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PROJECT PERFORMANCE ASSESSMENT REPORT



ARGENTINA

GEF Sustainable Transport  
and Air Quality Program

Report No. 117037  
JUNE 28, 2017

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**Report No.: 117037**

**PROJECT PERFORMANCE ASSESSMENT REPORT**

**ARGENTINA**

**GEF SUSTAINABLE TRANSPORT AND AIR QUALITY PROGRAM  
(PROJECT ID: P114008)**

**June 28, 2017**

*Financial, Private Sector, and Sustainable Development  
Independent Evaluation Group*

## Currency Equivalent (end of year)

*Currency Unit = Argentina peso (Arg\$)*

2016                      US\$1.00                      Arg\$15.9

## Abbreviations and Acronyms

AMBA	Buenos Aires Metropolitan Area
BRT	bus rapid transit
CAI	Clean Air Initiative
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	CO <sub>2</sub> equivalent
CPS	country partnership strategy
GEF	Global Environment Facility
GEO	Global Environmental Objectives
GHG	greenhouse gas
ICR	Implementation Completion and Results Report
IEG	Independent Evaluation Group
M&E	monitoring and evaluation
MICPT	Monitoring and Information Center for Public Transport
NMT	nonmotorized transport
PIM	Integrated Mobility Plan
PDO	project development objective
PIU	project implementation unit
PPAR	Project Performance Assessment Report
PTUBA	Buenos Aires Urban Transport Project
PTUMA	Metropolitan Areas Urban Transport Project
STAQ	GEF Sustainable Transport and Air Quality Program
UEC	Unidad Ejecutora Central

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

## Fiscal Year

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# Contents

Principal Ratings.....	v
Key Staff Responsible.....	v
Preface.....	vii
Summary.....	viii
1. Background and Context.....	1
Country Background.....	1
Project Context.....	1
World Bank Assistance to Urban Transport in Argentina.....	2
2. Objectives, Design, and their Relevance.....	2
Objectives.....	2
Relevance of Objectives.....	3
Design.....	4
Relevance of Design.....	6
3. Implementation.....	6
Implementation Experience.....	6
4. Achievement of the Objectives.....	8
Objective 1: Assisting cities in reducing the rate of GHG emissions by increasing the use of less energy intensive and cleaner modes of transport.....	8
Objective 2: Assisting cities in inducing policy changes in favor of sustainable transport policies.....	13
5. Efficiency.....	15
6. Ratings.....	17
Outcome.....	17
Risk to Development Outcome.....	17
World Bank Performance.....	18
Borrower Performance.....	19
Monitoring and Evaluation.....	20
7. Lessons.....	21
Appendix A. Basic Data Sheet.....	25
Appendix B. List of Staff Met.....	27

This report was prepared by Mario Marchesini, who assessed the project in October 2016. The report was peer reviewed by Victoria Alexeeva and panel reviewed by Alain Barbu. Richard Kraus provided administrative support.

## Figures

Figure 4.1. New Bikeways in Rosario .....	9
Figure 4.2. Docking Station n.7 “Terminal” of the Bike-Share System in Rosario .....	10
Figure 4.3. Transportation Modes Substituted by Bike-Share Systems in Five Cities.....	12
Figure 5.1. Bike-Share Usage: Trips Per Day Per Bike.....	16

## Tables

Table 2.1. GEF Project’s Investments and Capacity Building Activities.....	5
Table 4.1. GEF Project: Summary of Main Indicators .....	13

## Principal Ratings

	ICR*	ICR Review*	PPAR
Outcome	Moderately satisfactory	Moderately satisfactory	Moderately unsatisfactory
Risk to Development Outcome	Moderate	Moderate	Negligible to low
Bank Performance	Moderately unsatisfactory	Moderately satisfactory	Moderately satisfactory
Borrower Performance	Moderately unsatisfactory	Moderately satisfactory	Moderately unsatisfactory

\* The Implementation Completion and Results (ICR) report is a self-evaluation by the responsible Bank global practice. The ICR Review is an intermediate IEG product that seeks to independently validate the findings of the ICR.

## Key Staff Responsible

Project	Task manager or leader	Practice manager or manager	Country director
Appraisal	Veronica Ines Raffo and Paul Procee	Jose Luis Irigoyen	Pedro Alba
Completion	Veronica Ines Raffo	Aurelio Menendez	Jesko S. Hentschel

**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 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 Bank country management unit. The PPAR is also sent to the borrower for review. IEG incorporates both 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 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.

**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 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) draws on relevant documentation for World Bank–funded projects such as project appraisal documents, Implementation Completion and Results Reports, legal agreements, and external literature. An Independent Evaluation Group field mission visited the cities of Buenos Aires and Rosario in Argentina in October 2016. Meetings were held with, among others, World Bank staff in Washington, D.C. and Buenos Aires, government officials from the Ministry of Transport in Argentina, the municipality of Rosario, the implementing agency Unidad Ejecutora Central, and the Buenos Aires subway operator Metrovias. The cooperation and assistance of the World Bank Country Office in Buenos Aires and of the Ente de Movilidad in Rosario are very gratefully acknowledged.

## Summary

The \$3.99 million Argentina Global Environment Facility (GEF) Sustainable Transport and Air Quality Program (the GEF Project or the project) was approved on November 4, 2008. The project objectives were to assist beneficiary cities in: (i) reducing the rate of greenhouse gas emissions by increasing the use of less energy-intensive and cleaner modes of transport; and ii) inducing policy changes in favor of sustainable transport policies. The four Argentinian municipalities of Córdoba, Rosario, Posadas and San Miguel de Tucumán were identified as beneficiaries. The project was restructured twice. The first restructuring extended the closing date and modified the Results Framework.

The second further extended the closing date. The project closed on October 31, 2014. This GEF Project complemented and was closely interconnected with two other urban transport operations of the World Bank in Argentina, namely: (i) the \$200 million Buenos Aires Urban Transport Project (PTUBA) with its \$100 million Additional Financing, approved in 1997 and closed in 2011; and (ii) the \$150 million Metropolitan Areas Urban Transport Project (PTUMA), approved in 2009 and still ongoing. The PTUMA covered several metropolitan areas in Argentina, including the four beneficiary cities of the GEF Project.

**Relevance of objectives:** The project objectives were *substantially* relevant to the priorities of the authorities at the local level and to the World Bank’s strategies for Argentina and the urban transport sector, both at Board approval and closure.

**Relevance of design:** The interconnection and complementarity with the two other World Bank operations in the urban transport sector in Argentina was an important factor in shaping the design of this GEF operation. The project built on transport studies funded by the PTUBA and financed the design for investments which were to be completed with funding from PTUMA. However, the project had a high degree of complexity and ambitious objectives, especially regarding emission reductions. The expected outcomes regarding greenhouse gas emission reductions, whose target was set at 5 percent at approval and was then dropped with the first restructuring, reflected longer-term impacts which were not well aligned with the small scale of the project and its timeframe, even under very optimistic scenarios. Also, the GEF Project funded preparatory studies for investments that were intended to be subsequently constructed with financing from PTUMA or other sources. Yet, the objective for emissions reductions was articulated as if the benefits of such investments would be fully attributable to the project. Relevance of design is therefore rated *Modest*.

**Efficacy:** The project contributed to promoting the use of nonmotorized transport, owing primarily to its support to the construction of about 18 kilometers of new bikeways—5.9 kilometers in the city of Posadas and 11.8 in Rosario—and to the launch in April 2015 of the public bike-share system in Rosario. Two hundred bicycles, out of 480 procured with funding from the GEF Project, are available to the public, and there was an average number of 559 trips per day in 2016. Eighty-seven percent of trips had duration of 30 minutes or less. Estimates of GHG emission reductions, available only for the new bikeways in Rosario, indicate that in 2014 the equivalent of 165.3 metric tons of CO<sub>2</sub> were saved, equal to a 0.6 percent reduction when compared to the without-project

scenario. A significant direct impact in terms of greenhouse gas emission reductions was expected at appraisal to come about through the implementation of bus rapid transit systems. However, a 3.2-kilometer bus rapid transit system in Posadas, the final design of which was funded by the GEF Project, has not yet been implemented. Overall, the objective of reducing greenhouse gas emissions was *modestly* achieved. The project achieved *substantial* results in helping the beneficiary cities to introduce policy changes in favor of sustainable transport policies. All four beneficiary cities developed planning documents that integrate sustainable urban transport initiatives into their policy agendas.

**Efficiency:** Based on a review of indicators for the cost-effectiveness of the bikeways and the public bike-share system in Rosario, which were fully funded under the GEF Project, and considering that a 3-kilometer bus rapid transit system in Posadas, whose final design was funded by the GEF Project, has not yet been implemented, Efficiency is rated *Modest*. Taking all of the above ratings into account, the **Overall Outcome** rating assigned to the project is *Moderately Unsatisfactory*.

