**ANNEX 13.2**
**PREPARATION OF**
**ENVIRONMENTAL IMPACT STATEMENT (EIS)**

**PROPOSED TERMS OF REFERENCE**

## 1 Background

The general Scope of Work includes the following:

(i) ***Conduct of Environmental Impact Assessment (EIA)***
- Generation of baseline information to establish the present state of the environment
- Impact prediction and assessment
- Aggregation of impact information

(ii) ***Preparation of the Environmental Impact Statement (EIS)***
- Preparation of the EIS in accordance with the DENR- Administrative Order 2003-30 guidelines

(iii) ***Identification of Potential Effects***
- Assessment of possible adverse effects occurring with certain magnitude
- Recommendation of necessary mitigation measures to avert/address adverse effects

(iv) ***Assistance in Securing Environmental Clearance Certificate (ECC) from the DENR-ARMM***

## 2 Objectives

The main objectives of the EIA Project are to: (i) prepare and submit an Environmental Impact Statement following the DENR Administrative Order No. 2003-30 at the end of six (6) months; and (ii) prepare and submit additional information required by the DENR.

## 3 Scope of Work and Expected Outputs

In undertaking the EIA, the Consultant's tasks include, but are not limited to the following:

### 3.1 State Project's objectives, needs for which the Project is being proposed, alternatives considered, and associated projects

The project's objectives must be presented in terms of socio-economic (i.e., cost, benefits, beneficiaries, social costs, etc.) and environmental (type and extent of pollution generated) parameters. Trade-off between the benefits of the project and its adverse environmental consequences must be exhaustively discussed.

The needs for which the project is being proposed, the alternatives considered, and associated projects (e.g., site development) must be thoroughly discussed.

## 3.2 Describe the Project

The Project, particularly in terms of **pre-construction**, **construction**, and **operational activities**, will be described in the EIS.

### *3.2.1 Pre-construction Stage*

Description of **pre-construction** (**design stage**) **activities** include, among others, the following:

(i) area to be traversed by the construction of the new road sections;
(ii) orientation with respect to surrounding areas, e.g., proximity to human settlement areas and social service facilities such as schools, hospitals, churches, and institutional/ historical monuments;

### *3.2.2 Construction Stage*

**Construction** activities will be described in terms of:

(i) site preparation activities such as site clearing and stripping, excavation, removal of existing structures, cutting and filling, etc.;
(ii) installation of temporary erosion and flood control structures; placement of foundations and footings, laying of roadbed, drainage systems;
(iii) handling and nature of construction materials and method to be used; safety features such as lighting, alarms, road signs, water sprinklers, etc.;
(iv) manpower requirements
(v) construction support systems---number, sources, and housing needs of work force, including size, location and duration of temporary construction camps (if any);
(vi) safety measures, particularly for construction workers

### *3.2.3 Operation Stage*

**Operational** activities consist of a description of the following:

(i) expected air and noise pollution generated;
(ii) slope stabilization measures
(iii) projected traffic, economic and financial viability;
(iii) associated projects (if any)

Timing and duration of abovementioned pre-construction and construction activities, must be described and illustrated by **process flow** and **activity charts.**

## 3.3 Discuss Contingency Plans

Identify significant environmental hazards that may arise during the construction and operation of the project through accident or design failure. The probability of such events occurring and the preventive and remedial measures to be taken shall be fully discussed. Methods for detecting such accidents or natural events, including a description of the procedures shall also be included.

## 3.4 Conduct Project Scoping

Scoping is the first and most critical step in the EIS process since it is during this activity wherein most of the key issues and concerns in the EIA are discussed, clarified, and agreed upon among the key actors (i.e., the Proponent (DPWH),

Preparer (EIA Consultant), the Environmental Management Bureau (EMB), the DENR-ARMM, the concerned Provincial Environment and Natural Resources Office (PENRO), the Community Environment and Natural Resources Offices (CENRO) of the host municipalities, the concerned Local Government Units (LGUs), National Government Agencies (NGAs), the EIA Review Committee (EIARC), and the stakeholders. However it is important to note that based on the latest DENR guideline particularly the October 2009 Memorandum from the Secretary of the DENR (Central Office), entitled, "***New Processing Periods for the Environmental Impact Statement (EIS) System & Corresponding Guidelines***", involvement of DENR personnel and representatives is optional during the conduct of scoping.

## 3.5 Describe existing environmental condition

Describe historical trends and establish existing condition of the natural environment and socio-economic setting of the project area. Data to be gathered are of two types, namely, (i) primary, and (ii) secondary. Parameters to be considered are:

***Climate***

- The nature and duration of climatic records and conditions in the vicinity of the proposed project, including mean values of precipitation, occurrence of thunderstorms, typhoons, etc.

***Terrain***

- Geologic features within the project area, including seismic hazards (e.g., faults, liquefaction and subsidence potential), rock and soil classification, conditions, and suitability in relation to foundation;

***Atmosphere***

- Existing ambient air quality, and types and levels of existing air pollutants. Sampling techniques (i.e., duration and methodology) and parameters must be in accordance with DENR Administrative Order No.14.

Specifically the pollutants to be sampled consist of TSP (Total Suspended Particulates), Sulfur Dioxide ($SO_2$), and Nitrogen Dioxide ($NO_2$).

***Hydrology and River Morphology***

Describe existing drainage system in terms of catchment areas, flow rates, erosional and depositional patterns/areas, and other pertinent hydrological parameters

***Water Quality***

Establish existing water quality in terms of ph, temperature, Oil and Grease, and Total Suspended Solids (TSS).

***Flora and Fauna***

- Major types and distribution of flora and fauna

***Land and resource use***

- Describe the existing land uses in the project area and immediate vicinities, including present zoning classification, use of transportation facilities, structures, etc. Determine if project is inconsistent or will conflict with existing land use and activities.

***Socio-economic Aspects***

- Existing lifestyles in the community within the area of concern, demographic data, employment situation, existing housing facilities, utilities (electricity and water), etc. Establish existing transportation facilities, particularly in terms of road reliability and accessibility.

**3.6 Describe future environmental conditions without the project**

Discuss the future condition of the various environmental aspects enumerated in 3.5 if the project will not be implemented.

**3.7 Conduct environmental impact assessment**

Based on the baseline data collected, identify and describe possible environmental impacts of the project, emphasizing on project stages most likely to cause environmental disturbances.

**3.8 Review and assess project alternatives or mitigating measures to be adopted**

Based on the environmental impacts identified, review and assess project alternatives or mitigating measures to be adopted to reduce, if not eliminate severity of adverse impacts.

**3.9 Identify unavoidable impacts and data gaps**

Describe unavoidable impacts, i.e., environmental impacts that are most likely to remain after all possible mitigating measures have been identified. Information deficiencies encountered and their importance during the preparation of the EIS must also be discussed in the report.

**3.10 Write and submit draft environmental impact statement**

Write and submit the Environmental Impact Statement (EIS) to the DENR-Environmental Management Bureau (EMB).

**3.11 Assist the DPWH-ARMM in conducting Public Hearing (if required by DENR)**

**3.12 Provide Additional Information on the Project**

After submitting the EIS, the Review Committee of the EMB normally requires additional information from the project proponent, particularly in cases wherein clarifications have to be made. The EIA Consultant must prepare and submit said information and attend meetings or hearings initiated by EMB.

### 3.13 Secure Environmental Compliance Certificate from the EMB, DENR.

Assist the DPWH-ARMM in securing the Environmental Compliance Certificate (ECC) from the Environmental Management Bureau of the DENR.

## 4 Staff Requirements

Provide adequate and qualified key staff to perform the services described previously. The general qualifications are as follows:

### 4.1 Environmental Specialist/Team Leader

Must have extensive experience in the supervision and direction of EIA activities, with at least a Master of Science Degree in any pure or applied science course.

### 4.2 Hydrologist

Must have at least a Bachelor of Science Degree in either Civil Engineering or Geology, and has been involved as a Hydrologist in an EIA project.

### 4.3 Ecologist

Must have at least a Bachelor of Science Degree in either Biology, Ecology, or Forestry, and has been involved in EIA projects.

### 4.4 Air Quality Specialist

Must be well versed in air quality analysis, including capability to develop/use simulation models, modern sampling techniques, with at least a Bachelor of Science Degree in either Chemistry or Meteorology. Must have track record in similar type of work.

### 4.5 Water Quality Specialist

Must be well versed in water quality analysis, including capability to use modern sampling techniques, with at least a Bachelor of Science Degree in either Chemistry or other related sciences. Must have track record in similar type of work.

### 4.6 Sociologist/Socioeconomist

Must have vast experience in the field of social preparation, community organizing, conduct of socioeconomic survey, and analysis. Must have at least a Bachelor of Science/Arts in Sociology, Psychology, Anthropology, or other related social sciences.

## 5 Output of the EIA Consultant:

### 5.1. Environmental Impact Statement (EIS), including the following:

- Location and Vicinity Map
- Topographic Map

- Land Use Map
- Geologic Map
- Color photographs
- Color process flow/activity charts

### 5.2. Environmental Compliance Certificate (ECC), secured from the EMB, DENR.

## 6 Role of the Detailed Engineering Design Consultants and DPWH:

- Provide the EIA Consultant with pertinent and available data on the project such as maps and reports, particularly in terms of the Project's **main goals** and objectives, the **needs** for which the project is proposed, the **alternatives**, and the relationship of the proposed project with other existing and proposed projects in the area of concern and immediate vicinities;
- Assist the EIA Consultant in securing access to aerial photographs (if available) of the project area;
- Provide the EIA Consultant access to Feasibility Study and Detailed Engineering Design Report on the Project
- Detailed description and schedule of activities for all stages of the project; i.e., from pre-construction, to construction, to operation phases
- Flow diagram of all the processes (pre-construction and construction phases) involved in the Project
- Survey Plan of the Project areas
- A list, including specifications of all equipment and materials to be utilized in the project

# ANNEX 14

**PROJECT PROFILE (1/18)**

| | |
|---|---|
| **PROJECT NO.** | 1 |
| **PROJECT TITLE** | NLEx–SLEx Link Expressway |
| **ROAD LENGTH** | 13.35 km |
| **TRAFFIC VOLUME IN 2030** | 111,000 PCU/Day |
| **NUMBER OF LANES** | 2 x 2 |
| **DESIGN SPEED** | 60 km/h |
| **ESTIMATED PROJECT COST** | 31.14 Billion Pesos |

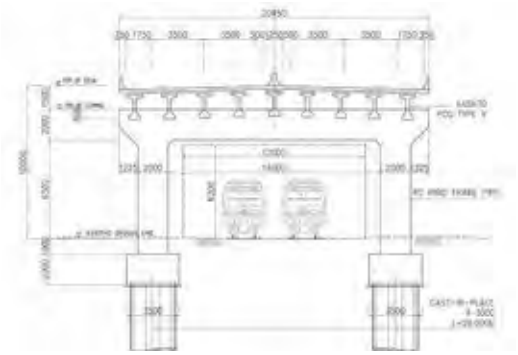
**PROJECT DESCRIPTION**

This project is to connect existing NLEX and SLEX in the center of the Metro Manila. 4 alternative alignments have been proposed and the route, which is along PNR utilizing their property to minimize R.O.W for new expressway, was recommended as the most appropriate route in terms of economy and environment by result of the Study on PPP Project Development of the NLEX-SKYWAY / SLEX Connector Road in Metro Manila, Republic of the Philippines under the Ministry of Economy, Trade and Industry, Japan. The recommended route is to be connected with NLEX Segment-10 at the R-3.

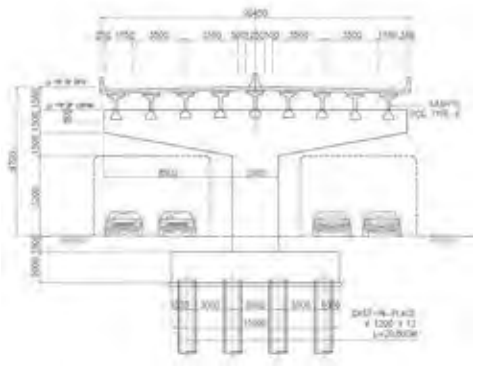
All section will be designed as elevated structure which is composed of 2nd level (70% in length), 3rd level (28.5% in length) and 4th level (1.5% in length).

[Major Issues]

- 3rd level and 4th level elevated structure will be required to cross over existing bridges.
- A certain amount of household will be affected by the construction.
- NLEX Segment-10 of which detailed design has been on going since April 2010 need to be completed prior to this Project.



Typical Cross Section in Railway



Typical Cross Section in Roadway

PNR Property to be utilized


**NLEX-SLEX LINK EXPRESSWAY**

**PROJECT PROFILE (2/18)**

| | |
|---|---|
| **PROJECT NO.** | 2 |
| **PROJECT TITLE** | NAIA Expressway-2 |
| **ROAD LENGTH** | 4.9 km |
| **TRAFFIC VOLUME IN 2030** | 75,000 PCU/Day |
| **NUMBER OF LANES** | 2 x 2 |
| **DESIGN SPEED** | 60 km/h |
| **ESTIMATED PROJECT COST** | 12.15 Billion Pesos |

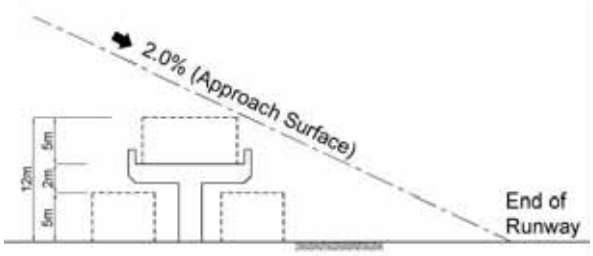
**PROJECT DESCRIPTION**

This project is to connect NAIA Expressway Phase-1 from Skyway to Airport Terminal-3 and Manila Bay Coastal Road with elevated structure. Followings are critical issues to be considered for the design of the project.

1) Navigation Clearance of NAIA Runway 13.

It is regulated that no building can be constructed in obstacle limitation surface around the airport. The NAIA Expressway-2 is planned to pass at the vicinity of Runway 13 which is utilized for domestic fright. The approach surface for landing of the runway defined as 2% slope from the edge of runway is particularly affect to alignment of the road. In this regard, the alignment of the road will be recommended to pass along Praniaque River since elevated structure along "Domestic Rd." might violate the approach surface for the navigation.


**Obstacle Limitation Surface of NAIA (Runway-13)**




**Approach Surface of the Runway to be Secured for Landing**

2) Interface to NAIA Expressway-Phase-1

2 lanes (W=8m) off-ramp in front of terminal 3 and on-off ramp at the Sales Rd have been constructed under the Phase-1.

To connect 4 lane road and to construct on ramp along the Sales road, a part of these ramp will be demolished.

3) New International Cargo Terminal

The New International Cargo Terminal is planned to be located along MIA (NAIA) Road. Considering the cargo truck generated from the terminal, on & off ramp to

**NAIA Expressway Phase-1**

accommodate these trucks is to be designed along the MIA road.



**Plan of New International Cargo Terminal**

Source; ERIA Study Report on Enhancing Institutional Framework for Public-Private Partnership (PPP) in Infrastructure Development (2010)


**NAIA EXPRESSWAY PHASE-2**

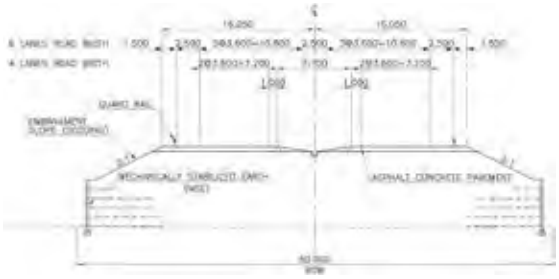
**PROJECT PROFILE (3/18)**

| | | |
|---|---|---|
| **PROJECT NO.** | 3 | |
| **PROJECT TITLE** | C-6 Expressway | |
| **ROAD LENGTH** | North Section : 16.5 km<br>East Section : 25.5 km<br>South-East Section: 22.8 km | Total: 64.8 km |
| **TRAFFIC VOLUME IN 2030** | North Section : 68,000 PCU/day<br>East Section : 71,000 PCU/day<br>South-East Section: 78,000 PCU/day | |
| **NUMBER OF LANES** | 2 x 2 | |
| **DESIGN SPEED** | 80 km/h | |
| **ESTIMATED PROJECT COST** | North Section : 7.85 Billion Pesos<br>East Section : 14.93 Billion Pesos<br>South-East Section: 20.44 Billion Pesos | 43.22 Billion Pesos |

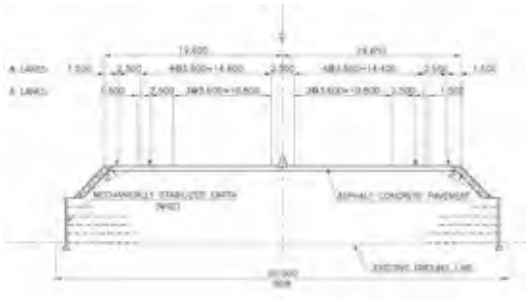
**PROJECT DESCRIPTION**

This project was studied under Ministry of Economy, Trade and Industry Japan in 2008. This project Disorderly urban development is rapidly progressing in the outskirts of Metro Manila due to non-existence of trunk road network. Trunk roads are needed to properly guide the sound urbanization. The C6 Expressway will play an important role in guiding sound urbanization. In order to solve or mitigate above problems, construction of C6 Expressway is urgently needed. The project contributes the attainment of the following:

- To support sound economic development in Metro Manila, Region III and Region IV-A by providing high service transportation facility.
- To improve transport efficiency by eliminating a missing expressway link between Region II and Region IV-A through Metro Manila.
- To enhance international competitiveness of export industry by improving faster and reliable freight movement.
- To ease traffic congestion of Metro Manila roads.
- To guide sound urbanization of the Metro Manila outskirts.



Designed Typical Cross Section with 4 lanes



Typical Cross Section with 6 lanes for the future.

[Alignment Plan]

Followings were taken into consideration of alignment plan.

- To avoid passing La Mesa Conservation Area
- To avoid passing high density residence area.

[Design Condition]

Followings shall be considered for the design.

- Fault Section：Sta.26-37
- Soft Ground and Liquefaction Section: Sta.0-12
- Slope Failure Section：Sta.14-27
- 4-lane road is to be designed with 6-lane's R.O.W considering increasing of future traffic volume.


**C-6 EXPRESSWAY**

**PROJECT PROFILE (4/18)**

| | | |
|---|---|---|
| **PROJECT NO.** | 4 | |
| **PROJECT TITLE** | C-6 Extension | |
| **ROAD LENGTH** | Phase-1 : 29.9 km<br>Phase-2 : 13.7 km | Total: 43.6 km |
| **TRAFFIC VOLUME IN 2030** | Phase-1 : 102,000 PCU/day<br>Phase-2 : 66,000 PCU/day | |
| **NUMBER OF LANES** | 2 x 2 | |
| **DESIGN SPEED** | 80 km/h | |
| **ESTIMATED PROJECT COST** | Phase-1 : 12.27 Billion Pesos<br>Phase-2 : 6.31 Billion Pesos | Total: 18.58 Billion Pesos |

**PROJECT DESCRIPTION**

C-6 Extension is planed to connect C-6 Expressway to Calamba-Los Banos Toll Road along Laguna Lakeshore.

Phase-1: C-6 Expressway Junction at Taguig City to Santa Rosa City to be connected with SLEX and CALA Expressway.

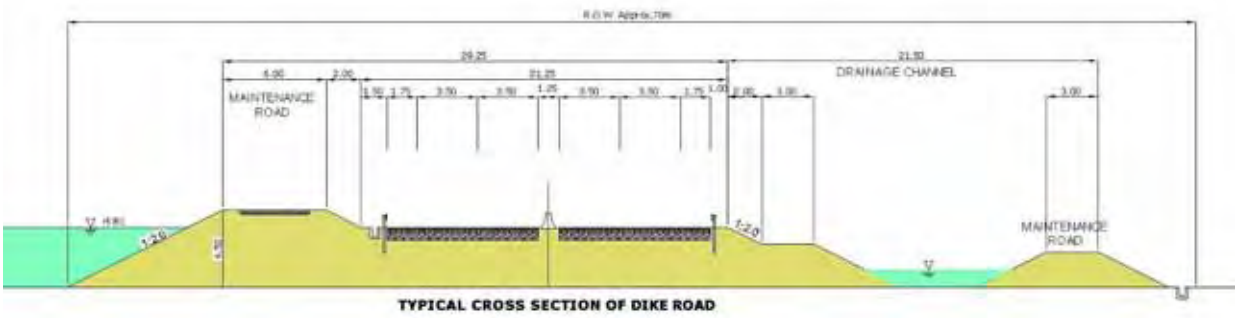
Phase-2: Santa Rosa City to Calamba City to be connected with Calamba-Los Banos Toll Road.

It has been advocated that Lakeshore Dike along the Laguna de Bay would be constructed to prevent from flooding since typhoon Ondoy struck Metro Manila in September 2009. The C-6 Extension is going to utilize the lakeshore dike to secure the R.O.W.

Drainage and rivers connecting to the lake are to be controlled by pumping station with gate excluding following rivers which is to be crossed by bridge due to their scale of discharge.

- Binan River (Section in Phase-1)
- Santa Rosa River (Section in Phase-1)
- San Cristobal River (Section in Phase-2)
- San Juan River (Section in Phase-2)

The project cost is inclusive of the dike road, and bridges. Cost of required pumping stations and sluice gats are not considered.




TYPICAL CROSS SECTION OF DIKE ROAD


**C-6 EXTENSION**

**PROJECT PROFILE (5/18)**

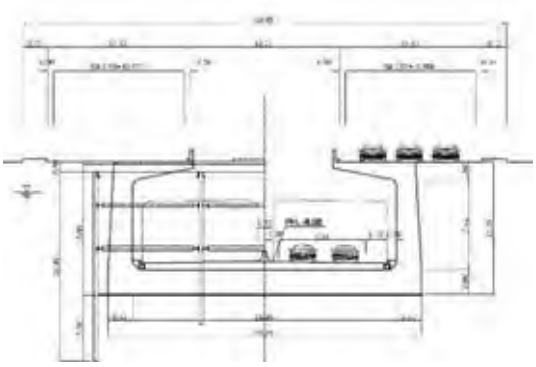
| | |
|---|---|
| **PROJECT NO.** | 5 |
| **PROJECT TITLE** | Manila Bay Expressway |
| **ROAD LENGTH** | 8.02 km |
| **TRAFFIC VOLUME IN 2030** | 74,000 PCU/day |
| **NUMBER OF LANES** | 2 x 2 |
| **DESIGN SPEED** | 60 km/h |
| **ESTIMATED PROJECT COST** | 46.54 Billion Pesos |

**PROJECT DESCRIPTION**

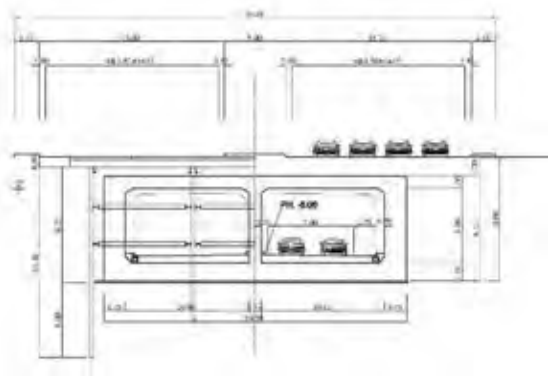
The Manila Bay Expressway is planned to connect the end of Manila Cavite Coastal Expressway and Manila South Port area to mitigate traffic congestion of Roxas Boulevard.

- Reclamation Area

  Open-cut tunnel is recommended for the reclaimed land considering its landscape since the road is planed to pass through newly developed commercial area in reclaimed land. A major part of the tunnel in the reclamation area is to be U-type Tunnel except for intersections and under bridges to assure ventilation without equipment.



**U-Type Tunnel**



**Box-Type Tunnel under Intersection**

- Manila Bay Crossing Section

  Immersed tunnel method is recommended for the section of Manila Bay of which see bed is estimated 5 to 10 m only. This method will not affect navigation of the Manila Bay after construction. Tow (2) of vertical shaft for ventilation shall be constructed at least.

**Typical Cross Section of Immersed Tunnel**


**MANILA BAY EXPRESSWAY**

**PROJECT PROFILE (6/18)**

| | |
|---|---|
| **PROJECT NO.** | 6 |
| **PROJECT TITLE** | CALA Expressway |
| **ROAD LENGTH** | Phase-1: 14.3 km<br>Phase-2: 27.5 km |
| **TRAFFIC VOLUME IN 2030** | Phase-1: 95,000 PCU/day<br>Phase-2: 106,000 PCU/day |
| **NUMBER OF LANES** | 3 x 2 |
| **DESIGN SPEED** | 100 km/h |
| **ESTIMATED PROJECT COST** | Phase-1: 7.88 Billion Pesos<br>Phase-2: 11.79 Billion Pesos |

**PROJECT DESCRIPTION**

This project was studied under "the Feasibility Study and Implementation Support on the CALA East-West National Road Project (November 2006, JICA)". The subject road starts from Greenfield I.C of SLEX in Santa Rosa City and reach to Manila-Caivte Costal Expressway (R1 Extention), passing through Silang, General Trias, Imus, and Kawit

CALA Expressway is expected to contribute to alleviate the traffic congestion in the CALA area; to improve the living environment of local residents; to promote dispersion of urban function of Metro Manila; as well as to further encourage the improvement of investment environment in the area given its strategic location vis-a-vis the international port in Batangas City.

DPWH has been undertaking the business case study as a toll-way project based on PPP scheme since 2009 assisted by World Bank.

- Phase-1: SLEX (Greenfield I.C.) to Aguinaldo Highway
- Phase-2: Aguinaldo Highway to the end of Manila-Cavite Costal Expressway.


**CALA EXPRESSWAY**

**PROJECT PROFILE (7/18)**

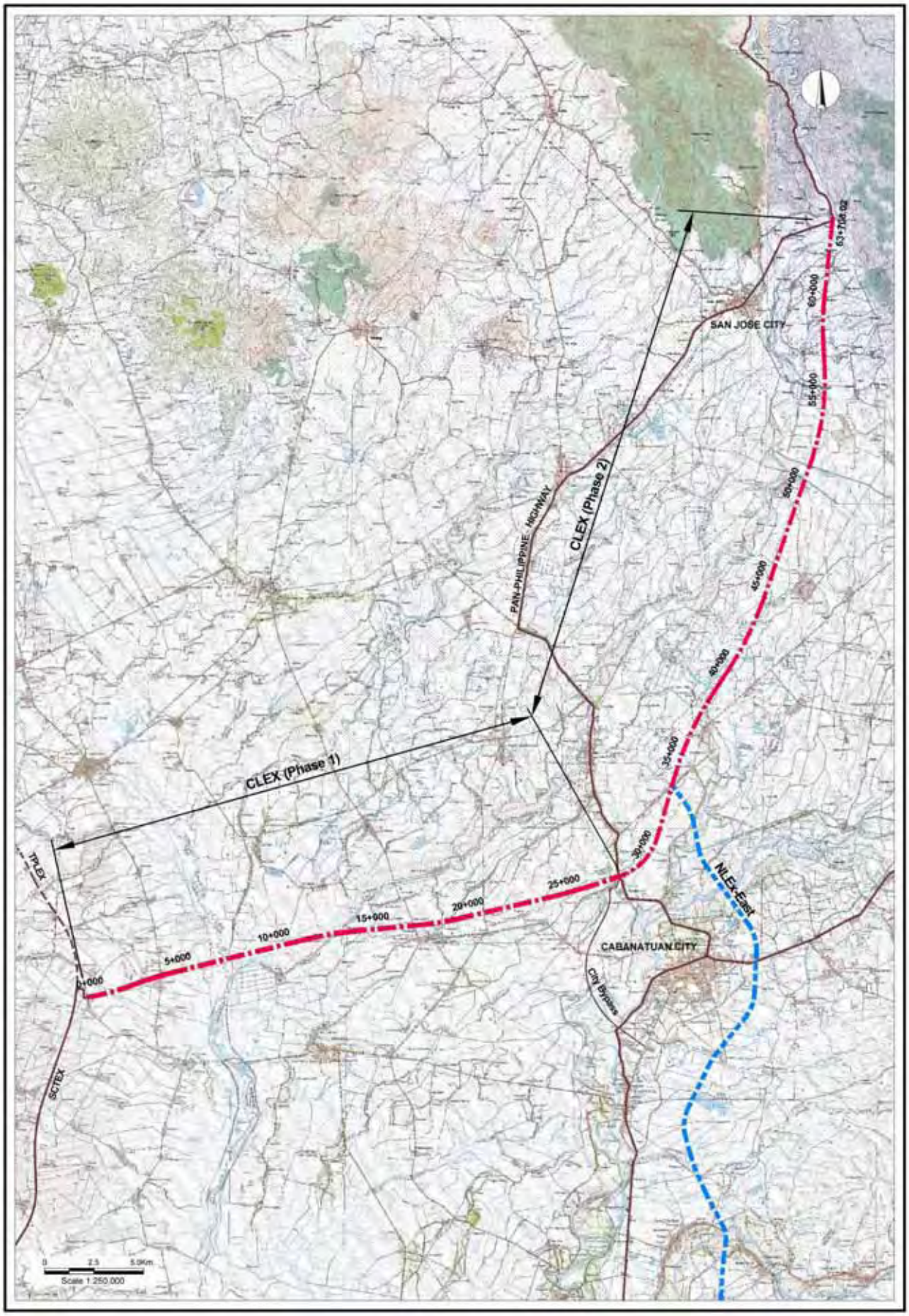
| | |
|---|---|
| **PROJECT NO.** | 7 |
| **PROJECT TITLE** | Central Luzon Expressway |
| **ROAD LENGTH** | Phase-1: 28.2 km<br>Phase-2: 35.7 km |
| **TRAFFIC VOLUME IN 2030** | Phase-1: 35,000 PCU/day<br>Phase-2: 13,000 PCU/day |
| **NUMBER OF LANES** | 2 x 2 |
| **DESIGN SPEED** | 100 km/h |
| **ESTIMATED PROJECT COST** | Phase-1: 13.18 Billion Pesos<br>Phase-2: 16.05 Billion Pesos |

**PROJECT DESCRIPTION**

Taking into consideration the completed SCTEX and its proposed extension, the Tarlac-Pangasinan-Union Expressway (TPLEX), it would be necessary to include a lateral expressway that would complement both the major North-South Line of Luzon such as SCTEX and Pan-Philippine Highway(PPH). On the overall, the project seeks to improve access to the food baskets of Cagayan Valley and the province of Aurora as well as eastern part of CAR (Cordillera Administrative Region) that would ensure safe and faster movements of goods as well as support tourism sector thrust and development directions. This project is expected to contribute to following effects:

- Provide a free-flowing alternative route for through traffic along the PPH between San Jose and Cabanatuan Area in Nueva Ecija and Plaridel in Bulacan.
- Provide a linkage between the existing SCTEX and PPH at some latitude above the Cities of Cabanatuan and San Jose.
- Provide a highway of international standards with limited number of intersections.

"Feasibility Study for the Proposed Centr Luzon Expressway(CLEX) under the Consultancy Services for the Pre-Construction and Supervision of Arterial Road Bypass Project (Phase-1) JICA Loan No.PH-P236" was completed in January 2010.




**CENTRAL LUZON EXPRESSWAY**

**PROJECT PROFILE (8/18)**

| | |
|---|---|
| **PROJECT NO.** | 8 |
| **PROJECT TITLE** | Calamba-Losbanos Toll Expressway |
| **ROAD LENGTH** | 15.5km |
| **TRAFFIC VOLUME IN 2030** | 65,000 PCU/day |
| **NUMBER OF LANES** | 2 x 2 |
| **DESIGN SPEED** | 80 km/h |
| **ESTIMATED PROJECT COST** | 6.45 Billion Pesos |

**PROJECT DESCRIPTION**

Various studies have been carried out clarifying the necessity of improving the road capacity and addressing the traffic congestion problem in the area.

The Study on JBIC Special Assistance for Project Formation (SAPROF) for Road Network Capacity Expansion (Bypass) Project was concluded the project as priority 2-lane road project to be implemented in September 2003. In addition, DPWH conducted Business Case Study for the road as 4-lane toll road based on PPP scheme in 2008.

Laguna is endowed with natural resources and scenic attractions such as hot spring resorts that attracts and developed the tourism industry. The area is also the site of the University of the Philippines and its colleges and other research institutes. The various developments in the area coupled with urbanization pressure resulted in severe traffic congestion problems along the trunk road, especially during summer season. This project is expected to contribute to following objectives.

- To alleviate the traffic congestion between Calamba and Los Banos where has high growing trend of urbanization.
- To promote and support the tourism industry of related area.


**CALAMBA-LOS BANOS TOLL EXPRESSWAY**

**PROJECT PROFILE (9/18)**

| | |
|---|---|
| **PROJECT NO.** | 9 |
| **PROJECT TITLE** | SLEX Extension (to Lucena) |
| **ROAD LENGTH** | 47.8 km |
| **TRAFFIC VOLUME IN 2030** | 64,000 PCU/day |
| **NUMBER OF LANES** | 2 x 2 |
| **DESIGN SPEED** | 100 km/h |
| **ESTIMATED PROJECT COST** | 16.30 Billion Pesos |

**PROJECT DESCRIPTION**

SLEX Extension from Calamba Exit to Sto Tomas where is the beginning point of South Tagalog Arterial Road (STAR) is currently on going. Aside of the above, SLEX Extension (to Lucena) is to connect Sto Tomas to Lusena in parallel with National Road No.1.

The subject road is starting from a new junction with SLEX at Sto Tomas and is ending at Sariaya before Lucena to make Lucena Diversion Road effectively perform.

