Republic of the Philippines
Department of Public Works and Highways

ROAD INFRASTRUCTURE DEVELOPMENT IN THE PHILIPPINES

Department of Public Works and Highways
Bonifacio Drive, Port Area, Manila
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By

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OUTLINE OF PRESENTATION

- Strategy of Philippine Infrastructure Development Plan
- DPWH Medium-Term Public Investment Program
- Public Private Partnership Initiatives

BASIC MANDATE:

- Planning of infrastructure, such as roads and bridges, flood control, water resources projects and other public works, and the design, construction, and maintenance of national roads and bridges, and major flood control systems.

- These activities are undertaken in support of the national development objectives as envisioned in the 2005-2010 Medium-Term Philippine Development Plan(MTPDP).

Philippine Road Network

Overall road network as of December 2007: 201,138 km

Road Density : 0.671 km Per square km. of land area

Overall paved road ratio: low level of 0.23 (due to huge inventory of 'barangay roads' or farm to village roads)

Road Densities and Paved Road Ratios in the Philippines and other ASEAN Developing Countries

Countries	Total Road Length (km)	Paved Road Ratio	Land Area sq km	2007 Population	Paved Road Density	
					km/sq km	km/1000 population
Philippines	205,497	0.23	300,000	88,574,614	0.15	0.50
Indonesia	268,030	0.48	1,919,500	234,693,997	0.07	0.55
Malaysia	64,373	0.75	329,733	24,821,286	0.15	1.95
Thailand	201,855	0.82	513,115	65,068,149	0.32	2.54
Vietnam	153,312	0.35	330,991	85,262,356	0.16	0.63

Total Road Lengths and Paved Road Ratio, by Classification

Classification	Length (km)	Paved Road Ratio
National Roads	29,369	0.70
National Arterial	15,559	0.79
National Secondary	13,810	0.60
Provincial Roads	31,284	0.25
City Roads	7,052	0.77
Municipal Roads	15,803	0.34
Barangay Roads	121,989	0.07
TOTAL	205,497	0.23

Philippine Road Network

Condition of the Philippine Highway Network :

- **ONLY 80% OF TOTAL NATIONAL ARTERIAL ROAD NETWORK IS PAVED, 45% OF THE PAVED SECTIONS NEED TO BE REHABILITATED, AND 20% OF THE NETWORK IS STILL UNPAVED.**

- **FOR NATIONAL SECONDARY ROADS, ABOUT 60% IS PAVED, 39% OF THE PAVED SECTIONS NEED TO BE REHABILITATED, WHILE 44% IS STILL UNPAVED.**

- **ABOUT 23% OF TOTAL LENGTH OF ALL ROADS IS PAVED AND 77% IS STILL UNPAVED.**

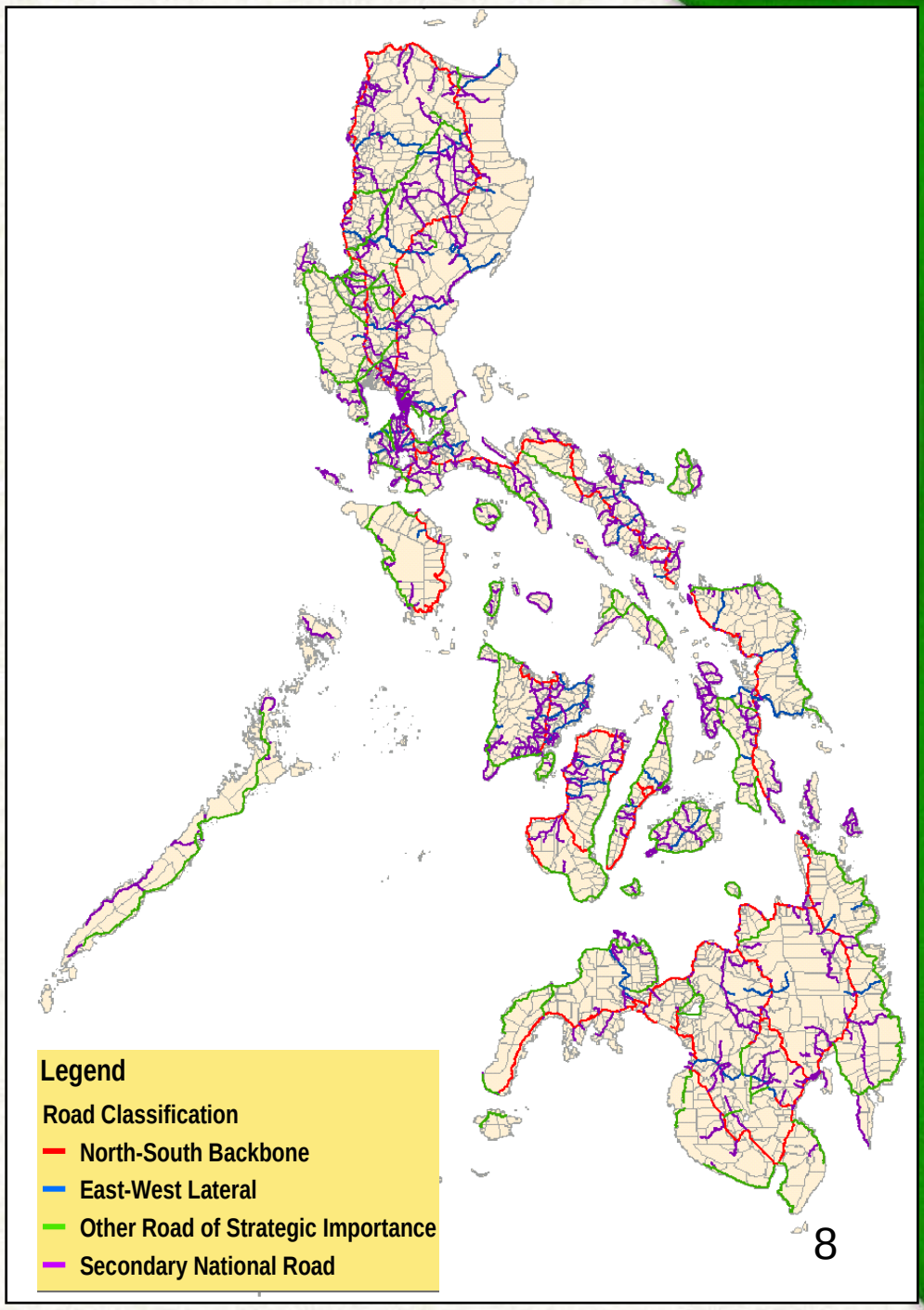
Philippine National Road Network

1. **NORTH-SOUTH BACKBONE** (5,233 km) – main trunk line from northernmost Luzon down to Southern Mindanao interconnecting major islands.

