



Performance Evaluation Report

Reference Number: PPE: PHI 2011-35
Project Number: 33924
Investment/Loan Number: 7162/1769
November 2011

Philippines: North Luzon Expressway Rehabilitation and Expansion

Independent Evaluation Department

Asian Development Bank

CURRENCY EQUIVALENTS

Currency Unit – Philippine peso (P)

	At Appraisal (21 August 2000)	At Project Completion (10 February 2005)	At Evaluation (5 August 2011)
P1.00 =	\$0.0222	\$0.0181	\$0.02347
\$1.00 =	P45.00	P55.12	P42.61

ABBREVIATIONS

ADB	–	Asian Development Bank
BDO	–	Banco de Oro Unibank
BHC	–	Benpres Holdings Corporation
BOA	–	business and operating agreement
EBITDA	–	earnings before interest, taxes, depreciation, and amortization
EIRR	–	economic internal rate of return
FIRR	–	financial internal rate of return
FPHC	–	First Philippine Holdings Corporation
FPIDC	–	First Philippine Infrastructure Development Corporation
IFC	–	International Finance Corporation
GDP	–	gross domestic product
km	–	kilometer
LIBOR	–	London interbank offered rate
LIL	–	Leighton International Limited
MNR	–	Manila North Road
MNTC	–	Manila North Tollways Corporation
MPIC	–	Metro Pacific Investments Corporation
MPTC	–	Metro Pacific Tollways Corporation
MSMEs	–	micro, small, and medium enterprises
NCR	–	National Capital Region
NLEX	–	North Luzon Expressway
PNCC	–	Philippine National Construction Corporation
PPP	–	public–private partnership
RRP	–	report and recommendation of the President
SCTEX	–	Subic–Clark–Tarlac Expressway
SLEX	–	South Luzon Expressway
STOA	–	supplemental toll operation agreement
TMC	–	Tollways Management Corporation
TRB	–	Toll Regulatory Board
VAT	–	value added tax
VOC	–	vehicle operating cost
WACC	–	weighted average cost of capital

NOTES

- (i) The fiscal year (FY) of the Manila North Tollways Corporation ends on 31 December. FY before a calendar year denotes the year in which the fiscal year ends. FY2011 ends on 31 December 2011.
- (ii) In this report, "\$" refers to US dollars.

Key Words

adb, asian development bank, manila north tollways corporation, north luzon expressway, private sector development, philippines, project performance evaluation report, toll roads.

Director General	V. Thomas, Independent Evaluation Department (IED)
Director	H. Feig, Officer-in-Charge, Independent Evaluation Division 1, IED
Team leader	N. Subramaniam, Senior Evaluation Specialist, IED
Team members	N. Gamo, Evaluation Officer, IED I. Garganta, Senior Evaluation Assistant, IED
Independent Evaluation Department, PE-746	

In preparing any evaluation report, or by making any designation of or reference to a particular territory or geographic area in this document, the Independent Evaluation Department does not intend to make any judgments as to the legal or other status of any territory or area.

CONTENTS

	Page
BASIC DATA	i
EXECUTIVE SUMMARY	ii
I. THE PROJECT	1
A. Project Background	1
B. Key Project Features	1
C. Progress Highlights	2
II. EVALUATION	5
A. Project Rationale and Objectives	5
B. Development Impact and Outcomes	5
C. ADB Investment Profitability	18
D. ADB Work Quality	19
E. ADB Additionality	21
F. Overall Evaluation	21
III. ISSUES, LESSONS, AND RECOMMENDATIONS	22
A. Issues and Lessons	22
B. Recommended Follow-Up Actions	23
APPENDIXES	
1. Private Sector Development Indicators and Ratings	24
2. Contributions to the Development of Central and Northern Luzon	29
3. Toll Roads in the Philippines	36
4. Manila North Tollways Corporation	42
5. Financial Internal Rate of Return	51
6. Economic Internal Rate of Return	57

The guidelines formally adopted by the Independent Evaluation Department (IED) on avoiding conflict of interest in its independent evaluations were observed in the preparation of this report. Consultant Roy Brockman assisted in the analysis and preparation of the report. To the knowledge of the management of IED, there were no conflicts of interest of the persons preparing, reviewing, or approving this report.

BASIC DATA
North Luzon Expressway Rehabilitation and Expansion Project
(Investment 7162/Loan 1769-PHI)

Key Project Data (\$ million)	Estimated	Actual
Total project cost	377.5	384.5
Total equity	117.5	117.2
Total debt	260.0	267.3
ADB financial assistance		
Direct loan	45.0	45.0
Complementary financing scheme loan	25.0	25.0

Key Dates	Expected	Actual
Concept clearance approval	29 November 1999	29 November 1999
Board approval	26 October 2000	26 October 2000
Loan agreement	7 July 2001	7 July 2001
Loan effectiveness	7 July 2001	7 July 2001
First disbursement		7 February 2003
Start of commercial operations	February 2003	10 February 2005
Loan closing	8 November 2004	12 May 2005
Months (loan effectiveness to start of commercial operations)	19	43
Extended annual review report		April 2008
Validation report		August 2009
Project performance evaluation report		October 2011

Note: Drawdown was delayed for a long time by (i) a requirement for a change in sponsor equity to replace most of the Philippine National Construction Corporation's original equity commitment, which was deemed not feasible; and (ii) more significantly, deferral of the government's acquisition of the right-of-way, which was a critical condition of the loan drawdown.

Type of Mission	Number of Missions	Person-days
Fact-finding	1	25
Loan appraisals and/or negotiations	4	23
Project administration	5	15

EXECUTIVE SUMMARY

On 26 October 2000, the Board of Directors of the Asian Development Bank (ADB) approved a direct loan of \$45 million without a government guarantee and a complementary loan of \$25 million to the Manila North Tollways Corporation (MNTC). Both loans were from ADB's ordinary capital resources and were used to finance the rehabilitation, expansion, and operation of 83.7 kilometers of the North Luzon Expressway (NLEX) between Manila and the Clark Special Economic Zone. The project involved rehabilitating 14 interchanges, 24 bridges, 31 overpasses, and the 8.8 kilometer expressway in the Subic Special Economic Zone.

The total project cost was \$384.5 million, slightly above the budget estimate of \$377.5 million. Design-change orders, additional land acquisition, and cost adjustments due to delayed right-of-way acquisition contributed to the increase. The project was financed with loans totaling \$267.3 million plus equity of \$117.2 million from MNTC's shareholders. Rehabilitation was completed in February 2005 and commercial operations started on 10 February 2005. The project was structured as a public-private partnership (PPP), and undertaken on a rehabilitate-operate-transfer basis by MNTC. At the end of the concession period in 2037, the expressway will be transferred to the government without cost.

The overall assessment of the project is *successful*, based upon a qualitative combination of the ratings of criteria set forth in ADB's *Guidelines for Preparing Performance Evaluation Reports on Nonsovereign Operations*. Four main criteria were used: development impact and outcomes, ADB investment profitability, ADB work quality, and ADB additionality. Development impact and outcomes were rated *satisfactory* according to four subcriteria: private sector development (rated *satisfactory*); business success (rated *satisfactory*); economic sustainability (rated *satisfactory*); and environmental, social, health, and safety performance (rated *satisfactory*).

The rehabilitated NLEX has contributed to the development of central and northern Luzon. There is evidence of new shopping malls, tourist sites, and entertainment complexes developing near toll junctions, especially in and near the Clark Special Economic Zone and the cities of San Fernando and Angeles. New residential subdivisions have sprung up in Bulacan and Pampanga, and tourism has benefited from faster access to Subic Bay, Baguio, and venues further north. Reduced journey times, too, have facilitated provision of fresher fruit, vegetables, and meat to Metro Manila, thereby reducing waste.

Nevertheless, overall economic growth for central and northern Luzon lags that for the country as a whole. Regional gross domestic product (GDP) increased by 3.4% per annum from 2004 to 2009 compared to 4.8% nationally. In fact, the annual GDP growth rate from 2004–2009 for the central and northern Luzon region is only on par with the growth rate figures from all of Luzon (excluding National Capital Region). Thus infrastructure investments are essential but are not necessarily the only contributor to economic growth. NLEX has only minimally contributed to generating employment. From 2004 to 2009 total employment in the region increased by 2.0% per annum, marginally below the 2.1% for Luzon as a whole and less than for the National Capital Region and the Philippines generally over the same period. Growth in total employment has occurred, especially in services, but there has been a decline in employment in micro, small, and medium enterprises. The impact of the project on employment is therefore mixed.

Private sector development is rated *satisfactory*. NLEX has become a benchmark project for the toll road sector, and it has paved the way for further private sector participation. Government policy now endorses PPPs in the road sector. MNTC first adopted corporate

governance practices of Benpres Holdings Corporation and later those of the Metro Pacific Investments Corporation, both of which are up to international standards. Technical skills were transferred to the staff of MNTC by Leighton International Ltd and Egis Projects SA, the international equity investors.

The project's business success was rated *satisfactory*. NLEX suffered from traffic volumes that were lower than expected. Light vehicle and truck traffic have been less than half the projected levels, although bus traffic exceeded forecasts. The overall estimates proved to be overly optimistic and they factored in neither the aftereffects of the Asian financial crisis nor significant increases in fuel prices. Despite the lower traffic volumes, MNTC did not innovate in its pricing to encourage more use. Although revenues were lower than expected, the cash flow for MNTC was good. Loan repayments were made on time, and the ADB loan has been repaid in full. The lower revenues meant the financial internal rate of return (FIRR) of 9.0% was below the 16.0% computed at appraisal. As per ADB guidelines, since the FIRR (9.0%) is greater than the weighted average cost of capital (6.4%) by less than 700 basis points, the business success is rated *satisfactory*.

The economic internal rate of return (EIRR) has been computed at 11.0%, lower than the 25.7% estimated in the original report and recommendation of the President. The difference was mainly because of the lower traffic volumes. As per ADB guidelines, since the EIRR for the project is greater than 10%, the economic sustainability is rated *satisfactory*. In addition to the savings in travel times, accidents, and vehicle operating costs resulting from the project, MNTC has paid taxes. In 2010, MNTC paid P26.1 million in regular corporate income tax and P17.7 million in tax on interest income.

Environmental, social, health, and safety performance is *satisfactory*. MNTC has adopted ADB's social and environmental guidelines for all its projects, and it has internationally accredited environmental, health, and safety standards. Environmental monitoring is undertaken routinely, and there is frequent coordination with nearby communities and their representatives on social and environmental issues. There were initial problems with informal settlers, especially with trespassing and encroachment on the NLEX, but these have since been resolved. In 2008, MNTC successfully completed the requirements for certification and award of ISO 9001:2002 (air quality), ISO14001:2004 (environmental), and OHSAS18001:2007 (health and safety) standards.

ADB achieved a good margin on its loans, which increased with their conversion from dollars to pesos. As per ADB guidelines, since the margin on the loan was between a 0.9 and 1.5 multiple of the margins for loans of a number of private sector projects around the same time as that of the project, ADB's investment profitability is rated *satisfactory*. Since the start of commercial operations, MNTC has made all principal and interest payments on time. Loan repayment began on 15 December 2004, and final repayment was made in January 2011, almost three and a half years ahead of the scheduled repayment date of June 2014.

ADB's overall work quality was found to be *satisfactory*. ADB played a key role in closing the project finance transaction, but it underestimated the right-of-way problems and the inability of Philippine National Construction Corporation to raise its required equity contribution. Moreover, traffic forecasts at appraisal were much higher than what actually resulted. Monitoring was satisfactory, but the lack of a design and monitoring framework at the outset has meant difficulty in assessing the project's impact of the development of central and northern Luzon. MNTC satisfied all loan covenants and reporting requirements. ADB's lead role in the technical, financial, and legal due diligence for the project provided comfort to lenders and

attracted private sector interest. ADB also provided a complementary loan that enabled commercial financing to be mobilized.

ADB catalyzed commercial financing at a time when banking institutions had little appetite for toll road projects so soon after the Asian financial crisis. The project achieved financial closure with a broad group of international commercial banks, multilateral institutions, and export credit agencies. ADB's investment was catalytic. Before the project there was little interest for the private sector to invest in toll roads, but afterward attitudes changed and the project demonstrated the practicality, acceptability, and viability of toll roads. ADB's additionality is rated *excellent*.

Key issues identified during the evaluation were the following:

- (i) The project was designed to enhance economic development of central and northern Luzon, but the lack of a design and monitoring framework meant there were few measurable objectives or targets.
- (ii) The traffic volumes that were much lower than expected have meant fewer revenues and less favorable investment returns. ADB could have done more to test the sensitivity of the traffic forecasts to changes in the basic variables, including tariff price elasticity, lower-than-expected economic growth, and higher gasoline prices.
- (iii) The right-of-way issue should have been resolved earlier. Land acquisition by the government in the Philippines has been difficult causing delays.
- (iv) The inability of Philippine National Construction Corporation to raise funds for the project should have been anticipated at a time when most government corporations were strapped for cash.
- (v) Regulation of the toll road sector remains weak. The Toll Regulatory Board lacks independence and does not have the staff numbers or appropriate skills to fulfill its mandate.

These follow-up actions are recommended:

- (i) Due diligence by ADB in future PSOD transport projects should be more exhaustive before financial closure, especially regarding traffic projections and the financial condition of any participating government entities.
- (ii) In all future private sector projects, ADB should ensure that all right-of-way issues are resolved before loan effectiveness.
- (iii) ADB should consider to assist the government in strengthening the regulatory environment and institutions involved in the toll road sector.

Vinod Thomas
Director General
Independent Evaluation Department

I. THE PROJECT

A. Project Background

1. In the early 1990s, the Government of the Philippines recognized the need to rehabilitate the 30-year-old North Luzon Expressway (NLEX). The state-owned Philippine National Construction Corporation (PNCC) has had the franchise for the toll road since 1977. With faster economic growth, traffic volumes were increasing and NLEX was congested. This was exacerbated by frequent flooding and the road's poor and potholed surface. PNCC lacked the financial resources to operate, maintain, and expand the toll road to meet the projected increase in traffic. In 1995, PNCC assigned its rights and interests under its franchise to construct, operate, and maintain toll facilities on NLEX to Manila North Tollways Corporation (MNTC). MNTC was incorporated under a joint-venture agreement between the First Philippine Infrastructure Development Corporation (FPIDC) and PNCC for rehabilitation of the NLEX, with FPIDC owning 60% of the equity and PNCC 40%. FPIDC was established by Benpres Holdings Corporation (BHC) to enter into contracts with the public sector.

2. On 26 October 2000, the Board of Directors of the Asian Development Bank (ADB) approved a direct loan to MNTC of up to \$45 million without government guarantee and a complementary loan of \$25 million (all from ADB's ordinary capital resources) to rehabilitate, expand and operate 83.7 kilometers (km) of NLEX under the North Luzon Expressway Rehabilitation and Expansion Project. It involved the construction and/or rehabilitation of 14 interchanges, 24 bridges, and 31 overpasses from Manila (Balintawak) to the Santa Ines exit providing access to the Clark Special Economic Zone. Rehabilitation of an 8.8 km expressway in the Subic Special Economic Zone, constructed in 1996, was included as part of the project.

3. The project was implemented on a rehabilitate–operate–transfer basis under a supplemental toll operation agreement (STOA) executed in 1998 amongst the government through the Toll Regulatory Board (TRB, the grantor), PNCC, and MNTC. This project was Phase 1 of a larger project. Phase 2 involved constructing a 22 km segment of Circumferential Road 5 from Mindanao Avenue to Manila North Road (MNR), including an interchange with NLEX. Phase 3 was to construct a new 57 km road linking the Subic Special Economic Zone to NLEX at Clark Field, the former United States (US) airbase near Angeles, and a 5.5 km segment connecting MNR to Letre in Manila. Phases 2 and 3 were not part of the project, but MNTC is expected to develop these upon receiving the right-of-way from TRB and demonstrating financial viability and the availability of funds for construction. At the end of the concession period, MNTC would transfer the project and phases 2 and 3 back to the government at no cost.

B. Key Project Features

4. Phase 1 of this project consisted of four segments: segment 1, rehabilitation and widening of NLEX from Metro Manila (Balintawak exit) to Burol plus rehabilitation of the extension road from Burol to Tabang (a total of 27.6 km); segment 2, rehabilitation and widening of NLEX from Burol to Sta. Rita plus rehabilitation from Sta. Rita to San Fernando (33.5 km); segment 3, rehabilitation of NLEX from San Fernando to Santa Ines (33.6 km); and segment 7, rehabilitation of the existing dual one-lane tolled road from Tipo to Subic Special Economic Zone. Segments 4, 5, 6, 8, 9, and 10 were to be implemented under phases 2 and 3 and were not included in the project. The project also included a fully computerized tollway management system providing road users with the option of paying in cash, with electronic collection tags, or

with prepaid swipe cards. Traffic cameras are positioned at strategic locations to allow traffic monitoring from a Balintawak control room, and traffic enforcers provide 24-hour coverage.

5. The tolling system comprises open and closed toll collections. The open system, where a flat rate is paid upon entry, covers a 14.3 km segment from Balintawak to a mid-point between the Marilao toll plaza and the Bocaue toll plaza, where traffic is heaviest. The closed system is from Burol to Santa Ines, where tolls are based on kilometers traveled and paid upon exit. Base rates were estimated according to construction and operating costs along with currency risks and are applied to three vehicle classes. Class 1 covers light vehicles, including cars; class 2, buses; and class 3, heavy vehicles, including trucks. Toll rate increases and adjustments are prescribed under the STOA and are formula-driven by the peso-dollar exchange rate and inflation rates. Toll adjustments are provided for every 2 years, the first being at the start of operations in 2005 when tolls in the closed system rose by 377%. The government is obliged to compensate MNTC for any loss of revenue if toll increases are not approved. Inasmuch as there are no specific appropriations in the national budget, however, any government compensation for loss of revenue could be subject to delays. All rights, interests, and privileges of PNCC were transferred under the STOA to MNTC, granting the latter the authority to collect tolls during the concession period.

6. NLEX is equipped with state-of-the-art technology, including (i) traffic surveillance and closed circuit television cameras for security and traffic monitoring; (ii) car density sensors under the road surface; (iii) road structure safety features including reflectorized lane markings, concrete median barriers, and emergency parking areas; (iv) traffic accounting stations and weigh-in-motion systems that detect overweight vehicles; (v) a 24-hour emergency assistance system, telephone operators, first aid emergency vehicles, tow trucks, and traffic patrol teams and vehicles; (vi) emergency call boxes for motorists seeking assistance for breakdowns or accidents; (vii) customer service centers where motorists can find out about NLEX products and services; (viii) rest and service areas; (ix) message signs displaying real-time traffic conditions and other information along the road; (x) US interstate highway construction standards for much of the expressway, with eight lanes in Metro Manila, six lanes north of Manila, narrowing to four in Central Luzon where a grass median separates the two roadways; and (xi) a private radio system.

C. Progress Highlights

7. NLEX was designed and constructed under a fixed-price, date-certain, turnkey contract over a 2-year period by Leighton International Limited (LIL) of Australia. Outputs were generally as stipulated under the STOA. The rehabilitation and expansion of NLEX was completed at a cost of \$384.5 million, slightly above the budget estimate of \$377.5 million made during appraisal. Design-change orders, small additional land acquisition, and cost adjustments on account of delay in right-of-way acquisition contributed to the increase. The project was financed with loans totaling \$267.3 million under a common terms agreement with the lenders and equity of \$117.2 million. The equity portion comprised \$78.6 million from FPIDC, \$2.9 million from PNCC, \$16.3 million from Egis Projects SA, and \$19.3 million from LIL. Debt comprised a \$45.0 million direct loan from ADB, \$45.4 million from the International Finance Corporation (IFC), and \$55.0 million from the Export Finance and Insurance Corporation. Commercial lending of \$47.5 million was provided under the Multilateral Investment Guarantee

Agency political risk cover. Commercial bank loans totaled \$74.4 million, of which \$25.0 million was under ADB's complementary financing scheme.¹

8. Completion of improvements and the start of operations were planned for 2003, but commercial operations commenced only in 2005. Initial disbursement of the loan was deferred and this delayed construction by 1 year and 7 months. Delays occurred because of (i) MNTC's problems in acquiring the right-of-way from the government, which should have been completed in advance of construction in accordance with the lender's requirements; (ii) change in the lead sponsor of MNTC that led to a new set of conditions from the lenders;² and (iii) the difficulty of PNCC to provide its 20% equity participation and which necessitated that the other sponsors increase their equity to compensate for the shortfall. On 27 January 2005, the TRB issued the permit for MNTC to begin operation and maintenance of Phase 1. MNTC took over NLEX from PNCC and commenced its tollway operations on 10 February 2005.

