



Global Observatory of
**Healthy and
Sustainable Cities**

Brisbane Australia 2024

Spatial indicators for healthy and sustainable cities
1000 Cities Challenge report

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Full details of the data and methods are available at:

Global Observatory of Healthy & Sustainable Cities
<https://www.healthysustainablecities.org>

Population data: Australian Bureau of Statistics. 2024. Regional population: Australian population grid 2023 in GeoTIFF format.
<https://www.abs.gov.au/statistics/people/population/regional-population/2022-23>. Accessed 29 January 2025.

Urban boundaries:

Urban features: OpenStreetMap Contributors. OpenStreetMap.fr (2024).
<http://download.openstreetmap.fr/extracts/oceania/australia/queensland.osm.pbf>

Colour scale: Crameri, F. (2018). Scientific colour-maps (3.0.4). Zenodo.
<https://doi.org/10.5281/zenodo.1287763>

Global Healthy & Sustainable City Indicators Collaboration

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Spatial indicators for healthy and sustainable cities

1000 Cities Challenge report

This report outlines how Brisbane performs on a selection of spatial indicators of healthy and sustainable cities. As part of the 1000 Cities Challenge, we examined the spatial distribution of urban design and transport features that promote health and sustainability. The maps show the distribution of urban design and transport features across Brisbane and identify areas that could benefit the most from interventions to create healthy and sustainable environments.

Brisbane context

Brisbane is Australia's largest local government area and the third most populous city in the country. As the capital of the State of Queensland, it is situated in the rapidly growing South-East Queensland region. Its subtropical climate, along with the Brisbane River, plays a significant role in shaping the city's natural environment and urban development.

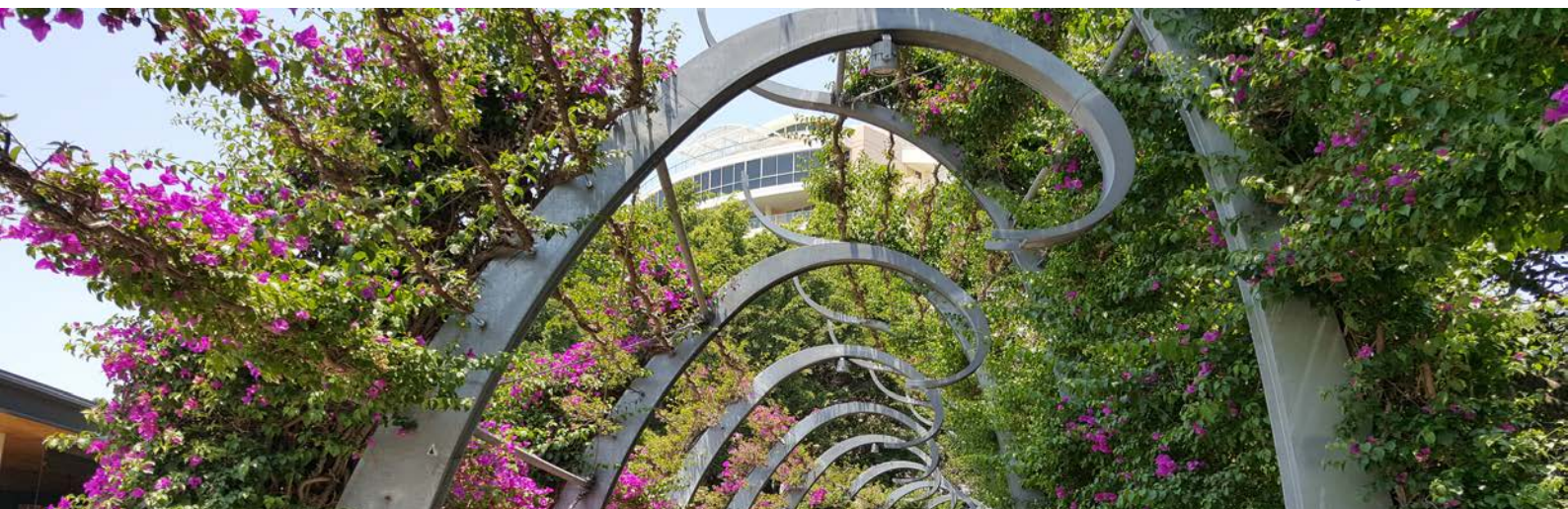
Demographics and health equity

The population of Brisbane LGA represents a diverse range of socio-economic conditions. While many residents benefit from a high standard of living, areas of socio-economic disadvantage persist, especially in the outer suburbs. Brisbane's rapidly growing population, which includes a significant proportion of migrants and an aging demographic, faces health challenges such as limited access to active and healthy lifestyle options, increasing rates of chronic diseases, and rising mental health concerns.

Environmental disaster context

Environmental hazards that may impact the urban area over the coming decade include: Severe storms, Floods, Bushfires/wildfires, Heatwaves, Cyclones.

