

# Reconditioning Train to Subway

## Planning and design tools based on sustainable urban mobility in Rio de Janeiro, Brazil

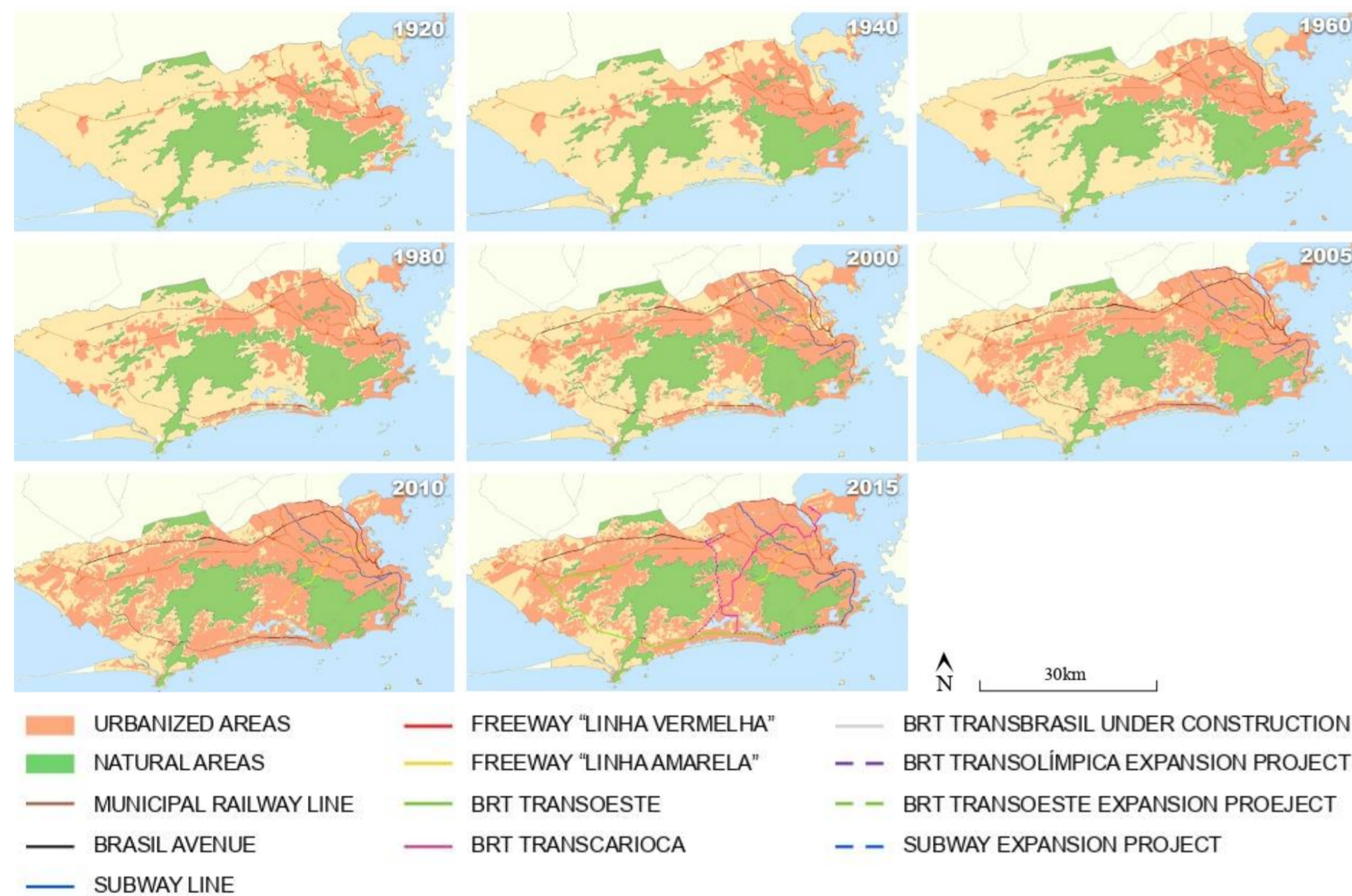
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### The mobility condition in Rio de Janeiro

