

**PERU**

**METROPOLITAN LIMA URBAN TRANSPORTATION PROGRAM  
(PTUL) - NORTH-SOUTH SUBSYSTEM**

**(PE-0187)**

**LOAN PROPOSAL**

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## **BASIC SOCIOECONOMIC DATA**

For basic socioeconomic data, including public debt information, please refer to the following address:

<http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata>

## INFORMATION AVAILABLE IN THE RE3/FI3 TECHNICAL FILES

### Preparation:

Strategic environmental assessment. ECSA Ingeniería, May 2003.

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Design of general framework and measures for treating population and itinerant commerce affected by the COSAC. Marta Lazarte Salinas, Lima, May 2003.

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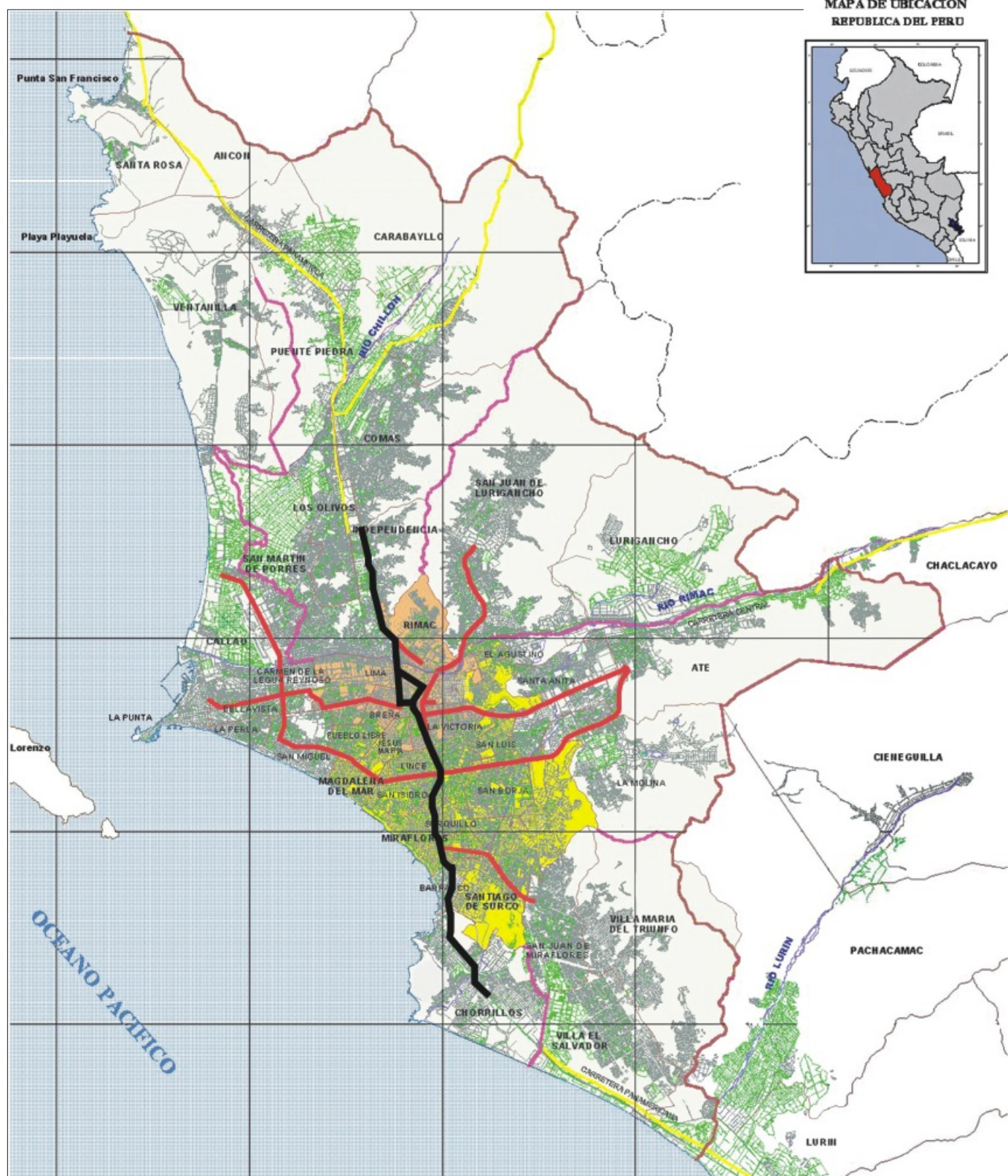
## ABBREVIATIONS

AWP	Annual work plan
CONADIS	Consejo Nacional de Apoyo al Discapacitado [National Council for the Disabled]
CONAM	Consejo Nacional del Ambiente [National Environment Council]
COSAC	High-capacity dedicated corridor
CTLC	Consejo de Transporte de Lima y Callao [Lima and Callao Transportation Council]
DIGESA	Dirección General de Salud [General Health Department]
DMTU	Dirección Municipal de Transporte Urbano [Municipal Urban Transportation Office]
EIA	Environmental Impact Assessment
EMAPE	Empresa Municipal Administradora de Peajes de Lima S.A. [Lima Municipal Tolls Management Company]
FONAM	Fondo Nacional del Ambiente [National Fund for the Environment]
FONCOMUN	Fondo de Compensación Municipal [Municipal Compensation Fund]
GEF	Global Environment Fund
IMP	Instituto Municipal de Planificación [Metropolitan Planning Institute]
INVERMET	Fondo Municipal de Inversiones [Metropolitan Investment Fund]
IRR	Internal rate of return
LGTT	Ley General de Transporte y Tránsito Terrestres [General Land Transportation and Traffic Act]
LOM	Ley Orgánica de Municipalidades [Municipalities Charter Act]
MEF	Ministerio de Economía y Finanzas [Ministry of Economic Affairs and Finance]
MML	Municipalidad Metropolitana de Lima [Metropolitan Municipality of Lima]
MTC	Ministerio de Transportes y Comunicaciones [Ministry of Transportation and Communications]
PAFF	Plan de Acción Fiscal y Financiero [Fiscal and Financial Action Plan]
PCR	Project Completion Report
PMAS	Plan de Manejo Ambiental y Social [Social and Environmental Management Plan]
PNP	Policía Nacional del Perú [Peruvian National Police Force]
POM	Program Operations Manual
PT	PROTRANSPORTE de Lima
PTUL	Programa de Transporte Urbano de Lima [Lima Urban Transportation Program]
ROS	Reglamento Operativo del Sistema [System operating regulations]
SAT	Servicio de Administración Tributaria [Tax Administration Service]
SEA	Strategic Environmental Assessment
SITU	Sistema Integrado de Transporte Urbano de Lima [Lima Integrated Urban Transportation System]

TRANSMET      Comité de Transporte Metropolitano de Lima [Metropolitan Lima  
Transportation Committee]

# PERÚ

## Programa de Transporte Urbano de Lima (PTUL) Trazo del corredor segregado de alta capacidad (PE-0187)





## Peru

### Tentative Lending Program

2003

Project Number	Project Name	IDB US\$ Millions	Status
PE0220	Institutional Support of the Congress	7.0	APPROVED
*PE0216	Grana y Montero ("G&M") Partial Credit Risk Guarantee	10.0	APPROVED
PE0218	Support to the Housing Sector Program	60.0	APPROVED
*PE0222	Camisea Project	75.0	APPROVED
*PE0235	Red Vial	18.0	APPROVED
PE0223	Strengthening and Modernization Tax System Administration	8.9	APPROVED
PE0187	Urban Transport in Lima	45.0	
PE0239	Competitiveness Reform Program	300.0	
<b>Total - A : 8 Projects</b>		<b>523.9</b>	
<b>TOTAL 2003 : 8 Projects</b>		<b>523.9</b>	

2004

Project Number	Project Name	IDB US\$ Millions	Status
PE0241	Youth Training Program	18.0	
PE0203	Science and Technology Program	25.0	
PE0251	Support Program for Forestry Concessions	2.0	
PE0234	Program of Support Services to the Rural Markets	15.0	
PE0142	Sanitation Sector Devel. Support Program II	50.0	
PE0240	Democratic Consolidation of Citizen Security	10.0	
PE1002	Modernization and Deconcentration of the National Control System Program	16.0	
PE0236	Support to Departmental Highway Decentralization	50.0	
PE0247	Reform of Poverty Alleviation Programs and Human Capital Development	300.0	
<b>Total - A : 9 Projects</b>		<b>486.0</b>	
PE0242	Public Transportation in Midium-Size Cities	40.0	
PE0250	Rural Financial Market Development	20.0	
PE0213	Urban Renewal of Downtown Lima	39.0	
<b>Total - B : 3 Projects</b>		<b>99.0</b>	
<b>TOTAL - 2004 : 12 Projects</b>		<b>585.0</b>	

**Total Private Sector 2003 - 2004 103.0**  
**Total Regular Program 2003 - 2004 1,005.9**

\* Private Sector Project



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## IDB LOANS

APPROVED AS OF AUGUST 31, 2003

	US\$Thousand	Percent
<b>TOTAL APPROVED</b>	<b>6,137,966</b>	
DISBURSED	5,310,921	86.52 %
UNDISBURSED BALANCE	827,045	13.47 %
CANCELATIONS	999,020	16.27 %
PRINCIPAL COLLECTED	2,303,152	37.52 %
<b>APPROVED BY FUND</b>		
ORDINARY CAPITAL	5,498,793	89.58 %
FUND FOR SPECIAL OPERATIONS	418,130	6.81 %
OTHER FUNDS	221,043	3.60 %
<b>OUTSTANDING DEBT BALANCE</b>	<b>3,007,769</b>	
ORDINARY CAPITAL	2,919,333	97.05 %
FUND FOR SPECIAL OPERATIONS	88,396	2.93 %
OTHER FUNDS	39	0.00 %
<b>APPROVED BY SECTOR</b>		
AGRICULTURE AND FISHERY	533,066	8.68 %
INDUSTRY, TOURISM, SCIENCE AND TECHNOLOGY	646,518	10.53 %
ENERGY	280,051	4.56 %
TRANSPORTATION AND COMMUNICATIONS	1,042,607	16.98 %
EDUCATION	196,566	3.20 %
HEALTH AND SANITATION	316,114	5.15 %
ENVIRONMENT	5,000	0.08 %
URBAN DEVELOPMENT	132,372	2.15 %
SOCIAL INVESTMENT AND MICROENTERPRISE	645,416	10.51 %
REFORM AND PUBLIC SECTOR MODERNIZATION	2,054,070	33.46 %
EXPORT FINANCING	176,756	2.87 %
PREINVESTMENT AND OTHER	109,431	1.78 %

\* Net of cancellations with monetary adjustments and export financing loan collections.



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## STATUS OF LOANS IN EXECUTION AS OF AUGUST 31, 2003

(Amount in US\$ thousands)

APPROVAL PERIOD	NUMBER OF PROYECTS	AMOUNT APPROVED*	AMOUNT DISBURSED	% DISBURSED
<b><u>REGULAR PROGRAM</u></b>				
Before 1997	1	100,000	89,466	89.47 %
1997 - 1998	5	577,100	285,698	49.51 %
1999 - 2000	4	132,408	23,676	17.88 %
2001 - 2002	7	561,300	220,328	39.25 %
2003	2	67,000	0	0.00 %
<b>TOTAL</b>	<b>19</b>	<b>\$1,437,808</b>	<b>\$619,168</b>	<b>43.06 %</b>

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\* Net of cancellations. Excludes export financing loans.

# METROPOLITAN LIMA URBAN TRANSPORTATION PROGRAM (PTUL)

## NORTH-SOUTH SUBSYSTEM

(PE-0187)

### EXECUTIVE SUMMARY

<b>Borrower:</b>	Metropolitan Municipality of Lima	
<b>Guarantor:</b>	Republic of Peru	
<b>Executing agency:</b>	Metropolitan Municipality of Lima (MML), acting through PROTRANSPORTE de Lima (PT)	
<b>Amount and source:</b>	IDB: (OC)	US\$ 45.0 million
	Cofinancing (World Bank):	US\$ 45.0 million
	Local:	US\$ 34.4 million
	Total:	US\$124.4 million
<b>Financial terms and conditions:</b>	Amortization period:	25 years
	Minimum execution period:	3 years
	Maximum execution period:	4 years
	Grace period:	4.5 years
	Disbursement period:	4.5 years
	Interest rate:	LIBOR
	Inspection and supervision:	1%
	Credit fee:	0.75%
<b>Objectives:</b>	Currency:	U.S. dollars drawn from the Single Currency Facility
	<p>The general objective of this program is to improve mobility conditions for the population of Metropolitan Lima, particularly among lower-income groups, and to reduce the private and social costs of providing and using mass public transportation. For this purpose, the program will establish a transportation system that is efficient, modern, reliable and safe, based on large-capacity buses circulating on dedicated bus lanes. This will make places of employment and economic and social services more accessible, mainly for the poorest population groups; it will also shorten travel time, reduce the number of accidents involving public transportation, and lessen environmental pollution.</p>	

**Description:**

The program involves construction and implementation of the first stage of Lima's integrated rapid urban mass transit system. This will operate with large-capacity buses traveling along segregated and dedicated arterial corridors, with its own bus stops and transfer terminals, together with feeder roads and cycle paths. This first stage will serve the north and south cones and the center of the city, home to about 3.5 million inhabitants, 60% of whom have per capita incomes below US\$75 per month. The Lima Urban Transportation Program (PTUL) is expected to carry about 630,000 passengers per day. The operating firms will run 250 articulated buses on the arterial network and 154 conventional buses on feeder roads, all of them new and using environmentally-friendly types of fuel. The arterial system will provide easy access to users with physical disabilities, including special elevators at bus stops with non level entry, and level entry embarkation and disembarkation at terminals.

The basic infrastructure will be financed jointly by MML and the program, while the vehicles and equipment for machine shops and garages will be provided by private operators. The terminals may be awarded in concessions to provide both public and commercial services to system users. The revenue collection mechanism will also be developed and operated privately. The system will be operated on a self-sustaining basis, financed from the fares charged to users. A ticket to ride the integrated arterial-feeder system is expected to cost US\$0.40 (the same as, or slightly below the current rate). Revenues will cover all expenses incurred by transport operators, the trust agent, and the PT as the operator and all expenses in connection with the revenue collection system. Part of the costs of routine and periodic maintenance of infrastructure may also be covered, as will contributions to a contingency fund.

The program will consist of the following components: (i) improvement of mobility and the urban environment; (ii) institutional strengthening; (iii) promotion of sociopolitical viability; and (iv) studies and supervision.

*Improvement of mobility and the urban environment* (US\$86.8 million). This component will include: (a) investments aimed at *improving urban mobility*; these basically entail implementation of the following structural elements of the rapid mass transit system: 28.6 km of dedicated arterial corridors, with operational and functional continuity, to be established on existing thoroughfares; 35 bus stops (intermediate stations); two midway terminals; two transfer or main terminals; concourses and garages for the buses; paving and upgrading of 50 km of feeder roads linking outlying neighborhoods to the main terminals; cycle paths, sidewalks

and pedestrian bridges facilitating access to non-motorized users; highway safety and transportation management in the corridors and feeder roads; an operational control center and integrated traffic lights for the arterial system and surrounding streets; and (b) investments to *enhance the urban environment*, which will include restoration of public spaces in the area surrounding the system, and also at key points such as the historic centers of Lima and Barranco. This will include public lighting, paving of parallel streets, construction of sidewalks, restoration of parks and plazas with integrated landscaping, implementation of pedestrian streets, and civil works to improve vehicle traffic flow. Funding will also be provided to support activities to organize and relocate the street vendors that operate along the system's routes, implement social and environmental management measures for the PTUL, and implement and operate an air quality monitoring system for the city of Lima.