**Risk to Development Outcome** is rated *Negligible to Low*. Maintenance and demand risks for the new bikeways and the bike-sharing system in Rosario are low. The assets funded by the GEF Project are in good condition and have been properly maintained. Available evidence also indicates that cyclist usage of the bikeway network and of the bike-share system in Rosario has increased. Besides, the integration of sustainable transport into the policy agendas at the local level, particularly in the city of Rosario, where most of the investments in assets funded by the project were made, represents a further risk-mitigating factor.

The **Government Performance** and the **Implementing Agency Performance** are rated *Moderately Unsatisfactory* and *Moderately Satisfactory*, respectively. The project experienced close to a 19-month delay before it reached effectiveness, after Board approval in November 2008. This delay was primarily caused by the lack of priority that the national government gave to this operation, mainly because of its very small size, and by the challenging political and economic environment in Argentina at the time. In the initial two years after effectiveness, implementation and disbursements proceeded slowly. These delays were caused by the lack of priority given to the GEF Project by the implementing agency, given its small size compared to the PTUMA, among other reasons. The creation in 2013 of the *Unidad Ejecutora Central*, the new implementing agency under the Ministry of Interior and Transport, with responsibility for all public transport programs and projects with external financing, including the GEF Project, was a positive factor that helped to speed up project execution. Together, the ratings for the Government Performance and for the Implementing Agency Performance, though the performance of the *Unidad Ejecutora Central* created in 2013 was satisfactory, led to an **Overall Borrower Performance** rating of *Moderately Unsatisfactory*.

The project was appropriately structured to complement the two other World Bank operations in the urban transport sector in Argentina mentioned above. There were, however, some shortcomings in the preparation, including in the design of the project and in monitoring and evaluation (M&E) design, and in risk assessment. The World Bank's **Quality at Entry** is rated *Moderately Unsatisfactory*. During implementation, the World Bank proactively attempted to resolve difficulties experienced by the project and address

risks to the achievement of its development outcomes. **Quality of Supervision** is rated *Satisfactory*. Together, the ratings for the Quality of Entry and for Supervision lead to an **Overall World Bank Performance** rating of *Moderately Satisfactory*.

## Lessons

**Broad and ambitious long-term objectives can result in implementation and efficacy challenges when the scope and timeframe of the project are limited.** The experience with the Argentina GEF shows that there should be some flexibility in designing the objectives of GEF operations to keep them aligned with the actual scope and timeframe of the project.

**When selecting project implementation arrangements, whether centralized at the national level or decentralized, the World Bank should assess local capacity issues with care and realism.** In the case of the Argentina GEF, strong capacity at the local level and commitment to the project were essential to successful implementation in the city of Rosario, where most of the investments in assets funded by the project were made.

**The rationale for linking the implementation of GEF projects with that of larger urban transport operations needs to be assessed on an individual project basis.** Though there are some benefits of linking operations, including in saving supervision costs and leveraging funds, the experience with the Argentina GEF prior to the restructuring which led to the creation in 2013 of the *Unidad Ejecutora Central*, the new PIU, shows that parallel implementation of related projects can slow down the implementation of the GEF operations, because of their usually smaller scale.

**While overall funding under GEF operations is often limited, GEF projects can promote innovative sustainable transport policy initiatives.** Through the Argentina GEF, local authorities were exposed to global conferences and best-practice training programs, which contributed to positioning sustainable transport in the public debate and agenda.

Mr. José Cándido Carbajo Martínez  
Director, Financial, Private Sector, and  
Sustainable Development Evaluation  
Independent Evaluation Group

# 1. Background and Context

## Country Background

1.1 With a gross domestic product (GDP) of more than \$550 billion, Argentina is one of the largest economies in Latin America. The economy has grown significantly since the 2002 crisis. Despite challenges and risks, Argentina is currently undergoing an economic transformation that aims at promoting sustainable economic development with social inclusion and integration into the global economy.

1.2 Mauricio Macri's inauguration as the President of Argentina for a four-year term starting in December 2015 has marked an important change in the Argentine political landscape. The new administration is seeking to introduce market-oriented policies together with a strong focus on poverty alleviation and improved governance. The government has implemented a number of reforms to address key economic imbalances with the objective of creating an environment conducive to economic growth and renewed investment. The new administration is also actively pursuing closer integration with international political and financial institutions, which resulted for the World Bank Group in a broadening of the policy dialogue, and fostering transparency of government affairs. While progress in all these fronts is visible, a significant agenda remains.

## Project Context

1.3 Transport accounts for more than one-third of carbon dioxide (CO<sub>2</sub>) emissions in Latin America, and is also the fastest-growing emitting sector in the region. In this context, the urban transport sub-sector is among the key areas of focus for long-term greenhouse gas (GHG) mitigation efforts in the region, because about 80 percent of Latin Americans live in urban areas. Also, suburbanization, increasing use of private motor vehicles<sup>1</sup> and congestion, the increase in urban population, and overall poor quality of the public transport services and infrastructure are common to many metropolitan areas and medium-sized cities in the region. These considerations point to the importance and the urgency of developing long-term policies that effectively address existing barriers to sustainable urban transport practices at the city and national levels in Latin America.

1.4 In this context, the \$79 million program GEF Sustainable Transport and Air Quality Program (the STAQ Program) was approved in September 2008 to support the implementation of sustainable urban transport policies and reduce the growth rate of GHG emissions in Latin America through the promotion of less energy-intensive and cleaner transport modes. The STAQ Program was divided into a regional umbrella project and three country projects. Each of the three country projects was, in turn, to identify three or four cities to benefit from GEF grant funding in support of investment and/or technical assistance in either of the following five thematic windows: (i) Freight Transport Management; (ii) Integration of Land Use, Transport and Environmental Planning; (iii) Modal Shift to Public Transport; (iv) Nonmotorized Transport; and (v) Travel Demand Management.

1.5 As one of the most urbanized countries in Latin America, with nearly 90 percent of its 43.4 million people living in urban areas of more than 2,000 inhabitants, Argentina was

selected as one of the three country projects.<sup>2</sup> The \$3.99 million Argentina GEF Sustainable Transport and Air Quality Program (the GEF Project or the project) was approved in November 2008. The four Argentinian municipalities of Córdoba, Rosario, Posadas and San Miguel de Tucumán were identified, based on several specific criteria<sup>3</sup> and through a consultation process, as beneficiaries under the Argentina GEF Project.

## **World Bank Assistance to Urban Transport in Argentina**

1.6 In addition to the GEF Project, the World Bank has supported Argentina’s urban transport sector through two operations: (i) the Buenos Aires Urban Transport Project (Loans 4163 and 7442), approved in 1997 and closed in 2011; and (ii) the Metropolitan Areas Urban Transport Project (Loan 7794), approved in 2009 and still ongoing. The GEF Project complemented and was closely interconnected with these two operations.

1.7 The \$200 million Buenos Aires Urban Transport Project (PTUBA), with its \$100 million Additional Financing, was to: i) support public-private initiatives to improve the service quality and coverage of mass transit in Greater Buenos Aires (Área Metropolitana Buenos Aires or AMBA); 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 in the AMBA; and iv) contribute towards the development of integrated urban transport strategies for the AMBA and other large metropolitan areas in Argentina.<sup>4</sup> The \$150 million Metropolitan Areas Urban Transport Project (PTUMA) was to improve the quality and sustainability of urban transport systems in Argentina’s metropolitan areas. The PTUMA covered the AMBA and other metropolitan areas, including the four beneficiary cities of the GEF Project. The PTUMA has financed several works to improve public transportation services—including segregated busways, trolleybus extensions, and mass transit systems—as well as technical assistance to beneficiary cities.

## **2. Objectives, Design, and their Relevance**

### **Objectives**

2.1 The Global Environmental Objective (GEO) was defined in the Grant Agreement as follows: “The objectives of the project are to assist the Eligible Municipalities to: (a) reduce GHG emissions by increasing the use of less energy intensive transport modes in cities; and (b) induce policy changes in favor of sustainable transport projects.”

2.2 The project appraisal document outlined the project development objectives (PDOs) very similarly to the GEO: “The Argentina GEF Project followed the higher-level objectives of the STAQ Regional Program, focusing on assisting cities in: (i) reducing the rate of GHG emissions by increasing the use of less energy intensive and cleaner modes of transport; and (ii) inducing policy changes in favor of sustainable transport policies.”

## Relevance of Objectives

2.3 The relevance of the project objectives is rated **Substantial**. The PDOs were relevant to the priorities of the authorities at the local level as well as to the World Bank’s partnership strategies for Argentina and operations in the urban transport sector, both at Board approval and closure.

2.4 *Consistency with the strategy of the authorities:* The GEF Project and its objectives were fully aligned with the priorities of the local authorities, as articulated in their strategic documents and master plans for the urban transport sector, namely: i) the “Integrated Mobility Plan” developed by the Municipality of Rosario in 2010 and updated in 2014; ii) the “Plan Director Córdoba” elaborated by the Municipality of Córdoba in 2010 and the “Strategic and Integrated Mobility Plan” developed in 2015; and iii) the “Plan Estratégico” for the city of Posadas elaborated in 2008. All these documents promote sustainable transport initiatives. The GEF Project came at a time when the urban agenda in Argentina was changing and contributed to the overall shift in the vision and priorities of the local authorities for the sector in favor of sustainable urban transport policies.

