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BRAZIL

PROCIDADES – MARINGÁ

URBAN MOBILITY PROGRAM FOR THE MUNICÍPIO OF MARINGÁ

(BR-L1087)

LOAN PROPOSAL

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ELECTRONIC LINKS	
REQUIRED	
1.	Annual work plan (AWP) IDBDOCS1841758
2.	Monitoring and evaluation methodology IDBDOCS1408403
3.	ESMR-EMP Environmental analysis and the environmental management plan (EMP) IDBDOCS1841779
4.	Procurement plan IDBDOCS1441553
5.	Environmental screening and safeguards IDBDOCS1841758
OPTIONAL	
1.	Economic viability study Findings for the representative sample of projects IDBDOCS1777799
2.	Institutional analysis Findings of the institutional capacity assessment of the Maringá Municipal Government and the fiduciary risk analysis 2.1 Risk analysis: IDBDOCS1854089 2.2 ICAS results: IDBDOCS1854090 2.3 Organizational management IDBDOCS1843130 2.4 Program execution unit IDBDOCS1843382
3.	Financial analysis Findings of the evaluation of the município's borrowing and repayment capacity 3.1 Financial assessment: IDBDOCS1843544
4.	Maps of the município of Maringá and the program intervention area IDBDOCS1843560

ABBREVIATIONS

COFIEIX	Comissão de Financiamentos Externos [External Financing Commission]
EIA	Environmental impact assessment
EIRR	Economic internal rate of return
HDI	Human Development Index
ICMS	Imposto sobre a circulação de mercadorias e prestação de serviços [goods and services tax]
IPTU	Imposto Predial e Territorial Urbano [urban land and property tax]
ISS	Imposto sobre Serviços [tax on services]
ITBI	Imposto sobre Transmissão de Bens Imóveis [property conveyance tax]
km	kilometer
LCF	Local Currency Facility
LIBOR	London Interbank Offered Rate
LRF	Lei de Responsabilidade Fiscal [Fiscal Responsibility Act]
MMG	Maringá Municipal Government
NCB	National competitive bidding
NCR	Net current revenue
OC	Ordinary Capital
PAC	Programa de Aceleração do Crescimento [Growth Acceleration Program]
PEU	Program execution unit
PPK	Passengers per kilometer
UEM	Universidade Estadual de Maringá
UNDP	United Nations Development Programme

PROJECT SUMMARY

BRAZIL

PROCIDADES – URBAN MOBILITY PROGRAM FOR THE MUNICÍPIO OF MARINGÁ (BR-L1087)

Financial Terms and Conditions*				
Borrower: Município of Maringá			Amortization period:	25 years
Guarantor: Federative Republic of Brazil			Grace period:	5 years
Executing agency: Município of Maringá			Disbursement period:	4 years
Source	Amount (US\$)	%	Interest rate:	LIBOR
IDB (Ordinary Capital)	13,000,000	50	Inspection and supervision fee:	*
Local	13,000,000	50	Credit fee:	*
Total	26,000,000	100	Currency:	U.S. dollars from the Single Currency Facility (OC)
			Conversion to reais:	LCF
Project at a Glance				
Objective and description: The program goal is to promote improved living conditions for residents of the metropolitan region of the município of Maringá through infrastructure interventions in the urban mobility and transportation sector.				
The purpose is to provide a more efficient urban transportation system for the population of Maringá, with shorter travel times, lower unit operating costs, enhanced safety, and better environmental conditions, and thereby increase the potential for future urban development in the municipal area of influence.				
To that effect, the program will finance: (i) investments in urban and road infrastructure, with priority lanes for buses along the city's main public transit corridor; (ii) interventions to improve road safety; (iii) activities to modernize the traffic light system; and (iv) activities and equipment aimed at institution-strengthening and improved transportation management.				
Special contractual conditions:				
Conditions precedent to the first disbursement: (i) contract the management and financial/accounting control system (see paragraph 3.9); and (ii) present the baseline for the goal indicator, set on the basis of opinion surveys of public transportation users (see paragraph 1.19). Condition precedent for commencement of Phase II works for the east-west corridor: present, to the Bank's satisfaction, the legal instruments supporting execution of the two end terminals on the east-west bus corridor (see paragraph 1.15a).				
Exceptions to Bank policy: (i) Recognition of program expenditures incurred on or after 16 October 2006 against the counterpart contribution (see paragraph 3.8); and (ii) submission to the Bank of audited financial statements within 180 days following the end of the respective fiscal period, or after the last disbursement (see paragraph 3.12).				
Program consistent with country strategy: Yes [X] No []				
Program qualifies as: SEQ[No] PTI [No] Geographic [] % Headcount []				

* The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with the applicable provisions of the Bank's policy on lending rate methodology for Ordinary Capital loans. In no case will the credit fee exceed 0.75% or the inspection and supervision fee exceed, in a given six-month period, the amount that would result from applying 1% to the loan amount divided by the number of six-month periods included in the original disbursement period.

