

Measuring and
monitoring the
liveability of the 21
largest cities in
Australia

City Liveability Scorecard for Cairns: 2021

Acknowledgements

This work is licensed under CC BY-ND 4.0 and is free to share and redistribute the material but must give appropriate attribution and credit. Any maps reproduced as part of this project must include attribution and citation.

ISBN: 978-0-6483390-9-0

Both, A., Roberts, R., Gudes, O., Gunn, L., & Davern, M. (2024). Scorecards measuring and monitoring the liveability of the 21 largest cities of Australia: City Liveability Scorecard for Cairns 2021. RMIT University, Melbourne.

<https://doi.org/10.25439/rmt.25203239>.

Enquiries regarding this report may be directed to:

auo@rmit.edu.au
RMIT University City campus
124 La Trobe Street
Melbourne VIC, 3000
Australia

Detailed Liveability Indicator data and maps can be accessed through the Australian Urban Observatory

W auo.org.au

About this report

This report is one of a second series of City Liveability Scorecard Reports presenting indicators and maps measuring the liveability of Australia's 21 largest cities. The first series of Liveability Scorecards were based on 2018 indicator results and this second series of City Liveability Scorecards is based on 2021 indicator results.

Australian Urban Observatory City Liveability Scorecards measure and monitor city-level liveability averages over time. More detailed neighbourhood, suburb, and Local Government Area results across Australian cities are available online at auo.org.au.



Liveability Index



Walkability



Social Infrastructure Index



Public Transport



Food Environment



Alcohol Environment



Public Open Space



Employment



Housing Affordability



VAMPIRE Index



Liveability Index

Rationale

The economic, social, environmental and health co-benefits of urban liveability are recognised by all levels of government in Australia and internationally. Liveable communities are safe, socially cohesive and inclusive, and environmentally sustainable. They have affordable housing linked via public transport, walking and cycling infrastructure, to employment; education; shops and services; public open space; and social, cultural and recreational opportunities [1, 2].

What we measured

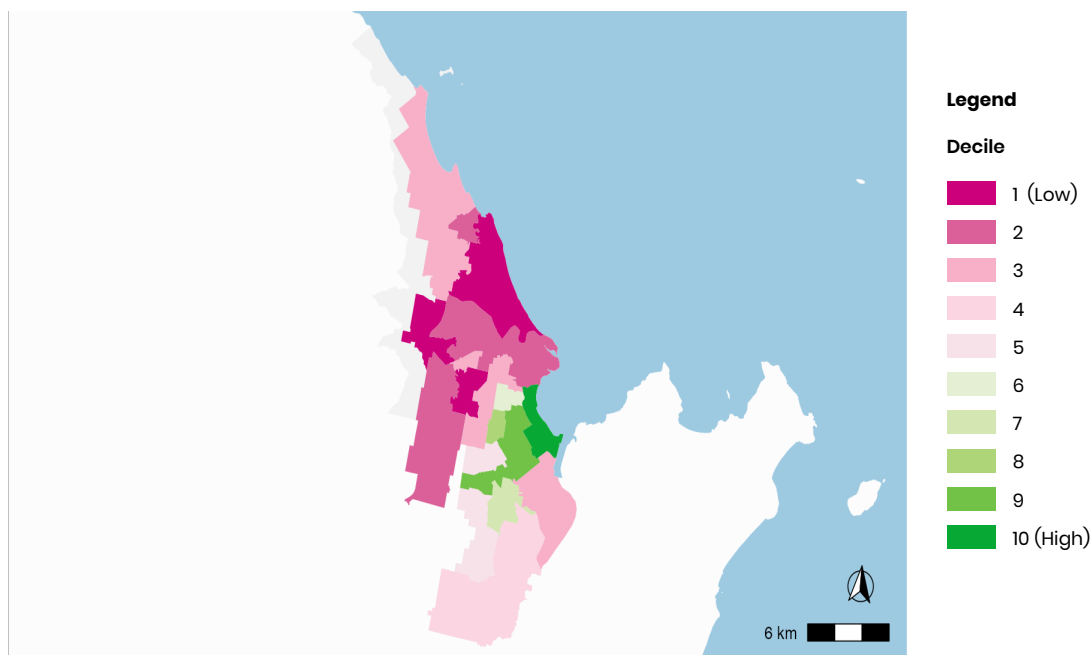
The Liveability Index is underpinned by over a decade of research [3]. It combines six domains of liveability found to be associated with health and wellbeing outcomes: walkability; access to social infrastructure; public transport; larger public open space; affordable housing; and local employment. People who live in more liveable communities are more likely to walk, cycle and use public transport and less likely to drive. Details for the included measures are contained in Higgs et al 2019 [3].



Results

Analysis of liveability for Cairns suburbs reveals wide variation over the city with a trend towards higher liveability in the inner areas of the city and reduced liveability in outer areas of the city.