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Study region

The study region used to calculate spatial indicators for the population of Brisbane presented in this report has been highlighted in the map below using parallel line shading.



Study region boundary (shaded region): Queensland Government Open Data Portal under CC-BY-4.0 | Basemap: Sentinel-2 cloudless - <https://s2maps.eu> by EOX IT Services GmbH (Contains modified Copernicus Sentinel data 2021) released under Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License

Map legend

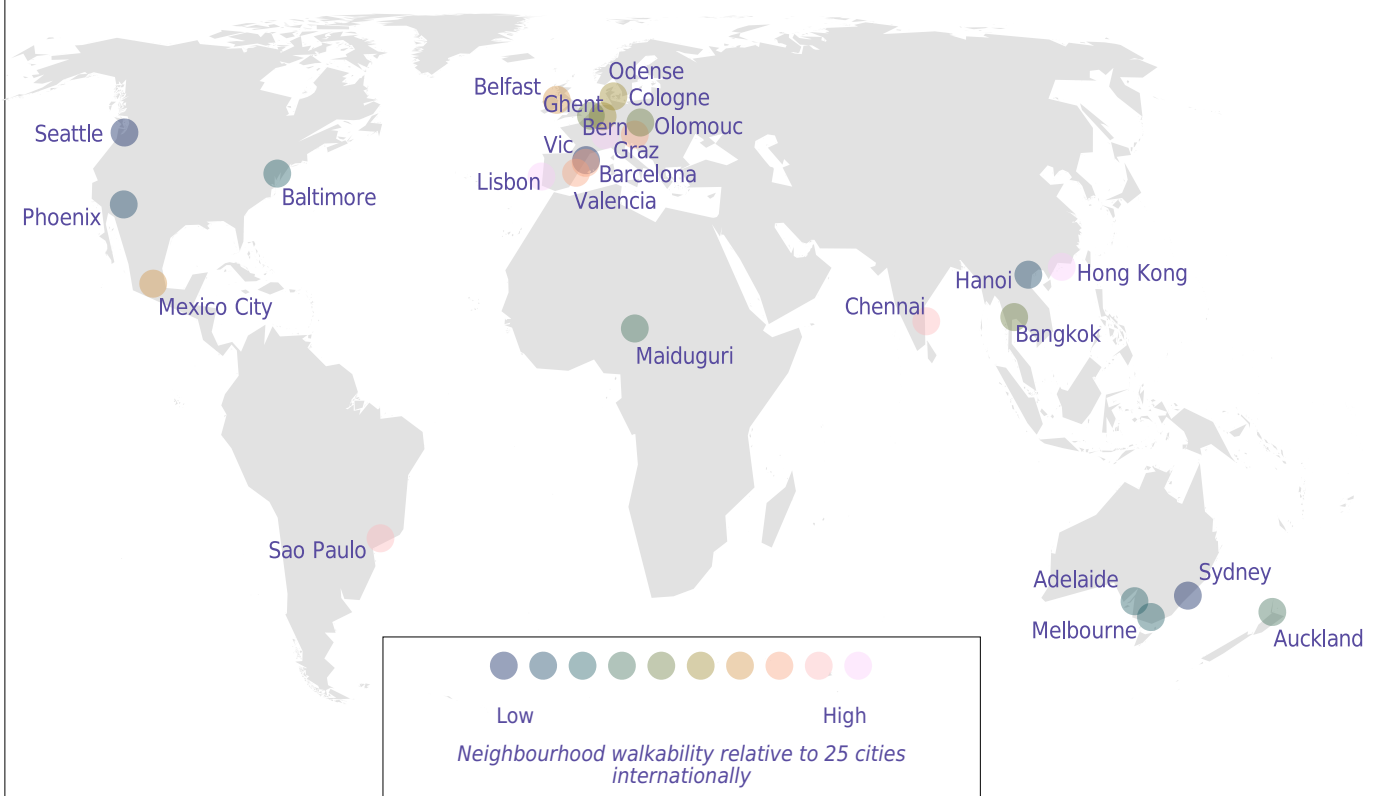


Study region boundary
(Queensland Government (2025).
Local government area
boundaries - Queensland.
Department of Resources.
<https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid=%7b3F3DBD69-647B-4833-B0A5-CC43D5E70699%7d.>)

Box 1: The Lancet Global Health Series study of 25 cities internationally

The 1000 Cities Challenge extends methods for assessing the health and sustainability of cities outlined in the 2022 Lancet Global Health Series on urban design, transport, and health. Policy and spatial indicators were calculated, analysed and reported in multiple languages for 25 diverse cities across 19 countries and 6 continents. These cities provide a useful reference for comparisons, but are not a representative sample of all cities internationally.

