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PROJECT PERFORMANCE ASSESSMENT REPORT



ARGENTINA

Buenos Aires **Urban Transport**
Project

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PROJECT PERFORMANCE ASSESSMENT REPORT

ARGENTINA

**BUENOS AIRES URBAN TRANSPORT PROJECT
(IBRD-4163, IBRD-7442)**

Financial, Private Sector, and Sustainable Development
Independent Evaluation Group

Currency Equivalents (January 1)

Currency Unit = AR Peso (Arg\$)

1997	US\$1.00	Arg\$1.0
2011	US\$1.00	Arg\$4.0
2017	US\$1.00	Arg\$15.9

All dollar amounts are U.S. dollars unless otherwise indicated.

Abbreviations and Acronyms

AF	additional financing (loan)
AMBA	Área Metropolitana Buenos Aires
CAF	Development Bank of Latin America
GDP	gross domestic product
IDB	Inter-American Development Bank
IEG	Independent Evaluation Group
MTA	Metropolitan Transport Agency for Buenos Aires
PIU	project implementation unit
PLATAMBA	Buenos Aires Metropolitan Area Planning Group
PPAR	Project Performance Assessment Report
PTUBA	Buenos Aires Urban Transport Project
PTUMA	Metropolitan Areas Urban Transport Project
UEC	Central Implementing Unit (Unidad Ejecutora Central)

Fiscal Year

Government: January 1 – December 31

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This report was prepared by Victoria Alexeeva, who assessed the project in October 2016. The report was peer reviewed by Georges Darido and panel reviewed by Peter Freeman. Richard Kraus provided administrative support.

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Principal Ratings

	ICR*	ICR Review*	PPAR
Outcome	Moderately satisfactory	Moderately satisfactory	Moderately satisfactory
Risk to development outcome	Significant	Significant	Significant
World Bank performance	Moderately satisfactory	Moderately satisfactory	Moderately satisfactory
Borrower performance	Moderately satisfactory	Moderately satisfactory	Moderately satisfactory

* The Implementation Completion and Results Report (ICR) is a self-evaluation by the responsible World Bank global practice. The ICR Review is an intermediate IEG product that seeks to independently validate the findings of the ICR.
Note: PPAR = Project Performance Assessment Report.

Key Staff Responsible

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IEG Mission: Improving World Bank Group development results through excellence in independent evaluation.

About this Report

The Independent Evaluation Group assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the World Bank's self-evaluation process and to verify that the World Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, IEG annually assesses 20–25 percent of the World Bank's lending operations through field work. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or World Bank management have requested assessments; and those that are likely to generate important lessons.

To prepare a Project Performance Assessment Report (PPAR), IEG staff examine project files and other documents, visit the borrowing country to discuss the operation with the government and other in-country stakeholders, interview World Bank staff and other donor agency staff both at headquarters and in local offices as appropriate, and apply other evaluative methods as needed.

Each PPAR is subject to technical peer review, internal IEG Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible World Bank country management unit. The PPAR is also sent to the borrower for review. IEG incorporates both World Bank and borrower comments as appropriate, and the borrowers' comments are attached to the document that is sent to the World Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

About the IEG Rating System for Public Sector Evaluations

IEG's use of multiple evaluation methods offers both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. IEG evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (additional information is available on the IEG website: <http://ieg.worldbankgroup.org>).

Outcome: The extent to which the operation's major relevant objectives were achieved, or are expected to be achieved, efficiently. The rating has three dimensions: relevance, efficacy, and efficiency. *Relevance* includes relevance of objectives and relevance of design. Relevance of objectives is the extent to which the project's objectives are consistent with the country's current development priorities and with current World Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, and Operational Policies). Relevance of design is the extent to which the project's design is consistent with the stated objectives. *Efficacy* is the extent to which the project's objectives were achieved, or are expected to be achieved, taking into account their relative importance. *Efficiency* is the extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. The efficiency dimension is not applied to development policy operations, which provide general budget support. *Possible Ratings for Outcome:* highly satisfactory, satisfactory, moderately satisfactory, moderately unsatisfactory, unsatisfactory, highly unsatisfactory.

Risk to Development Outcome: The risk, at the time of evaluation, that development outcomes (or expected outcomes) will not be maintained (or realized). *Possible Ratings for Risk to Development Outcome:* high, significant, moderate, negligible to low, not evaluable.

World Bank Performance: The extent to which services provided by the World Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible Ratings for World Bank Performance:* highly satisfactory, satisfactory, moderately satisfactory, moderately unsatisfactory, unsatisfactory, highly unsatisfactory.

Borrower Performance: The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible Ratings for Borrower Performance:* highly satisfactory, satisfactory, moderately satisfactory, moderately unsatisfactory, unsatisfactory, highly unsatisfactory.

Preface

This Project Performance Assessment Report (PPAR), prepared by the Independent Evaluation Group (IEG), evaluates the Buenos Aires Urban Transport Project (1997–2011) in Argentina. The project was selected for evaluation as an input to the IEG ongoing major evaluation scheduled for FY2017 on the effectiveness of the World Bank Group’s support to urban transport development. The project encompasses almost 14 years of the World Bank’s engagement in urban transport in Argentina that focused on investments in urban rail, road/rail crossings, and transfer stations; institutional activities to strengthen urban transport planning capacity and sector coordination at the metropolitan level in Buenos Aires; and assistance to other Argentine cities in developing integrated urban transport strategies.

The project was initially approved on May 15, 1997 with an IBRD loan of \$200 million (loan 4163-AR); subsequently additional financing for a further \$100 million (loan 7442-AR) was approved in March 2007. The two loans were fully disbursed, with an actual amount of \$299.6 million due to exchange rate fluctuations. The project’s original closing date was extended from December 31, 2003 to the final date of June 30, 2011 for reasons related to the economic and financial crisis in Argentina in 2001, implementation delays, and project restructuring with a scale-up of investments in road/rail crossings and technical assistance to other Argentine cities.

This report draws upon relevant documentation for World Bank–funded projects such as project appraisal documents, Implementation Completion and Results Reports, legal agreements, project files, and external literature. An IEG field mission visited Buenos Aires and Rosario in Argentina in October 2016 to review the achievements and assess the sustainability of the project in light of subsequent developments. Meetings were held with World Bank staff in Washington, DC and Buenos Aires; government officials from the Ministry of Transport in Argentina and the municipality of Rosario; the Buenos Aires subway operator, Metrovias; and others.

The PPAR team benefitted in Argentina from the valuable technical assistance of Sebastian Anapolsky, an urban transport consultant. The team expresses its appreciation for the generous time and attention given by the borrower and all concerned parties. Appendix C lists the persons with whom the team met during the mission.

Following standard practice, IEG sent copies of the draft report to the appropriate government officials and implementing agencies. No borrower comments were received.

Summary

This Project Performance Assessment Report (PPAR) assesses the development effectiveness of the Buenos Aires Urban Transport Project in Argentina. The project's objectives were to support joint private sector–public sector initiatives to improve the service quality and coverage of mass transit in metropolitan Buenos Aires; support the implementation of the infrastructure improvement obligations assumed by private concessionaires regarding the metropolitan Buenos Aires passenger rail system; assist in improving traffic safety and urban transport–related environmental quality in metropolitan Buenos Aires; and contribute toward the development of an integrated urban transport (road and rail) system for metropolitan Buenos Aires, and later, to assist in developing integrated urban transport strategies in metropolitan areas in Argentina, including Cordoba, Mendoza, Posadas, Rosario, and Tucuman.

Argentina is one of the most urbanized countries in Latin America, with about 90 percent of its 43.4 million people living in urban areas. About one-third of the country's population (13.6 million) live in Greater Buenos Aires or metropolitan Buenos Aires, which accounts for nearly half of Argentina's GDP. Most of the population growth occurs in peri-urban areas of Buenos Aires, which are characterized by a low density and fragmented pattern with low-income settlements marginalized to the periphery. The low-density expansion pattern is also typical for other urban agglomerations in Argentina. Greater Buenos Aires has one of the most extensive public transport networks in the world, including a suburban rail system of about 830 km with eight lines, a subway of about 52 km with six lines operating within the city of Buenos Aires, and a bus network operating about 18,500 buses. Complex institutional arrangements govern the metropolitan public transport system in Buenos Aires.

When the original project was appraised in 1997, Argentina was embarking on large-scale privatization reforms of infrastructure, including transport. The poor state of infrastructure, large operating deficits, and significant investment needs motivated the privatization of the Argentine railway system, including the Buenos Aires subway and suburban rail. Given the need for additional funding for the rehabilitation of line A and the worse-than-expected condition of the rolling stock and facilities, the government sought the World Bank's support to meet its commitments under the concession contract agreement with Metrovias. Such agreement included improvements in four subway lines—B, C, D, and E—and the Urquiza suburban rail. In addition, the World Bank financed road/rail grade separated crossings, rail/bus transfer stations, and institutional support that included strengthening of urban transport planning capacity and sector coordination at the metropolitan level in Buenos Aires. Technical assistance was added at the time of additional financing in 2007 to help other Argentine cities develop integrated urban transport strategies.

Assessment Ratings

Relevance of objectives and design. The project objectives were **substantially** relevant to the government development priorities in the urban transport sector in Argentina and to the World Bank country strategies. Project design reflected a comprehensive approach and was **substantially** consistent with the stated objectives.

Efficacy

- The project provided financial support for the implementation—through private sector participation—of the rehabilitation of the Buenos Aires subway and suburban rail with the objective of improving the service quality and coverage; this objective, however, was only **modestly** achieved due to mixed results;
- **Substantial** results were achieved in improving traffic safety due to construction of grade-separated crossings at the suburban rail and road intersections;
- The project also contributed **substantially** to improving the integrated urban transport system for Greater Buenos Aires, through physical investments and institutional strengthening activities;
- Results were **substantially** achieved in supporting the development of integrated urban transport strategies in the Argentine metropolitan areas of Cordoba, Mendoza, Posadas, Rosario, and Tucuman;
- Given lack of evidence, the achievement of the objective to improve urban transport–related environmental quality in metropolitan Buenos Aires is assessed as **negligible**.

Efficiency is rated **modest** given the significant time and cost overruns, which were partially due to administrative and operational inefficiencies.

Taking all of the above ratings into account, the overall outcome rating assigned to the project is **moderately satisfactory**.

The risk to development outcome is **significant**, despite repeated increases in subway fares, additional funding is still required to ensure the maintenance and operations of the Buenos Aires subway system and to finance capital investments. The institutional coordination for transport planning has advanced at the metropolitan level of Buenos Aires; however, its future sustainability is uncertain and needs to be addressed.

