

The Absence of Territorial Integration and the Operational Deterioration of the BRT Model in Rio de Janeiro: The Case of the Transcarioca Line

Mauro Kleiman¹, André Luiz Bezerra¹, and Da Silva²

1. Federal University of Rio de Janeiro, Brazil

2. Benjamin Constant Institute, Brazil

Abstract: The communication deals with the problematic functioning of the BRT model in the city of Rio de Janeiro, with a premature and rapid deterioration of its operation and maintenance, causing strong constraints to people's displacements, and its separate conception of the territory, contradicting its basic premises established by the recently approved Sustainable Urban Mobility Plan of Rio de Janeiro (SUMP-Rio). The objective of the study aims to point out the elements that contribute to the configuration of the deterioration, and to analyze the distortion of the service, taking as emblematic example the case of the Transcarioca line, because it crosses denser areas and with greater number and more important and diversified activities and functions. The study has a qualitative characteristic, with direct field observation, combined with secondary data input, with theoretical support in authors of the literature on the subject of transport, who treat it beyond its technical operability, also taking it for its social function and attentive to the issue of social equity and the relationship with the planning of the territory. The Carioca BRT System has failed to fulfill an important and fundamental role of transport systems in contemporary times, by not making urban mobility a decisive element in shaping some possibilities of a more equitable socio-territorial development, which could perhaps contribute to the development of affirmative actions in some of Rio de Janeiro's most disadvantaged urban areas, helping to build a framework for better social equity.

Key words: transport, territory, Rio de Janeiro, Brazil, BRT, deterioration

1. Introduction

The adoption of BRT Systems (Bus Rapid Transit), understood as a system of transport by articulated buses that provides fast, comfortable, frequent and cost-efficient urban commuting through the provision of segregated infrastructure and priority of passage, has expanded through the world. The accelerated growth is justified by the recognition of the system as a viable solution to offer high quality public transport service at moderate costs. Cases such as Curitiba, in Brazil and Bogotá, Colombia, emphasize the success of the

implementation of this alternative to solutions to urban mobility problems.

The text addresses the problematic functioning of the BRT System in the city of Rio de Janeiro, which has been implemented for only seven years, already presents a rapid and premature deterioration of its operation and maintenance, causing strong constraints to people's displacements, in addition to a separate conception of the territory, disregarding urban and socio-economic aspects and without a specific territorial planning along its path, thus contradicting its basic premises, established by the recently approved Sustainable Urban Mobility Plan of Rio de Janeiro (SUMP-Rio). The objective of the study aims to point out the elements that contribute to the configuration of the deterioration and the lack of territorial integration

Corresponding author: Mauro Kleiman, Dr.; research area/interest: urban and regional plannings. E-mail: kleiman@ippur.ufrj.br.

of the project, taking as emblematic example the case of Transcarioca Line, because it crosses denser areas and with greater number and more important and diversified activities and functions.

2. The Transcarioca Line

The TransCarioca is the first public transport corridor that connects the city across the city. Inaugurated in June 2014, the corridor crosses dense and well-established areas, with a historical deficit of quality public transport. It serves 27 neighborhoods in the north and west of the municipality, connecting the Alvorada Terminal (Barra da Tijuca) to Tom Jobim International Airport (Ilha do Governador). It has 47 stations and 39 km of segregated roads, integrating with the metropolitan and subway train systems, essential for access to the central region of the city and other locations within the Metropolitan Region. The Figure 1 shows the general configuration of the Transcarioca Line, its relationship with other public transport hubs of the City of Rio, its stations and the areas (neighborhoods) directly served by it.

Conceived as an idea to provide faster transportation and with greater capacity, the Transcarioca, presents rapid and premature deterioration of its services, offering only partially, and with strong constraints, transport of shorter duration between places, with difficulties in accessibility to stations, intermodal integration and no relation to land use planning.

For the understanding of the problem, we initially list the issues of the design of the project, its operation and maintenance, which indicate the reasons for its premature deterioration, and its lack of integration with other territorial policies.

3. BRT Transcarioca Design Problems

The Transcarioca only partially follows the fundamental parameters recognized for an “Express Bus Corridor” [1]. First by the large number of intersections at the same level of the roads that cross its route (121 in total), requiring traffic control by traffic

lights, including pedestrian crossing. Secondly, the operation of the vehicle, having been determined by the physical design of the one-lane track design, only allows overtaking at the locations of the stations, where double lanes were made. Thirdly, the stations and their ticket offices being modular, that is, equal in any of the passenger volume situations, greatly increases the travel time and waiting time for ticket purchase and to enter or exit the vehicle.