2.5 *Consistency with the World Bank Group strategy and operations:* The GEF Project and its PDOs were fully consistent with the World Bank Group country partnership strategy (CPS) for Argentina for FY2010–12. As specifically envisaged under its first Pillar, “Sustainable growth with equity,” World Bank Group support was to focus, among other areas, on improving the quality and sustainability of urban transport systems in metropolitan areas of Argentina. In particular, the World Bank’s support to this sector was to be delivered through capacity-building initiatives and by giving priority to public transport modes and projects that had lower carbon footprints and lower impact on climate change.

2.6 After a three-year lending hiatus in FY2012–14, the current CPS for FY2015–18 has defined a new framework for World Bank Group assistance focused on financing activities that directly support low-income households and meet wide consensus across the political spectrum. The current CPS for Argentina is built around nine World Bank Group result areas, set within three broad pillars: i) Employment creation in firms and farms; ii) Availability of assets for people and households; and iii) Reducing environmental risks and safeguarding natural resources. Under the second Result Area “Supporting agglomeration economies’ reach to low-income areas” within the first pillar “Sustaining Employment creation in firms and farms,” a focus area for World Bank Group activity is to maintain and improve the quality and sustainability of urban transport systems so that lower-income population segments can access urban services and employment opportunities.<sup>5</sup> The GEF Project—and particularly its component in support of the upgrade of the Barrio 11 de Marzo in San Miguel de Tucumán—was aligned, in principle, with this focus area.

2.7 The project and its PDOs were fully consistent and very closely integrated with the operations of the World Bank in support of the urban transport sector in Argentina. These operations were designed as “building blocks” in the broader strategy of achieving sustainable urban transport in participating cities. Under the PTUBA project, the cities of Córdoba, Posadas and Rosario received financing to develop their own transport planning studies and an origin-destination survey of the population. Consistent with the “building

block” approach, the GEF Project was designed to build on the studies funded by PTUBA and finance small civil works and preparatory designs for investments. The PTUMA project was then to finalize designs, where needed, and finance the remaining civil works. For instance, under its component “Urban Transport Improvements in Argentina’s Medium-size Metropolitan Areas,” the PTUMA was to finance the construction of a bus rapid transit system on Avenida Uruguay in Posadas, whose design was funded under the GEF Project, and implement the paving and storm water drainage system for the Barrio 11 de Marzo, whose design was also finalized under the GEF Project.

2.8 The project objectives were also consistent with the World Bank activities in support of climate change initiatives targeting Latin America, including notably the Clean Air Initiative in Latin American Cities (CAI). The CAI, created in 1998, is a network-based partnership managed by the World Bank, with support from other entities, aiming to engage Latin American stakeholders and facilitate several activities, including information exchange, capacity building, and knowledge creation on air quality and transport issues. The CAI was expected to help the GEF Project, including on methodologies to assess its impacts on GHG reduction.

## Design

### COMPONENTS

2.9 The project supported a number of sustainable transport investments and capacity-building activities in the four beneficiary Argentinian cities of Córdoba, Posadas, Rosario and San Miguel de Tucumán under the following three thematic windows, which were chosen out of the five identified under the Regional STAQ Program.<sup>6</sup>

2.10 **Window 2 — Better coordination and integration of transport and land-use planning and environmental management** (estimated at appraisal \$0.21 million; actual \$0.34 million). This component included technical assistance to foster more integrated transport and increase accessibility to public and non-motorized transport.

2.11 **Window 3 — Modal interconnection, and effectiveness and efficiency of public transport** (estimated at appraisal \$2.38 million; actual \$1.04 million). This component included investments and technical assistance to facilitate the improvement of public transport systems and/or improve their effectiveness and interconnectivity with other modes of transport, thus inducing mode-switching away from private cars.

2.12 **Window 4 — Nonmotorized transport** (estimated at appraisal \$1.4 million–\$2.38 million; actual \$2.24 million). This component included investments and technical assistance to promote and create incentives for the use of nonmotorized transport, including walking and biking.

2.13 The specific investments and capacity-building activities that were funded by the GEF Project in the four beneficiary cities are detailed in table 2.1, broken down by city and thematic window:

**Table 2.1. GEF Project's Investments and Capacity Building Activities**

(in US\$)	Estimated at appraisal	Actual
<i>WINDOW 2 - Transport and Urban Planning</i>	205,000	336,199
San Miguel de Tucuman	205,000	336,199
-- Detailed design for the upgrade of the Barrio 11 de Marzo		
<i>WINDOW 3 - Public Transport Enhancement</i>	2,382,000	1,039,410
Cordoba	750,000	0
Posadas	732,000	866,882
-- Final design for the construction of three km of BRT in Avenida Uruguay and related auxiliary works. -- Procurement of equipment for the launch of the Monitoring and Information Center for Public Transport		
Rosario	900,000	165,553
-- Funding for a workshop on TransCAD -- Funding for the organization of the GEF Conference in 2011 -- Funding for the organization of the CLAPTU Congress in 2014		
<i>WINDOW 4 - Non-Motorized Transport</i>	1,400,000	2,236,435
Cordoba	700,000	883,332
-- Building of two new bikelanes -- Technical assistance for a participatory process for the Cordoba Mobility Agreement		
Rosario	700,000	1,353,103
-- Procurement of 480 public use bicycles -- Building and expansion of two bikelanes -- Funding for the promotion campaign of non-motorized transport		
<i>Operating Costs</i>	0	275,525
<b>TOTAL PROJECT COST</b>	<b>3,987,000</b>	<b>3,880,594</b>

Source: Unidad Ejecutora Central del Ministerio del Interior y Transporte, Informe de Gestión 2012-15.

## PROJECT MANAGEMENT AND IMPLEMENTATION ARRANGEMENTS

2.14 The initial implementing agency was placed in the Ministry of Federal Planning and Public Investment and Services, under the Secretariat of Transport. The National Government carried out a turnover in the structure of project management with the creation by Decree No.2034 in 2013 of a new project implementation unit (PIU), the *Unidad Ejecutora Central* (UEC), within the Ministry of Interior and Transport, with responsibility for all public transport programs and projects with external financing. The UEC implemented both the PTUMA and the GEF Project.

2.15 The UEC is led by a General Coordinator and two Adjunct General Coordinators. As part of the restructuring, operational procedures were reviewed and a staff training program was conducted to promote the development within the UEC of multidisciplinary teams with appropriate skills for efficient project implementation.

2.16 The four beneficiary cities of Córdoba, Posadas, Rosario and San Miguel de Tucumán entered into individual implementation agreements with the UEC, which also detailed the municipalities' responsibilities in monitoring and collection of data.

## **Relevance of Design**

The relevance of design is rated **Modest**.

2.17 The interconnection and complementarity with the two other World Bank operations in the urban transport sector in Argentina was an important factor in shaping the design of the GEF Project. As the urban transport operations of the World Bank in Argentina were conceived as “building blocks” in the broader strategy of achieving sustainable urban transport in participating cities, the GEF Project was designed to build on the PTUBA and complement the PTUMA.

2.18 However, the project had a high degree of complexity and very ambitious objectives, despite its small size of \$3.9 million. The expected outcomes of the GEF Project, especially regarding emission reductions, were ambitious and not well aligned with the scale of the project and its timeframe. Reductions in GHG emissions are typically longer-term impacts; they generally require policy changes be implemented and investments of substantial scale be in operation for a long time before they result in significant emission reductions. Consequently, even under very optimistic scenarios, the expected impacts at appraisal would not be reachable by the closure of the GEF Project. There was, in other words, an inconsistency between the design and the activities of the project and its expected outcomes in terms of GHG emissions, though it must be noted that some of the indicators of the Results Framework, including those on emission reductions, were mandated by the GEF.

2.19 Also, the GEF Project funded preparatory studies for investments that were intended to be subsequently constructed with PTUMA or other sources of funding. Yet, the PDO in terms of emissions reductions—and the original outcome indicators — were articulated as if such investments were to be constructed under the Argentina GEF and fully in operation by project closure, with its benefits fully attributable to the project. The World Bank addressed some of the flaws in the original set of indicators, which are summarized in table 4.1, with the first of the two restructurings of the project in 2012.

## **3. Implementation**

### **Implementation Experience**

3.1 Implementation and disbursements did not occur at the pace and scale envisioned during project preparation. First, there was about a 19-month delay in reaching effectiveness, after Board approval in November 2008. This delay was primarily caused by the lack of priority given by the National Government to this operation, mainly owing to its very small size, and by the challenging political and economic environment in Argentina at the time. As the 18-month deadline established in the Grant Agreement was not met, the Government of Argentina needed to request a waiver to avoid losing the funding. Both the Presidential Decree approving the grant and the Grant Agreement were eventually signed in May 2010.

