH's policies on compensation.	• Same as Second Workshop • Representatives from Barangays
Fourth Workshop	Sep. 2004	• Presentation of Draft Final Report • Results of socio-environmental survey • Government's and DPWH's policies on compensation	• Same as Third Workshop

Issues raised during consultation meetings were the same as those raised in Metro Iloilo and are presented in B16.

Number of Project-Affected Persons (PAPs)

		Coastal Road	7th Bridge	Borja Ext.	Div. Road
a)	No. of families affected				
	- Severely affected	48	30	201	29
	- Marginally affected	11	2	14	10
	- Total	59	32	215	39
b)	Average family size	5.15	5.44	5.11	4.87
c)	No. of Project-affected Persons				
	- Severely affected	247	163	1,027	141
	- Marginally affected	57	11	72	49
	- Total	304	174	1,099	190

ACCEPTABILITY OF THE PROJECT

		Coastal Road	7th Bridge	Borja Ext.	Div. Road
a)	No. of Respondents				
	- Directly affected	35	27	179	29
	- Indirectly affected	309	181	177	40
b)	Is in favor of the Project?				
	Directly affected				
	- Yes	80.0%	74.1%	93.9%	93.1%
	- No	17.1%	0%	5.0%	6.9%
	- No answer	2.9%	25.9%	1.1%	0%
	Indiirectly affected				
	- Yes	96.7%	97.1%	87.0%	97.5%
	- No	2.9%	7.7%	10.7%	2.5%
	- No answer	0.4%	0.6%	2.3%	0%
c)	Why no?				
	Directly affected				
	- Family, houses, properties affected	16.7%	8.3%	15.9%	66.7%
	- Reduction of farm land	0%	0%	0%	0%
	- Livelihood, source of income affected	16.7%	0%	9.1%	0%
	- No answer	66.6%	91.7%	75.0%	33.3%
	Indiirectly affected				
	- Family, houses, properties affected	16.7%	0%	45.0%	0%
	- Reduction of farm land	0%	0%	0%	0%
	- Livelihood,	33.3%	63.6%	12.5%	0%
	- No answer	50.0%	36.4%	42.5%	100.0%

MONTHLY FAMILY INCOME

	Coastal Road	7th Bridge	Borja Ext.	Div. Road
Below 10,000 Pesos	0.0%	0.0%	48.0%	3.4%
10,000~20,000 Pesos	0.0%	0.0%	6.1%	0.0%
20,000~40,000 Pesos	14.3%	14.8%	9.5%	31.0%
Above 40,000 Pesos	77.1%	59.2%	31.9%	48.4%
No answer	8.6%	25.9%	4.5%	17.2%

When did you hear about the project?

	Coastal Road	7th Bridge	Borja Ext.	Div. Road
• Today, this week, months ago	48.6%	25.9%	44.1%	62.1%
• 1 to 2 years ago	31.4%	37.0%	25.7%	20.7%
• More than 2 years ago	17.1%	14.8%	27.9%	10.3%
• No answer	2.9%	22.2%	2.2%	6.9%
No. of Answer	35	27	179	29

What are the good things you see about the project?

	Coastal Road	7th Bridge	Borja Ext.	Div. Road
• Easy and fast access	14.3%	7.4%	20.1%	34.5%
• City, barangay develope	0%	3.7%	6.1%	13.8%
• Less traffic congestion	28.6%	25.9%	31.8%	27.6%
• Chances for new busine	40.0%	25.9%	36.9%	13.8%
• Don't know	0%	3.7%	0.6%	0%
• No answer	17.1%	33.3%	4.5%	10.3%
No. of Answer	35	27	179	29

What are the bad things you see about the project?

	Coastal Road	7th Bridge	Borja Ext.	Div. Road
• Increase of traffic accidents	5.7%	7.4%	0.6%	3.4%
• Increase of air and noise pollution	37.1%	7.4%	33.5%	41.4%
• Increase of strangers	0%	0%	0.6%	0%
• Disruption of regular activities of barangay folks	2.9%	0%	5.6%	10.3%
• Increase of crime rate	0%	0%	0.6%	0%
• Loss of livelihood and relocation	17.1%	40.7%	24.0%	20.7%
• Unfinished project	0%	0%	3.9%	0%
• None	28.6%	14.8%	30.7%	20.7%
• Don't know/no answer	2.9%	29.6%	0.6%	3.4%
• Others	5.7%	0%	0%	0%
No. of Answer	35	27	179	29

What problems do you foresee for the community?