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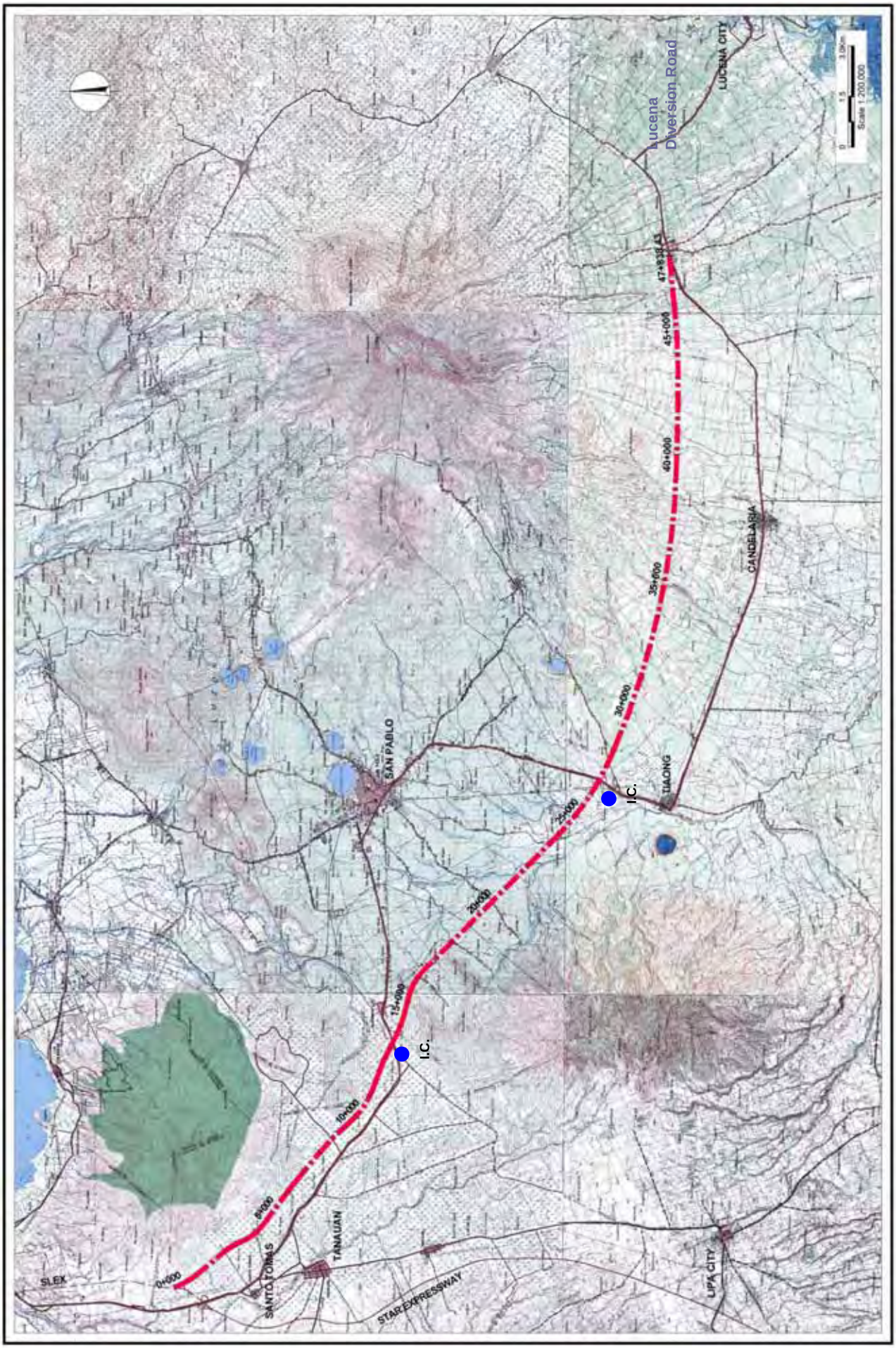

SLEX EXTENSION
Lucena Diversion Road
LUCENA CITY
CANDELARIA
TIAONG
SAN PABLO
I.C.
I.C.
SLEX
SANTO TOMAS
TANAUAN
STAR EXPRESSWAY
LIPA CITY
0+000
5+000
10+000
15+000
20+000
25+000
30+000
35+000
40+000
45+000
47+933.43

**PROJECT PROFILE (10/18)**

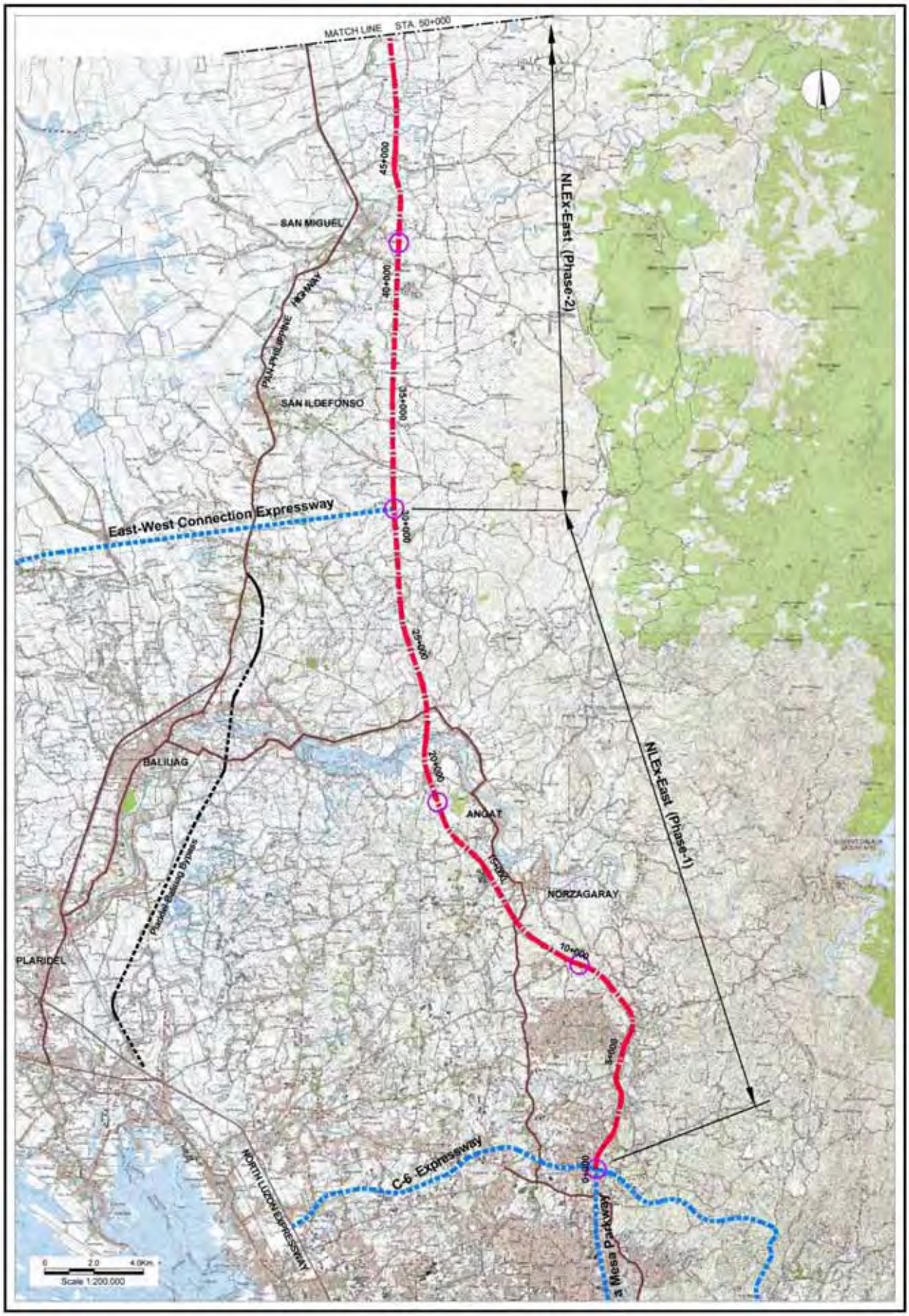
| | | |
|---|---|---|
| **PROJECT NO.** | 10 | |
| **PROJECT TITLE** | NLEX East | |
| **ROAD LENGTH** | Phase-1: 30.1 km<br>Phase-2: 62.0 km | 92.1 km |
| **TRAFFIC VOLUME IN 2030** | Phase-1: 39,000 PCU/day<br>Phase-2: 21,000 PCU/day | |
| **NUMBER OF LANES** | 2 x 2 | |
| **DESIGN SPEED** | 100 km/h | |
| **ESTIMATED PROJECT COST** | Phase-1: 11.31 Billion Pesos<br>Phase-2: 22.82 Billion Pesos | |

**PROJECT DESCRIPTION**

NLEX East is up to Cabatuan City starting from the end point of La Mesa Parkway and/or junction of C-6 in San Jose del Monte via Norzagaray, Angat, San Ildefonso, San Miguel, Gapan and Santa Rosa in parallel with Pan-Philippine Highway. This road is expected to divert the traffic of existing NLEX which will be saturated in the future. The project is expected to divert traffic of existing NLEX which will be saturated in the future.

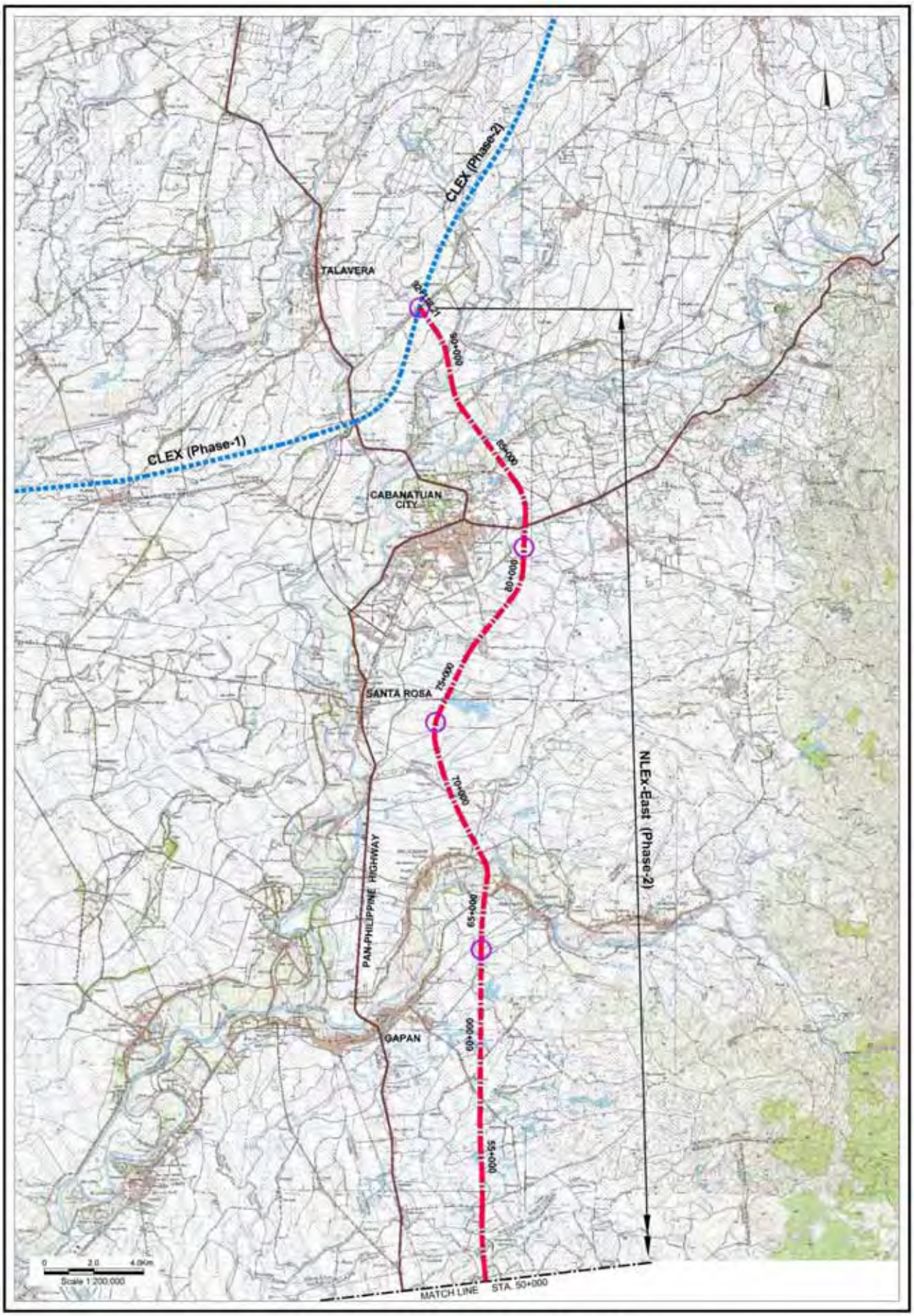
- Phase-1: San Jose del Monte to junction with East-West Connection Expressway in San Ildefonso.
- Phase-2: Junction with East-West Connection Expressway in San Ildefonso to Junction with CLEX Phase-2 in Cabanatuan City. A part of Phase-2 alignment is tracing the alignment or Cabanatuan Bypass.

Bridges over 1000 meter in length will be required for the project to cross Angat River, Penaranda River and Panpamga River.




**NORTH LUZON EXPRESSWAY EAST**
**(NLEx-EAST) 1/2**

A14-21




**NORTH LUZON EXPRESSWAY EAST**
**(NLEx-EAST) 2/2**

**PROJECT PROFILE (11/18)**

| | |
|---|---|
| **PROJECT NO.** | 11 |
| **PROJECT TITLE** | La Mesa Parkway |
| **ROAD LENGTH** | 10.9 km |
| **TRAFFIC VOLUME IN 2030** | 72,000 PCU/day |
| **NUMBER OF LANES** | 2 x 2 |
| **DESIGN SPEED** | 80 km/h |
| **ESTIMATED PROJECT COST** | 4.46 Billion Pesos |

**PROJECT DESCRIPTION**

La Mesa Parkway is starting from Commonwealth Avenue in La Mesa where is the end point of R-7 Expressway and ending at San Jose del Monte to be crossing with C-6. La Mesa Parkway is a part of NLEE (North Luzon Expressway East) proposed by Ausphil Tollway Corp. The proponent is going to secure R.O.W for the project with help of privileges of the Metropolitan Waterworks and Sewerage System (MWSS).


**LA MESA PARKWAY**

A14-24

**PROJECT PROFILE (12/18)**

| | |
|---|---|
| **PROJECT NO.** | 12 |
| **PROJECT TITLE** | C-5/FTI/SKYWAY Connector Road. |
| **ROAD LENGTH** | 3 km |
| **TRAFFIC VOLUME IN 2030** | 53,000 PCU/day |
| **NUMBER OF LANES** | 2 |
| **DESIGN SPEED** | 60 km/h |
| **ESTIMATED PROJECT COST** | 5.60 Billion Pesos |

**PROJECT DESCRIPTION**

"Detailed Engineering and Pre-Construction Assistance for the Construction of the Viaduct Including Access Ramps from President Garcia Avenue (C-5) FTI to Skyway Improvement Project" has been on going since September 2009 under DPWH. The objectives of the project are as below.

- To maximize and/or optimize FTI's competitive advantage to market by means of providing reliable access to major thoroughfare in the southern part of Metro Manila.
- To improve transport efficiency and increase capacity build-up of the City's road network that would complement with other transport development plans within the City and Metro Manila.
- To promote free flow of people, cargo, and economic activities (i.e. facilitation of economic and socio-economic interaction and integration of businesses and industries) between FTI and Fort Bonifacio's industrial facilities to further enhance the development of business activities between these areas for civilian benefits.
- To help secure transport of food supply to Metro Manila and adjoining areas (i.e. FTI being the "Food City" of Metro Manila which is envisioned to be the country's center of trade for quality food and world class agricultural products).


**C-5 / FTI / SKYWAY CONNECTOR ROAD**

**PROJECT PROFILE (13/18)**

| | |
|---|---|
| **PROJECT NO.** | 13 |
| **PROJECT TITLE** | Pasig Marikina Express Way |
| **ROAD LENGTH** | 15.7 km |
| **TRAFFIC VOLUME IN 2030** | 92,000 PCU/day |
| **NUMBER OF LANES** | 4 |
| **DESIGN SPEED** | 60 km/h |
| **ESTIMATED PROJECT COST** | 39.46 Billion Pesos |

**PROJECT DESCRIPTION**

This road is stating from South Ave in Santa Cruz and ending at Junction with Marcos Highway in Calumbang along Pasig and Marikina River which is under improvement by Japanese Yen loan. On and Off ramp for the Ortigas Avenue will be included in the project.

Most of the section will be viaduct, particularly 4th level highly elevated structure will be required to cross the EDSA (C-4) .

Present Condition of Pasig River

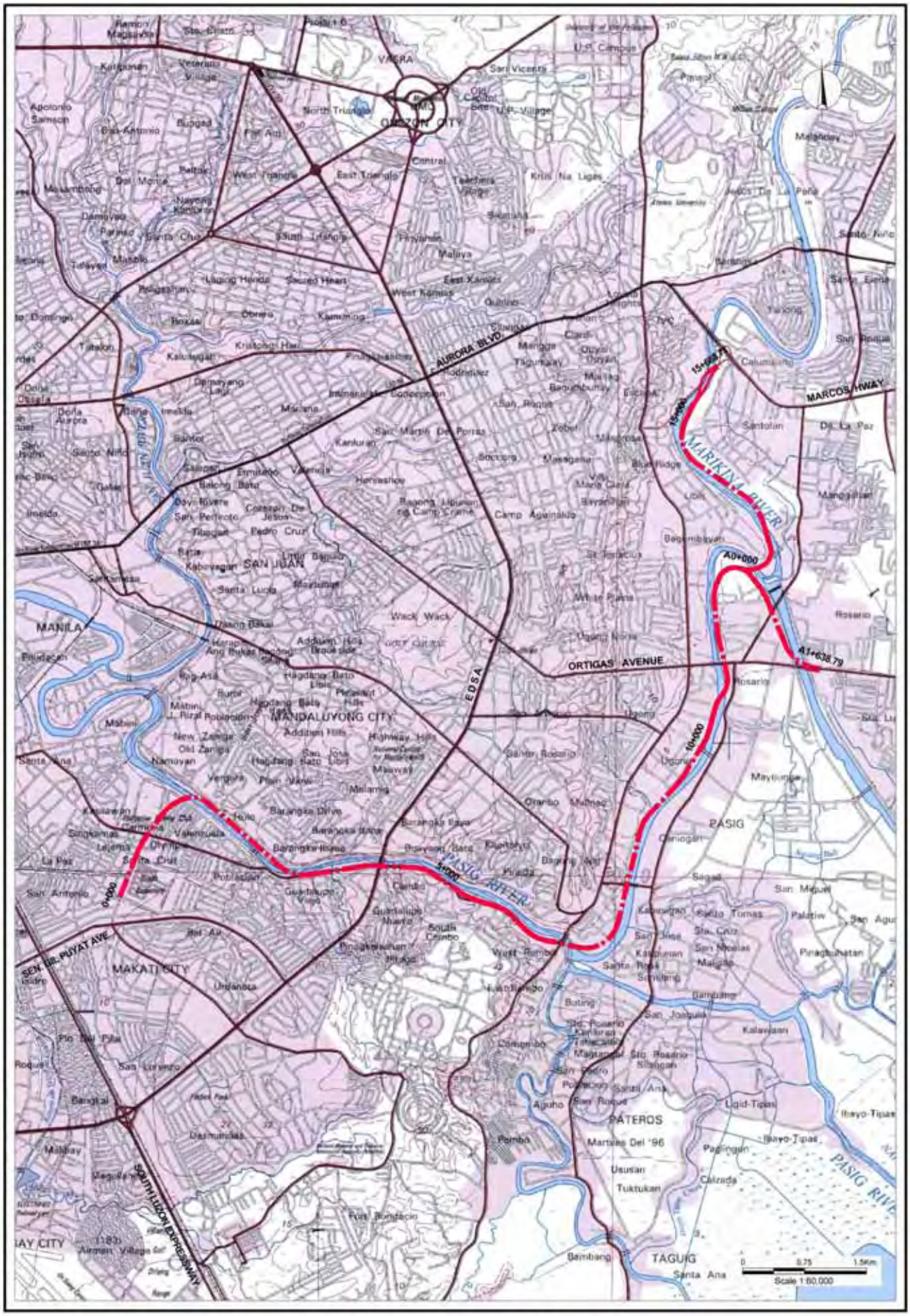
Present Condition of Marikina River

MRT is crossing at EDSA(C-4)

End Point (LRT-2 and Marcos Highway)

Easement for the Pasig river improvement work is defined as 3m from the parapet line to be constructed under the above mentioned yen loan project.

Some of R.O.W for linear park along the Pasig River has been already secured by Pasig River Rehabilitation Commission (PRRC). PRCC have intended to acquire 10m easement from the parapet line along Pasig River although the progress is not confirmed yet.




**PASIG-MARIKINA EXPRESSWAY**

A14-28

**PROJECT PROFILE (14/18)**

| | |
|---|---|
| **PROJECT NO.** | 14 |
| **PROJECT TITLE** | Global City Link |
| **ROAD LENGTH** | 1.7 km |
| **TRAFFIC VOLUME IN 2030** | - PCU/day |
| **NUMBER OF LANES** | 4 |
| **DESIGN SPEED** | 60 km/h |
| **ESTIMATED PROJECT COST** | 1.03 Billion Pesos |

**PROJECT DESCRIPTION**

The Global City Link is to connect C-6 and Global City along C-5. Since the objective area is high density residential zone where is difficult to construct new expressway, it is hard to connect C-6 and Global City or C-5 directly. In this consideration, the objective road is ended at Garcia Avenue which is currently under construction.


**GLOBAL CITY ACCESS LINK**

**PROJECT PROFILE (15/18)**

| | |
|---|---|
| **PROJECT NO.** | 15 |
| **PROJECT TITLE** | R-7 Expressway |
| **ROAD LENGTH** | 16.1 km |
| **TRAFFIC VOLUME IN 2030** | 87,000 PCU/day |
| **NUMBER OF LANES** | 4 |
| **DESIGN SPEED** | 60 km/h |
| **ESTIMATED PROJECT COST** | 25.81 Billion Pesos |

**PROJECT DESCRIPTION**

This project was originally proposed by Metro Manila Urban·Expressway System Study conducted by JICA in 1993.

This route passes along one of the most heavily traffic loaded corridors in Metro Manila. Particularly, private trip demand is expected to increase sharply along this corridor where middle and high-class residential subdivisions.

Traffic between Quezon City and Makati CRD is presently served by EDSA. This route will provide a strong alternative route to EDSA. The route is also important to provide transport access to Batasang Pambansa.

The route starts at Welcome Rotonda. goes over Quezon Avenue up to Quezon Memorial Circle (QMC) where it goes underground. From QMC to the end, it goes along Commonwealth Avenue as an at-grade expressway with viaducts at intersections with cross roads.

It is necessary to be aware that LRT-7 is planed to be constructed same route. The type of structure shall be designed by collaboration with plan of LRT-7.


R-7 EXPRESSWAY
La Mesa Parkway
NLEx Segment-8.2
NLEx Segment-8.1
NLEx Segment-9
NLEx Segment-10
Tandang Sora Ave.
EDSA
NORTH LUZON EXPRESSWAY
NLEx-SLEx Link Expressway
MARIKINA RIVER
MANILA
Navotas
Scale 1:50,000

**PROJECT PROFILE (16/18)**

| | |
|---|---|
| **PROJECT NO.** | 16 |
| **PROJECT TITLE** | Manila Bataan Coastal Road |
| **ROAD LENGTH** | Phase-1: 47.9 km<br>Phase-2: 22.4 km |
| **TRAFFIC VOLUME IN 2030** | Phase-1: 74,000 PCU/day<br>Phase-2: 26,000 PCU/day |
| **NUMBER OF LANES** | 4 |
| **DESIGN SPEED** | 100 km/h |
| **ESTIMATED PROJECT COST** | Phase-1: 78.85 Billion Pesos<br>Phase-2: 7.40 Billion Pesos |

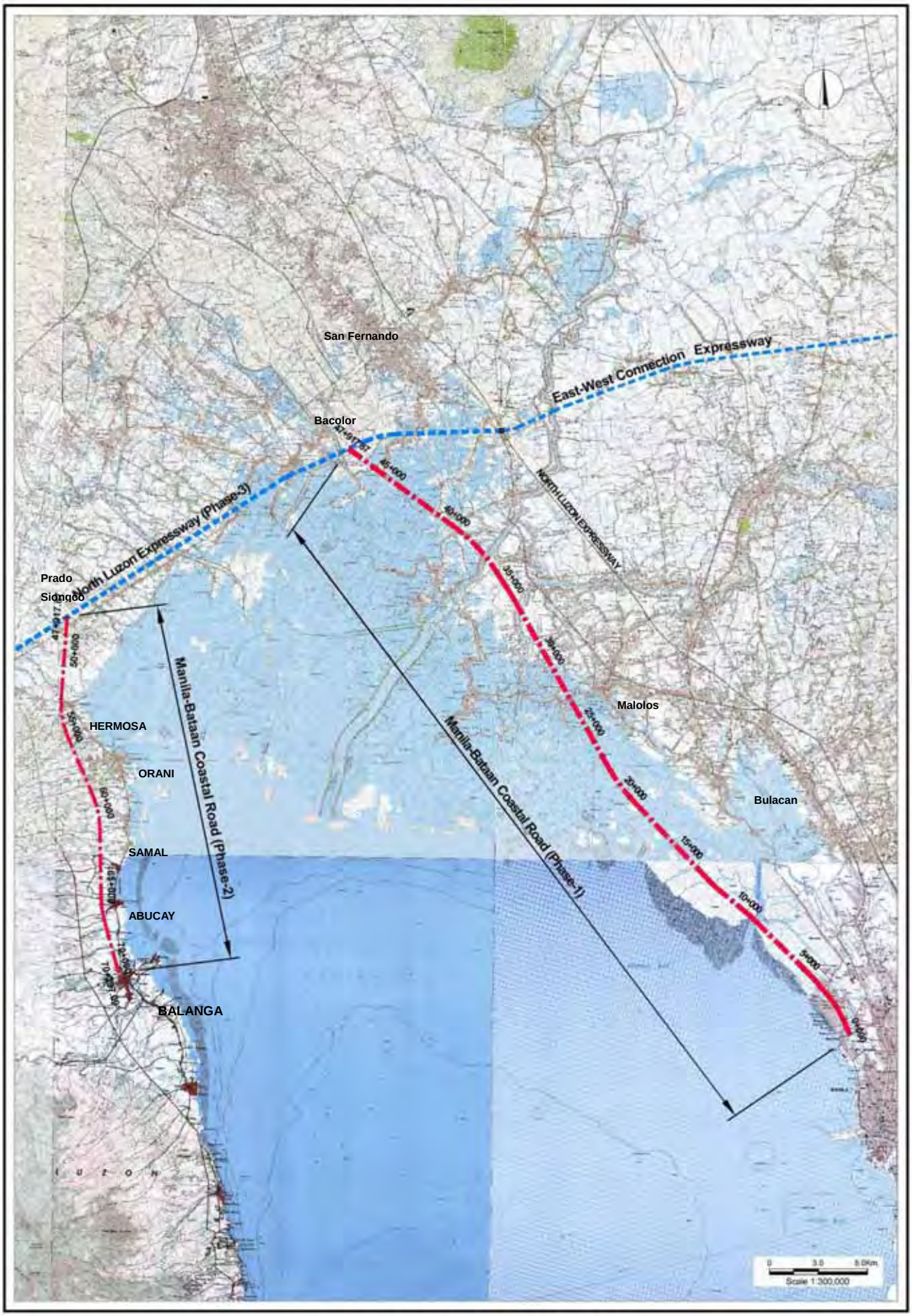
**PROJECT DESCRIPTION**

[Phase-1]

It begins from Bagumbayan North where R-10 meets with C-4 along Navotas-Malabon River and ends at a junction with NLEX Phase-3 in Bacolor. Approximately 3.8 km from the beginning along Navotas-Malabon River is to be elevated structure. Most of remaining part is passing through fish pond and paddy field to be crossed by bridge.

[Phase-2]

It begins from junction with NLEX Phase-3 in Prado Siongco and ends at Balanga which is the capital city of Bataan Province. The route passes through between Bataan Provincial Expressway also known as the Roman Expressway and National Road.




MANILA - BATAAN COASTAL ROAD

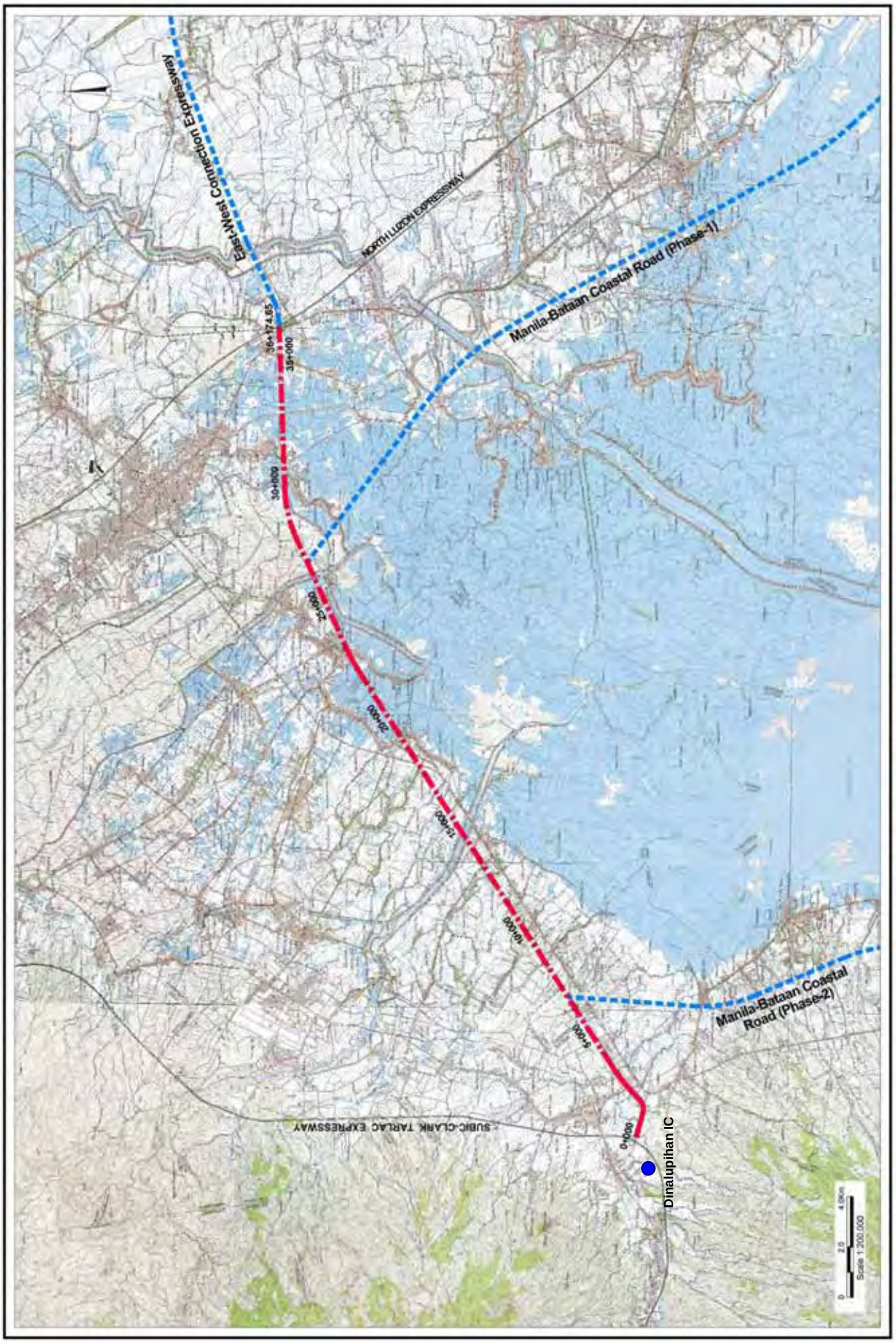
**PROJECT PROFILE (17/18)**

| | |
|---|---|
| **PROJECT NO.** | 17 |
| **PROJECT TITLE** | North Luzon Expressway Phase-3 |
| **ROAD LENGTH** | 36.2 km |
| **TRAFFIC VOLUME IN 2030** | 29,000 PCU/day |
| **NUMBER OF LANES** | 4 |
| **DESIGN SPEED** | 100 km/h |
| **ESTIMATED PROJECT COST** | 28.40 Billion Pesos |

**PROJECT DESCRIPTION**

This project is to connect SCTEX and NLEX along Manila Bay. The road plays a role in a part of Manila-Bataan Coastal Road as well by connecting its phase-1 and phase-2 which has been proposed as project no 16. In addition, the road constitute a East-West Axis of road network together with East-West Connection Expressway by connecting major North-South Axes consisted of existing NLEX and NLEX East.

The objective road is starting from Dinalupihan Inter Change and ending at the vicinity of San Simon I.C of existing NLEX where will be starting point of East-West Connection Expressway. Proposed rout is passing through flood plain of Pampanga River to be crossed by several bridges.




NORTH LUZON EXPRESSWAY (PHASE-3)

**PROJECT PROFILE (18/18)**

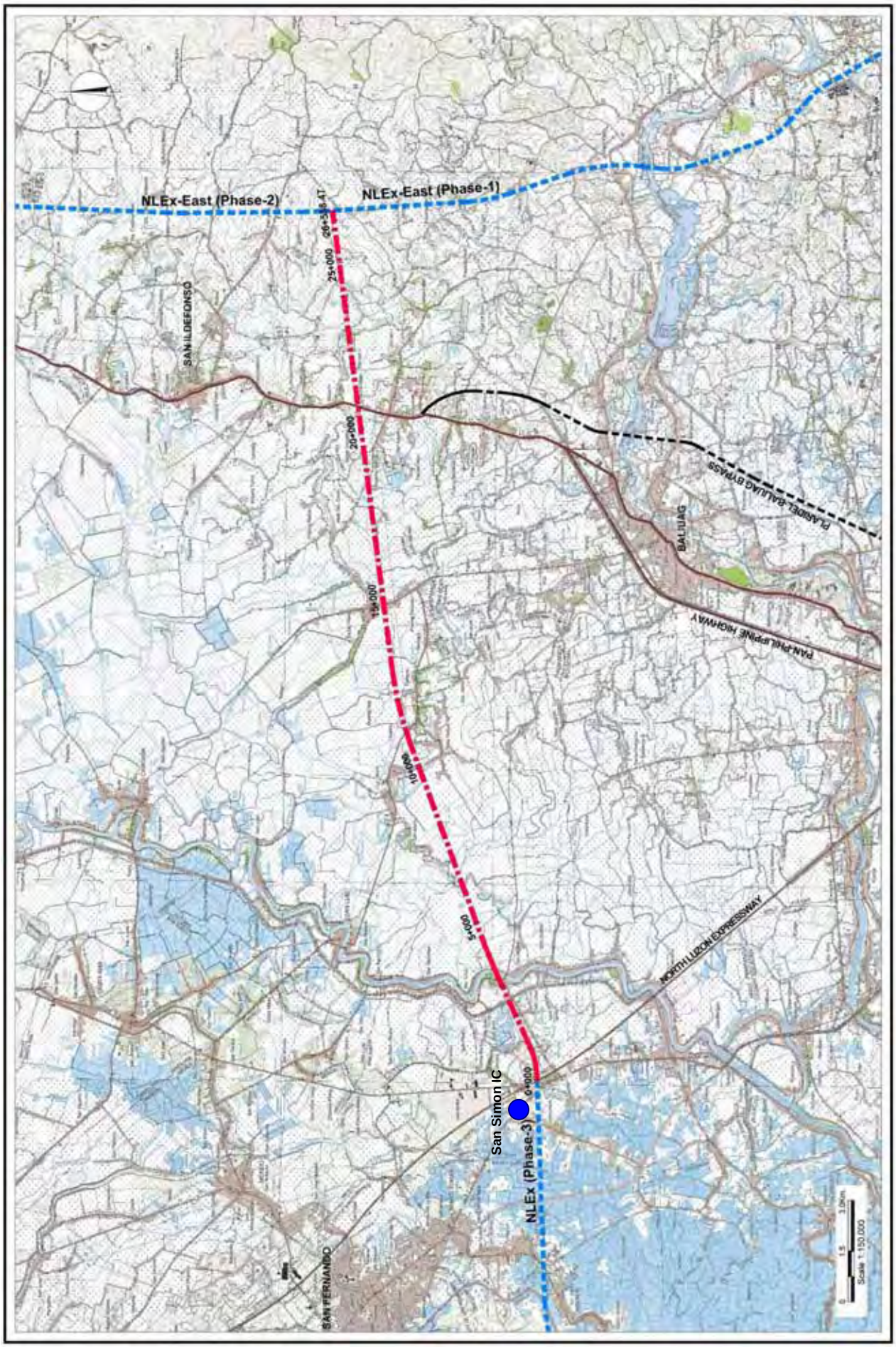
| | |
|---|---|
| **PROJECT NO.** | 18 |
| **PROJECT TITLE** | East-West Connection Expressway |
| **ROAD LENGTH** | 26.6 km |
| **TRAFFIC VOLUME IN 2030** | 8,600 PCU/day |
| **NUMBER OF LANES** | 4 |
| **DESIGN SPEED** | 100 km/h |
| **ESTIMATED PROJECT COST** | 9.37 Billion Pesos |

**PROJECT DESCRIPTION**

This Project is to connect existing NLEX and NLEX East which is proposed as Project No.10. The objective road would be required as a part of East-West axis to connect main North-South axis which will be consisted of NLEX and NLEX-East. The stating point is at the vicinity of San Simon I.C of existing NLEX, and the ending point is Junction of NLEX East in San Ildefonso. The route is mostly passing through paddy field.

