

Maiduguri, Nigeria

Healthy and Sustainable City Indicators Report: Comparisons with 25 cities internationally

Global Healthy & Sustainable City-Indicators Collaboration



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Global Observatory of
**Healthy and
Sustainable Cities**

Full report including data, methods and study limitations has been published as:

The Lancet Global Health Series on urban design, transport, and health. 2022. <https://www.thelancet.com/series/urban-design-2022>

Global Observatory of Healthy & Sustainable Cities. 2022. <https://www.healthysustainablecities.org>

Population data: Schiavina, M. et al. (2019): GHS population grid multitemporal (1975, 1990, 2000, 2015) R2019A. European Commission, Joint Research Centre (JRC). <https://doi.org/10.2905/42E8BE89-54FF-464E-BE7B-BF9E64DA5218>

Urban boundaries: Florczyk, A. et al. (2019): GHS Urban Centre Database 2015, multitemporal and multidimensional attributes, R2019A. European Commission, Joint Research Centre (JRC).

<https://data.jrc.ec.europa.eu/dataset/53473144-b88c-44bc-b4a3-4583ed1f547e>

Urban features: OpenStreetMap contributors. Openstreetmap (2020). <https://planet.osm.org/pbf/planet-200803.osm.pbf.torrent>

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

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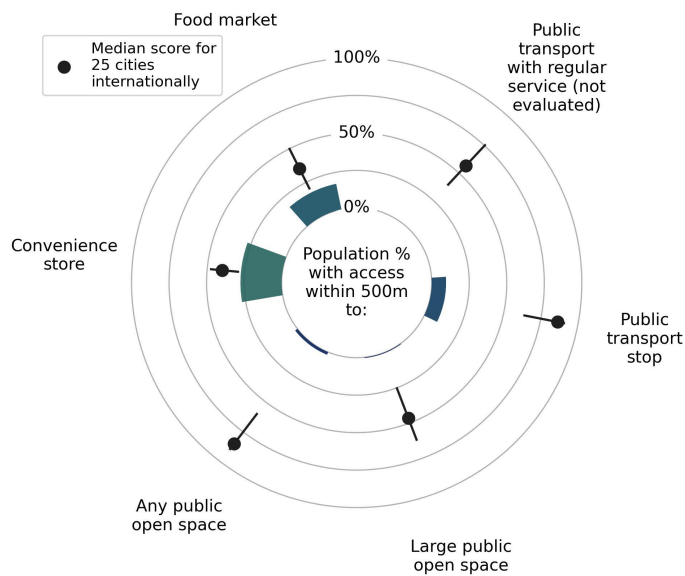
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Healthy and Sustainable City Indicators Report

This brief report outlines how Maiduguri performs on a selection of spatial and policy indicators of healthy and sustainable cities. Our collaborative study examined the spatial distribution of urban design and transport features and the presence and quality of city planning policies that promote health and sustainability for 25 cities across 19 countries.

Comparisons with the median values for all cities included in this international study could inform changes needed for local city policies. The maps show the distribution of urban design and transport features across Maiduguri, and identify areas that could benefit the most from interventions to create healthy and sustainable environments.

(below) Percentage of population with access to amenities within 500 metres (m) in Maiduguri, Nigeria.



Policy presence in Maiduguri

Urban design and transport policies supporting health and sustainability

5.5/24

Median score for 25 cities internationally (15.5)

Policy quality in Maiduguri

Policy quality rating for specific, measurable policies aligned with consensus evidence on healthy cities

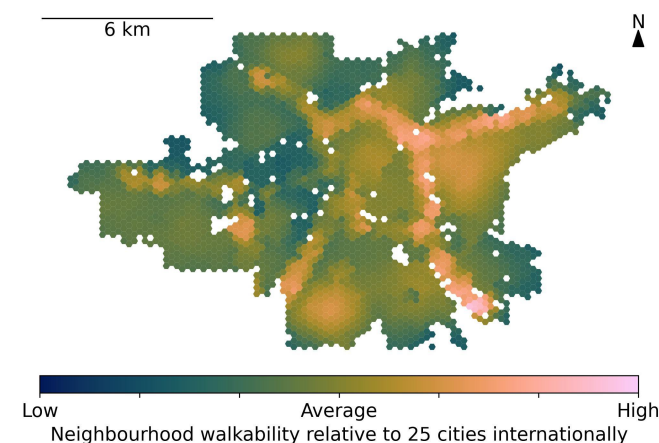
6/57

Median score for 25 cities internationally (25.5)