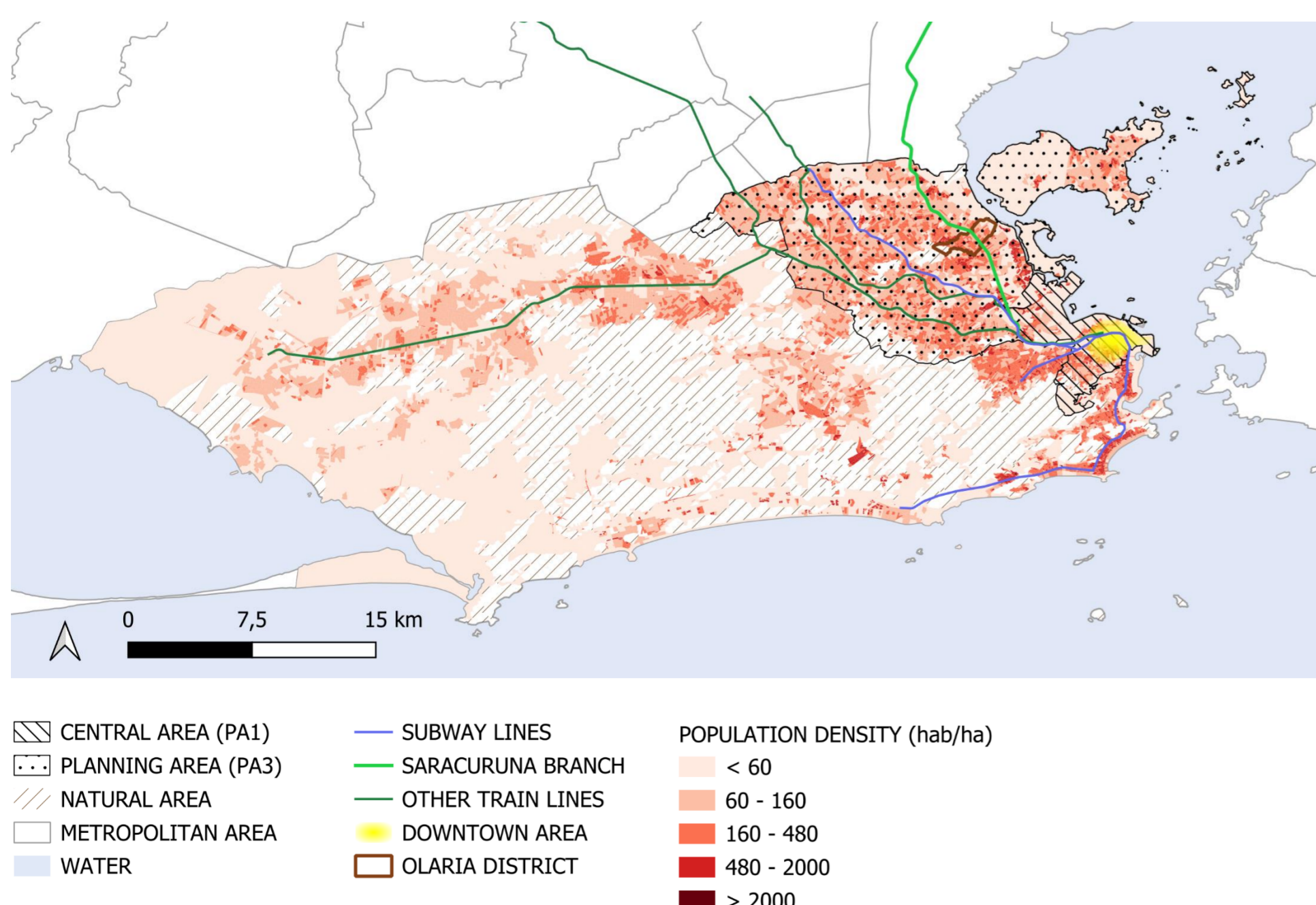
Rio de Janeiro has a clear socio-spatial segregation, worsened by a lack of integrated transport and land-use planning and contributes to the ongoing metropolitan expansion and loss of urban density, leading to a predatory territorial expansion model (Magalhães and Izaga, 2017).

The challenge for the next generations in Rio will be to stimulate urban density in the already urbanized territories with the aim of restraining urban sprawl. Thus, the objective of the present design proposal is to develop a possible practical and conceptual response through a meta-project of reconditioning a train line to a metro line in the suburbs to contribute for integrated multi scale strategies and planning and design tools based on sustainable urban mobility.



