Document of
The World Bank

Report No: ICR00001433

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IBRD-70580 TF-29804)

ON A

LOAN
IN THE AMOUNT OF US $ 60.0 MILLION

AND A

GLOBAL ENVIRONMENTAL FACILITY GRANT
IN THE AMOUNT OF SDR 1.0 MILLION (US $ 1.3 million EQUIVALENT)

TO THE

REPUBLIC OF THE PHILIPPINES

FOR THE

METRO MANILA URBAN TRANSPORT INTEGRATION PROJECT

June 29, 2011

Transport, Energy and Mining Unit
Sustainable Development Department
East Asia and Pacific Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective July 31, 2010)
Currency Unit = Philippine Pesos (PhP)
PhP 1.00 = US$ 0.02
US$ 1.00 = PhP 46.315
The Exchange Rate was fluctuating between PhP 56 and PhP 40 for US$ 1.00 during the Life of the Project

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

BER	Bid Evaluation Report	MTPDP	Mid-term Philippine Development Plan
BRT	Bus Rapid Transit	M&E	Monitoring and Evaluation
CAS	Country Assistance Strategy	NEDA	National Economic and Development Authority
DBM	Department of Budget and Management	NMT	Non-motorized Transport
DD	Detailed design	NRIMP	National Roads Improvement and Management Project
DMMA	Don Mariano Marcos Avenue	NTP	Notice to proceed
DPWH	Department of Public Works and Highways	OM	Operations Manual
EDSA	Epifanio de los Santos Avenue	OP	Operational Policy
EIRR	Economic Internal Rate of Return	PAD	Project Appraisal Document
FM	Financial management	PAP	Project Affected Person
GEF	Global Environment Facility	PCR	Project Completion Report
GEO	Global Environment Objective	PDO	Project Development Objective
GOP	Government of the Philippines	PMO	Project Management Office
IA	Implementing agency	PT	Public transport
IBRD	International Bank for Reconstruction and Development	QAG	Quality Assurance Group
ICR	Implementation Completion and Results Report	RAP	Resettlement Action Plan
ISR	Implementation Status Report	ROW	Right-of-way
JICA	Japan International Cooperation Agency	SC	Steering Committee
KPI	Key performance indicator	SCATS	Sydney Coordinated Adaptive Traffic System
LGU	Local government unit	SLEX	South Luzon Express Highway
LRT	Light Rail Transit	TA	Technical Assistance
MARIPAS	Marikina City, Rizal Province, Pasig City	TEC	Traffic Engineering Center
MMDA	Metropolitan Manila Development Authority	TM	Traffic management
MMURTRIP	Metro Manila Urban Transport Integration Project	URPO	Urban Roads Project Office
MMUTIS	Metro Manila Urban Transport Integration Study	VOC	Vehicle Operating Cost
MTR	Mid-term Review	VOT	Value of Time
MTTDP	Medium-term Transport Development Plan	WB	World Bank

Vice President:	James W. Adams, EAPVP
Country Director:	Bert Hofman, EACPF
Sustainable Dev. Leader:	Mark C. Woodward, EASPS
Project Team Leader:	Christopher T. Pablo, EASPS
ICR Team Leader:	Christopher T. Pablo, EASPS

Republic of the Philippines
Metro Manila Urban Transport Integration Project

CONTENTS

A. Basic Information

Country:	Philippines	Project Name:	Metro Manila Urban Transport Integration Project
Project ID:	P057731, P066509	L/C/TF Number(s):	IBRD-70580,TF-29804
ICR Date:	03/24/2011	ICR Type:	Core ICR
Lending Instrument:	SIL,SIL	Borrower:	REPUBLIC OF THE PHILIPPINES
Original Total Commitment:	USD 60.0M,USD 1.3M	Disbursed Amount:	USD 49.6M,USD 1.3M

Environmental Category: B, C

Implementing Agencies:

Department of Public Works and Highways (DPWH)
Metropolitan Manila Development Authority (MMDA)
City Government of Marikina

Co-financiers and Other External Partners:

B. Key Dates

Metro Manila Urban Transport Integration Project - P057731

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	02/22/1999	Effectiveness:	11/06/2001	12/06/2001
Appraisal:	10/05/2000	Restructuring(s):		
Approval:	06/21/2001	Mid-term Review:	03/31/2005	03/31/2005
		Closing:	03/31/2007	03/31/2010

MMURTRIP - Bicycle Network Demonstration Pilot - P066509

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	02/22/1999	Effectiveness:	11/06/2001	12/06/2001
Appraisal:	10/05/2000	Restructuring(s):		
Approval:	06/21/2001	Mid-term Review:	03/31/2005	03/31/2005
		Closing:	03/31/2007	12/31/2007

C. Ratings Summary

C.1 Performance Rating by ICR

Outcomes	Moderately satisfactory
GEO Outcomes	Moderately satisfactory
Risk to Development Outcome	Significant
Risk to GEO Outcome	Significant
Bank Performance	Moderately satisfactory
Borrower Performance	Moderately satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)

Bank	Ratings	Borrower	Ratings
Quality at Entry	Moderately satisfactory	Government:	Moderately unsatisfactory
Quality of Supervision:	Moderately unsatisfactory	Implementing Agency/Agencies:	Moderately satisfactory
Overall Bank Performance	Moderately satisfactory	Overall Borrower Performance	Moderately satisfactory

C.3 Quality at Entry and Implementation Performance Indicators

Metro Manila Urban Transport Integration Project - P057731

Implementation Performance	Indicators	QAG Assessments (if any)	Rating:
Potential Problem Project at any time (Yes/No):	Yes	Quality at Entry (QEA)	Satisfactory
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA)	None
DO rating before Closing/Inactive status	Moderately Satisfactory	None	None

MMURTRIP - Bicycle Network Demonstration Pilot - P066509

Implementation Performance	Indicators	QAG Assessments (if any)	Rating:
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA)	Satisfactory
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA)	None
GEO rating before Closing/Inactive Status	Satisfactory		

D. Sector and Theme Codes

Metro Manila Urban Transport Integration Project - P057731		
	Original	Actual
Sector Code (as % of total Bank financing)		
General transportation sector	16	16
Roads and highways	81	83
Sub-national government administration	3	1
Theme Code (as % of total Bank financing)		
Access to urban services and housing	50	50
Other urban development	50	50

MMURTRIP - Bicycle Network Demonstration Pilot - P066509		
	Original	Actual
Sector Code (as % of total Bank financing)		
General transportation sector	16	16
Roads and highways	81	81
Sub-national government administration	3	3
Theme Code (as % of total Bank financing)		
Access to urban services and housing	50	50
Climate change	50	50

E. Bank Staff

Metro Manila Urban Transport Integration Project - P057731		
Positions	At ICR	At Approval
Vice President:	James W. Adams	Jemal-ud-din Kassum
Country Director:	Bert Hofman	Vinay K. Bhargava
Sector Manager:	Mark C. Woodward	Jitendra N. Bajpai
Project Team Leader:	Christopher T. Pablo	Sally L. Burningham
ICR Team Leader:	Christopher T. Pablo	
ICR Primary Author:	Peter Ludwig	

MMURTRIP - Bicycle Network Demonstration Pilot - P066509		
Positions	**At ICR**	**At Approval**
Vice President:	James W. Adams	Jemal-ud-din Kassum
Country Director:	Bert Hofman	Vinay K. Bhargava
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ICR Team Leader:	Christopher T. Pablo	
ICR Primary Author:	Peter Ludwig	

F. Results Framework Analysis

Project Development Objective (from Project Appraisal Document)
The objective was to assist the Government in enhancing the economic productivity and quality of life of Metro Manila residents by improving the operational efficiency and safety of the transport system, with better opportunities for access to public transport and non-motorized transport, the dominant transport modes of low-income residents.

Revised Project Development Objective (as approved by original approving authority)

There was no revision of the Project Development Objective.

Global Environment Objectives (from Project Appraisal Document)
The Global Environment Objective of the Non-Motorized Transport Global Environment Facility (GEF) Grant supported component was to reduce greenhouse gas emissions by promoting the use of zero-emission bicycle and pedestrian transport in the City of Marikina as an alternative to greenhouse gas-emitting motorized transport. A second objective was to demonstrate and publicize the benefits and viability of bicycles as an alternate transport mode to encourage replication of this pilot program in other parts of Metro Manila, elsewhere in the Philippines, and in other countries.

Revised Global Environment Objectives (as approved by original approving authority)

There was no revision of the Global Environment Objectives.

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1	Reduced travel time experienced by public transport users on the project corridors.			
Value (1) EDSA LRT Line 3 (23.08km)	60min	Not specified	None	50min
Date achieved	2003			2/11/2010
(2) Bicutan Interchange	9min	Not specified	None	7min
Date achieved	6/1/2005			3/09/2010
(3) LRT Line 2	Dropped			

(4) Alabang Interchange	Dropped			
MARIPAS (5) LRT Santolan to C-5/Libis (2.92km)	18min	Not specified	None	3min
Date achieved	9/30/2002			6/30/2007
(6) Ortigas Ave. Extension (C-5 to Tikling, 7.07km)	34min	Not specified	None	20min
Date achieved	9/30/2002			2/28/2005
(7) Marcos Highway (4.6)	Dropped			
Secondary Roads (8) San Marcelino	4min	Not specified	None	3min
Date achieved	7/05/2002			9/23/2003
(9) D. Romualdez	16min	Not specified	None	9min
Date achieved	7/05/2002			9/23/2003
(10) Legarda	10min	Not specified	None	7min
Date achieved	7/05/2002			9/23/2003
(11) Quezon Blvd.	18min	Not specified	None	14min
Date achieved	7/05/2002			9/23/2003
(12) Pasong Tamo	Not specified	Not specified	None	13.86min
Date achieved				3/10/2010
(13) East Service Road	46min	Not specified	None	40min
Date achieved	6/05/2006			6/25/2009
(14) West Service Road	58min	Not specified	None	50min
Date achieved	6/05/2006			6/25/2009
(15) Pasong Tamo Extension	12min	Not specified	None	11min
Date achieved	6/05/2006			6/25/2009
(16) Quirino Highway	58min	Not specified	None	45min
Date achieved	9/04/2006			6/29/2009
(17) Pedro Gil/ Tayuman/ Dela Fuente	Dropped			
(18) 10th Avenue	Dropped			
(19) Don Mariano Marcos Avenue	Dropped			
(20) Antonio Arnaiz Avenue	Dropped			
(21) Sen. Puyat Avenue	Dropped			
(22) Banaue Avenue	Dropped			

Comments (incl. % achievement)	The travel time experienced by public transport users along EDSA (Metro Manila's main corridor) decreased by almost 10 minutes (or 17% from the baseline). For MARIPAS corridors, the average travel time for trips from LRT Santolan to C-5/Libis decreased by 16 minutes (or 83%) and from C-5 to Tikling (Ortigas Ave. Extension) by 14 minutes (or 41%). The reduction in travel time in secondary roads was recorded at 6 minutes (or 22%) on average. Out of the planned 22 project corridors, 10 have been dropped because of cost overruns. Indicator judged as achieved but no numerical target set against which to assess level of achievement.			
Indicator 2	Sustained proportion of public transport use on the project corridors.			
Value (quantitative or qualitative)	79%	80%	None	89%
Date achieved	1996	2009		2010
Comment incl. % achievement)	89% of motorized trips in Metro Manila are public (according to the data generated from the 2010 High Standard Highway Study prepared by JICA.). No project corridor survey was done. Figures were based on overall Metro Manila survey (i.e., baseline value was obtained from MMUTIS study). Hence, contribution of project to increased public transport mode share cannot be fully attributable.			
Indicator 3	Improved satisfaction of public transport users on the project corridors.			
Value (quantitative or qualitative)	Not specified	Not specified	None	Not available
Date achieved				
Comment incl. % achievement)	Public opinion and transport usage surveys were to be conducted at project inception and one year after works completion on project corridors. There was no survey at inception and the survey at project completion was shelved because of lack of budget release from the Government for this purpose.			
Indicator 4	Effective coordination mechanism in place between the key agencies and LGUs			
Value (quantitative or qualitative)	Not specified	Not specified	None	Not available
Date achieved				
Comments (incl. % achievement)	A Project Steering Committee was created at project preparation but it did not function as planned. Implementation issues might have been addressed in a more timely and collegial fashion if the project Steering Committee had performed its oversight function for the project.			
Indicator 5	Effective traffic management (TM) and enforcement measures planned and designed by the relevant agencies.			
Value (quantitative or qualitative)	Not specified	Not specified	None	Not available
Date achieved				
Comments (incl. % achievement)	The PAD envisioned a major improvement in the signalization of the Metro Manila traffic network, even as the issue of proprietary rights over the then existing technology had to be resolved. The Bank initiated an independent review of connectivity of an upgraded signal system that the Project would introduce. But the MMDA decided to shelve this activity in favor of the introduction of U-turn slots in the project corridors. The project nonetheless facilitated the transfer of TM and enforcement from the DPWH to MMDA. MMDA is now equipped with a Traffic Engineering Center that is			

	functioning with full staff complement.			
Indicator 6	Reduced number of reported pedestrian and motor vehicle accidents in project corridors.			
Value (1) EDSA LRT Line 3	Motor vehicle - 6,596 accidents; Pedestrian - 618 (18 fatal, 600 non-fatal) in year 2005	Not specified	None	Motor vehicle – 5,645 accidents; Pedestrian - 325 (13 fatal, 312 non-fatal) in year 2009
Date achieved	12/30/2005			5/30/2009
Value (2) Bicutan Interchange	Motor vehicle -3 accidents; Pedestrian -1 non-fatal in year 2005	Not specified	None	Motor vehicle - 13 accidents; Pedestrian - 1 non-fatal in year 2009
Date achieved	12/30/2005			5/30/2009
Comment incl. % achievement)	At appraisal, a transport safety indicator was not defined. This is a new PDO indicator agreed by the Task Team and implementing agencies during the September 2009 Mission. Surveys were conducted on only two corridors: EDSA, the main transport corridor in Metro Manila, and Bicutan Interchange where the largest pedestrian bridge in Metro Manila is located. In EDSA, the number of reported motor vehicle accidents decreased by 14% while pedestrian accidents decreased by 47%. In the Bicutan Interchange, the number of motor vehicle accidents increased from 3 to 13 while the pedestrian accident remained at 1 (non-fatal).			

(b) Outcome Indicators by Project Component

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Component A: Traffic Management Improvements				
Indicator 1 :	Improved level of service of the corridors measured by average travel speed of all-through vehicles along the corridors.			
Value (1) EDSA LRT Line 3 (23.08km)	23km/hr	Not specified	None	36km/hr
Date achieved	2003			5/15/2009
Value (2) Bicutan Interchange	16km/hr	Not specified	None	20km/hr
Date achieved	6/01/2005			3/09/2010
(3) LRT Line 2	Dropped			
(4) Alabang Interchange	Dropped			
Comments (incl. % achievement)	The average travel speed in EDSA and Bicutan Interchange has increased by 57% and 28%, respectively. Indicator judged as achieved but no numerical target set against which to assess level of achievement.			
Indicator 2 :	Improved level of service for buses and jeepneys along the corridors measured in terms of productive capacity average of bus and jeepneys.			
Value (1) EDSA LRT Line 3 (23.08km)	Not specified	Not specified	None	Not available
Value (2) Bicutan Interchange	Not specified	Not specified	None	Not available
Comments (incl. % achievement)	No data available. MMDA was not able to generate the required information as this indicator was not clearly defined at appraisal.			
Indicator 3 :	Improved level of service of pedestrian overpass.			
Value Average pedestrian volume count in 7 footbridges	53,032 (no values for Quezon Ave & Libertad footbridges)	Not specified	None	75,774
Date achieved	2003			3/17/2010
Comments (incl. % achievement)	The 43% increase in average pedestrian volume count in the pedestrian overpasses or footbridges covered by the project has improved pedestrian access to these facilities. This also contributes to the reduction of pedestrian and vehicle conflict by removing about 530,418 pedestrians daily from the roadway through the construction of footbridges. No value on the percentage of the targets achieved since there were no targets specified at project inception.			
Indicator 4 :	Improved level of service of public transport queuing areas.			
Value	Not specified	Not specified	None	Not available