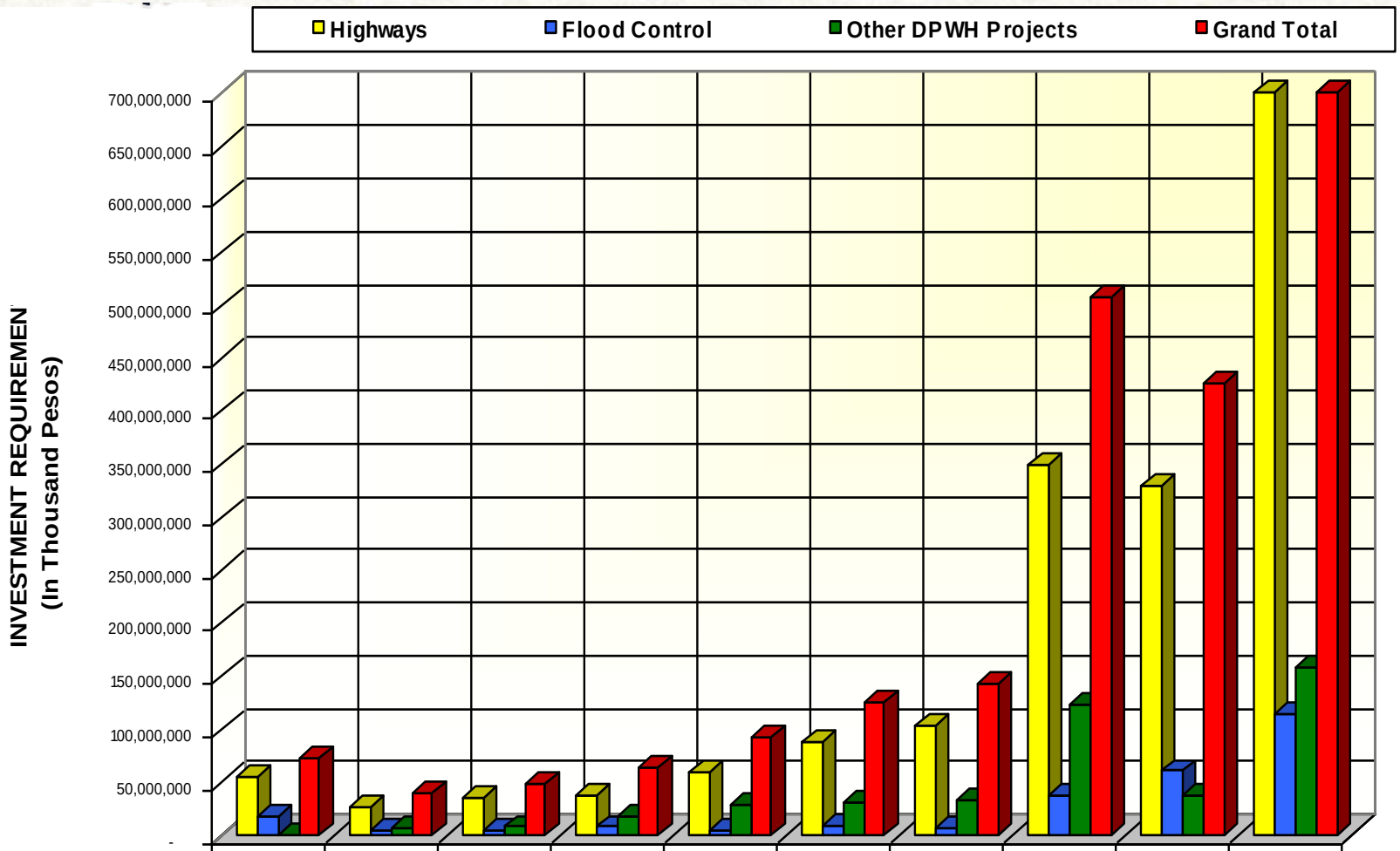
2. **EAST-WEST LATERALS** (2,965 km) – roads traversing backbone and across the islands (about 100 km apart)

3. **OTHER ROADS** (7,362 km) – direct access to important centers and areas vital for regional development and emergencies.

4. **NATIONAL SECONDARY ROADS** (13,810 km) – other roads which complement national arterial roads to provide access to other main population and production centers



MEDIUM-TERM INFRASTRUCTURE INVESTMENT PROGRAM (CY 2005-2010)



	Prior Years	2005	2006	2007	2008	2009	2010	Total (2005-2010)	Later Years	Total Cost
Highways	53,611,827	26,501,038	35,503,825	37,990,387	58,996,057	87,233,969	102,641,761	348,867,037	328,577,217	731,056,083
Flood Control	17,672,730	4,987,213	4,836,129	7,329,219	4,703,829	7,639,451	6,694,068	36,189,909	60,174,073	114,036,712
Other DPWH Projects	-	7,231,703	7,380,000	17,342,394	27,855,974	29,521,080	33,144,166	122,475,317	36,320,115	158,795,432
Grand Total	71,284,557	38,719,954	47,719,954	62,662,000	91,555,860	124,394,500	142,479,995	507,532,263	425,071,405	1,003,888,227

DESIRED OUTCOMES OVER THE MEDIUM-TERM

a. National arterial roads (15,663 km) will be 95 percent paved by 2010, compared to 83 percent in 2005. This will require the paving of 2,207 km and the rehabilitation/widening/ upgrading/construction of 2,292 km.

a. National secondary roads (13,987 km) will be 70 percent paved by 2010, compared to the existing 52 percent in 2005. This will entail the paving of 3,835 km and the rehabilitation of 1,390 km.

a. National bridges (314,456) lineal meters or lm) will be 100 percent permanent by 2010, compared to the 93 percent in 2005. This will involve the replacement of 12,400 lm of temporary bridges and the improvement of 6,047 lm of existing bridges. The program will also include the construction of 2,154 lm of new bridges.