Fourthly, the time intervals for the intended mass transport, estimated in the project at a maximum of 2 minutes between each vehicle per line, has not been put into practice. Fifthly, the spatial segregation-urban planning of the road is fragile. Sixth, both tariff and architectural-urban integrations are absent or precarious. Seventh, there was no real demand study, and calculations were made through attempts to update calculations 30 years ago for subway line 6, which would make similar path. In Eighth place, the lines initially thought and operated as “expressed”, that is, stopping at a few stations, have been transformed into “paradoras”, stopping at all stations along the way. The idea of making its journey be, in theory, an “express corridor”, without barriers to its displacement and a high passenger/day size, through a system of reduced intervals between each bus, did not achieve full realization.

Although of lower cost for deployment, operation and maintenance than a Light Rail Vehicle System (LRV) or subway, its benefits are smaller than rail modal vehicles, and although being the work of large infrastructure, which as a trend should remain in use for a long time, in less than four years the problems derived from its initial conception led to intervals not consistent with the project, leading to its early and growing deterioration.

4. Operational Problems

In its operation we can observe first, as the most important, the question of the increasingly spaced interval between vehicles (from 6 to 10 minutes, being

in the early hours even greater reaching 20/30 minutes); the reduction in the quantity of vehicles in circulation calculated by at least 30% less and about 40 to 90 vehicles in need of repairs and circulating precariously; the reducing lines with fewer number of stops at stations; overcrowding of vehicles has caused very rapid deterioration of vehicles, as well as stations. In vehicles it is observed that, as they are always overcrowded (with people traveling squeezed together) and as the doors open into the vehicle, passengers are pressed against the doors and on each other, there are

times when people try to hold the doors or even try to pull them out. Overcrowding is aggravated by the presence of street vendors inside vehicles, also hindering the movement of users to enter and exit buses. Another growing problem is that of environmental comfort inside vehicles, because the refrigeration system has not given flow in the relationship between overcrowding of passengers and their capacity, or already present vehicles with the devices not fully functioning.

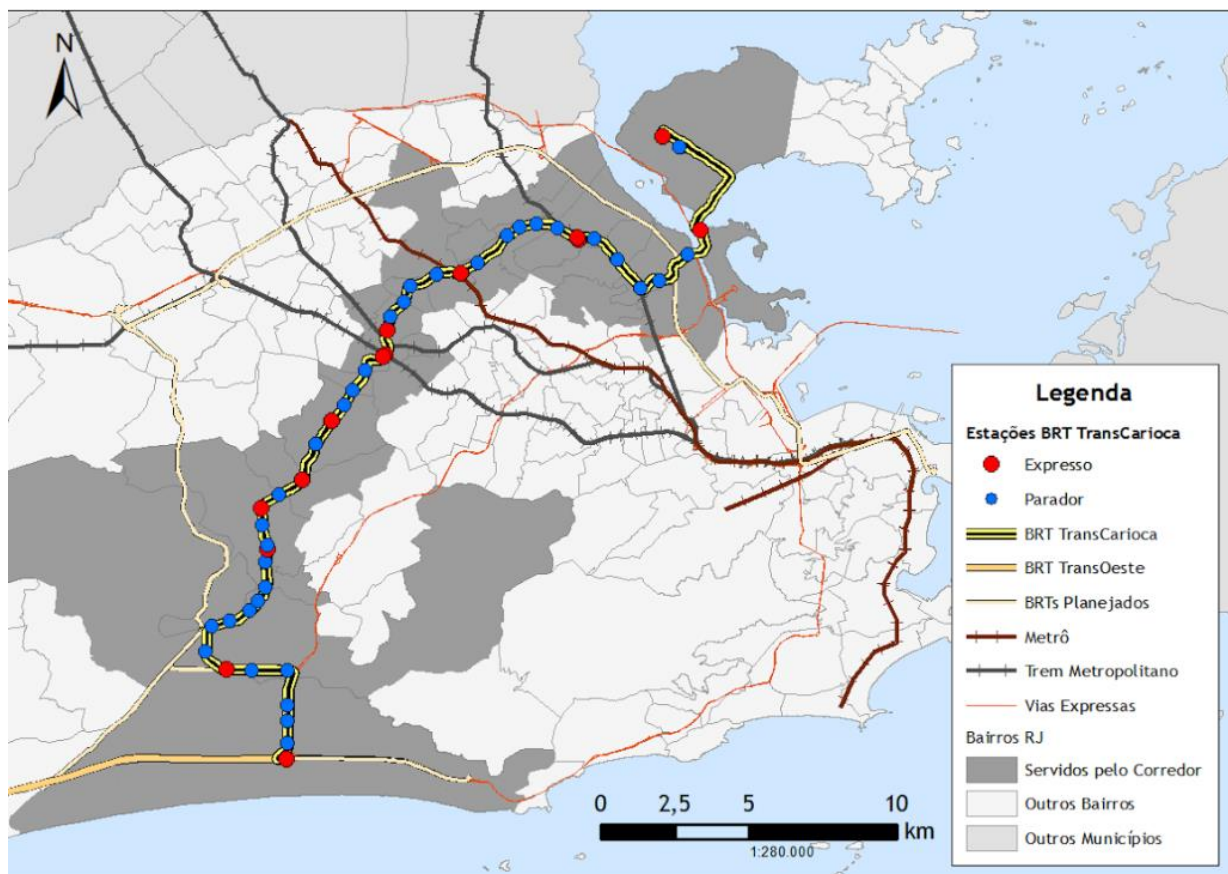


Fig. 1 Transcarioca Line and its relationship with other public transport hubs of the City of Rio, with its stations and the areas (neighborhoods) directly served by it [2].

