

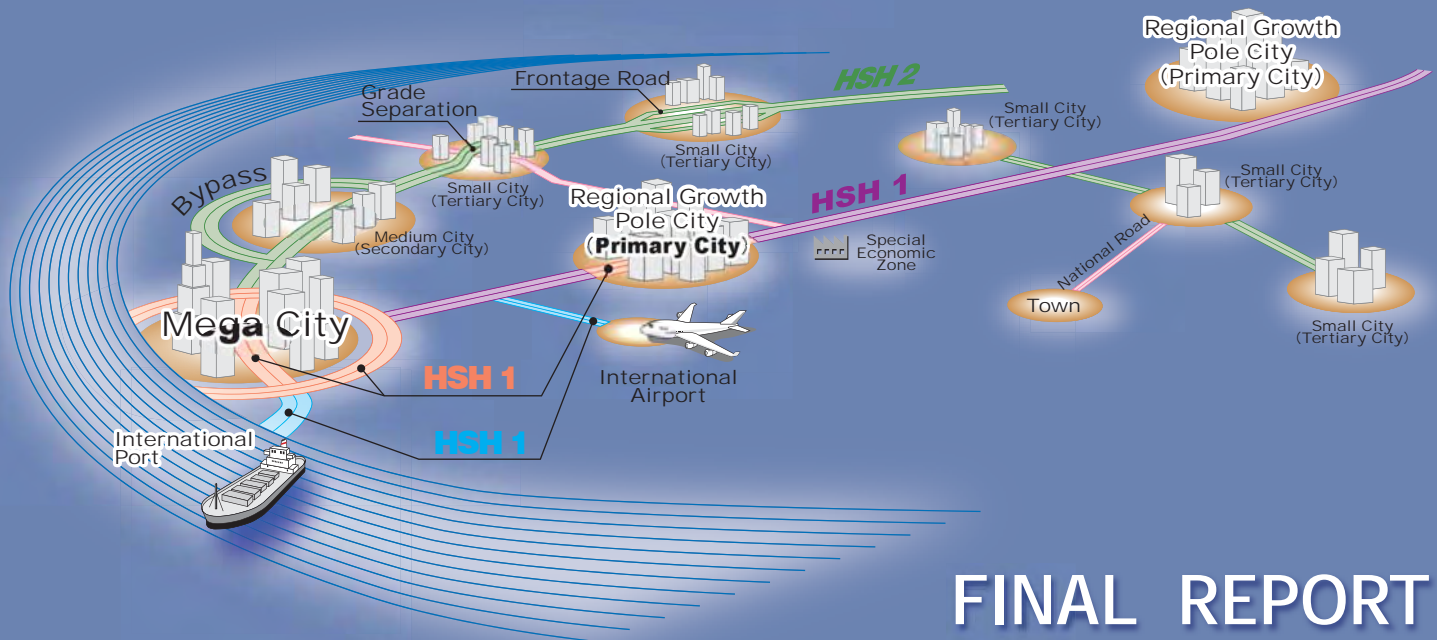


JAPAN INTERNATIONAL COOPERATION AGENCY



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

The Study of Masterplan on High Standard Highway Network Development In the Republic of the Philippines



FINAL REPORT Main Text

JULY 2010



CTI ENGINEERING INTERNATIONAL CO., LTD.

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JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS**

**THE STUDY
OF
MASTER PLAN
ON
HIGH STANDARD HIGHWAY
NETWORK DEVELOPMENT
IN
THE REPUBLIC OF THE PHILIPPINES**

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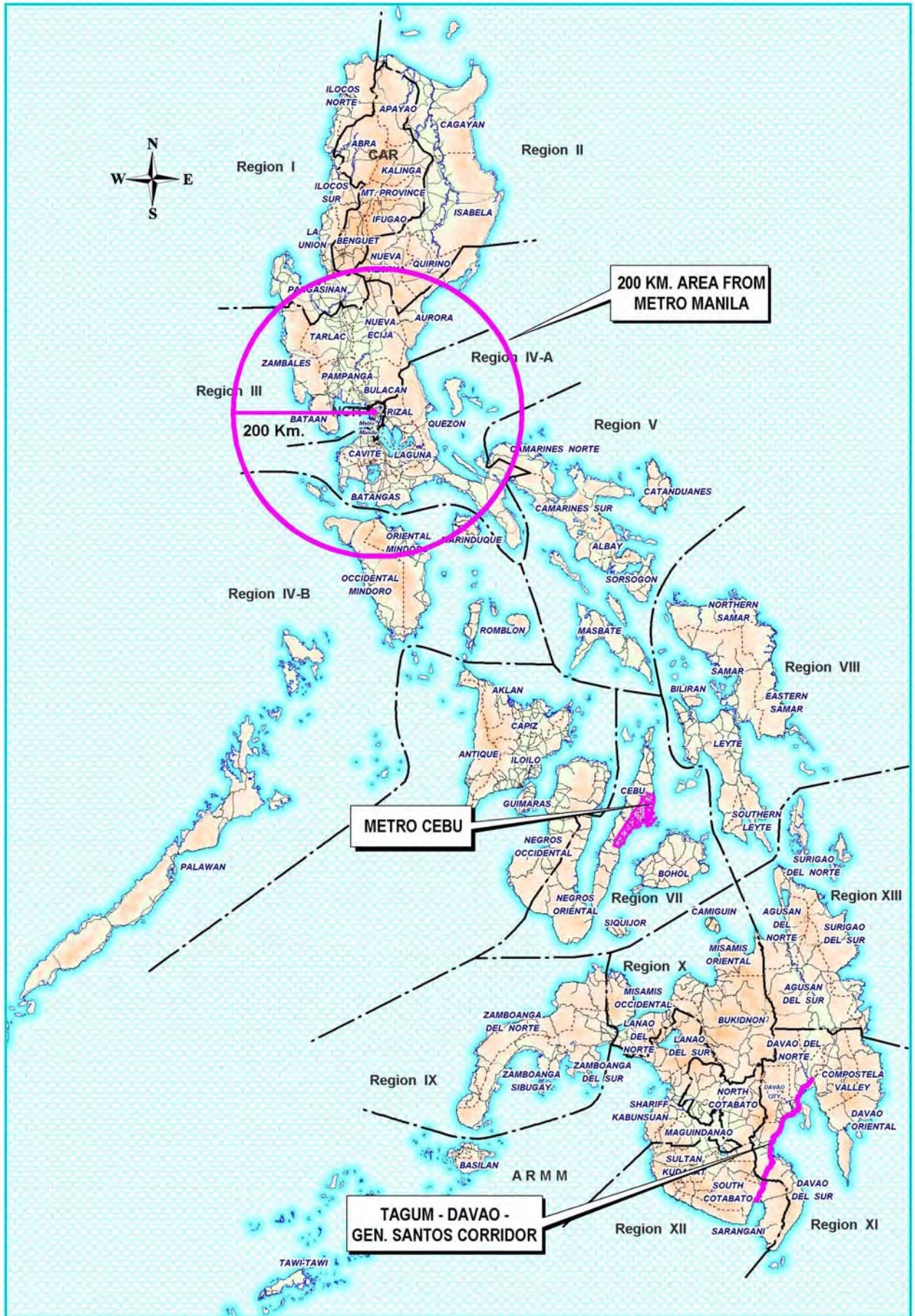
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Central Bank of the Philippines



LOCATION MAP OF THE STUDY AREA

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ACRONYMS AND ABBREVIATIONS

AADT	: Annual Average Daily Traffic	FNPV	: Financial Net Present Value
AASHTO	: American Association of State Highway and Transportation Officials	FPII	: First Philippine Infrastructure Inc.
AC	: Asphalt Concrete	FS	: Feasibility Study
ADB	: Asian Development Bank	GAA	: General Appropriation Act
ADT	: Average Daily Traffic	GDP	: Gross Domestic Product
AMWP	: Annual Maintenance Work Program	GFI	: Government Financial Institutions
B/C	: Benefit/Cost Ratio	GFS	: Government Financing Support
BAC	: Bids and Awards Committee	GIS	: Geographic Information System
BC	: Business Case	GOCCs	: Government-owned and Controlled Corporations
BCDA	: Bases Conversion Development Authority	GOJ	: Government of Japan
BDs	: Bidding Documents	GRDP	: Gross Regional Domestic Product
BIR	: Bureau of Internal Revenue	GRP	: Government of the Republic of the Philippines
BLT	: Build-Lease-and-Transfer	HCM	: Highway Capacity Manual
BMS	: Bridge Management System	HDM-4	: Highway Development and Management System - Version 4
BOD	: Bureau of Design	HSH	: High Standard Highway
BOI	: Board of Investments	IATCTP	: Inter-Agency Technical Committee on Transport Planning
BOO	: Build-Own-and-Operate	ICC	: Investment Coordination Committee
BOT	: Build-Operate-Transfer	ICD	: Institutional Capacity Development
BRT	: Bus Rapid Transit	ICT	: Information and Communication Technology
BT	: Build-and-Transfer	IDI	: International Development Institution, Japan
BTO	: Build-Transfer-Operate	IEC	: Information, Education and Communication
CAD	: Computer-Aided Design	IEE	: Initial Environmental Examination
CALA	: Cavite-Laguna	IEEC	: Initial Environmental Examination Checklist
CAO	: Contract-Add-and-Operate	IEER	: Initial environmental examination report
CDCP	: Construction Development Corporation of the Philippines	IFI	: International Financing Institution
CDIA	: Cities Development Initiative for Asia	IPP	: Investment Priorities Plan
CLEX	: Central Luzon Expressway Corporation	IPRSD	: Infrastructure Planning, Research and Statistics Division, PS, DPWH
CMMTC	: Citra Metro Manila Tollways Corporation	IROW	: Infrastructure Right-Of-Way
CNC	: Certificate of Non-Coverage	IRR	: Implementing Rules and Regulations
CO ₂	: Carbon Dioxide	ITB	: Instruction to Bidders
COFILCO	: Confederation of Filipino Consultants	JETRO	: Japan External Trade Organization
DA	: Department of Agriculture	JICA	: Japan International Cooperation Agency
DAR	: Department of Agrarian Reform	KOICA	: Korean International Cooperation Agency
DBFO	: Design-Build-Finance-Operate	LAPRAP	: Land Acquisition Plan and Resettlement Action Plan
DED	: Detailed Engineering Design	LARRIPP	: Land Acquisition, Resettlement, Rehabilitation and Indigenous Peoples Policy
DENR	: Department of Environment and Natural Resources	LBCR	: Laguna de Bay Coastal Road
DEO	: District Engineering Office	LISR	: Luzon Island Strategic Road Network Development
DO	: Department Order	LLCR	: Loan Life Cover Ratio
DOF	: Department of Finance	LLDA	: Laguna Lake Development Authority
DOT	: Department of Tourism	LOS	: Level of Service
DOTC	: Department of Transportation and Communications	LRS	: Locational Referencing System
DPD	: Development Planning Division, DPWH	LRT	: Light Rail Transit
DPWH	: Department of Public Works and Highways	MBA	: Maintenance by Administration
DSCR	: Debt Service Cover Ration	LS	: Legal Service, DPWH
DTI	: Department of Trade and Industry	MBC	: Maintenance by Contract
EB/C	: Economic Benefit-Cost Ratio	MBE	: Manila Bay Expressway
ECC	: Environmental Clearance Certificate	MCA	: Multi-Criteria Analysis
EDSA	: Epifanio de los Santos Avenue	MCTE	: Manila-Cavite Toll Expressway
EIA	: Environmental Impact Assessment	MICT	: Manila International Container Terminal
EIRR	: Economic Internal Rate of Return	MMDA	: Metro Manila Development Authority
EIS	: Environmental Impact Statement	MMS	: Metro Manila Skyway
EMB	: Environmental Management Bureau	MMUEN	: Metro Manila Urban Expressway Network
ENPV	: Economic Net Present Value	MMUES	: Metro Manila Urban Expressway System
EO	: Executive Order	MMUTIS	: Metro Manila Urban Transportation Integration Study
EOJ	: Embassy of Japan		
ESROWO	: Environmental, Social and Right-of-Way Office, DPWH		
ESSO	: Environmental and Social Services Office, DPWH		
EST	: Environmentally-Sustainable Transport		
ETC	: Electronic Toll Collection		
EU	: European Union		
FCA	: Foreign Currency Adjustments		
FIRR	: Financial Internal Rate of Return		

MNTC	: Manila North Tollways Corporation	RAP	: Resettlement Action Plan
MPIC	: Metro Pacific Investments Corporation	RBIA	: Road and Bridge Information Application
MPTC	: Metro Pacific Tollways Corporation	RDIPs	: Regional Development Investment Programs
MRT	: Mass Rail Transit	RIMSS	: Road Information Management Support System
MTPDP	: Medium-Term Philippine Development Plan	RMMS	: Routine Maintenance Management System
MTPIP	: Medium Term Public Investment Programs	RO	: Regional Office
MVUC	: Motor Vehicle User's Charge	RORO	: Roll-on/Roll-off
MYPS	: Multi-Year Programming and Scheduling	ROW	: Right-of-Way
NAIA	: Ninoy Aquino International Airport	ROWA	: Right of Way Acquisition
NCR	: National Capital Region	RRIM	: Road Roughness Index Measurements
NDC	: National Development Corporation	RSTAD	: Road Safety and Traffic Analysis Division, PS, DPWH
NEDA	: National Economic Development Authority	RTIA	: Road Traffic Information Application
NGO	: Non-Government Organization	SC	: Steering Committee
NHA	: National Housing Authority	SCTEX	: Subic-Clark-Tarlac Expressway
NLEE	: North Luzon Expressway East	SEC	: Securities and Exchange Commission
NLEX	: North Luzon Expressway	SIA	: Social Impact Assessment
NLTC	: North Luzon Tollways Corporation	SIDC	: Stradec Infrastructure Development Corporation
NPV	: Net Present Value	SLEX	: South Luzon Expressway
NRIMP-I	: National Roads Improvement and Management Program Phase I	SLTC	: South Luzon Tollways Corporation
NSO	: National Statistics Office	SRNH	: Strong Republic Nautical Highway
NTPF	: National Transport Policy Framework	STAR	: Southern Tagalog Arterial Road
NTTP	: National Transport Policy and Planning	STOA	: Supplemental Toll Operation Agreement
O&M	: Operation and Maintenance	STRADA	: System for Traffic Demand Analysis
OBA	: Output-Based-Aid	SUCs	: State Universities and Colleges
OBU	: On-Board Unit	TA	: Technical Assistance
OD	: Origin - Destination	TAZ	: Traffic Analysis Zone
ODA	: Official Development Assistance	TCA	: Toll Concession Agreement
OJT	: On-the-Job Training	TCR	: Target Cumulative Revenue
OSG	: Office of the Solicitor General	TDM	: Traffic Demand Management
PASEX	: Pasig Expressway	TIC	: Traffic Information System
PBAC	: Pre-Qualifications, Bids, and Awards Committee	TOA	: Toll Operation Agreement
PCA	: Philippine Constructors Association	TOC	: Toll Operation Certificate
PCAB	: Philippine Contractors Accreditation Board	TOR	: Terms of Reference
PCCP	: Portland Cement Concrete Pavement	TPLEX	: Tarlac-Pangasinan-La Union Expressway
PCU	: Passenger Car Unit	TRB	: Toll Regulatory Board
PCUP	: Presidential Commission for the Urban Poor	TTC	: Travel Time Cost
PD	: Presidential Decree	TWG	: Technical Working Group
PEA	: Philippine Estate Authority	UMPC	: UE Mara Philippines Corporation
PEGR	: Philippines-Australia Partnership for Economic Governance Reform	UN	: United Nations
PHIVOLCS	: Philippine Institute of Volcanology and Seismology	UNDP	: United Nations Development Programme
PIDC	: Philippine Infrastructure Development Corporation	UNESCO	: United Nations Educational, Scientific and Cultural Organization
PIP	: Public Investment Plan	URPO	: Urban Road Planning Office, DPWH
PMO	: Project Management Office	USAID	: United States Agency for International Development
PMO-BOT	: Project Management Office for Build-Operate-Transfer	V/CR	: Volume/Capacity Ratio
PMS	: Pavement Management System	VMISR	: Visayas and Mindanao Islands Strategic Road Network Development
PNCC	: Philippine National Construction Corporation	VOC	: Vehicle Operating Cost
PNR	: Philippine National Railways	VRCR	: Visual Road Condition Rating
PO	: Procurement Office, DPWH	WB	: World Bank
PPED	: Project Preparation and Evaluation Division, PS, DPWH	WTP	: Willingness-To-Pay
PPIAF	: Public-Private Infrastructure Advisory Facility		
PPIPO	: Public-Private Infrastructure Project , Office, DPWH		
PPP	: Public-Private Partnership		
PRA	: Philippine Reclamation Authority		
PRC	: Professional Regulations Commission		
PS	: Planning Service, DPWH		
PSP	: Private Sector Participation		
RA	: Republic Act		

PART I

GENERAL

CHAPTER 1

INTRODUCTION

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Traffic congestion along the national arterial roads causes various problems such as increase of travel time, failure of timely delivery of goods and people, losses of valuable time of people, aggravated roadside environment including air pollution, noise and vibration, etc.. Chronic traffic congestion on the urban roads in major cities and road sections along urbanized areas of the inter-city road is one of the most serious problems of road traffic in the Philippines. Inefficient transport conditions are adversely affecting sound socio-economic development of the regions and the country as a whole, losing global competitiveness and foreign and domestic investment.

To cope with the above problems, the Department of Public Works and Highways (hereinafter referred to as “DPWH”) has drawn up various measures such as development of expressway network, construction of bypasses and ring roads at regional cities, widening of existing roads, etc.. These plans, however, were not necessarily implemented well due to lack of overall master plan with project prioritization, lack of proper implementation schemes involving private sector’s participation, lack of both public and private funds, and lack of appropriate operation and maintenance system.

In view of the above, the Government of the Republic of the Philippines (hereinafter referred to as “GRP”) requested the Government of Japan (hereinafter referred to as “GOJ”) for the conduct of the Master Plan on High Standard Highway Network Development in the Republic of the Philippines (hereinafter referred to as “the Study”). In response to the request of GRP, GOJ has decided to conduct “the Study”, and exchanged Notes Verbales with GRP concerning the implementation of the Study.

Japan International Cooperation Agency (hereinafter referred to as “JICA”), the official agency responsible for the implementation of the technical program of GOJ, will undertake the Study in accordance with the relevant laws and regulations enforced in Japan.

On the part of GRP, DPWH acts as the counterpart agency to the Japanese Study Team (hereinafter referred to as “the Study Team”) and also as the coordinating body in relation to other governmental and non-governmental organizations in the Philippines for the smooth implementation of the Study.

1.2 OBJECTIVE OF THE STUDY

The objectives of the Study are as follows;

(1) **Formulation of Development Strategy for the High Standard Highway Network**

Development strategy is formulated defining the concept of the high standard highways required for the study areas through the following studies;

- Review of current overall conditions and problems of the area within 200km radius from Metro Manila, Metro Cebu area and the Tagum–Davao-Gen. Santos corridor,
- Formulation of socio-economic framework for the target years of 2020 and 2030,
- Present and future land use (urban development) plans, and
- Traffic demand forecast.

(2) Formulation of the High Standard Highway Master Plan

The master plan on the high standard highway network within the area of 200km radius from Metro Manila is formulated identifying road network and routes for the high standard highways to meet future traffic demand.

1.3 STUDY AREA

The Study covers the following areas;

(1) Formulation of Development Strategy for the High Standard Highway Network

- Area within the sphere of 200km radius from Metro Manila, Metro Cebu and the Tagum – Davao - Gen. Santos corridor.

(2) Formulation of Master Plan

- Area within the sphere of 200km radius from Metro Manila.

1.4 SCOPE OF THE STUDY

In order to achieve the above objectives, the Study covered the followings:

- (1) Presentation and Discussion of Inception Report
- (2) Review and Analysis of Current Status and Conditions, and Identification of Issues
- (3) Confirmation of Environmental and Social Conditions
- (4) Current Traffic Condition Survey
- (5) Preparation of Present OD Tables
- (6) Formulation of Socio-Economic Framework
- (7) Traffic Demand Forecast
- (8) Identification of Issues of Road Traffic
- (9) Concept and Principal Policy for Development of High Standard Highway
- (10) Formulation of Development Strategy for High Standard Highway Network
- (11) Preparation and Discussion of Interim Report
- (12) Study on Future Road Network
 - Traffic Volume Assignment
 - Analysis of Results of Traffic Assignment
 - Study on Future Road Network
- (13) Basic Plan for Road Development and Identification of High Standard Highway Network
 - Selection of Roads Required for High Standard
 - Re-assignment of Traffic Volume
 - Basic Plan for Road Development Including High Standard Highway
 - Identification of Major Projects for High Standard Highway Development
- (14) Preparation and Discussion of Progress Report
- (15) Preliminary Design of Selected High Standard Highways
- (16) Project Cost Estimate and Project Implementation Schedule
- (17) Economic Analysis
- (18) Initial Environmental Examination
- (19) Study on Project Implementation Scheme and Financial Analysis
- (20) Selection of Priority Projects
- (21) Strengthening of Institutional / Organizational Capacity of DPWH
 - Strengthening of Management Capability

- Recommendation of Design Standard and Guidelines for High Standard Highway
- (22) Preparation and Discussion of Draft Final Report
 - (23) Preparation and Submission of Final Report

1.5 SCHEDULE OF THE STUDY

The Study commenced in April 2009 and completed in the middle of June 2010 as shown in **Table 1.5-1**.

TABLE 1.5-1 STUDY SCHEDULE

Work Item	2009						2010								
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
I. Preparation and Discussion of IC/R															
II. Formulation of Development Strategy for High Standard Highway															
• Review of Current Condition and Identification of Issues															
• Confirmation of Environmental and Social Consideration Conditions															
• Current Traffic Condition Survey															
• Preparation of Present OD Table															
• Formulation of Socio-Economic Framework															
• Traffic Demand Forecast															
• Identification of Issues of Road Traffic															
• Principal Policy for the Concept and Development of High Standard Highway															
• Formulation of High Standard Highway Development Strategy															
• Preparation and Discussion of IT/R															
III. Formulation of Master Plan for High Standard Highway Network															
• Study on Future Road Network															
• Basic Plan for Road Network Development and Identification of Development Projects for High Standard Highway															
• Preparation and Discussion of PR/R															
• Preliminary Design for Selected Roads															
• Project Cost Estimate and Formulation of Project Implementation Schedule															
• Economic Analysis															
• IEE Survey															
• Study on Project Implementation Scheme and Financial Analysis															
• Selection of Priority Projects															
IV. Strengthening of Institutional / Organizational Capacity of DPWH															
• Strengthening of Management Capability															
• Recommendation on Design Standards for High Standard Highway															
V. Preparation and Discussion of DF/R															
VI Submission of Final Report															

Legend: ■ Study in the Philippines
 □ Study in Japan
 △ Presentation of Report

1.6 ORGANIZATION TO CARRY OUT THE STUDY

The organization for executing the Study is shown in **Figure 1.6-1**.

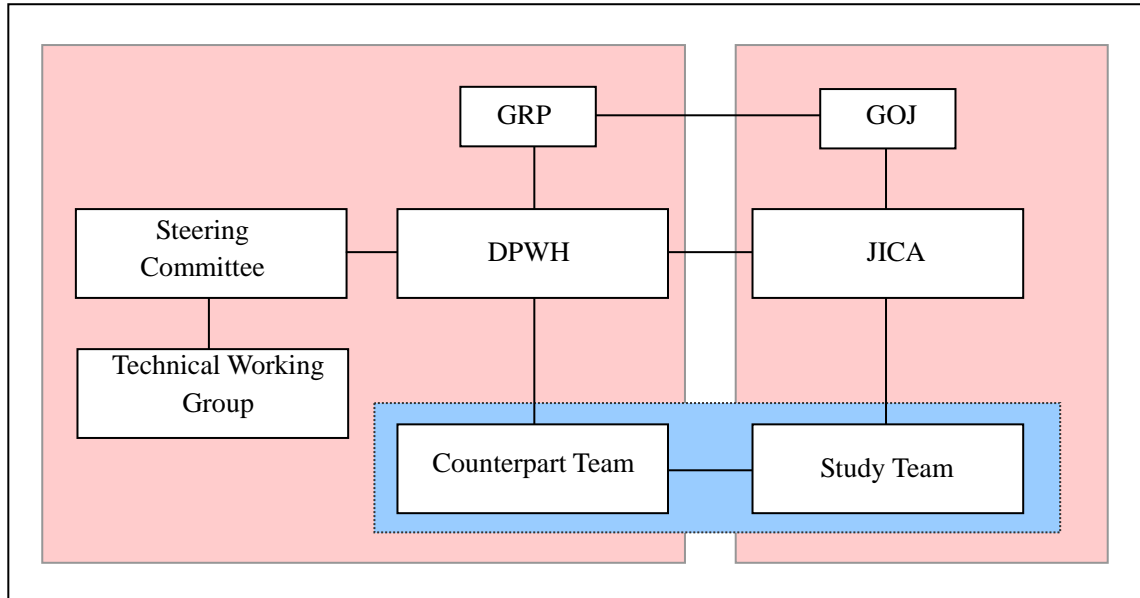


FIGURE 1.6-1 ORGANIZATIONAL CHART TO CARRY OUT THE STUDY

The Study was carried out by the Study Team organized by JICA in close collaboration with DPWH and other organizations concerned.

The Steering Committee (SC) was organized by DPWH to ensure the smooth conduct of the Study and to review and oversee the progress of the Study. The Steering Committee was composed of the following departments and organizations:

Chairperson:

- 1) Asec. Maria Catalina E. Cabral, PhD Assistant Secretary, Planning Service, DPWH

Vice- Chairperson:

- 2) Dir. Faustino N. Sta. Maria, Jr. Project Director, PMO-FS, DPWH

Members:

Dir. Melvin B. Navarro, MNSA	Planning Service, DPWH
Dir. Criste Navida, Ph.D.	Project Manager IV, ESSO, DPWH
Dir. Bienvenida Fimalino	Director, PMO-BOT, DPWH
Dir. Patrick Gatan	Project Director, IROW, DPWH
Dir. Edilberto D. Tayao	Director, NCR, DPWH
Dir. Alfredo Tolentino	Director, Region III, DPWH
Dir. Bonifacio Seguit	Director, Region IV-A, DPWH
Dir. Manuel Imperial	Director, TRB
Dir. Ildelfonso Patdu, Jr.	Director, DOTC
Dir. Ruben S. Reinoso	Director for Infrastructure Staff, NEDA
Dir. Rolando Canizal	Director for Planning, DOT
Mr. Kenji Hasegawa	JICA Road and Management Advisor

The Technical Working Group (TWG) was comprised of the following departments and organizations which were established to assist the Steering Committee. TWG monitored and made advices on the progress of the Study.

Chairperson:

1) Engr. Rebecca T. Garsuta Planning Service, DPWH

Vice-Chairperson:

2) Mr. Ricardo Bamero PMO-FS, DPWH

Members:

Engr. Carolina Canuel	Planning Service, DPWH
Engr. Rey Alano	PMO-BOT, DPWH
Engr. Ignacia Ramos	ESSO, DPWH
Engr. Emma Dabatian	Planning & Design Division, NCR, DPWH
Engr. Ethel Manalo	Planning & Design Division, Region III, DPWH
Engr. Josephine Baquiran	Planning & Design Division, Region IV-A, DPWH
Engr. Sonny Macasil	PMO-IROW, DPWH
Engr. Josue Mirabite	NEDA
Dr. Erwin Balane	DOT
Engr. Renato David	DOTC
Engr. Manuel Imperial	TRB

The Counterpart Team was organized by DPWH to collaborate with the Study Team in carrying out the Study. The members of the Counterpart Team were selected from DPWH.

Team Members:

1) Engr. Marieta T. Velasco	PMO-Feasibility Study
2) Engr. Justino Jaime T. Surot, Jr.	DPD, Planning Service
3) Engr. Anastacio M. Limbaring, Jr.	DPD, Planning Service
4) Engr. Elmer Espina	PMO-Built-Operate Transfer (BOT)

The Study Team was composed of the following:

Mr. Mitsuo KIUCHI	Team Leader/ Road Policy (1)
Mr. Teodoro T. ENCARNACION	Road Policy (2)
Dr. Shingo GOSE	Deputy Team Leader/Road Development Plan
Mr. Ryuichi UENO	Traffic Demand Forecast/Assignment Plan
Dr. Hussein S. LIDASAN	Urban Transport/Regional Plan
Ms. Kathryn P. YAMBAO	Financial Analysis
Mr. Tsuneo BEKKI	Toll Road Plan
Dr. Jun T. CASTRO	Traffic Survey and Analysis (1)
Dr. Nashreen G. SINARIMBO	Traffic Survey and Analysis (2)
Mr. Akio OKAZAKI	Highway Design
Ms. Annabelle N. HERRERA	Environmental and Social Considerations (1)
Ms. Miho NAKANO	Environmental and Social Considerations (2)
Mr. Kimio KANEKO	Economic Analysis
Ms. Madoka AIZAWA	Project Coordination

1.7 FINAL REPORT ORGANIZATION

1.7.1 Reports Prepared

The following reports were prepared in the course of the Study and submitted to DPWH.

- Inception Report
- Interim Report
- Progress Report
- Draft Final Report

1.7.2 Organization of the Final Report

The Final Report is organized as follows;

- EXECUTIVE SUMMARY
- MAIN TEXT
- ANNEX
- PROJECT PROFILE
- TRAFFIC DATA (CD-ROM)

1.8 MEETINGS AND COUNTERPART TRAININGS

The following meetings and counterpart trainings were held in the course of the Study:

KICK-OFF MEETING : April 14, 2009

Inter-Agency Steering Committee (ISC) Meeting

- First ISC meeting - April 28, 2009
- Second ISC meeting - September 29, 2009
- Third ISC meeting - January 27, 2010
- Fourth ISC meeting - May 18, 2010

Technical Working Group (TWG) Meeting

- First TWG meeting - May 5, 2009
- Second TWG meeting - June 19, 2009
- Third TWG meeting - August 26, 2009
- Fourth TWG meeting - September 23, 2009
- Fifth TWG meeting - January 25, 2010
- Sixth TWG meeting - March 19, 2010
- Seventh TWG meeting - May 6, 2010
- Eight TWG meeting - May 14, 2010

Stakeholders (SH) Meeting

- First SH at Manila - January 22, 2010
- Second SH at Manila - April 28, 2010
- First SH at Cebu - April 6, 2010
- First SH at Davao - April 13, 2010



Consultation Meeting

- Metro Cebu - May 8, 2009
- Metro Davao - June 1, 2009
- Metro Gen. Santos - June 2, 2009

Counterpart Training in Japan

- Five (5) counterparts were set to Japan for training
- Period: November 25 – December 15, 2009 (15 days)



Intensive Training on JICA STRADA

- Eighteen (18) counterparts and DPWH staff attended the training
- Period: April 19 – April 23, 2010
- Subjects:
 - Outline of Traffic Demand Forecast
 - Network Database Development
 - OD Matrix Forecasting
 - Traffic Assignment
 - Future Road Network Development and Evaluation
 - Presentation of Exercise Result by Participants



CHAPTER 2

DEFINITIONS OF HSHs AND IDENTIFICATION CRITERIA OF HSH CORRIDORS

CHAPTER 2

DEFINITIONS OF HSHs AND IDENTIFICATION CRITERIA OF HSH CORRIDORS

2.1 DEFINITIONS OF HSH

2.1.1 Necessity of HSHs

(1) Government Policy

The ten (10)-point agenda declared by the administration below is the basis for formulating the Medium-Term Public Investment Plan (2005-2010) shown in **Table 2.1.1-1**.

TEN-POINT AGENDA	
(1)	Job Creation.
(2)	New construction of schools and foundation of scholarships.
(3)	Balanced Budget.
(4)	Promotion of decentralization through infrastructure development, etc.
(5)	Electrification and maintaining water supply in all barangays.
(6)	Establishment of regional pole cities in order to decongest traffic in Metro Manila.
(7)	Development of Clark and Subic as a highest level of international logistics base in Asian Region.
(8)	Computerization of election system.
(9)	Achievement of peace accord with opposition forces.
(10)	Ending of internal disunity.

TABLE 2.1.1-1 MEDIUM TERM PUBLIC INVESTMENT PLAN (2005 - 2010)

Policy for Development						
(a)	Promotion of national integrity through facilitating the Nautical Highways linking roads and ferries.					
(b)	Decongestion of traffic in Metro Manila.					
(c)	Active support for development of Clark and Subic being international logistics bases.					
(d)	Improvement of accessibility to main tourist spots.					
(e)	Road development for peace recovery in conflict regions such as Mindanao.					
(f)	Maintaining road assets.					
Road Investment Plan (unit: Billion Pesos)						
	2005	2006	2007	2008	2009	2010
Foreign Aid Projects	171.0	243.1	173.3	178.9	327.6	324.1
Local Fund Projects	94.0	111.9	200.0	397.1	393.5	404.1
Total	265.0	355.0	373.3	576.0	721.0	728.2
Growth Rate to Previous Year	--	1.34	1.05	1.54	1.25	1.01

Source: Medium-Term PIP (2005 - 2010), revised version in 2008

High Standard Highway (HSH) network development is needed to achieve above policies of (a), (b), (c) and (d),

(2) Super Region Development Plan

The Government has emphasized thrusting infrastructure development by dividing the Philippines into four (4) super regions, below:

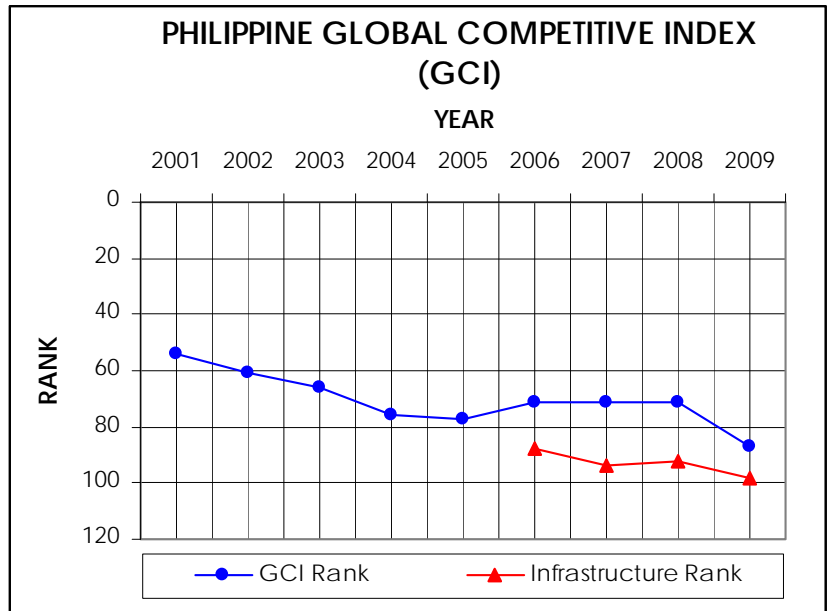
- | | | |
|------------------------|---|--|
| ➤ Northern Philippines | : | North Luzon Agribusiness Region Quadrangle |
| ➤ Central Luzon | : | Luzon Urban Beltway |
| ➤ Central Philippines | : | Central Region in Tourism |
| ➤ Mindanao | : | Agribusiness Region |

With the expanded economy and social activities, infrastructure are needed to be planned in consideration of wider context of economic and social sphere.

(3) Need to Improve Philippine Global Competitiveness

According to “The Global Competitiveness Report, 2009 – 2010” published by the World Economic Forum (WEF), the Philippines was ranked 87th among 133 countries in terms of global competitiveness, lower than such Asian countries as Singapore (3rd), Malaysia (24th), Thailand (36th), Indonesia (54th) and Vietnam (75th).