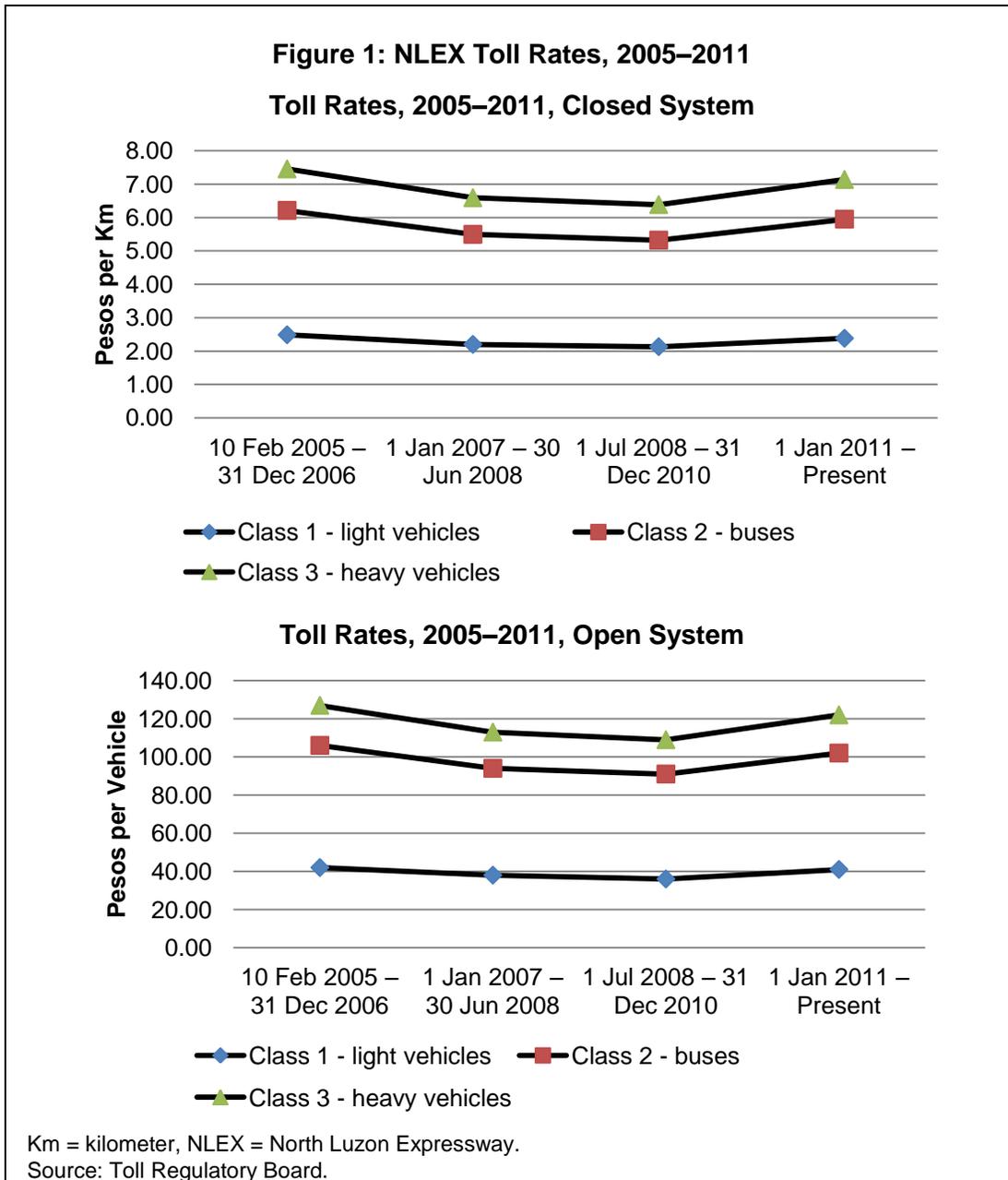
9. In November 2006, MNTC reduced its foreign currency risk by restructuring and refinancing its term loans comprising (i) a P5.5 billion fixed-rate corporate note facility to prepay about 50% of its outstanding debt, and (ii) \$100 million in term loans partly syndicated by Mizuho Bank, Ltd, a US dollar facility. The purpose was to redenominate some of the dollar loans during favorable market conditions for peso-denominated debt. At this time, IFC disengaged from the project once its loan was prepaid in 2006. Its primary role in helping with the financing needs of MNTC when commercial financing was difficult to obtain had been successfully achieved. In 2007, 50% of the ADB direct loan was refinanced. In 2009, the remaining balance of the ADB dollar-denominated loan was also converted into a peso facility. The ADB loan was totally repaid in 2011, more than 3 years ahead of schedule.

10. January 2007 saw the first toll rate adjustment after the initial increase in February 2005. This involved a reduction of about 11% in both open and closed systems because of the peso's appreciation. Subsequent changes in July 2008³ saw a further reduction of about 3%, while a more recent January 2011 change saw a hike of between 12% and 14% (Figure 1).

¹ Comprising ADB complementary financing scheme loan of \$25.0 million, Compagnie Francaise d'Assurance pour le Commerce Exterieur covered loan of \$34.5 million, and subordinated debt from sponsors of \$14.9 million.

² Replacement of BHC with First Philippine Holdings Corporation (FPHC) as lead project sponsor drew new conditions from the lenders, which took time for MNTC to fulfill. This was necessary because BHC encountered financial difficulties and requested FPHC to take over.

³ Although this was 5 months prior to the mandatory toll review date, TRB and MNTC initiated the change at a time when the peso was strong. The refinancing of the foreign debt and amendment of the toll rate formula to exclude the foreign exchange risk enabled MNTC to take advantage of favourable economic circumstances and to reduce tolls. This was the last time the original toll formula was used with the foreign exchange adjustment factor. The advancing of the scheduled January 2009 revision, however, did not affect the timing of the next adjustment that was implemented in January 2011 as planned, some 2.5 years after the 2008 review.



11. Traffic volumes have increased from 36.7 million vehicle entries under the open system and 865.0 million vehicle-kilometers in the closed system in 2005 to 45.7 million and 1,137.1 million, respectively, in 2010. Thus, annual growth rates in the period were 4.4% and 5.6%. MNTC anticipates more modest growth over the next 4 years, with total traffic growth in the open system of 3.2% in 2011 and about 1.4% per annum thereafter. In the closed system, a decline of 2.3% in 2011 is expected but growth of about 2.8% per annum thereafter. Nevertheless, actual usage is well below that forecast at appraisal. The total traffic volume in the closed system in 2005 was only 51% of that projected, but this improved to 59% in 2010. In the open system, vehicle entries during 2005 were only 48% of those projected, but this rose to 56% in 2010. MNTC's operating revenues increased from P5.1 billion in 2005 to P5.9 billion in 2010 but remain below those estimated at appraisal (20% less in 2005 and 35% lower in 2010).

12. In 2008, TRB approved MNTC's proposal to extend the service concession term for Phase 1 and segment 8.1 (link to Mindanao Avenue) constructed by MNTC until the end of 2037 to account for the construction delays.

II. EVALUATION

13. The project is evaluated using the criteria defined in ADB's guidelines.⁴ The project rationale and objectives set out below outline those envisaged during approval of the project. The investment is evaluated according to (i) development outcomes and impact, (ii) ADB investment profitability, (iii) ADB work quality, and (iv) ADB additionality.

A. Project Rationale and Objectives

14. The main objective of ADB's investment in MNTC was to improve traffic flow and vehicular efficiency along the NLEX through the provision of additional road capacity, as well as improved interchanges and toll plazas to accommodate current and future traffic on the major northern route from Metro Manila. The project aimed to induce private sector investment in the road transport sector and to support the government's policies and programs to develop the national road network. It was designed to accelerate economic development in central and northern Luzon, especially of agriculture and industry, and to better cope with the rapid expansion of urban centers and growth corridors by improving access to and from the region and Metro Manila. It also aimed to promote increased employment opportunities at and around the tollway while encouraging decentralization of economic activities from Metro Manila. The expressway was expected to significantly reduce travel times, achieve savings in vehicle operating costs, and promote tourism. Indirectly, the project was expected to help alleviate poverty through increased employment opportunities in nearby urban centers. ADB was also seen to play a catalytic role in attracting international lenders during a time when funding was scarce in the wake of the Asian financial crisis.

B. Development Impact and Outcomes

1. Overview

15. The overall development impact and outcome is rated *satisfactory* based on component ratings of *satisfactory* for private sector development; *satisfactory* for business success; *satisfactory* for economic sustainability; and *satisfactory* for environmental, social, health, and safety performance.

2. Private Sector Development

16. Private sector development is appraised under two categories: beyond company impacts and direct company impacts. Appendix 1 summarizes the private sector development indicators and ratings.

a. Beyond Company Impacts

17. The beyond company impacts of the project are discussed in relation to (i) contributions to the development of central and northern Luzon, (ii) impact on employment in central and

⁴ ADB. 2007. *Guidelines for Preparing Performance Evaluation Reports on Nonsovereign Operations*. Manila.

northern Luzon, and (iii) its role in providing a benchmark for the toll road sector in the Philippines.

18. **Contributions to the development of central and northern Luzon.** Central Luzon suffered considerable devastation from eruption of Mount Pinatubo and closure of the US military bases at Clark Field and Subic Bay in the late 1990s. These twin blows severely impacted the local economy, and employment opportunities and business confidence were weak. Rehabilitating NLEX, which had fallen into disrepair, was seen as a means of improving economic conditions in this region. Appendix 2 discusses the impact in more detail while the following paragraphs provide a summary.

19. The rehabilitated and much improved NLEX has encouraged economic growth in central and northern Luzon, consisting of regions I, II, and III (Ilocos, Cagayan Valley, and Central Luzon) plus the Cordillera Administrative Region.⁵ The area covers one quarter of the country's total land area. In 2010, the region had some 20.4 million people (22% of the national population) and accounted for 15% of national gross domestic product (GDP) in 2009. From 2004 (the year before completion and start of NLEX operations) to 2009, real regional GDP in the region has increased at a rate of 3.4% per annum, compared to 4.8% nationally. Much of this growth has been in the service sector. Nevertheless, there is insufficient data to assess how much of this can be attributable to the project.

20. New shopping malls, as well as tourist and entertainment complexes have developed near expressway junctions. Developers are currently buying land parcels along both NLEX and the Subic–Clark–Tarlac Expressway (SCTEX) in anticipation of future residential and commercial demand. Much of the development impact has occurred in the Clark Special Economic Zone, Angeles, and San Fernando in Region III, where urbanization has been faster than expected. The development of Ayala's Marque Mall in Angeles, Robinsons, Shoe Mart, and other shopping complexes near the San Fernando exit are examples. MNTC also reports there has been an increase in cargo shipped through Subic and Clark logistics hubs and improved access to international travel, with six airlines⁶ having regular flights in and out of the Diosdado Macapagal International Airport in Clark, near Angeles.

21. Subdivisions have sprung up in Bulacan and Pampanga, made more attractive to people living and working in Metro Manila as a result of the shorter travel times along NLEX. Our interviews with representatives from MNTC, Metro Pacific Investment Corporation (MPIC), and First Philippines Holdings Corporation (FPHC) suggest that although commuter distances have increased, many view the quality of life improvements associated with less-dense suburban living as a positive benefit. Other studies have quantified the land value effects and concluded that direct access to NLEX (related to entry and exit points) adds to land values. In 2004, this additional value was estimated to average some P1,054 per square meter. The report concluded that access is likely to generate a 52% price premium on associated land values.

22. Tourism in central and northern Luzon has benefited from faster access to existing destinations of Subic, Baguio, and venues further north. New and improved tourist destinations and recreational facilities have opened in Bataan (Anvaya Cove), Zambales (Iba and Candallaria beach resorts), Bulacan (improvements to Biak-Na-Bato National Park), La Union

⁵ Region I (Ilocos Region), provinces of Ilocos Norte, Ilocos Sur, La Union, and Pangasinan; Region II (Cagayan Valley) provinces of Batanes, Cagayan, Isabela, Nueva Vizcaya, and Quirino; Region III (Central Luzon), provinces of Aurora, Bataan, Bulacan, Nueva Ecija, Pampanga, Tarlac, and Zambales; and the Cordillera Administrative Region with provinces Abra, Apayao, Benguet, Ifugao, Kalinga, and Mountain Province.

⁶ Air Asia, Asiana Airlines, Cebu Pacific, Jinair, Seair, and Tiger Airways.

(San Juan, Carille, and Bacnotan surfing resorts), Pangasinan (Bolinao beach resorts), and Pampanga (Candaba bird sanctuary). There has been an increase in the number of hotel rooms and other accommodation as the numbers of visitors have grown. Through the initiatives of MNTC, the North Philippines Visitors Bureau was established to promote tourism within the northern Philippines.

23. The impact of NLEX on economic growth is difficult to accurately assess due to lack of specific data. Although there is some evidence of economic growth in central and northern Luzon, especially in the service sector, the economic growth of the region has been slower compared to the average national economic growth figures (3.4% GDP annual growth rate for the region vs. 4.8% for the entire country, Table A2.2). The impact of NLEX to the development of central and northern Luzon is rated *satisfactory*.

24. **Impact on employment in central and northern Luzon.** Improvement of the NLEX has reduced travel time and facilitated fresher fruit, vegetables, and meat products reaching Metro Manila from central and northern Luzon, thereby reducing waste. A 2004 study for MNTC⁷ found the output elasticity of agricultural sector to real transport prices to be -1.81 , such that for every percentage point decrease in real transport costs there is a corresponding 1.81% increase in agricultural output. Output elasticities for the industrial (-2.07) and services (-2.6) sectors were found to be even greater. The construction activities associated with the road improvement also generated jobs and increased spending. The same study for MNTC showed that the construction spending impact was that for every peso spent on the land transport sector there is an overall output increase of P2.34. New service areas have opened up along the NLEX since completion of the rehabilitation work. They have increased employment and provide convenient services (retail, dining, and motor vehicle services) to the travelling public..

25. The central and northern Luzon region had about 21.3% of total employment of the Philippines in 2009. This proportion had only increased slightly from 21.2% in 2004. Total employment in central and northern Luzon grew at a rate of just under 2.0% per annum, from 6.7 million in 2004 to 7.5 million in 2009. That is marginally below the 2.1% experienced for Luzon as a whole and less than the employment growth rate for the Philippines over the same period. The region has seen a shift during 2004 to 2009 in employment from industry, agriculture, forestry, and fishing to services. Employment in services rose from 1.9 million to 2.3 million (3.9% per annum growth) while there was more moderate growth for industry from 2.2 million to 2.4 million (1.9% per annum) and for agriculture, forestry, and fishing, which increased from 2.6 million to 2.8 million (1.7% per annum) (Table A2.3 and Table A2.4). The service sector has grown in importance, with its share of total employment increasing by 2.1% from 2004 to 2009, while those of industry, agriculture, forestry, and fishing have fallen by 0.8% and 1.3%, respectively (Table A2.5).

⁷ University of the Philippines Planning and Development Research Foundation, Inc. 2004. *Development Impact Study: Socioeconomic Development Impact of Highway Improvements Being Undertaken at the North Luzon Expressway*. Manila.

26. Total employment in micro, small, and medium enterprises (MSMEs) in northern and central Luzon decreased from 0.67 million in 2002 to 0.57 million in 2009 (Table A2.6 and Table A2.7), while those for the Philippines overall increased from 5.4 million to 5.7 million. The number of establishments has declined in northern and central Luzon, too, by about 44,000 from 0.20 million in 2002 to 0.16 million in 2009. Although the decline in employment and numbers of MSMEs were relatively less in central and northern Luzon than in the rest of Luzon, excluding the National Capital Region (NCR), whether this decline would have been greater without an improved NLEX is uncertain.

27. Even with a rehabilitated NLEX, the overall employment figures and those for MSMEs show that growth has been slower than the national average in central and northern Luzon. But the region performed better than did Luzon as a whole while excluding the NCR. Nevertheless, on the basis of these figures, it is difficult to assess the direct impact of the rehabilitated NLEX on employment growth. Even the extent that NLEX might have facilitated the shift in employment to services is unproven. The impact of NLEX upon employment in central and northern Luzon is only *partly satisfactory*.

28. **A benchmark project.** NLEX was the first expressway to be rehabilitated, operated, and maintained by a private company, with international partners, and in accordance with accepted international practice. The project has served as a model for others. Facilities and standards of NLEX are now on a par with expressways in other countries, including those in Europe and elsewhere in Asia. The design standards, facilities, financial structuring, and concession agreement serve as benchmarks for the other toll road projects in the Philippines.

29. Although the project has demonstrated good practice, much of this has yet to be adopted. For example, the South Luzon Expressway (SLEX) was rehabilitated following the success of NLEX, and it adopted the toll rate formula from NLEX. However, not all of the lessons learnt from NLEX were incorporated. Rehabilitation was contracted under two concessions—one extending the Skyway from Bicutan to Alabang under a consortium with Philippine and Indonesian investors, the other from Alabang to Santa Rosa under a consortium of Philippine and Malaysian investors. Sharing of toll revenues remains a problem, and there could be impacts on collection leakages. No multilateral development agencies were involved.

30. NLEX has paved the way for further private sector participation in the road sector. Government policy now encourages the private sector to invest and operate infrastructure through public–private partnerships (PPPs). Three expressway projects have been identified as priority investments under the government’s PPP program for 2011,⁸ and others are planned to be rolled out in the medium term. Executive Order No. 8 of 2010 reorganized and renamed the Build-Operate-and-Transfer Center to the PPP Center of the Philippines and transferred it from the Department of Trade and Industry to the National Economic and Development Authority. The PPP Center has developed a model toll road concession agreement based on that of NLEX. Appendix 3 describes the toll road sector in the Philippines.

31. MNTC pioneered design and operationalization of the most up-to-date tollway technology available, including computerized toll collection and traffic management systems, reliable emergency and roadside services, variable message signs and closed circuit television

⁸ Ninoy Aquino International Airport Expressway (Phase II, P10.59 billion), linking Skyway and Manila-Cavite Coastal Expressway; NLEX-SLEX Link Connector (unsolicited proposal, P21 billion) involving the construction of an elevated expressway to connect NLEX and SLEX; and Daang Hari-SLEX Link (P1.6 billion), connecting Bacoor, Cavite to SLEX.

monitoring to provide real time traffic information, delineated dedicated electronic lanes for faster transactions, and roadway lighting in strategic areas. The traffic management system electronically records traffic data in a centralized server. Digital recording of images captured by the various traffic surveillance and plaza cameras are also linked centrally to the traffic management control center. These traffic management schemes are widely used in various tollway operations in many other countries and were first applied in the Philippines on NLEX under the project. Automatic ticketing machines have been installed at many entry points. Customer service areas, now a common feature of NLEX, are firsts in the Philippines. Use of common electronic payments and ticketing is now being discussed for both NLEX and SLEX.

32. The NLEX toll formula is now the standard for the Philippines, and it has been adapted for use on SLEX and SCTEX. Detailed in the STOA, the formula relates tolls to development, operation, and maintenance costs; expected life span; and funding arrangements (foreign currency risks and inflation). It is adjusted every 2 years. The principle of charging tolls for the use of expressways and the regular adjustment of rates is now accepted by the general public and businesses. Increases no longer cause the concerns they once did, and complaints about having to pay to use toll roads have eased. Toll roads are now seen as an attractive investment opportunity in the Philippines, and the project has demonstrated that road users are willing to pay for improved infrastructure.

33. The project's successful financial structuring and subsequent refinancing and paying down of outstanding credit facilities demonstrated the financial viability of tollway rehabilitation and operations. Philippine private banks are now more willing to invest in road infrastructure. An example is the recently concluded Banco de Oro Unibank (BDO) financing of the Tarlac–Pangasinan–La Union Expressway that will be constructed and operated under a concession granted to a consortium of San Miguel Corporation and the Consunji group. The majority shareholder of MNTC, MPIC, is seeking new infrastructure investment opportunities and is planning to increase its exposure to toll road assets. MPIC considered NLEX a perfect launching platform for its involvement in toll roads, and it is currently a major player in a consortium of companies that has submitted an unsolicited proposal to construct and operate a connecting link between NLEX and SLEX.

34. As a benchmark project, NLEX has been rated *satisfactory*.

b. Direct Company Impacts

35. Corporate governance of MNTC is up to international standards, with the board representing the interests of the shareholders while providing oversight, direction, and leadership. A president and chief executive is in charge of the daily running of the corporation. The chairman of the board is also the chairman of MPIC, which in mid-June 2011 had a market capitalization of P77 billion (\$1.8 billion). MPIC has additional major equity investments in other infrastructure and utility companies in the Philippines.⁹ MNTC corporate governance standards follow those of the major shareholder, MPIC. Its business ethos and environment focus on social responsibility and building the trust of its shareholders. The project company consistently has had satisfactory independent audits, as conducted by Sycip Gorres Velayo & Co, a subsidiary of Ernst and Young, confirming that MNTC's financial statements present fairly the financial position, performance, and cash flows in accordance with Philippine Financial Reporting Standards.

⁹ MPIC in mid-2011 had 55% of its funds invested in electricity (Meralco), 21% in water (Maynilad), 21% in toll roads (MPTC), and 3% in hospitals.

36. Tollway management and operations have been separated between MNTC and the Tollways Management Corporation (TMC), incorporated in 2000. MNTC is responsible for overall management; construction works, including major periodic (heavy) maintenance and repairs; and financing. TMC is the operator of NLEX and is responsible for traffic management, toll collection, emergency services, customer relations, lighting, and landscaping. TMC provides services according to an operations and maintenance agreement with MNTC. It has a technical assistance agreement with Egis Road Operation (formerly Transroute International), a subsidiary of Egis Projects SA. TMC employs some 1,400 people, including 450 tollbooth operators.

37. MNTC designed and now operates world-class, computerized traffic management and monitoring systems which were the first of their kind in the Philippines. Automatic ticketing machines have been installed at many entry points. Customer service areas, now a common feature of NLEX, for the first time in the Philippines provide retail, dining, and motor vehicle services to road users.

38. Skills were transferred by LIL during the design and construction stages and by Egis before and during operations. These have included (i) technical advice on benchmarking and best practices; (ii) knowledge transfer; (iii) planning and redesigning particularities of the road (including to determine the number of lanes needed, match supply to demand, configure the interchanges, secondary networks, and access roads); and (iv) capacity building.¹⁰ Anticorruption mechanisms have been set up, especially regarding the auditing of toll collections.

39. Traffic and safety programs and enhancements are regularly implemented, including the installation of additional traffic signs and deployment of lane management teams. MNTC strictly enforces anti-overloading regulations in coordination with the Department of Transportation and Communication and Land Transportation Office. MNTC's anti-overloading campaign received the Anvil Award from the Public Relations Society of the Philippines. Traffic enforcement has improved and more violating drivers and their vehicles have been apprehended. There is regular environmental monitoring according to ADB standards.

40. MNTC has no real competitors. The only directly competing route from Metro Manila to central and northern Luzon is the MNR, which is a non-toll road. MNR does offer an alternative for cars, but scarcely is a choice for trucks and long-distance buses. As it remains severely congested, and despite recent improvements, travel times on the MNR remain much longer. No other toll roads serve central and northern Luzon from Metro Manila, and no functioning railways compete for commuter travel or for freight. MNTC has not adopted innovative differential pricing schemes to increase traffic volumes. NLEX remains underutilized relative to appraisal expectations. The effect of NLEX on competition is minimal.

