A6.4– Supporting the cycle lane planning in São Paulo

CONTEXT

Cycle lanes in the city of São Paulo have a long history dating back to the 1980s but have taken on more importance over the past 10 years due to the increased number of people using bikes as a sustainable form of transport. Between 2013 and 2016, around 480 km (about 298.26 mi) of new cycle paths and lanes were deployed in the city, representing a milestone in the history of cycling planning. However, OD 2017 data reveal that despite the growth in cycling infrastructure, the use of bikes in the modal mix of the City of São Paulo is still minimal, accounting for a mere 0.9% of trips originating and finishing within the city. This lower-than-expected figure is the main motivation for the present study, which explores the main factors that encourage or discourage people from choosing bikes as a mode of transport in their daily lives, to find solutions that may be incorporated into the city's cycling plan.

OBJECTIVES

The main objective of this study was to provide technical support to São Paulo city authorities in the analysis of barriers to bicycle use, by collecting data on cycling and cyclists and preparing recommendations to support decision-making on complementing, developing, and deploying new infrastructure to promote the use of bikes as a common mode of transport in the coming years. The study focused on prioritizing the expansion of the cycling network to improve existing cycling facilities, meet the current demand for this kind of travel, and attract new bicycle users. The study also makes recommendations for designing bicycle lane infrastructure and expanding the shared bicycle and bike rack system in the City of São Paulo.

RESULTS

The bicycle network in the City of São Paulo includes 667.1 km of bike paths and fixed cycle lanes and 32.1 km of designated cycle routes. Added to the 140 km network already planned,[1] the future consolidated network would cover 3.35% of the city road network (23,000 km). By way of comparison, the Santiago (Chile) network has 6.3% and Bogotá 7.6% of road network coverage. The analysis showed that the future network

[1] The 140 km are part of the 300 km of new structures planned to be implemented by 2024 (Targets Program 21/24 - Final Participatory Version 2021). Available at: < https://www.prefeitura.sp.gov.br/cidade/secretarias/upload/governo/arquivos/programa_de_metas/programa-de-metas-2021-2024/pdm.relatorio.versao.final.participativa.pdf>

will still have several “missing links”—this study found 105 subnetworks not connected to one another.

The people near bike lanes (PNB) indicator[2] shows that 30% of the population of São Paulo lives less than 300 m away from the cycling network. However, the same indicator, segmented by race and income, reveals substantial inequality in this distribution. For example, white people have 13% more access to the existing cycling network, while black people have 23% less access. Households with a monthly per capita income below or at minimum wage have 26% less access, while families with an income triple that of minimum wage have 46% more access. The greater concentration of the network in the expanded center of the city results in unequal access for black and low-income users, which could be alleviated by expanding the network in peripheral areas.

As for travel demand, about 23.5% of the total daily trips to and from the City of São Paulo could be made on bikes. Of the 23.62 million trips made by car, motorcycle, public transport, and on foot, some 5.5 million could be made by bicycle.[3] Regarding intermodality, of the 3.5 million intermodal trips in which the first leg of the journey is to a train or subway, approximately 1.1 million (31%) could be done by bike. Five hundred thousand trips to subway or train stations are made on foot (24% of the total), meaning one-quarter of journeys on foot are made over relatively long distances to public transport hubs. As for motorized travel modes, 600,000 access trips to metro-railway transport are potentially cyclable but are made using motorized transport. Of this total, 500,000 trips were by bus, representing 39% of the feeder trips by bus.

Quantitative research[4] indicates that 45% of bike trips seek to avoid public transport, while 23% want to save money. For more than 90% of bicyclists, the main criteria for choosing a particular route are lighting, safety, and available cycling infrastructure. These criteria were even more significant for women. Fear of robberies, assaults, falls, and being run over in traffic appear to be the main inhibitors of bicycle use among non-cyclists. This group stated that if cycling infrastructure existed on the route to their main destinations, they would consider using a bike. Those who use bicycles frequently seek

[2] Created by ITDP, the People Near Bike Lanes (PNB) indicator measures the percentage of the population that has easy access to cycling infrastructure for circulation—in this case, what percentage of the population lives within 300 m from the deployed network.

[3] This analysis was based on the Cycling Potential Index, a methodology applied and adapted in different cities around the world as a tool to support decision-making in the context of cycling planning. Potential cycling trips were those trips observed in the 2017 OD Survey that meet criteria such as the socioeconomic profile of current cyclists, slope criteria, and distances between 1.25 km and 7.5 km. Looking at each mode, it can be seen that 37 percent of car trips in the municipality could be made by bicycle, as could 25 percent of bus trips.

[4] Three surveys were carried out on the cycling mode, namely: (1) two focus groups with users and noncyclists; (2) a quantitative survey of a sample of 1,000 respondents; and (3) a stated preference survey. The research aimed to identify the main barriers and motivators behind the use of bicycles and, consequently, indicate opportunities to promote everyday bike travel.

to reduce commuting time, and to exercise and improve their quality of life, especially on trips where the bicycle is more competitive in terms of travel time and cost.