The trend of Philippine Global competitiveness ranking is seen to be deteriorating from Year 2001 to 2009, as seen in **Figure 2.1.1-1**, with higher ranks indicating lesser competitiveness. Similarly, as seen in the same figure, the Infrastructure competitiveness ranks (in terms of quality and efficiency of the roads, railroads, ports, airports, electricity and communications) is at a decreasing trend from Year 2006 to 2009.



Source : "The Global Competitiveness Report", World Economic Forum (Data based on 2001 to 2009 reports)

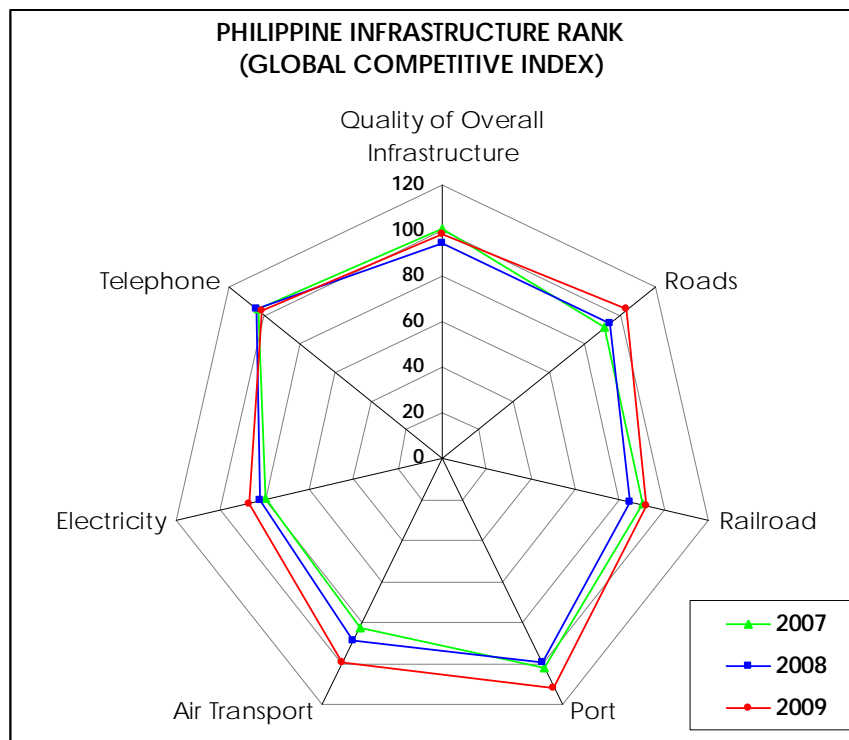
FIGURE 2.1.1-1 TREND OF PHILIPPINE GLOBAL COMPETITIVENESS INDEX

The following five (5) factors are pointed out for the causes of deteriorating international competitiveness of the Philippines*:

- ◆ Efficiency in the labor market (113th)
- ◆ Quality of public and private institutions (113th)
- ◆ **Infrastructure development (98th), especially in transport and telecommunications sectors**
- ◆ Goods market efficiency (95th)
- ◆ Health and elementary education (93rd)

*Based on "Global Competitiveness Report, 2009-2010" World Economic Forum

The quality, efficiency and extensiveness of the modes of transport for people, goods and services – including good quality of roads, railroads, ports and air transports, is an essential factor for competitiveness. Well-developed transport and communications reduces the distance between regions and economic centers, thus integrating the national market and connecting it at lower costs to markets of other regions and population centers. However, as seen in **Figure 2.1.1-2**, the degree of overall infrastructure quality and development in the Philippines has led the country to a less competitive advantage than the other 97 countries reported by the World Economic Forum.



Source: "The Global Competitiveness Report, 2009-2010", World Economic Forum, 2009.

Note: The values refer to the rank of infrastructure development out of 133 countries based on the quality, extensiveness and efficiency of infrastructure network development. Higher ranks are less competitive.

FIGURE 2.1.1-2 RANK OF PHILIPPINE INFRASTRUCTURE AMONG 133 COUNTRIES

As indicated in **Figure 2.1.1-2**, there is a decreasing competitiveness of the Philippine transport infrastructure sector (road, railroad, port and air transport) for the past three years (2007-2009) compared to other countries which can become one of the factors that could hinder attaining sustainable economic growth and long-term prosperity. Low quality and less efficient transport network directly affects productivity, which is the key determinant of the return of investment, and thus significantly influences the economic growth potential of the country.

To address the above issues, including traffic congestion for the transport sector require a package of strategic countermeasures – dealing with both the transport demand and transport supply sides, and involving both non-infrastructure and infrastructure interventions. These would call for more effective traffic management and enforcement to maximize the use of existing road and transport capacities, better land use controls to moderate the need for transport, and use of high-occupancy public transport systems to increase the passenger and goods throughput. These would also require a significant increase in road capacity, especially in and around the major urban areas. In the heavily-traveled corridors linking the major centers, there is a need to consider “**High Standard Highways (HSHs)**” having the function of providing high speed service and punctual travel time for longer trips and large traffic volumes – mobility is emphasized and access is limited.

2.1.2 Definition of HSH

After a series of discussion with TWG and the Steering Committee members, “High Standard Highway (HSH)” was defined as follows;

DEFINITION OF HSH

“Highways which provide high level of traffic services by assuring high speed mobility and safe travel in order to vitally support socio-economic activities for sound socio-economic development of strategic regions and the country as a whole.”

High standard highways were classified into two (2) categories, namely HSH-1 and HSH-2.

HSH – 1 : Arterial High Standard Highway

HSH – 2 : Regional High Standard Highway

Definition, development objectives and function of HSH-1 and 2 are summarized in **Table 2.1.2-1**.

TABLE 2.1.2-1 DEFINITION, DEVELOPMENT OBJECTIVES AND FUNCTION OF HSH 1 & 2

HSH TYPE		DEFINITION	DEVELOPMENT OBJECTIVE	FUNCTION
HSH-1 (Arterial High Standard Highway)	Type-1 (Inter-Urban)	<ul style="list-style-type: none"> An expressway which traverses two or more Regions and forms the primary transport backbone network 	<ul style="list-style-type: none"> To achieve universal and balanced development of the country and to intensify the unity of the country To vitally support socio-economic development of the country 	<ul style="list-style-type: none"> To connect major urban centers, strategic development areas, major transport facilities each other with highly efficient and reliable means of transportation
	Type-2 (Intra-Urban)	<ul style="list-style-type: none"> An expressway which traverses within a major urban center and its surrounding areas and forms the urban transport backbone 	<ul style="list-style-type: none"> To reduce traffic congestion in and around major urban center To vitally support urban socio-economic activities and contribute to socio-economic development To improve international competitiveness of industry 	<ul style="list-style-type: none"> To connect traffic generating sources, economic development centers and major transport facilities each other with highly efficient and reliable means of transportation
HSH-2 (Regional High Standard Highway)		<ul style="list-style-type: none"> An arterial road of which functions are similar to HSH-1 and high quality of traffic service can be achieved by improvement of an existing road or a new road of which facility standard can be similar to existing one This type will be converted to HSH-1, when enough traffic is expected. 	<ul style="list-style-type: none"> To improve transport efficiency by removing traffic bottleneck of a transport corridor To contribute to socio-economic development of regions 	<ul style="list-style-type: none"> To connect HSH-1 each other To function as supplementary to HSH-1

Basic concept of HSH-1 and HSH-2 can be defined as follows;

BASIC CONCEPT OF HSH-1 AND HSH-2

Features	HSH-1	HSH-2
Access Control	<ul style="list-style-type: none"> • Full access control 	<ul style="list-style-type: none"> • Partial access control or no access control
Usage of Highway	<ul style="list-style-type: none"> • Exclusive for vehicles except slow moving vehicles such as jeepneys and tricycles 	<ul style="list-style-type: none"> • All kinds of vehicles with special consideration for slow moving vehicles • Pedestrians
Toll or Non-Toll Road	<ul style="list-style-type: none"> • Basically toll road 	<ul style="list-style-type: none"> • Non-toll road
Level of Service (LOS) Target	<ul style="list-style-type: none"> • LOS B (Inter-Urban) • LOS C (Intra-Urban) 	<ul style="list-style-type: none"> • LOS C (Inter-Urban) • LOS D (Intra-Urban)
Design Speed (km/hr)	<ul style="list-style-type: none"> • 100 ~ 120 (Inter-Urban) • 60 ~ 80 (Intra-Urban) 	<ul style="list-style-type: none"> • 80 ~ 100 (Inter-Urban) • 60 (Intra-Urban)
Intersecting Road	<ul style="list-style-type: none"> • Interchange for major rd. • Over bridge or underpass for minor road 	<ul style="list-style-type: none"> • Grade separation for major rd. • At-grade intersection for minor road
HSH Facility	<ul style="list-style-type: none"> • Full access-controlled expressway 	<ul style="list-style-type: none"> • Arterial road with Bypass(es) • Arterial road with frontage rd. • Arterial road with grade separations at intersections • Multi-lane Arterial road

2.1.3 Design Standards of HSH

The design standards shown in **Table 2.1.3-1** provide the minimum standards for the construction, improvement and maintenance for HSHs. Every possible effort shall be made to conform to these provisions both in constructing new highways and in upgrading and modernizing the existing ones. The table shows the main design elements for HSHs proposed in the Study, which directly affect project costs, with those for HSHs of Asian Highway, in U.S.A. and in Japan for reference.

Taking account of project cost saving and mitigating negative social impacts, the main design elements should be made different between in rural area and in urban area. Land prices in urban area will be so high and people who are to be affected by projects will be so many that flexibility in the design should be given by providing as low design speed as possible and road widths narrower than those in rural area.

In the design of HSH2 in urban area, focus to both through traffic and local traffic including pedestrians should be drawn with providing grade separations and frontage/service roads in terms of traffic mobility and safety in addition to the road width shown in the table.

Design Speed

Design speeds of 120km/h (for inter-urban), 80km/h and 60km/h (for intra-urban) are recommended for HSH1, while those of 100km/h (for inter-urban) 80km/h and 60km/h (for intra-urban) are recommended for HSH2.

Number of Lanes

Though the desirable number of lanes for HSH2 is to be 4-lane or more, 2-lane HSH2 is proposed as minimum one considering the situations of the arterial roads in the country.

TABLE 2.1.3-1 PROPOSED BASIC DESIGN ELEMENTS FOR HSHs (FLAT TERRAIN)

	Philippines (proposed)		U.S.A		Japan		Asian Highway	
	HSH 1		HSH 2		NEXCO		AH26 (Inter-Urban Highway)	
	Inter-Urban	Intra-Urban	Inter-Urban	Intra-Urban	Inter-Urban	Intra-Urban	Primary (Expressway)	Class I ^(*)
Design Speed (km/h)	100-120	60/80	100	60/80	120	60/80	120	100
No. of Lanes	4 or more		2 or more		4 or 6		4 or more	
Lane Width (m)	3.65	3.50	3.50	3.25	3.50	3.25	3.50	
Shoulder Width (m)	3.0	2.50	3.0	2.50	2.50	1.25	3.0	3.0
	1.25	0.75	1.25	0.75	1.25	0.75	-	-
Median Strip Width (m)	4.0	3.0	3.0	1.75	11.0	1.75	4.0	3.0
Bridge	HS20-44		HS20-44		HS20-44		HS20-44	
	5.30 ^(*)5)	5.30 ^(*)5)	5.00 ^(*)5)	4.27 ^(*)2)	4.88	4.27	4.50 ^(*)4)	4.50
Vertical Clearance (m)	5.30 ^(*)5)		4.27 ^(*)2)		4.50 ^(*)4)		4.50	
Note	<p>*1) Class I may be corresponding to the Arterial Road in the Philippines. *2) Through urban areas at least one route of the intra-urban HSH2 should have 5.0m clearances to secure continuity between the inter-urban HSH2 and the intra-urban HSH2. *3) Almost corresponding to (HS20-44)X1.25. *4) In case that allowance for extralayers of pavement is considered, the vertical clearance is to be 4.70m. A vertical clearance of 4.5m is the requirement for safe passage of standards ISO containers. *5) JICA Study Team recommends a vertical clearance of 4.88 m.</p>							

Lane Width

Lane widths of 3.50m for the inter-urban HSH1 and 3.25m for the intra-urban HSH2 are to be minimal, while lane widths of 3.65m for the inter-urban HSH1 and 3.50m for the inter-urban HSH2 mean the desirable lane widths.

Shoulder Width

The width of outer shoulder is to be wide enough to enable emergency cars to pass through and to reduce traffic congestion caused by car accidents and disabled cars.

Median Strip Width

The width of median strip is to be as wider as possible. The function of median strip along normal road way section is to avoid head-on accidents and to beautify road ways by planting. Where the space for median strip is limited as in urban area, dense hedges of shrubs are recommended in order to filter the headlights of oncoming traffic and to provide a resilient barrier. Median strip of HSH2 provides spaces to accommodate exclusive lanes for left-turn traffic at intersections and u-turn lanes by reducing those widths.

Structure Loading

Increasingly heavy traffic, particularly container traffic, requires properly designed load capacity (maximum axle load). In order to prevent serious damage to road structures and to reduce maintenance costs, the HSHs network should have a high design load capacity. The minimum design loading of HS20-44 corresponding to full-size trailer loading should be used for the design of structures.

Vertical Clearance

Minimum vertical clearances under overhead structures of 5.3m for HSH1 and 5.0m for the inter-urban HSH2 are proposed with allowance for extra layers of pavement, which follows the NLEx and DPWH requirements, respectively. Through urban areas at least one route of the intra-urban HSH2 should have 5.0m clearances to secure continuity between the inter-urban HSH2 and the intra-urban HSH2. Regarding vertical clearances of U.S.A., extra layers of pavement are already considered, while those are not considered in Japan. A vertical clearance of 4.5m is the requirement for safe passage of standards ISO containers.

2.1.4 Typical Cross-Sections of HSH

Considering the design elements and parameters just discussed, **Figures 2.1.4-1** and **2.1.4-2** illustrates the suggested Typical Cross-Sections of HSH 1 and HSH 2, respectively.

Stage Construction Method of HSH

Stage Construction Methodology considers circumstances when construction and development of the entire cross-section of a proposed High Standard Highway is not yet feasible during the desired schedule of project implementation/construction. **Figure 2.1.4-3** show two methods to consider. In both methodologies, the installation of Centerline-Median-Separators, as shown in **Figure 2.1.4-4**, is emphasized to define the separation between the directions of traffic flow during the utilization of the road at First (1st) Stage implementation.

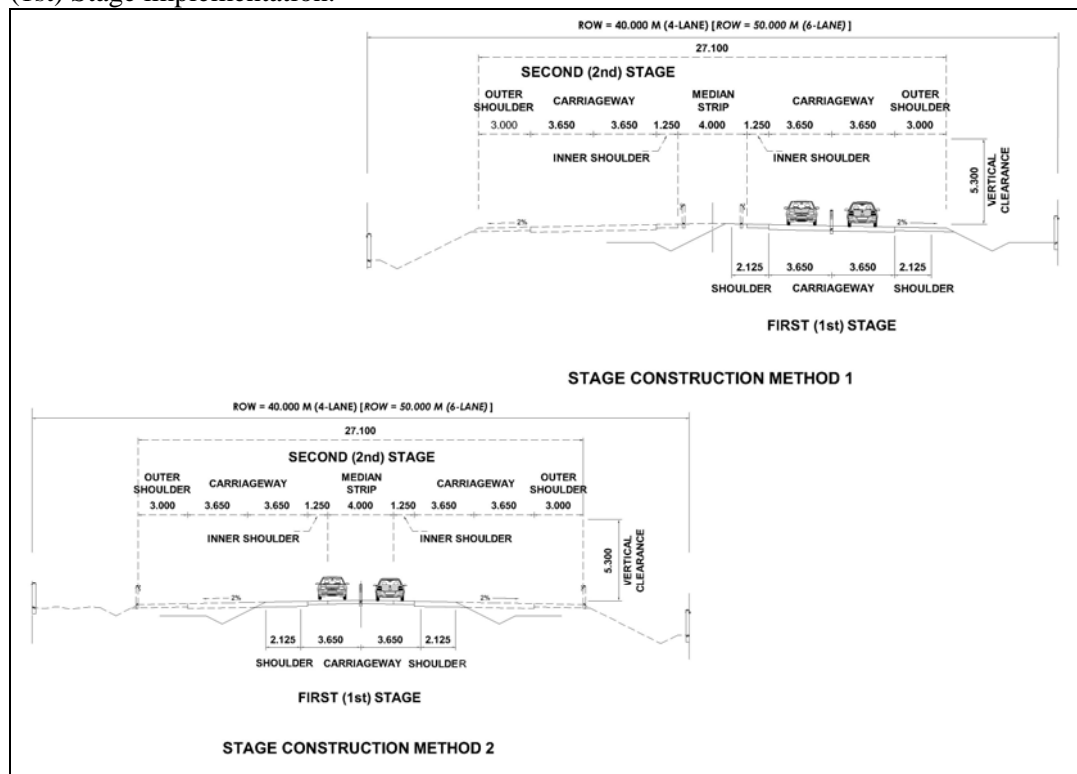
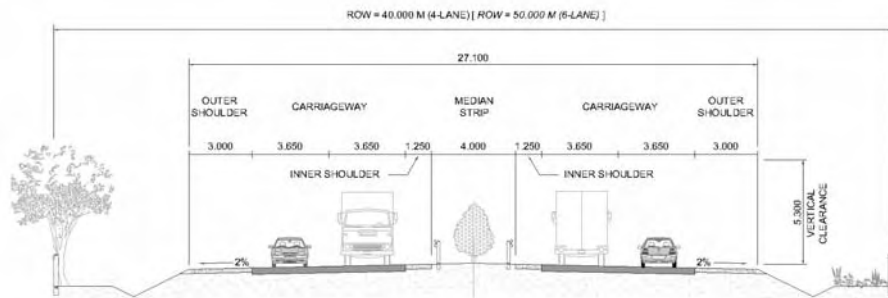


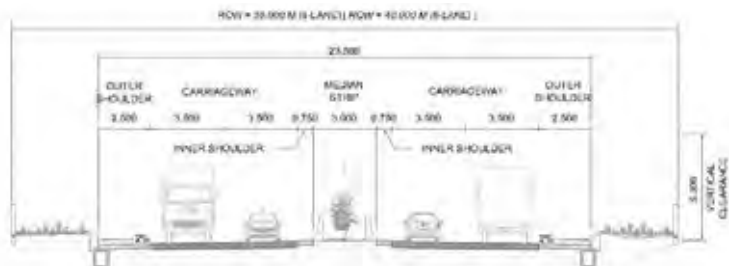
FIGURE 2.1.4-3 STAGE CONSTRUCTION METHODOLOGY

FIGURE 2.1.4-4 EXAMPLE OF STAGE CONSTRUCTION (2-LANE EXPRESSWAY) W/ CENTERLINE-MEDIAN-SEPARATORS

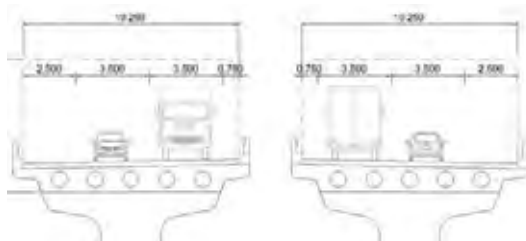




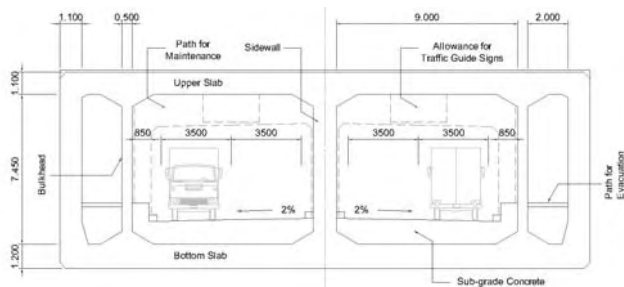
4-LANE INTER URBAN ROAD SECTION



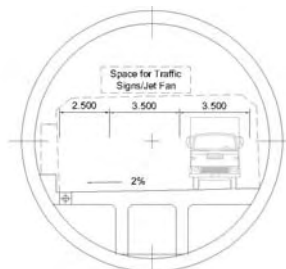
4-LANE INTRA URBAN ROAD SECTION



4-LANE INTRA URBAN BRIDGE SECTION



4-LANE INTRA URBAN IMMERSSED TUNNEL



2-LANE INTRA URBAN SHIED TUNNEL

FIGURE 2.1.4-1 TYPICAL CROSS SECTION OF HSH-1

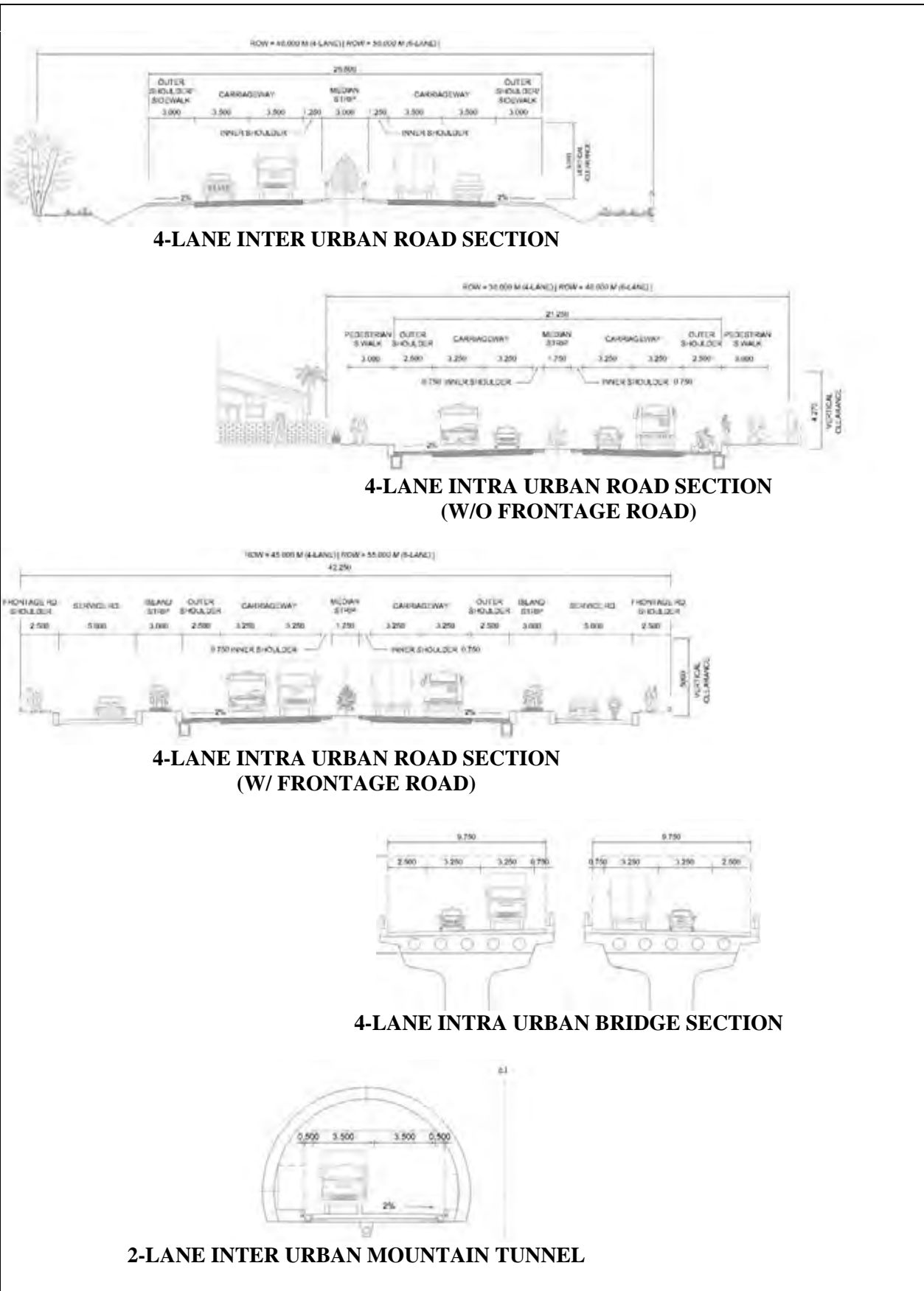


FIGURE 2.1.4-2 TYPICAL CROSS SECTION OF HSH-2

2.2 HSH CORRIDOR IDENTIFICATION CRITERIA

2.2.1 HSH Corridors Identification Procedure

HSH selection procedure is shown in **Figure 2.2.1-1**. Factors to be considered in selecting HSH are as follows;

FACTORS TO BE CONSIDERED IN SELECTING HSH

- Distribution of Urban Centers and Urban Centers to be connected by HSH
- Country's Regional/Urban Development Strategy
- Distribution of Strategically Important Areas for Economic Development
- Existing Road Network and Its Function
- Specifically Designated Road
- Traffic Conditions

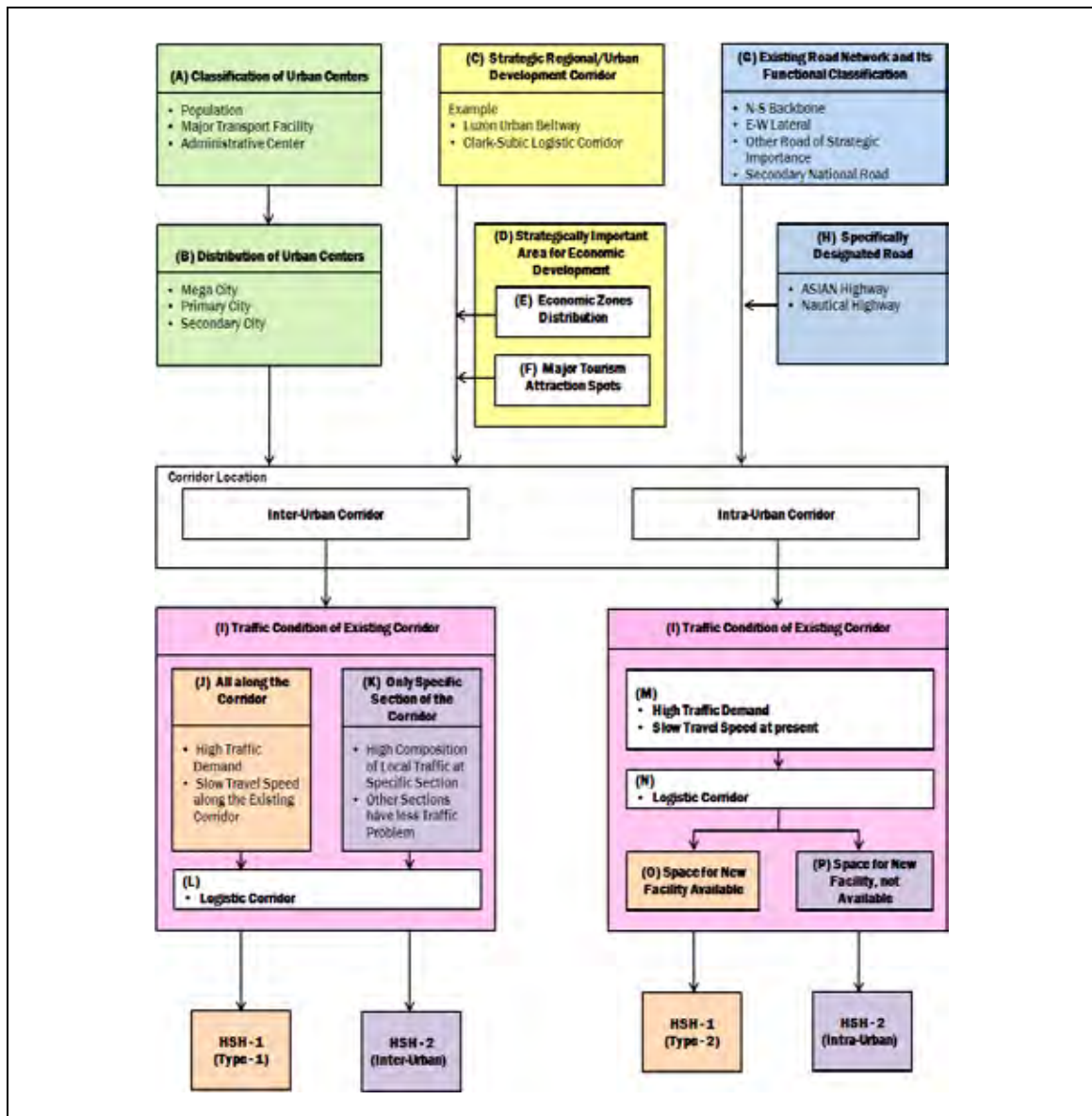


FIGURE 2.2.1-1 HSH SELECTION PROCEDURE

2.2.2 HSH Corridors Identification Criteria

HSH selection criteria was tentatively established as follows;

(1) HSH-1 (Arterial High Standard Highway), Type-1 (Inter-Urban)

Following conditions shall be satisfied;

- A highway which connects Mega City(s) with Primary Cities and form a part of primary transport backbone network.
- A highway which serves for a strategic regional development corridor.
- A highway which serves for strategically important area(s) for economic development.
- A highway which attracts high traffic volume.

Following condition shall be preferably satisfied, although these are not “must” conditions:

- A highway which is a specifically designated road.

(2) HSH-1 (Arterial High Standard Highway), Type-2 (Intra-Urban)

Following conditions shall be satisfied;

- A highway located in Mega City and its surrounding areas.
- A highway which forms a part of urban transport backbone network.
- A highway which serves for the strategic urban development corridor.
- A highway which greatly contributes to mitigation of traffic congestion of urban streets.
- A highway which attracts high traffic volume.
- A highway which can be placed within an available public space as much as possible.

Following conditions shall be preferably satisfied;

- A highway which serves for a logistic corridor.
- A highway which serves for strategically important areas for economic development.

(3) HSH-2 (Regional High Standard Highway)

Inter-Urban

- A highway which forms a part of network complementary to HSH-1 network.
- A highway which almost satisfies required conditions of HSH-1, but traffic demand is not high enough to satisfy to build HSH-1 standard.
- A highway which has traffic bottleneck only at specific location and most of road sections have less traffic problems.
- A highway which has a localized traffic problems such as concentration of local traffic at only specific locations.

The following conditions shall be preferably satisfied;

- A highway which is a specifically designated road.
- A highway which serves for strategically important area for economic development.

Intra-Urban

- A highway which forms a part of network complementary to HSH-1 network in urban area.
- A highway which greatly contributes to mitigation of traffic congestion and improvement of transport efficiency in urban areas.
- A highway along which corridor has fully developed and solution of constructing new road facility is quite difficult due to adverse impact on social environment.

The conditions shall be preferably satisfied;

- A highway which serves for logistic corridor.
- A highway which serves for strategically important area for economic development.

2.3 HIGH STANDARD HIGHWAYS IN OTHER ASIAN COUNTRIES

(a) Features of High Standard Highways

A quick glance on the development of high standard highway in other Asian countries would provide an opportunity to compare the development of high standard highway in the Philippines. Like Philippines, other Asian countries such as Malaysia, Indonesia and Thailand are actively promoting high standard road or expressway as part of their overall policy strategy to spur the country's economy.

The table below shows the typical features of high standard highways in other Asian countries. In terms of design speed, the average maximum speed of most high standard road in the selected countries is 120 km/hr which allows vehicle to run for the speed of 110 km/hr. High standard roads in the urban areas however are designed for just 60 to 80 km/hr.

The construction of high standard highways is normally borne out of government's desire to accelerate economic development and integrate major regional centers which could not be achieved alone by arterial road due to heavy congestion. In Indonesia for instance, 43% of arterial network in Java in year 2000 was already congested and this is expected to rise to 55% in 2010 as reported by the World Bank (The Road to Economic Growth – Strategic Priorities for Road Sector in Indonesia).

Indonesia has already built 649 km of high standard road and planning to extend its total length to 3,088 km. Thailand has 320 km of operational high standard road of which 54% are urban expressway mostly running within the Greater Bangkok Metropolitan. On the pipe line is 80 km urban expressway to be constructed in a few years and effort to realize the 13 motorway routes (regional expressway) with a total length of 4,150 km is also progressing. Malaysia so far has the most comprehensive high standard highway network which link north – south and east – west part of the country. It has already a total length of 1,499 km and another 219 km is under construction. It should be noted that most of the high standard roads mentioned above are toll roads and built by the private sector with support from the government.

TABLE 2.3-1 FEATURES OF HIGH STANDARD HIGHWAYS IN THE PHILIPPINES AND OTHER ASIAN COUNTRIES

	Thailand	Indonesia	Malaysia	Philippines
Length of operational expressway (km)	320	649	1,499	270
Max. design speed (km/hr)	120	*80 (60)	120	120
Number of lane (minimum)	4	4	4	4
Access control	Full and Partial Access Control	Full Access Control	Full and Partial Access Control	Full Access Control
Population (Capital City)	6,976,000	9,210,000	1,493,000	11,628,000

*Minimum design speed; inside parenthesis is for urban area as noted by the Indonesian Toll Road Authority (www.bpjrt.net)

Sources: Proceeding Papers of Public Involvement / Consultation in Toll Highway in Surabaya, Indonesia (2008); Proceeding Papers of International Workshop on Public – Private Partnership in the Road Sector in Osaka, Japan (2000)

(b) Functions and Formation of High Standard Highways

The high standard highways from the selected Asian countries served as the main backbone of their country's highway network. It connects major urban centers to allow economic integration and to reduce regional disparities for well-balanced regional socio-economic development as shown by the master plan of Thailand (**Figure 2.3-1**), expressway plan of Indonesia, (**Figure 2.3-3**) and existing expressway network of Malaysia (**Figure 2.3-5**). High standard highways from

the above-mentioned countries also served major traffic generators / attractors like ports and airports.

Thailand aims to link Bangkok to its regional urban center in Northwest (Chiang Mai) through Motorway route 5 (755.6 km) which would pass the cities of Lampang, Phitsanulo and Nakhon and extended to the city of Chiang Rai. The major urban centers on the Northeast (Khon Kaen and Nakhon Ratchasima) on the other hand are to be served by the Motorway route 6 that would reach Nong Khai (534.5 km). Motorway route 8 (951.4 km) runs to the south towards Songkla and other cities close to its border with Malaysia. Its main international airport (Suvarnabhumi Airport) is accessible by at least two expressways (Chon Buri Motorway and Don Mueang Expressway) and the country's two largest ports (Port of Bangkok and Port of Laem Chabang) are partially served by expressway while government efforts to complete port link to expressway are progressing (see **Figure 2.3-1** and **Figure 2.3-2**).

Indonesia on the other hand prioritizes to link satellite cities to the major urban center forming like a hub-and-spoke network. This can be seen in the Greater Jakarta Region where high standard highway links Merak to Jakarta, Bogor to Jakarta, and Soreang to Jakarta which form a hub-and-spoke network on the western tip of Java Island and another hub-and-spoke network is formed on the western tip of the same island (Gresik – Surabaya, Kertosolo – Surabaya, and Pandaan – Surabaya). The government's remaining major task is to complete the backbone of the network (Trans-Java Expressway) that runs along the north coast of the island which would eventually connect the two hub-and-spoke networks. Similarly, the main airport of Indonesia (Soekarno – Hatta International Airport), located 20 km west of Jakarta, is accessible via Soedjatmo Expressway which made it possible to reach the city center for 30 minutes or so. Effort to connect the country's primary port, Port of Tanjung Priok, to the expressway is ongoing by the construction of elevated Tanjung Priok access road that would give the port a direct access to Jakarta's second outer ring road (see **Figure 2.3-3** and **Figure 2.3-4**).