41. Although MNTC's project framework and legal documentation have been used as the basis for concession arrangements for other road projects, the entire template has not been applied. The PPP Center within the National Economic and Development Authority does use it as a model, but otherwise NLEX has had a limited impact on national laws and regulations. The project has had little effect on the functioning of the TRB, which lacks independence, remains under-skilled and understaffed, and is entirely dependent on government budgetary allocations

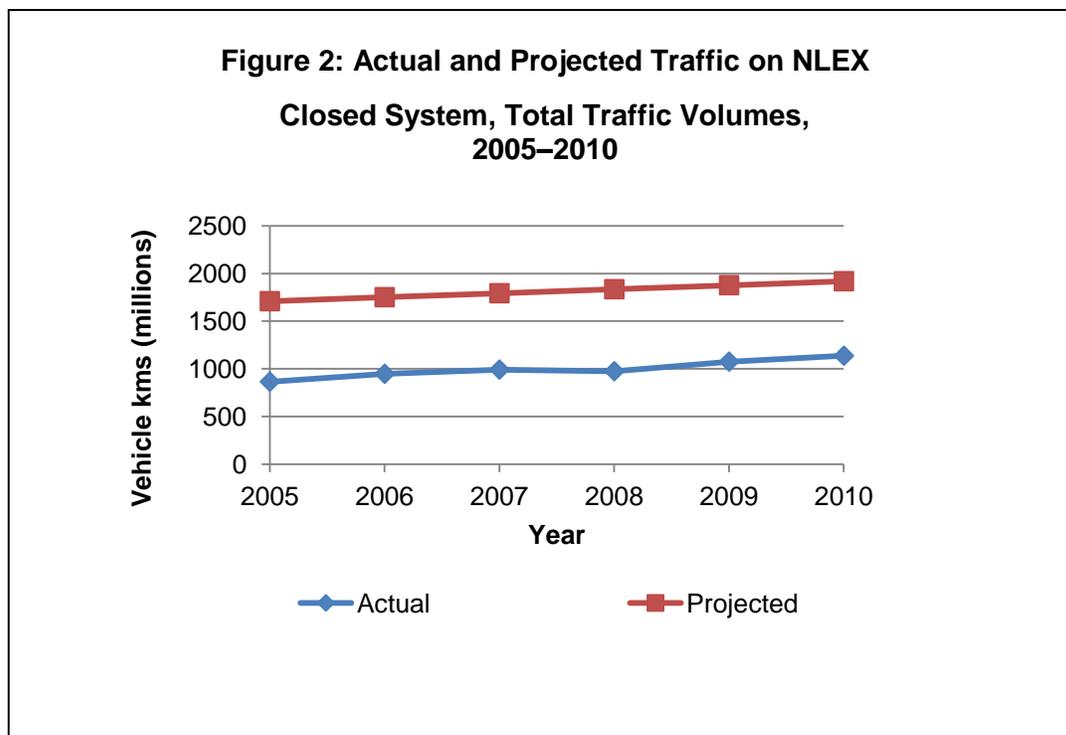
¹⁰ Egis Projects SA funded trips to its headquarters in France and conducted training programs for selected senior managers of MNTC and TMC. The aim was for the trained personnel to pass on knowledge acquired and lessons learnt to staff below them in the organizational structure.

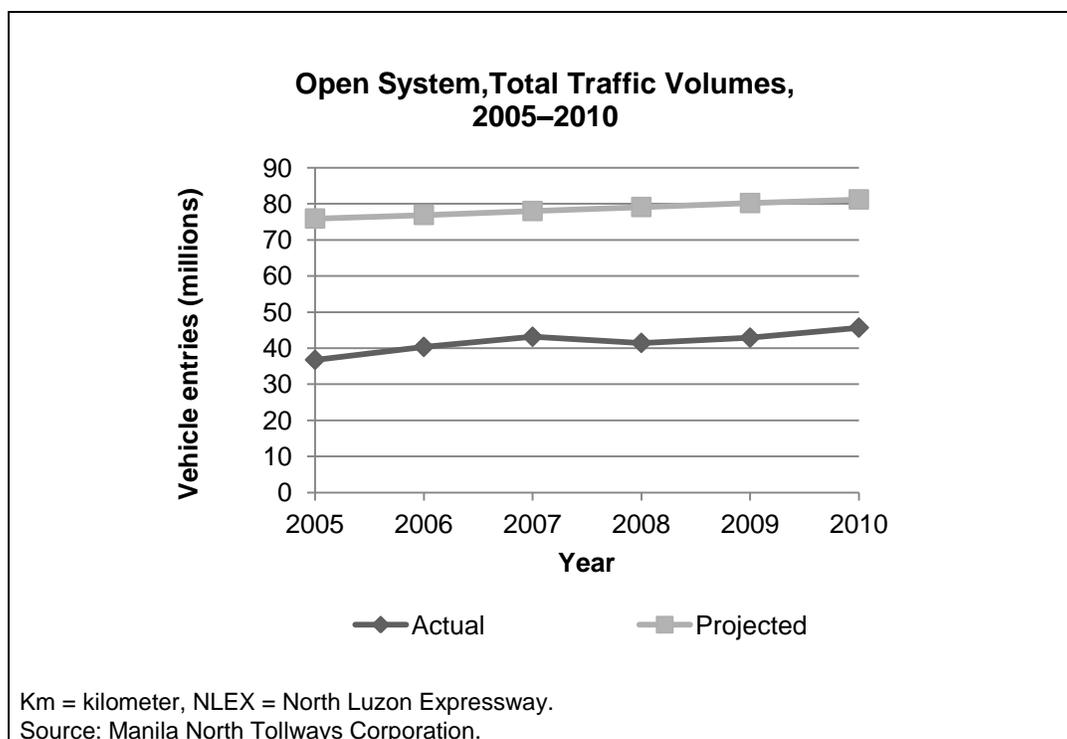
for its funding. Nevertheless, there has been a policy shift within government toward PPPs in the road sector. Two toll road projects (Cavite-Laguna Expressway and the Ninoy Aquino International Airport Expressway) are now in the bidding process, both in the greater Metro Manila area, and others are planned for roll out in the medium term. The project's direct company impacts are rated *satisfactory*.

3. Business Success

a. Market Context

42. Traffic volumes from 2005 to 2010 have been consistently lower than forecast at appraisal. Actual vehicle-kilometers on the closed system averaged 45% lower than the expected volumes, while the average number of vehicles entering NLEX under the open system averaged 47% lower than expected (Figure 2). The lower volumes can be attributed to optimistic economic growth projections, aftereffects of the Asian financial crisis, increased fuel prices, and seasonality of travel. This has meant reduced revenues and lower investment returns. Faced with the challenge of lower traffic, little effort was made to improve usage. More could have been done with tariff modifications to attract traffic. Lowering of tariffs, time-of-day or time-of-week pricing, differential rates and increases for vehicle classes, loyalty programs and other discounts, seasonally adjusted rates to include lower charges during holiday periods to encourage use for tourism, and congestion-related tolling could have been considered. Instead there has been strict adherence to the formula and its ratios between vehicle classes, with buses charged 2.5 times the unit rate for light vehicles and heavy vehicles charged a multiple of 3.0. It is not clear why alternative pricing schemes were not tried.





43. Value added tax (VAT) has not been charged on road toll operations until recently. However, it was introduced on 1 October 2011. This had been originally imposed by the Bureau of Internal Revenue in 2005 but was subject to a temporary restraining order of the Supreme Court in 2010. In July 2011, there was a lifting of the Supreme Court's temporary restraining order on VAT's imposition. Now, the 12% VAT is being passed on to road users in full through increased toll rates. This could have a possible negative impact on traffic volumes, at least during the early months of implementation.

b. MNTC Organization

44. MNTC's ownership structure has changed several times since its founding in 1995. A chronology of these events is presented in Table A4.1 of Appendix 4.

45. The transfers and sales of MNTC's equity generally occurred without serious disruption to the activities of MNTC, except perhaps for the initial replacement of BHC by FPHC as the lead sponsor and changes to the equity sponsorship structure due to the inability of PNCC to fund its original obligations. This delayed project implementation since it necessitated the fulfillment of a number of conditions imposed by the lenders and which took time for MNTC to accomplish. MNTC's current major shareholder, Metro Pacific Tollways Corporation (MPTC), is part of the larger Metro Pacific Group headed by Manuel V. Pangilinan, a well-respected Filipino businessman.

46. MNTC has a 13-person board of directors comprising the chairman and two vice chairmen (one representing Egis and the other from PNCC), a corporate secretary, the president and chief executive officer of MNTC, the president and chief executive officer of MPTC, the chief financial officer and treasurer of MNTC, and six other directors. MNTC is headed by a president and chief executive officer who is supported by departments for business

development and new projects, government relations, finance and accounting, operations management, marketing, corporate communication, legal and regulatory affairs, and human resources and administration. It has about 110 employees. TMC operates NLEX under an operations and maintenance agreement with MNTC. The company is owned by MPTC (46%), Egis Road Operation SA (34%), and PNCC (20%). It has its own board of directors, and employs 1,400 people, including 450 tollbooth operators. Both MNTC and TMC hold regular board meetings every 2 months.

47. In July 2011, a business and operating agreement (BOA) for the SCTEX was finalized by MNTC with the Bases Conversion and Development Authority (BCDA). The agreement puts MNTC in charge of the management, operations, and maintenance of the 94 km toll road until October 2043. MNTC will share revenues with BCDA to allow the latter to cover a portion of its yen-denominated loan from JICA. MNTC has committed P21 billion for maintenance work. This now puts the interconnecting Subic–Tipo Expressway, SCTEX, and NLEX under one management.

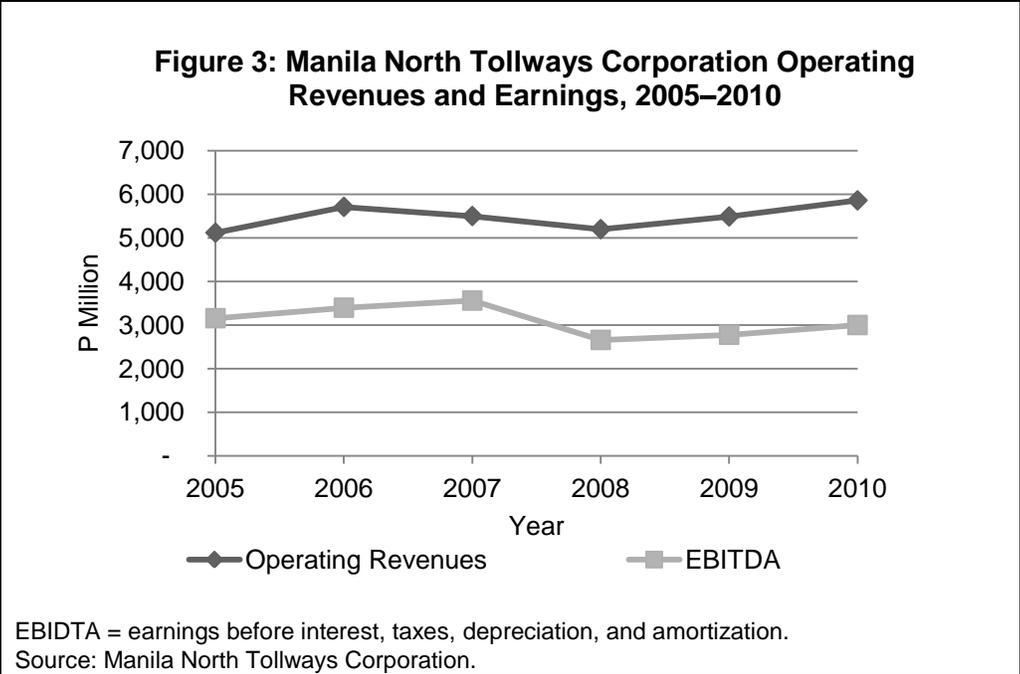
c. MNTC Performance

48. MNTC had operating revenues lower than projected at appraisal in 2001 by about 20% in 2005 and some 35% in 2010. Operating revenues increased from P5.1 billion in 2005 to P5.9 billion in 2010 in nominal terms. There was a dip in 2007 and 2008 when revenues fell by 4% and 5%, respectively. During that time, toll rates were reduced by 11% early in 2007 and by a further 3.6% in mid-2008. The lower rates were not compensated by a corresponding increase in traffic volumes. This was also a period of higher gasoline prices, which is thought to have contributed to the lower traffic numbers. Earnings before interest, taxes, depreciation, and amortization (EBITDA) followed a similar trend, increasing from P3.2 billion in 2005 to P3.6 billion in 2007, falling in 2008 and 2009, then increasing thereafter to P3.0 billion in 2010 (Figure 3). The EBITDA margin was 62% of gross revenues in 2005 but fell to 51% in 2008, and it has remained constant at this percentage since then.

49. Income before tax rose from P1.6 billion in 2005 to P2.3 billion in 2007 as traffic volumes steadily increased, but it declined in 2008 and 2009 before increasing again in 2010 to P1.4 billion. Increasing operating costs and provisions¹¹ in 2008 and 2009 have accounted for the more recent changes. Annual returns on average equity from 2005 to 2007 were between 23% and 26%, but fell in 2008 and 2009 before increasing to about 19% in 2010. As of the end of 2010, MNTC's shareholder equity was P6.6 billion. It had fallen from P7.1 billion at the end of 2005 and P8.8 billion at the end of 2007. The net income that was lower than expected due to provisioning and payment of cash dividends¹² has eroded MNTC's net worth in recent years.

¹¹ Provisions of P1.1 billion were made for input VAT in 2009, thus impacting on the net income. In 2008, a foreign exchange loss of P0.4 billion contributed to the decline in net income, and annual provisions have been made for heavy maintenance expenditures since 2009. These provisions represent the net present value of MNTC's estimated contractual obligations to restore service concession assets to a specified level of serviceability during the concession period. Some P85 million of provisions were created in 2009 and P29 million in 2010.

¹² Cash dividend payments of P1.65 billion were made in 2008, P1.44 billion in 2009, and P1.65 billion in 2010.



50. Long-term debt has steadily decreased as loans have been paid off, in some cases earlier than in original agreements. The prepayment of all foreign currency loans in January 2011, including those from ADB, has eliminated the foreign exchange risk. All of MNTC’s debt is now in local currency, of which about 48% is floating. Interest rate exposure is now limited to changes in the 6- and 3-month Philippine Interbank Reference Rate. MNTC is not exposed to significant liquidity risk since its operations provide daily cash collections. The company has built up sufficient cash from operating revenues prior to the maturity of any payment obligations. As required under loan agreements, MNTC maintains an interest reserve account to cover interest payable on its long-term debt for one interest period. The ADB loan agreement prescribed a maximum debt to equity ratio of 2.2. From 2.0 at the end of 2005, the ratio has consistently moved lower, and it stood at 1.3 at the end of 2010.

51. Operating cash flows have been more than sufficient to cover debt service. The debt service coverage ratio was 1.86 in 2005 and increased to 2.89 in 2007. It declined to 2.47 in 2009 but rose again in 2010 to 2.80. From 2005 to 2010, the ratio was well above the minimum 1.15 prescribed under the ADB loan agreement. Furthermore, MNTC has generated a healthy and stable cash flow over the period, and more than P1.1 billion in cash and cash equivalents remained with the company at the end of 2010. The current ratio was 1.40 in FY2005, but has deteriorated year by year to reach 0.4 in FY2010 as current liabilities have increased because of the increases in the current portion of long-term debts,¹³ provisions, and dividends payable. The low ratio for 2010 reflects the proposed repayment of debt in 2011, including ADB’s loan. MNTC has been servicing its debt obligations on time and regularly repatriates profits to shareholders.

52. Key traffic and financial figures and ratios are summarized in Table 1, and a more detailed assessment of performance is in Appendix 4.

¹³ The current portion of long-term debt was P2.2 billion at the end of 2010, but only P0.6 billion at the end of 2009.

Table 1: Key Performance Highlights for Manila North Tollways Corporation

Item	Operating Period					
	2005	2006	2007	2008	2009	2010
Traffic Volumes						
Closed System (million vehicle-km)						
Total	865.0	947.4	991.8	974.6	1,075.2	1,137.1
Class 1	628.4	675.1	702.3	705.5	783.1	819.6
Class 2	153.3	173.5	179.9	174.1	183.2	198.5
Class 3	83.3	98.9	109.5	95.0	109.0	119.0
Open System (million vehicle entries)						
Total	36.7	40.3	43.1	41.4	42.9	45.7
Class 1	27.7	30.5	32.0	31.2	32.4	34.4
Class 2	6.0	6.7	7.5	7.1	7.3	7.8
Class 3	3.0	3.1	3.7	3.1	3.2	3.5
Financial Data						
Income Statements (P million)						
Operating revenues	5,117	5,709	5,499	5,198	5,489	5,858
Operating expenditures	1,962	2,312	1,940	2,542	2,715	2,861
EBITDA (excluding VAT)	3,155	3,396	3,559	2,656	2,775	2,998
Finance costs	1,081	1,508	974	893	947	1,100
Net income (after tax)	1,534	1,695	2,152	934	256	1,308
Balance Sheets (P million)						
Current assets	3,431	2,428	1,375	796	1,264	1,385
Long-term assets	16,266	16,540	16,867	16,725	15,680	16,321
Total assets	19,697	18,968	18,242	17,521	16,945	17,706
Current liabilities	2,457	2,308	1,051	1,167	1,515	3,330
Long-term liabilities	10,109	9,077	8,395	8,311	8,543	7,809
Long-term debt	9,539	9,063	7,987	7,814	7,788	7,178
Shareholder's equity	7,131	7,583	8,797	8,043	6,886	6,567
Financial Ratios						
Current ratio	1.4	1.1	1.3	0.7	0.8	0.4
EBITDA margin	62%	59%	65%	51%	51%	51%
Net profit margin	30%	30%	39%	18%	5%	22%
Long-term debt to equity ratio	2.06	1.64	1.45	1.41	1.41	1.30
Debt service coverage ratio	1.86	1.38	2.89	2.67	2.47	2.80
Return on average assets	8.3%	8.8%	11.6%	5.2%	1.5%	7.5%
Return on average equity	26.2%	23.0%	26.3%	11.1%	3.4%	19.4%

EBITDA = earnings before interest, taxes, depreciation, and amortization. MNTC = Manila North Tollways Corporation, VAT = value added tax.

Notes: Current ratio = current assets/current liabilities. EBITDA margin = earnings before interest, taxes, depreciation, and amortization/total operating revenues. Net profit margin = net income after tax/total operating revenues. Long-term debt to equity ratio = long-term debt/shareholders equity. Debt service coverage ratio = cash available for debt service during the current year/cash outflows for loans and interest during the same year. In the numerator, cash for debt services is defined as the beginning cash balance + cash inflow from operating activities + cash inflow from investing activities + proceeds from loans. Return on average assets = net income after tax/average of total assets at the beginning and end of year. Return on average equity = net income after tax/average of shareholders equity at the beginning and end of year. Net worth = shareholders' equity = total assets – total liabilities.

Source of data: MNTC's annual audited financial accounts, 2005 to 2010, and MNTC internal reports on traffic volumes.

53. The financial internal rate of return (FIRR) was recalculated at 9.0% and is lower than the 16.0% computed at appraisal. The difference is mainly because of lower-than-expected

traffic volumes and higher-than-forecast operating expenditures. Actual traffic figures for class 2 vehicles (buses) exceeded expectations by an average of 10% in the open system and 17% in the closed segments. But those for classes 1 and 3 (light and heavy vehicles) were only about half those ADB's projections at appraisal. Overall, actual traffic was 47% lower than projected in the open system and 45% lower in the closed system. Nevertheless, the FIRR still exceeded the recomputed weighted average cost of capital (WACC) of 6.4%. Appendix 5 details the reevaluation of the FIRR and the WACC.

54. In accordance with ADB's performance evaluation guidelines (footnote 4), the business success of the project has been measured by comparing the FIRR to the WACC. Since the FIRR is only 267 basis points above the WACC, the business success of ADB's investment in MNTC is *satisfactory*.

d. Regional Comparisons

55. Many developing countries now have considerable experience with road concessions. Eight countries in east and south Asia implemented 204 road projects with private sector participation from 1990 to 2006. Total investment was about \$38.2 billion.¹⁴ The monopolistic features of road concessions mean that good governance is essential to ensure that private sector investments bring maximum benefits to the public. This requires competitive selection of the strategic partner, effective regulatory oversight, and disclosure of information to the public. In Southeast Asia, build–operate–transfer arrangements dominate. Concessions follow similar arrangements to those of NLEX, with 30-year tenures that grant the right to construct, maintain, and toll the road to the private sector, after which it is transferred to the government. In Asia, the People's Republic of China, India, Indonesia, and Malaysia dominate. In Indonesia, for instance, the first toll road opened in 1978 and now some 742 km of toll roads are in operation. The target is to build another 700 km between 2010 and 2014, recognizing that improved transport infrastructure promotes economic development.

56. After an initial frenzy of road concessions activity in the 1990s, interest faltered. Many of these earlier projects nevertheless proved successful and demonstrated that road users were willing to pay directly for improved infrastructure. PPPs in roads revived strongly in developing countries from 2005. Governments throughout the region are now more willing to provide the policy and financial support needed to attract the private sector. Successful PPPs have led to greater financial efficiency by leveraging public money through mobilizing private capital, reducing the impact of road investments on fiscal budgets, creating fiscal space to expand public services delivery elsewhere, and allowing for a better distribution of risks (in relation to design, construction, operation and maintenance) to the private sector, which is better positioned to manage them.

4. Economic Sustainability

57. The economic rate of return on ADB's investment in MNTC was calculated according to ADB guidelines, and involved recalculating the economic internal rate of return (EIRR) for the project. The recalculated EIRR of 11.0% is lower than the 25.7% in ADB's initial appraisal, mainly because the traffic volumes were lower than projected. Appendix 6 details the reevaluation of the EIRR. According to ADB guidelines, since the EIRR exceeds the hurdle rate of 10%, the project's contribution to economic development is rated *satisfactory*.

¹⁴ World Bank Group. 2011. Private Participation in Infrastructure Project Database.

58. Travel time along MNR, the alternative route from Metro Manila to central and northern Luzon, is 2.5 to 3 hours longer than along NLEX. This means there are significant time savings for users of NLEX relative to MNR.¹⁵ These travel time savings translate into significant reductions in basic vehicle operating costs. While large vehicles such as trucks experience some increase in running costs on account of longer distances travelled, these are offset by increased productivity in vehicle use that potentially translates into greater numbers of revenue-generating trips. For cars, jeepney, and bus operators, the savings in basic vehicle operating costs exceed the toll free. Overall, all vehicle types enjoy significant total operating cost savings. NLEX is now equipped with state-of-the-art road and traffic control technology, and general safety conditions have improved. The total number of accidents fell in 2006 to about 20% of the 2000 level. Estimates comparing statistics for 2006 with those for 2000 are that, after NLEX's improvement, total accident cost savings ranged from P54 to P193 million per year.¹⁶ Further benefits have been realized through the jobs created directly and indirectly by the project.

59. In addition to the time, accident, and vehicle operating cost savings, MNTC has paid taxes. In 2010, it paid P26.1 million in regular corporate income tax and some P17.7 million for tax on interest income. In 2009, the respective amounts were P3.5 million and P13.2 million.

5. Environmental, Social, Health, and Safety Performance

60. At the time of appraisal, ADB classified the project as environmental category B and requiring a summary initial environmental examination.¹⁷ MNTC operates 24 hours a day, 7 days a week, and the environment is affected by noise and pollution from increased traffic. MNTC put in place an environmental management and monitoring program to address the environmental impact and monitor compliance with standards set for air quality, traffic flow and vehicular efficiency, as well as natural waterways and vegetation around the NLEX.