The implementation of the project was affected by Argentina’s economic crisis in 2001. The government imposed a freeze on public transport fares starting in 2002 to keep them affordable in the aftermath of the crisis. Public transport subsidies increased steadily. In 2015, for example, rail subsidies reached 0.4 percent of the country’s GDP. It became politically difficult to increase fares; as a consequence, the aggregate level of government subsidies kept rising. Despite these large subsidies, the railway system deteriorated due to many years of low investment and poor maintenance. In February 2012, a suburban rail line train crashed in the city of Buenos Aires, killing 51 people and injuring more than 700 passengers. This accident, known as the *Once* tragedy, raised questions about the safety of the rail network and revealed the poor state of the railway system in metropolitan Buenos Aires. A decade of underinvestment and poor maintenance were blamed for the crash. Allegations of corrupt practices in transport surfaced in the Argentine media, including World Bank–financed contracts under the project. In 2013, after the project closed, misprocurement was declared on several contracts financed under the World Bank project.

The government took action prioritizing fleet renewal and maintenance of the urban rail services and reorganizing the transport sector. The government also started to dismantle the transport subsidy system. Subway fares doubled from 1.10 to 2.50 pesos in 2012, rising to

3.50 pesos in 2013, and 4.50 pesos in 2014. The government approved a further increase to 7.50 pesos (\$0.50) in October 2016, after the fare increase was contested in court. A social tariff was maintained for certain categories of users, including retirees and people with disabilities. The government moved the metropolitan coordination agenda forward when the new administration came to power in December 2015, facilitating a high level of political alignment at the metropolitan level of Buenos Aires. The Metropolitan Transport Agency (MTA) represents an interjurisdictional body that coordinates and plans transport policies and infrastructure in metropolitan Buenos Aires; it comprises the national government, the provincial government, and the city of Buenos Aires.

Lessons

Private sector participation cannot achieve efficiency gains if incentives are misaligned.

After the economic crisis in 2001 in Argentina, both parties—the government and the private firm—flattered on their obligations under the concession contract, which became a management contract. The concessionaire received compensation for the costs incurred but it lacked incentives for cost control and efficiency in urban rail operations. In addition, low fares maintained through government subsidies subsequently contributed to a growing fiscal deficit, while underinvestment in the system continued. This example demonstrates how a public-private partnership (PPP) scheme can underperform if sector reforms and the right price signals are not in place.

The creation of new institutions brings long-term gains and benefits when voluntary association and political will are present, as international experience also shows. In Argentina, the decision to form an entity for metropolitan transport coordination in Buenos Aires was first made in 1991. It took more than 20 years for it to be established in 2014, and 2 additional years to become operational. A currently functioning Metropolitan Transport Agency was largely due to an unprecedented level of political alignment facilitated by the new administration that came to power in December 2015. Previously, the national government and the city administration were held by different political parties; this was partly a barrier for cooperation and policy coordination at the metropolitan level of Buenos Aires. The current political situation offers an opportunity to act on measures that could ensure sustainability. Overall, institutionalization of a new entity should not be an objective but rather a means to achieve the aspired development results. Political commitment and consensus bring progress and functionality to institutions.

Potential fiduciary problems are difficult to detect, which emphasizes the critical importance of training project staff. The presence of red flags related to potential fraudulent practices in procurement and project implementation does not imply corrupt activities. Likewise, the absence of warnings or red flags does not guarantee the absence of fraud. In Argentina, allegations of irregularities in World Bank–financed contracts appeared in the local media, prompting investigation and forensic auditing. Misprocurement was subsequently declared on several contracts almost two years after the project closing date.

The World Bank project staff was cleared of any wrongdoing. Along with training staff to diagnose and enhance detection of risks to integrity, it is essential to help project teams to know how to address such risks, including interaction with the various forms of media to manage the risk of potential reputational damage to the World Bank.

José Carbajo Martínez
Director
Financial, Private Sector, and Sustainable Development Evaluation
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1. Background and Context

Country Background

1.1 Argentina is one of the largest economies in Latin America, with a gross domestic product (GDP) more than \$550 billion. The incomes of the bottom 40 percent of the population had been growing twice as fast as for the population as whole until 2012, when the trend started to slow down and reverse. Between 2006 and 2013, the poverty rate more than halved, from 24 to 10.8 percent; by the second quarter of 2016, however, 13.2 percent were poor—measured at \$4-a-day (World Bank 2017). In 2016, Argentina’s National Statistics Office (INDEC) introduced a new national poverty line that showed 32 percent of the population live in poverty (less than \$8 a day) (World Bank 2016). The new administration that came to power in December 2015 brought a significant change to the country’s political and economic landscape. The government is introducing market-oriented policies that focus on poverty reduction and improved governance.

1.2 Argentina is one of the most urbanized countries in Latin America; about 90 percent of its 43.4 million people live in urban areas. About one-third of the country’s population (13.6 million) live in Greater Buenos Aires or metropolitan Buenos Aires (Área Metropolitana Buenos Aires—AMBA), which accounts for nearly half of Argentina’s GDP. Most of the population growth occurs in peri-urban areas of Buenos Aires, with the annual growth rate of 1.6 percent as compared with 0.4 percent in the city of Buenos Aires. About 73 percent of in-migrants to the Buenos Aires region settle in peri-urban Buenos Aires (Muzzini et al. 2016). This expansion is characterized by a low density and fragmented pattern with low-income settlements marginalized to the periphery. The other top five agglomerations¹ are Rosario, Córdoba, La Plata, Mendoza, and San Miguel de Tucumán, which together account for 11.5 percent of the country’s GDP. The low-density expansion pattern is also typical for these agglomerations with most of the population growth occurring in peri-urban areas.

URBAN TRANSPORT IN BUENOS AIRES AND OTHER CITIES IN ARGENTINA

1.3 Greater Buenos Aires is one of the world’s largest metropolitan areas and the third largest urban agglomeration in Latin America, after Mexico City and São Paulo. The metropolitan area of Buenos Aires includes the city of Buenos Aires and departments, or partidos, from 32 municipalities that belong to the Buenos Aires province. Buenos Aires is the center of the metropolitan area and a subnational government with special politico-administrative status. Complex institutional arrangements govern the metropolitan public transport system in Buenos Aires. The Buenos Aires suburban rail system is administered by the national government, whereas the subway has been administered by the city of Buenos Aires since 2012. The bus network has about 135 bus lines under the national jurisdiction, 121 under the provincial jurisdiction, and 86 under the municipal jurisdiction (Muzzini et al. 2016, chapter 9).

1.4 Greater Buenos Aires has one of the most extensive public transport networks in the world. It includes a suburban rail system of about 830 km with eight lines, a subway of about 52 km with six lines operating within the city of Buenos Aires, and a bus network operating

about 18,500 buses (CAF 2016). Half of the population of Greater Buenos Aires uses public transport for their everyday journey. This includes bus (39.1 percent), rail (6.3 percent), and subway (3.7 percent). The average commute in metropolitan Buenos Aires is 41 minutes, and only 11 percent of people use transfers between different modes of transport (Argentina 2010). For the low-income population (lowest household income quintile) walking accounts for 36 percent of travel. The city of Buenos Aires has the highest level of accessibility by public transport comparatively to its peri-urban areas.²

1.5 Increasing private car ownership, suburbanization, and deteriorating public transport services are among reasons for declining ridership on public transport. The increase in private motor vehicles and the lack of enforcement of traffic rules has led to worsening congestion in Argentine urban agglomerations. There are about 4 million private cars in Greater Buenos Aires (CAF 2016); the number of new motor vehicles has been steadily increasing since 2008. The increase in motorbikes has been much higher than that of cars, with a tenfold growth in motorbikes over the past eight years (Muzzini et al. 2016, chapter 9). This trend exacerbates safety and environmental concerns. Urban agglomerations in Argentina are lagging in providing quality transport services to peri-urban areas, limiting the population's mobility and accessibility to socioeconomic opportunities. Suburbanization trends put pressure on operating and maintaining public transport services in peri-urban areas, while lack of connectivity between the core and periphery poses socioeconomic challenges leading to spatial segregation of poor and marginalized groups.

1.6 In urban agglomerations in Argentina, institutional fragmentation and lack of coordination for the provision of infrastructure and services are common. The mismatch between administrative and functional boundaries of expanding urban areas creates tension in coordinating and planning for public works due to overlapping responsibilities across different tiers of government at the metropolitan level. This is augmented by limited fiscal resources at the province level and often weak technical and implementation capacity at the municipal level. Urban transport plans in many Argentine cities are not coordinated with the cities' broader urban plans. Long-term planning for public works is fragmented across tiers of governments, and limited responsibilities and capacity of municipalities often prevent integration of transport systems with land use planning in urban areas (Muzzini et al. 2016, chapter 9).

WORLD BANK GROUP SUPPORT OF URBAN TRANSPORT IN ARGENTINA

1.7 The World Bank Group has been supporting urban transport in Buenos Aires and other cities in Argentina through three operations: (i) Buenos Aires Urban Transport Project (loans 4163, 7442) approved in 1997 and closed in 2011, (ii) Metropolitan Areas Urban Transport Project (loan 7794) approved in 2009 and currently ongoing, and (iii) the Global Environmental Facility (GEF) Air Quality (TF-93048) approved in 2008 and closed in 2014.

1.8 The main focus of World Bank assistance has been on improving mobility, accessibility, and safety; institutional strengthening; and urban transport subsidy reform. In particular, public transport investments included rehabilitation of the Buenos Aires subway and suburban rail, construction of the Bus Rapid Transit (BRT) system in la Matanza in the suburbs of Buenos Aires, and reconstruction of road/rail grade separations and transfer

stations. In other Argentine cities, these include construction of the first BRT in Rosario that was launched in July 2016, segregated bus lanes in Santa Fe, and bike ways in Rosario, Salta, and Tucuman. Also, the World Bank supported the introduction of the Sistema Unico de Boleto Electronico, a single fare electronic payment system across all transportation modes in metropolitan Buenos Aires. Through a dialogue on transport subsidy policies, the World Bank supported the government to better target the poor and vulnerable during the reform process. Technical assistance was provided to strengthen transport planning capacity and sector coordination at the metropolitan level through different instruments.

