Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 05-Apr-2022 | Report No: PIDA33739

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Project Name	Parent Project ID (if any)
Argentina	P178067	Buenos Aires – Belgrano Sur Passenger Railway Line Modernization Project	
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
LATIN AMERICA AND CARIBBEAN	04-Apr-2022	31-May-2022	Transport
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	Republic of Argentina	Ministry of Transport of Argentina	

Proposed Development Objective(s)

To improve accessibility in the area of influence of the Belgrano Sur Line in an inclusive, safe, and environmentally sustainable manner; and to respond effectively in case of an Eligible Crisis or Emergency.

Components

1. Railway Works
2. Institutional Strengthening and Project Management
3. Contingent Emergency Response Component - CERC

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	675.00
Total Financing	675.00
of which IBRD/IDA	600.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	600.00

Non-World Bank Group Financing	
Counterpart Funding	75.00
Borrower/Recipient	75.00

Environmental and Social Risk Classification

Moderate

Decision

The review did authorize the team to appraise and negotiate

B. Introduction and Context

Country Context

1. **Argentina, with a Gross Domestic Product (GDP) of US$383 billion, was the third largest economy in Latin America in 2020**. The country has a large territory of 2.8 million square kilometers and a population of about 45 million inhabitants. Argentina is highly urbanized with 89 percent of the total population living in cities. The Buenos Aires Metropolitan Area (AMBA, by its acronym in Spanish) alone concentrates 33 percent of the national population and generates more than 40 percent of Argentina's GDP.

2. **Argentina has a historically large and strong middle class, with social indicators generally above the regional average; however, persistent social inequalities, economic volatility, and underinvestment have limited the country's development.** The rate of urban poverty reached 40.6 percent in the first semester of 2021, and 10.7 percent of Argentines live in extreme poverty. Childhood poverty, for those under 15 years old, is at 57 percent. The high frequency of economic crises in the last decades—the economy has been in recessions during 21 of the past 50 years—has resulted in an average annual growth rate of 2.1 percent, well below the world average of 3.6 percent and the region´s average of 3.2 percent. Decades of chronic underinvestment have led to sizeable gaps in capital stock relative to comparable countries, with public capital expenditures as a share of GDP declining amid the large increase in public spending.

3. **The COVID-19 outbreak hit Argentina when its economy faced significant macroeconomic imbalances and a highly uncertain outlook**. Following a two-year recession, high inflation, and lack of access to capital markets, the strict lockdown imposed to contain the spread of the pandemic triggered a GDP loss of 9.9 percent in 2020, the largest decline since 2002. In response, the country has prioritized social spending through various programs, including the Universal Child Allowance, a cash transfer that reaches approximately four million children and adolescents up to age 18, equivalent to 9.3 percent of the population. In a context of restricted market access, financing the response to the pandemic has required monetization of the deficit. This has exacerbated macroeconomic imbalances, notably by exerting pressures on reserves and on the persistent large gap between the official and parallel exchange rate.

4. **Bolstered by favorable external conditions, Argentina's economy recovered from the COVID-19 crisis at a fast pace, reaching pre-pandemic activity levels by end-2021.** Argentina's economy grew by 10.3 percent in

2021, reaching pre-pandemic activity levels by the end of the year but still four percent below its previous cyclical peak attained in the last quarter of 2017. Higher commodity prices and trading partners' growth, notably Brazil, combined with public investment and acquisition of good and services led to a robust recovery in growth. The primary deficit was partially reversed in 2021 due to the removal of COVID-19 emergency support package and to extraordinary resources from the increase in international commodity prices and an exception tax on large fortunes. However, the domestic economy continues to show macroeconomic imbalances. Annual inflation stood at 50.9 percent in 2021. The Government has managed to conclude the process of restructuring its debt in foreign currency (both local and external) with private creditors, significantly improving the maturity profile for the next five to eight years. However, debt service obligations as of 2028 are projected to be equivalent to those that triggered the debt swap in 2020-2021.

5. **Argentine authorities have reached an agreement with the International Monetary Fund, on an Extended Fund Facility (EFF) program for a period of 30 months and an amount of US$45 billion, to address the economy's macroeconomic imbalances and set the basis for sustainable growth.** This figure will cover remaining obligations under 2018 Stand-By Arrangement (US$40 billion) along with a small net financing support for reserves accumulation. According to the Memorandum of Economic and Financial Policies (MEFP), the EFF will support the government objectives of (i) improving public finances in a gradual and sustainable manner to ensure debt sustainability without jeopardizing the economic recovery; (ii) bringing down inflation; (iii) strengthening the balance of payments and (iv) improve the sustainability and resilience of growth. Accordingly, the MEFP sets a gradual fiscal consolidation path towards a zero primary deficit in 2025 (2.5 percent of GDP in 2022, 1.9 percent in 2023, and 0.9 percent in 2024), a reduction of monetary financing of the deficit (eliminated by 2024), and the framework for monetary policy involving positive real interest rates, as part of a multi-pronged strategy to fight inflation.

6. **As one of the early signatories of the Paris Climate Agreement, Argentina has adopted Nationally Determined Contributions (NDCs), which include the transport sector.** The latest NDCs for Argentina, submitted in December 2020, highlights the transport sector as a critical component for the country's climate mitigation and adaptation agenda. One of the priority areas is the development of low-carbon sustainable mobility. Argentina's NDCs call for ensuring the resilience of transport infrastructure by improving designs and construction. Accordingly, the economic recovery needs to consider "green policies" defined as those that contribute to decoupling emissions from economic growth and to building economies and societies that are more resilient and less vulnerable to the observed and anticipated impacts of climate change, considering that climate change effects may push many into poverty over the next fifteen years.[1]

7. **Climate change is posing additional threats to development in Argentina: observed and anticipated climate change impacts coupled with changing precipitation patterns are expected to lead to more frequent natural disasters, such as floods, droughts, tropical storms, and heat waves.** The effects of climate change in AMBA are noticeable, in the form of increased cases and risks of flash or surface flooding, heatwave events, and wind gusts accompanied by precipitation. Climate analyses indicate that these events and impacts are associated with the evolution of global GHG emissions and are therefore exacerbated by climate change. Annual average precipitation in AMBA has increased by 29 percent between 1961-1970 and 2011-2014. Rainfall intensity and the number of days with extreme rainfall levels (over 30 mm per event) have also increased over time. Similarly, average annual temperature within the city boundaries has increased by 0.14

[1] Hallegatte, S., Bangalore, M., Bonzanigo, L., Fay, M., Kane, T., Narloch, U., Rozenberg, J., Treguer, D., and Vogt-Schilb, A. 2016. Shock Waves: Managing the Impacts of Climate Change on Poverty. Climate Change and Development Series. Washington, DC: World Bank.

degrees Celsius per decade between 1961 and 2014..

