Car-less cities, then what? A case study for the City of Porto

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Abstract

We aim to demystify the simplicity of the 15-minute city concept, as, in essence, cities are dynamic organisms in which every actor has different access times depending on the network flow at a given period, mode type, and trip origin and destination. To that end, we map all neighborhoods in Porto, Portugal, from high to low-density areas. This mapping results in many points that yield a rich network coverage. We derive travel times and distance matrixes between these points via a Google Maps API. We query for different modes: walking, public transport, and car; and two periods: typical rush hour and a free flow scenario. The proposed approach can support decision-making in transport planning and policymaking by providing a realistic and quantitative evaluation of network accessibility scenarios to relevant POIs.