ROAD INFRASTRUCTURE POLICIES AND STRATEGIES

1. IMPLEMENT ROAD ACTIVITIES IN THE FOLLOWING ORDER OF PRIORITIES:
   (a) MAINTENANCE (to preserve existing roads in good condition)
   (b) REHABILITATION (to restore damaged roads to original designed condition)
   (c) IMPROVEMENT (to upgrade road features to efficiently serve the traffic), and
   (d) NEW CONSTRUCTION.

2. FOCUS ON PAVING AND UPGRADING THE NATIONAL ROAD NETWORK, ESPECIALLY THE ARTERIAL SYSTEM, BASED ON THE PAVEMENT MANAGEMENT SYSTEM USING THE HDM 4 MODEL.

3. PRIORITIZE ROADS SERVING DESIGNATED KEY AGRICULTURAL PRODUCTION AREAS, TOURISM DESTINATIONS, AND GROWTH CENTERS, AND THOSE WHICH WILL IMPROVE LAW AND ORDER.

ROAD INFRASTRUCTURE POLICIES AND STRATEGIES

ROADS

4. **IN MAJOR URBAN CENTERS, IMPROVE TRAFFIC FLOW AT MAIN CORRIDORS, THROUGH TRAFFIC ENGINEERING AND MANAGEMENT, INTERMODAL INTEGRATION, AND SELECTED FLYOVERS AND BYPASSES.**

5. **ENCOURAGE MORE "Public-Private Partnership (PPP)" ROAD PROJECTS FOR HEAVILY TRAVELLED CORRIDORS WHERE COSTS CAN BE DIRECTLY RECOVERED THROUGH TOLLS.**

DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN
INFRASTRUCTURE POLICIES AND STRATEGIES

Strategies	Objectives
1. UNDER THE LONG AND MEDIUM TERM PLANS AND PROGRAMS:	
a. Pave all national roads with concrete or asphalt	• **Increase ratio of paved length to total length of national roads from 70% in 2004 to 95% in 2010, with International Roughness Index (IRI) of less than 4.**

DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN
INFRASTRUCTURE POLICIES AND STRATEGIES

Strategies	Objectives
1. UNDER THE LONG AND MEDIUM TERM PLANS AND PROGRAMS:	
b. Replace/construct national bridges with permanent structures throughout the country	**• Increase ratio of permanent to total national bridges, from 93% in 2004 to 100% in 2010.**

DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN
INFRASTRUCTURE POLICIES AND STRATEGIES

c. **Prioritize roads to support the 10-point agenda of the Government:**

10 POINT AGENDA BEAT THE ODDS!

1. Ten Million jobs shall have been created
2. Everyone of school age will be in school, in an uncrowded classroom, in surroundings conducive to learning. Three thousand school buildings a year shall have been built and a computer put in every high school.
3. The budget shall have been balanced with the right revenues collected and spending on the right things ensured.
4. **The network of transport and digital infrastructure on which the Arroyo government embarked in 2002 shall have linked the entire country.**
5. Power and **water shall have been regularly provided in the entire country.**
6. **Metro Manila will have been decongested with economic activity growing and spreading to new centers of government, business and community in Luzon, in the Visayas, and in Mindanao.**
7. The Subic-Clark corridors will have become the most competitive international service and logistics center in the Southeast asian region
8. Elections will no longer raise a doubt about their integrity. The electoral process will have been completely computerized.
9. Peace will have come to Mindanao and all insurgency areas
10. The divisive issues generated by EDSA 1, 2 and 3 will have had a just closure.

DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN INFRASTRUCTURE POLICIES AND STRATEGIES

Strategies	Objectives
c.1 Complete the nautical highways to transport the products of Mindanao to Luzon and Visayas	• Complete paving and improve remaining unimproved road sections of the Western, Central, and Eastern Nautical Highways. Rehabilitate or replace weak bridges along the routes.

DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN INFRASTRUCTURE POLICIES AND STRATEGIES

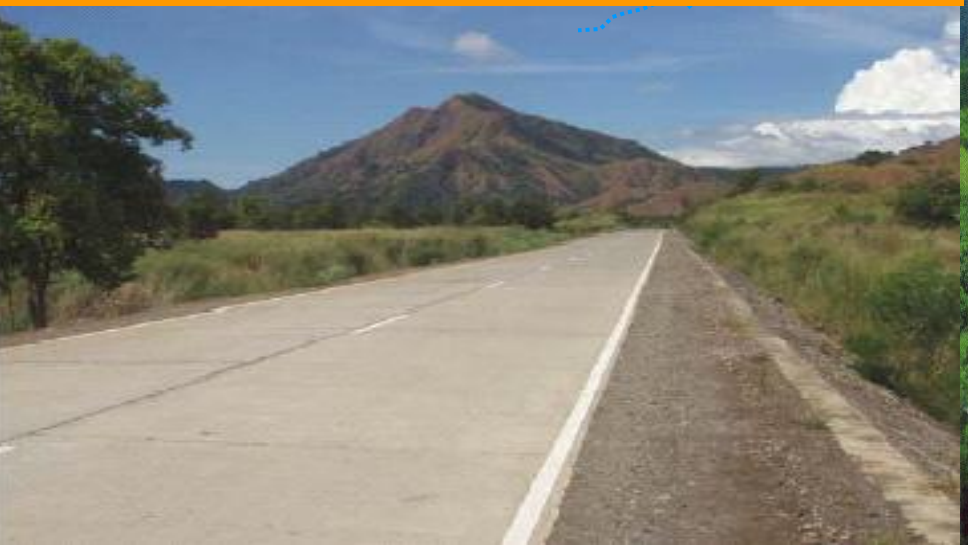
Strategies	Objectives
c.2 Decongest Metro Manila	• Complete Expressway projects and undertake projects to speed traffic in and out of Metro Manila

DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN INFRASTRUCTURE POLICIES AND STRATEGIES

Strategies	Objectives
c.3 Address critical transport bottlenecks	• In urban areas, implement widening, traffic management and intersections improvement to ease congestion. In rural areas, pave and improve arterial road links between regional centers and production areas.

DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN
INFRASTRUCTURE POLICIES AND STRATEGIES

Strategies	Objectives
c.4 Improve access to major tourist destinations	• Pave and improve roads leading to tourist complexes at Cebu-Bohol-Camigiun, Palawan, Cordillera, Clark-Subic and Davao.



DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN
INFRASTRUCTURE POLICIES AND STRATEGIES

Strategies	Objectives
c.5 Improve roads to support peace and development in Muslim Mindanao and other conflict/ impoverished areas	• Pave and improve roads in ARMM, Bondoc Peninsula (Quezon), Cordillera, Bicol and Samar.

DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN INFRASTRUCTURE POLICIES AND STRATEGIES

Strategies

3. Institutionalize Information Technology (IT)-aided planning processes developed under the Road Information and Management Support System (RIMSS).

Objectives

Implement Road Network Planning and Multi-Year Programming System (RNPMYPS), Pavement Mgt. System (PMS), Bridge Mgt. System (BMS), Routine Maintenance Mgt. System (RMMS), Road Safety Program, and Road and Bridge Information Applications (RBIA) for all national roads.

DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN
INFRASTRUCTURE POLICIES AND STRATEGIES

Strategies	Objectives
4. Allocate infrastructure funds according to the following order priority:	
a. Preservation and maintenance (especially national roads). **- to preserve existing roads in good condition**	**• Increase allocation for maintenance of national roads from P4.8B to P13.5B by 2010 to fully meet computed needs, with International Roughness Index (IRI) of less than 4.**

DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN
INFRASTRUCTURE POLICIES AND STRATEGIES

Strategies	Objectives
b. Rehabilitation	• **To restore damaged roads to original designed condition**

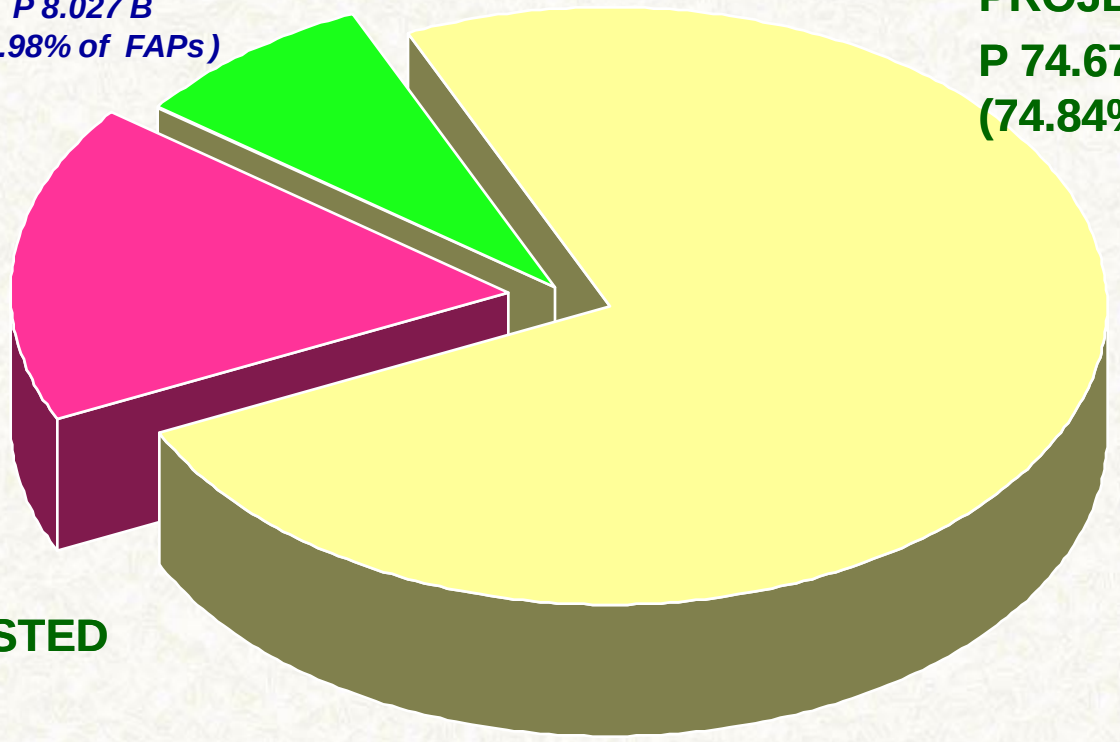
DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN
INFRASTRUCTURE POLICIES AND STRATEGIES

Strategies	Objectives
c. Improvement	• **To upgrade roads features to efficiently serve the traffic (from gravel to concrete)**

DPWH 2005-2010 MEDIUM TERM DEVELOPMENT PLAN INFRASTRUCTURE POLICIES AND STRATEGIES

Strategies	Objectives
d. New construction	• Construction of bypasses, widening of roads, road opening

FY 2009 CAPITAL OUTLAYS BUDGET
(BY MODE OF FINANCING)

