



Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 07-Jun-2019 | Report No: PIDC25862

**BASIC INFORMATION****A. Basic Project Data**

Country Brazil	Project ID P169140	Parent Project ID (if any)	Project Name Sao Paulo Aricanduva BRT Corridor (P169140)
Region LATIN AMERICA AND CARIBBEAN	Estimated Appraisal Date Dec 14, 2020	Estimated Board Date Mar 30, 2020	Practice Area (Lead) Transport
Financing Instrument Investment Project Financing	Borrower(s) Municipality of São Paulo	Implementing Agency Municipality of São Paulo	

Proposed Development Objective(s)

The Project Development Objective is to improve inclusive public transport services delivery along the Aricanduva corridor in Sao Paulo.

PROJECT FINANCING DATA (US\$, Millions)**SUMMARY**

Total Project Cost	121.24
Total Financing	121.00
of which IBRD/IDA	97.00
Financing Gap	0.24

DETAILS**World Bank Group Financing**

International Bank for Reconstruction and Development (IBRD)	97.00
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Non-World Bank Group Financing

Counterpart Funding	24.00
Borrower/Recipient	24.00



Environmental and Social Risk Classification

Substantial

Concept Review Decision

Track II-The review did authorize the preparation to continue

Other Decision (as needed)

B. Introduction and Context

Country Context

Although Brazil is on the recovery path from the worst economic crisis of its modern history, public investment is highly constrained by the fiscal deficit. GDP contracted by 3.5 percent in 2015 and 3.3 percent 2016, marking the deepest recession in modern Brazilian history. The economic recovery has been slow with growth at 1.1 percent in both 2017 and 2018 and 1.5 percent projected for 2019. The unsustainable trend of rigid public expenditures and a cyclical decline in revenues resulted in general government gross debt rising from 51.5 percent of GDP in 2013 to 78.4 percent by March 2019. To address this debt dynamic, the Federal Government adopted a constitutional amendment to limit federal public expenditure growth to the rate of inflation. Subnational governments are also facing growing fiscal deficits and have limited capacity to cope with growing wage bill and pension payments unless reforms are adopted.

Nevertheless, investments in transport infrastructure and services are still crucial to improve the productivity of Brazilian cities and boost long-term economic growth. Many cities in Brazil are among the most productive in the region, with their productivity generally on par with the world average. Yet, they lag behind the world productivity "frontier", as measured by North American and Western European cities. Addressing the negative externalities of congestion, slums, crime, and inequalities is essential to improve agglomeration economies in Brazil. For example, six Brazilian cities are among the 100 most congested in the world. In large cities in Brazil, studies have found that congestion may cost close to eight percent of their metropolitan area GDP. Investing in infrastructure and services is thus needed to improve the productivity of Brazilian cities. The country remains below countries of similar income in the stock of physical infrastructure - particularly in the case for transport - and performs poorly in the perception of the quality of infrastructure services. As private investment is expected to remain weak and fiscal constraints have restricted the availability of credit, there are significant needs for long-term financing of infrastructure.

The São Paulo Metropolitan Region shelters 21.6 million people spread irregularly over 8,000 square kilometers. Although dominated by the São Paulo Municipality with about 12 million inhabitants, the metropolitan region is made up of 39 municipalities. The region generates more than 20 percent of Brazil's GDP and is the most important economic region in the country. Over decades, rapid urbanization has resulted in uncontrolled urban sprawl with associated traffic congestion and increasing travel distances, exacerbated by social problems including crime and unemployment. Out of the 26 metropolitan regions in Brazil, the São Paulo metropolitan region has the highest population density (ca. 2,930 inhabitants per square-km) and the fourth highest share of people living in slums (9%). While São Paulo has, overall, the highest Human Development Index (HDI) among metropolitan regions in Brazil (0.79), it displays significant disparities across neighborhoods, HDIs ranging from 0.96 down to 0.70. São Paulo has seen a large population growth over the past decade, a 10 percent increase since 2010. This situation has been compounded by growing motorization rates (8.9 million cars registered in São Paulo municipality, a 27% increase from 2010) and related congestion which, in 2013, resulted in a cost of eight percent of GDP of the metropolitan area through productivity losses and pollution.