*Institutional strengthening and training* (US\$3 million). This component will fund: (i) urban public transportation policy and the corresponding regulatory framework; (ii) design and implementation of concessions to operate the bus service, the fare collection system and other services involving private participation, including the necessary regulations, bidding documents and model contracts; (iii) strengthening and training for PROTRANSPORTE to ensure correct execution of the program, and to enable it to discharge its functions as operator of the rapid urban mass transit system; (iv) strengthening and training in the Municipal Urban Transportation Office (DMTU), to develop a policy and an efficient system for urban traffic and transportation management, with defined responsibilities, and coordinated mechanisms for management, inspection and control in the other city streets; and (v) technical support and training for the Empresa Municipal Administradora de Peaje de Lima S.A. [Municipal Tolls Management Company] (EMAPE S.A.), and the Peruvian National Police Force (PNP), both of which are involved in implementing and operating the PTUL.

*Promotion of sociopolitical viability* (US\$5 million). This will include: (i) actions targeting civil society, including a social communication and participation campaign, together with traffic education and highway safety measures; and (ii) measures aimed at transportation operators, both to mitigate the impacts arising from rationalization of the sector, and to support operators that remain in the public transportation system.

*Studies and supervision* (US\$7.6 million). These will include: (i) the studies needed to implement the PTUL; (ii) a detailed baseline describing the socioeconomic status of users, in addition to monitoring and evaluation of the program's short-term socioeconomic

impacts; (iii) works supervision; and (iv) technical and environmental studies for the second stage of the system.

**The Bank's  
country and  
sector strategy:**

The PTUL forms part of the Bank's strategy for Peru to support improvements in economic infrastructure—mainly projects with high social return such as the mass public transportation system, which raises economic efficiency by providing an adequate and accessible transportation system for lower-income groups, along with improved traffic conditions. The program recognizes the importance of urban traffic and transportation for the efficiency of the city that generates the bulk of national GDP; and this improvement is essential to raise the competitiveness of the Peruvian economy as a whole. The PTUL is included in the Bank's Country Paper for Peru.

**Environmental  
and social  
review:**

The program's environmental and social impacts are mostly positive. They will show through as improvements in the quality and safety of collective transportation, significantly reduced atmospheric pollution, fewer accidents and better access for the population, particularly low-income groups, to economic and social services. Any negative impacts will mainly occur while the civil works are in process, involving higher noise levels, restrictions on pedestrian and vehicle circulation, interruption of services and interference with itinerant commerce. The works envisaged will not require expropriation and should not cause direct harm to the country's historical and archaeological heritage.

The PTUL has a Social and Environmental Management Plan (PMAS) which includes the mitigating measures proposed in the Strategic Environmental Assessment (SEA) and in the Environmental Impact Assessment (EIA) of the arterial system, the costs of which are included in the program. The EIA was made public on 9 February 2003. The Committee on Environment and Social Impact (CESI) reviewed the program during its meeting of 1 November 2002, and its recommendations have been included in this report.

**Benefits:**

Implementation of the rapid mass transit system will produce a significant, albeit gradual shrinking in the obsolete vehicle fleet that provides the service today. Benefits will also include a qualitative improvement in the operation of the public transportation system; shorter journey times, less atmospheric pollution and lower noise levels; easier circulation for pedestrians and cyclists; together with improved road safety and decongestion of traffic in the project area. The PTUL will make a significant contribution to a better urban environment, through reclamation and upgrading of public spaces; improved conditions of circulation for pedestrians and nonmotorized vehicles; promotion of management and upgrading of land use and occupation in areas close to the corridor; encouragement for people to

reclaim key city spaces, and enhanced citizen safety in the system's area of influence. Another benefit will be easier access for low-income groups to their place of employment and to social, civic, and public services, thereby contributing to a better quality of life. The new conditions of mobility and reliability of the transportation system, will help make the city's social and economic relations more efficient.

At the institutional level, the program will strengthen the capacity of MML to establish an efficient urban traffic and transportation management system, with trained organizations, well-defined responsibilities, and a suitable framework of standards and support regulations; coordinated planning, management, inspection and control mechanisms; and efficient use of resources. It will also help to formally establish a group of transportation operators with capacity for expansion.

**Risks:**

The main risks concern the following: (i) the informal nature of operators affected by the restructuring of services; (ii) limited capacity of these operators to participate in service concessions and make the necessary investments; (iii) MML's technical and institutional shortcomings in regulating, operating, and inspecting the services; (iv) the capacity of MML to make the counterpart contribution, given that its financial situation is far from comfortable; and (v) the administrative learning process owing to MML's lack of experience with multilateral operations.

To mitigate these risks, the program includes: (i) compensation and retraining for operators adversely affected, many of whom will be absorbed by the new services; (ii) support for business organization and consolidation, and promotion of strategic partnerships to enable investors from outside the sector to participate in public tenders; (iii) a broad program of strengthening and training among the municipal organizations that will participate in the regulation and inspection of urban traffic and transportation; (iv) analyses carried out show that the counterpart contribution, as well as payment of debt service, is within the municipio's financial capacity, without having to neglect essential aspects of its responsibility in other fields. The PTUL will incorporate financial indicators to monitor fiscal solvency, which, if not fulfilled, will trigger previously agreed corrective measures; and (v) the addition of experienced personnel to MML's staff, training courses in procurement and disbursement, and close monitoring by the Bank.

**Special contractual clauses:**

**Precedent to the initial disbursement:** (i) entry into force of the Program Operations Manual (MOP) under terms agreed with the Bank and duly approved by the Municipal Mayor (paragraph 3.6); (ii) Municipal Order establishing the exclusivity of the arterial corridor and regulating the use of its protection zone (paragraph 3.9); (iii) delegated management agreements signed between PT and EMAPE S.A. (paragraph 3.4); (iv) fiscal and financial action plan for 2004 (PAFF) (paragraph 3.19); and (v) annual work plan (AWP) for 2004 (paragraph 3.35); and (vi) agreement for the supplemental financing for the program signed between the borrower and the IBRD unless otherwise demonstrated by the borrower, to the Bank's satisfaction, that alternative sources of financing have been procured.

**Precedent to signature of the second corridor works contract:** Municipal Order approving the system operating regulations (ROS) (paragraph 3.8).

**Precedent to bidding for concourses and terminals:** demonstration that PT possesses rights over the land to be built upon (paragraph 3.54).

**Other conditions:** (i) quarterly progress reports, containing a specific and independent chapter on the financial indicators used to monitor the municipal financial and fiscal situation (paragraphs 3.33 and 3.25); (ii) annual operating plan (paragraph 3.35) and PAFF (paragraph 3.19) no later than 30 November each year; (iii) duly audited financial statements within four months following the end of the fiscal year, including an interim six-monthly report on ex post disbursement reviews within 60 days following the end of each semester (paragraph 3.59); and (iv) before the start of works tendering on each segment, the Bank's nonobjection to the action plan and timetable for implementing measures in support of itinerant commerce, mitigation for operators and replanting of trees, together with the works socioenvironmental specifications (paragraph 4.13).

**Poverty-targeting and social sector classification:**

This operation qualifies as a social equity enhancing project, as described in the indicative targets mandated by the report on the Eighth General Increase in Resources (document AB-1704). It also qualifies as a poverty targeted investment (PTI). The borrower will not be using the additional 10 percentage points in financing (paragraph 4.14).

**Exceptions to Bank policy:**

The bidding processes for works contracting and goods procurement contain a special feature arising from joint IDB-World Bank financing, with implications in terms of the member countries that are invited to participate. In this regard, an **exception to Bank policy** is

requested to allow firms from IDB- and World Bank-member countries to participate in the corresponding tenders (paragraph 3.46).

Given the size of the works procurement packages to be tendered, participation by non-IDB member countries is thought unlikely. Should this occur, however, the World Bank will take full responsibility for monitoring and approval of the selection and award process, including dealing with protests. In this case, external financing will also be assumed by World Bank.

If bidders are exclusively firms belonging to countries that are members of both Banks, IDB policies and procedures will be applied (paragraph 3.48).

**Procurement:**

Contracts for civil works and consulting services, together with procurement, will be carried out in accordance with the Bank's procurement policies and procedures, except as mentioned above.

International competitive bidding will be required for goods procurement in amounts of US\$350,000 or more, civil works contracts of US\$5 million or more, and consulting services contracts in excess of US\$200,000 (paragraph 3.43).

The two Banks have agreed to share contracting for consulting services. Services contracted by the IDB, will follow the policies and procedures of the latter, using the latter's standard documents. As Bank policy allows price to be used as an evaluation criterion in addition to technical merit, in bids to provide consulting services, and as the services to be hired are not very complex, the project team proposes to include quality-and-cost-based selection (QCBS). In this case, the relative weight of price as a selection criterion shall not exceed 30% (paragraph 3.45).

Given the technical and institutional advantages of Transmilenio de Bogota, authorization is requested to directly hire this organization to support PT for an amount equivalent to up to US\$200,000, using loan proceeds (paragraph 3.50).

## **I. REFERENCE FRAMEWORK**

### **A. Socioeconomic framework**

- 1.1 Since the early 1990s Peru has made significant progress in terms of macroeconomic stabilization and structural reforms, restoring relations with the international financial community and refurbishing and expanding its productive and social infrastructure. Nonetheless, State reforms were fragile and no net progress was made in the fight against poverty. The backdrop to all of this is a highly centralized process, the reversal of which—essential to achieve the objectives of political, economic and social modernization demanded by the population—only began in recent years. Peru is one of the most centralized countries in Latin America in terms of fiscal revenue and public expenditure. Expenditure by sectional governments barely exceeds 10% of total public spending. In 2001, the Government of Peru created regional governments, and in 2002 it held regional elections.
- 1.2 Activities in Peru are heavily centralized in the capital city. The Lima metropolitan area holds close to 8 million inhabitants or about 34% of the country's total population, and 25% of Peru's poor; it accounts for 68% of the country's automobile stock (800,000 vehicles), and it generates over half of the nation's gross domestic product (GDP). These figures encapsulate the exceptional importance of the activities of the capital city, and justify the fact that the Constitution grants the Metropolitan Municipality of Lima (MML) broader attributions than those of other provincial municipalities, in addition to its status as regional government.<sup>1</sup>

### **B. The city of Lima and the metropolitan public transportation system**

- 1.3 The population of Lima generates 11 million journeys per day; and, despite a structured and ample highway network, traffic is chaotic, with thoroughfares congested for most of the day, high journey costs and times, a high accident rate and alarming levels of atmospheric pollution. Average journey time from home to work and back again, from the north and south cones where the lowest income groups live, is over two hours, which causes waste in terms of man hours and fuel amounting to at least US\$50 million per year.
- 1.4 The dynamic of economic deregulation prevailing during the 1990s saw the number of cars in Metropolitan Lima double and the proportion of journeys made by public transportation fall from 89% to 81%. During the same period, the number of firms providing collective transportation services grew from 150 to 411; vehicles engaged in public service increased from 10,500 to 47,000; and taxi services expanded from 10,000 automobiles to approximately 191,000, in addition to 45,000 motorbike

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<sup>1</sup> The geographical area of Metropolitan Lima coincides with that of the Provincial Municipality of Lima. Under the Constitution, the Mayor of Metropolitan Lima is also Regional President.

taxis. These jointly represent a chaotic transportation system with substantial oversupply.

- 1.5 This excess supply of vehicles is reflected in the small number of passengers transported per vehicle per day, which has dropped to below 50% of the 1990 figure. The result has been a rapid deterioration in the quality of public transportation as income fell below the minimum needed to guarantee adequate maintenance and modernization. This, together with an automobile fleet averaging 20 years of age, has resulted in: (i) accelerating environmental degradation (air and noise level), which is now a major public health problem, with concentrations of nitrogen dioxide, sulphur dioxide, total particulates in suspension and other pollutants way above the levels allowed by the World Health Organization (WHO); and (ii) a high rate of traffic accidents, and major involvement by public service vehicles in fatal accidents (over 50 percent of the total) resulting in an average of three deaths per day.
- 1.6 The quality of public transportation in Metropolitan Lima is one of Latin America's worst, and its inefficiency affects lower-income groups disproportionately. Fares, which vary from S/0.90 (US\$0.33) to S/1.60 (US\$0.58), are high compared to other cities such as Santiago (Chile) and Buenos Aires, with better quality service, vehicle fleets with an average age of five years, and fares averaging US\$0.35 and US\$0.50, respectively.
- 1.7 The informal nature of the operation, diffuse ownership and the small-scale character of transportation operators are symptomatic of the high degree of disorganization of the sector. Of the total transportation vehicles circulating in Lima today (estimated at 50,000 units) only 70% are officially registered, and the remaining 30% are informal or pirate operations. Among formal routes, only 70% circulate with authorization from the Lima municipio, while the others have authorization from the neighboring municipios of Huarochiri<sup>2</sup> and Callao, granted without coordination with Lima.
- 1.8 The MML awards 90% of the routes to concession holders who operate their routes in conjunction with vehicle owners whom they charge a fee for using the route. Most of these commission agents or vehicle fleet managers do not drive the vehicles themselves, of which they may or may not be the owners. That function is delegated to drivers, with whom they maintain no formal employment relationship but reward their services through a percentage of fares collected, as happens also with ticket collectors. Route concession contracts say nothing about the frequency of service provision, so drivers tend to maximize their income by aggressively competing during periods of greatest demand. In this chaotic situation, workers in

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<sup>2</sup> Recently the Constitutional Court declared authorizations granted by Huarochiri (about 7,500 vehicles) to be illegal. The Municipalities Charter Act (LOM) states that "in situations of discrepancy generated by the phenomenon of provincial conurbation, the final decision rests with the Metropolitan Municipality of Lima". (Article 152).

the sector lack benefits and work over 16 hours per day. Recent statistics show that 60% of them come from some other area of employment; turnover is high because the sector provides a temporary refuge from unemployment, thereby further reducing the low prevailing level of professionalism.

