



## SAFE ROUTES TO SCHOOL IN BRAZIL

Investments in urban transport in Brazil are not commensurate with the level of urbanisation: 86 per cent of the country's population lives in urban areas. Public and non-motorised transport (NMT) infrastructure are insufficient to meet existing demand. There is need to expand NMT initiatives to enhance access to educational opportunities.

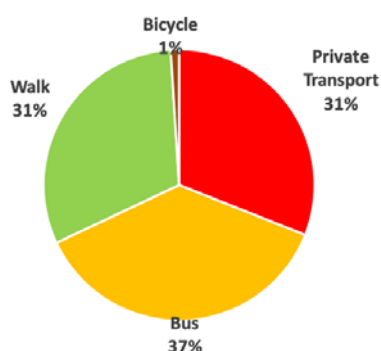
### CURRENT CONDITIONS

In most Brazilian cities, streets are designed to cater to motorised transport rather than NMT, leading to high motor vehicle speeds and the endangerment of pedestrians, especially vulnerable road users such as infants, children, adolescents, and the elderly. In São Paulo, which has the fifth-largest motorisation rate among Brazil's cities, the elderly were the principal victims of traffic crashes in 2017. Fatal traffic crashes across the country have risen to around 40,000 per year, and emissions from motor vehicles continue to affect the air quality, further endangering the health of vulnerable groups.

In road projects in urban areas, footbridges are preferred over at-grade crossings. However, most pedestrians do not use the footbridges because of the inaccessibility and long distances involved and prefer to cross the wide roads. Pedestrians then have to contend with high-speed vehicles and have higher chances of being involved in traffic crashes.



School zone in São Paulo, Brazil



São Paulo mode split

The available at-grade crossings do not provide a safe environment for pedestrians because they lack ramps to help in reducing motor vehicle speeds. Many streets lack footpaths and cycle paths and a majority of the roads have wide intersections that result in high motor vehicle speeds. Pedestrians are forced to share the carriageway with speeding motor vehicles and this discourages people from walking and cycling.

The available public transport systems lack proper last-mile walking and cycling access and universally accessible interchange facilities. In some corridors, there is lack of activity and animation. The empty streets feel unsafe and pedestrians avoid them.



## CURRENT CHALLENGES



Pedestrians avoid using footbridges



Need for safe at-grade crossings



Lack of activity on the streets



Wide intersections increase speed



Lack of footpaths and cycle lanes



Lack of connectivity to public transport

## PLANNING PROCESS

The Ministry of Cities was created by the federal government in 2003. The National Department of Transport and Urban Mobility was established within this ministry to formulate and implement the National Policy for Sustainable Urban Mobility. Key to this policy was the integration of transport and urban development policy to provide broad and democratic access to urban space, prioritising public and non-motorised transport and ensuring secure, socially inclusive, and sustainable mobility. In 2012, the National Secretary of Transport and Urban Mobility signed the Brazilian Urban Mobility Law with the stated goals of achieving safe, socially inclusive, and equitable use of public space and contributing to the construction of sustainable cities. The Urban Mobility Law was explicit in favouring NMT at the expense of motorised transport and public transport at the expense of individual motorised modes. The law stated that municipalities with more than 20,000 inhabitants should have urban mobility plans by 2015.

In 2017, ITDP Brazil and the São Paulo Metropolitan Urban Transport Agency (EMTU-SP) engaged in a partnership to improve the agency's capacity for sustainable transport planning. The agency is in charge of rolling out a BRT network of over 300 km, split into 13 operational corridors in São Paulo's Metropolitan Area. The lack of adequate integration and accessibility around stations was considered an important challenge to address.

In order to have more impact on EMTU-SP's planning processes, it was necessary to learn about the current practices of urban infrastructure and street design. For this purpose, ITDP conducted face-to-face meetings using structured questionnaires with managers and technicians from the EMTU-SP Department of Engineering and Design and Department of Corporate Planning. The interviews aimed to determine whether

design measures for road safety and participatory processes are present in the company's engineering and infrastructure projects and programs.