2. Project Objectives, Design, and Their Relevance

Objectives

2.1 According to the loan agreement dated December 10, 1997 (loan 4163-AR), the project development objective was to (i) support joint private sector–public sector initiatives to improve the service quality and coverage of mass transit in the AMBA [Área Metropolitana Buenos Aires], (ii) support the carrying out of the infrastructure improvement obligations assumed by private concessionaires with respect to the AMBA passenger rail system, (iii) assist in improving traffic safety and urban transport–related environmental quality in the AMBA, and (iv) contribute toward the development of an integrated urban transport (road and rail) system for the AMBA.

2.2 Following an additional financing (AF) loan in 2007, a new development objective was added to assist the borrower in developing integrated urban transport strategies in the borrower's largest metropolitan areas (loan agreement 7442-AR dated November 26, 2007). The AF loan agreement (p. 6) also specified the original subobjective (iv) as to “contribute toward the development of an integrated urban transport (road and rail) system for the AMBA through, inter alia, the support in the establishment of a metropolitan transport agency.”

Relevance of Objectives

2.3 The relevance of the project development objectives is rated **substantial**. They were relevant to the government priorities as well as to the World Bank’s partnership strategies, both at project appraisal and closure. The project objectives were, however, ambitious and numerous.

2.4 At the time of project appraisal—the mid-1990s—Argentina was embarking on large-scale privatization reforms of infrastructure, including transport. The poor state of infrastructure, large operating deficits, and significant investment needs were the rationale for privatization of the Argentine railway system, including the Buenos Aires subway and suburban rail. Private sector participation was expected to improve efficiency and service quality, and promotion of private sector investment in transport was one of the strategic directions of the World Bank assistance in Argentina in the late 1990s (World Bank 1995, 1997a). The current government continues to prioritize promotion of public-private partnerships (PPP) investments for infrastructure projects as part of its medium-term strategic framework (World Bank 2017). The urban transport development agenda has been evolving

in Argentina with an increased focus on the development of sustainable urban transport modes throughout the country. The Urban Mobility Plan 2016 envisions investments in sustainable urban transport—including public transport, bike lanes, and pedestrian walkways—in Argentine cities that include public transport, bike lanes, and pedestrian walkways. The Sustainable Mobility Plan of the city of Buenos Aires combines programs that prioritize public transport, nonmotorized transport, traffic management, and safety.

2.5 The World Bank strategies in urban transport in Argentina evolved with the country's policy priorities and its own strategic focus. In the late 1990s and early 2000s, air quality was prominent at the strategic level of World Bank engagement, including urban transport safety issues (World Bank 1995, 1997a, 2000, 2006). In 2010, when the additional project objective was approved in support of other cities, the World Bank's strategic focus in transport was set on strengthening institutional planning capacities in the metropolitan areas of Buenos Aires and medium-size cities in Argentina, and increasing public transport ridership (World Bank 2009). In the current country partnership strategy for FY2015–18 (World Bank 2014a), the World Bank is linking its support to the bottom 40 percent of income earners with public transportation in urban areas that could enable better access to urban services, employment opportunities, and commercial facilities.

Design

2.6 The project design consisted of the four components. At the time of additional financing (AF) in 2007, selected activities were scaled up under components 2 and 3, and technical support to other cities in Argentina was added under component 4, as reflected below:

Component 1: Buenos Aires subway infrastructure improvement. This component included (i) Metrovias concession (appraisal estimate \$142.9 million, excluding contingencies; actual cost \$143.3 million) that financed the payments due by the government to the concessionaire of the subway for 1997–99 as part of the concession agreement to partially finance investments in the rehabilitation of the subway system; and (ii) rehabilitation of subway line A (appraisal estimate \$81.9 million, excluding contingencies; AF \$1 million; actual cost \$110.4 million) that financed the rehabilitation of Buenos Aires subway line A.

Component 2: Urban transport system integration. This component (appraisal estimate \$25.5 million, excluding contingencies; AF \$32.9 million; actual cost \$51.3 million) aimed to improve road/rail transfer facilities through building or improving bus terminals, transfer centers, and car parks at selected main subway and/or rail stations in metropolitan Buenos Aires.

Component 3: Traffic safety enhancement and environmental monitoring. Component 3 (appraisal estimate \$44.9 million, excluding contingencies; AF \$51.5 million; actual cost \$149 million) supported the conversion of approximately 12 grade road/rail crossings in metropolitan Buenos Aires into nongrade road/rail crossings at or near the same sites as the original grade crossings through tunnel or bridge construction. The component also

supported the installation and operation of an air quality and noise pollution monitoring system for the city of Buenos Aires.

Component 4. Institutional strengthening (appraisal estimate \$23.3 million, excluding contingencies; AF \$13.2 million; actual cost \$12.9 million) supported the following activities: (i) an integrated urban transport study for Greater Buenos Aires; (ii) development of a metropolitan Buenos Aires traffic and street environment improvement program; (iii) technical assistance to the Secretariat of Transport; (iv) training in urban transport planning and economics, environmental management, traffic engineering, and traffic safety management; and (v) establishment, maintenance, and operation throughout project implementation of a public unit for metropolitan transport planning. A new subcomponent added during additional financing included technical assistance and training to the cities of Cordoba, Mendoza, Posadas, Rosario, Tucuman, and other cities.

Relevance of Design

2.7 The relevance of design is rated **substantial**. The project design was complex; the linkages between all the multiple activities, expected outcomes, and objectives were not sufficiently articulated and clearly established in the results framework. This, however, was an old project appraised in the mid-1990s that addressed comprehensively the results sought through the project activities.³ The project provided financial support to carry out, through private sector participation, rehabilitation and upgrade works of the Buenos Aires subway and suburban rail system, which were intended to improve the service quality and coverage of mass transit in Greater Buenos Aires. These activities were linked to the two project objectives. The investments in reconstruction of grade road/rail crossings were geared to reduce the number of fatalities in the suburban railway, thus improving traffic safety. With regard to improving the environmental quality in metropolitan Buenos Aires, the installation of an air quality and noise pollution monitoring system for the city of Buenos Aires was to provide the information basis, however it was not sufficient to achieve the objective, and no outcome indicators were identified for the improved environmental quality.

2.8 The development of an integrated urban transport system for Greater Buenos Aires was to be achieved through both physical investments and institutional strengthening activities. The upgrade works on rail/bus transfer facilities and bus, car, pedestrian, and bicycle access to the stations under component 2 were to contribute to better integration of the road and rail system in metropolitan Buenos Aires. The relative indicators, however, were lacking. Technical assistance was to help introduce measures aimed at increasing commitment to a greater level of transport coordination at the metropolitan level. As articulated in the staff appraisal report (World Bank 1997b), the project design reflected an attempt to find ways to develop a broader political appreciation of the importance of a more comprehensive approach to the issues of urban transport. This included carrying out an integrated urban transport study that would require cooperation of different agencies throughout the metropolitan area of Buenos Aires, creating a transport management committee that would include representatives of different functions and jurisdictional levels, and developing capacity of a technical group in metropolitan transport planning. With regard to the additional objective to develop integrated urban transport strategies in the largest

metropolitan areas in Argentina, the linkages were well established, as the technical assistance activities were to lead to the adoption of strategies by the project-supported cities.

3. Implementation

Project Financing and Key Dates

3.1 An IBRD loan of \$200 million (loan 4163-AR) was approved for the Buenos Aires Urban Transport Project in Argentina on May 15, 1997. The project became effective on March 18, 1998 and was to close on December 31, 2003. However, due to the economic crisis in the country, implementation delays, and additional financing with new activities, the project closing date was extended several times. The project closed on June 30, 2011, with a total implementation of 14 years.

3.2 Following the economic crisis in 2001, the government budget allocation was eliminated for the project and its activities came to a standstill. \$50 million were reallocated to finance the health and nutrition components of Argentina's social emergency program in 2002. In early 2004, the project was restructured, with consequent renegotiation of all civil works contracts to cover cost increases due to a time lapse of almost three years in execution and the devaluation of local currency. On March 27, 2007, an IBRD additional financing loan (loan 7442-AR) of \$100 million was approved to partially reinstate the activities that were scaled down in 2002, cover cost increases due to inflation, and add technical assistance to other cities in Argentina: Cordoba, Mendoza, Posadas, Rosario, and Tucuman (World Bank 2007).

Implementation Experience

3.3 **The economic crisis of 2001 in Argentina.** The project was affected by Argentina's economic crisis in 2001. In December 2001, Argentina suspended payments on its external debt and restricted deposit withdrawals. In January 2002, the country abandoned its peg to the U.S. dollar. Reflecting continuing uncertainty over financial conditions, interest rates continued to rise. Devaluation affected both revenues and the asset base of infrastructure concessions. The project remained a problem project for several years.

3.4 **Government subsidy policies.** With the economic collapse in 2001, the government could not pay operating subsidies at a defined level and it imposed a fare freeze in 2002. The strategy was to keep transit fares affordable in the aftermath of the crisis. Fares were kept artificially low, not adjusted for inflation. There were two modest increases in 2007 and 2009; however, transit fare was still 26 percent lower in real terms in 2012 than its 2003 level (Barbero 2012). The subsidies for public transport increased steadily. In 2015, rail subsidies constituted 0.4 percent of the country's GDP (World Bank 2015). The aggregate level of government subsidies kept rising and it became politically difficult to increase fares. The increase in operating costs was largely justified by rising labor costs. Salaries increased in addition to the number of personnel, which was largely influenced by pressure from labor unions. Despite heavy subsidies, the railway system suffered deterioration due to low investment and poor maintenance for many years.

3.5 Railway crash in Buenos Aires. On February 22, 2012, a suburban rail line train crashed, killing 51 people and injuring more than 700 passengers in the city of Buenos Aires. The train on a Sarmiento suburban line failed to stop at *Once* station and crashed into the buffer stops at the end of the rail line in Buenos Aires. This train crash was one of the deadliest in Argentina's history; it happened within six months of another crash when a Sarmiento line train hit a bus crossing the tracks and another train at the station in Flores, a Buenos Aires suburb, that resulted in 11 deaths and 228 injuries. The *Once* tragedy raised questions about the safety of the rail network and revealed the poor state of the railway system in metropolitan Buenos Aires. A decade of underinvestment and poor maintenance was blamed as the cause of the accidents. The train crash tragedy led the government to take action and make fleet renewal and maintenance a priority. Investments were made to modernize works on the railway network in metropolitan Buenos Aires.