61. A small environmental group was set up within MNTC, and ADB's environmental monitoring policies were adopted. An annual environmental monitoring report is submitted to ADB and posted on the internet in compliance with ADB's Public Communications Policy (2005). MNTC designed its environmental management system according to international environmental, health, and safety standards. MNTC has successfully completed the requirements for certification and subsequent awarding of the ISO 9001:2002 (air quality), ISO 14001:2004 (environmental), and OHSAS 18001:2007 (health and safety) standards. These were approved in September 2008, and the certificates are valid for 3 years. Policies and procedures now conform to these standards. In 2008 under its corporate social responsibility program, MNTC implemented the "Greening the NLEX" program, which involved planting 20,000 tree seedlings to improve air quality within the NLEX vicinity. MNTC also closely monitors air and water quality in host communities along and near the expressway.

62. MNTC has developed traffic and safety enhancement procedures to ensure high-quality service and road safety for motorists. ReflectORIZED pavement markings and signs are installed in various areas and more traffic signs have been put up. Traffic and safety programs and enhancements are being implemented and lane management teams deployed. Corrective

¹⁵ University of the Philippines, Planning and Development Research Foundation, Inc. 2007. *Determination of Economic Impacts of the Improvement of the North Luzon Expressway. Final Report.* Manila.

¹⁶ The different figures were based on two approaches of distributing injuries between serious and minor categories while using injury distribution ratios of NLEX in 2006 and MNR in 2000. For source, see University of Philippines study cited in previous footnote.

¹⁷ The summary initial environmental examination was prepared by the borrower and circulated to ADB's Board of Directors on 19 June 2000.

measures are in place and safe practices are observed. Organized and well-trained traffic management teams equipped with cameras, radios, and speed-monitoring devices monitor the expressway at all times.

63. MNTC coordinates with local politicians (governors, mayors, and congressmen), transport and business groups, and local media whereby major concerns are addressed through dialogue. MNTC has participated in programs of the Department of Environment and Natural Resources, as well as landscaping projects of local governments, to maintain the environment around the NLEX. Nongovernment organizations and the public have been made fully aware of MNTC initiatives through various media, and they recognize the benefits of the improvements. Toll rates, the main concern of the nongovernment organizations, have been addressed in MNTC's various information campaigns. Customer satisfaction surveys are also carried out.

64. The major social issues of the project related to illegal settlements and violations of Republic Act 2000, the Limited Access Facility Law. The law prohibits pedestrians on the expressway and structures inside the road right-of-way. MNTC has undertaken information campaigns within communities on the law's provisions. It has also devised alternative pathways for communities to keep people off NLEX, and it is coordinating with local governments and communities to solve the problem of right-of-way access. MNTC submits regular reports and progress updates on these to regional and local government groups in central Luzon.

65. The resettlement of informal settlers proved to be a challenge for MNTC because of ADB's strict social and resettlement guidelines, which were stronger than those of the government. IFC had to provide MNTC with a \$1 million loan to compensate and relocate informal settlers in the absence of government funding. It is MNTC's opinion that project implementation could have been speeded up if not for the need to comply with ADB's more stringent resettlement guidelines. Nevertheless, MNTC has now adopted ADB's resettlement procedures in full for current and future projects.

66. MNTC's environmental, social, health, and safety performance is rated *satisfactory*.

C. ADB Investment Profitability

67. ADB had two loans under the project: a direct loan and a complementary financing scheme loan. The interest rate margin charged on ADB's direct loan reflects the risks associated with the project and was benchmarked against market trends. At the time of Board approval, the interest rate was floating at 3.52% over London interbank offered rate (LIBOR), there was an annual commitment fee of 0.5% on the undisbursed amounts, and a front-end fee of 1.5% of the loan amount. The complementary financing scheme loan was priced by the commercial banks¹⁸ while accounting for commercial and political risks. This loan had an arrangement fee of 0.75% of the loan amount and an annual administrative fee of \$5,000 per participating bank up to a maximum of \$20,000 per year. The interest rate was 3.15% over LIBOR.

68. In November 2006, MNTC refinanced its outstanding loans through partial repayment and restructuring the dollar-denominated long-term debt using the proceeds of a P5.5 billion fixed-rate corporate notes issue. The refinanced package comprised \$100 million term loan facilities participated in by a majority of the original project lenders, including ADB, and the P5.5

¹⁸ From 14 short-listed banks, the seven banks with the most competitive bids were invited to underwrite the debt tranches on a pro rata basis.

billion issue participated in by 16 local institutional investors. ADB participated in the refinancing that resulted in partial prepayment of ADB's exposure, and the annual interest rate on its direct loan was fixed at 8.2475% for the duration of the repayment period. In 2009, the common terms agreement was amended mainly to incorporate conversion of the ADB direct loan to pesos. This cost MNTC some P9.9 million in losses, which included an upfront fee paid to ADB of some \$75,000 representing 0.6% of the outstanding balance. The interest rate spread after the conversion for ADB changed to 4.66% over the Philippine Interbank Reference Rate in 2009. The spread on the complementary financing scheme loan was reduced to 2.75% over LIBOR in 2008.

69. Other infrastructure nonsovereign direct loans in the region for private sector projects funded by ADB at the same time had interest rate spreads of between 3.0% and 3.8%, commitment fees of 0.5%, and front-end fees of 1.0% to 1.65.¹⁹

70. In accordance with ADB guidelines (footnote 4), since the margin on the loan for the project is similar—at a multiple between 0.9 and 1.5 of other ADB nonsovereign infrastructure lending elsewhere in the region—ADB's investment profitability is rated *satisfactory*.

71. Since the start of commercial operations, MNTC has made all principal and interest payments on time. Loan repayment began on 15 December 2004, and final repayment was made in January 2011, almost three and a half years ahead of the scheduled repayment date of June 2014.

D. ADB Work Quality

72. ADB did *satisfactory* work in three categories: (i) screening, appraisal, and structuring; (ii) monitoring and supervision; and (iii) role and contribution. However, it did not foresee the time it would take to solve the acquisition of rights-of-way. Nor did ADB anticipate the problems that PNCC would have in raising investment funds to finance its share of equity. Moreover, ADB relied on projections of traffic volumes which proved to be overly optimistic.

1. Screening, Appraisal, and Structuring

73. The Asian financial crisis impacted structuring of the project in the late 1990s, when Philippine banks and financing institutions had little interest in toll road projects or PPP investments. ADB played a central role to catalyze financing for the project during this time. PNCC had difficulty in meeting its 20% equity participation, thus necessitating that FPIDC, Egis Projects SA, and LIL increase their equity shares. In view of the limited resources available at that time to government corporations, PNCC's inability to raise equity should have been foreseen earlier.

74. ADB played a prominent role in technical, financial, and legal due diligence. It identified key project risks, including those associated with traffic volumes, toll adjustments, and political and economic aspects, then designed measures to mitigate these. But the traffic forecast risk was underestimated. ADB's involvement, along with that of IFC, provided the confidence needed to tie in other lenders, including commercial banks.

¹⁹ Kelanitissa Power (Sri Lanka), Megnaghat Power (Bangladesh), Chengdu GEM Waterworks (People's Republic of China), and Thu Duc Water Supply (Viet Nam).

75. The investment was structured as a project finance transaction. MNTC entered into an STOA with the Government of the Philippines through the TRB and PNCC. The STOA gave MNTC the right to finance, rehabilitate, expand, operate, and maintain the project until 31 December 2030, subsequently extended to 2037. At the end of the concession period, MNTC will transfer the project back to the government without cost. ADB's Board of Directors approved the project on 26 October 2000. Financial closure was achieved on 7 July 2001. The first disbursement was made on 7 February 2003, delayed because of difficulty in obtaining the right-of-way from the government, changes in the composition of MNTC's sponsors, and the equity increase required from other investors in response to PNCC's lack of resources. Commercial operations started in February 2005.

76. In November 2006, ADB participated in the refinancing of MNTC's dollar-denominated loans, thereby reducing the company's foreign currency risk exposure. This showed ADB's flexibility in adapting to the borrower's changing needs. IFC exited during the first refinancing, but it is not clear why ADB stayed on.

77. Delays in the disbursement of funds by 1.5 years were because of the problems in right-of-way acquisition and PNCC's equity funding. Both delayed construction. The right-of-way issue had been raised as a potential issue during appraisal. ADB may have underestimated the problems and failed to foresee project delays as a result. More liaison with government counterparts to encourage proactive measures could have been taken since right-of-way acquisition has always been a major problem for infrastructure projects in the Philippines. The delays in acquiring land could have been resolved prior to financial closure and loan approval.

78. ADB's performance in screening, appraisal, and structuring is rated *satisfactory*.

2. Monitoring and Supervision

79. No design and monitoring framework was prepared for the project,²⁰ and this goes some way in explaining the lack of measureable project objectives. Nevertheless, ADB closely monitored implementation of the project and maintained close contact with MNTC through e-mail and telephone. The loan agreement enumerates the reporting covenants of MNTC, which include submitting audited financial statements; annual budgets; insurance contracts; operating reports; and annual environmental, health, and safety monitoring reports. MNTC complied with these requests. The conversion of the ADB direct loan to pesos meant that terms and conditions were later modified and the covenants were relaxed under an amended and restated common terms agreement. MNTC has complied with all the reporting requirements on time.

80. In consultation with its internal departments, ADB has been reasonably prompt in approving waivers and requests for amendments to existing agreements. After Board approval in October 2000, the Private Sector Operations Department fielded several missions.

81. ADB's performance in monitoring and supervision is rated *satisfactory*.

3. ADB's Role and Contribution

82. ADB's prominent role in the project's technical, financial, and legal due diligence provided comfort and attracted private sector interest. ADB also provided a complementary loan

²⁰ Only around 2006 was the design monitoring framework first implemented for Private Sector Operations Department projects.

that enabled commercial financing to be mobilized. ADB showed no appetite to invest in MNTC equity and provided no capacity building to TRB. Earlier, ADB had assisted the government in preparing a national transport strategy that defined the priorities for investment over the 1998–2010 period, identified the components that would be most suitable for private sector investment and operations, and developed institutional capacity in national transport planning.²¹ Recommendations of the strategy were incorporated into the government’s Medium-Term Philippine Development Plan 1999–2004, in which the government committed to continue deregulating and privatizing infrastructure sectors, including road transport. This facilitated the establishment of MNTC and, indirectly, the project.

83. ADB’s role and contribution to the project is rated *excellent*.

E. ADB Additionality

84. ADB’s investment was catalytic. Before the project, the private sector had little interest to invest in toll roads. The project helped to change attitudes and demonstrated the practicality, acceptability, and viability of toll roads. In the late 1990s to early 2000, Philippine banks and financial institutions had little or no experience or appetite for toll-road financing. They were unwilling to offer long-term financing for what were considered to be risky projects. ADB’s lead role in the technical, financial, and legal due diligence provided comfort and drew private sector interest. ADB also extended a complementary loan to the project and mobilized commercial financing. Despite the global economic crisis at that time, the project achieved financial closing with a broad group of international commercial banks, multilateral institutions, and export credit agencies. ADB also provided long-term credit (i.e., 13 year maturity with a 3.5-year grace period) when other commercial lenders were only offering medium-term facilities. In addition, ADB was responsive to requests for refinancing, supporting the conversion of its direct loan from dollars to pesos.

85. ADB participation may have contributed to anti-corruption standards being adopted by MNTC, hence indirectly to a well-functioning and stable MNTC. Environmental monitoring was institutionalized within MNTC, while before it had not been considered important. Concern for social issues, particularly regarding ADB’s approach to persons negatively affected by the project, initially was questioned on grounds that the procedure was more strict than were national government guidelines, but later it was adopted as corporate policy.

86. ADB’s additionality is rated *excellent*.

F. Overall Evaluation

87. Table 2 shows that the overall assessment of the project has been rated *successful*.

²¹ ADB. 1995. *Technical Assistance to the Republic of the Philippines for the Preparation of a National Transport Strategy*. Manila (TA 2487-PHI, for \$1,000,000, approved on 19 December).

Table 2: Performance of the Investment in Manila North Tollways Corporation

	Unsatisfactory	Partly Satisfactory	Satisfactory	Excellent
Development Impact			X	
Private sector development			X	
Business success			X	
Contribution to economic development			X	
Environmental, social, health, and safety performance			X	
ADB Investment Profitability			X	
ADB Work Quality			X	
Screening, appraisal, and structuring			X	
Monitoring and supervision			X	
ADB role and contribution				X
ADB Additionality				X
	Unsuccessful	Partly successful	Successful	Highly successful
Overall Assessment			X	

III. ISSUES, LESSONS, AND RECOMMENDATIONS

A. Issues and Lessons

88. The project was designed to enhance economic development of central and northern Luzon, but no clear or measureable objectives were set at the outset. While economic growth has occurred in this region—3.4% per annum overall—it is not possible to quantify the extent that rehabilitation of an already existing toll road has contributed. At appraisal there should have been a design monitoring framework which would have identified these objectives and targets (footnote 20). While economic development has occurred, growth remains similar to that of the rest of Luzon, excluding that of the National Capital Region (NCR), the powerhouse of the Philippine economy, but less than that of the country overall. ADB's follow-up as to the development and employment impact of an improved NLEX has been insufficient.

89. The fact that traffic volumes have been scarcely half those projected by technical consultants at appraisal has meant lower revenues and a less favorable FIRR. While it is understood that a range of projections were made and the lower ones were used, they nevertheless proved to be overly optimistic. Clearly, ADB could have done a more thorough test of the forecasts' sensitivity to changes in the basic variables, including tariff price elasticity, lower-than-expected economic growth, and higher gasoline prices.

90. The right-of-way issue should have been resolved earlier. Land acquisition by the government in the Philippines has been difficult causing delays. Although this was raised at the Board meeting considering the project, not enough attention was given to the potential problems until it was too late.

91. The inability of PNCC to raise funds for the project, too, should have been anticipated at a time when most government corporations were strapped for cash and that PNCC had few alternative revenue sources apart from government subsidies. It should have been foreseen that PNCC would need to reduce its exposure in the project. Stronger due diligence on the part of ADB would have identified this risk earlier and reduced project delays.

92. While the loan conversion from dollars to pesos was completed successfully, the price to MNTC of reducing its foreign exchange risk was quite high. Although there are potential benefits to the consumers from removal of the forex factor from the toll rate adjustment formula, the peso has since appreciated further against the dollar and the financial benefits of the conversion to MNTC are mixed. Regarding the issue of equity participation, ADB was seen to be more conservative and slow in its process than was the private sector.

93. Regulation of the toll road sector under TRB remains weak. TRB was established in 1977 to regulate expressways and toll rates while increasing private sector investment in infrastructure projects. It lacks capacity and resources relative to its mandate, however, and in practice only monitors operations, maintenance, and the adjustment of toll rates. TRB lacks independence, remaining under the control of the government. Its executive director is appointed by the president, and all but one member of its board are government officials. Funding is provided exclusively through the public budget as approved annually by Congress under the General Appropriations Act. In 1977, when there was only one toll road, it had 28 employees. Today, it has only 26 staff to monitor six toll roads. A request to increase its staffing to 96 was rejected by the government and only four new positions were approved. The executive director and some senior personnel change frequently, particularly when a new government takes office.

94. TRB lacks a clear vision for the sector, and because of its human and financial resource limitations adopts a passive rather than proactive role. A more independent regulatory body is needed to balance the interests of all stakeholders—the government, toll road operators, road users, communities, and business. This could be achieved by transforming TRB through the appointment of an independent board with a clear majority of members and the chairperson coming from the private sector. Independent funding could be provided through a direct levy on toll fees and the toll road operators.

B. Recommended Follow-Up Actions

95. Due diligence by ADB in future projects should be more exhaustive before financial closure, especially regarding traffic projections and the financial condition of any participating government entities to avoid potential delays.

96. ADB needs to ensure that in all future projects, right-of-way issues are cleared up before loan effectiveness.

97. ADB should consider assisting the government in strengthening the regulatory environment for the toll road sector. This would involve advising on establishing a truly independent TRB, financed and staffed from outside the government, and a major capacity development and recruitment program designed to adequately strengthen the agency.

PRIVATE SECTOR DEVELOPMENT INDICATORS AND RATINGS

Indicators	Ratings ^a	Justifications and Annotations
1. Impact Beyond the Company		
<p>1.1 Private sector expansion: A pioneering or high profile project contributes by facilitating in its own right, or paves the way for, more private participation in the sector and economy at large.</p>	Satisfactory	<ul style="list-style-type: none"> • North Luzon Expressway (NLEX) was the first expressway to be rehabilitated, operated, and maintained by a private company with international partners and in accordance with accepted international practice. • The concession agreement granted Manila North Tollways Corporation (MNTC) the right to collect tolls and to adjust rates according to a formula in a supplemental toll operating agreement. It was the first such agreement in the Philippines. • The project led to the installation of modern, world-class features. The design standards, facilities installed, financial structuring, and concession agreement serve as benchmarks for the other toll road projects in the Philippines. • NLEX paved the way for further private sector participation in road concession projects in the Philippines. Government policy now encourages the private sector to invest and operate infrastructure through public-private partnerships (PPPs). • Economic contribution of the project is limited in terms of regional development and employment generation. Economic growth in central and northern Luzon remains below that of the Philippines. • Toll rates remained formula-driven, and no attempts were made to increase traffic volumes through innovative pricing schemes. • South Luzon Expressway (SLEX) did not follow the entire NLEX template. However, it is now government policy that all new toll roads should be built under PPPs.
<p>1.2 Competition: The project places pressure on public and other sector players to increase efficiency and improve access and services levels in the industry.</p>	Satisfactory	<ul style="list-style-type: none"> • The only directly competing route from Metro Manila to central and northern Luzon is the Manila North Road (MNR), which is not tolled and cheaper to use than NLEX. There are no other toll roads serving central and northern Luzon. • It is not clear whether competition from NLEX has had any effect on MNR. MNR offers an alternative for cars, but scarcely is a choice for trucks and long-distance buses since it remains severely congested, despite recent improvements, and travel times are much longer. • There are no competing railways for commuter

Indicators	Ratings ^a	Justifications and Annotations
<p>1.3 Innovation: The project demonstrates efficient new products and services in areas such as marketing, distribution, tariffs, production, and technology, as well as ways to cover or contain costs, manage demand, etc.</p>	Excellent	<p>travel or for freight.</p> <ul style="list-style-type: none"> ● Facilities and standards of NLEX are now on a par with expressways in other countries, including those in Europe and elsewhere in Asia. ● MNTC designed and operationalized a world-class, computerized traffic management and monitoring system, which were firsts in the Philippines. This includes <ul style="list-style-type: none"> ■ electronic ticketing for cashless transactions; ■ customer service centers; ■ emergency call boxes; ■ road safety features—lane markings, concrete median barriers, and emergency parking areas; ■ traffic surveillance and closed-circuit television cameras; ■ traffic counting stations and weigh-in-motion systems; ■ variable-message signs that provide motorists with updates on traffic and road conditions along the highway; ■ automatic ticketing machines installed at many entry points; and ■ 24-hour emergency assistance systems, including telephone operators, first aid emergency trucks, tow trucks, and traffic enforcement patrol teams. ● The project's toll rate formula has been applied to Subic–Clark–Tarlac Expressway and adapted for SLEX. ● Customer service areas, now a common feature of NLEX, are firsts in the Philippines for providing retail, dining, and motor vehicle services to road users.
<p>1.4 Linkages: Relative to investments, the project contributes to notable upstream or downstream linkage effects to business clients, consumers, suppliers, key industries, etc. in support of growth.</p>	Satisfactory	<ul style="list-style-type: none"> ● Commercial and residential development has been encouraged. New shopping malls have developed near expressway junctions, including Ayala's Marque Mall near Angeles, as well as Shoemart and Robinsons development at the San Fernando exit. Tourist and entertainment complexes have developed in Zambales, La Union, and Pampanga. New residential subdivisions have developed outside the National Capital Region in areas with access to NLEX. However, overall economic growth for central and northern Luzon lags countrywide economic growth. ● NLEX's contribution to employment growth in central and northern Luzon is limited. ● NLEX has reduced transport times and costs

Indicators	Ratings ^a	Justifications and Annotations
<p>1.5 Catalytic element: The project contributes by pioneering or catalyzing finance, as well as by mobilizing or inducing more local or foreign market financing and foreign direct investment in the sector.</p> <p>1.6 Affected laws frameworks, regulation: The project contributes to improving laws and sector regulation for PPP concessions, joint ventures, and build–own–operate–transfer projects, as well as liberalizing markets for improved sector efficiency.</p>	<p>Excellent</p> <p>Partly Satisfactory</p>	<p>of doing business, especially regarding agricultural produce (where there is now less waste).</p> <ul style="list-style-type: none"> • Toll road construction and management skills have been transferred to MNTC and the Tollways Management Corporation (TMC) by Leighton International Limited and Egis Projects SA, two major international companies with extensive worldwide experience of building and operating toll roads. • The financing arrangement could not have been closed without the involvement of Asian Development Bank (ADB) and International Finance Corporation (IFC). Their presence restored confidence in the project during a time of financial uncertainty resulting from the Asian financial crisis. • ADB also encouraged refinancing of the project and the conversion of US dollar debt into peso-denominated loans. • Before the project, local banks and financial institutions had little or no experience or confidence in financing toll roads. Now they are financing such developments, as demonstrated by the recently concluded Banco De Oro Unibank, Inc. financing of the Tarlac–Pangasinan–La Union Expressway. • MNTC’s project framework and legal documentation have been used as the basis for concession arrangements in other road projects. The country’s PPP Center uses it as a model. • The Toll Regulatory Board remains weak, lacks independence, and remains heavily influenced by political considerations. It is understaffed and under-skilled for its role.
2. Company Impact with Wider Potential		
<p>2.1 Know-how contribution: The project contributes to new strategic, managerial, and operational skills with actual or potential wider replication in the sector and industry.</p>	<p>Satisfactory</p>	<ul style="list-style-type: none"> • NLEX is managed by MNTC. Operations and routine maintenance is undertaken under an operations and maintenance agreement by the associated company TMC. • MNTC adopted the latest and most advanced tollway technology available and tapped into the resources of experienced international companies and project sponsors, Egis Projects SA and Leighton International Limited, who transferred technology and knowhow to MNTC and TMC. • MNTC has entered into a business and operating agreement with the Bases Conversion Development Authority covering

Indicators	Ratings ^a	Justifications and Annotations
<p>2.2 Demonstration of new standards: As seen in ways to operate the business and compete, and in investee performance against relevant best industry benchmarks and standards</p>	Excellent	<p>the management, operation, and maintenance of the 94-kilometer Subic–Clark–Tarlac Expressway.</p> <ul style="list-style-type: none"> • The NLEX template was neither replicated in full in SLEX nor in other projects. • Despite the improved governance, innovative pricing has not been introduced, and service levels at some exits remain below par. • Benchmarking of NLEX facilities and operations against other roads (including those in developed countries) shows highly favorable ratings. • The toll road has the latest computerized toll collection and traffic management systems, reliable emergency and roadside services, closed circuit television monitoring, dedicated electronic lanes for faster transactions, and lighting in strategic areas. • MNTC uses an electronic toll collection system supplied by Egis Projects SA, which enables the recording of toll revenues and provides readily available audit trails of toll transactions almost in real time. • The central traffic management system electronically records traffic data in a centralized system. • Similar traffic management schemes are widely used in various tollway operations in many countries. They were first applied in the Philippines on NLEX under the project.
<p>2.3 Improved governance: As evident in standards for corporate governance; stakeholder relations; environmental, health, and safety areas; and energy conservation</p>	Satisfactory	<ul style="list-style-type: none"> • Corporate governance of MNTC and TMC are up to international standards. Each has a chief executive officer/president reporting directly to a board of directors that represents the interests of the major shareholders and provides oversight, direction, and leadership. • Corporate governance follows that of the major shareholders, Metro Pacific Investment Corporation and Egis Projects SA. • MNTC has an environmental monitoring system according to international environment, health, and safety standards. In 2008, it successfully completed the requirements for certification and award of ISO 9001:2002 (air quality), ISO14001:2004 (environmental), and OHSAS18001:2007 (health and safety) standards. • Regular environmental monitoring takes place according to ADB standards, and MNTC closely monitors air and water quality along the expressway and within communities nearby.

