

# Municipality of Rosario, Argentina

Moving forward: a successful reform of public and non-motorized transportation



After decades of decline due to major economic crises, the city of Rosario has bounced back and showed tremendous leadership in implementing inclusive and efficient public and non-motorized transportation options for its residents.

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## Rosario in context

The Municipality of Rosario is located 300 kilometers (km) north of the Argentinian capital, Buenos Aires, along the Paraná River in the province of Santa Fe. While the city itself has a population of 948,312 inhabitants, its metropolitan region (Gran Rosario) has more than 1.23 million inhabitants (2010), making it the third largest urban metropolitan area in the nation. The city stands at an altitude of less than 25 meters (m) above sea level. Rosario is the epicenter of a major industrial corridor, with its port being one of Argentina's main doors for agricultural product exports, in particular wheat, soybeans and vegetable oil. The city developed around its port facilities and railway infrastructure.

Economic crises in the 1970s and at the turn of the 21<sup>st</sup> century left one third of the workforce in the Greater Rosario unemployed. Prices of staple foods quadrupled, and by the end of 2001, 60% of the inhabitants were living below the poverty line, and 30% below the extreme poverty line. The economic renewal and stability in the years following the crises provided the City with an opportunity to redevelop itself and regain its lost vitality. This renewal was accompanied with major changes in terms of transport infrastructure and services, the result of political campaigns at the turn of the century which emphasized the need of a single tariff for public transport throughout the whole city and a greater accessibility for all users.

In 2008, over 94% of trips starting in the municipality of Rosario had a destination within the city. Nearly 26% of trips within the city were done using an active mode of transportation, with 5.3% of trips being done by bicycle. Rosario was declared the Latin American city with the highest bike modal share by the Interamerican Development Bank (IDB) in 2015.

## Transportation services and infrastructure: implementing sustainable, people-oriented transport solutions

### Governance, policy and monitoring

Major changes in the transportation sphere started in 2004 with the creation of the Rosario Transportation Authority (Ente del Transporte de Rosario), now the Rosario Mobility Authority (Ente de la Movilidad de Rosario, or EMR). This financially decentralized administrative institution, one of the first of its kind in Argentina back



## Facts & Figures

### Population (2010)

Municipality: 948,312 inhabitants  
Greater Rosario: 1,237,664 inhabitants

### Land area (2019)

178.69 km<sup>2</sup> (urban areas: 120.37 km<sup>2</sup>)

### Modal split (2008)

Mode	City	Metro
Bus/trolleybus	35.9%	29.8%
Car	29.8%	28.9%
Walking	19.6%	20.6%
Cycling	5.2%	8.4%
Motorcycle/moped	5.0%	6.3%
Taxi/remís	4.4%	3.7%
Multimodal trip	-	0.2%
Other	0.1%	2.1%





Figure 1. Aerial view of Rosario. Source: *Municipalidad de Rosario*.

in 2004, focuses on the planning, management and evaluation of everything related to urban mobility within the city, from special services to individual modes of transportation to mass transport. It also oversees the private and public companies in charge of the operation of the bus lines.

The City published in 2008 the Metropolitan Rosario Strategic Plan (Plan Estratégico Rosario Metropolitana, or PERM). The plan's objectives include, among others:

- the modernization of transport and logistics infrastructure;
- the improvement of mobility and territorial organization within the whole metropolitan region;
- the increase of rail transportation;
- the rise of Rosario's importance as a port city within the South American trade region;
- the increase of participatory planning and management for a better development of the city.

In 2011, the EMR published its Mobility Integrated Plan (Plan Integral de Movilidad, or PIM), which included a series of actions and projects. The EMR ensured that the process of the creation of the PIM was participatory and inclusive, with workshops and debates being organized with more than 700 experts and members of the civil society, as well as local and international institutions. This process led to the signature in December 2010 of the Mobility Pact (Pacto de la Movilidad), which put forward three main strategies: to promote mass public transport, develop active mobility and deter individual motorized transport. Some of the Pact's ten objectives included creating an integrated and inclusive transportation system, encouraging cycling and walking, organizing freight transport activities, promoting renewable energies, re-enforcing links between urban and transportation planning, promoting mobility-related technology, improving road safety and information accuracy, as well as improving transport-related governance.