Comments (incl. % achievement)	No data available. MMDA was not able to generate the required information as this indicator was not clearly defined at appraisal.			
Component B: Marikina, Rizal, Pasig (MARIPAS) Access Improvements				
Indicator 5 :	Decrease in average travel time for trips from and to Marikina Valley across modes.			
Value (1) LRT Santolan to C-5/Libis (2.92km)	18min	Not specified	None	3min
Date achieved	Not specified			6/30/2007
Value (2) Ortigas Ave. Extension (C-5 to Tikling, 7.07km)	34min	Not specified	None	20min
Date achieved	9/30/2002			2/28/2005
Comments (incl. % achievement)	The average travel time for trips from LRT Santolan to C-5/Libis decreased by 84% and from C-5 to Tikling (Ortigas Ave. Extension) by 40%. Indicator judged as achieved but no numerical target set against which to assess level of achievement.			
Indicator 6 :	Decrease in average travel cost for trips from and to Marikina Valley.			
Value (1) LRT Santolan to C-5/Libis (2.92km)	Php 261/ vehicle	Not specified	None	Php 118/ vehicle
Date achieved	2002			10/5/2010
Value (2) Ortigas Ave. Extension (C-5 to Tikling, 7.07km)	Php 346/ vehicle	Not specified	None	Php 202/ vehicle
Date achieved	2002			10/5/2010
Comments (incl. % achievement)	The average travel cost for trips from LRT Santolan to C-5/Libis decreased by 55% and from C-5 to Tikling (Ortigas Ave. Extension) by 42%. No value on the percentage of the targets achieved since there were no targets specified at project inception.			
Component C: Efficient organization of the Secondary Roads in a hierarchy				
Indicator 7 :	Improved level of service of the secondary roads measured by average travel speed of all-through vehicles.			
(1) San Marcelino	9km/hr	Not specified	None	12km/hr
Date achieved	7/05/2002			9/23/2003
(2) D. Romualdez	5km/hr	Not specified	None	9km/hr
Date achieved	7/05/2002			9/23/2003
(3) Legarda	6km/hr	Not specified	None	8km/hr
Date achieved	7/05/2002			9/23/2003
(4) Quezon Blvd.	8km/hr	Not specified	None	10km/hr
Date achieved	7/05/2002			9/23/2003
(5) Pasong Tamo	Not specified	Not specified	None	10km/hr
Date achieved				3/10/2010
(6) SLEX Service Roads (average for East, West	16km/hr	Not specified	None	18km/hr

and Pasong Tamo Extension)				
Date achieved	6/05/2006			6/25/2009
(7) Quirino Highway	12km/hr	Not specified	None	16km/hr
Date achieved	9/04/2006			6/29/2009
Comments (incl. % achievement)	The average travel speed of all-through vehicles along the secondary roads covered by the Project is 12km/hr, showing an increase of 33% from the baseline average value of 9km/hr. No value on the percentage of the targets achieved since there were no targets specified at project inception.			
Indicator 8 :	Increased capacity at intersections between project corridors and secondary roads.			
Value	Not specified	Not specified	None	Not available
Comments (incl. % achievement)	No data available. DPWH was not able to generate the required information as this indicator was not clearly defined at appraisal.			
Component D: Development of non-motorized transport (NMT) Facilities/ GEO Component				
Indicator 9 :	Increase in non-motorized transport mode share for trips within Marikina.			
Value (quantitative or qualitative)	2.40%	4.50%	None	7.79%
Date achieved	7/1/2000	7/1/2000		3/15/2010
Comments (incl. % achievement)	Fully achieved. 175% of the target is achieved. The increase in non-motorized transport mode share for trips within Marikina City is higher than the target by 3.3%. This was based on 14 hour survey of streets with bikeways in the city.			
Indicator 10 :	Increase in nonmotorized-public transport (NMT-PT) combined mode share for trips originating in Marikina.			
Value (quantitative or qualitative)	0.40%	5.40%	None	-(0.83)%
Date achieved	6/1/2000	6/1/2000		10/5/2010
Comments (incl. % achievement)	Not achieved. The decrease in NMT-PT combined mode share for trips originating in Marikina is almost 1%. This could be attributed to the decrease in public transport for bus trips and increase in private transport for motorcycle trips from 2000 to 2010.			
Component E: Institution Building/Technical Assistance				
Indicator 11	Effective coordination mechanism in place between the key agencies and LGUs			
Value (quantitative or qualitative)	Not specified	Not specified	None	Not available
Date achieved				
Comments (incl. % achievement)	A Project Steering Committee was created at project preparation but it did not function as planned. Implementation issues might have been addressed in a more timely and collegial fashion if the project Steering Committee had performed its oversight function for the project.			
Indicator 12	Effective traffic management (TM) and enforcement measures planned and designed by the relevant agencies.			
Value (quantitative or	Not specified	Not specified	None	Not available

qualitative)				
Date achieved				
Comments (incl. % achievement)	The PAD envisioned a major improvement in the signalization of the Metro Manila traffic network, even as the issue of proprietary rights over the then existing technology had to be resolved. The Bank initiated an independent review of connectivity of an upgraded signal system that the Project would introduce. But the MMDA decided to shelve this activity in favor of the introduction of U-Turn Slots in the project corridors. The project nonetheless facilitated the transfer of TM and enforcement from the DPWH to MMDA. MMDA is now equipped with a Traffic Engineering Center that is functioning with full staff complement.			

G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	DO	GEO	IP	Actual Disbursements (USD millions)	
					Project 1	Project 2
1	06/29/2001	S	S	S	0.00	0.00
2	12/18/2001	S	S	S	0.60	0.00
3	05/20/2002	S	S	S	2.40	0.00
4	12/20/2002	S	S	S	3.74	0.10
5	05/30/2003	S	S	S	4.47	0.10
6	10/31/2003	S	S	U	5.09	0.11
7	06/29/2004	S	S	U	7.36	0.34
8	12/21/2004	S	S	U	8.42	0.35
9	06/20/2005	S	S	MS	11.27	0.47
10	06/29/2006	S	S	S	20.74	0.98
11	06/28/2007	MS	S	MS	29.40	1.26
12	06/25/2008	MS	S	MS	42.80	1.30
13	06/23/2009	MS	S	MS	49.52	1.30
14	11/24/2009	MS	S	MS	51.09	1.30
15	1/19/2011	MS	S	MS	49.60	1.30

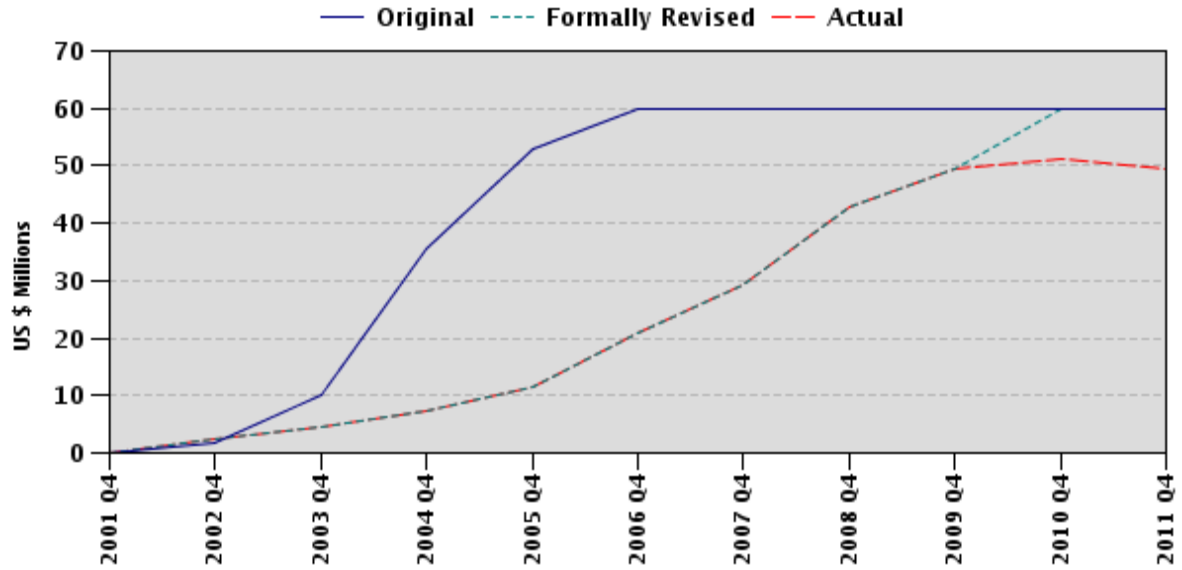
H. Restructuring (if any)

There was no formal restructuring. Partly as a result of the cost overruns, several project components had to be cancelled or transferred to another project and a major reallocation of loan funds was necessary.

Restructuring Date	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO/ GEO	IP		
08/27/2009	N	MS	MS	49.52	Reallocation of US$13.9 million to Category 1 (works) from Categories 2 (goods), 3 (consultant services), and 5 (unallocated) was requested to fund additional works and maximize utilization of loan proceeds.
GEF Component					
02/08/2005	N	S	U	0.35	Inclusion of a new disbursement category (Category 4) to finance a bicycle loan program.
05/02/2006	N	S	MS	0.47	Reallocation of the GEF proceeds to Category 1 (works under Part D) was requested to fund additional works. Inclusion of a new disbursement category (Category 5) was also requested to finance incremental operating costs on advocacy and education, community workshops, data collection and training activities.

I. Disbursement Profile

P057731



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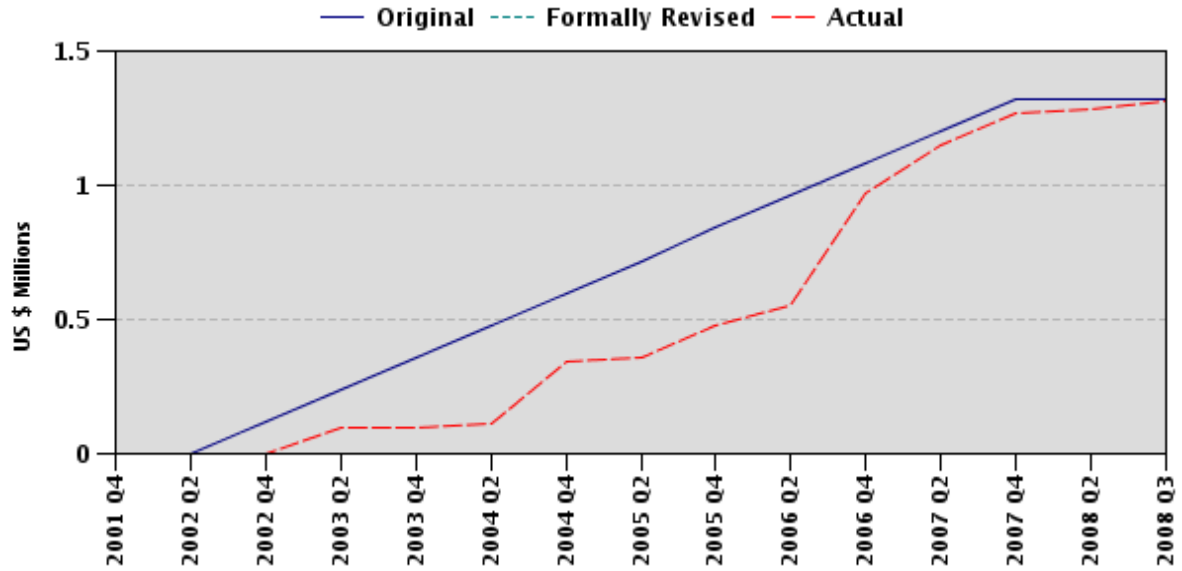

1. Project Context, Development and Global Environment Objectives Design

1.1 Context at Appraisal

Country and Sector Background. Among the priorities of the Medium-term Philippine Development Plan (MTPDP), the 1999 Country Assistance Strategy (CAS) highlights the following strategic objectives for Metro Manila: (i) strengthen metropolitan governance; (ii) improve effectiveness of public transport; (iii) promote a sustainable strategy for future commuter rail; and (iv) integrate environmental objectives into urban and transport sectors. To develop a long-term strategy, the Government undertook in 1999 the Metro Manila Urban Transport Integration Study (MMUTIS), which defined a Master Plan to 2015 and a Medium-Term Transport Development Plan (MTTDP) from 1999 to 2004. The Metro Manila Urban Transport Integration Project (MMURTRIP) is one of the projects recommended in the MTTDP.

Urban transport congestion, with its related impacts, is one of the most pressing problems in the Philippines. The key area for concern is Metro Manila, a massive urban area that accommodated 10.2 million people in 1997, and has by now grown to more than 11.5 million. Metro Manila produces over one-third of national Gross Domestic Product, and contains 17 local government units (LGUs)--16 cities and one municipality. Economic prosperity has accelerated motorization over the last years with a growth of around 6%[1]of registered vehicles per year.

At appraisal, the urban transport and development in Metro Manila were characterized by five challenges: (i) poor traffic management, (ii) lack of access from outer areas; (iii) an underdeveloped road network hierarchy; (v) air pollution; and (vi) lack of an urban transport strategy in Metro Manila. To address these issues, the Government of the Philippines (GOP) focused its strategies on improving transport infrastructures by providing necessary transport access to fast growing outer areas, particularly to the low income population that depends on public transport modes.

Rationale for Bank Assistance. The Government requested Bank assistance for a transport project to help address the transport problems in Metro Manila and demonstrate the role of Government and the importance of complementary investments in enhancing the full potential of public or private investments. The MMURTRIP therefore proposed the following: (i) traffic management by improving jeepney, bus, and light rail transit interchange on the Light Rail Transit (LRT) Lines and South Super Highway; (ii) access from outer areas by implementing a series of projects on the key accesses to the Marikina Valley; (iii) improve the road network hierarchy by investing in strategic secondary roads; (iv) reducing air pollution by means of a non-motorized transport (NMT) component; and (v) implementation of an urban transport strategy by developing the capacity of the Metropolitan Manila Development Authority (MMDA)[2] in the area of traffic and civil works contract management. Furthermore, the Operations Evaluation Department of the World Bank recommended in its Country Assistance Review that the World Bank remain active in the transport sector because of the sector's

[1] According to the Philippines Land Transportation Office

[2] The agency responsible for coordinating development programs and traffic operational enforcement in Metro Manila.

important strategic role, institutional weaknesses, and the need for public investment, as well as the considerable experience of the World Bank in transport. MMURTRIP was seen therefore as a key vehicle for sustaining the Bank's involvement in the country's urban transport and development program.

1.2 Original Project Development Objectives (PDO) and Key Indicators (as approved)

The project development objective of the MMURTRIP was to assist the Government of Philippines in enhancing the economic productivity and quality of life of Metro Manila residents by improving the operational efficiency and safety of the transport system with better opportunities for access to public transport and non-motorized transport, the dominant transport modes of low-income residents.

The Key Performance Indicators (KPIs) outlined in the main text of the Project Appraisal Document (PAD, page 3) are not fully consistent with those indicated in the Project Design Summary (page 30, Annex 1), which are more detailed. The original KPIs in the main text are:

(a) Reduced travel time experienced by public transport users on the project corridors;
(b) Sustained proportion of public transport use;
(c) Improved satisfaction of public transport users;
(d) Effective coordination mechanism in place between the key agencies and LGUs; and
(e) Effective traffic management (TM) and enforcement measures planned and designed by the relevant agencies.

1.3 Original Global Environment Objectives (GEO) and Key Indicators (as approved)

The main global environment objective of the Non-motorized Transport (NMT) component, supported by the Global Environment Facility (GEF) was to reduce greenhouse gas emissions by promoting the use of zero-emission bicycle and pedestrian transport in the City of Marikina as an alternative to greenhouse gas-emitting motorized transport. A second objective is to demonstrate and publicize the benefits and viability of bicycles as an alternative transport mode to encourage replication of this pilot program in other parts of Metro Manila, elsewhere in the Philippines, and in other countries.

The PAD provided two GEO indicators: (i) increase in non-motorized transport mode share for trips within Marikina; and (ii) increase in nonmotorized-public transport (NMT-PT) combined mode share for trips originating in Marikina.

1.4 Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification

The PDO remains unchanged. There was also no formal revision of the key indicators. A new indicator on safety (reduced number of reported pedestrian and motor vehicle accidents in the project corridors) was added in 2009 through the Aide Memoire agreed by the Task Team and the implementing agencies.

1.5 Revised GEO (as approved by original approving authority) and Key Indicators, and reasons/justification

Not applicable

1.6 Main Beneficiaries

The primary target groups of the project are the following:
Public transport users. The project was mainly targeted at public transport users, many of whom belong to the lower income groups. Although almost all households use public transport in some form, the lower-income groups primarily use buses and jeepneys. A 1997 Traffic Survey indicated that 62% of the middle and upper classes use their own vehicle for commuting to work and only 38% use public transportation.

Pedestrians. Space for pedestrians made it possible for people to switch short-distance trips to walking trips, potentially reducing motorized congestion, and allowed safe access to employment and other facilities for the large percentage of the poor who walk.

1.7 Original Components (as approved)

The Project had five components:
(a) **Traffic Management Improvements** (Original cost US$13.5M - IBRD US$9.7M and GOP US$3.8M) on the LRT Line 2 corridor; the EDSA (Epifanio de los Santos Avenue)-LRT Line 3 corridor; and the Bicutan and Alabang interchange on the southern corridor.
(b) **Marikina, Rizal, Pasig (MARIPAS) Access Improvements** (Original cost US$48.2M - IBRD US$29.5M and GOP US$18.7M) in the Marikina Valley, including the Marikina Bridge and Access Road component and the Marcos Highway and Ortigas Avenue Extension.
(c) **Secondary Roads Program** (Original cost US$32.7M - IBRD US$19.2M and GOP US$13.5M) for 15 road sections, including pavement rehabilitation, drainage and sidewalk improvements, traffic management, and construction of missing links for comprehensive corridor treatment so that secondary roads can fulfill their function on the road hierarchy.
(d) **Non-motorized Transport** (Original cost US$1.5M - GEF US$1.3M and Marikina City US$0.2M) in the City of Marikina in Metro Manila under Global Environment Facility funding.
(e) **Institution Building/Technical Assistance** (Original cost US$1.1M - IBRD US$1.0M and GOP US$0.1M) to establish and strengthen institutions responsible for future urban transport management in Metro Manila.

Components a, b and c included the installation of traffic signals. A total of 75 intersections were to receive new signals or an upgraded system which would link into the Sydney Coordinated Adaptive Traffic System (SCATS)[3].

1.8 Revised Components

Several project components were dropped or transferred, representing about 43% of the original project cost.

[3] SCATS is a traffic signal system developed in Sydney, Australia which uses traffic cameras or induction loops installed within the road pavement to count vehicles at each intersection, and adapts the timing of traffic signals in the network through a centralized data center.