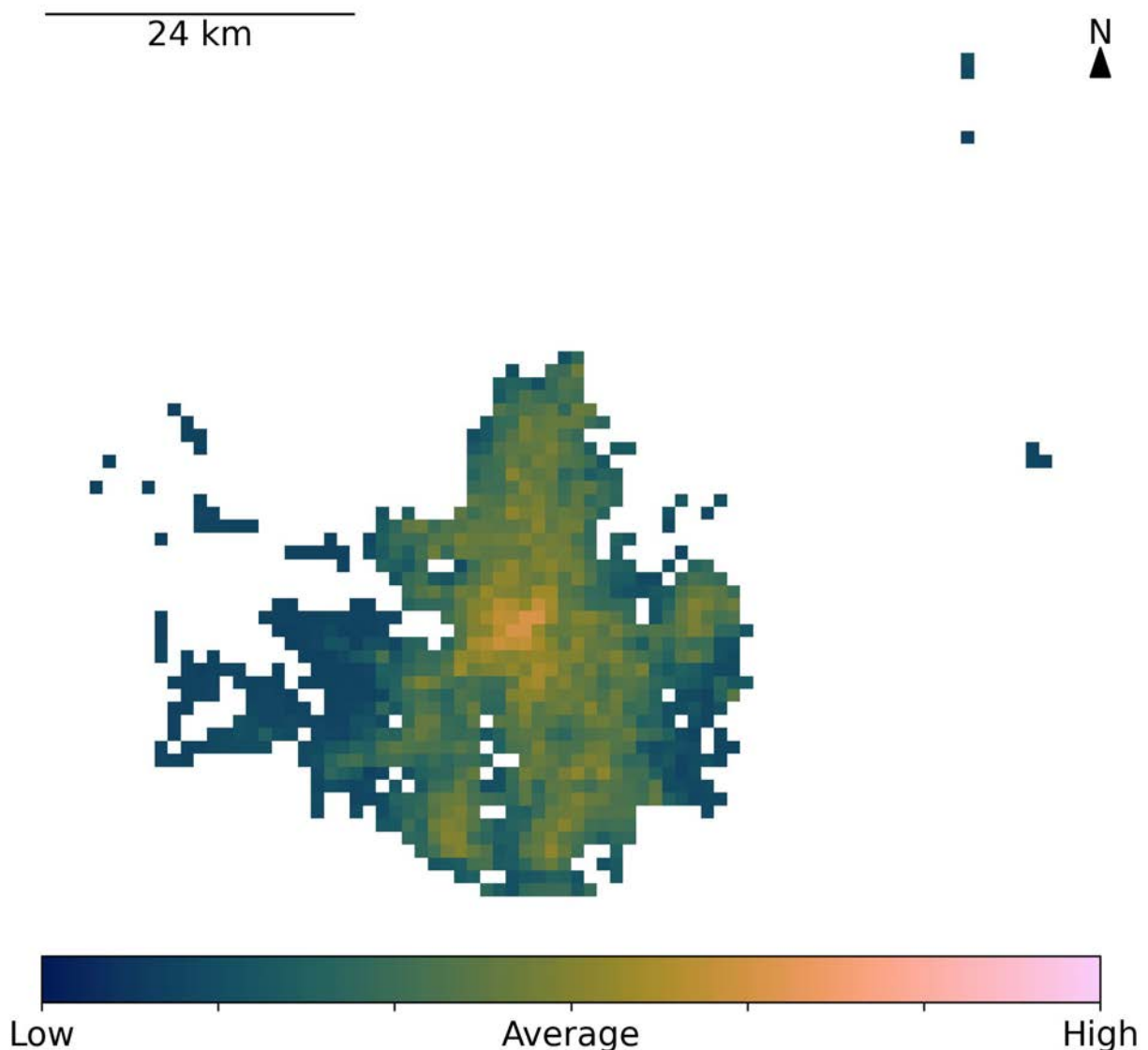
For more details, please see the 2022 The Lancet Global Health Series on Urban design, transport, and health (<https://www.thelancet.com/series/urban-design-2022>).