Major Crossing Object

- Pampanga River and its flood plain
- San Isidro Creek
- Baliuag-Candaba Road
- Pan-Philippine Highway
- Maasim River


NLEx-East (Phase-2)
NLEx-East (Phase-1)
25+000
20+000
15+000
10+000
5+000
0+000
SAN ILDEFONSO
BALIUAG
PLARIDEL BALIUAG BYPASS
PAN PHILIPPINE HIGHWAY
NORTH LUZON EXPRESSWAY
San Simon IC
NLEx (Phase-3)
SAN FERNANDO
EAST-WEST CONNECTION EXPRESSWAY

# ANNEX 15

# ANNEX 15-1

## ECONOMIC CASH FLOW OF EACH PROJECT

### TABLE 1 ECONOMIC CASH FLOW OF PROJECT 1 NORTH-SOUTH LINK EXPRESSWAY

Project 1. North-South Link Expressway (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | Maintenance | | Total | VOC+TTC | |
| 2011 | 438.2 | 21.9 | 0.0 | 438.2 | 0.0 | -438.2 |
| 2012 | 5,012.2 | 501.2 | 0.0 | 5012.2 | 0.0 | -5,012.2 |
| 2013 | 10,112.3 | 1,516.8 | 0.0 | 10112.3 | 0.0 | -10,112.3 |
| 2014 | 9,496.3 | 1,899.3 | 0.0 | 9496.3 | 0.0 | -9,496.3 |
| 2015 | 0.0 | 0.0 | 218.4 | 218.4 | 5,334.8 | 5,116.4 |
| 2016 | 0.0 | 0.0 | 218.4 | 218.4 | 5,498.7 | 5,280.3 |
| 2017 | 0.0 | 0.0 | 218.4 | 218.4 | 5,662.6 | 5,444.2 |
| 2018 | 0.0 | 0.0 | 218.4 | 218.4 | 5,826.5 | 5,608.1 |
| 2019 | 0.0 | 0.0 | 218.4 | 218.4 | 5,990.4 | 5,772.0 |
| 2020 | 0.0 | 0.0 | 218.4 | 218.4 | 6,154.3 | 5,935.9 |
| 2021 | 0.0 | 0.0 | 218.4 | 218.4 | 6,522.4 | 6,304.0 |
| 2022 | 0.0 | 0.0 | 218.4 | 218.4 | 6,890.5 | 6,672.1 |
| 2023 | 0.0 | 0.0 | 218.4 | 218.4 | 7,258.7 | 7,040.3 |
| 2024 | 0.0 | 0.0 | 800.8 | 800.8 | 7,626.8 | 6,826.0 |
| 2025 | 0.0 | 0.0 | 218.4 | 218.4 | 7,995.0 | 7,776.6 |
| 2026 | 0.0 | 0.0 | 218.4 | 218.4 | 8,363.1 | 8,144.7 |
| 2027 | 0.0 | 0.0 | 218.4 | 218.4 | 8,731.2 | 8,512.8 |
| 2028 | 0.0 | 0.0 | 218.4 | 218.4 | 9,099.4 | 8,881.0 |
| 2029 | 0.0 | 0.0 | 218.4 | 218.4 | 9,467.5 | 9,249.1 |
| 2030 | 0.0 | 0.0 | 218.4 | 218.4 | 9,835.7 | 9,617.3 |
| 2031 | -3,939.2 | | | -3,939.2 | | 3,939.2 |
| Total | 21,119.8 | 3,939.2 | 4,076.8 | 25,196.6 | 116,257.6 | 91,061.0 |

| | |
|---|---|
| **EIRR=** | **19.4%** |
| **NPV=** | **5,057.6** |
| **B/C=** | **1.30** |

### TABLE 2 ECONOMIC CASH FLOW OF PROJECT 2 NAIA EXPRESSWAY-2

Project 2. NAIA Expressway-2 (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | Maintenance | | Total | VOC+TTC | |
| 2011 | 169.0 | 8.4 | 0.0 | 169.0 | 0.0 | -169.0 |
| 2012 | 1,990.8 | 199.1 | 0.0 | 1990.8 | 0.0 | -1,990.8 |
| 2013 | 4,044.0 | 606.6 | 0.0 | 4044.0 | 0.0 | -4,044.0 |
| 2014 | 3,606.7 | 721.3 | 0.0 | 3606.7 | 0.0 | -3,606.7 |
| 2015 | 0.0 | 0.0 | 82.9 | 82.9 | 1,641.0 | 1,558.1 |
| 2016 | 0.0 | 0.0 | 82.9 | 82.9 | 1,773.2 | 1,690.2 |
| 2017 | 0.0 | 0.0 | 82.9 | 82.9 | 1,905.3 | 1,822.4 |
| 2018 | 0.0 | 0.0 | 82.9 | 82.9 | 2,037.4 | 1,954.5 |
| 2019 | 0.0 | 0.0 | 82.9 | 82.9 | 2,169.6 | 2,086.6 |
| 2020 | 0.0 | 0.0 | 82.9 | 82.9 | 2,301.7 | 2,218.8 |
| 2021 | 0.0 | 0.0 | 82.9 | 82.9 | 2,358.9 | 2,276.0 |
| 2022 | 0.0 | 0.0 | 82.9 | 82.9 | 2,416.2 | 2,333.2 |
| 2023 | 0.0 | 0.0 | 82.9 | 82.9 | 2,473.4 | 2,390.5 |
| 2024 | 0.0 | 0.0 | 304.1 | 304.1 | 2,530.6 | 2,226.5 |
| 2025 | 0.0 | 0.0 | 82.9 | 82.9 | 2,587.9 | 2,504.9 |
| 2026 | 0.0 | 0.0 | 82.9 | 82.9 | 2,645.1 | 2,562.1 |
| 2027 | 0.0 | 0.0 | 82.9 | 82.9 | 2,702.3 | 2,619.4 |
| 2028 | 0.0 | 0.0 | 82.9 | 82.9 | 2,759.5 | 2,676.6 |
| 2029 | 0.0 | 0.0 | 82.9 | 82.9 | 2,816.8 | 2,733.8 |
| 2030 | 0.0 | 0.0 | 82.9 | 82.9 | 2,874.0 | 2,791.1 |
| 2031 | -1,535.5 | | | -1,535.5 | | 1,535.5 |
| Total | 8,275.0 | 1,535.5 | 1,548.1 | 9,823.1 | 37,992.9 | 28,169.8 |

| | |
|---|---|
| **EIRR=** | **16.66%** |
| **NPV=** | **711.6** |
| **B/C=** | **1.11** |

## TABLE 3 ECONOMIC CASH FLOW OF PROJECT 3-1 C6 EXPRESSWAY (JETRO F/S 2008)_NORTH

Project 3-1. C6 Expressway (JETRO F/S 2008)_North (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | Maintenance | | Total | VOC+TTC | |
| 2011 | 424.2 | 21.2 | 0.0 | 424.2 | 0.0 | -424.2 |
| 2012 | 1,646.5 | 164.6 | 0.0 | 1646.5 | 0.0 | -1,646.5 |
| 2013 | 3,401.2 | 510.2 | 0.0 | 3401.2 | 0.0 | -3,401.2 |
| 2014 | 2,643.5 | 528.7 | 0.0 | 2643.5 | 0.0 | -2,643.5 |
| 2015 | 0.0 | 0.0 | 196.3 | 196.3 | 1,223.5 | 1,027.2 |
| 2016 | 0.0 | 0.0 | 196.3 | 196.3 | 1,322.0 | 1,125.7 |
| 2017 | 0.0 | 0.0 | 196.3 | 196.3 | 1,420.4 | 1,224.2 |
| 2018 | 0.0 | 0.0 | 196.3 | 196.3 | 1,518.9 | 1,322.7 |
| 2019 | 0.0 | 0.0 | 196.3 | 196.3 | 1,617.4 | 1,421.1 |
| 2020 | 0.0 | 0.0 | 196.3 | 196.3 | 1,715.9 | 1,519.6 |
| 2021 | 0.0 | 0.0 | 196.3 | 196.3 | 1,774.9 | 1,578.6 |
| 2022 | 0.0 | 0.0 | 196.3 | 196.3 | 1,833.9 | 1,637.7 |
| 2023 | 0.0 | 0.0 | 196.3 | 196.3 | 1,892.9 | 1,696.7 |
| 2024 | 0.0 | 0.0 | 981.3 | 981.3 | 1,951.9 | 970.7 |
| 2025 | 0.0 | 0.0 | 196.3 | 196.3 | 2,011.0 | 1,814.7 |
| 2026 | 0.0 | 0.0 | 196.3 | 196.3 | 2,070.0 | 1,873.7 |
| 2027 | 0.0 | 0.0 | 196.3 | 196.3 | 2,129.0 | 1,932.8 |
| 2028 | 0.0 | 0.0 | 196.3 | 196.3 | 2,188.0 | 1,991.8 |
| 2029 | 0.0 | 0.0 | 196.3 | 196.3 | 2,247.0 | 2,050.8 |
| 2030 | 0.0 | 0.0 | 196.3 | 196.3 | 2,306.1 | 2,109.8 |
| 2031 | -1,224.7 | | | -1,224.7 | | 1,224.7 |
| Total | 6,890.5 | 1,224.7 | 3,925.0 | 10,815.5 | 29,222.8 | 18,407.3 |

| | |
|---|---|
| **EIRR=** | **13.49%** |
| **NPV=** | **-531.7** |
| **B/C=** | **0.91** |

## TABLE 4 ECONOMIC CASH FLOW OF PROJECT 3-2 C6 EXPRESSWAY (JETRO F/S 2008)_EAST

Project 3-2. C6 Expressway (JETRO F/S 2008)_East (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | Maintenance | | Total | VOC+TTC | |
| 2011 | 779.7 | 39.0 | 0.0 | 779.7 | 0.0 | -779.7 |
| 2012 | 2,906.3 | 290.6 | 0.0 | 2906.3 | 0.0 | -2,906.3 |
| 2013 | 5,943.8 | 891.6 | 0.0 | 5943.8 | 0.0 | -5,943.8 |
| 2014 | 5,025.9 | 1,005.2 | 0.0 | 5025.9 | 0.0 | -5,025.9 |
| 2015 | 0.0 | 0.0 | 343.4 | 343.4 | 3,263.1 | 2,919.7 |
| 2016 | 0.0 | 0.0 | 343.4 | 343.4 | 3,341.6 | 2,998.3 |
| 2017 | 0.0 | 0.0 | 343.4 | 343.4 | 3,420.2 | 3,076.8 |
| 2018 | 0.0 | 0.0 | 343.4 | 343.4 | 3,498.7 | 3,155.4 |
| 2019 | 0.0 | 0.0 | 343.4 | 343.4 | 3,577.3 | 3,233.9 |
| 2020 | 0.0 | 0.0 | 343.4 | 343.4 | 3,655.8 | 3,312.5 |
| 2021 | 0.0 | 0.0 | 343.4 | 343.4 | 3,822.8 | 3,479.4 |
| 2022 | 0.0 | 0.0 | 343.4 | 343.4 | 3,989.7 | 3,646.4 |
| 2023 | 0.0 | 0.0 | 343.4 | 343.4 | 4,156.7 | 3,813.3 |
| 2024 | 0.0 | 0.0 | 1836.4 | 1836.4 | 4,323.6 | 2,487.3 |
| 2025 | 0.0 | 0.0 | 343.4 | 343.4 | 4,490.6 | 4,147.2 |
| 2026 | 0.0 | 0.0 | 343.4 | 343.4 | 4,657.5 | 4,314.2 |
| 2027 | 0.0 | 0.0 | 343.4 | 343.4 | 4,824.5 | 4,481.1 |
| 2028 | 0.0 | 0.0 | 343.4 | 343.4 | 4,991.4 | 4,648.1 |
| 2029 | 0.0 | 0.0 | 343.4 | 343.4 | 5,158.4 | 4,815.0 |
| 2030 | 0.0 | 0.0 | 343.4 | 343.4 | 5,325.4 | 4,982.0 |
| 2031 | -2,226.4 | | | -2,226.4 | | 2,226.4 |
| Total | 12,429.4 | 2,226.4 | 6,987.2 | 19,416.6 | 66,497.5 | 47,080.9 |

| | |
|---|---|
| **EIRR=** | **17.93%** |
| **NPV=** | **1,941.2** |
| **B/C=** | **1.18** |

## TABLE 5 ECONOMIC CASH FLOW OF PROJECT 3-3+14 C6 EXPRESSWAY (JETRO F/S 2008)_SOUTH-EAST

Project 3-3+14. C6 Expressway (JETRO F/S 2008)_South-East (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 1,172.2 | 58.6 | 0.0 | 1172.2 | 0.0 | -1,172.2 |
| 2012 | 4,284.6 | 428.5 | 0.0 | 4284.6 | 0.0 | -4,284.6 |
| 2013 | 8,800.7 | 1,320.1 | 0.0 | 8800.7 | 0.0 | -8,800.7 |
| 2014 | 7,180.6 | 1,436.1 | 0.0 | 7180.6 | 0.0 | -7,180.6 |
| 2015 | 0.0 | 0.0 | 473.3 | 473.3 | 5,484.1 | 5,010.8 |
| 2016 | 0.0 | 0.0 | 473.3 | 473.3 | 6,443.2 | 5,969.9 |
| 2017 | 0.0 | 0.0 | 473.3 | 473.3 | 7,402.3 | 6,928.9 |
| 2018 | 0.0 | 0.0 | 473.3 | 473.3 | 8,361.3 | 7,888.0 |
| 2019 | 0.0 | 0.0 | 473.3 | 473.3 | 9,320.4 | 8,847.1 |
| 2020 | 0.0 | 0.0 | 473.3 | 473.3 | 10,279.5 | 9,806.2 |
| 2021 | 0.0 | 0.0 | 473.3 | 473.3 | 10,387.1 | 9,913.7 |
| 2022 | 0.0 | 0.0 | 473.3 | 473.3 | 10,494.6 | 10,021.3 |
| 2023 | 0.0 | 0.0 | 473.3 | 473.3 | 10,602.2 | 10,128.9 |
| 2024 | 0.0 | 0.0 | 1377.0 | 1377.0 | 10,709.8 | 9,332.8 |
| 2025 | 0.0 | 0.0 | 473.3 | 473.3 | 10,817.3 | 10,344.0 |
| 2026 | 0.0 | 0.0 | 473.3 | 473.3 | 10,924.9 | 10,451.6 |
| 2027 | 0.0 | 0.0 | 473.3 | 473.3 | 11,032.5 | 10,559.1 |
| 2028 | 0.0 | 0.0 | 473.3 | 473.3 | 11,140.0 | 10,666.7 |
| 2029 | 0.0 | 0.0 | 473.3 | 473.3 | 11,247.6 | 10,774.2 |
| 2030 | 0.0 | 0.0 | 473.3 | 473.3 | 11,355.2 | 10,881.8 |
| 2031 | -3,243.3 | | | -3,243.3 | | 3,243.3 |
| Total | 18,194.8 | 3,243.3 | 8,477.1 | 26,671.9 | 156,001.9 | 129,330.0 |

| | |
|---|---|
| **EIRR=** | **26.68%** |
| **NPV=** | **13,837.9** |
| **B/C=** | **1.88** |

## TABLE 6 ECONOMIC CASH FLOW OF PROJECT TOTAL 3 C6 EXPRESSWAY (JETRO F/S 2008)

Project Total 3. C6 Expressway (JETRO F/S 2008) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 2,376.0 | 118.8 | 0.0 | 2376.0 | 0.0 | -2,376.0 |
| 2012 | 8,839.0 | 883.9 | 0.0 | 8839.0 | 0.0 | -8,839.0 |
| 2013 | 18,148.9 | 2,722.3 | 0.0 | 18148.9 | 0.0 | -18,148.9 |
| 2014 | 14,853.3 | 2,970.7 | 0.0 | 14853.3 | 0.0 | -14,853.3 |
| 2015 | 0.0 | 0.0 | 1013.0 | 1013.0 | 10,963.5 | 9,950.5 |
| 2016 | 0.0 | 0.0 | 1013.0 | 1013.0 | 12,522.5 | 11,509.5 |
| 2017 | 0.0 | 0.0 | 1013.0 | 1013.0 | 14,081.5 | 13,068.5 |
| 2018 | 0.0 | 0.0 | 1013.0 | 1013.0 | 15,640.5 | 14,627.5 |
| 2019 | 0.0 | 0.0 | 1013.0 | 1013.0 | 17,199.5 | 16,186.5 |
| 2020 | 0.0 | 0.0 | 1013.0 | 1013.0 | 18,758.4 | 17,745.5 |
| 2021 | 0.0 | 0.0 | 1013.0 | 1013.0 | 18,991.8 | 17,978.8 |
| 2022 | 0.0 | 0.0 | 1013.0 | 1013.0 | 19,225.1 | 18,212.1 |
| 2023 | 0.0 | 0.0 | 1013.0 | 1013.0 | 19,458.4 | 18,445.4 |
| 2024 | 0.0 | 0.0 | 4194.6 | 4194.6 | 19,691.7 | 15,497.0 |
| 2025 | 0.0 | 0.0 | 1013.0 | 1013.0 | 19,925.0 | 18,912.0 |
| 2026 | 0.0 | 0.0 | 1013.0 | 1013.0 | 20,158.3 | 19,145.3 |
| 2027 | 0.0 | 0.0 | 1013.0 | 1013.0 | 20,391.6 | 19,378.6 |
| 2028 | 0.0 | 0.0 | 1013.0 | 1013.0 | 20,624.9 | 19,611.9 |
| 2029 | 0.0 | 0.0 | 1013.0 | 1013.0 | 20,858.2 | 19,845.2 |
| 2030 | 0.0 | 0.0 | 1013.0 | 1013.0 | 21,091.5 | 20,078.5 |
| 2031 | -6,695.7 | | | -6,695.7 | | 6,695.7 |
| Total | 37,521.5 | 6,695.7 | 19,389.3 | 56,910.8 | 289,582.2 | 232,671.5 |

| | |
|---|---|
| **EIRR=** | **24.73%** |
| **NPV=** | **22,619.2** |
| **B/C=** | **1.69** |

## TABLE 7 ECONOMIC CASH FLOW OF PROJECT 4-1 C-6 EXTENSION (PHASE-1)

Project 4-1. C-6 Extension (Phase-1) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 549.1 | 27.5 | 0.0 | 549.1 | 0.0 | -549.1 |
| 2012 | 1,979.3 | 197.9 | 0.0 | 1979.3 | 0.0 | -1,979.3 |
| 2013 | 4,051.1 | 607.7 | 0.0 | 4051.1 | 0.0 | -4,051.1 |
| 2014 | 3,404.3 | 680.9 | 0.0 | 3404.3 | 0.0 | -3,404.3 |
| 2015 | 0.0 | 0.0 | 303.4 | 303.4 | 4,620.9 | 4,317.5 |
| 2016 | 0.0 | 0.0 | 303.4 | 303.4 | 5,735.2 | 5,431.9 |
| 2017 | 0.0 | 0.0 | 303.4 | 303.4 | 6,849.6 | 6,546.2 |
| 2018 | 0.0 | 0.0 | 303.4 | 303.4 | 7,963.9 | 7,660.6 |
| 2019 | 0.0 | 0.0 | 303.4 | 303.4 | 9,078.3 | 8,774.9 |
| 2020 | 0.0 | 0.0 | 303.4 | 303.4 | 10,192.6 | 9,889.3 |
| 2021 | 0.0 | 0.0 | 303.4 | 303.4 | 10,492.4 | 10,189.1 |
| 2022 | 0.0 | 0.0 | 303.4 | 303.4 | 10,792.2 | 10,488.9 |
| 2023 | 0.0 | 0.0 | 303.4 | 303.4 | 11,092.1 | 10,788.7 |
| 2024 | 0.0 | 0.0 | 1314.5 | 1314.5 | 11,391.9 | 10,077.3 |
| 2025 | 0.0 | 0.0 | 303.4 | 303.4 | 11,691.7 | 11,388.3 |
| 2026 | 0.0 | 0.0 | 303.4 | 303.4 | 11,991.5 | 11,688.1 |
| 2027 | 0.0 | 0.0 | 303.4 | 303.4 | 12,291.3 | 11,987.9 |
| 2028 | 0.0 | 0.0 | 303.4 | 303.4 | 12,591.1 | 12,287.8 |
| 2029 | 0.0 | 0.0 | 303.4 | 303.4 | 12,890.9 | 12,587.6 |
| 2030 | 0.0 | 0.0 | 303.4 | 303.4 | 13,190.7 | 12,887.4 |
| 2031 | -1,513.9 | | | -1,513.9 | | 1,513.9 |
| Total | 8,469.8 | 1,513.9 | 5,864.9 | 14,334.8 | 162,856.4 | 148,521.7 |

| | |
|---|---|
| **EIRR=** | **43.62%** |
| **NPV=** | **21,650.9** |
| **B/C=** | **3.82** |

## TABLE 8 ECONOMIC CASH FLOW OF PROJECT 4-2 C-6 EXTENSION (PHASE-2)

Project 4-2. C-6 Extension (Phase-2) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 288.6 | 14.4 | 0.0 | 288.6 | 0.0 | -288.6 |
| 2012 | 1,012.1 | 101.2 | 0.0 | 1012.1 | 0.0 | -1,012.1 |
| 2013 | 2,066.5 | 310.0 | 0.0 | 2066.5 | 0.0 | -2,066.5 |
| 2014 | 1,770.9 | 354.2 | 0.0 | 1770.9 | 0.0 | -1,770.9 |
| 2015 | 0.0 | 0.0 | 157.7 | 157.7 | 2,143.6 | 1,985.9 |
| 2016 | 0.0 | 0.0 | 157.7 | 157.7 | 2,715.6 | 2,557.9 |
| 2017 | 0.0 | 0.0 | 157.7 | 157.7 | 3,287.6 | 3,129.8 |
| 2018 | 0.0 | 0.0 | 157.7 | 157.7 | 3,859.5 | 3,701.8 |
| 2019 | 0.0 | 0.0 | 157.7 | 157.7 | 4,431.5 | 4,273.8 |
| 2020 | 0.0 | 0.0 | 157.7 | 157.7 | 5,003.4 | 4,845.7 |
| 2021 | 0.0 | 0.0 | 157.7 | 157.7 | 5,089.9 | 4,932.2 |
| 2022 | 0.0 | 0.0 | 157.7 | 157.7 | 5,176.4 | 5,018.7 |
| 2023 | 0.0 | 0.0 | 157.7 | 157.7 | 5,262.9 | 5,105.2 |
| 2024 | 0.0 | 0.0 | 683.4 | 683.4 | 5,349.4 | 4,666.0 |
| 2025 | 0.0 | 0.0 | 157.7 | 157.7 | 5,435.9 | 5,278.2 |
| 2026 | 0.0 | 0.0 | 157.7 | 157.7 | 5,522.5 | 5,364.7 |
| 2027 | 0.0 | 0.0 | 157.7 | 157.7 | 5,609.0 | 5,451.2 |
| 2028 | 0.0 | 0.0 | 157.7 | 157.7 | 5,695.5 | 5,537.8 |
| 2029 | 0.0 | 0.0 | 157.7 | 157.7 | 5,782.0 | 5,624.3 |
| 2030 | 0.0 | 0.0 | 157.7 | 157.7 | 5,868.5 | 5,710.8 |
| 2031 | -779.8 | | | -779.8 | | 779.8 |
| Total | 4,358.4 | 779.8 | 3,049.0 | 7,407.4 | 76,233.2 | 68,825.8 |

| | |
|---|---|
| **EIRR=** | **41.50%** |
| **NPV=** | **9,954.0** |
| **B/C=** | **3.52** |

## TABLE 9 ECONOMIC CASH FLOW OF PROJECT TOTAL 4 C-6 EXTENSION

Project Total 4. C-6 Extension (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 837.8 | 41.9 | 0.0 | 837.8 | 0.0 | -837.8 |
| 2012 | 2,991.5 | 299.1 | 0.0 | 2991.5 | 0.0 | -2,991.5 |
| 2013 | 6,117.6 | 917.6 | 0.0 | 6117.6 | 0.0 | -6,117.6 |
| 2014 | 5,175.1 | 1,035.0 | 0.0 | 5175.1 | 0.0 | -5,175.1 |
| 2015 | 0.0 | 0.0 | 461.1 | 461.1 | 6,655.0 | 6,194.0 |
| 2016 | 0.0 | 0.0 | 461.1 | 461.1 | 8,369.0 | 7,907.9 |
| 2017 | 0.0 | 0.0 | 461.1 | 461.1 | 10,083.0 | 9,621.9 |
| 2018 | 0.0 | 0.0 | 461.1 | 461.1 | 11,796.9 | 11,335.9 |
| 2019 | 0.0 | 0.0 | 461.1 | 461.1 | 13,510.9 | 13,049.8 |
| 2020 | 0.0 | 0.0 | 461.1 | 461.1 | 15,224.9 | 14,763.8 |
| 2021 | 0.0 | 0.0 | 461.1 | 461.1 | 15,455.6 | 14,994.6 |
| 2022 | 0.0 | 0.0 | 461.1 | 461.1 | 15,686.4 | 15,225.3 |
| 2023 | 0.0 | 0.0 | 461.1 | 461.1 | 15,917.1 | 15,456.1 |
| 2024 | 0.0 | 0.0 | 1997.9 | 1997.9 | 16,147.9 | 14,150.0 |
| 2025 | 0.0 | 0.0 | 461.1 | 461.1 | 16,378.6 | 15,917.6 |
| 2026 | 0.0 | 0.0 | 461.1 | 461.1 | 16,609.4 | 16,148.3 |
| 2027 | 0.0 | 0.0 | 461.1 | 461.1 | 16,840.2 | 16,379.1 |
| 2028 | 0.0 | 0.0 | 461.1 | 461.1 | 17,070.9 | 16,609.8 |
| 2029 | 0.0 | 0.0 | 461.1 | 461.1 | 17,301.7 | 16,840.6 |
| 2030 | 0.0 | 0.0 | 461.1 | 461.1 | 17,532.4 | 17,071.3 |
| 2031 | -2,293.7 | | | -2,293.7 | | 2,293.7 |
| Total | 12,828.2 | 2,293.7 | 8,913.9 | 21,742.1 | 230,580.0 | 208,837.9 |

| | |
|---|---|
| **EIRR=** | **42.61%** |
| **NPV=** | **30,683.3** |
| **B/C=** | **3.64** |

## TABLE 10 ECONOMIC CASH FLOW OF PROJECT 5 MANILA BAY EXPRESSWAY

Project 5. Manila Bay Expressway (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 665.3 | 33.3 | 0.0 | 665.3 | 0.0 | -665.3 |
| 2012 | 7,364.0 | 736.4 | 0.0 | 7364.0 | 0.0 | -7,364.0 |
| 2013 | 14,753.5 | 2,213.0 | 0.0 | 14753.5 | 0.0 | -14,753.5 |
| 2014 | 14,574.9 | 2,915.0 | 0.0 | 14574.9 | 0.0 | -14,574.9 |
| 2015 | 0.0 | 0.0 | 178.8 | 178.8 | 2,943.7 | 2,764.9 |
| 2016 | 0.0 | 0.0 | 178.8 | 178.8 | 2,982.0 | 2,803.2 |
| 2017 | 0.0 | 0.0 | 178.8 | 178.8 | 3,020.2 | 2,841.5 |
| 2018 | 0.0 | 0.0 | 178.8 | 178.8 | 3,058.5 | 2,879.7 |
| 2019 | 0.0 | 0.0 | 178.8 | 178.8 | 3,096.7 | 2,918.0 |
| 2020 | 0.0 | 0.0 | 178.8 | 178.8 | 3,135.0 | 2,956.2 |
| 2021 | 0.0 | 0.0 | 178.8 | 178.8 | 3,417.5 | 3,238.8 |
| 2022 | 0.0 | 0.0 | 178.8 | 178.8 | 3,700.1 | 3,521.3 |
| 2023 | 0.0 | 0.0 | 178.8 | 178.8 | 3,982.6 | 3,803.8 |
| 2024 | 0.0 | 0.0 | 1072.7 | 1072.7 | 4,265.2 | 3,192.5 |
| 2025 | 0.0 | 0.0 | 178.8 | 178.8 | 4,547.7 | 4,368.9 |
| 2026 | 0.0 | 0.0 | 178.8 | 178.8 | 4,830.3 | 4,651.5 |
| 2027 | 0.0 | 0.0 | 178.8 | 178.8 | 5,112.8 | 4,934.0 |
| 2028 | 0.0 | 0.0 | 178.8 | 178.8 | 5,395.4 | 5,216.6 |
| 2029 | 0.0 | 0.0 | 178.8 | 178.8 | 5,677.9 | 5,499.1 |
| 2030 | 0.0 | 0.0 | 178.8 | 178.8 | 5,960.5 | 5,781.7 |
| 2031 | -5,897.7 | | | -5,897.7 | | 5,897.7 |
| Total | 31,460.0 | 5,897.7 | 3,754.4 | 35,214.3 | 65,126.0 | 29,911.7 |

| | |
|---|---|
| **EIRR=** | **5.76%** |
| **NPV=** | **-12,633.5** |
| **B/C=** | **0.49** |

## TABLE 11 ECONOMIC CASH FLOW OF PROJECT 6-1 CALA EXPRESSWAY (SLEX-GOVERNORS)

Project 6-1. CALA Expressway (SLEx-Govemors) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 405.7 | 20.3 | 0.0 | 405.7 | 0.0 | -405.7 |
| 2012 | 1,241.8 | 124.2 | 0.0 | 1241.8 | 0.0 | -1,241.8 |
| 2013 | 2,523.2 | 378.5 | 0.0 | 2523.2 | 0.0 | -2,523.2 |
| 2014 | 2,246.0 | 449.2 | 0.0 | 2246.0 | 0.0 | -2,246.0 |
| 2015 | 0.0 | 0.0 | 160.8 | 160.8 | 3,356.5 | 3,195.8 |
| 2016 | 0.0 | 0.0 | 160.8 | 160.8 | 3,962.4 | 3,801.7 |
| 2017 | 0.0 | 0.0 | 160.8 | 160.8 | 4,568.3 | 4,407.6 |
| 2018 | 0.0 | 0.0 | 160.8 | 160.8 | 5,174.2 | 5,013.5 |
| 2019 | 0.0 | 0.0 | 160.8 | 160.8 | 5,780.1 | 5,619.4 |
| 2020 | 0.0 | 0.0 | 160.8 | 160.8 | 6,386.0 | 6,225.3 |
| 2021 | 0.0 | 0.0 | 160.8 | 160.8 | 6,452.8 | 6,292.1 |
| 2022 | 0.0 | 0.0 | 160.8 | 160.8 | 6,519.6 | 6,358.9 |
| 2023 | 0.0 | 0.0 | 160.8 | 160.8 | 6,586.4 | 6,425.7 |
| 2024 | 0.0 | 0.0 | 803.8 | 803.8 | 6,653.2 | 5,849.5 |
| 2025 | 0.0 | 0.0 | 160.8 | 160.8 | 6,720.0 | 6,559.3 |
| 2026 | 0.0 | 0.0 | 160.8 | 160.8 | 6,786.8 | 6,626.1 |
| 2027 | 0.0 | 0.0 | 160.8 | 160.8 | 6,853.6 | 6,692.9 |
| 2028 | 0.0 | 0.0 | 160.8 | 160.8 | 6,920.4 | 6,759.7 |
| 2029 | 0.0 | 0.0 | 160.8 | 160.8 | 6,987.2 | 6,826.4 |
| 2030 | 0.0 | 0.0 | 160.8 | 160.8 | 7,054.0 | 6,893.2 |
| 2031 | -972.2 | | | -972.2 | | 972.2 |
| Total | 5,444.6 | 972.2 | 3,215.0 | 8,659.6 | 96,761.9 | 88,102.2 |

| | |
|---|---|
| **EIRR=** | **44.62%** |
| **NPV=** | **13,476.4** |
| **B/C=** | **3.80** |

## TABLE 12 ECONOMIC CASH FLOW OF PROJECT 6-2 CALA EXPRESSWAY (GOVERNORS-MANILA CAVITE)

Project 6-2. CALA Expressway (Govemors-Manila Cavite) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 588.7 | 29.4 | 0.0 | 588.7 | 0.0 | -588.7 |
| 2012 | 1,892.5 | 189.3 | 0.0 | 1892.5 | 0.0 | -1,892.5 |
| 2013 | 3,869.5 | 580.4 | 0.0 | 3869.5 | 0.0 | -3,869.5 |
| 2014 | 3,278.2 | 655.6 | 0.0 | 3278.2 | 0.0 | -3,278.2 |
| 2015 | 0.0 | 0.0 | 253.3 | 253.3 | 4,736.2 | 4,483.0 |
| 2016 | 0.0 | 0.0 | 253.3 | 253.3 | 6,638.2 | 6,384.9 |
| 2017 | 0.0 | 0.0 | 253.3 | 253.3 | 8,540.1 | 8,286.9 |
| 2018 | 0.0 | 0.0 | 253.3 | 253.3 | 10,442.1 | 10,188.8 |
| 2019 | 0.0 | 0.0 | 253.3 | 253.3 | 12,344.0 | 12,090.7 |
| 2020 | 0.0 | 0.0 | 253.3 | 253.3 | 14,246.0 | 13,992.7 |
| 2021 | 0.0 | 0.0 | 253.3 | 253.3 | 14,584.4 | 14,331.1 |
| 2022 | 0.0 | 0.0 | 253.3 | 253.3 | 14,922.8 | 14,669.5 |
| 2023 | 0.0 | 0.0 | 253.3 | 253.3 | 15,261.2 | 15,008.0 |
| 2024 | 0.0 | 0.0 | 1191.3 | 1191.3 | 15,599.7 | 14,408.4 |
| 2025 | 0.0 | 0.0 | 253.3 | 253.3 | 15,938.1 | 15,684.8 |
| 2026 | 0.0 | 0.0 | 253.3 | 253.3 | 16,276.5 | 16,023.2 |
| 2027 | 0.0 | 0.0 | 253.3 | 253.3 | 16,614.9 | 16,361.7 |
| 2028 | 0.0 | 0.0 | 253.3 | 253.3 | 16,953.4 | 16,700.1 |
| 2029 | 0.0 | 0.0 | 253.3 | 253.3 | 17,291.8 | 17,038.5 |
| 2030 | 0.0 | 0.0 | 253.3 | 253.3 | 17,630.2 | 17,377.0 |
| 2031 | -1,454.7 | | | -1,454.7 | | 1,454.7 |
| Total | 8,174.2 | 1,454.7 | 4,990.4 | 13,164.5 | 218,019.6 | 204,855.1 |

| | |
|---|---|
| **EIRR=** | **50.65%** |
| **NPV=** | **31,113.2** |
| **B/C=** | **5.27** |

## TABLE 13 ECONOMIC CASH FLOW OF PROJECT TOTAL 6 CALA EXPRESSWAY

Project Total 6. CALA Expressway (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 994.4 | 49.7 | 0.0 | 994.4 | 0.0 | -994.4 |
| 2012 | 3,134.3 | 313.4 | 0.0 | 3134.3 | 0.0 | -3,134.3 |
| 2013 | 6,392.8 | 958.9 | 0.0 | 6392.8 | 0.0 | -6,392.8 |
| 2014 | 5,524.2 | 1,104.8 | 0.0 | 5524.2 | 0.0 | -5,524.2 |
| 2015 | 0.0 | 0.0 | 414.0 | 414.0 | 9,277.6 | 8,863.6 |
| 2016 | 0.0 | 0.0 | 414.0 | 414.0 | 11,460.3 | 11,046.3 |
| 2017 | 0.0 | 0.0 | 414.0 | 414.0 | 13,643.1 | 13,229.1 |
| 2018 | 0.0 | 0.0 | 414.0 | 414.0 | 15,825.9 | 15,411.9 |
| 2019 | 0.0 | 0.0 | 414.0 | 414.0 | 18,008.7 | 17,594.6 |
| 2020 | 0.0 | 0.0 | 414.0 | 414.0 | 20,191.4 | 19,777.4 |
| 2021 | 0.0 | 0.0 | 414.0 | 414.0 | 20,672.4 | 20,258.4 |
| 2022 | 0.0 | 0.0 | 414.0 | 414.0 | 21,153.4 | 20,739.4 |
| 2023 | 0.0 | 0.0 | 414.0 | 414.0 | 21,634.4 | 21,220.4 |
| 2024 | 0.0 | 0.0 | 1995.1 | 1995.1 | 22,115.4 | 20,120.4 |
| 2025 | 0.0 | 0.0 | 414.0 | 414.0 | 22,596.4 | 22,182.4 |
| 2026 | 0.0 | 0.0 | 414.0 | 414.0 | 23,077.4 | 22,663.4 |
| 2027 | 0.0 | 0.0 | 414.0 | 414.0 | 23,558.4 | 23,144.4 |
| 2028 | 0.0 | 0.0 | 414.0 | 414.0 | 24,039.4 | 23,625.4 |
| 2029 | 0.0 | 0.0 | 414.0 | 414.0 | 24,520.4 | 24,106.4 |
| 2030 | 0.0 | 0.0 | 414.0 | 414.0 | 25,001.4 | 24,587.4 |
| 2031 | -2,426.9 | | | -2,426.9 | | 2,426.9 |
| Total | 13,618.8 | 2,426.9 | 8,205.4 | 21,824.1 | 316,776.2 | 294,952.1 |

| | |
|---|---|
| **EIRR=** | **49.92%** |
| **NPV=** | **45,543.6** |
| **B/C=** | **4.76** |

## TABLE 14 ECONOMIC CASH FLOW OF PROJECT 7-1 CENTRAL LUZON EXPRESSWAY (PHASE-1)

Project 7-1. Central Luzon Expressway (Phase-1) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 677.6 | 33.9 | 0.0 | 677.6 | 0.0 | -677.6 |
| 2012 | 2,066.7 | 206.7 | 0.0 | 2066.7 | 0.0 | -2,066.7 |
| 2013 | 4,190.6 | 628.6 | 0.0 | 4190.6 | 0.0 | -4,190.6 |
| 2014 | 3,790.2 | 758.0 | 0.0 | 3790.2 | 0.0 | -3,790.2 |
| 2015 | 0.0 | 0.0 | 293.0 | 293.0 | 2,550.3 | 2,257.4 |
| 2016 | 0.0 | 0.0 | 293.0 | 293.0 | 2,777.2 | 2,484.2 |
| 2017 | 0.0 | 0.0 | 293.0 | 293.0 | 3,004.0 | 2,711.1 |
| 2018 | 0.0 | 0.0 | 293.0 | 293.0 | 3,230.9 | 2,937.9 |
| 2019 | 0.0 | 0.0 | 293.0 | 293.0 | 3,457.7 | 3,164.8 |
| 2020 | 0.0 | 0.0 | 293.0 | 293.0 | 3,684.6 | 3,391.6 |
| 2021 | 0.0 | 0.0 | 293.0 | 293.0 | 3,860.8 | 3,567.8 |
| 2022 | 0.0 | 0.0 | 293.0 | 293.0 | 4,037.0 | 3,744.1 |
| 2023 | 0.0 | 0.0 | 293.0 | 293.0 | 4,213.2 | 3,920.3 |
| 2024 | 0.0 | 0.0 | 1378.0 | 1378.0 | 4,389.4 | 3,011.5 |
| 2025 | 0.0 | 0.0 | 293.0 | 293.0 | 4,565.7 | 4,272.7 |
| 2026 | 0.0 | 0.0 | 293.0 | 293.0 | 4,741.9 | 4,448.9 |
| 2027 | 0.0 | 0.0 | 293.0 | 293.0 | 4,918.1 | 4,625.1 |
| 2028 | 0.0 | 0.0 | 293.0 | 293.0 | 5,094.3 | 4,801.4 |
| 2029 | 0.0 | 0.0 | 293.0 | 293.0 | 5,270.5 | 4,977.6 |
| 2030 | 0.0 | 0.0 | 293.0 | 293.0 | 5,446.7 | 5,153.8 |
| 2031 | -1,627.2 | | | -1,627.2 | | 1,627.2 |
| Total | 9,097.8 | 1,627.2 | 5,772.2 | 14,870.0 | 65,242.3 | 50,372.3 |

| | |
|---|---|
| **EIRR=** | **22.14%** |
| **NPV=** | **3,938.4** |
| **B/C=** | **1.48** |

## TABLE 15 ECONOMIC CASH FLOW OF PROJECT 7-2 CENTRAL LUZON EXPRESSWAY (PHASE-2)

Project 7-2. Central Luzon Expressway (Phase-2) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 636.2 | 31.8 | 0.0 | 636.2 | 0.0 | -636.2 |
| 2012 | 2,551.2 | 255.1 | 0.0 | 2551.2 | 0.0 | -2,551.2 |
| 2013 | 5,171.9 | 775.8 | 0.0 | 5171.9 | 0.0 | -5,171.9 |
| 2014 | 4,685.2 | 937.0 | 0.0 | 4685.2 | 0.0 | -4,685.2 |
| 2015 | 0.0 | 0.0 | 362.1 | 362.1 | 1,649.1 | 1,287.0 |
| 2016 | 0.0 | 0.0 | 362.1 | 362.1 | 1,701.6 | 1,339.6 |
| 2017 | 0.0 | 0.0 | 362.1 | 362.1 | 1,754.2 | 1,392.1 |
| 2018 | 0.0 | 0.0 | 362.1 | 362.1 | 1,806.8 | 1,444.7 |
| 2019 | 0.0 | 0.0 | 362.1 | 362.1 | 1,859.3 | 1,497.2 |
| 2020 | 0.0 | 0.0 | 362.1 | 362.1 | 1,911.9 | 1,549.8 |
| 2021 | 0.0 | 0.0 | 362.1 | 362.1 | 1,993.5 | 1,631.5 |
| 2022 | 0.0 | 0.0 | 362.1 | 362.1 | 2,075.2 | 1,713.1 |
| 2023 | 0.0 | 0.0 | 362.1 | 362.1 | 2,156.9 | 1,794.8 |
| 2024 | 0.0 | 0.0 | 1703.1 | 1703.1 | 2,238.5 | 535.5 |
| 2025 | 0.0 | 0.0 | 362.1 | 362.1 | 2,320.2 | 1,958.1 |
| 2026 | 0.0 | 0.0 | 362.1 | 362.1 | 2,401.9 | 2,039.8 |
| 2027 | 0.0 | 0.0 | 362.1 | 362.1 | 2,483.5 | 2,121.5 |
| 2028 | 0.0 | 0.0 | 362.1 | 362.1 | 2,565.2 | 2,203.1 |
| 2029 | 0.0 | 0.0 | 362.1 | 362.1 | 2,646.9 | 2,284.8 |
| 2030 | 0.0 | 0.0 | 362.1 | 362.1 | 2,728.5 | 2,366.5 |
| 2031 | -1,999.8 | | | -1,999.8 | | 1,999.8 |
| Total | 11,044.7 | 1,999.8 | 7,134.1 | 18,178.9 | 34,293.1 | 16,114.2 |

