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BRASIL

SÃO PAULO METRO LINE 5 (PURPLE LINE) EXTENSION PROJECT

(BR-L1227 - 2305/OC-BR)

PROPOSED MODIFICATION OF LOAN CONTRACT 2305/OC-BR

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* The information contained in this Optional Electronic Link is confidential in accordance with section 4.1 b of the Access to Information Policy (Document GN-1831-28): Legal, disciplinary or investigative matters "the public will not have access to information subject to confidentiality under the attorney-client relationship, or legal advice or matters at issue or in negotiation, or to legal documentation regarding projects without sovereign guarantee financed by the Bank."

ABBREVIATIONS

BNDES	Banco Nacional de Desenvolvimento Econômico e Social
CBTC	Communication-based train control
CETESB	Companhia Ambiental do Estado de São Paulo
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
COFIE X	Comissão de Financiamentos Externos [External Financing Commission]
ESA	Environmental and Social Assessment
GAI	Internal Audit Office (METRÔ)
ICB	International competitive bidding
IRR	Internal rate of return
METRÔ	Companhia do Metrôropolitano de São Paulo
OEL	Optional electronic link
REL	Required electronic link
SCAP	Sistema de Controle de Arrecadação e de Passageiros [revenue and passenger management system]
STM	Secretaria de Transportes Metropolitanos [São Paulo Transportation Department]

I. BACKGROUND

- 1.1 On 10 March 2010, the Bank's Board of Executive Directors approved the São Paulo Metro Line 5 (Purple Line) Extension Project (operation BR-L1227/loan 2305/OC-BR) via Resolution DE-018/10 (loan proposal PR-3530). The project consists of an investment loan operation, with the Brazilian State of São Paulo as the borrower. It is being executed by the State of São Paulo's Metropolitan Transportation Department (STM) through Companhia do Metropolitano de São Paulo (METRÔ). The project's total estimated cost is US\$624,098,000, financed by a loan of up to US\$480,958,000 from the Bank's Ordinary Capital resources and the local counterpart contribution of US\$143,140,000. The Bank and the State of São Paulo signed loan contract 2305/OC-BR on 3 September 2010, which was also the date the Bank and the Federative Republic of Brazil signed the guarantee contract regarding the borrower's financial obligations.
- 1.2 METRÔ is responsible for operating 79 kilometers of the city of São Paulo's metro rail network, distributed among five lines. It is responsible for about 14% of all mass transit trips and moves close to 3.3 million passengers per day. The São Paulo metro system is among the world's largest in terms of ridership, measured as passengers per kilometer of track per year.

Table 1. METRÔ traffic by line

	Line 1 Blue	Line 2 Green	Line 3 Red	Line 5 Purple	Total
Passengers/day	1,400,000	410,000	1,435,000	117,356	3,362,256
%	41.6%	12.2%	42.7%	3.5%	100%

- 1.3 **The problem.** Over time, this significant growth in demand for train and metro systems in metropolitan São Paulo has not been matched by the necessary investments.¹ As a result, the quality of service has clearly deteriorated, as reflected in the high passenger density (8 passengers per square meter on some lines during peak hours), long travel times (2.5 hours per day from outlying areas to the city's center), and irregular service (the average annual service frequency for Line 5 during peak hours is five minutes). Most travel in the city of São Paulo each day is by car or bus,² with rail accounting for a smaller share. The consequences of prioritizing the former modes of transportation are increased greenhouse gas emissions, thereby adding to the city's environmental pollution.³ According to a study by the Experimental Air Pollution Laboratory of the University of São Paulo's School of Medicine, approximately 3,000 deaths per year in metropolitan São Paulo are linked

¹ A 274-kilometer network would be required to meet the needs of the city of São Paulo.

² Private transport (cars) accounts for 45.7% (16.1 million per day) of motorized travel (29.7 million per day); bus transport for 40% (12 million per day); and rail transport for 10% (3.3 million per day). [Pesquisa Origem e Destino, 2012, METRÔ, São Paulo.](#)

³ The metro emits 27.5 times less greenhouse gas (carbon dioxide equivalent – CO₂e) per passenger-kilometer (4 g of CO₂e per passenger-kilometer) than private vehicles (110 g of CO₂e per passenger-kilogram) and 12.5 times less than buses (50 g of CO₂e per passenger-kilometer). [Inventory of Greenhouse Gas Emissions, METRÔ, 2010.](#) Motor vehicles account for more than 50% CO₂ emissions or 1.56 million tons of CO₂ per year ([São Paulo Transporte S.A., 2011](#)).

to air pollution, representing an annual cost to the city of R\$1.5 billion ([Institute of Applied Economic Research, 2011](#)).

- 1.4 **International experience.** A study conducted for the metro system in Mexico City found that the impact of building the metro in that city improved equity⁴ by 39.8% and reduced greenhouse gas and carbon dioxide (CO₂) emissions in its areas of influence by 29.6% and 22.8%, respectively.⁵ Some nine metro lines have been inaugurated in Latin America over the last 10 years, providing users such benefits as physical and fare integration with other systems, reduced travel times, and more efficient, safe, and quality service.
- 1.5 **Effectiveness of implementing rail transportation in Brazil.** According to a report quantifying the social benefits of the São Paulo metro, these amounted to US\$3 billion in 2014, 63% of which were in the form of shorter travel times.⁶ An analysis of the socioeconomic benefits generated by metropolitan São Paulo's rail transport system identified a benefit of US\$1 billion in 2010, 47% of which were in the form of shorter travel times and 11.7% in reduced atmospheric emissions of greenhouse gases.⁷
- 1.6 **Project objective.** The objective of the metro Line 5 (Purple Line) extension project is to address the growing demand on metropolitan São Paulo's transportation system by increasing the supply of metro services and improving mass transit users' mobility, connectivity, safety, and comfort. This will help improve living conditions among the population in metro Line 5's area of influence and reduce greenhouse gas emissions. Accordingly, the project will support this expansion with financing for the upgrading of existing trains, procurement of systems and equipment, and contracting of the works necessary to complete and operate that metro line. The specific objectives are to increase the number of primarily low-income passenger-users and shorten users' travel times.
- 1.7 This project is an integral part of a broader program to expand Line 5, consisting of: (i) the construction of the Largo Treze–Chácara Klabin segment, with an extension of about 12 km and 11 new stations; (ii) the procurement of 26 new trains and the upgrading of eight that operate on the line's existing section; and (iii) the procurement and installation of communication-based train control (CBTC) signaling, telecommunications, power supply control, and auxiliary systems. The State of São Paulo's strategy is to invest over US\$4 billion in the rail transport system to improve the access of the low-income population to centers of employment, health services, education, and social recreation facilities.

⁴ Here, equity means the monetized value of the reduction in travel time distributed equally among all social groups.

⁵ Teunissen, Thijs. [An Ex-post Evaluation Framework for BRT and MRT in Mexico: A Study on the Impacts of Bus Rapid Transit and Mass Rapid Transit in Mexico City](#), University of Twente, 2014, page 10.

⁶ Calculation of the reduction in travel time per hour/year. [Metrô de São Paulo – Relatório da Administração, 2015](#), page 32.

⁷ Vallado Flores, Roberto M. and Rodrigo S. Alencar. [Uma análise dos benefícios socioeconômicos gerados pela CPTM para a região metropolitana de São Paulo através do modelo de demanda de quatro etapas](#), Revista Economia de Empresas, 2011; 11(1): pages 79-105.