	Coastal Road	7th Bridge	Borja Ext.	Div. Road
• Loss of properties, livelihood	2.9%	37.0%	17.9%	10.3%
• Pollution, flooding, erosion	14.3%	7.4%	22.3%	13.8%
• Corruption in government	0%	0%	0.6%	0%
• Accidents, crimes	37.1%	7.4%	25.1%	27.6%
• Unemployment	0%	0%	0%	0%
• None	40.0%	18.5%	27.9%	41.4%
• Don't know, no answer	5.7%	29.6%	0.6%	6.9%
• Others	0%	0%	5.6%	0%

D19. IMPLEMENTATION SCHEDULE OF PROJECTS SELECTED FOR F/S

Implementation schedule was planned within the financial framework as follows:

Project	Detailed Design	ROW Acquisition	Construction
Western Coastal	2007	2008-2009	2010-2013
7th Bridge	2007	2008	2009-2010
J.R. Borja Extension	2009	2010-2012	2013-2017
West Diversion	2009	2010-2011	2012-2014

D20. RECOMMENDATIONS

DPWH

- The proposed Road Network Plan should be authorized by agencies concerned as well as LGUs concerned.
- Priority projects should be included in the DPWH Medium-Term Public Investment Program.
- Funding of Western Coastal Road and 7th Bridge needs to be sourced from international agency or bi-lateral aid. Negotiation with one of the agencies or countries should start immediately and concluded within 2005.
- ECC of priority projects should be secured as early as possible.
- DPWH should determine an implementing office of Regional Growth Center Projects as soon as possible.
- Memorandum of Agreement between DPWH and concerned LGUs should be exchanged concerning the securing of the proposed road ROW.
- For smooth implementation of priority projects, DPWH should start coordination with LGUs concerned with regard to ROW acquisition and relocation of project-affected persons.
- Road re-classification should be discussed with LGUs. Some roads should be reclassified from Provincial Road to National Road or vis-à-vis.
- DPWH should review and update proposed Road Network Plan periodically or at least every 6 years. This Plan was prepared under the present tight financial situation. When the financial situation improves, some of projects could be implemented ahead of the proposed schedule.

Concerned LGUs

- The proposed road network should be reflected in the land use plan as soon as possible. If necessary, land use along the proposed roads should be amended.
- Development within the proposed road ROW should be strictly controlled. City / municipal ordinance to control such development should be enacted as soon as possible.
- Maintenance of local roads should be intensified. Regular amount should be allocated yearly to road maintenance.
- CDO City Government should implement the proposed traffic management plan in the city proper area and its adjoining areas.
- Resettlement site for the project-affected persons should be secured as early as possible.

IMPLEMENTATION SCHEDULE OF PROJECT SELECTED FOR F/S

Project	Activities	Cost (Million P)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Western Coastal Road	Fund Preparation	-	▪▪▪▪												
	Consultant Selection	-		▪▪▪▪											
	Detailed Design	24.1			24.1										
	ROW / Resettlement	87.3				43.6	43.7								
	Contractor Selector	-					▪▪▪▪								
	Construction	603.6						150.9	150.9	150.9	150.9				
	Const. Supervision	48.3						12.0	12.0	12.0	12.3				
	Total	**763.3**	-	-	**24.1**	**43.6**	**43.7**	**162.9**	**162.9**	**162.9**	**163.2**				
7th Bridge	Fund Preparation	-	▪▪▪▪												
	Consultant Selection	-		▪▪▪▪											
	Detailed Design	7.7			7.7										
	ROW / Resettlement	23.7				23.7									
	Contractor Selector	-				▪▪▪▪									
	Construction	193.5					96.7	96.8							
	Const. Supervision	15.5					7.7	7.8							
	Total	**240.4**	-	-	**7.7**	**23.7**	**104.4**	**104.6**							
J.R. Borja	Fund Preparation	-			▪▪▪▪										
	Consultant Selection	-				▪▪▪▪									
	Detailed Design	47.2					47.2								
	ROW / Resettlement	175.9						58.6	58.6	58.7					
	Contractor Selector	-								▪▪▪▪					
	Construction	1,179.7									235.9	235.9	235.9	235.9	236.1
	Const. Supervision	94.4									18.8	18.8	18.8	18.8	19.2
	Total	**1,497.2**	-	-	-	-	**47.2**	**58.6**	**58.6**	**58.7**	**254.7**	**254.7**	**254.7**	**254.7**	**255.3**
West Diversion Road	Fund Preparation	-			▪▪▪▪										
	Consultant Selection	-				▪▪▪▪									
	Detailed Design	9.1					9.1								
	ROW / Resettlement	49.9						24.9	25.0						
	Contractor Selector	-							▪▪▪▪						
	Construction	227.5								75.8	75.8	75.9			
	Const. Supervision	18.2								6.0	6.0	6.2			
	Total	**304.7**	-	-	-	-	**9.1**	**24.9**	**25.0**	**81.8**	**81.8**	**82.1**			
Total / Annual Investment		**2,805.6**	-	-	**31.8**	**67.3**	**204.4**	**351.0**	**246.5**	**303.4**	**499.7**	**336.8**	**254.7**	**254.7**	**255.3**