However, effectiveness was reached about three months later, on August 3, 2010, because a number of effectiveness conditions had yet to be met. Such prerequisite conditions included putting in place individual implementation agreements between the PIU and each of the four beneficiary cities.

3.2 After effectiveness, implementation and disbursements proceeded slowly prior to 2013. These delays were caused, among other factors, by: (i) the lack of priority given to the GEF Project by the implementing agency, given its small size compared to the PTUMA; and (ii) challenges in project management, prior to the restructuring which led to the creation of the UEC in 2013. Allegations made in the press in 2012 of irregularities in the procurement of specific contracts financed by PTUBA and PTUMA, which shared the same PIU with the GEF Project, led to a freeze in the execution of all operations managed by the PIU, including the GEF Project, which in turn affected the implementation of the project for about one year.<sup>7</sup>

3.3 The creation of the UEC in 2013 was an important factor that helped to speed up project execution in 2013 and 2014. Also, to accelerate implementation, disbursements for activities that could be financed with PTUMA were first taken from the GEF account, when this was practical. The GEF Project was almost fully disbursed by its closing date. The total grant disbursement was \$3.88 million, equivalent to about 97 percent of the total.

3.4 *Key Dates:* The project was approved on November 4, 2008 and became effective on August 3, 2010. The closing date of the project, which was originally scheduled for December 31, 2012, was extended twice. The first extension was by a year with the first restructuring of the project in July 2012, which also modified its Results Framework, from December 31, 2012 to December 31, 2013. The second restructuring, in September 2013, extended the closing date another 10 months so the project could be completed.

#### **SAFEGUARDS COMPLIANCE**

3.5 The project was classified as Category B and triggered the OP4.01 Environmental Assessment and OP4.12 Involuntary Resettlement safeguard policies. All four participating cities prepared during appraisal an Environmental and Social Management Manual, because it was expected that some of the small public works envisaged under the project, such as the bikeways, might possibly have minor and localized adverse environmental impacts. The cities also prepared a Resettlement Policy Framework, given that the precise location of some works was not defined during appraisal. According to the ICR, the GEF Project complied with the World Bank's procedural and policy requirements for safeguards, and no issues were faced during implementation.

#### **FINANCIAL MANAGEMENT AND PROCUREMENT**

3.6 No substantial fiduciary issues were detected. Audit reports, ex-post reviews, procurement and financial management supervision missions did not raise any relevant irregularities or red flags in fiduciary management. The only issue related to specific procurement processes was the cancellation of the first bidding for the bike-sharing program in Rosario; it had to be dropped because the submitted offers were too high and inconsistent

with the available budget. Overall, the GEF Project's audit reports were submitted to the World Bank on time and were of overall good quality.

3.7 Following allegations made in 2012 in the Argentine press of irregularities in the procurement and implementation of a number of World Bank–financed contracts, the World Bank commissioned a forensic audit and launched an investigation through its independent Integrity Vice Presidency. The forensic audit identified indicators of possible fraud in the award of some contracts under the PTUBA and the PTUMA.<sup>8</sup> The World Bank procurement team confirmed violations of the agreed procurement arrangements in twelve of these contracts. The Integrity investigation, which concluded in 2014, debarred several individuals and companies and made them ineligible to participate in World Bank–financed projects<sup>9</sup>.

3.8 As noted earlier, the government carried out a turn-over in the structure of project management with Decree No.2034 in 2013, which established the UEC within the Ministry of Interior and Transport and tasked it with handling all externally financed projects and programs. The GEF Project shared the same PIU with the PTUMA and was therefore indirectly affected by these investigations, which led to a freeze in the execution of all operations managed by the PIU for over one year, including of the GEF Project. However, the forensic audit found no irregularity in the procurement and implementation of contracts under the GEF Grant.

## 4. Achievement of the Objectives

### **Objective 1: Assisting cities in reducing the rate of GHG emissions by increasing the use of less energy intensive and cleaner modes of transport.**

#### **OUTPUTS**

4.1 The following outputs are attributable to the GEF Project:<sup>10</sup>

- A total of 11.8 kilometers (km) of new bikeways were built to expand the existing network in the city of Rosario. These include: i) 4 km in Boulevard 27 de Febrero; ii) 3.2 km in Boulevard Ovidio Lagos; iii) 3.3 km in Avenida Avellaneda y Bordorhere; and (iv) 1.3 km in Avenida Pellegrini. The construction of new bikeways under the GEF Project largely exceeded the target in the Results Framework, which was set at 6.3 km.
- A total of 5.9 km of new bikeways were built in the city of Córdoba. These include: i) 2.9 km from Plaza Velez Sársfield to Plaza España; and ii) 3 km from Plaza España to Avenida Poeta Lugones and Calle Tránsito Cáceres de Allende.
- The final design for a 3.2 km of bus rapid transit project on Avenida Uruguay of the city of Posadas was completed.
- 480 bicycles were procured to launch a bike-sharing program in the city of Rosario.
- The “All Together in Bicycle” (Todos en Bici) campaign was launched in 2015 by the Municipality of Rosario to promote the use of bicycles and nonmotorized transport in

the city. The Todos en Bici campaign included the preparation of various promotion materials, also audiovisual.

## OUTCOMES

### *Increased Use of Non-Motorized Transport in Urban Areas*

4.2 **Bikeways:** The project contributed to promoting the use of non-motorized transport as a result of the construction of 11.8 and 5.9 km of new bikeways in the cities of Rosario and Córdoba, respectively. In the city of Rosario, the counts of bicycle trips on the new bikeways, conducted by the city's Ente de Movilidad (Mobility Agency), show a substantial increase when compared to baseline data. On Boulevard 27 de Febrero, the number of trips increased by about 85 percent from 863 in 2011 to 1599 in 2014. On Boulevard Ovidio Lagos, the number of trips increased by about 28 percent from 756 in 2011 to 964 in 2014. On Avenida Avellaneda, trips increased by nearly 50 percent in only one year, from 847 in 2013 to 1267 in 2014. This evidence shows that the overall target increase of 5 percent set in the Results Framework for the increase of nonmotorized transport in project areas has been substantially exceeded. Although updated counts for 2015 and 2016 of bike trips on the new corridors are not available, the Ente de Movilidad estimates that cyclist usage of the overall bikeway network of the city of Rosario increased by about 8 percent per annum in 2015 and 2016.

4.3 Bicycle trip counts on the new bikeways in the municipality of Córdoba are not available. However, a survey conducted in 2012 shows that 6.1 percent of residents travel by bike, compared to 2.7 percent in 2009. Although the survey methods are not consistent and results cannot be attributed to the bikeways funded by the GEF Project, this evidence points to an overall increase in the share of bicycle use among transport modes.

**Figure 4.1. New Bikeways in Rosario**



4.4 **Bus Rapid Transit system in Posadas:** The GEF Project funded the final design for a 3.2 km bus rapid transit system on Avenida Uruguay of the city of Posadas. The civil works were expected to be financed with other sources of funding.<sup>11</sup> However, this project has not yet been implemented, in part owing to the opposition of important retailers on Avenida Uruguay, and it is not clear at the moment when in the foreseeable future the public works will be initiated.

4.5 *Bike-share system in Rosario:* The municipality of Rosario launched its public bike-share system in April 2015. Two hundred bicycles, out of the 480 procured with financing from the GEF Project, are available to the public. The stock of bicycles includes a number of “tandem” bikes for two users, which are intended to provide access to this service to people with visual impairment or other disabilities. The bike-share system comprises 18 dedicated docking stations, located in the center of the city, in the University district, and along key arteries. All docking stations are powered by solar energy. The bike-share system is in good operating condition and is maintained by the bus operator of the city, the Empresa Mixta de Transporte SA. Based on information provided by the Ente de Movilidad, theft of public bicycles does not represent a significant issue. The 280 bicycles which are not available to the public are stocked in a warehouse and are used to replace those bicycles which are undergoing maintenance. A significant portion of these bicycles will be used when the expansion of the bike-share system is implemented in 2018.

**Figure 4.2. Docking Station n.7 “Terminal” of the Bike-Share System in Rosario**



4.6 Bike-share users need first to register, either in person or on line. A mobile phone application, the “My Bike Your Bike” (Mi Bici Tu Bici), can be downloaded and is available to users to show the availability of bicycles and docking stations in real time. Registrations can be for a month or a year. The fee structure is based on the price of the bus ticket and is designed to encourage long-term registrations. Students and working people with age of 35 or less are eligible for a 50 percent discount.

4.7 Based on data provided by the Ente de Movilidad, usage of the bike-share system peaks during workdays and on average between 10 a.m. and 12 a.m. and 4 p.m. and 7 p.m. Over 65 percent of all rides are up to 15 minutes and 22 percent are between 16 and 30 minutes. Hence, 87 percent of all rides are for less than 30 minutes. The average age of users is 31 years; 54 percent of them are female. Bike-share users have higher income and higher education than the average of Rosario’s population, and are either students or have a part-time or full-time job. Based on a survey conducted by the Ente de Movilidad, convenience is the most important factor in bike-share use, with most members responding that getting around quickly and easily is the main reason for their use of the system. About 95 percent of members responded that they find the bike-share system either good or excellent and 91 percent find the quality of the bicycles good or excellent.