As mentioned above, Malaysia has the most comprehensive network of high standard highways among the selected countries and its North – South Expressway (955 km) links many major urban centers such as Penang, Ipoh, the Klang Valley and Johor Bahru and acting as the backbone of the west coast. Several major ports and airports are directly connected to the expressway such as the modern port of Tanjung Pelepas and the country's main international airport, Kuala Lumpur International Airport. To fulfill the objective of the nation to balance the economic growth among all regions in the country, the East Coast Expressway (350 km) was constructed in the late 90s to link urban centers from east coast to the Kuala Lumpur on the west coast (see **Figure 2.3-5**).

(c) Observed Development Patterns of High Standard Highways

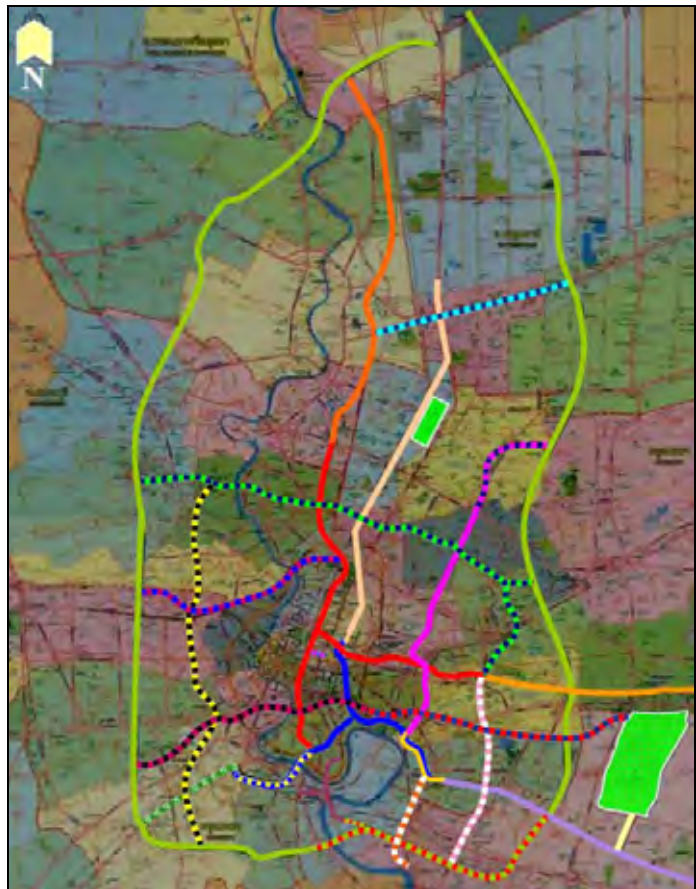
The following are observed development patterns of high standard highways in the selected Asian countries:

- After constructing a few lines of high standard highways which link urban and regional growth centers, consideration is given to major traffic generators like international port and airport on how these facilities could be assisted by high standard highway.
- After completing the backbone of the high standard highway network, ring road inside the primary urban center (country's capital) is then built to connect different high standard roads which form an urban high standard highway network (see **Figure 2.3-2** and **Figure 2.3-4**).
- Lateral connections among high standard highways are then constructed to further integrate socio-economic activities of regional growth centers with aim of attaining balanced socio-economic development among all the regions of the country.



Source: Inter-City Motorway (Expressway) Projects in the Kingdom of Thailand for Privatisation, DoH (1998)

FIGURE 2.3-1 MASTERPLAN OF MOTORWAY NETWORK



Source: Privatization of Highway Infrastructure in Thailand by Dr. Awakul of Department of Highways (Presentation to UN-ESC for Asia and Pacific, 2005)

FIGURE 2.3-2 URBAN EXPRESSWAY PLAN OF BANGKOK



Source: Indonesian Toll Road Authority (www.bpjt.net)

FIGURE 2.3-3 TRANS JAVA EXPRESSWAY MAP



Source: Indonesian Toll Road Authority (www.bpjt.net)

FIGURE 2.3-4 GREATER JAKARTA EXPRESSWAY MAP



FIGURE 2.3-5 EXPRESSWAY MAP OF MALAYSIA

CHAPTER 3

PRESENT ROAD NETWORK AND OTHER TRANSPORT FACILITIES

CHAPTER 3 PRESENT ROAD NETWORK AND OTHER TRANSPORT FACILITIES

3.1 REVIEW OF EXISTING ROAD DEVELOPMENT STUDIES

3.1.1 Master Plan Study on Luzon Island Strategic Road Network Development (LISR)

This Study was undertaken originally in July 1993 with JICA assistance, and was updated by DPWH in June 2001.

(1) Results

The Study aimed to determine the requirements of the major or strategic road network in Luzon, about 9,090 km, to support balanced regional development. The basic LISR network is a skeleton network interconnecting important regional centers and covers areas of significance for balanced regional development. It consists of inter-province-capital roads, inter-major-activity-center roads, agricultural development support roads, and national integration roads.

Projects were classified into three groups:

Group 1: Rehabilitation/improvement/new construction of 2-lane road projects

Group 2: Capacity expansion from 2-lane road to 4-lane road

Group 3: Special projects

Group 1 projects were evaluated and prioritized based on the following criteria: (a) road class, (b) degree of inconvenience or DI (road condition x DI factor x annual average daily traffic or AADT), (c) economic return, (d) contribution to regional development, (e) type of work, (f) environmental considerations, (g) inter-modal linkage, (h) continuity of on-going and committed projects.

For Group 2 projects, the timing of implementation was assessed in consideration of future traffic demand. Widening of a 2-lane road (capacity of 9,500 passenger car units or pcu/day) into a 4-lane road was recommended to be completed before the traffic volume-to-capacity ratio (VCR) exceeds 1.25.

For Group 3 projects, the implementation timing was determined by the results of the economic evaluation.

The economic benefits of the Plan were estimated as consisting of (a) savings in traffic costs, (b) regional development benefits, and (c) benefits from bridge improvement and disaster prevention works

The economic viability of the Master Plan as a whole and of each Program was assessed. All cases were found to be economically viable:

	<u>EIRR (%)</u>
Master Plan	85.1
Program I, 1999-2004	87.7
Program II, 2005-2010	72.1
Program III, 2011-2016	57.5

(2) **Recommendations**

Investment Projects

The prioritized projects included in the Plan were to be implemented in three six-year programs, as follows:

	<u>Length (km)</u>	<u>Cost (Php B)</u>
Program I, 1999-2004	2,372 (2,068)	87.6 (43.3)
Program II, 2005-2010	2,881 (2,825)	76.3 (72.4)
Program III, 2010-2016	<u>2,979 (2,797)</u>	<u>100.8 (84.6)</u>
Total	8,232 (7,690)	264.7 (200.4)

Note: Figures without parentheses include expressways. Those within parentheses exclude expressways

The groups of projects are summarized as follows:

- Group 1: Rehabilitation of 1,162 km, improvement of 2,396 km, new construction of 1,486 km; 6,200 m of bridges; 512 km of disaster protection works
- Group 2: Widening of 1,926 km
- Group 3: 585 km of expressways and 301 km of bypasses

The master Plan includes the development of the North Luzon Expressway Extension up to Agoon, La Union, and the North Luzon East Expressway up to San Jose City.

Institutional and Related Reforms

The Study recommended the following institutional measures:

- a. Reinforce the Planning Service, through business improvement projects under the Road Information Management Support System (RIMSS) to enhance the core processes - plan, build, and maintain – and five support processes – financial management, human resource management, information management, physical resource management, and procurement management.
- b. Strengthen the PMO-BOT to plan and implement expressway projects.
- c. Implement the Better Roads Philippines Study, particularly the establishment of a Road Management Authority and a dedicated Road Users Fund managed by an independent board.
- d. Improve the maintenance of existing roads, including network planning, multi-year programming and scheduling, and long-term performance-based maintenance contracts.
- e. Provide for stronger road building against natural calamities.
- f. Improve road ROW acquisition and provide for protection and relocation of project affected people.

(3) **Status of Achievements**

The proposed investments under the Master Plan, as updated, were more or less within the budget levels of DPWH for the first six-year program, 1999-2004.

The government has been significantly increasing its investment levels for national roads (and other infrastructure sectors) starting in 2006 up to 2009 which, if sustained in the subsequent years, could help implement the backlog of unimplemented projects in the updated LISR Master Plan, subject to re-evaluation.

DPWH has recently been using the Plan, as updated in 2001, as a first screen to identify major project proposals that should be prepared, evaluated and included in its Medium-Term Infrastructure Program (MTIP). This, however, has been limited mostly to foreign-assisted projects.

Of the recommended institutional and related reforms in Section 3.1.1,2) above:

- Item c has been partly implemented by the creation of a special road user fund from the Motor Vehicle User's Charge or MVUC (RA 8794), 80% of which is dedicated to the maintenance of national roads.
- Item d has been partly addressed by DPWH, with ODA inputs, through improved business processes and systems under RIMSS. These include (i) Visual Road Condition Rating, (ii) Road Roughness Index measurements, (iii) Pavement Management System (PMS), (iv) Highway Development and Management (HDM-4) planning tool for preventive maintenance and rehabilitation, (v) Routine Maintenance Management System (RMMS), (vi) Road Traffic Information Application (RTIA), and (vii) Road and Bridge Information Application (RBIA) database, among others.
- With regard to item e, the government has a new legislation which streamlines the process for right-of-way acquisition and payment. DPWH now requires a Resettlement Action Plan for every foreign-assisted project.
- DPWH has initiated feasibility studies on several priority projects in the Plan.

3.1.2 Master Plan Study on Visayas and Mindanao Islands Strategic Road Network Development (VMISR)

This Study was undertaken in March 1999 at DPWH with JICA assistance.

(1) Results

The Study determined the requirements of the major or strategic road network in Visayas and Mindanao Islands, to reinforce the physical foundation of the regional economy, promote effective land use and contribute to the unity of the nation and preservation of peace. The basic VMISR network was formulated as a skeleton network consisting of (a) north-south backbone which forms the main transport axes and interconnects most primary activity centers, (b) east-west laterals at an interval of 50-100 km, (c) strategic roads A which interconnect secondary and tertiary activity centers and serve as alternative routes to higher class roads in case of road closure, and (d) strategic roads B which penetrate agricultural lands and other areas with no access and contribute to effective use of lands and integration of the country. The basic network totals 16,899 km.

The backbone transport considered multi-modal transport linkages, particularly land and sea links:

- a. Eastern transport axis: existing Pan-Philippine highway connecting Luzon, Samar, Leyte and Mindanao.

- b. Central transport axis; connecting Luzon (Sorsogon), Masbate, Cebu, Bohol, and Mindanao Islands.
- c. Western transport axis: connecting Luzon (Batangas), Mindoro, Panay, Guimaras, Negros and Mindanao Islands.
- d. Growth corridor transport axes: Iloilo-Cebu-Tacloban growth corridor, Cagayan de Oro-Iligan growth corridor, and Zamboanga-Cotabato-Gen. Santos-Davao growth corridor.

The Master Plan also aimed to develop other transport axes as the next hierarchy of backbone transport axes: (a) Inter-Visayas Islands highway/waterway links and (b) Pacific rim highways in Samar and Mindanao.

The Master Plan network was established by reinforcing the basic network from the viewpoint of traffic efficiency. This involved (a) capacity expansion or widening, (b) urban bypasses, (c) 2 expressways, and (d) 5 inter-island links.

Projects were classified into three groups, and project identification criteria for each group were established:

Group 1: Rehabilitation/improvement/new construction of 2-lane road

<u>Existing Condition</u>	<u>Type of Work</u>
Paved roads in bad/very bad condition	Rehabilitation A
Paved roads in fair condition	Rehabilitation B (lower priority)
Gravel/earth roads	Improvement to paved road
Missing/new links	Construction of paved road
Temporary bridges	Replacement by permanent bridges
Bridges with major defects	Reconstruction or rehabilitation

Group 2: Capacity expansion from 2-lane road to 4-lane road

<u>Existing Condition</u>	<u>Type of Work</u>
Traffic volume exceeds capacity	Widening

Group 3: Special projects

<u>Existing Condition</u>	<u>Type of Work</u>
Widening difficult, or even if widened traffic congestion is expected	Bypass
Strategic measures required to drastically improve transport efficiency	Expressway
Need to strategically link two islands to contribute to island development and strengthen inter-island relations	Inter-island link

Note: All identified natural disaster-prone locations shall be provided with countermeasures.

As in the LISR Study, Group1 projects were evaluated and prioritized based on the following criteria: (a) road class, (b) degree of inconvenience or DI (road condition x DI factor x AADT), (c) economic return, (d) contribution to regional development, (e) type of work, (f) environmental considerations, (g) inter-modal linkage, (h) continuity of on-going/committed projects. Weights were assigned to these criteria.

For Group 2 projects, the timing of implementation was assessed considering the future traffic demand, and set before the traffic VCR exceeds 1.25.

For Group 3 projects, the implementation timing was determined by the results of the economic evaluation.

The economic benefits of the Plan were estimated as consisting of (a) savings in traffic costs, (b) regional development benefits, and (c) benefits from bridge improvement and disaster prevention works

The economic viability of the Master Plan as a whole and of each Program was assessed. All cases were found to be economically feasible:

	<u>EIRR (%)</u>
Master Plan	41.3
Program I, 1999-2004	44.2
Program II, 2005-2010	31.1
Program III, 2011-2016	24.2

The Plan was also favorably evaluated on the following:

- a. Impact on transport efficiency, as indicated by savings in travel time and vehicle operating costs.
- b. Impact on road network development, as indicated by increased total and paved road density and pavement ratio, especially in inaccessible vast areas.
- c. Time-distance reduction
- d. Impact on regional economy and development
- e. Financial evaluation of expressway projects
- f. Environmental and social impact and mitigating measures

(2) **Recommendations**

Investment Projects

The Master Plan identified 15,821 km of road projects, out of which 14,146 km were programmed for improvement and construction in three six-year periods costing Php 313.4 billion in 1998 prices (Php 291.4 billion without expressways), as follows:

	<u>Length (km)</u>	<u>Cost (Php B)</u>
Program I, 1999-2004	4,394	58.0 (57.7)
Program II, 2005-2010	4,269	104.7 (94.4)
Program III, 2010-2016	<u>5,483</u>	<u>148.2 (139.4)</u>
Total	14,146	313.4 (291.4)

Note: Project costs without parentheses include expressways; those within parentheses exclude expressways

The number and length of each group of road projects are shown below:

	<u>Number</u>	<u>Length, km</u>
Group I	169	11,901
Group II	26	1,769
Group III	11	354

The Master Plan includes the development of the Naga-Cebu City-Danao City and Tagum-Davao City-Digos City Expressways.

Institutional and Related Reforms

The Study proposed the following institutional and related measures:

- a. To implement the Master Plan, DPWH should restructure its Planning Service by establishing two Divisions – Arterial Roads and Minor Roads. The Arterial Roads Division would program the VMISR and LISR Master Plans.
- b. The road funds should be increased by providing for (i) a higher share out of the road transport sector tax revenue (from 38% to 47%) to be allocated to national road capital outlays, and (ii) additional taxation on fuel and vehicle registration fee, to be used for road maintenance.
- c. Road maintenance should be improved and more cost-effective maintenance should be implemented.
- d. Stronger roads designed against natural calamities should be built.
- e. ROW acquisition and resettlement plan should be prepared as early as possible to mitigate adverse social impact.
- f. This Master Plan should be reviewed and updated every six years, considering the progress of projects and prevailing economic conditions and policies.
- g. Feasibility studies should be conducted early for high priority projects in the Master Plan.

(3) **Status of Achievements**

The proposed investments under the VMISR Master Plan appear to be on the high side. Actual DPWH budgets allocated since 1999 for national roads in Visayas and Mindanao are roughly 70-75% of the levels recommended in the Master Plan. It also appears that many projects funded in the annual DPWH budgets for Visayas and Mindanao were not based on the Master Plan.

The government, however, has been markedly raising its investment levels for national roads from 2006 to 2009 which, if continued, could help carry out the backlog of unimplemented projects in the Master Plan.

As in the case of the LISR, DPWH has recently been using the VMISR Master Plan as a first screen or filter to identify major project proposals that should be prepared, evaluated and included in its MTIP. This, however, has been confined mostly to foreign-assisted projects.

The land-sea backbone transport axes proposed in the Plan are now belatedly being implemented through the nautical highways projects featuring a combination of roads, RORO ports and shipping services between Luzon and Mindanao via the Visayas. These nautical highway services have reportedly reduced travel time by 12 hours and transport costs by 24% to 43%.

The status of implementation of the recommended institutional and related reforms is as stated in Section 3.1.1,3) above.

3.1.3 **Developing a Methodology and Framework for National Transport Policy and Planning (NTPP)**

This Study was undertaken in 2008 under the Philippines-Australia Partnership for Economic Governance Reforms (PEGR) under Reform Agenda (RA) 008-01. The highlights of the Study, particularly the portions relating to the road sub-sector, are summarized below.

Activity 1: Synopsis of past planning exercises with a view to deriving lessons learned from previous policy and planning work.

Activity 2: Assessment of institutions involved in the planning, provision, and operation of infrastructure and transport services.

Activity 3: Preparation of recommendations for future planning concepts and methodology considering experience in the Philippines and other countries.

(1) **Summary of Activity 1 Findings**

A. Master Plans

Strategic master plan studies have contributed to high level national development planning. Recommended priority projects have entered the MTPDPs, which was a precondition for, but did not necessarily ensure, subsequent implementation. The policy and institutional recommendations from the studies were similar.

B. Transport Policy Areas

- Resource allocation to the entire transport sector and to individual transport modes; asset expansion and preservation

- Pricing and subsidies
- Competition, regulation, and enforcement
- Role of government versus that of the private sector
- Institutions and their responsibilities and capabilities
- Service delivery and accountability.

C. Transport Studies

C-1 Inter-modal Transport

Several studies centered on inter-modal RORO transport reflecting the momentum over the last five years. The studies have not adequately addressed the risks in RORO. If road quality and traffic conditions fail to ensure that time savings can be realized, RORO would have little economic merit. The planning approach in the studies was top-down, rather than relying on private initiatives.

C-2 Road Sub-Sector

Studies pointed to a high level of technical planning capabilities and skills in DPWH. The national road master plan studies used planning concepts and techniques that conform to best international practices. Their recommendations were, however, rarely fully reflected in the annual budgets. A large part of the budget was allocated to road projects unrelated to national strategies. Some 20–30% of the DPWH budget was earmarked for local projects identified by members of Congress which, while responding to community needs, were not aligned with national strategies. The disconnection between planning and budgeting has diminished the relevance of the studies.

Some of the road studies recommended the creation of a fund for road maintenance. The recommendation was implemented haphazardly. The rationale for having a road fund, which is to ensure steady maintenance funding, was not fully attained.

C-3 Public-Private Partnership

Several road studies focused on greater private sector involvement in both road maintenance and construction and financing. Among the notable outcomes was the introduction of annual performance-based maintenance contracts as one form of PPP. With regard to construction, financing and operation, the key concern is the continued absence of an adequate planning and procurement framework. Past PPPs were mostly initiated through unsolicited proposals, without competitive checks. Unsolicited proposals escape a proper planning process and may, therefore, have a poor fit with development strategies. Project preparation should be shifted from private proponents to government planning agencies.

D. Key Issues

D-1 Relevance of Planning

Transport strategies and plans have lost some of their former relevance for shaping the development of the transport sector. An increasingly smaller number of projects identified by master plans and sometimes even prepared by more detailed studies has made it through the planning processes to budgets and final implementation. Undue political interference broadly

explains this phenomenon. The range of eligibility criteria for the inclusion of proposed investment projects in medium-term plans has become too broad to achieve a strategic focus. This has also facilitated the observed political influence in project selection and divergence from strategic objectives. On the other hand, the medium-term planning process does not appear to be well aligned with annual budgets.

D-2 Unfinished Reform Agenda

The backlog of policy and institutional reforms is in areas with vested interests, where entrenched property rights are likely to be affected by reforms. Reforms are difficult, when they require a redistribution of wealth. The situation is made more complex by a capricious legal environment. The traditional study approach has not been successful to address this constraint.

The allocation of funds to the transport sector and among the transport sub-sectors has been a long standing issue. The issue is aggravated by allocating financial resources to projects that have not been included in the various stages of the planning process. Financing of road maintenance is an unfinished reform item, with the fuel levy still to be introduced in Congress.

Resource allocations are not optimized in relation to needs. Strategic plans and planning tools available are not fully used to meet this purpose. Hence, many projects – viable and less viable - are not mainstreamed into the strategic process.

D-3 Transport Database

Transport database systems were mostly generated by various transport studies in the past five years. These data have not been fully incorporated into the agency database systems. Inter-agency cooperation should be pursued with DOTC and DPWH playing lead roles in the specification and management of the National Transport Database System.

(2) Summary of Activity 2 Findings

DOTC is at the apex of transport planning and policy formulation covering all modes, except road infrastructure, and should take a lead role to identify the strategic needs of transport infrastructure and services for the country. Strategic inter-modal transport planning has been absent from DOTC. Building capacity at DOTC is essential if integrated strategic transport planning is to be effective.

NEDA appraises, monitors, and coordinates public investments in the sector and has an advisory and coordinating role in the formation of sector policies.

DPWH is responsible for the planning, construction, and maintenance of the national road network. DPWH has started to use a new Highway Planning Manual which covers all stages – i.e., strategic analysis, long-term planning, multi-year planning, and annual programming for national roads, and integrating asset preservation and network development for national roads. The DPWH planning process has been strengthened by modern IT-based planning and programming systems based on needs and objective technical and economic criteria. Despite these, DPWH still faces some problems hampering its performance, as follows:

- Interface frictions between roads and other transport modes
- Significant disconnect between planning/programming and budgeting
- Low level of funding in relation to road maintenance and construction needs

- Inadequate use of planning and programming tools
- Unabated conversion of unqualified local roads into national roads
- Strained absorptive capacity and program/project implementation.

Much of the investment in infrastructure is piecemeal, being directed largely by political dictates often at the local level. This does not contribute to developing a network approach to transport and, thus, the significant economic and social benefits gained by ‘connectivity’ are not being attained in the country.

(3) **Summary of Activity 3 Conclusions and Recommendations**

A. Transport Sector Institutions

The institutional landscape, as well as transport planning, is highly atomized, with too many agencies and too many planning exercises that are poorly connected.

DOTC, as the apex department for transport policy, planning, and coordination, does not play its role effectively. NEDA, as the planning and investment coordinator, has been undermined by activities bypassing the prescribed process.

B. Development of a Framework for National Transport Policy and Planning

This could be done following the Coordinated Incremental Planning process:

- Preparation of the transport development plan will be carried out by each transport agency, but guided and coordinated by referring to the Transport Policy Document prepared by DOTC.
- The development strategy should focus on addressing existing problems and deficiencies in the system.
- The framework should enable long-term planning.
- The framework should incorporate a Transport Expenditure Assumption (TEA), the resource envelope that can realistically be expected.
- Programs and projects should explicitly consider contributions from the private sector under PPP arrangements as part of the financing strategy.

A framework consisting of (1) Policy Formulation; and (2) Agency Transport Planning, would satisfy those requirements. The first part would provide the direction for transport development and establish boundary conditions that would guide the formulation of strategies. The second part would be the actual planning undertaken at the level of the line agencies.

The proposed Agency Transport Planning Process and the generation of transport strategies commence from a base plan that incorporates committed and pipeline projects arising from the preceding medium-term plan. Existing long-term plans, special studies and plans of LGUs provide support in the identification of possible projects. The TEA should include a

forecast of available funds through potential PPPs in addition to those from traditional financing sources.

The recommended process strongly emphasizes linking planning to programming and budgeting, as well as to monitoring and evaluation. The latter is important because it will steer the implementation of the medium-term plan towards the transport development direction as articulated in the transport policy framework.

DOTC should coordinate and integrate the modal plans prepared by the line agencies. The outcome would be the MTPIP, which will be forwarded to the NEDA Infrastructure Committee for adoption. This would ensure that the plan of each agency is consistent with the development goals of the government, in general, and the vision and policies of the transport sector, in particular.

C. Proposed National Transport Policy Framework

C-1 Transport Policy Objectives

DOTC should formulate a coherent set of transport policy objectives consistent with a common transport vision. The objectives are specific high-level statements which would give direction to the development and management of the facilities and services of the national transport system.

C-2 Performance Indicators and Targets

DOTC should establish performance indicators and targets to enable performance monitoring of progress towards defined objectives.

C-3 Policy Framework

DOTC should establish a set of criteria to evaluate and select the preferred transport policies from a menu of policy options. DOTC must ensure the participation of key transport stakeholders in all stages of transport policy making.

The Transport Policy Statement should contain the following core policies:

- **Free Market**: Transport services generally left to the private sector.
- **Competition**: Encouraged within transport modes and among modes
- **Regulation**: Limited economic regulations, and emphasis on technical regulations on safety, quality of service, and environmental impact.
- **Pricing and cost recovery**: Adoption of “user pays” principle for cost recovery applied where appropriate – toll roads, bus fares, freight rates, etc.
- **Government role**: Infrastructure provision, policy and strategy formulation, overall sector planning, safety and environmental regulations, and research.
- **Asset management**: Making best use of existing transport assets before considering additional investments; adequate funding for asset preservation.

- Least cost mode/route: Allocation of traffic to least cost mode/route as underlying aim of a welfare maximizing transport system.
- Investment analysis: Investments should be economically viable, and preferably financially viable. Investment plans should be based on a realistic extrapolation of the existing traffic situation.

D. Proposed Transport Planning Methodologies

While the planning steps are the same for each transport agency, the treatment of each step varies. For example, the DPWH planning methodology is more complex given the magnitude and wide coverage of the national road network.

The proposed methodology for national roads would build on and enhance the advanced road planning system already in place in DPWH. National roads planning would be driven by the overarching National Transport Policy Framework, and thus be coordinated with the other transport modes. National roads planning would be process-based and needs-oriented at all stages – strategic analysis, long-term scenario building, medium-term planning and multi-year and annual programming and budgeting. The process would make good use of modern planning and programming tools rooted in technical and economic criteria to ensure optimal allocation of resources for road investments and maintenance works. The method employs joint planning for the dual needs of road network development and asset preservation. The systems and techniques can be applied to the entire national road network and sub-networks/corridors at both network and project levels. The proposed methodology incorporates the planning of toll expressways as part of the entire national roads system.

E. Oversight of Agency Transport Plans

DOTC, as the agency tasked with transport policy formulation and plan coordination, should exercise direct oversight over the line agencies. It should endorse to the NEDA Infrastructure Committee (Infracom) the agency transport plans for approval. This will be undertaken with DPWH as partner in the transport plan integration. The NEDA Inter-Agency Technical Committee on Transport Planning (IATCTP), as a technical arm of the NEDA Infracom, should coordinate physical development and transport-related planning studies, and review plan implementation issues.

F. Transport Database Framework

Crucial to the policy formulation and plan integration of DOTC in partnership with DPWH is a national transport database system. The decision of DOTC and DPWH to share transport data, including their Geographic Information Systems, will provide the platform for establishing the national transport database system.

(4) Next Steps and Work Plan

Following the approval by the NEDA Infrastructure Committee in July 2009 of the main recommendations of the NTPP (RA008-01), the next step is embodied in NTPP Phase 2 under PEGR RA 008-02) which will be undertaken from September 2009 to February 2010. This will involve the following activities:

Activity 1: Formulating a draft National Transport Policy Framework (NTPF) and draft National Transport Plan (NTP) as input to the next Medium-Term Philippine Development Plan (MTPDP).

Activity 2: Preparation of a Draft Transport Policy Act.

Activity 3: Streamlining of DOTC Organization and Capacity Building of its staff.

3.1.4 DPWH Medium-Term Public Investment Program

DPWH has formulated its Medium-Term Public Investment Program (MTPIP) for the period 2005-2010, and has updated it as of June 2009. This contains the priority programs, activities and projects to be implemented by DPWH in support of the Medium-Term Philippine Development Plan (MTPDP). It serves as an input to the annual budget formulation guided by the Medium-Term Expenditure Framework. The MTPIP also provides the framework for the identification of major projects by the NEDA Investment Coordination Committee. Summarized below are the main features of the DPWH MTPIP.

(1) General

Transport infrastructure, particularly roads, under the MTPIP is being provided in pursuit of the following goals:

- a. Providing easier access to markets at home and abroad to alleviate poverty in the countryside and isolated regions.
- b. Enhancing peace and order in conflict-affected regions through efficient transport and trade.
- c. Strengthening national unity, family bonds and tourism by making the movement of people faster, cheaper and easier.
- d. Facilitating the decongestion of Metro Manila via a transport logistics system that would ensure efficient linkages between its business centers and nearby provinces.
- e. Generating more transport infrastructure with minimal budget cover or contingent liabilities. Private sector-initiated infrastructure should be deficit-neutral with minimum government exposure to the project.

The DPWH MTPIP focuses on the following strategies embodied in the MTPDP:

- Implement road activities in the following order of priorities: (a) maintenance of existing roads or asset preservation, (b) rehabilitation of distressed roads to original design condition, (c) improvement or upgrading of roads so that they more efficiently meet traffic demand, and (d) new construction.
- Focus on paving and upgrading the national road network, especially the arterial system, based on pavement management system and national/regional master plans.
- Prioritize roads which will serve designated key agricultural production areas, tourism destinations, and growth centers, and those which will improve law and order.
- In major urban centers, improve traffic flow at main corridors, through traffic engineering and management, inter-modal integration, and selected flyovers and bypasses.
- Encourage more PPP road projects for heavily travelled corridors where costs can be directly recovered through tolls.

Of the approximately 205,778 km of roads nationwide as of December 2008, 29,650 km (14.4%) are national roads and, therefore, provided for and maintained by DPWH. The national road network system is further classified into national arterial roads (15,663 km) and national secondary roads (13,987 km). There are about 13,584 km of national roads with concrete pavement, 8,092 km with asphalt pavement, while the remaining 7,974 km are still surfaced with gravel.

The Philippine national road network has the following major components, namely: the North-South backbone (5,246 km in length) which is the main line from northern-most Luzon to Southern Mindanao interconnecting the major islands; the East-West laterals (2,965 km in length) which traverses the backbone and across the island (about 100 km apart); the National Secondary roads (13,987 km in length) and Other Roads (7,452 km) which complement the National Arterial roads and provide access to other main population and production centers.

(2) **Desired Outcomes over the Medium Term**

- A. About 95% of the national arterial roads (15,663 km) will have been paved by 2010, compared to 81.7% in 2006. This will require the paving of 2,207 km and the rehabilitation/widening/upgrading/construction of 2,292 km.
- B. About 75% of national secondary roads (13,987 km) will have been paved by 2010, compared to 58.2% in 2006. This will entail the paving of 926 km and the rehabilitation of 1,390 km.
- C. All national bridges (314,456 lineal meters or lm) will have been made permanent by 2010, compared to 93% in 2006. This will involve the replacement of 10,000 lm of temporary bridges, improvement of 6,047 lm of existing bridges, replacement/construction of 12,400 lm of existing bridges, and construction of 2,154 lm of new bridges, or a total of 36,601 lm.

(3) **Detailed Strategies**

A. General

The government will prioritize infrastructure projects that are strategic and critical to stimulate trade and investments, such as the nautical or roll-on/roll-off (RORO) highways connecting the RORO ports, the roads that will decongest Metro Manila, roads to support the development of Subic and Clark, and roads to support affirmative action projects for Mindanao and other highly impoverished conflict ridden-areas. The government will also pursue a prioritized roads program to serve as gateways to regional centers and major tourism destinations.

B. Nautical Highways to Link the Country

Inter-island routes provide regular RORO vessel operation, connecting the main islands of Luzon, Visayas and Mindanao. The Strong Republic Nautical Highway (SRNH) connecting the islands of Luzon to Mindanao, Panay, Guimaras, Negros and Mindanao will support the RORO operations. The total investment programmed to continue linking the entire country through the SRNH from 2005 to 2010 is Php 34.417 billion.

To enhance mobility and improve linkages between islands and provide access to markets/activity centers, the government shall expand the coverage of the SRNH through the completion of the vital links of the Western, Eastern and Central Nautical Highways. The nautical system will be completed through the following high priority routes:

B-1. Western Nautical Highway (WNH) (1,098.8 km.). The WNH links the ports of Batangas to Calapan and Roxas in Mindoro to Caticlan in Aklan, Iloilo to Bacolod City and Dumaguete Ports in Negros, Toledo, Cebu City and Santander in Cebu, Dipolog City and Dapitan City in Zamboanga del Norte. Already completed along the WNH are about 407.0 km, and 582.5 km are programmed from 2007-2010. Included in the 2007 to 2010 program are the Naga-Toledo Road in Cebu, Iloilo East Coast-Capiz Road, Iloilo City-Caticlan Road, Oroquieta-Sindangan Road, Santander-Barili-Toledo City Road, San Carlos-Dumaguete Road, Bacolod-Murcia-San Carlos City Road, Mindoro East Coast Road and Calapan-Socorro-Bongabon-Roxas Road.

B-2. Central Nautical Highway (CNH) (877.6 km). The CNH connects the ports of Donsol in Sorsogon to Aroroy-Cataingan and Placer in Masbate through Bogog and Cebu City Ports, Tubigon and Jagna Ports in Bohol, Mabajao and Guisiliban Ports in Camiguin, Balingoan Port in Misamis Oriental up to Davao del Sur. Already completed along the CNH are about 118.0 km, and another 183.1 km are programmed from 2007 to 2010. These include road sections from Cagayan de Oro through Camiguin, Bohol, Cebu and Masbate to Placer-Aroroy Road the Clavera-San Pascual Road in Masbate.

B-3. Eastern Nautical Highway (ENH) (897.3 km). The ENH provides the connection from Calatagan Port in Masbate to Naval Port in Biliran through Liloan Port in Southern Leyte, Surigao City Port in Surigao del Norte via the Daang Maharlika to Davao del Sur. Already completed along the ENH is about 278.3 km, of which 27.5 km is programmed from 2007 to 2010. The ENH passes through Surigao through Leyte, Biliran and Masbate and ending in the Bicol Peninsula. Specific projects from 2007 to 2010 are the Tacloban-Liloan Road and the Liloan (Panaon)-Naval (Biliran) Highway.

C. Decongestion of Metro Manila

The challenge is to spread development and provide new opportunities for growth in other regions to decongest Metro Manila. This will entail the creation of a transport logistics system that will facilitate the decongestion of Metro Manila by ensuring efficient linkages between its business center and nearby provinces. Among the major projects are the widening of MacArthur Highway to Tarlac and Urduyeta, the completion of the NAIA Expressway, the widening of Commonwealth Avenue, R-10, Marcos Highway and Quirino Highway in Quezon City and the Cavite-Laguna road system. The total investment proposed for projects to decongest Metro Manila over the medium term is Php 21.312 billion.

D. Development of Subic and Clark

The widening and improvement of the North Luzon Expressway, which was completed early 2005, together with the widening of MacArthur Highway, will induce decongestion of Metro Manila towards Central Luzon. Among the other major projects are the widening of Gapan-San Fernando-Olongapo Road and the construction of Subic-Clark-Tarlac Expressway to Dingalan Port. The total investment programmed is Php 22.323 billion.

E. Addressing Critical Infrastructure Bottlenecks

These include the Plaridel and Cabanatuan Bypasses, Bohol and Catanduanes Circumferential Roads, Cebu South Road, Ilocos Sur/Benguet/Mt. Province Roads, Baguio-Aritao Road, Quirino Highway in Quezon, Ligao-Pio Duran Road in Albay, Catubig-Calbayog Road in Samar, Maharlika Highway sections in Samar, Agusan and Davao del

Norte, Mindoro East Coast Road, 2nd Magsaysay Bridge and Bypass II in Butuan City and the bridge across Panguil Bay linking Lanao del Norte and Misamis Occidental.