Figure 2. Mobility Monitoring Center. Source: *Ente de la Movilidad de Rosario*.

The City of Rosario established in 2015 its Mobility Monitoring Center (Centro de Monitoreo de la Movilidad), the first one in the country. The Center supervises and monitors the different companies in charge of public transport operations, as well as taxis and remises, a type of taxi service where drivers use their personal cars and tariffs and accept online reservations and payments. The Center also controls and monitors vehicle flows, traffic levels within and outside dedicated lanes, parking space occupation rates, street lights and the respect of bus routes and schedules. In addition, the EMR has been surveying public



transit passengers twice a year since 2006 to evaluate their perceptions of services on each transit line. The Municipality of Rosario also started in 2016 an inventory of GHG emissions to determine the levels generated by different types of activities within the city.

### Public transport infrastructure and operations

One of the main points highlighted in the PIM is public transportation. In the past, the City ordered feasibility studies to evaluate the different potential options for improving its transportation network. The implementation of a tramway system, the *Tranvía Metropolitano de Rosario*, was studied, but the lack of overall funding for such large projects led the authorities to move towards lower-cost solutions that could create a similar structure and system. The City decided to focus on the improvement of the bus and infrastructure network within the city's six districts in order to improve its overall public transport.

In February 2012, a network of 10-km dedicated lanes was opened for more than 10 bus lines, taxis, remises and emergency vehicles on five major arteries in the city centre. In 2016, the City inaugurated a light BRT corridor, called *Metrobus*, on a 2.5-km section of Avenida Alberti in the northern part of town. This corridor is permanent, while the dedicated lanes are operational between 8am and 8pm on weekdays. These different projects rearranged mobility patterns and ordered transit within the city center, leading to a diminution in the number of accidents and a reduction of more than 30% in travel time. There are plans to continue expanding the *Metrobus* corridor up to 10 km when the necessary funds become available. The City also used these planning opportunities to simultaneously tackle urban freight within the central area. It created loading/unloading spaces for deliveries and other urban freight activities on transversal streets near dedicated bus corridors, and also limited freight vehicles' access between specific times. It also started renovating its bus shelters, and reduced parking spaces near transit corridors to deter car use and encourage public transport.

The City recently started an important reform and standardization of its transportation system, with the current 63 lines expected to be combined into 40 new lines in the second half of 2019. This is set to improve routes and bus frequency, and to increase accessibility and ridership. The current fleet is also expected to expand



Figure 3. New *Metrobus* corridor. Source: Ente de la Movilidad de Rosario.

to improve service frequency and quality. Since January 2019, the new urban transport system is also being operated by new companies, namely private entities Rosario Bus S.A. and El Cacique S.A., and state company Movi. A 120-day transition period allowed the transfer between the new companies and the three previous ones that were in charge of the operations since 2008: Empresa Mixta de Transporte Rosario S.A. (EMTR), a public-private partnership between the City, private companies and regional enterprises; private company Rosario Bus; and publicly-managed company Semtur.

### Buses and trolleybuses

The contract with the previous operation companies prohibited the use of buses older than 10 years. Following that strategy, the EMTR started renewing and upgrading its bus fleet in 2011, introducing low-floor, intelligent buses on some of its lines, and adding GPS and free wi-fi to its fleet. Local stakeholders, like associations of people with disabilities, were consulted in the design and development of the new buses, which added to the already existent services for people with reduced mobility. Some of the low-floor buses comply with the EURO 3 emission standard, while the newest vehicles use the Euro 5 norm technology, which pollutes 5 times less than an Euro 1 vehicle, and reduces 80% of the smoke coming from exhaust pipes and GHG emissions. In July 2018, the City started a 6-month pilot project named “Experiencia Biobus,” in which 400 buses started working with 25% of biodiesel, and 3 units with 100%. This project should benefit the local economy since the biodiesel comes from Argentina, and 80% of the national production of biodiesel is produced in the Santa Fe province.