Figure 1. Liveability Index for Cairns 2021.





Walkability

Rationale

Walkability measures the ease of walking in an area. Neighbourhoods with shops and services to walk to, small blocks and good street connectivity, and higher population density tend to be more walkable [4]. Walkable neighborhoods discourage driving and increase walking, cycling and active transport use which improves levels of physical activity and reduces chronic disease outcomes [5-8].

What we measured

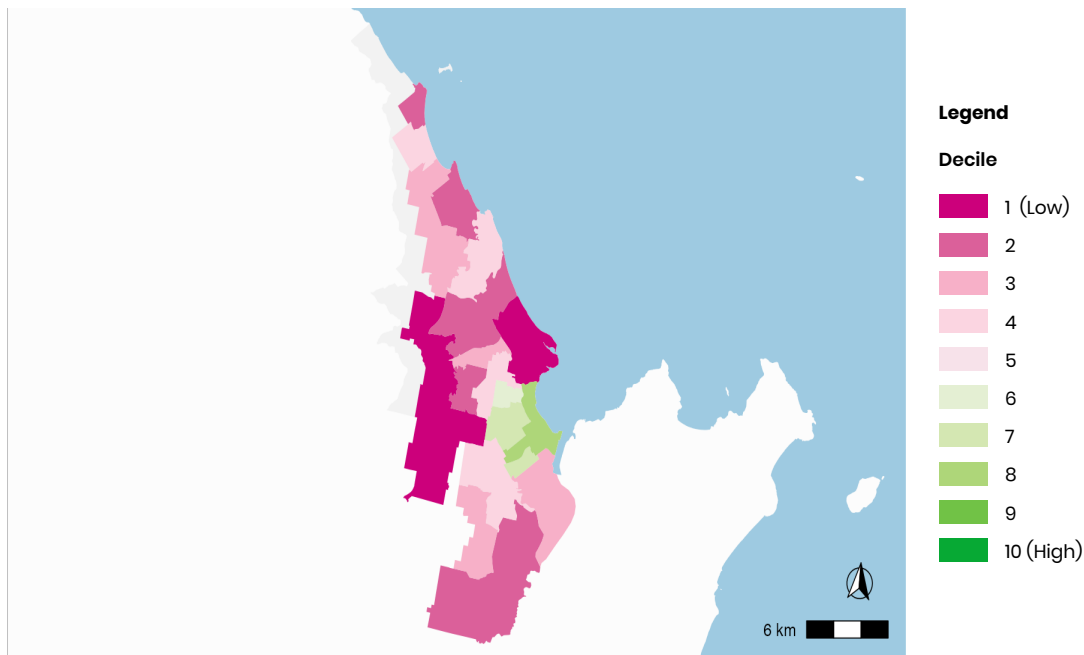
Walkability is calculated as a composite index that includes access to daily living destinations (something to walk to), dwelling density (population needed to supply services and destinations) and street connectivity (a way to get there) within a reasonable walking distance of home [4, 9].



Results

A closer analysis of walkability across the suburbs of Cairns reveals wide variation over the city.

Figure 2. Walkability Index for Cairns 2021.



2021 CC BY-NC-ND 4.0
Data: Australian Bureau of Statistics (ABS), 2021 under CC by 4.0; OpenStreetMap, 2021 under ODbL; ActionBuses, Canberra Metro, MetroTas, NT Department of Infrastructure, Planning & Logistics, Public Transport Victoria, Transport for NSW, TransLink and Transperth, under CC by 4.0
Map tiles: CartoDB, under CC BY 3.0, featuring data by OpenStreetMap, under ODbL.





Social Infrastructure

Rationale

Social infrastructure provides access to essential community services and resources [10]. Access to a wide range of different types of social infrastructure is therefore important for the creation and ongoing development of healthy communities. High levels of access to social infrastructure are linked to increased physical activity [11] and wellbeing [10], and increases satisfaction with the local community [1] improving social interactions and mental health outcomes [12]. Social infrastructure is therefore a key component of liveability.

What we measured

The Social Infrastructure Index included access to 16 types of social infrastructure at various recommended distances from dwellings [10]. It included access to childcare facilities, community centres, libraries, aged care facilities, pharmacies, family and community healthcare, dentists and general practitioners, sporting facilities, swimming pools, outside school hours childcare, primary and secondary schools, museums or galleries, and cinemas and theatres [3].