3.6 Changes in government and administration. In January 2012, the national government and the city of Buenos Aires agreed for a transfer of ownership of the subway from the national government to the city of Buenos Aires. An agreement was also reached to double subway fares from 1.10 to 2.50 pesos (\$0.55). After prolonged negotiations between the parties over repayment of a financial debt the government owed to Metrovias (estimated more than \$1 billion), the actual transfer took place a year later. The Urquiza suburban rail remained under the national jurisdiction. In mid-2012, the national government reorganized the transport sector and created the Ministry of the Interior and Transport, which took over the Secretariat of Transport that was under the Ministry of Federal Planning, Public Investment, and Services. The newly elected government of Mauricio Macri (former mayor of Buenos Aires) in power since December 2015, introduced further changes to the sector structure. The Ministry of Interior and Transport was divided to form the Ministry of Transport in 2016, with subsequent reorganization of the internal structure.

Safeguards Compliance

3.7 The project was classified as category B for environmental issues. Two safeguard policies were triggered under the original loan: environmental assessment (OP4.01) and involuntary resettlement (OP4.12). A third safeguard policy, physical cultural resources (OP4.11), was triggered upon the approval of the additional financing loan.

3.8 As reported, the project complied with the safeguards policies triggered (World Bank 2012, 2013). Some issues were related to the construction of road/rail grade crossings and transfer facilities. In particular, one of the railway underpasses was not carried out due to discussion with community members over potential water flow problems. The project also required some limited resettlement and temporary livelihood disruption to complete improvement around the Bosques and Estanislao Zeballos stations as well as underpass-related works in Florencio Varela. In Florencio Varela, three families who occupied a publicly owned structure that needed to be demolished had to be resettled. The households moved to locations near their original homes. They were provided title to their new homes, which were assessed by the World Bank team to be affordable and of satisfactory quality. Ambulatory markets around Bosques and Estanislao Zeballos stations were temporarily disrupted by construction related to the station improvements.

Financial Management and Procurement

3.9 No substantial fiduciary issues were detected until after the project closure. Audit reports, ex-post reviews, and procurement and financial management supervision missions did not raise any major irregularities or red flags in fiduciary management. Financial management risk was rated modest at the time of additional financing in 2007, and determined in compliance with World Bank policy at project closure. Procurement issues were identified mainly as those related to delays (World Bank 2012). In 2012, allegations in irregularities in the procurement and implementation of several World Bank–financed contracts started to appear in the Argentine media. These were related to several contracts implemented under two World Bank urban transport operations by the same project implementation unit (PIU). In particular, the Argentine newspaper *La Nacion* published a series of articles on alleged rigging in the procurement of furniture and refurbishment of the offices for the PIU and project-supported planning unit, PLATAMBA, as well as irregularities in the supervision contract for the installation of an electronic fare payment system in the metropolitan transportation system in Buenos Aires (SUBE). The World Bank commissioned a forensic audit and launched an investigation through its independent Integrity Vice Presidency (INT). This unit investigates and pursues sanctions related to allegations of fraud and corruption in World Bank Group–financed projects.

3.10 In 2013, misprocurement was declared on 12 contracts under World Bank–financed urban transport projects in Argentina that were awarded during 2009–11. The forensic audit commissioned by the World Bank identified indicators of possible fraud in the award of a number of contracts under the Buenos Aires Urban Transport Project (AF loan 7442-AR) and the Metropolitan Areas Urban Transport Project (loan 7794-AR). The World Bank procurement team confirmed violations of the agreed procurement arrangements in 12 of these contracts. The INT’s investigation concluded in 2014; several individuals and companies were debarred and became ineligible to participate in World Bank–financed projects (World Bank 2014b). The funds declared misprocured were refunded by the borrower. The government resorted to its local institutions to review the case (the National General Syndicate Office and the Argentine Anticorruption Office). The project management structure had a complete turnover. In 2013, by Decree 2034, a new central implementing unit—Unidad Ejecutora Central (UEC)—was created within the Ministry of Interior and Transport to handle projects and programs with external financing. With reorganization of the sector by the new government, UEC became part of the Ministry of Transport in 2016.

4. Achievement of the Objectives

Objective 1: To support joint private sector–public sector initiatives to improve the service quality and coverage of mass transit in metropolitan Buenos Aires.

4.1 This objective is rated **modest**.

Objective 1 Outputs

Rehabilitation of subway line A

4.2 Line A, the oldest historical Buenos Aires subway line and the first in Latin America, has been in operation since 1913. It is one of the six subway lines that runs for about 7 km mainly under Avenida Rivadavia in the city center and it accounts for about 20 percent of trips. At the time of project appraisal, it had a 65-year old track, wooden coaches, and outdated electrical systems. The rehabilitation of line A was left out of the concession process because a bilateral funding had been allocated for the works, however, it failed to materialize due to legal issues. The concession agreement committed the government to separately rehabilitate line A. The work on subway line A was commissioned in 2007. Under the project, wooden coaches were preserved, which continued to operate until 2013, when the government replaced them with modern coaches. Minor rehabilitation work continued beyond 2007 due to delays at several stations.

Rehabilitation of subway lines B, C, D, and E, and the Urquiza suburban rail

4.3 A 20-year concession contract became effective on January 1, 1994 with a private company, Metrovias, a consortium with the majority owned by one of the largest Argentine construction companies, Benito Roggio y Asociados, with small participation from the consortium of bus operators Cometrans and others. The government's concession agreement with Metrovias included a detailed investment program estimated at \$143 million for 1997–99, which was supported by the World Bank. The Argentine government paid its share to the concessionaire, and the concessionaire completed the required investments on subway lines B, C, D, and E, and the Urquiza line.

Objective 1 Outcomes

4.4 During the first years of the concession until 1999, there was improvement in the quality and reliability of service on the subway and the Urquiza suburban rail line. The subway ridership grew from 145 million trips per year in 1993, to 260 million in 1999. The subway train supply almost doubled from 19 million cars per kilometer in 1993, to 36 million in 1999 (Rebelo 2002). On the Urquiza line, passenger volume in 1996 increased by 48 percent, and on-time performance increased from 92 percent to 99 percent by 1999. The rates of government subsidy per paying passenger declined from \$0.74 in 1993 to \$0.20 in 1997 (Menckhoff and Zegras 1999).

4.5 With the economic crisis in Argentina in 2001, the demand for metropolitan railway services declined. In 2002, subway ridership decreased by 15 percent, compared with the 1999 level. With change in the macroeconomic conditions, the government faltered on its obligations in 2002 to pay for operation and investments in the railway system under the concession agreement. As a result of the crisis and lost revenues, the private operator deferred on the required investments as well. Basic maintenance was reduced to a minimum and service expansion was cut back. A subway fare equivalent to \$0.25 was one of the lowest in Latin America.

4.6 Due to deferred maintenance and lack of investments, urban rail services were deteriorating. When the subway started to recover its ridership in 2004, lagging investments in the rail system resulted in rapid deterioration of service quality and comfort. Service levels were characterized by decreasing reliability, delays and cancellation of services, and poor accessibility to train stations. Over a decade of poor maintenance and underinvestment, the Buenos Aires rail network deteriorated significantly.

4.7 Investments in the rail system have picked up since 2012, following a train crash on a suburban railway line in Buenos Aires. The government started projects to restore and improve the passenger network in metropolitan Buenos Aires that included modernization of the railway system, electrification works, and renewal of track and rolling stock. New investments were undertaken by the city's subway authority (SBASE) to modernize aging rolling stock and increase the fleet size.

4.8 However, investments have been insufficient to compensate for years of deferred maintenance and to improve the service quality and coverage of mass transit in metropolitan Buenos Aires. Subway ridership has decreased from about 1 million passengers per day at the time of project appraisal in 1997, to about 700,000 in 2012–16; that is lower than the ridership registered at project completion in 2011. While the capacity of the subway improved in terms of the number of cars per kilometer, the reliability of the subway service worsened significantly (see table 4.1).

Table 4.1. Service Quality Indicators and Ridership on Buenos Aires Subway, 1997–2016

Subway (Subte)	1997 (project appraisal)	2011 (project completion)	2012	2013	2014	2015	2016*
Ridership (daily average)	956,000	851,145	648,352	691,263	662,921	747,187	614,271
Capacity (annual car/km)	30,300,000	36,703,796	32,819,756	33,492,418	34,827,499	36,910,059	—
Train cancellations (annually)	377	837	647	517	841	946	948

Source: Obtained from Metrovias during the IEG PPAR mission.

Note: *Data for 2016 constitutes daily averages until September 2016. — = not available.

4.9 The decreasing ridership trend is also observed on the Urquiza suburban line. The reliability of services declined, while the capacity indicators remained relatively within the same range (see table 4.2).

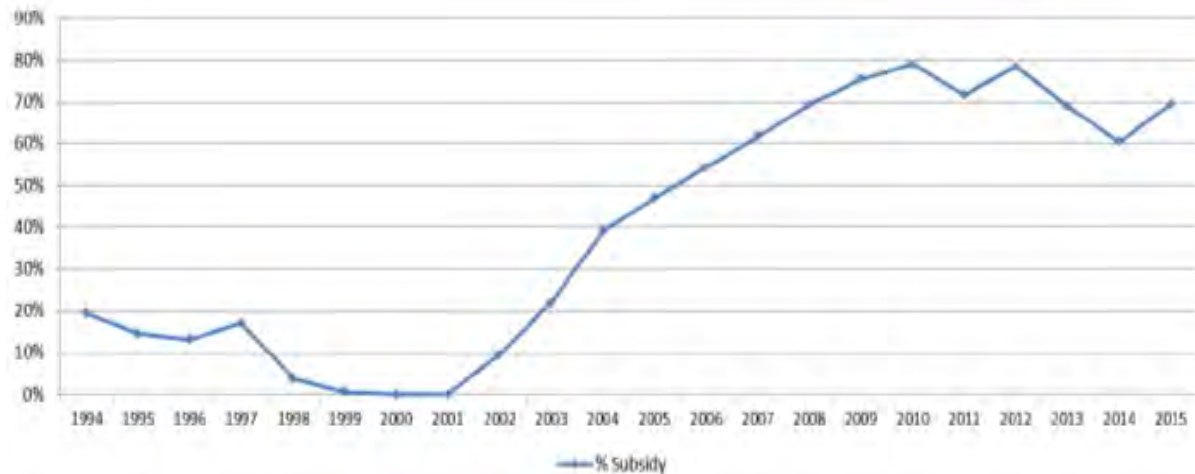
Table 4.2. Service Quality Indicators and Ridership on Urquiza Suburban Line, 1997–2016

Urquiza suburban line	1997 (project appraisal)	2011 (project completion)	2012	2013	2014	2015	2016*
Ridership (daily average)	67,000	50,711	51,955	42,244	34,480	50,763	41,857
Capacity (annual car/km)	10,300,000	8,716,508	8,595,259	8,428,157	8,173,704	8,312,803	—
On-time arrivals	97%	97%	93%	88%	88%	81%	85%

Source: Obtained from Metrovias during the IEG PPAR mission.