Indicators	Ratings ^a	Justifications and Annotations
		<ul style="list-style-type: none"> • Traffic and safety programs and enhancements are enacted and continuously being implemented. • MNTC routinely consults with stakeholders, especially over changes to the tolls, and regular customer satisfaction surveys are undertaken. • Regulation of the toll road sector remains weak. The Toll Regulatory Board lacks independence, is understaffed and under skilled, and remains dependent on government budgetary allocations for funding.
Overall Private Sector Development Rating	Satisfactory	

^a Ratings scale: Unsatisfactory, Partly Satisfactory, Satisfactory, and Excellent. The rating is not an arithmetic mean of the individual indicator ratings, and these have no fixed weights. It considers actual impact (positive or negative) and potential further impacts as well as risk to its realization.

Source: Independent Evaluation Mission.

CONTRIBUTIONS TO THE DEVELOPMENT OF CENTRAL AND NORTHERN LUZON

A. Introduction

1. North Luzon Expressway (NLEX), a vital artery connecting Metro Manila to central and northern Luzon, was completed and made operational in 2005, reducing travel time from Subic to Manila and from Tarlac to Manila. The project is in line with the Philippine government's thrust to encourage private sector participation in the financing, construction, operation, maintenance, and rehabilitation of major infrastructure in such high-priority areas as transportation, power, and water.¹ The government's primary aim is thus to decentralize progress and development in regions and areas adjacent to Metro Manila.

2. The rehabilitation and improvement of 84 kilometers of NLEX has brought notable developments within the regional impact area encompassing the Cordillera Administrative Region, Ilocos Region (Region I), Cagayan Valley (Region II), and Central Luzon (Region III).² The total regional land area of 80,114 square kilometers represents 27% of the total land area of the Philippines. Based on the independent evaluation team's meetings with stakeholders and a study conducted by the University of the Philippines for the Manila North Tollways Corporation (MNTC),³ the improvement of the NLEX brought about positive effects in vehicle operating costs, travel time, and safety while boosting development and land use within and around the regional impact area.

B. Development Impact in Central and Northern Luzon

3. Central Luzon suffered considerable devastation from the eruption of Mount Pinatubo and closure of the United States bases at Clark Field and Subic Bay in the late 1990s. These twin blows severely impacted the local economy, and employment opportunities and businesses confidence were at a low ebb. NLEX was seen as a major development road to improve economic conditions in this region, but it had fallen into disrepair as a result of limited operation and maintenance capacities at the Philippine National Construction Corporation (PNCC), the public agency holding the franchise for the toll road, and responsible for its management.

4. The rehabilitated and much improved NLEX has encouraged economic growth in central and northern Luzon. In 2010, the region, excluding the National Capital Region (NCR), had a population of about 20.4 million people (22% of the national population, see Table A2.1). It accounted for 15% of national gross domestic product in 2009. The average annual population growth rate in the region is equal to the national average of 2.2%.

¹ The Medium Term Development Plan 2004–2010 and the Philippine Development Plan 2011–2016 highlight the importance of encouraging private sector participation to help meet the country's infrastructure development requirements and growth aspirations.

² Region I (Ilocos Region), provinces of Ilocos Norte, Ilocos Sur, La Union, and Pangasinan; Region II (Cagayan Valley), provinces of Batanes, Cagayan, Isabela, Nueva Vizcaya, and Quirino; Region III (Central Luzon), provinces of Aurora, Bataan, Bulacan, Nueva Ecija, Pampanga, Tarlac, and Zambales; and the Cordillera Administrative Region, with provinces Abra, Apayao, Benguet, Ifugao, Kalinga, and Mountain Province.

³ University of the Philippines, Planning and Development Research Foundation, Inc. 2007. *Determination of Economic Impacts of the Improvement of the North Luzon Expressway. Final Report.* Manila.

Table A2.1: Actual and Projected Population, Philippines and North Luzon Expressway Regional Impact Area, Census Years 1990, 1995, 2000, 2007 and Projected 2010

Area	1990 (May 1)	1995 (Sep 1)	2000 (May 1)	2007 (Aug 1)	2010 (Projected)	Annual Growth Rate
National Capital Region (NCR)	7,948,392	9,454,040	9,932,560	11,553,427	11,552,100	1.9%
Cordillera Administrative Region	1,146,191	1,254,838	1,365,412	1,520,743	1,694,400	2.0%
Ilocos (Region I)	3,550,642	3,803,890	4,200,478	4,545,906	5,172,900	1.9%
Cagayan Valley (Region II)	2,340,545	2,536,035	2,813,159	3,051,487	3,365,400	1.8%
Central Luzon (Region III)	6,199,017	6,932,570	8,030,945	9,720,982	10,159,300	2.5%
Northern and central Luzon (excluding NCR)	13,236,395	14,527,333	16,409,994	18,839,118	20,392,000	2.2%
Other regions of Luzon ^a	3,910,001	14,108,782	16,325,516	19,412,699	20,633,600	N/A ^c
Luzon (excluding NCR) ^b	17,146,396	28,636,115	32,735,510	38,251,817	41,025,600	4.5%
Philippines (Total)	60,703,206	68,616,536	76,504,077	88,574,614	94,013,000	2.2%
Total excluding NCR**	52,754,814	59,162,496	66,571,517	77,021,187	82,460,900	2.3%

^a These include Region V (Bicol Region), provinces of Albay, Camarines Norte, Camarines Sur, Sorsogon, and the island provinces of Catanduanes and Masbate; Region IVA (CALABARZON), provinces of Calamba, Laguna, Batangas, Rizal and Quezon; and Region IVB (MIMAROPA), provinces of Occidental Mindoro, Oriental Mindoro, Marinduque, Romblon, and Palawan.

^b Data from National Statistical Coordination Board. Comparative analysis was made for the purpose of this study.

^c As no population data for CALABARZON and MIMAROPA were available for 1990, the annual growth rate was not calculated.

Source: National Statistics Office.

5. From 2004, the year of completion and start of operations of NLEX, to 2009, real regional gross domestic product has increased by 3.4% per annum, which compares to 4.8% nationally (Table A2.2). Much of this growth has been in the service sector. Nevertheless, there is insufficient data to assess how much of this is attributable to the project.

Table A2.2: Gross Regional Domestic Product, 2004 and 2009
(P'000 at constant 1985 prices)

Region	2004	2009	Annual Growth Rate
National Capital Region (NCR, Metro Manila)	355,158,231	465,688,965	5.6%
Cordillera Administrative Region	27,558,078	31,547,310	2.7%
Region I (Ilocos)	34,099,931	40,737,475	3.6%
Region II (Cagayan Valley)	24,154,966	28,157,464	3.1%
Region III (Central Luzon)	97,684,293	115,947,511	3.5%
Northern and central Luzon (excluding NCR)	183,497,268	216,389,760	3.4%
Other regions of Luzon (excluding NCR) ^a	209,534,984	247,556,184	3.0%
Luzon (excluding NCR)	393,032,252	463,945,944	3.4%
Philippines (Total)	1,134,907,014	1,432,115,499	4.8%
Philippines (excluding NCR)	779,748,783	966,426,534	4.4%

^a For details on the other regions and provinces comprising Luzon, please see the note to Table A2.1.

Sources: National Statistical Coordination Board and computations of the consultant.

6. New shopping malls, as well as tourist and entertainment complexes have developed near expressway junctions. Developers are currently buying land parcels along both NLEX and the Subic–Clark–Tarlac Expressway (SCTEX) in anticipation of future residential and commercial demand. Much of the development impact has occurred in the Clark Special Economic Zone, Angeles, and San Fernando in Region III, where urbanization has been faster than expected. The development of Ayala’s Marque Mall in Angeles, Robinsons, Shoe Mart, and other shopping complexes near the San Fernando exit are examples. MNTC also reports there has been an increase in cargoes shipped through Subic and Clark logistics hubs⁴ and improved access to international travel, with six airlines⁵ having regular flights in and out of the Diosdado Macapagal International Airport in Clark, near Angeles.

7. Subdivisions have sprung up in Bulacan and Pampanga, made more attractive to people living and working in Metro Manila as a result of the shorter travel times along NLEX (footnote 3). Our interviews⁶ suggest that although commuter distances have increased, many view the quality of life improvements associated with less dense suburban living as a positive benefit. Another study has quantified the land value effects and concluded that direct access to NLEX (related to entry and exit points) adds to land values.⁷ In 2004, this additional value was estimated to average some P1,054 per square meter. The report concluded that access is likely to generate a 52% price premium on associated land values.

8. Tourism in central and northern Luzon has benefited from faster access to existing destinations of Subic, Baguio, and venues further north. New and improved tourist destinations and recreational facilities have opened in Bataan (Anvaya Cove), Zambales (Iba and Candelaria beach resorts), Bulacan (improvements to Biak-Na-Bato National Park), La Union (San Juan, Carille, and Bacnotan surfing resorts), Pangasinan (Bolinao beach resorts), and Pampanga (Candaba bird sanctuary). There has been an increase in the number of hotel rooms and other accommodations as the numbers of visitors have grown (footnote 4). Through MNTC initiatives, the North Philippines Visitors Bureau, a private, non-stock, membership-based organization, was established to promote tourism within the northern Philippines.

C. Impact on Employment in Central and Northern Luzon

9. Improvement of the NLEX has reduced travel time and facilitated fresher fruit, vegetables, and meat products reaching Metro Manila from central and northern Luzon, thereby reducing waste. A 2004 study for MNTC (footnote 7) found the output elasticity of the agricultural sector to real transport prices to be -1.81 , such that for every percentage point decrease in real transport costs there is a corresponding 1.81% increase in agricultural output. Output elasticities for the industrial (-2.07) and services (-2.6) sectors were found to be even greater. The construction activities associated with the road’s improvement also generated jobs and increased spending. The same study for MNTC showed that the construction spending impact was that for every peso spent on the land transport sector there is an overall output increase of P2.34. Four new service areas have opened up along the NLEX since completion of the rehabilitation work. The five existing service areas prior to the NLEX rehabilitation were also

⁴ MNTC Presentation to ADB. 2011. Christopher C, Lizo, Chief Finance Officer. Manila. (10 March).

⁵ Air Asia, Asiana Airlines, Cebu Pacific, Jinair, Seair, and Tiger Airways.

⁶ With representatives from Manila North Tollways Corporation, Metro Pacific Investment Corporation, and First Philippine Holdings Corporation.

⁷ University of the Philippines, Planning and Development Research Foundation, Inc. 2004. *Development Impact Study: Socioeconomic Development Impact of Highway Improvements Being Undertaken at the North Luzon Expressway*. Manila.

expanded and rehabilitated after MNTC took over. They have increased employment and provide convenient services (retail, dining, and motor vehicle services) to the travelling public.

10. The central and northern Luzon region had about 21.3% of the country's total employment in 2009. This proportion had increased only slightly from 21.2% in 2004 (Table A2.3). Total employment in central and northern Luzon grew at a rate of just under 2.0% per annum from 6.7 million in 2004 to 7.5 million in 2009. That is marginally below the 2.1% for Luzon as a whole and less than that of the NCR and the Philippines as a whole over the same period. There was a shift from employment in industry, agriculture, forestry, and fishing to services in the region during 2004 to 2009. Employment in services increased from 1.9 million to 2.3 million (3.9% per annum growth) while there was more moderate growth for industry from 2.2 million to 2.4 million (1.9% per annum) and for agriculture, forestry, and fishing, which increased from 2.6 million to 2.8 million (1.7% per annum) (Table A2.4). The service sector has grown in importance, with its share of total employment increasing by 2.1% from 2004 to 2009, while that of industry has fallen by 0.8% and of agriculture, forestry, and fishing by 1.3% (Table A2.5).

11. Total employment in micro, small, and medium enterprises (MSMEs) in northern and central Luzon decreased from 0.67 million in 2002 to 0.57 million in 2009, but those for the Philippines overall increased from 5.4 million to 5.7 million. In Luzon, however, excluding the NCR, the decline has been more dramatic, from 1.3 million in 2002 to 0.7 million in 2009 (Table A2.6). Moreover, the number of establishments has declined in northern and central Luzon by about 44,000—from 0.20 million in 2002 to 0.16 million in 2009 (Table A2.7). Numbers of MSMEs in Luzon, less those in the NCR, have fallen from 0.43 million to 0.32 million over the same period. Although the decline in employment and MSME numbers was relatively less in central and northern Luzon than in the rest of Luzon, excluding the NCR, whether this would have been more without an improved NLEX is uncertain.

12. Overall employment figures and those for MSMEs show that growth has been slower than the national average in central and northern Luzon, but the region performed better than did Luzon as a whole while excluding the NCR. Nevertheless, on the basis of these figures, it is difficult to assess the direct impact of the rehabilitated NLEX on employment growth. Even the extent that NLEX might have facilitated the shift in employment to services is unproven.

Table A2.3: Employed Persons by Region and Major Industry Group
(thousands)

Region	2004				2006				2009			
	AFF	Industry	Services	Total	AFF	Industry	Services	Total	AFF	Industry	Services	Total
NCR Metro Manila	38	1,982	2,045	4,064	31	1,836	2,008	3,875	30	2,045	2,204	4,279
CAR Cordillera	349	126	143	618	336	123	142	601	348	134	178	660
I Ilocos	690	509	433	1,632	693	530	470	1,693	772	557	514	1,843
II Cagayan Valley	830	254	276	1,359	804	226	262	1,292	834	277	295	1,406
III Central Luzon	719	1,311	1,066	3,096	762	1,380	1,122	3,264	859	1,448	1,332	3,639
Northern and central Luzon (excluding NCR)	2,588	2,200	1,918	6,705	2,595	2,259	1,996	6,850	2,813	2,416	2,319	7,548
Other regions of Luzon (excluding NCR) ^a	2,072	2,537	1,931	6,540	2,213	2,653	2,031	6,897	2,242	2,938	2,487	7,667
Luzon (excluding NCR)	4,660	4,737	3,849	13,245	4,808	4,912	4,027	13,747	5,054	5,354	4,806	15,214
Philippines (Total)	11,381	10,870	9,363	31,614	11,678	10,787	9,566	32,031	12,098	12,098	11,282	35,478
Philippines (excluding NCR)	11,344	8,888	7,319	27,550	11,647	8,951	7,558	28,156	12,068	10,053	9,078	31,199

AFF = agriculture, forestry, and fishing, CAR = Cordillera Administrative Region, NCR = National Capital Region.

^a For details on the other regions and provinces comprising Luzon, please see the note to Table A2.1.

Source: National Statistics Office.

Table A2.4: Compound Annual Growth Rate (2004–2009) (%)

Region	Agriculture, Forestry, and Fishing	Industry	Services
Metro Manila (NCR)	(4.36)	0.63	1.51
Cordillera	(0.05)	1.20	4.48
Ilocos	2.28	1.82	3.48
Cagayan Valley	0.10	1.79	1.38
Central Luzon	3.62	2.01	4.55
Northern and central Luzon (excluding NCR)	1.68	1.89	3.87
Other regions of Luzon (excluding NCR) ^a	1.58	2.98	5.19
Luzon (excluding NCR)	1.64	2.48	4.54
Philippines (Total)	1.23	2.16	3.80
Philippines (excluding NCR)	1.25	2.49	4.40

NCR = National Capital Region.

^a For details on the other regions and provinces comprising Luzon, please see the note to Table A2.1.

Source: National Statistics Office.

Table A2.5: Number and Percentage Distribution of Employed Persons by Region and Major Industry Group

Region	2004				2009			
	Total	AFF	Industry	Services	Total	AFF	Industry	Services
Metro Manila (NCR)								
Number ('000)	4,065	38	1,982	2,045	4,279	30	2,045	2,204
Percentage distribution (%)	100	0.9	48.8	50.3	100	0.7	47.8	51.5
Northern and central Luzon (excluding NCR)								
Number ('000)	6,706	2,588	2,200	1,918	7,548	2,813	2,416	2,319
Percentage distribution (%)	100	38.6	32.8	28.6	100	37.3	32.0	30.7
Other regions of Luzon ^a								
Number ('000)	6,540	2,072	2,537	1,931	7,667	2,242	2,938	2,487
Luzon (excluding NCR)								
Number ('000)	13,246	4,660	4,737	3,849	15,214	5,054	5,354	4,806
Percentage distribution (%)	100	35.2	35.8	29.1	100	33.2	35.2	31.6
Philippines (Total)								
Number ('000)	31,614	11,381	10,870	9,363	35,478	12,098	12,098	11,282
Percentage distribution (%)	100	36.0	34.4	29.6	100	34.1	34.1	31.8
Philippines (excluding NCR)								
Number ('000)	27,549	11,343	8,888	7,318	31,199	12,068	10,053	9,078
Percentage distribution (%)	100	41.2	32.3	26.6	100	38.7	32.2	29.1

AFF = agriculture, forestry, and fishing; NCR = National Capital Region.

^a For details on the other regions and provinces comprising Luzon, please see the note to Table A2.1.

Source: National Statistics Office. Percentage distribution based on consultant's calculations.

Table A2.6: Number of Micro, Small, and Medium Enterprise Employees by Region and Firm Size

Region	Total		Micro		Small		Medium	
	2002	2009	2002	2009	2002	2009	2002	2009
NCR Metro Manila	1,299,885	1,360,440	544,389	499,740	583,971	670,515	171,525	190,185
CAR Cordillera	51,901	49,950	35,270	29,197	13,711	16,214	2,920	4,539
I Ilocos	166,687	131,777	119,591	88,242	39,405	35,448	7,691	8,087
II Cagayan Valley	87,197	68,595	66,953	48,662	17,676	17,240	2,568	2,693
III Central Luzon	362,902	319,340	235,931	167,260	102,135	121,251	24,836	30,829
Northern and Central Luzon (excluding NCR)	668,687	569,662	457,745	333,361	172,927	190,153	38,015	46,148
Other Regions of Luzon (excluding NCR) ^a	705,602	164,048	447,402	153,898	196,659	9,664	61,541	486
Luzon (excluding NCR)	1,374,289	733,710	905,147	487,259	369,586	199,817	99,556	46,634
Philippines (Total)	5,397,521	5,689,939	2,150,384	1,731,082	1,307,410	1,449,033	370,534	415,526
Philippines (excluding NCR)	4,097,636	4,329,499	1,605,995	1,231,342	723,439	778,518	199,009	225,341

CAR = Cordillera Administrative Region, NCR = National Capital Region.

^a For details on the other regions and provinces comprising Luzon, please see the note to Table A2.1.

Source: National Statistics Office.

Table A2.7: Number of MSME Establishments by Region and Firm Size

Region	Total		Micro		Small		Medium	
	2002	2009	2002	2009	2002	2009	2002	2009
NCR Metro Manila	227,715	210,648	195,294	180,816	30,932	28,438	1,489	1,394
CAR Cordillera	42,447	14,084	39,674	13,267	2,680	784	93	33
I Ilocos	48,368	42,224	46,123	40,441	2,191	1,724	54	59
II Cagayan Valley	25,081	23,718	24,142	22,858	918	839	21	21
III Central Luzon	87,693	79,251	82,004	73,592	5,473	5,439	216	220
Northern and central Luzon (excluding NCR)	203,589	159,277	191,943	150,158	11,262	8,786	384	333
Other regions of Luzon (excluding NCR) ^a	224,595	164,048	211,928	153,898	12,068	9,664	599	486
Luzon (excluding NCR)	428,184	323,325	403,871	304,056	23,330	18,450	983	819
Philippines (Total)	1,401,708	780,437	1,291,221	710,822	101,679	63,529	4,512	3,006
Philippines (excluding NCR)	1,173,993	569,789	1,095,927	530,006	70,747	35,091	3,023	1,612

CAR = Cordillera Administrative Region, MSME = micro, small, and medium enterprises, NCR = National Capital Region.

^a For details on the other regions and provinces comprising Luzon, please see the note to Table A2.1.

Source: National Statistics Office.

TOLL ROADS IN THE PHILIPPINES

A. Overview

1. The Philippines, an archipelago composed of several island economies, has a total land area of 115,830 square miles (300,000 square kilometers). It has a population of 94 million (2010 estimates), 65% of which lives in urban areas. The country has 79 provinces, 113 cities, and 1,496 towns and municipalities. While various modes of transport are available, the most popular and dominant mode is road transport. The country relies heavily on its road network to handle most of the passenger movement and about half of freight movement. Road transport accounts for about 22 billion ton-kilometers per year (i.e., 53% of total domestic freight traffic) and around 83 billion passenger-kilometers per year (89% of total domestic passenger traffic).¹

2. During the past decade, the Philippines had made notable accomplishments in road transport infrastructure and services. A road user's fund for road maintenance, road safety, and pollution control was established in 2000 through Republic Act 8794. Also, various modes of private sector participation in toll roads, rail, and airports were undertaken after a build–operate–transfer law was passed in 1993.