In the stations there are serious problems regarding: a) environmental comfort, because they are leaked, but this does not account for the strong heat and humidity of Rio de Janeiro; b) ticket offices that do not account for the demand, because each ticket the responsible must report to the computer system for it to recognize the card; c) dead automatic doors; d) vehicle

wait time information rarely accompanies real-time and is in letters that are difficult to see; e) lines of users in front of the automatic doors form across, making it difficult for people to move; f) insecurity with robberies inside the stations; g) revenue evasion, by people entering stations when automatic doors open or are broken.

On the other hand, we analyzed, however, that all trips could be even shorter in time, if in fact it was an Express Bus Corridor, with intersections at different levels, including for pedestrians, and if the intervals between vehicles meet the time originally stipulated. So we have to reduce travel times on the route has attracted and attracts a very important demand from the population to the mode, but because its operation did not meet as thought in its beginning, the overcrowding of vehicles has increased over time.

On the other hand, the inter-neighborhood travel time on your way and between your two extreme points (Alvorada-International Airport, see Fig. 1), in fact it has been significantly reduced in relation to the previous system of travel, made by a myriad of buses and lines on roads with competition from other motor vehicles. Trips, especially between so-called suburban neighborhoods, have gained a very significant time reduction. In addition, what previously did not exist, such as the connection with the International Airport and its articulations with subway and train, came into existence. It is also noted the connection between neighborhoods before with many constraints and congestion, now possible and with shorter travel time, benefiting the population layer of lower income.

But the degree of urban mobility achieved is not fully enough to meet the needs of the great demand of its area of influence and articulations with other modals, characterizing itself by the elements that we list as a kind of Semi-Express Bus Corridor.

5. The Lack of Integration of BRT with Territorial Policies

The so-called suburb of Rio de Janeiro, where almost all the railway stations are, as well as numerous subway stations, and now also the new BRT lines, is an immense urban area, considered the most central and populous of the metropolis, and also the most deprived in terms of urban services and equipments. It needs policies that articulate the interface equipment (stations and terminals) of public transport systems with the

proposals of urban development. It is necessary to stimulate the use of large areas little used or empty, well located that are in the context of the metropolis.

Intervene in a planned way in some areas served by BRT, based on a policy that seeks to identify the interface equipment with greater potential for development Urban (analyzing factors such as population; jobs; income; excluded from public transport due to tariff reasons; public transport network that meets the area and the demand transported on these lines; identification of areas with more urbanization potential and/or less conducive to densification, in relation to the capacity of transport corridors; identification of the dependence of the population of the area by public transport; evolution of land use and population density with the evolution of the supply of transport services; and characterization of the local road system) can have a double effect that helps in building a better framework for social equity: 1) help find solutions that enhance and diversify local activities and services, bringing numerous benefits not only to the population closest to the points and interface equipment, but also of adjacent areas and municipalities, easily accessible by public transport, developing a better experience and appropriation of the public space, also contributing to renew the image of these localities in front of the city, helping to break down some existing social prejudices; and 2) promote a type of continuity between these areas and other adjacent metropolitan spaces.

More than physical transformations and faster shifts, it is held that the implantation of the BRT System is an important contribution to the task of universalization of the right to urban mobility building a more equitable and sustainable city.

6. Final Considerations

The BRT System in Rio de Janeiro, with its operational precariousness problems and its little or no integration with different territorial policies, has failed to fulfil an important and fundamental role of transport

systems in contemporary, by not making urban mobility a decisive element in shaping some possibilities of a more equitable socioterritorial development, that could perhaps contribute to the development of affirmative action in some of the most disadvantaged urban areas of Rio de Janeiro, helping to build a framework for better social equity and relationship with urban planning.

References

- [1] Kleiman Mauro and Vale Camila Campos do, Notes on the beginning of the BRT Transcarioca Line in operation, *Chão Urbano Magazine* XVI (2016) (1) 3-40.
- [2] Institute of Transport and Development Policies (ITDP), Role of BRT TransCarioca in reducing social inequality and access to the city of Rio de Janeiro, accessed on 27 April 2017, available online at: <http://itdpbrasil.org.br/pesquisabrt/>.