F. Access to Major Tourism Destinations

The total investment required is 25.727 billion pesos. Roads and bridges leading to identified tourist destinations will be rehabilitated/improved or upgraded/ constructed. These transport facilities will serve as gateways to tourism complexes. Examples are the Mt. Data-Bontoc-Banaue Road, the Ternate-Nasugbu Road, the Palawan South Road, and the roads serving Boracay, Panglao and Camiguin Islands.

G. Affirmative Action for Peace and Development in Mindanao and Other Highly Impoverished Areas

The road network in underdeveloped regions and roads leading to conflict-affected areas will be improved to promote development and help solve the peace and order problems. The priority road projects are the Awang-Upi-Lebak-Kalamansig Road in Maguindanao/Sultan Kudarat, the Surigao-Davao Coastal Road, the Zamboanga West Coast Road, the rural road network in Caraga and in Lanao, the Himayangan-Silago and Liloan Roads in Southern Leyte, the Marikina-Infanta-Real Road, the Bondoc Peninsula Roads and the Caramoan Peninsula Roads in Bicol.

H. Asset Preservation

Maintenance will receive high priority in funding in the medium term. In the DPWH 2009 budget, an allocation of Php 4.0 billion for preventive maintenance is provided. The list of projects to be prioritized under this program will come from the results of the internationally-accepted Highway Development Management-4 (HMD-4) tool under different budget constraints. This amount will put into “good condition” about 600 km of the national road network in the country. Additional funds will be included in the budgets for succeeding years to address the huge backlog in maintenance.

I. PPP/BOT Projects

Involving the private sector in infrastructure provision is already a policy framework enshrined in the MTPIP. Specific measures in the BOT Law and subsequent proposed amendments to the law indicate the commitment of the government to tap private sector expertise and resources for infrastructure development. Among the on-going/proposed projects for BOT/PPP are the Tarlac-Panagasinan-La Union Toll Expressway (Tarlac to Rosario), Southern Tagalog Arterial Road Stage 2 (19.74 km 4 lane expressway between Lipa and Batangas cities), North Luzon East Expressway (NLEE), C-6 Alabang to San Jose, Nueva Ecija, and NAIA Expressway, Phases 1 and 2. Other candidate projects for PPP/BOT are the Panguil Bay Bridge in Lanao del Norte/Misamis Occidental, Batangas-Bauan Ring Road, and Cavite-Laguna Roads (Expressway), Candelaria Bypass in Quezon, Alaminos-San Pablo City Bypass along Maharlika Highway, and other bypasses where costs can be directly recovered through tolls.

J. SONA Projects

In her State of the Nation Address (SONA) on July 24, 2006, President Gloria Macapagal Arroyo announced a number of priority projects that will be undertaken by the government to enhance the competitive advantages of the natural “Super Regions” on the Philippines – viz,

North Luzon Agri-Business Quadrangle, Luzon Urban Beltway, Central Philippines and Agri-Mindanao.

The North Luzon Agri-Business Quadrangle, whose competitive advantages are agriculture and fishery, is composed of the Cordillera Administrative Region, Regions I and II. The Luzon Urban Beltway, whose competitive advantages are urban development, industry and services, is composed of the National Capital Region, Regions III and IV-A and Marinduque and Mindoro. Central Philippines, whose competitive advantage is tourism, is composed of Regions V, VI, VII and VIII and the provinces of Palawan, Romblon, Camiguin, Siargao and Dapitan. The Agri-Mindanao Super Region, whose competitive advantages are natural resources and agriculture, is composed of Region IX, X, XI, XII and XIII.

The DPWH SONA strategic projects are the 95.3 km Mt. Data-Bontoc-Banaue Road, the 108.03 km Bontoc-Tabuk-Tuguegarao Road (Bontoc-Tinglayan Section and Tinglayan-Lubuagan-Tabuk Section), the Tarlac-Nueva Ecija-Aurora Dingalan Port Road, C5-NLEX connection, the 115.2 km. Marikina-Infanta-Real Road, the El Nido-Batarraza Road in Palawan, the Iloilo-Sta. Barbara Road, the Metro Iloilo Radial Road, the Pandan-Libertad-Antique/Aklan Boundary Road, the Dapitan-Dakak Road, the 15 km. Dinagat Islands Road network, the 488 km. Surigao-Davao Coastal Road, the 172.7 km Zamboanga West Coast Road (Sibuco-Siraway-Siocon-Baliguian-Gutalac Section), the Jct. Awang-Upi-Lebak Road in Maguindanao, Kapalong-Talaingod Road in Davao del Norte/Bukidnon, and the 2.3 km Panguil Bay Bridge.

The SONA projects of DPWH entail an aggregate multi-year investment of Php 57.86 billion. About Php 41.36 billion and Php 23.96 billion are included in the 2008 and 2009 DPWH budgets, respectively. Forward estimates for the SONA projects amount to Php 15.04 billion pesos for 2010 and Php 65.29 billion beyond 2010. The total requirement for the SONA includes the Baler-Aurora-Casiguran Road, Tarlac-Pangasinan-La Union Toll Expressway, Cebu North Road, and Iligan City Circumferential Road. These are the new SONA projects initiated in CY 2007.

(4) Investment Levels

In the updated MTPIP for 2005-2010, as of June 2009, DPWH envisages a total investment of Php 507.532 billion. Of this amount, Php 348.867 billion or 68.7% is for highways/roads, while Php 36.190 billion or 7.1% is for flood control, and Php 122.473 billion is for other projects.

For highways alone, the investments have risen sharply from Php 26.501 billion in 2005 to Php 102.672 billion in 2010, or 3.87 times, as shown in the following figure. This manifests the increased emphasis placed by the DPWH on the national roads sector.

3.2 PRESENT ROAD NETWORK

3.2.1 DPWH Functional Road Classification

DPWH adopts a functional road network classification namely: Arterial Roads comprising North-South Backbone, East-West Laterals and other Road of Strategic Importance or Strategic Roads and National Secondary Roads (see **Figure 3.2.1-1**). According to the figures, all major cities and traffic generation sources are connected with arterial roads. The definitions of the road classifications are as follows:

(1) Arterial Roads (15,559km)

North-South Backbone (5,234km)

- The backbone road network in consideration of road and sea (ferry) linkages.
- This includes interconnection of primary centers and roads leading to growth corridors.

East-West Laterals (2,965 km)

- Arterial roads which inter-links North-South backbone road network in an east-west lateral orientation across the country with an interval of 50 to 200 km.

Strategic Roads (7,360 km)

- Roads which connect the other primary entries and all tertiary centers not on the above road category.
- These include roads which interconnect the above category roads at an appropriate interval as well as forming a closed network and alternative roads, including island circumferential and cross-island roads.

(2) National Secondary Roads (13,810km)

- All other national roads that are not classified as the arterial roads.

Table 3.2.1-1 presents the road surface conditions and national road densities of each region.

Figure 3.2.1-2 shows Medium-Term Investment Programs by DPWH. As shown in the figure, the investments for highways account for about 70 % of total investment costs from 2005 to 2010, which demonstrates that DPWH has placed emphasis on the national roads sector. The status of road projects based on the investment program is shown in **Figure 3.2.1-3**.

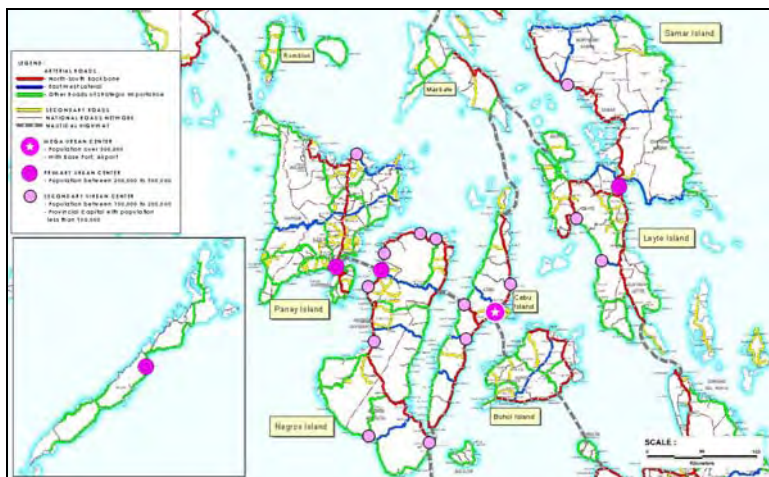
TABLE 3.2.1-1 ROAD SURFACE CONDITIONS AND ROAD DENSITY

Region and Road Classification		Paved (km)			Unpaved (km)			Grand Total (Km)	Road Density	
		Good & Fair	Others	Total	Good & Fair	Others	Total		RD(1)	RD(2)
CAR	Arterial	164	160	323	273	65	338	661	0.034	0.435
	Secondary	121	214	336	640	209	849	1,185	0.061	0.779
	Total	285	374	659	913	274	1,187	1,846	0.095	1.214
I	Arterial	459	355	814	-	46	46	860	0.066	0.189
	Secondary	350	285	635	82	33	115	750	0.058	0.165
	Total	809	640	1,449	82	78	161	1,610	0.124	0.354

Region and Road Classification		Paved (km)			Unpaved (km)			Grand Total (Km)	Road Density	
		Good & Fair	Others	Total	Good & Fair	Others	Total		RD(1)	RD(2)
II	Arterial	420	286	706	141	46	187	892	0.032	0.292
	Secondary	192	329	521	267	84	351	873	0.031	0.286
	Total	612	615	1,227	408	130	538	1,765	0.063	0.578
III	Arterial	422	501	923	81	24	105	1,027	0.047	0.106
	Secondary	354	495	849	92	64	156	1,005	0.046	0.103
	Total	776	995	1,771	173	88	260	2,032	0.094	0.209
IV-A	Arterial	791	216	1,006	32	33	64	1,071	0.064	0.091
	Secondary	677	380	1,057	233	45	277	1,334	0.080	0.114
	Total	1,467	596	2,063	264	77	341	2,404	0.145	0.205
IV-B	Arterial	498	340	838	290	164	454	1,292	0.044	0.505
	Secondary	93	77	170	359	365	723	893	0.030	0.349
	Total	591	418	1,008	648	529	1,177	2,185	0.074	0.854
V	Arterial	409	441	850	51	173	224	1,074	0.059	0.210
	Secondary	331	407	737	257	129	386	1,123	0.062	0.220
	Total	739	848	1,587	308	301	610	2,197	0.121	0.430
VI	Arterial	771	554	1,325	78	69	146	1,472	0.071	0.215
	Secondary	379	472	851	285	272	557	1,408	0.068	0.206
	Total	1,150	1,027	2,176	363	341	704	2,880	0.140	0.421
VII	Arterial	890	448	1,338	28	14	42	1,380	0.087	0.216
	Secondary	255	152	407	220	29	249	656	0.041	0.103
	Total	1,145	600	1,745	248	43	291	2,037	0.128	0.318
VIII	Arterial	532	774	1,306	41	59	101	1,407	0.061	0.360
	Secondary	283	340	623	180	163	343	966	0.042	0.247
	Total	815	1,114	1,929	221	222	443	2,373	0.102	0.606
IX	Arterial	442	199	642	141	72	213	854	0.050	0.265
	Secondary	101	93	194	113	56	169	364	0.021	0.113
	Total	544	292	836	254	128	382	1,218	0.071	0.377
X	Arterial	549	348	896	88	128	216	1,112	0.055	0.281
	Secondary	140	134	273	164	132	297	570	0.028	0.144
	Total	688	481	1,170	252	260	513	1,682	0.083	0.426
XI	Arterial	351	241	592	183	11	194	786	0.038	0.189
	Secondary	193	125	317	286	58	344	661	0.032	0.159
	Total	544	366	910	469	69	537	1,447	0.071	0.348
XII	Arterial	369	276	645	76	68	144	789	0.035	0.206
	Secondary	136	34	169	230	116	346	515	0.023	0.134
	Total	505	310	814	306	183	490	1,304	0.058	0.341
XIII	Arterial	265	189	454	103	238	340	795	0.037	0.346
	Secondary	105	70	175	220	169	389	564	0.026	0.246
	Total	370	260	629	323	406	729	1,358	0.063	0.592
NCR	Arterial	-	88	88	-	-	-	88	0.142	0.008
	Secondary	-	943	943	-	-	-	943	1.522	0.082
	Total	-	1,032	1,032	-	-	-	1,032	1.665	0.089
NATIONW IDE	Arterial	7,329	5,418	12,747	1,605	1,208	2,812	15,559	0.050	0.184
	Secondary	3,710	4,549	8,259	3,629	1,922	5,551	13,810	0.045	0.164
	Total	11,039	9,967	21,006	5,234	3,130	8,363	29,370	0.095	0.348

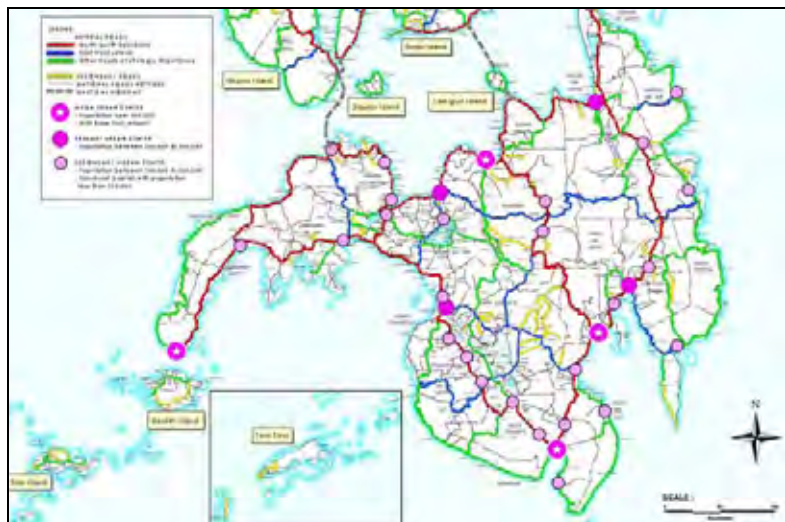
Notes: RD (1) = Area Density Index (km/km²); RD (2) = Population Density Index (km/1,000 people). Road densities are indicated only on the national roads.

**FIGURE 3.2.1-1 (1/3)
DPWH FUNCTIONAL
CLASSIFICATION
(LUZON)**

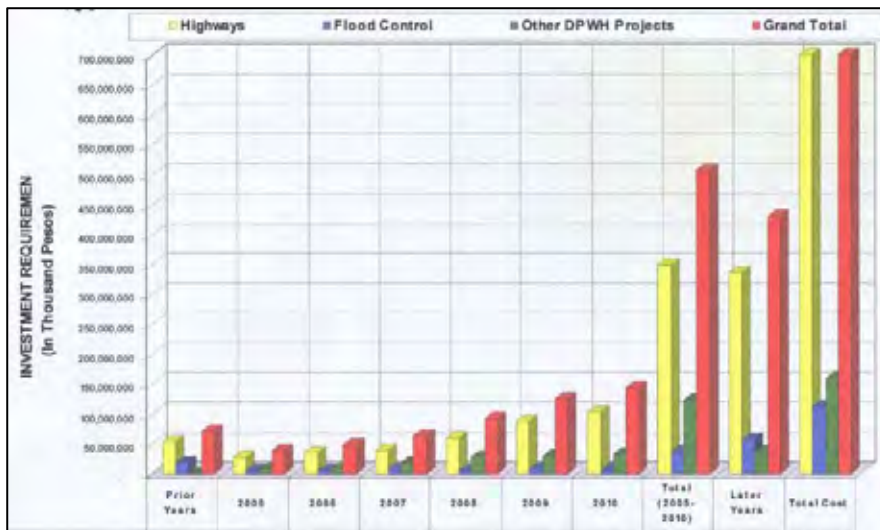


**FIGURE 3.2.1-1 (2/3)
DPWH FUNCTIONAL
CLASSIFICATION
(VISAYAS)**

**FIGURE 3.2.1-1 (3/3)
DPWH FUNCTIONAL
CLASSIFICATION
(MINDANAO)**



Source: DPWH Atlas, 2007



**FIGURE 3.2.1-2
MEDIUM-TERM
PUBLIC
INVESTMENTS
PROGRAM
(FY 2005 - 2010)**



**FIGURE 3.2.1-3 (1/2)
STATUS OF
MEDIUM-TERM
INFRASTRUCTURE
PROGRAM (LUZON)**

**FIGURE 3.2.1-3 (2/2)
STATUS OF
MEDIUM-TERM
INFRASTRUCTURE
PROGRAM (VISAYAS)**

Source: DPWH Medium Term Development Plan (2005-2010)

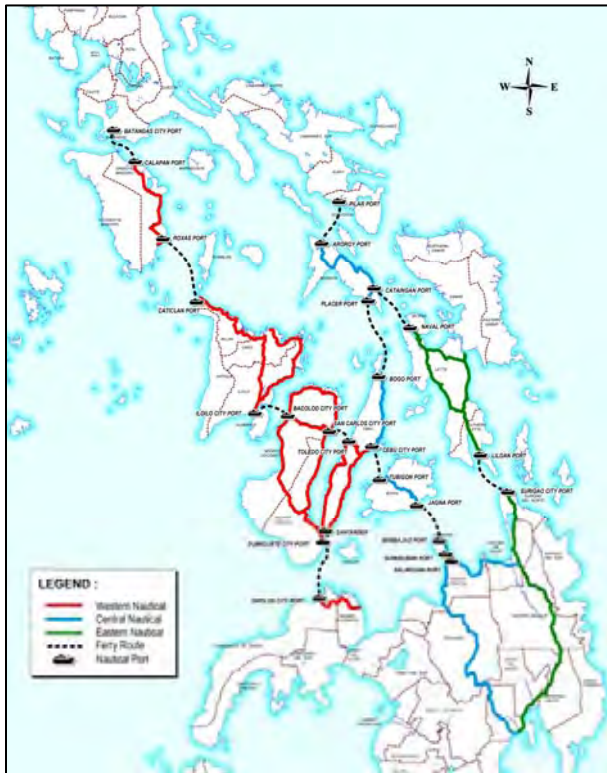


3.2.2 Nautical Highway Network System and Asian Highway

The Nautical Highway is an integrated set of highway segments and vehicular ferry routes, which forms backbone of a nationwide vehicle-accessible transport system. The Nautical Highway System consists of three major routes, namely Central Nautical Highway, Eastern Nautical Highway and Western Nautical Highway as shown in **Figure 3.2.2-1**. Its roles are expected

- To reduce travel time to the key cities,
- To enhance the accessibility of the prime tourist destinations, and
- To minimize the handling expenses of goods all over the country.

Figure 3.2.2-2 indicates the Asian Highway routes passing through the Philippines, which consist of the North-South Back Bone in the country.



Source: DPWH Atlas, 2007

FIGURE 3.2.2-1 NAUTICAL HIGHWAY SYSTEM



FIGURE 3.2.2-2 ASIAN HIGHWAY (AH26) PHILIPPINES

3.3 TRAFFIC-RELATED PROJECTS IN THE STUDY AREA

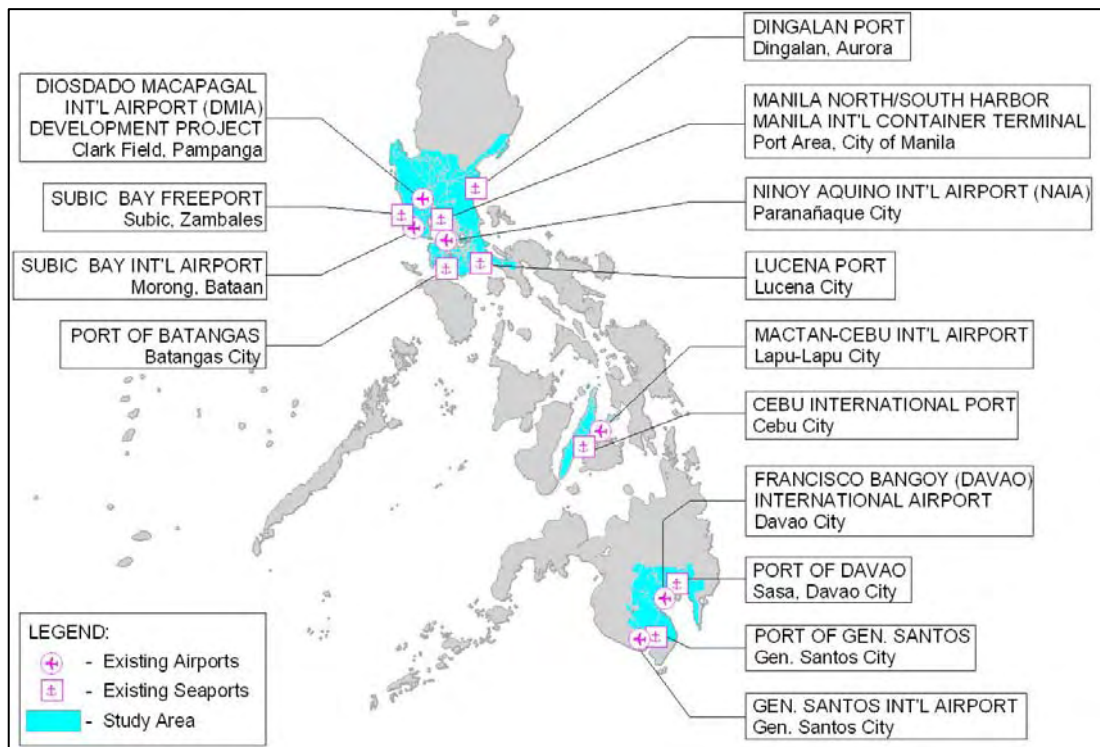
3.3.1 Airports and Sea Ports

Locations of the existing airports and seaports are indicated in **Figure 3.3.1-1**. Recently completed, on-going and planned projects for airports and seaports in the study area are shown in **Table 3.3.1-1**.

**TABLE 3.3.1-1 PROJECTS FOR AIRPORTS AND SEAPORTS IN THE STUDY AREA
(AS OF 28 FEB 2010)**

Project	Description	Project Status
DMIA Development Project		
A	Passenger Terminal 1 Rehabilitation and Expansion <u>Schedule</u> Jul 2007 - Mar 2008 <u>Cost</u> P303.3M	<ul style="list-style-type: none"> Completed on 31 March 2008. Operates 39 international flights per week with an average of 21,000 passengers per day at the passenger terminal building. <u>Issue</u> Considering the projected increase in DMIA's traffic in the coming years, the concern for a seamless connection between SCTEP-NLEX and SLEX via C5 as well as the need to provide access to the CBDs was highlighted.
B	Master plan Phase 1 Phase 1A: Express freight, Fuel Firm, General Freight, Runway, Taxiways. Phase 1B: PTB & Concourse, Passenger Aircraft, Airport Plaza and GTC Fuel Firm, Taxiways, Fire Stations, Control Tower <ul style="list-style-type: none"> Feasibility Study Detailed Eng'g Civil Works <u>Schedule</u> Sep 2008 - Dec 2011 <u>Cost</u> P56.5B Financing scheme for the project would depend on the F/S recommendation.	Phase 1A <ul style="list-style-type: none"> Invitation to Bid was published on 09 Oct. and an open competitive bidding procedure as specified in the Revised IRR of RA 9184 was held on 06 Nov. 2009. Notice of Award was issued to AG Araja Construction & Development Co. on 21 Nov. 2009 and Notice to Proceed (NTP) was issued on 08 Nov. 2009. Mobilization is on-going.
C	Passenger Terminal 2 Rehabilitation and Expansion <ul style="list-style-type: none"> Detailed Eng'g Civil Works <u>Schedule</u> July 2008 - Jan 2010 <u>Cost</u> P6.5B	<ul style="list-style-type: none"> Al-Mal Consortium submitted an unsolicited proposal which was accepted by CIAC for detailed negotiation. Al-Mal sent a letter dated 26 Oct. 2009 indicating that they revert back to their original proposal dated 28 June 2009. This invalidates all negotiations made with Al-Mal from June to Oct. 2009. CIAC Board agreed to write a letter to PGMA for the updates and seek guidance on the courses of action to be taken. The Joint Venture Selection Committee request an OGCC opinion for the legalities of the exclusivity request of Al-Mal Consortium. CIAC Board gave AL-Mal until Dec. 2009 to agree and sign the Terms of Agreement (TOA) as contained in the Certificate of Successful Negotiations. Failure to agree and sign the TOR will terminate the JV process with AL-Mal and proceed with other privatization options for the project.
D	DMIA Radar Approach Control (GOCC/ODA)	Promote safety of aircraft operations and enhance operational capabilities of DMIA as an alternative gateway to the Philippines. <ul style="list-style-type: none"> Completed in Feb. 2007 and inaugurated on 4 April 2007. The Radar system is fully operational.

Project		Description	Project Status
SUBIC Bay Port			<ul style="list-style-type: none"> Completed in March 2008.
Port Development Project		Cost: P5.2B (JBIC Loan)	
LUCENA Port (PPA)			<ul style="list-style-type: none"> Completed 22 Dec. 2006 Completed on 23 Nov. 2007. Completed on 15 Nov. 2007.
A	Construction of Passenger Terminal	Cost P21.5 M	
B	Paving of Back-up Area	Cost P47.8M	
C	Construction of Breakwater	Cost P269.1M	<ul style="list-style-type: none"> Completed on 15 Nov. 2007.
BATANGAS Port			<ul style="list-style-type: none"> Completed on 19 Dec. 2007. Completed on 29 Oct. 2007.
A	Package I- Civil and Marine Works	Cost P5.6B	
B	Package III - Construction of Access Road & Flyover	Cost P279.5M	
NAIA Passenger Terminal 3			<ul style="list-style-type: none"> Completion Work Agreement (CWA) between MIAA and Takenaka yet to be approved by MIAA. Negotiation is still on process in order to complete the outstanding item of works to activation of the facilities and full operation of the terminal by the end of 2009. Efforts are being made in order to enhance the security capabilities of the Baggage Handling System in preparation for the transfer of other airlines to the terminal Some international airlines are still under negotiation to relocate.
Completion, reactivation, testing and commissioning on a turnkey basis of NAIA Terminal 3		Cost P792M	
ALAMINOS Airport			<ul style="list-style-type: none"> Target submission of Final report by the end of March 2010. Civil Works: NOA already received by the contractor. ROW: MOA to LGU approved on 23 Sep 2009. Additional fund for CY 2010 in the amount of P715M for full development of Alaminos Airport to be requested by the NLAQ Champion.
A	Pre-Feasibility Study/Master Plan	Cost P7.5M (CY)	
B	Site acquisition and initial construction of airport	<ul style="list-style-type: none"> Detailed Eng'g Civil Works Cost(CY) CW: P100.0M ROW:P50.0M	
DINGALAN Port Project			<ul style="list-style-type: none"> Completed 30 Nov 2007. Completed on 30 Jan 2008.
A	Port Development	Cost P50.3M	
B	Construction of Passenger Terminal	Cost P47.0M	
BOGO Port Development Project			<ul style="list-style-type: none"> Completion on 18 Feb 2008.
Provision of RoRo Ramp			
Daanbantayan Port Development Project			<ul style="list-style-type: none"> The project is 66.8% completion as of 31 May 2008. Due to the delayed resolution on ROW problems that caused significant delay on the implementation, the Provincial Government have decided to terminate the contract with the existing contractor and will negotiate the take-over contract to qualified contractor once the ROW problems would be solved.
Construction of RoRo Ramp		<ul style="list-style-type: none"> Implemented by LGU-Cebu Province 	
DAVAO (SASA) Port			<ul style="list-style-type: none"> Completed on 16 Apr 2007. Completed on 02 Dec 2008.
A	Rehabilitation	<ul style="list-style-type: none"> Rehabilitation of 42.35x 18m quay Cost P24.1M	
B	Davao Port Expansion Project	<ul style="list-style-type: none"> Construction of RC wharf Cost P428.9M	



Source: Study Team

FIGURE 3.3.1-1 LOCATIONS OF AIRPORTS AND PORTS IN THE STUDY AREA

3.3.2 Railway Projects and Plans

Railway projects in Metro Manila and surrounding areas, including proposed projects and on-going, are illustrated in **Figure 3.3.2-1**. Features of the existing railways are as follows:

- Formulation of the railway network in Metro Manila is that LRT 1 and MRT 3 run in the shape of the circular ring while North Rail, MRT 7, LRT 2 and South Rail stretches in a radial pattern from LRT 1 and MRT 3.
- LRT 1 running north-south on the west side of Metro Manila is the first mass transport system with tracks.
- MRT 3 was constructed above the C-4 (EDSA).
- LRT 1 north extension project is on-going, which connects LRT 1 and MRT 3.
- LRT 2 (13.8 kms) crosses LRT 1 at the beginning point along Recto Ave. in Manila City and crosses MRT 3 at EDSA in Quezon City and running up to Santolan of Marikina City.

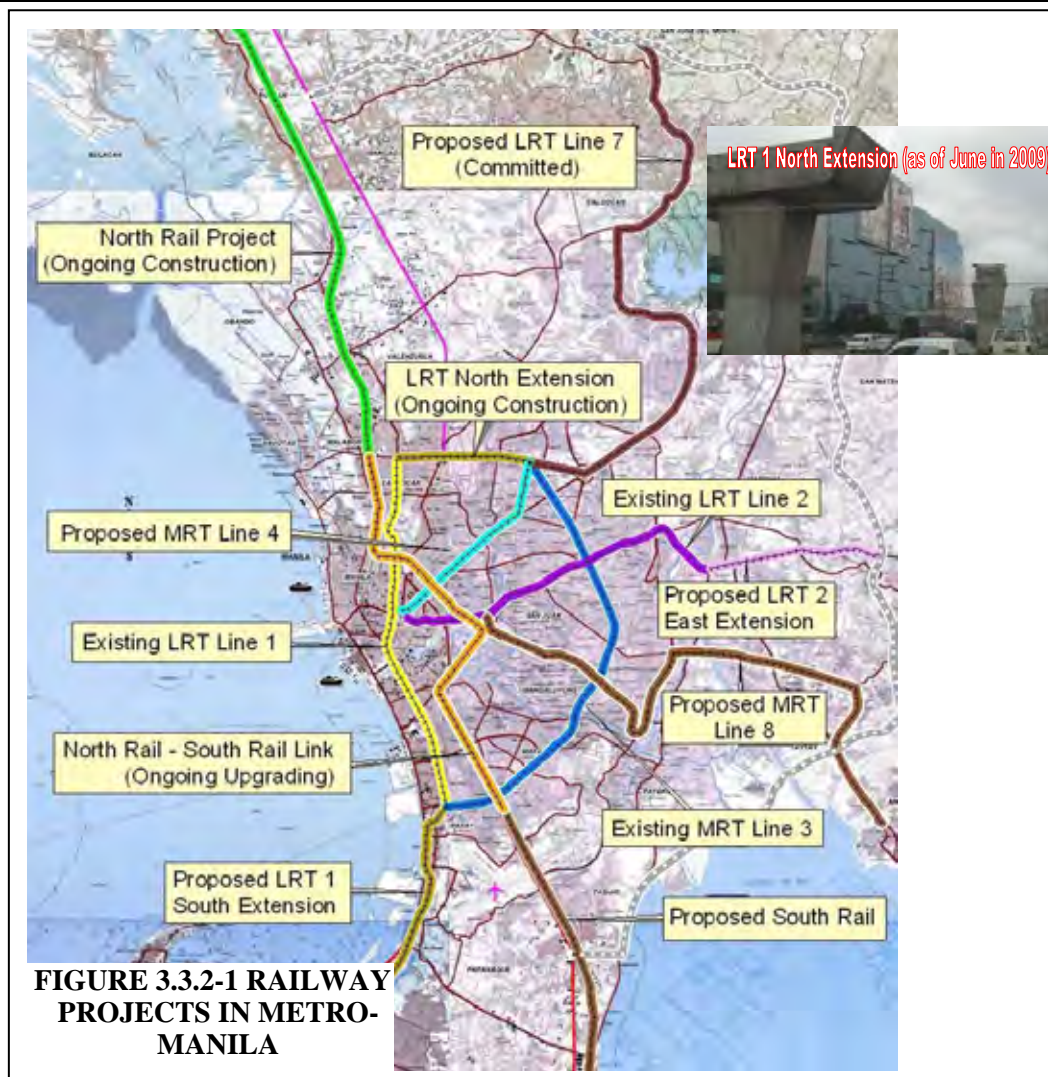
Status of the on-going and planned railway projects is described in **Table 3.3.2-1**.