Project components	Changes made	Reasons for changes
(a) Traffic Management Improvements	• Improvement of the LRT Line 2 was dropped.	• Cost overruns. • Implementation was cancelled to finance works to complete EDSA development.
	• Southern Corridor-Alabang Interchange Improvements was dropped.	• Cost overruns. • Implementation was cancelled to finance works to complete EDSA development.
	• EDSA LRT Line 3 Corridor component was restructured and implemented in 2 packages by separating the secondary roads from the mainline.	• Change in MMDA leadership in 2004 resulted in changes in priorities. • The restructuring of the component was to align with the thrust to improve circulation in Metro Manila, an important program of the 6 point agenda of the Arroyo Administration.
(b) MARIPAS (Marikina, Rizal, Pasig) Access Improvements	• Marcos Highway was tendered but procurement was not completed. This was dropped from the project and the implementation transferred to NRIMP 2[4].	• Bank objected to the award of contract because the winning bid came in at 36% over the estimates.
(c) Efficient organization of the Secondary Roads in a hierarchy	• 4 secondary road components were dropped, (10th Avenue, Tayuman, J. Fajardo, and M. dela Fuente St). • Pedro Gil/New Panadero was implemented through DPWH's own funding.	• The increase in project cost during the construction prompted DPWH to decide to implement the component using local funds. • Implementation of Pedro Gil was carried out at the National Capital Region office of the DPWH (not by the URPO, the DPWH PMO for MMURTRIP).
	• Implementation of Don Mariano Marcos Avenue (DMMA) Extension was transferred from MMDA to DPWH and was funded through DPWH's own funds.	• Package was tendered but the Bank objected to the Bid Evaluation Report and Recommendation of Award. Another tender was discussed but the timing was not feasible as a fresh round of tender would extend beyond loan closing.
(d) Development of NMT Facility/ GEO Component	• Inclusion of bicycle loan program.	• To promote cycling among city government employees and to respond to employees' desire to own a bicycle.
	• Inclusion of a new disbursement category (Category 5, Operating Costs)	• To finance incremental operating costs for advocacy and education, community workshops, data collection and training activities.
Traffic signalization for Components a, b, and c	• The installation of traffic signals on intersections was not carried out, except for a couple of signalization components for Marikina Bridge and Marcos Highway.	• Instead of installing additional traffic signals, construction of U-turn slots was introduced.

[4] The National Roads Improvement and Management Project (NRIMP) aims to ensure the preservation of an improved national roads system (NRS) in an environmentally, socially and financially sustainable manner. This project is funded by the Bank and includes three phases: design (NRIMP-1), initiation (NRIMP-2) and operation (NRIMP-3).

1.9 Other significant changes

Loan Extensions. The closing date had to be extended twice. The first extension was a 2-year extension from March 31, 2007 to March 31, 2009, to allow the completion of major components of the project (e.g., traffic management measures in EDSA, drainage works along the completed Marikina Bridge and access road, and construction of secondary roads). The second extension was to March 31, 2010, which was requested to complete the remaining subprojects that were on-going at that time and other activities that were perceived to slip beyond the March 31, 2009 loan closing date. A 9-month extension of the GEF grant (April 1 to December 31, 2007) was requested to conduct publicity campaigns for the bikeway program in order to replicate the bikeway network in neighboring townships.

Reallocation of Loan Proceeds. The massive cost overruns and the canceling of project components required a major reallocation of loan proceeds to Category 1 (works). This was done on August 27, 2009 with a simple exchange of letters between the Country Director and the Government.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

The Quality Assurance Group (QAG) rated quality at entry as Satisfactory.

The background analysis for project preparation was relatively sound. The PAD properly identified the major problems facing the region's transport system at that time, and the Government's strategic objectives and proposed actions on the identified urban transport issues. The MMUTIS was instrumental in providing the background analysis for the Project. The MMDA was the lead agency tasked to coordinate and monitor the implementation of the recommendations of the MMUTIS.

Lessons learned from previous and/or ongoing similar projects, such as the Urban Transport Project in Vietnam, were incorporated in the Project design: a) effective traffic management interventions can substantially improve urban congestion, b) modernizing urban transportation requires not total motorization but the appropriate integration of walking, non-motorized transport, and motorized transport, and c) problems associated with resettlement and land acquisition in Metro Manila--The components of this Project therefore sought to minimize the need for resettlement. However, conflict over land valuation, incentives for encroachments on right of way, and enforcement of tenure rights were issues to be addressed, and essential for real improvements in urban transport congestion.

Sufficient attention was not given in relating the Project to the larger systemic issues in Metropolitan Manila such as the urban growth, the spatial location of people, the impact of urban planning and regulations on the transport system, and the projected investment needs. Sector policy analysis was not part of project preparation.

The Results Framework is inadequate for meaningful assessment of the outcomes. The PAD does not provide measurable indicators to assess for example enhanced economic productivity and quality of life of Metro Manila residents, or improvement in the transport safety.

Project components were reasonable but with a relatively short implementation schedule. While components identified under the Project were reasonable in relation to achieving the PDO, the original

implementation period of 5 years was too short. It is apparent that it was unrealistic to expect the implementing agencies (IAs) to implement, within 5 years, civil works for more than 21 roads, one major bridge, and 66 kilometers of bikeways; with two road components involving land acquisition and with broadly defined institutional building activities, and in an environment where the IAs are relatively weak, in an urban setting and in a typhoon-prone region. The implementation arrangements were complex. It involved multiple agencies with limited experience, if at all, in urban transport. And in the case of the MMDA, little experience in implementation of civil works contracts. It also involved the difficult task of coordination among these agencies, and by these agencies with other key stakeholders, such as the cities and municipalities where the secondary roads were to be improved.

Inadequate attention was given to capacity of implementing agencies. There was an apparent mismatch between the design needs and the implementation capacity of the DPWH, MMDA and the City of Marikina. The project required these entities to carry out a variety of activities, many of which had never been tried by them. Implementation could have benefited from activities designed to allow capacity build up while the agencies started to implement the activities.

Strong Government commitment to the project at preparation dissipated during implementation. Numerous workshops and consultations among the IAs, key oversight agencies (NEDA, DOF, DBM, etc.), Metro Manila LGUs, and the private sector yielded an agreed list of investments and activities to be supported by MMURTRIP. The city government of Marikina demonstrated exceptionally strong commitment to the NMT component of the project, funding on its own preliminary diagnostic work and focus group discussions with stakeholders. These processes were not carried through during implementation including forming LGU counterpart teams for the Project. The IAs also failed to set-up the Resettlement Implementation Committee and Grievance Redress Committee.

Safeguards requirements at appraisal were substantially met. A well crafted Resettlement Action Plan (RAP) was prepared to deal with two components that involved resettlement and land acquisition, and a policy framework for any potential resettlement and land acquisition issues.

Given the Project would enhance the urban environment for pedestrians and public transport users and improve public transport services and air quality, no adverse environmental impacts were envisioned at the time of appraisal. All project components complied with all environmental clearance requirements of the GOP and the World Bank Operational Policy (OP) 4.01 on Environmental Assessment.

Risks were identified but mitigation measures not adequately provided. The PAD identified the relevant risks but sufficient and effective mitigation strategies were not provided. The timely availability of counterpart funds is an example. The mitigation measure was that counterpart funding is part of the multi-year program discussions of the DPWH (and presumably the other IAs) and the Government in their annual review and consultations. But broad discussions on the budget did not translate into assured budget allocations even for agreed activities. Another risk that should have been addressed at appraisal is the capacity of the implementing agencies. Careful planning and sequencing of activities, and prioritizing pre-implementation preparatory work, could have mitigated the risk to components being carried out by inexperienced units. Workshops to familiarize project staff of design parameters, fiduciary requirements, plan for the resettlement activities, etc. should have been made integral to the design of the project.

2.2 Implementation

The Project has helped to improve access from the periphery, increase travel speeds in project corridors and improve safety to public transport users, and demonstrated how transport projects can transform the urban landscape and encourage walking in highly trafficked corridors.

While there was no formal restructuring of the project, there have been quite a few changes within the project components: several project components were dropped entirely and one major component was transferred to another project mainly due to cost overruns.

Overall, implementation can be characterized by lengthy delays, substantial cost overruns, coordination difficulties, a constant battle for budget support, lack of continuity in project management and staffing, inability of the agencies to muster broad support to the Technical Assistance (TA) component, and the failure of the project to adjust to implementation problems.

Delayed start and implementation of many activities due largely to the following:

(a) **Indecision at the MMDA on the design of its project components.** In June 2002, the new MMDA management initiated a review in the design of the Traffic Management Improvements component. The review went on for over five years, before the main contract for the LRT Line 3 was signed in November of 2007. The MMDA project restructuring aimed to expand the improvements in EDSA Line 3 corridor and enhance the design standard for the Bicutan Interchange. To finance the additional works required in these project corridors, the LRT Line 2 Corridor and Alabang Interchange components and four Secondary Roads subcomponents under MMDA were dropped from the project and the scope of the traffic signalization component was reduced. Traffic engineering works and equipment estimated at around US$11 million at appraisal were almost completely dropped from the project.

Design changes that were introduced attempted to reinforce both the primary through-traffic function of EDSA and facilitate pedestrian access by replacing signalized controls at intersections with staggering U-turn slots and providing pedestrian over-bridges and other facilities. The changes made in the design and the process by which these were carried out have caused significant delays in implementation of this component.

In addition, the conduct of the Parcellary Surveys of LRT Line 2 and Line 3 (EDSA) to serve as basis to reclaim right-of-way to allow widening of sidewalks caused considerable delays in project implementation. It took almost five years before MMDA was able to get a consultant on board to carry out the survey, which finally started in July of 2006 and went on until December of 2008.

(b) **Changes in engineering designs.** The design of several components had to be revised to take into account the actual physical conditions of the sites and project needs. The Pasong Tamo secondary road was delayed due to the inclusion of drainage improvement in the works as requested by the City Government of Makati. In addition, the MMDA proposed additional work on EDSA to address the pedestrian and modal interchange needs. While design cannot completely foresee future site conditions, there are requirements that could have been possibly addressed at the development stage. These include the drainage and pedestrian needs in several road components.

(c) **Procurement problems.** Delayed procurement of civil works for the MMDA components was due to the restructuring of its components which resulted in revisions of detailed designs, bid documents and costs. Moreover, the delays in the selection of consultants for the planned studies (MMDA Institutional Restructuring, Urban Transport Survey and Development of Bus Rapid Transit (BRT) for Metro Manila) were due to instructions from the National Economic and Development Authority (NEDA) to prioritize the Urban Transport Survey. All studies were eventually dropped as the Department of Budget and Management (DBM) did not release any funds. Of the components implemented and procured by the DPWH, two were not completed: (i) Marcos Highway[5] - the Bank objected to the award of contract because the winning bid had come in at 36% over the estimates; and (ii) DMMA Extension Project[6] - the Bank objected to the Bid Evaluation Report (BER) as DPWH did not follow some agreed procurement steps. The discussions on the harmonization of the Borrower's and the Bank's procurement guidelines also contributed to the delay as it confused the IAs as to the procedures to be followed[7].

(d) **Acquisition of right-of-way.** The procurement process for the Marikina Bridge and Access Roads took some three years from Board approval, and when the contract was finally signed in June of 2004 the contractor was not able to start construction because implementation of the RAP was not yet completed due to the complex resettlement and expropriation environment in the Philippines. The resettlement involved around 470 informal settlers and 35 registered land owners in Marikina and Quezon cities. The delays were primarily due to the length of negotiation and expropriation proceedings, the difficulty of finding in-city relocation, lags in the completion of documentation by the project affected persons (PAPs), and the processing of the DPWH and the DBM of payments to compensate the PAPs' replacement costs. The Task Team with the DPWH creatively addressed the slow pace of resettlement implementation by dividing the project into three segments and issued Notices to Proceed (NTP) per segment as resettlement was completed or reached a certain agreed threshold. The Bank finally issued the NTP for the bridge section (segment B) in December of 2004. The NTP for the other two sections was eventually given and construction of the component was completed in May 2007.

(e) **Significant cost overruns.** The assumptions made at appraisal for the design and cost of the civil works components were outdated by the time the actual works were executed between 2003 and 2010. The detailed design had to take into account further road deteriorations and unit costs had increased substantially. A report commissioned by the Bank in June 2008 estimated the total cost overrun of selected project components (those completed by the time of the report) at US$32 million or 89% of appraisal cost estimates. The reasons for these cost increases can be summarized as follows: (i) cost increases between the PAD cost and Detailed Design (DD) cost due to the lack of

[5] The Marcos Highway project was subsequently dropped from the project and the implementation is transferred to NRIMP 2.

[6] Another tender for the Don Mariano Marcos Avenue (DMMA) Extension project was discussed but the timing was not feasible (the Loan was to close within three months at that time). DPWH decided to proceed with the award using own funds.

[7] Because many government procedures are now acceptable to the Bank (as reflected in the bid documents), the IAs in many instances thought that they could follow the government's procurement rules. The result is that they carried out steps that were not acceptable to the Bank, thus requiring another round of tendering.

proper preliminary design in the feasibility study, which did not identify the necessary engineering work required for the project, resulting in a gross underestimation of costs in the PAD (accounting for about 65% of total cost overruns); (ii) price difference between the detailed design estimate and the actual contract price because the DD cost estimate did not reflect the market prices especially when the bidding process started long after the DD was completed (about 15%); and (iii) the cost overrun incurred by work variations during the implementation of the contracts due to inadequate investigation during the detailed design stage of the sub-soil conditions and deterioration of the road conditions as well as the adoption of new regulations/standards issued by MMDA (about 20%).

(f) **Coordination difficulties between the implementing agencies, LGUs and other government/private agencies.** Carrying out works and other project activities required coordination at various levels: DPWH needed to seek permits from the MMDA to construct on project corridors. Implementation of the secondary roads also entailed working closely with a number of LGUs. At times, political alignments get in the way of timely implementation of certain road improvement activities (as support by local executives is necessary to ensure smooth implementation of contracts, as well as in the acquisition of rights of way, if needed). Requests from the LGUs for additional works and relocation and removal of affected utilities, posts, other affected structures and obstructions (owned or maintained by private firms or households in the right-of-way) caused significant delays in implementation (i.e., secondary roads component). The lack of a functioning steering committee did not help the situation.

(g) **Lack of timely releases in Government budget allocations for the Project.** DPWH and MMDA especially had to contend with severe budget constraints that adversely affected the execution of the project. While DPWH, owing to its large portfolio, generally managed to secure its annual budget needs (albeit mostly released late), MMDA had to constantly justify its annual needs. The unpredictability of budget releases made planning and budget programming difficult. All remaining project activities under MMDA during the second loan extension were eventually dropped because the DBM did not release the required counterpart funding to MMDA.

(h) **Lack of continuity in Implementing Agency management and staffing.** Frequent changes in management at DPWH and MMDA also affected project implementation. During the entire 9 years of implementation, DPWH saw the following changes in leadership: 4 Secretaries, an equal number of Undersecretaries, and 7 Project Directors, and in MMDA: 4 Chairmen, 3 General Managers, and 3 Project Directors. This also resulted in lack of continuity in staff in the Project Management Offices (PMOs) – new staff had to be recruited and needed to familiarize themselves with the project and also caused some changes in design.

(i) **Failure to implement the TA component.** Project designers conceived the component to address the general lack of systematic thinking on urban transport needs of Metro Manila. The component was thus kept as an allocation, with activities to be specifically identified during implementation. But there was lack of consensus on which activities to be carried out. During the second extension period, MMDA proposed long-term planning for Metro Manila, pre-investment studies for mass transport (BRT) and alternative access road (tunnel) along a major corridor, and to update demand surveys. However, it was unable to muster support from the oversight agencies for most of the activities and only managed to carry out a couple of exposure trips to learn about mass transport experiences in other countries.

(j) **Failure to adjust despite the implementation problems.** A Mid-Term Review (MTR) was carried out but missed the opportunity to assess how the Project fared in terms of achieving its PDO and to complete the proposed restructuring of MMURTRIP. The MTR in March 2005 was conducted mainly to discuss the project restructuring proposal of MMDA and address issues of slow implementation and disbursement, and project cost overruns, with a view to upgrading the project implementation status from Unsatisfactory. These efforts were apparently successful, as the project implementation was upgraded to Moderately Satisfactory and then to Satisfactory within a year. The MTR however did not succeed in providing an adequate assessment of the Project's performance as a whole, specifically in terms of achieving its PDO. The focus was on the traffic impacts of the proposed improvements under the MMDA restructuring proposal for its Traffic Management component and how to measure these impacts to ensure that the proposed restructuring would meet the development objective of the Project. This approach, however, led to the Task Team missing out on opportunities to review the Results Framework, which at that time lacked baseline, progress-to-date and end-of-project target values. While there was an attempt by the IAs to formally restructure the loan given the significant reduction of the project scope (largely due to cost overruns), the process of preparing the request and review of documents for the loan restructuring took some time, i.e., almost two years. The proposed restructuring of the project was not completed since the Bank did not receive any formal request from the Government. The timing became inappropriate given the project was nearing its closing date.

No QAG assessment was undertaken on the quality of project supervision.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

The PDO definition of "enhancing the economic productivity and quality of life of Metro Manila residents" was too broad and aimed at a higher level objective. This shortcoming was not a rare case since at the time of project appraisal it was common to define PDOs in rather general terms. Moreover, the PAD failed to provide adequate measures to track the PDO. The PAD did not provide an indicator to measure changes in the economic productivity and quality of life of Metro Manila residents. In addition, the proxy indicators selected (i.e., reduced travel time, sustained proportion of public transport use and improved satisfaction of public transport users) lacked baseline data and end-of-project target values. Surveys to collect data on public opinion and public transport usage were to be conducted at project inception and one year after works completion on project corridors. There was no survey at inception and the survey at project completion was shelved because DBM did not release the required counterpart funding to MMDA. Therefore, there are no data to measure this indicator.

The lack of both baseline and target values make the assessment of outcome virtually impossible. However, it was only in the supervision mission of September 2009 that the issue was seriously approached. The Task Team and the IAs agreed to revise the Results Framework adopting the indicators as outlined in the PAD, and adding an indicator for road safety (i.e., reduced number of reported pedestrian and motor vehicle accidents in the project corridors). The inclusion of the new indicator on road safety however was not done formally and the target value for this indicator was not specified. The agreed indicator is a refinement to the results framework that supported the same project objective and targeted the same beneficiaries as originally approved by the Board.

Furthermore, the IAs initiated the setting up of an M&E system but this was limited only to information generation on travel time and speed, making it difficult to have an effective results framework that could be readily updated. Data on other key indicators (e.g., production capacity, level of satisfaction, level of service of walkways, etc.) were not given attention and thus not collected.

In summary, while physical progress of project implementation was adequately monitored, progress in achieving the PDO was not.

2.4 Safeguard and Fiduciary Compliance

Environmental Safeguards: The Project complied with the Bank's safeguards policies set forth in OP 4.01 (Environmental Assessment). Overall, the Project has not resulted in any significant adverse impact on the environment during construction. MMURTRIP has generally brought about direct and indirect environmental benefits to the pedestrians and public transport users with the improved urban environment, public transport service ancillary facilities, and landscaping and greening programs.