3. The Philippine Development Plan 2011–2016 anticipates massive investments into physical infrastructure.² This is one of five key strategies outlined to achieve inclusive and sustained growth. Low levels of investment in infrastructure are directly caused by the country's constrained fiscal situation. To help meet the country's infrastructure development requirements and growth aspirations, the government has highlighted the importance of encouraging private sector participation for the financing, construction, operation, maintenance, and rehabilitation of major infrastructure in such high-priority areas as transportation, power and water. Toward this end, the private sector was engaged in several public–private partnership (PPP) projects aimed at decentralizing progress and development in regions and areas adjacent to Metro Manila. The Subic–Clark–Tarlac Expressway (SCTEX), linking the rehabilitated North Luzon Expressway (NLEX), which is a vital artery connecting Metro Manila to central and northern Luzon, was completed and made operational. This reduced travel time from Subic to Manila and from Tarlac to Manila. Construction of the Tarlac–Pangasinan–La Union toll expressway extending the SCTEX from Tarlac to La Union is ongoing and is expected to relieve traffic congestion along the existing Manila North Road. In the Southern Luzon Corridor, completion of the Batangas Port Development Project and the Southern Tagalog Arterial Road Expressway paved the way for development of the industrial belt south of Metro Manila.

B. Existing Toll Roads in the Philippines

1. Brief History

4. The north and south Luzon expressways (linking Manila with the north and south of the island of Luzon) were constructed under World Bank loan assistance in the 1970s. An operating franchise was awarded under the Toll Regulatory Board (TRB) Law to a private contractor, Construction and Development Corporation of the Philippines (CDCP). The company was required to levy tolls, and maintain the roads until the capital cost was amortized, but it suffered

¹ ADB. 2009. *Proposed Multi-Tranche Financing Facility (MFF) to the Philippines for the Road Sector Institutional Development and Investment Program – PFR 1*. Manila.

² This is a comprehensive set of strategies, policies, programs, and activities within a framework of inclusive growth that will translate the Aquino administration's economic and development agenda for the next 6 years.

severe financial difficulties and was bailed out by several government agencies. It later became a predominantly publicly owned company and was eventually renamed the Philippine National Construction Corporation (PNCC).

2. Legislative and Institutional Framework

5. The Manila north and south expressways were funded and implemented by the government, with World Bank loan assistance. Under the Marcos administration in 1977, Presidential Directive 1112 was issued establishing the TRB. That directive authorized “the Establishment of Toll Facilities on Public Improvements, Creating a Board for the Regulation Thereof and for Other Purposes.” TRB was required to approve all toll rates, following public hearings. In 1983, Presidential Directive 1113 granted Construction and Development Corporation of the Philippines a 30-year franchise to operate, construct, and maintain toll facilities on the north and south Luzon expressways. The franchise also gave Construction and Development Corporation of the Philippines “the right, privilege and authority to construct, maintain and operate any and all such extensions, linkages or stretches from any of these expressways.” The Build–Operate–Transfer Law (Republic Act No. 6957, as amended by Republic Act No. 7718, enacted in 1990 and 1993, respectively) provided the groundwork for private sector participation in Philippine infrastructure development. Under this law, private project proponents are allowed to enter into contractual arrangements either with national infrastructure implementing agencies or local government units to undertake the construction, financing, operation, and maintenance of infrastructure facilities.

3. Philippine Toll Roads Today

6. The Philippines has five major toll roads, all on the main island of Luzon. The longest and most modern is the 84-kilometer North Luzon Expressway (NLEX), connecting Manila with Santa Ines in the north. The South Luzon Expressway (SLEX) and the Skyway connect Manila with the southern part of Luzon. The Coastal Road is a short (less than 10 kilometers) urban expressway in the south of the Manila metropolitan area. The Tipo Expressway is a 6-kilometer non-divided toll road running east from the Subic Bay Freeport Zone. It is operated by the same operator as is NLEX. The Southern Tagalog Arterial Road Expressway runs south from Manila to the City of Lipa. Only NLEX and SLEX/Skyway have an electronic toll collection system on a par with international standards.

7. Table A3.1 provides a summary of the major toll roads in the Philippines, both those existing and currently under construction.

Table A3.1: Summary of Major Toll Roads in the Philippines

Name of Project	Project Description
North Luzon Expressway (NLEX)	<p>Formerly called the North Diversion Road, and officially known as Radial Road 8, this is a 4- to 8-lane limited access toll expressway that connects Metro Manila to the provinces of the Central Luzon region. It is one of the two branches of the Radial Road 8 (R-8) of Metro Manila (Quirino Highway is the other).</p> <p>The expressway begins in Quezon City at a cloverleaf interchange with Epifanio de los Santos Avenue (a continuation of Andres Bonifacio Avenue). It then passes through Quezon City, Caloocan City, and Valenzuela City in Metro Manila; Meycauayan City, Marilao, Bocaue, Balagtas, Guiguinto, Malolos City, Plaridel, and Pulilan in Bulacan; then San Simon, City of San Fernando, Mexico, and Angeles in Pampanga. The expressway currently ends at Mabalacat and merges with the MacArthur Highway, which continues northward into the rest of central and northern Luzon.</p>
South Luzon Expressway (SLEX)	<p>Formerly called the South Superhighway, and officially known as Radial Road 3 or R-3, this is a network of three expressways that connects Metro Manila to the provinces of the Cavite, Laguna, Batangas, Rizal and Quezon (CALABARZON). The first expressway is the Metro Manila Skyway System, operated jointly by the Skyway Operation and Management Corporation and the Citra Metro Manila Tollways Corporation. The second expressway, the South Luzon Tollway or Alabang–Calamba–Santo Tomas Expressway, is jointly operated by the South Luzon Tollway Corporation, a joint venture of the Philippine National Construction Corporation, the Malaysian company MTD Capital Berhad, and Manila Toll Expressway Systems, Inc.</p> <p>In 2006, the South Luzon Tollway segment underwent rehabilitation through the SLEX Upgrading and Rehabilitation Project, which rehabilitated and expanded the Alabang Viaduct as well as the road from Alabang to Calamba, and eventually connected the expressway to the Southern Tagalog Arterial Road to Batangas. It is the Philippine's longest expressway covering a distance of 97 kilometers (km).</p>
Subic–Clark–Tarlac Expressway (SCTEX)	<p>This is a 94 km, four-lane expressway north of Manila. Its southern terminus is at the Subic Bay Freeport Zone in Zambales. It passes through the interchange with NLEX near the Clark Special Economic Zone in Angeles, and its northern terminus is at Barangay Amucao in Tarlac City. Construction on the expressway began in April 2005, and it opened to the public 3 years later. It is one of the longest toll expressways in the Philippines, second only to SLEX.</p>
Tarlac–Pangasinan–La Union Expressway	<p>This is an 85 km, four-lane expressway north of Manila. It is currently under construction and will be built in two phases. The project is expected to be ready for full operation by 2013. The first phase will involve the construction of two lanes, while the second entails expanding the road to four lanes to accommodate 25,000 vehicles per day. The first phase started in January 2009. It aims to boost trade and tourism while speeding up transportation in the provinces of Tarlac, Eastern Pangasinan, and La Union. The proposed superhighway is being built parallel to MacArthur Highway, passing through the city of Tarlac and the municipalities of La Paz, Gerona, Victoria, Pura, Anao and Ramos in Tarlac; Nampicuan and Cuyapo in Nueva Ecija; and Rosales, Villasis, Urdaneta City, Binalonan, Pozzorubio, and Sison in Pangasinan; and Rosario in La Union.</p> <p>Private Infra Development Corporation has been awarded the financing, design, construction, operation, and maintenance of the Tarlac–La Union Toll Expressway Phase 1.</p>

Name of Project	Project Description
Tarlac–Nueva Ecija–Aurora Expressway	This is a 60 km, 4-lane limited access expressway that begins from Tarlac City in the province of Tarlac and runs to the town of Baler in the province of Aurora. It will pass through the province of Nueva Ecija. It is estimated that the new road will cut the travel time from Clark to Aurora from more than 3 hours to only 1 hour and 30 minutes. This is Phase 3 of the North Luzon West Expressway and also the extension of North NLEX and SCTEX from Tarlac to Aurora.
Southern Tagalog Arterial Road (also known as the STAR Tollway)	The STAR or CALABARZON Expressway is a four-lane (from Santo Tomas to Lipa) and two-lane (from Lipa to Balagtas) 42 km expressway. Operated by STAR Infrastructure Development Corporation, it runs from Santo Tomas to Batangas City, both in the province of Batangas. The expressway starts at the intersection with the Maharlika Highway (known as the Pan-Philippine Highway) in Santo Tomas and runs southward, near Diversion Road, Batangas City. It passes through areas under the jurisdiction of the Municipality of Malvar and Tanauan City, Lipa City, Ibaan, and Batangas City. It is now connected to SLEX, which opened 15 December 2010.
Subic–Tipo Expressway (NLEX Segment 7)	This is approximately 8.8 km in length, its alignment traversing the provinces of Zambales and Bataan. Beginning at Rizal Highway, the expressway runs northward, traversing the wetlands of the former Navel Exchange going toward Argonaut Highway. The alignment curves to the right as it crosses Argonaut highway and rises as it enters the Subic–Bataan Natural Park.
Metro Manila Skyway	This is an elevated highway crossing over much of the existing SLEX. It is located within the Metro Manila portion of the SLEX and crosses through Makati City, Pasay City, Parañaque City, and Muntinlupa City. The Skyway begins in Barangay San Isidro, Makati City, and ends in Barangay Alabang, Muntinlupa City. In the future, it will extend further to the NLEX via Manila and Quezon City.
Manila–Cavite Expressway or Aguinaldo Boulevard	<p>This is a 6.6 km toll expressway. It is considered part of the Radial Road 1 (R-1) of Metro Manila. At the north end, it feeds into and from Roxas Boulevard in the city of Parañaque, which is also part of R-1. At the south end, it connects to Noveleta, Cavite. In 2011, the extension going to Noveleta, Cavite, which is named CAVITEX, was opened to the public. It will eventually connect to the C-6 (Bulacan–Rizal–Manila–Cavite Regional Expressway) and to the proposed Cavite–Laguna Expressway. When the C-5 circumferential road and the Ninoy Aquino International Airport Expressway are extended southward, it will eventually be connected to the expressway. It will be the street alignment of the Manila Light Rail Transit System Yellow Line South Extension when completed in Parañaque City. It will have two stations, namely: Asia World and Ninoy Aquino International Airport.</p> <p>There are currently no true interchanges along this tollway (although there are a number of at-grade "exit points" along the northbound length, mostly for property access). There is a single toll barrier about midway. Vehicles are manually charged a flat toll rate based on class. The toll facility currently has no ability for electronic toll collection.</p>

Source: The Philippines and the Public-Private Partnership Projects, Office of the President, Republic of the Philippines, 2010. http://en.wikipedia.org/wiki/Category:Toll_roads_in_the_Philippines

C. Toll Road of Tomorrow

8. The Government of the Philippines has plans for engaging the private sector's participation on a range of other infrastructure road projects in the near future. Table A3.2 presents the government's PPP toll roads projects for roll out in 2011 and in the medium term.

Table A3.2: Project Profiles for 2011 and Medium-Term Rollout of Toll Road Projects

Name of Project	Mode	Project Cost (\$)	Description	Implementation Schedule
NLEX-SLEX Connector	Public–private partnership (Unsolicited) ^a	477.00	The project involves the construction of a 13.4 kilometer (km), 4-lane elevated expressway over the Philippine National Railway right-of-way which starts at Caloocan City and ends at Makati City. The project aims to close the gap and complete the north–south Luzon industrial beltway transport axis by connecting the North Luzon Expressway (NLEX) and South Luzon Expressway (SLEX). The project aims to help decongest Metro Manila traffic, particularly Epifanio de los Santos Avenue, and ensure 24-hour access to Manila ports by providing a faster, safer, and more comfortable means of transport facility.	2012
Daang Hari-SLEX Link Road Project	Public–private partnership (Solicited) ^b	35.50	The project is a new 4 km, 4-lane paved toll road that will pass through the New Bilibid Prison reservation. It will connect Bacoor, Cavite to SLEX near the Susana Heights area. The proposed new linkage will complement the Cavite–Laguna–East–West highway and will address the requirement for additional access between Metro Manila and Cavite where there is rapid urbanization and consequent worsening of the traffic situation.	2012
Ninoy Aquino International Airport Expressway Phase II	Public–private partnership (Solicited)	235.33	The project will link the Skyway and Manila–Cavite Coastal Expressway. It will provide vital access to Ninoy Aquino International Airport Terminals 1, 2, & 3. Economic zones in Cavite Province will benefit through easier and faster transportation of products to the airport as well as to Manila Port through this link and the NLEX-SLEX Link Expressway. With 4 lanes, its length will be 5.19 km.	November 2011 to September 2015
Cavite Laguna (CALA) Expressway (Manila Side Section)	Public–private partnership (Solicited)	233.33	The project will provide vital access between various economic zones in Cavite Province and Ninoy Aquino International Airport, Manila Port, and Batangas Port. It will contribute to economic development and decongestion of traffic along the Cavite roads, particularly Aguinaldo Highway. This is the extension of the ongoing Manila–Cavite Coastal Expressway Extension and ends at Silang, Cavite Province. An at-grade expressway, it will have 6 lanes and be 27.5 km in length.	May 2012 to December 2015
C-6 Expressway (Global City Link, South Section)	Public–private partnership (Solicited)	897.78	The C-6 Expressway will function as a distributor of traffic coming from expressways in the north and into Metro Manila. The project will also contribute to sound urban development of Rizal and	2013–2016

Name of Project	Mode	Project Cost (\$)	Description	Implementation Schedule
			Bulacan provinces. The project will start from NLEX at Bocaue–Marilao boundary and will traverse Santa Maria, San Jose del Monte, Rodriguez, San Mateo, Antipolo, Taytay, and Taguig, and connect with the Skyway at Bicutan. The Global City Link is a branch of the C-6 Expressway and will provide vital access to the mega commercial and business center of Global City. With 4 lanes, it will have a length of 50 km.	
Central Luzon Expressway (CLEX), Phase II, Cabanatuan–San Jose	Public–private partnership (Solicited)	315.55	The project is an extension of CLEX Phase I and will connect Cabanatuan City and San Jose City in Nueva Ecija Province. It will contribute to the development of regional growth centers to decrease overconcentration in Metro Manila of socioeconomic activities. The project will also provide faster and safer access to Region II. The 2-lane project will have a length of 35.7 km.	To be determined
SLEX Extension (To Lucena City)	Public–private partnership (Solicited)	211.11	The 2-lane project is an extension of the existing SLEX from Santo Tomas, Batangas Province to Lucena City, Quezon Province. It is a vital link that will provide access to Quezon Province and Region V. It is expected to contribute to socioeconomic development of those areas traversed and Region V (Bicol Region). It will also decongest traffic at Daang Maharlika.	2013–2016
Calamba–Los Banos Expressway	Public–private partnership (Solicited)	131.11	The project is expected to vitally support tourism development of Los Banos and its nearby tourism spots while contributing to decongestion of the national road. The road project will branch off from SLEX at Calamba and pass through Los Banos City and end at Bay. It is proposed to be a combined structure of flood control dike along Laguna de Bay and highway, thus achieving two purposes. It will have 4 lanes and cover 15.5 km.	2014–2016
R-7 Expressway	Public–private partnership (Solicited)	532.89	The project will be constructed over one of Metro Manila's most congested corridors, namely Quezon and Don Mariano Marcos Avenues. It will connect Quezon City and Manila City with a high speed transport facility, thus decongesting traffic of at-grade road. It will be a partially elevated and partially underground expressway. With 4 lanes, it will be 16.1 km in length.	2016–2018

^a A written proposal that is submitted to the government on the initiative of the offering company for the purpose of obtaining a contract with the government and that is not in response to a request for proposal, broad government agency announcement, or any other government-initiated solicitation or program.

^b Solicited proposals are written in response to published requirements contained in a request for proposal, request for quotation, request for information, or invitation for bid.

Source: The Philippines and the Public-Private Partnership Projects, Office of the President, Republic of the Philippines, 2010.

MANILA NORTH TOLLWAYS CORPORATION

A. Manila North Tollways Corporation

1. History and Ownership

1. Manila North Tollways Corporation (MNTC) was incorporated in the Philippines on 4 February 1997 for the sole purpose of implementing the provisions of a joint-venture agreement between Metro Pacific Tollways Development Corporation, then First Philippine Infrastructure Development Corporation (FPIDC), and the Philippine National Construction Corporation (PNCC) for the rehabilitation, maintenance, and operation of the North Luzon Expressway (NLEX). A chronology of major events is shown in Table A4.1.

Table A4.1: Changing Ownership of Manila North Tollways Corporation

Date	Event
1995	President of the Philippines approved the right of Philippine National Construction Corporation (PNCC) to assign its rights and interests under its franchise to construct, operate, and maintain toll facilities on the North Luzon Expressway (NLEX) to a joint venture company to be formed by First Philippines Infrastructure Development Corporation (FPIDC) and PNCC.
1997	Manila North Tollways Corporation (MNTC) was incorporated to implement the joint venture between FPIDC, and PNCC for the rehabilitation of NLEX. FPIDC had 60%, and PNCC 40% of MNTC's equity. FPIDC was established to enter into contracts with the public sector and was 100% owned by First Philippine Infrastructure, Inc., which was 50% owned by First Philippine Holdings Corporation (FPHC), and 48% by Benpres Holdings Corporation (BHC) of the Lopez Group. The remaining 2% was publically owned.
2001	Project appraisal and financial closing. Ownership of MNTC was FPIDC, 64.25%; PNCC, 20.00%; and Egis Projects SA, 15.75%.
2001/02	Replacement of BHC with FPHC as lead sponsor when FPHC became majority owners with 51% of the shares of FPIDC.
2002	PNCC had difficulty in raising equity for the project and reduced its shareholding to 2.5%, while other sponsors increased their shares to compensate.
2003	Leighton International Limited (LIL), the main construction contractor, became a new investment partner acquiring 16.5% of MNTC: 10% from FPIDC and the further 6.5% through an additional equity infusion. Ownership thus became FPIDC with 67.1%, LIL with 16.5%, Egis Projects SA with 13.9%, and PNCC with 2.5%.
2008	FPHC and BHC sold, assigned, and transferred all rights and shares they owned within First Philippine Infrastructure to Metro Pacific Investments Corporation (MPIC) following a strategic corporate decision to focus activities on other infrastructure sectors during a period when the group was experiencing cash shortages. MPIC has 99.8% equity ownership of Metro Pacific Tollways Corporation (MPTC), which owns 100% of Metro Pacific Tollways Development Corporation, which owns 67.1% of MNTC.
2009	LIL sold all its shares in MNTC (16.5%) to Globalfund Holdings, Inc.
2010	Globalfund Holdings sold about 75% of its shareholding, some 12.4% of MNTC, to Banco De Oro Unibank, Inc (BDO). Ownership of MNTC became: Metro Pacific Tollways Development Corporation (67.1%), Egis Projects SA (13.9%), BDO (12.4%), Globalfund Holdings, Inc. (4.1%), and PNCC (2.5%).

Source: Manila North Tollways Corporation.

2. As of the beginning of 2011, ownership of MNTC was as follows: Metro Pacific Tollways Corporation (MPTC) (67.1%) (Please note that MPTC's 67.1% is held through Metro Pacific

Tollways development Corporation [MPTDC]), Egis Projects SA, (13.9%), BDO 12.4%, Globalfund Holdings, Inc. (4.1%), and PNCC (2.5%).

2. Management and Organization Structure

3. Corporate governance at MNTC is up to international standards with the board representing the interests of the shareholders while providing oversight, direction, and leadership. A president and chief executive officer is in charge of the corporation's daily running. The management team comprises professionals in infrastructure development and experts in tollway operation.

4. MNTC has a 13-person board of directors comprising the chairman and two vice chairmen (one representing Egis, the other PNCC), a corporate secretary, the president and chief executive officer of MNTC, the president and chief executive officer of MPTC, the chief financial officer and treasurer of MNTC, and five other directors. The chairman of the board is the chairman of Metro Pacific Investment Corporation (MPIC), the first vice chairman is assigned by PNCC, and the second vice chairman is from Egis Projects SA. Table A4.2 lists the board composition as of August 2011.

Table A4.2: Composition of the Manila North Tollways Corporation Board of Directors

Board of Directors	Position	Affiliation
Manuel V. Pangilinan	Chairman of the Board	Metro Pacific
Atty. Rainier Butalid	First Vice Chairman	PNCC
Jean-Claude Neumann	Second Vice Chairman	Egis Projects SA
Alex Erlito S. Fider	Corporate Secretary	Metro Pacific
Jose Ma. K. Lim	Member	Metro Pacific
Stephen CuUnjieng	Member	Global/BDO
Ramoncito S. Fernandez	Member	Metro Pacific
Rodrigo E. Franco	Member	MNTC
Christopher Daniel C. Lizo	Member	Metro Pacific
Rik Jan Jozef Joosten	Member	Egis Projects SA
Dean Raul C. Pangalangan	Member	Metro Pacific
Jose Sio	Member	Globalfund Holdings, Inc./BDO
Ambassador Albert F. Del Rosario (resigned)	Member	Metro Pacific

BDO = Banco de Oro Unibank, MNTC = Manila North Tollways Corporation, PNCC = Philippine National Construction Corporation.

Source: Manila North Tollways Corporation.

5. As of mid-June 2011, MPIC had a market capitalization of P77 billion (\$1.8 billion) and it includes major equity investments in infrastructure and utility companies in the Philippines. As MNTC's major shareholder, MPIC's corporate governance has been adopted by MNTC. Its business ethos and environment focus on social responsibility and building the trust of its shareholders. The company consistently has had satisfactory independent audits, as conducted by Sycip Gorres Velayo & Co, a subsidiary of Ernst and Young, confirming that MNTC's financial statements present fairly the financial position, performance, and cash flows in accordance with Philippine Financial Reporting Standards.