B. Sectoral and Institutional Context

8. **Despite the large and far-reaching public transport network, AMBA´s urban mobility has been shaped by traditional road network investments and rising motorization accompanying and facilitating urban sprawl.** Rise of developments in the periphery, including high-income gated communities and low-income informal settlements, as well as the expansion of the road network rather than investments in sustainable, low-carbon and climate resilient public transport has resulted in increasing dependence on motorized transport, poorer accessibility to public transport and escalated travel times and external costs (congestion, air pollution, GHG emissions, noise, and road accidents). This has particularly taxed the poor, who are largely reliant on public transport or non-motorized modes for access to employment and socioeconomic services and are more vulnerable to climate change impacts.[2] For example, most job opportunities in AMBA are concentrated in the central business district (CBD) of the Autonomous City of Buenos Aires (CABA), which implies long commutes from the periphery. The average amount of time users spend daily on public transport in AMBA is 56 minutes, and about 31 percent of travelers spend more than two hours.[3]

9. **Prior to the COVID-19 pandemic, 43 percent of all trips in AMBA were on public transport, 35 percent were walking or bicycle trips, and 20 percent were automobile or motorcycle trips.[4]** Buses carried 11 million daily passengers (80 percent of public transport trips), while the suburban railways system carried 1.4 million (11 percent), and the subway system 1.0 million (9 percent). Although public transport accounts for most trips, its modal share has been declining in the last decade. Although household travel surveys indicate that less than 50 percent of households own a private vehicle—automobile or motorcycle—, the private vehicle fleet has been growing at an estimated annual rate of five percent, higher than the population growth of about one percent in AMBA.[5]

10. **Public transport demand hit historically low levels during the pandemic, with an initial drop of 90 percent in weekly demand; in December 2021 demand continued to be below pre-pandemic levels, while automobile travel had fully rebounded.** Lower-income residents have continued to be greatly dependent on the public transit system. The total share of social fare users increased by seven percentage points, primarily because the poor are not able to work from home like higher income workers and had fewer opportunities to shift to private mobility. Even so, as of December 2021, ridership on the suburban railway system was still 30 percent below December 2019 levels. Demand on the Belgrano Sur Line, heavily used by low-income passengers, has recovered faster than the rest of the system, but ridership is still 38 percent below 2019 levels. With regard to bus transport in AMBA, ridership was down 22 percent in December 2021 compared to 2019.[6]

11. **Periods of underinvestment in passenger rail in AMBA have degraded the quality and reliability of the public transport system.** The city's rail network consists of more than 800 km of suburban rail tracks (one of

[2] https://www.worldbank.org/en/topic/climatechange/overview#1
[3] Moovit Insights.
[4] The remaining two percent includes taxi, charters, school buses or company buses. Data from *Análisis de Encuestas de Origen Destino en 8 ciudades de América Latina para avanzar hacia la armonización regional de indicadores de movilidad urbana,* available at https://www.cepal.org/sites/default/files/presentations/buenos-aires-hugo-terrile.pdf.
[5] Anapolsky, S. (2020) ¿Cómo nos movemos en el AMBA? Conclusiones de la evidencia empírica y alternativas post-Covid
[6] For national jurisdiction buses operating in AMBA, which represents about half in terms of service and demand. Data from the National Commission for Transport Regulation, available at https://www.argentina.gob.ar/transporte/cnrt/estadisticas-automotor.

the largest systems in the world) and the oldest subway system in Latin America with an extension of 63 km. Annual investments, which were on average US$110 million between 1995 and 2001, declined to US$70 million between 2003 and 2011, insufficient to upgrade depreciating assets.[7] From 2013 to 2019, the level of investments in urban transport grew fourfold, reaching an average of around US$ 357 million across a wide range of interventions.[8] In an effort to attract new investments, suburban railway concessions were granted during the mid-1990s. These contracts included small-scale interventions by the concessionaire and were funded by the National Government. Unfortunately, most of these interventions were not carried out as resources were used to subsidize operational costs. Between 2012 and 2015 most passenger railway concessions were revoked with growing concerns about safety and efficiency. Currently, only the Belgrano Norte and Urquiza lines (representing 15 percent of the system's ridership) are operated under concession contracts.

12. **The suburban rail system is characterized by longer distance trips connecting the periphery to downtown and lower fares than other public transport modes.** The average distance traveled by passengers is 20 km for suburban rail, compared to 7 km for bus users and five km for subway users. Suburban rail fares vary between US$0.08 and US$0.19 per trip, while bus fares vary between US$ 0.18 and US$ 0.23 and subway fares vary between US$0.18 and US$0.30. Fares are also relatively low relative to other suburban rail systems in Mexico, Chile, and Brazil, where fares are between US$0.45 and US$0.90. Finally, there is a high, albeit decreasing, level of evasion in the railway system in AMBA compared to other modes of public transport; this reached a peak of 42 percent for 2012 but subsequently gradually decreasing to 17 percent in 2018.