Social Safeguards: A comprehensive policy framework for land acquisition, resettlement and rehabilitation was developed by the DPWH for MMURTRIP in April 2001. Only two project components involved resettlement and land acquisition, i.e., Marikina Bridge and Access Roads and Don Mariano Marcos Avenue Extension. The latter was eventually dropped from the loan. A RAP for each road component was prepared in accordance with the Bank's policies set forth in OP 4.12 (Involuntary Resettlement). Social safeguards were rated as Satisfactory throughout the project. While land acquisition and resettlement took an inordinate amount of time, eventually most of the claims were settled and the project affected persons received just compensation. The DPWH however still has accounts payable and will need more money for ongoing expropriation cases as the courts make their final judgments. A final and very detailed report on resettlement has been submitted by the External Monitoring Agent for the Marikina Bridge and Access Roads construction.

Financial Management (FM): The Project generally complied with the financial covenants[8]. Project Management Reports were prepared by each IA and submitted quarterly to the Bank. During implementation, Financial Management was mostly rated as Satisfactory or Moderately Satisfactory. Only at the end of 2002 the financial management rating for both the Urban Roads Project Office (URPO) and MMDA was briefly changed to Unsatisfactory, when several issues surfaced with respect to proper reporting in the Project Management Reports, notably the reconciliation of figures and statements did not match and there was no adequate FM staffing, in particular in MMDA. After Bank regular follow-ups and discussions with both agencies, all irregularities were eliminated.

Procurement: The MMURTRIP generally complied with specified procurement procedures but with delays. Procurement ratings for MMURTRIP were satisfactory until October of 2003 when they were downgraded to Unsatisfactory, due to the delays in procurement and decision making and delays in awarding of contracts. The Unsatisfactory status was maintained until June of 2005, more because of the slow procurement process rather than particular procurement issues.

[8] Findings are consistent with the Country Report on the Thematic Fiduciary Supervision Assessment for Road Sector in Philippines which was prepared in February 2009.

2.5 Post-completion Operation/Next Phase

The September 2009 supervision mission voiced some concern that there was only a very modest budget allocated for the maintenance of the MMURTRIP road projects and the newly constructed bridge. The mission also noted that in certain cases, maintenance has been assumed by LGUs and that the newly-created assets are not given adequate maintenance attention.

MMDA has turned over the responsibility for the Pasong Tamo Secondary Roads component to the City of Makati. Similar arrangements will be made for the three secondary roads of the EDSA LRT Line 3 corridor. Some of the facilities installed under the Bicutan Interchange component will likewise be turned over to the LGU concerned. However, the footbridge will remain under the responsibility of MMDA as will the facilities for the EDSA LRT Line 3 corridor. MMDA asserts that it has adequate in-house capacity and personnel who, on a regular basis, monitor the condition of the facilities. In addition MMDA has its own fabrication unit that can replace damaged facilities. MMDA has its own internal sources of revenue to fund the cost of maintaining the facilities.

DPWH has stated that these are new investments and the budget for their maintenance would have to compete for funding support from the limited maintenance budget envelope. As many other roads are in dire need of repair and maintenance the completed MMURTRIP projects would be expected to be given a low budget allocation priority. Nevertheless, DPWH provided a table, which shows that the Marikina Bridge would receive an annual maintenance budget of about US$5,300 and the 12 km Quirino highway about US$14,600. This amount appears to be adequate as it is for routine maintenance only.

Marikina City has implemented the bikeways program with such enthusiasm that there appears little danger that it will let decay the newly created assets. The new mayor of Marikina City is committed to continue the bikeways program.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

While the PDO (enhancing the economic productivity and quality of life of Metro Manila residents) aimed too high, the stated means of "improving the operational efficiency and safety of the transport system in Metro Manila" was set at the right level and is still highly relevant to the current country and Bank assistance strategy. The PDO remains also consistent with the updated 2004-10 MTPDP which supports sustained investments in infrastructure, particularly in continuing integration of the transport system. The CAS for 2010-2012 includes in its indicative financing plan an urban transport project for Metro Manila and other cities under the objective to assist the Government to improve the investment climate. With an annual growth of about 5.4 % of registered vehicles within the National Capital Region and of about 6% in all regions combined, the need for continued investments in transport infrastructure is obvious.

Likewise, the GEO remains valid today. The project design and objectives are in line with the MTPDP goal to sustainably manage the environment and natural resources to safeguard livelihoods as well as with the Bank's CAS strategy to reduce green house gas emissions through expansion of mitigation programs in key sectors such as transport, power and waste management sectors.

3.2 Achievement of Project Development Objectives and Global Environment Objectives

Achievement of Project Development Objectives
Rating: Moderately Satisfactory

The PDO stated in the PAD is too broad and aimed at a higher level. The achievement of which maybe difficult to directly attribute to the project. No attempt was made to assess impact on economic productivity and quality of life of residents in Metro Manila. Moreover, the lack of baseline data and targets for several project KPIs makes it difficult to provide a firm assessment of the performance of the project in achieving the PDO and GEO. Therefore, the review endeavored to judge on the basis of the key performance indicators which are proxy indicators for assessing achievement in improving the operational efficiency and safety of the transport system in Metro Manila.

Despite implementation problems faced by the project, MMURTRIP produced significant results particularly with respect to mobility and safety, with the construction of key infrastructure and geometric improvements in the major corridors of Metro Manila. These include the bridge and access roads (with a total length of 3 km) that eased congestion affecting access of the eastern part of the region to Metro Manila, upgrading of 13 important primary and secondary roads (with a total length of 76 km), and improving access to and safety of public transport users of mass transport systems with the construction and rehabilitation of 7 footbridges along some major corridors (with a total length of 1,285 linear meters) and improvement of sidewalks for pedestrians (9,385 square meters of concrete pavement), see Annex 2.

Improved mobility and safety for public transport users and are very important especially in the context of Metro Manila where 89% percent of all motorized trips are through public transport, and most public transport users belong to the lower income groups. There are over 11 million pedestrians and road users residing in Metro Manila, over 4 million (37%) of whom were poor[9]. MMURTRIP was also successful in piloting a bikeways project in the country with the implementation of the NMT component in Marikina City, leveraging grant resources to construct some 52 kilometers of bikeways in that city.

The project achievements in relation to the PDO include the following:

(a) Reduced travel time experienced by public transport users on the project corridors. Travel time along EDSA (Metro Manila's main corridor) decreased by almost 10 minutes (from 60 to 50 min). In the MARIPAS corridors, the average travel time for trips from LRT Santolan to C-5/Libis substantially decreased by 16 minutes (from 18 to 3 min) and from C-5 to Tikling (Ortigas Ave. Extension) by 14 minutes (from 34 to 20 min). The reduction in travel time in secondary roads was recorded at 6 minutes (or 22% from the baseline) on average.
(b) Sustained proportion of public transport use on the project corridors (achieved at 89% of all transport use). This figure however is at the regional level (i.e., Metro Manila) and not specifically applicable to project corridors. The computed value nonetheless represents a good sample of the

[9] Metro Manila Road Map for Urban Renewal and Basic Services for the Poor. Report prepared by the Housing and Urban Development Coordinating Council. November 2008.

demand for public transport for the project since it includes EDSA, the most important highway of the metropolis. EDSA carries an average of 323,000 vehicles per day[10].

(c) Improved level of service of pedestrian overpass. The 43% increase in average pedestrian volume count in the pedestrian overpasses or footbridges covered by the project has improved pedestrian access to these facilities. This also contributes to the reduction of pedestrian and vehicle conflict by removing about 530,418 pedestrians daily from the roadway through the construction of footbridges.

(d) Decrease in average travel cost for trips from and to Marikina Valley. The average travel cost for trips from LRT Santolan to C-5/Libis decreased by 55% and from C-5 to Tikling (Ortigas Ave. Extension) by 42%.

(e) Reduced number of reported pedestrian and motor vehicle accidents in the project corridors (a safety indicator added in 2009). Along EDSA, the number of reported motor vehicle accidents decreased by 14% while pedestrian accidents decreased by 47% from 2005 to 2009. In the Bicutan Interchange, the number of motor vehicle accidents increased from 3 to 13 while the pedestrian accident remained at 1 (non-fatal). This could be partially attributed to the increased number of motor vehicles plying by the corridor and therefore higher probabilities for vehicular conflicts or accidents. There was however no data on safety indicators gathered for other project corridors.

Another important outcome is the high economic returns to investments made under the project. The EIRRs remained high (post implementation) because of the higher actual traffic growth of vehicles, road users and pedestrians (relative to the projected traffic at the time of the study) which more than compensated the increase in investment costs. Along EDSA, most of project gains are derived from time savings brought about by footbridge construction and sidewalk improvements, from a reduction in carriageway infringement and the improved traffic speeds in the intersections. The project resulted to a 40% reduction in waiting time for the road users and almost zero waiting time for the pedestrians using the footbridges along the EDSA corridor intersections. The Marikina Bridge users now enjoy time and cost savings because of the shorter trip distance the new route offers. Transport users of secondary roads similarly benefit from time and operating cost savings as a result of the increased travel speed, increased road capacity and improved pavement surface. Other benefits which are difficult to quantify include improved urban environment and accident cost savings as a result of improved safety for road users and pedestrians in the project corridors.

While the Project fell short in achieving its desired outcomes under the Institutional Component, there were significant contributions made as a result of the project. MMURTRIP introduced to the IAs new concepts for urban roads development. Whereas before they focused only on geometric improvements, MMURTRIP encouraged combining these geometric improvements with other features such as pedestrian facilities, urban landscaping, etc., integrating safeguards measures (traffic management during construction, planning and implementation of the Environmental Management Plan, and coordinating implementation of road infrastructure with local plans). There is now greater recognition of putting priority to public transport use in the choice of investment decisions, to pedestrian safety in the design of road and road improvement projects, and to the principle of "movement of people" rather than "movement of vehicles" in addressing congestion.

Overall achievement of PDO is rated ***Moderately Satisfactory***.

[10] Data provided by the Traffic Engineering Center (TEC) of MMDA.

Achievement of Global Environment Objectives
Rating: Moderately Satisfactory

The primary Global Environment Objective has been fully met with the completion of the 52 km bikeways network. The modal share of bicycle ridership in Marikina city increased from 4.2% in 2001 to 7.9% in 2010, exceeding its target by 3.4%. However, the Project fell short in achieving its second GEO indicator. Instead of an increase in the nonmotorized transport-public transport (NMT-PT) combined mode share for trips originating in Marikina, the recent survey showed a slight decrease in NMT-PT mode share by 1%. This could be attributed to the significant decrease in public transport for bus trips and huge increase in motorcycle trips from 2000 to 2010. The gradual construction and operation of the bikeways system has seen positive results in terms of the increasing modal share of bicycles particularly in areas where low income communities are located. The city continues to construct additional bikelanes. This component is being promoted by the World Health Organization as "environmentally healthy and sustainable transport" and the Marikina Bikeways Project is considered worth emulating by other LGUs in the Philippines and in other countries. To encourage replication of this project to other cities in the Philippines, the Marikina City Bikeways Planning and Design Guidebook was published to assist local planners and engineers to design and construct adequate bicycle facilities for their own localities. The City of Marikina continues to disseminate the benefits and viability of bicycles as an alternative transport mode to encourage replication of this pilot program in other cities.

Overall achievement of the GEO is rated ***Moderately Satisfactory***.

3.3 Efficiency

This section presents the economic analysis after implementation following the methodology used in the PAD.

The economic internal rate of return (EIRR) was not calculated for the entire project, but rather on specific components (i.e., Traffic management improvements, MARIPAS Access Improvements, and Secondary Roads) as it is rather impractical to do so in the other two components (NMT and institution building). This is made more appropriate for the post-implementation analysis given the significant change in project scope (i.e., major project components were dropped), the increase in costs of some components and delays in the completion of certain project activities. Furthermore, the traffic situation significantly changed over time in the project corridors.

The economic evaluation is based on the conventional cost-benefit analysis where benefits are mainly derived from the savings in vehicle operating costs (VOC) and the value of time (VOT). To be conservative in the economic analysis of the traffic management improvement component (i.e., Bicutan and EDSA LRT 3 corridors), only the benefits from the VOT for the pedestrians were considered. The VOC and VOT of the vehicles were excluded since these benefits are not entirely attributable to the project (especially in the case of the EDSA LRT 3 corridor).

The following table shows the summary of the economic analysis for the various sub-projects.

Component	Cost (PhP million)		EIRR (%)			
			PAD		ICR	
	PAD	Project Completion	VOC	VOC/VOT	VOC	VOC/VOT
A. Traffic Management Improvements 1/						
EDSA LRT Line 3 Corridor	285		18	155	-	51 – 68*
Bicutan Interchange	30	91	37	192	-	74*
B. MARIPAS Access Improvements						
Marikina Bridge	1,165	1,995	4	19	6	28
Ortigas Avenue Extension	260	222	133	565	232	386
C. Secondary Roads						
D. Romualdez	10	12	8	30	142	255
Legarda	10	18	63	117	124	290
Quezon	10	16	135	243	195	414
SLEX West	365	290	95	111	18	74
Pasong Tamo	145	100	45	57	7	60
Quirino Highway	340	645	79	248	129	231

**The computation for the actual EIRR for the Traffic Management Improvement only covers the value of time for the pedestrians. The analysis was done in three major intersections in EDSA, namely: Taft Avenue, Ortigas Center, and Quezon Boulevard.*

The table shows that the EIRRs remained generally high. A high EIRR is typical in traffic management projects with high economic benefits for the road users and pedestrians relative to the project investment. For EDSA LRT 3 corridor, the EIRR remained high when subjected to sensitivity analysis (see Annex 3) given a relatively high pedestrian traffic. The Bicutan and Ortigas Avenue Extension components also showed good results. The improvements in the secondary roads also produced very high returns, particularly for D. Romualdez, Legarda, Quezon and Quirino Highway. There is some deterioration, particularly with respect to VOC numbers, for SLEX West and Pasong Tamo as actual traffic volumes were lower than the projected traffic at the time of the study. However, the economic returns are relatively satisfactory for SLEX West and Pasong Tamo components using both VOT and savings in VOC for the road users.

3.4 Justification of Overall Outcome and Global Environment Outcome Rating
Rating: Moderately Satisfactory

The PDO and GEO are still highly relevant to the current country strategy and Bank assistance strategy. The project set out to improve the operational efficiency and safety of the transport system in Metro Manila and to reduce greenhouse gas emissions by promoting the use of zero-emission bicycle and pedestrian transport in Marikina City. Based on figures on key associated outcome targets, efficiency gains were achieved, namely in terms of increased travel speed (thereby in savings in travel time and vehicle operating costs). Investments in pedestrian bridges, waiting bays, sidewalk improvements, etc. helped improve safety of pedestrians and public transport users. Access from the eastern part of the metropolis was greatly enhanced with the construction of a major bridge. The reduced travel time and cost experienced by public transport users in the project corridors generated high economic rates of

return, even exceeding some of those forecasted in the PAD. The high EIRR of the projects implemented also shows that in general the use of resources was efficient. The introduction of new concepts for urban roads development (i.e., pedestrian facilities, urban landscaping, noise-pollution control, among others) is recognized as a major contribution of the project to DPWH and MMDA operations. The project also successfully demonstrated NMT as environment-friendly, cost effective means of transport. Several components (mostly from the secondary road program) were dropped due to cost-overruns and the Project did experience implementation problems. The achievement of overall outcome therefore is rated Moderately Satisfactory.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

The project was not designed to cover poverty impact, gender aspects or social development. However, because of its wide target population, the project outcome has benefited the poor by reducing the time and money they spend on transport. In terms of time savings, the economic analysis concluded that substantial reduction in travel time is observed in several components, such as those in the MARIPAS area (where the Marikina Bridge and access road were constructed), namely LRT Santolan to C-5/Libis (decrease of 84%), and from C-5 to Tikling (Ortigas Ave. Extension (40%). The time saved can be used by commuters for other productive purposes. For vehicle users, the reduction in VOC can be substantial as a result of the improvements in some project corridors. For example, the average travel cost for LRT Santolan to C-5/Libis decreased by 55% and from C-5 to Tikling (Ortigas Ave. Extension) by 42%. Savings in VOC is based on the VOC of equivalent additional length of good/fair road of completed project if the vehicle would have travelled during the "before project" scenario.

The project was also assessed in April 2010 through another review process in the Bank, i.e., a Gender and Development Assessment. The review concluded that the implementation of the project is gender-sensitive. The MMURTRIP addressed gender issues in project management, monitoring and evaluation. The Committee on Gender and Development, the group responsible for promoting gender equality in the agency, has competent members and has mobilized resources to support strategies that address gender issues or constraints to women and men's participation during project implementation.

(b) Institutional Change/Strengthening

The project allocated resources for institutional strengthening. Implementation of the component did not yield the desired outputs (and therefore did not contribute to the institutional goals of the project). However, there are significant contributions made as a result of the project.

(i) There is now greater recognition of putting priority to public transport use in the choice of investment decisions, to pedestrian safety in the design of road and road improvement projects, , and to the principle of "movement of people" rather than "movement of vehicles" in addressing congestion.
(ii) There is greater attention given to safeguards in the design and implementation of urban roads and transport improvement projects. The introduction of noise-pollution control and better traffic management during construction are recognized as major contributions of the project to DPWH and MMDA operations.

(iii) The MMDA reports that the experience it acquired through the Project helped in its implementation of its other infrastructure projects, such as the C-5 Interchange Project and Commonwealth Avenue Development Project.
(iv) Construction supervision skills of DPWH were improved by allowing DPWH PMO to carry out supervision of two secondary road components (SLEX/East and West Service Road and Quirino Highway).
(v) To some extent, the project also facilitated better coordination (and helped formalize the working arrangements) between DPWH and other entities (e.g., LGUs and private utility companies) in the construction of geometric and landscaping of urban roads. It also facilitated cost-sharing between LGUs and DPWH for construction and maintenance of roads.
(vi) The learning-by-doing approach adopted in the implementation of the NMT component allowed the City Government of Marikina to build its capacity to plan, develop and implement the bikeways program in the city.