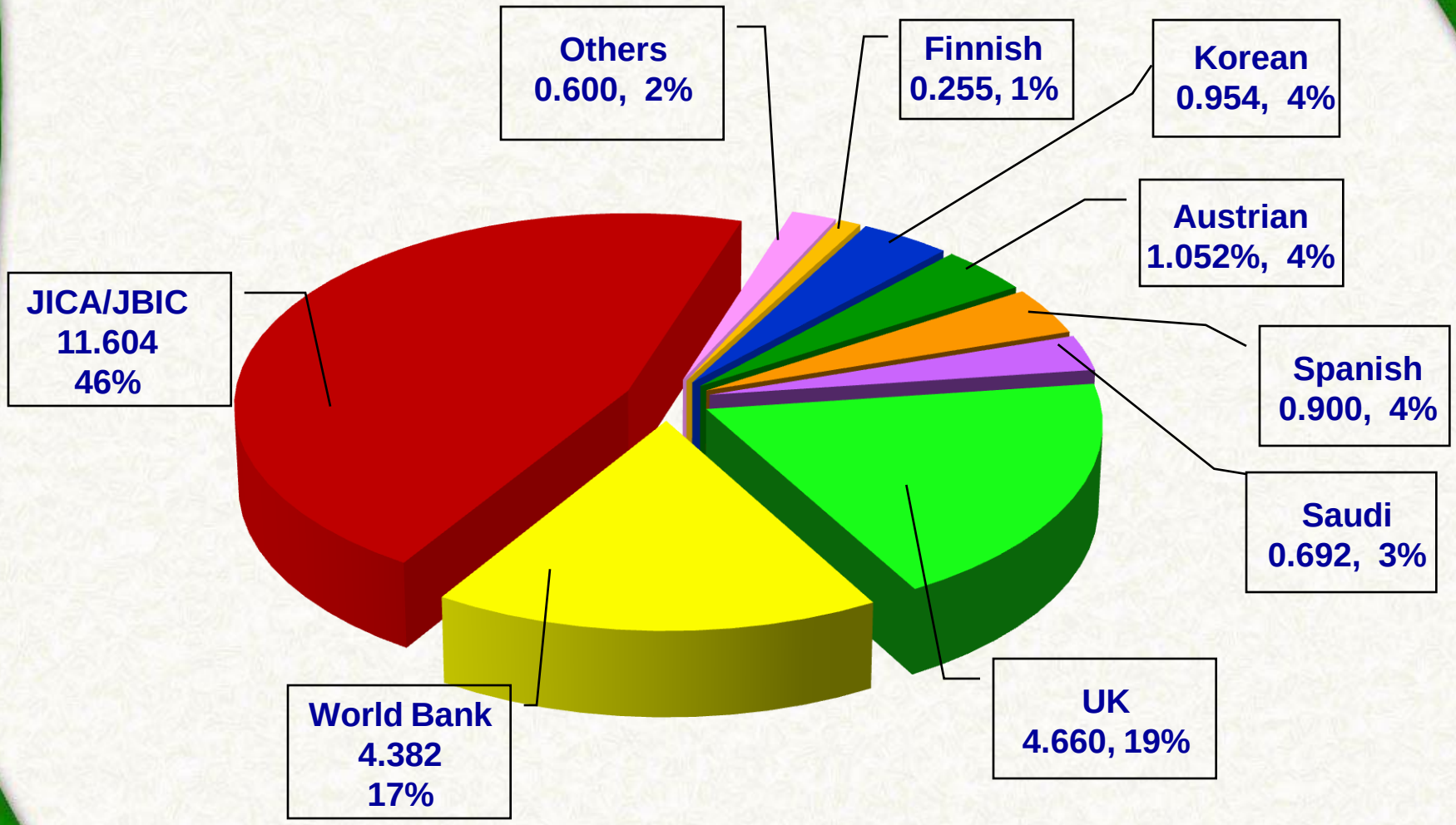


FOREIGN-ASSISTED PROJECTS

P 25.099B
(25.16%)

TOTAL CAPITAL OUTLAYS - P 99.773 B

FY 2009 FOREIGN-ASSISTED PROJECTS BY INTERNATIONAL FUNDING INSTITUTION



TOTAL FOREIGN-ASSISTED PROJECTS – P25.099 B

US Dollar = $523 Million

PUBLIC PRIVATE PARTNERSHIP (PPP) INITIATIVES

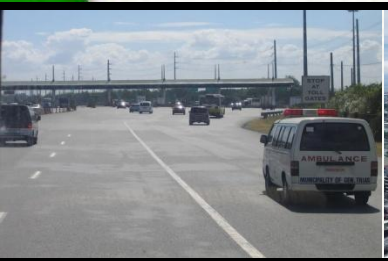
POLICY

- The Government of the Philippines recognizes the **indispensable role** of the **private sector** as the main engine for national growth and development and provide the **most appropriate incentives** to mobilize **private resources** for financing the construction, operation and maintenance of **infrastructure** and development projects normally financed and undertaken by the Government.

- Such incentives, aside from financial incentives as provided by law, include providing **a climate of minimum government regulations and procedures** and specific government undertakings in support of the private sector.

The PPP Arrangement

PPP is essentially a contractual arrangement entered into by a national government implementing agency (IA) to authorize the private sector entity to finance, construct, operate and maintain a facility, and, in the process, to charge user fees or receive compensation from the government. The choice of the PPP mode may vary from any of the schemes authorized under the BOT Law.





Its Advantages to the Government

- **Transfer of the burden of raising funds for projects and project risks to the private sector;**
- **Government resources are freed and re-allocated for other urgent uses;**
- **The entry of private sector superior technology and expertise is paved;**
- **Project implementation is hastened and operating efficiency is assured; and**
- **Creation of conditions for technology transfer and training.**

PPP Legal Framework

The fundamental legal bases for implementing PPP projects are the:

- **BOT Law (Republic Act 6957 as amended by Republic Act 7718, approved 05 May 1994, and its Implementing Rules and Regulations (IRR); and**

- **Government Owned and Controlled Corporations (GOCC) Charter – examples are Public Estates Authority (PEA), National Development Company (NDC) and others**

CONTRACTUAL ARRANGEMENTS/SCHEMES

Many BOT Variants Allowed

Private sector proponents can now use different variants to implement infrastructure projects under the BOT arrangement. The BOT Law allows nine specific variants described in the table below and other modes subject to the approval of the President

- **Build-and-Transfer (BT)**
- **Build- Lease-Transfer (BLT)**
- **Build-Operate-Transfer (BOT)**
- **Build- Own- Operate (BOO)**
- **Build-transfer-Operate (BTO)**
- **Contract-Add-Operate (CAO)**
- **Develop-Operate-and-Transfer (DOT)**
- **Rehabilitate-operate-and–Transfer (ROT)**
- **Rehabilitate-Own-Operate (ROO)**

The Build-Operate-Transfer (BOT) Scheme

Under the BOT scheme, a private proponent enters into a contractual arrangement with the IA to undertake any or a combination of the BOT variants for an infrastructure facility. The following rights may be bestowed on the private proponent:

- **To operate the facility over a fixed period, not to exceed 50 years;**
- **To charge facility users fees, tolls, rentals or share in the revenue of the project; and**
- **To recover capital, operating and maintenance expenses and earn a reasonable return on investment.**

BOT CENTER

The agency mandated to coordinate and monitor projects implemented under the Act, pursuant to Administrative Order No. 67 (s. 1999), as amended by Administrative Order No. 103 (s. 2000) and Executive Order No 144 (s. 2002)