4.8 The municipality of Rosario is planning an expansion of the system to add 32 more docking stations — both to strengthen its presence in the parts of the city of Rosario which

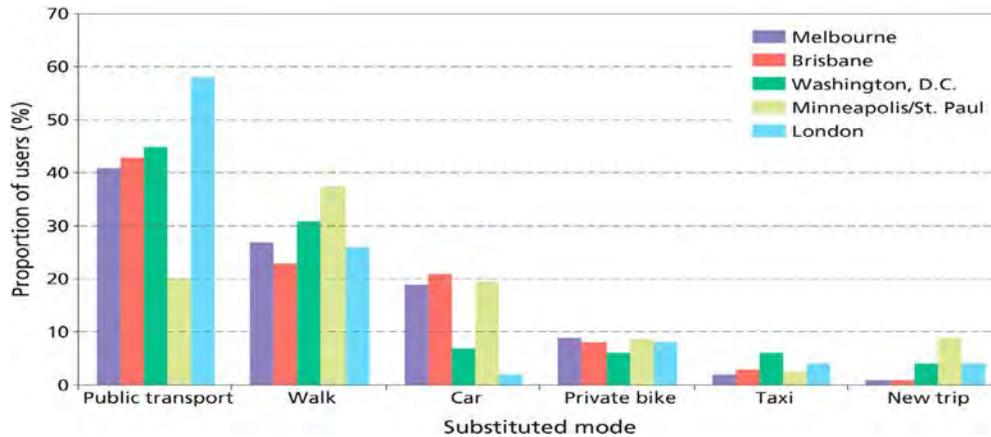
are already covered and to make the service available to other areas of the city—to the 18 that are already deployed, for a total of 50 stations. This expansion of the system is expected to be undertaken and completed in 2018.

### ***Reduction of GHG Emissions through Increased Use of Nonmotorized Transport***

4.9 Estimates of the impact on GHG emissions of the new bikeways in Rosario are available for 2014 only. These estimates are based on actual bicycle trip counts undertaken on each of the new bikeways. The analysis prepared by the World Bank, based on a model that compares “with” and “without project” scenarios, shows that in 2014 there was a reduction of: i) 41.7 CO<sub>2</sub> equivalent (CO<sub>2</sub>e) tons owing to new bike path on Boulevard 27 de Febrero; ii) 58.4 CO<sub>2</sub>e tons owing to the new bike lane on Boulevard Ovidio Lagos; and iii) 65.2 CO<sub>2</sub>e tons owing to the bike path on Avenida Avellaneda. The total estimated reduction in GHG emission was 165.3 CO<sub>2</sub>e tons in the first year after construction, equivalent to a 0.6 percent reduction when compared to the “without project” scenario. There is no available estimate of the impact on GHG emissions for 2015 and 2016. However, the increase in cyclist usage of the newly built corridors in 2015–16 is likely to have led to additional reductions during this period. Estimates of the impact on GHG emissions reduction based on traffic counts undertaken on the new bikeways in Posadas are not available. The original target of 5 percent set in the Results Framework for the reduction of GHG emissions was not achieved. However, this target was dropped with the first restructuring and was not replaced with a different benchmark, because reductions in GHG emissions are typically longer-term impacts.

4.10 At appraisal, a significant direct impact in terms of reduced GHG emissions was expected to come through the implementation of BRT systems. However, as discussed earlier, the BRT system on Avenida Uruguay in Posadas has not yet been implemented; nor is it clear at this moment if or when in the foreseeable future the public works will be initiated. Hence, no direct impact on GHG emission reductions can be attributed to this BRT system, whose final design was funded by the GEF Project.

4.11 Estimates of the impact on GHG emissions of the public bike-share system in Rosario, which was launched in April 2015, are not available. As discussed earlier, about 87 percent of the trips on the bicycles of the public bike-share system in Rosario have short durations of 30 minutes or less. Based on discussions with Rosario’s Ente de Movilidad on mode substitution, the bike-share system is considered to primarily replace trips that would have been taken by, in decreasing order, public transportation, walking, and private vehicles. This is consistent with the experience of other public bike-share systems worldwide, as indicated in figure 4.3, which shows that about 70 percent of the substituted transportation modes are either public transport or walking.<sup>12</sup>

**Figure 4.3. Transportation Modes Substituted by Bike-Share Systems in Five Cities**

Source: Elliot Fishman, "Bikeshare: A Review of Recent Literature," *Transport Reviews*, December 2015.

### SUMMARY OF THE EFFICACY ASSESSMENT FOR THE FIRST OBJECTIVE

4.12 As discussed earlier, the expected outcomes for GHG emission reductions, whose target was set at 5 percent at approval and was then dropped with the first restructuring, reflected longer-term impacts which were not well aligned with the small scale of the project and its timeframe, even under very optimistic scenarios. The GEF Project contributed to promoting the use of nonmotorized transport, primarily through its support to the construction of about 18 kilometers of new bikeways in Rosario and Posadas and to the launch in April 2015 of the public bike-share system in Rosario. Two hundred bicycles, out of the 480 procured with funding from the GEF Project, are available to the public, and there was an average number of 559 trips per day in 2016. Eighty-seven percent of trips had duration of 30 minutes or less. Estimates of GHG emission reductions, available only for the new bikeways in Rosario, indicate that in 2014 165.3 CO<sub>2e</sub> tons were saved, equivalent to a 0.6 percent decrease when compared to the without-project scenario. A significant direct impact in terms of reduced GHG emissions was expected at appraisal to come through the implementation of bus rapid transit systems. However, a 3.2-kilometer bus rapid transit system in Posadas, the final design of which was funded by the GEF Project, has not yet been implemented. Overall, the achievement of Objective 1 is rated **Modest**. A summary of the main outcome indicators is in table 4.1.<sup>13</sup>

**Table 4.1. GEF Project: Summary of Main Indicators**

	Target Value	Actual
<b>Indicator 1 (dropped):</b> Number of trips in public transportation increase in intervened corridors compared to baseline		
The GEF Project funded the final design for a 3km BRT system in Posadas. Civil works have not yet started.	10%	0
<b>Indicator 2:</b> Number of NMT trips increase in intervened areas compared to corridor baseline		
Three new bikeways funded by the GEF Project in the city of Rosario: % increase in bicycle trips (data for 2014)	5% increase	- Bkw1: 85% - Bkw2: 28% - Bkw3: 50%
<b>Indicator 3 (dropped):</b> Decrease of CO <sub>2</sub> e tons emitted by ground transport in intervened corridors		
City of Rosario: impact of new bikeways funded by the Project (data for 2014)	5%	165.3 CO <sub>2</sub> e Tons (about 0.6% decrease)
<b>Indicator 4:</b> number of transport and urban development plans and regulatory/financial incentives for sustainable transportation at local and national level in place	1	4
<b>Indicator 5:</b> Number of internationally recognized methodologies to assess GHG emissions as a result of transport measures	Not indicated	0
<b>Indicator 6 (added):</b> Number of transport initiatives aimed at enabling use of less energy intensive transport modes	3	3
1) Funding of new bikeways in Rosario and Cordoba 2) Funding of 480 bicycles to launch the public bike-share system in Rosario 3) Funding of the "All Together in Bicycle" ( <i>Todos en Bici</i> ) campaign in Rosario		
<b>Indicator 7 (revised):</b> Number of Km of BRT with final design (originally, number of km of implemented BRT)	4 km	3 km
The GEF Project funded the final design for the BRT on Av. Uruguay of the city of Posadas		
<b>Indicator 8 (revised):</b> Number of Km of new bikeways built	6.3 km	17.7 km
-- The GEF Project funded the construction of 11.8 km in Rosario and 5.9 km in Cordoba		

## **Objective 2: Assisting cities in inducing policy changes in favor of sustainable transport policies.**

### **OUTPUTS**

4.13 The following outputs are attributable to the GEF Project:

- Two conferences for government officials were organized, with GEF financing and contribution, on issues of sustainable transport and climate change, namely:
  - i. The 18<sup>th</sup> Latin American Congress on Urban and Public Transport (CLAPTU) in Rosario, April 2009.
  - ii. The Conference on Sustainable Transport, Air Quality and Climate Change in Rosario, May 2011.
- Technical assistance to the Ente de Movilidad of the municipality of Rosario was provided on the TransCAD transportation planning software.
- The Monitoring and Information Center for Public Transport was established in Posadas.
- Technical assistance was provided for a participatory process in the development of the Córdoba Mobility Plan.

- The final design for the upgrade of the Barrio 11 de Marzo in San Miguel de Tucumán was completed.