| | |
|---|---|
| **EIRR=** | **8.51%** |
| **NPV=** | **-3,255.0** |
| **B/C=** | **0.67** |

## TABLE 16 ECONOMIC CASH FLOW OF PROJECT TOTAL 7 CENTRAL LUZON EXPRESSWAY

Project Total 7. Central Luzon Expressway (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 1,313.8 | 65.7 | 0.0 | 1313.8 | 0.0 | -1,313.8 |
| 2012 | 4,617.8 | 461.8 | 0.0 | 4617.8 | 0.0 | -4,617.8 |
| 2013 | 9,362.4 | 1,404.4 | 0.0 | 9362.4 | 0.0 | -9,362.4 |
| 2014 | 8,475.4 | 1,695.1 | 0.0 | 8475.4 | 0.0 | -8,475.4 |
| 2015 | 0.0 | 0.0 | 655.0 | 655.0 | 4,199.4 | 3,544.4 |
| 2016 | 0.0 | 0.0 | 655.0 | 655.0 | 4,478.8 | 3,823.8 |
| 2017 | 0.0 | 0.0 | 655.0 | 655.0 | 4,758.2 | 4,103.2 |
| 2018 | 0.0 | 0.0 | 655.0 | 655.0 | 5,037.6 | 4,382.6 |
| 2019 | 0.0 | 0.0 | 655.0 | 655.0 | 5,317.0 | 4,662.0 |
| 2020 | 0.0 | 0.0 | 655.0 | 655.0 | 5,596.4 | 4,941.4 |
| 2021 | 0.0 | 0.0 | 655.0 | 655.0 | 5,854.3 | 5,199.3 |
| 2022 | 0.0 | 0.0 | 655.0 | 655.0 | 6,112.2 | 5,457.2 |
| 2023 | 0.0 | 0.0 | 655.0 | 655.0 | 6,370.1 | 5,715.1 |
| 2024 | 0.0 | 0.0 | 3081.0 | 3081.0 | 6,628.0 | 3,546.9 |
| 2025 | 0.0 | 0.0 | 655.0 | 655.0 | 6,885.9 | 6,230.8 |
| 2026 | 0.0 | 0.0 | 655.0 | 655.0 | 7,143.7 | 6,488.7 |
| 2027 | 0.0 | 0.0 | 655.0 | 655.0 | 7,401.6 | 6,746.6 |
| 2028 | 0.0 | 0.0 | 655.0 | 655.0 | 7,659.5 | 7,004.5 |
| 2029 | 0.0 | 0.0 | 655.0 | 655.0 | 7,917.4 | 7,262.4 |
| 2030 | 0.0 | 0.0 | 655.0 | 655.0 | 8,175.3 | 7,520.3 |
| 2031 | -3,626.9 | | | -3,626.9 | | 3,626.9 |
| Total | 20,142.6 | 3,626.9 | 12,906.3 | 33,048.9 | 99,535.4 | 66,486.6 |

| | |
|---|---|
| **EIRR=** | **15.64%** |
| **NPV=** | **683.5** |
| **B/C=** | **1.04** |

## TABLE 17 ECONOMIC CASH FLOW OF PROJECT 8 CALAMBA-LOS BAÑOS TOLL EXPRESSWAY

Project 8. Calamba-Los Banos Toll Expressway (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 272.8 | 13.6 | 0.0 | 272.8 | 0.0 | -272.8 |
| 2012 | 1,074.1 | 107.4 | 0.0 | 1074.1 | 0.0 | -1,074.1 |
| 2013 | 2,223.1 | 333.5 | 0.0 | 2223.1 | 0.0 | -2,223.1 |
| 2014 | 1,699.5 | 339.9 | 0.0 | 1699.5 | 0.0 | -1,699.5 |
| 2015 | 0.0 | 0.0 | 151.0 | 151.0 | 843.2 | 692.2 |
| 2016 | 0.0 | 0.0 | 151.0 | 151.0 | 962.9 | 811.9 |
| 2017 | 0.0 | 0.0 | 151.0 | 151.0 | 1,082.7 | 931.7 |
| 2018 | 0.0 | 0.0 | 151.0 | 151.0 | 1,202.5 | 1,051.5 |
| 2019 | 0.0 | 0.0 | 151.0 | 151.0 | 1,322.3 | 1,171.3 |
| 2020 | 0.0 | 0.0 | 151.0 | 151.0 | 1,442.1 | 1,291.1 |
| 2021 | 0.0 | 0.0 | 151.0 | 151.0 | 1,532.8 | 1,381.8 |
| 2022 | 0.0 | 0.0 | 151.0 | 151.0 | 1,623.5 | 1,472.5 |
| 2023 | 0.0 | 0.0 | 151.0 | 151.0 | 1,714.1 | 1,563.1 |
| 2024 | 0.0 | 0.0 | 656.0 | 656.0 | 1,804.8 | 1,148.8 |
| 2025 | 0.0 | 0.0 | 151.0 | 151.0 | 1,895.5 | 1,744.5 |
| 2026 | 0.0 | 0.0 | 151.0 | 151.0 | 1,986.2 | 1,835.2 |
| 2027 | 0.0 | 0.0 | 151.0 | 151.0 | 2,076.9 | 1,925.9 |
| 2028 | 0.0 | 0.0 | 151.0 | 151.0 | 2,167.6 | 2,016.6 |
| 2029 | 0.0 | 0.0 | 151.0 | 151.0 | 2,258.3 | 2,107.3 |
| 2030 | 0.0 | 0.0 | 151.0 | 151.0 | 2,349.0 | 2,198.0 |
| 2031 | -794.4 | | | -794.4 | | 794.4 |
| Total | 4,475.1 | 794.4 | 2,921.0 | 7,396.1 | 26,264.4 | 18,868.3 |

| | |
|---|---|
| **EIRR=** | **17.36%** |
| **NPV=** | **624.1** |
| **B/C=** | **1.16** |

## TABLE 18 ECONOMIC CASH FLOW OF PROJECT 9 SLEX EXTENSION

Project 9. SLEx Extension (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 689.9 | 34.5 | 0.0 | 689.9 | 0.0 | -689.9 |
| 2012 | 2,539.5 | 254.0 | 0.0 | 2539.5 | 0.0 | -2,539.5 |
| 2013 | 5,112.4 | 766.9 | 0.0 | 5112.4 | 0.0 | -5,112.4 |
| 2014 | 4,878.4 | 975.7 | 0.0 | 4878.4 | 0.0 | -4,878.4 |
| 2015 | 0.0 | 0.0 | 488.7 | 488.7 | 2,555.0 | 2,066.3 |
| 2016 | 0.0 | 0.0 | 488.7 | 488.7 | 2,918.0 | 2,429.3 |
| 2017 | 0.0 | 0.0 | 488.7 | 488.7 | 3,281.0 | 2,792.3 |
| 2018 | 0.0 | 0.0 | 488.7 | 488.7 | 3,644.0 | 3,155.3 |
| 2019 | 0.0 | 0.0 | 488.7 | 488.7 | 4,006.9 | 3,518.3 |
| 2020 | 0.0 | 0.0 | 488.7 | 488.7 | 4,369.9 | 3,881.3 |
| 2021 | 0.0 | 0.0 | 488.7 | 488.7 | 4,644.7 | 4,156.1 |
| 2022 | 0.0 | 0.0 | 488.7 | 488.7 | 4,919.6 | 4,430.9 |
| 2023 | 0.0 | 0.0 | 488.7 | 488.7 | 5,194.4 | 4,705.7 |
| 2024 | 0.0 | 0.0 | 1884.8 | 1884.8 | 5,469.2 | 3,584.4 |
| 2025 | 0.0 | 0.0 | 488.7 | 488.7 | 5,744.0 | 5,255.4 |
| 2026 | 0.0 | 0.0 | 488.7 | 488.7 | 6,018.8 | 5,530.2 |
| 2027 | 0.0 | 0.0 | 488.7 | 488.7 | 6,293.7 | 5,805.0 |
| 2028 | 0.0 | 0.0 | 488.7 | 488.7 | 6,568.5 | 6,079.8 |
| 2029 | 0.0 | 0.0 | 488.7 | 488.7 | 6,843.3 | 6,354.7 |
| 2030 | 0.0 | 0.0 | 488.7 | 488.7 | 7,118.1 | 6,629.5 |
| 2031 | -2,031.0 | | | -2,031.0 | | 2,031.0 |
| Total | 11,189.2 | 2,031.0 | 9,214.6 | 20,403.8 | 79,589.1 | 59,185.3 |

| | |
|---|---|
| **EIRR=** | **20.29%** |
| **NPV=** | **3,667.4** |
| **B/C=** | **1.35** |

## TABLE 19 ECONOMIC CASH FLOW OF PROJECT 10-1 NORTH LUZON EAST (PHASE-1)

Project 10-1. North Luzon East (phase-1) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 591.4 | 29.6 | 0.0 | 591.4 | 0.0 | -591.4 |
| 2012 | 1,751.3 | 175.1 | 0.0 | 1751.3 | 0.0 | -1,751.3 |
| 2013 | 3,534.4 | 530.2 | 0.0 | 3534.4 | 0.0 | -3,534.4 |
| 2014 | 3,312.6 | 662.5 | 0.0 | 3312.6 | 0.0 | -3,312.6 |
| 2015 | 0.0 | 0.0 | 360.2 | 360.2 | 1,289.5 | 929.4 |
| 2016 | 0.0 | 0.0 | 360.2 | 360.2 | 1,345.5 | 985.3 |
| 2017 | 0.0 | 0.0 | 360.2 | 360.2 | 1,401.4 | 1,041.2 |
| 2018 | 0.0 | 0.0 | 360.2 | 360.2 | 1,457.3 | 1,097.1 |
| 2019 | 0.0 | 0.0 | 360.2 | 360.2 | 1,513.2 | 1,153.1 |
| 2020 | 0.0 | 0.0 | 360.2 | 360.2 | 1,569.1 | 1,209.0 |
| 2021 | 0.0 | 0.0 | 360.2 | 360.2 | 2,048.4 | 1,688.3 |
| 2022 | 0.0 | 0.0 | 360.2 | 360.2 | 2,527.7 | 2,167.5 |
| 2023 | 0.0 | 0.0 | 360.2 | 360.2 | 3,007.0 | 2,646.8 |
| 2024 | 0.0 | 0.0 | 1307.9 | 1307.9 | 3,486.3 | 2,178.3 |
| 2025 | 0.0 | 0.0 | 360.2 | 360.2 | 3,965.5 | 3,605.4 |
| 2026 | 0.0 | 0.0 | 360.2 | 360.2 | 4,444.8 | 4,084.7 |
| 2027 | 0.0 | 0.0 | 360.2 | 360.2 | 4,924.1 | 4,563.9 |
| 2028 | 0.0 | 0.0 | 360.2 | 360.2 | 5,403.4 | 5,043.2 |
| 2029 | 0.0 | 0.0 | 360.2 | 360.2 | 5,882.7 | 5,522.5 |
| 2030 | 0.0 | 0.0 | 360.2 | 360.2 | 6,362.0 | 6,001.8 |
| 2031 | -1,397.4 | | | -1,397.4 | | 1,397.4 |
| Total | 7,792.3 | 1,397.4 | 6,710.3 | 14,502.6 | 50,627.9 | 36,125.3 |

| | |
|---|---|
| **EIRR=** | **15.49%** |
| **NPV=** | **254.6** |
| **B/C=** | **1.03** |

## TABLE 20 ECONOMIC CASH FLOW OF PROJECT 10-2 NORTH LUZON EAST (PHASE-2)

Project 10-2. North Luzon East (phase-2) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 1,194.2 | 59.7 | 0.0 | 1194.2 | 0.0 | -1,194.2 |
| 2012 | 3,533.2 | 353.3 | 0.0 | 3533.2 | 0.0 | -3,533.2 |
| 2013 | 7,131.5 | 1,069.7 | 0.0 | 7131.5 | 0.0 | -7,131.5 |
| 2014 | 6,675.6 | 1,335.1 | 0.0 | 6675.6 | 0.0 | -6,675.6 |
| 2015 | 0.0 | 0.0 | 726.2 | 726.2 | 1,655.3 | 929.1 |
| 2016 | 0.0 | 0.0 | 726.2 | 726.2 | 1,744.0 | 1,017.8 |
| 2017 | 0.0 | 0.0 | 726.2 | 726.2 | 1,832.7 | 1,106.5 |
| 2018 | 0.0 | 0.0 | 726.2 | 726.2 | 1,921.4 | 1,195.2 |
| 2019 | 0.0 | 0.0 | 726.2 | 726.2 | 2,010.1 | 1,283.9 |
| 2020 | 0.0 | 0.0 | 726.2 | 726.2 | 2,098.8 | 1,372.6 |
| 2021 | 0.0 | 0.0 | 726.2 | 726.2 | 2,423.1 | 1,696.9 |
| 2022 | 0.0 | 0.0 | 726.2 | 726.2 | 2,747.4 | 2,021.3 |
| 2023 | 0.0 | 0.0 | 726.2 | 726.2 | 3,071.8 | 2,345.6 |
| 2024 | 0.0 | 0.0 | 2637.1 | 2637.1 | 3,396.1 | 759.0 |
| 2025 | 0.0 | 0.0 | 726.2 | 726.2 | 3,720.4 | 2,994.3 |
| 2026 | 0.0 | 0.0 | 726.2 | 726.2 | 4,044.8 | 3,318.6 |
| 2027 | 0.0 | 0.0 | 726.2 | 726.2 | 4,369.1 | 3,643.0 |
| 2028 | 0.0 | 0.0 | 726.2 | 726.2 | 4,693.5 | 3,967.3 |
| 2029 | 0.0 | 0.0 | 726.2 | 726.2 | 5,017.8 | 4,291.6 |
| 2030 | 0.0 | 0.0 | 726.2 | 726.2 | 5,342.1 | 4,616.0 |
| 2031 | -2,817.9 | | | -2,817.9 | | 2,817.9 |
| Total | 15,716.6 | 2,817.9 | 13,529.7 | 29,246.3 | 50,088.2 | 20,841.9 |

| | |
|---|---|
| **EIRR=** | **6.72%** |
| **NPV=** | **-6,456.9** |
| **B/C=** | **0.56** |

## TABLE 21 ECONOMIC CASH FLOW OF PROJECT 11 LA MESA PARKWAY

Project 11. La Mesa Parkway (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 214.7 | 10.7 | 0.0 | 214.7 | 0.0 | -214.7 |
| 2012 | 686.5 | 68.7 | 0.0 | 686.5 | 0.0 | -686.5 |
| 2013 | 1,380.9 | 207.1 | 0.0 | 1380.9 | 0.0 | -1,380.9 |
| 2014 | 1,325.5 | 265.1 | 0.0 | 1325.5 | 0.0 | -1,325.5 |
| 2015 | 0.0 | 0.0 | 137.7 | 137.7 | 1,781.2 | 1,643.5 |
| 2016 | 0.0 | 0.0 | 137.7 | 137.7 | 1,879.5 | 1,741.8 |
| 2017 | 0.0 | 0.0 | 137.7 | 137.7 | 1,977.9 | 1,840.1 |
| 2018 | 0.0 | 0.0 | 137.7 | 137.7 | 2,076.2 | 1,938.5 |
| 2019 | 0.0 | 0.0 | 137.7 | 137.7 | 2,174.5 | 2,036.8 |
| 2020 | 0.0 | 0.0 | 137.7 | 137.7 | 2,272.9 | 2,135.1 |
| 2021 | 0.0 | 0.0 | 137.7 | 137.7 | 2,569.7 | 2,431.9 |
| 2022 | 0.0 | 0.0 | 137.7 | 137.7 | 2,866.5 | 2,728.7 |
| 2023 | 0.0 | 0.0 | 137.7 | 137.7 | 3,163.3 | 3,025.6 |
| 2024 | 0.0 | 0.0 | 531.3 | 531.3 | 3,460.1 | 2,928.8 |
| 2025 | 0.0 | 0.0 | 137.7 | 137.7 | 3,756.9 | 3,619.2 |
| 2026 | 0.0 | 0.0 | 137.7 | 137.7 | 4,053.8 | 3,916.0 |
| 2027 | 0.0 | 0.0 | 137.7 | 137.7 | 4,350.6 | 4,212.8 |
| 2028 | 0.0 | 0.0 | 137.7 | 137.7 | 4,647.4 | 4,509.7 |
| 2029 | 0.0 | 0.0 | 137.7 | 137.7 | 4,944.2 | 4,806.5 |
| 2030 | 0.0 | 0.0 | 137.7 | 137.7 | 5,241.0 | 5,103.3 |
| 2031 | -551.6 | | | -551.6 | | 551.6 |
| Total | 3,056.0 | 551.6 | 2,597.4 | 5,653.4 | 51,215.7 | 45,562.3 |

| | |
|---|---|
| **EIRR=** | **38.35%** |
| **NPV=** | **5,867.1** |
| **B/C=** | **3.05** |

## TABLE 22 ECONOMIC CASH FLOW OF PROJECT TOTAL 10+11 NORTH LUZON EAST+LA MESA PARKWAY

Project Total 10+11. North Luzon East+La Mesa Parkway (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 2,000.2 | 100.0 | 0.0 | 2000.2 | 0.0 | -2,000.2 |
| 2012 | 5,971.0 | 597.1 | 0.0 | 5971.0 | 0.0 | -5,971.0 |
| 2013 | 12,046.8 | 1,807.0 | 0.0 | 12046.8 | 0.0 | -12,046.8 |
| 2014 | 11,313.7 | 2,262.7 | 0.0 | 11313.7 | 0.0 | -11,313.7 |
| 2015 | 0.0 | 0.0 | 1224.1 | 1224.1 | 8,399.0 | 7,174.9 |
| 2016 | 0.0 | 0.0 | 1224.1 | 1224.1 | 8,787.4 | 7,563.4 |
| 2017 | 0.0 | 0.0 | 1224.1 | 1224.1 | 9,175.9 | 7,951.8 |
| 2018 | 0.0 | 0.0 | 1224.1 | 1224.1 | 9,564.3 | 8,340.2 |
| 2019 | 0.0 | 0.0 | 1224.1 | 1224.1 | 9,952.7 | 8,728.7 |
| 2020 | 0.0 | 0.0 | 1224.1 | 1224.1 | 10,341.2 | 9,117.1 |
| 2021 | 0.0 | 0.0 | 1224.1 | 1224.1 | 11,561.9 | 10,337.8 |
| 2022 | 0.0 | 0.0 | 1224.1 | 1224.1 | 12,782.6 | 11,558.5 |
| 2023 | 0.0 | 0.0 | 1224.1 | 1224.1 | 14,003.3 | 12,779.2 |
| 2024 | 0.0 | 0.0 | 4476.4 | 4476.4 | 15,224.0 | 10,747.6 |
| 2025 | 0.0 | 0.0 | 1224.1 | 1224.1 | 16,444.7 | 15,220.6 |
| 2026 | 0.0 | 0.0 | 1224.1 | 1224.1 | 17,665.4 | 16,441.3 |
| 2027 | 0.0 | 0.0 | 1224.1 | 1224.1 | 18,886.1 | 17,662.1 |
| 2028 | 0.0 | 0.0 | 1224.1 | 1224.1 | 20,106.8 | 18,882.8 |
| 2029 | 0.0 | 0.0 | 1224.1 | 1224.1 | 21,327.5 | 20,103.5 |
| 2030 | 0.0 | 0.0 | 1224.1 | 1224.1 | 22,548.2 | 21,324.2 |
| 2031 | -4,766.9 | | | -4,766.9 | | 4,766.9 |
| Total | 26,564.9 | 4,766.9 | 22,837.4 | 49,402.3 | 226,771.2 | 177,368.9 |

| | |
|---|---|
| **EIRR=** | **23.25%** |
| **NPV=** | **14,385.6** |
| **B/C=** | **1.58** |

## TABLE 23 ECONOMIC CASH FLOW OF PROJECT 12 C-5/FTI/SKYWAY CONNECTOR ROAD

Project 12. C-5/FTI/Skyway Connector Road (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | Maintenance | | Total | VOC+TTC | |
| 2011 | 82.7 | 4.1 | 0.0 | 82.7 | 0.0 | -82.7 |
| 2012 | 894.0 | 89.4 | 0.0 | 894.0 | 0.0 | -894.0 |
| 2013 | 1,796.7 | 269.5 | 0.0 | 1796.7 | 0.0 | -1,796.7 |
| 2014 | 1,735.1 | 347.0 | 0.0 | 1735.1 | 0.0 | -1,735.1 |
| 2015 | 0.0 | 0.0 | 42.5 | 42.5 | 1,426.8 | 1,384.3 |
| 2016 | 0.0 | 0.0 | 42.5 | 42.5 | 1,455.5 | 1,412.9 |
| 2017 | 0.0 | 0.0 | 42.5 | 42.5 | 1,484.2 | 1,441.6 |
| 2018 | 0.0 | 0.0 | 42.5 | 42.5 | 1,512.9 | 1,470.3 |
| 2019 | 0.0 | 0.0 | 42.5 | 42.5 | 1,541.5 | 1,499.0 |
| 2020 | 0.0 | 0.0 | 42.5 | 42.5 | 1,570.2 | 1,527.7 |
| 2021 | 0.0 | 0.0 | 42.5 | 42.5 | 1,604.6 | 1,562.1 |
| 2022 | 0.0 | 0.0 | 42.5 | 42.5 | 1,639.0 | 1,596.5 |
| 2023 | 0.0 | 0.0 | 42.5 | 42.5 | 1,673.4 | 1,630.8 |
| 2024 | 0.0 | 0.0 | 148.9 | 148.9 | 1,707.8 | 1,558.9 |
| 2025 | 0.0 | 0.0 | 42.5 | 42.5 | 1,742.1 | 1,699.6 |
| 2026 | 0.0 | 0.0 | 42.5 | 42.5 | 1,776.5 | 1,734.0 |
| 2027 | 0.0 | 0.0 | 42.5 | 42.5 | 1,810.9 | 1,768.4 |
| 2028 | 0.0 | 0.0 | 42.5 | 42.5 | 1,845.3 | 1,802.8 |
| 2029 | 0.0 | 0.0 | 42.5 | 42.5 | 1,879.7 | 1,837.1 |
| 2030 | 0.0 | 0.0 | 42.5 | 42.5 | 1,914.1 | 1,871.5 |
| 2031 | -710.1 | | | -710.1 | | 710.1 |
| Total | 3,798.5 | 710.1 | 786.8 | 4,585.3 | 26,584.4 | 21,999.1 |

| | |
|---|---|
| **EIRR=** | **26.00%** |
| **NPV=** | **2,309.0** |
| **B/C=** | **1.76** |

## TABLE 24 ECONOMIC CASH FLOW OF PROJECT 13 PASIG MARIKINA EXPRESSWAY

Project 13. Pasig Marikina Expressway (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | Maintenance | | Total | VOC+TTC | |
| 2011 | 1,890.2 | 94.5 | 0.0 | 1890.2 | 0.0 | -1,890.2 |
| 2012 | 6,097.0 | 609.7 | 0.0 | 6097.0 | 0.0 | -6,097.0 |
| 2013 | 12,282.1 | 1,842.3 | 0.0 | 12282.1 | 0.0 | -12,282.1 |
| 2014 | 11,666.1 | 2,333.2 | 0.0 | 11666.1 | 0.0 | -11,666.1 |
| 2015 | 0.0 | 0.0 | 259.9 | 259.9 | 4,638.1 | 4,378.2 |
| 2016 | 0.0 | 0.0 | 259.9 | 259.9 | 4,685.4 | 4,425.5 |
| 2017 | 0.0 | 0.0 | 259.9 | 259.9 | 4,732.7 | 4,472.8 |
| 2018 | 0.0 | 0.0 | 259.9 | 259.9 | 4,780.0 | 4,520.1 |
| 2019 | 0.0 | 0.0 | 259.9 | 259.9 | 4,827.3 | 4,567.4 |
| 2020 | 0.0 | 0.0 | 259.9 | 259.9 | 4,874.6 | 4,614.7 |
| 2021 | 0.0 | 0.0 | 259.9 | 259.9 | 5,058.9 | 4,799.0 |
| 2022 | 0.0 | 0.0 | 259.9 | 259.9 | 5,243.2 | 4,983.3 |
| 2023 | 0.0 | 0.0 | 259.9 | 259.9 | 5,427.6 | 5,167.7 |
| 2024 | 0.0 | 0.0 | 952.9 | 952.9 | 5,611.9 | 4,658.9 |
| 2025 | 0.0 | 0.0 | 259.9 | 259.9 | 5,796.2 | 5,536.3 |
| 2026 | 0.0 | 0.0 | 259.9 | 259.9 | 5,980.5 | 5,720.6 |
| 2027 | 0.0 | 0.0 | 259.9 | 259.9 | 6,164.9 | 5,905.0 |
| 2028 | 0.0 | 0.0 | 259.9 | 259.9 | 6,349.2 | 6,089.3 |
| 2029 | 0.0 | 0.0 | 259.9 | 259.9 | 6,533.5 | 6,273.6 |
| 2030 | 0.0 | 0.0 | 259.9 | 259.9 | 6,717.8 | 6,457.9 |
| 2031 | -4,879.7 | | | -4,879.7 | | 4,879.7 |
| Total | 27,055.7 | 4,879.7 | 4,851.3 | 31,907.1 | 87,421.5 | 55,514.4 |

| | |
|---|---|
| **EIRR=** | **11.53%** |
| **NPV=** | **-4,423.2** |
| **B/C=** | **0.80** |

## TABLE 25 ECONOMIC CASH FLOW OF PROJECT 15 R-7 EXPRESSWAY

Project 15. R-7 Expressway (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 359.0 | 18.0 | 0.0 | 359.0 | 0.0 | -359.0 |
| 2012 | 4,174.4 | 417.4 | 0.0 | 4174.4 | 0.0 | -4,174.4 |
| 2013 | 8,436.9 | 1,265.5 | 0.0 | 8436.9 | 0.0 | -8,436.9 |
| 2014 | 7,820.9 | 1,564.2 | 0.0 | 7820.9 | 0.0 | -7,820.9 |
| 2015 | 0.0 | 0.0 | 287.7 | 287.7 | 5,360.8 | 5,073.0 |
| 2016 | 0.0 | 0.0 | 287.7 | 287.7 | 5,643.8 | 5,356.1 |
| 2017 | 0.0 | 0.0 | 287.7 | 287.7 | 5,926.9 | 5,639.2 |
| 2018 | 0.0 | 0.0 | 287.7 | 287.7 | 6,210.0 | 5,922.3 |
| 2019 | 0.0 | 0.0 | 287.7 | 287.7 | 6,493.1 | 6,205.4 |
| 2020 | 0.0 | 0.0 | 287.7 | 287.7 | 6,776.2 | 6,488.5 |
| 2021 | 0.0 | 0.0 | 287.7 | 287.7 | 7,058.7 | 6,771.0 |
| 2022 | 0.0 | 0.0 | 287.7 | 287.7 | 7,341.2 | 7,053.5 |
| 2023 | 0.0 | 0.0 | 287.7 | 287.7 | 7,623.6 | 7,335.9 |
| 2024 | 0.0 | 0.0 | 767.2 | 767.2 | 7,906.1 | 7,138.9 |
| 2025 | 0.0 | 0.0 | 287.7 | 287.7 | 8,188.6 | 7,900.9 |
| 2026 | 0.0 | 0.0 | 287.7 | 287.7 | 8,471.1 | 8,183.4 |
| 2027 | 0.0 | 0.0 | 287.7 | 287.7 | 8,753.5 | 8,465.8 |
| 2028 | 0.0 | 0.0 | 287.7 | 287.7 | 9,036.0 | 8,748.3 |
| 2029 | 0.0 | 0.0 | 287.7 | 287.7 | 9,318.5 | 9,030.8 |
| 2030 | 0.0 | 0.0 | 287.7 | 287.7 | 9,601.0 | 9,313.3 |
| 2031 | -3,265.1 | | | -3,265.1 | | 3,265.1 |
| Total | 17,526.1 | 3,265.1 | 5,082.9 | 22,609.0 | 119,709.2 | 97,100.3 |

| | |
|---|---|
| **EIRR=** | **23.41%** |
| **NPV=** | **8,465.1** |
| **B/C=** | **1.59** |

## TABLE 26 ECONOMIC CASH FLOW OF PROJECT 16-1 MANILA BATAAN COASTAL ROAD (PHASE 1)

Project 16-1. Manila Bataan Coastal Road (Phase 1) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 920.5 | 46.0 | 0.0 | 920.5 | 0.0 | -920.5 |
| 2012 | 10,059.1 | 1,005.9 | 0.0 | 10059.1 | 0.0 | -10,059.1 |
| 2013 | 20,135.0 | 3,020.2 | 0.0 | 20135.0 | 0.0 | -20,135.0 |
| 2014 | 20,017.9 | 4,003.6 | 0.0 | 20017.9 | 0.0 | -20,017.9 |
| 2015 | 0.0 | 0.0 | 920.7 | 920.7 | 9,388.2 | 8,467.4 |
| 2016 | 0.0 | 0.0 | 920.7 | 920.7 | 9,831.6 | 8,910.8 |
| 2017 | 0.0 | 0.0 | 920.7 | 920.7 | 10,275.0 | 9,354.2 |
| 2018 | 0.0 | 0.0 | 920.7 | 920.7 | 10,718.4 | 9,797.6 |
| 2019 | 0.0 | 0.0 | 920.7 | 920.7 | 11,161.8 | 10,241.0 |
| 2020 | 0.0 | 0.0 | 920.7 | 920.7 | 11,605.2 | 10,684.4 |
| 2021 | 0.0 | 0.0 | 920.7 | 920.7 | 12,744.7 | 11,824.0 |
| 2022 | 0.0 | 0.0 | 920.7 | 920.7 | 13,884.2 | 12,963.5 |
| 2023 | 0.0 | 0.0 | 920.7 | 920.7 | 15,023.8 | 14,103.0 |
| 2024 | 0.0 | 0.0 | 3376.1 | 3376.1 | 16,163.3 | 12,787.2 |
| 2025 | 0.0 | 0.0 | 920.7 | 920.7 | 17,302.8 | 16,382.1 |
| 2026 | 0.0 | 0.0 | 920.7 | 920.7 | 18,442.4 | 17,521.6 |
| 2027 | 0.0 | 0.0 | 920.7 | 920.7 | 19,581.9 | 18,661.1 |
| 2028 | 0.0 | 0.0 | 920.7 | 920.7 | 20,721.4 | 19,800.7 |
| 2029 | 0.0 | 0.0 | 920.7 | 920.7 | 21,860.9 | 20,940.2 |
| 2030 | 0.0 | 0.0 | 920.7 | 920.7 | 23,000.5 | 22,079.7 |
| 2031 | -8,075.8 | | | -8,075.8 | | 8,075.8 |
| Total | 43,056.7 | 8,075.8 | 17,187.2 | 60,243.9 | 241,705.9 | 181,462.0 |

| | |
|---|---|
| **EIRR=** | **17.79%** |
| **NPV=** | **6,776.0** |
| **B/C=** | **1.19** |

## TABLE 27 ECONOMIC CASH FLOW OF PROJECT 16-2 MANILA BATAAN COASTAL ROAD (PHASE 2)

Project 16-2. Manila Bataan Coastal Road (Phase 2) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 359.0 | 18.0 | 0.0 | 359.0 | 0.0 | -359.0 |
| 2012 | 1,141.8 | 114.2 | 0.0 | 1141.8 | 0.0 | -1,141.8 |
| 2013 | 2,299.4 | 344.9 | 0.0 | 2299.4 | 0.0 | -2,299.4 |
| 2014 | 2,188.5 | 437.7 | 0.0 | 2188.5 | 0.0 | -2,188.5 |
| 2015 | 0.0 | 0.0 | 292.6 | 292.6 | 1,606.7 | 1,314.2 |
| 2016 | 0.0 | 0.0 | 292.6 | 292.6 | 1,677.2 | 1,384.7 |
| 2017 | 0.0 | 0.0 | 292.6 | 292.6 | 1,747.8 | 1,455.2 |
| 2018 | 0.0 | 0.0 | 292.6 | 292.6 | 1,818.3 | 1,525.7 |
| 2019 | 0.0 | 0.0 | 292.6 | 292.6 | 1,888.8 | 1,596.2 |
| 2020 | 0.0 | 0.0 | 292.6 | 292.6 | 1,959.3 | 1,666.8 |
| 2021 | 0.0 | 0.0 | 292.6 | 292.6 | 2,176.3 | 1,883.8 |
| 2022 | 0.0 | 0.0 | 292.6 | 292.6 | 2,393.3 | 2,100.7 |
| 2023 | 0.0 | 0.0 | 292.6 | 292.6 | 2,610.3 | 2,317.7 |
| 2024 | 0.0 | 0.0 | 942.7 | 942.7 | 2,827.3 | 1,884.6 |
| 2025 | 0.0 | 0.0 | 292.6 | 292.6 | 3,044.3 | 2,751.7 |
| 2026 | 0.0 | 0.0 | 292.6 | 292.6 | 3,261.3 | 2,968.7 |
| 2027 | 0.0 | 0.0 | 292.6 | 292.6 | 3,478.3 | 3,185.7 |
| 2028 | 0.0 | 0.0 | 292.6 | 292.6 | 3,695.3 | 3,402.7 |
| 2029 | 0.0 | 0.0 | 292.6 | 292.6 | 3,912.3 | 3,619.7 |
| 2030 | 0.0 | 0.0 | 292.6 | 292.6 | 4,129.2 | 3,836.7 |
| 2031 | -914.7 | | | -914.7 | | 914.7 |
| Total | 5,074.0 | 914.7 | 5,331.1 | 10,405.1 | 42,225.9 | 31,820.9 |

| | |
|---|---|
| **EIRR=** | **22.45%** |
| **NPV=** | **2,429.2** |
| **B/C=** | **1.49** |

## TABLE 28 ECONOMIC CASH FLOW OF PROJECT TOTAL 16 MANILA BATAAN COASTAL ROAD

Project Total 16. Manila Bataan Coastal Road (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 1,279.5 | 64.0 | 0.0 | 1279.5 | 0.0 | -1,279.5 |
| 2012 | 11,200.9 | 1,120.1 | 0.0 | 11200.9 | 0.0 | -11,200.9 |
| 2013 | 22,434.4 | 3,365.2 | 0.0 | 22434.4 | 0.0 | -22,434.4 |
| 2014 | 22,206.5 | 4,441.3 | 0.0 | 22206.5 | 0.0 | -22,206.5 |
| 2015 | 0.0 | 0.0 | 1213.3 | 1213.3 | 10,854.0 | 9,640.7 |
| 2016 | 0.0 | 0.0 | 1213.3 | 1213.3 | 11,368.1 | 10,154.8 |
| 2017 | 0.0 | 0.0 | 1213.3 | 1213.3 | 11,882.1 | 10,668.8 |
| 2018 | 0.0 | 0.0 | 1213.3 | 1213.3 | 12,396.2 | 11,182.9 |
| 2019 | 0.0 | 0.0 | 1213.3 | 1213.3 | 12,910.3 | 11,697.0 |
| 2020 | 0.0 | 0.0 | 1213.3 | 1213.3 | 13,424.3 | 12,211.0 |
| 2021 | 0.0 | 0.0 | 1213.3 | 1213.3 | 14,619.2 | 13,405.9 |
| 2022 | 0.0 | 0.0 | 1213.3 | 1213.3 | 15,814.1 | 14,600.8 |
| 2023 | 0.0 | 0.0 | 1213.3 | 1213.3 | 17,008.9 | 15,795.6 |
| 2024 | 0.0 | 0.0 | 4318.7 | 4318.7 | 18,203.8 | 13,885.0 |
| 2025 | 0.0 | 0.0 | 1213.3 | 1213.3 | 19,398.7 | 18,185.4 |
| 2026 | 0.0 | 0.0 | 1213.3 | 1213.3 | 20,593.5 | 19,380.2 |
| 2027 | 0.0 | 0.0 | 1213.3 | 1213.3 | 21,788.4 | 20,575.1 |
| 2028 | 0.0 | 0.0 | 1213.3 | 1213.3 | 22,983.2 | 21,769.9 |
| 2029 | 0.0 | 0.0 | 1213.3 | 1213.3 | 24,178.1 | 22,964.8 |
| 2030 | 0.0 | 0.0 | 1213.3 | 1213.3 | 25,373.0 | 24,159.7 |
| 2031 | -8,990.5 | | | -8,990.5 | | 8,990.5 |
| Total | 48,130.7 | 8,990.5 | 22,518.2 | 70,649.0 | 272,795.9 | 202,146.9 |

| | |
|---|---|
| **EIRR=** | **17.90%** |
| **NPV=** | **7,848.1** |
| **B/C=** | **1.19** |

## TABLE 29 ECONOMIC CASH FLOW OF PROJECT 17 NORTH LUZON EXPRESSWAY (PHASE 3)

Project 17. North Luzon Expressway (Phase 3) (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 1,194.2 | 59.7 | 0.0 | 1194.2 | 0.0 | -1,194.2 |
| 2012 | 3,404.8 | 340.5 | 0.0 | 3404.8 | 0.0 | -3,404.8 |
| 2013 | 6,835.1 | 1,025.3 | 0.0 | 6835.1 | 0.0 | -6,835.1 |
| 2014 | 6,656.4 | 1,331.3 | 0.0 | 6656.4 | 0.0 | -6,656.4 |
| 2015 | 0.0 | 0.0 | 533.5 | 533.5 | 3,827.0 | 3,293.6 |
| 2016 | 0.0 | 0.0 | 533.5 | 533.5 | 4,071.2 | 3,537.7 |
| 2017 | 0.0 | 0.0 | 533.5 | 533.5 | 4,315.4 | 3,781.9 |
| 2018 | 0.0 | 0.0 | 533.5 | 533.5 | 4,559.6 | 4,026.1 |
| 2019 | 0.0 | 0.0 | 533.5 | 533.5 | 4,803.8 | 4,270.3 |
| 2020 | 0.0 | 0.0 | 533.5 | 533.5 | 5,048.0 | 4,514.5 |
| 2021 | 0.0 | 0.0 | 533.5 | 533.5 | 5,332.5 | 4,799.1 |
| 2022 | 0.0 | 0.0 | 533.5 | 533.5 | 5,617.1 | 5,083.7 |
| 2023 | 0.0 | 0.0 | 533.5 | 533.5 | 5,901.7 | 5,368.3 |
| 2024 | 0.0 | 0.0 | 2438.7 | 2438.7 | 6,186.3 | 3,747.6 |
| 2025 | 0.0 | 0.0 | 533.5 | 533.5 | 6,470.9 | 5,937.4 |
| 2026 | 0.0 | 0.0 | 533.5 | 533.5 | 6,755.5 | 6,222.0 |
| 2027 | 0.0 | 0.0 | 533.5 | 533.5 | 7,040.1 | 6,506.6 |
| 2028 | 0.0 | 0.0 | 533.5 | 533.5 | 7,324.7 | 6,791.2 |
| 2029 | 0.0 | 0.0 | 533.5 | 533.5 | 7,609.3 | 7,075.8 |
| 2030 | 0.0 | 0.0 | 533.5 | 533.5 | 7,893.9 | 7,360.4 |
| 2031 | -2,756.7 | | | -2,756.7 | | 2,756.7 |
| Total | 15,333.7 | 2,756.7 | 10,440.6 | 25,774.4 | 92,756.9 | 66,982.6 |

| | |
|---|---|
| **EIRR=** | **18.83%** |
| **NPV=** | **3,346.9** |
| **B/C=** | **1.24** |

## TABLE 30 ECONOMIC CASH FLOW OF PROJECT 18 EAST WEST CONNECTION EXPRESSWAY

Project 18. East West Connection Expressway (Mil. PHP)

| | Cost | | | | Benefit | Net Cash Flow |
|---|---|---|---|---|---|---|
| | Construction | | Maintenance | Total | VOC+TTC | |
| 2011 | 497.2 | 24.9 | 0.0 | 497.2 | 0.0 | -497.2 |
| 2012 | 1,440.5 | 144.0 | 0.0 | 1440.5 | 0.0 | -1,440.5 |
| 2013 | 2,899.5 | 434.9 | 0.0 | 2899.5 | 0.0 | -2,899.5 |
| 2014 | 2,770.1 | 554.0 | 0.0 | 2770.1 | 0.0 | -2,770.1 |
| 2015 | 0.0 | 0.0 | 356.8 | 356.8 | 336.2 | -20.6 |
| 2016 | 0.0 | 0.0 | 356.8 | 356.8 | 446.5 | 89.7 |
| 2017 | 0.0 | 0.0 | 356.8 | 356.8 | 556.9 | 200.1 |
| 2018 | 0.0 | 0.0 | 356.8 | 356.8 | 667.3 | 310.5 |
| 2019 | 0.0 | 0.0 | 356.8 | 356.8 | 777.7 | 420.9 |
| 2020 | 0.0 | 0.0 | 356.8 | 356.8 | 888.0 | 531.2 |
| 2021 | 0.0 | 0.0 | 356.8 | 356.8 | 1,130.1 | 773.3 |
| 2022 | 0.0 | 0.0 | 356.8 | 356.8 | 1,372.1 | 1,015.3 |
| 2023 | 0.0 | 0.0 | 356.8 | 356.8 | 1,614.1 | 1,257.3 |
| 2024 | 0.0 | 0.0 | 1149.7 | 1149.7 | 1,856.2 | 706.5 |
| 2025 | 0.0 | 0.0 | 356.8 | 356.8 | 2,098.2 | 1,741.4 |
| 2026 | 0.0 | 0.0 | 356.8 | 356.8 | 2,340.2 | 1,983.4 |
| 2027 | 0.0 | 0.0 | 356.8 | 356.8 | 2,582.3 | 2,225.5 |
| 2028 | 0.0 | 0.0 | 356.8 | 356.8 | 2,824.3 | 2,467.5 |
| 2029 | 0.0 | 0.0 | 356.8 | 356.8 | 3,066.3 | 2,709.5 |
| 2030 | 0.0 | 0.0 | 356.8 | 356.8 | 3,308.4 | 2,951.6 |
| 2031 | -1,157.8 | | | -1,157.8 | | 1,157.8 |
| Total | 6,449.4 | 1,157.8 | 6,501.7 | 12,951.1 | 25,864.8 | 12,913.7 |

| | |
|---|---|
| **EIRR=** | **8.04%** |
| **NPV=** | **-2,631.0** |
| **B/C=** | **0.58** |

## ANNEX 15-2

## TABLE 31 PROJECT FINANCIAL INTERNAL RATE OF RETURN

### No. 1 NLEx-SLEx Link

In ( '000 PHP)