13. **Argentina subsidizes its public transport system to ensure affordable mobility and to reduce externalities, especially in urban agglomerations like AMBA.** Subsidies to public transport were introduced as a social policy during the economic crisis of the 2000s and over the past 20 years they have grown from nil to about 0.72 percent of GDP, equivalent to US$ 3.1 billion in 2021.[9] The subsidy system includes supply-side outlays that support affordable fares for all, supplemented by demand-side subsidies to users, such as: beneficiaries of cash transfer programs and other social programs, small contributors to social security, students, retirees, and pensioners, who receive a discount of at least 55 percent of the regular fare. As a result, in 2019 about 95 percent of the operational costs (OPEX) of the suburban railway system were covered by transfers from the national government. Subsidies from national, provincial and municipal government cover 66 percent of the OPEX of the bus system, while CABA covers about 58 percent of the subway OPEX. The pandemic has aggravated the financial situation of the public transport system, with decreased demand, and limited operational costs savings, as service levels remained largely the same to satisfy the social distancing requirements. Fares have not changed despite high inflation, in order to keep mobility affordable for lower-income users.

14. **Gender gaps in the public transport sector are evident in terms of differing mobility patterns, intensities of use, perceived lack of safety, experiences of harassment and social norms that limit mobility, especially for women in vulnerable neighborhoods.** Although Argentina has made progress in bridging gender gaps,

[7] UNSAM-ITF, 2013.

[8] Interventions included: rolling stock (around US$ 1.1 billion to replace more than 700 cars in the Sarmiento, Mitre and Roca lines, and a renewal of the entire diesel fleet of the San Martín and Belgrano Sur Lines); track renewals; new viaducts (3.9 km in the Mitre line, 5 km in the San Martín line and 6 km for the Belgrano Sur Line); electrification of a corridor of the Roca line (53 km and 19 stations - about 600M U$S); improvements in signaling systems; enhancement of four main terminals and other stations; and incorporation of new technologies for automatic train braking systems.

[9] World Bank estimation based on publicly available data on transfers to the bus system, rail system and subway system.

there are still persistent differentials in terms of access to economic opportunities. Labor force participation in CABA for women is 57.1 percent, compared to 70.6 percent for men. Based on recent data from the Survey on Labor Indicators, 71 percent of men and 29 percent of women have a directive position in the Transport and Communication sectors, while there is a wage gender gap in the same sectors.[10] Of the people employed in the surface railway, 13 percent are women.[11] A recent study[12] documented that gender patterns of mobility in AMBA coincide with those in other Latin-American cities: (i) women travel less, generating 42 percent of total trips, (ii) women engage more in non-work travel; 27 percent of women's trips are for caregiving-related activities compared to 13 percent for men; and (iii) women rely more heavily on informal and public transport— 50 percent vs. 37 percent—and walk more—16 percent vs. 10 percent. In addition, about 72 percent of women in AMBA reported feeling unsafe when commuting in public transport (14 percentage points more than men) in 2018, and more than 40 percent reported having experienced harassment in public transport[13]. In terms of employment, there are also underlying constraints for women to access employment opportunities and decision-making positions in the transport sector, as women represent less than 10 percent of the sector's workforce nationally.

15. **The transport sector in AMBA is a major contributor to greenhouse gas (GHG) emissions and its infrastructure is at significant risk from the effects of climate change**. In 2020, the transport sector accounted for 32 percent of the city of Buenos Aires GHG emissions, for an estimated total of nine million metric tons of CO2 equivalent in 2020.[14] In response, the government has supported investments in sustainable mobility solutions to support a modal shift towards low-carbon transport. Natural hazards associated with climate change, such as flooding, heatwaves, and variable precipitation, affect the transport system, requiring the application of climate resilience measures including new design standards, revised operations and maintenance, and contingency programming to mitigate damages, losses and disruptions. Building resilient infrastructure may require marginal additional costs upfront, but, for many assets, the benefits outweigh the costs as macroeconomic losses make up a significant proportion of total losses due to climate-induced extreme weather events.[15]

16. **Electrification of transport will support climate change mitigation objectives in Argentina, and the expected transition toward more renewable energy sources will amplify its climate benefits.** The GoA is currently seeking to enact new legislation supporting ambitious policies—on the demand and supply sides—to promote the electrification of transport, setting a target to end the sale of new vehicles with internal combustion engines by 2041. The draft bill acknowledges that additional measures to support the energy transition are crucial to achieve decarbonization. In 2020 the energy mix in the interconnected national grid of Argentina include 67 percent fossil fuel, mostly natural gas. Hydro power generation made up 17 percent, followed by 7 percent of nuclear, 6 percent of wind, 2 percent of biomass and 1 percent of solar. Argentina's NDCs have given priority to renewable energy and increasing the efficiency of fossil fuel energy generation. Official scenarios for 2030 have fossil fuel energy sources declining to between 30 and 40 percent of total

[10] Ministerio de Trabajo, Empleo y Seguridad Social: https://www.argentina.gob.ar/sites/default/files/informe_ctio_documentodetrabajo.pdf
[11] https://blogs.iadb.org/transporte/es/moviendose-por-la-igualdad-las-trabajadoras-del-transporte/
[12] Why does she move? A Study of Women's Mobility in Latin American Cities. Washington, DC: World Bank (2020).
[13] Ella se mueve Segura – Un estudio sobre la seguridad personal de las mujeres y el transporte público en tres ciudades de América Latina. Caracas: CAF y FIA Foundation (2018).
[14] Plan de Movilidad Limpia de la Ciudad de Buenos Aires.
[15] Kesete, Y., Raffo, V., Pant, R., Koks, E., Paltan, H., Russell, T., Hall, J. (2021) Climate Change Risk Analysis of Argentina's Land Transport Network. Washington, DC: World Bank.

energy generation, and non-hydro renewable energy increasing to 20 to 30 percent.[16] Electrified railway lines would directly benefit from this shift to renewables given that they source electricity from the interconnected national grid.