Sectoral and Institutional Context

Passenger and freight transport needs in the São Paulo metropolitan region are staggering, with around 41.5 million person-trips daily in 2017, out of which close to 37 percent are undertaken in public transit. The 2017 São Paulo metropolitan region mobility survey showed that this proportion remained rather stable from 2007; in parallel, private motorized transport increased two percentage points, while active modes decreased in the same proportion. Yet, the overall public transport stability over the past decade masks two opposite trends: from 2007 to 2017, ridership has increased by 55 percent on metro and suburban rail systems, whereas traffic has decreased by five percent on buses. These opposite trends should not mask that buses carry almost twice as many people as metros and trains in São Paulo: 9 million daily trips in 2017) compared to metrorail systems (4.7 million daily trips).

This relatively good outcome in terms of public transport ridership stability results from ambitious public transport investments over the past decade. The São Paulo metropolitan area is served by about 370 km of metrorail and suburban rail systems, operated by two SOEs (Metro and Companhia Paulista de Trens Metropolitanos, CPTM) and two private companies operating Metro L4 and L5, under concession agreements. The São Paulo municipality has concessioned to the private sector 1,336 bus routes served by about 15,000 buses. Part of these bus routes use the 130 km network of BRT corridors or the 500 km network of segregated bus lanes. Yet, most investment effort has focused on rail-based transport: 45 km of new rail-based (metro, monorail) have been inaugurated for the past ten years, and service was scaled-up on the existing network. Bank-supported Metro Line 4 is a good example of such success story, of transformative infrastructure with ridership largely exceeding forecast at opening.

Investment has been substantially lower on surface transport side and, compounded by increasing car congestion, bus level of service needs improving in order to sustain effective mobility in São Paulo. Over the past decade, SP-Trans estimates that peak-hour bus commercial speed has been reduced by 30%, leading to increasing commuting time. In 2018, average peak hour bus commercial speed in São Paulo was 16 km/h (which is a fraction of the desired quality factors to maintain buses attractive), averaging a significant gap between mixed-traffic bus routes (8 km/h) and segregated corridors (21 km/h). Costs related to traffic congestion in the metropolitan region adversely impact the economic development and competitiveness prospects of the region, and tend to have a disproportionate impact on the poor, commuting from remote metropolitan areas. In 2012 (latest mobility survey available), the average public transport commuting time was 67 minutes.

In 2013, traffic congestion costed the city about eight percent of the metropolitan area GDP and above one percent of Brazil's GDP, linked to productivity losses and pollution. In 2013, motorized urban mobility was responsible for 14.7 million tons of CO₂ equivalent emissions, 51% from cars and 13% from public transport buses. Local pollution has also dire consequences on health as a 2016 study evaluated that, should WHO standards of PM_{2.5} (10 µg/m³) be respected, São Paulo would avoid more than 5,000 premature deaths (equivalent to 266,486 life years' gain) and save \$15.1 billion annually.

Addressing these issues, the Municipality of São Paulo has an ambitious plan to continue expanding bus segregated lanes and BRT corridors. The 2015 São Paulo mobility plan sets the objective to build 600 additional kilometers of segregated bus corridors from 2020 to 2028. Within the metropolitan transport systems, bus corridors both serve as feeder lines to the Metrorail systems and connect remote underserved areas. In this context, the Municipality of São Paulo has sought a partnership with the Bank to develop and finance a strategic new Bus Rapid Transit (BRT) line along Aricanduva Avenue, in the eastern part of the city. Part of the 2015 mobility plan, the Aricanduva BRT is a critical piece for São Paulo's public transport network connectivity. The 14-km Aricanduva BRT would connect: Metro line 15 (silver), Metro line 3 (red), suburban rail lines 11/12, and the ABD metropolitan BRT, already in operation. This proposed intervention at municipal



level of surface public transport, would complement the long-standing Bank engagement to develop state of the art metrorail systems with the State of São Paulo (Metro lines 4 and 5 PPPs). Located in the eastern part of the city, corridor Aricanduva serves some of the neighborhoods with the lowest Human development Indexes of São Paulo.