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 396,912 | | 396,912 | | -396,912 |
| 2012 | 6,912,287 | | 6,912,287 | | -6,912,287 |
| 2013 | 14,582,066 | | 14,582,066 | | -14,582,066 |
| 2014 | 14,443,065 | | 14,443,065 | | -14,443,065 |
| 2015 | | 305,022 | 305,022 | 2,527,245 | 2,222,223 |
| 2016 | | 318,959 | 318,959 | 2,662,352 | 2,343,392 |
| 2017 | | 347,115 | 347,115 | 2,813,826 | 2,466,711 |
| 2018 | | 364,473 | 364,473 | 2,983,307 | 2,618,834 |
| 2019 | | 401,875 | 401,875 | 3,172,606 | 2,770,732 |
| 2020 | | 568,482 | 568,482 | 3,383,720 | 2,815,239 |
| 2021 | | 762,325 | 762,325 | 3,615,889 | 2,853,564 |
| 2022 | | 960,856 | 960,856 | 3,864,109 | 2,903,253 |
| 2023 | | 1,189,056 | 1,189,056 | 4,129,500 | 2,940,444 |
| 2024 | | 2,207,220 | 2,207,220 | 4,413,258 | 2,206,039 |
| 2025 | | 1,691,962 | 1,691,962 | 4,716,667 | 3,024,705 |
| 2026 | | 1,816,781 | 1,816,781 | 5,041,097 | 3,224,316 |
| 2027 | | 1,967,334 | 1,967,334 | 5,388,017 | 3,420,682 |
| 2028 | | 2,110,305 | 2,110,305 | 5,758,999 | 3,648,694 |
| 2029 | | 2,282,969 | 2,282,969 | 6,155,725 | 3,872,756 |
| 2030 | | 2,446,753 | 2,446,753 | 6,579,999 | 4,133,246 |
| 2031 | | 2,604,882 | 2,604,882 | 6,908,999 | 4,304,117 |
| 2032 | | 2,747,785 | 2,747,785 | 7,254,449 | 4,506,664 |
| 2033 | | 2,924,957 | 2,924,957 | 7,617,171 | 4,692,214 |
| 2034 | | 4,489,175 | 4,489,175 | 7,998,030 | 3,508,855 |
| 2035 | | 3,282,819 | 3,282,819 | 8,397,931 | 5,115,112 |
| 2036 | | 3,460,357 | 3,460,357 | 8,817,828 | 5,357,470 |
| 2037 | | 3,683,118 | 3,683,118 | 9,258,719 | 5,575,601 |
| 2038 | | 3,881,123 | 3,881,123 | 9,721,655 | 5,840,532 |
| 2039 | | 4,131,101 | 4,131,101 | 10,207,738 | 6,076,637 |
| 2040 | | 4,398,132 | 4,398,132 | 10,718,124 | 6,319,992 |
| 2041 | | 4,683,529 | 4,683,529 | 11,254,031 | 6,570,502 |
| 2042 | | 4,988,713 | 4,988,713 | 11,816,732 | 6,828,019 |
| 2043 | | 5,315,231 | 5,315,231 | 12,407,569 | 7,092,338 |
| 2044 | | 8,182,159 | 8,182,159 | 13,027,947 | 4,845,788 |
| | | | | **FIRR** | **7.73%** |

## TABLE 32 PROJECT FINANCIAL INTERNAL RATE OF RETURN

**No. 2 NAIA Expressway**

**(in Million PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 150 | | 150 | | -150 |
| 2012 | 2,732 | | 2,732 | | -2,732 |
| 2013 | 5,800 | | 5,800 | | -5,800 |
| 2014 | 5,484 | | 5,484 | | -5,484 |
| 2015 | | 116 | 116 | 889 | 773 |
| 2016 | | 121 | 121 | 960 | 839 |
| 2017 | | 132 | 132 | 1,039 | 908 |
| 2018 | | 138 | 138 | 1,128 | 990 |
| 2019 | | 158 | 158 | 1,229 | 1,071 |
| 2020 | | 228 | 228 | 1,342 | 1,114 |
| 2021 | | 309 | 309 | 1,465 | 1,156 |
| 2022 | | 392 | 392 | 1,599 | 1,207 |
| 2023 | | 489 | 489 | 1,746 | 1,258 |
| 2024 | | 895 | 895 | 1,907 | 1,012 |
| 2025 | | 704 | 704 | 2,084 | 1,380 |
| 2026 | | 771 | 771 | 2,278 | 1,507 |
| 2027 | | 850 | 850 | 2,491 | 1,641 |
| 2028 | | 930 | 930 | 2,724 | 1,794 |
| 2029 | | 1,024 | 1,024 | 2,980 | 1,956 |
| 2030 | | 1,120 | 1,120 | 3,261 | 2,142 |
| 2031 | | 1,189 | 1,189 | 3,424 | 2,235 |
| 2032 | | 1,253 | 1,253 | 3,595 | 2,342 |
| 2033 | | 1,331 | 1,331 | 3,775 | 2,444 |
| 2034 | | 1,951 | 1,951 | 3,964 | 2,013 |
| 2035 | | 1,489 | 1,489 | 4,162 | 2,673 |
| 2036 | | 1,569 | 1,569 | 4,370 | 2,802 |
| 2037 | | 1,666 | 1,666 | 4,589 | 2,923 |
| 2038 | | 1,754 | 1,754 | 4,818 | 3,064 |
| 2039 | | 1,864 | 1,864 | 5,059 | 3,195 |
| 2040 | | 1,980 | 1,980 | 5,312 | 3,332 |
| 2041 | | 2,104 | 2,104 | 5,578 | 3,473 |
| 2042 | | 2,237 | 2,237 | 5,856 | 3,620 |
| 2043 | | 2,378 | 2,378 | 6,149 | 3,771 |
| 2044 | | 3,514 | 3,514 | 6,457 | 2,943 |
| | | | | **FIRR** | **8.90%** |

## TABLE 33 FINANCIAL INTERNAL RATE OF RETURN

### No. 3 C-6 Expressway and No. 14 Global City Access

**(in Million PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 1,647 | | 1,647 | | -1,647 |
| 2012 | 12,362 | | 12,362 | | -12,362 |
| 2013 | 26,154 | | 26,154 | | -26,154 |
| 2014 | 22,761 | | 22,761 | | -22,761 |
| 2015 | | 1,335 | 1,335 | 3,703 | 2,368 |
| 2016 | | 1,400 | 1,400 | 4,007 | 2,607 |
| 2017 | | 1,526 | 1,526 | 4,342 | 2,816 |
| 2018 | | 1,609 | 1,609 | 4,711 | 3,102 |
| 2019 | | 1,755 | 1,755 | 5,119 | 3,364 |
| 2020 | | 1,851 | 1,851 | 5,570 | 3,719 |
| 2021 | | 2,139 | 2,139 | 5,938 | 3,800 |
| 2022 | | 2,490 | 2,490 | 6,330 | 3,840 |
| 2023 | | 2,923 | 2,923 | 6,748 | 3,826 |
| 2024 | | 8,753 | 8,753 | 7,194 | -1,559 |
| 2025 | | 3,842 | 3,842 | 7,669 | 3,827 |
| 2026 | | 4,098 | 4,098 | 8,176 | 4,078 |
| 2027 | | 4,441 | 4,441 | 8,716 | 4,275 |
| 2028 | | 4,733 | 4,733 | 9,291 | 4,558 |
| 2029 | | 5,127 | 5,127 | 9,905 | 4,778 |
| 2030 | | 5,461 | 5,461 | 10,559 | 5,098 |
| 2031 | | 5,864 | 5,864 | 11,094 | 5,230 |
| 2032 | | 6,192 | 6,192 | 11,656 | 5,464 |
| 2033 | | 6,648 | 6,648 | 12,246 | 5,598 |
| 2034 | | 16,275 | 16,275 | 12,866 | -3,409 |
| 2035 | | 7,537 | 7,537 | 13,518 | 5,981 |
| 2036 | | 7,954 | 7,954 | 14,202 | 6,248 |
| 2037 | | 8,543 | 8,543 | 14,921 | 6,378 |
| 2038 | | 9,014 | 9,014 | 15,677 | 6,663 |
| 2039 | | 9,684 | 9,684 | 16,471 | 6,787 |
| 2040 | | 10,406 | 10,406 | 17,305 | 6,899 |
| 2041 | | 11,187 | 11,187 | 18,181 | 6,994 |
| 2042 | | 12,030 | 12,030 | 19,102 | 7,071 |
| 2043 | | 12,942 | 12,942 | 20,069 | 7,127 |
| 2044 | | 31,562 | 31,562 | 21,085 | -10,477 |
| | | | | **FIRR** | **3.90%** |

## TABLE 34 PROJECT FINANCIAL INTERNAL RATE OF RETURN

**No. 4 C-6 Extension**

**(in Million PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 576 | | 576 | | -576 |
| 2012 | 4,201 | | 4,201 | | -4,201 |
| 2013 | 8,847 | | 8,847 | | -8,847 |
| 2014 | 7,938 | | 7,938 | | -7,938 |
| 2015 | | 603 | 603 | 2,126 | 1,523 |
| 2016 | | 632 | 632 | 2,373 | 1,741 |
| 2017 | | 737 | 737 | 2,649 | 1,913 |
| 2018 | | 894 | 894 | 2,959 | 2,065 |
| 2019 | | 1,084 | 1,084 | 3,306 | 2,222 |
| 2020 | | 1,277 | 1,277 | 3,695 | 2,418 |
| 2021 | | 1,441 | 1,441 | 3,906 | 2,464 |
| 2022 | | 1,599 | 1,599 | 4,128 | 2,530 |
| 2023 | | 1,789 | 1,789 | 4,364 | 2,575 |
| 2024 | | 4,151 | 4,151 | 4,613 | 462 |
| 2025 | | 2,191 | 2,191 | 4,876 | 2,684 |
| 2026 | | 2,323 | 2,323 | 5,154 | 2,831 |
| 2027 | | 2,491 | 2,491 | 5,448 | 2,957 |
| 2028 | | 2,640 | 2,640 | 5,759 | 3,119 |
| 2029 | | 2,831 | 2,831 | 6,088 | 3,257 |
| 2030 | | 2,999 | 2,999 | 6,435 | 3,436 |
| 2031 | | 3,203 | 3,203 | 6,761 | 3,557 |
| 2032 | | 3,380 | 3,380 | 7,103 | 3,723 |
| 2033 | | 3,611 | 3,611 | 7,463 | 3,852 |
| 2034 | | 7,700 | 7,700 | 7,841 | 140 |
| 2035 | | 4,070 | 4,070 | 8,238 | 4,167 |
| 2036 | | 4,294 | 4,294 | 8,655 | 4,361 |
| 2037 | | 4,589 | 4,589 | 9,093 | 4,504 |
| 2038 | | 4,841 | 4,841 | 9,554 | 4,713 |
| 2039 | | 5,175 | 5,175 | 10,037 | 4,863 |
| 2040 | | 5,533 | 5,533 | 10,546 | 5,012 |
| 2041 | | 5,919 | 5,919 | 11,080 | 5,161 |
| 2042 | | 6,334 | 6,334 | 11,641 | 5,307 |
| 2043 | | 6,780 | 6,780 | 12,230 | 5,450 |
| 2044 | | 14,801 | 14,801 | 12,849 | -1,952 |
| | | | | **FIRR** | **9.85%** |

## TABLE 35 PROJECT Financial Internal Rate of Return

**No. 5 Manila Bay Expressway**

**(in Million PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 608 | | 608 | | -608 |
| 2012 | 10,194 | | 10,194 | | -10,194 |
| 2013 | 21,366 | | 21,366 | | -21,366 |
| 2014 | 22,167 | | 22,167 | | -22,167 |
| 2015 | | 269 | 269 | 952 | 683 |
| 2016 | | 280 | 280 | 990 | 710 |
| 2017 | | 303 | 303 | 1,034 | 731 |
| 2018 | | 317 | 317 | 1,084 | 767 |
| 2019 | | 343 | 343 | 1,142 | 798 |
| 2020 | | 360 | 360 | 1,206 | 846 |
| 2021 | | 390 | 390 | 1,281 | 891 |
| 2022 | | 409 | 409 | 1,360 | 951 |
| 2023 | | 444 | 444 | 1,445 | 1,001 |
| 2024 | | 2,237 | 2,237 | 1,535 | -701 |
| 2025 | | 522 | 522 | 1,631 | 1,110 |
| 2026 | | 570 | 570 | 1,733 | 1,163 |
| 2027 | | 636 | 636 | 1,842 | 1,207 |
| 2028 | | 691 | 691 | 1,958 | 1,267 |
| 2029 | | 766 | 766 | 2,082 | 1,316 |
| 2030 | | 830 | 830 | 2,214 | 1,384 |
| 2031 | | 907 | 907 | 2,325 | 1,418 |
| 2032 | | 969 | 969 | 2,441 | 1,472 |
| 2033 | | 1,056 | 1,056 | 2,563 | 1,507 |
| 2034 | | 4,088 | 4,088 | 2,691 | -1,397 |
| 2035 | | 1,225 | 1,225 | 2,826 | 1,601 |
| 2036 | | 1,305 | 1,305 | 2,967 | 1,663 |
| 2037 | | 1,417 | 1,417 | 3,116 | 1,699 |
| 2038 | | 1,506 | 1,506 | 3,271 | 1,766 |
| 2039 | | 1,633 | 1,633 | 3,435 | 1,802 |
| 2040 | | 1,770 | 1,770 | 3,607 | 1,837 |
| 2041 | | 1,918 | 1,918 | 3,787 | 1,869 |
| 2042 | | 2,078 | 2,078 | 3,976 | 1,899 |
| 2043 | | 2,250 | 2,250 | 4,175 | 1,925 |
| 2044 | | 7,746 | 7,746 | 4,384 | -3,362 |
| | | | | **FIRR** | **Negative** |

## TABLE 36 PROJECT Financial Internal Rate of Return

### No. 6 CALA Expressway

**(in '000 PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 774,708 | | 774,708 | | -774,708 |
| 2012 | 4,397,447 | | 4,397,447 | | -4,397,447 |
| 2013 | 9,215,253 | | 9,215,253 | | -9,215,253 |
| 2014 | 8,412,675 | | 8,412,675 | | -8,412,675 |
| 2015 | | 626,895 | 626,895 | 2,965,843 | 2,338,949 |
| 2016 | | 767,396 | 767,396 | 3,263,826 | 2,496,430 |
| 2017 | | 936,567 | 936,567 | 3,592,877 | 2,656,310 |
| 2018 | | 1,109,949 | 1,109,949 | 3,956,350 | 2,846,401 |
| 2019 | | 1,313,750 | 1,313,750 | 4,357,970 | 3,044,220 |
| 2020 | | 1,523,338 | 1,523,338 | 4,801,879 | 3,278,541 |
| 2021 | | 1,723,417 | 1,723,417 | 5,140,215 | 3,416,798 |
| 2022 | | 1,922,879 | 1,922,879 | 5,502,397 | 3,579,518 |
| 2023 | | 2,155,895 | 2,155,895 | 5,890,105 | 3,734,210 |
| 2024 | | 4,579,618 | 4,579,618 | 6,305,141 | 1,725,523 |
| 2025 | | 2,659,903 | 2,659,903 | 6,749,430 | 4,089,527 |
| 2026 | | 2,846,447 | 2,846,447 | 7,225,034 | 4,378,587 |
| 2027 | | 3,069,981 | 3,069,981 | 7,734,163 | 4,664,181 |
| 2028 | | 3,284,031 | 3,284,031 | 8,279,178 | 4,995,147 |
| 2029 | | 3,540,769 | 3,540,769 | 8,862,612 | 5,321,843 |
| 2030 | | 3,786,384 | 3,786,384 | 9,487,172 | 5,700,788 |
| 2031 | | 4,024,807 | 4,024,807 | 9,967,573 | 5,942,766 |
| 2032 | | 4,243,349 | 4,243,349 | 10,472,299 | 6,228,950 |
| 2033 | | 4,511,276 | 4,511,276 | 11,002,584 | 6,491,308 |
| 2034 | | 8,682,004 | 8,682,004 | 11,559,720 | 2,877,716 |
| 2035 | | 5,057,001 | 5,057,001 | 12,145,068 | 7,088,067 |
| 2036 | | 5,330,647 | 5,330,647 | 12,760,056 | 7,429,409 |
| 2037 | | 5,669,482 | 5,669,482 | 13,406,186 | 7,736,704 |
| 2038 | | 5,975,879 | 5,975,879 | 14,085,033 | 8,109,154 |
| 2039 | | 6,357,205 | 6,357,205 | 14,798,255 | 8,441,049 |
| 2040 | | 6,764,842 | 6,764,842 | 15,547,592 | 8,782,750 |
| 2041 | | 7,200,806 | 7,200,806 | 16,334,873 | 9,134,067 |
| 2042 | | 7,667,282 | 7,667,282 | 17,162,020 | 9,494,738 |
| 2043 | | 8,166,641 | 8,166,641 | 18,031,051 | 9,864,410 |
| 2044 | | 15,736,412 | 15,736,412 | 18,944,087 | 3,207,675 |
| | | | | **FIRR** | **13.56%** |

## TABLE 37 PROJECT Financial Internal Rate of Return

**No. 7 CLEx**

**(in Million PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 1,143 | | 1,143 | | -1,143 |
| 2012 | 6,440 | | 6,440 | | -6,440 |
| 2013 | 13,485 | | 13,485 | | -13,485 |
| 2014 | 12,863 | | 12,863 | | -12,863 |
| 2015 | | 860 | 860 | 1,133 | 273 |
| 2016 | | 902 | 902 | 1,226 | 324 |
| 2017 | | 979 | 979 | 1,326 | 346 |
| 2018 | | 1,036 | 1,036 | 1,434 | 398 |
| 2019 | | 1,125 | 1,125 | 1,552 | 426 |
| 2020 | | 1,191 | 1,191 | 1,679 | 489 |
| 2021 | | 1,294 | 1,294 | 1,808 | 514 |
| 2022 | | 1,369 | 1,369 | 1,947 | 578 |
| 2023 | | 1,488 | 1,488 | 2,097 | 609 |
| 2024 | | 6,378 | 6,378 | 2,259 | -4,119 |
| 2025 | | 1,713 | 1,713 | 2,434 | 721 |
| 2026 | | 1,865 | 1,865 | 2,622 | 757 |
| 2027 | | 2,037 | 2,037 | 2,825 | 787 |
| 2028 | | 2,183 | 2,183 | 3,043 | 860 |
| 2029 | | 2,382 | 2,382 | 3,279 | 897 |
| 2030 | | 2,551 | 2,551 | 3,534 | 983 |
| 2031 | | 2,753 | 2,753 | 3,713 | 960 |
| 2032 | | 2,916 | 2,916 | 3,901 | 985 |
| 2033 | | 3,146 | 3,146 | 4,098 | 952 |
| 2034 | | 11,792 | 11,792 | 4,306 | -7,486 |
| 2035 | | 3,594 | 3,594 | 4,524 | 930 |
| 2036 | | 3,805 | 3,805 | 4,753 | 948 |
| 2037 | | 4,104 | 4,104 | 4,994 | 889 |
| 2038 | | 4,344 | 4,344 | 5,247 | 903 |
| 2039 | | 4,686 | 4,686 | 5,512 | 826 |
| 2040 | | 5,057 | 5,057 | 5,791 | 735 |
| 2041 | | 5,461 | 5,461 | 6,085 | 624 |
| 2042 | | 5,950 | 5,950 | 6,393 | 443 |
| 2043 | | 6,484 | 6,484 | 6,716 | 232 |
| 2044 | | 22,489 | 22,489 | 7,057 | -15,433 |
| | | | | **FIRR** | **Negative** |

## TABLE 38 PROJECT Financial Internal Rate of Return

### No. 8 Calamba-Los Baños Toll Expressway

**(in Million PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 189 | | 189 | | -189 |
| 2012 | 1,495 | | 1,495 | | -1,495 |
| 2013 | 3,188 | | 3,188 | | -3,188 |
| 2014 | 2,607 | | 2,607 | | -2,607 |
| 2015 | | 198 | 198 | 304 | 106 |
| 2016 | | 208 | 208 | 337 | 129 |
| 2017 | | 225 | 225 | 372 | 147 |
| 2018 | | 239 | 239 | 412 | 173 |
| 2019 | | 259 | 259 | 455 | 197 |
| 2020 | | 274 | 274 | 504 | 230 |
| 2021 | | 298 | 298 | 548 | 251 |
| 2022 | | 315 | 315 | 597 | 282 |
| 2023 | | 351 | 351 | 650 | 299 |
| 2024 | | 1,362 | 1,362 | 708 | -654 |
| 2025 | | 469 | 469 | 771 | 302 |
| 2026 | | 506 | 506 | 840 | 334 |
| 2027 | | 553 | 553 | 915 | 361 |
| 2028 | | 597 | 597 | 997 | 400 |
| 2029 | | 653 | 653 | 1,086 | 433 |
| 2030 | | 704 | 704 | 1,183 | 480 |
| 2031 | | 755 | 755 | 1,243 | 488 |
| 2032 | | 799 | 799 | 1,306 | 507 |
| 2033 | | 857 | 857 | 1,372 | 515 |
| 2034 | | 2,523 | 2,523 | 1,442 | -1,081 |
| 2035 | | 973 | 973 | 1,515 | 541 |
| 2036 | | 1,030 | 1,030 | 1,591 | 562 |
| 2037 | | 1,105 | 1,105 | 1,672 | 567 |
| 2038 | | 1,169 | 1,169 | 1,757 | 588 |
| 2039 | | 1,255 | 1,255 | 1,846 | 591 |
| 2040 | | 1,347 | 1,347 | 1,939 | 592 |
| 2041 | | 1,447 | 1,447 | 2,037 | 590 |
| 2042 | | 1,555 | 1,555 | 2,140 | 586 |
| 2043 | | 1,671 | 1,671 | 2,249 | 578 |
| 2044 | | 4,817 | 4,817 | 2,363 | -2,454 |
| | | | | **FIRR** | **Negative** |

## TABLE 39 PROJECT Financial Internal Rate of Return

### No. 9 SLEx Extension

**(in Million PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 642 | | 642 | | -642 |
| 2012 | 3,534 | | 3,534 | | -3,534 |
| 2013 | 7,374 | | 7,374 | | -7,374 |
| 2014 | 7,387 | | 7,387 | | -7,387 |
| 2015 | | 637 | 637 | 873 | 235 |
| 2016 | | 669 | 669 | 939 | 270 |
| 2017 | | 727 | 727 | 1,010 | 283 |
| 2018 | | 769 | 769 | 1,086 | 318 |
| 2019 | | 836 | 836 | 1,169 | 333 |
| 2020 | | 884 | 884 | 1,257 | 373 |
| 2021 | | 962 | 962 | 1,352 | 390 |
| 2022 | | 1,018 | 1,018 | 1,454 | 436 |
| 2023 | | 1,107 | 1,107 | 1,563 | 456 |
| 2024 | | 3,936 | 3,936 | 1,681 | -2,255 |
| 2025 | | 1,325 | 1,325 | 1,807 | 482 |
| 2026 | | 1,418 | 1,418 | 1,943 | 525 |
| 2027 | | 1,545 | 1,545 | 2,090 | 544 |
| 2028 | | 1,652 | 1,652 | 2,247 | 595 |
| 2029 | | 1,799 | 1,799 | 2,416 | 617 |
| 2030 | | 1,923 | 1,923 | 2,598 | 675 |
| 2031 | | 2,073 | 2,073 | 2,730 | 656 |
| 2032 | | 2,194 | 2,194 | 2,868 | 674 |
| 2033 | | 2,366 | 2,366 | 3,013 | 647 |
| 2034 | | 7,328 | 7,328 | 3,166 | -4,163 |
| 2035 | | 2,699 | 2,699 | 3,326 | 626 |
| 2036 | | 2,855 | 2,855 | 3,494 | 639 |
| 2037 | | 3,079 | 3,079 | 3,671 | 592 |
| 2038 | | 3,256 | 3,256 | 3,857 | 601 |
| 2039 | | 3,512 | 3,512 | 4,052 | 540 |
| 2040 | | 3,789 | 3,789 | 4,258 | 468 |
| 2041 | | 4,090 | 4,090 | 4,473 | 383 |
| 2042 | | 4,450 | 4,450 | 4,700 | 250 |
| 2043 | | 4,852 | 4,852 | 4,938 | 86 |
| 2044 | | 14,166 | 14,166 | 5,188 | -8,978 |
| | | | | **FIRR** | **Negative** |

## TABLE 40 PROJECT Financial Internal Rate of Return

**NO. 10 NLEx East**

**(in Million PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 1,533 | | 1,533 | | -1,533 |
| 2012 | 8,454 | | 8,454 | | -8,454 |
| 2013 | 17,521 | | 17,521 | | -17,521 |
| 2014 | 17,252 | | 17,252 | | -17,252 |
| 2015 | | 1,594 | 1,594 | 2,741 | 1,147 |
| 2016 | | 1,672 | 1,672 | 3,070 | 1,398 |
| 2017 | | 1,816 | 1,816 | 3,440 | 1,624 |
| 2018 | | 1,923 | 1,923 | 3,854 | 1,931 |
| 2019 | | 2,089 | 2,089 | 4,318 | 2,229 |
| 2020 | | 2,211 | 2,211 | 4,808 | 2,597 |
| 2021 | | 2,450 | 2,450 | 5,226 | 2,776 |
| 2022 | | 2,793 | 2,793 | 5,647 | 2,854 |
| 2023 | | 3,213 | 3,213 | 6,102 | 2,888 |
| 2024 | | 9,367 | 9,367 | 6,593 | -2,774 |
| 2025 | | 4,112 | 4,112 | 7,125 | 3,013 |
| 2026 | | 4,416 | 4,416 | 7,700 | 3,285 |
| 2027 | | 4,808 | 4,808 | 8,322 | 3,514 |
| 2028 | | 5,161 | 5,161 | 8,994 | 3,834 |
| 2029 | | 5,617 | 5,617 | 9,722 | 4,105 |
| 2030 | | 6,027 | 6,027 | 10,508 | 4,482 |
| 2031 | | 6,458 | 6,458 | 11,034 | 4,575 |
| 2032 | | 6,824 | 6,824 | 11,585 | 4,761 |
| 2033 | | 7,314 | 7,314 | 12,165 | 4,850 |
| 2034 | | 17,466 | 17,466 | 12,773 | -4,693 |
| 2035 | | 8,284 | 8,284 | 13,412 | 5,127 |
| 2036 | | 8,752 | 8,752 | 14,082 | 5,330 |
| 2037 | | 9,384 | 9,384 | 14,786 | 5,402 |
| 2038 | | 9,912 | 9,912 | 15,526 | 5,613 |
| 2039 | | 10,631 | 10,631 | 16,302 | 5,671 |
| 2040 | | 11,406 | 11,406 | 17,117 | 5,711 |
| 2041 | | 12,241 | 12,241 | 17,973 | 5,732 |
| 2042 | | 13,142 | 13,142 | 18,872 | 5,729 |
| 2043 | | 14,115 | 14,115 | 19,815 | 5,700 |
| 2044 | | 33,784 | 33,784 | 20,806 | -12,978 |
| | | | | **FIRR** | **4.01%** |

## TABLE 41 PROJECT Financial Internal Rate of Return

### No. 12 C-5/FTI/Skyway Connector Road

**(in Million PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 72 | | 72 | | -72 |
| 2012 | 1,234 | | 1,234 | | -1,234 |
| 2013 | 2,595 | | 2,595 | | -2,595 |
| 2014 | 2,637 | | 2,637 | | -2,637 |
| 2015 | | 59 | 59 | 294 | 235 |
| 2016 | | 62 | 62 | 319 | 257 |
| 2017 | | 67 | 67 | 347 | 279 |
| 2018 | | 71 | 71 | 377 | 306 |
| 2019 | | 77 | 77 | 411 | 334 |
| 2020 | | 81 | 81 | 448 | 367 |
| 2021 | | 88 | 88 | 477 | 389 |
| 2022 | | 114 | 114 | 508 | 394 |
| 2023 | | 150 | 150 | 541 | 392 |
| 2024 | | 333 | 333 | 577 | 244 |
| 2025 | | 227 | 227 | 614 | 387 |
| 2026 | | 243 | 243 | 654 | 411 |
| 2027 | | 264 | 264 | 697 | 433 |
| 2028 | | 282 | 282 | 743 | 460 |
| 2029 | | 306 | 306 | 791 | 485 |
| 2030 | | 327 | 327 | 843 | 516 |
| 2031 | | 350 | 350 | 885 | 535 |
| 2032 | | 370 | 370 | 929 | 559 |
| 2033 | | 396 | 396 | 976 | 580 |
| 2034 | | 682 | 682 | 1,025 | 342 |
| 2035 | | 448 | 448 | 1,076 | 628 |
| 2036 | | 473 | 473 | 1,130 | 657 |
| 2037 | | 506 | 506 | 1,186 | 681 |
| 2038 | | 533 | 533 | 1,246 | 712 |
| 2039 | | 571 | 571 | 1,308 | 737 |
| 2040 | | 611 | 611 | 1,373 | 763 |
| 2041 | | 654 | 654 | 1,442 | 788 |
| 2042 | | 700 | 700 | 1,514 | 814 |
| 2043 | | 749 | 749 | 1,590 | 840 |
| 2044 | | 1,276 | 1,276 | 1,669 | 393 |
| | | | | **FIRR** | **4.88%** |

## TABLE 42 PROJECT Financial Internal Rate of Return

**No. 13 Pasig-Marikina Expressway**

**(in '000 PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 1,299,467 | | 1,299,467 | | -1,299,467 |
| 2012 | 8,665,532 | | 8,665,532 | | -8,665,532 |
| 2013 | 17,970,320 | | 17,970,320 | | -17,970,320 |
| 2014 | 17,898,430 | | 17,898,430 | | -17,898,430 |
| 2015 | | 364,437 | 364,437 | 2,467,742 | 2,103,305 |
| 2016 | | 381,022 | 381,022 | 2,600,492 | 2,219,470 |
| 2017 | | 414,527 | 414,527 | 2,743,458 | 2,328,931 |
| 2018 | | 435,183 | 435,183 | 2,897,602 | 2,462,419 |
| 2019 | | 473,916 | 473,916 | 3,063,982 | 2,590,066 |
| 2020 | | 497,772 | 497,772 | 3,243,767 | 2,745,995 |
| 2021 | | 589,889 | 589,889 | 3,449,010 | 2,859,121 |
| 2022 | | 795,885 | 795,885 | 3,667,240 | 2,871,355 |
| 2023 | | 1,035,100 | 1,035,100 | 3,899,279 | 2,864,178 |
| 2024 | | 2,238,626 | 2,238,626 | 4,146,000 | 1,907,373 |
| 2025 | | 1,560,060 | 1,560,060 | 4,408,332 | 2,848,272 |
| 2026 | | 1,669,465 | 1,669,465 | 4,687,263 | 3,017,797 |
| 2027 | | 1,806,874 | 1,806,874 | 4,983,843 | 3,176,969 |
| 2028 | | 1,931,192 | 1,931,192 | 5,299,189 | 3,367,997 |
| 2029 | | 2,087,778 | 2,087,778 | 5,634,489 | 3,546,711 |
| 2030 | | 2,229,052 | 2,229,052 | 5,991,005 | 3,761,953 |
| 2031 | | 2,383,657 | 2,383,657 | 6,290,555 | 3,906,899 |
| 2032 | | 2,517,655 | 2,517,655 | 6,605,083 | 4,087,428 |
| 2033 | | 2,691,579 | 2,691,579 | 6,935,337 | 4,243,758 |
| 2034 | | 4,562,462 | 4,562,462 | 7,282,104 | 2,719,642 |
| 2035 | | 3,037,163 | 3,037,163 | 7,646,209 | 4,609,047 |
| 2036 | | 3,204,740 | 3,204,740 | 8,028,520 | 4,823,780 |
| 2037 | | 3,425,219 | 3,425,219 | 8,429,946 | 5,004,727 |
| 2038 | | 3,612,753 | 3,612,753 | 8,851,443 | 5,238,690 |
| 2039 | | 3,861,202 | 3,861,202 | 9,294,015 | 5,432,813 |
| 2040 | | 4,127,653 | 4,127,653 | 9,758,716 | 5,631,063 |
| 2041 | | 4,413,568 | 4,413,568 | 10,246,652 | 5,833,084 |
| 2042 | | 4,720,538 | 4,720,538 | 10,758,984 | 6,038,447 |
| 2043 | | 5,050,298 | 5,050,298 | 11,296,934 | 6,246,636 |
| 2044 | | 8,488,518 | 8,488,518 | 11,861,780 | 3,373,263 |
| | | | | **FIRR** | **5.38%** |