I. DESCRIPTION AND RESULTS MONITORING

A. Background, problem, strategy, and rationale

- 1.1 **Geographic and socioeconomic context.** The município of Maringá covers an area of 488 km² in southern Brazil and is situated in the northwestern part of the state of Paraná, 428 kilometers from its capital, Curitiba ([see electronic link for the map](#)). Its population of 326,000 in 2007¹ ranked it as the third largest município in Paraná, with a 98% urbanization rate. From the time of its founding in 1947, Maringá has been chosen as a regional hub for marketing farm produce, a supply center, and a center for land deals and services. Its initial development was closely linked to the railroads built by the English who colonized the rural areas of Paraná. Maringá was the product of an urban development plan, and the resulting modern urban layout features wide avenues and numerous parks, plazas, and treed areas. Of the município's 2004 gross product of R\$3.209 billion, the services sector accounted for 59% and industry represented 39%. The commerce sector employs 24% of the economically active population, or 133,566 people, followed by 16% in the processing industry.
- 1.2 The município offers good living conditions and extensive coverage of basic services such as water, electricity, and trash collection. In 2000, 8.7% of the population of Maringá was living below the poverty line.² From 1991 to 2000, the municipal Human Development Index³ (HDI-M) improved from 0.76 to 0.84, a high score that ranks it above the State of Paraná (0.79) and Brazil overall⁴ (0.80). Maringá ranks within the top 2% of the 5,560 municípios in Brazil, and ranks sixth in Paraná. Maringá's HDI positions it alongside Uruguay (0.852) and Costa Rica (0.846)—two of the top four countries in Latin America according to the United Nations Development Programme (UNDP). In 1998, the município became the seat of the Maringá metropolitan region, which comprises 13 municípios that collectively host a population of 570,000.¹ The municípios of Sarandi and Paiçandu form a conurbation with Maringá and, as a result, during peak hours the urban transportation system serves 440,000 residents, or 77% of the total population of the metropolitan region.
- 1.3 **Integrated urban development.** The Maringá Municipal Government (MMG) is seeking to target public investment in key areas so as to boost economic growth in the Maringá metropolitan region and improve the living conditions of its residents. To that end, the MMG is currently implementing programs in the housing, sanitation, education, social, health, and sports sectors, using funds from several financing sources, such as the federal government's Growth Acceleration Program

¹ Brazilian Institute of Geography and Statistics (IBGE), 2007.

² Paraná Institute for Economic and Social Development (IPARDES), 2000. Refers to the population with per capita family income of up to one-half of the minimum wage.

³ UNDP, 2000.

⁴ UNDP, *Human Development Report*, 2007/2008.

(PAC), the state government entity PARANACIDADE,⁵ and its own resources. It has programs to improve conditions in urban neighborhoods by building housing for socially vulnerable families, as well as to expand sanitation services, both financed mainly through the PAC. Also of note is an innovative trash processing and sanitary landfill rehabilitation program, implemented with technical cooperation funding from a German consortium, which is expected to serve as a pilot program for other municipalities in Brazil.⁶ The Bank's participation will enable the MMG to finance activities in the resource-deficient urban mobility and transportation sector, and to support measures to further improve municipal management.

- 1.4 **Road system and transportation.** From its beginnings, the city of Maringá has been split into two by a rail line that bisects it near the downtown area, effectively creating a barrier in both functional and urban development terms. With financial support from the Brazilian federal government, works were begun to allow trains to pass under the Maringá city center. The project has been completed in the city's downtown area and is still under way in the industrial area. The elimination of grade-level crossings is improving the city's functional and urban connectivity and creating safer, uninterrupted north-south transit, aside from allowing for rezoning of the areas along the rail line and harmonized land use.
- 1.5 As of January 2008, the number of registered vehicles in Maringá had grown to 190,000,⁷ in the wake of high annual growth rates that have averaged 7.2% since 2003⁸, climbing to 8.5% between 2006 and 2007. As a result, Maringá is now one of the most motorized municípios in Brazil, exceeding even the city of São Paulo.⁹ This rapid increase in the automotive fleet—a manifestation of the economic boom in Brazil—has resulted in severe traffic congestion during peak hours, causing delays, pollution, and higher operating costs for urban transportation in general. This situation also negatively affects the public transit system, as buses with no priority on the roadways become mired in traffic and the primarily low-income riders are faced with longer travel and wait times. Longer travel times also mean increasingly lower productivity for the bus fleet, which can push fares higher.
- 1.6 The Maringá municipal public transit system is operated under a concession granted to Transporte Coletivo Cidade Canção, a private firm that carries an average of 96,000 passengers per day at a rate of 1.89 passengers per kilometer

⁵ PARANACIDADE is a legal entity under private law created by the State of Paraná to promote municipal urban development and administer the *Fundo Estadual de Desenvolvimento Urbano* [State Fund for Urban Development].

⁶ See http://www.maringa.pr.gov.br/imprensa/noticia.php?id_artigo=6094.

⁷ National Transportation Department (DENATRAN), 2008.

⁸ Paraná Transportation Department (DETRAN/PR), 2007, Anuário Estatístico [Statistical Yearbook].

⁹ In 2007, Maringá had a motorization rate of 575 vehicles per 1,000 residents, compared to Brazil's national average of 268/1,000 and São Paulo's 492/1,000.