Relationship to CPF

The 2018-23 Country Partnership Framework (CPF) for Brazil include three focus areas: (i) fiscal consolidation and government effectiveness; (ii) private sector investment and productivity growth; and (iii) inclusive and sustainable development.

The proposed Project directly supports the third Focus Area of the CPF. Objective 3.2 under Focus Area 3 is to “provide more inclusive and sustainable urban services”. Recognizing that Brazilian cities face important constraints in delivering infrastructure services, the CPF supports interventions improving the efficiency of service delivery and quality of life of citizens. The Aricanduva corridor project also supports the greening dimension of the CPF (reduction of greenhouse gases emission), as well as planning and investment coordination at metropolitan level. In an indirect manner, the Project would also support the second Focus Area of the CPF, aiming at boosting productivity and efficiency: better city connectivity is expected to translate into better city efficiency.

The Project would also emphasize gender inclusion and gender-based violence mitigation, supporting improved women’s mobility and access to employment. Women suffer disproportionately more from long commute. Promoting public transportation is expected to increase their mobility. Besides, the Project would build in features to prevent gender-based violence and sexual harassment, too common in public transport. The Bank developed specific experiences in Rio de Janeiro (Via Lilac) that could be enhanced and adapted to the São Paulo situation.

C. Proposed Development Objective(s)

The Project Development Objective is to improve inclusive public transport services delivery along the Aricanduva corridor in São Paulo.

Longer term outcome of the project to increase city productivity and inclusiveness, enhancing mobility and transport systems. More than 1.2 million people reside in the corridor direct area of influence and 300,000 people use every day the 29 bus lines in Aricanduva Avenue. Simulations show that commuting time reduction may enable Aricanduva BRT users to access 190,000 formal jobs: better access to economic opportunities and urban services. By improving service delivery, the Project would also contribute to reduce congestion and pollution in the corridor, and is expected to reduce traffic accidents. These elements are key to increase the city's productivity and its contribution to economic growth, in a sustainable manner from an environmental, social, and financial perspectives.

Key Results (From PCN)

Key Project results would include:

- Increasing accessibility to jobs opportunities, especially for the poor;
- Increasing public transport ridership, including female ridership, along the Aricanduva corridor;
- Reducing public transport travel time along the Aricanduva corridor at peak hours;
- Increasing the proportion of women that perceive their mobility as safer;
- Reducing net greenhouse gases emissions along the Aricanduva Corridor;



- Improving road safety, including from pedestrians, two-wheelers and vulnerable groups, along the Aricanduva corridor.

D. Concept Description

The Project would be articulated around three components: (i) Aricanduva Bus Rapid Transit; (ii) Operational Control Center platform to supervise and manage bus operation across São Paulo; and (iii) technical assistance and project management.

Component 1 - Aricanduva BRT construction

The São Paulo municipality updated in 2018 the engineering designs for a fully segregated bus lanes along Aricanduva Avenue in the Eastern part of São Paulo. In the proposed design, the BRT lane is segregated from the general traffic in the median of the roadway to guarantee the commercial speed. Some intersections will be removed while others will have to be maintained, but with priority to buses. Stations will be closed with off-board fare collection system and will be at-level with bus platforms to enable faster boarding and alighting.