From these interviews, it was possible to observe that:

- There is great emphasis on traffic flow, sometimes at the expense of universal access for all types of users. For example, when evaluating the need for at-level crosswalks, EMTU-SP relies on a warrant related to the number of pedestrians versus vehicles on the street.
- There is no standard framework for street design projects' terms of reference, and their scope may vary from one site to another. The detailing of pedestrian and traffic calming elements depends on the approval of the municipal traffic engineering company. Their engagement during the participatory planning process would be critical to achieve better street designs.



A site visit in São Paulo, Brazil



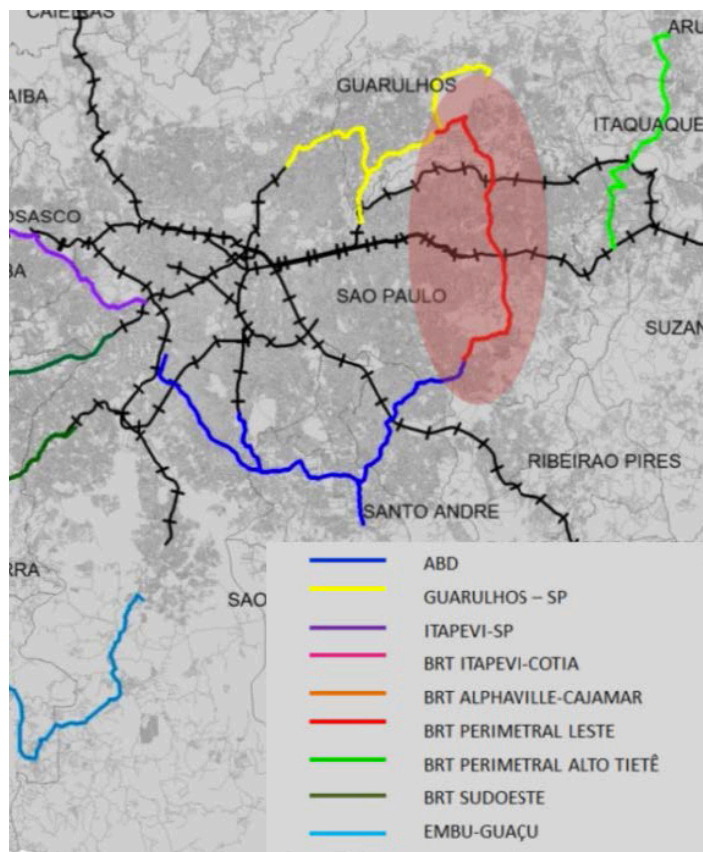
## PILOT ASSESSMENT

The Perimetral Leste bus rapid transit (BRT) corridor will connect the city of Guarulhos with the district of São Mateus in the city of São Paulo, crossing the city's dense East Zone. The corridor is located along Jacu-Pêssego Avenue, which stands out as an important axis for both municipal and inter-city trips in the metropolitan region. In addition, the corridor has the potential to support the area's redevelopment since it crosses a predominantly low-income and high-density residential region and connects two industrial-logistical sites.

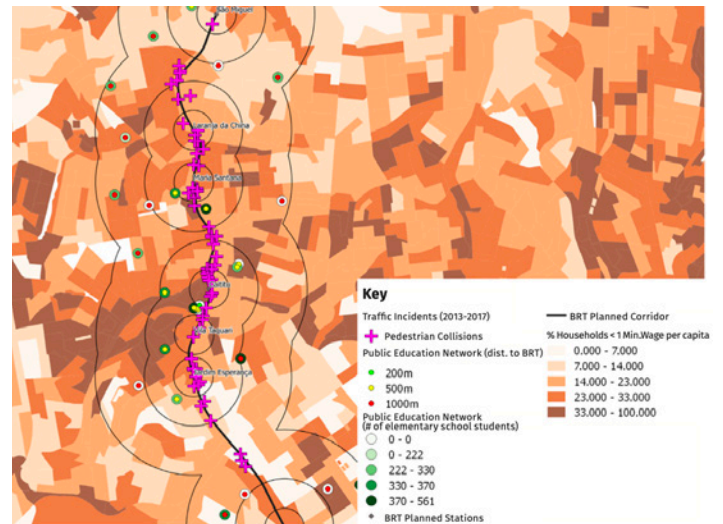
Jacu-Pêssego Avenue is an arterial street with four lanes in each direction, tracing the course of a river. The BRT project will not alter the street's arterial function since it will maintain three lanes for mixed traffic in each direction. Even though there was a significant drop in fatal traffic crashes over the last decade, it remains amongst the most dangerous streets in São Paulo. In 2017, the route was ranked sixth in the city in terms of fatal accidents and eighth in terms of crashes with injuries. Considering the street's profile and its record of traffic crashes, the avenue can be considered highly inhospitable for pedestrians.