- 1.8 The total cost of the Line 5 extension project was US\$2,485,200,000,⁸ financed with resources from: (i) this IDB loan (2305/OC-BR); (ii) the World Bank; (iii) Banco Nacional de Desenvolvimento Econômico e Social (BNDES); and (iv) the State of São Paulo's budget.
- 1.9 According to the original project, the State of São Paulo's own resources and other funding sources (World Bank and BNDES) would finance: (i) the construction and supervision of tunnel and permanent track works; (ii) procurement of 26 new six-car trains; and (iii) CBTC signaling systems associated with the new trains and the existing ones to be upgraded. The proceeds of IDB loan 2305/OC-BR will be used to finance the components described below.
- 1.10 **Component 1. Rolling stock.** This component includes upgrading of the eight existing six-car trains to bring them up the same operating standards as the new fleet. It also includes supervision of the final design for upgrading the existing trains, component manufacture and installation, and final acceptance of the trains.
- 1.11 **Component 2. Systems and equipment.** This component includes the design, implementation, and supervision of the following systems: (i) telecommunications and control, including the Controle de Arrecadação e de Passageiros [revenue and passenger management system] (SCAP); (ii) power supply; and (iii) auxiliary systems (e.g. air conditioning, fire detectors, escalators and moving walkways, and elevators).
- 1.12 **Component 3. Institutional development.** This component includes ex post evaluation of impacts on low-income populations in the Line 5 service area and other studies to be determined during the project (e.g. gender and transportation).
- 1.13 Table 2 provides a breakdown, by component and source, of the funding for the project financed by loan 2305/OC-BR.
- 1.14 Loan contract 2305/OC-BR established a 4.5-year disbursement period. The period was modified by an amendment to the contract signed on 18 February 2015. The new disbursement period will expire on 3 March 2018.
- 1.15 State of São Paulo and BNDES resources are financing the execution of the civil works—tunnels, stations, and permanent tracks—and their supervision, and World Bank resources are financing the procurement of 26 new six-car trains and CBTC signaling systems for all trains (new and those to be upgraded).

⁸ Estimated cost in 2010.

Table 2. Costs and financing (in thousands of U.S. dollars)

Components	Total	IDB	State of São Paulo
Component 1. Rolling stock	22,398	19,498	2,900
1.1 Upgrading of existing trains	19,498	19,498	0
1.2 Supervision	2,900	0	2,900
Component 2. Systems and equipment	600,050	460,010	140,040
2.1 Telecommunications and control	79,493	61,195	18,298
2.2 Power supply	222,781	171,585	51,196
2.3 Auxiliary systems	274,376	227,230	47,146
2.4 Supervision	23,400	0	23,400
Component 3. Institutional strengthening	1,250	1,250	0
3.1 Poverty impact monitoring	850	850	0
3.2 Other studies	400	400	0
Audit	400	200	200
Total	624,098	480,958	143,140

- 1.16 The works for the extension of Line 5, financed by the State of São Paulo and BNDES, were contracted in eight lots of civil and permanent track works. Lot 1 corresponds to the first stage of the project, the Largo Treze–Adolfo Pinheiro segment, which includes the construction of a station (Adolfo Pinheiro) and approximately 640 meters of single-track tunnels built using the New Austrian Tunneling Method (NATM). Lots 2 through 7 entail the construction of 10 new stations on the Adolfo Pinheiro–Chácara Klabin segment and the construction of 11.1 km of tunnels using tunneling machines, including 5.1 km of two single-track tunnels (from Adolfo Pinheiro to Poço Bandeirantes) in lot 3, and 6 km of twin-track tunnels (from Poço Bandeirantes to Chácara Klabin) in lot 7. Lot 8 involves the Guido Caloi rail yard and maintenance facility.
- 1.17 **Outcomes and indicators.** The main outcomes expected from the implementation of the Line 5 (Purple Line) extension project are primarily: (i) a reduction in travel times for the users of the line and in the project's area of intervention; and (ii) an increase in mainly low-income metro riders, with a safe, efficient, sustainable, and equitable transportation system. The project will help reduce air pollution and improve living condition for low-income populations in the area of influence.⁹ The revised Results Matrix is presented in [Annex II](#).
- 1.18 **Monitoring and evaluation.** The objective of the monitoring and evaluation plan is to document the progress made on implementing the project's main outputs and evaluate its outcomes and impact on the population in the project area and metropolitan São Paulo. The monitoring arrangements include: (i) administrative missions; (ii) semiannual progress reports; and (iii) the annual work plan and annual external audits. An ex post evaluation will be conducted at the end of the project to quantify the benefits to the users in terms of the reduction in operating costs, air pollution, accidents, road maintenance cost, and the economic costs of the investment, operation, and maintenance. The details of these activities are presented in the Monitoring and Evaluation Plan ([REL 2](#)).

⁹ An impact evaluation will be conducted.

- 1.19 **Impact evaluation.** An impact evaluation will be performed to determine the impact of Line 5's implementation in terms of improving the quality of urban life; accessibility to centers of employment, education, services, and health care; and the reduction in overall travel costs, primarily of low-income residents, in the area of influence. The methodology and indicators will be determined in the first phase of work. The impact evaluation will also contribute additionally to the project by generating information to help close gaps in sector knowledge regarding urban mass transit.
- 1.20 **Beneficiaries.** The extension of the metro line will benefit 830,000 people in the project's area of intervention, including 407,000 users with incomes of less than four minimum wages who will have access to safe, efficient, sustainable, and equitable service, in the form of reduced travel times and better access to health care, education, and labor market services.
- 1.21 **Current status of loan 2305/OC-BR.** Practically all of the bidding processes planned under Component 2 of the project (systems and equipment) have been completed¹⁰ and the value of the contracts awarded by METRÔ was significantly lower than that envisaged in the loan contract. On average, the amounts contracted with the companies represent 47% of the total amount envisaged in the loan contract (see Table 3), due, inter alia, to the following: (i) the bidding processes were held during a period when the number of bidders was higher than usual, resulting in very competitively priced proposals; and (ii) the devaluation of the currency (real) was 17% on average in the period between the signature date of the loan contract and the signature dates of the procurement contracts for the systems described in Component 2 ([OEL 1](#)).

**Table 3. Component 2: Expected versus contracted costs
October 2015 (in thousands of U.S. dollars)**

Component 2	IDB contract cost*	Indicative cost – bidding	Actual contracted cost
Telecommunications	52,899	54,979	27,628
SCAP*	26,594	5,316	1,797
Power supply	222,781	227,607	95,991
Auxiliary systems**	191,630	165,326	105,288
Total***	493,904	453,228	230,704

* Includes local counterpart contribution.

** Included under telecommunications in the IDB contract.

*** Does not include auxiliary equipment (US\$49,158) and platform doors (US\$33,588), which have not yet been tendered.

- 1.22 METRÔ has not yet contracted for Components 1 and 3, whose total cost represents 4.6% of the loan amount.
- 1.23 METRÔ prepared an estimate of future payments for the contracts in execution under Component 2 through their completion, including estimates of: (i) price redeterminations, based on future inflation estimates; (ii) changes in the quantity of

¹⁰ Component 2 (systems and equipment) represents 95.6% of the total loan amount. According to the table of costs, the bidding processes already conducted represent 78.6% of the total loan amount. Under Component 2, only the auxiliary equipment and platform doors have not been contracted for, whose original expected costs in the loan represented 10% and 7% of the total loan amount, respectively.

equipment and installation services contracted for; and (iii) exchange rate variations, based on government budget projections. Employing this methodology, METRÔ estimated the final costs of the components that have not yet been contracted for under loan 2305/OC-BR. Its findings show that the total estimated amount remaining from loan 2305/OC-BR not yet committed and unallocated is approximately US\$122,047,000, as illustrated in the following table:

Table 4. Expected cost in loan contract 2305/OC BR. Final estimated cost (in thousands of U.S. dollars)

Components	Cost per contract 2305/OC-BR			Estimated final cost		
	Total	IDB	State of São Paulo	Total	IDB	State of São Paulo
1. Rolling stock	22,398	19,498	2,900	10,414	9,517	897
2. Systems	600,050	460,010	140,040	456,162	348,753	107,409
3. Institutional strengthening	1,250	1,250	0	1,218	400	818
Audit	400	200	200	277	241	36
Total	624,098	480,958	143,140	468,071	358,911	109,160

- 1.24 **Current status of Line 5 extension works execution.** As mentioned above, the extension works were contracted in eight lots that are being financed with State of São Paulo and BNDES budget resources (paragraphs 1.15 and 1.16).
- 1.25 Lot 1 is now operational and physical progress on the works included in the other lots stands at approximately 70%, on average. Progress on the detailed engineering design being developed in parallel to the execution of the works stands at 85%. These works are expected to be completed and the entire Line 5 operational by 2017.¹¹ Only the Campo Belo station, due to its scale and because it connects with Line 17 (light rail), will be completed later, in March 2018, but this will not impact the operation of Line 5 in 2017.
- 1.26 The contracting of the works financed with State of São Paulo and BNDES budget resources was carried out in accordance with a basic engineering study and will be executed through detailed design and construction contracts. When the detailed designs were revealed in the initial stage of these works contracts, their costs exceeded the original proposal. Consequently, the works were divided up to decrease their scale, bringing them into line with the State of São Paulo and BNDES budgets. As a result of the studies and detailed designs, it became necessary to make changes to the amounts of the works in the contracts financed by the State of São Paulo and BNDES, for the following reasons, among others: (i) the need to significantly reinforce the projected structures for the construction of the stations; (ii) an increase in the amount of earthworks due to poor soil quality and problems associated with depression of the water table, resulting in the need for additional excavation; (iii) an increase in the distance to contaminated surplus material disposal sites, mandated by special requirements; (iv) significant changes to the design (characteristics and size) of the Campo Belo station, which will now be an intermodal station due to the construction of Line 17 of the light rail and the overpass to be built next to this station; and (v) an increase in activities and costs associated

¹¹ The Adolfo Pinheiro-Brooklin segment will be completed in July 2017, and the Brooklin-Chácara Klabin segment in December 2017.

with the replacement and/or relocation of the affected infrastructure systems (water, sanitation, power, and telecommunications). The project now proposes to use resources from operation BR-L1227 (loan 2305/OC-BR) to fund the parts that were excluded from the original contracts financed with State of São Paulo and BNDES budget resources. Detailed designs for these parts are on hand and adjustments will be made only in the portion of the works that will take more than one year to execute. These works comprise parts of the project with a clearly defined scope and the amounts of the works have been calculated in an itemized manner. Moreover, the three supplementary works in lots 4, 6, and 8 to be financed under this operation were already contracted for amounts below the indicative budget and are not expected to require significant adjustments. Without the works in lots 2, 4, 6, and 8, Line 5 (Purple Line) of the metro cannot be completed or begin operating. METRÔ is currently executing the additional works in lot 2, to be financed with State of São Paulo resources.

- 1.27 The State of São Paulo asked the Bank if the uncommitted and unallocated proceeds of the loan (paragraph 1.23) could be used to finance the additional works needed to complete the construction of lots 4, 6, and 8, including: (i) completion of works in three of Line 5's main stations—Campo Belo (paragraph 1.26) and two others, Hospital do Servidor Público and Hospital São Paulo, which connect Line 5 to these two important hospitals in the city; (ii) an overpass next to the Campo Belo multimodal station to facilitate vehicle traffic at this important intermodal hub; (iii) a parking facility for trains at the Hospital do Servidor Público station; (iv) structural and general works involving stations and tracks; and (v) completion of works and procurement of equipment for the Guido Caloi rail yard and maintenance facility, located at the end of Line 5. In light of project execution needs, and so as not to delay the opening of the Line 5 extension, METRÔ moved ahead with the bidding processes for the works in lots 4, 6, and 8, in accordance with the Bank's policies, procedures, and standard bidding documents under the ex ante review modality. Accordingly, these three lots have been awarded and are in execution.
- 1.28 [OEL 1](#) provides a detailed description of the status of works and rationale for modifications to the works in each of the eight lots. Specifically for lots 4, 6, and 8, for which use of the proceeds of the IDB loan is requested, the additional works required for completion and the corresponding cost estimates are included. These cost estimates are based on detailed engineering designs that are at a very advanced stage (85%) and also include price redetermination estimates based on future inflation projections.
- 1.29 Because this operation is currently in execution and some of its resources are as yet uncommitted, it should be able to comply with the general and specific objectives that were initially proposed, and to carry out all of the activities envisaged under the original loan's three components (rolling stock, systems, and institutional strengthening). Accordingly, the request to modify the loan is based on the savings generated by the events described above and not due to cuts in the scope of the financing that was initially proposed.

II. REQUEST FOR MODIFICATION OF THE LOAN CONTRACT

- 2.1 The Government of the State of São Paulo, in Department of Finance official letter 748/2015/GCR of 4 August 2015 ([OEL 2](#)), requested that the Bank allow the use of the uncommitted proceeds of IDB loan 2305/OC-BR (US\$122,047,000, representing 25.4% of the total loan amount) to finance the completion of civil works for the extension of Line 5.
- 2.2 That request was accepted by the guarantor, the Federative Republic of Brazil, in a National Treasury communiqué of 29 September 2015 that included External Financing Commission (COFLEX) recommendation 04/0265 of 16 September 2015, approving the State of São Paulo's requests relating to the modification of loan operation 2305/OC-BR ([OEL 3](#)).

III. PROPOSED MODIFICATIONS

- 3.1 The proposed modifications to loan 2305/OC-BR consist of: (i) including a new component; (ii) modifying the table of costs; and (iii) extending the disbursement period.
- 3.2 **Components.** The amendatory contract introduces the new component, "Component 4: Civil works," to finance the execution of the additional works in lots 4, 6, and 8 needed to complete and operate Line 5 (Purple Line) of the metro. To include these works, the contractual clauses pertaining to the project's objective and to maintenance will need to be amended to ensure that both also reflect the financing proposal for these works. The new component is described below.
- 3.3 **Component 4: Civil works.** This component will finance the works necessary to complete the construction of lots 4, 6, and 8 of Line 5 (Purple Line) of the metro. Specifically, it will finance: (i) completion of works in the Campo Belo, Hospital do Servidor Público, and Hospital São Paulo stations of Line 5; (ii) an overpass next to the Campo Belo multimodal station to facilitate vehicle traffic at this important intermodal hub; (iii) a train parking facility at the Hospital do Servidor Público station; (iv) structural and general works (stations and tracks); and (v) the completion of works and procurement of equipment for the Guido Caloi rail yard and maintenance facility at the end of Line 5.
- 3.4 **Period.** The amendatory contract extends the current disbursement period from 3 March 2018 to 3 December 2019. The extension is needed because the works associated with the Santo Amaro overpass will not be completed until November 2019, which, although necessary to complete the project, have no impact on the opening of Line 5 in 2017.
- 3.5 **Cost.** In the amendatory contract, the project's total estimated cost (US\$624,098,000), the IDB loan amount (US\$480,958,000), and the local counterpart contribution (US\$143,140,000) remain the same. Although the civil works component is added to the table of costs and resources are transferred between the components, the total amounts stipulated in loan contract 2305/OC-BR remain unchanged, as illustrated in the following table:

Table 5. Original and proposed costs

Components	Original financing (US\$000)			Proposed modification (US\$000)		
	Total	IDB	São Paulo	Total	IDB	São Paulo
Component 1. Rolling stock	22,398	19,498	2,900	10,414	9,517	897
1.1 Upgrading of existing trains	19,498	19,498		8,979	8,979	
1.2 Supervision	2,900		2,900	1,435	538	897
Component 2. Systems and equipment	600,050	460,010	140,040	456,162	348,753	107,409
2.1 Telecommunications and control	79,493	61,195	18,298	36,246	36,134	112
2.2 Power supply	222,781	171,585	51,196	180,681	123,522	57,159
2.3 Auxiliary systems	274,376	227,230	47,146	189,342	189,097	245
2.4 System supervision	23,400		23,400	49,893	0	49,893
Component 3. Institutional strengthening	1,250	1,250	0	1,218	400	818
3.1 Poverty impact monitoring	850	850	0	818	0	818
3.2 Other studies	400	400	0	400	400	0
Component 4. Civil works*	0	0	0	156,027	122,047	33,980
Audit	400	200	200	277	241	36
Total	624,098	480,958	143,140	624,098	480,958	143,140

* The proposed modification concerns use of US\$122,447,000 in yet to be committed loan proceeds for civil works.

- 3.6 **Retroactive financing of expenditures prior to the effective date of the amendatory contract.** In the event this substantive modification of the project is approved, the borrower has requested that METRÔ be reimbursed, as a charge against the loan proceeds, for expenditures it made on or after 4 August 2015 (the date of the State of São Paulo's official request) corresponding to the works included under Component 4, the inclusion of which is proposed in this document. These expenditures are estimated to reach US\$48 million (10% of the loan amount). Accepting the possibility of financing such expenditures is deemed appropriate, since it would enable the borrower to continue moving ahead with the works according to schedule, which were contracted in accordance with Bank policies.

IV. RATIONALE

- 4.1 The objective of the proposed modification of the contract is to ensure that the loan proceeds still available under loan contract 2305/OC-BR are used to complete the civil work in lots 4, 6, and 8, thereby enabling Line 5 (Purple Line) of the city of São Paulo's metro to begin operating in 2017. The civil works associated with the extension of this metro line are being executed with State of São Paulo and BNDES resources. However, the price redetermination estimates and the modifications to works—made to ensure that the construction of Line 5 was viable and done safely—have resulted in an increase in the costs originally planned. The increases in the costs of lots 2, 3, and 5 are being financed with the State of São Paulo's own resources.¹² However, the additional works required for lots 4, 6, and 8 exceed the 25% threshold under local law for increases in the amount of each contract. Consequently, new contracts must be drawn up to ensure the completion of these

¹² The additional works in lots 3 and 5 will be executed under the current works contracts, taking into account the 25% additional contract value permitted under the local legal framework. For lot 2, the additional works exceed the 25% threshold permitted and METRÔ is tendering them with local financing.

works. Accordingly, and inasmuch as loan contract 2305/OC-BR still has unallocated funds available, the proposed modification would make it possible to use such resources to complete the extension works, thereby ensuring Line 5's entry into operation in 2017. The new component included (civil works) reinforces the fulfillment of the project's general objective.

- 4.2 **Strategic alignment.** The project is consistent with the Update to the Institutional Strategy 2010-2020 (document AB-3008) and aligned with: (i) the development challenges of social inclusion and equality, in that it provides an inclusive transportation service that reaches poor areas of the city, thereby increasing the number of metro users who earn less than four minimum monthly salaries¹³ and, consequently, improves users' living conditions by facilitating access to education, health care, and employment services; and (ii) the crosscutting area of climate change and environmental sustainability, in that it will increase the number of passengers (from 130,000 to 830,000 per day) using a mode of public transportation with low carbon emissions, thereby reducing the use of fossil fuels and air pollution and CO₂ emissions. The project is strategically aligned with the IDB's Corporate Results Framework and the crosscutting theme of climate change and environmental sustainability, under the environmental sustainability approach. The project is also aligned with the regional context indicator concerning greenhouse gas emissions¹⁴ and contributes to (and is aligned with) the country development result indicator concerning the reduction of emissions with IDB Group financing support, through the CO₂ emissions reduction indicator (tons per year) from public transportation in the area of influence of the metro's Line 5 (Purple Line), which is the same as the indicator "CO₂ emission reductions with IDB Group financing support."¹⁵ The project is also consistent with the Bank's country strategy with Brazil 2016-2018 (document GN-2850) in the strategic area of increasing productivity and competitiveness, in that it contributes to the strategic objective of expanding and upgrading transportation and logistics infrastructure by increasing use of the urban mass transit system.¹⁶
- 4.3 The project is also consistent with: (i) the guidelines of the Transportation Sector Framework document (document GN-2740-7), which proposes, as a general target, that Latin America and the Caribbean have accessible, efficient, inclusive, sustainable, and safe transportation systems that reduce poverty and promote quality of life and economic development; and (ii) the IDB Infrastructure Strategy (document GN-2710-5), particularly with regard to the strategic principle of planning, building, and maintaining infrastructure for the delivery of quality services that promote sustainable and inclusive growth. The project is also aligned with the

¹³ More than half of the future users will be low-income residents (less than four minimum salaries). A joint impact evaluation is planned with the World Bank to assess the impact of the metro's extension on enhancing employment opportunities and increasing the incomes of the poor.

¹⁴ Although aligned with this indicator, it does not make a specific contribution that can be added with a specific indicator.

¹⁵ The project is expected to help reduce CO₂ emissions from public transportation in the area of influence of the Metro's Line 5 (Purple Line). The project will result in an estimated reduction of 128,500 tons of CO₂, due to the modal change and the streamlining of bus routes as a result of the new metro line.

¹⁶ Contributes to the "Number of passengers transported" indicator in the country strategy's results matrix.

Transport Division's urban transport strategic area and with the crosscutting area of sustainable transportation and impact evaluation.

V. RISKS OF THE PROPOSED LOAN CONTRACT MODIFICATION

A. Environmental and social risks

- 5.1 For the loan modification analysis, the project team commissioned an environmental and social evaluation in 2015 that was later supplemented with a more detailed desk appraisal by environmental specialists in the Bank's Environmental Safeguards Unit (VPS/ESG). Primarily, it consisted of a desk review and exchanges of information with METRÔ's team ([REL 2](#)). This review confirmed the need to update the project's environmental and social impact classification to category "A," based on the scale of the works to be included in the project with the proposed modification, their potential impacts, and the need to align, with the Bank's Environment and Safeguards Compliance Policy, the degree of supervision of the works and activities to be financed. The review also confirmed that the project has effective environmental and social management plans and systems in place for the construction stage of a category "A" project, developed on the basis of an environmental impact assessment that had weighed the alternatives and all relevant impact considerations, and also included participatory processes and consultations.¹⁷ However, to become a category "A" operation, the Bank requires the project to provide more information as well as conduct additional social and environmental actions during its execution. This led to the preparation of an action plan detailing the requirements incumbent upon the executing agency, the compliance with which will be mandatory under the terms of the amendatory contract instrument.¹⁸ The implementation of the contractual obligations, including the environmental and social management plans and the action plan, will be monitored by the Bank during the supervision and execution of the loan.
- 5.2 As a result of the due diligence process and review of the project's environmental and social management, complementary aspects were considered for ensuring compliance with the Bank's safeguards policies, which are described in greater detail in the updated environmental and social management report ([REL 4](#)). To address these aspects, the contractual obligations of the amendatory loan contract instrument will include implementing the action plan, with regard to: (i) the satisfactory conclusion of any remaining cases of vulnerability involving resettlement and the restoration of livelihoods; (ii) improvement of the process for addressing the impact of noise and vibrations; and (iii) systematic and independent validation of the effectiveness of environmental and social management of the project. Specifically, the proposed requirements are as follows:

¹⁷ <http://www.iadb.org/en/projects/project-description-title,1303.html?id=br-11227>.