- (PPK).¹⁰ The concession was granted in 1999 for a 15-year period. The system is managed by the Municipal Transportation Department, through its Public Transit Office, which is in charge of system planning (routes, schedules, fleet size, and identification of new routes needed), and concession management and supervision. The fare structure is set and revised by the Rua Viva institute.
- 1.7 There are three categories of public transit service in Maringá: (i) conventional service provided by buses and minibuses; (ii) express minibuses (*Expressinho*); and (iii) free door-to-door service exclusively for people with motor disabilities. The municipal public transit system in Maringá uses a fleet of 277 vehicles, including three vans for the disabled. From an operational standpoint, the system is organized into 62 nonintegrated routes that connect the various neighborhoods to the city center: 46 radial, six cross-town, three inter-neighborhood, one express, five *Expressinho*, and one tourist route. The level of service is relatively good overall, but the road system has no facility or priority for buses travelling inside the city, and the explosive growth in the number of automobiles (see paragraph 1.5) is slowing down the buses due to traffic jams now beginning to appear in several parts of the city. Although all the municipal public transit routes are operated by the same firm, they are neither integrated nor arterial (using physically or functionally integrated trunk and feeder routes), with nearly 75% of the routes separately connecting an array of neighborhoods with the city center. There are no connecting terminals at the ends of routes, nor is there any type of fare integration or physical integration allowing for connection with the neighboring municípios of Sarandi and Paçandu, which are now part of the Maringá urban complex.
- 1.8 Under these circumstances, the first priority should be to improve the public transit system by introducing a route system composed of trunk and feeder lines with priority lanes for buses along the city's main east-west corridor, where most of the routes converge, and to build transfer terminals. Priority should also be given to beginning to modernize the traffic light system and to steps to enhance road safety. Both measures will be supported under this program.
- 1.9 **Institutional considerations.** The Maringá Municipal Government has solid institutional capacity. In 2006, the MMG collected R\$296.50 per capita in direct tax revenues, the second highest level in the state after Curitiba. Its fiscal efficiency is largely due to support from the Tax Administration Modernization Program (PMAT) financed by the National Bank for Economic and Social Development (BNDES), which began to be implemented in 2001. In 2008, the MMG will begin participating in the National Program to Support Brazilian Municipal Administrative and Tax Management (PNAFM) to further strengthen its management. During the project preparation phase, other areas were identified for

¹⁰ Maringá's PPK figure is close to the national average of 1.91 for municipal services (National Public Transport Association, 2006). Its urban and public transit operating conditions, however, are such that it could better utilize the capacity of the active fleet and thereby increase the PPK, potentially reducing the cost per passenger transported, which would have a positive impact on fares.

possible strengthening, including updating of the land register, modernization of tax auditing, and technical support for urban development and transportation management.

- 1.10 **Strategy and rationale.** The strategy for this program is to support the MMG as it introduces improvements in road infrastructure and public transportation in the município of Maringá, to provide continuity for key projects that have already begun, and to support institution-strengthening. The program will facilitate progress in two of the areas identified in the Bank's country strategy with Brazil: (i) competitiveness enhancement, through improvements in the municipal transportation system; and (ii) modernization of the State, as a result of institutional strengthening of the municipal government.
- 1.11 The program will adhere to the priorities identified in Maringá's municipal master plan, which was updated by Law 632/06 of 6 October 2006. The current administration of the MMG is promoting policies guided by this plan, with top priority given to maintaining the good quality of life enjoyed by its residents. The master plan regards the right to public transportation and accessibility as essential to the city's social function. In addition to its activities in other sectors, the MMG wants to plan and upgrade the city's road system soon, before rapid urban growth and a quickly expanding vehicle fleet lead to chronic road congestion. The MMG has given priority to several projects envisaged in the master plan, such as road improvements and urban revitalization along Avenida Brasil and the area previously occupied by the rail line. The MMG has asked the Bank to finance this operation to support these sector priorities.

B. Objective, components, and costs

- 1.12 **Objectives.** The general program objective is to promote improved living conditions for residents of the município of Maringá through infrastructure interventions in the urban mobility and transportation sector, and to finance activities to improve municipal management. The specific objectives are to: (i) improve the efficiency of the urban transportation and road system so as to reduce travel times and costs, enhance road safety, and improve environmental conditions, and thereby promote the potential for future urban development; and (ii) work cooperatively to streamline the MMG's administrative management and procedures.
- 1.13 **Components.** To achieve these objectives, the program includes expenditures for engineering, administration, and associated costs, in addition to the two main components described below:
- 1. Engineering studies and administrative expenses (US\$1.4 million)**
- 1.14 Financing will be provided for: (i) engineering plans, economic, technical and environmental feasibility studies, and monitoring and evaluation (US\$409,000); (ii) expenses related to program administration (US\$80,000); and (iii) consulting services and supervision (US\$887,000).