City planning requirements	Maiduguri	% of cities with requirement met, by country income group	
		Middle /6	High /19
Specific health-focused actions in metropolitan urban policy	✗	0%	84%
Specific health-focused actions in metropolitan transport policy	✗	50%	63%
Health Impact Assessment requirements in urban/transport policy/legislation	✓	33%	11%
Information on government expenditure on infrastructure for different transport modes	✗	33%	47%
Air pollution policies related to transport planning	✗	50%	89%
Air pollution policies related to land use planning	✓	67%	84%

Walkability in Maiduguri

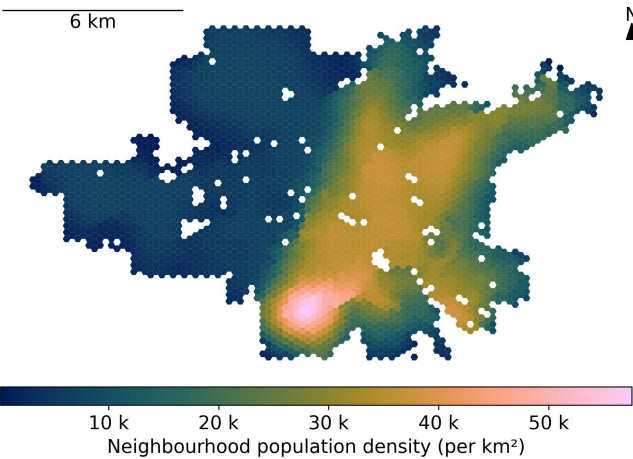
Walkable neighbourhoods provide opportunities for active, healthy, and sustainable lifestyles through having sufficient but not excessive population density to support adequate provision of local amenities, including public transport services. They also have mixed land uses and well-connected streets, 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.



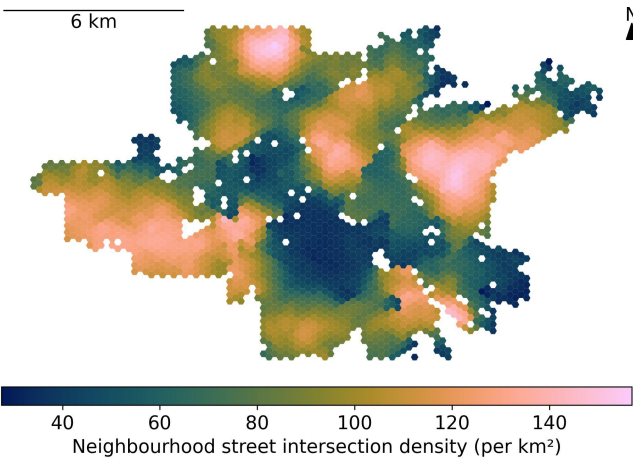
(above) 70.0% of population live in neighbourhoods with walkability scores greater than the 25 international city median

Walkability policy for Maiduguri				
	Policy identified	Specific standard or aim	Measurable target	Consistent with health evidence
Housing density requirements	✗	-	-	-
Street connectivity requirements	✗	-	-	-
Parking restrictions to discourage car use	✗	-	-	-
Pedestrian infrastructure provision	✓	✓	✗	✓
Cycling infrastructure provision	✗	-	-	-
Walking participation targets	✗	-	-	-
Cycling participation targets	✗	-	-	-