TABLE 3.3.2-1 STATUS OF RAILWAY PROJECTS

Projects	Descriptions	Status
<p>1. LRT Line 1 North Extension Project</p> <ul style="list-style-type: none"> • Implementing Agency: LRTA • Project Costs: Original: P6.3B Additional: P1.3B 	<ul style="list-style-type: none"> • Construction of a 5.7-km. elevated line from Monumento Station of Line 1 to North Avenue Station of Line 3, with 3 new stations namely: Balintawak, Roosevelt and a Common Station in front of SM Annex North EDSA plus Malvar Station in Caloocan City. 	<ul style="list-style-type: none"> • Total Project Completion %: 87.65 • 24 Hour/ 7Day-Schedule Implemented • The Loop was "Physically Closed" in December 2009 <ul style="list-style-type: none"> - <u>Common Station at SM Annex</u> <ul style="list-style-type: none"> *Approved by the NEDA ICC-CC and confirmed by the NEDA Board on July 2009 *Construction completion is targeted on November 2010 - <u>On the Additional Station (Malvar Station)</u>

(as of April, 2010)		<ul style="list-style-type: none"> Feasibility study completed
<p>2. LRT Line 1 South Extension Project</p> <ul style="list-style-type: none"> Implementing Agency: LRTA Project Costs: P50.8B <p>(as of Feb., 2010)</p>	<ul style="list-style-type: none"> Extension of the existing 15km LRT Line 1 System southward by an additional 11.7km, of which approximately 10.5km will be elevated and 1.2km will be at-grade. Extension will start from the existing line's last station at Baclaran and will traverse the cities of Parañaque and Las Piñas in Metro Manila and reach the municipality of Bacoor. The project will involve System Enhancement Works over concession period. A total of 64 LRVs will be added in 2020 and 8 LRVs in 2030. 	<ul style="list-style-type: none"> Row Acquisition <ul style="list-style-type: none"> On-going (Acquired 56.5% of the 232,000 sq.m. requirement). MOA w/ DPWH and Phil. Reclamation Authority (PRA) granting LRTA free use of their land already signed. Relocation of Informal Settlers <ul style="list-style-type: none"> Completed the final list of families for relocation. On-going preparation of the relocation site of informal settlers by the Cavite province. ECC: On-going preparation of the EIA required by DENR-EMB Per 44th NEDA Board Meeting (January 2010): Open the Project for competitive bidding, On 03 February 2010, LRTA constituted a SBAC in compliance with the agreement reached during the 44th NEDA Board Meeting.
<p>3. LRT Line 2 East Extension Project</p> <ul style="list-style-type: none"> Implementing Agency: LRTA Project Costs: P9.4B <p>(as of Oct., 2009)</p>	<ul style="list-style-type: none"> Construction of 4-km eastern extension of MRT Line 2 from its current terminus in Santolan to the Masinag Market in Antipolo along the centerline of Marcos Highway with the same design parameters as the original MRT Line 2. Only two stations will be constructed: 1) MC Station and 2) Silangan Station. 	<ul style="list-style-type: none"> Updating of the Feasibility study previously approved by the NEDA Technical Board. <ul style="list-style-type: none"> Marubeni Philippines Corporation officially expressed its intention to participate undertaking. LRTA issued its official request to Marubeni Corporation on May 2009. Exploratory talks with the LBP, DB P on the possible financing of the project are also ongoing. Financing from other institutions offering concessional terms like JICA will, likewise, be explored in coordination with DOF.
<p>4. MRT 7</p> <ul style="list-style-type: none"> Implementing Agency: MRTC/ URTC Project Costs: \$1.2B <p>(as of April, 2010)</p>	<ul style="list-style-type: none"> Combined 45-km of road and rail transportation project from Bocaue exit North Luzon Expressway (NLEX) to MRT3 at North Avenue-EDSA. The 22-km, 6-lane asphalt road will connect the NLEX to the major transportation hub development in Tala, San Jose del Monte. The 23-km mostly elevated MRT starts from Tala and ends at the integrated MRT 3/MRT7 station at EDSA. 	<ul style="list-style-type: none"> Ongoing negotiations between Universal LRT Corp. and funding institutions. ULRT intends to combine local and foreign loans (JICA and/or ADB) with a combination of 75% debt and 25% equity. Financial closure expected within 2 months. Construction period for 22kms from San Jose del Monte to North Avenue in Quezon City is expected to last three and half years, which was supposed to have started January of 2009 to end by 2013.
<p>5. North Rail</p> <ul style="list-style-type: none"> Implementing Agency: BCDA Project Costs: <u>Phase 1 Section 1</u>: P27.7B <u>Phase 1 Section 2</u>: P34.2B <p>(as of June, 2009)</p>	<ul style="list-style-type: none"> Phase 1 Section 1 (Caloocan to Malolos, 32.28 km) generally along PNR ROW, at grade, partly elevated. Phase 1 Section 2 (Malolos to Clark, 51.52 km) generally along PNR ROW, at grade, partly elevated, partly tunneled. 	<p><u>Phase 1 Section 1</u></p> <ul style="list-style-type: none"> On Mar-09, NEDA approved the revised proposal of Northrail due to change in project scope and cost. Procurement of brand new rolling stock is on-going. NHA Relocation: Caloocan to Malolos (20,846 settlers) is 100% <p><u>Phase 1 Section 2</u></p> <ul style="list-style-type: none"> FS is complete, while Civil Works has not yet started. Northrail is currently working on the conceptual design of having the tracks on piled slab instead of embankment and viaduct. Northrail already completed the ROW boundary survey. ROW: 746 out of 16,720 households along the Malolos to Mabalacat were already relocated.
6. South Rail	<ul style="list-style-type: none"> Phase 1B (Lucena to Legaspi) 	<ul style="list-style-type: none"> Phase 1B: FS for updating

<ul style="list-style-type: none"> • Implementing Agency: PNR • Project Costs: Phase 1B: P34.1B Phase 2: P16.8B (as of June, 2009) 	<ul style="list-style-type: none"> • Phase II (Comun, Daraga, Albay to Matnog, Sorsogon) 	<ul style="list-style-type: none"> • Phase II: FS for updating
<p>7. North Rail - South Rail Linkage</p> <ul style="list-style-type: none"> • Implementing Agency: PNR • Project Costs: Phase 1: P50.4B Phase 2: P4.2B 	<ul style="list-style-type: none"> • Phase 1 (Caloocan to Alabang, 34 km) • Phase 2 (Alabang to Calamba, 27 km) 	<ul style="list-style-type: none"> • Phase 1 (as of April, 2010) • Operational and relocation is 100% completed. • Phase 2 (as of June, 2009) • On March 2009, NEDA requested PNR's re-confirmation of the project's priority standing to facilitate presentation of the same for possible ICC action towards subsequent endorsement to Korean Government. • The ICC-CC in December 2008 approved the Phase 2 ODA loan financing under the EDCF of the Korean Government. • Relocation Status: 6,876 (34.0%) households already relocated.
<p>8. LRT Line 8</p>	<ul style="list-style-type: none"> • 48-kilometer line from Metro Manila, Laguna and Rizal. • Tunnel sections b/w Pililla, Rizal and Santa Cruz, Laguna • Phase I (Santa Mesa, Manila to Angono, Rizal, consist of 17 km elevated track, following the general alignment of Shaw Boulevard and Ortigas Avenue.) 	<ul style="list-style-type: none"> • Conception Stage



CHAPTER 4

PRESENT PRACTICE OF TOLL ROAD DEVELOPMENT THROUGH PPP SCHEMES

CHAPTER 4

PRESENT PRACTICE OF TOLL ROAD DEVELOPMENT THROUGH PPP SCHEMES

4.1 LEGISLATIVE FRAMEWORK ON PPP

4.1.1 Laws and Regulations for Toll Road Development

The main laws and regulations on infrastructure implementation by the private sector, especially on toll roads, are presented in **Table 4.1.1-1**.

In accordance with changes of these laws and regulations, the toll road developments have also evolved through the following two distinct (2) approaches.

(1) Franchise Approach (1977 – 1983)

Through Presidential Decree (PD) No. 1112 in 1977, the “Toll Operation Decree” was issued and the Toll Regulatory Board (TRB) was created. The TRB was authorized to enter into contracts for the construction, operation, and maintenance of toll facilities such as but not limited to national highways, roads, bridges, and public thoroughfares.

Under PD No. 1113 in 1977, the Construction and Development Corporation of the Philippines (CDCP) was granted, for a period of thirty (30) years from May 1, 1977, the right, privilege and authority to construct, operate and maintain toll facilities with extensions to Pangasinan of the North Luzon Expressway and to Quezon of the South Luzon Expressway.

With PD No. 1084 in 1977, the Public Estate Authority (PEA), now Philippine Reclamation Authority (PRA), was created to reclaim land, develop all kinds of real estate owned by the government, and to provide the services for the efficient utilization of the properties.

Through PD No. 1894 in 1983, the Philippine National Construction Corporation (PNCC, formerly CDCP) was further granted the authority to construct, maintain and operate any and all such extensions, linkages or stretches from any part of the North Luzon Expressway, South Luzon Expressway and/or Metro Manila Expressway. The franchise for the Metro Manila Expressway and all extensions linkages shall have a term of thirty (30) years commencing from the date of completion of the project.

(2) BOT Approach (1990 – Present)

In 1990, Republic Act (RA) No. 6957, otherwise known as the BOT Law, authorized the financing, construction, operation and maintenance of infrastructure projects by the private sector.

In 1994, RA No. 6957 was amended by RA No. 7718, which, among other things, allows more BOT variants, recognizes the need for private investors to realize rates of return reflecting market conditions, allows government support for BOT projects and allows unsolicited proposals. The Revised Implementing Rules and Regulations (Revised IRR) for the BOT Law, as amended, have been prescribed to cover all private sector infrastructure or development projects.

In 1992, RA No. 7227 created the Bases Conversion and Development Authority (BCDA) with the power, among others, to construct, own, lease, operate and maintain public utilities as well as infrastructure facilities to support the conversion into productive uses of the Clark and Subic Bay reservations.

The Revised IRR of the BOT Law, as amended, provides the legal basis for private sector participation in development project of the government, with the fifteen (15) Rules as follows:

- Rule 1: Preliminary Provisions
- Rule 2: General Provision
- Rule 3: The BOT Pre-Qualification, Bids, and Awards Committee
- Rule 4: Bid/Tender Documents
- Rule 5: Qualification of Bidders
- Rule 6: Supplemental Notices and Pre-Bid Conference
- Rule 7: Submission, Receipt and Opening of Bids
- Rule 8: Evaluation of Bids
- Rule 9: Negotiated Contract
- Rule 10: Unsolicited Proposals
- Rule 11: Award and Signing of Contract
- Rule 12: Contract Approval and Implementation
- Rule 13: Investment Incentives and Government Undertakings
- Rule 14: Coordination and Monitoring of Projects
- Rule 15: Final Provisions

- Annexes: The Public Bidding Process Under R.A. 7718 (BOT Law)
 - Option 1: Pre-qualification Undertaken Prior to Issuance of Request for Proposals
 - Option 2: Qualification Incorporated in the Bidding Process
 - Process for Unsolicited Proposals under R.A. 7718 (BOT Law)
 - Approved Process for Publicly Bid Project
Option 1 (under RA 7718)
 - Approved Process for Unsolicited Proposals
(under RA 7718)

**TABLE 4.1.1-1 (1) LAWS AND REGULATIONS ON INFRASTRUCTURE
IMPLEMENTATION BY THE PRIVATE SECTOR (1977-1990)**

Decrees/Orders Date	Main Subject	Outlines
PD No. 1112 31 st March, 1977	Toll Operation Decree	<ul style="list-style-type: none"> • Authorized the establishment of toll facilities on public improvements, • Created the Toll Regulatory Board (TRB) with the following powers and duties <ul style="list-style-type: none"> - Enter into contracts for the construction, operation and maintenance of toll facilities. - Determine the kind, type and nature public improvements that can be constructed and operated as toll facilities. - Condemn private property for public use - Promulgate the rates of toll - Grant authority to operate a toll facility and issue “Toll Operation Certificate”
PD No. 1113 31 st March, 1977	CDCP Franchise (North and South Luzon Toll Expressways)	<ul style="list-style-type: none"> • Granted the Construction and Development Corporation of the Philippines (CDCP) a franchise to operate, construct and maintain toll facilities in the North Luzon Toll Expressway (Balintawak-Rosales) and South Luzon Toll expressway (Nichols-Lucena). • Franchise was for 30 years from May 1, 1977.
PD No. 1084 4 th February, 1977	Charter of Public Estates Authority (PEA)	<ul style="list-style-type: none"> • Created the Public Estate Authority for the following purposes, among others. <ul style="list-style-type: none"> - To reclaim land - To develop all kind of lands and other real estate owned/operated by the government. - To provide services for the efficient utilization of the properties.
PD No. 1894 22 nd December, 1983	Amendment of PNCC Franchise	<ul style="list-style-type: none"> • Amended the franchise of the Philippine National Construction Corporation (PNCC, formerly CDCP) • Included the Metro Manila Expressway to link the North and South Luzon Expressways. • Granted PNCC the right to construct, maintain and operate any and all such extensions, linkages or stretches. • Franchise shall have a term of 30 years from the date of completion of the project.
RA No. 6957 9 th July, 1990	Implementation of Infrastructure Projects by the Private Sector (BOT Law)	<ul style="list-style-type: none"> • Authorized the financing, construction, operation and maintenance of Infrastructure projects by the private sector..

**TABLE 4.1.1-1 (2) LAWS AND REGULATIONS ON INFRASTRUCTURE
IMPLEMENTATION BY THE PRIVATE SECTOR (1992 ~ Present)**

R A No. 727 13 th March, 1992	Bases Conversion and Development Authority (BCDA)	<ul style="list-style-type: none"> • Created the Bases Conversion and Development Authority to construct, own, lease, operate and maintain public utilities as well as infrastructure facilities to support the productive uses of the Clark and Subic Bay reservations.
RA No. 7718 5 th May, 1994	Amendment of BOT Law and its Implementing Rules and Regulations	<ul style="list-style-type: none"> • Amended RA No. 6957 by, among others, <ul style="list-style-type: none"> - Allowing more variants of BOT scheme - Recognizing the need of private investors for rates of return reflecting market conditions - Authorizing government support for BOT projects - Allowing unsolicited proposals
Executive Order (EO) 144 2 nd November, 2002	Build, Operate, and Transfer (BOT) Center	<ul style="list-style-type: none"> • Reorganized the Coordinating Council for Private Sector Participation into the BOT Center under the Department of Trade and Industry, to promote, market, coordinate and monitor the BOT/ Private Sector Participation (PSP) Program of the Government
Executive Order (EO) 380 26 th October, 2004	Transforming the PEA	<ul style="list-style-type: none"> • Transforming the Public Estates Authority (PEA) into the Philippine Reclamation Authority, • Transferring its Non-Reclamation Assets and Liability to the Department of Finance, and • Separating there from the PEA-Tollway Corporation for Purpose of Management
Executive Order (EO) 423 30 th April, 2005	Rules and Procedures on the Review and Approval of all Government Contract	<ul style="list-style-type: none"> • Conform with RA No. 9184 “The Government Procurement Reform Act” • Joint Venture Agreement
Executive Order (EO) 686 19 th December, 2007	Transfer of TRB to DOTC and its Mandate	<ul style="list-style-type: none"> • Transferred back TRB from DPWH to DOTC and clarified its mandate. • Vested in DPWH the following powers: <ul style="list-style-type: none"> - Enter into contract for the construction, operation and maintenance of toll facilities for highways, roads, bridges and thoroughfares. - Determine the kind, type and nature of highways, roads, bridges and thoroughfares. - Condemn private property for the same • Orders TRB to concentrate on the following powers; <ul style="list-style-type: none"> - Issue, modify and proclaim the rates of toll and approve or disapprove petitions for the increases; and - Grant authority to operate a toll facility and issue the necessary “Toll Operation Certificate”.

4.1.2 Institutional Structure on Toll Road Development

(1) Main Players in Toll Road Development

The Revised Implementing Rules and Regulations (IRR) of the BOT Law shall cover all private sector infrastructure and development projects undertaken by Agencies/LGUs in accordance with such contractual arrangement or schemes authorized under and pursuant to RA No. 6957, as amended by RA No. 7718.

The Revised IRR also provides the rules and regulations to assure close coordination between national government and Local Government Units (LGUs) and ensure strict compliance by the Government and the Project Proponent of their respective obligations and undertakings and monitoring.

For the development of toll roads, many departments, authorities and offices as well as private entities are involved as shown in **Figure 4.1.2-1**. The Department of Public Works and Highways (DPWH), as the Agency, identifies projects and prepare the feasibility studies including all necessary documents and submit these to the Approving Body for approval.

The National Economic and Development Authority (NEDA) Board, as the Approving Body, approves the project upon the recommendation by the Investment Coordination Committee (ICC).

Prior to the bidding, the DPWH shall secure the advice of the TRB as the Regulator or the approval of the Approving Body or both, on the pre-determined formula and official price indices to be used in the adjustment of the toll rates prescribed in the Instructions to Bidders and the approved contract.

Under Executive Order (EO) No. 686, 19th December 2007, the TRB was transferred back from the DPWH to the Department of Transportation and Communication (DOTC), and the roles or powers vested in the DPWH and the TRB were demarcated as follows:

Roles of DPWH

- To enter into contracts for the construction, operation and maintenance of toll facilities for highways, roads, bridges and public thoroughfares.
- To determine and decide the kind, type and nature of highways, roads, bridges and public thoroughfares.
- To condemn private property for highways, roads, bridges, and public thoroughfares.

Roles of TRB

- To issue, modify and proclaim from time to time the rates of toll that will be charged the direct users of toll facilities and upon notice and hearing, to approve or disapprove petitions for the increase; and
- To grant authority to operate a facility and to issue necessary “Toll Operation Certificate”.

Figure 4.1.2-1 shows the main players in the development of toll roads.

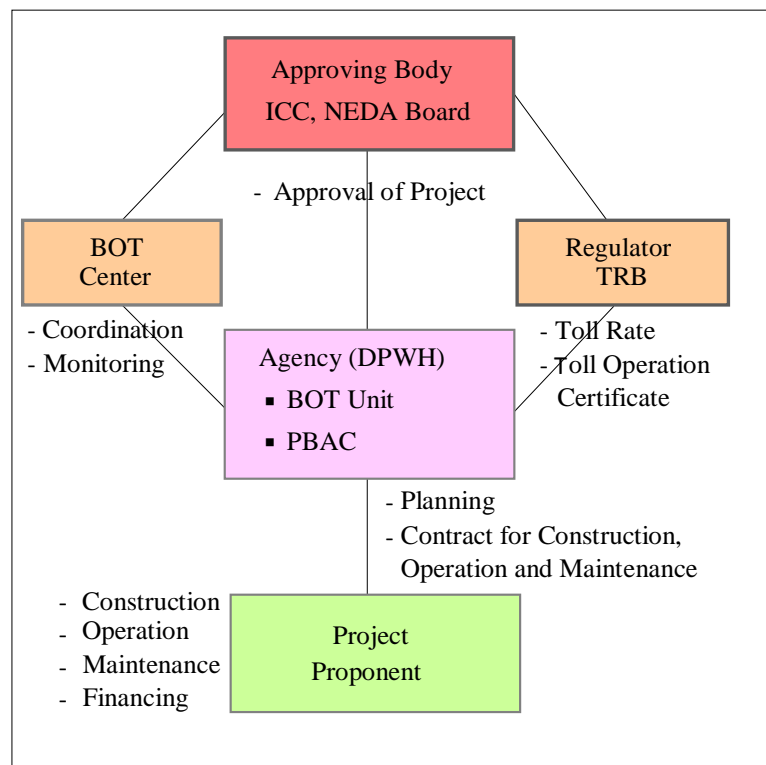


FIGURE 4.1.2-1 MAIN PLAYERS IN TOLL ROAD DEVELOPMENT

Agency - Any department, bureau, office, commission, authority of agency of the national government, e.g., the DPWH for toll roads.

Approving Body - The entity authorized to approve projects. ICC, NEDA Board or Local Sanggunian for toll roads.

BOT Center - The successor of the Coordinating Council of the Philippines Assistance Program (CCPAP), the agency mandated to coordinate and monitor projects implementation under the BOT Law.

BOT Units - The units created by each Agency/LGU, responsible for planning, overseeing and monitoring projects of Agencies/LGUs.

ICC - The Investment Coordination Committee of the National Economic and Development Authority (NEDA) Board.

Project Proponent - The private sector entity which shall have contractual responsibility for the project and which shall have an adequate track record in the concerned industry as well as technical capability and financial base.

PBAC - The Pre-Qualifications, Bids, and Awards Committee created by the Head of Agency/LGU, responsible for all aspects of the pre-bidding and bidding process in case of solicited proposals, and for the comparative bidding process (otherwise known as the “Swiss Challenge”).

Regulator - The agency, body or commission empowered by law to fix the rates of a provider of a particular public service, e.g., the TRB for toll roads.

(2) **Delineation of Roles In Toll Road Implementation**

In implementing toll road projects, the processes required under the different stages are shown in **Table 4.1.2-1**.

TABLE 4.1.2-1 TOLL ROAD IMPLEMENTATION STAGES

	Public Bidding	Unsolicited Proposal
Stage 1	Project Approval	Approval of Project Proposal and Contract
Stage 2	Public Bidding and Contract Approval	Comparative Proposals and Contract Approval
Stage 3	Detailed Engineering Design	Detailed Engineering Design
Stage 4	Construction, Operation and Maintenance	Construction, Operation and Maintenance
Stage 5	Contract Termination/Rescission	Contract Termination/Rescission
Stage 6	Repayment	Repayment
Stage 7	Investment Incentives and Government Undertakings	Investment Incentives and Government Undertakings
Stage 8	Coordination and Monitoring	Coordination and Monitoring

Each stage involves critical activities of project implementation, which shall be executed at the right time by the government and/or project proponent in accordance with the rules and regulations. The government and project proponent shall perform their respective responsibilities and roles in accordance with the revised IRR, as shown in **Table 4.1.2-2** for Public Bidding Process and **Table 4.1.2-3** for Unsolicited Proposals.

**TABLE 4.1.2-2 (1) DELINEATION OF ROLES IN TOLL ROAD IMPLEMENTATION
PUBLIC BIDDING UNDER R.A. 7718 (BOT LAW)**

Stages	Activities	Government	Project Proponent
1. Project Approval	1.1 Project ID and Preparation	By Agency (F/S, Contract Documents)	-
	1.2 Approval of Project	By Approving Body (ICC, NEDA Board, Local Sanggunian)	-
2. Public Bidding and Contract Approval	2.1 Advertisement and Invitation to P.Q.	By PBAC	-
	2.2 Preparation of P.Q. Document	-	Preparation
	2.3 P.Q. of Bidders	By PBAC	-
	2.4 Proposals/Bid Preparation	Issuance of Request by agency (Pre-Bid Conference by PBAC)	Preparation
	2.5 Bid Submission and Evaluation	Evaluation by PBAC	Submission (2 envelopes)
	2.6 Approval of Contract Award	- Recommendation by PBAC - Approval by Agency	-
	2.7 Issuance of Notice of Award	By Agency	-
	2.8 Execution/ Approval of Contract	- Execution by authorized signatory of Agency - Submission of copy of signed contract to Approving Body	- Execution by authorized signatory of winning proponent
	2.9 Issuance of Notice to Commence Implementation	By Agency	
3. Detailed Engineering Design	3.1 Detailed Engineering (DE) Designs and Plans	Preparation of DE (government option) Setting of design performance standards	Preparation of DE based on government performance standards
	3.2 Review and Approval of Detailed Engineering Design and Plans	By Agency	
4. Construction	4.1 Project Construction	-	- Construction per design/performance standards. - Proponent may engage qualified foreign/Filipino contractors
	4.2 Performance Guarantee/ Security		Posting of Security in cash, LC, bank guarantee, surety bond to guarantee contract obligations up to project acceptance.
	4.3 Technical Supervision/ Review of Project Construction	Inspection and checking to determine conformance with plans, specs and standards	Correction of deviations
	4.4 Contract Variation	- Recommendation by Agency - Prior approval by Approving Body	-

**TABLE 4.1.2-2 (2) DELINEATION OF ROLES IN TOLL ROAD IMPLEMENTATION
PUBLIC BIDDING UNDER R.A. 7718 (BOT LAW)**

4. Construction	4.5 Milestones	Setting of milestones as part of bidding documents	Execution of Project in accordance with pre-determined milestones
	4.6 Liquidated Damages	-	Damages due for every day of delay beyond target completion date
	4.7 Contract Termination/ Rescission	Rescission if Project Proponent fails to perform any provision of approved contract	Termination if Agency fails to comply with any major obligation in approved contract
5. Operation and Maintenance	5.1 Performance Guarantee/ Security for Operation		Posting of Security in cash, LC, bank guarantee, surety bond to guarantee proper operation
	5.2 Repair and Maintenance Costs		- Repair/ maintenance per performance standards - Set aside maintenance fund from revenues and deposit in escrow account
	5.2 Contract Termination/ Rescission	Rescission if Project Proponent fails to perform any provision of approved contract	Termination if Agency fails to comply with any major obligation in approved contract
	5.3 Transfer of and warranty over Facility	-	Post Warranty Security
6. Repayment Schemes	6.1 General Classification	- Depends on contractual arrangement or as accepted by Approving Body	For BOT arrangement: Collection of reasonable tolls, fees, and charges for a fixed term.
	6.2 Tolls, fees, Rentals, and Charges	- Evaluated by Agency in Bid - Approved by Approving Body - Incorporated in the contract - Upheld by Regulator	Charging approved tolls, fees, charges
	6.3 Adjustment of Tolls/Fees/ Rentals/ Charges	- Pre-determination of toll adjustment formula and official price indices and inclusion in Instructions to Bidders - Prior to bidding, secure advice of Regulator and/or approval of Approving Body for such formula	Actual adjustment based on pre-determined formula and official price indices in the approved contract
7. Investment Incentives	7.1 Available Investment Incentives	- As provided for under Omnibus Investment Code	Availing of incentives

**TABLE 4.1.2-2 (3) DELINEATION OF ROLES IN TOLL ROAD IMPLEMENTATION
PUBLIC BIDDING UNDER R.A. 7718 (BOT LAW)**

8. Government Undertakings	8.1 Cost sharing for Construction	<ul style="list-style-type: none"> - May provide ROW and, where applicable, financing (GFS) of portion/share of capital cost not exceeding 50% of total cost - May finance GFS from ODA 	Financing of the capital cost, net of GFS
	8.2 Credit Enhancement	<ul style="list-style-type: none"> - May include guarantee on performance of Agency obligations 	
	8.3 Direct government subsidy for O&M	<ul style="list-style-type: none"> - May finance a portion of O&M cost, or condone/postpone payments due from proponent, or contribute property to the project 	
	8.4 Direct government equity	<ul style="list-style-type: none"> - May subscribe shares of stocks of the project company 	
	8.5 Performance Undertaking	<ul style="list-style-type: none"> - May assume responsibility for the performance of Agency's obligations under the contract, including monetary obligations for default. 	
	8.6 General	<ul style="list-style-type: none"> - Agency may offer any of above Government undertakings to be submitted to the Approving Body for approval of the project and the contract - Agency should pre-clear the undertakings with the entity that will grant the same 	
9. Coordination and Monitoring of Projects	9.1 Coordination and Monitoring	<ul style="list-style-type: none"> - BOT Center shall be responsible 	
	9.2 Report to ICC, President and Congress	<ul style="list-style-type: none"> - BOT Unit of Agency shall be responsible for planning, overseeing and monitoring projects 	

**TABLE 4.1.2-3 (1) DELINEATION OF ROLES IN TOLL ROAD IMPLEMENTATION
UNSOLICITED PROPOSALS UNDER R.A. 7718 (BOT LAW)**

Stages	Activities/ Aspects	Government	Project Proponent
1. Approval of Project Proposal and Contract	1.1 Project Proposal	-	Preparation (F/S, Company Profile, Draft Contract)
	1.2 Evaluation of Proposal	- Evaluation of project proposal by Agency - Information to Approving Body on acceptance or rejection	Original Proponent to notify the Agency of its acceptance of the terms of the approval.
	1.3 Negotiation with Original Proponent	- Negotiation - Confirmation of indicative reasonable rate of return from Approving Body	Negotiation
	1.4 Approval of Project Proposal and Contract	- By Approving Agency	-
2. Comparative Proposals and Contract Approval	2.1 Adjustment of Tolls/Fees/Rentals/Charges	- Advice of Regulator/ approval of Approving Body for pre-determined toll rate adjustment formula and official price indices	-
	2.2 Acceptance of Terms and Conditions	-	Acceptance
	2.3 Issuance of Invitation for Comparative Proposals	By Agency	
	2.4 Preparation and Submission of Comparative Proposals	Pre-Bid Conference by PBAC	Preparation and Submission of Comparative Proposals by Proponents (3 envelopes)
	2.5 Evaluation of Proposals	By PBAC	
	2.6 Determination of Winning Proponent	By Agency	Original Proponent shall have the right to match the best proposal
	2.7 Approval of Contract Award	- Recommendation by PBAC - Approval by Agency	-
	2.8 Issuance of Notice of Award	By Agency	-

TABLE 4.1.2-3 (2) ROLE SHARING IN TOLL ROAD IMPLEMENTATION BY PRIVATE SECTOR UNSOLICITED PROPOSALS UNDER R.A. 7718 (BOT LAW)

2. Comparative Proposals and Contract Approval	2.9 Execution/ Approval of Contract	- Execution by authorized signatory of Agency - Submission of copy of signed contract to Approving body	- Execution by authorized signatory of winning proponent
	2.10 Issuance of Notice to Commence Implementation	By Agency	-
3. Detailed Engineering Design	Same as Public Bidding Projects		
4. Construction	Same as Public Bidding Projects		
5. Operation and Maintenance	Same as Public Bidding Projects		
6. Repayment Schemes	Same as Public Bidding Projects		
7. Investment Incentives	Same as Public Bidding Projects		
8. Government Undertakings	8.1 Cost sharing for Construction	Same as Public Bidding Projects	Same as Public Bidding Projects
	8.2 Credit Enhancement	No direct government guarantee allowed	
	8.3 Direct government subsidy for O&M	No direct government subsidy allowed	
	8.4 Direct government equity	No direct government equity allowed	
	8.5 Performance Undertaking	No direct government guarantee, subsidy or equity subsidy allowed	

4.1.3 Implementation Framework on Toll Road Development

(1) PPP Arrangement and Modality

As reviewed in Section 4.1.1, there are different PPP arrangements and/or modalities for the private sector to participate in the development of toll roads.

Chronologically, the PNCC Franchise approach and/or Joint Venture arrangement with PNCC as Franchise Holder was employed at the early and initial stages of toll road development. The Charter of the Public Estates Authority (PEA) was also used for the development of toll roads within its properties and reclaimed lands.

Upon the passage of the Amended BOT Law in 1994, the Public Bidding Approach (Solicited Proposal Approach through Competitive Bidding) and Unsolicited Proposal Approach through Private Sector Initiative were prescribed and the detailed rules and procedures were defined in the Revised IRR of the BOT Law.

Those approaches are briefly discussed hereunder.

(a) PNCC Franchise/Joint Venture Agreement with PNCC

- **Work Process**

- 1.) Interested company enters into a Joint Venture Agreement with PNCC as the Franchise Holder
- 2.) Joint Venture Company conducts a feasibility study and submits a project proposal (unsolicited proposal) to the Agency (DPWH) for the project approval.
- 3.) Proceed to Process for Unsolicited Proposal

- **Project Examples**

- 1.) North Luzon Expressway (NLEX)
- 2.) South Luzon Expressway (SLEX)
- 3.) Metro Manila Skyway (MMS)

(b) Public Estate Authority (PEA) Charter

- **Work Process**

- 1.) Similar process to PNCC Franchise Approach

- **Project Example**

- 1.) Manila – Cavite Toll Expressway

(c) Base Conversion and Development Authority (BCDA)

- **Work Process**

- 1) Agency (BCDA) conducts a public bidding for the construction of the project using the conventional procurement process for non-toll roads under RA No. 9184. Winning contractor undertakes the construction with payment from government/ ODA funds.
- 2) Agency bids out the O&M of the completed project, including collection of tolls at rates set by Agency. Winning bidder undertakes the O&M for a fixed fee.

- **Project Example**

- 1.) Subic – Clark – Tarlac Expressway (SCTEX)

(d) Solicited Proposal Approach through Competitive Bidding (Public Bidding Approach)

- **Work Process**

- 1.) Agency (DPWH) identifies the project, conducts a Feasibility Study and submits the project to the ICC/NEDA Board for approval.
- 2.) Proceed to the public bidding process for BOT.

- **Project Examples**

- 1.) STAR Expressway. DPWH initially constructed Phase I (Sto. Tomas to Lipa City) by contract as a non-toll road with full government/ODA financing. Then DPWH, using the solicited BTO approach under the BOT Law, bid out and awarded the construction of Phase II (Lipa to Batangas City), the improvement of Phase I, and the O&M of Phases I and II as a toll facility, with tolls to recover the costs (net of the government-funded construction cost of Phase I). Project is now operational as a BTO.
- 2.) Tarlac-Pangasinan-La Union Expressway (TPLEX). This followed the conventional solicited proposal approach using BTO,

(e) Unsolicited Proposal Approach through Private Sector Initiative

- **Work Process**

- 1.) Interested company conducts a feasibility study through its own initiative and submits the project to the NEDA, through the ICC, for approval.
- 2.) When approved, the interested company is given “Original Project Proponent Status”
- 3.) Proceed to process for Unsolicited Proposal.

- **Project Example**

- 1.) Pasig Expressway (PASEX) from C-3 Road to Ortigas Avenue

(f) The Philippine BOT Law

In the Revised IRR, several contractual arrangement or schemes are authorized, among which are the following typical arrangements.

- **Build – Operate - Transfer (BOT)**

The Project Proponent undertakes the construction, including financing, of a given infrastructure, and the operation and maintenance. The Proponent operates the facility over a fixed term during which it is allowed to charge facility users appropriate tolls as bid/negotiated and incorporated in the contract to enable the Proponent to recover its construction and O&M costs. The Proponent transfers the facility to the Agency at the end of the fixed term that shall not exceed fifty (50) years.

- **Build –Transfer – and - Operate (BTO)**

The Agency contracts out the construction of an infrastructure facility to a private entity on a turnkey basis. Once the facility is commissioned satisfactorily, the title is transferred to the Agency. The private entity, however, operates the facility under an agreement.

- **Build – Lease – and – Transfer (BLT)**

The Project Proponent is authorized to finance and construct an infrastructure facility, and upon its completion turns it over to the Agency on a lease arrangement for a fixed period, after which ownership of the facility is automatically transferred to the Agency.

(2) Bidding Process

The Revised IRR prescribes the fifteen (15) rules covering all stages of project implementation such as project identification and approval, bidding and contract approval, detailed engineering, construction, operation and maintenance, repayment scheme, instrument incentive, and coordination and monitoring of projects.

As the bidding process for toll road projects, the following two (2) methods, the public bidding process and process for unsolicited proposals are accepted. Refer to **Figure 4.1.3-1**.

Method 1: Public Bidding Process

- Option 1: Pre-qualification undertaken prior to Issuance of Request for Proposals
- Option 2: Qualification incorporated in the Bidding Process

The public bidding process is understood as the conventional and solicited approach. Under Option 1, upon the approval of the project, the agency publishes the invitation to apply for pre-qualification (PQ) and to bid within a certain period. Interested bidders submit PQ documents, and pre-qualified bidders are requested to submit technical and financial proposals including the bid security. Under Option 2, the qualification process is incorporated so that interested bidders submit their proposals in three envelopes, qualification documents, technical proposal and financial proposal.

Method 2: Process for Unsolicited Proposals

A Project Proponent prepares and submits to the Agency a complete proposal, consisting of at least a feasibility study, company profile, and a draft contract. Unsolicited Proposals may be accepted by the Agency on a negotiated basis provided that all the following conditions are met.

- a) The project involves a new concept or technology and/or is not part of the List of Priority Projects,
- b) No Direct Government Guarantee, subsidy or equity is required, and
- c) The Agency has invited comparative or competitive proposals and no other proposal is received for a period of sixty (60) working days.

Prior to bidding, the Agency shall secure either the advice of the regulator or the approval of the Approving Body or both, for the pre-determined formula and official price indices for the adjustment of the tolls that may be granted during contract implementation.

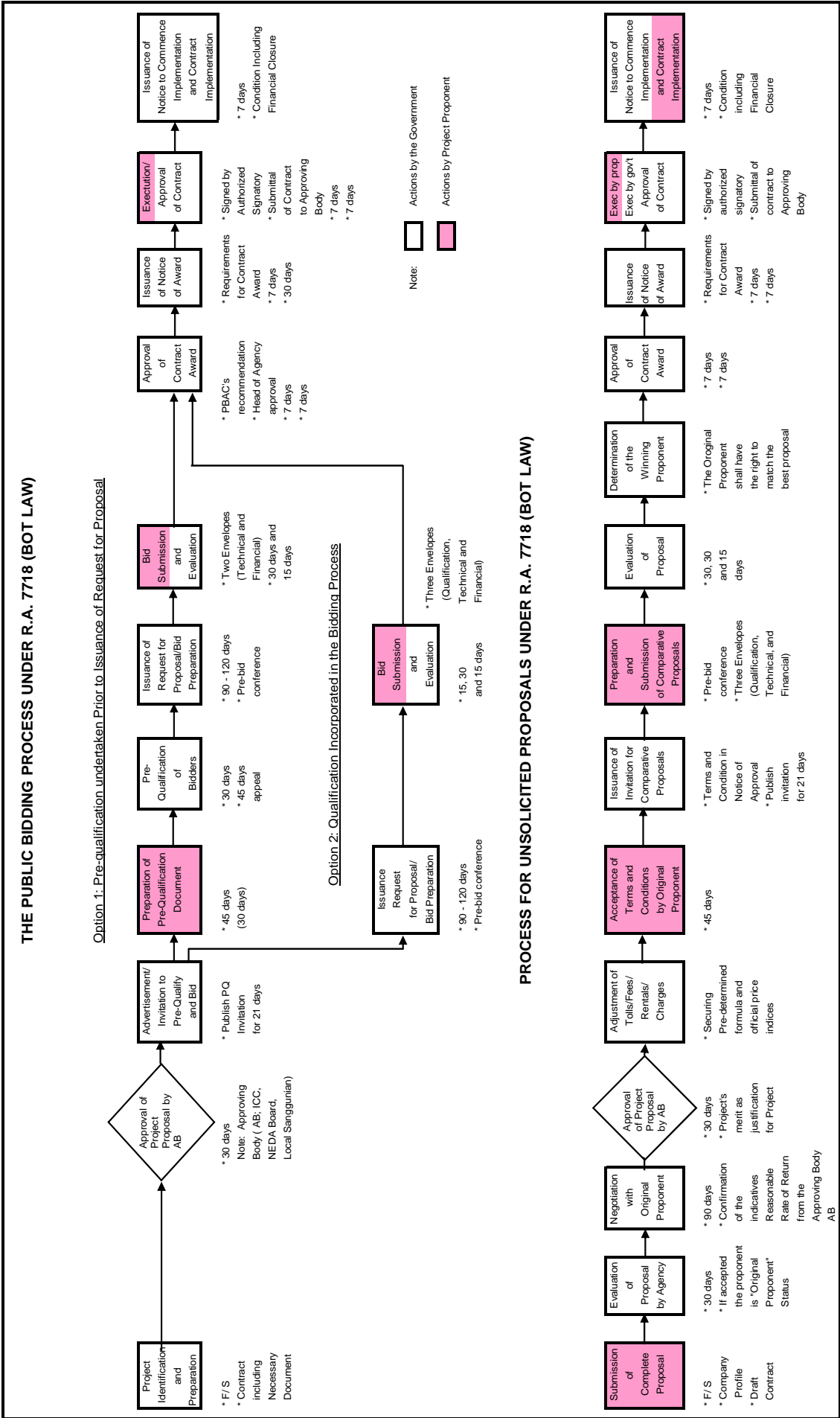


FIGURE 4.1.3-1 BIDDING PROCESS UNDER R.A. 7718 (BOT LAW)

4.2 ISSUES ON TOLL ROAD DEVELOPMENT THROUGH PPP SCHEMES

4.2.1 Lessons through International Experiences

(1) World Bank

It is widely accepted that private infrastructure schemes that are well designed can bring real benefits, but projects based on unrealistic policies or expectations will bring disappointment to governments, investors, and users. For the success of private participation schemes in the implementation of infrastructure facilities, governments have to address many questions and problems.