Results

Across Australia's largest 21 cities, a wider mix of social infrastructure is available in

Rank 1

Sydney

Rank 2

Melbourne

Rank 3

Adelaide

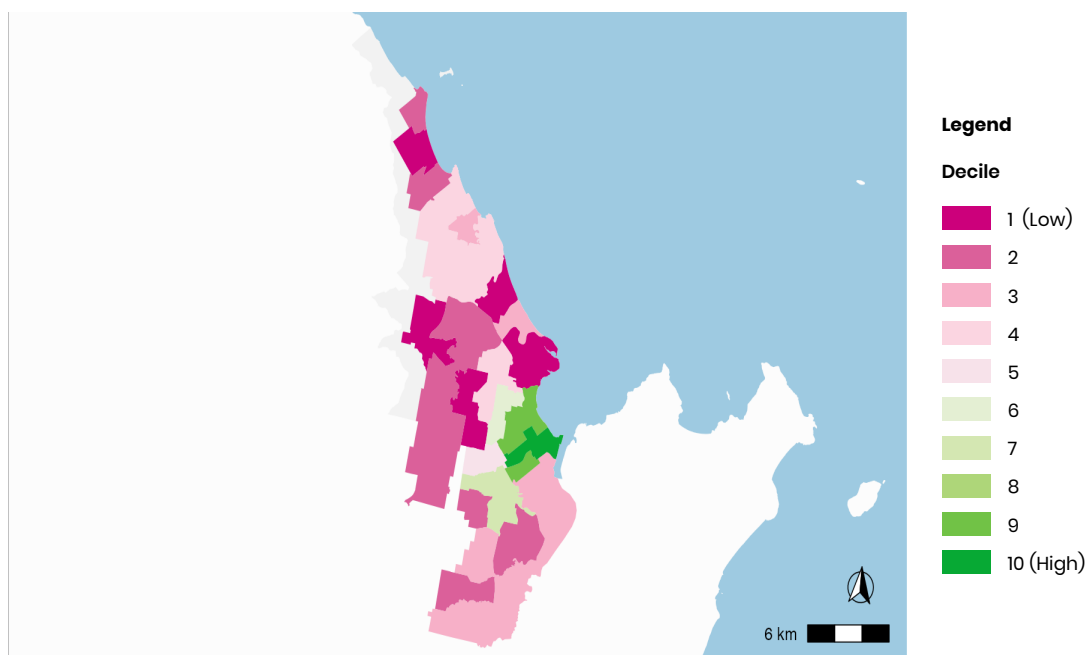


The average number of social infrastructure destinations accessible within recommended distances from dwellings across all areas of Cairns is

3 out of a total of 16

However, a closer analysis of the mix of social infrastructure across Cairns reveals wide variation across the city.

Figure 3. Social Infrastructure Index for Cairns: 2021.



2021 CC BY-NC-ND 4.0
Data: Australian Bureau of Statistics (ABS), 2021 under CC by 4.0; OpenStreetMap, 2021 under ODbL; Australian Children's Education & Care Quality Authority, 2021; Australian Curriculum, Assessment and Reporting Authority, 2021; Healthdirect Australia National Health Services Directory, 2021, via AURIN Portal, 2021
Map tiles: CartoDB, under CC BY 3.0, featuring data by OpenStreetMap, under ODbL.





Public Transport

Rationale Living close to public transport supports health and wellbeing in a number of ways including encouraging walking, reducing dependence on driving, and providing residents with access to employment and amenities. People who live close to public transport are more likely to use it [5] and consequently achieve daily recommended physical activity. Having a public transport stop near home and work increases the likelihood of using public transport [18]. Living within 400m of a public transport stop with a service every 30 minutes is also likely to encourage more walking [19].

Providing regular and proximate public transport also reduces liveability and health inequities. It enables people who have restricted mobility or can't drive – such as young people, older adults, people with disabilities, and people without private cars – to access services, education, and jobs. Public transport and associated active transport facilitate more sustainable mobility and healthier residents.

What we measured We measured access to bus, train, and tram stops with an average service interval of no more than 30 minutes between the weekday hours of 7 am and 7 pm. Access was measured as the percentage of dwellings

within 400m of any of these stops based on a walkable road network distance. The distance of 400m equates to a 5-minute walk and is consistent with access standards in many Australian state transport policies.

Results Across Australia's largest 21 cities, access to regular public transport is available to more residents living in