6. The Office of the President is at the centre of activities, with a role in every strategic and operational management area of the company. It aims to create synergy in the functions and disciplines within the corporation to achieve growth, profitability, and long-term viability. The

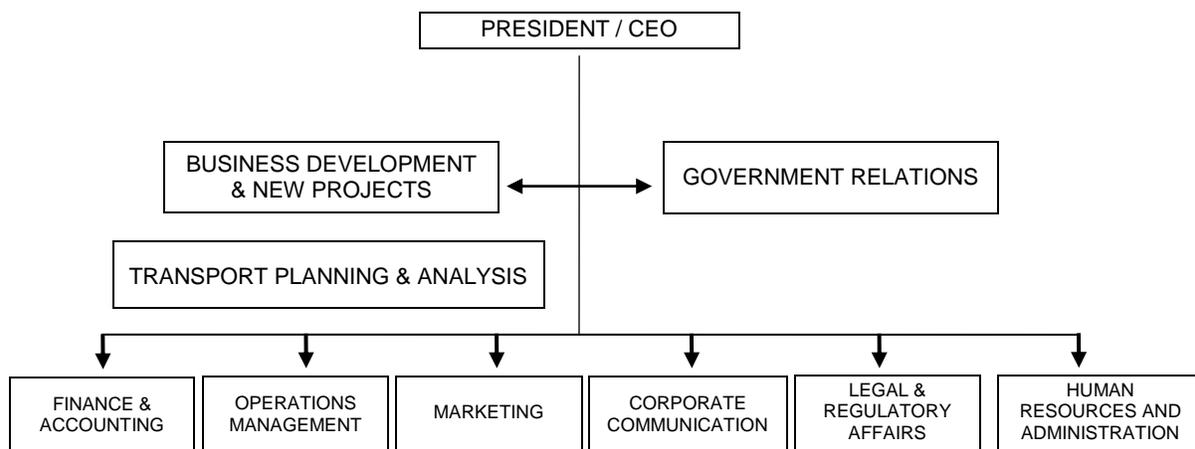
Government Relations Unit under the Office of the President deals with various government offices at all levels to obtain support for key initiatives. Among others, it provides information to concerned government entities about the company’s maintenance and operations activities, including its business plans and future expansion programs. The president and chief executive officer is supported by departments of finance and accounting, operations management, marketing, corporate communication, legal and regulatory affairs, and human resources and administration. The departments are responsible for allocated functions, including treasury and comptrollership; operations, management and assurance; contracts management; and construction management.

7. The President and chief executive officer (CEO) is responsible for the day-to-day management of MNTC and also oversees the functions of transport analysis and information technology. Transport analysis includes assessment of actual traffic performance and evaluates transportation infrastructure proposals through the development and maintenance of transport models, studies, and planning for management and stakeholder use. The information technology function is responsible for ensuring that the IT infrastructures within the company are up and running. These include interconnection with business partners and application systems vital to MNTC’s operations.

8. The chief financial officer (CFO) has authority over and responsibility for the functions of treasury and comptrollership, corporate finance, and accounting. Treasury and comptrollership are functions ensuring the sound financial management of MNTC, so that it obtains the financing it needs and manages its cash flows. The corporate finance function is in charge of corporate planning, develops financial models to support investment and financing decisions, and ensures that the company meets its obligations to its shareholders and lenders. The accounting function administers the budget to ensure that the company’s financial resources are used efficiently. It also manages accounting, tax, and financial reporting.

9. Figure A4.1 presents MNTC’s organizational structure.

Figure A4.1: Organization Chart of Manila North Tollways Corporation



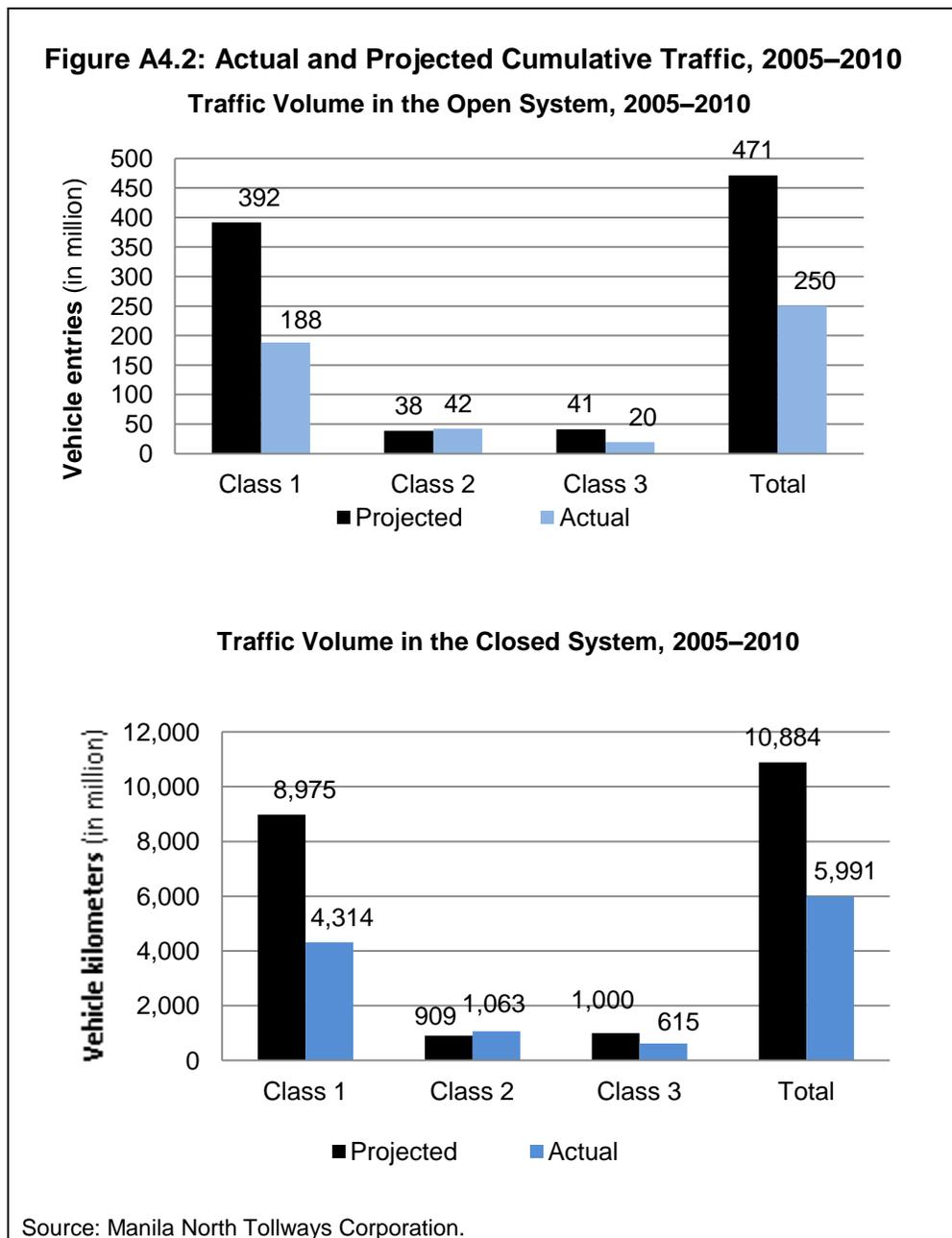
Source: Manila North Tollways Corporation.

10. Tollway management and operations have been divided between MNTC and Tollways Management Corporation (TMC), incorporated in August 2000. MNTC is responsible for overall management; construction works, including major periodic maintenance and repairs; and financing. TMC is the operator of NLEX and is responsible for traffic management, toll collection, emergency services, customer relations, lighting, and landscaping. TMC provides services according to an operations and maintenance agreement with MNTC, and it has established a technical assistance agreement with Egis Road Operation (formerly Transroute International), a subsidiary of Egis Projects SA. It employs some 1,400 people, including 450 tollbooth operators.

B. Operating Performance

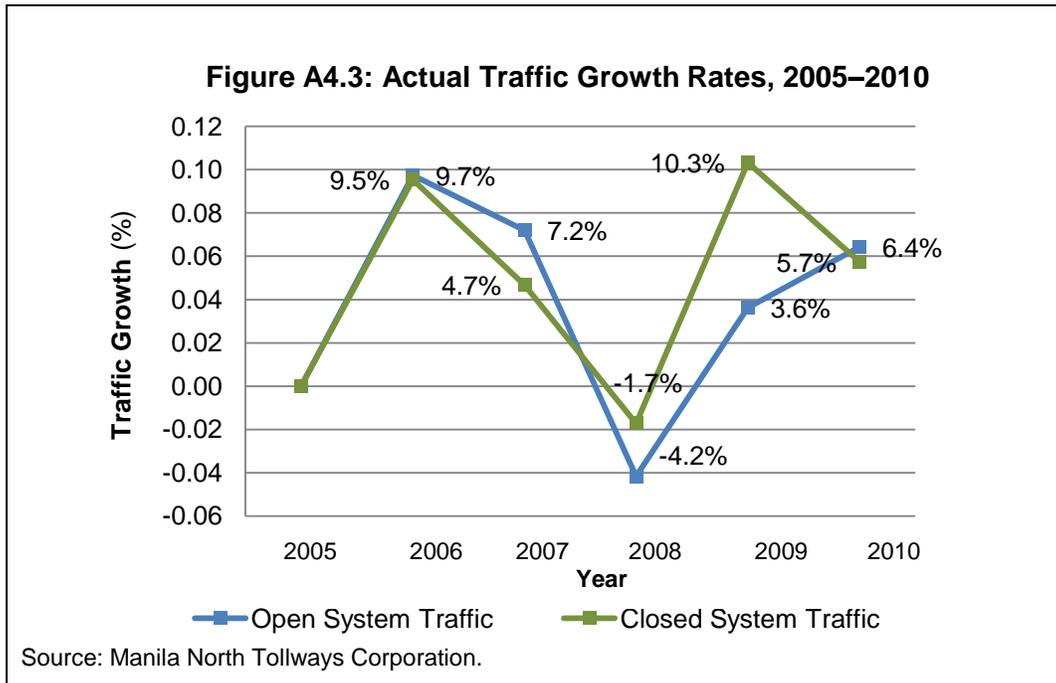
11. The total traffic volumes from 2005 to 2010 have been consistently lower than forecast at appraisal. Actual vehicle-kilometers on the closed system averaged only 45% of the expected volumes, while the average number of vehicles entering NLEX under the open system averaged 47% of the expected numbers. Only the traffic volume of Class 2 vehicles exceeded expectations, being 17% higher in the closed and 10% higher in the open system.

12. The fact that volumes are lower than expected can be attributed to optimistic economic growth projections, aftereffects of the Asian financial crisis, increased fuel prices, and seasonality of travel. Figure A4.2 compares actual versus projected cumulative traffic volumes.

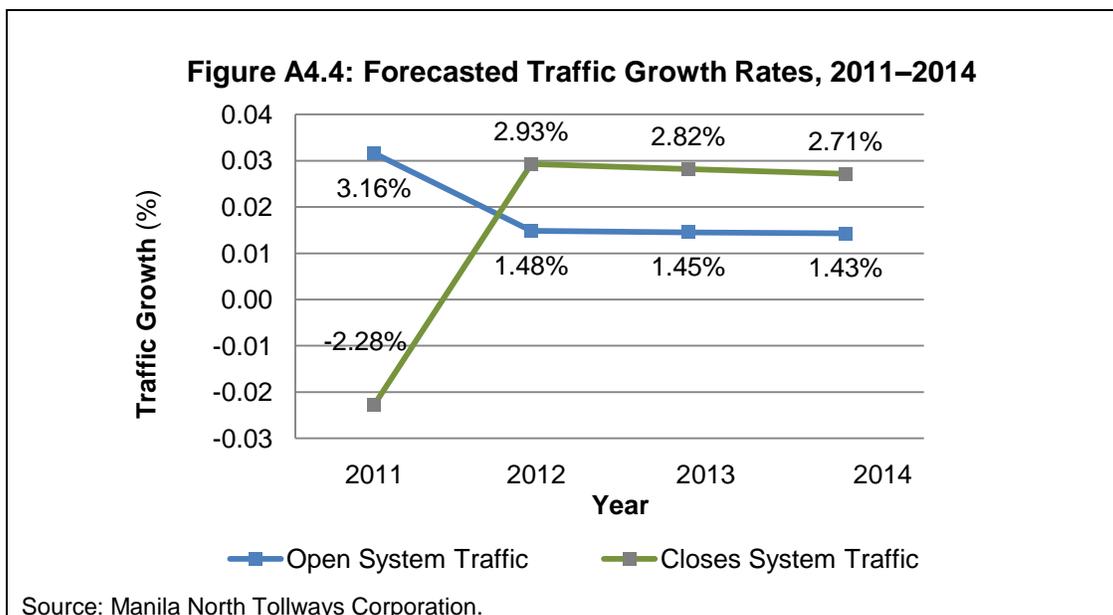


13. The traffic volume grew by an average 5.7% annually in the closed and 4.6% in the open system since commercial operations began in 2005. It started with a major increase from 2005 to 2006 (9.5% in the closed and 9.7% in the open system), following a successful marketing campaign. The traffic was increasing in 2007, but only at half the previous year's rate. The traffic increase, however, did not compensate for the drop in revenues reported as a result of toll rate cuts introduced in January 2007. Despite that toll rates were further reduced in July 2008, the traffic in 2008 dropped significantly from the previous year (-4.2% in the closed and -1.7% in the open system). This is likely because of record-high oil prices (as crude oil reached \$145 per barrel in July 2008). While toll rates remained unchanged and oil prices

dropped, traffic started to increase again in 2009. While it is suspected that traffic volume is elastic to toll rates, the gasoline price is likely one of the main factors influencing traffic.



14. The traffic forecast provided by MNTC projects a slow but steady increase over the next 3–4 years. According to those projections, the open system traffic will increase by 3.2% in 2011 and will slightly increase during the following years. In contrast, traffic in the closed system will decline in 2011 but will see a higher rate of increase through the following 3 years. The forecasted traffic growth rates are demonstrated in Figure A4.4.



C. Financial Performance

15. MNTC generated a healthy and stable cash flow during the first 2 years of commercial operations. In 2007 and 2008, however, the company's liquid assets started to decline, and cash and cash equivalents at year end were around 46% lower in those years than in previous years. Since early 2009, the company's cash flow situation has been improving. From 2008 to 2010, the available cash and cash equivalents have increased by 31% annually. The FY2010 financial accounts showed a year-end cash balance of P1.14 billion.

16. The NLEX project has been operating satisfactorily. MNTC's gross revenues increased by 12% in 2006 from P5.12 billion for the 11 months of operations in 2005 to P5.71 billion in 2006. MNTC achieved an increase in gross revenues despite the escalation of toll fees at the start of operations primarily because of MNTC's intensive campaign promoting that the benefits of using an improved toll road—including comfort, driving convenience, shorter travel time, and savings in vehicle operating costs—outweigh the higher cost of the new toll fees. The actual revenues in 2005 and 2006, however, were lower by 20% and 18%, respectively, than Asian Development Bank's original projections. Traffic had been overestimated and, since revenue is mainly derived from toll collections, revenues were proportionately lower.

17. In 2007 and 2008, MNTC had 4% and 5% year-on-year decreases of gross operating revenues, reaching the lowest point at P5.2 billion in 2008. Toll rates were reduced by an average 11.1% on 1 January 2007 and further by 3.6% on 1 July 2008. The reduction was due to a financial risk management operation to restructure the company's outstanding loan facilities. As a result, the foreign exchange factor was eliminated from the toll rate formula. Although the toll rates were lowered, the subsequent traffic increase did not compensate for the loss of revenue due to the rate reduction. It is suspected that the traffic volume is sensitive to other influencing factors, such as gasoline prices.

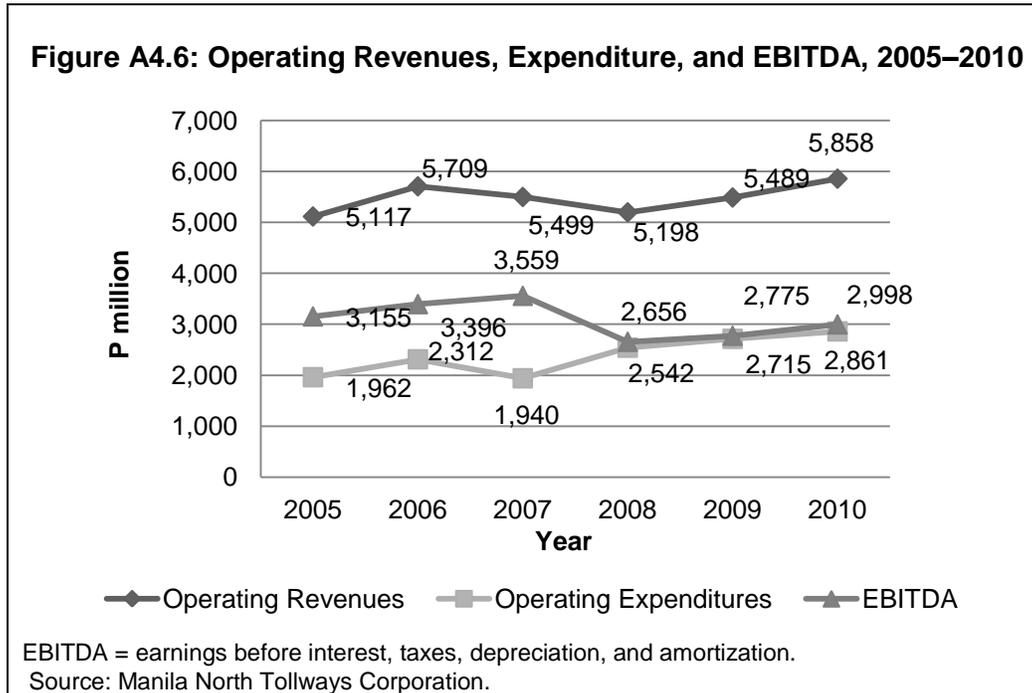
18. This period of decline in revenues was followed by healthy growth. Although the toll rates remained unchanged during the period, operating revenues went up by 6% in 2009 and 7% in 2010. Revenues reached P5.86 billion in 2010, which is the highest figure to date. Nevertheless, that peak remains 35% lower than Asian Development Bank's more optimistic projections.

19. The 2006 net income after tax of P1.69 billion was 10% higher than the 2005 net income of P1.53 billion but considerably lower than original projections. Earnings before interest, taxes, depreciation, and amortization (EBITDA) reached nearly P3.4 billion in 2006, and EBITDA margin was 59% of gross revenues. In 2007, the net income was still steadily increasing (by 27% from the previous year) despite the drop in revenues, which is due to the fact that operating expenditures and finance costs were decreasing at the same time. The EBITDA margin of 65% in 2007 was the highest to date.

20. In 2008 and 2009, MNTC experienced a huge fall in net income (by 57% and 73% respectively), which was mainly due to increased operating expenditures. In 2009, the company incurred unprecedentedly high general and administrative expenses, due to uncertainty concerning imposition of input value added tax on toll operators. For this reason input value added tax (VAT) from 2009 and prior years was written off as an expense and a provision for potential losses on input VAT from 2006 onward was recognized in 2009.

21. In 2010, due to the fair increase of revenues, EBITDA reached nearly P3 billion and a margin of 51%. Net income after tax was more than four times greater than in the previous year, yet it did not reach the levels of the first 3 years.

22. Figure A4.6 shows the year-to-year changes in operating revenues, operating expenditure, and EBITDA during 2005–2010.



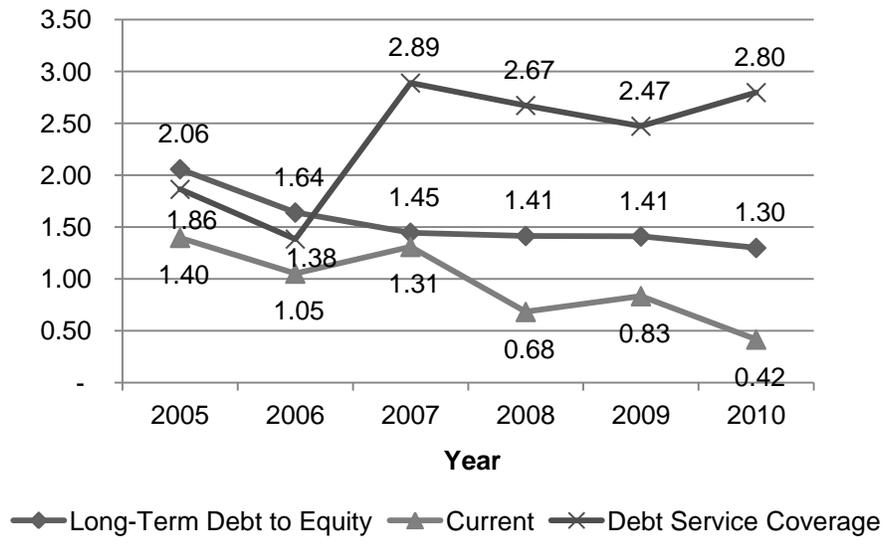
23. As of the close of FY2010, MNTC's net worth (total assets minus total liabilities) was P6.8 billion, which is 8% less than the net worth during the first year of operation. The company's net worth was increasing until FY2007, after which it fell through FY2010.

24. The financial covenant under the amended loan agreement includes a minimum debt service coverage ratio of 1.15:1. The actual figures show that the cash flow was more than sufficient to cover debt service during the first 5 years of operation. The debt service coverage ratio was 2.89 in FY2007 and over 2.67 in 2008 and 2.47 in 2009. In 2010, the coverage ratio closed at 2.80.

25. The company's current ratio shows a declining trend. The current ratio dropped below 1 in the last 3 years, reaching 0.4 at the close of FY2010, as current liabilities have grown because of the increasing current proportion of long-term debts, provisions, and dividends payable. The low ratio for 2010 reflects the proposed repayment of debt in 2011, including the loan from Asian Development Bank.

26. The chart below demonstrates the trends in the long-term debt to equity, debt service coverage, and current ratios.

Figure A4.7: Year-End Financial Ratios, 2005–2010



Source: Manila North Tollways Corporation.

FINANCIAL INTERNAL RATE OF RETURN

A. General Assumptions

1. The project involved the rehabilitation, expansion, and operation of an existing expressway, including the construction and rehabilitation of associated structures. The financial internal rate of return (FIRR) in this report was computed for the period 1995–2037.
2. Bangko Sentral ng Pilipinas average annual exchange rates were used to convert capital costs from Philippine pesos to US dollars during the rehabilitation period (1995–2005). The historical and forecasted price indices used are based on the following sources:
 - (i) for 1995–2010, actual rates from the National Statistical Coordination Board;
 - (ii) for 2011–2012, forecasted rates from the Asian Development Outlook, 2011;
 - (iii) for 2013–2037, assuming an inflation rate of 4.5% in each year from 2013 onwards.
3. The consumer price indices and exchange rates are given in Table A5.1.

Table A5.1: Price Indices and Exchange Rates

Year	Consumer Price Index	P:\$
1995	73.2	25.71
1996	78.7	26.22
1997	83.1	29.47
1998	90.8	40.89
1999	96.2	39.09
2000	100.0	44.19
2001	106.8	50.99
2002	110.0	51.60
2003	113.8	54.20
2004	120.6	56.04
2005	129.8	55.09
2006	137.9	
2007	141.8	
2008	155.0	
2009	160.0	
2010	166.1	
2011	174.2 ^a	
2012	181.7 ^a	
2013	189.9 ^a	

^a Projected.