Note: *Data for 2016 constitutes daily averages until September 2016. — = not available.

4.10 Operating subsidies remain high for the subway. At the beginning of the concession in 1994, the government subsidy for Metrovias was 20 percent of total operating costs. By mid-1999, subway fares had increased from \$0.45 to \$0.60 per trip (Menckhoff and Zegras 1999), farebox revenues were sufficient to cover operating costs, and government subsidies were reduced to almost zero. With the tariff freeze policy in 2002 and inflation, the subsidy level started to increase steadily, and since 2007, the government provides more than 60 percent of funds for subway operation and maintenance (see figure 4.1). In 2012, the government started to dismantle the subsidy system for transport. Subway fare doubled from 1.10 pesos to 2.50 pesos in 2012, then 3.50 pesos in 2013, and 4.50 pesos in 2014. The fare was further raised to 7.50 pesos in October 2016, after being contested in the court. A social tariff was preserved for certain categories, including retirees and people with disabilities.

Figure 4.1 Government Subsidy for Buenos Aires Subway Operating Costs, 1994–2015

Source: Obtained from Metrovias during the IEG PPAR mission.

Objective 2: Support the carrying out of the infrastructure improvement obligations assumed by private concessionaires with respect to the metropolitan passenger rail system in Buenos Aires.

4.11 This objective is rated **substantial**.

4.12 A rehabilitate-operate-transfer concession was tendered internationally in 1992. The subway that consisted of five underground metro lines and a surface light railway line was placed in a bidding package with the suburban Urquiza rail line that shared the same track gauge and was connected with the subway. Explicit subsidies and public financing of works were allowed to be offered to future concessionaires to encourage their participation. The concessionaires were responsible for operation and maintenance of track and rolling stock, and to undertake capital investments specified in the terms of concession, which were to be financed by the government. The government defined the minimum service standards to be provided by the concessionaire. Fares were specified in real terms with provisions to be adjusted to account for inflation, and they were subject to automatic increases as per the achievement of the specified service quality indicators as well as the increase in cost of providing service (World Bank 1997b).

4.13 The World Bank financed the investment commitments of the government to rehabilitate subway line A and to implement the 1997–99 investment program specified in the concession agreement with Metrovias that included improvements on the four subway lines (B, C, D, and E) and the Urquiza suburban rail. The government sought World Bank support to meet its commitments under the concession contract, as additional funding was needed due to lack of funding for the rehabilitation of line A and the worse-than-expected condition of the rolling stock and facilities (World Bank 1997b). The investment program for 1997–99 was fully implemented. The loan proceeds were disbursed in a timely manner, reflecting, first, the Argentine government’s compliance in its payments to the concessionaire during this period, and, second, the completion of the required investments as agreed. Loan disbursements were made only after these two preconditions had been fulfilled.

4.14 The subway/Urquiza concession contract was renegotiated for an additional 4-year extension from 20 to 24 years shortly after initiation. The concession came to a close in 2012 when Metrovias was given a 2-year contract for operation and maintenance of the Buenos Aires subway. The contract was subsequently extended for 1 year, and an additional 2 years.

Objective 3: Assist in improving traffic safety in metropolitan Buenos Aires.

4.15 This objective is rated **substantial**.

Objective 3 Outputs

4.16 Twelve road/rail grade-separated crossings were constructed at the suburban rail intersections in Buenos Aires under the project. The crossings and locations are indicated in table 4.3.

Table 4.3. Road/Rail Grade Separations on Suburban Rail Constructed under the Project

Municipality	Station location	Inauguration	Suburban line
Berazategui	Av. 21	2004	Roca (Constitución - La Plata)
Avellaneda	Puente av. De la Serna	2006	Roca (Constitución - Temperley)
Ituzaingó	Calle Ratti - Firpo	2006	Sarmiento
San Isidro	Av. Centenario	2006	Mitre (Tigre)
Quilmes	Guido Amoedo	2006	Roca (Constitución - La Plata)
Tres de Febrero	Panamá-Nahuel Huapi	2006	San Martín
San Fernando	RP 197	2007	Mitre (Tigre)
Florencio Varela	RN 53	2009	Roca (Temperley-Bosques)
Malvinas Argentinas	RN 202	2010	Belgrano Norte
Berazategui	Av. Italia - Eva Perón	2010	Roca (Constitución - La Plata)
Tres de Febrero	Lisandro de la Torre	2011	San Martín
Tigre	Av. Henry Ford	2012	Mitre (Victoria-Capilla del Señor)

Source: Project documentation.

4.17 At project appraisal, there were more than 700 at-grade crossings of railways by roads in the metropolitan area, 500 of which were protected by manually or automatically operated barriers. Accident rates were high and delays to road traffic were long. To improve traffic flow and decrease the number of accidents, the intersecting roads were placed at different levels from railways or grade-separated. An economic evaluation was performed on 20 prospective road/rail grade separations; subsequently 14 road/rail crossings were considered acceptable based on positive net present values. Costs were estimated as those associated with injuries and fatal crashes, as well as costs accrued to delayed travelers and cargo (interruption of the rail service and delays to vehicles at barriers) (World Bank 1997b). More crossings were selected for additional financing under the project in 2007 based on the same evaluation criteria. Seven crossings were identified from a list of 22 projects (World Bank 2007).

4.18 The road/rail crossing project component was awarded the traffic safety prize of the Argentine Road Association (*Asociación Argentina de Carreteras*) in 2004. The separation of grade-level crossings at road/rail intersections was scaled up by the government, including under the subsequent urban transport operation⁴ financed by the World Bank.

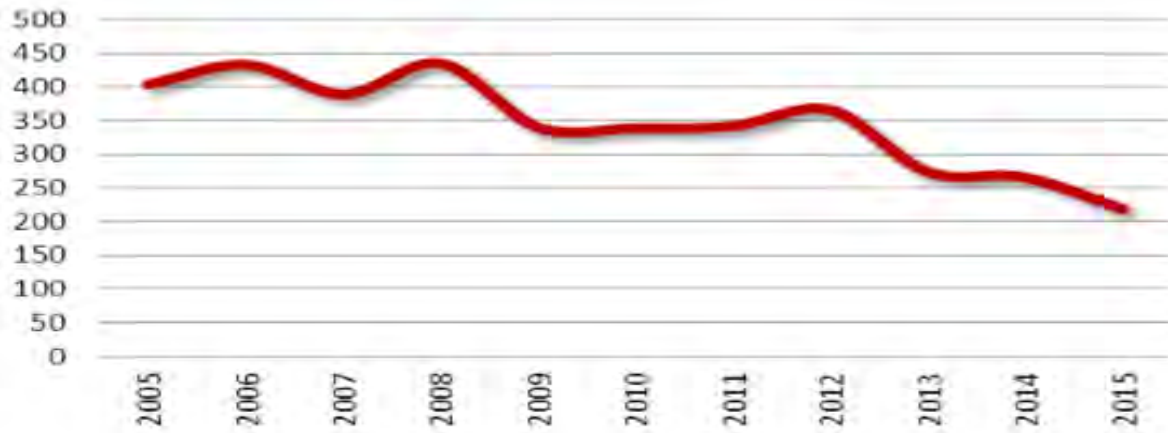
Objective 3 Outcomes

4.19 By project closure in 2011, the number of fatalities on the suburban railway decreased by 43 percent, surpassing the target of 25 percent. The number of accidents in which people were injured (either by being struck by a train or by falling from a train) decreased from 1,017 in 1998, to 80 in 2010. The number of injured people decreased from 638 in 1998 to 79 in 2010 (World Bank 2012). These were suburban rail systemwide results; data was not provided on improved safety in the specific locations of the project-supported road/rail grade separations.

4.20 At the time of project assessment in 2016, the information on the number of fatalities was obtained from the statistics published by the National Transport Regulation Committee (CNRT) of the Ministry of Transport. There is a declining trend of fatalities on the suburban

rail in Buenos Aires between 2005 and 2015 (see figure 4.2). A systemwide indicator is not representative to capture the real changes in safety at the selected project road/rail crossings, as there were only 12 crossings. IEG, however, considers it logical to conclude that separation of road and rail crossings by grade should lead to fewer rail accidents and collisions of road vehicles and trains.

Figure 4.2 . Number of Fatalities on the Buenos Aires Suburban Rail, 2005–15



Source: CNRT Informe Estadístico Anual 2015—Red Ferroviaria de Pasajeros del Area Metropolitana de Buenos Aire.

Objective 4: Assist in improving urban transport–related environmental quality in metropolitan Buenos Aires.

4.21 This objective was rated **negligible**.

Objective 4 Outputs

4.22 At the time of project appraisal in 1995, the World Bank prepared a technical report for Argentina⁵ that assessed environmental issues; it concluded that traffic-generated air pollution was a major issue in the inner sections of Buenos Aires. It was estimated that in 1993, motorized vehicles emitted more than 300,000 tons of pollutants in the city of Buenos Aires. The report recommended systematic air quality monitoring in the city, and the World Bank was to support the implementation of the recommended monitoring system. Information about pollution levels was fragmented and scarce; monitoring air quality data was to help develop effective policies and practices aimed at limiting pollution. The installation and operation of an air quality and noise pollution monitoring system for the city of Buenos Aires was cancelled during implementation and was not pursued under the project. At project completion, it was reported that the city of Buenos Aires began to monitor air pollution in 2009 (World Bank 2012).

Objective 4 Outcomes

4.23 No outcome indicator was identified to measure if urban-transport related environmental quality was improved. The related data on air quality is available at the city

level and is published online, the air quality is being monitored, and the data goes back to 2003.

4.24 The benefits from other project investments were assumed to have a positive environmental impact. In particular, these were improvements of the metropolitan rail network, an environmentally sustainable mode of transport, and an upgrade of transfer road/rail stations. However, there was no attempt to measure such benefits, and there is no sufficient evidence available to assess the project's contribution to improving the urban transport-related environmental quality in metropolitan Buenos Aires. The fact that the rail ridership has a declining trend points to the marginal achievements in this respect.

Objective 5: Contribute toward the development of an integrated urban transport (road and rail) system for metropolitan Buenos Aires.