17. **In April 2020, the World Bank approved a US$ 347 million loan for the Buenos Aires – Mitre Passenger Railway Line Modernization Project (P175138), which is the third most used line among suburban railways in AMBA.** The Mitre Line project finances the upgrading of the Retiro railyard, track renovations and upgrading of electrical systems on the Retiro–Tigre Branch, the construction and upgrading of stations and transfer infrastructure between branches, and extension of the line's electrification. The project also supports institutional strengthening of the Ministry of Transport (MTR), Trenes Argentinos Infraestructura (ADIF), which is the national administrator of railway Infrastructure, and Operadora Ferroviaria Sociedad del Estado (SOFSE), the state passenger rail operator company. Activities include (i) the introduction of Key Performance Indicators to measure long-term performance in terms of passenger demand and service quality, (ii) the implementation of a system to detect all train failures, their causes and their impacts, hence improving productivity, (iii) the adoption of a reliability centered maintenance process, and (iv) the inclusion of climate resilience in railway design and operation in AMBA. Such institutional strengthening activities will improve the reliability and efficiency of AMBA's urban rail network, user safety and personal security, and access for women.

18. **The Belgrano Sur Line delivers public transport accessibility to areas with the lowest socioeconomic status in AMBA and it has a potential of increased demand due to the highly populated areas it serves and to the absence of quality public transport alternatives.[17]** In 2019 the line reached its highest ridership yet, carrying 17.5 million passengers, equivalent to four percent of paying passengers of the suburban railway system.[18] Demand trends are positive as the average annual growth rate for ridership on the Belgrano Sur Line was 3.9 percent (between 2009 and 2019), considerably higher than the 0.1 percent increase for the suburban railway system and the 1.2 percent for the subway system. This may be explained by the above average annual population growth of 2.4 percent in La Matanza, the most populated municipality in the Province of Buenos Aires with 1.77 million inhabitants, compared to 0.95 percent in AMBA.[19] Despite increasing demand, Belgrano Sur remains the least used among the eight lines in the suburban railway system despite its significant demand potential. The municipalities crossed by the Belgrano Sur Line are among those that have the highest vulnerability in AMBA, for example, 12 percent of the households in La Matanza have at least one unmet basic need (Figure 1). Additional maps of the Belgrano Sur Line are provided in Annex 6.

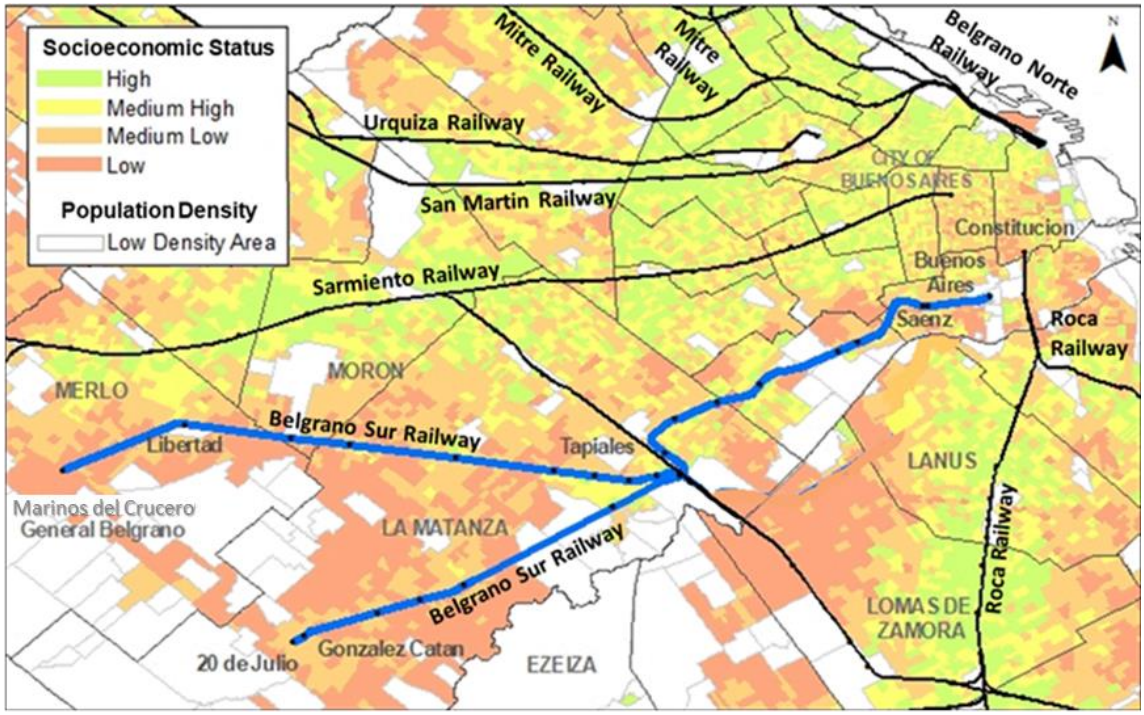
[16] Lineamientos para un Plan de Transición Energética al 2030 (2021). https://www.boletinoficial.gob.ar/detalleAviso/primera/252092/20211101

[17] Calculated using buffers of 2km from stations located within the "first ring" of AMBA (stations in CABA, Morón and some stations in La Matanza) and 3km from stations located in the "second ring" of AMBA (Merlo and the remaining stations in La Matanza). This takes into account mobility survey results in AMBA that show more willingness to walk to rail stations in the outer rings of the metropolitan area.

[18] Actual ridership is higher than reported due to fare evasion, which was estimated at 16 percent in 2018, below the 18 percent for the suburban railway system.

[19] Compound Annual Growth Rate between 2010-2020. Data from INDEC, *Proyecciones de población por Municipio provincia de Buenos Aires 2010-2025*.