Walkability and destination access

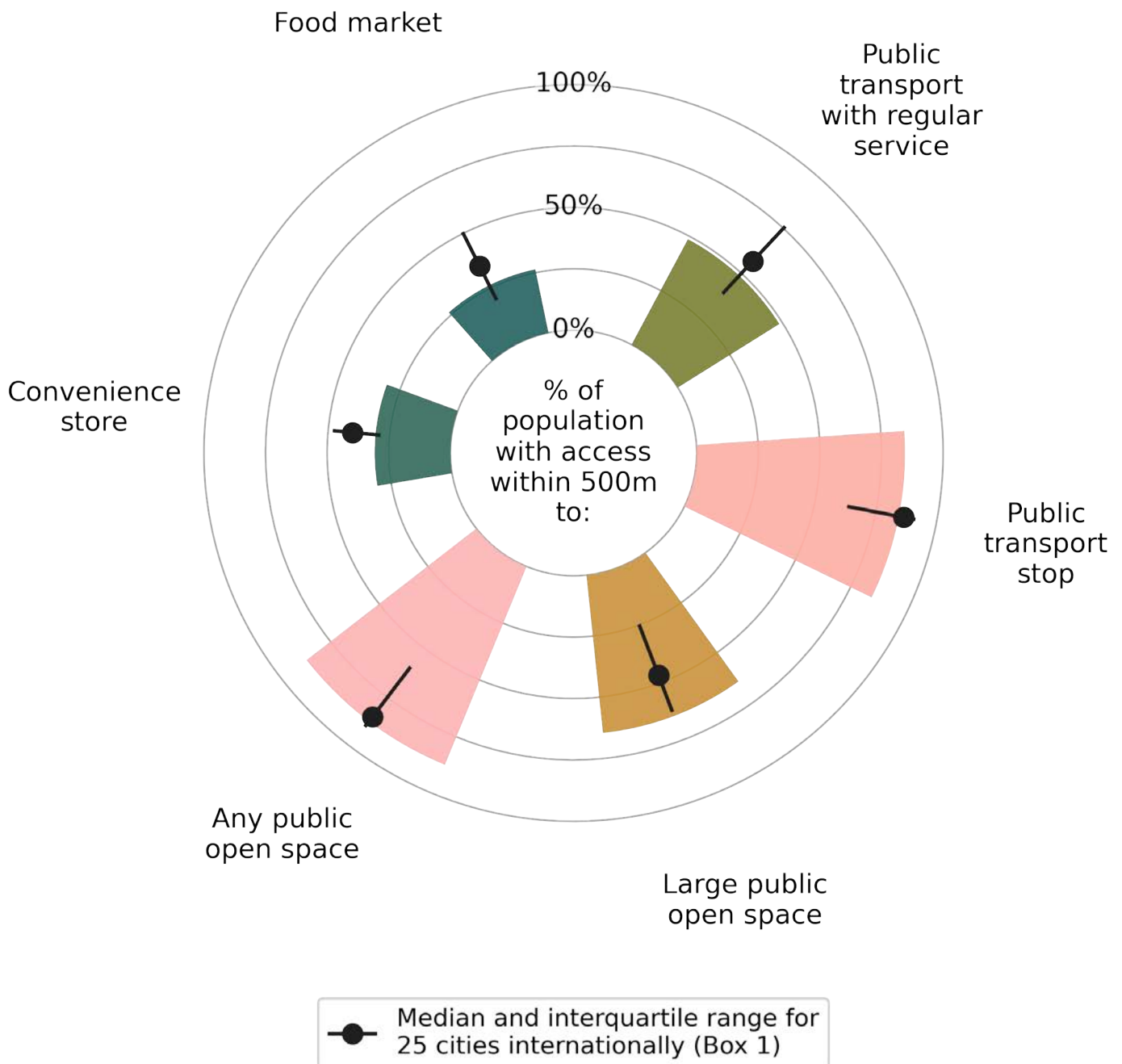
Walkable neighbourhoods provide opportunities for active, healthy, and sustainable lifestyles through having sufficient but not excessive population density to support adequate provision of local amenities, including public transport services. They also have mixed land uses and well-connected streets, to ensure proximate and convenient access to destinations. High-quality pedestrian infrastructure and reducing traffic through managing demand for car use can also encourage walking for transport.

Neighbourhood walkability relative to 25 cities internationally



31.3% of the population in Brisbane live in neighbourhoods with walkability scoring above the median of 25 cities internationally (Box 1)

Percentage of population with access to amenities within 500 metres (m)

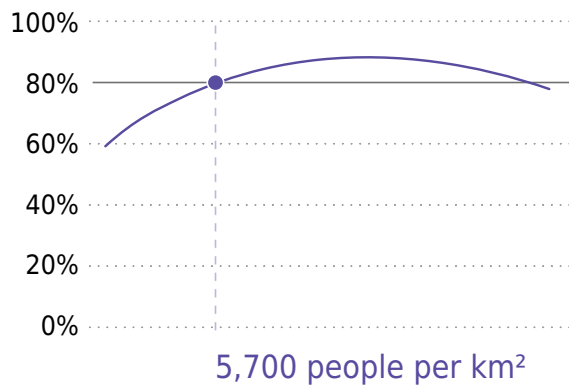


Urban design thresholds to promote walking

The 2022 Lancet Global Health Series found that to achieve at least 80% probability of engaging in any walking for transport, an average urban neighbourhood would need a population density of at least 5700 people km² and street connectivity of at least 100 intersections per km², approximately and depending on context. Preliminary evidence showed that street intersection density above 250 per km² and ultra-dense neighbourhoods (> 15,000 persons per km²) may have decreasing benefits for physical activity. This is an important topic for future research.