¹⁸ The action plan does not reference any current instances of noncompliance, but rather requires additional information on the execution of projects to be financed by the Bank. However, if during the supervision and execution of the project the Bank identifies instances of noncompliance with the action plan, the environmental and social action plan, or the contractual obligations of the borrower and/or executing agency pertaining to the social and environmental safeguards, it will take the appropriate measures and require the necessary corrective actions.

- (a) Within 30 days of the signature date of the amendatory loan contract:
 - (i) approve of the terms of reference agreed upon for the systematic evaluation of the social and environmental risks identified in the action plan; and
 - (ii) present evidence to the Bank of either having completed or being in the process of completing, as applicable, the other requirements included under the action plan;
 - (b) During the execution of works stage, submit semiannual reports to the Bank demonstrating compliance with its operational and safeguards policies applicable to the project's works as agreed upon by the parties, as well as the required legal licenses, and the action plan; and
 - (c) Present to the Bank's satisfaction, prior to the final disbursement of the loan, the socioenvironmental management plan for the project's operational stage along with evidence of its entry into effect.
- 5.3 The Bank will strengthen its environmental and social oversight activities and, if necessary, will engage an external consultant to assist it with such activities.

B. Technical risks (execution)

- 5.4 As part of the analysis of the request for the financing of the civil works needed to complete the works in lots 4, 6, and 8, a technical analysis of the project's current status ([OEL 1](#)) was also conducted, which made it possible to: (i) analyze the system tenders already issued in connection with loan 2305/OC-BR and verify the availability of any unallocated resources; (ii) verify the level of execution of existing works contracts and the need to carry out additional works to complete lots 4, 6, and 8; and (iii) review and approve the proposals for additional works and the corresponding costs in these lots to be financed by this modification proposal. It should be noted that the detailed engineering design for the civil works in lots 4, 6, and 8 is more than 85% complete. Consequently, the detailed budget proposal for completing the works in those lots is quite precise.

C. Fiduciary and integrity risks, and potential reputational impact

- 5.5 METRÔ's team has demonstrated satisfactory institutional capacity in its experience executing projects with different financing sources and in light of the project's current implementation status.
- 5.6 It should be noted that there are administrative and legal proceedings under way related to the additional costs incurred in the construction works for the expansion of Line 5, as well as allegations of collusion among the contractor and supplier companies. Furthermore, allegations of dishonesty have been made involving current and former METRÔ officials as well as allegations of corruption against two firms participating in different consortiums that were awarded two lots of the additional works to be financed by the Bank. This fact may expose the Bank to a reputational risk. Nonetheless, the project team and the Office of Institutional Integrity analyzed these circumstances and determined that the fiduciary and integrity risks associated with these proceedings and allegations are considered medium, and fall within levels of risk that the Bank assumes in its operations. The details of that analysis and the considerations taken into account are described in [OEL 5](#).

- 5.7 Another fiduciary risk identified was that execution could fall behind schedule as a result of delays in launching project operations, due to the need for interaction and coordination with various actors ([Annex III](#)). This risk is more likely in lots 4, 6, and 8, since the contractors of the additional works to be financed with IDB resources will work simultaneously for a time with the current contractor (according to the respective lot's original contract). This situation will require additional coordination and supervision efforts by METRÔ and its contractors. To mitigate the aforementioned risk, the project team will: (i) monitor the original contracts for lots 4, 6, and 8; (ii) review the designs of the additional works corresponding to these lots; and (iii) review the contracts of the companies supervising the works and of the management companies to ensure that there are no overlaps in the monitoring of the works.¹⁹

D. Other issues and risks

- 5.8 **Economic feasibility.** The project's original economic assessment quantified the benefits to users in terms of reduced travel times and operating costs, less air pollution, fewer accidents, and lower road maintenance costs, as well as the economic costs of investment, operation, and maintenance resulting from implementation of Line 5. The period of analysis was 30 years, including the construction stage. The economic internal rate of return (IRR) estimated for the project was 16.7% and the net present value was US\$1,208,800,000 (discounted at 10%),²⁰ with a benefit-cost ratio of 1.56. Sensitivity analyses showed the project to be robust under less favorable scenarios: a 10% reduction in time savings for users would decrease the IRR to 15.8%; if the benefits from lower operating costs were reduced by 10%, the IRR would be 16.1%. A significant increase in the investment cost (50%) would bring the IRR down to 11.2%.
- 5.9 As part of the analysis of the proposal to modify the contract, the original study has been reviewed in light of the project's new cost conditions ([OEL 4](#)). Based on this analysis, the following meaningful conclusions can be drawn regarding the proposal's economic viability: (i) the price increases (current and constant) verified in the execution of the project are within the international ranges for similar projects (total estimated increase in constant-value prices will be 42.5%, very similar to the 45% verified by Flyvbjerg, et. al.²¹ for rail projects); and (ii) the cost increase of the investment upon factoring in the price variations (42.5%) is lower than the sensitivity value (50%) and the limit value (67%) calculated for the cost of the investment. Given that the flow of benefits and operating and maintenance costs do not change at constant values (inasmuch as demand, shorter travel time, and the operational characteristics of the train fleet do not change as a result of the price variations of the investments), the project's rate of return is found to be above 11.2% when the discount rate is 10%. The project therefore continues to be economically viable.

¹⁹ The executing agency has already signed contracts for specialized technical engineering services for the supervision, inspection, and control of the civil works included in the implementation of lots 1, 2, 4, 5, 6, and 8 of Line 5 of the metro. The contracts are financed with METRÔ's own resources and are not provided for in this loan.

²⁰ Use of the 10% discount rate was a World Bank-IDB joint decision, since they were each financing part of the project at the time the loan was approved.

²¹ How Common and How Large are Cost Overruns in Transport Infrastructure Projects? (Flyvbjerg, et. al., 2003, Transport Reviews).

- 5.10 **Risk of cost overruns.** Increases in the cost of the investments in civil works experienced during the project's comprehensive execution were identified after completion of the detailed designs of the works contracted under a design and construction arrangement. In contrast, detailed designs for the works to be financed under the operation already exist and bids have come in below the amounts estimated in the indicative budgets. Moreover, the executing agency has committed to completing the works with its own funds, should that be necessary.

VI. IMPLEMENTATION AND MANAGEMENT PLAN

- 6.1 No changes to the implementation and management plan for project BR-L1227/2305/OC-BR are anticipated.