## OUTCOMES

4.14 Notwithstanding its small size, the GEF Project came at a time when the urban agenda in Argentina was about to change. The various initiatives financed by the GEF Project, including training and capacity building, contributed to a shift in the perspectives of policy makers at the local level and an increase in their attention to sustainable transport. This helped build and sustain the momentum for the four municipalities to move forward various planning documents, regulations, and initiatives aimed at promoting sustainable transport policies. Some of these initiatives at the municipal level are outlined below:

4.15 **Rosario.** Rosario developed an Integrated Mobility Plan (PIM) in 2010. The PIM was prepared following a participatory approach and included a “Mobility Pact” endorsed by a vast stakeholder group of over 100 entities and institutions. The Mobility Pact focused on three main areas: (i) improving public transport, (ii) promoting the use of non-motorized transport, and (iii) reducing the use of motorized private modes of transport. An updated version of the PIM was issued in 2014.

4.16 At the institutional level, the Ente de Movilidad—which comprises highly qualified and motivated staff—is responsible for the planning and management of the urban transport policies and agenda in Rosario. The Ente de Movilidad—which was the counterpart of the UEC and the World Bank during the implementation of the GEF Project and a beneficiary of some of the capacity-building initiatives sponsored under the Project—played a leading and critical role in the recent shift toward the implementation of sustainable urban transport policies in Rosario.

4.17 Some of the regulations passed by the Municipality of Rosario which were aimed at implementing sustainable transport initiatives include: i) Municipal Order 8864/2015 on the “Creation of a BRT system”; ii) Municipal Order 9145/2015 on the “Construction of Underground Parking”; and iii) Municipal Order 9238/2014 on the “Prohibition of Parking in Rosario’s City Center.”

4.18 **Córdoba:** Córdoba developed an Integrated Mobility Plan for the metropolitan area in 2010. The Plan included an origin-destination survey of the population and their mobility patterns as well as an assessment of the feasibility of a mass transit corridor and extension of the Line A tramway. Technical, economic, and environmental and social studies were also carried out for further potential extensions of the tramways and improvements of bus stations. A diagnostic for the development of a Strategic and Integrated Mobility Plan was undertaken in 2012. The GEF Project provided technical assistance for a participatory process in the development of the Plan.

4.19 Some of the regulations passed by the Municipality of Córdoba for implementing sustainable transport initiatives include: i) the Municipal Order 11712/2010 on the “Creation of Parking Facilities for Bicycles”; and ii) the Municipal Order 12076/2015 on the “Creation of a Public Bicycle-sharing System.”

4.20 **Posadas:** Posadas was among the earliest cities in Argentina to prepare a strategic plan in 2008, which also included an origin-destination survey to assess mobility patterns of the population.

4.21 The municipality of Posadas established in 2015 the Monitoring and Information Center for Public Transport (MICPT), with support from the GEF Project. The MICPT enables the municipality to monitor in real time the fleet of public buses, respond more promptly in case of accidents, and improve quality of service to public transportation users. The objective of the MICPT is to promote the use of public transport and facilitate modal exchange.

4.22 **San Miguel de Tucumán:** The completed final design for the provision of basic paving and drainage infrastructure works for the Barrio 11 de Marzo in San Miguel de Tucumán was to improve, among other objectives, access of this part of the city—which has high poverty levels—to the public transportation network. Although this urban rehabilitation work has not yet started, the technical assistance provided by the GEF Project has contributed to improving institutional and technical capacity at the municipal level. In 2012, the city of San Miguel de Tucumán developed its Transit and Transport Plan.

4.23 The Municipal Decree 957/2009 on the “Prohibition of Parking in the City Center and the Establishment of a Public Bike-sharing System” is among the regulations passed by the Municipality to promote sustainable urban transport practices.

## RATING

The achievement of Objective 2 is rated **Substantial**.

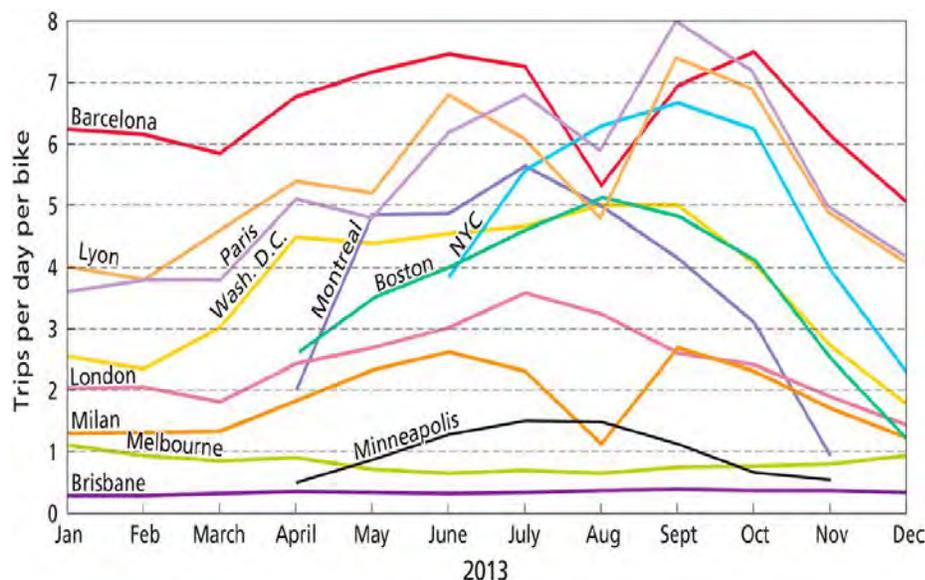
## 5. Efficiency

5.1 *Bikeways in Rosario:* As discussed earlier, initial information on GHG emission reductions, available only for the new bikeways in Rosario, indicate that 165.3 CO<sub>2</sub>e tons were saved in 2014. Using a value of \$30 per metric ton of CO<sub>2</sub>e displaced, the economic benefit of the reduction in GHG emissions resulting from the new bikeways is estimated at about \$5,000 for 2014. Other benefits from adapting the streets in the city of Rosario to make cycling safer and more attractive were not estimated. These benefits include, depending on the modal shift and the change in travel patterns for people using bicycles for their trips, the alleviation of road congestion, time savings and improved human health from increased physical activity.

5.2 The cost for the construction of the 11.8 km of new bike lanes in Rosario was \$911,040 and the cost per kilometer is \$77,787. This compares closely with the average construction cost per kilometer of new bicycle lanes in the United States of \$80,778,<sup>14</sup> though it must be noted that the cost of bikeways varies greatly depending on locations and project specifications. The ratio of the construction cost of the new civil works in Rosario by the GHG emissions reduced is \$5,511 per ton of CO<sub>2</sub>e. This cost-effectiveness ratio of the bike paths in Rosario is rather on the high side of the range when compared to other available estimates for bikeways projects.<sup>15</sup>

5.3 *Bike-share system in Rosario*: As discussed earlier, Rosario’s bike-share system makes available to the public 200 bicycles, out of the 480 procured with financing from the GEF Project. The standard metric for comparing the usage of different bike-share systems is the number of trips per day per bicycle. Figure 5.1, which indicates the bike-share usage in a number of cities worldwide, shows that the bike-share system in Barcelona is the most heavily used throughout the year with the number of trips per day per bike ranging between 5 and 7.5. Paris has the highest peak, reaching eight trips per day per bike.

**Figure 5.1. Bike-Share Usage: Trips Per Day Per Bike**



Source: Elliot Fishman, "Bikeshare: A Review of Recent Literature," *Transport Reviews*, December 2015.

5.4 Based on information provided by the Ente de Movilidad, the average number of trips per day for the public bike-share system in Rosario was 558 in 2016. This is equivalent to 2.8 trips per day per bicycle, when the stock of 200 bikes available to the public is considered.<sup>16</sup> This ratio drops to 1.2 when we consider the whole stock of 480 public bicycles procured by the municipality of Rosario. This ratio is rather on the low side of the range when compared to the experience of other bike-share systems worldwide, as shown in figure 5.1, and suggests that the investment in 480 bicycles—which was wholly funded in 2015 by the GEF Project when disbursements were accelerating near the project close—may have been over-estimated in terms of scale. However, bike-share usage in Rosario is expected to increase with the planned expansion of the system to be undertaken in 2018.

5.5 Given also that the final designs for the bus rapid transit system in Posadas and for the upgrade of the Barrio 11 de Marzo in Tucumán—which were funded by the project—have not yet been implemented, these considerations lead to an overall rating of **modest** efficiency.