The following are lessons learned through experience as presented in the World Bank Report, *Private Participation in Infrastructure in Developing Countries*, 2003.

- **Pricing and the Fundamentals**

Governments must address the question of how infrastructure services are paid for.

- **Promoting Different Routes to Serving Consumer**

Government shall allow for a range of service options when developing private participation schemes.

- **Competition**

Competition can help to reduce prices and expand access.

- **Regulatory Frameworks**

Regulatory frameworks that are credible to investors and viewed as legitimate by users should be developed.

- **Financing and Exchange Rate Risks**

Development of local capital markets would be the long-run solution.

- **Political Matters**

Consumers' views on private participation in infrastructure development, transparency in implementation, and price for infrastructure would require legitimate involvement of political will.

(2) Asian Development Bank

The ADB Report, "Developing Best Practices for Promoting Private Sector Investment in Infrastructure, Road, 2000," evaluated the actual practice of infrastructure implementation (roads) through private sector participation (PSP) and published a series of recommendations including "Best Practices of PSP".

Key Issues in Road Sector

The Report revealed that projects implemented through the PSP scheme have usually required substantial, unexpected government support. Very few projects are profitable on a stand-alone basis without substantial government support. It is difficult to make unprofitable projects viable without radical changes in government policy toward the road sector. Implementation experience has not matched expectations.

The key issues facing PSP in the road sector identified by the Report include, among others, the followings;

Key Issues facing PSP

- Characteristics of Expressway Projects
 - All costs up-front (huge initial investment and low operating costs)
 - Very substantial traffic and revenue risks
- Attracting Traffic and Securing Revenues
 - Difficulty in forecasting accurate traffic demand in the future
 - Establishment of appropriate toll level and its variation
 - Social acceptance of and willingness-to-pay for tolls
- Sector Policy
 - Physical integration with existing corridor and linkage of expressways
 - Land acquisition and relocation
- Identification
 - Road and expressway development strategy
 - Identification of projects for priority implementation
 - Determination of roles of private sector
- PSP Modalities
 - Range from maintenance management to corridor management
- Legal and Regulatory Framework
- Structuring the Public-Private Partnership
- Financing
- Procurement
- Support for and by Government

4.2.2 Comments and Suggestions from Private Sector

Interviews were conducted to assess the present situation of construction, operation and maintenance of the existing expressway projects with the following BOT Firms which have executed toll expressway projects in the country.

- STAR Infrastructure development Corporation (SIDC)
- Project: Southern Tagalog Arterial Road (STAR)
- Southern Luzon Tollways Corporation (SLTC)
- Project: South Luzon Expressway (SLEX)
- Citra Metro Manila Tollways Corporation (CMMTC)
- Project: Metro Manila Skyway
- Philippine Infrastructure Development Corporation (PIDC)
- Project: Tarlac - Pangasinan – La Union Expressway (TPLEX)
- North Luzon Tollways Corporation (NLTC)
- Project: North Luzon Expressway (NLEX)
- UEM MARA Philippines Corporation (UMPC)
- Project: Manila – Cavite Toll Expressway (MCTE)

The summary of Interviews with those BOT Firms are attached as Appendix 4-1, and outlined in **Table 4.2.2-1**. The major issues as well as comments and suggestions raised are summarized hereunder.

(1) Regulation

- Delineation of DPWH-TRB responsibilities under EO 686 is in order: (a) DPWH to handle technical aspects - design, contracting for construction and O&M, ROW acquisition, supervision of construction, O&M; and (b) TRB to set toll rates, issue Toll Operation Certificate (TOC) and supervise toll operations.
- The DPWH should have a focused full-time group for BOT/PPP to handle all aspects – technical, financial, environmental, legal, ROW.
- The TRB should be more assertive of its authority to ensure the compliance with toll operations provisions.

(2) PPP Modality

- Bidding under BOT Law is an acceptable modality, preferably using BTO, with defined Government Financial Support (GFS) and basic design parameters.
- The bid could be in terms of toll rate (given the GFS) or GFS (given the toll rate).
- All government approvals should be secured before bidding – toll rate caps and adjustment formula by the TRB, DENR Environmental Clearance Certificate, LGU development permits, etc.

(3) Financing/Government Financial Support (GFS)

- The GFS shall include the ROW acquisition cost and share/subsidy in construction cost (up to 50%) to make the project financially viable at affordable toll rates.

- A government bank could advance the GFS to the proponent, as a loan of the government to be repaid through the annual General Appropriations Acts (GAAs).
- To facilitate the proponent's financial closure, the government should undertake the FS and complete the ROW acquisition before the bidding, and should assure implementation of toll rates and adjustment formula.
- The government should also (a) guarantee the revenues based on the traffic forecast in the government feasibility study, and/or (b) compensate the proponent for its loss in revenue due to any government intervention which suppresses or defers the approved/ adjusted toll rates provided in the contract.

(4) Project Approval

- The validity of the PNCC Franchise and grant of rights for linkages to the original expressway lines should be clarified.
- A lengthy process is required to package and approve BOT projects after project identification and preparation.

(5) ROW Acquisition

- There is agreement that the FS done by the government should define the ROW, and that the DPWH should promptly start and complete the ROW acquisition before bidding. Once the ROW is defined, the government should freeze developments therein, and ensure that LGUs do not issue any development or building permits within the ROW.
- The government should provide for more realistic BIR zonal valuation which approximate market prices.
- The DPWH should organize and train a full time ROW group to cover planning, acquisition and monitoring on ROW acquisition.
- The government should improve the Implementation Rules and Regulation (IRR) for ROW Acquisition Law (RA 8794) with participation of stockholders.
- Special ROW courts should be designated to expedite expropriation cases.

(6) Feasibility Study (F/S)

- It is agreed that the government should undertake the FS which should include:
 - Reliable and realistic traffic forecasts over the long-term, considering major development projects of the government and private sector.
 - Establishment of road alignment and defining of ROW to be acquired immediately.
 - More emphasis on financial (including the government financial support) and legal aspects, aside from the engineering and economic feasibility aspects.

(7) Detailed Engineering (DE)

- While it is optional for the government to conduct DE, doing so is ideal to enable the early acquisition of ROW. If the government decides not to undertake the complete DE, it should at least conduct the preliminary engineering and establish the design (performance) standards, specifications and parameters for the DE.
- It is preferred that the project proponent handle the DE since financiers want the contractor to assume and control all design-build tasks.
- The proponent can and should undertake the DE based on the design standards and specifications established by the government as part of the bidding documents.

(8) Construction

- The government should ensure unimpeded construction by providing the cleared ROW on time.
- The government should provide and enforce the time limits and milestones for the project proponent to implement the different stages of the project. It should consider declaring the contractor in default for failure to do so.

(9) Operation

- The government should ensure the automatic grant of franchise by the TRB, after bidding and contract award.
- The government should also ensure the implementation of initial toll rates and adjustments stipulated in the contract.

(10) Risks

- The government should assume the following risks:
 - Securing all government approvals before bidding.
 - Prompt ROW delivery before start of construction.
 - Adequate and timely government financing support.
 - Implementation of initial toll rates and adjustments agreed in the contract.
 - Covering any shortfalls in traffic or revenues which are less than those presented in the government FS, but also sharing in any surplus revenues in case the traffic exceeds the FS assumption.
 - Appropriate compensation to the proponent if the government is unable to perform its undertakings, e.g., disallowing or postponing the agreed adjustment of toll rates.
- Proponent is willing to assume financing and construction risks, if the government can handle the above undertakings and risks.
- Loan financing should be in pesos to reduce risks due to foreign exchange fluctuations.

TABLE 4.2.2-1 (1) SUMMARY OF INTERVIEW WITH BOT FIRMS

Items	Comments	Suggestions
1. Regulation	1.1 Agree on delineation of responsibilities between DPWH and TRB per EO 686. - DPWH to handle technical aspects - including design, contracting for construction and O&M, and ROW acquisition, plus supervision of construction and O&M - TRB to set toll rates, issue Toll Operation Certificate (TOC) and supervise toll operation.	1.1 Need for legislation to confirm EO 686 to dispel any conflict with PD1112 (TRB charter) 1.2 DPWH should have a focused full-time group for BOT/PPP to handle all aspects – technical, financial, social, environmental, legal, ROW. 1.3 TRB should be more assertive of its authority to ensure compliance with toll operations provisions
2. PPP Modality	2.1 Generally agree on bidding under BOT Law, with preference for BTO, based on Government Financial Support (GFS) with basic design parameters. 2.2 Agree that bid offer may be in terms of (i) toll rate given a fixed GFS, or (ii) GFS given a set toll rates.	2.1 All government approvals should be secured before bidding toll rate caps and adjustment formula by TRB, ECC by DENR, development permits by LGUs, etc. 2.2 Award is to lowest toll rate or lowest GFS. 2.3 Shorten the bidding process.
3. Financing/ Government Financing Support (GFS)	3.1 Long delay in financial closure . due to difficulty in meeting Bank prerequisites - FS, clear ROW, approved toll rates and adjustment formula, guarantee that these will be implemented, letter of credit for revenue shortfalls, priority in loan repayment, 3.1 Agree that GFS be provided in terms of ROWA cost plus share/subsidy for construction (up to 50%) to make the project viable at affordable toll rates.	3.1 Government to undertake FS, acquire clear ROW before bidding, assure implementation of toll rates and adjustments, provide guarantee on revenues (if actual traffic differs from govt FS fore-cast) and/or compensation for revenue loss (if govt suppresses or defers toll rates/adjustments agreed in the contract) 3.2 Government bank to advance GFS to proponent as govt loan to be repaid thru GAAs.
4. Project Approval	4.1 Lengthy process to package and approve BOT projects. 4.2 Validity of STOA in lieu of expired PNCC franchise.	4.1 Clarify validity of PNCC franchise and STOA
5. ROW Acquisition	5.1 Delay in ROW acquisition during construction.. 5.2 Financiers require that ROW be cleared before financial closure. 5.3 Agree that the government FS should define the ROW, govt should fix it, freeze development therein, and start ROW for completion before bidding – to preclude delays and unnecessary costs during implementation.	5.1 Ensure ROW funding and acquisition before start of construction 5.2 Provide for more realistic BIR zonal valuation approximating market prices 5.3 Organize full-time DPWH ROW group to perform planning, acquisition, monitoring, and exercise political will in ROW clearance. 5.4 Improve IRR for ROW Law (RA8794) with the participation of stakeholders. 5.5 Designate special ROW courts to expedite expropriation. 5.6 Once ROW is defined, LGUs should be instructed not to issue devt/building permits within the ROW.

TABLE 4.2.2-1 (2) SUMMARY OF INTERVIEW WITH BOT FIRMS

<p>6. Feasibility Study (FS)</p>	<p>6.1 Not too many viable BOT projects in the pipeline based on government plans/studies. 6.2 Agree that government should undertake FS which defines the alignment, and should start ROW acquisition before bidding.</p>	<p>6.1 FS should include a reliable traffic forecast over the long term considering major project of the government and private sector. 6.2 Give greater emphasis on the financial (inc GFS) and legal aspects, apart from the tech and economic aspects.</p>
<p>7. Detailed Engineering (DE)</p>	<p>7.1 DE can be done by project proponent based on design specification and parameters set by the government as a part of the bidding documents. 7.2 Government should provide engineering investigation reports.</p>	<p>7.1 Ideally, the government should conduct DE to better define its requirements and enable early ROW acquisition. 7.2 Most prefer that DE be done by proponent since financiers want proponent to control design-build tasks.</p>
<p>8. Construction</p>	<p>8.1 Delay due to late ROW delivery. 8.2 Delay due to change in design 8.3 Delay due to limited capability of contractor, aggravated by delayed payments.</p>	<p>8.1 Ensure unimpeded construction by providing cleared ROW in time. 8.2 Provide and enforce time limits/milestones for proponent to implement different stages of the project 8.3 Impose default for proponent's failure/delay. 8.4 Instruct LGUs to refrain from issuing devt/bldg permits within ROW.</p>
<p>9. Operation</p>	<p>9.1 Delayed issuance of TOC. 9.2 Delayed implementation of toll rates and adjustments.</p>	<p>9.1 Ensure automatic grant by TRB of franchise for projects bid out under BOT law 9.2 Ensure initial toll rates and adjustments per contract. 9.3 For rehabilitation projects, proponent should take over the O&M to protect the expressway from overloaded trucks.</p>
<p>10. Risks</p>	<p>10.1 Financing risks – delay in financial closure due to delay in meeting requirements (ROW, approved toll rated, etc.); inadequate or late GFS, 10.2 Construction risks – delay in ROW & gov't approvals; political intervention esp. by LGUs. 10.3 Commercial risks – shortfalls in traffic and revenues. 10.4 Operation risks – political intervention which suppresses/ delays agreed toll rates and adjustments,</p>	<p>10.1 The government should assume the following risks: a. Securing all government approvals before bidding. b. ROW delivery before construction. c. Adequate and timely provision of GFS. d. Implementation of agreed toll rates and adjustments. e. Covering shortfalls in traffic or revenues based on government FS , but sharing in any revenue surpluses f. Compensation to proponent for inability of govt to perform its undertakings, e.g., disallowing/ postponing agreed toll rate adjustments. 10.2 Proponents are willing to assume financing and construction risks, if government could assume the abovementioned risks. 10.3 Loan financing should be in pesos to reduce risks due to forex fluctuations.</p>

CHAPTER 5

EIA SYSTEM OF THE PHILIPPINES

CHAPTER 5 EIA SYSTEM OF THE PHILIPPINES

5.1 GENERAL

The “**Philippine Environmental Policy**”, enacted as **Presidential Decree (PD) 1151**, was the Philippine’s first policy on environment. It took effect in 1977, and required all national government agencies, government-owned and controlled corporations, as well as private corporations, firms and entities to prepare Environmental Impact Statements (EIS) for every action, project or undertaking that will significantly affect the quality of the environment.

Based on PD 1151’s policy statement, **Presidential Decree (PD) 1586** was issued on the following year. It formally established the **Philippine Environmental Impact Statement (EIS) System**. Under this law, no person, partnership or corporation shall undertake or operate any in part such declared ECP (Environmentally Critical Project) and projects within Environmentally Critical Areas (ECAs) without first securing an Environmental Compliance Commitment (ECC). Major categories for ECPs and ECAs were established through **Presidential Proclamation No. 2146**, series of 1981.

In 1992, the Department of Environment and Natural Resources (DENR) issued Department Administrative Order (DAO) No. 21, which embodied the implementing rules and regulations for environmental impact assessments. To further strengthen the EIS System, DAO 21 was superseded by DAO No. 96-37. In 2002, the Office of the President, issued Administrative Order No. 42 (A.O. 42) to rationalize the implementation of the Philippine EIS System to make it a more effective planning tool for sustainable development.

To address deficiencies in the EIA system that hindered its effectiveness as a tool for proper environmental management, another department order was issued--- **DAO No. 03 Series of 2003 or DAO 2003-30**. Said DAO also aims to institutionalize the incorporation of environmental concerns in the country’s effort to hasten national development in the most efficient manner so that neither the environment nor national development is compromised. The corresponding **Procedural Manual** was prepared by the EMB and implemented in January 2005. In August 2007, EMB updated the guidelines and came up with the “**Revised Procedural Manual (RPM) of DAO 2003-30**”, which superseded the Procedural Manual issued in 2005.

One of the most significant improvements in procedure is the exclusion from ECC application previous requirements such as submittal of permits, clearances, and the likes from other concerned government agencies. As experienced in the past, such requirements unnecessarily obstruct the EIA evaluation process. Another important feature of the RPM is that it reinforces Malacañang Administrative Order No. 42 which requires Proponents to **conduct simultaneously the Environmental Impact Study and the Feasibility Study (FS)**. Following this procedure, EIA documents are prepared when prospective proposals are more concrete than mere concept and become available before the project has reached a stage of investment or commitment towards implementation.

On October 1, 2009, the latest EIA guideline took effect through a Memorandum from the Secretary of the DENR, entitled, “*New Processing Periods for the Environmental Impact Statement (EIS) System & Corresponding Guidelines*”. Based on the said Memo, processing period for applications for Environmental Compliance Certificates (ECCs) and Certificates of Non-Coverage (CNCs) should be as follows:

ECCs (Projects Covered by EIS System)	-	20 Working Days
CNCs (Projects Not Covered by EIS System)	-	1 Working Day

Processing time starts when application is accepted and proof of payment is presented at the designated processing office.

Based on the same Memo the following rules and regulations were promulgated:

- (i) Processing of ECCs and CNCs should concentrate and focus on the environmental aspects of the project that have scientific basis and are verifiable. Socio-economic political and other aspects of the project shall be the responsibility of legally mandated agencies and institutions, especially the Local Government Units.
- (ii) Application documents for ECCs and CNCs should be simplified to make them focus on essential information.
- (iii) Sectoral scoping guidelines should be issued to guide proponents in the preparation of their Environmental Impact Assessment (EIA) Studies.
- (iv) Presence of DENR-EMB as well as the EIA Review Committee in the proponents conduct of scoping activities should be optional for the proponent rather than required.
- (v) Permits, licenses, clearances, endorsements and other similar documents from other National Government Agencies and Local Government Units should no longer be required, as prerequisites for the processing of ECC and CNC applications.
- (vi) Requirements involving public participation such as public scoping, socio-economic/perceptions survey, public hearing/consultation and similar activities should no longer be required as prerequisites for and as part of the processing of ECC and CNC applications. However, proponents of Environmental Impact Statement based applications may submit documentations of public scoping and public hearing/consultation activities (if applicable).
- (vii) Additional information should no longer be asked from the proponent upon acceptance of the application.
- (viii) Internal and other government aspects should be used in the review of ECC and CNC applications. Use of external/private reviewers is strongly discouraged. And
- (ix) ALL ECC/CNC applications, corresponding status and decision documents, should be properly and timely recorded into the DENR-EMB online information system

5.2 EIA SYSTEM

Environmental Impact Assessment (EIA), as defined under the Philippine EIS System (PEISS), is a process that involves the prediction and evaluation of likely impacts of a project on the environment during the various phases of implementation, i.e., pre-construction, commissioning, operation and abandonment. It also includes an appropriate management plan which aims to prevent, mitigate and enhance measures to protect the environment and the community's welfare. Through the EIA, negative environmental impacts of proposed actions are significantly reduced through a reiterative review process of locational planning, design and other alternatives, followed by the formulation of environmental management and monitoring plans.

After examining the EIA document, the DENR-EMB, decides whether to grant or deny an **Environmental Compliance Certificate (ECC)**. After ECC issuance, the next stage is the application for approvals from other concerned national government agencies as well as Local Government Units (LGUs), after which the project can commence with its implementation.

5.2.1 Policy and Basic Operating Principles

Based on the Procedural Manual of DAO 2003-30, the key operating principles in the implementation of the Philippine EIS System are:

- (i) The EIS System is concerned primarily with assessing the direct and indirect impacts of a project on the biophysical and human environment and in ensuring that these impacts are addressed by appropriate environmental protection and enhancement measures.
- (ii) The EIS System helps Proponents to incorporate environmental considerations when planning their projects as well as in determining the environment's impact on their project.
- (iii) Project Proponents are responsible for determining and disclosing all relevant information necessary for a systematic assessment of the environmental impacts of their projects;
- (iv) The review of EIA Reports by EMB are guided by three (3) general criteria namely:
 - that environmental considerations are integrated into the overall project planning,
 - that the assessment is technically sound and proposed environmental mitigation measures are effective, and
 - that the EIA process is based on a timely, informed and meaningful public participation of potentially-affected communities;
- (v) Effective review of the EIA Reports depends mainly on timely, full, and accurate disclosure of relevant information by project Proponents and other stakeholders in the EIA process;

5.2.2 The EIA Process in Relation to the Project Cycle

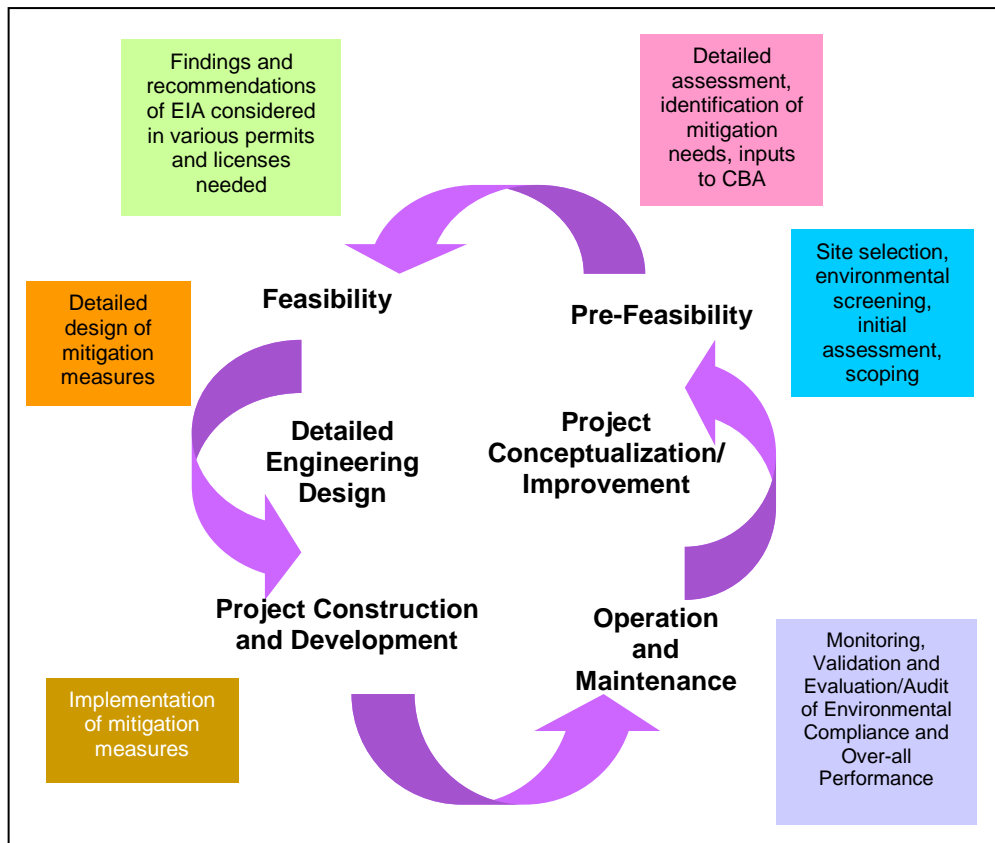
Within the project cycle, the most ideal stage to conduct the EIA is during the Feasibility Study (FS) stage because it is at this point wherein the Proponent defines its range of actions and considers project alternatives. The link between the EIA process and the project cycle can be described as follows (Please refer to **Figure 5.2.2-1**¹):

- i) **Between Project Conceptualization and Pre-Feasibility Stage** – EIA-related activities include self-screening whether the project is covered or not by the Philippine EIS System. If covered, the Proponent undertakes self-determination of all requirements in preparation for the ECC application. During this stage the Proponent carries out an initial rapid site and impact assessment to determine critical aspects of project location, and have an initial scope of key issues;
- ii) **During preparation of the Feasibility Study** - Proponent commences detailed Environmental Impact Assessment. The formulated Environmental Management Plan and corresponding costs and benefits are inputted into the FS as a basis for decision making

¹ Taken from Fig. 1-1 of the Revised Procedural Manual of DENR Administrative Order (DAO) 2003-30, prepared and issued by the DENR Environmental Management Bureau (EMB).

regarding final project options, locational planning, and design. It is at this stage when the formal EIA application is started, wherein positive review and evaluation of the submitted EIA documentation is expected to result to an issuance of the Environmental Compliance Commitment, or ECC;

- iii) **During Detailed Engineering Design (DED)** - During this stage, which is post-ECC, generic measures identified during the EIA study at the FS stage are detailed based on the project facility design and operational specifications. Additional baseline monitoring may also be done prior to construction or implementation of the project to provide a more substantive basis for defining the environmental management and monitoring plans;
- iv) **Project Construction/Operations and throughout the project lifetime** – During these stages, environmental mitigation measures are fully implemented, and monitoring of the Proponent’s environmental performance is continuously done. Findings and lessons learned are fed back into the project cycle for continual improvement of the project, with corresponding updating of the environmental management plans of the project. Major improvements may need new formal applications for DENR approvals, which shall then be related to previous approvals for an integrated environmental management approach of the project.



Source: Revised Procedural Manual of DENR Administrative Order (DAO) 2003-30, DENR Environmental Management Bureau (EMB)

FIGURE 5.2.2-1 THE EIA PROCESS AND THE PROJECT CYCLE

5.2.3 Environmentally Critical Area

Presidential Decree 1585 defined the coverage of PEISS: No person, partnership or corporation shall undertake or operate any in part such declared as Environmentally Critical Project (ECP) and projects within Environmentally Critical Areas (ECAs) without first securing an Environmental Compliance Certificate (ECC).

Presidential Proclamation 2146 identified major categories of ECPs and ECAs. Criteria of ECAs are listed below;

1. All areas declared by law (NIPAS) as national parks, watershed reserves, wildlife preserves, sanctuaries.
2. Areas set aside as aesthetic potential tourist spots.
3. Areas which constitute the habitat of any endangered or threatened species of Philippine wildlife (flora and fauna).
4. Areas of unique historic, archaeological or scientific interests.
5. Areas which are traditionally occupied by cultural communities or tribes (IPs).
6. Areas frequently visited and/or hard hit by natural calamities (geologic hazards, floods, typhoons, volcanic activity, etc.).
7. Areas with critical slopes.
8. Areas classified as prime agricultural lands.
9. Recharged areas of aquifers.
10. Water bodies characterized by one or any combination of the following conditions: tapped for domestic use, within declared protected areas; which support wildlife & fishery activities.
11. Mangrove areas characterized by: with primary pristine & dense young growth, adjoining mouths of major rivers, natural buffers against shore erosion, productive fishing grounds.
12. Coral reefs characterized by: With 50% and above live coralline cover; spawning and nursery grounds for fish; act as natural breakwater of coastlines.

A list of industries and projects that are environmentally critical (ECPs) is shown in **Table 5.2.3-1**.

TABLE 5.2.3-1 ENVIRONMENTALLY CRITICAL PROJECTS (ECPS)

Types of industries and projects	Criteria
Heavy industry	Non-ferrous metal industries, Iron and steel mills, Petroleum and petrochemical industries including oil and gas
Resource extractive industries	Major mining and quarrying projects, forestry projects e.g. logging, fishery projects
Infrastructure projects	Major dams, major power plants, major reclamation projects, major roads and bridges projects
Golf course projects	As declared by Proclamation No. 803 in 1996

In accordance with degree of criticality of a project type and area, projects are classified into three groups; group I, II and III. **Table 5.2.3-2** summarizes the project group.

TABLE 5.2.3-2 PROJECTS GROUPING

Group	Definition
Group I Projects	Environmentally Critical Projects (ECPs) in <u>both</u> Environmentally Critical Area (ECA) and Non-Environmentally Critical Area (Non-ECA)
Group II Projects	Non-Environmentally Critical Projects in Environmentally Critical Areas
Group III Projects	Non-Environmentally Critical Projects in Non-Environmentally Critical Areas. For roads that are 2 km, Project Description (PDR) must be prepared to obtain Certificate of Non-Coverage (CNC). For roads lengths that are less than 2 km, preparation of PDR is optional, i.e., at the option of the Proponent.
Group IV Projects	Co-located projects in <u>either</u> Environmentally Critical Area (ECA) and Non-Environmentally Critical Area (Non-ECA). A group of single projects, under one (1) or more Proponents/Locators, which are located in a contiguous area and managed by one (1) Administrator, who is also the ECC Applicant (e.g., Economic Zones)
Group V Projects	Unclassified projects which are not listed in any of the groups above, e.g., projects using new processes/ technologies with uncertain impacts (interim category)

5.2.4 EIA Requirement

Proponent agency of this Project is Department of Public Works and Highways (DPWH). The DPWH has the responsibility for preparation and submission of the PEISS. DPWH usually establishes a Project Management Office–F/S (PMO-F/S) prior to feasibility studies and the PMO-F/S prepares the PEISS. Once the execution of projects starts, PMO, which is converted from PMO-F/S, has responsibilities for implementation of environmental and social considerations such as land acquisition and resettlement in cooperation with local government units. Environmental Social Services Office (ESSO) in the Development Planning Division of DPWH has the functions to support and supervise preparation of PEISS. The EIA requirement according to types of projects are summarized in **Table 5.2.4-1**. In the master plan study such as this Study, carrying out of EIA is not required.

TABLE 5.2.4-1 TYPE OF PROJECT IN TERMS OF ENVIRONMENTAL AND SOCIAL IMPACTS

Project Stage	Projects Located Within Protected Areas	Projects That Would Require Right-of-Way Acquisition	Projects That Would Involve Involuntary Resettlement
Master Plan	<ul style="list-style-type: none"> • Study alternative alignments to avoid protected area • If protected area is unavoidable, locate alignment within Multiple Use Zones and/or Buffer Zones • Avoid traversing Strict Nature Reserves 	<ul style="list-style-type: none"> • Favor alignments that have existing Rights-of-Way • Avoid highly commercial areas 	<ul style="list-style-type: none"> • Favor alignments with the least number of human settlements to be affected • Avoid alignments that would displace indigenous peoples or indigenous cultural communities
Feasibility Study	<ul style="list-style-type: none"> • Prepare appropriate EIA Study to obtain Environmental Compliance Certificate (ECC) <p><u>Simplified Procedure:</u></p> <ol style="list-style-type: none"> 1. Determine if project is located within Environmentally Critical Areas (ECAs) or not (Please refer to list of ECAs at the bottom of this table) 2. Determine Project Grouping – for Groups I, II or III 	<ul style="list-style-type: none"> • Gather As Built drawings of ROWs from concerned District Engineering Offices • Gather utility plans that may be affected by construction • Inform concerned LGUs about preferred alignment, request for moratorium in issuance of permits to any construction of structure in its vicinity to avoid high cost of ROW acquisition 	<ul style="list-style-type: none"> • Conduct consultation meetings with concerned Local Government Units (LGUs) in anticipation of requirement for relocation site and discuss possibility of providing basic social services such as water and power • If number of APs equal to or greater than 200, prepare a preliminary RP • Request Bureau of Internal Revenue (BIR) to update zonal valuation of properties to be affected
Detailed Engineering Design	<ul style="list-style-type: none"> • Ensure compliance to ECC conditions in order to avoid penalties and/or revocation of ECC • Implement Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP) if required by DENR-EMB • Submit Compliance Monitoring Reports (CMR) and/or Self Monitoring Reports (SMR) to DENR on a regular basis, depending on the frequency indicated in the EMoP. 	<ul style="list-style-type: none"> • Prepare Parcellary Survey <p>After approval of RP by DPWH and JICA:</p> <p>For Negotiated Sale:</p> <ul style="list-style-type: none"> • Implement RP <p>For Expropriated Properties:</p> <ul style="list-style-type: none"> • Pay owner 100% of the value of their land based on the current BIR zonal valuation, plus the value of improvements and/or structures based on replacement cost as provided for in R.A. 8974 and its IRR • Secure Writ of Possession from concerned Regional Trial Court (RTC) 	<ul style="list-style-type: none"> • Prepare Parcellary Survey • For projects with greater than 200 Project-Affected Persons (APs), prepare full blown Resettlement Plan (RP) • For projects with less than 200 but more than 50 APs, prepare abbreviated or short RP • Submit RP to DPWH and JICA for concurrence and approval <p>After approval of RP by DPWH and JICA:</p> <ul style="list-style-type: none"> • Implement RP • Ensure that all APs are properly compensated prior to project implementation <p>Note: Projects which would not entail involuntary resettlement need not prepare a RP</p>

Table 5.2.4-2 shows EIA requirements for horizontal infrastructure projects.