2. Urban mobility and transportation (US\$20.1 million)

1.15 This specific works component will finance:

- a. An east-west bus corridor (US\$9.5 million): Implementation of the approximately six-kilometer-long east-west bus trunk and feeder corridor, which will consist of two parallel one-way avenues. Plans call for it to be implemented in two phases: Phase I entails the 1.9 km downtown section, running from José Bonifácio square to Rocha Pombo square; Phase II includes parts of Avenida Brasil, Avenida Mauá, Rua Joubert de Carvalho, Avenida Carneiro Leão, Rua Guarani, Rua Otávio Scramin, and Avenida Harry Prochet. In addition to the divided roadway (*binário*), this intervention includes road surface improvements along the entire corridor as well as urban revitalization projects. The program also introduces intermediate transfer stations as part of the new integrated public transit system. Two connecting terminals at the ends of the corridor will be put into service—a West Terminal and an East Terminal. These two terminals will be built by the MMG outside of the program, but, because this infrastructure is an integral part of the integrated system, their implementation needs to be assured. For this reason, **it will be a condition precedent to the commencement of Phase II works for the east-west corridor that the MMG present, to the Bank's satisfaction, the legal instruments supporting execution of the two terminals at the ends of the east-west bus corridor.**
- b. Divided roads and improved connectivity (US\$5.9 million): This includes (i) modernization of the traffic light system in the downtown area; (ii) introduction of the divided roadway system on São Paulo, Herval, Duque de Caxias, and Paraná avenues, for a total of 12.2 kilometers; and (iii) implementation of the western bypass for the Universidade Estadual de Maringá (UEM) campus, a 4.6 kilometer roadway with four lanes, two in each direction, including two major drainage projects.
- c. Underground routing of the rail line (US\$4.7 million): This component will finance a portion of the works to allow for the rail line to pass under the city center. The railway tunnel and grade separation construction project spans a five kilometer stretch, but only the section in the city's industrial area is included in the program, and will be recognized as part of the local counterpart contribution.

3. Institution-strengthening (US\$700,000)

1.16 This component will finance the following: (i) modernization of the land and real estate register used for purposes of collecting the urban land and property tax (IPTU) and other taxes, as well as for urban planning management; (ii) updating of the register database; (iii) computer equipment; (iv) software for geoprocessing and research systems; (v) development of supplemental plans envisaged in the Urban Master Plan, including the urban expansion plan and the review of several laws

related to the master plan; and (vi) software and training in the use of tools to manage traffic and operate traffic light systems.

4. Associated expenses (US\$3.8 million)

1.17 The program will finance the cost of expropriations to acquire the right of way needed to expand urban roads and introduce the bus corridor.

1.18 Table 1.1 presents a summary of components, subcomponents, and costs:

Table 1.1: Cost and Financing (thousands of U.S. dollars)

	Type of investment*	IDB	%	Local counter-part	%	Total	%
1.	Engineering and administration	799	58.1	577	41.9	1,376	5.3
1.1.	Studies and designs	159	38.9	250	61.1	409	1.6
1.2.	Management system	40	50.0	40	50.0	80	0.3
1.3.	Consulting services and supervision	600	69.2	287	33.1	887	3.4
2.	Urban mobility and transportation	11,650	58.0	8,450	42.0	20,100	77.3
2.1.	East-west bus corridor	8,100	85.7	1,350	14.3	9,450	36.3
2.2.	Divided roads and improved connectivity	3,550	60.3	2,340	39.7	5,890	22.7
2.3.	Underground routing of the rail line	0	0	4,760	100.0	4,760	18.3
3.	Institution-strengthening	551	75.6	178	24.4	729	2.8
3.1.	Modernization of land register	10	6.7	139	93.3	149	0.6
3.2.	Updating of register database	40	90.9	4	9.1	44	0.1
3.3.	Computer equipment	140	92.7	11	7.3	151	0.6
3.4.	Geoprocessing and research software	160	93.0	12	7.0	172	0.6
3.5.	Urban plans	189	95.0	10	5.0	199	0.8
3.6.	Traffic management training & software	12	85.7	2	14.3	14	0.1
4.	Associated expenses	0	0	3,795	100.0	3,795	14.6
4.1.	Expropriations	0	0	3,795	100.0	3,795	14.6
	Total	13,000	50.0	13,000	50.0	26,000	100.0

* Note: The credit fee, inspection and supervision fee, and interest will be paid outside the program.

C. Results framework with key indicators

1.19 The most important program outcomes will relate to improvements in the public transit system and reduction of costs and travel times for automobile users in the downtown area as a result of improved north-south connectivity in the city. These variables are the principal determinants of the economic return on that program component. Another key indicator, in institutional terms, is the increase in

municipal revenues, mainly from the land and property tax (IPTU).¹¹ The indicators and their projected values are presented in detail in the Results Matrix (Annex I). The baseline for the goal indicator, which measures the current level of user satisfaction with the quality of service provided by the public transportation system, should be measured by the MMG in a timely manner. **Presentation of the baseline for the goal indicator will be a condition precedent to the first disbursement.**

II. FINANCIAL STRUCTURE AND MAIN RISKS

A. Financial instruments

- 2.1 The Município of Maringá has asked to use the Bank's Local Currency Facility (LCF). This program will be carried out using resources from the Single Currency Facility (U.S. dollars) of the Bank's Ordinary Capital and will be subject to the Operational Framework for Lending in Local Currency (document GN-2365-2). With a view to minimizing exchange risk, the município of Maringá would be entitled, under the LCF, to convert disbursements and outstanding loan balances into reais. Under the PROCIDADES facility, this will address the Município of Maringá's stated need to develop a public borrowing strategy involving increasing local currency components, using resources from the Single Currency Facility of the Bank's Ordinary Capital.
- 2.2 **Program resources and disbursement schedule.** The program has a total cost of US\$26.1 million, of which 50% will be financed by the Bank using Ordinary Capital resources, and the remaining 50% will be contributed by the MMG. The expected execution period is four years from the effective date of the loan contract, and the disbursement schedule (see AWP electronic link) is summarized below in Table 2.1.