### Methodological approach

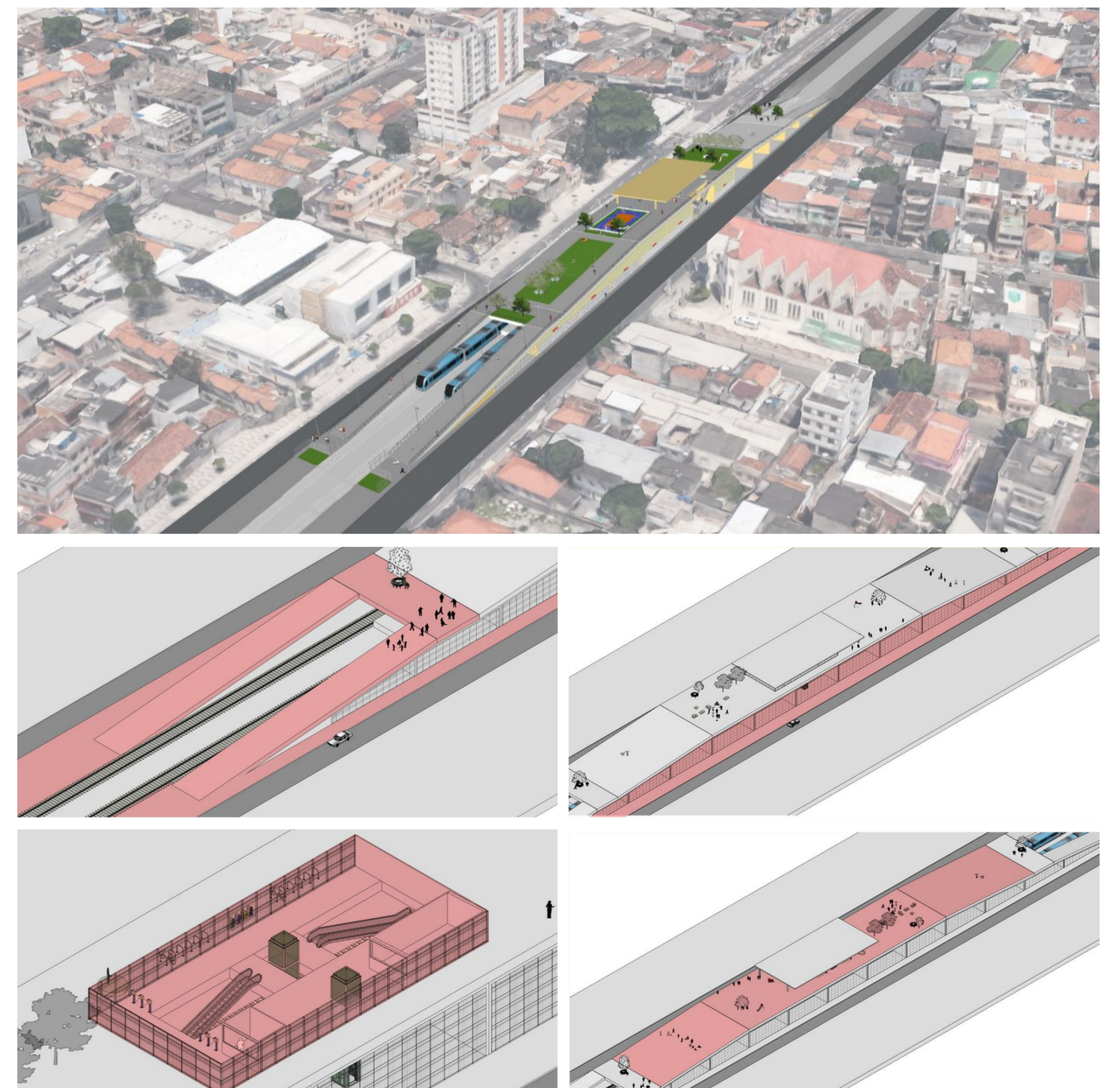
The methodology is based upon research through design (Luck, 2019; Lenzholzer et al., 2013; Hauberg, 2011) framed by the concepts of contiguity (Magalhães, 2005) and accessibility (Levine, 2019; Straatemeier and Bertolini, 2020), to develop a strategy to restrain urban expansion. A meta-project considering mobility transformation and public space requalification is then proposed as a plug-in urban design typology (Lang, 2005) to promote urban density, taking advantage of the network and pre-existing railroad line structure, which no longer responds to current urban demands - transforming it into a subway line - in Olaria District, located in the north zone (Planning Area 3) of Rio de Janeiro.



### Results and discussion

The project consists of a subway station in Olaria, that is a relatively low built density district, intended as a meta-project, referring to create infrastructure in a way that allows future developments to easily connect to it, acting as a catalyst for development on the area.

Bearing in mind the strategy urgency to meet current urban demands while curbing the expansion of the city's edges, and the need for intra-urban integration in the city of Rio de Janeiro, the meta-project of transforming the train line into a subway in Rio de Janeiro is a possible project to improve accessibility and to promote density in the already urbanized city.



The project aimed at rethinking actual guidelines of city planning for Rio de Janeiro, but it shows the possibility that other cities that have underutilized mobility structuring axes, that they can be used to promote future housing demands, sustainable mobility, providing greater accessibility and preventing growing segregation and precariousness in peripheral areas.

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