Rank 1
Sydney

Rank 2
Canberra

Rank 3
Adelaide



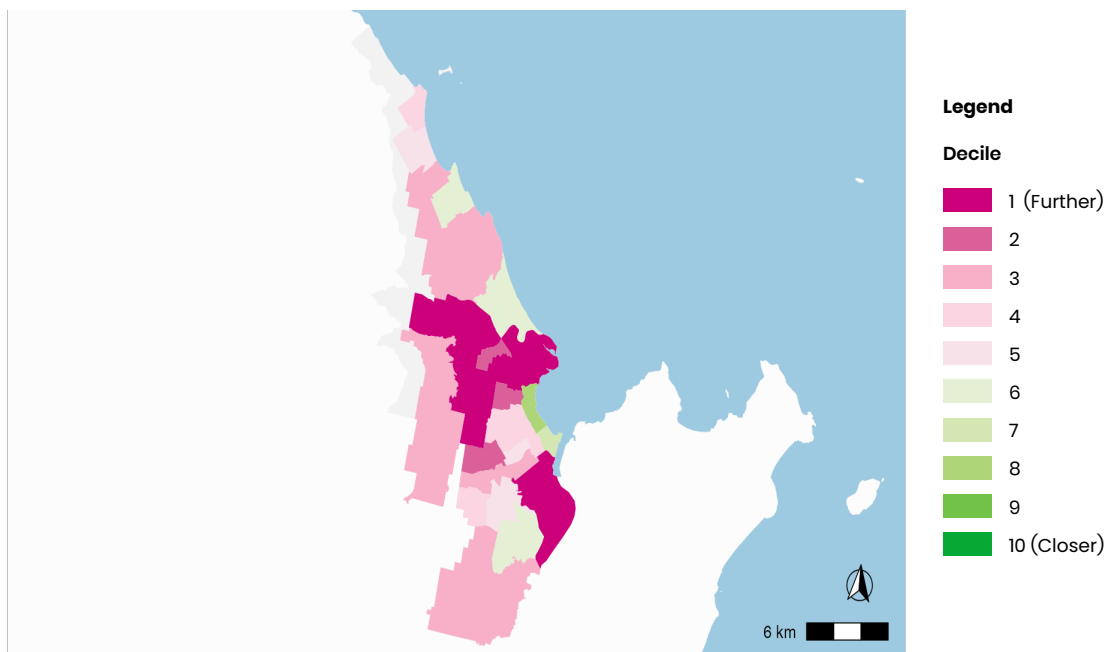
The percentage of residences with proximate access to regular public transport in Cairns in 2021 is

25%*

*This figure is based on updated methods and data and is not comparable to previously reported figures. Updated figures for previous years can be accessed through the Australian Urban Observatory.

A closer analysis of access to regular public transport across the suburbs of Cairns reveals wide variation over the city.

Figure 4. Percentage of residences with proximate access to regular public transport for Cairns: 2021.





Food Environment

Rationale Being close to a supermarket supports healthy eating and active living by providing easy access to affordable fruit, vegetables, and healthy food within a walkable distance. People living within walking distance of a supermarket are more likely to walk or cycle instead of driving [5, 13]. Increases in physical activity from active transportation, such as walking and cycling, also reduce chronic disease risk and congestion issues. In disadvantaged areas, living within 800m of a supermarket reduces the risk of overweight and obesity [14].

What we measured We measured the average distance to any type of supermarket. Distances were calculated according to a pedestrian accessible road network.

Results Of the 21 largest cities in Australia, the average distance to a supermarket is lowest in

Rank 1
Launceston

Rank 2
Canberra

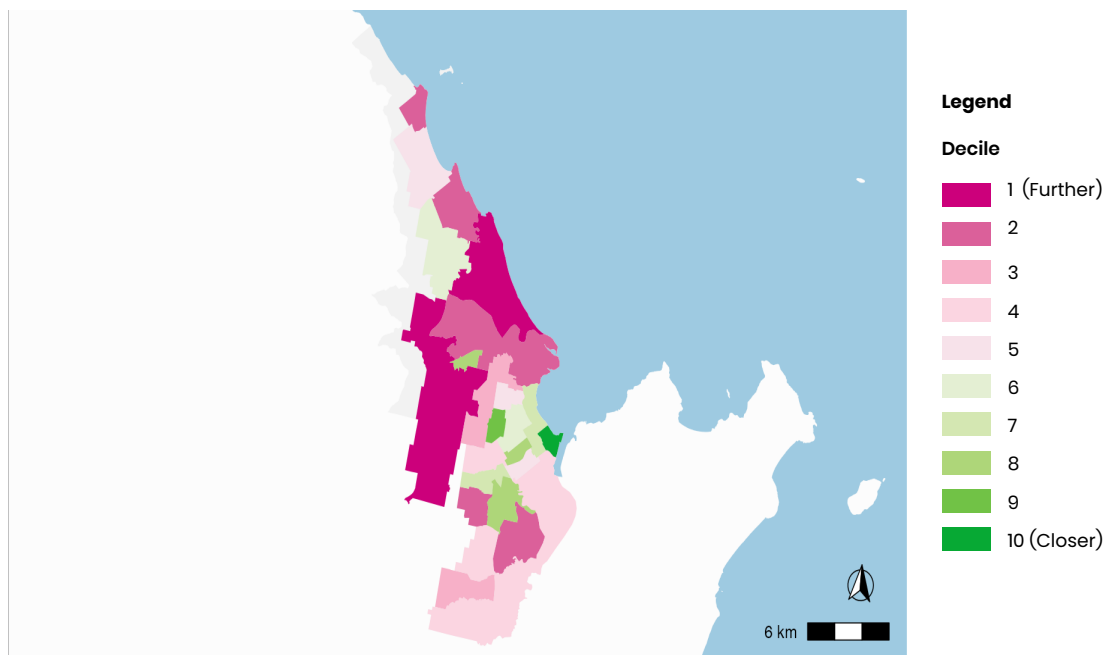
Rank 3
Sydney



The average distance to a supermarket for Cairns is

1900m

Figure 5. Average distances in meters to supermarkets for Cairns.