VII. RECOMMENDATION

- 7.1 Despite that, pursuant to the provisions set forth in (i) subsection B, paragraph 4, of Operations Administration Manual section OA-430, titled Substantial and Fundamental Changes to Operations; (ii) document CC-3953-2; and (iii) the information and analysis provided herein, the Board of Executive Directors may approve, by short procedure, the modification of the São Paulo Metro Line 5 (Purple Line) Extension Project (loan 2305/OC-BR) as described in this document; and inasmuch as this proposal provides for the environmental reclassification of the project from category "B" to category "A", in accordance with the foregoing and as an exception for this specific case, Management recommends that the Board of Executive Directors approve this proposal by standard procedure.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives		Aligned	
Development Challenges & Cross-cutting Themes		-Social Inclusion and Equality -Climate Change and Environmental Sustainability	
Regional Context Indicators		-Greenhouse gas emissions (kg of CO2 e per \$1 GDP (PPP))	
Country Development Results Indicators		-Reduction of emissions with support of IDBG financing (annual million tons CO2 e)	
2. Country Strategy Development Objectives		Aligned	
Country Strategy Results Matrix		GN-2850	Expand and reform the transport and logistics infrastructure.
Country Program Results Matrix			The intervention is not included in the 2017 Operational Program.
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability		Evaluable	WeightMaximum Score
		8.7	10
3. Evidence-based Assessment & Solution		9.6	33.33%10
3.1 Program Diagnosis		3.0	
3.2 Proposed Interventions or Solutions		3.6	
3.3 Results Matrix Quality		3.0	
4. Ex ante Economic Analysis		10.0	33.33%10
4.1 The program has an ERR/NPV, a Cost-Effectiveness Analysis or a General Economic Analysis		4.0	
4.2 Identified and Quantified Benefits		1.5	
4.3 Identified and Quantified Costs		1.5	
4.4 Reasonable Assumptions		1.5	
4.5 Sensitivity Analysis		1.5	
5. Monitoring and Evaluation		6.6	33.33%10
5.1 Monitoring Mechanisms		2.5	
5.2 Evaluation Plan		4.1	
III. Risks & Mitigation Monitoring Matrix			
Overall risks rate = magnitude of risks*likelihood		Medium	
Identified risks have been rated for magnitude and likelihood		Yes	
Mitigation measures have been identified for major risks		Yes	
Mitigation measures have indicators for tracking their implementation		Yes	
Environmental & social risk classification		A	
IV. IDB's Role - Additionality			
The project relies on the use of country systems			
Fiduciary (VPC/FMP Criteria)	Yes	Financial Management: Budget, Treasury, Accounting and Reporting, External control, Internal Audit. Procurement: Information System, Shopping Method, Contracting individual consultant, National Public Bidding.	
Non-Fiduciary	Yes	Strategic Planning National System, Monitoring and Evaluation National System.	
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality			
Labor			
Environment			
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project			
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan			

Note: (*) Indicates contribution to the corresponding CRF's Country Development Results Indicator.

The modification to the loan contract 2305/OC-BR proposes transferring financial resources not yet committed from the components defined in the original loan contract to a new component. This responds to cost overruns presented in the program's civil works. The proposed modification would increase the Bank's participation in the program to expand the subway's line 5, which would allow concluding the civil works of zones 4, 6 and 8. Without these interventions, according to the contract modification proposal, the achievement of the objectives and outcomes expected by the program as a whole could be affected.

The objectives and expected outcomes of the program are unchanged. The identified benefits translate into: (i) cost reductions of air pollution; (ii) the increase in the number of passengers in the area of influence; and (iii) the reduction in travel times for users. The results matrix respects the original vertical logic of the intervention.

The economic evaluation provides an analysis to determine whether the operation is still profitable, considering the new conditions imposed by cost overruns of civil works from exchange values defined in the initial economic evaluation. The analysis concludes that the program is still profitable with a positive net present value. Although the sensitivity analysis was not carried out with respect to possible additional cost overruns, these are considered within the risk management of the operation. The sensitivity analysis, which has considered as a variable of uncertainty the cost of the civil works to be completed, specifies the progress of civil works of Line 5 - Lilac around 70% on average, and also that the executive project (final design of engineering) is in its final phase. Therefore, in general, uncertainty and derived quantitative differences of project development currently have a substantial decrease in the probability of occurrence. Thus, taking into account the uncertainty of the possible variation in costs according to engineering evaluation performed, the sensitivity analysis considers the possible scenario of the increase in the cost of the works of US \$ 23.32 million (23.6 %), under which the project is still profitable under the switching values.

The monitoring and evaluation scheme corresponds to a detailed evaluation plan. While the evaluation plan considers the possibility of carrying out a non-experimental evaluation, the methodology that will be used has not been defined yet. An ex-post economic analysis is also proposed.

The operation has been assessed as medium risk, and identifies the following risks: i) delays in obtaining the sovereign guarantee from the GoB, required for loan approval; ii) the possibility of cost overruns in civil works of lots provided; iii) difficulties in implementing the project given various high value and technically complex bids in a tight schedule; iv) complaints related to bidding processes, which could cause delays in signing contracts; and v) significant environmental and social impacts. Mitigation measures are presented for all risks identified.

RESULTS MATRIX

Project objective	The objective of the metro Line 5 (Purple Line) extension project is to address the growing demand on metropolitan São Paulo's transportation system by increasing the supply of metro services and improving mass transit users' mobility, connectivity, safety, and comfort. This will help improve living conditions among the population in metro Line 5's area of influence and reduce greenhouse gas emissions. The specific objectives are to increase the number of primarily low-income passengers-users and shorten users' travel times.
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Expected impacts				
Indicators	Unit	Base year 2009	Target 2020	Means of verification
Impact 1: Reduction in CO2 emissions from public transportation in the area of influence of the metro's Line 5 (Purple Line)				
Amount of CO2 emitted each year by public transportation in the area of influence of the metro's Line 5 (Purple Line) ¹	Tons of CO2 per year	2.31 million	2.19 million	Project ex post evaluation report
Impact 2: Improvement in the living conditions of the population in the area of influence of the metro's Line 5 (Purple Line)				
Indicator to be determined ²	To be determined	To be determined	To be determined	Impact evaluation report
Expected outcomes				
Outcome 1: Increase in the number of primarily low-income passenger-users of the metro's Line 5 (Purple Line) in metropolitan São Paulo				
Number of passengers per day on the metro's Line 5 (Purple Line). Number of users who earn less than four minimum monthly salaries (disaggregated indicator of the number of passengers per day).	Number of passengers	130,000 68,000	830,000 407,000	São Paulo METRÔ annual operations report
Outcome 2: Reduction in the average travel time of users of metro's Line 5 and increase in the efficiency and availability of metro service				
Average travel time between the Largo Treze and Chácara Kablin stations	Minutes	72	21	São Paulo METRÔ annual operations report
Average travel time between the Capão Redondo and Sé stations	Minutes	99	44	São Paulo METRÔ annual operations report
Average annual operating frequency of Line 5 during peak hours	Seconds	307	125	São Paulo METRÔ annual operations report

¹ The project is expected to help reduce public transportation CO₂ emissions in the area of influence of Line 5 (Purple Line). The project will result in an estimated reduction of 128,500 tons of CO₂, due to the modal change and the streamlining of bus routes as a result of the new metro line.

² An impact evaluation will be financed using the differences in differences or regression discontinuity methodology (to be determined in the initial stage of work) to measure the impact of Line 5 in terms of improving living conditions for the population in the area of influence, which accounts for 50% of the line's users. The methodology and indicators will be determined when the study is contracted.

Expected outputs														
Outputs	Estimated cost (US\$000)	Base-line 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Target Total	Means of verification
Component 1. Rolling stock														
Upgraded trains in operation	8,979	0	0	0	0	1	0	0	0	5	2	0	8	Note from METRÔ authorizing the upgraded trains for operation
Component 2. Systems and equipment														
CBTC systems installed (%) ³	34,074	0	0	0	0	2.86	8.77	3.38	3	41.9	40.09	2.86	100	Note from METRÔ clearing the systems and the São Paulo Metro semiannual project monitoring and implementation report
Other systems installed in stations and rail yard (%) ⁴	372,194	0	0	0	6	4.22	6.09	1.84	46.85	26	7	2	100	Note from METRÔ clearing the systems and the São Paulo Metro semiannual project monitoring and implementation report
Component 3. Institutional strengthening														
Study of Line 5's impact on the low-income population in the project's area of intervention concluded	818	0	0	0	0	0	0	0	0	0	0	1	1	METRÔ research report
Origin-destination study of metropolitan São Paulo residents concluded	400	0	0	0	0	0	0	0	0	0	0	0	1	METRÔ research report

³ Refers to the installation of CBTC signaling systems in the following segments: Capão Redondo–Adolfo Pinheiro (9 km), already in operation; and Adolfo Pinheiro–Chácara Klabin, as follows: Adolfo Pinheiro–Brooklin (3.7 km), and Brooklin–Chácara Klabin (7.2 km).