TABLE 5.2.4-2 EIA REQUIREMENTS FOR HORIZONTAL INFRASTRUCTURE PROJECTS

<p>STEP 1: Determine if project is located within Environmentally Critical Areas (ECAs) or not. ECAs are classified as:</p> <ol style="list-style-type: none"> 1. All areas declared by law (NIPAS) as national parks, watershed reserves, wildlife preserves, sanctuaries 2. Areas set aside as aesthetic potential tourist spots 3. Areas which constitute the habitat of any endangered or threatened species of Philippine wildlife (flora and fauna) 4. Areas of unique historic, archaeological or scientific interests 5. Areas which are traditionally occupied by cultural communities or tribes (IPs) 6. Areas frequently visited and/or hard hit by natural calamities (geologic hazards, floods, typhoons, volcanic activity, etc.) 7. Areas with critical slopes 8. Areas classified as prime agricultural lands 9. Recharged areas of aquifers 10. Water bodies characterized by one or any combination of the following conditions: tapped for domestic use, within declared protected areas; which support wildlife & fishery activities 11. Mangrove areas characterized by: with primary pristine & dense young growth, adjoining mouths of major rivers, natural buffers against shore erosion, productive fishing grounds 12. Coral reefs characterized by: With 50% and above live coralline cover; spawning and nursery grounds for fish; act as natural breakwater of coastlines 					
<p>STEP 2: Determine Project Grouping and Type of EIA document to prepare</p>					
Types of projects	Characteristics of structures		Length	Documents to prepare	
Group I: Environmentally Critical Projects in both Environmentally Critical Area (ECA) and Non-Environmentally Critical Area (Non-ECA)	New Roads and Widening	No Critical Slope (gradient < 40%)	Length ≥ 20 km	EIS	ECC
		With Critical Slope (gradient ≥ 40%)	Length ≥ 10 km	EIS	ECC
	New Bridges and Viaducts		Length ≥ 10 km	EIS	ECC
Group II: Non-Environmentally Critical Projects (NECP) in Environmentally Critical Area (ECA)	New Roads and Widening	No Critical Slope (gradient < 40%)	Length < 2 km	PDR	CNC
			2 km ≤ L < 10 km	IIEC	ECC
			10 km ≤ L < 20 km	IEER	ECC
	New Roads and Widening	With Critical Slope (gradient ≥ 40%)	Length < 2 km	PDR	CNC
			2 km ≤ L < 5 km	IIEC	ECC
			5 km ≤ L < 10 km	IEER	ECC
	New Bridges and Viaducts		Length < 80 m	PDR	CNC
			80 m ≤ L < 2 km	IIEC	ECC
			2 km ≤ L < 10 km	IEER	ECC
	Rehabilitation WITHOUT realignment*		2 km ≤ L < 20 km	IIEC	ECC
			Length ≥ 20 km	IEER	ECC
Rehabilitation WITH realignment*		2 km ≤ L < 10 km	IIEC	ECC	
		Length ≥ 10 km	IEER	ECC	
Improvement Projects		2 km ≤ L < 10 km	IIEC	ECC	

	WITHOUT widening*	$10 \text{ km} \leq L < 20 \text{ km}$	IEER	ECC
	Improvement Projects WITH widening*	$2 \text{ km} \leq L < 5 \text{ km}$	IEEC	ECC
		$5 \text{ km} \leq L < 20 \text{ km}$	IEER	ECC
Group III: Non-Environmentally Critical Projects (NECP) in Non-Environmentally Critical Area (NECA)	Asset Preservation/ Maintenance of Existing Roads*	Length < 2 km	Optional CNC application	
		Length $\geq 2\text{km}$	PDR	CNC
	Rehabilitation WITHOUT realignment*	Regardless of Length	PDR	CNC
	Rehabilitation WITH realignment*		PDR	CNC
	Improvement Projects WITHOUT widening*		PDR	CNC
	Improvement Projects WITH widening*		PDR	CNC
Note: * Based on practice only, not explicitly stated in Revised Procedural Manual for AO 2003-30 of DENR				
STEP 3: Prepare the necessary EIA document to obtain ECC/CNC				
<p>Definitions:</p> <p>(EIA Report) Environmental Impact Assessment Report – A report where results of the EIA Study is presented. Report types vary depending on the EIA category.</p> <p>(ECC) Environmental Compliance Commitment– A certificate issued to which the Proponent conforms with, after DENR-EMB explains the ECC conditions. The Proponent signs the sworn undertaking of full responsibility over implementation of specified measures which are necessary to comply with existing environmental regulations or to operate within best environmental practices that are not currently covered by existing laws.</p> <p>(CNC)Certificate of Non-Coverage – Certifies that based on the submitted Project Description report, the project is NOT covered by the EIS System and is not required to secure an ECC. The CNC advises the Proponent on coverage to other requirements by other DENR offices, LGUs, or other government agencies.</p> <p>(IEER) Initial Environmental Examination Report</p> <p>(IEEC) Initial Environmental Examination Checklist</p> <p>(RPM) Revised Procedural Manual – The Manual of Procedures, as prescribed in Section 8.1 of DAO 2003-30, for processing of applications for ECCs and CNCs within the timeframes specified in Malacañang Administrative Order No. 42 (issued November 2002). It supercedes and amends all memoranda, memorandum circulars, MOAs based on DAO 96-37 or earlier Implementing Rules and Regulations (IRRs) of PD 1586, and other issuances where provisions are inconsistent with it.</p> <p>(PDR) Project Description Report - Including its location, scale and duration, rationale, alternatives, phases and components, resource requirements, manpower complement, estimate of waste generation from the most critical project activities and environmental aspects, project cost</p>				

5.2.5 EIA Procedure

EIA process in the Philippines is comparable to that of JICA’s. Disclosures and exchanges of information and public consultation take places in each stage of the EIA process as shown in **Figure 5.2.5-1**.

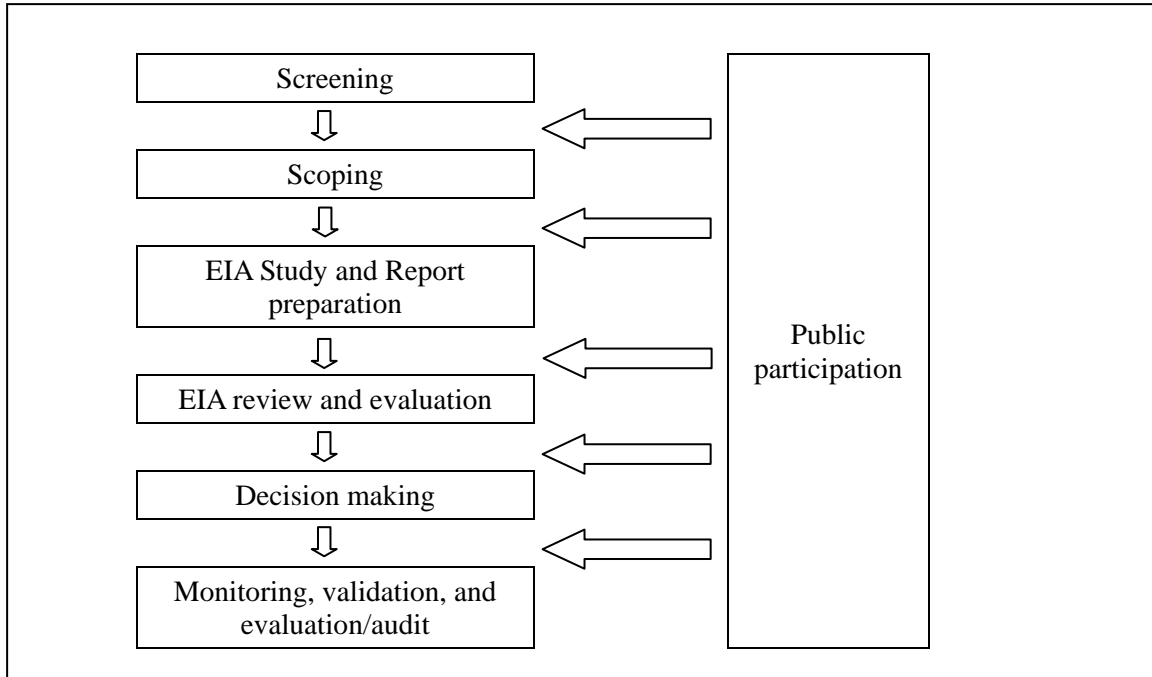


FIGURE 5.2.5-1 A FLOW OF EIA

5.2.6 Categorization of Project

Projects are categorized into A, B, C and D based on the significance of adverse impacts on environment and they have deferent procedure depending on its category. Projects under Category A and B must obtain Environmental Compliance Certificate (ECC), which is the permission of the project in terms of environment.

For projects under Category A, the proponent must submit EIS report and hold public consultation, and EMB will review the document. For projects under Category B, the proponent must submit EIS report or IEE report, depending on the size of the projects, and EMB regional office will review the document. EMB can request the proponent to hold public consultation, if the project under Category B is required to submit EIS report.

TABLE 5.2.6-1 CATEGORIES OF PROJECT

Category	Bases of judgment
Category A	ECPs with significant potential to cause negative environmental impacts
Category B	Projects that are not categorized as ECPs, but which may cause negative environmental impacts because they are located in ECAs
Category C	Projects intended to directly enhance environmental quality or address existing environmental problems not falling under Category A or B
Category D	Projects unlikely to cause adverse environmental impacts

5.3 ROW ACQUISITION POLICIES AND PROCEDURE

The following description of R-O-W policies and procedures is based on Philippine Republic Acts along with its corresponding Implementing Rules and Regulations (IRR), Presidential Decrees, Executive Orders, Rules of Court, Ministry/Department Orders, and Department Policies on land ownership and Infrastructure Right-of-Way (IROW) acquisition, and the DPWH Department Order (D.O.) No. 5, Series of 2003. Since the 1930's, laws on ROW acquisition have been amended and repealed several times to improve the procedures, minimize irregularities, and avoid delays in project implementation. Since previous laws have been superseded, only the most current pieces of legislation shall be presented in considerable detail.

5.3.1 Right-of-Way Acquisition Policies and Legal Bases

A list of applicable Philippine legislation (Republic Acts, Presidential Decrees, Executive Orders), Implementing Rules and Regulations, and Department Orders are presented in the succeeding table. Please note that although some sections of precedent laws have been amended by succeeding ones, salient provisions that were retained are still included here for these are still in effect and binding.

TABLE 5.3.1-1 GOVERNMENT POLICIES PERTAINING TO LAND ACQUISITION

Year	Policy	Title/Salient Features
2007	LARRIP Policy, 3 rd Ed.	<p>Land Acquisition, Resettlement, Rehabilitation and Indigenous Peoples' Policy</p> <ul style="list-style-type: none"> • Includes the DPWH's Indigenous Peoples' Policy based on the Indigenous Peoples' Rights Act (IPRA) and the National Commission on Indigenous Peoples (NCIP) Administrative Order No. 1, series of 2006, or the Free and Prior Informed Consent Guidelines of 2006 • Covers all Indigenous Peoples (IPs) or Indigenous Cultural Communities (ICCs) whether they are living inside or outside an area covered by a Certificate of Ancestral Domain Title (CADT) or Certificate of Ancestral Land Title (CALT), including those that have pending applications to be declared as ancestral domain • In general no Indigenous Peoples Action Plan (IPAP) is required for projects that are voluntarily solicited or initiated by IPs. Nevertheless, they are still eligible to receive compensation and entitlements mentioned in Chapter III of the LARRIPP • Provides a comprehensive policy on provision of safeguard instruments to IPs/ICCs as described in Chapter IV and Table IV.2 of the LARRIPP
2003	D.O. 327	<p><i>"Guidelines for Land Acquisition and Resettlement Action Plans (LAPRAPs) for Infrastructure Projects"</i></p> <ul style="list-style-type: none"> • LAPRAP document shall describe the project, expected impacts and mitigating measures, socio-economic profile of APs, compensation package, timetable of implementation, institutional arrangements, participation, consultation, and grievance procedures • LAPRAP shall be prepared using inputs from the IROW Action Plan, the census and socioeconomic survey conducted, detailed engineering study, and parcellary survey results • LAPRAP shall be the basis for qualifying and compensating APs for lands, structures and/or improvements, that are partially or fully affected by the Department's infrastructure projects • Provision of resettlement sites shall be the responsibility of the Local Government Units (LGUs) concerned, with assistance from the concerned government agencies tasked with providing housing • An Indigenous People's Action Plan (IPAP) shall be formulated for indigenous peoples (IP) if they are affected by the Department's infrastructure projects

2003	D.O. 5	<p><i>“Creation of the Infrastructure Right of Way and Resettlement Project Management Office (IROW-PMO) and the Implementation of the Improved IROW Process”</i></p> <ul style="list-style-type: none"> • Implementing Office (IO) shall ensure that IROW costs are always included in project budgets • The IO shall provide an estimated cost breakdown of each project to the IROW and Resettlement PMO and the CFMS prior to any disbursement of funds. The first priority of the budget for a project shall be all costs prior to construction. • If ROW costs differ from the approved ROW budget after detailed design has been finalized, a budget adjustment shall be approved. • A Land Acquisition Plan and Resettlement Action Plan (LAPRAP) shall be prepared for all projects, whether local or foreign funded, that will require Right-of-Way (ROW) acquisitions, using a standardized compensation package • The determination of Affected Persons (APs) and improvements shall be based on the cutoff date, which is the start of the census of APs and tagging for improvements • The IO shall prepare the final as-built ROW Plan upon completion of the project, for submission to the IROW and Resettlement PMO.
2000	I.R.R. of R.A. 8974	<p><i>“Implementing Rules and Regulations of R.A. 8974 (An Act to Facilitate the Acquisition of Right-of-Way, Site, or Location for National Government Infrastructure Projects and for Other Purposes)</i></p> <ul style="list-style-type: none"> • Set the 1st offer for negotiated sale of land (just compensation) as the price indicated in the current zonal valuation issued by the BIR for the area where the property is located • Set the valuation of improvements on the land to be acquired using the “replacement cost method”, which is defined as the <i>“amount necessary to replace the improvements/ structures based on the current market prices for materials, equipment, labor, contractor’s profit and overhead, and all other attendant costs associated with the acquisition”</i>. • Provided for the engagement of government financing institutions or private appraisers to undertake appraisal of the land and/or improvements/structures, to determine its fair market value • Tasked the NHA to establish and develop squatter relocation sites, including provision of adequate utilities and services, in anticipation of squatters that have to be removed from the ROW in the site of future infrastructure projects
2000	R. A. 8974	<p><i>“An Act to Facilitate the Acquisition of Right-of-Way, Site, or Location for National Government Infrastructure Projects and for Other Purposes”</i></p> <ul style="list-style-type: none"> • Prescribed new standards for the assessment of the value of the land subject of expropriation proceedings or negotiated sale, namely: <ul style="list-style-type: none"> ○ The classification and used for which the property is suited ○ The size, shape or location, tax declaration and zonal valuation of the land ○ The price of the land as manifested in the ocular findings, oral, as well as documentary evidence presented ○ The reasonable disturbance compensation for the removal and/or demolition of certain improvement on the land and for the value of improvements thereon ○ The developmental costs for improving the land ○ The value declared by the owners ○ The current price of similar lands in the vicinity; and ○ Such facts and events as to enable the affected property owners to have sufficient funds to acquire similarly-situated lands of approximate areas as those required from them by the government, and thereby rehabilitate themselves as early as possible • Mandates the BIR to come up with updated zonal valuation for areas subject to expropriation proceedings, within 60 days from the date of

		<p>expropriation case</p> <ul style="list-style-type: none"> • Mandated the DPWH (as Chair) and other agencies involved in ROW acquisition to adopt the necessary Implementing Rules and Regulations for the equitable valuation of the improvements and/or structures on the land to be expropriated
1999	DPWH Policy Framework for LARR	<p><i>“Policy Framework for Land Acquisition, Resettlement and Rehabilitation”</i></p> <ul style="list-style-type: none"> • Government projects must serve the common good • All efforts must be exercised to ensure that: <ul style="list-style-type: none"> ○ Adverse social impacts are avoided, minimized, and/or mitigated ○ Everybody, including Affected Persons (APs), will benefit from the projects ○ APs are provided with sufficient compensation and assistance for lost assets which will assist them to improve or at least maintain their pre-project standard of living; ○ Project stakeholders (which include APs) are consulted regarding the projects’ design, implantation, and operation • Only those APs found to be residing in, doing business, or cultivating land or having rights over resources within, the project area as of the date of the census surveys (i.e., cut-off date) are eligible for compensation for lost assets.
1997	Rule 67, Rules of Civil Procedure	<p><i>“Rule 67 – Expropriation”</i></p> <ul style="list-style-type: none"> • Gives the plaintiff (DPWH) the right to take or enter upon the possession of a real property involved if a deposit is made with an authorized government depositary an amount equivalent to the assessed value of the property for purposes of taxation to be held by such bank subject to the orders of the court
1992	R.A. 7279	<p><i>Urban Development and Housing Act of 1992”</i></p> <ul style="list-style-type: none"> • Uplift the conditions of the underprivileged and homeless citizens in urban areas and in resettlement areas by making available to them decent housing at affordable cost, basic services, and employment opportunities • Provide for an equitable land tenure system that shall guarantee security of tenure to Program beneficiaries but shall respect the rights of small property owners and ensure the payment of just compensation
1992	R.A. 7279	<ul style="list-style-type: none"> • Eviction or demolition of informal settlers may be allowed under the following situations: <ul style="list-style-type: none"> ○ When persons or entity occupy danger areas such as esteros, railroad tracks, garbage dumps, riverbanks, shorelines, waterways, and other public places such as sidewalks, roads, parks, and playgrounds ○ When government infrastructure project with available funding are about to be implemented ○ When there is a court order for eviction and demolition • If eviction or demolition will involve underprivileged and homeless citizens, as defined in the same law, they should be properly relocated prior to any dismantling of properties • Section 5 of the IRR directs the LGU or the government agency authorized to demolish to create a Task Force on Relocation and Resettlement to ensure smooth and effective implementation of all relocation and resettlement operations • After effectivity of R.A.7279, barangay, municipal or city government shall prevent construction of any kind of illegal dwelling units or structures within danger areas • LGUs shall prepare a comprehensive land use plan for their respective localities in accordance with the provisions of the Act
1991	R.A. 7160	<p><i>“Local Government Code of 1991”</i></p> <ul style="list-style-type: none"> • An LGU may exercise the power of eminent domain for public use, purpose, or welfare of the poor and the landless such as for socialized housing, upon payment of just compensation pursuant to the provisions of the Constitution and pertinent laws

1988	E.O. 239	<p>“<i>Creating Appraisal Committees in Metropolitan Manila Area</i>”</p> <ul style="list-style-type: none"> • Created the City Appraisal Committee and Municipal Appraisal Committees in the Metropolitan Manila area for assessment of fair market value of real property in Metro Manila • The government shall deposit 10% of the amount of just compensation provided under 1533, five (5) days after which the court shall issue Writ of Possession (WOP) • Payment for improvement shall be based on the physical inventory report proposed and certified by an affidavit of the claimant and affidavit of two (2) adjoining landowners
1978	P.D. 1533	<p><i>Establishing Uniform Basis for Determining Compensation</i></p> <ul style="list-style-type: none"> • The government is entitled to immediate possession of properties and improvements and the power of demolition upon filing of the petition for expropriation and the deposit of 10% of compensation amount determined by this decree in the Philippine National Bank (PNB)
1936	C.A. 141	<p>“<i>Commonwealth Act 141</i>”</p> <ul style="list-style-type: none"> • Citizens of the Philippines acquire public land through public auction. Article of free patent is provided for natural born citizen of the Philippines who continuously occupied and cultivated the land since 1926 or before • Land acquired through this law is subject to a Right-of-Way not exceeding 20 m in width for public use with damages paid for improvements only; This ROW limit is further expanded to 60 m by P.D. 635
<p>Note: R.A. – Republic Act P. D. – Presidential Decree E.O. – Executive Order I.R.R. – Implementing Rules and Regulations D.O. – Department Order</p>		
<p>Source: DPWH ESSO, 2007. <i>Land Acquisition, Resettlement, Rehabilitation and Indigenous Peoples Policy, 3rd Edition.</i> Herrera, A.N. 2003. <i>IROW Process Design Report.</i> National Roads Improvement and Management Program Phase I. DPWH</p>		

5.3.2 Procedures for Owners with Legal Claim to Land (Includes Commercial and Industrial Establishments)

Based on D.O. 5, the basis for the first offer in acquiring land shall be based on estimates computed in the Resettlement Action Plan (RAP). That is, for land, compensation is computed based on the **updated BIR zonal valuation**, and for improvements, on **replacement cost** (with no salvage value), as described in the Implementing Rules and Regulations (I.R.R.) of Republic Act (R. A.) 8974.

Property owners who refuse the first offer are given a **second offer** based on the recommendation of the Appraisal Committee or an Independent Land Appraiser, whichever is lower. It is ideal that prior to negotiations, the Parcellary Survey Report and the RAP have been prepared and duly approved by concerned authorities. In accordance with Section 7 of the IRR for RA 8974, the property owner shall be given 15 days within which to accept the second offer as payment for his property.

Government shall initiate **expropriation proceedings** in cases where the property owner refuses the second offer. After the refusal of the second offer, a Final Notice of Taking shall be hand carried by the IROW Agent and properly received by the property owner. If said property owner still refused to accept the offer, or have not responded whatsoever within the 15-day period, as provided for in Section 7 of the IRR for RA 8974, expropriation proceedings shall be initiated.

For **negotiated sale**, the following procedures shall be carried out:

Step 1 A **Contract of Sale** (for the land) is executed between the Government and the property Owner. For properties with structures and improvements, an **Agreement to Demolish and Remove Improvements (ADRI)** shall likewise be prepared.

Step 2 If the owner accepts the offer to acquire their property, the Implementing Office, with assistance from the property owner shall prepare all necessary documents for filing the ROW claim.

Step 3 A **Deed of Absolute Sale (DAS)** and the **Agreement to Demolish and Remove Improvements (ADRI)** are then executed between the DPWH and the property owner. These documents shall be duly approved by the concerned DWPH Official as provided for in D.O. No. 5, Series of 2003, and registered with the Register of Deeds of the respective province/city/municipality where the property is located.

Pre-requisites and Conditions to be Complied With in the Preparation of the Deed of Absolute Sale:

- If the subject property is registered or titled, the vendor must be the registered owner of the said property and should possess a clear and clean title under the *Torrens System*, free of any lien and encumbrances whatsoever. A photocopy of the title forms part of the Deed;
- If the subject property is unregistered or untitled, the vendor shall submit a certified true copy of the tax declaration and an indemnity bond, which must either be a surety bond or property bond. Either of these bonds shall remain in force until the government obtains the corresponding title to the subject property;
- If the owner of a property is a corporation, a certified copy of the resolution of the governing board of such corporation or partnership, authorizing any of its officers to execute the deed shall be attached to the said deed. In the case of a partnership, the managing partner should execute the deed;
- If the owner is already deceased, the heirs must first consolidate their ownership of the property either thru court proceedings or thru an extra-judicial settlement, subject to the provisions of Rule 74 of the New Rules of Court;
- If the property is under guardianship or administratorship, approval by the proper court of the deed of sale executed by the guardian or administrator/executor shall first be secured. The corresponding Letters of Administratorship and/or Guardianship shall be submitted as an integral part of the Deed;
- If the property being sold was acquired under Commonwealth Act 141, also known as the Public Land Act, the government shall be entitled to a twenty (20) meters strip free under Section 112 of CA 141, or sixty (60) meters strip under P. D. 635, if the property was acquired by the owner after 1975;
- If it appears that the property is subject to the provisions of Section 4 Rule 74 of the New Rules of Court and the period of two (2) years from the registration of the consolidation or settlement has not yet expired, an indemnity bond (either surety or property bond), conditioned for the payment of any adverse claim

against the property filed within the said period of two (2) years, should be posted;

- If the vendor is represented by an Attorney-In-Fact, the corresponding special power of Attorney should be attached to, and made an integral part of the deed of sale. If the vendor is residing abroad at the time of the sale, such special power of attorney should be duly attested by the Philippine Consulate of the country where the vendor resides;
- Where the subject property is mortgaged, the consent of the mortgager to sale of the said property, or release of the mortgage must first be secured;
- If the property is a conjugal property, a deed of conveyance or sale must be executed in the proper form by the parties concerned, specifically describing the property to be sold. The marital consent of the spouse of the owner-vendor should generally be indicated in the deed; the deed of conveyance must be witnessed by at least two persons and if the vendor affixed his signature by thumb mark, same should be witnessed by two additional persons;
- All Realty Estate taxes due on the property must have been paid as evidenced by a tax clearance certificate issued by the proper authority;
- The accountant concerned should also witness the contract, and his signature shall be considered as constituting a certification that funds for the purpose is available (LOI 968);
- The papers and documents submitted in support of the claim in every case should be carefully verified as to their authenticity and genuineness in order to forestall fraud

Step 4

A **Certificate of Availability of Funds (CAF)** in the proper form, duly verified by the Auditor concerned, indicating the particular source and nature of the funds to be used in payment of the consideration of the sale, shall be secured and attached to the DAS;

Step 5

The Right-of-Way Engineer, in addition to verifying the ownership of the lot to be purchased, as well as any encumbrance to which such lot may have been subjected to, shall also verify and inspect the actual lot to be purchased to determine whether the classification made by the Assessor is in accordance with the **actual use** of the property (Section 19, P. D. 464). A certification to this effect shall be issued by the Right-of-Way Engineer;

Step 6

The Deed of Sale is signed by the Owner of the property, and the approving authority of DPWH. Determination of the proper approving authority of the DAS shall be as follows;

- For IROW Costs up to P3M - District Engineer
- For IROW Costs up to P5M - Regional Director or the PMO Director
- For IROW Costs up to P10M - Assistant Secretary
- For IROW Costs up to P15M - Undersecretary
- IROW Costs of any amount shall be approved by the Secretary

Step 7

The signed DAS is brought to the DPWH for approval of the Secretary

Step 8 The DAS is then notarized. To avoid penalties, capital gains tax must be settled on or before the 5th day of the month within which it was notarized. All necessary taxes (i.e., tax declaration and Real Property Tax arrears, if any, and the transfer tax) must be settled prior to payment of capital gains tax

Step 9 Payment of capital gains tax, documentary stamps, shall be made to the Bureau of Internal Revenue (BIR). A **Certificate Authorizing Registration** (CAR) shall then be issued by the BIR.

Step 10 Approved DAS is then registered with the concerned **Register of Deeds** or at pertinent municipalities where the property is located. The title of the property shall be annotated at the back if only a portion of the property is purchased by the government. If the whole property was purchased by the government, the old title will be cancelled and a new one shall be issued to the government.

Step 11 Payment of Claims

Conditions/Requirements Prior to Release of Payment

- Payment for land should be made only after the corresponding DAS had been registered with the concerned Register of Deeds and Torrens *Title* to the subject lot is already transferred in the name of the government. For partially affected parcel of lands, payments should be made only after the corresponding DAS had already been annotated at the back of the title of the subject lot;
- If the Deed of Conveyance was not signed by the owner but was signed by his duly and legally constituted agent, the owner should also be notified in writing of the amount due him as payment of his property. Accordingly, the treasury warrant or check for the payment of said property should be drawn in favor of the registered owner;
- Officials or employees responsible for releasing checks or warrants should require positive identification of the payee before releasing these checks or warrants;

*Note: District/City and Regional Offices as well as Project Management Offices of the DPWH shall **act on the claim within forty eight (48) hours** from the time of receipt. Should there be no sufficient funds to pay all claims presented with complete documents and ready for payment, the smaller claims should be given priority in payment; and in case the amount of claim are equal, priority of payment shall be based on the period/date the property/lot was taken by the government.*

5.4 RESETTLEMENT POLICIES AND PROCEDURE

In accordance with international standards, the most basic and important resettlement policy is to make every effort to **avoid any need for land acquisition or resettlement**. However in cases wherein resettlement is inevitable, Resettlement Plans (RP) must be prepared.

5.4.1 Procedures for Formulating Resettlement Plans

For infrastructure projects, formulation of Resettlement Plans, whether the requirement is an abbreviated or full RP, is the responsibility of DPWH's Implementing Office. Assistance can be sought from the IROW and Resettlement Project Management Office, the Environmental and Social Services Office (ESSO), or private consulting firms. Resettlement Plans shall be formulated based on the following:

- Initial categorization/screening of road sections based on anticipated impacts from resettlement;
- Disclosure and explanation of policy and legal frameworks for resettlement to Project Affected Families (PAF);
- Consultation with potential PAF to obtain their inputs on avoiding or mitigating involuntary resettlement and determine their concerns, needs and preferences;
- Census and socioeconomic survey of all PAF and complete inventories of their assets, including estimation of compensation for structures and improvements;
- Social impact assessment and validation that the entitlement matrix have covered all resettlement entitlements;
- Consultation meetings with PAF to explain relocation plans and rehabilitation strategy, including income restoration (if required) and improvement of their living conditions;
- Inclusion of itemized budget for all resettlement activities in the total project cost for each road section;
- Formulation of implementation schedule for each RP;
- Detailed and comprehensive procedures for grievance redress mechanism;
- Conceptualization of Institutional Framework for resettlement activities;
- Recommendation of internal and external monitoring program and final evaluation;

Major Policies on Relocation of Informal Settlers

If the project involves displacement of informal settlers, the following legal frameworks can be used in describing the resettlement plan. These are:

- (i) Republic Act 7279 (Urban Development and Housing Act of 1992) and its Implementing Rules and Regulations
- (ii) DPWH Department Order No. 5, Series of 2003

(iii) DPWH's Policy Framework for Land Acquisition, Resettlement, and Rehabilitation

RA 7279 - Urban Development and Housing Act of 1992

One of the main objectives of this act is to *“Provide decent shelter to the underprivileged and homeless citizens in urban areas and resettlement areas whose lives are generally marked by economic insecurities and whose occupancy of land is uncertain”*. As such, several guidelines were enacted by various government agencies such as the Housing and Land Use Regulatory Board (HLRB), Housing and Urban Development Coordinating Council (HUDCC), National Housing Authority (NHA), Land Management Bureau (LMB) and the National Mapping and Resource Information Authority (NAMRIA).

One of these is the guideline which directs all city and municipal governments to conduct an inventory of lands, after which sites for **socialized housing** are delineated. Under this Act, potential socialized housing program beneficiaries must first register with the Barangay Registration Committee (BRC) in their respective areas. It should be noted however, that not all informal settlers are entitled to be resettled in these areas. The following qualifications make applicants eligible to be included in the Master List of underprivileged and homeless citizens:

- Must be a Filipino citizen of legal age;
- The combined family income must fall within the NEDA-defined poverty threshold;
- Must not own any real property whether in the urban or rural areas and must not have been a beneficiary of any government housing program except those in leasehold or rental arrangements;
- Must not be a professional squatter nor a member of a squatting syndicate; and
- Must be the head of the family

Salient points of DPWH D.O. No. 5, Series of 2003 include:

- It shall be applicable to **all** foreign-assisted and locally funded projects.
- Implementing Office (IO) shall ensure that IROW costs are always **included** in project budgets.
- IO shall formulate a **IROW Action Plan** during the project identification stage. The Action Plan will contain the estimated budget for all IROW costs including inflation and contingencies, schedule of implementation, and the areas to be acquired.
- The IO shall provide an estimated cost breakdown of each project to the IROW and Resettlement PMO and the CFMS prior to any disbursement of funds. The **first priority** of the budget for a project shall be all costs prior to construction.
- If IROW costs differ from the approved IROW budget after detailed design has been finalized, a **budget adjustment** shall be approved.
- The **Environmental Compliance Certificate** (ECC) shall be secured before the detailed design for all projects. However, for projects costing over P300 million, the ECC shall be

secured before National Economic and Development Authority (NEDA) / Infrastructure (ICC) approval.

- **Parcellary Surveys** shall be conducted for all projects in accordance with DO 187 series 2002.
- A **Resettlement Action Plan (RAP)** shall be prepared for all projects using a standardized compensation package.
- The determination of Project Affected Persons (PAPs) and improvements shall be based on the **cutoff date**, which is the start of the census of PAPs and tagging for improvements.
- The first mode of acquisition shall be to request **donation** from the property owner.
- If the property owner does not donate the property, then negotiations for purchase of land and improvements, shall follow based on the provisions of Republic Act 8974 and its IRR. Hence, the first offer shall be the **current BIR zonal value** for land, and replacement cost for improvements (there shall be no salvage value)
- If the first offer is not accepted, the value of the second offer shall be based on the Resolution of the appropriate **Appraisal Committee** subject to the approval of the Implementing Office (IO). If the IO does not agree with the Appraisal Committee's Resolution, then the IO shall engage the services of an **Independent Land Appraiser** to determine the value. The value of the second offer shall be the lower of the two values. In case the property owner refuses the second offer, the IO initiates expropriation proceedings.
- It is the responsibility of the IO to **obtain** and **validate** all necessary documents for IROW claims.
- IROW claims shall be **screened**, fully **verified** and **validated**, and the supporting documents authenticated prior to payment.
- Legal Staff in the respective Regional Office shall review Deeds of Absolute Sale (DOAS) up to Php 5 Million. Legal Service in the Central Office shall review Deeds of Absolute Sale over Php 5 Million.
- Valid claims for all lands, structures and other improvements will be paid in full in accordance with government rules and regulations. The IO shall pay all taxes and encumbrances of the property up to the amount in the Deed of Absolute Sale, and shall then deduct the amount of the capital gains tax and encumbrances from the payment due the property owner.
- The IROW and Resettlement PMO shall monitor the releases and disbursement of IROW funds made by the IOs.
- All IOs shall properly liquidate all IROW disbursements and **submit quarterly reports** of payments made for all claims to the IROW and Resettlement PMO.
- All IROW must be **fully acquired** and cleared before the issuance of the Notice of Award for the project.

- IO shall properly file all documents pertaining to the acquisition of IROW and shall effect the **transfer of titles** or other tenurial instruments in the name of the Republic of the Philippines within three months from the perfection of the Deed of Absolute Sale, or in the case of expropriation, from the date of full payment.
- District Offices shall be responsible and accountable for the proper and ensure that encroachments, structures, and informal **management of all IROW** settlers are not allowed within the IROW limits. All District Engineers through the Regional Directors shall submit monthly reports of the status of IROW to the IROW and Resettlement PMO.
- In the event that a utility company does not comply with the IO notification to relocate the utility within the specified time period, the IO shall issue a final notice to the utility company with a time period specified. If the utility company still does not comply with the final notice, the IO shall clear the utility and **bill the utility company** accordingly.
- All utilities must be **fully cleared** from the IROW before the issuance of the Notice of Award for the project.
- The use of IROW for facilities and utilities shall be in accordance with DPWH guidelines and will be strictly enforced by the respective District Office.
- The IO shall prepare the final **as-built** IROW Plan upon completion of the project, for submission to the IROW and Resettlement PMO.

Salient Points of DPWH's Policy Framework for Land Acquisition, Resettlement, and Rehabilitation

- All Project Affected Persons (PAPs) residing in, working, doing business, or cultivating land, or having rights over resources within the project area as of the Cut-off Date (i.e., date of the census surveys) are entitled to compensation for their lost assets, incomes, jobs and businesses at **replacement cost**;
- In cases when the remaining assets of a PAP are not viable for continued use, he will be entitled to **full compensation** for the entire affected assets;
- When payment is made for an agricultural land acquired by the DPWH, the landowner will be **exempted** from capital gains tax on the compensation paid to him; In addition, other expenses such as registration fee, transfer taxes, documentary stamp tax, and notional fees will be paid by DPWH for property transfers made through land acquisition;
- Replacement agricultural land, premise/business plot will be **as close as possible** to the land that was lost and/or **acceptable** to the PAPs;
- All replacement land for agriculture, residential, and business will be provided with **secured tenure status** and without any additional cost, taxes, surcharge to the PAPs at the time of transfer;
- The previous level of community services and access to resources will be **maintained or improved** after the resettlement;
- The general mechanism for compensation of lost **residential** and **commercial** land will be through **land-for-land or cash compensation at replacement cost**.

- Tenants are entitled to assistance to transfer to a new location

5.4.2 Entitlements of Project Affected Persons

Based on DPWH's resettlement policy which is embodied in DPWH's Land Acquisition, Resettlement, Rehabilitation and Indigenous Peoples Policy (LARRIPP), 3rd Ed., Series of 2007, the application of legal doctrines with regards to compensation to APs are guided by the following Entitlement Matrix.