Table 2.1: Tentative Disbursement Schedule (thousands of U.S. dollars)

Year	1	2	3	4	Total
IDB	1,891	3,453	5,095	2,561	13,000
Local	4,686	4,451	2,523	1,340	13,000
Amount	6,577	7,904	7,618	3,901	26,000
Percentage	25.3%	30.4%	29.3%	15.0%	100%

B. Environmental and social risks

- 2.3 This project has been classified as a category "B" operation (see Annex III). The impacts were evaluated in the environmental impact assessment (EIA),¹² which also outlined impact mitigation/compensation and environmental oversight measures to

¹¹ From the Portuguese *Imposto Predial e Territorial Urbano*.

¹² *Relatório de Avaliação Ambiental (RAA)* in Portuguese.

ensure the benefits expected under the program. The draft EIA was made available to the public on 5 October 2007 on the MMG's website and was discussed at a public hearing on 5 November 2007. The final version of the EIA was completed in December 2007 (see ESMR-EMP electronic link).

- 2.4 The interventions' positive impacts notwithstanding, they will also produce small-scale temporary negative impacts related to changes in the physical and socioeconomic environment, such as: (i) expropriation of some properties (vacant lots); (ii) changes in traffic patterns on streets and avenues during construction; (iii) noise, dust, and air pollution in areas near the construction sites; (iv) waste; and (v) inconvenience and interference with daily activities of residents in the works' area of influence. The following environmental impact mitigation measures are provided for in the EIA: (a) environmental control during project execution; (b) occupational health and safety for workers; (c) awareness campaign; and (d) reclamation of degraded areas (work zone, borrow pits, waste disposal areas, etc.) No resettlements are expected.
- 2.5 Permits for the types of projects financed by the program are issued by the Instituto Ambiental do Paraná [Paraná Environmental Institute] (IAP), and the appropriate environmental permits have not yet been obtained for all of them. In the specific case of the bypass for the Universidade Estadual de Maringá, where Alameda das Grevíleas is located, the IAP could require a preliminary permit and set conditions to be incorporated into the application for the actual permit. The preliminary permit is granted on analysis of the environmental management plan. An analysis of the information presented in the EIA indicates that the program features a set of rigorous technical conditions with low social and environmental costs, as a result of both the low intensity of the impacts and the ease with which impact mitigation measures can be implemented.

C. Fiduciary risk

- 2.6 The MMG has solid institutional capacity and effective tax collection mechanisms (see paragraph 1.9). The município has an industrial park that generates 19% of its tax receipts, through state goods and services tax (ICMS) transfers. This, along with transfers from the federal government, is a major factor in the near tripling of the municipal budget, from US\$79.44 million to US\$220 million, in the six-year period from 2001 to 2007. Municipal financial data are presented in Table 2.2.

**Table 2.2: Municipal Revenues and Expenditures
(2007 Budget)**

Type of revenue or expense	%	Remarks
Own revenues	26	from taxes (IPTU, ISS, IRRF, ITBI) and fees
Own revenues	9	from contributions, capital and services
State transfers	17	ICMS and other
Federal transfers	25	FPM and other
Other transfers	4	from individuals and foreign countries
Other own revenues	9	outstanding debt and other
Capital revenues	10	credit operations, sale of assets, and capital transfers from the federal and state governments
Personnel expenditures	35	LRF < 60%* (payroll and benefits)
Operating expenses	45	for the municipal government and municipal council
Investments	12	works, projects, etc. (US\$28.7 million)
Interest and amortization	6	debt repayment
Other expenses	2	financial and other investments
* Total budget for 2007: US\$220.5 million		

- 2.7 The budget performance data for 2001-2006 reveal that the município of Maringá is in sound financial position, having posted a surplus for that period. In terms of fiscal management, the MMG meets the requirements of the *Lei de Responsabilidade Fiscal* [Fiscal Responsibility Act] (LRF) governing external borrowing. The financial evaluation of the município (see Financial Analysis electronic link) indicates that it has the capacity to assume the commitments associated with a Bank loan and to contribute the counterpart resources.
- 2.8 Table 2.3 presents a comparative summary of the limits established by law, in particular Articles 19 and 20 of the Fiscal Responsibility Act (Law 101/00) and Article 7 of Federal Senate Resolution 43/01, in regard to the indicators calculated based on the MMG's January-to-December balance sheets for 2004 to 2006, and the available information for January-August 2007. The comparison indicates that the MMG is in legal compliance with the ceilings set by the LRF and other related laws governing municipal borrowing, and therefore the MMG is legally eligible to secure an external loan.