⁴ Refers to the installation of power supply, telecommunications, and auxiliary systems as well as the SCAP system in the 11 stations, the segments between stations, and the rail yard.

Expected outputs														
Outputs	Estimated cost (US\$000)	Base-line 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Target Total	Means of verification
Component 4. Civil works														
Civil works in the Campo Belo station completed (%) ⁵	35,380	0	0	0	0	0	0	0	0	66	34	10	100	METRÔ semiannual project monitoring and implementation report
Civil works in the AACD-Servidor station completed (%) ⁶	36,667	0	0	0	0	0	0	0	60.61	39.39	0	0	100	METRÔ semiannual project monitoring and implementation report
Works at Guido Caloi rail yard and the Borba Gato station completed (%) ⁷	50,000	0	0	0	0	0	0	0	50.88	49.12	0	0	100	METRÔ semiannual project monitoring and implementation report

⁵ These works include application of the primary coating to station infrastructure, an overpass over Avenida Jornalista Roberto Marinho, and the access to Line 17 (light rail).

⁶ These works include adjustments to the train parking facility, repair of the Municipal Government of São Paulo's (PMSP) drain culverts, excavation of an additional pit to remove surplus material from the excavation of the train parking facility, modification of the foundation and structure of the Hospital do Servidor Público, Hospital São Paulo, and AACD-Servidor stations, and repairs to the PMSP's water reservoir.

⁷ These works include earthworks, building and train maintenance office structural works, a utilities tunnel, and a bridge to facilitate local community access.

FIDUCIARY AGREEMENTS AND REQUIREMENTS

Country: Brazil
Name: São Paulo Metro Line 5 (Purple Line) Extension Project
Project number: BR-L1227 – 2305/OC-BR
Prepared by: Santiago Schneider and Karina Díaz (FMP/CBR)

I. EXECUTIVE SUMMARY

- 1.1 The São Paulo Metro Line 5 (Purple Line) Extension Project was approved by the Bank's Board of Executive Directors on 10 March 2010 and the loan contract was signed on 3 September 2010.
- 1.2 In 2015, the Bank extended the date for the loan's last disbursement until March 2018. As of September 2015, US\$43.8 million in disbursements had been made, equivalent to 9.12% of the loan amount. The low level of disbursements is basically due to delays in the civil works, which, in turn, postponed the contracting of Bank-financed systems and equipment.
- 1.3 In light of the significant savings resulting from the bidding processes and the substantial change in the exchange rate, METRÔ's team analyzed the loan's original budget along with the project's current costs and identified an available balance of US\$122 million in unallocated loan proceeds. Accordingly, in August 2015, METRÔ's team asked the Bank if the original table of costs could be modified to include, as part of the financing, the execution of civil works in Line 5's lots 4, 6, and 8. These are the additional works stemming from the aforementioned originally contracted lots. Such works were identified during the execution of the contracts and, for technical or economic reasons, cannot be the subject of addenda.
- 1.4 In view of this new proposal, the following fiduciary agreements for procurement and financial management have been prepared for purposes of continued execution of the project.

II. FIDUCIARY CONTEXT OF THE COUNTRY AND EXECUTING AGENCY

- 2.1 The executing agency of the loan is the São Paulo Metropolitan Transportation Department (STM), through the Companhia do Metrôropolitano de São Paulo (METRÔ). The STM forms part of the government of the State of São Paulo's infrastructure area and is responsible for its urban passenger transport policy for metropolitan areas, which covers underground train, railway, bus, and trolley bus systems
- 2.2 A public company established in 1968, METRÔ is responsible for the implementation and operation of the São Paulo metro rail system, which has five

lines in operation, 68.5 kilometers of track, 61 stations, and 154 trains. In 2014, the system carried 1.1 billion passengers.

- 2.3 The government agencies of the State of São Paulo use the Integrated Financial Administration System for States and Municípios (SIAFEM/SP). As a public company, METRÔ has its own financial information systems and therefore its use of government systems is limited. Its financial management systems (budget, treasury, and accounting) are not currently integrated. In 2015, the company was developing a Systems, Applications, and Products (SAP) system that will integrate all financial, project management, and contract administration functions.
- 2.4 With respect to financial management, METRÔ has a Finance Directorate comprised of its cost engineering, financial planning, financial control, business, and financial execution divisions. The Financial Planning Division is responsible for the financial management of multilateral loans and has a dedicated team with ample experience in IDB World Bank projects. This team works in coordination with the Financial Execution (treasury activities) and Financial Control (accounting activities) Divisions.
- 2.5 Regarding procurement and contracting, METRÔ has a Contracting and Procurement Division (GCP) that reports to the Corporate Affairs Directorate. International contracts are coordinated by the GCP, which has a five-member team with experience implementing the rules and regulations of international lenders. METRÔ also appoints an Evaluation Committee made up of representatives of the business, technical, legal, and financial areas. It is tasked with approving bidding documents, modifications, or clarifications, as well as evaluating proposals and issuing recommendations for the award of contracts.
- 2.6 In terms of contract monitoring, METRÔ has a project manager for each of its lines, responsible for the project's completion, who, in turn, is supported by a works supervisor (a firm contracted for this purpose) with its own manager.
- 2.7 With regard to the use of systems, METRÔ conducts procurement processes in accordance with Law 8666, and makes use of the various systems comprising Brazil's country procurement system (publicity or electronic systems). However, given the level of its investments, the executing agency team adapts to the systems required by the lenders.
- 2.8 METRÔ's Internal Audit Division (GAI) is responsible for internal control and reports directly to the company's president. It is tasked with auditing all of the company's processes, including matters related to multilateral loans. The GAI works in coordination with the State of São Paulo's audit institutions, such as the State Audit Office and the Office of the Comptroller General.
- 2.9 The São Paulo State Audit Office is responsible for the external control of state government agencies. It constantly monitors financial transactions and processes in accordance with annual audit plans. In addition, the external control of METRÔ's financial information is performed by an independent external auditing firm.

III. EVALUATION OF FIDUCIARY RISK AND MITIGATION ACTIONS

- 3.1 METRÔ's team has demonstrated satisfactory institutional capacity in its experience executing projects with different financing sources. The project's level of risk is medium. The risk identified was that execution could fall behind schedule as a result of delays in launching project operations, due to the need for interaction and coordination with various actors, in addition to factors associated with the country's current environment.
- 3.2 To mitigate this risk, the following actions will be implemented: (i) monitoring the original contracts for lots 4, 6, and 8; (ii) reviewing the designs of the additional works corresponding to these lots; and (iii) reviewing the contracts of supervisors and managers to ensure there are no overlaps in the monitoring of works.

IV. CONSIDERATIONS FOR THE SPECIAL CONDITIONS OF THE CONTRACT

- 4.1 No additional provisions to the contract are anticipated.