Figure 1: Map of suburban railways in the Metropolitan Area of Buenos Aires and Socioeconomic Status

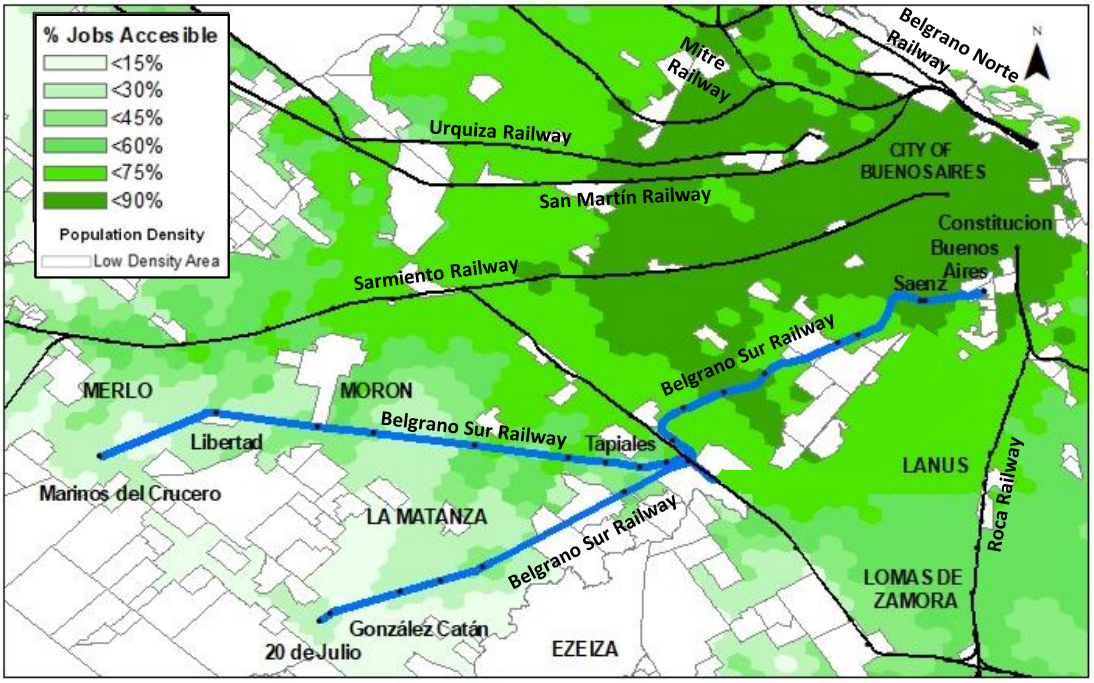


Note: Socioeconomic status refers to the percentage of households in each census tract with at least one unmet basic need in the 2010 Argentina Census. Thresholds from low to high were selected based on the distribution of the percentage of unmet basic needs within the plotted area. Source: World Bank with data from the 2010 Argentina Census.

19. **The Belgrano Sur Line requires much needed upgrades given its aging track infrastructure and signaling systems, deteriorated railway stations and surroundings, numerous level crossings posing significant risks of collision with pedestrians and road vehicles, and vulnerability to climate change.** The Belgrano Sur Line operates with 6-car diesel trains on two passenger branches with a total length of 55 km of primary track**Error! Reference source not found.**. The railway currently connects the Sáenz station (Sáenz, henceforth) in CABA with the Marinos del Crucero General Belgrano station (Marinos station, henceforth) in the municipality of Merlo, on one branch, and to González Catán station in the municipality of La Matanza, on the other branch. The line has 24 stations, four of which within CABA and the remaining in the densest areas of the municipalities of La Matanza, Morón, and Merlo in the Province of Buenos Aires. The signaling system provides low efficiency, as it mixes different technologies in different sections of the tracks and in some it still employs mechanical levers of over 100 years of age. The system depends on manual operations, with marginal adjustments implemented over time which allowed maintaining a minimum level of service and necessary safety conditions. Rail tracks present significant degradation in some segments, including major deterioration of wooden sleepers, which affect the line's performance and lead to safety risks. Further, the numerous level crossings on the Belgrano Sur Line are a constraint to train speeds and service frequency, but also present a significant risk of collisions between trains and road vehicles and pedestrians and generate delays for road and pedestrian traffic. In the 10 level crossings on the Sáenz to Tapiales segment, there were 13 fatalities and 24 injuries in the years between 2009 and 2018 as a result of collisions involving trains and pedestrians or road vehicles. Additionally, the Belgrano Sur Line is vulnerable to climate change-induced flooding, heatwaves, and variable precipitation, which could impact ridership and the long-term viability of the line.

20. **The current level of service on the Belgrano Sur Line is below potential, as trains operate with low average speeds and low frequency, and the line currently provides no direct transfer alternative to the subway or other passenger railways lines.** Train service operated with one train every 20 minutes departing from the González Catán branch and one train every 42 minutes from the Marinos branch in peak hour. Average speed is 29 km/hour, which is lower than average speed of 37 km/hour on other lines of the railway system in AMBA, some of which are electrified.[20] Travel time from Marinos to Sáenz is 1 hour and 9 minutes on one branch, and from González Catán to Sáenz is 54 minutes on the other branch. The terminal station Sáenz in CABA is not located in the central area of Bueno Aires, and travel time to CBD from González Catán is 1 hour and 31 minutes on public transport, using the Belgrano Sur Line and transferring to the bus and then to the subway. This compares to about 40 minutes on automobile in uncongested traffic conditions and up to 1 hour and 30 minutes in congested conditions.[21] With regards to accessibility to jobs by public transport, in the census tracts that intersect the two branches of the Belgrano Sur Line from Tapiales, 6 percent of the jobs in AMBA are accessible by public transport in less than 60 minutes on average, compared to 12 percent for all census tracts in AMBA within the same distance from the CBD[22] (**Error! Reference source not found.**).

Figure 2: Map of the Percentage of AMBA Jobs Accessible by public transport in less than 60 minutes



Note: Census tracts were converted into regularly sized polygons – hexagons each covering 400,000 square meters.
Source: World Bank calculations.

[20] Operational Statistics of the Passenger Railway System in AMBA: https://www.argentina.gob.ar/transporte/cnrt/estadisticas-ferroviarias.

[21] This trip assumes a transfer to premetro—a low-frequency light rail line that connects with subway line E—at the Presidente Illia station and a transfer to the subway line E until Bolivar Station, one of the more central stations in Buenos Aires. The information is from Google Maps API for a business day in March 2022.

[22] Accessibility to jobs (percentage of AMBA jobs accessible by public transport) is measured for 400,000 sq meter polygons over the full extension of AMBA. Census tracts intersecting the line from Tapiales to González Catán and from Tapiales to Marino de Crucero stations were considered. Accessibility in the two Belgrano Sur branches is the average for the polygons that intersect the line, and accessibility for other locations within the same distance from the CBD is the average for all polygons, excluding areas with low population density.