A new electric trolleybus line, the Q line, was inaugurated in July 2017, increasing connectivity within fourteen neighbourhoods and duplicating the frequency and offer on some routes. The City acquired new high-tech trolleybuses, of which 12 units function with batteries allowing them to travel up to 20 km without being connected to power wires and therefore to operate on routes without catenaries. These trolleybuses also have a longer useful life than traditional buses. Thanks to all these changes, Rosario's public transport vehicle fleet is now one of the newest in the country.



Figure 4. Low-floor, intelligent buses. Source: Municipalidad de Rosario.



Figure 5. The contactless Movi card. Source: Ente de la Movilidad de Rosario.

### Integrated and seamless connectivity

In November 2011, the Ente de la Movilidad de Rosario introduced the Contactless Card (Tarjeta sin Contacto – TsC, now called the Movi card) for users, providing them with the possibility to do transboarding payments between lines, and to virtually recharge their cards through automatic cashers and homebanking. The Tarjeta sin Contacto opened the door for new advances that allowed the card to aggregate new functions in 2015 in order to make it a multimodal card. Some of these new functions included access to the bike-sharing system Mi Bici Tu Bici, as well as payment options





Figure 6. Real-time information at bus stop. Source: Municipalidad de Rosario.

for parking in some areas of the city, as well as for taxis and remises. Several discounts and programs are available, and the service “Pasaje Plus” allows passengers to use their card for up to two trips once there is no more balance on it. The tickets’ prices are then deducted from the balance when the card is refilled by the user. From January 2019 onwards, payment for using the public transport system is only possible through the Movi card, and no more physical tickets are being issued. Users can use the Movi app to consult waiting times for upcoming buses at specific stops, as well as bus schedules or the remaining balance on their Movi card. It can also be used for calling a taxi or pay for parking or taxi. Another app, Movi Virtual, allows people to pay their fares through their mobile phones, while the app Movi Joven enables youth to collect points in exchange for discounts and tickets for cultural or recreational activities. Another benefit of the Movi system is the collection of data and real-time information for users. Main bus stops in the city have dynamic screens displaying waiting times and trip duration, and users can consult self-service information points in strategic locations within the network. The collected data is also useful to the city for improving its services.

The year 2019 should mark the installation of a single fare covering the whole system. This fare (boleto integrado) will allow passengers to transfer from one line to another using the same ticket within a certain period of time (currently passengers connecting between two lines are being charged 33% of the rate of the second line). All these card reforms, although laborious, have allowed the system to constantly improve as new technologies came out over the years.

### Active mobility

The City is committed to improve public space and road safety through the repairing and enlargement of sidewalks and pedestrian spaces in the historic center. It has conducted urban interventions at intersections, upgraded public furniture and lighting on some streets, and reduced street space dedicated to vehicles to reallocate it to other users. This helped revigorate the sector and generate more fluidity and activities in the streets.



Figure 7. Street remodeling in the historic center. Source: Ente de la Movilidad de Rosario.

Following the publication of the PIM in





Figure 8. Bike-sharing system Mi Bici Tu Bici, with a tandem bicycle in the foreground. Source: Municipalidad de Rosario.

bike-sharing system in Latin America. These tandems, while targeting mainly blind and visually-impaired people, are available to all members.

The City also encourages cycling practice and healthier lifestyles through its weekly event Calle Recreativa, which sees the closing of 28 kilometres of streets to vehicles on Sundays between 8:30am and 12:30pm. More than 60,000 people attend this recreational event every week. Moreover, since May 2017, the City and EMR have been organizing cycling schools for residents, teaching more than 250 people of all ages.

## Results

The City of Rosario's efforts to improve mobility have paid off over time. The city is now recognized internationally for its leadership in promoting public and active transportation, and the Ente de la Movilidad de Rosario has been praised for using participatory methods in the conception, development and implementation of its initiatives, policies and projects. Rosario was finalist twice, both in 2013 and 2016, for the Sustainable Transportation Award from the Institute of Transportation and Development Policy (ITDP), drawing attention for its Plan Integral de Movilidad (PIM), its participatory and inclusive methods, its bicycle network and infrastructure, the instauration of new buses and dedicated lanes, the Mi Bici Tu Bici bike-sharing system and its parking reform. The bus operation company Empresa Mixta de Transporte Rosario (EMTR) also received recognition and certifications for its good management.