Table 2.3: Ceilings Set by the LRF

Indicators	Statutory ceiling	Computed ratio 2004	Computed ratio 2005	Computed ratio 2006	Computed ratio Jan-Aug 2007
Personnel expenditures / net current revenues (NCR)	60%	41.4%	53.68%	49.94%	48.96%
Operations completed / NCR	16%	1.66%	1.43%	2.41%	2.11%
Loan payments and other obligations / NCR	11.5%	5.09%	7.11%	6.74%	0.63%
Net consolidated debt / NCR	1.2 times	0.606 times	0.686 times	0.799 times	0.713 times

D. Other special considerations and risks

- 2.9 **Analysis of institutional capacity.** The analysis conducted using the project risk assessment tool (PRAT) found that project risk is moderate (16.3%), near the low-risk threshold (see Institutional Analysis electronic link). The following main risk factors were identified: (i) possible change in program priority in the event of a change in administration after the 2008 municipal elections; and (ii) insufficient qualified staff to implement the program. The risk associated with the 2008 municipal election has been eliminated, since the municipal officers were re-elected and continue to assign priority to the program. The minimum staff requirements for the program execution unit (PEU) and the use of a suitable management system (see paragraphs 3.3 and 3.9) will mitigate the risks associated with the lack of qualified staff.
- 2.10 **Technical and functional evaluation.** The technical and functional evaluation of the road interventions included a macro demand analysis that helped estimate the future demand associated with each intervention over a 20-year time horizon. On the micro level, a traffic simulation model helped optimize the performance of each intervention to establish the functional configuration producing the best results in the context of the road network. Using the results of these analyses as inputs, the next step was an economic appraisal to determine which of the alternatives would be eligible for the program.
- 2.11 The designs for the projects making up the representative sample for the program were developed using modern computation and scaling methods and criteria, based on internationally accepted engineering standards. The unit prices used to establish sample project costs were obtained based on market prices of MMG road projects and from cost tables used by the Paraná Highway Department (DER/PR). Since the construction drawings and diagrams for the representative sample of works indicate no complications with the construction work for these interventions, their technical feasibility should not be an issue. All of the remaining program interventions have been duly evaluated and approved from a technical standpoint based on macro and

micro analysis. The construction drawings for these interventions will be prepared using the same stringent standards as employed for the representative sample.¹³

- 2.12 **Economic viability.** The economic appraisal of the interventions in the mobility and transportation component was based on a comparison of the economic costs and benefits accruing “with the project” versus the “without the project.” The appraisal looked at the component as a whole and at each of its three subcomponents. The costs considered in these analyses included the investment and maintenance costs of each intervention. The benefits included savings in travel time and fuel consumption, and other savings on vehicle operating costs. Other benefits not quantified under this appraisal included reduced air pollution levels, fewer traffic accidents, and the use of bicycle lanes for transportation and recreational purposes (see Economic Viability Study electronic link).
- 2.13 The analysis of the annual cost and benefit stream for each group of interventions over a twenty-year period yielded a net present value of 12% and established the economic internal rate of return (EIRR). Sensitivity analyses were conducted for a 20% rise in investment costs, a 20% reduction in incremental benefits for the “with project” versus the “without the project” scenarios, and a simultaneous combination of these two effects, but with variations of approximately 10%. The findings are summarized in Table 2.4. The program’s overall rate of return is 62%, and each group of interventions is viable.

Table 2.4: Economic Return Indicators

Interventions	Investment (millions of US\$)	EIRR (%)	EIRR sensitivity %		
			+20% costs	-20% bene- fits	+10% costs & 10% benefits
Overall program	36.21	62.0	52.0	50.0	51.1
Trunk corridor and system connectivity	16.11	72.0	61.4	59.2	60.4
Underground routing of the rail line	20.10	51.9	43.0	39.2	40.9

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Implementation arrangements

- 3.1 The borrower for this program will be the Município of Maringá, and the guarantor will be the Federative Republic of Brazil. The executing agency, the Maringá Municipal Government (MMG), is proposing an execution structure consisting of a program execution unit (PEU) directly under the Office of the *Prefeito* [Mayor] and a Management Committee.

¹³ Owing to the technical complexity of the selection process used, eligible program works are restricted to ones that were evaluated during the preparation phase, so this operation involves only specific works.

- 3.2 The PEU will provide general program coordination, with assistance from the municipal departments directly related to execution of the operation. Also providing support will be the município's Standing Bidding Committee and the Office of the Public Attorney.
- 3.3 The PEU will be composed of MMG officials supported by consultants hired specifically for that purpose. The team will consist of a general program coordinator, an administrative and financial coordinator, a legal advisor, and the necessary technical, accounting, and financial advisors.
- 3.4 The Management Committee will consist of the secretaries of the Planning, Transportation, and Management departments, the Prosecutor General, a representative chosen by the Maringá Economic Development Council (CODEM), plus the PEU coordinator, and will be chaired by the *Prefeito*. The committee's role is to discuss, review, and approve the annual investment plan and other program reports, and to submit the program status report to the *Prefeito*. The Management Committee is expected to meet once a month in the first year, and once every six months in subsequent years. The PEU and the Management Committee were officially created by Decree 263/2009 of 13 January 2009.
- 3.5 The PEU will be responsible for coordinating and implementing the program activities and interventions in accordance with the stipulations of the Management Committee and will be the MMG's sole liaison with the Bank. It will also have responsibility for: (i) investment planning and budget coordination with the appropriate departments; (ii) evaluation of the detailed project designs; (iii) preparation and monitoring of the bidding processes for works and for procurement of goods and services; (iv) coordination and supervision of the expropriations plan, as needed; (v) control and monitoring of works supervision and inspection; (vi) coordination and supervision of environmental matters; (vii) control of accounts and files, presentation of disbursement requests, and rendering of accounts; (viii) physical and financial supervision, and preparation of physical and financial progress reports; (ix) coordination of compliance with clauses stipulated in the loan contract; (x) monitoring and evaluation of intermediate outcomes and of the targets and indicators in the Results Framework; (xi) development of management and accounting systems for physical and financial monitoring; (xii) preparation of the annual work plans (AWPs); (xiii) preparation of the terms of reference for hiring the services of consulting firms; (xiv) preparation of all technical and administrative documents pertinent to the bidding and contracting processes; and (xv) preparation of other reports requested by the Bank.
- 3.6 The Special Bidding Committee will examine and decide on bids for works and manage the procurement of goods and services under the program, and will be part of the municipal government's Standing Bidding Committee. It will have five members: (i) three regular members: the Bidding Director, who will serve as committee chair; a financial officer from the Finance Department; and a legal specialist from the municipal Office of the Public Attorney; and (ii) another two members, who will be representatives of the municipal departments involved