Alcohol Environment

Rationale

Access to alcohol has been linked to harmful alcohol consumption and alcohol-related violence [15, 16]. Furthermore, alcohol outlets are more likely to be located in more disadvantaged areas [17]. For those living in disadvantage areas where there are fewer alcohol outlets, there appears to be a protective effect with enhanced self-reported health [17].

What we measured

Access to off-licence alcohol outlets was included in this report. This includes bottle shops and supermarkets where alcohol can be purchased and taken to another premise for consumption. Distances were calculated from individual dwellings using a pedestrian accessible road network.

Results

Across Australia's largest 21 cities, the average distance to an off-licence alcohol outlet is furthest in

- Rank 1**
Toowoomba
- Rank 2**
Townsville
- Rank 3**
Mackay

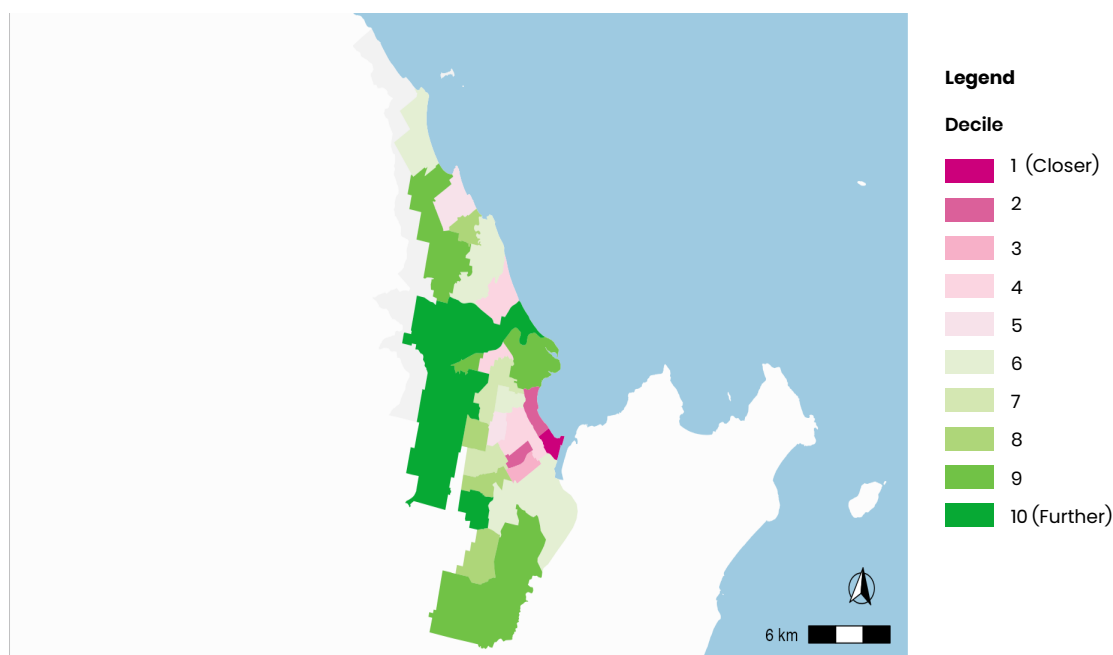


The average distance to an off-licence alcohol outlet for Cairns is

1649m

A closer analysis of alcohol outlets across the suburbs of Cairns reveals wide variation over the city.

Figure 6. Average distances in meters to an off-licence outlet for Cairns.





Public Open Space

Rationale Public open space includes parks, open areas, and places where people can congregate for active and passive recreation and enjoyment. Parks are one form of public open space that usually include grassed areas and gardens, and some green recreational space. Parks support both the physical and mental health of people living nearby and are important for supporting the local ecology and biodiversity of an area [21].

What we measured Public open space was defined as urban parks greater than or equal to 1.5 hectares, since larger parks have been shown to support physical activity [22, 23]. Access was measured as the percentage of dwellings within 400m based on a walkable road network distance. The distance of 400m represents a 5-minute walk for most people.