Beyond the international recognition, many initiatives and reforms have been successful and have had tremendous repercussions on people's travel habits. For instance, less than a year after its implementation, the new Q trolleybus line had already registered more than a million trips. Likewise, a study on Pellegrini Avenue showed that the number of cyclists on the street doubled following the implementation of a bike path, and the Mi Bici Tu Bici bike-sharing system has registered more than one million trips since its implementation in 2015. The changes have also contributed to increasing road safety, and since the adoption of the new urban mobility planning strategy in 2008, there has been a reduction of 65% in traffic accidents involving cyclists in Rosario.

In 2017, the City started working on the development of its third strategic plan, the Plan Estratégico Rosario 2030, involving once again several stakeholders and residents in the process to take into account their current needs and opinions.

2011, the City quickly started investing in cycling infrastructure, with the cycling network extending from 49 to 133 km between 2010 and 2018. The City also installed more than 1,700 bike racks for 3,600 bicycles across town.

Rosario's current bike-sharing system, Mi Bici Tu Bici, was inaugurated in March 2015 with 480 bicycles at 18 docking stations near important destinations such as the city center and universities. The system has grown now to a total of 52 solar-powered stations and can be accessed by local residents through their Movi card. Several discounts on subscriptions and memberships are offered, and the system also provides 70 tandems made specifically for the system, making it the first inclusive

## Challenges

As most governments, the City of Rosario faced its share of challenges throughout the design, development and implementation of its transportation policies and projects. The use of participatory methods can lead to longer and more complicated processes due to the presence of many different stakeholders. Bureaucracy matters can also cause delays and impact projects' timelines. The fact that public transportation in the City is operated by both public and private entities can also bring its share of complications. Processes can be laborious and take time, and delays are often part of the game. For instance, the new public transport network was first announced for the beginning of 2018, but was later postponed a few times. Another challenge is the lack of funding and economic resources, which can compromise or complicate the feasibility of some projects, such as the expansion or completion of the bus or bike-sharing networks.

## Lessons learned

Rosario was able to overcome its fragile economic history and engender good, sustainable urban development through good decision-making and the use of participatory methods that highlighted the population's needs as well as best practices from the transportation field. When it comes to small-scale projects inside each district, residents are asked to vote for project proposals, from the implementation of a traffic light to the construction of a new public space. For large-scale projects affecting more than one district, workshops are organized with citizens and organizations. By including right from the start stakeholders from different spheres to discuss at the same table, the authorities are able to identify and address the needs of vulnerable communities and to listen to local and international experts, which leads them to implement efficient solutions benefitting a much larger span of the population. The transportation strategies and projects adopted through the use of participatory processes ended up being more inclusive, and they increased accessibility within the transport network. For instance, workshops allowed citizens to suggest routes for new bus lines, and to discuss different plans and options for transportation projects. Decisions were made in respect with the people living in the affected areas, with a working team focusing on relations with the public going door to door to discuss with residents living near proposed dedicated bus lanes. The bike-sharing system was also tested by citizens and accessible for free at the beginning.

By touching upon several modes of transportation, the City also increased the number of mobility options for all residents and commuters, encouraging multi-modality and deterring the use of cars. Authorities were also not afraid to implement new technologies and to frequently improve their equipment and services according to the newest trends. The implementation of incremental projects was a pragmatic and cost-effective strategy that allowed to upgrade the bus system and respond to local needs for public transport. This strategy also proved that bus systems can be an efficient long-term solution for cities when leadership and commitments are in place.

These decisions demonstrated a high level of engagement and proactiveness from the government to offer the best possible options to its residents in terms of transportation. Once the upcoming reforms elevate the systems' standards and network to those of other large cities of similar sizes, the City will have the leisure of looking into even more efficient mass-scale transport options.

The Municipality of Rosario acts as a good example when it comes to



Figure 9. Cycling infrastructure on a major street. Source: Ente de la Movilidad de Rosario.



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adopting efficient, low-cost transportation solutions with major impacts. By engaging with its citizens and experts, and constantly improving its transportation network and services based on available technologies and latest recommendations, the City succeeded in creating an adaptable, inclusive and accessible transport system that responds to the population's needs.

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Figure 10. Calle Recreativa on a Sunday morning. Source: Ente de la Movilidad de Rosario.

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