(c) Other Unintended Outcomes and Impacts (positive or negative)

The Project has generated jobs during construction. For MMDA components alone, a total of 800 jobs were created during the construction of the project components.

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

Not applicable.

4. Assessment of Risk to Development Outcome and Global Environment Outcome

The risk to the development outcome is **Significant** for the following reasons:
(a) As long as there is no urban transport master plan and MMDA does not take a lead role in coordinating investments in Metro Manila, urban transport investments will continue in a piecemeal approach, with a prevalence of mega-projects coming as unsolicited proposals from the private sector.
(b) Inadequate budget releases to fully implement the components dropped or deferred as well as for the cost of maintaining the assets provided or improved by the project can impinge on the ability of the project to create desired impacts on urban development.
(c) With the number of registered vehicles growing at close to 6% per year, there is a danger that the increasing traffic will again lead to congestion, negating the time and travel cost savings achieved under the project.

An appropriate follow-up project could mitigate the above risks to some extent by insisting on an adequate development framework, by strengthening MMDA (as it should have been done under the present project), and by further promoting public transport (e.g., Bus Rapid Transit).

The risk to the global environment outcome is **Significant** given that the motorbike registration in the Philippines has been growing at close to 10% per year, crowding out the use of non-motorized bicycles.

The new government of Marikina City nonetheless reinstated the Marikina Bikeways Office (MBO, which ceased operation in March 2008 after the GEF grant ended in December 2007). The MBO is now

carrying out information dissemination activities, promotion and enforcement of bicycle safety, operational maintenance of bikeways facilities, among others, and is initiating scale up of the program, including providing advice to other cities that are planning to build bikeways.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry
Rating: Moderately Satisfactory

The July 2001 Quality at Entry Assessment, carried out by the Bank's QAG, concluded that the project's quality at entry was Satisfactory, but on a four point scale rather than on the six point scale now in use. The PDO definition of *"enhancing the economic productivity and quality of life of Metro Manila residents"* was too broad and aimed at a higher level objective which is beyond the project interventions. This approach was not a rare case since at the time of project appraisal it was common to define PDOs in rather general terms.

The ICR rating slightly differs on account of what it considers features in design that impacted implementation performance: (a) the weak monitoring and evaluation arrangements. There were no proper baseline data and target value and no indicator on safety; and (b) inadequate attention given to the capacity of MMDA to implement an urban transport project (as urban road improvements before MMURTRIP implementation were addressed by the DPWH). An analysis of the MMDA capacity would have been useful in developing a technical assistance to help the agency carry out the components assigned to it.

While recognizing these limitations, MMURTRIP's overall development objective was clearly aligned with both Government and World Bank strategies on improving the urban transport condition in Metro Manila. The relatively sound background analysis for project preparation helped in this alignment of objectives and identification of reasonable components for the project. The strong Government commitment to the project at preparation (though dissipated during implementation) helped in the establishment of workable implementation arrangements among the IAs. This has facilitated IAs in the implementation of their project components without compromising environmental and social safeguards as well as fiduciary concerns. The Project however experienced delays in the completion of these components.

(b) Quality of Supervision
Rating: Moderately Unsatisfactory

During the nine years of project implementation, there were some 15 formal supervision missions. In addition, there were audio and teleconferences between Washington and Manila to discuss issues as soon as they surfaced. However, the frequent change of Task Team Leaders (4 changes) may have negatively impacted project implementation. The skills mix of the Task Team was adequate, with social, environmental, procurement and financial management specialists participating at most supervision missions. Aide memoires and Implementation Status Reports (ISRs) are well written and candid, but the PDO and Implementation Progress ratings were not always appropriate (overly optimistic).

It is also observed that:

(i) There was very little progress in the institutional development component. The Task Team should have exerted more effort to promote this component.
(ii) It was known early on that the results framework was vague and lacked target values, but only at the very end of the project did the Task Team make an effort to correct the situation but still without formal revision. The PAD had specified surveys at project inception to establish baseline data, but these were never carried out.
(iii) Letting MMDA go on for almost five years to redesign the MMDA project components, without intervening more forcefully.
(iv) The cancellation of the traffic signals component in exchange for some U-turn facilities. The team does not appear to have argued at least for a thorough analysis of the suitability of the U-turn schemes and overall impact not only to the corridors where these are introduced but also to traffic flows in their immediate environs. A comparative analysis (between the adoption of U-turn schemes and signalization) would have been useful for better traffic management planning and in making related investment decisions.
(v) Failure to address emerging key issues during Mid-term Review (e.g., strengthening of the Results Framework, and completion of the process of loan restructuring given the significant reduction in the scope of the project that time).
(vi) Lack of effort to urge MMDA to convene the Steering Committee after project preparation.

It should be noted however that supervision was difficult at the critical years of implementation (i.e., 2003 when leadership in DPWH and MMDA changed and the then management of these agencies put the project implementation on hold), Despite the constraints (e.g., delayed or even lack of budget releases, lack of attention by agency heads during leadership transition, etc.), the supervision effort of the Task Team is recognized, particularly that it was able to work with the PMOs in successfully completing the big component of the project, i.e., the Marikina Bridge and Access Road. At that time, the bridge was the only foreign-funded project of the DPWH to be implemented with relatively low cost and time over-runs, despite resettlement delays.

(c) Justification of Rating for Overall Bank Performance
Rating: Moderately Satisfactory

The rating for Bank performance for quality at entry is Moderately Satisfactory while the rating for supervision is Moderately Unsatisfactory. Since the overall project outcome is in the satisfactory range, the ICR Guidelines indicate that the Bank's overall performance is rated as Moderately Satisfactory.

5.2 Borrower Performance
(a) Government Performance
Rating: Moderately Unsatisfactory

The Government had shown strong commitment to the Project during preparation and appraisal. During implementation, the Government sustained its efforts to improve the urban transport condition in Metro Manila and remained committed to its MTPDP goal of continuing integration of the transport system to improve investment climate. It supported the Project but the lack of sufficient counterpart funding, which is a common problem affecting all foreign-assisted projects, significantly impinged on the ability of MMDA to implement the remaining project activities during the last year of implementation,

resulting in the cancellation of these activities. The budget problem was borne by the seeming lack of commitment to the Project when it was most needed. In spite of MMDA's persistent follow-ups for the necessary counterpart funding from the DBM, the Government did not provide the requested budget nor was a formal response issued to that matter until loan closure. While no formal reasons were provided, the overall tight budget situation then and the seeming difficulty of the MMDA leadership to muster support of the oversight agencies to the project are seen as major factors in this regard.

(b) Implementing Agency or Agencies Performance
Rating: Moderately Satisfactory

DPWH performance is rated *Moderately Satisfactory*. The DPWH showed a strong commitment to achieving the PDO during project appraisal and implementation. DPWH performance in terms of ability to implement and sustain the supported investments, and compliance with project requirements, including fiduciary and safeguards requirements is considered Satisfactory. Despite the delays in the procurement process and land acquisition, DPWH's procurement performance was relatively satisfactory and the civil works under its responsibility were of good quality. In addition, the agency was able to satisfactorily supervise the works of its two secondary road components as validated by an Independent Technical Audit report commissioned by the DPWH. The DPWH however fell short in assuming its role as the lead agency, especially in terms of coordinating the project activities among agencies and consolidating the reports from the other implementing agencies (i.e., environment monitoring reports, among others) for submission to the Bank.

MMDA performance is rated *Moderately Unsatisfactory*. The quality of the MMDA components carried out under the project is satisfactory, but there is no justification for the fact that it took MMDA more than six years from Board approval to the start of construction for the main civil works contract (EDSA LRT Line 3). MMDA failed to play its role as coordinator and Chair of the inter-agency Steering Committee. The transfer of the traffic management function to MMDA has improved the capacity of the agency in this respect. In addition, the MMDA gained extensive experience and training in the implementation and monitoring of road infrastructure projects funded by the Bank.

Marikina City performance is rated *Satisfactory*. The City Government of Marikina implemented the GEF financed project components with enthusiasm and drive, after some initial difficulties in the project's design stage and after taking a deliberate experimental approach to see which design would be best for local conditions. The bikeways project required a nine month extension only, rather than the three years for the main project. The City Government provided around US$1.8 million as counterpart to the GEF grant, which is 10 times as much as what was originally required from the city at appraisal. Marikina remains committed for the maintenance and expansion of the bikeways network, the latest of which is the completion of additional 400 meters of bikelanes in Park 23, Barangay Marikina Heights. The City also continues to carry out dissemination activities to promote and replicate the program in other cities.

(c) Justification of Rating for Overall Borrower Performance
Rating: Moderately Satisfactory

The rating for Government performance is Moderately Unsatisfactory while the rating for implementing agencies performance is Moderately Satisfactory. Since the overall project outcome is in the satisfactory

range, the ICR Guidelines indicate that the Borrower's overall performance is rated as Moderately Satisfactory.

6. Lessons Learned

Future urban transport projects in Metro Manila and other urban centers in the country can benefit from the following lessons from the nine years of MMURTRIP implementation:

(a) **Implementation arrangements should match institutional capacity.** A realistic assessment of the resources available, skills and commitment of the IAs could have led to better project implementation structure. Where IAs have no experience in implementing similar projects, project design should be simple and institutional arrangements straightforward. Components should be assigned to agencies that are best equipped or positioned to implement them (e.g., DPWH for those involving complex designs, LGUs for secondary roads, MMDA for footbridges and simple works, etc.). Activities selected should require less coordination work, and if coordination is unavoidable, coordination arrangements should be formalized. Components can also be so designed that will allow agencies to increase capacities while implementing these components. In an environment where several agencies are involved in implementation, project components are more likely to be successfully carried out if defined specifically in project documents**.** The TA component of MMURTRIP intended to address institutional strengthening and policy advocacy of MMDA. But because the component was broadly defined, consensus on specific activities to be supported was difficult to obtain (and were therefore not carried out). This was a missed opportunity in terms of generating analyses for projects that could help address institutional, policy and investment needs for urban transport development in the country.

(b) **Clearly defined OM is important to guide implementation.** The problems experienced by the Project underscores the need for an Operations Manual (OM) that can serve as a guide in the implementation of a complex project such as MMURTRIP. The OM should clearly specify the roles and responsibilities of the implementing agencies. It can also ensure consistency in the application of procedures, consolidation of required outputs, and continuity in the event of management and personnel changes during project implementation. The manual can also instruct how to develop maintenance and budget plans and other maintenance activities.

(c) **Fiduciary and safeguards requirements should be established, understood and agreed prior to implementation.** Ideally spelled out in the OM, these requirements should be clearly identified prior to project start up. Extensive training of project personnel on procurement, financial management, social and environmental policies and procedures to be followed is critical. Procurement plans should be realistic and closely monitored by the Task Team to ensure timely completion of tenders (MMURTRIP encountered lengthy and even unsuccessful procurement). The Project experienced considerable delays in the implementation of the Environmental Management Plans and RAPs, which resulted in the delayed completion of some project components. Guidance from the Task Team on how these safeguards documents are developed and implemented would be extremely helpful.

(d) **Targets and performance indicators should be defined and agreed at appraisal.** MMURTRIP was developed way before the current results framework regime came into force. The PAD thus lacks the rigor and clarity a meaningful results framework can provide. This explains the difficulties

experienced in the assessment of the project outcomes. In the absence of such a results framework, the IAs seemed to have lacked the seriousness in collecting data, let alone strive to complete project activities to achieve some development outcomes. At appraisal, it is important that the indicators be well defined and understood by the project stakeholders and that the baseline data are established. The OM can also be instructive on how the data is to be collected, by whom, and how often. The indicators should be few, attributable to the project and the data is easy to collect.

(e) **Credible cost and schedule estimates are essential.** MMURTRIP experienced significant cost and time overruns mainly due to underestimation during project appraisal and detailed design stage of construction costs and overly optimistic project schedules. As a result, several project components representing about 43% of the original total project cost were dropped or transferred to another project. An adequate preliminary design should be included in the feasibility study, which would reflect the appropriate estimation of costs in the PAD. In addition, the detailed design cost estimate should be updated to reflect market prices especially when the bidding process starts long after the detailed design was completed. An adequate investigation during the detailed design stage for the sub-soil condition and deterioration of the road conditions should also be undertaken to minimize cost overruns incurred by work variations during the implementation of the contracts. Thus, it is due diligence on part of the Bank to carefully review cost estimates and require an updated FS, if necessary, before loan finalization. Global experience even suggests that completing the Detailed Engineering Design before loan finalization would be ideal. Moreover, projects experiencing high cost overruns should be formally restructured at mid-term review.

(f) **Right-of-way (ROW) issues deserve careful attention and decisive resolution.** While RAPs and a Land Acquisition, Resettlement and Rehabilitation Policy Framework were prepared for the project, these did not facilitate the ROW acquisition and resettlement process as expected. The condition for the completion of resettlement, including compensation, prior to the issuance of bidding documents proved to be unrealistic because of the project context (highly urbanized) and the type of assets affected (residential cum commercial buildings). The policy framework also did not anticipate the filing of expropriation cases and therefore, was silent on a procedure for handling them. A more thorough stakeholder analysis and participative planning prior to decision on whether to include components requiring ROW acquisition could have produced innovative solutions. MMURTRIP did provide useful lessons in this regard: In the case of the Marikina Bridge and Access Roads, the Task Team and the DPWH addressed the slow pace of resettlement implementation by dividing the civil works project into three segments and issued notices to proceed per segment (i.e., when agreed milestones in the resettlement process were reached).

(g) **Agility, resolve and responsiveness are key to effective supervision.** Frequent changes in component design, in leadership and management of the implementing agencies (resulting in changing priorities) call for creativity on the part of Task Team to offer options to achieve the project objectives even with changing conditions. In MMURTRIP's case, the Bank mostly waited too long for the client to decide on whether to continue with project components. While being flexible, the Bank ought to show resolve in timely resolution of issues. For example, if certain technical or design solutions are being changed, the Bank should exercise due diligence and agree only to the extent that these do not compromise the desired outcomes. It also calls for very close monitoring of agreed actions during supervision missions. The timely conduct of midterm reviews can be very useful as it allows for early resolution of implementation bottlenecks and the opportunity

to review the relevance of the project design, components, objectives, and determine the likelihood of timely completion of activities within the project life. Had this been the case for MMURTRIP, a formal restructuring of the project could have been carried out and mitigated the costly delays encountered.

(h) **Participation of beneficiaries and stakeholders (e.g., road user groups) in project design, implementation, and monitoring and evaluation can help ensure successful implementation.** A seeming shortcoming in the entire project cycle is the lack of formal participation of key stakeholders in design and implementation. While the Project developed a plan for stakeholder consultation during appraisal, the execution of this plan has been inadequate. Most of the committees or teams envisioned in the plan were not organized or were non-functional. These committees could otherwise have been useful in resolving implementation issues, particularly concerning resettlement and ROW problems. In addition, enlisting organizations that are major stakeholders is also helpful, e.g., chambers of commerce as many commercial establishments are impacted by, say, reclamation of sidewalks; LGUs whose support to pedestrianization objectives is critical; multi-stakeholder groups such as the Road Watch that is involved in monitoring the performance of the DPWH in the delivery of quality national road services; etc. These groups can be effective lobby parties that can prompt timely decision by government of questions such as budget allocation for the project components.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

The implementing agencies prepared an extensive PCR, a summary of which is attached as Annex 7. Comments provided by the IAs on the draft ICR were also attached in the same annex. The Borrower and Bank completion reports agree that the Project made significant achievements, produced tangible outputs, and both believed that the project was implemented satisfactorily.

(b) Cofinanciers

(c) Other partners and stakeholders

(e.g. NGOs/private sector/civil society)

Annex 1. Project Costs and Financing

Metro Manila Urban Transport Integration Project - P057731

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
A. Traffic Management Improvements			
LRT Line 2 Corridor			
Civil Works	2.64	0.00	0
TEC Works	1.53	0.03	2
LRT Line 3 Corridor			
Civil Works	3.77	8.03	213
TEC Works	0.31	0.00	0
Southern Corridor-Bicutan Interchange Improvements			
Civil Works	0.29	1.82	627
TEC Works	0.13	0.00	0
Southern Corridor-Alabang Interchange Improvements			
Civil Works	0.63	0.00	0
TEC Works	0.53	0.00	0
B. MARIPAS Access Improvements			
Marikina Bridge and Access Roads			
Civil Works	11.00	27.02	246
TEC Works	0.19	0.27	140
Land Acquisition	7.02	4.08	58
Marcos Highway			
Civil Works	13.40	0.00	0
TEC Works	0.43	0.37	86
Ortigas Avenue Extension			
Civil Works	1.09	5.18	475
TEC Works	3.03	0.03	1
C. Secondary Roads Program			
Don Mariano Marcos Avenue Extension			
Civil Works	0.30	0.00	0
TEC Works	0.13	0.00	0
Land Acquisition	5.40	0.08	1
D. Romualdez/Legarda/Quezon Blvd			
Civil Works	1.17	1.12	96
Pasong Tamo			
Civil Works	2.90	2.18	75

	TEC Works	0.80	0.02	2
Quirino Highway				
	Civil Works	3.44	12.77	371
	TEC Works	1.04	0.00	0
Banawe Avenue				
	Civil Works	0.93	0.00	0
	TEC Works	0.13	0.00	0
Antonio Arnaiz				
	Civil Works	0.53	0.00	0
	TEC Works	0.13	0.00	0
SLEX West/East Service Roads				
	Civil Works	4.67	13.51	289
Pedro Gil/Tayuman/Dela Fuente/Fajardo				
	Civil Works	1.59	0.00	0
	TEC Works	0.40	0.00	0
10th Avenue				
	Civil Works	0.71	0.00	0
Gil Puyat				
	Civil Works	1.01	0.00	0
D. Non-Motorized Transport		1.51	3.14	208
E. Institution Building/Technical Assistance		1.00	0.31	31
F. Goods				
	Vehicles	0.20	0.00	0
	Computers	0.10	0.04	40
G. Services				
	Detailed Engineering	0.85	1.39	164
	Construction Supervision	5.62	5.58	99
	Advisory Services	1.48		
Project Cost		**82.03**	**86.96**	
	Physical Contingencies	5.07	0.00	
	Price Contingencies	9.96	0.00	
	Total Project Cost	**97.06**	**86.96**	

PAD figures are from the detailed 2001 cost table
Actual figures are from DPWH PMR; MMDA PCR and Marikina PCR

Supervision Figure:
DPWH 1.69; PMO 2.63 and MMDA 1.26

(b) Project Financing by Source of Funds (in USD Million equivalent)

Source of Funds	Type of Cofinancing	Appraisal Estimate (US$ millions)	Actual/Latest Estimate (US$ millions)	Percentage of Appraisal
Borrower		36.3	34.6	95%
International Bank for Reconstruction and Development		60.0	49.6	83%
Global Environment Facility		1.3	1.3	100%

Annex 2. Outputs by Component

A. Summary of project outputs which reflect the linkages between the intermediate outcome indicators per component (referred as output indicators in the PAD) and the PDO outcomes

Component A: Traffic Management Improvements. *Moderately Satisfactory*. The Project achieved two of four indicators,: i) the level of service of corridors measured by average travel speed of all-through vehicles along the EDSA and Bicutan Interchange has increased by 57% and 28%, respectively; and ii) the level of service of pedestrian overpass has also improved with the reduction of pedestrian and vehicle conflict by removing about 439,761 pedestrians daily from the roadway through the construction of footbridges. However, there was no data provided for the indicators "improved level of service of public transport queuing areas" and "improved level of service for buses and jeepneys along the corridors measured in terms of productive capacity average of bus and jeepneys". This is on account of the dropping LRT Line 2 and the Alabang Interchange components (and using freed-up resources to finance the additional works required in EDSA LRT Line 3 and Bicutan Interchange components).