Results Across Australia's largest 21 cities, living within 400m of public open space of 1.5 hectares is available to more residents living in

Rank 1
Canberra

Rank 2
Newcastle

Rank 3
Gold Coast-Tweed Heads



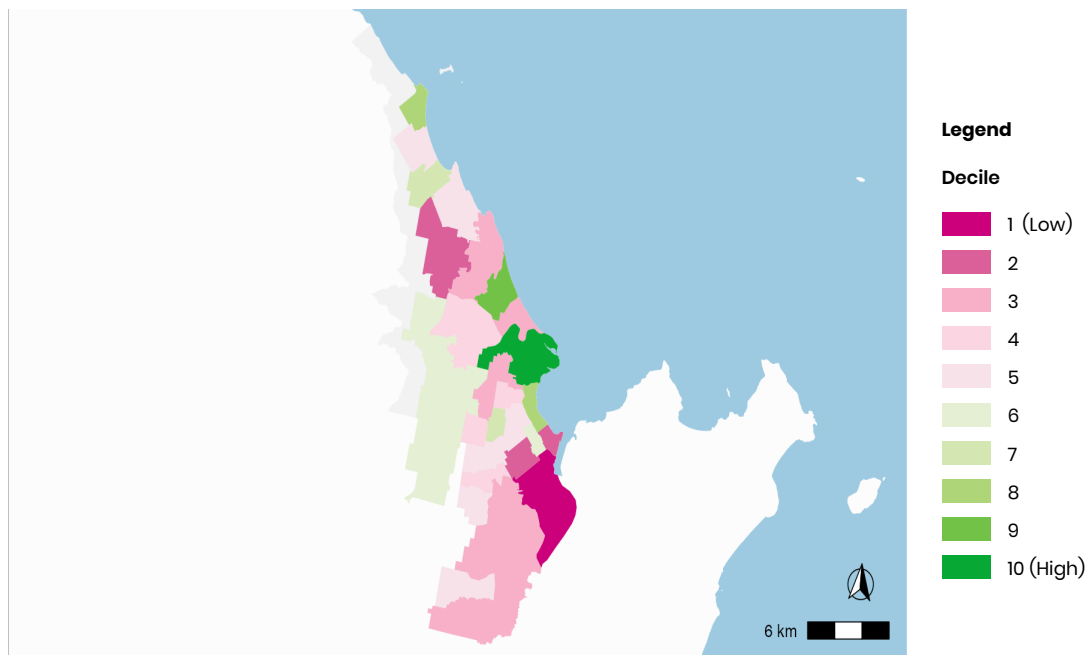
The percentage of residences living within 400m of public open space of at least 1.5 hectares in Cairns is

34%*

*This figure is based on updated methods and data and is not comparable to previously reported figures.

A closer analysis of access to public open space across the suburbs of Cairns reveals wide variation over the city.

Figure 7. Percentage of residences living within 400m of large public open space for Cairns.





Local Employment

Rationale Accessible employment is a social determinant of health, providing workers with financial resources to support themselves and their families. Access to local employment reduces vehicle kilometres travelled, travel time, and traffic congestion on city roads. It also increases the likelihood of people using active transport such as walking, cycling, and public transport and has been associated with improved self-reported health [24]. Access to local employment with shorter travel times has the potential to support work-life balance and is associated with a reduced risk of obesity [25].

What we measured We measured access to local employment as the percentage of residents living in Australian Bureau of Statistics Statistical Area 1 (SA1), working within a larger Australian Bureau of Statistics Statistical Area 3 (SA3). On average, SA1 areas represent approximately 400 people while SA3 areas represent between 30,000 and 130,000 people.

Results Across Australia's largest 21 cities, more local employment is available in