Population density



Street connectivity



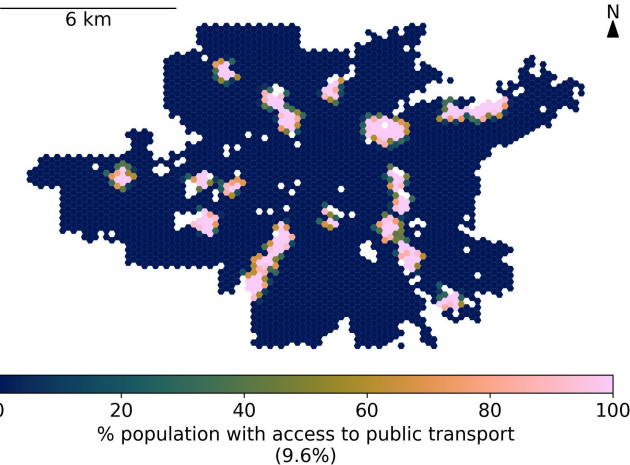
(above) 95.9% of population meet minimum threshold* for neighbourhood population density (5,677 people per km²)

(above) 28.5% of population meet minimum threshold* for neighbourhood street intersection density (106 intersections per km²)

* Thresholds are based on our modelling of built environment features required to reach the World Health Organization's Global Action Plan for Physical Activity target of a 15% relative reduction in insufficient physical activity through walking. We found preliminary evidence 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.



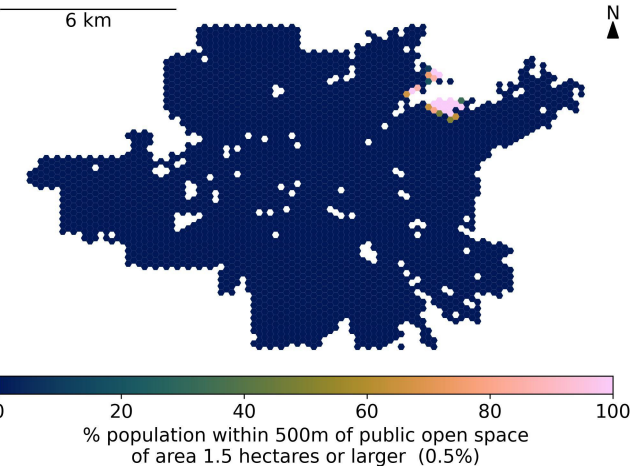
Public transport access



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.

Public transport policy for Maiduguri				
	Policy identified	Specific standard or aim	Measurable target	Consistent with health evidence
Requirements for public transport access to employment and services	X	-	-	-
Employment distribution requirements	X	-	-	-
Minimum requirements for public transport access	X	-	-	-
Targets for public transport use	X	-	-	-

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.

Public open space policy for Maiduguri				
	Policy identified	Specific standard or aim	Measurable target	Consistent with health evidence
Minimum requirements for public open space access	X	-	-	-

Summary

The availability and quality of urban and transport policies and neighbourhood infrastructure supporting health and sustainability in Maiduguri was found to be below average compared with other cities. Although Maiduguri has air pollution policy related to land use, it appears to lack city planning requirements that include other specific health-focussed actions, and specific and measurable standards to create walkable neighbourhoods and equitable access to public transport and public open space. Spatial data availability for Maiduguri was limited and this may partially explain our spatial findings that follow. Relative to the 25 cities in this international study, the majority of neighbourhoods in Maiduguri do not appear to be walkable, and any walkable neighbourhoods appear to be spatially patterned along major road networks. In terms of thresholds for built environment interventions to achieve WHO targets to increase physical activity, 95.9% of residents in Maiduguri live in neighbourhoods that meet the density threshold, although only 29% live in neighbourhoods that meet street connectivity thresholds. The latter could reflect lack of data on informal routes. Notably, many Maiduguri residents appear to live in neighbourhoods that exceed levels of population density that encourage physical activity. Only 10% of residents have access to public transport stops, with evidence that access is spatially patterned along major road networks. Very few residents have access to public open space within 500m, and only 0.5% of residents have access to larger public open space, concentrated in the city's northeast.

Citation

Global Healthy & Sustainable City-Indicators Collaboration. 2022. Maiduguri, Nigeria—Healthy and Sustainable City Indicators Report: Comparisons with 25 cities internationally (English). <https://doi.org/10.25439/rmt.19614054>



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