Component B: MARIPAS Access Improvements. *Moderately Satisfactory*. The two performance indicators (i.e., reduction in travel time and travel costs) were achieved. This component supported a by-pass road with bridge structure to relieve the Marikina Bridge, Aurora Blvd.-Katipunan Avenue intersection. The construction of the bridge and access roads carried large volume of traffic resulting in substantial reduction in travel time as well as travel costs. The reduction in average travel time for trips from and to Marikina Valley across modes (i.e., travel time from LRT Santolan to C-5 Libis and C-5 to Tikling (Ortigas Ave. Extension) decreased by 84% and 40%, respectively) and the reduction in average travel cost for trips (i.e., travel cost from LRT Santolan to C-5 Libis and C-5 to Tikling (Ortigas Ave. Extension) decreased by 55% and 42%, respectively) have contributed to the attainment of improved operational efficiency in the covered area.

Component C: Efficient Organization of the Secondary Roads in a Hierarchy. *Moderately Unsatisfactory*. One of the two performance indicators was achieved. The level of service of the secondary roads has generally improved with the increase in travel speed (i.e., average increase of 31%) of all-through vehicles along these road components. No data was provided for the indicator "increased capacity at intersections between project corridors and secondary roads". Out of the 15 road components identified at appraisal (61.1 km), only seven were implemented, but these seven road improvement projects accounted for 45.6 km, or 66% of the total length of secondary roads planned for rehabilitation.

Component D: Development of Non-Motorized Transport Facility/GEO. *Moderately Satisfactory*. The primary GEO indicator was achieved. The modal share of bicycle ridership in Marikina city has increased from 4.2% in 2001 to 7.9% in 2010. The second GEO indicator however was not achieved. A decrease in NMT-PT mode share by almost 1% was recorded during the survey conducted by the City Government of Marikina in October 2010. This could be attributed to the significant decrease in public transport for bus trips and increase in private transport for motorcycle trips from 2000 to 2010. The Project supported a 52 km bikeways network, which was 80% of the target length of 66 kilometers for

the city. Ninety percent (or 47 km bikeways) was developed connecting residential areas to the city's major trip attractors such as markets, schools and employment centers. The increased NMT modal share was the result of various bicycle promotion programs, such as Bike-to-Work and Bike-to-School campaigns, and Marikina Bicycle Loan Program initiated by the Marikina City Bikeways Office.

Component E: Institution Building/Technical Assistance. *Unsatisfactory*. There were two indicators defined at appraisal, i.e., effective coordination mechanism in place between the key agencies and LGUs, and effective traffic management and enforcement measures planned and designed by the relevant agencies. However, no baseline and target values were specified. Few (minor) activities were carried out under this component (e.g., a study tour and a parcellary survey). Certainly, it allowed MMDA to gain some experience in implementing major civil works contracts. Yet, after 9 years, there is yet no comprehensive development framework and the 20-year Metro Manila Physical Framework Plan, completed in 1996 was never updated.

B. Table showing Project Outputs per Component

Component	Outcome Indicators	Output Indicators	Quantity	
			Original	Actual
(a) Traffic Management Improvements	• Improved level of service of the corridors measured by average travel speed of all-through vehicles along the corridors • Improved level of service for buses and jeepneys along the corridors measured in terms of productive capacity average of bus and jeepneys • Improved level of service of pedestrian overpass and public transport queuing areas	Total length of road constructed/improved	30km of roads	
		i. LRT Line 2 corridor	12km	dropped
		ii. EDSA LRT Line 3 corridor (restructured)	18km	23.08km
				9,385 sq.m. of PCCP of sidewalks improved for pedestrians and loading/unloading bays constructed
				6 footbridges constructed (total length = 787.388 lm)
				104.284 lm elevated walkways constructed
				6250 lm pedestrian steel railings installed
				257 panels of wiremesh pedestrian barriers installed
				449.4 lm waiting shed constructed
		iii. Bicutan interchange	Not specified	
				656.54 sq.m. sidewalks for pedestrians improved
				1 footbridge constructed having 502 lm length
				352 lm pedestrian steel railings installed
				598 lm wiremesh pedestrian barriers installed
				2 units of waiting shed constructed
		iv. Alabang interchange	Not specified	dropped

(b) MARIPAS Access Improvements	• Decrease in average travel time and cost for trips from and to Marikina Valley across modes	Total length of road/bridge constructed/improved	11.4 km of roads	10.05km of roads/bridge
		i. Marikina Bridge and Access Road	Not specified	2.98km
		ii. Ortigas Ave. Extension (C-5 to Tikling)	6.80km	7.07km
		iii. Marcos Highway	4.6km	dropped
(c) Secondary Roads Program	• Improved level of service of the secondary roads measured by average travel speed of all-through vehicles • Increased capacity at intersections between project corridors and secondary roads	Total length of road constructed/improved	69.1km of roads	45.64km of roads
		i. San Marcelino	Not specified	0.66km
		ii. Romualdez	1.44km	0.78km
		iii. Legarda	0.97km	1.00km
		iv. Quezon Blvd	1.28km	1.29km
		v. Pasong Tamo	2.42km	2.40km
		vi. Pedro Gil/Tayuman/ Dela Fuente	9.68km	dropped
		vii. SLEX Service Roads	27.2km	27.46km
		viii. Quirino Highway	11.80km	12.05km
		ix. 10th Avenue	2.83km	dropped
		x. Don Mariano Marcos Avenue	1.00km	dropped
		xi. Antonio Arnaiz Avenue	2.01km	dropped
		xii. Sen. Puyat Avenue	5.43km	dropped
		xiii. Banaue Avenue	3.00km	dropped
(d) Non-Motorized Transport	• Increase in NMT mode share for trips within Marikina • Increase in NMT-PT	Total length of bikeways constructed	66km bikeways	52km bikeways
		Total number of bicycles materials installed (traffic	Not specified	210 units of bicycle signage materials installed covering 15km of bicycle lanes

	combined mode share for trips originating in Marikina	calming pedestrianization measures)		
		Total length of road covering the pavement marking (traffic calming pedestrianization measures)	Not specified	Bicycle lane pavement marking provided (1.50 mm minimum thickness) covering 3km of bikeways
		Total number of lighting materials installed	Not specified	46 lighting materials/posts installed covering 2.3 kilometers of the bikeways
		Total number of trainings held	Not specified	425 trainings conducted (300 trainings for Saturday Bicycle Clinics (In School Trainings) and Sundays City Bike Tour from 2003 to 2007; 89 for Community Workshops and Bicycle Promotion Events from 2001 to 2006; and 36 for bicycle trainings workshops for Women)
		Total number of participants attended trainings/workshops	Not specified	51,300 participants attended the trainings/workshops (5000 participants for Saturday Bicycle Clinics and Sundays City Bike Tour; 44,500 for Community Workshops and Bicycle Promotion Events; 1,800 for Training Bicycle workshops for Women)
		Total number of units of IEC/ public awareness materials printed/produced	Not specified	23,000 IEC materials printed and 1 AVP Production on Marikina Bikeways Program produced (10,000 copies for Marikina City Bicycle Users Guide & Map; 12,000 for Marikina Bike Comics; 1,000 for Marikina Bicycle Travel Guide)

		Total number of surveys conducted	Not specified	7 annual traffic count activities were conducted from 1999 to 2010. A bicycle ownership survey was also conducted in 2006 in all of the 16 barangays of Marikina with 17,073 respondents. The result was that 1 in every 2 families owns a bicycle mostly for Bike-to-Work purpose.
(e) Institution Building/ Technical Assistance	• Effective coordination mechanism in place between the key agencies and LGUs • Effective traffic management (TM) and enforcement measures planned and designed by the relevant agencies		Project Steering Committee in-placed at project start-up and functioning.	Project Steering Committee was created at project preparation but did not function as expected.
			Fully functioning TM and enforcement in Metro Manila with full staff complement.	TM and enforcement measures were updated and enforced. TM function was transferred from DPWH to MMDA with full staff complement.
				A Study Tour conducted on March 31 to April 16, 2008 in several major cities in South America and US with the end view of studying bikeways, rotundas, BRTs, urban planning and railways development. This was attended by representatives from the MMDA, DPWH, and participating LGUs.
				Service plan for the enhanced Organized Bus Route was also developed under this component. The plan aimed to provide guidance to MMDA on data collection, preparation of preliminary analysis and interpretation of data, techniques on detailed service design for the existing EDSA routes.

Annex 3. Economic and Financial Analysis

The detailed economic analysis is done on the following sub-project components: (a) Traffic management improvements (pedestrian overpass) over a 5-year period, (b) MARIPAS Access Improvements (interchange improvement, new bridges and improvement in road links) over a 20- year period, and (c) Secondary Roads over a five (5) year period. Excluded in the economic analysis are the Non-motorized Transport (NMT) component and the institution building component of the project.

Methodology

The economic viability is determined by calculating the economic internal rate of returns (EIRR) for each of the project components. Under government guidelines, a project is economically viable if the project's EIRR is more than 15%.

In evaluating transport projects, the following economic benefits are included:

(a) Vehicle operating cost (VOC) savings accruing to road users as a result of increase in travel speed between intersections and reduced delays at the intersection;
(b) Value of time (VOT) savings to road users and pedestrians arising from the faster travel time. The VOT savings include the proper valuation of travel time for both work and leisure.

The above savings have been quantified as economic benefits (net of taxes, duties and other transfer costs) and as inputs in calculating for the EIRR of the project. There are other benefits but are difficult to quantify such as improved urban environment and accident cost savings as a result of increased safety of the road users and pedestrians.

Economic costs include the initial construction costs, right-of-way acquisition costs and future operating and maintenance costs. In economic analysis, the shadow prices of labor, the foreign exchange rate and the exclusion of taxes are considered in adjusting the financial costs to economic costs.

Assumptions

Vehicle operating cost savings have been estimated using a model developed by DPWH. The model generates the costs per vehicle kilometer given the speed of travel and quality of road surface which affect the operating costs like fuel and oil. Savings in maintenance expenditure are likewise estimated.

Wage rates are used as a basis for computing the savings in the VOT for both road users and pedestrians. Assumptions are made on the valuation of non-working time such as leisure time which is based on the wages rates. Specific vehicle occupancy factors are likewise assumed.

Table 1 – Cost Calculation Assumptions

Component	Economic Cost
General	
Labor	60% of financial cost of labor
Forex	20% premium on forex

Table 2 - Comparative Economic Analysis, Before and After Project Implementation

	At Preparation (PAD)			At ICR (Revised)		
	EIRR (VOC)	EIRR (VOC/VOT)	NPV	EIRR (VOC)	EIRR (VOC/VOT)	NPV
A. Traffic Management Improvement						
LRT Line 2 Corridor	64	142	980.8		dropped	
EDSA-LRT Line 3 Corridor	18	155	1,025.8		51 - 68	
Bicutan Interchange	37	192	489.6		74	
Alabang Interchange	56	119	407.5		dropped	
B. MARIPAS Access Improvements						
Marikina Bridge and Access Road	4	19	808.8	6	28	1,495
Marcos Highway	22	162	5,575.6		dropped	
Ortigas Avenue Extension	133	565	7,485.7	232	386	4,976
C. Secondary Roads Program	52	133	36,400.8	7 - 195	60 - 414	
TOTAL	37	137	53,145.0			

Based on the feasibility studies, the economic analysis for the project showed high EIRR, typical in traffic management projects with high economic benefits relative to the project investment. In certain sub-projects, the EIRRs remained high because of the higher actual traffic growth of vehicles, road users and pedestrians (relative to the projected traffic at the time of the study) which more than compensated the increase in investment costs.

The following is a summary of the economic benefits for each project component.

(a) Traffic Management Improvements

In pedestrian bridges, benefits are determined by the reduced waiting time of all pedestrian crossings in the vicinity of the sub-project component. Benefits from the improvements to bus stops and off-road jeepney and FX waiting areas are also considered. A conservative economic analysis is carried out for the traffic management improvement component (i.e. Bicutan and EDSA LRT 3 corridors) - only the benefits from the VOT for the pedestrians were considered. The VOC and VOT of the vehicles were excluded since these benefits were not entirely attributable to the project (especially in the case of the EDSA LRT 3 corridor sub-project). The computation for the actual EIRR for the Traffic Management Improvement only covers the VOT for the pedestrians. The analysis was done in three major intersections in EDSA, namely: Taft Avenue, Ortigas Center, and Quezon Boulevard.

Table 3 - Assumptions Used

Growth rates in:	
Vehicles	5% per year
Pedestrian traffic	5% per year
Value of Time	
Work Time	P41.0 per hour
Leisure time	P20.5 per hour
Survey Data Used:	
Location	No. of Pedestrians per day
Bicutan	184,652
EDSA-Taft	135,277
EDSA-Quezon Blvd	85,438
EDSA-Ortigas	101,155

In the main road corridors like EDSA, benefits are derived from sidewalk improvements, from a reduction in carriageway infringement and the improved traffic speeds in the intersection. The improvement in the EDSA corridor includes the construction of public transport passenger facilities to improve the waiting conditions for passengers in the terminals. Economic benefits are calculated based on the total number of passenger and the estimated value per passenger.

For EDSA corridor, the analysis was carried out in three major intersections, namely, Taft Avenue, Ortigas Center, and Quezon Boulevard. The computation for the actual EIRR only covers the value of time for the pedestrians. The estimates were then subjected to sensitivity analyses, as follows: (i) 20% decrease in pedestrian volume; and (ii) 20% increase in waiting time of pedestrian and 20% decrease in pedestrian volume. Apparently, the project remains viable given the adverse changes in the assumptions, with EIRRs exceeding the social discount rate of 15%.

Table 4 – Sensitivity Analysis

	Baseline	20% decrease in pedestrian volume	20% increase in waiting time of pedestrian and 20% decrease in pedestrian volume
Taft	54%	40%	28%
Quezon Blvd	51%	38%	26%
Ortigas	68%	52%	38%

(b) MARIPAS Access Improvements

In general, economic benefits in new road infrastructure are estimated based on the reduced travel time and operating costs for the road users of the route compared with to the most direct alternative route.

Indirect benefits such as reduced congestion and travel time also accrue for those road users who remain on the alternative routes.

In the case of the Marikina Bridge, benefits are derived from savings in time and operating cost savings for those who divert to the new route (via Marikina Bridge) due to shorter distance as compared to the travel time in the old route (via Aurora Blvd- C5). Indirect benefits such as time and operating cost savings for vehicles remaining on Marcos Highway are not included in the computation of the EIRR since this route also experience traffic growth and congestion.

For this specific component, the methodology used in the economic analysis is as follow:

1. Obtain traffic count at Marikina Bridge – The estimated daily total was determined from the peak hour count and the ratio of peak hour volume based on past traffic counts done by the Traffic Engineering Center and MMDA.
2. Convert vehicle traffic count to passenger car units (PCU)
3. Estimate the computed speed based on the model using the observed speeds and computed Volume-Speed (V/C) curve in 2007.

Table 5 - Assumptions Used

Type	PCU	Occupancy (no. of passengers per type)
Cars	1.0	2.5
Jeepneys	1.5	10.6
Buses	2.0	43.4
Trucks	2.2	2
Parameters of Volume-Speed Curve	Speed (km per hour)	
0.3	60	
0.7	42	
1 (non-congested)	25	
1 (congested)	10	

4. Compute for the savings in travel time. The savings in travel time is a function of the computed speed. The number of persons per day on board different vehicle types which have direct benefits of having savings in travel time. This is based on average occupancy of each vehicle type.