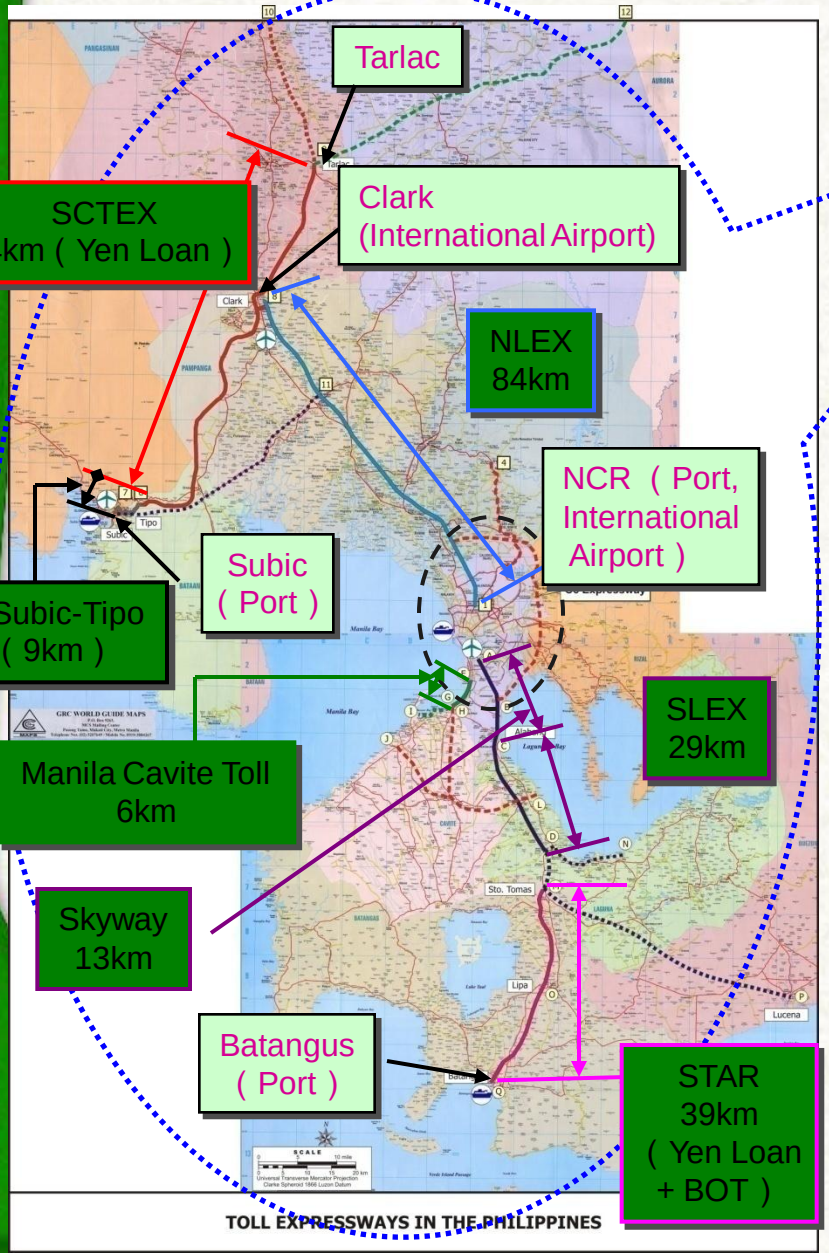
EXPRESSWAYS IN OPERATION

	Location	Length	Year Opened to Traffic	Funding
North Luzon Tollway	Balintawak-Sta. Ines, Pampanga	82.62	1977 (original) 2005 (rehabilitated)	BOT
South Luzon Tollway	Muntinlupa-Calamba, Laguna	28.53	1977 (original) 2008 (rehabilitated)	BOT
Manila-Cavite Toll Expressway	Paranaque-Zapote, Cavite	6.75	1999	BOT
Southern Tagalog Arterial Road	Batangas	41.90	2001 (Stage I) 2008 (StageII)	ODA BOT
Metro Manila Skyway, Stage 1	Metro Manila	13.43 (At-grade) 9.30 (viaduct)	1977 1997	BOT
Subic-Clark-Tarlac Expressway	Subic-Clark-Tarlac	93.77	2007	ODA
		276.3		

EXPRESSWAYS UNDER CONSTRUCTION/PLANNING

	Location	Length (km)	Started	Target Completion	Funding
Metro Manila Skyway, Stage 2 Stage 3	Bicutan-Alabang Buendia-NLEX	6.88 17.50	April 2009 Under planning Stage	2010	BOT
South Luzon Tollway, TR3	Calamba-Sto. Tomas, Batangas	7.50	March 2008	2011	BOT
Manila-Cavite Toll Expressway, R-1 Extension	Zapote- Kawit, Cavite	7.00	March 2006	2010	BOT
North Luzon Tollway, Phase 2 Segment 8.1 Segment 8.2 Segment 9 Phase 3 Segment 10	 Mindanao Ave., Quezon City-NLE, Valenzuela City C.P. Garcia-Mindanao Ave. NLEX-MacArthur MacArthur-Letre	 2.34 10.23 4.06 5.63	 April 2009 Under planning Stage -do-	 2010	 BOT
Tarlac- Pangasinan-La Union (TPLEX)	Tarlac City, Pangasinan - Rosario, La Union	88.58	2008 (ROWA and DE) February 2009 (Construction)	2010 2013	BOT
Total		149.72			