## 6. Ratings

### Outcome

6.1 The project objectives were *substantially* relevant to the priorities of the authorities at the local level as well as to the World Bank's partnership strategies for Argentina and the urban transport sector, both at appraisal and closure. The interconnection and complementarity with the other World Bank operations in the urban transport sector in Argentina were important in the design of the GEF Project. However, the project had a high degree of complexity and ambitious objectives, especially regarding emission reductions. The expected outcomes in GHG emission reductions reflected longer-term impacts which were not well aligned with the small scale of the project and its timeframe, even under very optimistic scenarios. Relevance of design is, therefore, rated *Modest*. The GEF Project contributed to promote the use of nonmotorized transport, owing primarily to its support to the construction of about 18 kilometers of new bikeways in Rosario and Posadas and to the launch in April 2015 of the public bike-share system in Rosario. Two hundred bicycles, out of the 480 procured with funding from the GEF Project, are available to the public, and there was an average number of 559 trips per day in 2016. Estimates of GHG emission reductions, available only for the new bikeways in Rosario, indicate that in 2014 165.3 CO<sub>2e</sub> tons were saved, equivalent to a 0.6 percent decrease. A significant direct impact in terms of reduced GHG emissions was expected at appraisal to come through the implementation of bus rapid transit systems; however, a 3.2-kilometer bus rapid transit system in Posadas, whose final design was funded by the GEF Project, has not yet been implemented. Overall, the first objective was *modestly* achieved. The project achieved *substantial* results in helping the beneficiary cities to introduce policy changes in favor of sustainable transport policies. Based on a review of indicators for the cost effectiveness of the bikeways and the public bike-share system in Rosario, which were fully funded under the GEF Project, and considering that the 3.2-kilometer bus rapid transit system in Posadas, whose final design was funded by the GEF Project, has not yet been implemented, Efficiency is rated *Modest*. Together, these ratings lead to an overall outcome rating of **Moderately Unsatisfactory**.

### Risk to Development Outcome

6.2 Risk to Development Outcome is rated **Negligible to Low**.

6.3 Demand and maintenance risks for the new bikeways and the bike-share system in Rosario are low. Available evidence indicates that cyclists' usage of the bikeway network and of the bike-share system in Rosario has increased. The assets funded by the GEF Project are all in good condition and have been properly maintained. The bikeways are maintained by the municipality of Rosario. The bike sharing system in Rosario—which also depends ultimately on municipal funding because it is about 50 percent subsidized—is operated and maintained by the Empresa Mixta de Transporte, the bus operator in Rosario. Given the comparatively small scale of the operation and maintenance costs for these investments, maintenance risks are considered modest. Besides, the municipality of Rosario has substantially invested in the promotion of nonmotorized transport. A reversal of this policy

and a serious neglect of its bikeways network and/or its bike sharing system are unlikely in the coming years.

6.4 The GEF Project also funded several workshops, conferences, and capacity-building initiatives, as discussed earlier. All these activities have already taken place and contributed to encouraging policy makers at the local level to pay closer attention to sustainable urban transport issues and initiatives. In fact, the integration of sustainable transport into the policy agendas at the local level, particularly the city of Rosario where most of the investments in assets funded by the project were made, represents a further risk-mitigating factor.

## World Bank Performance

### QUALITY AT ENTRY

6.5 The World Bank's quality at entry is rated **Moderately Unsatisfactory**.

6.6 Complementarity and interconnection with the two other World Bank operations in the sector in Argentina were important factors that helped shape the design of the GEF Project. The project built on the PTUBA and complemented the PTUMA.

6.7 Having the implementation centralized at the national level added complexity to the project design, because each of the four beneficiary cities needed to enter into a specific implementation agreement with the PIU. This caused delays in the early stage of implementation, because these agreements were conditions for effectiveness, and required continuous coordination efforts during project execution between the World Bank, the PIU, and the beneficiary cities.

6.8 Having the PIU at the national level also contributed to an overall lack of ownership and commitment to the project by beneficiary cities, although this varied from city to city and depended on a substantial degree on local technical and implementation capacity. The city of Rosario, especially, showed a substantial degree of commitment to the project.

6.9 There were some shortcomings in project preparation. First, project design, as noted earlier, showed a high degree of complexity and ambitious objectives, especially regarding emission reductions, which should have been anticipated during the preparation of the project. Second, the monitoring and evaluation (M&E) design was not well calibrated. Though these flaws were addressed in part in the first restructuring of the project in 2012, which adjusted PDO results indicators and revised the language of intermediate results indicators, some weaknesses remained. Third, there were shortcomings in risk assessment, because some among the most pressing issues faced during implementation were not anticipated, including: (i) the challenges of coordination between the PIU and the four beneficiary cities, also given their different levels of capacity and ability to execute project activities; and (ii) implementation risks involving the PIU, which the GEF Project shared with PTUMA. Fourth, the World Bank overestimated the ability of the Clean Air Institute to effectively coordinate and provide relevant assistance to the project, including assistance with M&E and methodologies to assess impacts on GHG reduction.

## QUALITY OF SUPERVISION

The World Bank's quality of supervision is rated **Satisfactory**.

6.10 The supervision was carried out jointly for the GEF Project and the PTUMA. Joint supervision missions were conducted about every six months. During implementation, the World Bank proactively attempted to resolve difficulties with the project, including through the restructuring to improve its M&E design, and address risks to the achievement of its development outcomes. The World Bank coordinated effectively with the UEC and the municipalities to speed up the execution of the project and disbursements. The World Bank was also proactive in urging the National Government to approve the grant when the 18-month deadline set in the Grant Agreement was approaching and later in assisting the authorities request a waiver to avoid losing the funding.

6.11 **Overall World Bank Performance:** Together, the ratings for the Quality of Entry and for Supervision lead to an Overall Bank Performance rating of **Moderately Satisfactory**.

## Borrower Performance

### GOVERNMENT PERFORMANCE

6.12 The government performance is rated **Moderately Unsatisfactory**.

6.13 The national government was slow in approving the GEF grant and almost risked losing the funding. The government did not meet the 18-month deadline established in the Grant Agreement and needed to request a waiver to avoid losing the funding. Also, the commitment to the project shown by the national government was low in the first two years of implementation, because of its small size.

6.14 The national government was, however, proactive in undertaking a turn-over in the structure of project management, which led to the creation of the UEC in 2013 and helped to accelerate the execution of the GEF Project and disbursements.

6.15 Project ownership at the municipal level was overall rather low. However, this varied among beneficiary cities, also depending on their differing technical and implementation capacity levels. The city of Rosario, particularly, showed considerable commitment to the project.

### IMPLEMENTING AGENCY PERFORMANCE

6.16 The overall performance of the Implementing Agency is rated **Moderately Satisfactory**.

6.17 The performance of the initial implementing agency, which was placed under the Secretariat of Transport of the Ministry of Federal Planning and Public Investment and Services, was unsatisfactory. The implementing agency focused mainly on the PTUMA, a \$150 million operation, and did not give sufficient attention to the GEF Project, given its small scale. As a result, disbursements undertaken prior to 2013 were very small.

6.18 The overall performance of the UEC, the PIU created in 2013 under the Ministry of Interior and Transport with Decree No.2034, was satisfactory. The staff at the UEC has experience with projects financed by international financial institutions and appropriate expertise in all relevant areas - including procurement, financial management, engineering, and environmental and social - for efficient project implementation. As noted earlier, the UEC played a key positive role in accelerating project implementation and the pace of disbursements. However, given the poor record of the PIU prior to the restructuring which led to the creation of the UEC in 2013, the overall performance of the Implementing Agency is rated Moderately Satisfactory.

6.19 **Borrower Performance:** Together, the ratings for the Government Performance and for the Implementing Agency Performance, although the performance of the UEC was satisfactory, lead to an Overall Borrower Performance rating of **Moderately Unsatisfactory**.

## Monitoring and Evaluation

6.20 **Design.** The choice of initial outcome indicators and targets proved to be deficient in various cases, as shown by the need to restructure the original Results Framework in 2012. The five key original indicators of progress toward the achievement of the objectives were, as also summarized in Table 4.1, the following: i) a 10 percent increase in the number of trips in public transportation in the intervened corridors in relation to baseline data; ii) a 5 percent increase in the number of nonmotorized transport in areas of intervention compared to baseline data; iii) a 5 percent decrease of CO<sub>2</sub> equivalent tons emitted by ground transport in intervened corridors resulting from improvements in modal split, where applicable; iv) number of transport and urban development plans and regulatory/financial incentives for sustainable transportation at local and national level in place; and v) number of internationally recognized validated methodologies to assess GHG and air pollutant emissions as a result of transport and land-use measures. It should be noted, however, that though the weaknesses in the M&E design should have been identified during project preparation, some of these indicators were mandated by the GEF.

6.21 An additional flaw in the M&E system, including intermediate outcome indicators, is that it was not solely calibrated and focused on the activities and outputs of the project and therefore on the outcomes that would be directly attributable to them. An example is that the GEF Project financed designs/preparatory studies for infrastructure investments, such as the bus rapid transit system in Posadas, that would then be subsequently constructed with funding from other sources. Yet the outcome indicators, for example those regarding emission reductions, were designed as if the bus rapid transit system were to be constructed and in operation by the time the project closed.

6.22 The project monitoring was formally the responsibility of the UEC, although beneficiary cities were accountable under their individual implementation agreements with the PIU for collecting data and reporting project results. The Clean Air Institute was formally responsible for developing the guidelines and methodologies for the assessment of GHG emissions reductions as well as for providing general support and guidance on M&E.