V. AGREEMENTS AND REQUIREMENTS FOR PROCUREMENT EXECUTION

- 5.1 **Procurement execution.** Procurement processes will be conducted through the Procurement Department, supported by the Evaluation Committee. Because this involves a modification, the procurement provisions agreed on in the original project will be maintained. Accordingly, the Policies for the Procurement of Goods and Works Financed by the IDB (document GN-2349-9) and the Policies for the Selection and Contacting of Consultants Financed by the IDB (document GN-2350-9), both of March 2011, will apply. Procurement processes will be reviewed by the Bank as set forth in the procurement plan (see [procurement plan](#)).
- 5.2 **Procurement of works, goods, and nonconsulting services.** As indicated above, the provisions agreed on in the original project will be maintained. Because the financing of works has been included, it should be noted that procurement processes subject to international competitive bidding (ICB) will use the standard bidding documents issued by the Bank. Procurement processes subject to national competitive bidding (NCB) will use the national public bidding documents agreed on with the Bank (or satisfactory to the Bank, if none have been agreed on to date).
- 5.3 **Selection and contracting of consultants.** The conditions agreed upon for the original project are maintained.
- 5.4 **Advance contracting and retroactive financing prior to the effective date of the amendatory contract.** In the event this substantive modification of the project is approved, the borrower has requested that METRÔ be reimbursed, as a charge against the loan proceeds, for expenditures it made on or after 4 August 2015 (the date of the State of São Paulo's official request) corresponding to the works included under Component 4, the inclusion of which is proposed in this document. These expenditures are estimated to reach US\$48 million (10% of the loan amount). Accepting the possibility of financing such expenditures is deemed appropriate, since it would enable the borrower to continue moving ahead with the works according to schedule, which were contracted in accordance with Bank policies.
- 5.5 **Direct contracting.** No direct contracting was identified.

- 5.6 **Procurement thresholds.** The threshold determining the use of ICB will be made available to the borrower or the executing agency, as applicable, on the Bank's [procurement page](#). Below this amount, the selection method will be determined according to the complexity and characteristics of the procurement or contracting process, which must be reflected in the approved procurement plan.
- 5.7 **Recurring expenses.** No recurring expenses are anticipated. Nonetheless, should such expenses be identified during execution, they will be reviewed and accepted provided that they do not contravene the fundamental principles of economy, efficiency, competition, and transparency. Operating costs do not include the salaries of currently serving civil servants, however.
- 5.8 **Domestic preference.** No domestic preference margins will apply.
- 5.9 **Procurement supervision.** All processes involving ICB, direct contracting, and consulting service selections in amounts estimated at over US\$1 million will be subject to ex ante review. The Bank may alter the review modality indicated in the [procurement plan](#) based on the annual audit reviews.
- 5.10 **Records and files.** The files will be kept in the offices under appropriate security conditions.
- 5.11 **Main procurement processes:**

Activity	Type of bidding	Estimated amount in US\$ (IDB/AL)
Works		
Lot 4. Agua Espraiada–Poço Bandeirantes segment; Campo Belo station; ventilation and emergency exit, Jesuíno Maciel station; and Santo Amaro overpass	ICB	35,380,000
Lot 6. Moema–Vila Clementino segment; AACD-Servidor station; Hospital São Paulo station; ventilation and emergency exit, Magalhães; and train parking facility	ICB	36,667,000
Lot 8. Execution of civil works for the Guido Caloi rail yard	ICB	50,000,000

VI. FINANCIAL MANAGEMENT AGREEMENTS AND REQUIREMENTS

A. Programming and budget

- 6.1 The Department of Planning and Management (SEPLAG) is responsible for preparing the state government's budget, which includes METRÔ. This process ends in September of each year when the bill (Budget Law) is sent to the Legislative Assembly for approval. The Budget Law is usually approved in December of each year.
- 6.2 METRÔ's budget is reviewed each year in June. Its Budget Division revises the original budget based on input from all of the contract management units and adjusts it based on the needs for the second half of the year (July-December). The revised budget is presented at a meeting of METRÔ's board. In June 2015, the company's board approved the June-December 2015 revised budget and the estimated budget for 2016.

- 6.3 At that meeting, R\$1.381 billion was approved as the 2016 budget for Line 5. This amount is comprised of resources from the IDB (R\$205 million), BNDES (R\$746 million), the State of São Paulo (R\$383 million), and the World Bank (R\$47 million).

B. Accounting and information system

- 6.4 METRÔ's manages its accounting and its information systems independently from the State's institutions, and its use of the SIAFEM/SP system—an integrated financial administration system whose use is mandatory for government entities—is limited.
- 6.5 METRÔ has a number of independent information systems, but does not have an integrated system for its financial management. The company is currently developing a new integrated system for all its operations in the SAP. Since 1986, it has been working with the SmartStream system—an enterprise resource planning system containing all the databases needed to prepare financial reports (accounting and management). It also has a financial monitoring system for treasury activities, including accounts payable. Moreover, it has a budget system (known as SIORC) and uses Microsoft Project to monitor the physical and financial progress of works.
- 6.6 Currently, the specific financial reports for METRÔ's projects are prepared in parallel using Excel. However, METRÔ's financial team, which has experience in IDB and World Bank procedures, is part of the working group tasked with designing the SAP tool that will include all project financial management and reporting.
- 6.7 All information systems and internal control procedures are continually validated by external auditors, which to date have issued unqualified opinions regarding the company's audited reports.

C. Disbursements and flow of funds

- 6.8 Disbursements of the loan will be made in U.S. dollars. These will be made under the advance of funds modality, based on liquidity needs according to the detailed financial plan for a period of up to 180 days. A rendering of accounts must be received for at least 80% of the previous advance in order to access a new disbursement.
- 6.9 The resources from the Bank are disbursed in U.S. dollars to an account in Banco do Brasil, which is managed by the Department of Finance. Once deposited, these resources are transferred to the Department of Transportation, which, in turn, transfers them to METRÔ. The resources of the IDB project are administered through an exclusive account in Brazilian reais (account BID Linha 5), for which METRÔ's Treasury area is responsible. This account facilitates the independent verification of the loan proceeds.

D. Internal oversight and internal audit

- 6.10 The GAI is responsible for METRÔ's internal control, reporting directly to the company's president. It is tasked with controlling all of the company's processes, including information security matters.
- 6.11 The GAI performs preventive audits—such as analyses of contracts and addenda—and ex post audits on the management of contracts, payments, and the reliability of information. The IDB and World Bank resources are included in the scope of its internal audits. The GAI works in coordination with other audit institutions of the State

of São Paulo, such as the State Audit Office and the Office of the Comptroller General.

E. External control and reports

6.12 The project's financial statements will be audited annually by a tier 1 external auditing firm acceptable to the Bank. They are to be sent to the Bank annually no later than 120 days following the close of the executing agency's fiscal year, pursuant to the procedures and terms of reference previously agreed on with the Bank.

6.13 Loudon Blomquist was the project's audit firm until 2014. METRÔ is currently in the process of hiring an external audit firm for the period 2015-2018.

F. Supervision plan

6.14 The supervision plan may be altered during project execution, according to the evolution of risk levels or additional control needs, as determined by the Bank.

Supervision activity	Supervision plan			
	Nature-scope	Frequency	Entity responsible	
			Bank	Executing Agency
Procurement	Review of processes for the procurement of works and consulting services	Per procurement plan	Sector and procurement specialists	Project management unit
	Review of processes above the thresholds for ICB and direct contracting	Throughout execution period	Sector and procurement specialists	Project management unit
	Supervision visit	Annual	Sector specialist and fiduciary team	
Financial	Ex post review	Annual	Fiduciary team	Project management unit
	Annual audit	Annual	Fiduciary team	Project management unit
	Review of disbursement requests	Periodic	Fiduciary team	
	Supervision visit	Annual	Sector specialist and fiduciary team	