## TABLE 43 PROJECT Financial Internal Rate of Return

**No. 15 R-7 Expressway**

**(in '000 PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 502,095 | | 502,095 | | -502,095 |
| 2012 | 5,721,466 | | 5,721,466 | | -5,721,466 |
| 2013 | 11,698,957 | | 11,698,957 | | -11,698,957 |
| 2014 | 12,066,905 | | 12,066,905 | | -12,066,905 |
| 2015 | | 388,837 | 388,837 | 2,415,135 | 2,026,298 |
| 2016 | | 407,197 | 407,197 | 2,530,335 | 2,123,138 |
| 2017 | | 442,669 | 442,669 | 2,653,967 | 2,211,299 |
| 2018 | | 466,611 | 466,611 | 2,786,750 | 2,320,139 |
| 2019 | | 552,826 | 552,826 | 2,929,464 | 2,376,638 |
| 2020 | | 684,070 | 684,070 | 3,082,960 | 2,398,890 |
| 2021 | | 839,812 | 839,812 | 3,250,194 | 2,410,382 |
| 2022 | | 994,716 | 994,716 | 3,426,569 | 2,431,854 |
| 2023 | | 1,176,440 | 1,176,440 | 3,612,588 | 2,436,148 |
| 2024 | | 2,022,029 | 2,022,029 | 3,808,782 | 1,786,752 |
| 2025 | | 1,569,779 | 1,569,779 | 4,015,711 | 2,445,932 |
| 2026 | | 1,664,910 | 1,664,910 | 4,233,968 | 2,569,058 |
| 2027 | | 1,784,996 | 1,784,996 | 4,464,177 | 2,679,180 |
| 2028 | | 1,892,046 | 1,892,046 | 4,706,997 | 2,814,951 |
| 2029 | | 2,027,816 | 2,027,816 | 4,963,124 | 2,935,308 |
| 2030 | | 2,148,317 | 2,148,317 | 5,233,294 | 3,084,976 |
| 2031 | | 2,294,884 | 2,294,884 | 5,494,958 | 3,200,074 |
| 2032 | | 2,422,813 | 2,422,813 | 5,769,706 | 3,346,894 |
| 2033 | | 2,587,978 | 2,587,978 | 6,058,192 | 3,470,214 |
| 2034 | | 3,922,132 | 3,922,132 | 6,361,101 | 2,438,970 |
| 2035 | | 2,917,564 | 2,917,564 | 6,679,156 | 3,761,592 |
| 2036 | | 3,078,296 | 3,078,296 | 7,013,114 | 3,934,818 |
| 2037 | | 3,288,383 | 3,288,383 | 7,363,770 | 4,075,387 |
| 2038 | | 3,468,678 | 3,468,678 | 7,731,958 | 4,263,280 |
| 2039 | | 3,705,816 | 3,705,816 | 8,118,556 | 4,412,741 |
| 2040 | | 3,960,260 | 3,960,260 | 8,524,484 | 4,564,224 |
| 2041 | | 4,233,418 | 4,233,418 | 8,950,708 | 4,717,290 |
| 2042 | | 4,526,817 | 4,526,817 | 9,398,244 | 4,871,426 |
| 2043 | | 4,842,124 | 4,842,124 | 9,868,156 | 5,026,032 |
| 2044 | | 7,314,795 | 7,314,795 | 10,361,564 | 3,046,768 |
| | | | | **FIRR** | **7.47%** |

## TABLE 44 PROJECT Financial Internal Rate of Return

### No. 16 Manila-Bataan Coastal Road

**(in'000 PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 1,277,400 | | 1,277,400 | | -1,277,400 |
| 2012 | 18,860,021 | | 18,860,021 | | -18,860,021 |
| 2013 | 39,459,206 | | 39,459,206 | | -39,459,206 |
| 2014 | 41,050,540 | | 41,050,540 | | -41,050,540 |
| 2015 | | 1,612,094 | 1,612,094 | 1,641,355 | 29,262 |
| 2016 | | 1,688,962 | 1,688,962 | 1,856,795 | 167,833 |
| 2017 | | 1,837,470 | 1,837,470 | 2,101,938 | 264,468 |
| 2018 | | 1,937,709 | 1,937,709 | 2,381,055 | 443,347 |
| 2019 | | 2,109,222 | 2,109,222 | 2,699,048 | 589,826 |
| 2020 | | 2,224,827 | 2,224,827 | 3,061,549 | 836,721 |
| 2021 | | 2,422,911 | 2,422,911 | 3,272,164 | 849,253 |
| 2022 | | 2,556,242 | 2,556,242 | 3,497,380 | 941,138 |
| 2023 | | 2,785,017 | 2,785,017 | 3,738,217 | 953,199 |
| 2024 | | 8,740,256 | 8,740,256 | 3,995,766 | -4,744,490 |
| 2025 | | 3,203,020 | 3,203,020 | 4,271,196 | 1,068,176 |
| 2026 | | 3,380,384 | 3,380,384 | 4,565,759 | 1,185,375 |
| 2027 | | 3,685,558 | 3,685,558 | 4,880,793 | 1,195,235 |
| 2028 | | 3,890,128 | 3,890,128 | 5,217,732 | 1,327,604 |
| 2029 | | 4,242,602 | 4,242,602 | 5,578,112 | 1,335,509 |
| 2030 | | 4,478,559 | 4,478,559 | 5,963,575 | 1,485,016 |
| 2031 | | 4,885,671 | 4,885,671 | 6,265,552 | 1,379,881 |
| 2032 | | 5,157,833 | 5,157,833 | 6,582,820 | 1,424,987 |
| 2033 | | 5,628,060 | 5,628,060 | 6,916,153 | 1,288,093 |
| 2034 | | 16,336,956 | 16,336,956 | 7,266,365 | -9,070,591 |
| 2035 | | 6,485,125 | 6,485,125 | 7,634,311 | 1,149,187 |
| 2036 | | 6,847,241 | 6,847,241 | 8,020,889 | 1,173,648 |
| 2037 | | 7,474,597 | 7,474,597 | 8,427,042 | 952,444 |
| 2038 | | 7,892,304 | 7,892,304 | 8,853,761 | 961,457 |
| 2039 | | 8,616,953 | 8,616,953 | 9,302,087 | 685,135 |
| 2040 | | 9,410,436 | 9,410,436 | 9,773,116 | 362,680 |
| 2041 | | 10,279,423 | 10,279,423 | 10,267,996 | -11,427 |
| 2042 | | 11,231,238 | 11,231,238 | 10,787,935 | -443,303 |
| 2043 | | 12,273,928 | 12,273,928 | 11,334,202 | -939,726 |
| 2044 | | 32,041,868 | 32,041,868 | 11,908,131 | -20,133,737 |
| | | | | **FIRR** | **Negative** |

## TABLE 45 PROJECT Financial Internal Rate of Return

**No. 17 North Luzon Expressway (Phase-3)**

**(in '000 PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 1,192,425 | | 1,192,425 | | -1,192,425 |
| 2012 | 6,146,491 | | 6,146,491 | | -6,146,491 |
| 2013 | 12,660,083 | | 12,660,083 | | -12,660,083 |
| 2014 | 12,948,731 | | 12,948,731 | | -12,948,731 |
| 2015 | | 707,113 | 707,113 | 767,963 | 60,850 |
| 2016 | | 741,277 | 741,277 | 840,842 | 99,565 |
| 2017 | | 807,625 | 807,625 | 920,885 | 113,259 |
| 2018 | | 851,950 | 851,950 | 1,008,816 | 156,866 |
| 2019 | | 928,584 | 928,584 | 1,105,437 | 176,853 |
| 2020 | | 979,712 | 979,712 | 1,211,636 | 231,924 |
| 2021 | | 1,068,229 | 1,068,229 | 1,306,707 | 238,478 |
| 2022 | | 1,127,204 | 1,127,204 | 1,409,293 | 282,088 |
| 2023 | | 1,229,449 | 1,229,449 | 1,519,992 | 290,543 |
| 2024 | | 6,115,682 | 6,115,682 | 1,639,450 | -4,476,232 |
| 2025 | | 1,415,580 | 1,415,580 | 1,768,366 | 352,786 |
| 2026 | | 1,494,056 | 1,494,056 | 1,907,494 | 413,439 |
| 2027 | | 1,630,476 | 1,630,476 | 2,057,649 | 427,173 |
| 2028 | | 1,721,003 | 1,721,003 | 2,219,711 | 498,707 |
| 2029 | | 1,878,586 | 1,878,586 | 2,394,630 | 516,044 |
| 2030 | | 1,983,018 | 1,983,018 | 2,583,436 | 600,417 |
| 2031 | | 2,165,050 | 2,165,050 | 2,714,253 | 549,203 |
| 2032 | | 2,285,524 | 2,285,524 | 2,851,694 | 566,170 |
| 2033 | | 2,495,800 | 2,495,800 | 2,996,095 | 500,295 |
| 2034 | | 11,267,966 | 11,267,966 | 3,147,808 | -8,120,158 |
| 2035 | | 2,877,691 | 2,877,691 | 3,307,203 | 429,512 |
| 2036 | | 3,038,032 | 3,038,032 | 3,474,669 | 436,637 |
| 2037 | | 3,318,638 | 3,318,638 | 3,650,616 | 331,978 |
| 2038 | | 3,503,621 | 3,503,621 | 3,835,471 | 331,850 |
| 2039 | | 3,827,780 | 3,827,780 | 4,029,688 | 201,907 |
| 2040 | | 4,182,857 | 4,182,857 | 4,233,738 | 50,881 |
| 2041 | | 4,571,856 | 4,571,856 | 4,448,122 | -123,735 |
| 2042 | | 4,998,080 | 4,998,080 | 4,673,360 | -324,719 |
| 2043 | | 5,465,155 | 5,465,155 | 4,910,005 | -555,150 |
| 2044 | | 21,445,864 | 21,445,864 | 5,158,632 | -16,287,232 |
| | | | | **FIRR** | **Negative** |

## TABLE 46 PROJECT Financial Internal Rate of Return

### No. 18 East-West Connection Expressway

**(in '000 PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 388,517 | | 388,517 | | -388,517 |
| 2012 | 2,041,830 | | 2,041,830 | | -2,041,830 |
| 2013 | 4,220,898 | | 4,220,898 | | -4,220,898 |
| 2014 | 4,218,967 | | 4,218,967 | | -4,218,967 |
| 2015 | | 463,141 | 463,141 | 122,668 | -340,473 |
| 2016 | | 485,910 | 485,910 | 157,775 | -328,135 |
| 2017 | | 529,900 | 529,900 | 202,963 | -326,936 |
| 2018 | | 559,591 | 559,591 | 261,137 | -298,455 |
| 2019 | | 610,395 | 610,395 | 336,038 | -274,357 |
| 2020 | | 644,639 | 644,639 | 432,494 | -212,145 |
| 2021 | | 703,313 | 703,313 | 481,667 | -221,646 |
| 2022 | | 742,807 | 742,807 | 536,621 | -206,186 |
| 2023 | | 810,572 | 810,572 | 598,057 | -212,515 |
| 2024 | | 2,425,994 | 2,425,994 | 666,766 | -1,759,227 |
| 2025 | | 934,388 | 934,388 | 743,638 | -190,750 |
| 2026 | | 986,925 | 986,925 | 829,676 | -157,249 |
| 2027 | | 1,077,320 | 1,077,320 | 926,006 | -151,314 |
| 2028 | | 1,137,916 | 1,137,916 | 1,033,903 | -104,013 |
| 2029 | | 1,242,322 | 1,242,322 | 1,154,798 | -87,523 |
| 2030 | | 1,312,214 | 1,312,214 | 1,290,310 | -21,904 |
| 2031 | | 1,432,804 | 1,432,804 | 1,355,647 | -77,157 |
| 2032 | | 1,513,421 | 1,513,421 | 1,424,293 | -89,128 |
| 2033 | | 1,652,707 | 1,652,707 | 1,496,415 | -156,292 |
| 2034 | | 4,558,566 | 4,558,566 | 1,572,188 | -2,986,378 |
| 2035 | | 1,906,577 | 1,906,577 | 1,651,799 | -254,778 |
| 2036 | | 2,013,839 | 2,013,839 | 1,735,441 | -278,398 |
| 2037 | | 2,199,668 | 2,199,668 | 1,823,318 | -376,349 |
| 2038 | | 2,323,396 | 2,323,396 | 1,915,645 | -407,751 |
| 2039 | | 2,538,044 | 2,538,044 | 2,012,648 | -525,396 |
| 2040 | | 2,773,080 | 2,773,080 | 2,114,562 | -658,519 |
| 2041 | | 3,030,482 | 3,030,482 | 2,221,637 | -808,845 |
| 2042 | | 3,312,418 | 3,312,418 | 2,334,133 | -978,285 |
| 2043 | | 3,621,272 | 3,621,272 | 2,452,326 | -1,168,946 |
| 2044 | | 8,999,720 | 8,999,720 | 2,576,505 | -6,423,216 |
| | | | | **FIRR** | **Negative** |

## ANNEX 15-3

## TABLE 47 Financial Internal Rate of Return UNDER PPP

**No. 1 NLEx-SLEx Link**

**(in '000 PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 0 | | 0 | | 0 |
| 2012 | 2,981,170 | | 2,981,170 | | -2,981,170 |
| 2013 | 6,507,857 | | 6,507,857 | | -6,507,857 |
| 2014 | 7,080,650 | | 7,080,650 | | -7,080,650 |
| 2015 | | 305,022 | 305,022 | 2,527,245 | 2,222,223 |
| 2016 | | 318,959 | 318,959 | 2,662,352 | 2,343,392 |
| 2017 | | 347,115 | 347,115 | 2,813,826 | 2,466,711 |
| 2018 | | 364,473 | 364,473 | 2,983,307 | 2,618,834 |
| 2019 | | 401,875 | 401,875 | 3,172,606 | 2,770,732 |
| 2020 | | 568,482 | 568,482 | 3,383,720 | 2,815,239 |
| 2021 | | 762,325 | 762,325 | 3,615,889 | 2,853,564 |
| 2022 | | 960,856 | 960,856 | 3,864,109 | 2,903,253 |
| 2023 | | 1,189,056 | 1,189,056 | 4,129,500 | 2,940,444 |
| 2024 | | 2,207,220 | 2,207,220 | 4,413,258 | 2,206,039 |
| 2025 | | 1,691,962 | 1,691,962 | 4,716,667 | 3,024,705 |
| 2026 | | 1,816,781 | 1,816,781 | 5,041,097 | 3,224,316 |
| 2027 | | 1,967,334 | 1,967,334 | 5,388,017 | 3,420,682 |
| 2028 | | 2,110,305 | 2,110,305 | 5,758,999 | 3,648,694 |
| 2029 | | 2,282,969 | 2,282,969 | 6,155,725 | 3,872,756 |
| 2030 | | 2,446,753 | 2,446,753 | 6,579,999 | 4,133,246 |
| 2031 | | 2,604,882 | 2,604,882 | 6,908,999 | 4,304,117 |
| 2032 | | 2,747,785 | 2,747,785 | 7,254,449 | 4,506,664 |
| 2033 | | 2,924,957 | 2,924,957 | 7,617,171 | 4,692,214 |
| 2034 | | 4,489,175 | 4,489,175 | 7,998,030 | 3,508,855 |
| 2035 | | 3,282,819 | 3,282,819 | 8,397,931 | 5,115,112 |
| 2036 | | 3,460,357 | 3,460,357 | 8,817,828 | 5,357,470 |
| 2037 | | 3,683,118 | 3,683,118 | 9,258,719 | 5,575,601 |
| 2038 | | 3,881,123 | 3,881,123 | 9,721,655 | 5,840,532 |
| 2039 | | 4,131,101 | 4,131,101 | 10,207,738 | 6,076,637 |
| 2040 | | 4,398,132 | 4,398,132 | 10,718,124 | 6,319,992 |
| 2041 | | 4,683,529 | 4,683,529 | 11,254,031 | 6,570,502 |
| 2042 | | 4,988,713 | 4,988,713 | 11,816,732 | 6,828,019 |
| 2043 | | 5,315,231 | 5,315,231 | 12,407,569 | 7,092,338 |
| 2044 | | 8,182,159 | 8,182,159 | 13,027,947 | 4,845,788 |
| | | | | **FIRR** | **15.41%** |

## TABLE 48 Financial Internal Rate of Return UNDER PPP

### No. 2 NAIA Expressway

**(in Million PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 0 | | 0 | | 0 |
| 2012 | 1,591 | | 1,591 | | -1,591 |
| 2013 | 3,472 | | 3,472 | | -3,472 |
| 2014 | 3,778 | | 3,778 | | -3,778 |
| 2015 | | 116 | 116 | 889 | 773 |
| 2016 | | 121 | 121 | 960 | 839 |
| 2017 | | 132 | 132 | 1,039 | 908 |
| 2018 | | 138 | 138 | 1,128 | 990 |
| 2019 | | 158 | 158 | 1,229 | 1,071 |
| 2020 | | 228 | 228 | 1,342 | 1,114 |
| 2021 | | 309 | 309 | 1,465 | 1,156 |
| 2022 | | 392 | 392 | 1,599 | 1,207 |
| 2023 | | 489 | 489 | 1,746 | 1,258 |
| 2024 | | 895 | 895 | 1,907 | 1,012 |
| 2025 | | 704 | 704 | 2,084 | 1,380 |
| 2026 | | 771 | 771 | 2,278 | 1,507 |
| 2027 | | 850 | 850 | 2,491 | 1,641 |
| 2028 | | 930 | 930 | 2,724 | 1,794 |
| 2029 | | 1,024 | 1,024 | 2,980 | 1,956 |
| 2030 | | 1,120 | 1,120 | 3,261 | 2,142 |
| 2031 | | 1,189 | 1,189 | 3,424 | 2,235 |
| 2032 | | 1,253 | 1,253 | 3,595 | 2,342 |
| 2033 | | 1,331 | 1,331 | 3,775 | 2,444 |
| 2034 | | 1,951 | 1,951 | 3,964 | 2,013 |
| 2035 | | 1,489 | 1,489 | 4,162 | 2,673 |
| 2036 | | 1,569 | 1,569 | 4,370 | 2,802 |
| 2037 | | 1,666 | 1,666 | 4,589 | 2,923 |
| 2038 | | 1,754 | 1,754 | 4,818 | 3,064 |
| 2039 | | 1,864 | 1,864 | 5,059 | 3,195 |
| 2040 | | 1,980 | 1,980 | 5,312 | 3,332 |
| 2041 | | 2,104 | 2,104 | 5,578 | 3,473 |
| 2042 | | 2,237 | 2,237 | 5,856 | 3,620 |
| 2043 | | 2,378 | 2,378 | 6,149 | 3,771 |
| 2044 | | 3,514 | 3,514 | 6,457 | 2,943 |
| | | | | **FIRR** | **13.01%** |

## TABLE 49 PROJECT Financial Internal Rate of Return

**No. 6 CALA Expressway**

**(in Million PHP)**

| Year | Costs | | | Revenues | Net Revenues |
|---|---|---|---|---|---|
| | Capital | O&M & others | Total | | |
| 2011 | 0 | | 0 | | 0 |
| 2012 | 2,068 | | 2,068 | | -2,068 |
| 2013 | 4,343 | | 4,343 | | -4,343 |
| 2014 | 4,561 | | 4,561 | | -4,561 |
| 2015 | | 627 | 627 | 2,966 | 2,339 |
| 2016 | | 767 | 767 | 3,264 | 2,496 |
| 2017 | | 937 | 937 | 3,593 | 2,656 |
| 2018 | | 1,110 | 1,110 | 3,956 | 2,846 |
| 2019 | | 1,314 | 1,314 | 4,358 | 3,044 |
| 2020 | | 1,523 | 1,523 | 4,802 | 3,279 |
| 2021 | | 1,723 | 1,723 | 5,140 | 3,417 |
| 2022 | | 1,923 | 1,923 | 5,502 | 3,580 |
| 2023 | | 2,156 | 2,156 | 5,890 | 3,734 |
| 2024 | | 4,580 | 4,580 | 6,305 | 1,726 |
| 2025 | | 2,660 | 2,660 | 6,749 | 4,090 |
| 2026 | | 2,846 | 2,846 | 7,225 | 4,379 |
| 2027 | | 3,070 | 3,070 | 7,734 | 4,664 |
| 2028 | | 3,284 | 3,284 | 8,279 | 4,995 |
| 2029 | | 3,541 | 3,541 | 8,863 | 5,322 |
| 2030 | | 3,786 | 3,786 | 9,487 | 5,701 |
| 2031 | | 4,025 | 4,025 | 9,968 | 5,943 |
| 2032 | | 4,243 | 4,243 | 10,472 | 6,229 |
| 2033 | | 4,511 | 4,511 | 11,003 | 6,491 |
| 2034 | | 8,682 | 8,682 | 11,560 | 2,878 |
| 2035 | | 5,057 | 5,057 | 12,145 | 7,088 |
| 2036 | | 5,331 | 5,331 | 12,760 | 7,429 |
| 2037 | | 5,669 | 5,669 | 13,406 | 7,737 |
| 2038 | | 5,976 | 5,976 | 14,085 | 8,109 |
| 2039 | | 6,357 | 6,357 | 14,798 | 8,441 |
| 2040 | | 6,765 | 6,765 | 15,548 | 8,783 |
| 2041 | | 7,201 | 7,201 | 16,335 | 9,134 |
| 2042 | | 7,667 | 7,667 | 17,162 | 9,495 |
| 2043 | | 8,167 | 8,167 | 18,031 | 9,864 |
| 2044 | | 15,736 | 15,736 | 18,944 | 3,208 |
| | | | | **FIRR** | **23.37%** |

# ANNEX 15-4

## TABLE 50 CASH FLOW STATEMENT

Projected Cashflow Statements
NLEX-SLEX Link
In Pmillion

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cash Inflows | | | | | | | | | | | | | | | | | |
| Equity | | | | | | | | | | | | | | | | | |
| PPP | 0 | 894 | 1,952 | 2,124 | | | | | | | | | | | | | |
| Loan Proceeds | 0 | 2,087 | 4,555 | 4,956 | | | | | | | | | | | | | |
| Domestic Loan | 0 | 2,087 | 4,555 | 4,956 | | | | | | | | | | | | | |
| GOP Funds | 414 | 4,570 | 10,054 | 9,918 | | | | | | | | | | | | | |
| Revenues from Toll Fees | | | 0 | 0 | 2,527 | 2,662 | 2,814 | 2,983 | 3,173 | 3,384 | 3,616 | 3,864 | 4,129 | 4,413 | 4,717 | 5,041 | 5,388 |
| Total Cash Inflows | 414 | 7,551 | 16,561 | 16,998 | 2,527 | 2,662 | 2,814 | 2,983 | 3,173 | 3,384 | 3,616 | 3,864 | 4,129 | 4,413 | 4,717 | 5,041 | 5,388 |
| Cash Outflows | | | | | | | | | | | | | | | | | |
| Capital Costs | 414 | 7,551 | 16,561 | 16,998 | 0 | 0 | | | | | | 0 | 0 | 0 | | | |
| O & M | | | | | 279 | 293 | 321 | 338 | 371 | 391 | 428 | 452 | 495 | 1,675 | 572 | 603 | 661 |
| Insurance | | | | | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| Loan Amortizations | | | | | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | | | |
| Domestic Loan | | | | | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | 2,223 | | | |
| Interest | | | | | 1,366 | 1,280 | 1,186 | 1,082 | 968 | 843 | 705 | 553 | 386 | 202 | | | |
| Principal Repayment | | | | | 857 | 943 | 1,037 | 1,141 | 1,255 | 1,381 | 1,519 | 1,670 | 1,838 | 2,021 | | | |
| Corporate Taxes | | | | | 50 | 116 | 185 | 267 | 354 | 455 | 562 | 682 | 807 | 579 | 1,094 | 1,188 | 1,280 |
| Total Cash Outflows | 414 | 7,551 | 16,561 | 16,998 | 2,578 | 2,658 | 2,756 | 2,855 | 2,974 | 3,096 | 3,240 | 3,384 | 3,552 | 4,504 | 1,692 | 1,817 | 1,967 |
| Net Cash Flow | 0 | 0 | 0 | 0 | -51 | 4 | 58 | 128 | 198 | 288 | 376 | 480 | 578 | -90 | 3,025 | 3,224 | 3,421 |
| Cumulative Cashflow | | 0 | 0 | 0 | -51 | -47 | 11 | 139 | 337 | 625 | 1,001 | 1,482 | 2,059 | 1,969 | 4,994 | 8,218 | 11,639 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| DSCR | **0.98** | **1.00** | **1.03** | **1.06** | **1.09** | **1.13** | **1.17** | **1.22** | **1.26** | **0.96** |

(Debt Service Coverage Ratio)

Min. DSCR **0.96**

Ave. DSCR **1.09**

| | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cash Inflows | | | | | | | | | | | | | | | | | |
| Equity | | | | | | | | | | | | | | | | | |
| PPP | | | | | | | | | | | | | | | | | |
| Loan Proceeds | | | | | | | | | | | | | | | | | |
| Domestic Loan | | | | | | | | | | | | | | | | | |
| GOP Funds | | | | | | | | | | | | | | | | | |
| Revenues from Toll Fees | 5,759 | 6,156 | 6,580 | 6,909 | 7,254 | 7,617 | 7,998 | 8,398 | 8,818 | 9,259 | 9,722 | 10,208 | 10,718 | 11,254 | 11,817 | 12,408 | 13,028 |
| Total Cash Inflows | 5,759 | 6,156 | 6,580 | 6,909 | 7,254 | 7,617 | 7,998 | 8,398 | 8,818 | 9,259 | 9,722 | 10,208 | 10,718 | 11,254 | 11,817 | 12,408 | 13,028 |
| Cash Outflows | | | | | | | | | | | | | | | | | |
| Capital Costs | | | | | | | | | | | | | | | | | |
| O & M | 697 | 764 | 805 | 883 | 931 | 1,020 | 3,141 | 1,179 | 1,243 | 1,363 | 1,436 | 1,575 | 1,728 | 1,895 | 2,079 | 2,281 | 6,205 |
| Insurance | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| Loan Amortizations | | | | | | | | | | | | | | | | | |
| Domestic Loan | | | | | | | | | | | | | | | | | |
| Interest | | | | | | | | | | | | | | | | | |
| Principal Repayment | | | | | | | | | | | | | | | | | |
| Corporate Taxes | 1,387 | 1,493 | 1,615 | 1,696 | 1,791 | 1,878 | 1,321 | 2,077 | 2,191 | 2,294 | 2,419 | 2,530 | 2,644 | 2,762 | 2,883 | 3,008 | 1,951 |
| Total Cash Outflows | 2,110 | 2,283 | 2,447 | 2,605 | 2,748 | 2,925 | 4,489 | 3,283 | 3,460 | 3,683 | 3,881 | 4,131 | 4,398 | 4,684 | 4,989 | 5,315 | 8,182 |
| Net Cash Flow | 3,649 | 3,873 | 4,133 | 4,304 | 4,507 | 4,692 | 3,509 | 5,115 | 5,357 | 5,576 | 5,841 | 6,077 | 6,320 | 6,571 | 6,828 | 7,092 | 4,846 |
| Cumulative Cashflow | 15,288 | 19,160 | 23,294 | 27,598 | 32,104 | 36,797 | 40,305 | 45,421 | 50,778 | 56,354 | 62,194 | 68,271 | 74,591 | 81,161 | 87,989 | 95,082 | 99,927 |

# TABLE 51 CASH FLOW STATEMENT

Projected Cashflow Statements
NAIA Expressway 2
In Pmillion

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cash Inflows | | | | | | | | | | | | | | | |
| Equity | | | | | | | | | | | | | | | |
| PPP | 0 | 477 | 1,042 | 1,133 | | | | | | | | | | | |
| Loan Proceeds | 0 | 1,113 | 2,431 | 2,645 | | | | | | | | | | | |
| Domestic Loan | 0 | 1,113 | 2,431 | 2,645 | | | | | | | | | | | |
| GOP Funds | 157 | 1,394 | 3,116 | 2,677 | | | | | | | | | | | |
| Revenues from Toll Fees | | | 0 | 0 | 889 | 960 | 1,039 | 1,128 | 1,229 | 1,342 | 1,465 | 1,599 | 1,746 | 1,907 | 2,084 |
| | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Cash Inflows | 157 | 2,984 | 6,588 | 6,454 | 889 | 960 | 1,039 | 1,128 | 1,229 | 1,342 | 1,465 | 1,599 | 1,746 | 1,907 | 2,084 |
| Cash Outflows | | | | | | | | | | | | | | | |
| Capital Costs | 157 | 2,984 | 6,588 | 6,454 | 0 | | | | | | | | | | |
| O & M | | | | | 106 | 111 | 122 | 128 | 141 | 148 | 163 | 171 | 188 | 636 | 217 |
| Insurance | | | | | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Loan Amortizations | | | | | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 0 |
| Domestic Loan | | | | | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 1,186 | 0 |
| Interest | | | | | 729 | 683 | 633 | 578 | 517 | 450 | 376 | 295 | 206 | 108 | 0 |
| Principal Repayment | | | | | 457 | 503 | 553 | 609 | 670 | 737 | 810 | 891 | 980 | 1,078 | 0 |
| Corporate Taxes | | | | | 0 | 0 | 3 | 44 | 89 | 140 | 195 | 257 | 323 | 266 | 477 |
| Total Cash Outflows | 157 | 2,984 | 6,588 | 6,454 | 1,302 | 1,307 | 1,321 | 1,369 | 1,426 | 1,485 | 1,554 | 1,625 | 1,707 | 2,099 | 704 |
| Net Cash Flow | 0 | 0 | 0 | 0 | -413 | -347 | -281 | -240 | -197 | -143 | -89 | -26 | 39 | -191 | 1,380 |
| Cumulative Cashflow | 0 | 0 | 0 | 0 | -413 | -760 | -1,042 | -1,282 | -1,479 | -1,622 | -1,711 | -1,737 | -1,698 | -1,889 | -509 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| DSCR | **0.65** | **0.71** | **0.76** | **0.80** | **0.83** | **0.88** | **0.92** | **0.98** | **1.03** | **0.84** |

(Debt Service Coverage Ratio)

Min. DSCR **0.65**

Ave. DSCR **0.84**

| | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cash Inflows | | | | | | | | | | | | | | | |
| Equity | | | | | | | | | | | | | | | |
| PPP | | | | | | | | | | | | | | | |
| Loan Proceeds | | | | | | | | | | | | | | | |
| Domestic Loan | | | | | | | | | | | | | | | |
| GOP Funds | | | | | | | | | | | | | | | |
| Revenues from Toll Fees | 2,724 | 2,980 | 3,261 | 3,424 | 3,595 | 3,775 | 3,964 | 4,162 | 4,370 | 4,589 | 4,818 | 5,059 | 5,312 | 5,578 | 5,856 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Cash Inflows | 2,724 | 2,980 | 3,261 | 3,424 | 3,595 | 3,775 | 3,964 | 4,162 | 4,370 | 4,589 | 4,818 | 5,059 | 5,312 | 5,578 | 5,856 |
| Cash Outflows | | | | | | | | | | | | | | | |
| Capital Costs | | | | | | | | | | | | | | | |
| O & M | 265 | 290 | 306 | 335 | 353 | 387 | 1,193 | 448 | 472 | 518 | 545 | 598 | 656 | 720 | 789 |
| Insurance | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Loan Amortizations | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Domestic Loan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Interest | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Principal Repaymen | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Corporate Taxes | 655 | 724 | 804 | 844 | 890 | 933 | 748 | 1,031 | 1,087 | 1,139 | 1,199 | 1,255 | 1,314 | 1,375 | 1,437 |
| Total Cash Outflows | 930 | 1,024 | 1,120 | 1,189 | 1,253 | 1,331 | 1,951 | 1,489 | 1,569 | 1,666 | 1,754 | 1,864 | 1,980 | 2,104 | 2,237 |
| Net Cash Flow | 1,794 | 1,956 | 2,142 | 2,235 | 2,342 | 2,444 | 2,013 | 2,673 | 2,802 | 2,923 | 3,064 | 3,195 | 3,332 | 3,473 | 3,620 |
| Cumulative Cashflow | 4,433 | 6,389 | 8,530 | 10,765 | 13,108 | 15,552 | 17,564 | 20,237 | 23,039 | 25,962 | 29,025 | 32,221 | 35,553 | 39,026 | 42,646 |

# TABLE 52 CASH FLOW STATEMENT

Projected Cashflow Statements
CALA EXPRESSWAY
In Pmillion

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cash Inflows | | | | | | | | | | | | | | | |
| Equity | | | | | | | | | | | | | | | |
| PPP | 0 | 620 | 1,303 | 1,368 | | | | | | | | | | | |
| Loan Proceeds | 0 | 1,448 | 3,040 | 3,192 | | | | | | | | | | | |
| Domestic Loan | 0 | 1,448 | 3,040 | 3,192 | | | | | | | | | | | |
| GOP Funds | 775 | 2,329 | 4,872 | 3,852 | | | | | | | | | | | |
| Revenues from Toll Fees | | | 0 | 0 | 2,966 | 3,264 | 3,593 | 3,956 | 4,358 | 4,802 | 5,140 | 5,502 | 5,890 | 6,305 | 6,749 |
| | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Cash Inflows | 775 | 4,397 | 9,215 | 8,413 | 2,966 | 3,264 | 3,593 | 3,956 | 4,358 | 4,802 | 5,140 | 5,502 | 5,890 | 6,305 | 6,749 |
| Cash Outflows | | | | | | | | | | | | | | | |
| Capital Costs | 775 | 4,397 | 9,215 | 8,413 | 0 | 0 | | | | | | | | | |
| O & M | | | | | 528 | 555 | 604 | 640 | 697 | 738 | 804 | 851 | 927 | 4,111 | 1,069 |
| Insurance | | | | | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Loan Amortizations | | 0 | 0 | 0 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | |
| Domestic Loan | | 0 | 0 | 0 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | 1,475 | |
| Interest | | | | | 907 | 850 | 787 | 718 | 643 | 559 | 468 | 367 | 256 | 134 | |
| Principal Repayment | | | | | 569 | 626 | 688 | 757 | 833 | 916 | 1,008 | 1,108 | 1,219 | 1,341 | |
| Corporate Taxes | | | 0 | 0 | 331 | 429 | 532 | 651 | 777 | 923 | 1,032 | 1,157 | 1,284 | 489 | 1,576 |
| Total Cash Outflows | 775 | 4,397 | 9,215 | 8,413 | 2,350 | 2,475 | 2,627 | 2,782 | 2,965 | 3,152 | 3,327 | 3,499 | 3,701 | 6,092 | 2,660 |
| Net Cash Flow | 0 | 0 | 0 | 0 | 616 | 789 | 966 | 1,175 | 1,393 | 1,650 | 1,814 | 2,004 | 2,189 | 214 | 4,090 |
| Cumulative Cashflow | 0 | 0 | 0 | 0 | 616 | 1,405 | 2,371 | 3,545 | 4,938 | 6,589 | 8,402 | 10,406 | 12,595 | 12,809 | 16,898 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DSCR | | | | | **1.42** | **1.53** | **1.65** | **1.80** | **1.94** | **2.12** | **2.23** | **2.36** | **2.48** | **1.14** | |
| (Debt Service Coverage Ratio) | | | | | | | | | | | | | | | |
| Min. DSCR | | | | | | **1.14** | | | | | | | | | |
| Ave. DSCR | | | | | | **1.87** | | | | | | | | | |

| | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cash Inflows | | | | | | | | | | | | | | | |
| Equity | | | | | | | | | | | | | | | |
| PPP | | | | | | | | | | | | | | | |
| Loan Proceeds | | | | | | | | | | | | | | | |
| Domestic Loan | | | | | | | | | | | | | | | |
| GOP Funds | | | | | | | | | | | | | | | |
| Revenues from Toll Fees | 8,279 | 8,863 | 9,487 | 9,968 | 10,472 | 11,003 | 11,560 | 12,145 | 12,760 | 13,406 | 14,085 | 14,798 | 15,548 | 16,335 | 17,162 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Cash Inflows | 8,279 | 8,863 | 9,487 | 9,968 | 10,472 | 11,003 | 11,560 | 12,145 | 12,760 | 13,406 | 14,085 | 14,798 | 15,548 | 16,335 | 17,162 |
| Cash Outflows | | | | | | | | | | | | | | | |
| Capital Costs | | | | | | | | | | | | | | | |
| O & M | 1,305 | 1,421 | 1,505 | 1,639 | 1,735 | 1,891 | 7,610 | 2,181 | 2,308 | 2,515 | 2,662 | 2,901 | 3,162 | 3,448 | 3,760 |
| Insurance | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Loan Amortizations | | | | | | | | | | | | | | | |
| Domestic Loan | | | | | | | | | | | | | | | |
| Interest | | | | | | | | | | | | | | | |
| Principal Repayment | | | | | | | | | | | | | | | |
| Corporate Taxes | 1,964 | 2,104 | 2,266 | 2,370 | 2,493 | 2,605 | 1,056 | 2,861 | 3,007 | 3,139 | 3,298 | 3,441 | 3,587 | 3,738 | 3,892 |
| Total Cash Outflows | 3,284 | 3,541 | 3,786 | 4,025 | 4,243 | 4,511 | 8,682 | 5,057 | 5,331 | 5,669 | 5,976 | 6,357 | 6,765 | 7,201 | 7,667 |
| Net Cash Flow | 4,995 | 5,322 | 5,701 | 5,943 | 6,229 | 6,491 | 2,878 | 7,088 | 7,429 | 7,737 | 8,109 | 8,441 | 8,783 | 9,134 | 9,495 |
| Cumulative Cashflow | 30,936 | 36,258 | 41,959 | 47,902 | 54,131 | 60,622 | 63,500 | 70,588 | 78,017 | 85,754 | 93,863 | 102,304 | 111,087 | 120,221 | 129,716 |