**C. Legal and institutional framework for urban traffic and transportation operation**

- 1.9 Until recently, the transportation sector was subject to unfettered free enterprise, protected by national legislation that declared the sector, including the urban segment, to be deregulated in supply and price. This meant that any operator could enter any route charging any fare. This situation explains the abundance of vehicles, their varied models, their extreme age and state of disrepair. As part of the decentralization process, the new Municipalities Charter Act (LOM) was passed. This gives wide-ranging powers to local governments to manage the urban traffic and transportation system, ranging from its planning and regulation to its operation, inspection and control, and creating conditions to reverse the panorama described above.
- 1.10 In terms of legal attributions, there are no conflicts of competency between the national jurisdiction, mainly exercised by the Ministry of Transportation and Communications (MTC), the Peruvian National Police Force (PNP), and the MML, because the political constitution, the LOM and the General Land Transportation and Traffic Act (LGTT) define precise fields of action. The LOM in particular establishes clear and wide-ranging faculties for local governments to *“promote, support and execute ... public services”,* such as *“traffic, circulation and public transportation”*; authorizing them to *“standardize, regulate and plan land transportation; ... organize and maintain signposting and traffic light systems, and regulate urban transportation; ... award licenses and route concessions for passenger transportation; promote the construction of terminals; standardize, regulate and control the circulation of taxis, motorbike taxis, etc.; supervise the urban public transportation service within its jurisdiction, through supervision, detection of infractions, imposition and execution of sanctions ... with support from the National Police Force.”* The MML has the experience and technical capacity needed to exercise the new legal attributions. No legal complications in implementing the PTUL are expected.
- 1.11 At the institutional level, the MML has several organizations whose attributions, which are generally partial and do not overlap, have impacts on regulation and management of the sector. The key regulatory body is the Municipal Urban Transportation Office (DMTU) which, in addition to its duties to issuing regulations and supplementary standards for the General Land Transportation and Traffic Act (LGTT), is also responsible for management of the urban traffic and transportation system (application of rules, administration, registration of services, granting of concessions, permits and authorizations), and its inspection (supervision, detection of infractions and imposition of sanctions). Related

activities are also exercised by the following bodies: (i) the Metropolitan Investment Fund (INVERMET), a decentralized enterprise that under this administration is becoming the financial agent of municipal investments; (ii) Empresa Municipal Administradora de Peaje de Lima S.A. [Municipal Tolls Management Company] (EMAPE S.A.), whose mission is to collect tolls on highways operated by the system, and to execute and maintain the civil works within its jurisdiction, according to its statute, in addition to any others assigned to it; (iii) the Metropolitan Planning Institute (IMP), responsible for city planning and classification of the highway system; and (iv) MetroLima S.A. (formerly the Autonomous Electric Train Authority), recently transferred by the Government of Peru with a mission to manage the electric train service.

- 1.12 Before the recently passed LOM, the PNP was the authority responsible for public transportation inspection and control. Now, however, the MML is seeking to take on increasing responsibilities in the sector, thereby allowing the PNP to work full time on traffic control.
- 1.13 In view of the city's severe traffic and transportation problem, in 1999 the MML declared an emergency situation in the urban transportation system,<sup>3</sup> making it a strategic objective to establish an integrated and rapid public urban transit system as a key component of social and economic development. Political disputes between the Government of Peru and the MML prevented this initiative from prospering, and the emergency continued unabated. Recently, the new political conditions have enabled the MML to resume the task for which it created the special "PROTRANSPORTE de Lima" project.<sup>4</sup> This project, which is dependent on City Hall, has economic and managerial autonomy and a mission to coordinate with the Municipal Corporation and the Lima and Callao Municipal Transportation Council (CTLTC)<sup>5</sup> in conducting studies and promoting projects to develop an integrated urban transportation system for Metropolitan Lima. In view of progress made by PT, and the need to expand its responsibilities to execute this operation, MML recently decided to give PT responsibility for "... *implementation, execution and operation of studies, projects and activities linked to high-capacity dedicated public passenger transportation corridors ...*". In order to "*plan, coordinate and supervise the urban transportation system of the Province of Lima...*", the Metropolitan Lima Transportation Committee (TRANSMET) was created. This reports directly to the Mayor and consists of the Metropolitan Municipal Office

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<sup>3</sup> Council Agreement 05-99, of 22 January 1999.

<sup>4</sup> The special "PROTRANSPORTE de Lima" project was created by Mayoral Decree 35 of 18 March 2002; its responsibilities were later amended by Mayoral Decree 99 of 10 March 2003.

<sup>5</sup> The CTLTC was created in 1997, with participation from the Government of Peru acting through the Ministry of Transportation and Communications (MTC), the provincial municipalities of Lima and Callao, the Ministry of Economic Affairs and Finance (MEF) and the National Police Force (PNP). The CTLTC presidency is currently held by the Mayor of Lima; the council acts sporadically, and only as a consultative body.

(presiding), together with PT and the municipal agencies DMTU, IMP, EMAPE S.A., INVERMET and MetroLima.

1.14 In this context, the main institutional and regulatory barriers facing MML in consolidating an integrated and sustainable traffic and public transportation system are internal, and relate to the following:

- a. Consolidation of *urban traffic and transportation policy*, and implementation of the resultant strategy, with special emphasis on mass public transportation; in order to guide MML-TRANSMET in its short, medium and long-term actions; direct, coordinate and integrate actions by the various municipal bodies participating in the sector; and establish guidelines for coordination with organizations from other jurisdictions;
- b. Expansion and consolidation of the DMTU *regulatory and policy-setting framework*, to establish the following, among other things: (i) appropriate technical, institutional, financial and socioenvironmental bases for concession and authorization of public transportation services, both in the dedicated corridors and on other city routes, including the system's feeder roads; (ii) MML capacity to autonomously regulate supply, price, technical and operating characteristics, and authorization of vehicles and drivers; (iii) coordination of actions with agencies from other municipalities; and (iv) mechanisms of inspection, control and sanctions for public transportation operators, under exclusively municipal rules and regulations.
- c. *Training and strengthening of the public bodies directly involved* in the traffic and transportation sector, ranging from planning through implementation to operation; and of the *private sector* in terms of business management and system operation; and
- d. Improvement of MML *inspection and control capacity* to ensure fulfillment of transportation rules and standards, by establishing municipal transportation inspection bodies.

#### **D. User opinions on the current transportation system**

1.15 During preparation of this operation, a social evaluation of beneficiaries<sup>6</sup> was carried out, which included opinion surveys among poor and very poor population groups living in the northeast and south cones of Lima. The results show that: (i) the main reasons for journeys are work-related (54% of those interviewed), followed by shopping (22%); (ii) the main problems are daily travel times (40%), discomfort (35%) and poor quality service (14%); (iii) the “combi”, which accounts for 49% of the current bus fleet and supplies 33% of demand, is the preferred

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<sup>6</sup> “Valoración de los Beneficiarios del Proyecto de Transporte Público Urbano de Lima”; Centro de Estudios y Promoción del Desarrollo (DESCO), Lima, July 2002.

means of transportation among users because of its speed, despite the serious criticisms it receives, especially in terms of lack of comfort and safety; and (iv) 60% of persons interviewed stated they were willing to pay 30% over and above what they currently pay, for a better service.

- 1.16 In addition, the Strategic Environmental Assessment study<sup>7</sup> has run focal groups with potential users and operators, all of whom are aware of their responsibility in the current transportation culture by sharing inappropriate practices: “... *the transportation operator today has become a grumbler, ticket collectors do not respect the user; and bus stops are ignored; buses compete with each other, have accidents and their drivers fight, etc...*”. But they also agree in highlighting weaknesses among the transportation management authorities, ranging from their absence since sector liberalization, to a lack of coordination in enforcing their regulations. Everyone is aware of the need for a system with rules that are respected.
- 1.17 The topics that were highlighted in the interviews were as follows: (i) institutional leadership by MML, as an essential requirement for the program; (ii) the treatment given to those displaced from the system since the public transportation system has tended to operate as a refuge from unemployment; and (iii) the price of the service, especially for people who will need to use both feeder and arterial routes.

#### **E. Action of the Bank and other financial institutions in Metropolitan Lima**

- 1.18 The Bank has little experience working with the MML, mainly because of previous restrictions on direct subnational government access to multilateral lending institutions, except for technical-cooperation projects (TCs). This would be the first loan of this type both for the Bank and for the MML.<sup>8</sup>
- 1.19 To support preparation of the PTUL, the Bank approved three technical-cooperation projects: (i) a technical-cooperation project financed with resources from Spanish Fund for Consultants-ICEX,<sup>9</sup> now concluded, which involved technical engineering, environmental and economic feasibility studies of the dedicated bus lanes, stations and terminals to be funded through this operation; (ii) a technical-cooperation project to develop fare collection, operational control and traffic light systems<sup>10</sup> on the new urban transportation system, financed by the *Evergreen Fund for Technical Assistance - United States Trade Development Agency* (TDA); and (iii) a technical-cooperation project to conduct technical,

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<sup>7</sup> “Evaluación Ambiental Estratégica del PTUL”, ECSA Ingenieros, May 2003.

<sup>8</sup> Apart from the urban transportation loan contracted in 1986 with the World Bank, which was cancelled for reasons not pertaining to MML.

<sup>9</sup> TC-01-07-02-3; €540,000; approved on 4 June 2002, with studies concluded on 30 May 2003.

<sup>10</sup> TC-01-10-05-6; US\$450,000, in its final approval phase.

economic, environmental and operational studies<sup>11</sup> to recommend clean fuel alternatives for large-capacity buses, financed by the *Hemispheric Sustainable Energy Trust Fund - United States Department of Energy*.

- 1.20 In addition to this, the World Bank is contracting a diagnostic study using funds<sup>12</sup> provided by the Government of Holland, which will identify an accidents baseline in the corridors' area of influence, and define a highway safety strategy for the PTUL. From 1998 to 2001, using funds from the Government of Japan, it financed the Urban Transportation Project for the Metropolitan Area (PROTUM) run by the CTLC, which culminated in a medium-term proposal for over 100 km of dedicated lanes for high-capacity buses, partially included in the PTUL.
- 1.21 Recently, the World Bank approved a project to improve environmental conditions in the Lima transportation and traffic system, for a total of US\$7.9 million donated by the Global Environmental Fund (GEF), to be executed by the National Environment Fund (FONAM). This project complements the PTUL in the following ways: (i) reduction of oversupply by disposing of obsolete and polluting buses; (ii) promotion of bicycle use and expansion of the cycle lane network; and (iii) institutional support for the municipal technical team responsible for transportation planning.

#### **F. MML strategy in the sector**

- 1.22 The MML has developed a strategy for the transportation and traffic sector within its jurisdiction, in which it establishes institutional, technical, operating, functional and financial guidelines aimed at rationalizing a system that generates high economic costs for inhabitants and productive activities. This policy gives explicit preference to mass public transit over individual transportation, making use of the powers granted by the new LOM. It proclaims citizens' entitlement to a high-quality public transportation system that is safe and economically, geographically and temporarily accessible. It recognizes that this needs to be provided by formally established private-sector operators, on the basis of permits and concessions that give access to financial markets to renew and expand their services, with technified and highly professionalized public agencies. The system needs to be based on a fares scheme that guarantees universal access but also allows for operator sustainability through user charges.

#### **G. The Bank's strategy in the sector**

- 1.23 This program forms part of the Bank's strategy for Peru in supporting economic infrastructure improvements—mainly projects of high social return such as mass public transportation, which raise overall economic efficiency by providing an adequate transportation system that is accessible to lower-income sectors, together

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<sup>11</sup> TC-01-08-04-1; US\$150,000, approved on 18 April 2003.

<sup>12</sup> US\$106,000.

with better traffic-flow conditions. The program also recognizes the importance of urban traffic and transportation for the efficiency of the city that generates the bulk of national GDP. These are essential aspects in improving the overall competitiveness of the Peruvian economy.

- 1.24 By promoting public investment in transportation infrastructure, the program fulfils the strategy of catalyzing private investment in vehicles and in the revenue collection system. Moreover, in keeping with decentralization, the PTUL will promote institutional strengthening of the MML and its sector management capacity, thereby opening the way for other municipios to follow its example, and promoting good governance. The services resulting from the program will mostly favor low-income neighborhoods. The program is included in the Bank's Country Strategy with Peru.

## **H. Lessons learned and program strategy**

- 1.25 In countries served by the Bank, there are three clear states of development in urban public transportation services run by private operators: (i) *low development*, characterized by weak under-capitalized enterprises with no access to credit, organized on the basis of independent vehicle owners linked together in a fragile association for the purpose of service provision. Operators are generally supported by precarious permits and a State that has inadequate regulation, inspection and oversight power, as is the case in Lima; (ii) *intermediate development*, involving medium and large firms that are adequately organized and capitalized, with firmly established permits and concessions, backed by an appropriate legal framework. The intermediate development classification is more reflective of the way services are run, where public transportation does not receive operational privileges in the use of urban highway infrastructure; and (iii) *high development*, such as in Curitiba, Brazil, or the Transmilenio of Bogota, Colombia, where an operating system defined by broad planning and public-sector regulation results in a system of high capacity, reliability and acceptance.
- 1.26 Lima will take advantage of the experience gained in Bogota, Quito and Curitiba, to make a qualitative leap from a low-development model to become one of the two most advanced systems, without the need for major infrastructure investments, such as in the case of a metropolitan railway. The lessons arising from this experience could be used by other large and intermediate cities in the region, both those currently trapped in inefficient low-development models, and those at intermediate levels that need to move to more complex systems. By failing to satisfy the requirements of a more demanding public, users of intermediate public transportation are migrating to individual means of transportation, to the detriment of low-income groups.
- 1.27 Although this would be the first Bank operation with a subnational government in Peru, the following lessons are being incorporated into this operation: (i) counterpart resources and authorization for borrowing requirements to be

assured in terms of amount and timing in order to minimize execution delays; (ii) the MML needs a suitable legal and institutional framework to implement the system, including a trained agency to structure and operate it; (iii) a global and integrated view of public transportation is required as a coordinating hub of the city's social and economic development and urban circulation, avoiding partial or limited projects, and including actions to regain and enhance public spaces; (iv) stakeholders should participate in the design of the system, to ensure good understanding of the nature of the project, and what it demands and offers to the community and operators; and (v) "owner-drivers" should form trained and efficient business partnerships to provide access to capital and develop the organizational discipline that modern systems require.

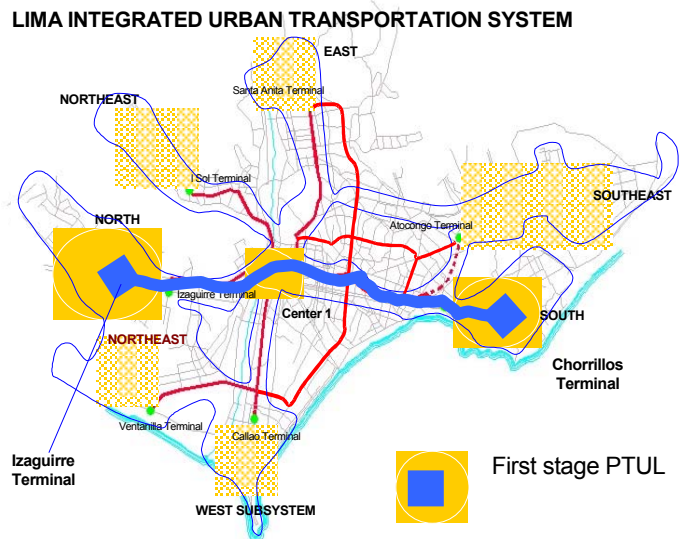
## II. THE PROGRAM

### A. Objective

- 2.1 The general objective of the program is to improve conditions of mobility among the population, especially for lower-income groups; and to reduce the private and social costs of providing and using public transportation services in the city of Lima. To this end, the program will establish a rapid mass transit system that is efficient, reliable, safe and environmentally sound, connecting areas of Lima where low-income groups live to zones where income-generating activities, jobs and services are concentrated. It will also improve access to economic and social services, and reduce journey times, accident rates and environmental pollution.