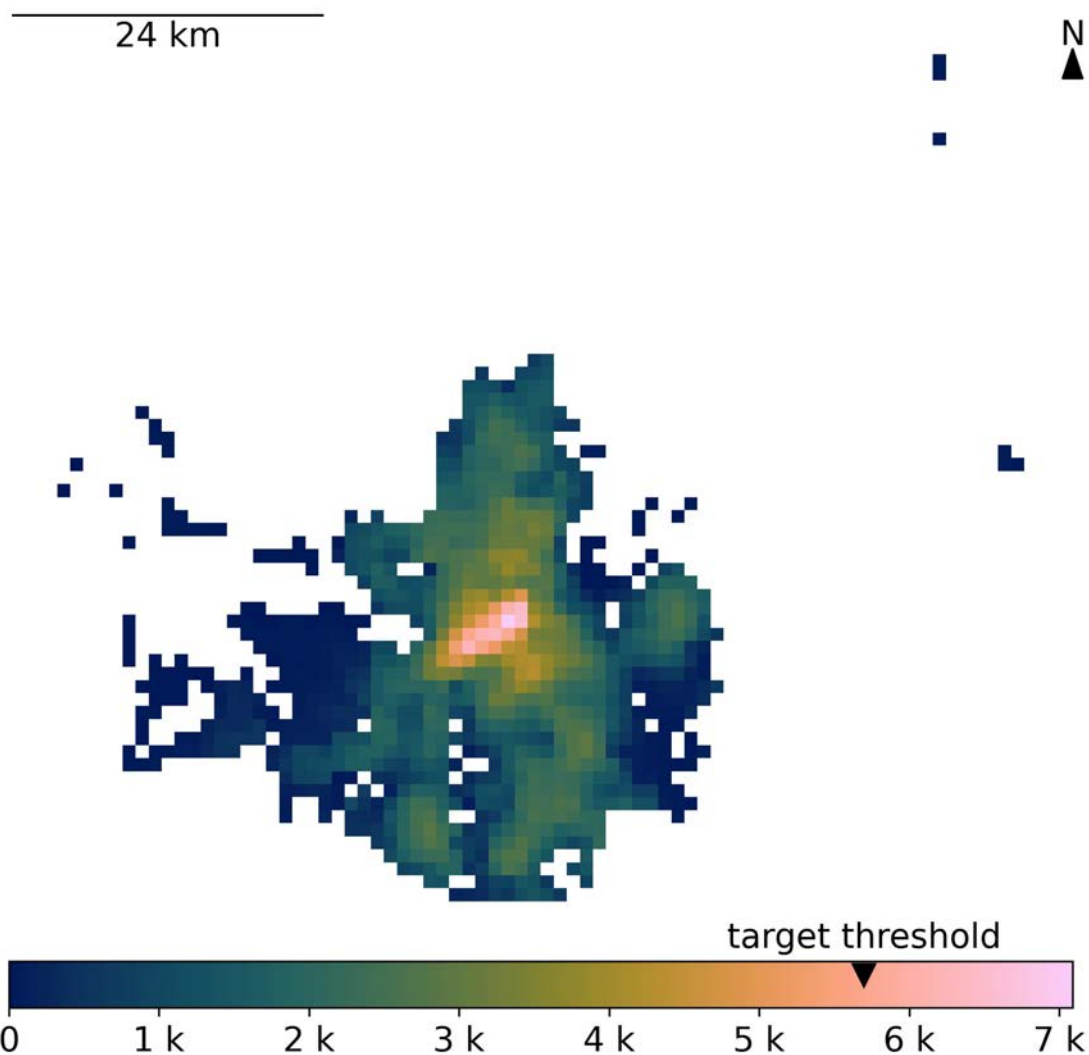
Neighbourhood population density (per km²)

Probability of engaging in any walking for transport

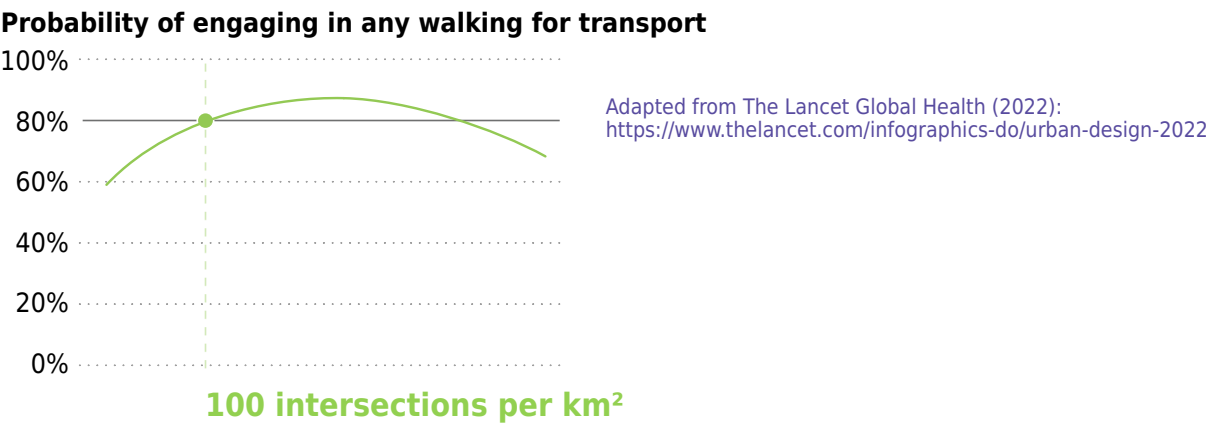


Adapted from The Lancet Global Health (2022):
<https://www.thelancet.com/infographics-do/urban-design-2022>