Table 6 - 2007 Travel Time and Speed Survey

To Marcos Highway			From Marcos Highway		
C5 Libis to LRT Santolan			LRT Santolan to C5 Libis		
Length (km)	Travel time (min)	Speed (kph)	Length (km)	Travel time (min)	Speed (kph)
2.57	2.53	60.95	2.92	2.95	59.39

Table 7 - 2007 Travel Time and Speed Survey (Alternate Route)

To Marcos Highway			From Marcos Highway		
C5 Libis to LRT Santolan			LRT Santolan to C5 Libis		
Length (km)	Travel time (min)	Speed (kph)	Length (km)	Travel time (min)	Speed (kph)
4.0	15.77	15.22	4.0	18.5	12.97

Table 8 - 2007 Difference in Travel Times

To Marcos Highway			From Marcos Highway		
Travel time (mins)			Travel time (mins)		
Old Route	New Route	Difference	Old Route	New Route	Difference
15.77	2.53	13.24	18.5	2.95	15.55

5. Compute for the values of time and vehicle operating costs.

Table 9 - Assumptions used based on 2007 study

Vehicle Class	VOT (PHP/min)	VOT (PHP/min/pax)	VOC (PHP/km)
Private vehicles	6.85	2.74	9.09
Jeepney	14.5	1.37	7.4
FX, AUVs	14.17	1.36	9.09
Buses	59.23	1.36	25.74
Light trucks	3.6	2.40	17.96
Heavy trucks/trailers	5.29	2.65	27.71

6. Compute for the EIRR by comparing the benefits (VOT and savings in VOC) and investment costs in economic values.

In the improvement of Ortigas Avenue extension, the same methodology was used. Benefits are derived from the time and operating cost savings to those users currently using the road because of higher speed, increased road capacity and improved pavement surface. Savings in travel time is a function of the reduced travel time of the users in the improved roadway compared to travel time when the road is not yet improved. Savings in vehicle operating cost, on the other hand, is based on the VOC of equivalent additional length of good/fair road of completed project if the vehicle would have travelled during the "before project" scenario.

Table 10 - Travel Time and Speed Survey (Ortigas Avenue Extension)

2002			2007		
Length (km)	Travel time (min)	Speed (kph)	Length (km)	Travel time (min)	Speed (kph)
7.067	34.21	12.39	7.067	20.5	20.68

(c) Secondary Roads

In upgrading of existing roads, the same methodology was used where savings in VOC and VOT were computed and compared with the investment cost. Incremental benefits come from both increased speed and reduced vehicle operating costs as a result of reduced surface roughness. In most cases, economic analysis for each secondary road segment is done. Detailed economic analysis is presented in the Project Completion Report (PCR).

Economic analysis is presented with the benefits derived from VOC alone and with the benefits derived from both VOC and VOT. For this particular set of secondary roads, economic benefits are derived from savings in time and relatively fewer economic benefits tend to accrue from VOC savings. The VOC savings can be significant where existing road condition is poor.

Table 11 – Comparative Analysis – Before and After Project Implementation

Secondary Roads Program	PAD		ICR	
	EIRR (%) (VOC)	EIRR (%) (VOC/VOT)	EIRR (%) (VOC)	EIRR (%) (VOC/VOT)
Romualdez/Legarda/ Quezon Blvd				
San Marcelino			79	188
D. Romualdez jr	8	30	142	255
Legarda	63	117	124	290
Quezon Blvd	135	243	195	414
SLEX Service Road				
East Service Road	95	111	28	98
West Service Road			18	74
Pasong Tamo Ext	45	57	7	60
Quirino Highway	79	248	129	231

(d) Development of Non-Motorized Transport Facility

For the NMT component, the incremental benefits include increase in modal share of non-motorized traffic and the decrease in emissions of greenhouse gases and other pollutants as a result of the project. Data shows that the modal share in non-motorized transport facility within Marikina increased by 7.89%. Economic analysis is not done on this project component because of the difficulty in quantifying the indicators such as the decrease in gas emissions.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Sally Burningham	Senior Engineer	EASTR	Task Team Leader
Jitendra Shah	Senior Environmental Specialist	EASES	
Maya Villaluz	Operations Officer for Environment	EASES	
Rene SD. Manuel	Procurement Specialist	EAPCO	
Christopher T. Pablo	Consultant		
Supervision/ICR			
Behdad M. H. Nowroozi	Sr. Financial Management Specialist	EAPFM	
Benedictus Eijbergen	Senior Infrastructure Specialist	EASTR	Country Sector Coordinator, Philippines
Christopher T. Pablo	Senior Operations Officer	EASPS	Task Team Leader
Dominic Reyes Aumentado	Procurement Specialist	EAPPR	
Gia Mendoza	Program Assistant	EACPF	
Joseph G. Reyes	Financial Management Specialist	EAPCO	
Maya Gabriela Q. Villaluz	Senior Operations Officer	EASPS	
Nora Orfillosa Moreno	ET Consultant	EASPS	Road Engineer
Rakhi Basu	Transport Specialist	EASIN	Task Team Leader
Rene SD. Manuel	Senior Procurement Specialist	EAPPR	
Samuel L. Zimmerman	Senior Urban Transport Specialist	ETWTR	
Tomas JR. Sta. Maria	Financial Management Specialist	EAPCO	
V. Setty Pendakur	Consultant	ETWTR	Traffic Management Specialist
William D. O. Paterson	Lead Highway Engineer	EASTR	Task Team Leader
Peter Ludwig	Lead ICR Consultant	EASPS	
Abegyl Nolasco-Albano	Consultant	EASPS	
Jitendra Shah	Lead Environmental Specialist	EASES	
Paul Procee	Environmental Specialist	WBI	
Simon Peter Gregorio	Consultant	EASPS	Social Safeguards Specialist

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY98		42.56
FY99		55.75
FY00	38	110.77
FY01	39	0.12

FY02		0.96
Total:		210.16
Supervision/ICR		
FY01		0.48
FY02	20	58.51
FY03	12	51.91
FY04	21	70.07
FY05	17	89.85
FY06	17	78.02
FY07	19	87.96
FY08	17	83.90
FY09	8	59.28
FY10	18	56.02
FY11	2	22.63
Total:	131	658.63

Annex 5. Beneficiary Survey Results *(Not applicable)*

Annex 6. Stakeholder Workshop Report and Results *(Not applicable)*

Annex 7. Summary of Borrower's PCR and Comments on Draft ICR

The project development objective of the Metro Manila Urban Transport Integration Project (MMURTRIP) is to assist the government in enhancing the economic productivity and quality of life of the Metro Manila residents by improving the operational efficiency and safety of the transport system with better opportunities to use public and non-motorized transport, the dominant transport modes of low-income residents. The project has five components namely: (1) traffic management improvements; (2) MARIPAS access improvements; (3) secondary roads program; (4) non-motorized transport; and (5) institution building.

MMURTRIP's aim of improving the operational efficiency of the transport system was realized with the increased travel speed experienced by public transport users on the project corridors, thereby reducing their travel time. In addition, safety of the transport system in Metro Manila has significantly affected the lives of the Manileños and residents from the nearby provinces by enhancing pedestrian safety and reducing pedestrian/vehicle conflicts thru the construction of footbridges, installation of pedestrian barriers, application of pavement markings, provision for lighting facilities, among others. These improvements have reinforced appreciation of the end-users. Further, gas emission level was reduced due to road efficiency as a result of the road improvement works undertaken under the project.

PROJECT ACCOMPLISHMENTS AND ASSESSMENT OF OUTCOMES

(1) Traffic Management Improvements

To attain the above objective, the Project has implemented traffic management schemes toward improving the operational efficiency of the transport system thru access to light rail transit stations and transfer opportunities between road-based public transport modes, pedestrian traffic circulation and road frontage controls. These were done by constructing footbridges, i.e., Taft Avenue Footbridge connecting LRT Line 2 and EDSA MRT 3 station, and loading/unloading bays strategically located near MRT stations, road, drainage and sidewalk improvements), the design of which prevented frontage parking of vehicles on areas without sufficient space for the purpose, and installation of pedestrian barriers, gantries and traffic signages.

With the improvements in traffic management along EDSA and Bicutan Interchange, the level of service in these two (2) corridors has greatly improved. The effect of the project is manifested thru the following: (a) reduced travel time experienced by public transport users on the project corridors due to the introduction of various improvements. Along EDSA, travel time of 59.92 minutes (2003) was reduced to 49.4 minutes (2010) while travel time at Bicutan Interchange has improved from 8.67 minutes (2005) to 6.87 minutes (2010); (b) increased travel speed from 23.11 km/hr in 2003 to 36.24 km/hr to 36.34 km/hr in 2009 along EDSA corridor; and (c) enhanced pedestrian safety and reduced pedestrian/vehicle conflicts thru the construction of 7 footbridges which resulted to eliminating 530,418 of pedestrians crossing EDSA and Bicutan.

As a result of the above, the public transport users along EDSA have experienced reduction in travel time and vehicular accidents by 17.5% and 14%, respectively.

(2) MARIPAS Access Improvements

This project component aims to provide new access roads for the eastern part of Metro Manila with the construction of the Marikina Bridge and Access Road, which by-passes the circuitous route in the Katipunan Avenue-Aurora Boulevard intersection thus relieving traffic from other minor road. The project was implemented with slight changes to accelerate the works and to provide proper amenities for safety and environmental concerns. This component also included the upgrading of the Ortigas Avenue Extension Road, which strengthened the road capacity in terms of its life span viz-a-viz identification of proper traffic lane for the motorists plying by this road.

The completion and opening to traffic of the Marikina Bridge and Access Road accommodate major volume of vehicles resulting to significant reduction in travel time and travel cost. The average travel time for trips from LRT Santolan to C-5/Libis decreased by 84% and from C-5 to Tikling (Ortigas Ave. Extension) by 40%. The decrease in travel time of vehicles in MARIPAS contributes to the economic factor by reducing gas consumption. As a result, the average travel cost for trips from LRT Santolan to C-5/Libis decreased by 55% and from C-5 to Tikling (Ortigas Ave. Extension) by 42%.

(3) Secondary Roads Program

Under the Secondary Roads Program, civil works will be carried out to provide comprehensive corridor treatment on identified secondary roads to fulfill their function in the road hierarchy. The scope of works are mostly pavement rehabilitation, asphalting works with some sub-base/base course removal and replacement, drainage and sidewalk improvements (curb and gutters), provision for street lightings, application of pavement markings and installation of studs, pedestrian barriers and traffic signs, construction of waiting sheds and landscaping works. Completed works have resulted in the achievement of the objectives of this component established at the start such as smooth flow of traffic in the project areas, safety of the pedestrians and motorists and improved quality of life of those living in the vicinity of the corridors. Several road components were dropped from the project as a result of cost overruns experienced during project implementation. Dropped components may be done using local funds. Of the seven (7) secondary road components completed under the Project, some experienced changes in road lengths to suit actual field conditions. Nonetheless, increase in travel speed was noted in all the completed secondary roads component under the Project.

(4) Non-motorized Transport (NMT) Component

Marikina has constructed 52 kilometers of bikeways which connects the city's residential areas, particularly the low income residential communities, to employment centers, markets, schools, government service providers and the LRT2 Station along Marcos Highway. Of the existing 52 kms of bikeways, the GEF grant financed 19 kms with a total funding of US$1.143 M, while Marikina's total investment in the bikeways infrastructure was more than US$2.0 M.

The GEF objective of *reducing greenhouse gas emissions by promoting the use of zero-emission bicycle and pedestrian transport* is being met with the completion of the bikeways in December 2007. The traffic modal share of bicycle and non-motorized transport begun to increase from 4.2% in 1999-2000 to 7.8 % in 2005 to 7.9% in 2010. The continuing political commitment of the local government of Marikina encouraged more people to use the bicycle as alternative mode of transport. Although the

modal share of motorcycle traffic continues to rise, the bicycle traffic is relatively steady at 7 % share. A Bicycle Loan Program for Marikina low income employees was implemented using the grants from the GEF (for city government employees) and the World Health Organization (non-government employees). The bicycle loan was interest free and payable in easy instalment term and thru salary deduction. More than 250 employees in the city availed the bicycle loan.

Marikina continuously expands the city's bikeways network with the completion of the 400-meter bikelane in Barangay Marikina Heights in early 2010. Bikelane maintenance and repair is now part of the Marikina City Engineering Unit's regular undertaking including the fabrication, repair and installation of more bicycle parking racks and bicycle stations. The Marikina City Bikeways and Planning and Design Guidebook was put together to give salient information about the bikeways project, particularly the experience of the Marikina City, for better understanding and appreciation of its target readers.

(5) Institution Building

A portion of the loan proceeds was earmarked for strengthening the capacity of the MMDA in project implementation, coordination of transport development plans and programs and management of traffic in the metropolis. Since activities to be undertaken were not identified during the loan negotiation, projects were proposed during the implementation of the project namely Study Tour, MMDA Institutional Restructuring, Urban Transport Survey and Development of Bus Rapid Transit (BRT) for Metro Manila. All these activities were approved by the Bank and procurement process started.

A study tour in South America and United States was conducted and participated in by officials of the DPWH, MMDA, Marikina City (implementing agencies of the project) and other Metro Manila local government units which enabled the participants to learn from the various models of urban transportation systems that have worked elsewhere and gather new insights on infrastructure development and planning.

From the insights and lessons learned during the study tour, the need to pursue the implementation of the feasibility study on the Development of BRT for Metro Manila was recommended by the group. Contract negotiation with the winning consultant was conducted and the contract was short of award when the second loan extension was in process. The shortlist on the Urban Transport Study and MMDA Institutional Restructuring Study were likewise already approved by the Bank during this time. The NEDA-ICC disapproved the Institutional Restructuring Study in the second loan extension. However, MMDA was not able to pursue the other studies due to non-issuance of budget from the Department of Budget and Management (DBM).

KEY FACTORS AFFECTING IMPLEMENTATION

(1) Metropolitan Manila Development Authority (MMDA)

Just like any other project, MMURTRIP has its share of issues and concerns that greatly affected the implementation of the project. Among others, the following problems were encountered: (a) Insufficient or no budget allocation particularly during the second extension/last year of the project; (b) Changes in MMDA leadership/management with different priorities and thrust which resulted to revision of plans

and deletion of some project components; (c) Underground utilities problem; (d) Right-of-way/sidewalk obstructions.

The Project, being the first foreign assisted infrastructure project implemented by the Authority is a learning experience for MMDA, particularly the staff of the MMURTRIP Project Preparation and Implementation Office under the Office of the Assistant General Manager for Planning (OAGMP). With the knowledge and experience acquired by the engineers of the OAGMP, thru the project, they have implemented a number of infrastructure projects funded locally such as the C-5 Interchange Project (Elevated U-turns) and Commonwealth Development Project, among others.

Coordination with the Department of Public Works and Highways (DPWH) and other national government agencies concerned, local government units, particularly their engineering offices, and different utility companies was likewise built and strengthened. The same is true with coordination with affected stakeholders.

The MMDA was not able to complete the works to be undertaken during the second extension due to non-availability of budget, both loan proceeds and GOP counterpart fund. It is suggested that this should be brought to the attention of DBM and firm commitment on their part be sought as early as loan negotiation stage.

(i) Factors at Project Preparation and Design

a. Evaluation of implementing agency's (IA) project readiness conducted by the Bank is a helpful tool in determining areas for further improvement/development.
b. MMDA's commitment to the objectives of the Project and in carrying out the works with due diligence and efficiency was manifested thru a Project Agreement entered into between the International Bank for Reconstruction and Development and the Authority.
c. To ensure completion of the Project, a Subsidiary Loan Agreement between the Republic of the Philippines represented by the Secretary of the Department of Finance and the Chairman of the MMDA was entered into prior to commencement of activities to ensure the grant of the proceeds of the loan to MMDA. However, this did not guarantee allocation of funds for MMDA.
d. An Inter-Agency Steering Committee to monitor the progress of the Project and resolve policy issues was created, however, was active only during the first few months of the project. Maybe MMDA's problem on budget should have been resolved thru the Steering Committee since DBM is one of the members of the Committee.
e. The early start of the detailed engineering design consultant should have been a factor for the early start of implementation of the project. However, as far as the first component implemented by the Authority is concern, delay in commencement was due to inclusion of drainage improvement in the works, as requested by the City of Makati, which should have been recommended by the design consultant during their investigation stage.
f. Implementing agencies to take an active role during the design stage to ensure that thorough surveys and planning was done and all designs include underground and aboveground utilities, as-built plans, etc., to minimize variation orders/change orders and additional works.

(ii) ***Factors at Project Implementation***

a. Delayed activities in the procurement of civil works due to the restructuring of the MMDA components which resulted to revisions of designs, bid documents and cost.
b. Problems encountered during construction such as design revisions due to design errors, based on actual site conditions and due to the length of time from design preparation to actual implementation, underground utilities not reflected on plans, removal and/or relocation of posts and other affected structures/ encroachments and stakeholders resistance which caused delays in implementation.
c. Close coordination with utility companies and local and national government agencies concerned at an early stage to ensure success of any project.
d. Changes in MMDA leadership/management with different priorities and thrust which resulted to revision of plans and deletion of some project components and changes in the staffing/counterpart staff of the project management office also somehow caused delay in project implementation.
e. Insufficient or no budget allocation particularly during the second extension/last year of the project.
f. Delayed payments of claims of contractors particularly the GOP counterpart fund due to non-release/slow release of cash allocation by the DBM.
g. Proper identification of activities to be undertaken for projects with technical assistance components should be made during the negotiation stage of the loan.

(2) Department of Public Works and Highways (DPWH)

(i) Factors at Project Preparation and Design

a. In the Results Framework, there are indicators which were not clearly defined, i.e., the increased capacity at intersection between secondary roads and project corridors, and the productive capacity average of bus and jeepneys. Thus, the IA was not properly guided on what data should be generated for these indicators.