depending on the subject of the bidding. The Municipal Transportation Department will be responsible for approval of the detailed designs and for inspection and supervision of works, and consultants will be hired to provide support in the areas of works supervision and quality control.

B. Procurement

- 3.7 Goods, services, and works will be procured in accordance with Bank policies (documents GN-2349-7 and GN-2350-7). Pursuant to the PROCIDADES lending facility, flexibility will be built into program supervision, based on the results of the risk analysis (see paragraph 2.9) that rated this a moderate-risk program. In view of the executing agency's lack of prior experience with the Bank, in the first year of program execution, the procurement of works, goods, and services, including consulting services, will be subject to ex ante review. The first disbursement transaction will also be subject to ex ante review, so that the Bank may offer guidance to the MMG and ensure that it has the capacity to handle this type of procedure. After the first year of program execution, the Bank may use ex post review for the remainder of the program (see Annex II).

C. Recognition of expenditures

- 3.8 The MMG incurred expenses during the program preparation phase and has been implementing a number of eligible projects as part of the counterpart contribution. The MMG has requested that the Bank recognize as part of the local counterpart contribution up to US\$5.01 million in expenditures incurred between the approval of the loan request by the Comissão de Financiamentos Externos [External Financing Commission] (COFIEEX)¹⁴ and the approval of the operation for the following activities and works: (i) up to US\$250,000 for program preparation (contracting of studies, designs, environmental impact assessment, economic appraisal, and administration; and (ii) up to US\$4.76 million for works associated with the underground routing of the rail line. The procedures used in procuring these works and services were in compliance with local laws.

D. Monitoring and evaluation arrangements

- 3.9 The Bank will conduct administration missions as necessary to monitor the technical, financial, and operational aspects of the program. The PEU will be in charge of monitoring the indicators and other information needed to prepare the performance evaluation and final evaluation. Part of the PEU will be dedicated to program supervision, monitoring, and assessment, and will be responsible for systematizing the monitoring data and conducting the surveys and studies for the impact assessment. These activities are included in the program administration subcomponent.

¹⁴ The operation was authorized pursuant to COFIEEX Recommendation 887 of 4 September 2006. Recognition is requested for expenditures incurred on or after 16 October 2006, when the first Bank mission took place. Bank policy is to recognize expenditures from the date the operation enters the Bank's pipeline, i.e. the date the project abstract is approved; this occurred on 2 February 2007.

- 3.10 The PEU will monitor the indicators and information needed to prepare the performance evaluation and will help the Bank prepare the project completion report. These tasks will be performed with the help of the management system, the features and capacity of which will be agreed to with the Bank. This will enable information to be migrated to the PROCIDADES general information system, to be implemented by the Bank for managing the projects and programs financed through the PROCIDADES lending facility. **The contracting of this management and financial-accounting control system will be a condition precedent to the first disbursement under the program.**

E. Revolving fund and external audit

- 3.11 For the purpose of advancing funds for activities financed with Bank resources, a revolving fund will be set up in the amount of no more than 10% of the Bank loan amount.
- 3.12 The PEU will submit audited program financial statements annually during program execution. The external audit will be performed by the Tribunal de Cuentas del Estado de Paraná [Paraná State Audit Office].¹⁵ Yearly audited financial statements will be presented within 180 days¹⁶ after the end of the fiscal year, and the final program audit reports will be presented within 180 days after the last disbursement.

F. Significant activities post approval

- 3.13 To continue with the preparation activities, the MMG will finalize the detailed designs for the works that were not included in the program's representative sample, according to the established execution timetable. It will also take timely steps so that the two terminals at the ends of the bus trunk corridor can be put into service (see paragraph 1.15a).

¹⁵ The Paraná State Audit Office is one of the three audit agencies certified by the Bank to conduct audits in Brazil.

¹⁶ The Paraná State Audit Office has requested an exception to Bank policy, extending the time frame from 120 to 180 days, owing to the large number of operations under way and pending approval in Paraná and the fact that the Office does not have the human resources to handle all the audits by the same deadline.