4.25 This objective is rated **substantial**.

Objective 5 Outputs

Physical investments

4.26 Twenty rail/bus transfer stations at suburban rail stations were upgraded to improve accessibility and integration of the road/rail system. While three to five stations were planned at appraisal, the additional financing scaled up the support. The work included reconstructing pedestrian sidewalks and paving streets; replacing shelters at station stops; constructing ramps for disabled passengers, bike paths, and racks; providing lighting and pedestrian crossings; and upgrading surrounding parks and recreational area for children. A bus-rail transfer center was constructed on the Sarmiento suburban rail line in Moreno, a Buenos Aires suburb.

Institutional strengthening

4.27 The World Bank provided technical assistance to support better coordination and a more comprehensive approach to address metropolitan urban transport issues. These included (i) studies and technical assistance, (ii) building technical capacity, and (iii) creation of a metropolitan transport coordination agency. The studies and technical assistance were geared to improve strategic approaches to urban transport development in metropolitan Buenos Aires and to help foster a greater level of coordination in transport planning at the metropolitan level. Strengthening technical capacity and creating a new transport agency with representatives of different jurisdictional levels were to help overcome the inter-jurisdictional barriers and to facilitate an integrated approach for metropolitan transport planning.

(i) Studies and technical assistance: A transport study was commissioned to develop a comprehensive strategy for the metropolitan area of Buenos Aires. It aimed to identify a set of specific strategies to address major transport issues in Greater Buenos Aires, including coordination between road, rail systems, and bus services, intra and intermodal integration, public and private transport pricing policies, as well as the development of an institutional

framework for metropolitanwide transport planning (World Bank 1997b). Due to contractual and quality issues, the study was not finalized. The AMBA origin-destination surveys and computer models were developed in 2010. A household mobility survey for 2009–10 ENMODO (Encuesta de Movilidad Domiciliaria) is available online at the Ministry of Transport website.⁶

(ii) Building technical capacity. An 18-month urban transport program was designed and 27 young professionals were trained in urban transport planning and project management, including various specialization fields. The program was institutionalized and converted into a formal Master’s degree program with the support of the subsequent World Bank operation. An Urban Transport Planning Masters course is being delivered by the University of Buenos Aires.

(iii) Creation of a metropolitan transport coordination agency. The project aimed to support the new group, TUAMBA, created in 1996 to be converted into a permanent body responsible for transport planning for the entire metropolitan area (World Bank 1997b). The efforts to address inefficient coordination of urban transport planning and management in the metropolitan area of Buenos Aires date back to 1991, when the national government and the mayor of Buenos Aires signed an agreement to create a temporary unit for urban transport planning. The legislation to establish the metropolitan transport entity was passed by the senate but not by the other chamber of the congress. In 1996, the existing informal coordination group was renamed as the Urban Transport Unit for the metropolitan area of Buenos Aires (TUAMBA). In 1998, the congress approved the law on the creation of the Metropolitan Transport Coordination Agency, however the law was not regulated. After the economic crisis in 2001 and a project suspension lasting for several years, the World Bank continued its support to the Buenos Aires Metropolitan Area Planning Group (PLATAMBA) created within the Secretariat of Transport. PLATAMBA was developing databases, surveys, and planning tools to create the knowledge base for coordination and planning efforts for Greater Buenos Aires. At project closure in 2011, PLATAMBA was staffed by approximately 30 transport professionals and was reportedly serving as the national government’s primary support for transport issues in metropolitan Buenos Aires and the rest of the country (World Bank 2012). It began implementing an electronic fare card project (SUBE) supported under a subsequent World Bank urban transport operation. After project closure, due to allegations in irregularities in the supervision contract for SUBE (described in section 3), PLATAMBA was dismantled in 2012.

4.28 The government continued to move the metropolitan coordination agenda forward with World Bank support under the subsequent operation.⁷ In 2014, the Ministry of the Interior and Transport approved the creation of the Metropolitan Transport Agency (MTA) for Buenos Aires. The agency represents an interjurisdictional body to coordinate and plan transport policies and infrastructure at the metropolitan level. The MTA became operational in 2016 under the newly elected government that facilitated a high level of political alignment in the country. Previously, the national government and the city administration were held by different political parties; this presented a significant barrier for cooperation and policy coordination at the metropolitan level of Buenos Aires. The MTA is led by three members designated by the national, provincial, and city governments, and assisted by two

members in charge of administrative and technical issues. They hold bi-monthly meetings to develop and coordinate metropolitan transport planning in Buenos Aires.

Objective 5 Outcomes

4.29 With regard to physical investments, the reconstruction of transfer facilities between bus and rail systems improved modal integration and accessibility, in particular for the lower-income population, which is more dependent on the suburban rail. Such improvements in transport facilities and lighting are also expected to help enhance safety and security, in particular for women.

4.30 The project helped develop a series of tools and data that constituted the backbone for formulating urban transport policy and planning strategies for metropolitan Buenos Aires. The transport planning data and tools are consolidated in the Secretariat of Planning of the Ministry of Transport. A functioning new metropolitan transport agency filled an important niche in the organizational transport structure to better manage transportation planning at the metropolitan level of Buenos Aires. The cooperation between representatives of the three jurisdictions (national, provincial, and the city of Buenos Aires) helps develop a coherent policy for the urban transport for Greater Buenos Aires. Currently, the Metropolitan Transport Agency (MTA), functioning as a high-level coordination group, is updating the urban transport master plan and advancing an integrated fare system for metropolitan Buenos Aires.⁸

4.31 Integrated modal fares allow riders to access different forms of transit (buses and trains) using a single ticket or card. Fare integration is a coordinated effort of multiple agencies that involves the subway, suburban rail, and bus services in the metropolitan area of Buenos Aires. The design requires thorough planning of urban transport modes being integrated at three levels: physical (transfer facilities and terminals), operational (coordination of routes and schedules), and financial (advanced fare system). Metropolitan Buenos Aires has been advancing the integration of the urban transport (road and rail) system at all three levels, most recently through coordination of the Metropolitan Transport Agency. An effective integrated fare system should lead to an increase in ridership.

4.32 There is still a vast metropolitan transport agenda that could be supported by the MTA, in particular the development of a programmatic approach for urban transport investments that would be carried out in a systematic manner, as well as a consistent and comprehensive urban transport strategy for Greater Buenos Aires.

Objective 6: To assist Argentina in developing integrated urban transport strategies in the country's largest metropolitan areas.

4.33 This objective is rated **substantial**.

4.34 Technical assistance was extended to Argentine cities involved in urban transport improvement schemes. The supported mobility studies and tools were to help develop integrated strategies and to prioritize urban transport investments in these urban agglomerations.

4.35 **Rosario.** In 2008, the World Bank project financed a transport planning study that included an origin-destination survey. Following the study, Rosario elaborated an Integrated Mobility Plan (PIM) in 2010, under a participatory approach that included the establishment of a “mobility pact” by a vast group of stakeholders from more than 100 institutions. The Mobility Pact focused on three main areas: (i) improving public transport, (ii) promoting the use of nonmotorized transport, and (iii) reducing the use of motorized private modes of transport. An updated version of the Integrated Mobility Plan, including implementing updates, was published in 2014.⁹

4.36 **Córdoba.** The Integrated Mobility Plan for the Metropolitan Area in Cordoba was completed in 2010, and included an origin-destination survey to characterize the population and their mobility patterns and to assess the feasibility of a mass transit corridor and extension of the line A tramway, including the development of new transfer stations in Villa Libertador and Mitre. Technical, economic, and socioenvironmental studies were carried out for potential extensions of the trolleybus, improvement of exclusive lanes, and improvement of bus stations. The results of the origin-destination survey were published in 2011, and data is publicly available for the use in other transport studies. In 2012, the municipality of Cordoba created a commission to elaborate a Strategic Mobility Plan for the city. The plan was developed with financing from CAF and the prediagnostic was published in 2015.

4.37 **Posadas.** Posadas was one of the first cities in Argentina to prepare an integrated urban transport plan in 2007 to coordinate metropolitan transport efforts across municipal boundaries. Under the project, a feasibility study was carried out for implementing a new transfer station for the integrated transit system in the city. The study included an origin-destination survey to assess mobility patterns and develop a transport model.

4.38 **Mendoza.** An Integrated Transport Planning Study was produced for Mendoza and its metropolitan area. The study comprised an origin-destination survey, a transport model, and recommendations to rationalize the public transit network. On the basis of the study, in 2014, CAF supported the development of the Integrated Mobility Plan for Mendoza 2030 that sets the basis for modernizing the public transit system, proposing new routes, exclusive lanes, better coverage, and technology for buses and users.

4.39 **San Miguel de Tucumán.** The project sought to support the rationalization and planning of the public transportation system through a master transportation plan for the metropolitan region of San Miguel de Tucumán. However, due to issues in the contract execution, this was not fully completed. The origin destination survey for the year 2011 was delivered and the results of this study were made publicly available. Consequently, with Inter-American Development Bank (IDB) finance, a study Modernizing Urban Transport in San Miguel de Tucumán was carried out to plan the implementation of mass transit corridors, exclusive lanes for public transit, and a network of cycle paths.

5. Efficiency

Economic Analysis

5.1 **(i) Metrovias concession:** The basic assumption made in the appraisal of the concession was that, without the concession, the subway would continue to run at the initial level of service, with annual government expenditures equal to those made in the final year before concessioning. In the year prior to concessioning in 1993, the subway carried 145 million passengers and required \$40 million in operating subsidy. In addition, the Urquiza line was losing more than \$11 million a year, at a total cost to government of \$51 million. It has been assumed that these losses would continue in the absence of the concession. The net benefit in present value terms was estimated to be \$239 million at a 12 percent discount rate (World Bank 1997b, annex G). The net present value (NPV) was not estimated for the Metrovias concession at closure. **(ii) Rehabilitation of line A:** The NPV was estimated for the line A rehabilitation both at appraisal and at closure, following the same methodology. The level and performance of traffic in the affected network was estimated with and without the investment. The ex-ante analysis estimated the NPV in excess of \$340 million under a variety of scenarios for the rehabilitation of subway line A. An ex-post analysis at completion suggested that, although the delays and cost increases lowered the efficiency of the investments, the investments remained efficient with the NPV of more than \$300 million (World Bank 2012). Overall, based on the above assumptions, the estimated benefits were not fully realized. While the subway carries about 250 million passengers a year, the operating subsidies paid by the government continued to increase, and in 2015 amounted to about \$200 million for the subway and Urquiza line.¹⁰

5.2 **Road/rail grade separations:** The estimated benefits for road/rail grade separations included time and operating costs savings for road and rail operators and passengers, as well as accident cost savings. An ex-ante economic internal rate of return (EIRR) was estimated in the range of 14 percent and 90 percent and the NPV between \$0.68 million and \$24.8 million at a 12 percent discount rate (World Bank 1997b). At the time of additional financing in 2007, eight crossings were identified with IRRs between 12 percent and 29 percent, using the same evaluation criteria (World Bank 2007). The ex-post IRRs were not calculated at completion (World Bank 2012).