RECOMMENDATION ON PROJECT PACKAGING

Various projects were proposed in each Regional Growth Center. It is expected that most projects will be implemented with foreign financial assistance, and therefore, projects of the three Regional Growth Centers should be packaged under the name of "Regional Growth Center Road Network Development Project".

The following urgent projects of the three Metro Areas are recommended to be packaged for immediate foreign financing.
- Metro Iloilo : Top 2 priority projects
- Metro Bacolod : NS-2 and BC-3
  (SI-1 : Proposed for locally funded project)
  (BC-2 : Already proposed for JBIC)
- Metro Cagayan de Oro : EW-3 and UC-3
  (EW-2 : Proposed for deferred implementation due to financial constraint)
  (EW-1 : Proposed for locally funded project)

REGIONAL GROWTH CENTER ROAD NETWORK DEVELOPMENT PROJECT

URGENT PROJECT PACKAGE FOR IMMEDIATE FOREIGN FINANCE

Metro Iloilo	Metro Bacolod	Metro Cagayan de Oro
- C-1	- New Airport Access Road	- Western Coastal Road
- Iloilo-Sta.Barbara Road	- Bacolod Circumferential Road	- 7th Bridge

PACKAGED PROJECT COST AND COST COMPONENT

Unit: Million Pesos

		Foreign	Local	ROW / Tax	Total
Metro Iloilo	C-1	419.4	236.8	366.3	1,022.5
	Iloilo-Sta.Barbara	283.0	134.4	150.8	568.2
Metro Bacolod	New Airport Access	229.9	150.5	262.8	643.2
	Bacolod Circum.	339.9	188.6	159.1	687.6
Metro CDO	Western Coastal	360.3	219.1	183.9	763.3
	7th Bridge	94.2	90.6	55.6	240.4
	Total	**1,726.7** (44%)	**1,020.0** (26%)	**1,178.5** (30%)	**3,925.2** (100%)

RECOMMENDED PACKAGE OF IMMEDIATE FOREIGN FINANCE

Area	Project	Project Cost (Million Pesos)	Implementation 2005	2006	2007	2008	2009	2010	2011	2012	2013
Metro Iloilo	C-1	1,022.5	-----	////////	58.1	125.1	125.1	238.0	238.0	238.2	
	Iloilo-Sta. Barbara	568.2	-----	////////	17.7	36.6	36.6	238.6	238.7		
Metro Bacolod	New Airport Access	643.2	-----	////////	34.3	100.3	100.4	204.1	204.1		
	Bacolod Circumferential	687.6	-----	////////	22.1	34.9	34.9	148.9	148.9	148.9	149.0
Metro CDO	Western Coastal Road	763.3	-----	////////	24.1	43.6	43.7	163.0	163.0	163.0	162.9
	7th Bridge	240.4	-----	////////	7.7	23.7	104.5	104.5			
Total/Annual Investment (Million Pesos)		3,925.2	-	-	164.0	364.2	445.2	1097.1	992.7	550.1	311.9

Legend: ----- Fund Preparation; //////// Selection of Consultant; Detailed Design; ROW / Resettlement and Contractor Selection; Construction and Construction Supervision