PROCIDADES – URBAN MOBILITY PROGRAM FOR THE MUNICÍPIO OF MARINGÁ (BR-L1087)
RESULTS MATRIX

Results Framework – Matrix of Indicators				
Project objective	The objective is to promote improved living conditions for residents of the metropolitan region of the município of Maringá through infrastructure interventions in the urban mobility and transportation sector.			
Results indicator	Baseline	Target	End-of-program result	
Perception of public transportation				
Level of user satisfaction with public transportation in the município of Maringá	35% (estimate—will be measured by the MMG prior to program implementation)	60%	(+70 %)	The percentage of Maringá residents having a favorable opinion (good to excellent) of urban transportation and transit components directly associated with mobility will be higher than before program startup (based on municipal household opinion surveys).
Public transportation				
Shorter average public transit travel time	103 minutes	92.7 minutes	(-10%)	Percentage reduction of average public transit travel time during morning peak periods in the east-west corridor
Lower operating cost of Maringá’s bus fleet (vehicle-km)	1,137,152 km	981,875 km	(-14%)	Percentage reduction of operating cost for the Maringá bus fleet
Lower saturation level at the central terminal	220 trips/hour	119 trips/hour	(-46%)	Percentage reduction of saturation level at the central terminal
Transportation by private vehicle				
Shorter average automobile travel time on main roads (in the control sections)	17.5 minutes/trip	10.4 minutes/trip	(-41%)	Percentage reduction of automobile travel times during peak hours, measured using the floating vehicle method, in the selected control sections of the east-west and north-south corridors (baseline measured in December 2007).
Lower operating costs for autos on the roads	0.15 liters/km	0.125 liters/km	(-17%)	Percentage reduction of automobile operating cost during peak hours, obtained using the VOC model, with speeds measured via the floating vehicle method in the control sections.
Institution-strengthening				
Increased municipal tax receipts	US\$3,521.13	US\$2,992.72	(-15%)	Percentage increase in direct municipal taxes collected (IPTU, ITBI, ISS)

	Base	Year 1	Year 2	Year 3	Year 4	Target	
Component. Investments to modernize urban transportation							
Outputs							
Construction of east-west trunk corridor with preferential lanes for buses in the integrated system	0	0	3.5	2.5	0	6 km	
Construction of two north-south divided roads & the UEM bypass	0	0	0	6.0	6.2	12.2 km	
Upgrading of local roads	0	1.5				1,500 m	
Construction of connecting terminals (Rodoviária and Bosque)	0	0	1	1	0	2 units	
Final outcomes							
Average commercial-operation speed on the trunk route (east-west corridor) between the West Terminal (Bosque) and the East Terminal (Rodoviaria)	25 km/hour	25 km/hour	25 km/hour	28 km/hour	30 km/hour	31 km/hour	
New traffic light system in operation	0	0	0	40%	60%	100%	Number of intersections under the program
Component. Institution-strengthening							
Outputs							
Development of IPTU land register	0	100%	0	0	0	100%	
Updating of database	0	100%	0	0	0	100%	
Computer equipment	0	100%	0	0	0	100%	
Tax management software	0	100%	0	0	0	100%	
Maringá urban expansion plan	0	0	40%	60%	0	100%	
Traffic management training & software	0	0	0	100%	0	100%	

PROCIDADES – URBAN MOBILITY PROGRAM FOR THE MUNICÍPIO OF MARINGÁ (BR-L1087)
PROCUREMENT PLAN

Reference No.	Description of contract and estimated procurement cost (US\$)	Procurement method	Review (prior or post)	Source of financing (percentage)		Prequalification (yes/no)	Estimated dates	
				IDB %	Local %		Publication of specific procurement notice	Completion of contract
1	Construction of east-west bus corridor Estimated value: US\$9.68 million	NCB	Prior	64	36	No	Sept. - 2008	Dec. - 2009
2	Construction of east terminal (Jamil Josepetti Terminal) Estimated value: US\$1.5 million	NCB	Prior	64	36	No	July - 2008	Sept. - 2009
3	Construction of west terminal (Rua Castro Alves) Estimated value: US\$1.6 million	NCB	Prior	64	36	No	Jan. - 2009	Mar. - 2010
4	Drainage works, paving, and western UEM bypass routes Estimated value: US\$2.5 million	NCB	Prior	66.6	33.3	No	July - 2009	Dec. - 2010
1	Updating of municipal database Estimated value: US\$44,000	Shopping	Prior	91	9	No	Feb. - 2009	June - 2009
2	Procurement of computer equipment Estimated value: US\$111,000	NBC	Prior	91	9	No	Feb. - 2009	June - 2009
3	Procurement of tax management software and applications Estimated value: US\$200,000	NCB	Prior	91	9	No	June - 2009	Dec. - 2009
4	Development of land register Estimated value: US\$180,000	NCB	Prior	91	9	No	June - 2009	Dec. - 2009
1	Services, studies, and designs Estimated value: US\$417,000	Shortlist	Prior	40	60	No	Jan. - 2009	Dec. - 2010
2	Topography and soil services Estimated value: US\$167,000	Shortlist	Prior	0	100	No	Jan. - 2009	Dec. - 2011
3	Procurement of consulting services for supervision Estimated value: US\$667,000	Shortlist	Prior	96	4	Yes	Jan. - 2009	Dec. - 2012