6.23 **Implementation.** Although the project objectives were not revised, some of the PDO result indicators were modified in July 2012, through the first of the two second-level restructurings. In particular, the following two indicators were dropped: i) “Increase in the number of public transportation trips”, because none of the anticipated public transportation interventions were to be implemented by project closure and ICR date; and ii) “Decrease of CO<sub>2</sub> equivalent tons emitted by ground transport”, because it was acknowledged that infrastructure interventions require a long time frame before they result in emission reductions. The indicator “Number of internationally recognized validated methodologies to assess GHG and air pollutant emissions” was never reported during implementation. A PDO result indicator “Number of new transport initiatives aimed at enabling use of less energy-intensive transportation modes” was also added. Finally, some intermediate outcome indicators, for instance those related to the bus rapid transit systems, were also revised to more accurately reflect and monitor the actual activities funded by the project.

6.24 There were difficulties in the implementation of the M&E framework. Cities often were not able to comply with their responsibilities in the collection and transmission of data, which in turn affected the ability of the PIU to effectively monitor the project. Although some surveys and traffic counts were undertaken by the beneficiary cities, such as Rosario, these were not conducted in a regular and systematic manner. Besides, the technical support which was to be provided by the Clean Air Institute did not materialize as expected.

6.25 **Utilization.** Weak reporting on project performance prevented it from being fully and efficiently utilized in the decision-making process, although this has varied from city to city. Rosario’s Ente de Movilidad, in particular, has effectively monitored and used the M&E data in its operations.

6.26 The overall M&E Quality is rated **Modest**.

## 7. Lessons

7.1 **Broad and ambitious long-term objectives can result in implementation and efficacy challenges when the scope and timeframe of the project are limited.** The experience with the Argentina GEF shows that there should be some flexibility in designing the objectives of GEF operations to keep them aligned with the actual scope and timeframe of the project.

7.2 **When selecting project implementation arrangements, whether centralized at the national level or decentralized, the World Bank should assess local capacity issues with care and realism.** In the case of the Argentina GEF, strong capacity at the local level and commitment to the project were essential to successful implementation in the city of Rosario, where most of the investments in assets funded by the project were made.

7.3 **The rationale for linking the implementation of GEF projects with that of larger urban transport operations needs to be assessed on an individual project basis.** Though there are some benefits of linking operations, including in saving supervision costs and leveraging funds, the experience with the Argentina GEF prior to the restructuring which led to the creation in 2013 of the *Unidad Ejecutora Central*, the new PIU, shows that parallel

implementation of related projects can slow down the implementation of the GEF operations, because of their usually smaller scale.

**7.4 While overall funding under GEF operations is often limited, GEF projects can promote innovative sustainable transport policy initiatives.** Through the Argentina GEF, local authorities were exposed to global conferences and best-practice training programs, which contributed to positioning sustainable transport in the public debate and agenda.

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<sup>1</sup> The average rate of motorization in Latin America of about 100 vehicles/1,000 inhabitants is still relatively low by international standards.

<sup>2</sup> The other two country projects are in Brazil and Mexico.

<sup>3</sup> These included local technical and implementation capacity, local authorities' commitment, and quality of submitted proposals.

<sup>4</sup> More details on the Buenos Aires Urban Transport Project are in IEG's PPAR—Buenos Aires Urban Transport Project.

<sup>5</sup> The performance of the World Bank Group FY2015–18 Strategy is discussed in “Argentina—Performance and Learning Review of the Country Partnership Strategy for the Period FY15–FY18.” Washington, D.C.

<sup>6</sup> Window 1 “Freight Transport Management” and Window 5 “Travel Demand Management” were not included under the Argentina GEF Project.

<sup>7</sup> However, there were no irregularities in the implementation of any specific operations funded by the GEF Project.

<sup>8</sup> PKF Uruguay. 2013. Argentina-Forensic Audit on World Bank Loans No. 7442-AR, No. 7794-AR, and TF093048. Final Report-Phase 1, dated April 2013.

<sup>9</sup> World Bank. 2013–14. Integrity Vice Presidency's Final Investigation Reports on Urban Transport Projects in Argentina.

<sup>10</sup> The discussion in the ICR under the Efficacy section does not focus exclusively on the activities funded under the GEF Project, but makes also reference to various other initiatives implemented by the Municipalities, either with their own funding or with other non-GEF sources of external financing.

<sup>11</sup> The PTUMA project was expected at appraisal to finance the construction of this BRT system in Posadas.

<sup>12</sup> Recent studies conducted on bike-share systems implemented in a number of large cities world-wide suggest that on average the main three substituted transportation modes are public transport for about 40 percent of users, walking for nearly 30 percent and private vehicles for just about 15 percent. A review of these studies is in “Elliot Fishman, Bikeshare: A Review of Recent Literature,” *Transport Reviews*, December 2015.

<sup>13</sup> The first restructuring of the Global Environment Facility project modified some of the original indicators of the Results Framework. However, IEG has chosen not to undertake a split rating evaluation, as this would not make a material difference to the assessment of the project achievement against this project development objective.

<sup>14</sup> This estimate is based on information provided by the Pedestrian and Bicycle Information Center.

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<sup>15</sup> For example, the cost effectiveness of the Orange Line bicycle lanes in Los Angeles County are estimated between \$1,068 and \$1,727 per ton of CO<sub>2</sub>e reduced. “Greenhouse Gas Emissions Cost-effectiveness Study,” Los Angeles County Metropolitan Transportation Authority, June 2010.

<sup>16</sup> As discussed in paragraph 4.6, the 280 bicycles which are not available to the public are stocked in a warehouse and are used to replace those bicycles which are undergoing maintenance.



## Appendix A. Basic Data Sheet

### ARGENTINA GEF SUSTAINABLE TRANSPORT AND AIR QUALITY PROGRAM (PROJECT ID: P114008)

#### Key Project Data (amounts in US\$, million)

	<i>Appraisal estimate</i>	<i>Actual or current estimate</i>	<i>Actual as % of appraisal estimate</i>
Grant amount	3.99	3.88	97%

#### Project Dates

	<i>Original</i>	<i>Actual</i>
Appraisal		09/04/2008
Board approval		11/04/2008
Effectiveness		08/04/2010
	12/31/2012	10/31/2014

#### (b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
<b>Lending</b>		
FY08		
<b>Total:</b>		0.00
<b>Supervision/ICR</b>		
FY09	1.23	3,874.98
FY10	0.86	1,082.84
FY11	2.49	7,678.28
FY12	3.70	10,957.94
FY13	16.66	72,277.09
FY14	9.27	27,296.10
FY14	3.88	17,677.00
<b>Total:</b>	<b>38.09</b>	<b>140,845.98</b>

**(a) Task Team members**

Names	Title	Unit	Responsibility/ Specialty
<b>Lending</b>			
Paul Procee	Program Leader	EACCF	TTL
Veronica Ines Raffo	Senior Infrastructure Specialist	GTIDR	TTL
Marcelo Hector Acerbi	Senior Environmental Specialist	GENDR	Environment
Natalia Cecilia Bavio	Finance Analyst	WFALN	Financial. Mgmt.
Ana Maria Grofsmacht	Senior Procurement Specialist	GGODR	Procurement
Ricardo Schusterman	Consultant	GEDDR	Social
<b>Supervision/ICR</b>			
Veronica Ines Raffo	Senior Infrastructure Specialist/	GTIDR	TTL
Maria Catalina Ochoa Sepulveda	Transport Specialist	GTIDR	TTL
Paul Procee	Program Leader	EACCF	Urban Transport
Shomik Raj Mehndiratta	Lead Urban Transport Specialist	GTIDR	Urban Transport
Natalia Cecilia Bavio	Finance Analyst	WFALN	Financial Mgmt.
Daniel Chalupowicz	Financial Management Specialist	GGODR	Financial Mgmt.
Marcelo Hector Acerbi	Senior Environmental Specialist	GENDR	Environment
Santiago Ezequiel Arias	E T Consultant	GTIDR	Urban Transport
Andres Sebastian Gartner	Junior Professional Associate	GTIDR	Urban Transport
Ana Maria Grofsmacht	Procurement Specialist	GGODR	Procurement
Carlos A. Molina	Social Development Specialist	GSURR	Social
Ricardo Schusterman	Consultant	GURDR	Social
Gerhard Menckhoff	Consultant	GTIDR	Urban Transport

## **Appendix B. List of Staff Met**

### **Ministry of Transport**

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

Andrés Gartner, Sr. Advisor

Daniela Miglierina, Transport Specialist

Cecilia Lanfranco, Transport Specialist

### **Unidad Ejecutora Central, 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 Advisor

Verónica Vittone, Roca Project Executive Coordinator

Daniela Solimini, Financial Specialist

### **Cabinet of Ministers**

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

### **Metrovias**

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

Paola Egidi, Community Outreach, Rosario Mobility Agency

### **World Bank**

Mr. Shomik Mehndiratta, Manager

Ms. Veronica Raffo, Sr. Infrastructure Specialist

Mr. Santiago Aries, Transport Specialist

Mr. Anibal Lopez, Sr. Country Officer

Mr. Gerhard Menckhoff, Urban Transport Consultant

### **Independent Consultancy**

Roberto Agosto, Director, AC&A Consulting