Expressway Network in the Philippines



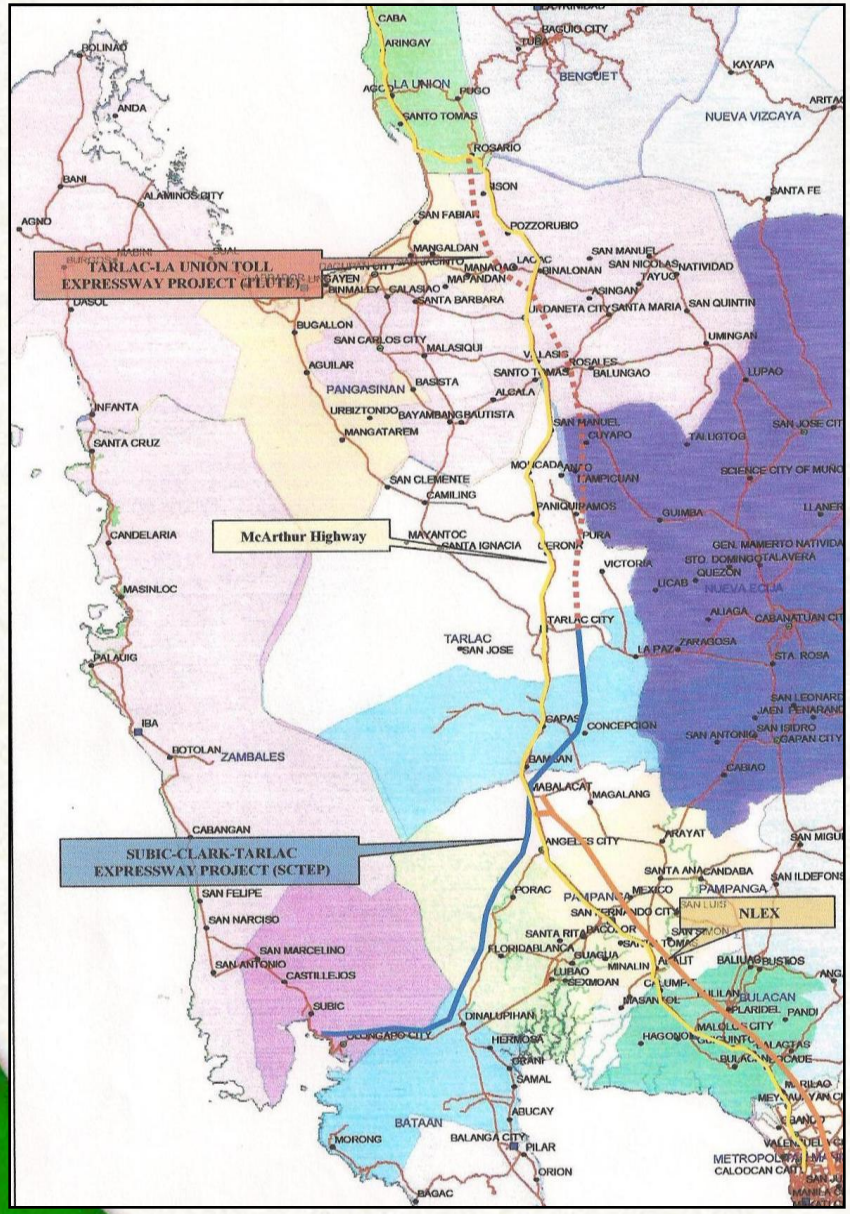
- Mostly BOT (ROT) Projects
  ⇒Operated or Planned only in Central Luzon with Forecasted High Traffic Demand
  ※SCTEX and Portion of STAR were constructed with Japanese Yen Loan
- Total Length of approx. 270 km in Operation