21. **Recent and ongoing interventions to modernize the Belgrano Sur Line have been financed with national resources and the Development Bank of Latin America (CAF) (see Annex 6).** The World Bank financed the Urban Transport in Metropolitan Areas Project (P095485), closed in December 2019, which built the emblematic elevated station Sáenz on the Belgrano Sur Line and eliminated a dangerous—to pedestrians and vehicles—level crossing on Sáenz Avenue. CAF approved two loans for a total of US$ 205 million in 2017 and 2018 for (i) track and platform upgrades in the Marinos branch, including signaling, construction of a new viaduct next to the Tapiales station and conversion of a single-track segment to double-track, and (ii) the extension of the line from Sáenz to Buenos Aires and to Constitución stations in CABA for a total of 4.2 kilometers with a new viaduct, to be completed by 2023. The latter viaduct will extend the Belgrano Sur Line until Constitución station and provide a much-needed direct transfer to the Subway Line C, connecting to the CBD as well as a transfer point to the Roca railway line.[23] In parallel, the GoA has also invested in track, station and platform upgrades in the segment between Sáenz and Tapiales stations. The Belgrano Sur Line requires additional interventions to complete its modernization and be able to increase the level of service it provides and attract new passengers.

C. Relevance to Higher Level Objectives

22. **The proposed project is aligned with the World Bank Group's FY19-FY22 Country Partnership Framework (CPF)[24] for Argentina, with the World Bank's green, resilient, inclusive development (GRID) approach, and supports Argentina's transport sector objectives**. The project supports Focus Area 3 of the CPF: "Supporting Argentina to implement its NDC", by addressing the negative externalities of congestion and high-carbon mobility in AMBA and by fostering multimodality and a modal shift to less carbon-intensive alternatives for its citizens. The project's climate adaptive infrastructure approach, reflected in the resilience-proofed engineering designs and capacity building on railway climate resilience, ensures that climate adaptation is integrated in railway infrastructure management. As such, it contributes to objective 3.10: "Building resilient and low-carbon cities". The project directly improves the efficiency of public transport service on the Belgrano Sur Line and the quality of life of citizens in its area of influence. It will improve access to public transport, tackle traffic congestion and strengthen key infrastructure to curb automobile use and promote sustainable, low-carbon, and climate resilient public transit. In addition, the proposed project supports Focus Area 2: "Addressing key institutional constraints for better governance and service delivery". The institutional strengthening component will enhance the productivity of railway operations, to increase efficiency of the state operating agencies, and to improve accessibility for women and increase their participation in the transport sector labor market. The project supports Argentina's Passenger Railway Transport Modernization Plan with the objective to modernize the country's rail system by means of interventions for track renovation, railway line extension, station upgrades and transformation of level crossings in under and overpasses aimed at improving the quality of service, raising the standard of living of the population, from an environmentally and socially sustainable perspective. [25]

[23] In January 2022, physical progress of the line extension to Constitución was 12.5 percent with completion of the works estimated by 2023. The Marinos branch track upgrade has not yet started, but it is also planned to be completed by 2023.
[24] The project is also aligned with the Performance and Learning Review for Argentina, currently under preparation.
[25] https://www.argentina.gob.ar/transporte/trenes/plan-modernizacion/pasajeros

C. Proposed Development Objective(s)

Development Objective(s)

To improve accessibility in the area of influence of the Belgrano Sur Line in an inclusive, safe, and environmentally sustainable manner; and to respond effectively in case of an Eligible Crisis or Emergency.

Key Results

23. **The outcomes specified in the PDO statement will be measured with the following PDO level indicators:**

- Accessibility: Jobs in AMBA accessible by public transport from the area of influence of the Belgrano Sur Line in less than 90 minutes (Percentage).
- Inclusivity: Passengers per day on the Belgrano Sur Line (Number).
    - Female passengers per day on the Belgrano Sur Line (Number)
    - Social fare passengers per day on the Belgrano Sur Line (Number)
- Safety: Railway incidents and accidents per million train-km linked to safety issues on the Belgrano Sur Line (Number).
- Environmental sustainability: Annual GHG emissions savings (Metric tons/year).

D. Project Description

24. **The Belgrano Sur line Passenger Railway Line Modernization project has three components (Table 1).**

Table 1: Project Components and Costs (US$)

Components and subcomponents	IBRD financing	Counterpart Financing[26]	Total financing
Component 1: Railway works	580,000,000	75,000,000	655,000,000
1.1. Track and infrastructure renovation, signaling and telecommunications	215,175,573	27,824,427	243,000,000
1.2. Grade separation of railway crossings	88,549,618	11,450,382	100,000,000
1.3. Civil works, upgrade of stations and surroundings, perimetral enclosures, construction of workshops and operating buildings	105,374,046	13,625,954	119,000,000
1.4. Electrification of the Belgrano Sur Line	150,534,351	19,465,649	170,000,000
1.5. Supervision of railway works	20,366,412	2,633,588	23,000,000
Component 2: Institutional strengthening and project management	18,500,000	0	18,500,000
2.1. Railway planning and investment preparation	7,300,000	0	7,300,000
2.2. Climate change resilience and technological innovation	6,300,000	0	6,300,000
2.3. Gender perspective and universal access strengthening	2,100,000	0	2,100,000
2.4. Project management	2,593,750	0	2,593,750
2.5. Strategic evaluation	206,250	0	206,250
Component 3: Contingent emergency response component (CERC)	0	0	0
Front-end fee	1,500,000	0	1,500,000
TOTAL	**600,000,000**	**75,000,000**	**675,000,000**

[26] The GoA is considering an *Agence Française de Développement* (AFD) co-financing which would provide the counterpart financing for

25. **Subcomponent 1.1: Track and infrastructure renovation, signaling and telecommunications (US$ 243 million, of which US$ 215.2 million IBRD financing).**

    (i) Full renovation of about 50 km of track between González Catán and Tapiales stations, renovation of at-grade crossings between González Catán and Tapiales stations, track renovation in sections between Tapiales and Sáenz stations, and construction or renovation of railyard tracks in the Belgrano Sur Line.[27]

    (ii) Structural and hydrological verification and upgrade of railway bridges and viaducts in the Belgrano Sur Line, with drainage systems renovated up to climate resilient standards.