### B. Description of the program

- 2.2 The Lima Integrated Urban Transportation System (SITU) consists of a mass transit system, using articulated raised-platform buses running along dedicated and exclusive arterial corridors. It includes transfer terminals and intermediate stops, together with feeder bus and cycle lanes, interconnecting the seven journey-generating subsystems<sup>13</sup> of Lima and Callao and the historical center of the metropolis. The PTUL, to be cofinanced with the World Bank, will correspond to the first stage of the SITU, and will involve building 28.6 km of dedicated arterial corridor and paving 50 km of roads and 40 km of cycle lanes to feed the arterial route. These will jointly interconnect the journey generation and attraction centers of the north and south subsystems<sup>14</sup> and of the central area of Metropolitan Lima.



<sup>13</sup> The seven subsystems are: (i) Southeast: Villa El Salvador, San Juan de Miraflores; (ii) South: Barranco, Chorrillos; (iii) Northeast: San Juan de Lurigancho; (iv) North: Comas, Carabayllo, Independencia; (v) Northwest: Ventanilla; (vi) West: Callao; and (vii) East: Santa Anita, Ate, Vitarte.

<sup>14</sup> PROTRANSPORTE conducted a analysis of alternatives which concluded by selecting the basic network serving the north and south subsystems of Lima, based on representative indicators covering the following aspects: construction (cost, facility of construction, and need for expropriation and compensation); operation (demand, operators affected, economic viability, functionality and operationality); social and environmental impact and integration with other plans and projects relating to urban development and environmental protection.

These zones account for 48% of the total population of Lima, of whom 60% have per capita incomes below US\$75 per month.<sup>15</sup>

- 2.3 At this initial stage, the PTUL will have two integration terminals between arterial and feeder routes, one at each end of the arterial route, located in the north and south subsystems (the Izaguirre and Chorrillos terminals, respectively). The terminals will be provided with public service and commercial sites, in addition to bicycle parking lots. They are expected to be built and managed by private companies under concession contracts. In addition, at least two concourses and garages close to the terminals are expected to be built, to accommodate administrative offices, parking lots and maintenance workshops for the vehicle fleet that will operate the new arterial-feeder system.
- 2.4 On the arterial corridor, 35 intermediate raised-platform stations (bus stops) will be built, along with two midway terminals located at Plaza Grau<sup>16</sup> and at the intersection of Vía Expresa with Avenida República de Panamá. This arrangement will allow for the operation of short arterial routes. Some bus stops will be provided with cycle parking lots and will include small-scale commercial outlets. The bus stops and terminals will have areas for ticket sales, prepaid fare cards, and validating machines.
- 2.5 The system's physical infrastructure was designed to provide full accessibility to all users, in conformity with the guidelines issued by the National Council for the Disabled (CONADIS). In this regard, the project will include (i) adaptation of the sidewalk system in the area surrounding bus stops and terminals to allow normal circulation by wheelchair users; this will include the construction of small ramps between the road and the sidewalks, and installation of specialized signaling; (ii) access to bus stop waiting areas through ramps with a maximum slope of 8%; (iii) installation of special elevators at lower-levels bus stops, such as those located in Vía Expresa and Plaza 2 de Mayo; (iv) raised-platform flat-floor buses guaranteeing embarkation and disembarkation at bus stops and terminals, and obstacle-free internal circulation; and (v) construction of ramps on pedestrian bridges with a maximum slope of 8% and maximum length of 15 meters per section, including existing pedestrian bridges that form part of the system.
- 2.6 The PTUL will serve about 630,000 passengers per day; of this demand 36% will only use the arterial routes, 31% the feeder routes, and 34% both routes. During the morning and evening peak hours, estimated hourly demand is expected to reach about 42,000 and 38,000 passengers, respectively, whereas in the off-peak period, hourly demand of 22,000 is forecast. Firms are expected to operate 250 articulated buses on the arterial network and 154 conventional buses on the feeder system, with capacity for 160 and 80 passengers respectively. The operational organization will

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<sup>15</sup> The Bank's poverty line is defined as a gross monthly per capita income of US\$132 (S./443).

<sup>16</sup> The Plaza Grau terminal will be built underground and integrated with an underpass; execution will start in 2003 using internally generated MML funds.

allow for a commercial speed on the arterial corridor averaging 27 km/h. The system's operational design anticipates a balanced passenger load in both directions. The network of feeder services will consist of 12 routes, with lengths varying between two and 12 km.

- 2.7 Implementation and operation of the SITU are envisaged on the basis of public-private partnerships. Infrastructure investments will be financed by the MML, bus operations will be awarded in concession to private operators that will be responsible for providing the vehicles and equipment for workshops and garages; remuneration of their services will be based on the number of kilometers traveled by the vehicles. Table 1 shows the main investment activities, distinguishing public and private participation. Private investment is expected to amount to US\$72.8 million.<sup>17</sup>

**Table 1**

<b>Activities</b>	<b>Public</b>	<b>Private</b>
Highway infrastructure	C, M	M
Terminals, workshops and concourses	A (land), C	A, C
Integration terminals	C	C, M
Intermediate stops	C	M
Control center and traffic lights	C, A	
Trunk and feeder vehicle fleet	A, O	A, O
Fare collection systems		A, O
Trust fund for payment of commissions		O

A: Procurement of equipment; C: Construction; M: Maintenance; O: Operation

- 2.8 The fare for integrated use of the feeder and arterial routes is expected to be set at US\$0.40 (equal to or slightly below the current rate, which will result in a lower fare for passengers who now use transfers). This fare will cover at least all expenses incurred by transportation operators and the trust agent as well as all expenses in connection with the fare collection system and the costs of management, regulation, supervision, and the integrated transportation system control operated by PT; part of the costs of routine and periodic maintenance of infrastructure may also be covered, as will contributions to a contingency fund. The PTUL will have a system for prepayment of fares. Fare collection will be operated by a concession agent and revenues administered in a trust fund, which will make payments to the system's various agents and services. The MML has full powers to set the level of fares charged to the user. Although there may be a risk of these being set below system operating and maintenance costs, it is worth recalling that nearly all Latin American

<sup>17</sup> Investments include: (i) articulated buses, US\$42.5 million; (ii) conventional buses, US\$13.5 million; (iii) concourses and workshops, US\$2.8 million; (iv) revenue collection system, US\$10 million; (v) implementation expenses, US\$1.5 million; and (vi) working capital, US\$2.5 million.

cities operate with commercial fares that fully cover these costs. This risk is considered to be low, especially since there is an explicit municipal policy decision concerning the degree to which the commercial fare must cover costs.

- 2.9 The system will have an operations control center that will act in conjunction with the traffic light control system, verifying the operation and regularity of services and providing data needed to adjust bus flow, the frequency of arrivals and departures at intermediate and terminal stations, waiting times at terminals, the traffic signal cycle, prioritization of public transportation in the coordination of signals, etc., to adapt the supply of services to fluctuations in demand.
- 2.10 The PTUL will be a structuring pillar of urban development and a coordinating element promoting the recovery and enhancement of public spaces. Investments to improve the urban environment around the system will include: paving of mixed-use streets parallel to the system; restoration and construction of sidewalks and access cycle lanes; public lighting along the entire route, landscaping and reclamation of green areas integrated into the system; restoration and improvement of urban facilities in key sites such as the historical centers of Lima and Barranco, Mercado de Caquetá and Curva del Reloj; implementation and restoration of pedestrian circulation in streets and plazas; highway safety and education; support for itinerant commerce on arterial routes, monitoring of air quality and noise; and other socioenvironmental management measures.
- 2.11 The PTUL will carry out actions to promote institutional strengthening and sociopolitical viability. The first of these will formulate and regulate concessions for the bus service, the revenue collection system and terminal operation; it will also develop an efficient system for managing urban traffic and transportation, with technical assistance and training provided to the key organizations involved (PT, DMTU, PNP and EMAPE S.A.). Actions to ensure sociopolitical viability will target two areas: the community of potential users of the new transportation system, and operators of the current system who will be affected by it.

### **C. Public discussion of the program**

- 2.12 Bearing in mind that the PTUL will involve structural modifications to the current public transportation system, the MML is promoting and discussing this with various sectors of civil society and public organizations:
  - a. Operators: Successful experiences in Bogota and other cities have been recognized by current transportation operators in Lima, through visits by operator groups to Transmilenio,<sup>18</sup> and by holding three international transportation seminars during the last two years, one of which was promoted by the local transportation operators association (ASETUP). It is worth stressing

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<sup>18</sup> In 2001, about 50 operators visited Transmilenio, and arrangements are currently being made for operators to visit Colombia and Mexico, with funding from Iwent (Germany).

that operators are already organizing to participate in the new system, with three business consortia being formed, encompassing 65 operators and about 6,500 vehicles.

- b. District mayoral offices and government institutions: Selection of the arterial corridor and alternatives for crossing the historical centers of Lima and Barranco were discussed and agreed at meetings that included representatives of other municipal organizations in Lima, the district mayoral offices of Barranco and Chorrillos, the National Environment Council (CONAM) and the Ministry of Transportation and Communications (MTC).
- c. Citizenry: Model stations of the future arterial system were placed at strategic points last year, serving as information centers for over 400,000 visitors. The EIA performed on the corridors' area of direct influence was publicized on 9 February 2003 through the country's main newspapers and the PT website, and then in the Bank's *Public Information Center* on 11 February. The few comments that have been received are available in the project file.

#### **D. Construction of corridors and start of system operations**

- 2.13 Technical work on the PTUL will start in the second half of 2003, with construction of the underpass at Plaza Grau in the city center to be fully funded by MML. The civil works of the arterial corridor will be divided into construction phases, starting in September 2004 and concluding in June 2006, and system operation phases: (i) in May 2005, the 9.2 km of the Vía Expresa will start operations on a provisional basis for four months; (ii) in September 2005, the southern segment will come into operation (from Plaza Grau in the center to the Chorrillos terminal in the south, using Vía Expresa, 15.6 km altogether); (iii) in May 2006, extension of the corridor to Plaza Castilla, crossing the city center (5.6 km); and (iv) in June 2006, full operation of the N-S system.

#### **E. Components**

##### **1. Improvement of mobility and urban environment (US\$86.8 million)**

- 2.14 This includes: (a) investments to improve urban mobility and structural elements of the rapid mass transit system; and (b) investments to improve the urban environment and regain and enhance public spaces surrounding the system and key sites in the city.

##### **a. Improvement of urban mobility**

- (i) Construction of the arterial corridor in segments (28.6 km long), with operational and functional continuity; together with 35 bus stops, two integration or main terminals, two intermediate or midway terminals, concourses and garages for articulated and feeder buses, and land purchase;

- (ii) Paving and other improvements on 50 km of feeder roads that will connect peripheral neighborhoods to the main terminals and integrate feeder routes with the arterial corridors;
- (iii) Construction of cycle lanes, pedestrian walkways and bridges to improve access for non-motorized users;
- (iv) Highway safety and traffic management in the corridors and their feeder roads, and in the other streets in their direct area of influence; and
- (v) Operational control center and integrated traffic light system on the arterial corridor.

**b. Improvement of urban environment**

- (vi) Urban enhancement of areas surrounding the system; paving of mixed-use parallel streets; restoration and construction of sidewalks; public lighting throughout the segment; landscaping and recovery of integrated green areas; improvement of traffic management and traffic lights in parallel streets;
- (vii) Improvements to public spaces and urban facilities at nine key city locations, such as the historical centers of Lima and Barranco, Mercado de Caquetá, Plaza Castilla, Curva del Reloj, etc. Among other things, this will include implementation of pedestrian streets and bridges, civil works to improve traffic flow and pedestrian circulation, and restoration of plazas and green areas;
- (viii) Organization and relocation of on-site flower market traders, and support for itinerant commerce along the arterial route;
- (ix) Measures established in the PTUL social and environmental plan, including support for the Pantanos de La Villa environmental conservation area, and replanting of trees along the corridor; and
- (x) Baseline and system for monitoring air quality and noise levels.

**2. Institutional strengthening (US\$3 million)**

2.15 This component encompasses:

- (i) Design and implementation of the city's public transportation policy, together with its policy-setting and regulatory framework;
- (ii) Design of concessions to operate the bus services, revenue collection and other services involving private-sector participation, together with

the corresponding bidding documents, standard contracts and regulations;

- (iii) Development of the organic, administrative and financial structure; and establishment of the specific regulatory and normative framework needed to enable PT to carry out its functions as manager, regulator and inspector of the new transportation system; together with technical assistance and training to exercise those functions;
- (iv) Institutional strengthening, training and technical assistance for the DMTU, for regulation, inspection and control of public transportation services; this includes establishment of a municipal transportation inspector body;
- (v) Support for creation and strengthening of a special PNP detachment to act in traffic inspection and control along the arterial corridors; and
- (vi) Technical assistance for EMAPE S.A. to improve its civil works procurement and supervision capacity.

### **3. Promotion of sociopolitical viability (US\$5 million)**

2.16 This component affects the main stakeholders, potential users of the new system and affected operators:

- (i) Awareness building and citizen participation, including participatory work with the community, users and operators of the current system; programs and workshops with labor unions and sector business associations, universities, neighborhood organizations, etc.; also including implementation of a user service center;
- (ii) Traffic and highway safety education campaigns for potential users, operators and the community at large;
- (iii) Support for business management among public transportation operators generally, including training courses in the programming of services and staff, allocation of vehicle fleet, operations planning, service quality, laws and regulations, prevention and safety in transportation services, etc.; and promotion of strategic partnerships with investors from outside the sector to encourage them to participate in bids.
- (iv) Mitigation of impacts on affected operators, basically including the following:

- Within the transportation sector: reincorporation of drivers into the labor market, through a process of technical certification, and retraining for ticket collectors and drivers; training courses in jobs related to the sector; and registration of skilled workers in a specialized employment pool for the new services; and support for training of microenterprises to provide specialized services linked to maintenance and collateral businesses of the new system.
- Outside the transportation sector: job training and instruction for ticket collectors and drivers, who, subject to prior certification, will be included in Ministry of Labor employment pool; technical and business training for microenterprise formation.

(v) Support for preoperational works in order to fine-tune the system.

#### **4. Studies and supervision (US\$7.6 million)**

2.17 This includes: (i) studies needed to implement the PTUL (US\$1.4 million); (ii) detailed baseline of the socioeconomic status of users (2004), together with monitoring and evaluation of short-term socioeconomic impacts (2007) (US\$160,000); (iii) works supervision (US\$5.2 million); and (iv) environmental audit of the PTUL, and technical and environmental studies for the second stage of the system (US\$840,000). The studies needed for the second stage will depend on the MML being in a position to finance the expansion. If there is no second phase, the corresponding funds will be reassigned.

#### **5. Program management and audit (US\$5.2 million)**

2.18 This encompasses PT operating expenses for execution of the PTUL. PT expenses relating to management, regulation, operation, supervision, and control of the new rapid mass transit system are not included, as they will be covered by the fare charged. This component also includes the independent external audit, to be funded by the two Banks (US\$300,000).

#### **F. Cost and financing**

2.19 The total cost of the program has been estimated at US\$124.4 million. This will be financed by an IDB loan of US\$45 million, drawn from ordinary capital, a loan from the World Bank of a similar amount, and counterpart funding provided by MML, amounting to US\$34.4 million)

2.20 The MML will finance the Plaza Grau underpass separately, with works scheduled to start in the second half of 2003, at an estimated cost of US\$10 million. Although this is an integral part of the PTUL it is not included in the financing chart, because

the bidding documents do not satisfy the procedures of the two Banks.<sup>19</sup> Plaza Grau is the pivot of system operations: not only is it an intermediate terminal but it is also the system's most important demand node.