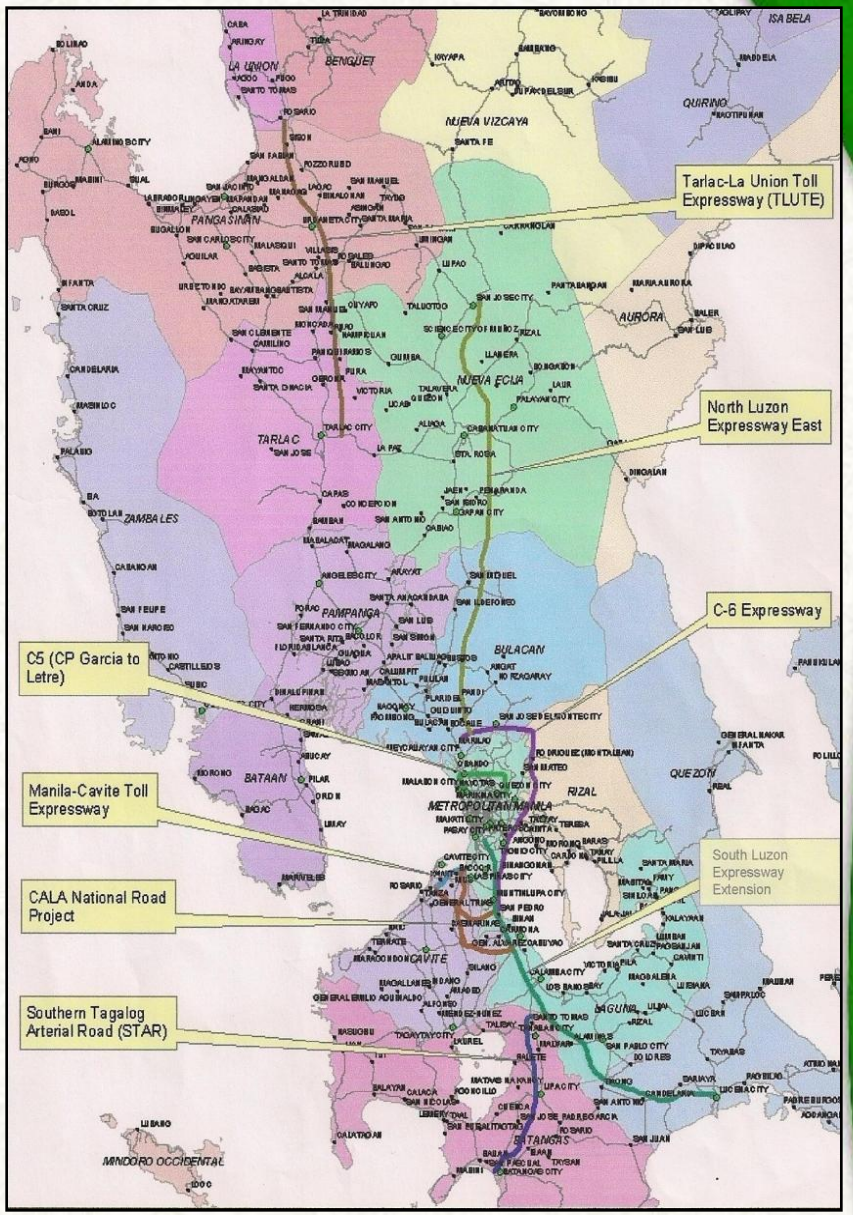
—— Operated

- - - - Planned

※Skyway: Two Storied Expressway of Viaduct and At-Grade

NETWORK OF EXISTING AND PLANNED EXPRESSWAYS





CURRENT INITIATIVES TO DEVELOP MORE EXPRESSWAYS

- **Study of Master Plan of High Standard Highway Development**

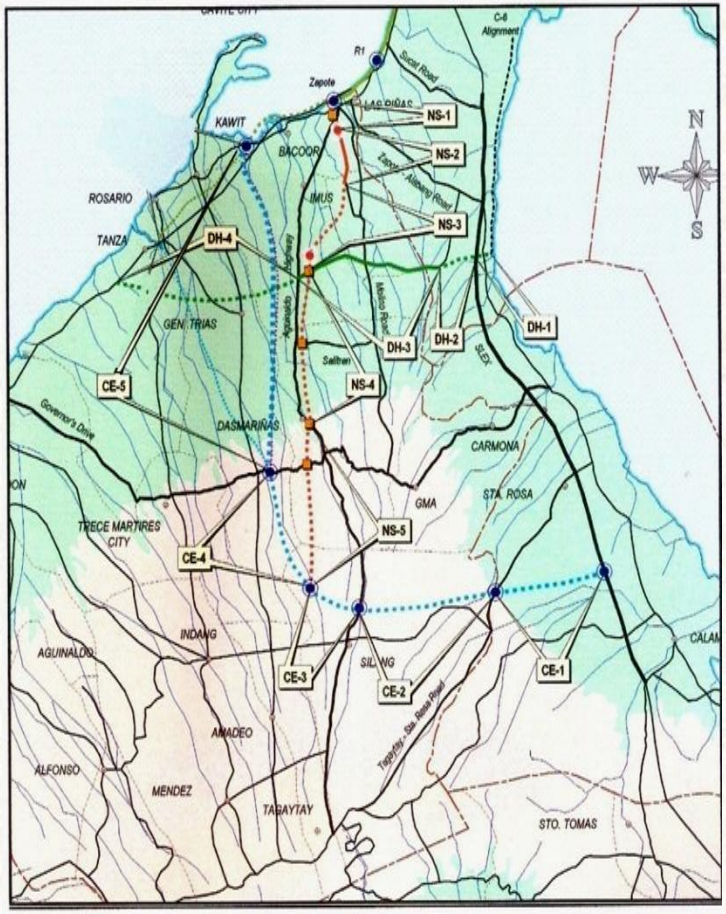
  The DPWH, with technical assistance from JICA, will formulate a Master Plan of High Standard Highways within the area of 200 km radius from Metro Manila, Metro Cebu and the Tagum, Davao-Gen. Santos corridor. A major output from this study will be identification of road network and routes for the high standard highways to meet future traffic demand. The study will be completed in April 2010 .

- **Cavite-Laguna (CALA) Tollway Project**

  The project involves the following components:

  1. North-South Road (NS) Highway, a 27.2 km. six-lane highway extending from Bacoor, Cavite in the north to Sta. Rosa-Laguna in the south.
  2. East-West Road, a 24.3 km. highway extending the existing Daang Hari (DH) road eastward to SLEX and westward to Tanza.

  With technical assistance by the World Bank, the project is being developed as a Private Public Partnership (PPP) project Target implementation of the NS Road is 2012.



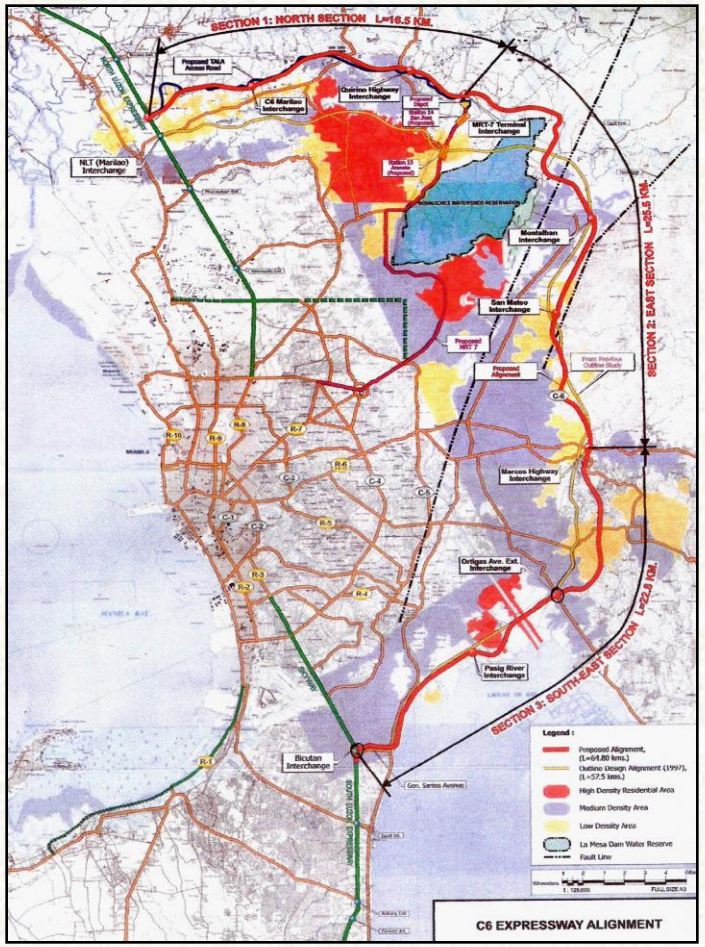
CURRENT INITIATIVES TO DEVELOP MORE EXPRESSWAY

- **Feasibility Study of Central Luzon Expressway (CLEX) Project.**

  The study will verify and confirm viability of a road directly connecting Pan-Philippine Highway (PPH) to Subic-Clark-Tarlac Expressway (SCTEX) and an extension to north-eastern Luzon. If implemented, about 30 km of expressways will serve as seamless road link in that area . The study will be completed by end of December 2009.

- **Circumferential Road 6 (C-6) Project**

  The C-6 Project will be a six lane tollway connecting North Luzon Expressway (NLEX) in Marilao, Bulacan and South Luzon Expressway (SLEX), in Taguig, Metro Manila. Its approximate length of 64.7 km will traverse part of Metro Manila, four (4) municipalities in Rizal Province and three (3) municipalities in Bulacan Province. A feasibility study will be conducted with technical assistance from the Korean government starting 2010.



CURRENT INITIATIVES TO DEVELOP MORE EXPRESSWAY

- **Business Case for PPP Projects**

The DPWH will develop a pipeline of potential expressway projects for PPP implementation within the next medium term. About six (6) expressway projects have been initially identified and this will be subjected to a business case study to determine the appropriateness of the projects for PPP. The business case will determine costs, issues, and basic clearances, especially those issues that may prevent a particular project from proceeding. Consultants to undertake the study will be procured in the first quarter of 2010.

CONCLUSIONS

- **Opportunities for providing expressways have increased in recent years and are still increasing. DPWH will pursue their construction within the next medium term.**

Republic of the Philippines
Department of Public Works and Highways

DPWH 111 YEARS

Thank You!

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