    (iii) Installation of a new signaling and telecommunication system between Sáenz and González Catán supported by an optical fiber network.[28] Signaling at level crossings will be improved with automatic gates, warning beacons and pedestrian crossing protections.

26. **Subcomponent 1.2: Grade separation of railway crossings (US$ 100 million, of which US$ 88.55 million IBRD financing).** Grade separation of 10 level crossings in the Sáenz to Tapiales section, considering an urban design perspective, being sensitive to safety and security issues in adjacent areas, with a special focus on signaling and visibility to avoid separating or enclosing spaces in communities where safety concerns are significant, including gender based violence risks. Specific safety and accessibility measures include illuminated stairways and pedestrian crosswalks, ramps and elevators, wide access for people with disabilities who use mobility devices or technical aids, installation of cameras and safety phones, installation of visibility devices such as mirrors in blind spots and use of transparent partitions. Climate resilient designs will be incorporated with the construction of a hydraulic system, the installation of pumping stations equipped with generators to provide for power outages, new rainwater conduits with their corresponding drains, a more efficient lighting system and green spaces with rainwater collection.

27. **Subcomponent 1.3: Civil works, upgrade of stations and surroundings, construction of workshops and operating buildings (US$ 119 million, of which 105.37 million IBRD financing).**

    (i) Upgrading of stations providing disability-inclusive and gender-sensitive accessibility and conforming to climate resilience and road safety standards in all branches of the Belgrano Sur Line. Station upgrade designs will include verification of compliance with accessibility regulations for persons with disabilities, such as implementation of regulatory ramps, new restrooms, adaptation of buildings for people with reduced mobility. Additional interventions include improvement of station signaling, installation of closed circuit television (CCTV) cameras, and provision and distribution of new furniture to improve comfort. Drainage infrastructure to prevent flooding will be installed in stations and surroundings. Upgraded stations will address specific needs and priorities for women, such as security call boxes to be installed and clearly marked, providing a direct line of communication to quickly report incidents including sexual harassment. Gender offices will be installed in at least five upgraded stations to provide municipal government managed facilities to conduct workshops and trainings on gender-related issues, facilitate registration for government gender-related programs,

this loan. Risks to the project of AFD co-financing not moving forward are low because the GoA would continue to provide counterpart financing as described in Table 1.

[27] The 50 km of single-track renovation belong to a 16 km double track segment and 18 km of auxiliary tracks. The 37 km of railyard track will be divided in two workshops with 15 km each and 7 km of tracks of parking for rolling stock.

[28] The signaling system will be consistent with the signaling system to be installed in the Marinos Branch and in the extension between Sáenz and Constitución.

among others. Other gender-sensitive design aspects in stations include gender-neutral signage, well-lit public spaces, facilities oriented towards comfort and care-giving, such as breastfeeding areas, multifunctional equipment and baby changing stations in restrooms.

(ii) Upgrade of station surroundings to improve the quality of public spaces, including upgraded sidewalks in the surroundings of the stations, street curbs, pedestrian crossings, bus bays or bus transfer facilities, and street lighting in parallel streets to the railways, enhancing the relationship between the urban fabric and the railway. Bicycle parking and storage facilities will be provided in stations where demand exists, which will enhance accessibility to cyclists. The upgrade of station surroundings will follow an urban design perspective seeking to prevent maintenance needs, given the challenges of maintaining public spaces in the neighborhoods in the area of influence of the stations of the Belgrano Sur Line.

(iii) Pedestrian overpasses to allow uninterrupted flow of pedestrian movement, separate from train traffic, for communities that are divided by the railway. Pedestrian overpasses will be constructed in the González Catán and in the Marinos branches. Pedestrian overpasses will be constructed with a special attention to urban design, safety and security, and user satisfaction concerns. Overpasses will be accessible to persons with disabilities, providing ramps or elevator access, wide access for people with disabilities who use mobility devices or technical aids, among other design features.

(iv) Railway fencing for pedestrian safety and track demarcation and protection, precluding access to the track area in the González Catán and in the Marinos branches.

(v) Construction of workshop for the maintenance of electric trains and operational buildings.

28. **Subcomponent 1.4: Electrification of the Belgrano Sur Line (US$ 170 million, of which US$ 150.53 million IBRD financing).** Installation of traction and distribution systems, including: (i) the construction of a main transformer substation at Tapiales; (ii) two autotransformer stations at González Catán and Marinos; (ii) three autotransformer sectioning stations at Presidente Ilia, Isidro Casanova and Laferrere; (iii) power centers at all passenger stations; and (iv) the laying of the catenary on the Belgrano Sur Line, and the installation of the necessary accessory elements.

29. **Subcomponent 1.5: Supervision of railway works (US$ 23 million, of which US$ 20.37 million IBRD financing).** Procurement of the technical, environmental, and social supervision of all the railway works in Component 1, which will be required to have the necessary qualified key personnel in these areas.

Table 2: Estimated timeline of project interventions under Component 1

Subcomponent	Estimated initiation of works	Estimated completion of works
Subcomponent 1.1: Track and infrastructure renovation, signaling and telecommunications	Oct-2023	Sep-2026
Subcomponent 1.2: Grade separation of railway crossings	Oct-2023	Dec-2027
Subcomponent 1.3: Civil works, upgrade of stations and surroundings	Sep-2025	Sep-2027
Subcomponent 1.3: Construction of workshops and operating buildings	Jul-2024	Jun-2027
Subcomponent 1.4: Electrification	Feb-2025	Dec-2027

Note: Works financed by CAF (track renovation of the Marinos branch and the Sáenz –Constitución extension of the Belgrano Sur Line are estimated to be completed by December 2023. This is necessary before electrification works begin in January 2025, but it is not a pre-condition for works under components 1.1 to 1.3 to begin. Track upgrades in the Sáenz – Tapiales section on the Belgrano Sur Line funded by the GoA, currently in execution, will be concluded by March 2023.