Sources: Bangko Sentral Ng Pilipinas, National Statistical Coordination Board, ADB Development Outlook.

4. The compound annual growth rate of the consumer price index from 1995 to 2037 (4.9%) was used as the inflation rate for calculating the real internal rates of return.
5. The audited financial statements of Manila North Tollways Corporation (MNTC) were used for the period 2003–2010. Because of changes in accounting policies, reported actual figures for a number of years were replaced by the restated amounts from subsequent years.

6. The operating revenues and expenses forecasts for 2011–2014 were provided by MNTC. The figures included operating revenues and expenses forecasted in relation to segments 9 and 10, which constitute Phase 2 of the North Luzon Expressway (NLEX) expansion program. MNTC's recently acquired Subic–Clark–Tarlac concession also was included in the forecast. Since the Asian Development Bank (ADB) loans were intended to finance Phase 1, only revenues associated with NLEX Phase 1 were considered. Subsequently, the operating expenditure forecast was proportionally adjusted only to reflect expenses associated with Phase 1.

B. Capital Cost

7. The capital costs totaled \$384.5 million and were incurred between 1995 and 2005. This is slightly higher than the project cost of \$377.5 million estimated in the original report and recommendation of the President (RRP) according to which funding of the project by Asian Development Bank was approved.¹

C. Operating Revenues and Expenses

8. Operations began in February 2005. The operating revenues and expenses were captured from MNTC's financial statements for 2003–2010. Forecasts were provided by MNTC until 2014. For the period 2015–2037, revenues assume an annual traffic growth rate of 2.32% (based on the compound traffic growth rate for 2011–2014 provided by MNTC) and a toll rate increase of 2.25% every 2 years (since MNTC can only increase toll rates at half the inflation rate, which was assumed at 4.5%). Operating expenses for the same period assume an annual increase of 4.5%, which is equivalent to the projected inflation rate.

D. Tax Payments

9. Tax payments are based on the financial statements of MNTC for 2003–2010. For later years, the calculation assumes the effective tax rate will be 26% of taxable income (net income before tax), which had averaged 24.5% of revenues from 2005 to 2010.²

E. Calculation of FIRR

10. The FIRR was calculated on the basis of actual and projected operating revenues, operating expenses (excluding amortization and depreciation), tax payments, and capital costs, as presented below. Since the concession period was extended by 7 years, the FIRR was calculated until 2037. As shown in Table A5.2 below, the recalculated real FIRR was estimated at 9.0%, which is lower than the FIRR of 16.0% from the RRP.

¹ Asian Development Bank. 2000. *Report and Recommendation of the President to the Board of Directors on Proposed Loans to Manila North Tollways Corporation for the North Luzon Expressway Rehabilitation and Expansion Project in the Republic of the Philippines*. Manila.

² MNTC enjoyed an income tax holiday until December 2010. MNTC estimated that starting in 2011 it would be paying an average income tax rate of 26%.

Table A5.2: Calculation of Financial Internal Rate of Return, Nominal and Real
(P million)

Year	Capital Cost	Revenues ^a	Operating Expenses less Depreciation and Amortization ^b	Tax Payments ^c	Net Nominal Cash Flow
1995	(177.1)				(177.1)
1996	(452.8)				(452.8)
1997	(755.1)				(755.1)
1998	(347.5)				(347.5)
1999	(804.0)				(804.0)
2000	(174.2)				(174.2)
2001	0				0
2002	(1,767.9)				(1,767.9)
2003	(7,528.7)	35.4	(106.1)	(1.4)	(7,600.8)
2004	(6,246.3)	22.3	(175.8)	(1.2)	(6,400.9)
2005	(940.7)	5,116.7	(1,961.9)	(20.1)	2,194.1
2006		5,708.8	(2,312.4)	(5.4)	3,391.1
2007		5,499.3	(1,940.3)	(149.5)	3,409.5
2008		5,197.9	(2,541.5)	(70.7)	2,585.6
2009		5,489.2	(3,819.3)	(8.1)	1,661.8
2010		5,858.5	(2,860.6)	(70.4)	2,927.5
2011		6,609.2	(2,575.7)	(421.0)	3,612.5
2012		6,723.6	(2,940.5)	(428.3)	3,354.8
2013		7,607.6	(3,157.0)	(484.6)	3,966.1
2014		7,900.7	(3,266.0)	(503.3)	4,131.4
2015		8,261.8	(3,413.0)	(526.3)	4,322.5
2016		8,453.4	(3,566.6)	(538.5)	4,348.4
2017		8,839.7	(3,727.0)	(563.1)	4,549.6
2018		9,044.8	(3,894.8)	(576.2)	4,573.9
2019		9,458.2	(4,070.0)	(602.5)	4,785.7
2020		9,677.6	(4,253.2)	(616.5)	4,808.0
2021		10,119.9	(4,444.6)	(644.6)	5,030.7
2022		10,354.7	(4,644.6)	(659.6)	5,050.5
2023		10,827.9	(4,853.6)	(689.7)	5,284.5
2024		11,079.1	(5,072.0)	(705.7)	5,301.3
2025		11,585.4	(5,300.2)	(738.0)	5,547.2
2026		11,854.2	(5,538.7)	(755.1)	5,560.3
2027		12,395.9	(5,788.0)	(789.6)	5,818.3
2028		12,683.5	(6,048.5)	(807.9)	5,827.1
2029		13,263.1	(6,320.6)	(844.9)	6,097.6
2030		13,570.8	(6,605.1)	(864.5)	6,101.3
2031		14,191.0	(6,902.3)	(904.0)	6,384.8
2032		14,520.2	(7,212.9)	(924.9)	6,382.4
2033		15,183.8	(7,537.5)	(967.2)	6,679.1
2034		15,536.1	(7,876.7)	(989.6)	6,669.8
2035		16,246.1	(8,231.1)	(1,034.9)	6,980.1
2036		16,623.0	(8,601.5)	(1,058.9)	6,962.6
2037		17,382.7	(8,988.6)	(1,107.3)	7,286.8
				Real^d	Nominal
			FIRR	9.0%	14.4%

FIRR = financial internal rate of return, MNTC = Manila North Tollways Corporation.

^a Revenues for 2015–2037 assume an annual traffic growth rate of 2.32% (based on the compound traffic growth rate from 2011–2014 as provided by MNTC) and a toll rate increase of 2.25% every 2 years.

^b Operating expenses for 2015–2037 assume an annual increase of 4.5%, which is equivalent to the projected inflation rate.

^c Tax payments for 2011–2037 are estimated at 26% of taxable income (net income before tax), which averaged 24.5% of revenues during 2005–2010.

^d The real FIRR was derived using the formula: $[(1 + \text{nominal FIRR}) / (1 + \text{inflation rate})] - 1$

Source: Independent Evaluation Department estimates.

11. The recomputed FIRR is considerably lower than the RRP's estimate, mostly because of the lower-than-expected traffic, as shown in Table A5.3. Specifically, actual traffic for Class 1 (cars and other light vehicles) and Class 3 (trucks and other heavy vehicles) was only around half of what had been anticipated at the appraisal stage. Actual traffic volume for Class 2 (buses) actually exceeded expectations by an average of 10% in the open system and 17% in the closed system, but, as can be seen from Table A5.3, Class 2 traffic was only a small proportion of total traffic. In total, the actual traffic between 2005 and 2010 was 47% lower in the open system and 45% lower in the closed system than the traffic volume estimated in the RRP.

Table A5.3: Actual versus Projected Traffic Volume, 2005–2010

Year	Open System Traffic (million vehicle entries)											
	Class 1			Class 2			Class 3			Total		
	Projected	Actual	Diff %	Projected	Actual	Diff %	Projected	Actual	Diff %	Projected	Actual	Diff %
2005	62.6	27.74	-56%	6.4	6.0	-6%	6.9	3.0	-57%	75.9	36.7	-52%
2006	63.6	30.52	-52%	6.4	6.7	5%	6.9	3.1	-55%	76.9	40.3	-48%
2007	64.7	32.02	-51%	6.4	7.5	17%	6.9	3.7	-47%	78.0	43.1	-45%
2008	65.8	31.22	-53%	6.4	7.1	11%	6.9	3.1	-55%	79.1	41.4	-48%
2009	66.9	32.42	-52%	6.4	7.3	14%	6.9	3.2	-54%	80.2	42.9	-47%
2010	67.9	34.38	-49%	6.4	7.8	21%	6.9	3.5	-49%	81.2	45.7	-44%
Total	391.5	188	-52%	38.4	42.3	10%	41.4	19.6	-53%	471.3	250.2	-47%

Year	Closed System Traffic (million vehicle-kilometers)											
	Class 1			Class 2			Class 3			Total		
	Projected	Actual	Diff %	Projected	Actual	Diff %	Projected	Actual	Diff %	Projected	Actual	Diff %
2005	1,409.3	628.4	-55%	143.2	153.3	7%	156.5	83.3	-47%	1,709	865.0	-49%
2006	1,443.9	675.1	-53%	146.5	173.5	18%	160.6	98.9	-38%	1,751	947.4	-46%
2007	1,478.5	702.3	-53%	149.8	179.9	20%	164.6	109.5	-33%	1,793	991.8	-45%
2008	1,513.1	705.5	-53%	153.1	174.1	14%	168.7	95.0	-44%	1,835	974.6	-47%
2009	1,547.7	783.1	-49%	156.4	183.2	17%	172.8	109.0	-37%	1,877	1,075.2	-43%
2010	1,582.3	819.6	-48%	159.7	198.5	24%	176.8	119.0	-33%	1,919	1,137.1	-41%
Total	8,974.8	4,314.0	-52%	908.7	1,062.5	17%	1,000.0	614.7	-39%	10,884	5,991.2	-45%

Diff = difference.

Source: Manila North Tollways Corporation.

F. Weighted Average Cost of Capital (WACC)

1. Cost of Debt (After Tax)

12. The cost of debt calculation was based on the finance costs and long-term debt figures obtained from MNTC's financial statements for 2003–2010. The average cost of debt was determined by the following formula:

$$\text{Average cost of debt} = (\text{finance costs for the year} / \text{average of long-term debt at beginning of year and long-term debt at end of year}) * (1 - \text{corporate tax rate})$$

13. For the calculation of the real cost of debt, the following formula was applied:

$$\text{Real cost of debt} = ((1 + \text{average cost of debt}) / (1 + \text{inflation rate})) - 1$$

14. The weighted average real cost of debt after tax was calculated at 4.6%. This is lower than the cost of debt estimated in the RRP (8.6%).

2. Cost of Equity

15. The capital asset pricing model was used in estimating the cost of equity. Accordingly, the nominal cost of equity was calculated as follows:

$$\text{Nominal cost of equity} = \text{risk free rate} + \text{beta} * (\text{market rate} - \text{risk free rate})$$

16. The capital asset pricing model used a beta of 0.8, which is equal to the beta of Indonesian toll-road projects,¹ and comparable to First Philippine Holdings Corporation's beta of 0.85.² The average of 2005–2010 10-year Philippine Treasury bond rates is taken as the risk-free rate (8.5%) and the 20-year average return (1990–2010) of the Philippine Stock Exchange index is the market rate (17.5%). Consequently the risk premium (market rate – risk free rate) is 9.0%.

17. The calculated nominal cost of equity under this approach is 15.7%. The formula applied for the real cost of equity calculation is the following:

$$\text{Real cost of equity} = ((1 + \text{nominal cost of equity}) / (1 + \text{inflation rate})) - 1$$

18. Accordingly, the real cost of equity is 10.3%, which is lower than that in the RRP (21.0%).

3. Calculation of the WACC

19. The real cost of capital, calculated from the real cost of debt and real cost of equity and weighted according to the capital structure of the project at the time of financial closure, is 6.4%. Table A5.4 shows the computation.

Table A5.4: Weighted Average Cost of Capital (%)

	Share	Real Cost
Debt	69.51	4.6
Equity	30.49	10.3
Real WACC		6.4

WACC = weighted average cost of capital.

Source: Independent Evaluation Department estimates.

20. Comparison of financial calculations in the RRP and the project performance evaluation report (Table A5.5) shows that the real FIRR was higher in the RRP, mainly because of its ambitious traffic expectations and consequently high estimated revenues.

¹ Wibowo, A. and B. Kochendorfer, 2005. *Financial Risk Analysis of Project Finance in Indonesian Toll Roads*. American Society of Civil Engineers: *Journal of Construction Engineering and Management* 131 (Issue 9, September): 963–972.

² Estimated by Reuters, 4 February 2008.

Table A5.5: Comparison of Financial Calculations (%)

	Report and Recommendation of the President	Project Performance Evaluation Report
Real FIRR	16.0	9.0
Cost of debt	8.6	4.6
Cost of equity	21.0	10.3
Real WACC	12.5	6.4

FIRR = financial internal rate of return, WACC = weighted average cost of capital.

Sources: Independent Evaluation Department estimates, report and recommendation of the President.

21. Similarly, the real WACC was higher in the RRP. This is because of a high estimated cost of equity of 21.0%, which according to the RRP was equal to the opportunity cost of equity.

ECONOMIC INTERNAL RATE OF RETURN

A. General Assumptions

1. The economic evaluation is based on a comparison of with-project and without-project scenarios over the project life (1995–2037). The costs and benefits used in calculating the economic internal rate of return (EIRR) were valued in constant 2010 prices expressed in Philippine pesos. The same price indices and exchange rates shown in Table A5.1 (Price Indices and Exchange Rates), are used in this analysis.

B. Costs

2. The capital costs were actual project costs that were incurred during 1995–2005. The nominal capital costs listed in Table A5.2 (Calculation of Financial Internal Rate of Return) were adjusted to 2010 prices. A shadow exchange rate factor of 1.15 was then applied to the foreign exchange component (56%) of the project costs to arrive at the economic capital costs.¹

3. The operating expenses (less depreciation and amortization) in Table A5.2 were adjusted to 2010 prices and these represented the with-project operating costs. The without-project operating costs are the same values as used in the report and recommendation of the President (RRP) on the basis of which the project was approved but brought to 2010 prices. The difference between the two is the net operating costs attributable to the project.

C. Benefits

4. Economic benefits are savings in vehicle operating costs (VOC) and savings in costs associated with passenger travel time. For VOC savings, the report used data from a study published by the University of the Philippines (UP) Planning and Development Research Foundation, Inc. (the UP Planades study).² The UP Planades study included a calculation of economic savings in basic vehicle operating costs (in 2006 prices), on bases with and without the North Luzon Expressway (NLEX) improvement, for different vehicle types traveling from Balintawak to Santa Ines. For each vehicle type, the VOC savings were brought to 2010 prices and then divided by 78.4 kilometers (km), which was the distance covered by the study, to arrive at the per km VOC savings. The calculation of the per-kilometer VOC savings is shown in Table A6.1.

Table A6.1: Calculation of per Kilometer VOC Savings

Vehicle Type	VOC savings in 2006 prices (P)	VOC savings in 2010 prices (P) ^a	VOC savings per kilometer in 2010 prices
Class 1 (cars)	33.4	40.2	0.513
Class 2 (large bus)	121.3	146.1	1.864
Class 3 (average of 2- axle and 3-axle trucks)	53.2	64.0	0.817

UP = University of the Philippines, VOC = vehicle operating costs.

¹ As indicated in Appendix 1 of Asian Development Bank (ADB) Economic Research Department Technical Note No. 11 (February 2004) on *Shadow Exchange Rates for Project Economic Analysis*, the shadow exchange rate factors used in various ADB projects in the Philippines from 1996 to 2003 ranged from 1.11 and 1.20. This project performance evaluation report estimated that factor at 1.15.

² University of the Philippines, Planning and Development Research Foundation, Inc. 2007. *Determination of Economic Impacts of the Improvement of the North Luzon Expressway. Final Report*. Manila.

^a Inflator of 1.20 was used to convert 2006 prices (consumer price index [CPI] of 137.9) to 2010 prices (CPI of 166.1).

Source: UP Planades study (May 2007), National Statistical Coordination Board.

5. The VOC savings per km were then multiplied by the actual average daily vehicle-kilometers traveled (by vehicle type) from 2005 to 2010, as provided by Manila North Tollways Corporation (MNTC), and the number of operating days per year (325 days for 2005 and 365 or 366 days for succeeding years). Projected traffic growth rates provided by MNTC from 2011 to 2014 were used to estimate VOC savings for those years. VOC savings from 2015 to 2037 were assumed to be the same in real terms as those of 2014. The annual vehicle km traveled per vehicle class from 2005 to 2014 are shown in Table A6.2, while the annual VOC savings per vehicle class for the same period are shown in Table A6.3.

Table A6.2: Annual Vehicle Kilometers Traveled by Vehicle Type, 2005–2014
(million)^a

Year	Class 1	Class 2	Class 3	Total
2005	1,023	241	126	1,389
2006	1,137	278	146	1,560
2007	1,185	294	166	1,645
2008	1,175	284	135	1,594
2009	1,272	295	158	1,726
2010	1,313	314	170	1,798
2011	1,310	316	167	1,792
2012	1,355	317	172	1,844
2013	1,395	318	177	1,891
2014	1,440	320	183	1,943

^a Data for the closed system were already in vehicle-kilometers. Data for the open system, however, were in vehicle entries, so, to convert the data to vehicle-kilometers, it was assumed that the number of vehicles entering each section of the open system would exit equally among the number of exits up to the closed system. The results were then multiplied by the distance of each section traveled.

Source of raw data: Manila North Tollways Corporation.

Table A6.3: Annual VOC Savings by Vehicle Type, 2005–2014
(P million)

Year	Class 1	Class 2	Class 3	Total
2005	525	449	103	1,076
2006	583	518	119	1,220
2007	608	548	135	1,292
2008	603	528	110	1,242
2009	653	550	129	1,332
2010	674	586	139	1,399
2011	672	589	136	1,397
2012	695	591	141	1,427
2013	716	593	145	1,454
2014	739	596	149	1,484

MNTC = Manila North Tollways Corporation, VOC = vehicle operating cost.

Note: Figures for 2005–2010 were based on actual traffic data while those from 2011 to 2014 were projected based on estimated traffic growth rates for each class and each system as provided by MNTC.

Source: Independent Evaluation Department estimates.

6. For the calculation of passenger time savings, the number of Class 1 (cars) and Class 2 (buses) vehicles traveling each section of NLEX was first derived based on actual average daily traffic data from 2005 to 2010.³ The time saved per section of NLEX was then computed by obtaining the difference in time traveled on the North Luzon Diversion Road, which was NLEX prior to rehabilitation and had an average speed of 52 km per hour, and time traveled on the rehabilitated NLEX with an average speed of 91 kph.⁴ The time savings per day was then calculated by multiplying (i) the average daily number of class 1 and class 2 vehicles traveling each section, (ii) by the time saved per section, and (iii) by the per-vehicle per-hour time savings coefficients used in the RRP brought to 2010 prices.⁵ The time savings per day was multiplied by the number of operating days to obtain the annual passenger time savings as shown in Table A6.4.

Table A6.4: Annual Passenger Time Savings by System and Vehicle Class, 2005–2014
(P million)

Year	Open		Closed		Total
	Class 1	Class 2	Class 1	Class 2	
2005	234	1,005	347	1,638	3,223
2006	262	1,146	383	1,905	3,697
2007	274	1,255	399	1,975	3,903
2008	267	1,202	401	1,911	3,780
2009	278	1,230	445	2,011	3,963
2010	280	1,273	465	2,179	4,198
2011	283	1,281	461	2,186	4,210
2012	288	1,285	481	2,196	4,251
2013	291	1,288	502	2,207	4,286
2014	296	1,292	522	2,217	4,327

Note: Figures for 2005–2010 were based on actual traffic data while those from 2011 to 2014 were projected based on estimated traffic growth rates for each class and each system as provided by Manila North Tollways Corporation. Source: Independent Evaluation Department estimates.

D. EIRR Calculation

7. The recalculated EIRR was estimated at 11.0% (Table A6.5), significantly lower than the RRP estimate of 25.7%. As in the financial internal rate (FIRR) of return calculation, the main difference between the EIRR in this report and that in the RRP is the much lower actual (and projected) traffic volume.

³ Only passenger time savings for Class 1 and Class 2 vehicles were included in the report because Class 3 vehicles (trucks) are not passenger vehicles. Data for the closed system, which were in vehicle-kilometers per NLEX section, were converted to vehicles travelling each section by dividing the vehicle-kilometers per section by the distance of each section.

⁴ The average speed at NLEX was provided by MNTC. The average speed at NLDR was based on estimates by the UP Planades study that the difference in the average speeds at NLEX and NLDR was 39 km per hour.

⁵ Based on the RRP, time savings (in 2000 prices) for car passengers are valued at an average of P41.50 per car per hour while time savings for bus passengers are valued at an average of P802.35 per bus per hour. These were brought to 2010 prices using an inflator of 1.66 (CPI of 166.1 in 2010 divided by CPI of 100.0 in 2000).

Table A6.5: Real Economic Internal Rate of Return Calculation
(P million)

Year	Project Costs	Operating Expenses (with Project)	Operating Expenses (without Project)	Operating Costs Added	VOC Savings	Time Savings	Net Benefits
1995	(319)						(319)
1996	(815)						(815)
1997	(1,360)						(1,360)
1998	(626)						(626)
1999	(1,448)						(1,448)
2000	(314)						(314)
2001	0						0
2002	(2,894)						(2,894)
2003	(11,912)						(11,912)
2004	(9,326)						(9,326)
2005	(1,305)	(2,511)	(1,412)	(1,098)	1,076	3,223	1,896
2006		(2,785)	(1,420)	(1,365)	1,220	3,697	3,552
2007		(2,273)	(1,419)	(854)	1,292	3,903	4,341
2008		(2,724)	(1,512)	(1,211)	1,242	3,780	3,811
2009		(3,965)	(1,510)	(2,455)	1,332	3,963	2,840
2010		(2,861)	(1,537)	(1,323)	1,399	4,198	4,273
2011		(2,455)	(1,535)	(920)	1,397	4,210	4,687
2012		(2,688)	(1,548)	(1,140)	1,427	4,251	4,538
2013		(2,761)	(1,650)	(1,112)	1,454	4,286	4,629
2014		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2015		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2016		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2017		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2018		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2019		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2020		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2021		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2022		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2023		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2024		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2025		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2026		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2027		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2028		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2029		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2030		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2031		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2032		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2033		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2034		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2035		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2036		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
2037		(2,734)	(1,681)	(1,052)	1,484	4,327	4,758
						EIRR	11.0%

EIRR = economic internal rate of return, MNTC = Manila North Tollways Corporation, UP = University of the Philippines, VOC = vehicle operating cost.

Sources: Independent Evaluation Department estimates based on traffic data from MNTC and economic savings data from the UP Planades study.