- 2.21 The program execution period will be 48 months, and the financing is expected to be fully disbursed in 54 months. The financing structure is shown below (figures in thousands of dollars; all amounts include sales tax (IGV)). Annex III presents the detailed cost table.

Components	TOTAL	IDB	World Bank	MML
Improvement of mobility and urban environment	86,800	32,220	32,220	22,360
Institutional strengthening	3,030	1,225	1,225	580
Sociopolitical viability <sup>b</sup>	5,000	1,420	1,420	2,160
Studies and supervision	7,620	3,085	3,085	1,450
Program management and audit	5,150	150	150	4,850
Inspection and supervision	900	450	450	0
Contingencies	10,000	4,000	4,000	2,000
Scaling	5,900	2,450	2,450	1,000
<b>TOTAL (Financing)</b>	<b>124,400</b>	<b>45,000</b>	<b>45,000</b>	<b>34,400</b>
Plaza Grau intersection <sup>a</sup>	10,000	0	0	10,000
<b>TOTAL</b>	<b>134,400</b>	<b>45,000</b>	<b>45,000</b>	<b>44,400</b>

(a) To be put to tender by MML under national procedures.

(b) The Bank will not finance the microcredit subcomponent.

<sup>19</sup> National legislation uses the band system for awarding civil works contracts, which is not acceptable to the Bank.

### III. PROGRAM EXECUTION

#### A. Borrower, guarantor and executing agency

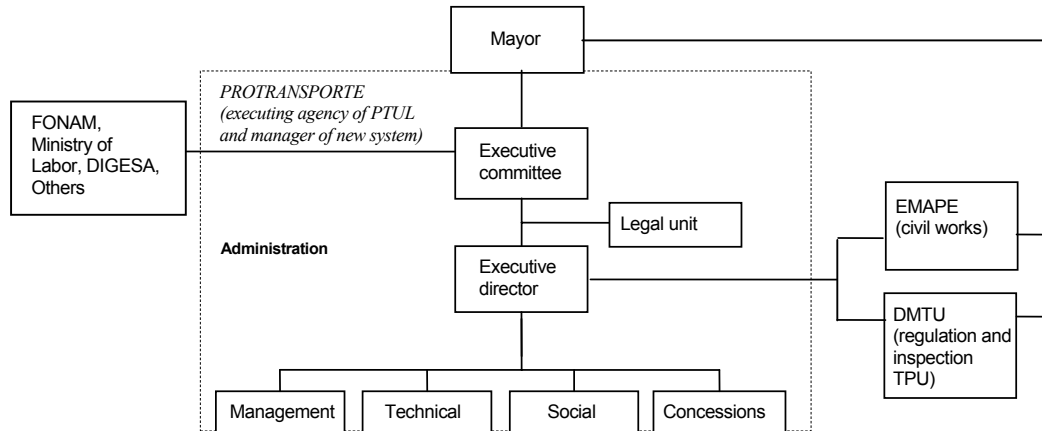
- 3.1 The borrower in this operation will be the Metropolitan Municipality of Lima. As the MML is the municipal authority for the Province of Lima its activities are governed by the provisions of the National Constitution and the Municipalities Charter Act. As this program involves lending to a subnational authority, the loan will be guaranteed by the Republic of Peru.
- 3.2 The MML has appointed “Proyecto Especial PROTRANSPORTE de Lima” as executing agency. PT is a de-concentrated body attached to the MML, with economic and managerial autonomy. It is responsible for “... *implementation, execution, and/or operation of studies, projects and activities related to high-capacity dedicated corridors for public passenger transportation in Lima ...*”. PT will be accountable to the two Banks for program execution and for technical and administrative monitoring, resource management and program accountability.

#### B. Program execution and management

- 3.3 Execution of the PTUL requires: (i) development of a specialized physical infrastructure; (ii) procurement of goods and equipment for the control center, traffic lights, etc.; (iii) contracting for institutional strengthening activities to promote viability; (iv) concession of public transportation services and fare collection; and (v) management, operation, monitoring and control of the new transportation system.
- 3.4 PT will be directly responsible for contracting studies and institutional strengthening activities, together with goods and equipment procurement, and concessions to operate public transportation services and fare collection. For the development of physical infrastructure, PT will subcontract to EMAPE S.A. the functions of bidding, contracting, and management and supervision of program works. It will also manage PTUL resources. The program will support the institutional strengthening needs of both institutions. The Bank’s nonobjection to the delegated management contract between PT and EMAPE S.A. will be a condition precedent to the first disbursement.
- 3.5 The DMTU will be responsible for management and inspection of the transportation system outside the arterial corridor, ensuring that this has a protection zone where competition will be limited to authorized services. For this purpose it will rationalize routes, and improve its system for granting concessions and for regulating services that are not currently under concession, such as collective taxis.
- 3.6 The PTUL will be governed by a Program Operations Manual (POM), which will have the Bank’s nonobjection and be approved by Municipal Decree prior to the

first disbursement. PT already has a draft copy of the POM, which establishes technical, institutional, organizational, managerial and financial procedures for the implementation, monitoring and evaluation of program activities.

3.7 The project execution scheme will be as follows:



3.8 Apart from executing the loans, PT will be responsible for putting the new rapid mass transit system into operation, for awarding concessions, and for the management, regulation, inspection, oversight and operation of the system. It will also set user fares. Specific PT functions will be established and regulated through the System Operating Regulations (ROS) to be approved by Municipal Order. The ROS will be presented to the Bank for its nonobjection, and will be approved before signature of the second contract for works in the dedicated high-capacity corridor<sup>20</sup>. It will contain the following, as a minimum: definition of competencies; rules and procedures for the bidding process or authorization for service delivery for operation of the dedicated corridor and its feeders; system access conditions; content and basic conditions of concession contracts; powers and responsibilities in connection with infractions and penalties. PT operating costs incurred through exercise of these functions will be covered by the fare charged (paragraph 2.8).

3.9 To ensure the capacity of PT as arterial corridor operator, MML will establish the following through Municipal Order: (i) the exclusivity of the corridor, i.e. the right of way occupied by it cannot be used for purposes other than the mass transit bus system; (ii) uses and functions of the corridor; (iii) a corridor protection zone and regulation of its use; (iv) PT as corridor application authority, with regulatory and oversight powers over the right of way; and (v) distribution of functions between PT and the DMTU in service streets and access roads to the arterial corridor, and in

<sup>20</sup> According to the PT schedule, the works for the dedicated corridor are to begin on the Express Lane. The requirement of an approved ROS will be waived for these works. The approved ROS, with the Bank's nonobjection, will be required for the second series of works in the corridor, or the first if the works are initiated in a place other than the Express Lane.

feeder roads where there are services under concession managed by PT. Publication of this Order will be a condition precedent to the first disbursement.

**C. MML financial management and control of budgetary execution**

- 3.10 Financial management of MML resources is carried out by its General Finance Office, an organization that forms part of central administration. Revenue collection is the responsibility of the Tax Administration Service (SAT), a decentralized body. The MML is embarked upon a far-reaching reorganization of its financial management system, evolving towards a single-account mechanism. This will afford it better control over its accounts, and avoid the administrative dispersion that characterized it under previous administrations. As part of this process, it has established a Cash Committee. Although management of natural resources and control of budgetary execution are adequate, they could be improved, and this task, which the current administration has imposed on itself, has already begun with the Cash Committee mentioned above. As part of the program, the MML will carry out a long-term budgetary programming exercise, indicative of the potentials and limitations of municipal financial capacity.
- 3.11 The MML applies an internal and external control system for transactions within its jurisdiction. Audit activities include the following: (i) internal audit by the MML General Inspectorate, a body attached to the National Control System; and (ii) external audit performed by either the Office of the Comptroller General of the Republic or by an external audit firm selected by it. These units act in their respective fields and their work is satisfactory.

**D. MML financial analysis**

- 3.12 The MML has an annual budget of approximately US\$115 million (2002), implying a per capita expenditure level of US\$16, which is way below the average for Latin American cities of this size. Although this is complemented with expenditure by district municipios and the Government of Peru, the figure is still small in relation to the needs of the metropolis.
- 3.13 During the five-year period 1998-2002, current incomes rose on a sustained basis, supported by internal sources, which grew particularly strongly. The main revenue sources, accounting for 96% of the total, are as follows:
- a. *Taxes*: the most important taxes, generating 66% of all tax revenue, are: (i) land tax, of district jurisdiction, levied on properties located within the “Cercado” (Lima). The MML cannot alter the fiscal value of properties nor the rate applicable; and (ii) vehicle tax, levied on vehicles registered in the metropolitan area, charged only during the first three years following registration of the vehicle in that jurisdiction. The MML does not set the fiscal value, nor the tax rate or period for which it is levied.

- b. *Charges*: these include urban tolls, which are an EMAPE S.A. responsibility, and discretionary charges (street cleaning, parks and gardens, night watchman services). The rates for these charges are set by MML and are the most important category over which it has discretion—albeit subject to the population’s payment capacity and the quality of services supplied in return.
- c. *Fines and sanctions*: these mainly involve traffic fines and sanctions for commercial infractions. The first of these depend on the PNP, with which it shares revenue collected (via transfers); collection is the responsibility of the SAT. Although significant, fines and sanctions are not a sustainable source and are expected to decline over the long-term as a result of better-organized traffic flow and formalization of economic activities.
- d. *Transfers*: all of these are from the Government of Peru; the largest transfer is to FONCOMUN, although the “Vaso de Leche” program and transfers for maintenance of the electric train system are also important.

3.14 The following table summarizes the key MML revenues for the five-year period, with a projection for the current year (figures in millions of current dollars).

	1998	1999	2000	2001	2002	Average	2003
<b>Current income</b>	111.3	98.2	94.6	99.4	109.8	102.7	122.2
<b>Taxes</b>	22.3	18.7	19.9	16.3	20.8	19.6	24.3
<b>Charges</b>	48.2	44.0	39.0	41.8	47.8	44.2	55.8
<b>Fines and sanctions</b>	17.1	16.6	15.6	16.0	16.9	16.4	17.4
<b>Transfers</b>	19.0	16.2	16.6	19.8	21.4	18.6	21.8
<b>Other income</b>	4.7	2.7	3.4	5.4	2.8	3.8	2.9
<b>Capital income</b>			0.1	0.5	0.1	0.1	0.1
<b>Total income</b>	111.3	98.2	94.6	99.8	109.9	102.8	122.4

3.15 On the other side of the equation, MML has a flexible expenditure structure. Although 75% of the total is current expenditure, the most rigid categories, corresponding to payroll expenses (permanent, contracted and pension obligations), only absorb 24% of the total. The largest individual category is goods and services (32%). The evolution of expenditure mirrored the behavior of income, albeit with some divergences arising from the Municipal Investment Plan of 2000-2002, which involved implementation of a large-scale highway project (Javier Prado avenue).<sup>21</sup> The evolution and structure of expenditure for the five-year period, together with projections for 2003, are shown in the following table:

<sup>21</sup> Municipal investment is concentrated in highway infrastructure and street furniture.

	1998	1999	2000	2001	2002	Average	2003
<b>Current income</b>	86.3	84.9	82.8	85.9	83.7	84.7	84.1
<b>Payroll</b>	21.5	16.3	17.8	16.9	18.5	18.2	18.9
<b>Goods and services</b>	45.6	44.4	39.9	40.7	35.7	41.2	36.4
<b>Debt interest</b>	2.2	3.8	5.9	8.4	8.7	5.8	7.5
<b>Transfers</b>	9.2	13.4	11.7	11.7	12.4	11.7	12.7
<b>Pension expenses</b>	7.8	7.0	7.4	8.2	8.4	7.8	8.7
<b>Capital expenditure</b>	32.9	21.4	21.1	30.7	28.5	26.9	23.6
<b>Total expenditure</b>	119.2	106.3	103.9	116.5	112.2	111.6	107.8

## **E. Municipal debt**

- 3.16 During the five-year period 1998-2002, the level of debt grew from US\$85 million to US\$104 million. Domestic banks were the main source of borrowing, and this category grew from US\$21 million to US\$54 million, while floating-rate debt, mainly with suppliers, shrank from US\$61 million to US\$47 million. The rising level of debt service averaged US\$17 million, with peaks of US\$22 million. In 2003, the MML is reducing its level of debt in absolute terms, and expects the total debt to reach US\$44 million by December, with a floating portion of US\$32 million and debt service of US\$21 million, roughly the same as in previous years.
- 3.17 The amount and structure of MML's debt and the servicing of its debt places the city close to the limits established by the Fiscal Prudence and Transparency Act. Accordingly, measures to pay off the debt, control expenditure and increase revenues are essential in order to create the fiscal space needed for this program.

## **F. Fiscal and financial action plan, and municipal financial projections**

- 3.18 The PTUL is such a large project that the MML needs to create fiscal space for its execution. This will be achieved through measures within the administration's own jurisdiction, including (i) expenditure containment such as restricting the start of new works (except those relating to conservation of infrastructure), keeping staffing at existing levels, or downsizing; and (ii) boosting revenues through improved revenue collection and better organization of financial management. As an indicator of these measures, and reflecting the levels needed to achieve the necessary fiscal slack, the MML has set a goal of increasing total income in 2003 by 10% compared to the previous year's level, followed by an additional 5% in 2004—to be achieved through sustainable means.<sup>22</sup>
- 3.19 These measures, organized in a *Fiscal and Financial Action Plan* (PAFF), represent a consistent way of restructuring municipal accounts and gaining sufficient slack to

<sup>22</sup> In 2003, revenue from taxes and charges has been increasing on a sustained basis, and expenditure is being kept within the projected bounds, thereby enabling the MML to achieve its goal.

guarantee execution, periodically demonstrating to financial institutions and the guarantor State the municipio's capacity to make the necessary counterpart contributions and meet debt service, without detracting from its other responsibilities. The PAFF for 2004 will be a condition precedent to the first disbursement; its presentation before 30 November each year during loan execution, will be a contractual condition.

- 3.20 The MML is eliminating bank overdrafts and renegotiating its loans with domestic banks to improve its debt profile and lower the corresponding cost.<sup>23</sup> As a result, the MML will follow a fiscally sustainable path, in compliance with current legislation, resulting in a significant surplus and clearly shrinking liabilities, which makes it possible to execute the PTUL. The fiscal situation could even improve mainly in aspects related to public-sector debt, thereby opening up additional room in the future for other important projects.