- Rank 1**
Townsville
- Rank 2**
Toowoomba
- Rank 3**
Mackay

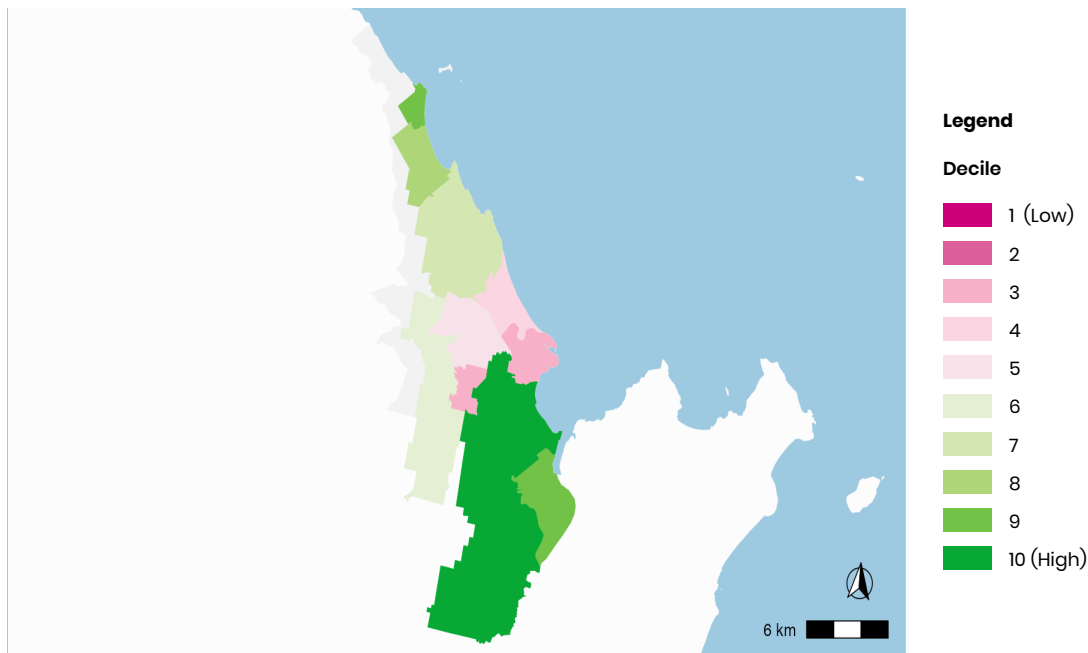


The percentage living with local employment in Cairns is

67%

A closer analysis of Local Employment across the suburbs of Cairns reveals wide variation over the city.

Figure 8. Percentage living at SA1 with local employment access at SA3 for Cairns.





Housing Affordability

Rationale

Decent and affordable housing supports families by providing safe, stable and healthy shelter. Affordable housing frees up family finances for use on health care and food, and supports physical and mental health and wellbeing [26]. The 30/40 housing affordability measure [27] is associated with poorer self-reported health, higher community dissatisfaction and residents feeling unsafe [28].

What we measured

We measured housing affordability according to a refined indicator of housing stress where households in the bottom 40 percent of income spend more than 30 percent of their household income on housing costs [28].

Results

Across Australia's largest 21 cities, housing stress is most common in

Rank 1

Bendigo

Rank 2

Launceston

Rank 3

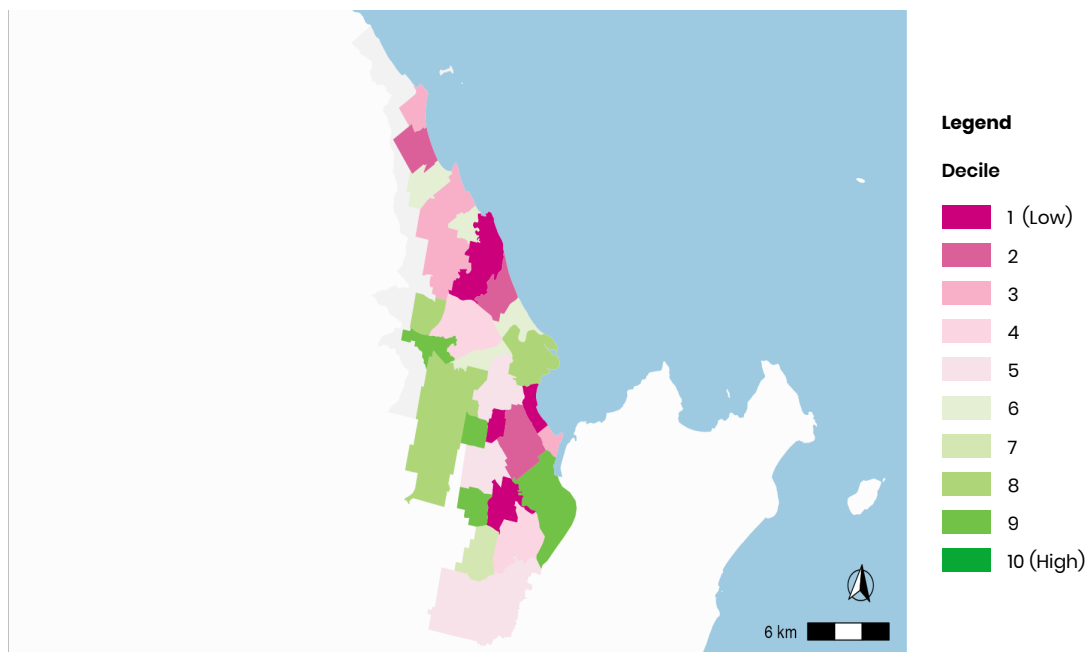
Adelaide

In Cairns, the percentage of households in the bottom 40 percent of the income distribution spending more than 30 percent of household income on housing costs is

33%*

A closer analysis of housing affordability across the suburbs of Cairns reveals wide variation over the city.

Figure 9. Percentage of households under housing affordability stress for Cairns.