# ANNEX 18

**ANNEX 18-1**

## High Standard Roads: Summary of Interviews with BOT Firms

| | STAR Infrastructure Development Corporation (SIDC) | South Luzon Tollways Corporation (SLTC) | Citra Metro Manila Tollways Corporation (CMMTC) |
|---|---|---|---|
| **Officials Interviewed** | Mark Dumol, Chairman, 09 June 2009 | Isaac David, President, 10 June 2009 | Dodik Utomo, Deputy CEO, and , Lito Erfe, VP, 10 June 2009 |
| **Tollway** | Southern Tagalog Arterial Road (STAR) | South Luzon Expressway (SLEX) | Metro Manila Skyway |
| **PPP Arrangement/Modality** | BTO after DPWH bidding under BOT Law, with GOP-ODA funding for Phase 1 | PNCC-MTD joint venture under PNCC charter thru TRB | PNCC-Citra joint venture under PNCC charter thru TRB |
| **On-going and Proposed Projects** | Widening of Lipa-Batangas from 2 to 4 lanes is required per TCA once the road reaches its capacity.<br>SIDC wants to widen soonest to reduce safety risks due to overtaking, and to in-crease speeds, esp. with queues caused by slow-moving trucks. For this, SIDC asks that tariffs be adjusted earlier than scheduled. Construction will take 18-24 months. | TR 2: Alabang-Calamba – widening from 4 to 6/8 lanes; main line to be completed by June 2009, exits by Sep 09.<br>TR 3: Calamba-Sto. Tomas –const of 7.5 km to link with STAR; ROW delayed and completed in Oct 08; bridges, earthworks and base course to be completed by end-2009, and entire project by March 2010.<br>TR 4: Sto-Tomas-Lucena – const. of 54 km; work to start after finishing TR3; first 2 lanes to be completed in 30 months. SLTC can finance first 2 lanes, but would like govt to finance the additional 2 lanes. Light eng'g done. Prelim ROW alignment defined. | Stage 2: Bicutan-Alabang – NTP issued on 30 April 09, to be completed in 24 months (by April 2011).<br>Stage 3: Buendia to NLE – to be considered after Stage 2.<br>C-6 - No definite program. Originally this was only Citra's plan, but Citra had no concrete agreement with govt. |
| **Problems** | (a. Long delay in the financial closure and construction: Contract was awarded in 1998, but DBP loan was approved only in 2006, and 2 lanes from Lipa to Batangas City were completed only in 2008. Rea-sons cited for delay: (i) 1990s Asian financial crisis, (ii) failure of govt to have the Calamba-Sto. Tomas link built so that STAR traffic was much lower than expected, (iii) ROWA delay (6 months const area was insufficient), (iv) internal management restructuring, (v) delay in | (a. Earlier, IFC financing did not material-ize as it required financial closure, w/c local banks could not achieve since they required a clear franchise. PNCC franchise expired in May 2007.When a STOA was issued by TRB as an administrative franchise, this was opposed in a case still pending w/ SC. SLTC obtained a Phil-exim guarantee for proposed domestic loans but this was not acceptable to local banks.)<br>b. Per MTD, a Malaysian bank could extend a loan provided that SLTC takes over O&M | a. Delay in govt delivery of ROW for Stage 2, as DPWH has no GAA funding in 2009. Citra is asked to advance the cost of ROW.<br>b. Congress is posing questions on validity of PNCC franchise which has expired, and the grant of STOA for linkages to the original expressway lines.<br>c. Risks on schedules for financial closure and ROW. Awards cannot be made unless these are completed.<br>d. Banks usually require FS, approved toll |

| | STAR Infrastructure Development Corporation (SIDC) | South Luzon Tollways Corporation (SLTC) | Citra Metro Manila Tollways Corporation (CMMTC) |
|---|---|---|---|
| | ECC revalidation.)<br>b. Not too many potentially viable BOT projects in the pipeline – e.g., extension to Lucena has little traffic.<br>c. Lengthy process to package BOT projects.<br>d. Govt does not impose default for proponent's failure/delay in succeeding stages. | and assigns the toll collections to pay off the debt. But this could not be realized as PNCC refuses to hand over O&M incl. toll collections.<br>c. SLTC said its construction is delayed because PNCC has not given the contractors proper access to work areas. To address b and c above, on 09 June 09 PGMA directed DPWH to grant contractors access to the project and to chair a committee for the turnover of O&M to SLTC.<br>d. ROW cost increased 20 times in last 3 years because of delays in appraisal and acquisition.<br>e. LGUs, including barangays, are requiring various permits (e.g., business, construction, excavation, etc.) with fees. | rates, guarantee on tolls, letter of credit for revenue shortfalls. |
| **POLICY SUGGESTIONS** | | | |
| **Feasibility Studies** | Govt should conduct FS, giving more emphasis on financial – including GFS - and legal aspects, aside from engineering and economic feasibility. | Agrees that govt should undertake FS. | Agrees that govt should undertake FS. |
| **Detailed Engineering** | Ideally, govt. should conduct DE before bidding. At least, govt should do prel. eng'g and set bidding specs for the DE to be done as part of BOT proposal. | While it is optional for DPWH to do DE, this is desirable to enable early ROW acquisition. | DE can be done by BOT proponent based on design specs and parameters set by govt. as part of the bidding documents. |
| **Right-of-Way** | Agrees that FS should define alignment, govt should fix this line and freeze development therein, and based on this, start ROW acquisition which must be completed before bidding. | a.Agrees that FS should define the alignment, govt should fix it and complete ROW acquisition before bidding.<br>b. Once NG defines the expressway ROW, LGUs should be instructed not to issue devt/bldg. permits w/in the ROW.<br>b. Suggest special courts dedicated to ROW | Ensure full ROW funding and acquisition before start of construction. |

| | STAR Infrastructure Development Corporation (SIDC) | South Luzon Tollways Corporation (SLTC) | Citra Metro Manila Tollways Corporation (CMMTC) |
|---|---|---|---|
| | | cases to expedite expropriation proceedings. | |
| **Financing and Government Financing Support (GFS)** | a. GFS as subsidy for construction up to 50% of total cost.<br>b. Govt bank - say, DBP - to advance GFS to proponent, as loan to NG guaranteed to be repaid thru future GAA appropriations over time - say, 10 years @ 10% pa.. | GFS as subsidy for construction to make the projects financially viable at toll rates users are willing to pay, especially where traffic is low. | a. Govt guarantee on revenues.<br>b. GFS subsidy on construction cost to make the project financially viable at affordable toll rates.<br>c. Loan financing should preferably be in pesos to reduce risks and adjustments due to foreign exchange fluctuations. |
| **PPP Modality** | a. Agrees on BTO thru bidding under BOT law. Once the completed facility is transferred to NG, proponent can no longer be harassed by LGUs.<br>b. Agrees that bid offer may be in terms of (i) toll rate given a fixed GFS, or (ii) GFS given a set toll rate. Award is to lowest toll rate or lowest GFS. | Agrees on bidding under BOT law. But shorten the bidding process. | a. Agrees on bidding under BOT law, based on govt FS with basic design parameters.<br>b. Prefers bid offer in terms of toll rate given a fixed GFS, but is open to the option of bid in terms of GFS given a set toll rate. |
| **Construction** | Declare proponents in default for failure to implement works under different stages on time. | a. Ensure unimpeded construction by govt providing cleared ROW on time.<br>b. During construction, LGUs should not be allowed to require construction permits and fees and to stop works on national expressway projects approved by NG.<br>c. Provide and enforce time limit for proponent to implement different stages. | Ensure unhampered construction by providing cleared ROW on time. |
| **Operations** | Ensure automatic grant by TRB of franchise for projects bid out under BOT law. | For rehab projects, proponent should take over O&M during construction to protect the expressway from overloaded trucks, and to guarantee the payment of debt to creditors.<br>. | a. Clarify validity of PNCC franchise and STOA being questioned by Congress.<br>b. Multiple operators feasible, provided they use consistent O&M standards, and adopt one clearing house (3rd party) for toll collections. |
| **Risks** | Govt should guarantee that GFS is adequately provided on time. | Govt should guarantee prompt ROW delivery and toll rate adjustments per | Willing to assume financing and construction risks, but govt should (a) cover |

| | STAR Infrastructure Development Corporation (SIDC) | South Luzon Tollways Corporation (SLTC) | Citra Metro Manila Tollways Corporation (CMMTC) |
|---|---|---|---|
| | | contract, with proper compensation for revenue loss due to delayed or non-implementation by govt of agreed rates. | shortfalls in traffic/ revenues and share in surpluses, (b) provide agreed GFS subsidy on construction, and (c) assure implementation of agreed toll rates. |
| **Regulations** | a. Regulator should be distinct from the proponent (like ERC for energy sector).<br>b. Agrees with EO 686 (2007), whereby:<br>DPWH - to handle tech. aspects, including design, contracting for construction and O&M, and ROW acquisition, plus supervision of const. and maintenance;<br>TRB – to set toll rates, issue TOC, and supervise toll operations.<br>c. Need for legislation for EO 686 to dispel any conflict with PD 1112 (TRB charter). | a. Agrees on delineation between DPWH and TRB regulatory responsibilities per EO 686.<br>b. TRB should be more assertive of its authority to ensure compliance with toll operations provisions in the TCA. | Agrees on delineation of responsibilities between DPWH and TRB per EO 686 |

**ANNEX 18-2**

**High Standard Roads: Summary of Interviews with BOT Firms**

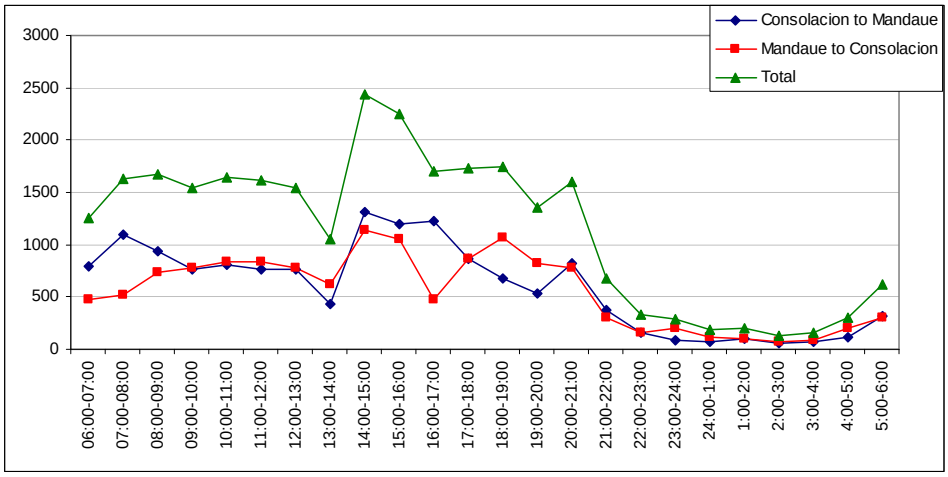
| | Private Infrastructure Development Corporation (PIDC) | North Luzon Tollways Corporation (NLTC) | UEM MARA Philippines Corporation (UMPC) |
|---|---|---|---|
| **Officials Interviewed** | Samson Lazo, President, PIDC, Concessionaire, 15 June 2009 | J. Luigi Bautista, SVP, Program Management, and Rene Punzalan, AVP, Technical Services, NLTC, 15 June 2009 | Jennifer Bote, President, and Nick Tantioco, Project Manager, UMPC,16 June 2009 |
| **Tollway** | Tarlac-Pangansinan-La Union Expressway (TPLEX) | North Luzon Expressway (NLEX) | Manila-Cavite Toll Expressway (MCTE) |
| **PPP Arrangement/Modality** | BTO after DPWH bidding under BOT Law | PNCC-MNTC joint venture under PNCC charter thru TRB | PRA-UEM MARA Corp and CRC joint venture under PRA charter thru TRB |
| **On-going and Proposed Projects** | Tarlac-Pangasinan-La Union Expressway, Tarlac to Rosario, 88.58 km, 2 lanes w/ 8 interchanges, BTO after bidding. Overall status:<br>a. Alignment survey – 100%<br>b. Final engineering design -86% (97% for Tarlac-Carmen)<br>c. Parcellary plans- 55% (100% for Tarlac –Carmen)<br>d. Subdivision plans – 53% (97% for Tarlac-Carmen)<br>e. Construction – to start Sep 09, for completion in 54 months. | Segment 8.1: Mindanao Ave-NLEX, 2.70 km – started mid-April 2009 to June 2010<br>Segments 9 and : NLEX westward and southward – proposed amendments under study: (a) Segment 9 – at-grade expressway from NLEX to McArthur, (b) Segment 10 – elevated expressway over PNR from Northrail to C-3 and Skyway Stage 1 – with savings of P 2.4 B for ROW and P 10.3 B for construction. | Segment 4: Extension from Zapote to Kawit, 7.0 km, 4 lanes – 53% completed; target completion is May 2010.<br>UMPC has a pending proposal to extend the project a short distance beyond the Kawit toll plaza into the Kawit-Noveleta diversion road to avoid congestion. |
| **Problems** | (a. Delay in Concession Agreement approval: DPWH conducted the bidding in Dec 2007, and awarded the contract in March 2008. TRB approval came about 6 months later after reviewing the toll rates, adjustment formulae, and O&M provisions, although TRB had been requested to review the bidding documents before the bidding and was part of BAC.)<br>b. Delay in ROWA: Banks require 100% completed ROWA and completed design for Tarlac-Carmen (48.7 km) before initial loan drawdown. ROWA is ham- | (a. Long delay in financial closure - 8 years – to fully address the financiers' requirements and clarifications.)<br>b. Delay in ROWA, but lessened thru govt/MNTC follow up expropriation cases with the courts.<br>c. Initial users' resistance to high toll rates, but countered by PR showing clear benefits to motorists. | a. Proponent's difficulty and delay in attaining financial closure.<br>b. Delay and corruption (as perceived by proponent) in ROW acquisition and payments.<br>c. Delay due to changes in design: originally a road to be built on areas already reclaimed; then an entirely new road – either viaduct or causeway. Final scheme is a causeway with bridges.<br>d. Delay in construction due to the limited capabilities of contractor, sub-contractors, and project management, aggravated by |

| | Private Infrastructure Development Corporation (PIDC) | North Luzon Tollways Corporation (NLTC) | UEM MARA Philippines Corporation (UMPC) |
|---|---|---|---|
| | pered as owners disagreed with initial offer - BIR zonal valuation (e.g., P12/sm) which is much lower than market prices (P 70-80/ sm). Per rules, Govt 2nd offered the lower of the values set by the Provincial Assessor and Land Bank. Mayors are helping owners get even higher prices. If DPWH disagrees, it would resort to expropriation thru the courts, which is a lengthy process.<br>c. Traffic forecast as re-evaluated by PIDC's consultant is 75-80% of govt FS. | | delayed payments due to delayed financial clsosure.<br>e. Political intervention in construction. |
| **POLICY SUGGESTIONS** | | | |
| **Feasibility Studies** | Agrees that govt should conduct FS, but ensure that traffic forecasts are realistic. Also, agrees that FS should define ROW alignment. | Agrees that govt should undertake FS. | Agrees that govt undertakes FS. FS should include a reliable traffic forecast over the long-term, considering major devt projects of govt and private sector (e.g., SM, etc) |
| **Detailed Engineering** | Proponent should conduct DE based on design standards/specs set by DPWH as part of the bidding documents. | Prefers that proponent handles DE as international funders want the contractor to assume and control design-build tasks. Govt should provide bidders all engineering investigation reports. | DE can be done by BOT proponent based on design specs and parameters set by govt. as part of the bidding documents. |
| **Right-of-Way** | a. Provide for more realistic BIR zonal valuation approximating market prices.<br>b. Expedite court expropriation proceedings. | a. Agrees that FS should define the ROW alignment, govt should freeze devt within the alignment, and start ROW acquisition to be completed before bidding.<br>b. Funders require that ROW be cleared before financial closure. | a. Define ROW alignment in FS, provide ROW funding, and acquire ROW before construction, preferably before bidding.<br>b. Address corruption in ROW valuation. Organize and train full-time ROW group to cover planning, acquisition, monitoring.<br>c. Provide DPWH police powers and exercise political will in ROW acquisition and clearance.<br>d. Improve IRR for ROWA law (RA 8794) with the participation of stakeholders |
| **Financing and Government Financing Support (GFS)** | a. Agrees that GFS be provided in terms of ROWA cost plus subsidy to construction to make the project financially viable | Govt to provide ROW. | GFS subsidy for ROWA |

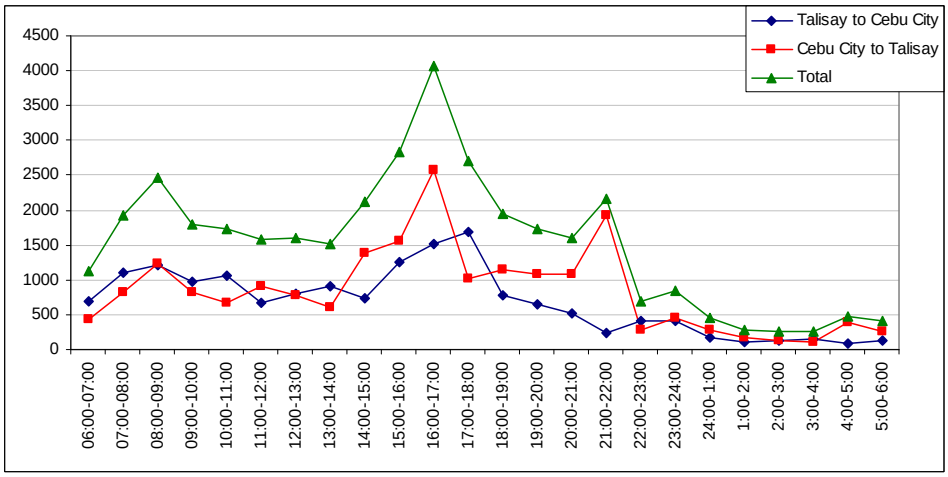
| | Private Infrastructure Development Corporation (PIDC) | North Luzon Tollways Corporation (NLTC) | UEM MARA Philippines Corporation (UMPC) |
|---|---|---|---|
| | at affordable toll rates.<br>b. DPWH (not the proponent) should fund and pay the fees due to LGUs. | | |
| **PPP Modality** | a. Agrees on BTO thru bidding under BOT law.<br>b. All govt approvals should be secured before bidding – toll rate caps and adjustment formulae by TRB, ECC by DENR, devt permits by LGUs, etc. | Agrees on bidding under BOT law. | a. Agrees on bidding under BOT law, based on govt FS, with basic design parameters.<br>b. Prefers bid offer in terms of toll rate given a fixed GFS, but is open to the option of bid in terms of GFS given a set toll rate. |
| **Construction** | Variations introduced by govt outside the contract scope of work should be funded by govt (e.g., additional crossings). | Ensure unimpeded construction by providing cleared ROW on time. | Ensure unhampered construction by providing cleared ROW on time. |
| **Operations** | Ensure automatic grant by TRB of franchise and initial toll rates and adjustments as bid for projects under BOT law. | Ensure initial toll rates and adjustments per contract. | Provide for clear "waterfall" in allocating toll revenues: (a) O&M, (b) debt service, (c) taxes, (d) excess for new projects |
| **Risks** | Govt should guarantee: (a) all govt approvals before bidding are obtained, (b) prompt ROWA delivery, (c) adequate and timely GFS, and (d) initial toll rates and adjustments - per contract. | a. Proponent can assume traffic/market, construction, and financing risks.<br>b. Govt should guarantee prompt ROW delivery, GFS, and toll rate adjustments, per contract. Govt to compensate for delays in providing these undertakings | Govt should promptly provide ROW and assure implementation of agreed toll rates and their adjustments per contract. Provide compensation for cost of delay in toll rate adjustment |
| **Regulations** | a. Agrees that:<br>DPWH – will handle tech. aspects, including design, contracting for construction and O&M, and ROW acquisition, plus supervision of const. and maintenance.<br>TRB – will approve toll rates, issue TOC, and supervise toll operations, and for bid projects, automatically approve the awarded toll rates and TOC. | Agrees on delineation between DPWH and TRB regulatory responsibilities per EO 686. | Agrees on delineation of responsibilities between DPWH and TRB per EO 686.<br>DPWH should have a focused full-time group for BOT/PPP to handle all aspects – technical, financial, social, environmental, legal, ROW. |

# ANNEX 20

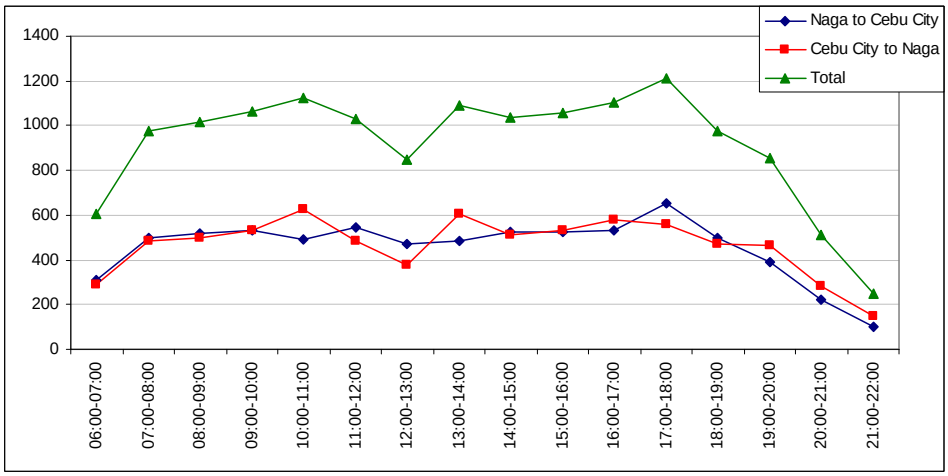
**ANNEX 20.1**
**HOURLY TRAFFIC VOLUME**




**HOURLY TRAFFIC VOLUME**
**ALONG CEBU NORTH ROAD (1)**

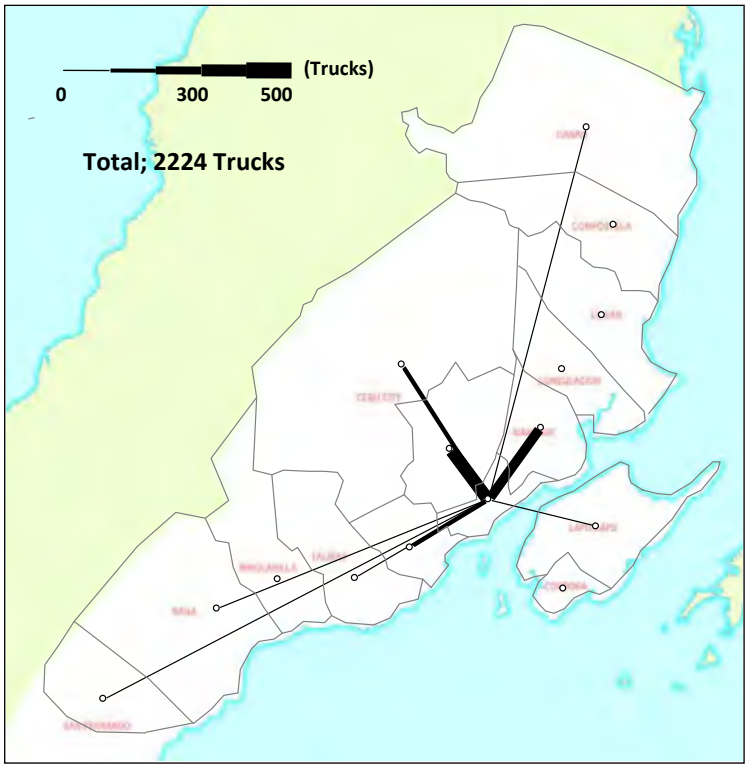



**HOURLY TRAFFIC VOLUME**
**ALONG CEBU SOUTH ROAD**

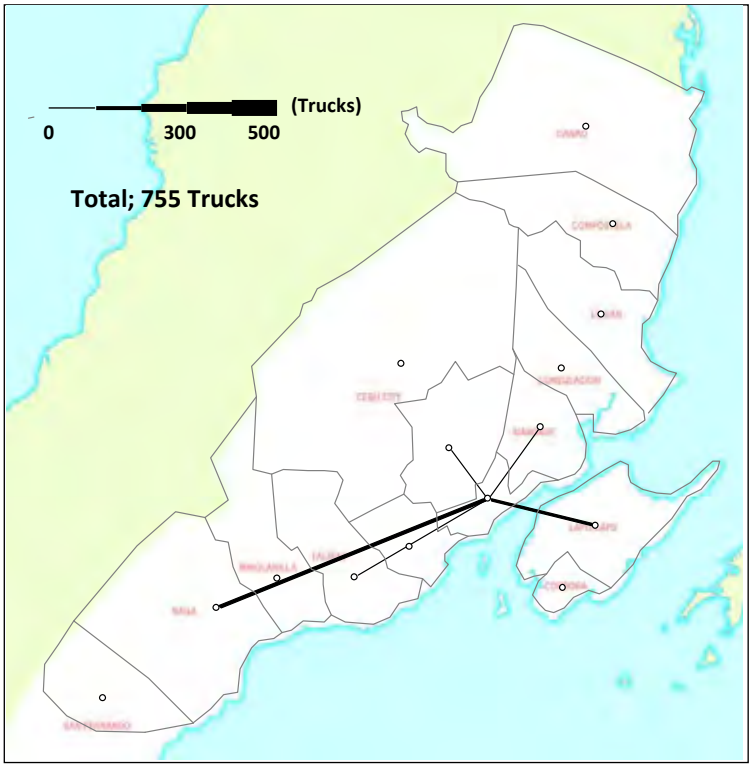



**HOURLY TRAFFIC VOLUME**
**ALONG CEBU NORTH ROAD (2)**

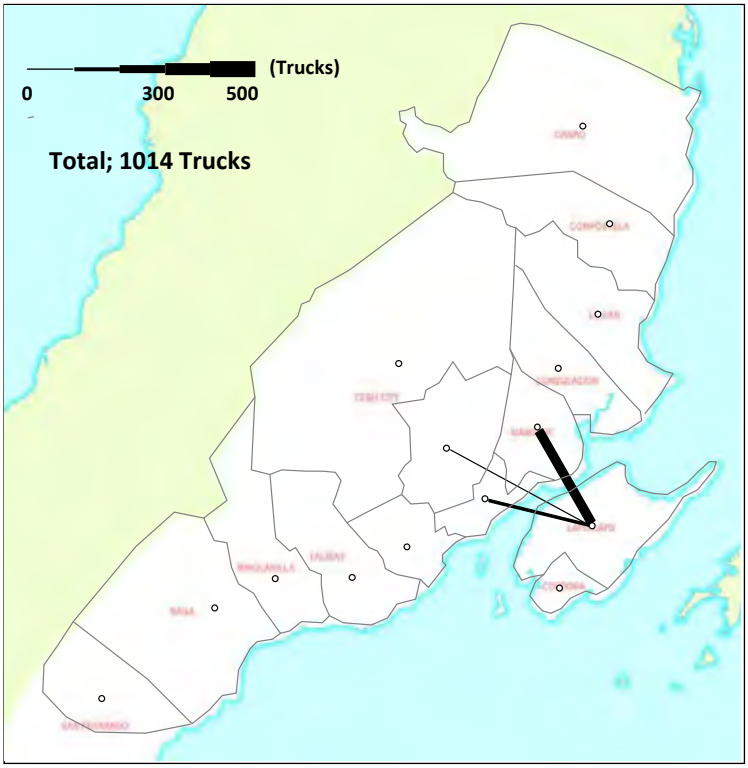
**ANNEX 20.2**
**PORT / AIRPORT FREIGHT MOVEMENT (DESIRE LINE)**




**Cebu Port**



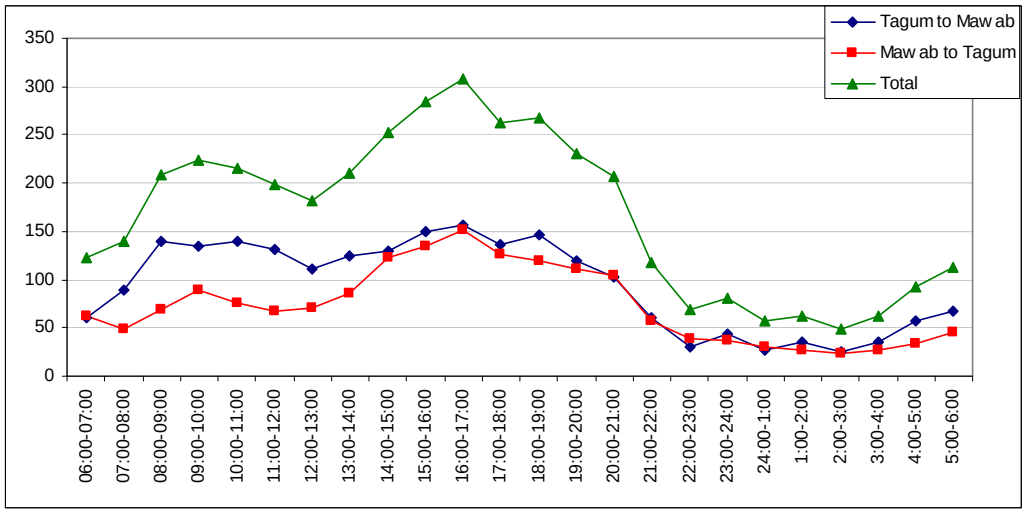

**Cebu Container Terminal**



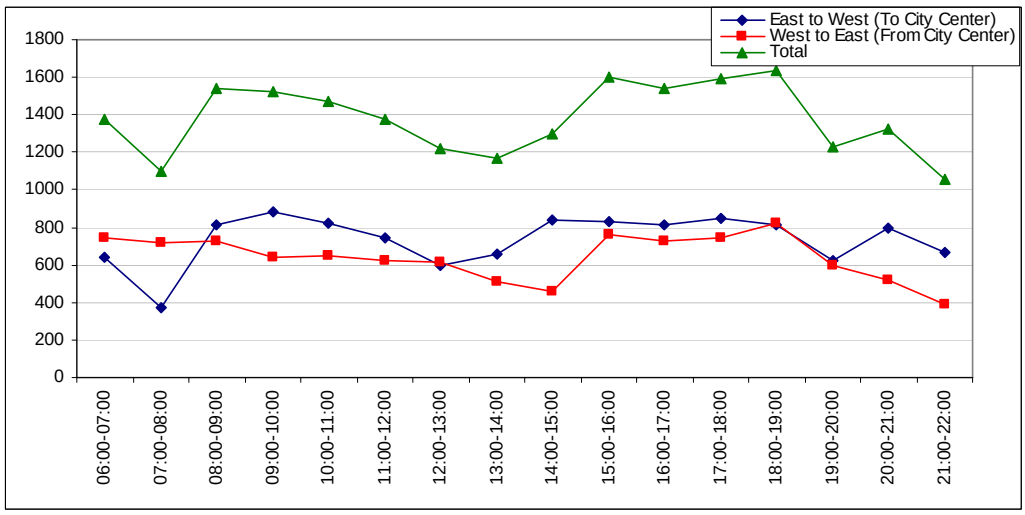

**Cebu International Airport**

# ANNEX 26

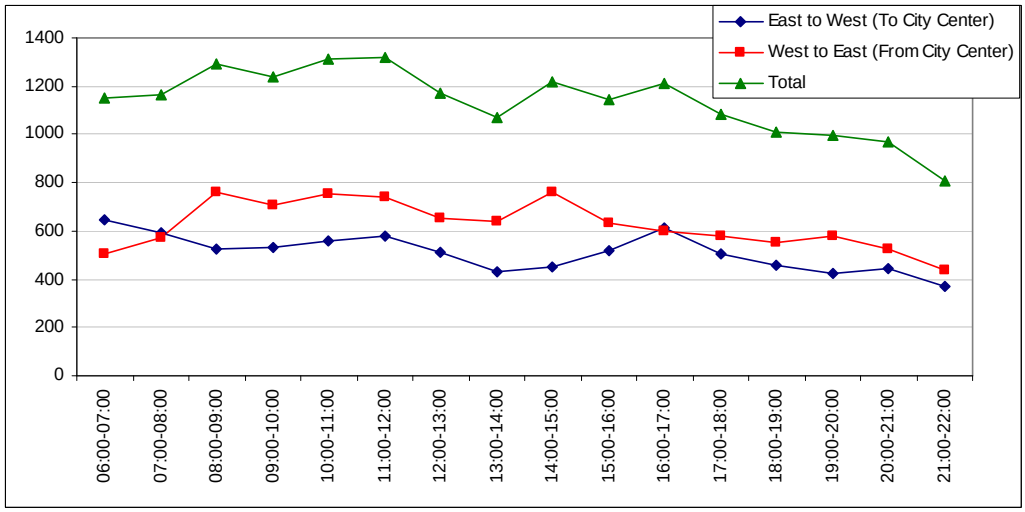
**ANNEX 26.1**
**HOURLY TRAFFIC VOLUME**



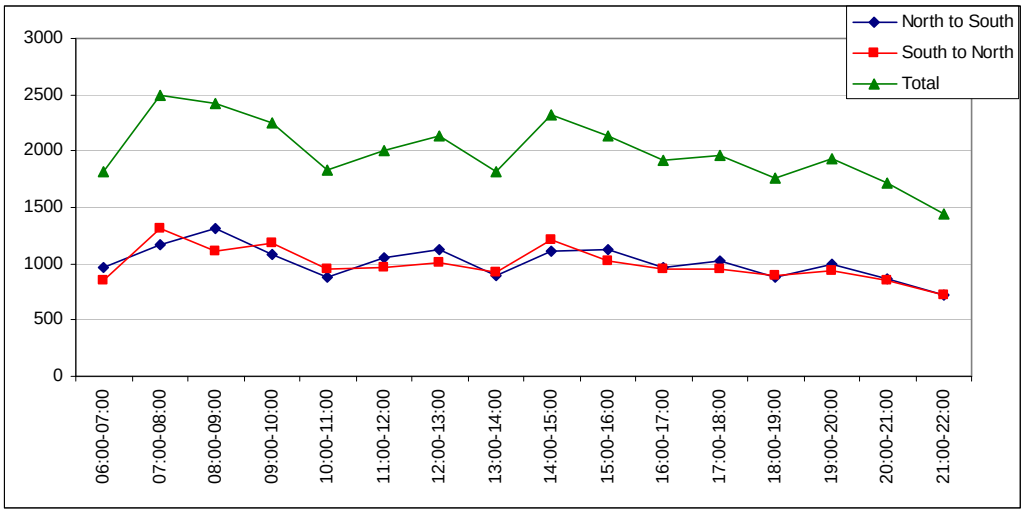

**HOURLY TRAFFIC VARIATION OF DAVAO - SURIGAO ROAD**



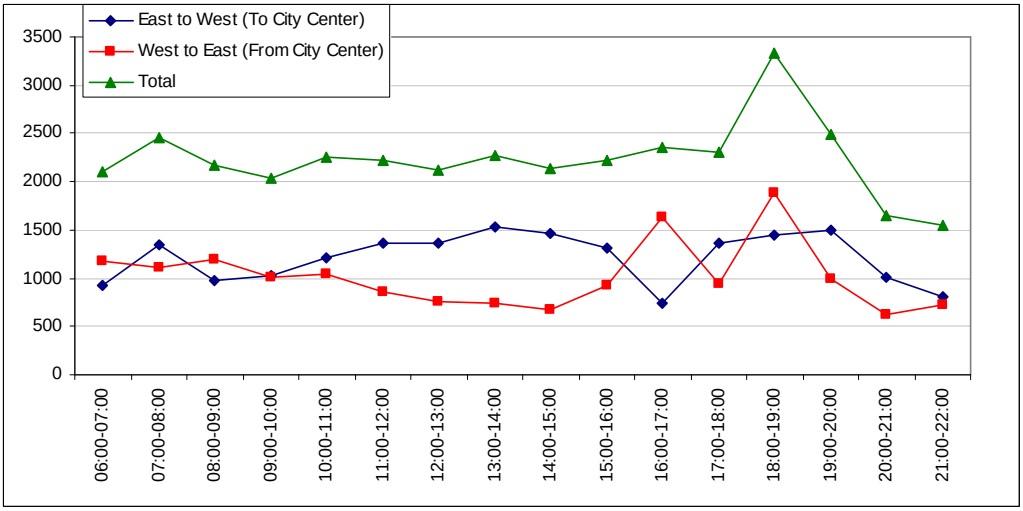

**HOURLY TRAFFIC VARIATION OF MCARTHUR HIGHWAY ( 1 )**



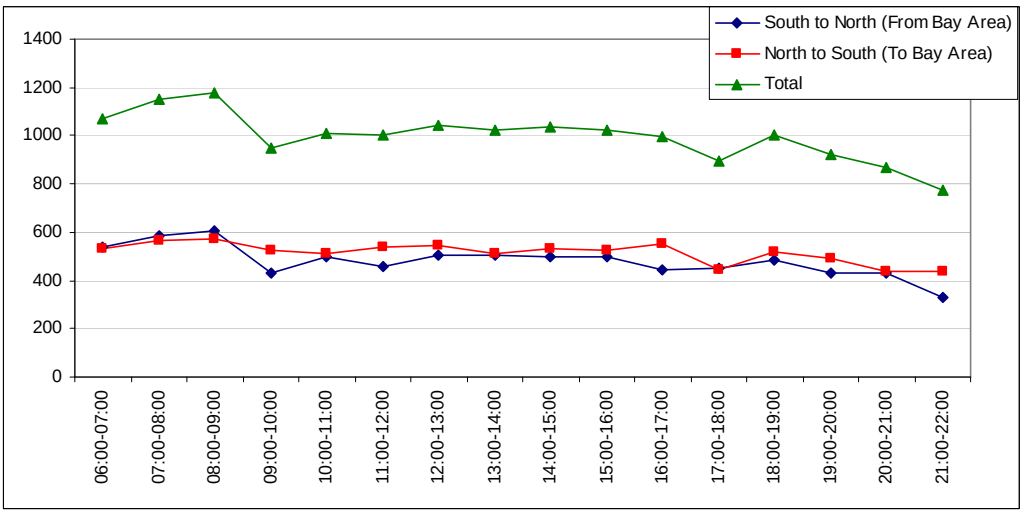

**HOURLY TRAFFIC VARIATION OF MCARTHUR HIGHWAY ( 2 )**




**HOURLY TRAFFIC VARIATION OF MCARTHUR HIGHWAY ( 3 )**

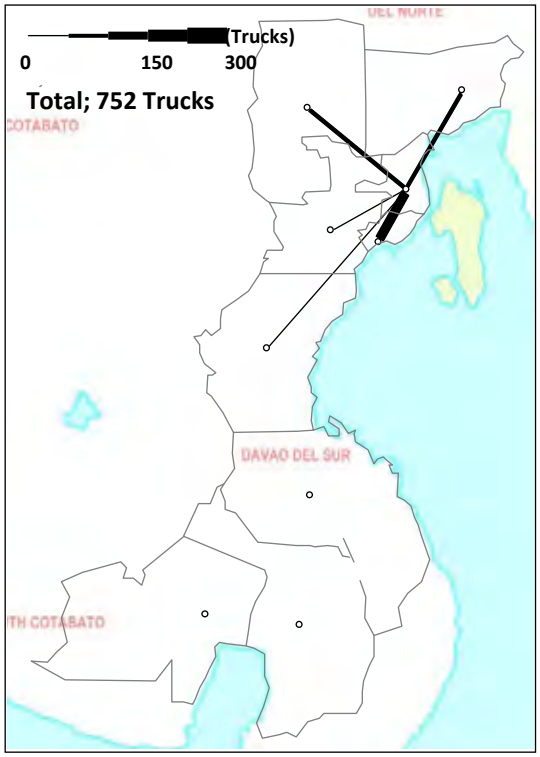



**HOURLY TRAFFIC VARIATION OF QUIRINO AVENUE**

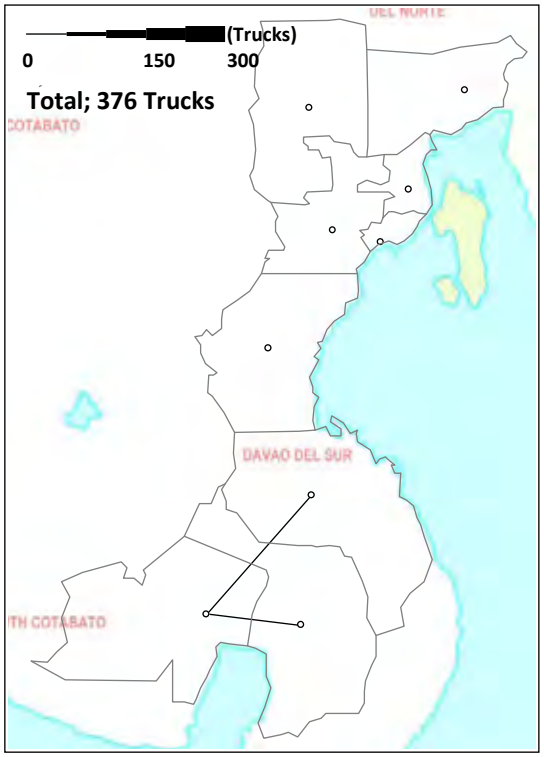



**HOURLY TRAFFIC VARIATION OF PIONEER AVENUE**

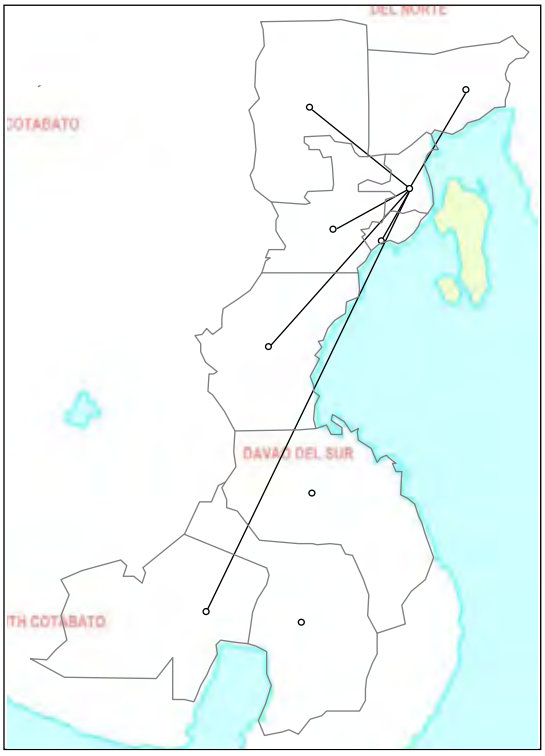
**ANNEX 26.2**
**PORT/AIRPORT FREIGHT MOVEMENT (DESIRE LINE)**