#### **G. Municipal capacity to borrow abroad**

- 3.21 Foreign borrowings are governed by the Fiscal Prudence and Transparency Act, which seeks "to establish guidelines for better management of public finances", and the annual Public Sector Borrowing Bill which stipulates procedural norms and amounts, to serve as guidelines and limits to the Government of Peru and to regional and local governments. In terms of external credit lines, it establishes that those to be guaranteed by the Government of Peru will be awarded through Supreme Decree, with approval from the Council of Ministers, certified by the Minister of Economic Affairs and Finance. In the case of local governments, there should also be *"an application from the Mayor accompanied by a minute reflecting approval by the Municipal Council,"* together with a feasibility study and analysis of the applicant institution's payment capacity to meet debt service. In the case of the MML, these requirements have been fulfilled. With regard to financial limits, current legislation for fiscal 2003 establishes in its ninth temporary provision, that the Government of Peru may *"guarantee borrowing operations to finance regional and local government investments ..., not exceeding the sum of US\$150 million."*
- 3.22 The Fiscal Prudence and Transparency Act was amended in 2003, while maintaining the essential core of the main law. The most important amendment concerned decentralization and creation of regional governments, and the establishment of the conditions under which they can borrow and request guarantees from the Nation. The amendment puts restrictions on borrowing by local and regional governments, establishing in article 4, paragraph (2), *"... (b) regional governments may obtain financing for their external borrowing operations only with State backing; and, when such borrowing occurs, it must be used exclusively to finance expenditure on public infrastructure; (c) applications for borrowing with a*

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<sup>23</sup> As of March 2003, bank debt had declined from S./199.2 million to S./170.3 million, and interest rates had fallen from a weighted average above 16% per year to 9.1% at present. In addition, the payment profile of the debt had lengthened from 27 months to 39 months.



- 3.25 Based on its own analysis, the Bank has established very similar indicators to monitor the operation. Nonetheless these indicators focus on intermediate levels and allow for closer monitoring of the municipal fiscal situation and the need to adopt corrective measures in the future. The proposed methodology distinguishes three situational levels: (i) *normal*, during which the MML will file quarterly reports on the evolution of the financial situation; (ii) *monitoring*, which will arise whenever one of the indicators enters level 2; this requires a detailed explanation of why the situation occurred and its likely evolution. While an indicator remains at this level, financial reports will be filed monthly; and (iii) *remediation*, which will force the MML to take corrective measures. Compliance with these indicators will be a contractual obligation. If the Fiscal Prudence and Transparency Act is amended to make the debt stock indicator more flexible, the new legal value will be accepted up to a maximum of 140%, for level 1 and 170% for level 3.

Indicator	Level 1	Level 2 - Monitoring	Level 3 -Remediation
<b>Total result/total resources</b>	> 0	between 0% and - 2%	< - 2%
<b>Debt service/total resources</b>	< 12%	between 12% and 16%	> 16%
<b>Debt stock/total resources</b>	< 85%	between 85% and 100%	> 100%

- 3.26 Correction measures will vary according to the nature and magnitude of the imbalance. If this was anticipated, measures included in the PAFF ought to be sufficient; if the imbalance is greater than this, the Bank could require: (i) reduction of public investment outside the PTUL; (ii) short-term revenue increase (basically by raising the toll); or (iii) expenditure cuts. These measures have been agreed with the MML.
- 3.27 The municipal financial situation satisfies the legal indicators, so the MEF can be expected to grant the guarantee. Revenue and debt projections are favorable; the operation is within the legal limit for external credit operations with subnational governments. The annual counterpart funding required by the program is approximately US\$11 million, with an maximum forecast of US\$15.5 million in 2006; this figure, although equivalent to 11% of current MML revenues in that year, is considered feasible. Accordingly, the MML is deemed to be in a position to contract the financing and provide the counterpart funding necessary for PTUL execution.
- 3.28 The critical financial aspect of the PTUL concerns the counterpart funding. Repayment of loan principal and interest, although a heavy burden, will find the MML in a better fiscal situation and it will able to bear the load. The critical years

will occur between 2004 and 2006: (i) throughout this period, the primary result will be negative, as a result of major counterpart contributions, and loan disbursements that will bear heavily on capital expenditure; and (ii) in 2006, when the debt stock will approach the maximum authorized by the Fiscal Prudence and Transparency Act, as result of full loan disbursement. As mentioned above, the critical years will be monitored closely through the selected indicators.

## **H. Repayment system**

- 3.29 The Bank loan will be guaranteed by the Republic of Peru. As payments will be made without MEF involvement, the MML has developed a repayment mechanism guaranteeing the funds needed to meet its obligations. This will involve a structured payment arrangement, with a trust fund acting as payment agent to the two Banks. This function will be carried out on the basis of the right to receive municipal funds from predefined sources, and a contingent right to include other funds if revenue collection is insufficient to meet the agreed requirements. Establishment of this trust fund is a condition imposed on the MML by the MEF for granting the guarantee; its terms will have the Bank's nonobjection.
- 3.30 The extreme case would occur when the MML does not have the necessary funds and the Government of Peru has to assume responsibility for paying the Banks when they exercise their guarantee. To cover this possibility, an order of payment preference will be established in trust fund design in the event that the Government of Peru pays the Banks on behalf of the MML. The trust fund would be empowered to repay the Government of Peru any amounts the latter may have paid to the Banks on behalf of the MML, this being the form adopted for repayment of the loan. The agreement between the MML and the government will contain the detailed conditions of this repayment.
- 3.31 The operating regulations of the trust fund will stipulate: (i) its structure and functional attributes; (ii) municipal revenues used for repayment. The MML has decided to use the vehicle tax and, as a supplement, the FONCOMUN;<sup>24</sup> (iii) terms and conditions of the loan contract between the Government of Peru and the MML in the event that the guarantee is called; (iv) order of preference in payments to be made by the trust fund; the Banks will have equal hierarchy and will be paid in proportion to the amounts owed and on the basis of the age of the debt; secondly, the Government of Peru will collect any amounts owed to it; (v) over-collateralization or over-guarantee of the structure to be no less than 1.10; in other words the flow of revenue to the trust fund should exceed the current value of payments by 10%, in order to cover any fluctuations in financial costs; (vi) establishment of a reserve fund equivalent to at least 20% of the amount of the

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<sup>24</sup> Vehicle taxes collected in the past and MML's conservative projections, which have been accepted by the MEF, show that this tax will be sufficient to cover all debt repayment obligations. However, to deal with any contingencies that may arise, the MML will offer the FONCOMUN transfers to the MEF as an additional guarantee.

next payment; (vii) number of months prior to payment of loan service in which the trust fund will have the necessary funds available; (viii) clearly defined procedures to solve any liquidity problem or other event that could impair repayment of the debt contracted; and (ix) the currency in which it is constituted.

- 3.32 Exchange risk will be borne fully by the MML, even though the institution is not prepared for this since it does not have income sources in foreign currency. Nonetheless, the MEF will guarantee the MML unrestricted access to such currency, at the prevailing exchange rate.

## **I. Monitoring, supervision and evaluation system**

### **1. Monitoring**

- 3.33 Within 30 days following the end of the calendar quarter, the PT will file program progress and monitoring reports. The key indicators of these reports are set out in the logical framework. PT will identify other indicators serving the same purpose, which it will include in the Program Operational Manual (POM). The reports will describe the following at least: (i) progress achieved on execution indicators and the agreed disbursement timetable; (ii) the program's *pari passu*; (iii) fulfillment of contractual clauses; (iv) data and information on system operation; (v) a detailed program of activities and action plan for the two following quarters; and (vi) issues that could undermine development of the PTUL.
- 3.34 The quarterly reports will include a specific and independent chapter containing the financial indicators used to monitor the municipal financial and fiscal situation, together with their explanation. This chapter will include an annex containing the periodical report filed by the trust fund that manages resources for loan repayment. In the event that the municipal financial situation enters the "monitoring" zone and more continuous monitoring is required, this report will become independent of those mentioned above.
- 3.35 No later than 30 November each year, PT will present the Annual Work Plan (AWP) to the Banks, detailing activities and projects to be funded, together with a timetable and estimated budget. The AWP for 2004 will be a condition precedent to the first disbursement.

### **2. Supervision**

- 3.36 The IDB and the World Bank will supervise the project through a joint project team. The respective project leaders will coordinate the timetable and composition of missions. Three or four annual supervision and evaluation missions by the Banks are envisaged, at least until implementation of the first segment of the system; mission frequency will subsequently be reduced to two per year. The evaluations made will provide an opportunity to examine: (i) works execution; (ii) the performance of PT and progress in institutional strengthening; (iii) the appropriateness of the procedures set out in the POM; (iv) justification of the

investment made, institutional proposals to be executed and action plan; (v) status of works contracting, including the origin of successful bidders in each case, and source of financing applicable; (vi) budget for the following fiscal year; (vii) schedule of program execution and performance indicators. Should the evaluation made between the Bank and the PT should show that project execution has been unsatisfactory, the latter will prepare an action plan setting out previously agreed corrective measures, within two months of being notified by the Bank of deficiencies identified.

### **3. Evaluation**

- 3.37 The program evaluation system will consist of five stages or reports, with the following scope and time sequence:
- 3.38 *Baseline.* To be executed in the first half of 2004, providing detailed figures on the socioeconomic conditions of potential system users, thereby complementing the partial baseline currently available.
- 3.39 *Mid-term evaluation.* Two years after the project begins, or when 50% of financing has been disbursed, whichever occurs first, the Bank will examine: (i) initial operating results of the Chorrillos-Plaza Grau corridor; (ii) processes and results of works tendering and goods and equipment procurement; (iii) processes and results of concessions to operate routes and revenue collection system; (iv) PT regulatory and operating capacity; (v) DMTU regulation, inspection and control capacity; (vi) progress in mitigation actions and support for operators; and (vii) degree of acceptance and satisfaction among users.
- 3.40 *Evaluation of short-term socioeconomic impact.* Six months after full entry into operation of the arterial corridor, PT will collect detailed information, using program funds, in order to evaluate the short-term impacts of the PTUL on living conditions among the user population, compared to baseline figures.
- 3.41 *Program completion report.* On completion of the program, the Bank will prepare its program completion report PCR, which is expected by the end of 2008.
- 3.42 *Ex post evaluation.* The project team consulted with MML about including an ex post evaluation of medium-term impacts as part of the program. Although the MML considered this to be important, it felt that such an evaluation should not be financed under the present program because it would need to be conducted at least three years after the system had come fully operational, in order to adequately capture the effects of the PTUL on the level of poverty among users and the competitiveness of the city. Should the Bank decide in the future to fund this study out of its own resources, the MML agrees to provide unrestricted access to all information collected and available in its files as of that date.

**J. Procurement of goods, civil works and consulting services**

- 3.43 Contracting for civil works, and the procurement of goods and consulting services will be carried out in accordance with the Bank's procurement policies and procedures, except as indicated below. The limits above which international competitive bidding (ICB) is required will be: US\$350,000 or more for goods procurement; US\$5 million or more for civil works; and over US\$200,000 in the case of consulting services.
- 3.44 Contracts for works in amounts equal to or less than the equivalent of US\$250,000 will be awarded on the basis of price quotes received in response to written invitations to submit bids from at least three contractors. For contracts above this threshold but less than US\$5 million, national competitive bidding procedures acceptable to the Bank will be used, with bidding documents agreed on with the latter.
- 3.45 The two Banks have agreed to share procurements for consulting services; those corresponding to the IDB will follow its policies and procedures, and will apply its standard documents. Given that the consulting services to be contracted are not very complex, the project team recommends including quality-and-cost-based selection (QCBS) in accordance with the Bank's policies for consulting service procurement. In this case, the relative weight of price as a criterion shall not exceed 30%.
- 3.46 Civil works contracting and goods procurement have a special feature in this program arising from IDB-World Bank cofinancing. This has implications in terms of the member countries invited to participate. In this context, an exception to Bank policies is requested to allow firms from IDB- and World Bank-member countries to participate in bidding processes for goods and civil works procurement.
- 3.47 Given the amounts involved, it is felt that local firms from non-Bank member countries are unlikely to show interest in participating in the bidding. Nonetheless, should this occur, World Bank will take full responsibility for monitoring and approving the selection and award process, including dealing with protests. It will also take full responsibility for the external financing thereof.
- 3.48 If, however, only firms from the Bank's member countries take part in the bidding and a complaint is filed where the executing agency does not adhere to the recommendations of the Procurement Committee, the Bank, acting fully in accordance with its policies, will not finance the contract or recognize the expenses incurred as chargeable to the local counterpart funding.
- 3.49 To avoid difficulties in execution, the following actions have been provided for: (i) establish an initial indicative *pari-passu* that is the same for both institutions in all components; (ii) if a given bid involves firms from countries that are members of the World Bank but not the IDB, and as explained, World Bank fully finances this contracting process, World Bank disbursements will be compensated with a

larger IDB *pari-passu* in other bids; otherwise the subsequent procurement will be restricted to IDB-member countries. The same procedure will be adopted in the case of a bid being financed exclusively with IDB funds.

- 3.50 During preparation of the operation, PT received assistance from Transmilenio (TM), the concession-holder in the mass transit system of Bogota. To execute this project, PT wishes to retain TM services to provide assistance during the phases of construction, implementation and initial operation of the system. This will improve execution times and promote technology transfer towards PT. It is worth noting that TM has unique technical advantages arising from the fact that it operates the most recent and broadest-scope system implemented in a large Latin American capital; it is a firm of international repute providing institutional and technical support to several Latin American cities; it is also the habitual target of numerous technical training visits; and it has highly specialized staff and capacity for internal coordination. The World Bank has also given a high rating to the system in Bogota as managed by TM. In addition, TM has institutional advantages as a municipal public enterprise, operating through the concession system, with major similarities to that which the MML seeks to apply. It knows the processes that PT needs to develop; it is an established and expanding firm, with growing responsibilities in dealing with the problems of public transportation management in large cities. PT therefore expects to hire TM, and it will request permission for direct contracting in an amount equivalent to US\$200,000, using loan funding.

## **1. Examination of procurements**

- 3.51 An ex ante review will be made of all procurement processes in amounts over US\$500,000 for civil works, US\$250,000 for goods, US\$100,000 for consulting firms and US\$50,000 for individual consultants. In the case of consultancies, services costing an estimated US\$100,000 or more will be subject to prior examination of the contract, terms of reference and selection procedure; in the case of individual consultants, a prior examination will be made of services costing US\$50,000 or more. In consulting services involving smaller amounts, a prior examination will only be made of the first two contracts made with consulting firms and individual consultants in each case.
- 3.52 The first two local competitive bids will be subject to ex ante review, in order to ensure the executing agency understands Bank rules and procedures. If this process reveals insufficient understanding, the Country Office may call for a continuation of ex ante reviews of local bidding processes until the executing agency attains the required capacity.
- 3.53 The high level of prior examination is justified because both PT and EMAPE S.A.—the institutions responsible for carrying out the procurements—do not have experience in contracting with foreign financing. Accordingly, PT is expected to be assisted by a procurement specialist, the Banks will hold training courses and management missions, and COF/CPE will make on-site visits, periodic reviews and

random examinations of procurement documentation. If it is found that the agreed procedures have not been followed, the procurements and contracts in question will not be eligible for loan financing. Without exceeding the limits for international competitive bidding, the Country Office may amend the amount established for ex ante review if the executing agency is found to be applying principles of transparency and competition in procurement processes on a reasonable basis.

## **2. Purchase of land plots for terminals and concourses**

- 3.54 Prior to the tendering of civil works for terminals and concourses, the PT will prove to the Bank's satisfaction that it holds the necessary rights on the land to be built upon, and that the land plots in question satisfy the physical and locational specifications established in the system's technical design. As commercial and industrial land plots are involved, no purchase difficulties are anticipated.