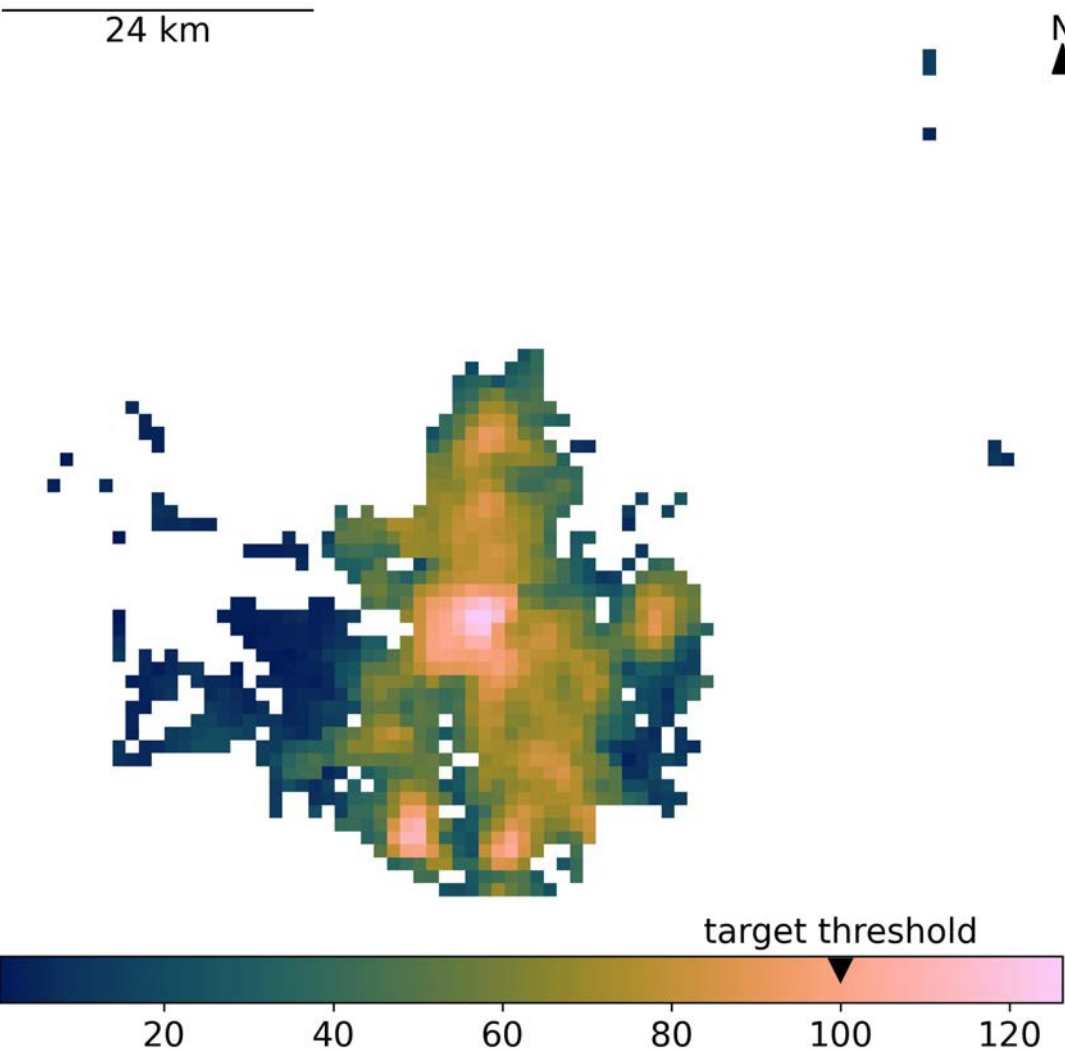
5.7% of the population in Brisbane live in neighbourhoods meeting the population density threshold for 80% probability of engaging in any walking for transport (5,700 people per km²)



Neighbourhood intersection density (per km²)