Operational and Administrative Inefficiencies

5.3 There were very long implementation delays and substantial cost increases. Delays were partially explained by the economic crisis in 2001 and project suspension for several years, but also as a result of procurement and technical implementation issues. Main rehabilitation works on line A were completed in 2007, relative to the planned completion date of June 1999. Some of the lots under component A—Metrovias concession—had to be rebid with a reduced scope of work after the original bids came in at levels much higher than budgeted. Additional financing (AF) of \$1 million to complete line A rehabilitation work more than doubled to \$2.5 million. Significant cost overruns under the road/rail grade crossings contracts increased from the appraisal estimate by 45 percent for the originally planned crossings, and by 63 percent under AF (World Bank 2012). Cumbersome internal

procurement procedures were also affecting the project, albeit this was common across the entire World Bank portfolio in Argentina.

6. Ratings

Outcome

6.1 The project objectives were **substantially** relevant to the government development priorities in the urban transport sector in Argentina and to the World Bank country strategies. Project design reflected a comprehensive approach and was **substantially** consistent with the stated objectives. The project provided financial support in carrying out, through private sector participation, rehabilitation of the Buenos Aires subway and suburban rail to improve the service quality and coverage; this, however, was only **modestly** achieved due to mixed results. **Substantial** results were achieved in improving traffic safety due to construction of grade-separated crossings at the suburban rail and road intersections. The project also contributed **substantially** to improving the integrated urban transport system for Greater Buenos Aires through physical investments as well as institutional strengthening activities. Results were **substantially** achieved in supporting development of the integrated urban transport strategies in Argentina's largest metropolitan areas. For lack of evidence, the achievement of the objective to improve urban transport-related environmental quality in metropolitan Buenos Aires is assessed as **negligible**. Efficiency is rated **modest** for significant time and cost overruns that were partially caused by the administrative and operational inefficiencies. Together, these lead to an overall outcome rating of **moderately satisfactory**.

Risk to Development Outcome

6.2 The risk to development outcome was rated **significant**.

6.3 **Financial risk.** The Buenos Aires subway system still relies heavily on government subsidies (about 70 percent) and there is uncertainty around the future operation of the system. The contract is being extended on a short-term basis to the current operator, Metrovias. The subway tariff increase to 7.50 pesos (50 cents) would help recover a larger portion of operation and maintenance costs, however the system still requires significant financial resources for its maintenance, operation, and capital costs.

6.4 **Institutional risk.** The institutional strengthening activities—data tools, capacity building in urban transport planning, and creation of the coordinating agency—built the basis for better planning in metropolitan Buenos Aires and other cities. The new administration that came to power in December 2015 helped create a new political alignment that brought better coordination in policies and planning at the metropolitan area of Buenos Aires. There is an opportunity to act on institutionalizing measures that could ensure long-term sustainability. In particular, there is still a need to address ad-hoc investments made without a coherent policy framework and to adopt a long-term comprehensive urban strategy for Buenos Aires that includes a programmatic approach to systemwide improvement of urban transport at the metropolitan level.

World Bank Performance

6.5 The World Bank's quality at entry is rated **moderately satisfactory**. Project design was based on the analytical work on rail privatization (World Bank 1996) and the World Bank experience from similar interventions in São Paulo and Rio de Janeiro in Brazil. The project's focus on capacity building and institutional strengthening reflected the lessons from sector experience in the region, which indicated the need for continuous and long-term engagement to build capacity, support the development of planning tools, and institutionalize the planning process.

6.6 No formal risk framework was in place at the time the original project was appraised. Most risks identified at appraisal were associated with investment projects, such as time and cost overruns, however the risk of a financial crisis and macroeconomic instability was not anticipated. The risk of financial failure of the concession and default of the government on its obligations appeared small (World Bank 1997b). The project procurement arrangements were in accordance with the World Bank Guidelines for Procurement applicable at the time of appraisal. The World Bank financed activities under the Metrovias concession using their own procurement methods. With regard to safeguards, a preliminary environmental screening was conducted for all proposed road/rail crossings, and the project design incorporated participatory approaches, in particular with relation to the activities related to improvement of transfer stations. There were, however, weaknesses in the monitoring and evaluation design that lacked adequate indicators to measure the project achievements.

6.7 The World Bank's quality of supervision during the project is rated **moderately satisfactory**. Supervision was carried out regularly and 33 Implementation Status and Results Reports (ISRs) were filed in the 1997–2011 period. Difficult implementation problems resulting from the fiscal and economic crisis in the early stages of project implementation were exacerbated by poor public sector management and continuous changes to project management. The team downgraded the project to problem status and sought senior management's assistance to deal with the issues in the context of the general portfolio problems in Argentina.

6.8 There were no significant issues related to compliance with the project-triggered safeguards policies during implementation and the project team's response to issues and monitoring were adequate. With regard to fiduciary management, the World Bank closely supervised procurement and financial management under the project. Overall, procurement processes were characterized by delays, rebidding, and contract cost increases, however not until the project closure, when irregularities surfaced in procurement of several contracts financed by the project. After the investigation by the World Bank's independent investigation department (INT), when misprocurement was announced on several contracts, the project team was found clear of wrongdoing. The project's indicators and results could have been strengthened through improving outcome indicators that could better measure the project achievement against its objectives.

Overall World Bank performance is rated **moderately satisfactory**.

Borrower Performance

6.9 The government's performance is rated **moderately satisfactory**. The government had a strong commitment to the project during its 14 years of implementation, except for the period immediately before and after the economic and social crisis in 2001. The project was taken out of the budget for several years. There were delays related to internal procurement procedures, which were a cross-cutting issue affecting portfolio implementation, and were inherent to the internal administrative procedures in the former Secretariat of Transport and Ministry of Planning, which required multiple repetitive approvals. An average of 302 days was required between presentation of the bidding document to the World Bank for no-objection and signing of contracts valued above \$10 million. There were also significant delays in effectiveness for both loans, another systemic issue across the Argentina.

6.10 In response to allegations in the media of irregularities in procurement and implementation of several contracts financed by the project, the government launched investigations through local institutions and reformed the project implementation unit (PIU). The new management emphasized cleaning the house and improving the management systems.

6.11 With the new administration that came to power in December 2015, four years after project closure, a number of reforms were carried out in the transport sector that promise more sustainable outcomes supported by the project. The current government is proactive in cutting transport subsidies and increasing transport fares, while preserving a social tariff for certain groups. As part of its reform agenda, it prioritizes improved governance and transparency of public works. Also, there is better coordination between multiple sector institutions and jurisdictions in metropolitan Buenos Aires owing to political alignment and the functioning Metropolitan Transport Agency.

6.12 Implementing agency performance during the project is rated **moderately unsatisfactory**. The project activities were implemented by two entities: (i) Metrovias was responsible for investments included in the concession contract for the subway and the Urquiza suburban rail line and (ii) a project implementation unit—Unidad de Ejecucion del Proyecto—created in the former Secretariat of Public Works and Transport within the Ministry of Economy and Public Works in 1998 was responsible for other project activities and overall project coordination.

6.13 Metrovias implemented the investments financed under the project as planned, albeit with delays. Metrovias was allowed to use its own procurement procedures for contracts financed by the World Bank. The loan proceeds were used to finance government payments toward investments to be made by the concessionaire, and the concessionaire used its own procurement rules to complete the investments. The World Bank made payments against the indicators of output. There were overall modest results in improving the service quality and coverage of rail mass transit in metropolitan Buenos Aires, albeit some of the factors influencing this were beyond the control of Metrovias.

6.14 The role and commitment of the PIU was acknowledged during the time when the project had a problem status and its budget was frozen. The project was turned around in

2003 due to the PIU efforts and commitment. With additional financing and approval of another World Bank urban transport operation and GEF program, the PIU assumed a larger responsibility for managing investments and technical activities under these projects, including coordination with other project cities.

6.15 There were allegations in irregularities in the procurement of several World Bank–financed contracts. The fiduciary issues were uncovered only after project closure. These were related to the procurement of furniture and refurbishment of the offices for the PIU and the planning unit, PLATAMBA, procured under the project. The PIU was dissolved and the project coordinator at that time was asked to resign. There are no former staff members in the current entity—UEC under the Secretariat of Transport—responsible for the implementation of the ongoing World Bank urban transport operation or projects financed by other international financial institutions (CAF and IDB). The rating for this PIU reflects the performance during the project implementation, in particular issues in misprocurement that surfaced after project closure.

Overall, the borrower performance is rated **moderately satisfactory**.

Monitoring and Evaluation

6.16 **Monitoring and Evaluation Design.** The monitoring and evaluation design had weaknesses, as most of the outcome indicators were inadequate except those related to the improvement of rail services under the first objective, in particular the system’s performance indicators of quality and reliability. The improvement of traffic safety was measured through reduction in the number of fatalities in the suburban railway; this, however, was a railway systemwide indicator, and did not capture safety data at the locations of the reconstructed road/rail crossings, which were only 12 among about 700 crossings in metropolitan Buenos Aires. An outcome indicator was not identified for improving environmental quality, which led to a negligible rating for lack of evidence. The objective of developing an integrated urban transport system for metropolitan Buenos Aires had five indicators: three were related to the institutional strengthening activities and the creation of a coordination agency, and the other indicators were modal shift (increase in the use of public transport by the car-owning population) and increase in transfers between public transport modes. Their baselines were to be defined during implementation by a transport study that was not carried out. Upgrading of transfer stations lacked an indicator to measure the expected outcomes.

6.17 **Implementation.** The performance indicators for the subway and Urquiza line are part of the regular data monitoring of Metrovias. The project’s results framework was not revised during implementation. One indicator was added under the new objective during AF. The World Bank team and PIU relied mostly on output indicators to assess implementation progress.

6.18 **Utilization.** Metrovias continues to monitor and use the urban rail system performance data in its daily operations. The safety data of the Buenos Aires suburban rail is monitored and reported by the National Transport Regulation Committee (CNRT) of the Ministry of Transport. The ongoing World Bank urban transport operation continues to track institutional developments, in particular related to the MTA processes.