The bikeshare system also seems important, due to its flexibility throughout the travel chain. Bike sharing has a strong appeal for people who also use public transport but must travel long distances to access it. Both groups, current users or not, highlighted the importance of network connectivity and continuity. For nonusers, being able to cycle from origin to destination seamlessly (i.e., without "the bike lane ending nowhere") is a major consideration.

RECOMMENDATIONS

After assessing the city's cycling network and gathering the views of bicycle users and nonusers, this study proposes expanding certain parts of the network to attract the greatest number of new users in the short term.

The proposal would involve the addition of 233 km to the current network by 2028 (in addition to the 140 km proposed by CET for the year 2022; map below). Of this total, around 103 km connect missing links and another 130 km expand service to the periphery. Addressing the missing links would significantly increase the number of zones connected to one another (from 221 zones to 272 zones) and reduce the number of subnetworks (from 110 to 56).

Expanding service out to the periphery would lead to an increase in the number of people near bike lanes and businesses near bike lanes (this last share would grow from 65% to 71% of businesses in the catchment area), effectively shortening the gap between home and work. Moreover, it would reduce inequality in access to the cycling network. In the case of the black population, it is estimated that PNB (people near bike lanes) inequality would be reduced from -24% to -17%. The same result would apply to the very low-income population. It is worth noting, however, that improving the accessibility of the cycling network will not affect people who must travel for work, given that many jobs are concentrated in more central areas of the city. An increase in access to schools and other educational institutions, especially in the east and southwest of the city, could lead to more bike use among students.

Careful design and planning are needed to achieve a connected, convenient, and safe cycling network. Even a few centimeters' increase in the width of a lane, for example, can benefit cycling infrastructure. The city possesses robust policies, statutes, and general laws consistent with the key principles of cycleway infrastructure projects. However, these principles are not always reflected in cycleway design. There is, in short, an important opportunity to improve the network from a technical, design, and implementation standpoint.

A benchmarking study on bike-rack business models made it possible to identify bike-related activities such as rentals and/or ancillary activities like those operated by the Bike Hub group in San Francisco, California (the United States), at Caltrain stations and as part of the BART system. Useful models for regional bike racks (not linked to public

transport) include the Puntos de Encuentro in Bogotá, Colombia, and electronic subscription-based bike racks, such as those in London (the United Kingdom) and San Francisco. Encouraging private car parks to accept bicycles as part of their services, as in Bogotá, would help to significantly increase the supply of bike parking spaces. Other suggestions would be to employ security personnel to take care of bike parking places in city bus terminals, as provided for in the bus terminals' public-private partnerships.

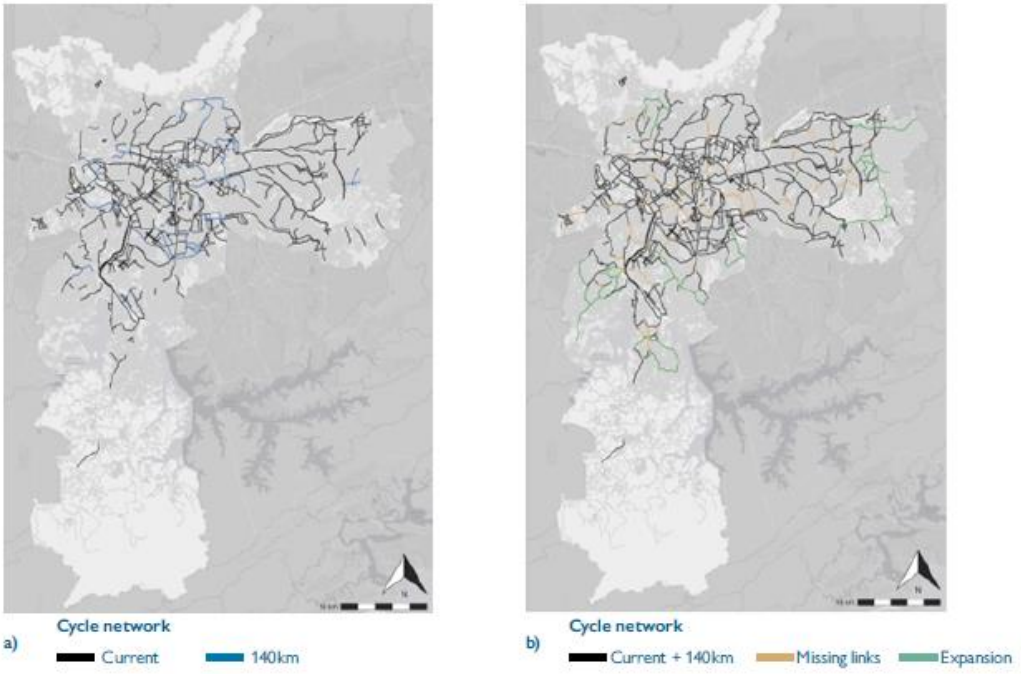

Figure 1 | (a) Current cycling network + 140 km; (b) Proposed prioritized network.
Source: World Bank 2022.

Note: km = kilometer.

RELATED DOCUMENTS

Relatório apoio ao Planejamento Cicloviário de São Paulo

Social Cost Benefit Analysis São Paulo Cycle Network