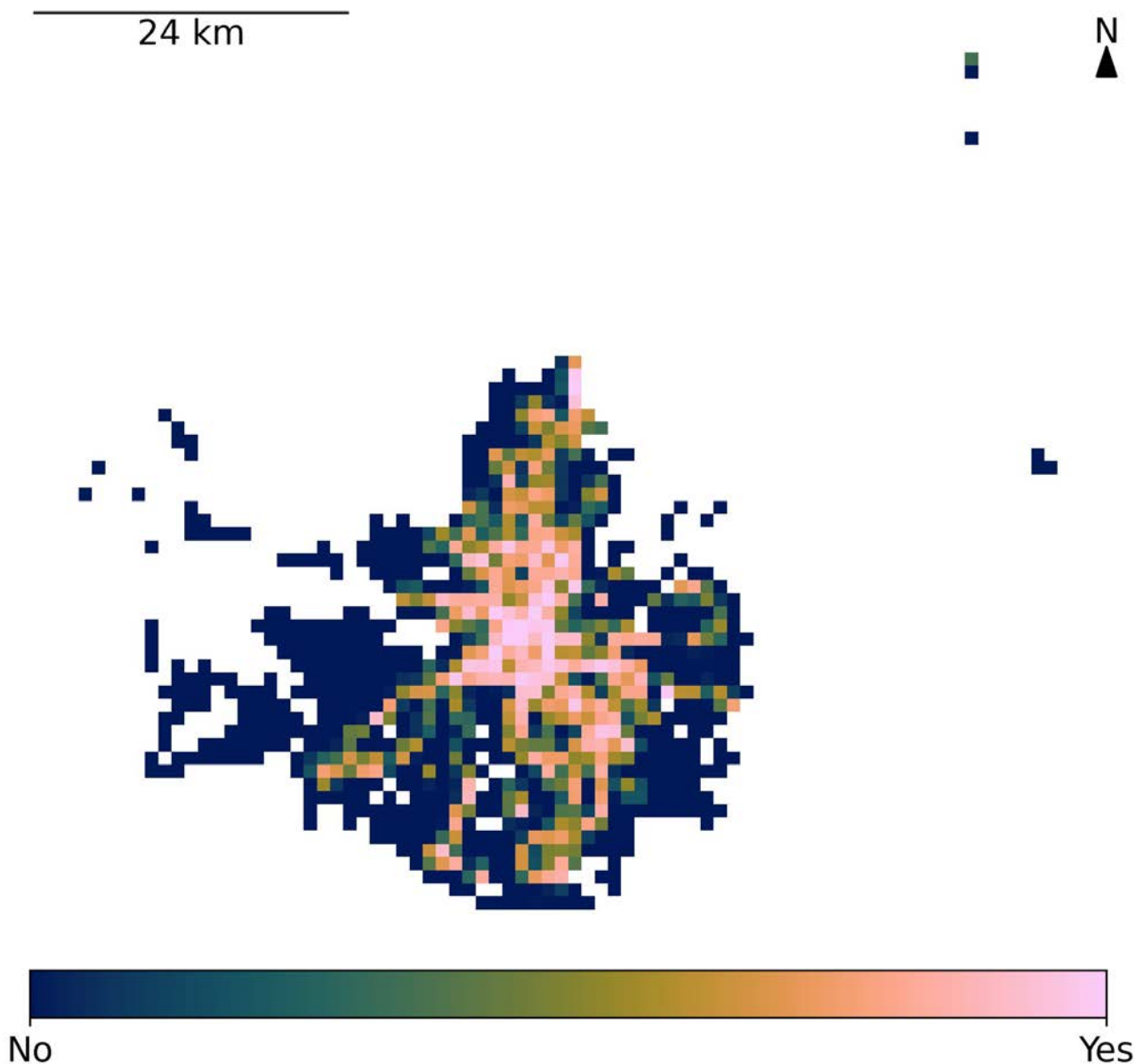


8.6% of the population in Brisbane live in neighbourhoods meeting the street intersection density threshold for 80% probability of engaging in any walking for transport (100 intersections per km²)