30. **Component 2: Institutional strengthening and project management (US$ 18.5 million, of which US$ 18.5 million IBRD financing).** This component encompasses activities to (i) improve railway planning and investment preparation, (ii) increase climate change resilience and advance technological innovation, (iii) incorporate a gender perspective and reinforce universal accessibility actions, (iv) support project management and (v) support a strategic evaluation.

31. **Component 3: Contingent Emergency Response Component - CERC (US$0 million).** This component is a contingent financing mechanism available to Argentina to have immediate access to Bank financing to respond to an eligible crisis or emergency, defined as “an event that has caused, or is likely to imminently cause, a major adverse economic and/or social impact associated with natural or man-made crises or disasters.” The mechanism for the triggering of the CERC would be established in the CERC Manual, detailing the applicable fiduciary, environmental and social, monitoring, reporting, and any other implementation arrangements necessary for the implementation of the proposed activities to be financed. In case of an event triggering the component, a reallocation of funds would be introduced to loan disbursement categories, to be able to fund the proposed activities under this component in order to be able to respond to the emergency. The implementation agency for this CERC would be determined in accordance with a CERC Manual.

Legal Operational Policies

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

Summary of Assessment of Environmental and Social Risks and Impacts

The nature of the Project is relatively simple, and the potential adverse environmental and social risks and impacts on

human populations or the environment it will cause are, in principle, not considered to be significant. The scale of the Project is relatively small and the moderate sensitivity of the Project location is explained by the fact it is situated in a highly densely populated area with high levels of poverty, which on the other hand means it is already highly transformed and most of the environmental impacts related to the railways infrastructure to be revamped by the Project have occurred in the past. The magnitude of the expected impacts preliminarily identified is mostly low or moderate and their spatial extent is localized. No long term, permanent, irreversible, unprecedented or complex impacts are expected. Most of the expected impacts preliminarily identified are temporary, predictable and/or reversible, and can be mitigated through readily available measures, considering the mitigation hierarchy. In principle, there is low probability of serious adverse effects to human health, being the current COVID-19 pandemic and the recurrent dengue epidemic the main related risks to be managed, in addition to standard working health and safety risks, usually present in this kind of infrastructure projects. The social risks are not likely to be significant, they are low in magnitude and scope and predictable, they can be addressed through Project design/construction planning (avoidance) or standard and readily available mitigation measures, not likely to cause significant adverse impacts on human health. Civil works are not expected to require land acquisition and the Project is not expect to cause any physical or economic displacement associated to land acquisition, as defined under ESS5. A screening conducted by the Team did not identify any indigenous peoples (meeting the four cumulative criteria of ESS7) present in the Project area. Social risks and/or opportunities are related to the promotion of social inclusion, such as access to benefits for the whole beneficiary population which is extremely poor and take due consideration of issues of disability in the upgrading of infrastructure, as well as gender, LGBTQ inclusion and management of GBV aspects for women workers and service users; carrying out inclusive consultations and general stakeholder engagement under Covid-19 restrictions; OHS issues for contracted workers due to C19 and recurrent dengue additional risks.

E. Implementation

Institutional and Implementation Arrangements

32. **The Argentine Republic will be the Borrower of the loan, and the Ministry of Transport of Argentina (MTR), through the General Directorate for Sectoral and Special Programs and Projects (*Dirección General de Programas y Proyectos Sectoriales y Especiales, DGPPSE*), will be the main Implementing Agency for this project.** MTR will be responsible for overall project coordination and management and for financial management. MTR will also be responsible for the procurement, contract management, and payment of some of the activities in Component 2. MTR has considerable experience in implementing World Bank financed projects, most recently the Mitre Line Modernization project, and it has highly experienced Financial Management and Procurement staff who have performed fiduciary functions for other World Bank financed projects with satisfactory performance.

33. **The project will include ADIF as the sub-implementing entity for infrastructure construction and operation (Component 1), institutional strengthening and project management (Component 2)**. ADIF is the state-owned enterprise (SOE) responsible for the approval, construction, and rehabilitation of railway projects in Argentina[29]. MTR and ADIF will coordinate with SAE, under the Presidency, which prioritizes and supervises projects fully or partially financed from international sources, including multilateral organizations. ADIF will be responsible for the procurement, contract management, and payment of the civil works under Component 1, as well as for some of the activities of Component 2, with the oversight and supervision of

[29] ADIF is one of the three subsidiaries of the state company's Argentina Railways (*Ferrocarriles Argentinos*), along with SOFSE (passenger railway services operator) and *Trenes Argentinos Cargas y Logística, TACyL* (freight services manager).

MTR.

34. **The World Bank assessed the Borrower's fiduciary, environmental and social (E&S) management capacity and deemed it adequate for this project.** MTR has some experience developing moderately complex projects and a reasonable track record regarding the management of environmental and social issues under the World Bank's safeguard operational policies, as well as under other Multilateral Development Bank standards. ADIF has a strong and well-developed environmental and social management system, as well as a dedicated unit responsible for the management of such issues, integrated by qualified and experienced multidisciplinary staff in adequate numbers. Additionally, ADIF has very recently prepared the Mitre Line project under the World Bank's environmental and social standards. However, additional workload with the implementation of this new operation means their teams will need to be expanded.

35. **The implementing agencies are preparing a Project Operational Manual (POM) that will be a condition of effectiveness of the project.** As both MTR and ADIF have experience working together, most recently for the Mitre Line Modernization Project, best practices and lessons learned will be incorporated in the project's design.

36. **An Assistance and Execution Agreement will be signed between MTR and ADIF to transfer funds from MTR to ADIF and will be a condition of effectiveness to ensure these transfers are carried out in accordance with all the provisions of the Loan Agreement**, including the POM, the Anti-Corruption Guidelines, and the Environmental and Social Commitment Plan (ESCP).

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