

Dealing with the “15-min City concept in the Lyon metropolitan area: accessibility challenges for sustainable mobility and inclusiveness.

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Abstract

Lyon, the second largest metropolis in France, recently saw the election of an environmentalist local executive, who, upon coming to power, wanted to improve pedestrian and cyclist mobility, as well as the use of public transport, detriment of the private car. The desire to develop more green spaces to combat the effects of global warming and increase the well-being of residents is also at the heart of concerns.

In this article, we study the challenges posed by the 15-minute city in terms of accessibility, in the territory of the Lyon metropolis. Indeed, the metropolis of Lyon is implementing various strategies to develop so-called green mobility, the main levers of which are the development of the public transport network, the growth of bike-sharing, and the deployment of an increased supply of roadways dedicated to bicycles. All of these measures aimed at developing alternatives to the private car are coupled with a constraint policy on the latter, through the implementation of the LEZ.

Through all these different actions, can the metropolis of Lyon meet some of the challenges raised by the 15-minute city concept?

The center of the Lyon metropolis, inside the ring road, bringing together the municipalities of Lyon and Villeurbanne, is characterized by a very high population density, greater than 10,000 inhabitants per km². In the rest of the metropolis, characterized by much more individual and diffuse housing, the population density is only 2,654 inhabitants/km².

It is in this context marked by divergent historical territorial dynamics that the “Zero Net Artificialization” law was adopted by the French parliament in 2023. This legislation aims to put an end to the logic of urban sprawl which has characterized the growth of urban areas for almost four decades, and to promote the concept of the compact city.

The political trajectory of the Lyon metropolis in terms of transport consists of changing mobility behaviors by promoting walking, the use of bike and public transit. For cycling, for example, the metropolis plans the construction of 13 express cycle lanes, for a total of 355km by 2030. The total budget for this cycling infrastructure is approximately €110 million over the same period.

This new policy in favour of low-carbon mobility aims to increase the modal share of bicycles (and electric bikes) and to promote inter-modality with the public transit network and the express-regional train network, and walking for shortest distances.

In this study, we analyse the challenge of 15-minute city concept and the effects of this new mobility policy on the Metropolis of Lyon, through the modelling of different scenarios of modal shift from car to low-carbon modes. Our article therefore consists of modelling the potential for a shift in transport

demand towards cycling, electric bikes and other more environmentally friendly modes. We first spatially reproduced the route of 10 of the 13 future Lyon cycling paths (which will be put in place from 2026 until 2030) in order to determine the potential population of future users of these infrastructures. By crossing the data layer like density of population, employment and all services and Point of Interest (POI) we can measure where the 15mn city concept can be achieved and how it could be improved in some areas.

From a methodological point of view, our work is constructed as follows: the first part consisted of determining a list of points of interest, responding to the main functions of the built environment (health, education, entertainment, shops, etc.). We then considered the different modes of transport available in our territory of 90 municipalities around Lyon. Indeed, to study the relevance of the 15-minute city concept, it was necessary to determine the accessibility of the different amenities according to the modes used. Our results show that our study area is marked by great heterogeneity in accessibility indicators.

Our article shows that the 15 minute city concept necessarily need urban planning, transit-oriented-development, development around vertical centres/hubs, re-development of and around high streets/main streets on the joint activation of several levers: inter-modal mobility or inter-modality, articulation between transport infrastructure planning, density and urban development, environmental assessment methods to inform public decision-making, and in-depth reflection on normative and regulatory levers to accelerate behavioural changes while ensuring the acceptability of measures. Ultimately, the continuation of this work will aim to inform public decision-making by guiding urban planning and transport policy choices.

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