Component 1 would finance the following expenditures:

- Civil works and related design preparation/ works supervision required for the 14-km BRT line, including: pavement, drainage, structures, utilities removal, signaling. Space availability in this urban environment is not a major constraint as BRT lanes will be located on an already-existing roadway, with currently three to five lanes per direction. Works will largely be on the existing roadway infrastructure. Yet, works will require the construction of a new structures on end-point connections.
- Systems, equipment and related supervision, including: control and signaling systems for the BRT, smart traffic lights with public transport priority, data transmission lines;
- 14 BRT stations, including: station access control, ticketing, security, user information. The stations, bridges and bus terminals will be designed to consider the need for improved safety and accessibility for all users (including disability and specific gender needs).
- Bicycle lanes, sidewalks and pedestrian facilities;
- Landscaping and environment;
- Expropriations: 25 partial expropriations, amounting to 2,200 m² will be required.

In line with the Municipality of São Paulo own policies, Project design will fully factor in the specific needs / constraints of the various categories of people using public transport services along Corridor Aricanduva. This includes in particular features to increase women's mobility and access to employment opportunities, disabled people access transport facilities, pedestrian and two-wheelers specific needs, is particular as regard road safety.

Bus operators currently running buses in the Aricanduva Avenue would run BRT services. Bus operators already have the required rolling stock (high-floor, left-door buses, either standard size or articulated). Twenty-nine bus lines currently go through part of, or all, the Aricanduva Avenue. Some level of consolidation will be required to reach BRT operational efficiency.

Component 2 - Bus operational control center

Bus operation in São Paulo is concessioned to private operators, under the regulation of SP-Trans. Yet, monitoring is, at



most, partial and, at worst ineffective, de facto leaving bus services contracts, in terms of service provision and quality of service, largely unmonitored. Spurring Internet of Things and Big Data processing capacity opens new horizons to address this issue. The expected impact of this component is smoother and more reliable bus operation on Corridor Aricanduva and in other zones to be covered by the Operational Control Center. For users, this would mean more buses on time and more accurate information when waiting for the bus.

Component 2 would finance the development and implementation of an Operational Control Center (OCC) platform that would allow bus operators and SP-Trans to exchange and centralize critical information, such as fines and operational data, and provide real-time information to users, such as alterations in schedule/routes and service cuts. Currently, such processes are largely manual, thereby reducing reliability of information and generating additional costs to both operators and SP-Trans. The OCC platform would also allow for measuring level of service (punctuality, vehicle crowdedness, etc.) by cross-referencing smartcard and GPS data, allowing for operational changes and optimizations. Finally, the OCC platform will allow for estimating the working ratio by line/operator, identifying outliers in the system and allowing for remediation plans and optimizations when necessary. The platform will be implemented in a phased approach, whereby the functionalities of the system will be incorporated gradually through a prioritization coming from the interchange between operators and SPTrans and the needs of the users. Crowdsourcing of user data can also be integrated into this platform, through specific user interface and/or integration of existing user platforms.

Component 3 - Technical Assistance and project management

Component 3 would finance technical assistance related to public transport planning and fare integration systems. While all public transport fares, within the São Paulo metropolitan area, are integrated through the “Bilhete Unico”, this technical assistance aims at modernizing the system, to improve riders’ experiences and to curb fraud. This new system would be developed and managed through a PPP agreement and would require a tight partnership with the São Paulo State government, responsible for metrorail systems. The component will also finance project management.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

Environmental and social risks and impacts are considered substantial, given the context of the Project development, especially because of the weak experience of local government agencies with the Bank and the necessary institutional arrangements to deal with this. Nevertheless, the environmental impacts are limited to the period of construction, temporary, site-specific and reversible. The main adverse social impacts are related with a small number of land acquisition. The project will bring benefits in terms of reduced traffic congestion, reduced emissions of pollutants and GHG, improved air quality and health, reduced commuting time and improved mobility that will benefit the most the low-income population of the city of São Paulo, who mostly rely on public transportation.

Note To view the Environmental and Social Risks and Impacts, please refer to the Concept Stage ESRS Document.



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APPROVAL

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