The BRT project provides new crossing possibilities, but six out of ten proposed crossings are footbridges. Footbridges considerably lengthen the crossing distance for pedestrians and are inaccessible to the disabled, which prompts them to cross at dangerous locations along the avenue.

The pilot assessment analysed the current conditions in terms of safety and accessibility to an educational facility near the future Perimetral Leste BRT corridor. The survey was based on direct engagement with ninth graders and elders, both of whom experience the dangerous street conditions on a daily basis.



Location of Perimetral Leste BRT corridor



Black spot analysis

## POLICY RECOMMENDATIONS

Based on the pilot assessment with the interest group, the project provides clear recommendations for EMTU-SP's road safety, integration, and participatory policies and for general procedures to be adopted in the planning process for rapid transit corridors:

- **Adjust BRT station locations to better connect them to existing and planned pedestrian networks and link them directly to surrounding opportunities, especially educational, health, and cultural facilities.** Adjustment of station locations to better integrate with existing urban opportunities to offer more direct access through at-grade crossings instead of pedestrian bridges. Adjustments in station locations and at-grade crossings also would facilitate access to the CEU, which has over 4,000 users per day. Currently, access from the other side of the corridor is only possible through an unsafe and unsheltered pedestrian bridge.
- **Reduce distances between crossings along public transport corridors and improve walking conditions along the main access routes to future stations.** Near the CEU, crossings to the other side of the avenue are far from each other. In areas where there is continuous activity on both sides of the corridor, the BRT Standard suggests safe crossings should be provided in every 200 m. Existing crossings are noted in orange, but they should be indicated in red and should provide connections to surrounding pedestrian networks. At-level crossings should be prioritised over footbridges



Participant proposals for the site





Site rendering

whenever possible. Where footbridges are necessary, they should meet minimum conditions such as clear visibility and shelter. Children have also mentioned that providing free WiFi connections on footbridges would most certainly attract more users and increase surveillance.

- **Identify hotspots for pedestrian collisions and deploy speed reduction measures making the areas safer for everyone.** Intersections should be redesigned with traffic calming measures to reduce speeds of vehicles exiting the expressway where the BRT will be located.
- **Improve bicycle access to stations to favour intermodal connections.** Proposed stations should connect to existing cycleways near the corridor and offer adequate bicycle parking at all stations. The rapid transit corridor should be complemented by proposed cycleways to offer connections to surrounding neighbourhoods.
- **Promote higher density and mixed land use around the stations and encourage the activation of building façades near the rapid transit corridor.** Evaluation of TOD potential around proposed stations could inform urban planning incentives and foster densification and development of new activities along the corridor. For this type of evaluation, it is essential to engage governmental institutions that are responsible for the city or metropolitan urban planning. Activation of façades along the future BRT corridor would help create a more vibrant environment.
- **Adopt participatory planning methodologies involving vulnerable users.** A similar methodology to the one applied in this pilot project should be expanded to other educational facilities near all stations along the corridor and to other rapid transit corridors planned by EMTU-SP.

## SUCCESS FACTORS

- > Preliminary assessment to identify institutional strengths and weaknesses
- > Participatory process including direct engagement with students and other vulnerable road users

## MORE INFORMATION

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## How to develop a non-motorised transport strategy or policy

Visit [nmttoolkit.itdp.org](https://nmttoolkit.itdp.org)