Overall, monetary and evaluation is rated **modest**.

7. Lessons

7.1 Private sector participation cannot achieve efficiency gains if incentives are misaligned. After the economic crisis in 2001 in Argentina, both parties—the government and the private firm—faltered on their obligations under the concession contract, which became a management contract. The concessionaire received compensation for the costs incurred but it lacked incentives for cost control and efficiency in urban rail operations. In addition, low fares maintained through government subsidies subsequently contributed to a growing fiscal deficit, while underinvestment in the system continued. This example demonstrates how a public-private partnership (PPP) scheme can underperform if sector reforms and the right price signals are not in place.

7.2 The creation of new institutions brings long-term gains and benefits when voluntary association and political will are present, as international experience also shows. In Argentina, the decision to form an entity for metropolitan transport coordination in Buenos Aires was first made in 1991. It took more than 20 years for it to be established in 2014, and 2 additional years to become operational. A currently functioning Metropolitan Transport Agency was largely due to an unprecedented level of political alignment facilitated by the new administration that came to power in December 2015. Previously, the national government and the city administration were held by different political parties; this was partly a barrier for cooperation and policy coordination at the metropolitan level of Buenos Aires. The current political situation offers an opportunity to act on measures that could ensure sustainability. Overall, institutionalization of a new entity should not be an objective but rather a means to achieve the aspired development results. Political commitment and consensus bring progress and functionality to institutions.

7.3 Potential fiduciary problems are difficult to detect, which emphasizes the critical importance of training project staff. The presence of red flags related to potential fraudulent practices in procurement and project implementation does not imply corrupt activities. Likewise, the absence of warnings or red flags does not guarantee the absence of fraud. In Argentina, allegations of irregularities in World Bank–financed contracts appeared in the local media, prompting investigation and forensic auditing. Misprocurement was subsequently declared on several contracts almost two years after the project closing date. The World Bank project staff was cleared of any wrongdoing. Along with training staff to diagnose and enhance detection of risks to integrity, it is essential to help project teams with information about how to address such risks, including how to interact with the various forms of media to manage the risk of potential reputational damage to the World Bank.

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¹ Classified by INDEC on the basis of 2010 population size (700,000 to 1.5 million).

² Based on the [ENMODO household mobility survey in metropolitan Buenos Aires](http://uecmovilidad.gob.ar/encuesta-de-movilidad-domiciliaria-2009-2010-movilidad-en-el-area-metropolitana-de-buenos-aires/) for all travel stages performed on a typical week day, 2009–10 (<http://uecmovilidad.gob.ar/encuesta-de-movilidad-domiciliaria-2009-2010-movilidad-en-el-area-metropolitana-de-buenos-aires/>). Referenced from Quirós and Mehndiratta 2014.

³ Section F—The Philosophy of the Project—in annex A of the staff appraisal report (World Bank 1997b, pp. 35–36) presents a theory of change of the project intervention.

⁴ Metropolitan Areas Urban Transport Project (PTUMA)-P095485.

⁵ <http://documents.worldbank.org/curated/en/129161468740717257/pdf/multi-page.pdf>.

⁶ <http://uecmovilidad.gob.ar/encuesta-de-movilidad-domiciliaria-2009-2010-movilidad-en-el-area-metropolitana-de-buenos-aires/>.

⁷ PTUMA.

⁸ Information received in a brief interview with the Secretary of Transportation of the Buenos Aires city government, Head of the MTA, on January 13, 2017.

⁹ Rosario was visited during the IEG project performance assessment mission in October 2016. More details on Rosario’s urban transport initiatives are in IEG’s PPAR-GEF Sustainable Transport and Air Quality Program in Argentina.

¹⁰ Metrovias data.

Appendix A. Basic Data Sheet

BUENOS AIRES URBAN TRANSPORT PROJECT (IBRD-4163, IBRD-7442)

Key Project Data

	Appraisal estimate (US\$, millions)	Additional financing (US\$, millions)	Actual current estimate (US\$, millions)	Actual as percent of appraisal estimate
IBRD loan	200	100.0	299.6	150
Borrower	200	32.8	233.2	117
Total project costs	400	132.8	532.8	133

Project Dates

	Original	Actual
Appraisal	10/15/1996	10/15/1996
Board approval	5/15/1997	5/15/1997
Effectiveness	3/18/1998	3/18/1998
Closing date	12/31/2003	6/30/2011

Appendix B. Detailed Project Design

Component 1. Buenos Aires subway infrastructure improvement (appraisal estimate \$224.8 million, excluding contingencies; additional funding (AF) \$1 million; actual cost \$254 million)

(i) Metrovias concession (appraisal estimate \$142.9 million, excluding contingencies; actual cost \$143.3 million). The subcomponent financed the payments due by the government to the concessionaire of the subway for the period of 1997–99, as part of the concession agreement to partially finance investments in the rehabilitation of the subway system. The specific improvements were to include rehabilitation of subway lines B, C, D, and E of the Buenos Aires subway system, as well as of the Urquiza suburban rail line, by replacing portions of the track without deviating from the original existing track bed, renovating electric substations and transmission systems, installing automatic signals and an operations control center for the lines, improving passenger stations (by installing or rebuilding escalators), improving mechanical workshops, ventilation systems and drainage systems, and reconstructing approximately eight Urquiza line electric coaches.

(ii) Rehabilitation of subway line A (appraisal estimate \$81.9 million, excluding contingencies; AF \$1 million; actual cost \$110.4 million). The subcomponent financed the rehabilitation of Buenos Aires subway system line A. Civil works were to include replacing the track, installing three new electric substations for the line, renewing the line’s power transmission system, renovating its signal and communications system, expanding the subway operations control center to include control of the line, replacing the line’s drainage pumps and ventilation system, installing or rebuilding its station escalators, and merging its existing Lima and Piedras stations so as to improve passenger transfer conditions between Buenos Aires subway system lines A and C.

Component 2. Urban transport system integration (appraisal estimate \$25.5 million, excluding contingencies; AF \$32.9 million; actual cost \$51.3 million). This component aimed at improving road/rail transfer facilities through building or improving bus terminals, transfer centers, and car parks at selected major AMBA subway and/or rail stations. Other improvements were to include the installation of bus-only lanes and other traffic flow enhancements, traffic signals, walkways, sidewalks, and bicycle parking facilities at outlying AMBA subway and/or rail stations to improve bus, car, pedestrian, and bicycle access to the stations, as well as carrying out of a promotional campaign to encourage bicycle access to such stations.

Component 3. Traffic safety enhancement and environmental monitoring (appraisal estimate \$44.9 million, excluding contingencies; AF \$51.5 million; actual cost \$149 million). This component supported (i) the conversion of approximately 12 grade road/rail crossings in AMBA into nongrade road/rail crossings at or near the same sites as the original grade crossings through civil works that involved tunnel or bridge construction; (ii) installation or rehabilitation of automatic barriers at the sites of selected road/rail crossings in the AMBA that would not be converted to nongrade crossings; (iii) completion of a study to develop a comprehensive strategy to improve the safety of road/rail grade crossings in AMBA; and (iv) implementation of other traffic safety measures in AMBA (such as implementation of a

traffic safety public education campaign). The components also supported the installation and operation of an air quality and noise pollution monitoring system for the city of Buenos Aires.

Component 4. Institutional strengthening (appraisal estimate \$23.3 million, excluding contingencies; AF \$13.2 million; actual cost \$12.9 million). The component supported the following activities: (i) execution of an integrated urban transport study for Greater Buenos Aires that included a transport survey and subsequent preparation of a transport model suitable for quantitatively assessing the feasibility and comparative merits of alternative transportation strategies; (ii) development of a metropolitan Buenos Aires traffic and street environment improvement program; (iii) provision of technical assistance to the Secretariat of Transport on technical, financial, environmental, and social aspects of urban transport, as well as on the preparation, appraisal, and carrying out of integration and traffic safety subprojects under components 2 and 3 and general project administration; (iv) provision of training in the fields of urban transport planning and economics, environmental management, traffic engineering and traffic safety management to Argentine professionals working or likely to work in relevant areas in metropolitan Buenos Aires; and (v) establishment, maintenance and operation, throughout the project implementation period, of a public unit for metropolitan transport planning.

Following the additional financing loan (loan 7442-AR) in 2007, a new subcomponent (AF estimate \$3.5 million; actual cost is included in the component cost above) was added under component 4 that included provision of technical assistance and training to the cities of Cordoba, Mendoza, Posadas, Rosario, Tucuman, and other cities to assist in (i) the development of an integrated urban transport strategy for each city and (ii) carrying out of urban transport preinvestment and investment studies as needed. The support also included carrying out studies on the impact of the borrower's framework on financial assistance to the urban transport sector at the provincial level.

Appendix C. List of Persons Met

Ministry of Transport

Martín Orduna, Undersecretary of Urban Mobility, Secretariat of Transport Planning

Andrés Gartner, Senior Adviser

Daniela Miglierina, Transport Specialist

Cecilia Lanfranco, Transport Specialist

Central Implementing Unit (UEC) for projects with external financing, Ministry of Transport

María Teresa Isasi, Undersecretary, Works Supervision and Control, Ministry of Transport

Belén Likerman, World Bank and CAF Projects Executive Coordinator

María Luisa Etchegoyen, Legal Adviser

Verónica Vittone, Roca Project Executive Coordinator

Daniela Solimini, Financial Specialist

Cabinet of Ministers

Marcelo Lascano, Consultant, Undersecretary of Evaluation of Projects with External Financing

Private Operator

Ester Litovsky, Manager, Strategic Planning and Monitoring; Metrovias subway operator

Municipality of Rosario

Andrea Magnani, General Manager, Rosario Mobility Agency

Luciano Acquaviva, Head of Strategic Projects, Rosario Mobility Agency

Martina Pugno, Engineer, Rosario Mobility Agency

Paula Egidi, Community Outreach, Rosario Mobility Agency

Independent Consulting

Roberto Agosto, Director, AC&A Consulting

World Bank

Shomik Mehndiratta, Manager (Practice Manager, task team leader at closure)

Veronica Raffo, Senior Infrastructure Specialist

Camila Rodriguez, Senior Infrastructure Specialist

Santiago Arias, Transport Specialist

Anibal Lopez, Senior Country Officer

Gerhard Menckhoff, Urban Transport Consultant (task team leader at appraisal)

Jose Barbero, Transport Consultant (former World Bank staff)

A brief interview was held with *Juan Jose Mendez*, Secretary of Transportation of the Buenos Aires city government, in Washington, DC on January 13, 2017.