### **K. Bank account, disbursements, accounting, audit and financing**

- 3.55 *Bank accounts.* Special accounts in a commercial bank will be opened and maintained in soles and in United States dollars.
- 3.56 *Revolving fund.* A revolving fund account will be opened with an authorized amount equivalent to 5% of the loan (US\$2.25 million). The Bank will replenish this fund as it receives duly justified disbursement requests from the borrower. PT will oversee the use of the fund and will prepare disbursement requests on behalf of the borrower.
- 3.57 *Records and control of disbursements.* All payments relating to contracts for civil works, goods and consulting services will be made by PT. The relevant financial information, including construction contracts and agreements, service contracts, invoices for work carried out, deeds of sale, etc., will be approved by the person appointed by the POM, before any payment is made. Financial accounting for transactions and disbursements during execution and administration of the program will be overseen by PT in order to strengthen internal financial control and avoid errors in the management and allocation of funds. Cash and flow of funds management, including reconciliation of the bank accounts referred to above will be subject to central control and independent verification.
- 3.58 *Disbursements.* The first three disbursement requests, whatever these may be, together with those corresponding to contracts for civil works exceeding US\$1 million, consulting firms for over US\$100,000, individual consultants for over US\$50,000 and goods for over US\$50,000, need to be fully documented. In other cases, provided COF/CPE has given its nonobjection to the control and filing systems, presentation of support documentation will not be required. This will be kept by PT and must be held available for review by the Bank and external auditors, whenever they require.

- 3.59 *External audit.* The external audit will be performed by a firm of independent auditors acceptable to the Bank and in accordance with its requirements, based on guidelines set out in the terms of reference, and applying selection and contracting procedures<sup>25</sup> that have the Bank's nonobjection. The external audit will cover financial and operational aspects, and will require presentation of a six-monthly interim report within 60 days following the end of the first semester, and the annual report of the program's financial statements within 120 days following the end of the fiscal year.
- 3.60 *Retroactive financing and recognition of expenses.* The loan will finance eligible expenses incurred in the program preparation phase during the 18 months prior to its approval, for up to US\$1 million. It will also recognize eligible expenses contracted during the 18 months preceding its approval, for up to US\$1.5 million.

**L. Execution and disbursement periods**

- 3.61 The minimum execution period is 36 months, and the maximum 48 months. The loan is expected to be fully disbursed within 54 months.

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<sup>25</sup> The terms of reference will follow the guidelines established in the Bank's terms of reference for the external audit of IDB-financed projects (document AF-400), which may be modified to include World Bank requirements. In selecting and hiring the firm, procedures will be used that are substantially similar to those contained in the Bank's document on bidding for external audits (document AF-200). The external audit will cover operational aspects, mainly procurement, as set out in detail in the terms of reference. These guidelines and procedures will be agreed with World Bank with a view to hiring a single firm.

## **IV. VIABILITY AND RISKS**

### **A. Institutional and sociopolitical viability**

- 4.1 The program has a firm commitment from MML, having gained unanimous approval in the Municipal Council (Agreement 056 of 9 May 2003). During program preparation, PT has shown itself to be a competent and flexible sector authority, but its technical capacity needs expanding and strengthening to respond to growing operational demands. Separation of functions between PT (as PTUL executing agency and future operator of the new system), EMAPE S.A. (responsible for civil works contracting and supervision) and DMTU (responsible for rationalization of routes, and regulation, inspection and control of the transportation system), will enable these institutions to concentrate on their primary functions, for which they are best prepared. Nonetheless, technical and managerial training will be needed, to enable them to respond adequately to the demands of an operation on the scale of the PTUL.
- 4.2 Making the program socially viable depends on its acceptance by users and transportation operators—those likely to be displaced by rationalization of the sector, and those who will remain in the activity. Previous urban transportation projects have proven to be of high social and economic return. The system will serve the north and south cones of the city, where low-income sectors reside. Although a high level of social acceptance is expected, the following issues are seen as critical: (i) the fare charged to the user must be kept competitive with that of other public transportation services, and compatible with the income level of the population served; and (ii) the potentials and limitations of the system in responding to the population's transportation needs must be established clearly and publicly. Studies carried out demonstrate the viability of a fare at or slightly below the current rate, and campaigns of awareness raising and citizen education will analyze user expectations. The PTUL anticipates a broad range of training, mitigation and compensation measures to minimize effects on existing operators (paragraphs 2.16 (iii) and 2.16 (iv)).

### **B. Technical and operational viability**

- 4.3 The PTUL does not present technical difficulties in terms of construction of the corridors and other infrastructure needed for its operation. The proposed works plan minimizes the time of traffic interruption, reducing the impact on road users and nearby owners. To guarantee the technical viability of the works, the characteristics of the project will be taken into consideration, together with the specific demand for articulated buses and strict application of existing rights of way. The size and characteristics of the project are appropriate, allowing for a safe service with a useful life of at least 20 years, maintenance guaranteed.

- 4.4 From an operational point of view, experiences with similar cities demonstrate the viability of the scheme chosen. Consequently, no complications are expected with the implementation, as the program provides for the actions needed to meet requirements.

### C. Economic viability

- 4.5 The feasibility analysis carried out covered the entire program investment. This included components that are not necessary for system operation (improvement of the urban environment) in addition to expenditure on vehicles (investment, operation and maintenance), on the cost side, together with the operational cost differential and timesaving for passengers (S./1.1 per hour for public transportation users) on the benefits side. This resulted in a net present value of US\$80.6 million, using a discount rate of 12%, and an internal rate of return (IRR) of 19.7%. These figures represent a conservative valuation since the analysis did not include benefits arising from fewer accidents, reduction in environmental pollution, improvement of urban habitat, and others.
- 4.6 In order to verify the robustness of the program, sensitivity analysis was conducted on the rate of return in terms of 18 variables. Five of these (discount rate, construction cost, fuel cost, remuneration of labor and coefficient of the shadow price in operating costs) produced significant variations. The table below shows the behavior of profitability in response to variations of  $\pm 30\%$  in each of the variables analyzed. The risk analysis carried out concludes that there is a 99.6% likelihood of the project producing an internal rate of return above 12%.

Variation of rate of return	+ 30% of reference value	- 30% of reference value
Discount rate	NPV = US\$35 million	NPV = US\$126 million
Construction cost	IRR = 15%	IRR = 26%
Fuel cost	IRR = 22%	IRR = 17%
Labor costs	IRR = 22%	IRR = 17%
Coefficient of shadow price in operating costs	IRR = 25%	IRR = 14%

### D. Financial viability of operator

- 4.7 An independent evaluation was made of the rate of return on operation of the arterial and feeder routes, during an eight-year period of analysis coinciding with the vehicle fleet amortization period. The results of the economic and financial cash-flow analyses show that the operation generates a positive return with an IRR in excess of 25%.

	<b>Trunk corridor</b>	<b>Feeder routes</b>
<b>Economic net present value (1)</b>	US\$1.9 million	US\$800,000
<b>Financial net present value (1)</b>	US\$5.1 million	US\$2.9 million
<b>Economic internal rate of return</b>	14.1%	13.9%
<b>Financial internal rate of return</b>	25.7%	25.3%

(1) discounted at 12% per year.

## **E. Social and environmental feasibility**

- 4.8 The PTUL is socially and environmentally feasible; its expected impacts are mostly positive, and the negative ones envisaged can be avoided and controlled through well-known preventive, mitigating and compensatory measures that are relatively simple to apply, and whose cost has been included in the program.
- 4.9 *Environmental legal framework.* The MML is responsible for evaluation and approval of urban projects that potentially generate significant environmental impacts. During program preparation, the following measures were implemented: (i) Strategic Environmental Assessment, which analyses the effects of PTUL implementation and operation on the environmental, socioeconomic and cultural dynamics of the metropolis; (ii) Environmental Impact Assessment in the direct area of influence of the arterial system; (iii) General framework for population resettlement, and action plan dealing with disrupted itinerant commerce; and (iv) Mitigation plan for affected operators.
- 4.10 *Main environmental impacts.* These will occur mainly while the works are taking place. Hazards include the possibility of: watercourses becoming contaminated as a result of inappropriate actions by workers; deterioration of material source areas; inappropriate disposal of waste materials; increased noise levels close to hospitals, schools and public places; specific disruptions in gardens and green areas. In the medium-term, pressure on the Pantanos de la Villa protection area could also be increased.
- 4.11 *Main social and cultural impacts.* During the period of the works, nearby traffic flows will be more complex than usual, with increased risk of accidents; public service infrastructure will be subject to interference, and productive and commercial activities will be temporarily disrupted by access restrictions. Construction of the arterial corridor will affect 72 small-scale flower shops that have their outlets on municipal land, in addition to various points of informal itinerant commerce dispersed along the route at bus stops, on sidewalks and in the central reservations. The course of the route is expected to cross the historical centers of Lima and Barranco, but without affecting them directly. Compulsory

purchase is unlikely to be necessary, and direct effects on the city's historical and cultural heritage are not anticipated. The rationalization of public transportation routes will directly affect about 5,500 operators, drivers and ticket collectors; but approximately 2,800 new jobs will be created with the new system. Indirect medium and long-term impacts are expected to include higher property prices along the route and around terminals, resulting in changes in the spatial distribution of activities, in the social profile of neighborhoods and in the sociospatial stratification of their populations; increased labor supply and more variety of jobs as a result of greater economic activity; improvements in urban habitat and conditions of life in the neighborhoods benefitting from the system; freeing up of useful time for the population as a result of shorter travel times; better distribution of locational advantages in the job-housing nexus; and enhanced comfort and safety in the system.

- 4.12 *Environmental and social management plan (PMAS)*. This covers the following socioenvironmental prevention and mitigation measures, whose costs are included in the PTUL: (i) urban improvements in the historical centers of Lima and Barranco, along with other notable sites and the Pantanos de la Villa protection area; (ii) air quality monitoring; (iii) temporary relocation of affected flower vendors to another municipal land site with the same physical and accessibility characteristics, for a four-month period during construction of the bus stop, followed by final relocation in the same area<sup>26</sup> once the works have concluded; (iv) support for itinerant commerce through alternatives already applied by the MML and the district mayoral offices, which include relocation in existing markets and retraining for itinerant traders; (v) mitigation of impacts on about 5,550 affected owners and drivers, through actions of job placement and retraining, and support for microenterprise formation and training; (vi) institutional coordination between PT and other municipal organizations to include the PTUL in the planning and management of land use and occupation, maximizing physical interventions of a public nature and ensuring adequate monitoring of indirect medium-term impacts; (vii) bidding documents and model contracts for civil works and concession contracts, including socioenvironmental specifications for civil works and services, with penalties for noncompliance; (viii) environmental supervision of civil works and hiring of an independent technical environmental auditor at least twice a year to report simultaneously to PT, EMAPE S.A., MML and CONAM.
- 4.13 *Execution procedures*. To guarantee the effectiveness of PMAS measures, the Program Operations Manual (POM) will specify the following: (i) before the start of the bidding process for construction work on the Av. República de Panamá terminal, the final design for the temporary and definitive relocation of flower vendors will be duly agreed with all affected parties and presented for the Bank's nonobjection; before the works contract is signed, flower vendors will be relocated in the temporary site; and (ii) prior to bidding for civil works on the arterial corridor

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<sup>26</sup> The land area totals 5,300 m<sup>2</sup>, of which just one part is occupied by the flower sellers; the rest of the land after construction of the bus stop will be sufficient for their relocation.

segments, the following items will be presented for the Bank's nonobjection: detailed timetables for implementation of measures to support itinerant commerce, mitigation for operators, and works socioenvironmental specifications.

#### **F. Impact on poverty**

- 4.14 This operation qualifies as a social equity enhancing project, insofar as (i) it promotes social equity as described in the indicative targets mandated by the Bank's Eighth General Increase in Resources (document AB-1704); and (ii) it qualifies as a poverty-targeted investment (PTI), since it uses the number of people living below the poverty line<sup>27</sup> as a criterion. The PTUL will serve the north cone of Lima, where 91% of the population live below the poverty line, the south cone (92%) and the center (84%), where about 3.5 million inhabitants live; more specifically, 60% of the people served have per capita incomes below US\$75 per month. The borrower will not be using the 10 percentage points in additional financing.

#### **G. Benefits**

- 4.15 Implementation of the rapid mass transit system will achieve a significant, albeit gradual reduction in the obsolete vehicle fleet which currently provides the service; a qualitative improvement in the operation of public transportation; reductions in journey times, atmospheric pollution and noise levels; better circulation for pedestrians and cyclists, and improved road safety and decongestion of traffic flows in its area of influence. The PTUL will make a significant contribution to improving the urban environment, restoring and enhancing public spaces, improving conditions of circulation for pedestrians and non-motorized vehicles, promoting the management and upgrading of land use and occupation in areas around the corridor, encouraging the population to make use of key city spaces, and increasing citizen safety in its area of influence. Low-income population groups will also benefit from better access to places of work, and to social, civic and public services, thus gaining a better quality of life. The new conditions of mobility will help make the city's economic and social relations more efficient.
- 4.16 In addition, the PTUL will strengthen the capacity of MML to establish an efficient urban traffic and transportation management system, including organizations with well-defined responsibilities, a suitable normative and regulatory framework, coordinated management, inspection and control mechanisms, and efficient use of resources. It will also help establish formal transportation operators with capacity for expansion.

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<sup>27</sup> The Bank calculates that 35% of the Peruvian population is living below the poverty line of S./443 (US\$132) per capita per month.

## **H. Risks**

- 4.17 The main risks concern the following: (i) the informal nature of operators affected by the restructuring of services; (ii) limited capacity of these operators to participate in service concessions and make the necessary investments; (iii) MML's technical and institutional shortcomings in regulating, operating, and inspecting the services; (iv) the capacity of MML to make the counterpart contribution, given that its financial situation is far from comfortable; and (v) the administrative learning process owing to MML's lack of experience with multilateral operations.
- 4.18 To mitigate these risks, the program includes: (i) compensation and retraining for operators adversely affected, many of whom will be absorbed by the new services; (ii) support for business organization and consolidation, and promotion of strategic partnerships to enable investors from outside the sector to participate in public tenders; (iii) a broad program of strengthening and training among the municipal organizations that will participate in the regulation and inspection of urban traffic and transportation; (iv) analyses carried out show that the counterpart contribution, as well as payment of loan service, is within the municipio's financial capacity, without having to neglect essential aspects of its responsibility in other fields. The PTUL will incorporate financial indicators to monitor fiscal solvency, which, if not fulfilled, will trigger previously agreed corrective measures; and (v) the addition of experienced personnel to MML's staff, training courses in procurement and disbursement, and close monitoring by the Bank.

