

A spatial structure of green walkability to foster climate resilience in ageing cities

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Abstract In cities, today home to half of the world population, temperature increase related to climate change is a global challenge exacerbating local phenomena, such as Urban Heat Islands. Adapting cities to urban heat is a crucial aspect of citizens' quality of life and wellbeing and becomes increasingly important considering ageing population trends in developed countries, with a constantly growing share of vulnerable population facing always more frequent heatwaves in cities. Assuming walkability as the core of future healthy, resilient and decarbonised cities and Nature-based Solutions as a main adaptation factor to urban heat, this paper develops a spatial structure of green walkability for elderly people. The proposed model is applied at the district scale to the redevelopment area of Porta Genova railway yard, within the city of Milan, as a case study to understand the role of urban regeneration to promote active mobility in vulnerable neighbourhoods and to reduce urban heat island effects introducing new green areas, overall improving elderly people's wellbeing. New proximity relations among city districts that Porta Genova regeneration could mend are analysed with a data-driven methodology, producing GIS-based sets of maps representing main urban-scale and district-scale connections, origin-destination relations between dense residential blocks, public transport deliveries, public spaces and rare-functions landmarks, and time-related isochrones covered distances with a specific focus on elderly users. The result of the study is the definition of planning recommendations and masterplanning criteria aimed at improving age-friendly design and planning, offering a strategic and innovative overview on how urban design criteria and strategies should consider liveability and walkability for vulnerable population as a fundamental tool to inform the urban project.