

CASE STUDY

What the World's First Bus Rapid Transit System Can Teach Us



Curitiba, Brazil pioneered the use of bus rapid transit and paved the way for other countries in Latin America and around the world.

Overview

Curitiba City, in the Brazilian state of Parana, is widely known as the pioneer for Bus Rapid Transit (BRT) in the world. It was launched in 1974 with conventional buses in mixed traffic. Curitiba was the first city in Brazil to organize private bus operation in catchment areas and the first city in the world to implement a full BRT system.

Through consistent innovation, it has grown from a simple bus system to highly advanced network of bus lines.



Project snapshot

<p>Dates</p>	<ul style="list-style-type: none"> • 1974: First two BRT corridors were opened. • 1979: Feeder and interdistrict buses integrated with BRT, creating the Rede Integrada de Transporte (RIT) • 1982: All five major BRT corridors were all functional. • 1992: Iconic circular boarding platforms introduced, along with the use of biarticulated buses to increase system capacity. • 2009: New "Green line" BRT corridor was opened.
<p>Cost</p>	<ul style="list-style-type: none"> • \$1.5 million (\$8.5 million, 2012 equivalent): Estimated cost per kilometer in 1971 • \$1.25 (2012 equivalent): Single fare cost • \$60 million in 2009 (\$64 million, 2012 equivalent): Estimated cost of initial 9.4 km long segment of the "Green Line" • \$200,000 (\$214,000, 2012 equivalent): Estimated construction cost per kilometer (at the time of construction)

Institutions and Stakeholders

Others

- Citizens of Curitiba
- City of Curitiba
- URBS (Curitiba's Transportation planning agency)
- IPUCC (Curitiba's urban development authority)
- Local businesses

Context

With 1.8 million inhabitants occupying about 432 km² land area, Curitiba is one of the 10 most populous cities in Brazil. The city also has the highest private car ownership in the country with almost 400 cars for every 1,000 inhabitants in 2010. Curitiba achieved what other Brazilian cities tried to do. São Paulo, Belo Horizonte, Recife, Porto Alegre and Rio de Janeiro used federal funding available in the 1970s for bus systems performance improvements only, whereas Curitiba used the investment opportunity on busway corridors to direct its future growth.



Challenge

Lack of funds stalls mass transit project

In the 1970s, when Curitiba had only 400,000 inhabitants, plans for implementing a light rail transit (LRT) system were prepared. The idea was aborted due to LRT's high capital costs.

Population continues to grow

The city stands right at the center of a metropolitan area that includes 26 municipalities with a total population of 3.17 million inhabitants. The population of Curitiba's metropolitan area has increased 9.3 times over the last 50 years (4.6% annual growth) and 2.1 times over the last 20 years.

Solutions

BRT fills in mass transit challenge

The IPPUC (Institute for Research and Urban Planning of Curitiba) conceived a trunk-and-feeder bus system. This bus system was gradually upgraded until reaching the status of the first full BRT system in the world.

BRT connects more areas, servicing more people

In 1980, with the implementation of the east-west corridor, Curitiba consolidated the basis for the RIT. A single flat fare enabled a cross subsidy between short and long displacements by allowing users to interchange between trunk and feeding services at terminals and tube stations. In 1990, a series of legal arrangements between the State of Paraná and the City of Curitiba empowered URBS (Urban Development Authority of Curitiba) to plan and manage all the transportation modes within the Curitiba metropolitan area.



Numbers and facts

1.3 million passengers/day

6 BRT corridors

70 km of dedicated lanes

359 stations including 30 terminals

Flat fare allows integration between entire bus-based transit network

Signature "tube" stations and closed terminals for improve integration level boarding at all BRT stations

Results



Key statistics

75% of the population commutes using the BRT system

55% RIT accounts for all trips in Curitiba

Better air quality Curitiba has significantly better air quality than other Brazilian cities of similar size

18 km corridor, the "Green Line" BRT runs along since opening in 2009

18,000 average people per day, the "Green Line" carried in its first year

Lessons

Success comes from several elements

Curitiba's success was derived from the following elements: a mix of political leadership, innovation, pragmatism, technocracy and continuity.

As with any other city in Brazil, Curitiba faced periods of turmoil when political administrations challenged the status quo in promoting big changes. But its solid technical entities in charge of urban planning, traffic and transit management--IPPUC and URBS--provided the technical support.

Setting new standards

Over the years Curitiba has been demonstrating to the world its potential to produce creative and relatively low-cost solutions for urban mobility.

With the inauguration of its sixth corridor and the capacity upgrades of existing corridors, Curitiba consolidates 35 years of continuous bus oriented development, and sets new standards for the future of high-performance BRT system.

Resources

- Curitiba BRT Report by the Integrated Transport Systems and BRT systems Alliance
- Curitiba BRT Video



Institute for Transportation and Development Policy

This case study is from a series of virtual study tours created by The Institute for Transportation and Development Policy (ITDP) as part of a South-South Cooperation Project that facilitates the sharing of best practices in sustainable transport.

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