**PERU**  
**METROPOLITAN LIMA URBAN TRANSPORTATION PROGRAM (PTUL) (PE-0187)**  
**Logical Framework**

Objective	Indicators	Means of verification	Assumptions
<b>Goal</b> To help improve the quality of life of the population of Lima, particularly low-income groups that will be served by the PTUL.			
<b>Purpose</b> To improve conditions of mobility among the population, particularly low-income groups, by implementing an efficient, reliable, environmentally sound and safe rapid mass transit system.	<i>Impact indicators at end of program</i> <ul style="list-style-type: none"> <li>Journey time for corridor users reduced by at least 25%, when the North-South system is operating.</li> <li>At least 400,000 passengers per day use the better quality urban public transport system, of whom at least 60% belong to socioeconomic strata C, D and E.</li> <li>40% reduction in number of traffic accidents in the corridor.</li> <li>Reduction of air pollution generated by vehicles in the corridor: (i) 20% of fine particulate material (PM 2.5); and 15% of greenhouse gases (CO<sub>2</sub>).</li> <li>60% of users of the new system consider that the public transport service has improved.</li> <li>Improvement in quality of public transport service, through: (i) decrease in average age of bus fleet in the corridor, with the introduction of at least 250 modern technology buses; and (ii) 25% expansion of service time coverage in corridors and feeder roads.</li> </ul>	<ul style="list-style-type: none"> <li>Operational information of PROTRANSPORTE.</li> <li>User surveys/study to evaluate short-term impact.</li> <li>Information from DMTU and PNP.</li> <li>Periodic air quality monitoring reports.</li> </ul>	<ul style="list-style-type: none"> <li>Adequate municipal management of public transport.</li> <li>Public transport fares compatible with income level of user population.</li> <li>Current public transport operators capitalize and organize to participate in new concessions.</li> <li>Cooperation with PNP in the management of urban transport.</li> <li>Technical inspection of vehicles implemented by DMTU.</li> <li>Transport operators maintain constructive dialogue with MML and seek to improve their business management.</li> </ul>

Objective	Indicators	Means of verification	Assumptions
<b>Components</b>			
<p><b>1. Improvement of mobility and urban environment</b></p> <ul style="list-style-type: none"> <li>Segregated corridors for high-capacity buses.</li> <li>Terminals, bus stops, concourses and garages.</li> <li>Feeder and service streets, and cycle lanes.</li> <li>Operational system (control center and traffic lights).</li> <li>Enhancement of urban environment.</li> </ul>	<p><i>Outcome indicators at the end of the program:</i></p> <ul style="list-style-type: none"> <li>28.6 km of segregated lanes in operation</li> <li>2 transfer terminals, 2 midway terminals, 35 bus stops and 2 concourses have been constructed.</li> <li>50 km of feeder streets and 30 km cycle lanes have been paved.</li> <li>Operational control center of the system to have been implemented, together with the integrated corridor traffic light system.</li> <li>Urban spaces to have been restored: refurbishment of 50 km of sidewalks, 800 public lighting units, restoration of 10 plazas, construction of five pedestrian bridges along the corridors and around transfer terminals.</li> <li>72 flower market vendors to have been relocated, and 250 itinerant traders reorganized.</li> <li>Three air quality monitoring points to have implemented and operated for two years.</li> </ul>	<ul style="list-style-type: none"> <li>Program information system and road inventory</li> <li>Quarterly progress and reports.</li> <li>PROTRANSPORTE monitoring system</li> <li>Bank mission reports</li> </ul>	<ul style="list-style-type: none"> <li>Program receives continuous financial and institutional support from MML to improve urban public transport management.</li> <li>MML keeps its fiscal accounts in balance.</li> <li>Municipal organizations PT, DMTU, EMAPE operating with well-defined responsibilities, in accordance with MOP procedures, and with adequate trained human, material and financial resources.</li> <li>Support maintained for implementing measures to mitigate social and environmental impacts.</li> </ul>
<p><b>2. Institutional strengthening</b></p> <ul style="list-style-type: none"> <li>Strengthening and training of PROTRANSPORTE and DMTU in their management, inspection and oversight capacities.</li> </ul>	<ul style="list-style-type: none"> <li>Public transport regulatory framework updated, complemented and implemented, with interinstitutional coordination mechanisms operating.</li> <li>Transport service concessions in trunk and feeder routes, and revenue collection concessions concluded on an appropriate and timely basis.</li> <li>Organization of public transport by the DMTU: system for recording traffic infractions implemented and in operation; and route regulatory plan updated and adapted to the needs of the new system.</li> </ul>	<ul style="list-style-type: none"> <li>PROTRANSPORTE quarterly reports</li> <li>Surveys and interviews with qualified representatives of transport operators.</li> </ul>	<ul style="list-style-type: none"> <li>PT and EMAPE have capacity to execute loan activities.</li> </ul>

Objective	Indicators	Means of verification	Assumptions
<ul style="list-style-type: none"> <li>Strengthening and training of EMAPE and detachment responsible for safety.</li> </ul>	<ul style="list-style-type: none"> <li>Works execution and supervision contracts signed within the deadlines and amounts established in the MOP and corresponding AOPs.</li> <li>Transport inspector body, for oversight and inspection of services provided on the trunk network and its area of influence, created and adequately financed by start of operations of the south-center segment.</li> </ul>		<ul style="list-style-type: none"> <li>Existence of qualified contracting firms with technical, financial and human resources to support the program.</li> </ul>
<p><b>3. Sociopolitical viability</b></p> <ul style="list-style-type: none"> <li>Citizen participation and education.</li> <li>Support and mitigation of impacts for operators.</li> </ul>	<ul style="list-style-type: none"> <li>Establishment of a user service center.</li> <li>Social communication program implemented.</li> <li>Driver education and road safety program implemented.</li> <li>At least 3,500 affected operators strengthened in their employment and/or entrepreneurial capacity.</li> <li>At least 50 microenterprises created through microcredit support.</li> </ul>	<ul style="list-style-type: none"> <li>PROTRANSPORTE quarterly reports.</li> <li>Surveys and interviews with qualified representatives of transport operators.</li> <li>Qualified surveys with system users.</li> </ul>	<ul style="list-style-type: none"> <li>PT has implemented an appropriate strategy for communication and negotiation with operators.</li> </ul>
<p><b>4. Studies and supervision</b></p> <ul style="list-style-type: none"> <li>Contracting for civil works and consulting services (studies and works supervision).</li> <li>Contracting for consulting services and goods procurement for institutional strengthening activities.</li> <li>Monitoring of short-term socioeconomic impacts.</li> </ul>	<p>See program budget.</p> <ul style="list-style-type: none"> <li>Socioeconomic baseline of potential users established; short-term socioeconomic impacts evaluated (six months after start of system operation); and methodology designed to evaluate medium-term (3-year) impacts.</li> </ul>	<ul style="list-style-type: none"> <li>PROTRANSPORTE reports.</li> <li>Program accounting records.</li> <li>Periodic program monitoring meetings.</li> </ul>	<ul style="list-style-type: none"> <li>PROTRANSPORTE possesses institutional capacity and financial resources to carry out the activities.</li> <li>Program administrative procedures allow for easy execution.</li> <li>EMAPE has capacity to execute works supervision contracts.</li> </ul>

<b>Lima Urban Transport Program</b> <b>PE 0187</b> <b>PROCUREMENT PLAN</b> <i>(Amounts in thousands of US dollars)</i>						
Main project procurements	Total amount	IDB	Others	Procurement method	Prequalification YES/NO	Special Procurement Notice: Tentative publication date
<b>GOODS</b>						
Control center (Inc. supply and installation)	2,700	750	1,950	ICB	NO	3 quarter/04
Purchase of control center building	2,000		2,000		N/A	N/A
Traffic lights system	2,400	984	1,416	ICB	NO	3 quarter/04
Complementary traffic light network	1,350	554	797	ICB	NO	2 quarter/04
Air quality monitoring Center	850	340	510	ICB	NO	1 quarter/04
Vehicle procurement	240	96	144	PB	NO	1 quarter/04
Crane procurement	320	128	192	ICB	NO	4 quarter/04
Minor equipment (computer, software, communications)	220	88	132	LCB	NO	2 quarter/04
Miscellaneous equipment	125	50	75	LCB	NO	2 quarter/04
<b>CIVIL WORKS</b>						
<b>Corridors</b>						
South: Plaza Grau to Rep. Panamá (9.2 km)	10,410	4,164	6,246	ICB	NO	2 quarter/04
South: Vía Expresa (6.4 km)	8,490	3,396	5,094	ICB	NO	1 quarter/04
Center: Emancipación Lampa (2.1 km)	3,650	1,460	2,190	ICB	NO	2 quarter/05
Center: Alfonso Ugarte-España/Paseo Colón (3.2 km)	5,350	2,140	3,210	ICB	NO	1 quarter/05
North: Plaza Castilla-Honorio Delgado ( km)	5,830	2,332	3,498	ICB	NO	1 quarter/05
North: Honorio Delgado-Naranjal ( km)	10,700	4,280	6,420	ICB	NO	3 quarter/05
<b>Feeder roads</b>						
South feeder roads and bicycle lanes	2,000	800	1,200	LCB	NO	1 quarter/04
North feeder roads and bicycle lanes	2,950	1,200	1,750	LCB	NO	2 quarter/05
<b>Construction of concourses and garages</b>						
North concourse	2,150	872	1,278	LCB	NO	4 quarter/05
South concourse	2,150	872	1,278	LCB	NO	3 quarter/04
<b>Main terminal</b>						
North terminal	4,500	1,800	2,700	ICB	NO	3 quarter/05
South terminal	2,000	800	1,200	LCB	NO	4 quarter/04
CONCOURSES (land purchase)	4,250		4,250			N/A
Bus stops, south corridor	2,010	804	1,206	LCB	NO	1 quarter/04
Bus stops Express Lane	4,375	1,750	2,625	ICB	NO	4 quarter/04
Bus stops center	2,236	894	1,342	LCB	NO	3 quarter/05
Bus stops north	2,248	899	1,349	LCB	NO	2 quarter/05
Recovery of public spaces	1,800	720	1,080	LCB	NO	2 quarter/05

<b>Lima Urban Transport Program</b> <b>PE 0187</b> <b>PROCUREMENT PLAN</b> <i>(Amounts in thousands of US dollars)</i>						
Main project procurements	Total amount	IDB	Others	Procurement method	Prequalification YES/NO	Special Procurement Notice: Tentative publication date
<b>Consulting services</b>						
Detailed engineering terminals and concourses	100	40	60	PCP	NO	N/A
Detailed engineering feeder roads	150	40	60	PCP	NO	N/A
Detailed engineering bus stops	80	32	48	PCP	NO	N/A
Design of minimum air quality monitoring network	30	12	18	PB	NO	
Route rationalization plan	100	40	60	PCP	NO	N/A
Plaza Grau design alternatives	50	20	30	PCP	NO	2 quarter/03
Final engineering Plaza Grau	50	20	30	PCP	NO	3 quarter/03
Detailed highway engineering and corridor structures	370	200	170	ICP	YES	1 quarter/04
Institutional and system business design	790	0	790	PCP	NO	2 quarter/03
Operator impact measures	70	28	42	PCP	NO	2 quarter/03
Environmental baseline and emissions inventory	40	16	24	PCP	NO	2 quarter/03
Monitoring and evaluation system	100	40	60	PCP	NO	2 quarter/03
Monitoring and evaluation of user impacts	60	24	36	PCP	NO	4 quarter/05
Program operations manual	20	8	12	PB	NO	4 quarter/03
Other first stage studies	300	120	180	PCP	NO	3 quarter/03
Miscellaneous studies and consultancies on institutional strengthening	405	162	243	PCP	NO	
Miscellaneous minor training consultancies	500	200	300	PCP	NO	
Urban and traffic enhancement	100	0	100	PCP	NO	N/A
Second stage studies	960	384	576	ICP	YES	1 quarter/05
Supervision south corridor	1,560	624	936	ICP	YES	4 quarter/03
Supervision north corridor	2,000	800	1,200	ICP	YES	4 quarter/04
Supervision south terminal, concourse and stations	740	296	444	ICP	YES	3 quarter/03
Supervision north terminal and stations	780	312	468	ICP	YES	4 quarter/04

1/ to be recognized as counterpart  
 ICB: International competitive bidding  
 LCB: Local competitive bidding  
 ICP: International call for proposals  
 PCP: Public call for proposals  
 PB: Private bidding

# **METROPOLITAN LIMA URBAN TRANSPORTATION PROGRAM (PTUL) (PE-0187)**

**Cost Table** (in thousands of US dollars)

<b>Components</b>	<b>TOTAL</b>	<b>IDB</b>	<b>WB</b>	<b>MML</b>
<b>Improvement of mobility and urban environment</b>	<b>86,800</b>	<b>32,220</b>	<b>32,220</b>	<b>22,360</b>
Arterial routes <sup>1</sup>	43,700	17,700	17,700	8,300
Bus stops and intermediate terminals	10,870	4,400	4,400	2,070
Main terminals	6,500	2,600	2,600	1,300
Concourses and garages (without equipment)	4,300	1,750	1,750	800
Land, concourses and control center building	6,250	0	0	6,250
Feeder roads and cycle lanes	4,950	2,000	2,000	950
Control center	2,700	750	750	1,200
Traffic lights system <sup>2</sup>	3,750	1,500	1,500	750
Highway safety and traffic management	720	290	290	140
Urban improvement of key points	1,800	730	730	340
Relocation of itinerant commerce <sup>3</sup>	300	120	120	60
Environmental compensation <sup>4</sup>	110	40	40	30
Air quality monitoring	850	340	340	170
<b>Institutional strengthening</b>	<b>3,030</b>	<b>1,225</b>	<b>1,225</b>	<b>580</b>
Institutional, normative and regulatory framework	100	40	40	20
Support for PROTRANSPORTE and EMAPE	2,280	925	925	430
Support for DMTU and PNP	650	260	260	130
<b>Sociopolitical viability</b>	<b>5,000</b>	<b>1,420</b>	<b>1,420</b>	<b>2,160</b>
Citizen participation and education	1,500	610	610	280
Support for and mitigation of impact on operators <sup>5</sup>	2,000	810	810	380
Preoperation of system	1,500	0	0	1500
<b>Studies and supervision <sup>6</sup></b>	<b>7,620</b>	<b>3,085</b>	<b>3,085</b>	<b>1,450</b>
<b>Program management</b>	<b>4,850</b>	<b>0</b>	<b>0</b>	<b>4,850</b>
<b>Financial audit</b>	<b>300</b>	<b>150</b>	<b>150</b>	<b>0</b>
<b>Other expenses</b>	<b>900</b>	<b>450</b>	<b>450</b>	<b>0</b>
Inspection and supervision	900	450	450	0
<b>Not specifically assigned</b>	<b>15,900</b>	<b>6,450</b>	<b>6,450</b>	<b>3,000</b>
Contingencies	10,000	4,000	4,000	2,000
Scaling	5,900	2,450	2,450	1,000
<b>TOTAL (financing)</b>	<b>124,400</b>	<b>45,000</b>	<b>45,000</b>	<b>34,400</b>
Grau underpass <sup>7</sup>	10,000	0	0	10,000
<b>TOTAL</b>	<b>134,400</b>	<b>45,000</b>	<b>45,000</b>	<b>44,400</b>

- (1) The total cost of US\$43,700,000 includes: US\$19,200,000 (44%) for construction of segregated corridors and pedestrian bridges; US\$22,500,000 (52%) for upgrading of the urban environment along the system; US\$2,000,000 (4%) for socioenvironmental management measures.
- (2) Includes US\$2,400,000 for traffic lights system on the trunk corridor and US\$1,350,000 for traffic lights in surrounding area.
- (3) Includes relocation of flower market and support for itinerant commerce on trunk routes.
- (4) Includes support for Pantanos de la Villa and replanting of trees.
- (5) US\$1,700,000 corresponds to the impact mitigation and US\$300,000 to support other operators. The Bank will not finance the microcredit subcomponent.
- (6) Includes cost of environmental audit.
- (7) Civil works to be put out to tender by MML under procedures in accordance with national legislation.