TABLE 5.4.2-1 ENTITLEMENT MATRIX SHOWING MODES OF COMPENSATION FOR PROJECTS IMPLEMENTED BY DPWH (MODIFIED FROM DPWH LARRIPP, 3RD ED. 2007)

Type of Loss	Application	Entitled Person	Compensation/ Entitlements
LAND (Classified as Agricultural, Residential, Commercial, or Institutional)	More than 20% of the total landholding loss or where less than 20% lost but the remaining land holding become economically unviable	Project Affected Family (PAF) with Transfer Certificate of Title (TCT) or Tax Declaration (TD, which can be legalized to full title)	PAF will be entitled to: <ul style="list-style-type: none"> • Cash compensation for loss of land and at 100% replacement cost for structures, at the informed request of PAFs Land valuation shall be, in accordance with Section 5 of RA 8974, computed based on: <ul style="list-style-type: none"> • Classification and use for which the property is suited; • The development costs for improving the land; • The value declared by the owners; • The current selling price of similar lands in the vicinity; • The reasonable disturbance compensation for the removal and/or demolition of certain improvement on the land and for the value of improvement thereon; • The size, shape, or location, tax declaration and zonal valuation of the land; • The price of the land as manifested in the ocular findings, oral as well as documentary evidence presented; and • Such facts and events as to enable the affected property owners to have sufficient funds to acquire similarly-situated lands of approximate areas as those required from them by the government, and thereby rehabilitate themselves as early as possible • If feasible, land for land will be provided in terms of a new parcel of land of equivalent productivity, at a location acceptable to PAFs

			<ul style="list-style-type: none"> • Holders of free or homestead patents and CLOA under CA 141, Public Lands Act will be compensated on land improvements only • Holders of Certificates of Land Ownership Award (CLOA) granted under the Comprehensive Agrarian Reform Act shall be compensated for land at zonal value • Cash compensation for damaged crops at market value at the time of taking • Rehabilitation assistance in the form of skills training and simple financial management equivalent to the amount of P15,000.00 per family, if the present means of livelihood is no longer viable and the PAF will have to engage in a new income activity
		PAF without TCT	<ul style="list-style-type: none"> • Cash compensation for damaged crops at market value at the time of taking • Agricultural lessors are entitled to disturbance compensation equivalent to five (5) times the average of the gross harvest for the past three (3) years but not less than P15,000.00
	Less than 20% of the total landholding lost or where the remaining land holding is still viable for use	PAF with TCT or Tax Declaration (TD, which can be legalized to full title)	<p>PAF will be entitled to:</p> <ul style="list-style-type: none"> • Cash compensation for loss of land and structures at 100% replacement cost at the informed request of PAFs. <p>Valuation of compensation for land shall be the same as described above for PAFs holding Transfer Certificate of Title (TCT) or Tax Declaration (TD, which can be legalized to full title)</p> <ul style="list-style-type: none"> • Holders of free or homestead patents and CLOA under CA 141, Public Lands Act will be compensated on land improvements only • Holders of Certificates of Land Ownership Award (CLOA) granted under the Comprehensive Agrarian Reform Act shall be compensated for land at zonal value • Cash compensation for damaged crops at market value at the time of taking

		PAF without TCT	<ul style="list-style-type: none"> • Cash compensation for damaged crops at market value at the time of taking • Agricultural lessors are entitled to disturbance compensation equivalent to five (5) times the average of the gross harvest for the past three (3) years but not less than P15,000.00
STRUCTURES (Classified as Residential/ Commercial/ Industrial)	More than 20% of the total landholding loss or where less than 20% lost but the remaining structures no longer function as intended or no longer viable for continued use	PAF with TCT or Tax Declaration (TD, which can be legalized to full title)	PAF will be entitled to: <ul style="list-style-type: none"> • Cash compensation for entire structure at 100% of replacement cost which is defined as the “<i>amount necessary to replace the improvements/structures based on the current market prices for materials, equipment, labor, contractor’s profit and overhead, and all other attendant costs associated with the acquisition</i>” (IRR, R.A.8974) • Rental subsidy for the time between the submittal of complete documents and the release of payment on land, equivalent to prevailing rental rate of structure of equal type and dimension
		PAF without TCT	PAF will be entitled to: <ul style="list-style-type: none"> • Cash compensation for entire structure at 100% of replacement cost • Rental subsidy for the time between the submittal of complete documents and the release of payment on land, equivalent to three (3) times the prevailing rental rate of structure of equal type and dimension • Free transportation for PAFs who are relocating, including shanty dwellers in urban areas who opt to go back to their place of origin (e.g., province) or to shift to government relocation sites
		PAFs who own shops and other commercial establishments to cover for their computed income loss	<ul style="list-style-type: none"> • Computed income loss during demolition and reconstruction of their shops but not to exceed one (1) month period
	Less than 20% of the total	PAF with TCT or Tax	PAF will be entitled to: <ul style="list-style-type: none"> • Cash compensation for

	landholding lost or where the remaining structure can still function and is viable for continued use	Declaration (TD, which can be legalized to full title)	affected portion of the structure to be computed based on replacement cost
		PAF without TCT	<ul style="list-style-type: none"> • Cash compensation for affected portion of the structure to be computed based on replacement cost
		PAFs who own shops and other commercial establishments to cover for their computed income loss	<ul style="list-style-type: none"> • Computed income loss during demolition and reconstruction of their shops but not to exceed one (1) month period
IMPROVEMENTS	Severely or marginally affected	PAF with or without TCT, Tax Declaration., etc.	PAF will be entitled to: <ul style="list-style-type: none"> • Cash compensation for the affected improvements at replacement cost
CROPS, TREES, PERRENIALS			PAF will be entitled to: <ul style="list-style-type: none"> • Cash compensation for crops, trees, and perennials at current market value as prescribed by the concerned LGUs and DENR

5.5 SCOPING FORMAT ADOPTED

In order to classify projects in terms of EIA category and to limit the extent of baseline information necessary, a systematic approach in predicting the extent and duration of impacts can be utilized. **Table 5.5-1** presents the adopted Scoping Matrix.

TABLE 5.5-1 ADOPTED SCOPING MATRIX SUB-PROJECTS UNDER THE HIGH STANDARD HIGHWAY NETWORK DEVELOPMENT PROJECT

Item		Rating	Reason
Social Environment: "Impacts on Gender" and Children's Right" may be related to all social environment criteria	1	Involuntary Resettlement	
	2	Local Economy such as Employment & Livelihood, etc.	
	3	Land Use and Utilization of Local Resources	
	4	Social institutions such as Social Infrastructure and Local decision-making institutions	
	5	Existing Social Infrastructures and Services	
	6	The Poor, Indigenous, and Ethnic People	
	7	Misdistribution of Benefit and Damage	
	8	Cultural heritage	
	9	Local Conflicts of Interest	
	10	Water Usage or Water Rights and Communal Rights	
	11	Health and Sanitation	
	12	Hazards (risk) Infectious Diseases such as HIV/AIDS	
Natural Environment	13	Topography and Geographical Features	
	14	Soil Erosion	
	15	Groundwater	
	16	Hydrological Situation	
	17	Coastal zone	
	18	Flora, Fauna, and Biodiversity	
	19	Meteorology	
	20	Landscape	
	21	Global Warming	
Pollution	22	Air Pollution	
	23	Water Pollution	
	24	Soil Contamination	
	25	Waste	
	26	Noise and Vibration	
	27	Ground Subsidence	
	28	Offensive Odor	
	29	Bottom Sediment	
	30	Accidents	
Overall Rating			

Rating:

A: Serious impact is expected

B: Some impact is expected

C: Extent of impact is unknown

D or No Mark: No impact is expected. IEE/EIA is not necessary

CHAPTER 6

TRAFFIC SURVEY UNDERTAKEN

CHAPTER 6 TRAFFIC SURVEY UNDERTAKEN

6.1 SUMMARY OF TRAFFIC SURVEYS UNDERTAKEN

Several surveys were carried out to better understand the characteristics of the study area as shown in **Table 6.1-1**. Aside from the traffic survey, focus is also given to logistics movement to determine which roads are heavily used by trucks and which port/airport serve as gateway to the manufacturing companies in Luzon, Metro Cebu and Davao – Gen. Santos cities. All survey forms are available in Appendix 6-1. Detail discussions of each type of survey are presented in the succeeding sections.

TABLE 6.1-1 TYPE OF SURVEYS CARRIED OUT

Type of Survey	Luzon	Metro Cebu	Mindanao	Total
a. Traffic Count Survey				
- 16-Hour Traffic Count Survey	31	14	19	64
- 24-Hour Traffic Count Survey	21	6	6	33
b. Road Side OD Survey	21	6	6	33
c. Travel Speed Survey	14	5	6	25
d. Willingness-to-pay Survey				
- Private Car Users	1906	-	-	1906
- Truck Operators	50	-	-	50
e. Truck OD Survey at Port and Airport Gate	5(3)	2(1)	2(2)	9(6)
f. Truck Count at Port and Airport Gate	5(3)	2(1)	2(2)	9(6)
g. Port/Airport Official Interview Survey	5(3)	2(1)	2(2)	9(6)
h. Logistics/Trucking Companies Interview Survey	30	6	7	43
i. Ecozones Interview Survey	10	3	-	13
j. Manufacturing Interview Survey	64	12	7	83

() number of airport;

6.2 TRAFFIC COUNT SURVEY

Traffic Count Survey is carried out to count and classify motor vehicles traversing a particular road section and recording the data to determine the present traffic volume and traffic composition. 16-hour count is carried out on corridors where DPWH count is relatively close and therefore can serve as expansion factor to get 24-hour data. On the other hand, 24-hour count is undertaken mostly in busy city corridors which normally serve for 24-hour traffic. Both counts were meant to compensate the DPWH data by covering areas where count stations of the agency is not available. Strategies utilized for traffic count survey are discussed below:

- Outside Metro Manila, the traffic stations were positioned taking into account the location of the DPWH stations. The idea is to compensate the available data by positioning traffic stations to areas where data is not available such as city center.
- Inside Metro Manila, traffic stations were plotted after determining the traffic stations of past studies such as C6 Feasibility Study (JETRO, 2007).
- For Metro Cebu, coordination with local governments is carried out to take into account their existing traffic data. However useful data were not obtain thus, only traffic stations of DPWH were taken into consideration during the positioning of traffic stations.

- For the areas of Tagum City, Davao City, Digos City and Gen. Santos City, the Study Team also initiated consultation meetings. Only Gen. Santos City produces new traffic count data however not appropriate to the study since they are intersection traffic count data.

After taking into account the above, the traffic count stations are prepared as shown in **Figure 6.2-1** and **Figure 6.2-2** (Luzon), **Figure 6.2-3** (Metro Cebu), and **Figure 6.2-4** (Tagum – Davao-Gen. Santos). Refer to Annex 6-2 for street names of survey stations.

6.3 ROAD SIDE ORIGIN – DESTINATION (OD) SURVEY

Roadside Origin – Destination (OD) Survey is conducted to establish the present OD matrices for trips of passengers, commodities and vehicles. Location of this survey is mostly between zones. The objective is to get travel patterns among zones and to identify type of commodities being moved from one zone to another. Locations of OD survey for Luzon are presented in **Figure 6.2-1** and **Figure 6.2-2**. Stations of OD survey for Metro Cebu are available in **Figure 6.2-3** while those in Mindanao are shown in **Figure 6.2-4**.

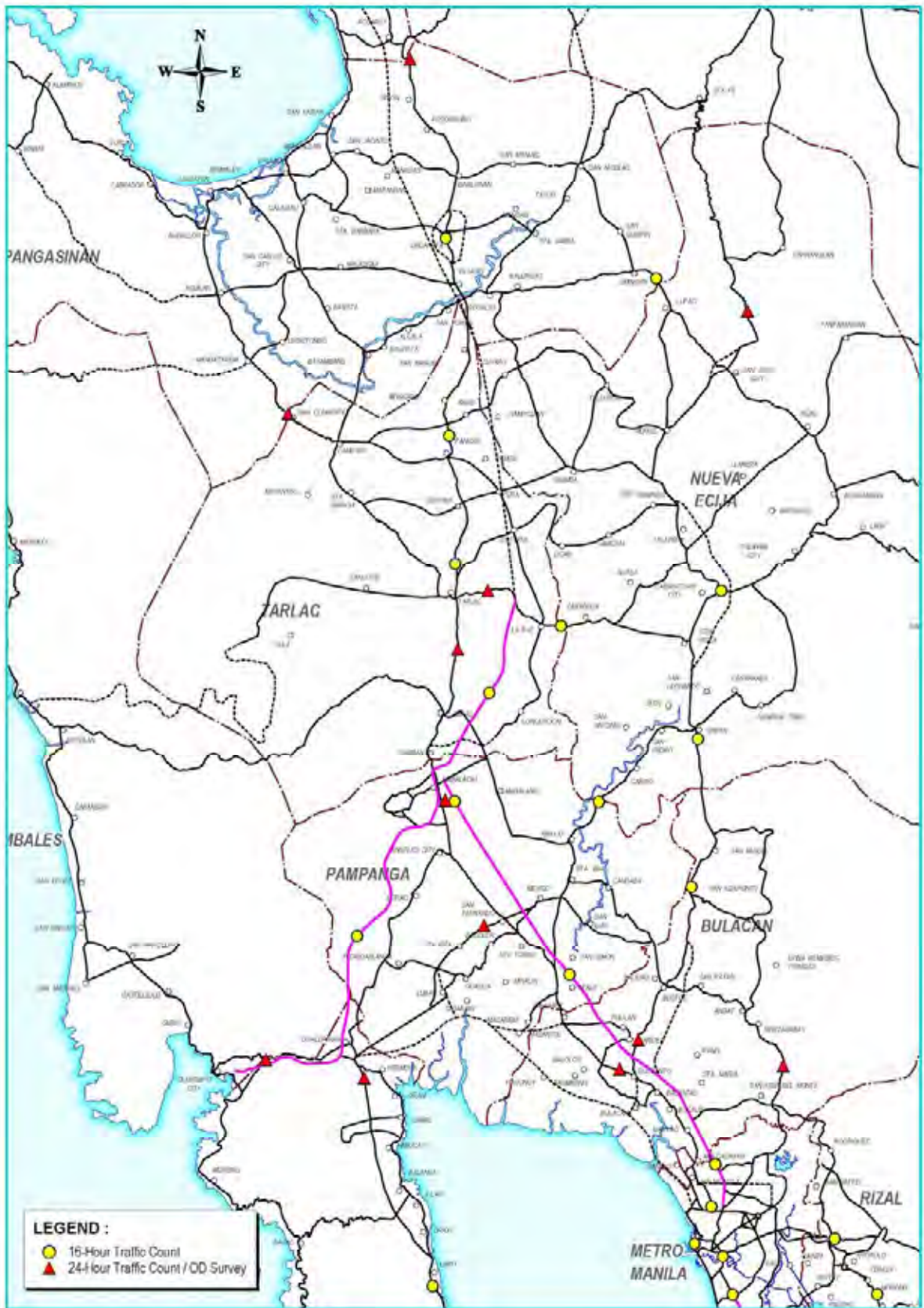


FIGURE 6.2-1 TRAFFIC LOCATION MAP FOR LUZON (1)

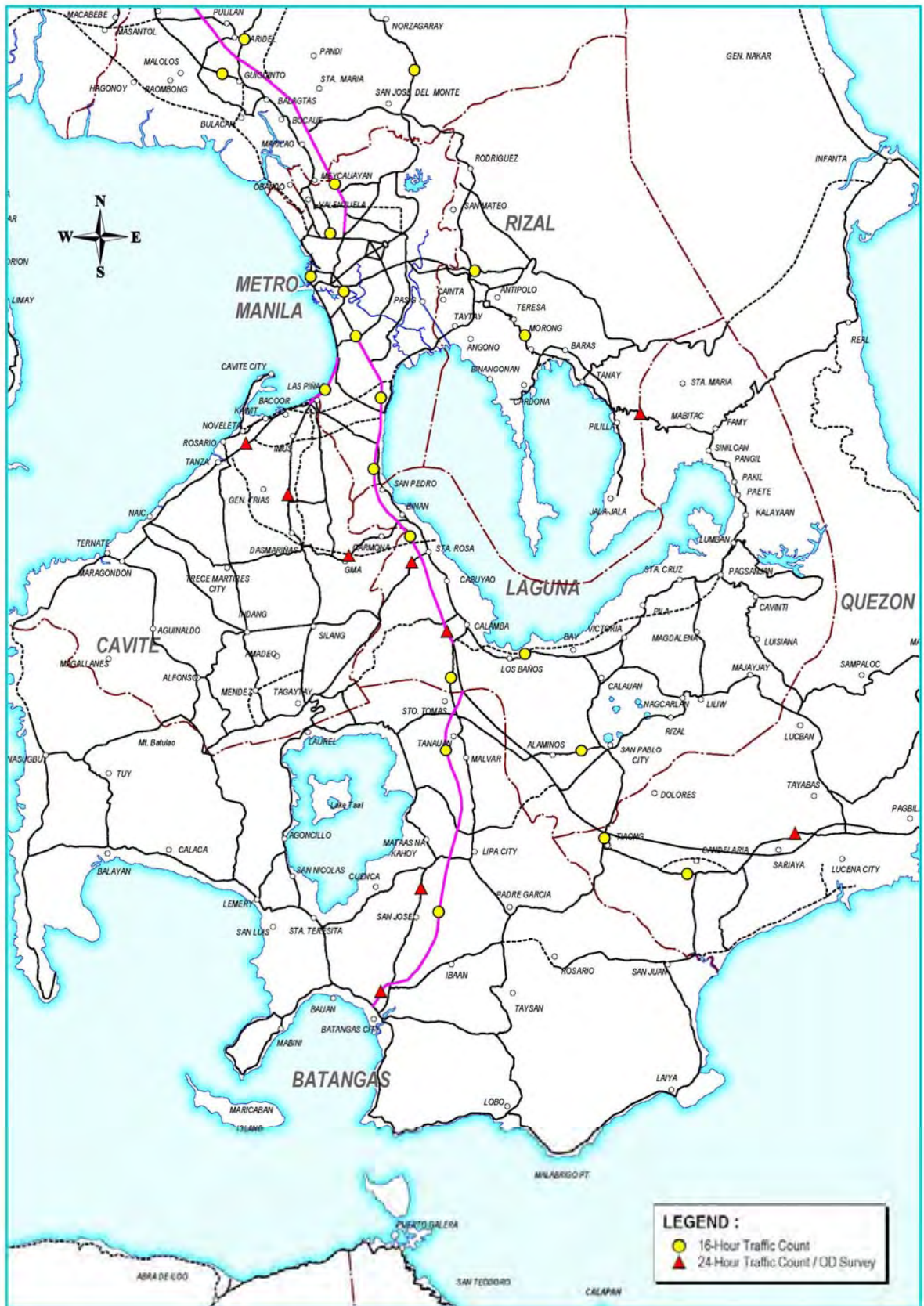


FIGURE 6.2-2 TRAFFIC LOCATION MAP FOR LUZON (2)

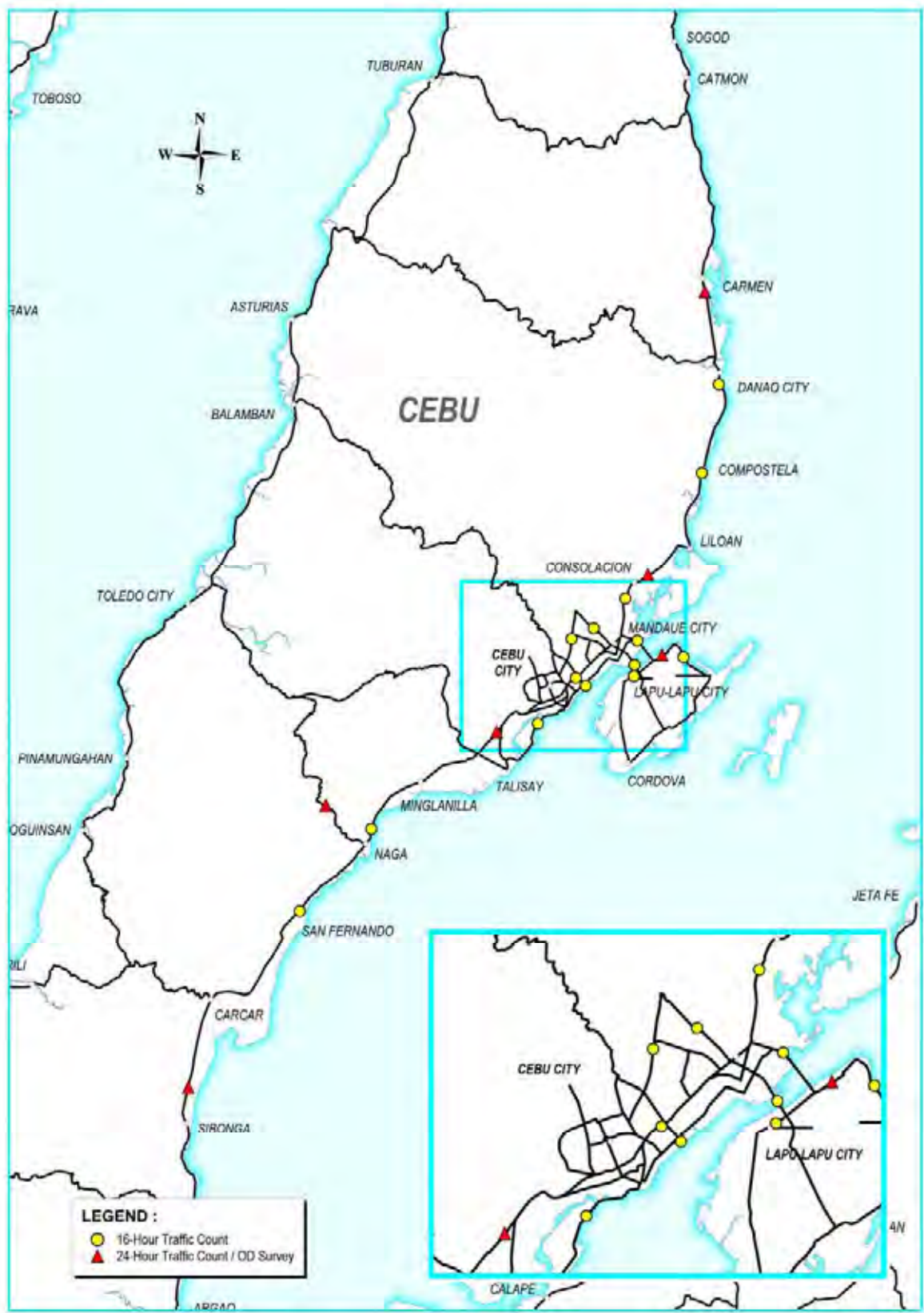


FIGURE 6.2-3 TRAFFIC LOCATION MAP FOR METRO CEBU

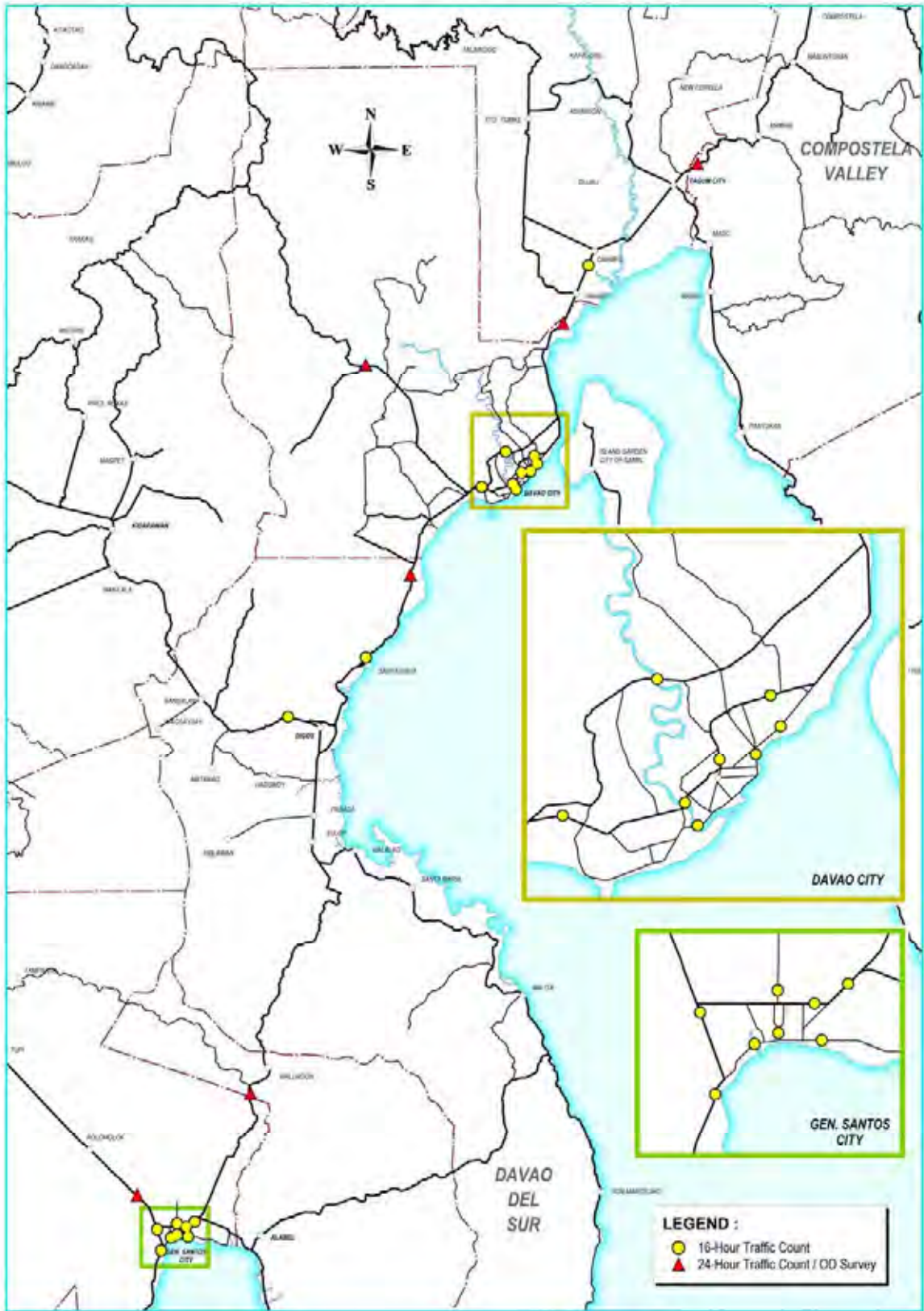


FIGURE 6.2-4 TRAFFIC LOCATION MAP FOR TAGUM – DAVAO – DIGOS – GEN. SANTOS

6.4 TRAVEL SPEED SURVEY

Travel Speed Survey is conducted to selected congested main corridors. The objective is to measure travel times experienced by road users and to identify causes of delay in a particular corridor. Traffic congestion can be a source of frustration for road users, and can have a significant economic effect due to the uncertainty of trip duration, for instance, on freight movements and deliveries.

Selected travel speed survey routes are shown in **Table 6.4-1** for Luzon (see Chapter 8 for maps), **Table 6.4-2** for Metro Cebu (see Chapter 20 for maps) and **Table 6.4-3** for Mindanao (see Chapter 26 for maps).

TABLE 6.4-1 TRAVEL SPEED ROUTES FOR LUZON

Route-1:	SCTEX Tarlac Exit --> Tarlac --> Manila North Road up to Rosario (Near the Sea)
Route-2:	NLEX Plaridel Exit --> Gapan (Bridge)
Route-3:	Gapan (Bridge) - Cabanatuan - San Jose City (North end)
Route-4:	SLEX Calamba Exit - Sto.Tomas --> San Pablo --> Tiaong --> Sariaya --> Boundary Lucena City / Pagbilao
Route-5:	Sto.Tomas - Batangas City (National Road)
Route-6:	Governors Drive from Carmona Exit to Tegero - Amadeo Road Junction
Route-7:	Manila - Cavite Coastal Road Exit / Entrance - Aguinaldo Highway - up to Governor's Drive Junction
Route-8:	Manila - Cavite Coastal Road Exit / Entrance - Tirona Highway - Tanza - Naic
Route-9:	Manila - Cavite Coastal Road Entrance --> Exit --> NAIA Airport Cargo Terminal
Route-10:	EDSA (Balintawak) --> Go West --> R-10 --> Delpan Bridge --> Bonifacio Drive up to Rizal Park
Route-11:	South Super Highway (at EDSA) --> Qurino Ave --> Gov.Forbes (A.H.Lacson) --> Rizal Ave.(under LRT-1) --> Monumento --> MacArthur Highway up to M. H. Del Pilar Junction
Route-12:	Espana / Quezon Ave. From C-2 to Qurino Highway
Route-13:	Qurino Highway at Junction with R-7 - San Jose del Monte - Bustos at Junction with Pan Philippine Highway
Route-14:	Olongapo - San Fernando Road

TABLE 6.4-2 TRAVEL SPEED ROUTES FOR METRO CEBU

Route-1:	Cebu North Road from Jct.of UN Ave. (Going to Second Mactan Bridge to North end of Carmen)
Route-2:	Cebu South Road from Jct.of C.Padilla St. to South end of Carcar
Route-3:	N. Bacalso Ave. - P. Del Rosario - M.J.Cuenco Ave. - Cebu North Road - M.L.Briones - UN Ave. - Second Mandaue - Mactam Bridge - M.L. Quezon National Highway - Ibo - Buaya Mactan Road
Route-4:	Fort San Pedro - Pres.Osmenia Blvd. - Osmena Blvd. - N.ESCARIO - Gov.Cuenco Ave. - H. Abellana up to Jct.with Cebu North Road
Route-5:	Quezon National Highway(in Mactan Is.) - First Mandaue - Mactan Bridge - A.C,Cortez Ave. - M.L.Quezon Highway up to Jct.with Gov.Cuenco Ave.

TABLE 6.4-3 TRAVEL SPEED ROUTES FOR MINDANAO

Route-1:	Pan Philippine Highway from Tagum North Boundary to Jct.Davao City Diversion Road in Davao City
Route-2:	Davao - Digos Road from Jct. of Davao - Cagayan De Oro Road in Davao City to Jct. of Digos - Cotabato Road in Digos
Route-3:	Davao City Diversion Road from Sasa to Jct.Davao - Cagayan De Oro Road
Route-4:	Pan Philippine Highway (or J.P.laurel Ave.) from Jct.Davao City Diversion Road - R.Castillo St. - Leon Garcia St. - Quezon Blvd. - Quimpo Blvd. - Mac Arthur Highway up to Jct.Davao City Diversion Road
Route-5:	Qurino Ave. from Jct. Pan Philippine Highway to Jct.Quimpo Blvd.
Route-6:	Jct. Pan Philippine Highway –Gen. Santos Highway – Santiago Boulevard – Aparente – Pan Philippine Highway (to Cotabato City) – P. Acharon Boulevard – Bula Amao Road

6.5 WILLINGNESS-TO-PAY SURVEY

Willingness-to-Pay Survey aims to gauge the public's acceptance of toll rate and their willingness to pay for toll service. One of the outputs of the survey is the estimate of the average toll which drivers would be prepared to pay. Another objective is to obtain some indications of perceived values of time. Location as well as sample number is presented in **Table 6.5-1**.

Since trucks are one of the main users of expressway, a separate willingness-to-pay survey is also conducted to 50 trucking companies located in Metro Manila, Central Luzon and Southern Luzon.

TABLE 6.5-1 LOCATIONS AND DISTRIBUTION OF SAMPLES FOR WILLINGNESS-TO-PAY

Corridor	Sample	Share (%)
Commonwealth Ave.	604	31.7%
Mac Arthur Highway (Outside EDSA)	269	14.1%
Manila East Road/Rizal Boundary	289	15.2%
Ortigas Ave. (Outside EDSA)	348	18.3%
Quirino Highway	396	20.8%
Total	1906	100.0%

6.6 TRUCK OD SURVEY AT PORT AND AIRPORT GATE

Truck OD Survey at Port and Airport Gate is designed to capture the type of commodities administered at the particular port/airport. This survey also enables to determine the degree of service area (or influence area) of the port/airport. Covered port/airport by this survey is show in **Table 6.6-1**.

TABLE 6.6-1 PORT/AIRPORT LOCATION OF TRUCK OD SURVEY

Port/Airport	Specific Location
Luzon	
Manila Port	North Harbor
Manila Port	South Harbor
Manila Port	Manila International Container Terminal
Manila Airport	NAIA Domestic Cargo Terminal
Manila Airport	NAIA International Cargo terminal
Batangas Port	Batangas City
Subic Port	SBMA
Diosdado Macapagal International Airport	Clark Special Economic Zone
Metro Cebu	
Mactan Cebu Intl Airport	Mactan, Cebu
Cebu Base Port	Cebu City
Danao Port	Danao City
Mindanao	
Davao Port	Davao City
Davao International Airport	Davao City
Gen. Santos Port	General Santos City
Gen. Santos Airport	General Santos City

6.7 TRUCK COUNT AT PORT AND AIRPORT GATE

Truck Count at Port and Airport Gate is carried out to determine the total number of trucks generated/attracted by the port/airport. The data collected is then utilized to expand the truck OD data collected through Truck OD survey discussed in section 6.6. The port/airport covered by this survey is the same to that shown in **Table 6.6-1**.

6.8 PORT/AIRPORT OFFICIALS INTERVIEW SURVEY

Port/Airport Officials Interview Survey is undertaken to collect cargo volume, number of passengers, number of ship calls/number of flights, type of commodities handled at the port/airport, data related to customs processing, etc. Aside from the objective of trying to determine type of commodities administered in a particular port/airport and to determine the service areas of the ports/airports, another objective is to understand how the distribution of say international flights among the airports (or distribution of international cargos among the ports). Covered port/airport by this survey is the same to that shown in **Table 6.6-1**.

6.9 ECOZONES INTERVIEW SURVEY

Ecozones Interview Survey aims to identify the types of industry located in each ecozone. This survey also tried to determine the gateway port/airport of the production output and port/airport utilize during the entry of raw materials. Transport routes from port/airport (and vice versa) are also identified through this survey. Likewise, problems related to the transport of their industrial input/output are sought. Ecozones covered by the survey are shown in **Table 6.9-1**. Originally, areas of Davao City and General Santos are included in the list however it was found out that most of the ecozones are not yet operational due to lack of investors. Those in operational mode on the other hand are smaller in scale.

TABLE 6.9-1 LIST OF ECOZONES COVERED BY THE SURVEY

Eco-Zone	Location
Luzon	
1. Clark SEZ	Clark, Pampanga
2. Subic SEZ	Subic, Zambales
3. Tarlac SEZ	San Miguel, Tarlac
4. Cavite Economic Zone	Rosario, Cavite
5. First Cavite Industrial Estate	Dasmaringas, Cavite
6. Gateway Business Park	General Trias, Cavite
7. Toyota Special Economic Zone	Sta. Rosa, Laguna
8. Calamba Premier Industrial Park	Calamba, Laguna
9. First Philippine Industrial Park	Sto. Tomas, Batangas
10. Lima Technology Center	Lipa City, Batangas
Metro Cebu	
11. Mactan Economic Zone I	Mactan, Cebu
12. Mactan Economic Zone II	Mactan, Cebu
13. Cebu Light Industrial Park	Mactan, Cebu

6.10 LOGISTICS / TRUCKING COMPANIES INTERVIEW SURVEY

Logistics Trucking Interview Survey is carried out to determine the type of commodities handled by the trucking companies as well as routes commonly taken by their drivers in transporting the commodities. Number of firms covered by the survey is shown in **Table 6.10-1**.

TABLE 6.10-1 NUMBER OF FIRMS TO EACH AREA COVERED BY THE LOGISTICS INTERVIEW SURVEY

Area	No. of Firms	Specific Location
Metro Manila	30	Metro Manila, Regions 4 and 3
Metro Cebu	6	Metro Cebu
Davao	7	Davao City

6.11 MANUFACTURING COMPANIES INTERVIEW SURVEY

Manufacturing Interview Survey is carried out to determine the industrial input and output and which routes are used for the material movements. Through this survey, port/airport gate of the said materials is also determined. Likewise, the survey captured the incentives provided by a particular ecozone to locators as well as problems encountered by the locators in transporting their input/output. Locations of manufacturing companies covered by the survey are shown in **Table 6.11-1**.

TABLE 6.11-1 LOCATIONS OF MANUFACTURING FIRMS COVERED BY THE SURVEY

Manufacturing Company	Location	Number of Firms Interviewed
Luzon		
1. Clark SEZ	Clark, Pampanga	6
2. Subic SEZ	Subic, Zambales	8
3. Tarlac SEZ	San Miguel, Tarlac	6
4. Cavite Economic Zone	Rosario, Cavite	4
5. First Cavite Industrial Estate	Dasmaringas, Cavite	4
6. Gateway Business Park	General Trias, Cavite	9
7. Toyota Special Economic Zone	Sta. Rosa, Laguna	2
8. Calamba Premier Industrial Park	Calamba, Laguna	3
9. First Philippine Industrial Park	Sto. Tomas, Batangas	11
10. Lima Technology Center	Lipa City, Batangas	7
11. Laguna Technopark Inc.	Sta. Rosa, Laguna	4
Metro Cebu		
12. Mactan Economic Zone I	Mactan, Cebu	6
13. Mactan Economic Zone II	Mactan, Cebu	6
Davao		
14. Davao Area	Davao	7
Total		83