(ii) Factors at Project Implementation

a. The original loan duration of 5 years was extended by 4 years in view of the delays in project implementation as a result of changes in IA's prioritization, political issues and other factors. The changes in IA's ruling as well as priorities of the Government contributed considerable delays in project implementation.
b. In the case of Marikina Bridge and Access Road, implementation delays were mainly attributed to right-of-way (ROW) problems, some of which even involved expropriation cases. This has resulted to partial issuance of No Objection by the Bank for a particular road segment which has resolved ROW concern and deemed clear and workable area.
a. Work stoppage due to relocation and removal of affected utilities and obstructions. The delay in the relocation of utility companies' facilities owing to the time to secure permits from concerned agencies and to allocate funds for relocation works affected the project implementation.
b. Difficulty in complying with certain Bank requirements related to preconstruction stage (bidding process, documents, etc.).
c. Delayed procurement of civil works contractors due to changes in engineering designs, mainly as a result of inclusion of items which were not incorporated in the feasibility stage

(landscaping, barriers, plant box, additional works for drainage system, etc). Revisions in the technical designs contributed a lot in the delays of implementing the project. The IA should be more diligent and serious in the conduct of the detailed engineering design to avoid further changes in the construction implementation, thus saving the Government time and resources.

d. Delays in relation to the inclusion of traffic management program/plan as required by MMDA. Traffic re-routing plan has always to be approved first for each contract package considering that the projects were located in the heart of the Metropolis.
e. The scope of work per the approved plan was not totally adhered to due to changes in existing field conditions as well as increases in cost of construction materials, hence, the necessity to issue Variation Orders/Supplemental Agreements.
f. The lengthy discussion and exchanges of various communications between the Bank and the DPWH regarding design/supervision consultant and also the processing of the contracts by DPWH.

(3) City Government of Marikina

(i) Factors at Project Preparation and Design

a. One of the key factors that contributed to the successful implementation of the bikeways project is the creation of the Marikina City Bikeways Office. This office was responsible for the preparation of bikeway plans and construction design; procurement and project construction supervision; project impact monitoring such as the conduct of annual traffic counts; liaison and coordination works among the various stakeholders for bikeways promotion and awareness building. However, this office ceased its operation upon completion of the Bikeways Project in December 2007.
b. During the planning stage, the Bikeways Project Officer had several discussions with the Marikina City engineers on the appropriate design on physical barriers to separate and protect the cyclists from motorized vehicles and intersection approach design particularly on busy streets. Interconnecting the existing bikeways with a new GEF funded bikelane traversing busy streets raised some protests from affected business establishments. Marikina's streets are mostly narrow and heavily parked with motorized vehicles in certain sections. Although a Feasibility Study was prepared for the Marikina Bikeways, the local engineers' acceptance and clearance of the bikeway construction plans was difficult to obtain.

(ii) Factors at Project Implementation

a. City Ordinance No.121 Series of 2003 was passed identifying the streets, avenues and highways interconnecting the bicycle lanes and declaring the same as No Parking area. This ordinance raised several protests from taxpaying commercial establishments situated along the bikeways claiming they were adversely affected by the restricted parking. City Ordinance No. 121 Series of 2003 was later repealed and/or modified by City Ordinance No. 56 Series of 2005 – Ordinance identifying the streets and avenues in the First District of Marikina and portion of Bayan-bayanan Avenue in the Second District that will interconnect the bicycle lanes and specifying traffic rules and bikeways routes thereon. Said ordinance was the result of a more comprehensive traffic study and focus group discussion (FGD) with local residents, businessmen and commuting cyclists.

b. For the new interconnected bikeways system, after experimenting with various schemes to determine which would be most suitable for local conditions, Marikina City engineers started constructing a network that now also allows evaluation and adjustments as needed over time. Marikina City continues to build more complementary bicycle facilities, such as better bicycle traffic and informative signages, innovative designs on bicycle lane pavement markings, and more importantly, installing more bicycle parking and bicycle stations, to enhance the overall bicycle trip experience in the city.
c. The City of Marikina has shown its political commitment to non-motorized transport and related environmental issues by its past administrations (Mayor Bayani Fernando, 1992-2001 and Mayor Marides C. Fernando, 2001 – 2010). Present City Mayor Del de Guzman has verbally announced that he will continue in his administration all of the worthwhile projects and programs initiated by the previous administrations. One of these is the bikeways project.

CONCLUSION

The Project objective of improving the operational efficiency and safety of the transport system of Metro Manila was achieved. Travel time of transport users decreased by 10 and 2 minutes along EDSA (Metro Manila's main corridor) and Bicutan Interchange, respectively. The access roads in Marikina Pasig Rizal (MARIPAS) such as Marikina Bridge and Ortigas Avenue had greatly improved accessibility of people, mostly students and workers coming from the Eastern side of Metro Manila. A post economic evaluation was done to determine the economic efficiency of the MARIPAS section. The analysis showed positive results and even surpassed the economic indicators done during the feasibility study. On the Secondary Roads, the improvements of the roads, construction of other ancillary works for the drainage, and installation of street lights contributed to a faster flow of traffic. With the improved road conditions, there was also a decrease in the vehicle gas emission resulting to an improved environment.

The construction of the steel pedestrian footbridges made a significant impact to the project as it not only enhanced pedestrian safety by removing pedestrians from the roadway but also improved the operational efficiency of the intersection. The footbridges contributed in the reduction of pedestrian accidents in the project corridors due to the segregation of pedestrians to vehicle movement at identified intersections particularly along EDSA. Thus, there was improvement of operational efficiency in terms of having better and faster movement of vehicles resulting to reduced travel time as well as waiting time in any given intersection. The showcase of which is the pedestrian overpass at SLEX-Bicutan intersection wherein a significant volume of pedestrians (average of 180,000 pedestrians a day) uses the overpass.

The GEF project, which is the Bikeways Project in Marikina, has also achieved its objective reducing greenhouse gas emissions by promoting the use of zero-emission bicycle and pedestrian transport. The modal share of bicycle rider ship in Marikina city increased from 4.2% in 2001 to 7.9% in 2010. To date, bike users, who are mostly low income residents, are enjoying the 52 km bikeways constructed in most strategic streets in the city (from initial 10 km bikeways). One of the most important bikeways is the one connecting to LRT 2 station, which connects the Eastern and Western part of Metro Manila. An ample parking space for bike in the light rail transit station was also constructed. The City of Marikina is

currently coordinating with the DPWH to include a bikeways component for the ongoing Marcos Highway Improvement project under NRIMP 2.

Currently promoted by World Health Organization (WHO) as Environmentally Healthy and Sustainable Transport (ESHUT), the Marikina Bikeways is considered one project worth emulating by other local government units in the Philippines and in other countries. To encourage replication of this project to other cities in the Philippines, the Marikina City Bikeways Planning and Design Guidebook was published to assist local planners and engineers to design and construct adequate bicycle facilities for their own localities.

The Marikina Bikeways Project is relatively successful. It won the Philippines' Galing Pook Award in 2005 and the World Health Organization's Healthy Cities Alliance in 2008 held in Japan.

Overall, the Implementing Agencies assessed that they were able to implement the Project efficiently and in a very satisfactory manner taking into consideration all the factors that affected its implementation such as changes and delays. Thus, it may be concluded that the Project has greatly contributed in the improvement of the operational efficiency and safety of the transport system in Metro Manila, thereby, has achieved the development objective of assisting the government in enhancing the economic productivity and quality of life of the Metro Manila residents.

LESSONS LEARNED AND RECOMMENDATION

(1) MMDA

(a) Technical Capability/Competence in Project Implementation
   (i) Coordination and comprehensive planning is necessary to minimize project delays. It is important to anticipate future setbacks such as presence of underground utilities, removal and/or relocation of obstructions and existing facilities, political interventions and changes in implementing agency's leadership.
   (ii) Implementing agencies to take an active role during the design stage to ensure that all designs include underground and aboveground utilities, as-built plans, etc.
   (iii) Detailing of activities to be undertaken for projects with technical assistance components should be made during the negotiation stage of the loan.

(b) Linkages with other Government Agencies and Private Entities
   (i) Institutionalize linkages with utility companies, national government agencies and local government units concerned from project preparation to ensure success of any project.
   (ii) Issuance of Forward Obligation Authority (FOA) and inclusion of the project in the approved budget is not an assurance of budget allocation and expeditious release of cash, respectively. Firm commitment by the Department of Budget Management on the provision of budget and cash allocation for foreign assisted projects.

(c) Technology Transfer. Transfer of knowledge/technology transfer will be fully attained with the implementing agency providing counterpart staff on a full-time basis working hand-in- hand with the construction supervision consultant.

(2) DPWH

(a) Acquisition of Right-Of-Way should be completed before any bidding is conducted, however if the area to be acquired is only on some portion of the project, construction implementation schedule could be modified to hinge with the right-of-way schedule with the optimum forecasting when the right-of-way related matters will be resolved.
(b) Exact location of utilities such as water lines, drainage lines and telecommunication lines should be made available particularly if they are installed after the design and before construction. This will assist the implementing agency/entity, in case of obstruction, in informing the respective owners so that proper actions may be taken.
(c) Sustainability Plans concerning periodic maintenance and provision for budget should be well defined.
(d) Proper coordination with concerned local government units (LGU) and other government/private agencies should be undertaken so that appropriate actions may be taken.
(e) Integration of policies is a must to be considered. Lending Institution and the GOP should define common guidelines in the project procurement to avoid delays that affect the total project's program. Flowchart with time frame for future programs should be prepared and agreed by the parties.
(f) NEDA, DPWH, and other agencies that will be involved in any project should be coordinated for the timely resolution of any problem that may arise.
(g) On the environmental aspect, a more detailed program should be added, like noise pollution monitoring, and to consider other factors to mitigate any effect on the worldwide problem on climate change. It would be necessary to magnify/introduce tree planting and proper landscaping works throughout the defined project towards a balanced nature.

(3) Marikina City

(a) There should be a City Bikeways Office beyond the GEF closing date in December 2007. The continuing bicycle education and advocacy aspect lost its strength for replication elsewhere in the Philippines. To date, only the NGO Firefly Brigade is committed to do the bicycle promotion annually.
(b) While the bicycle modal share in Marikina maintain its 7% to 8 % share from 2008 to 2010, the rise of motorcycle traffic, which also utilize illegally the NMT lane, is alarming. A Bicycle Patrol was created in 2010 under the supervision of the City Transport Management and Development Office (CTMDO) to mitigate illegal parking on bicycle lanes and look after the cyclists' safety.

COMMENTS ON THE DRAFT ICR

In its letter dated 1 March 2011, the Bank sent a copy of the draft ICR (Draft No. 15) to the IAs with a request to provide comments on the draft report. Below are the comments the Bank received from the IAs.

(1) DPWH

The draft ICR is in order. The DPWH has no more comments on the draft report (per DPWH letter to the Bank dated March 10, 2011).

(2) Marikina City

Given the re-establishment of the Marikina Bikeways Office in February 2011, the following inputs were provided by the City Government of Marikina (via email dated March 9) to replace the write-up in Lessons Learned and Recommendation under Annex 7 (Summary of PCR):

(a) *The continuing bicycle education and advocacy aspect of the Marikina Bikeways Program lost its strength with the closure of the City Bikeways Office in December 2007.*
(b) *While the bicycle modal share in Marikina maintains its 7% to 8% from 2008 to 2010, the rise of motorcycle traffic which also utilizes illegally the NMT lane is alarming. A Bicycle Patrol was created in 2010 under the supervision of the City Transport Management and Development Office (CTMDO) to mitigate illegal parking on bicycle lanes and look after the cyclists' safety.*
(c) *On February 23, 2011 Mayor Del de Guzman, thru Executive Order 005-11, ordered the revival of the Marikina Bikeways Office (MBO) as framework to the city's thrust of revitalizing the 52-kilometer bikeways network. MBO shall perform the tasks of instilling the importance of cycling through educating the public about biking, proper utilization of the city's bikeways as precious resource; marketing strategies that would not only put the bikeways on the map but also provide assistance for maintenance of such infrastructure; and managing the bikeways itself. The city government will be able to introduce a more practical and environmental approach to transportation with the bikeways revitalization.*

(3) MMDA

As of this writing, no comments were received from MMDA even if they provided inputs in the preparation of the PCR and the ICR.

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders *(Not applicable)*

Annex 9. List of Supporting Documents

1) Country Assistance Strategy 1999, 2002, 2005, 2010
2) Project Appraisal Document Report No: 20767 PH
3) Loan Agreement, GEF Agreement
4) Project Agreement, Subsidiary Agreement
5) PSR Sequ. No 1-8 and ISR Sequ. No 9-15
6) Mission Aide Memoirs and Management Letters
7) Office Memorandum on Reallocation of Loan Proceeds dated 8/25/2009
8) Cost Analysis Report prepared in June of 2008
9) DPWH Project Management Reports
10) MMDA Project Management Reports
11) Quality at Entry Assessment dated 7/30/2001
12) Individual draft PCRs prepared by DPWH, MMDA and Marikina City
13) Consolidated PCR prepared by DPWH, dated March 10, 2011 (revised)
14) Thematic Fiduciary Supervision Assessment of the Road Sector in the Philippines, (February 2009) and associated Working Papers
15) MMDA Restructuring Proposal
16) Land Transportation Office, Number of Vehicles Registered by Type & Mode
17) Technical Audit/Verification of Supervision for SLEX Service Roads and Quirino Highway, dated July 2, 2009
18) Final Report for the Marikina Bridge and Access Road Post Implementation Evaluation Study, by Madecor Environmental Management Systems (October 2009)

IBRD 37619

PHILIPPINES
METRO MANILA URBAN TRANSPORT INTEGRATION PROJECT (MMURTRIP)

PROJECT SITE
MAIN CITIES
PROVINCE CAPITALS
REGION CAPITALS
NATIONAL CAPITAL
MAIN ROADS
RAILROADS
PROVINCE BOUNDARIES
REGION BOUNDARIES

I Ilocos
1 Ilocos Norte
2 Ilocos Sur
3 La Union
4 Pangasinan

CAR Cordillera Admin. Reg.
5 Abra
6 Apayao
7 Benguet
8 Ifugao
9 Kalinga
10 Mountain Province

II Cagayan Valley
11 Batanes
12 Cagayan
13 Isabela
14 Nueva Vizcaya
15 Quirino

III Central Luzon
16 Aurora
17 Bataan
18 Bulacan
19 Nueva Ecija
20 Pampanga
21 Tarlac
22 Zambales

NCR National Capital Reg.

IV-A CALABARZON
23 Batangas
24 Cavite
25 Laguna
26 Quezon
27 Rizal

IV-B MIMAROPA
28 Marinduque
29 Mindoro Occidental
30 Mindoro Oriental
31 Palawan*
32 Romblon

V Bicol
33 Albay
34 Camarines Norte
35 Camarines Sur
36 Catanduanes
37 Masbate
38 Sorsogon

VI Western Visayas
39 Aklan
40 Antique
41 Capiz
42 Guimaras
43 Iloilo
44 Negros Occidental

VII Central Visayas
45 Bohol
46 Cebu
47 Negros Oriental
48 Siquijor

VIII Eastern Visayas
49 Biliran
50 Eastern Samar
51 Leyte
52 Northern Samar
53 Samar
54 Southern Leyte

IX Zamboanga Peninsula
55 Zamboanga del Norte
56 Zamboanga del Sur
57 Zamboanga Sibugay
--- Zamboanga City

X Northern Mindanao
58 Bukidnon
59 Camiguin
60 Lanao del Norte
61 Misamis Occidental
62 Misamis Oriental

XI Davao Reg.
63 Compostela Valley
64 Davao del Norte
65 Davao del Sur
66 Davao Oriental

XII SOCCSKSARGEN
67 North Cotabato
68 Sarangani
69 South Cotabato
70 Sultan Kudarat

XIII Caraga
71 Agusan del Norte
72 Agusan del Sur
73 Dinagat Islands
74 Surigao del Norte
75 Surigao del Sur

ARMM Autonomous Reg. in Muslim Mindanao
76 Basilan
77 Lanao del Sur
78 Maguindanao** San Fernando
79 Sulu
80 Tawi-Tawi

** Shariff Aguak (Maganoy) and Sultan Kudarat serve as co-capitals of the province.

* Executive Order 429, May 23, 2005, provides for the transfer of Palawan province (#31) from Region IV to Region VI; Administrative Order 129 holds EO429 in abeyance until an implementation plan is approved by the President.

Batan Islands
Basco
Luzon Strait
20°N
Babuyan Islands
Babuyan Channel
Laoag City
Kabugao
Bangued
Vigan
Tuguegarao
Tabuk
Ilagan
Bontoc
Lagawe
Luzon
San Fernando
La Trinidad
Cabarroguis
Baguio
Bayombong
Lingayen
Baler
Palayan
Tarlac
Iba
San Fernando
Polillo Islands
Malolos
Balanga
Quezon
Pasig
Antipolo
MANILA
Trece Martires
Santa Cruz
Calamba
Lucena
Batangas
Daet
Lubang Islands
Calapan
Boac
Mamburao
Marinduque
Mindoro
Sibuyan Sea
Pili
Virac
Catanduanes
Legaspi
Sorsogon
Burias
Romblon
Tablas
Sibuyan
Masbate
Catarman
Samar
Mindoro Strait
Busuanga
Culion
Linapacan
Semirara Islands
Kalibo
Roxas City
Visayan Sea
Catbalogan
Naval
Borongan
Tacloban
Panay
Cuyo Islands
San Jose de Buenavista
Iloilo
Jordan
Bacolod
Cebu
Leyte
Leyte Gulf
Philippine Sea
Dumaran
Puerto Princesa
Palawan
Negros
Cebu
Maasin
Dinagat
San Jose
Surigao
Siargao
Bohol
Tagbilaran
Dumaguete
Siquijor
Mindanao Sea
Mambajao
Camiguin
Tandag
Sulu Sea
Dipolog
Oroquieta
Cagayan de Oro
Butuan
Prosperidad
Iligan
Malaybalay
Pagadian
Ipil
Tubod
Marawi
Mindanao
Nabunturan
Tagum
Cotabato
Davao
Mati
Kidapawan
Shariff Aguak (Maganoy)
Digos
Isulan
Koronadal
General Santos
Alabel
Davao Gulf
Sarangani
ZAMBOANGA CITY
Zamboanga
Isabela City
Basilan
Moro Gulf
ARMM
Jolo
Sulu
Tawi-Tawi
Panglima Sugala
Celebes Sea
Bugsuk
Balabac
Cagayan Sulu
MALAYSIA
0 50 100 150 Kilometers
0 50 100 Miles
5°N
120°E
125°E
10°N

I II III IV-A IV-B V VI VII VIII IX X XI XII XIII NCR CAR ARMM

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SEPTEMBER 2010