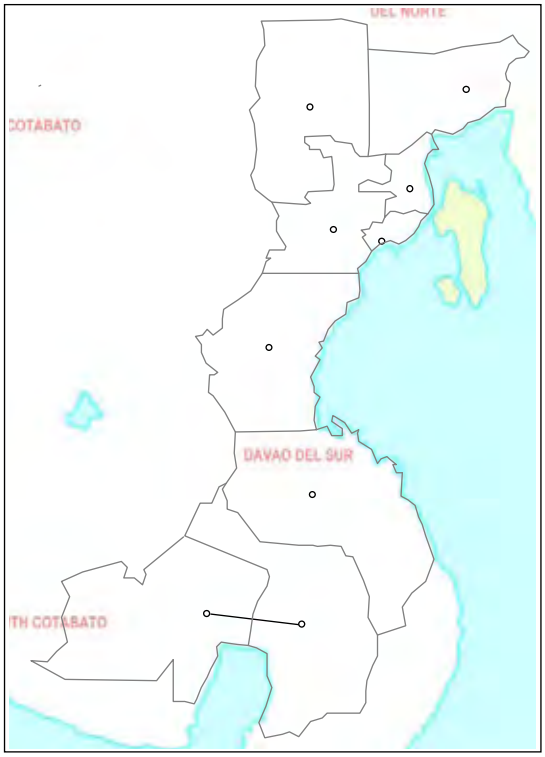

**Davao Sasa Port**




**Gen. Santos International Port**




**Davao International Airport**




**Gen. Santos International Airport**

**ANNEX 26.3**
**MANUFACTURING COMPANIES' FREIGHT MOVEMENT**
**AND LOGISTICS CORRIDOR**


**JHAYCOR INDUSTRIES – DESTINATION OF COMPANY OUTPUT**

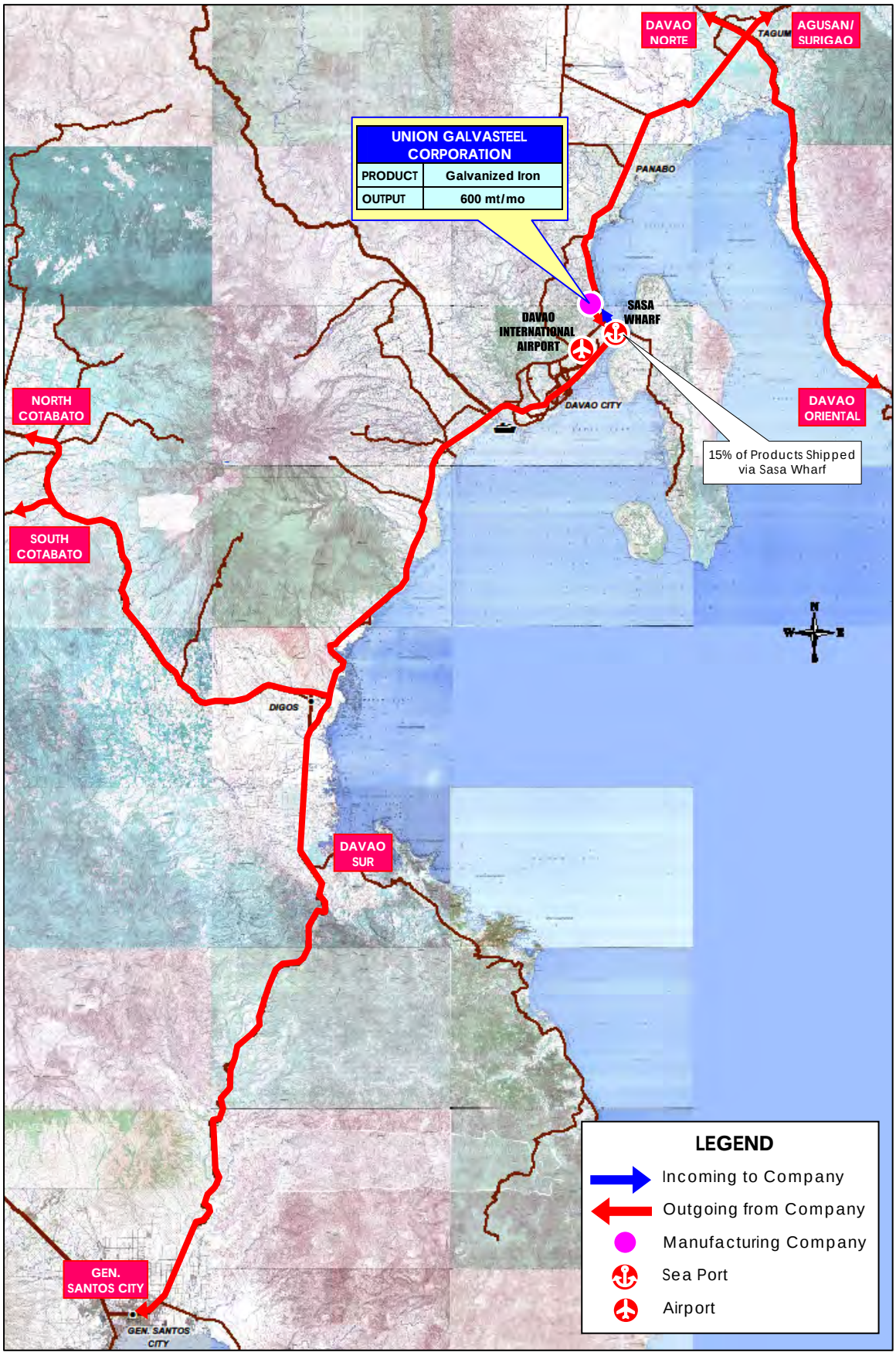

**JHAYCOR INDUSTRIES – DESTINATION OF COMPANY OUTPUT**


**NAKASHIN DAVAO – SOURCES OF PRODUCTS**


**PHIL-JAP ACTIVATED CARBON –SOURCE OF PRODUCTS**


**RDL PHARMACEUTICAL – DESTINATION OF COMPANY OUTPUT**


**STENIEL MINDANAO – DESTINATION OF COMPANY OUTPUT**




**UNION GALVASTEEL – DESTINATION OF COMPANY OUTPUT**

# ANNEX 30

**ANNEX 30.1**
**SELF-ASSESSMENT SURVEY FORM**

**SURVEY FORM**
**HIGH STANDARD HIGHWAY NETWORK DEVELOPMENT STUDY: SURVEY OF NEEDS FOR STRENGTHENING OF DPWH CAPACITY TO PROMOTE AND IMPLEMENT PPP PROJECTS (4 pages)**

## A. ORGANIZATIONAL STRENGTHENING

### 1. Existing Organization

**1.1 Existing functions of your Office that pertain or relate to PPP development and implementation:**

a. _____
b. _____
c. _____
d. _____

**1.2 Existing staff of your Office involved in PPP development and implementation:**

| Position | Brief Description of Functions |
|---|---|
| a. _____ | _____ |
| b _____ | _____ |
| c _____ | _____ |
| d_____ | _____ |

### 2. Suggested Organizational Changes

**2.1 Proposed changes in the functions of your Office to strengthen its capacity in PPP development and implementation:**

a. _____
b. _____
c. _____
d. _____

**2.2 Proposed changes in the staff in your Office to strengthen its capacity in PPP development and implementation:**

| **Proposed New Positions** | **Brief Description of Functions** |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

| **Positions Proposed to be Upgraded** | **Brief Description of Functions** |
|---|---|
| From _____ to _____ | _____ |
| From _____ to _____ | _____ |
| From _____ to _____ | _____ |
| From _____ to _____ | _____ |

| **Positions Proposed to be Retained** | **Brief Description of Functions** |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

## B. SKILLS TRAINING

| Training Topic | Priority Rating of the Topic (Check one) | | | Present Knowledge of the Topic (Check one) | | If Further Training Needed on the Topic | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Desired Training Level (Check one) | | | Desired Training Mode (Check applicable columns) | | |
| | 1st | 2nd | 3rd | Adequate | Needs Further Training | Appre-ciation | Refresher | Working Knowledge | Lectures/ Workshops | On-the-Job Training | Soft-ware |
| **1. PPP Policy Framework** | xxx | xxx | xxx | xxxxxxxx | xxxxxxxxxxxx | xxxxxx | xxxxxxxx | xxxxxxxxxx | xxxxxxxx | xxxxxxxx | xxxxx |
| 1.1 Legal and policy framework | | | | | | | | | | | |
| **2. Project Identification** | xxx | xxx | xxx | xxxxxxxx | xxxxxxxxxxxx | xxxxxx | xxxxxxxx | xxxxxxxxxx | xxxxxxxx | xxxxxxxx | xxxxx |
| 2.1 Formulation or road network plan | | | | | | | | | | | |
| 2.1 Identification of potential expressway projects | | | | | | | | | | | |
| 2.3 Formulation of expressway master plan | | | | | | | | | | | |
| **3. Project Business Case** | xxx | xxx | xxx | xxxxxxxx | xxxxxxxxxxxx | xxxxxx | xxxxxxxx | xxxxxxxxxx | xxxxxxxx | xxxxxxxx | xxxxx |
| 3.1 PPP suitability assessment | | | | | | | | | | | |
| 3.2 Preliminary traffic study | | | | | | | | | | | |
| 3.3 Tech. assessment - incl alternative eng designs and preliminary costings | | | | | | | | | | | |
| 3.4 Environmtl assessment- incl ROW issues | | | | | | | | | | | |
| 3.5 Preparation of O&M scheme | | | | | | | | | | | |
| 3.6 Preliminary econ. analysis- incl feasibility indices of alternatives | | | | | | | | | | | |
| 3.7 Preliminary financial evaluation - incl toll rates, GFS, viability indices | | | | | | | | | | | |
| 3.8 Project business case appraisal/approval | | | | | | | | | | | |
| **4. Project Feasibility Study** | xxx | xxx | xxx | xxxxxxxx | xxxxxxxxxxxx | xxxxxx | xxxxxxxx | xxxxxxxxxx | xxxxxxxx | xxxxxxxx | xxxxx |
| 4.1 Detailed traffic study and forecasts | | | | | | | | | | | |
| 4.2 Tech. soundness evaln - incl eng'g design, min. performance standards, value engg | | | | | | | | | | | |
| 4.3 Environmental impact evaln - incl IEE/EIA, env. management plan | | | | | | | | | | | |
| 4.4 Prepn of ROW and resettlement plans | | | | | | | | | | | |
| 4.5 Preparation of O&M plan | | | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.6 Econ. evaluation - incl feasibility indices, sensitivity analysis | | | | | | | | | | | |
| 4.7 Fin. evaluation – incl toll rates, capital/ O&M costs, GFS, equity, loans, viability | | | | | | | | | | | |
| 4.8 Risk assessment, allocation and mitigation | | | | | | | | | | | |
| 4.9 Selection of appropriate PPP modality | | | | | | | | | | | |
| 4.7 Prepn of procurement plan – incl process, bid docs, pro-forma contract agreement | | | | | | | | | | | |
| 4.11 Project appraisal/approval | | | | | | | | | | | |
| **5. Project Procurement** | xxx | xxx | xxx | xxxxxxxx | xxxxxxxxxxxx | xxxxxx | xxxxxxxx | xxxxxxxxxx | xxxxxxxx | xxxxxxxx | xxxxx |
| 5.1 Conduct of bidding | | | | | | | | | | | |
| 5.2 Bids evaluation and award | | | | | | | | | | | |
| 5.2 Contract perfection | | | | | | | | | | | |
| **6. Project Implementation** | xxx | xxx | xxx | xxxxxxxx | xxxxxxxxxxxx | xxxxxx | xxxxxxxx | xxxxxxxxxx | xxxxxxxx | xxxxxxxx | xxxxx |
| 6.1 ROW acquisition and delivery | | | | | | | | | | | |
| 6.2 Financial closure | | | | | | | | | | | |
| 6.3 Review/supvn of detailed engg design | | | | | | | | | | | |
| 6.4 Supervision of construction | | | | | | | | | | | |
| **7. Project Operation** | xxx | xxx | xxx | xxxxxxxx | xxxxxxxxxxxx | xxxxxx | xxxxxxxx | xxxxxxxxxx | xxxxxxxx | xxxxxxxx | xxxxx |
| 7.1 Toll rates and adjustments | | | | | | | | | | | |
| 7.2 Supervision of O&M | | | | | | | | | | | |

**C. Other Comments/Suggestions:** _____

_____

_____

**Submitted by:**

**Signature** _____ **Office:** _____
**Printed Name** _____ **Date:** _____
**Position** _____

**Note:** PPP - Public-Private Partnership
ROW - Right-of-way
O&M - Operation and Maintenance
GFS - Government Financial Support
IEE - Initial Environmental Assessment
EIA - Environmental Impact Assessment

**ANNEX 30.2**
**RECOMMENDED TRAINING PROGRAM**

**PROGRAM FOR MODULE 1 – LEGAL AND POLICY FRAMEWORK**

**Objectives:**

By the end of Module 1, the participants will be able to understand and explain the set of laws, rules and regulations, and policies governing the planning and implementation of PPP projects; and apply the same to typical toll expressway projects of DPWH.

**Participants:** From PS, with PMO-BOT/PPIPO and LS.

**Module Elements:**

(1) Review and familiarization with pertinent laws, rules and regulations on PPP/BOT, including, among others:

- RA 6957 (BOT law), as amended by RA 7718.
- Implementing Rules and Regulations of the BOT law

(2) Discussion and application of the policy framework for PPP, including the following policies, among others, as embodied in the MTPDP and other issuances:

- The government/DPWH should take a more pro-active role in PPP expressway development by identifying potential PPP projects, conducting feasibility studies on them, and seeking solicited proposals through competitive bidding. Unsolicited PPP proposals are to be discouraged.

- DPWH should be the sole entry point and proposer for toll expressway projects and take the lead role in all toll expressway transactions and decision-making, based on road network planning and priorities.

- Toll expressway projects must fit into the overall long- and medium-term plans for the National Roads network. This will ensure that the toll expressways would be complementary to the regular roads network in terms of functions, traffic assignment, service areas, and connectivity.

- PPP expressway projects must provide for the interests of each partner. This entails a return on the investment for the private partner, and a net benefit to society and to the economy through savings in road user costs and travel time for the public side.

- The projects must be proven to be economically feasible as shown by ENPV/C or similar economic return parameters.

- The projects must be financially viable and provide for recovery of costs – net of Government Financial Support (GFS) - from toll revenues. User charges should cover at least project O&M costs. PPP projects which are found to be economically feasible, but are not financially profitable at toll rates that users are able and willing to pay, may be provided GFS covering up to 50 percent of the construction cost (excluding right-of-way cost) to make the projects viable at affordable toll rates.

- Risks should be allocated to the parties that can best manage them and control the outcomes. In general, the private proponent shall bear the market or commercial, financing, procurement, construction, and O&M risks. The government shall assume the political and regulatory risks, which include the provision of ROW and GFS, implementation of toll rates and rate adjustments as bid, and other government obligations specified in the Concession Agreement.

- All Government approvals – NEDA/DPWH/DAR/DENR/TRB/DOTC/ LGUs/others – must be in place before DPWH seeks tenders from the market. Land acquisition, including resettlement, must begin upon feasibility study approval, and be completed before bidding and construction starts.

- NEDA/ICC shall be the "gate-keeper" and its main function is economic and financial review, considering project and risk management and global contingent liability issues.

- DOF shall evaluate and manage guarantees and contingent liabilities on a project basis, which includes mechanisms such as requiring third party guarantees to be undertaken by toll toad providers. DOF shall evaluate and manage guarantees and contingent liabilities on a project basis, which includes mechanisms such as requiring third party guarantees to be undertaken by toll toad providers.

**Training Mode:** Lectures with workshops and case studies.

**Duration:** 1.5 days

**Trainors/Resource Persons:** DPWH (PS, PMO-BOT/PPIPO, and LS) and NEDA-Infra Staff officials.

## PROGRAM FOR MODULE 2 - PROJECT IDENTIFICATION

**Objectives:**

By the end of Module 2, the participants will be able to explain and put into practice the bases and processes for identifying prospective PPP expressway projects within the context of the overall national road network plan and expressway master plan.

**Participants:** From PS with PMO-BOT/PPIPO.

**Module Elements:**

(1) Orientation on the process for the formulation of the overall national road network plan, using the Highway Planning Manual and accepted planning systems – e.g., Road and Bridge Information Application (RBIA), Road Traffic Information Application (RTIA), Highway Development and Management Version 4 (HDM-4), Multi-Year Programming and Scheduling (MYPS), Multi-Criteria Analysis (MCA), and others. The manual and systems cover both regular roads and expressways.

(2) Discussion of the process and criteria for identification of potential expressway projects. This includes the use of benchmark analyses, e.g., traffic volume/capacity and AADT thresholds beyond which expressways may be justified.

(3) Preparation/updating of expressway master plan.

**Training Mode:** Lectures with workshops/case studies and best practices, and software applications (planning systems).

**Duration:** 2.0 days

**Trainors/Resource Persons:** DPWH (PS, PMO-FS, and PMO-BOT/PPIPO) officials.

## PROGRAM FOR MODULE 3 - PROJECT BUSINESS CASE STUDY

**Objectives:**

By the end of Module 3, the participants will be able to:

(1) understand and explain the principles, best practices, and criteria used in undertaking and appraising a pre-feasibility or business case study for a prospective PPP expressway project, covering all of its salient aspects, to determine if the project deserves to be further pursued though the PPP modality; and

(2) put this knowledge into practice in typical business case studies for PPP projects.

**Participants:** From PS with PMO-BOT/PPIPO, PMO-FS, ESSO/ESROWO, PMO-IRROW, and BOD.

**Module Elements:**

**(1) PPP suitability assessment for the project**

- Determination of conformance of the project to the PPP legal and policy framework.
- Assessment of constraints and measures to overcome them.
- Evaluation of alternative PPP modalities for the project.
- Preliminary risk assessment, allocation and mitigation plan.
- Analysis of potential market and private sector interest

**(2) Traffic study**

- Analysis of road network and project connectivity with network elements.
- Preliminary traffic demand forecast.

**(3) Technical evaluation**

- Definition of project scope.
- Evaluation of alternative preliminary engineering designs.
- Preliminary cost estimates with +/-20% accuracy.

**(4) Environmental impact evaluation**

- Initial environmental examination (IEE).
- Assessment of right-of-way (ROW) requirements and issues.

**(5) Formulation of operation and maintenance (O&M) scheme**

- Preparation of preliminary facility operation plan.
- Preparation of preliminary facility maintenance plan.

**(6) Economic feasibility analysis**

- Preliminary estimates of economic costs (capital and O&M) and economic benefits (vehicle operating costs and time savings).
- Cost-benefit analyses of alternatives – including determination of Economic Internal Rate of Return (EIRR), Economic Benefit-Cost Ratio (EB/C), Economic Net Present Value (ENPV), Economic Net Present Value to Capital Cost (ENPV/C).

**(7) Financial viability assessment**

- Preliminary estimates of toll rates, revenues, capital costs, annual O&M costs.
- Analysis of alternative financing structures and Government Financial Support (GFS).
- Determination of financial viability indicators – including Financial Internal Rate of Return (FIRR), Financial Net Present Value (FNPV), Debt Service Cover Ratio (DSCR), Loan Life Cover Ratio (LLCR) for the alternatives.
- Analysis of value for money.

**(8) Project business case appraisal and approval**

- Appraisal of adequacy of business case study.
- Obtaining approval of project (if feasible) from appropriate authorities, i.e., NEDA and DOF.

**Training Mode:** Lectures with workshops/case studies and best practices, OJT (preliminary traffic study and project business case appraisal/approval), and software applications (technical assessment and preliminary financial model).

**Duration:** 6.5 days

**Trainors/Resource Persons:** DPWH (PS, PMO-FS, and PMO-BOT/PPIPO) and NEDA-Infra staff officials.

## PROGRAM FOR MODULE 4 - PROJECT FEASIBILITY STUDY

**Objectives:**

By the end of Module 4, the participants will be able to:

(1) understand and discuss the principles, best practices, processes, standards, and criteria used in conducting a feasibility study (FS) for a prospective PPP expressway project, covering all its basic aspects – traffic/market, technical/engineering, environmental, ROW/resettlement, O&M, economic, financial, risk analysis, appropriate PPP modality, and procurement – with emphasis on the elements that are peculiar to PPP projects (e.g., financial, risk assessment, and procurement) – to conclusively establish the desirability of undertaking the project via PPP; and

(2) put into practice these skills in preparing, managing and appraising feasibility studies of typical toll expressway projects, to serve as a basis for making practical PPP decisions.

**Participants:** From PS with PMO-BOT/PPIPO, PMO-FS, ESSO/ESROWO, PMO-IRROW, and BOD.

**Module Elements:**

**(1) Detailed traffic study and forecast**

- Refined traffic demand analysis and forecast for specific years.
- Toll elasticity analysis.

**(2) Technical soundness evaluation**

- Detailed definition of project scope.
- FS grade engineering designs and estimates with +/-10% accuracy.
- Setting of minimum performance standards and specifications for detailed engineering design, construction, and O&M.
- Value engineering to seek lowest-cost/most cost-effective solution.

**(3) Environmental impact evaluation**

- IEE/Environmental Impact Assessment (EIA).
- Preparation of environmental management plan.

**(4) Preparation of ROW and resettlement plans**

- Definition of ROW and conduct of parcellary surveys.
- Preparation of ROW acquisition plan, including cost estimates.
- Preparation of resettlement action plan.(RAP)

**(5) Preparation of O&M plan**

- Preparation of facility operation plan - including toll collection system, traffic management, road safety, weighbridges, signs, and related matters.
- Preparation of facility maintenance plan over the project life - routine, periodic and preventive maintenance, rehabilitation, and emergency; pavement management system; bridge/structure management system.

**(6) Economic feasibility evaluation**

- Refined estimates of economic costs (construction and O&M life cycle costs) and economic benefits (savings in transport costs and time)
- Refined economic cost-benefit analysis and feasibility indicators - including EIRR, EB/C, ENPV, ENPV/C.
- Sensitivity analysis.

**(7) Financial viability evaluation**

- Setting of appropriate toll rates and adjustment formulae.
- Estimates of construction and O&M costs by year.
- Determination of appropriate GFS and sources – ODA, National Government revenues and borrowings, and LGU contributions.
- Evaluation of financing scheme – private sector loans and equity requirements, debt servicing; government funding for ROW and GFS.
- Determination of financial viability indicators – including FIRR, FNPV, DSCR, and LLCR.

**(8) Risk assessment**

- Identification, evaluation and allocation of risks – including political, toll rates, traffic/market, ROW, financing, construction, O&M risks.
- Risk mitigation.

**(9) Selection of appropriate PPP modality**

- Evaluation of alternative PPP modalities.
- Recommended modality.

**(10) Preparation of procurement plan and documents**

- Definition of procurement process including schedule.
- Preparation/adoption of bidding documents (BDs).

**(a) Invitation to Apply for Eligibility and to Bid**

**(b) Eligibility/prequalification requirements**

- Legal requirements – Proponent and Facility Operator must be Filipino or if a corporation, registered with SEC/DTI with 60% Filipino ownership. Constructor must be licensed by PCAB for the type/cost of the project to be bid. Designer must be registered with PRC.
- Technical capability – completed a similar project for design construction/O&M costing at least 50% of the project to be bid.
- Financial capability – minimum net worth as specified, credit line commitment covering at least 50% of the construction cost of the project.

**(c) Instructions to Bidders (ITB)**

- General description and objectives of the project.
- Contractual arrangements – e.g., BTO.
- Documents comprising the bid: Firm offer to undertake the financing, detailed engineering design, construction, operation and maintenance of the Project, consisting of:

**(i) Technical Proposal**

- Preliminary engineering design, with +/-15% accuracy, in conformance with DPWH performance standards and specifications.
- Construction plan – organization for the Project, key personnel, major

equipment to be used, schedule, and construction methods.
- Bid Security

**(ii) Financial Proposal**
- Bid in terms of (A) proposed toll rate at opening year, given the DPWH-set GFS, or (B) proposed GFS, given the DPWH-set opening toll rate, whichever is prescribed by DPWH in the ITB.
- Financing plan – including sources of equity and debt, repayment plan, etc.

- Bid submission procedures and requirements – deadline and place for submission, etc.
- Government undertakings – ROW, GFS, permits, approval of toll rates, etc.
- Criteria and method for bid evaluation, post-qualification and award.

**(d) DPWH requirements**
- Minimum performance (functional) standards and specifications to be adopted by the winning Concessionaire for:
  (i) Detailed engineering design – geometrics, speed, structural, life standards, etc.
  (ii) Construction, including installation, of facilities – use of DPWH Standard Specifications (Blue Book).
  (iii) O&M.
- Economic parameters to be used by the bidder
  (i) Discount rate, foreign exchange rate and inflation factor.
  (ii) Concession period, maximum construction period, and franchise period
  (iii) Toll adjustment formulae.

**(e) Preparation/adoption of model/pro-forma contract agreement.**

- **Undertakings of Concessionaire:**
  (i) Finance the project - including final engineering design, construction, O&M - net of the GFS; achieve financial closure before the deadline set in the BDs/Concession Agreement.
  (ii) Prepare – by itself or its designated Designers - the final engineering design of the facility, including the road, structures, toll equipment and systems, according to the DPWH performance standards/specifications for design set in the BDs/Agreement.
  (iii) Construct - by itself or by its Constructors - the facility according to the Concessionaire's detailed engineering design as approved by DPWH and according to the DPWH performance standards/specifications for construction set in the BDs/Agreement.
  (iv) Adhere to the implementation schedule and milestones set in the BDs/Agreement.
  (v) Operate and maintain the facility - by itself or by its designated Facility Operator and/or Maintenance Provider – in accordance with the DPWH performance standards/ specifications set in the BDs/Agreement.
  (vi) Utilize the GFS exclusively for the project.
  (vii) Charge and collect from the users of the facility the agreed opening toll fees based on the bid, subject to adjustments in accordance with the BDs/Agreement.
  (viii) Transfer ownership of the project to DPWH, free from liens and encumbrances.
  (ix) Pay the Concession Fee to DPWH set in the BDs/ Agreement.
  (x) Maintain an O&M Trust Account as required in the BDs/ Agreement.
  (xi) Post the Performance Securities for construction and for O&M as required in the BDs/ Agreement.

- **Undertakings of DPWH/government:**
  (i) Deliver to the Concessionaire the ROW with Permits to Enter, clear of obstructions, according to the schedule in the Agreement.
  (ii) Provide the GFS in a Trust Account.

(iii) Approve/disapprove – for implementation - the Concessionaire's detailed engineering design for the facility.
(iv) Perform technical supervision over the construction works.
(v) Secure all permits and pay all fees for the project required by LGUs and other agencies.
(vi) Ensure that, upon DPWH issuance of the Certificate of Acceptance and pursuant to the BDs, TRB automatically grants the TOC/franchise and approves the toll rates and adjustments indicated in the bid as awarded.
(vii) Pay to the Concessionaire the revenue loss if the actual allowed toll rate is lower than the toll rate specified in the Agreement.
(viii) Perform technical supervision over the facility O&M.

**(11)Project appraisal and approval**

- Appraisal of project FS as against set standards, thresholds and requirements.
- Securing approval of FS and clearance to proceed with the procurement/ implementation of the project.

**(12)Programming and budgeting**

- Inclusion of the project in the medium-term infrastructure program and annual infrastructure budget, including the provision of government funding for ROW and GFS within the budget ceiling.

**Training Mode:** Lectures with workshops/case studies and best practices, OJT (detailed traffic study and forecasts), and software applications (detailed traffic study and forecast model, technical soundness evaluation, economic analysis model, financial analysis model, and risk assessment and allocation model).

**Duration:** 12.0 days

**Trainors/Resource Persons:** DPWH (PS, PMO-FS, PMO-BOT/PPIPO, ESSO/ ESROWO, IROWR-PMO), TRB and NEDA officials, with expressway firms/ investors and COFILCO representatives.

## PROGRAM FOR MODULE 5 - PROJECT PROCUREMENT

**Objectives:**

By the end of Module 5, the participants will be able to understand and apply the principles, processes, and rules in the procurement of PPP expressway projects – including tendering, evaluation of bids, and contracting – consistent with the procurement plan and bidding documents.

**Participants:** From PO with PMO-BOT/PPIPO and BOD.

**Module Elements:**

**(1) Conduct of bidding**

- Issuance and publication of bidding documents.
- Receipt of bids

**(2) Bids evaluation and award**

- Eligibility screening / prequalification of bidders - on financing, design, construction, O&M aspects
- Evaluation of bids consisting of Technical and Financial Proposals.

  **(a) Evaluation of Technical Proposals**
  - Soundness of bidder's preliminary engineering design and its compliance with DPWH design and performance standards/ specifications.
  - Compliance with other technical requirements – construction plan, Bid Security.

  **(b) Evaluation of Financial Proposals**
  - Determination of most advantageous bid - i.e., least bid toll rate at opening year (with given DPWH GFS), or least bid GFS (with given DPWH opening toll rate), whichever is prescribed.
  - Soundness of proposed financing sources and compliance with other financial requirements.

- Post-qualification of winning bidder.
- Award of contract to the post-qualified bidder.

**(3) Contract perfection**

- Processing and approval of contract using pro-forma agreement.

**Training Mode:** Lectures with workshops and case studies and best practices.

**Duration:** 3.0 days

**Trainors/Resource Persons:** DPWH (PO, BAC, and PMO-BOT/PPIPO) officials, with expressway firms and PCA representatives.

## PROGRAM FOR MODULE 6 - PROJECT IMPLEMENTATION

**Objectives:**

By the end of Module 6, the participants will be able to:

(1) understand and explain the principles and best practices in the execution of PPP expressway projects, including ROW provision, financial closure, design supervision and review, and construction supervision, in accordance with the Concession Agreement; and

(2) apply and manage the different aspects of the implementation process.

**Participants:** From PMO-BOT/PPIPO with PMO-IRROW/ESROWO, and BOD.

**Module Elements:**

**(2) <u>ROW acquisition and delivery</u>**

- Valuation, negotiation/expropriation, documentation, and acquisition of ROW and resettlement before issuing the advertisement for bids.
- Implementation of RAP
- Delivery to Concessionaire of cleared ROW, with Permits to Enter.

**(3) <u>Financial closure</u>**

- Monitoring and review of Concessionaire's financing arrangements leading to financial closure.
- Provision of GFS according to the Concession Agreement.

**(4) <u>Review/supervision of detailed engineering design (DED)</u>**

- Review and technical supervision of DED design prepared by the Concessionaire to check for compliance with the minimum design performance standards; responsibilities of DPWH and Independent Design Checker (IDC).
- Certification and approval of DED.

**(5) <u>Construction supervision</u>**

- Exercise of technical supervision over the construction works to check their compliance with the Concession Agreement, including conformance with the approved DED and minimum construction performance standards; responsibilities of DPWH and Independent Certification Engineer (ICE).
- Certification of accomplishments, correction of defects, and completion.

**Training Mode:** Lectures with workshops/case studies, and OJT (financial closure, review of detailed engineering design, and supervision of construction).

**Duration:** 5.0 days.

**Trainors/Resource Persons:** DPWH (PMO-BOT, IROWR-PMO, BOD, and BOC) and NEDA officials, with expressway firms and COFILCO representatives.

## PROGRAM FOR MODULE 7 - PROJECT OPERATION

**Objectives:**

By the end of Module 7, the participants will be able to:

(1) understand and discuss the principles and processes in setting and adjusting toll rates, and in supervising the O&M of toll expressways; and

(2) monitor actual toll rate setting and adjustments as provided in the Concession Agreement, and supervise actual O&M done by the concessionaire.

**Participants:** From PMO-BOT/PPIPO.

**Module Elements:**

**(1) <u>Implementation of toll rates and rate adjustments</u>**

- Monitoring and ensuring that TRB effects the automatic approval of toll rates and toll rate adjustments as bid and provided in the Concession Agreement.

- Provision of compensation in case of inability of government to provide agreed toll rates and adjustments.

**(2) <u>O&M supervision</u>**

- Technical supervision over the facility operation (toll collections, traffic management, road safety, weighbridges, signage, staff management, etc.) by the Concessionaire to check its compliance with the Concession Agreement, including conformance with the minimum performance standards and the approved Operations Manual.

- Technical supervision over the facility maintenance (routine, periodic and preventive maintenance, rehabilitation, etc.) by the Concessionaire to check its compliance with the Concession Agreement, including conformance with the minimum performance standards and the approved Maintenance Manual.

**Training Mode:** Lectures with workshops/case studies and best practices, and OJT with expressway operators (NLTC/SLTC/CMMTC/UMPC).

**Duration:** 3.0 days

**Trainors/Resource Persons:** DPWH (PMO-BOT/PPIPO and BOM) and TRB officials, with expressway operators.

**PROGRAM FOR MODULE 8 - PROJECT MONITORING AND POST-EVALUATION OF IMPACT**

**Objectives:**

By the end of Module 8, the participants will be able to monitor and evaluate toll expressway projects in terms of their actual outputs and outcomes versus the targeted/ expected levels.

**Participants:** From PMO-BOT/PPIPO with PS and PMO-FS.

**Module Elements:**

**(1) <u>Monitoring and evaluation (M&E) of project outputs</u>**

- Distinction between:
  (a) outputs – the goods and services directly produced by the PPP project; and
  (b) outcomes – the impact or benefits of the outputs of the PPP project on the users.
- Setting up of system for data collection and monitoring of outputs.
- Establishment of measurable Key Performance Indicators (KPIs) and targets for the outputs - e.g., lane-km built per plans and specifications, lane-km maintained in good condition, safety facilities installed, signage provided, etc.
- Evaluation of project output performance as against the targets.
- Feedback for any revision of the PPP project outputs.

**(2) <u>M&E of project outcomes</u>:**

- Setting up of system for data collection and monitoring of outcomes.
- Establishment of measurable Key Performance Indicators (KPIs) and targets for the outcomes - e.g., traffic usage, decreased travel time, reduced road user costs (on both the expressway and old roads), lower accident rates, economic feasibility indicators, financial profitability indicators, etc.
- Evaluation of project outcome performance as against the targets.
- Feedback for any revision of the PPP project outcomes.

**Training Mode:** Lectures with workshops/case studies and best practices.

**Duration:** 2.0 days

**Trainors/Resource Persons:** DPWH (PS, PMO-BOT/PPIPO, PMO-FS and MIS) officials..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