Public transport access

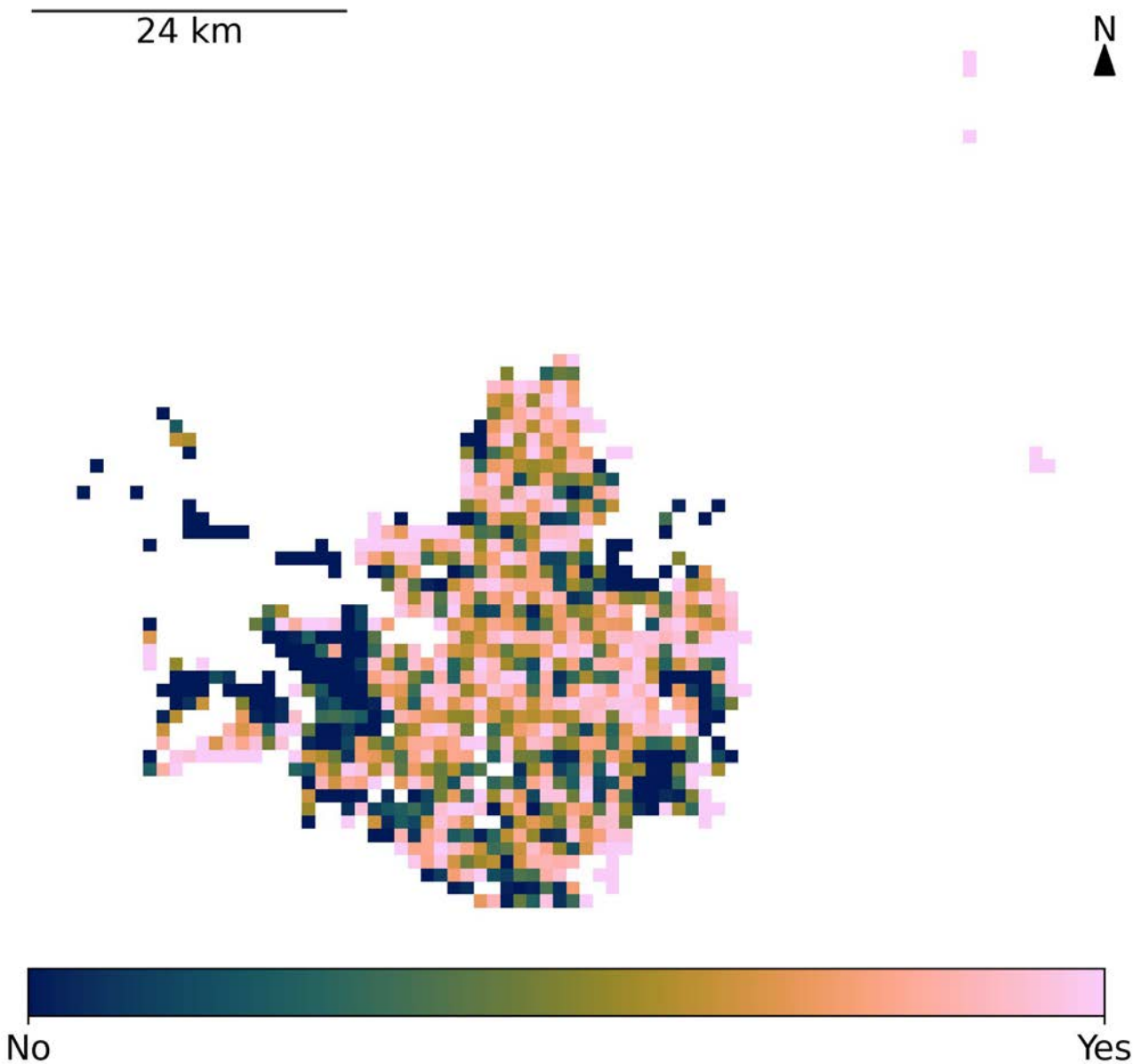
Easy access to frequent public transport is a key determinant of healthy and sustainable transport systems. Public transport near housing and employment increases the mode share of public transport trips, thus encouraging transport-related walking; offering access to regional jobs and services; improving health, economic development, and social inclusiveness; and reducing pollution and carbon emissions. The frequency of services also encourages public transport use, in addition to the proximity of stations or stops.



48.7% of the population in Brisbane live within 500m of public transport with 20 mins or better average weekday frequency

Public open space access

Local access to high-quality public open space promotes recreational physical activity and mental health. Nearby public open space creates convivial, attractive environments, helps cool the city and protects biodiversity. As cities densify and private open space declines, providing more public open space is critical for population health. Having public open space within 400 m of homes can encourage walking. Access to larger parks may also be important.



64.7% of the population in Brisbane live within 500m of public open space of at least 1.5 hectares in size

Summary

The report evaluates Brisbane LGA's performance on spatial indicators for healthy and sustainable cities. It highlights disparities in walkability, public transport access, and public open space, particularly affecting outer suburbs with lower socio-economic status. While Brisbane has a relatively high standard of living, only 5.7% of the population lives in neighbourhoods with sufficient density to support frequent walking for transport, and less than half have access to frequent public transport within 500 metres. The report underscores the need for targeted urban planning interventions to enhance active transport options, mixed land-use development, and equitable access to health-supportive environments. Furthermore, Brisbane's vulnerability to climate-related hazards, including floods, storms, and heatwaves, necessitates urban resilience strategies that integrate sustainability and health considerations. Expanding public open space access, improving pedestrian and cycling infrastructure, and reducing car dependency are critical for fostering a healthier and more liveable city. Addressing these gaps through policy and planning initiatives will be key to ensuring that Brisbane remains an inclusive, sustainable, and climate-resilient urban environment.

Citation

Sara Alidoust, Ruoyu Chen, Carl Higgs. 2024. 1000 Cities Challenge report: Brisbane, Australia 2024—Spatial indicators for healthy and sustainable cities (English). Global Observatory of Healthy and Sustainable Cities. <https://doi.org/10.6084/m9.figshare.28521200>



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