VAMPIRE Index

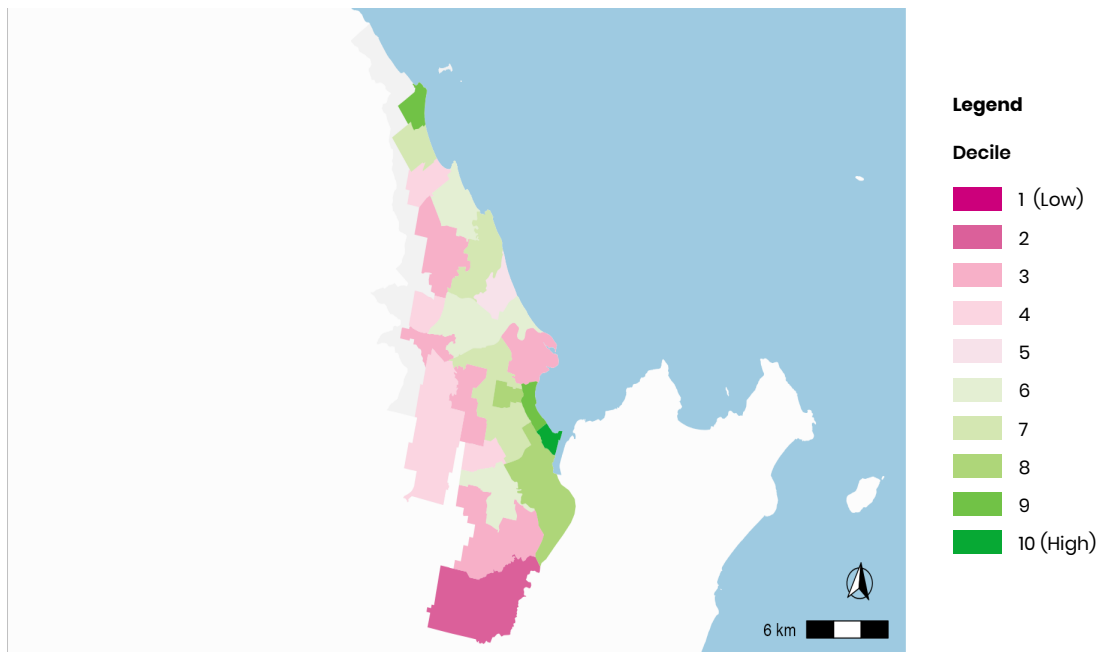
Rationale

Locational disadvantage has broad impacts on health, wellbeing and household economics. Private vehicle usage also remains a staple of Australian households facing increased costs in housing with greater distances to local services, social infrastructure and employment opportunities.

What we measured

The VAMPIRE Index [29] provides a composite index of locational Vulnerability Assessment for Mortgage, Petrol and Inflation Risks and Expenses. Developed using Australian Bureau of Statistics 2021 Census data, VAMPIRE measures: the proportion of dwellings with 2 or more cars; average household weekly income; proportion of dwellings with a mortgage; and proportion of residents commuting by car.

Figure 10. VAMPIRE Index for Cairns 2021.



Summary for Cairns

Indicator		Brief Description	Value	Change	Liveability change since 2018
Liveability		Liveability Index	See map		
Walkability		Walkability Index	See map		
Social Infrastructure		Social Infrastructure Index	3 destinations	●	Social Infrastructure stable*
Public Transport		Percentage living within 400m to regular public transport	25%	●	Public transport stable*
Food Environment		Average distance to closest supermarket	1900 m	↑	Food environment decline
Alcohol Environment		Average distance to an off-licence alcohol outlet	1649 m	↑	Alcohol environment improvement
Public Open Space		Percentage living within 400m of public open space of 1.5 hectares	34%	●	Public open space stable*
Local Employment		Percentage living with employment access at SA3 level	67%	●	Local employment stable*
Housing Affordability		Percentage of households in the lowest 40% of household incomes spending more than 30% of income on housing	33%	↓	Housing affordability improvement
Housing Affordability		VAMPIRE Index	See map		

* stable = less than 10% difference change since 2018. Note: Liveability and Walkability changes over time have not been presented because they are constructed as relative rankings within their time periods. VAMPIRE was calculated for the first time in 2021.

References

1. Lowe, M., et al., *Planning healthy, liveable and sustainable cities: How can indicators inform policy*. Urban Policy and Research, 2015. 33(2): p. 131–144.
2. Badland, H., et al., *Urban liveability: Emerging lessons from Australia for exploring the potential for indicators to measure the social determinants of health*. Social Science & Medicine, 2014. 111: p. 64–73.
3. Higgs, C., et al., *The Urban Liveability Index: developing a policy-relevant urban liveability composite measure and evaluating associations with transport mode choice*. Int J Health Geogr, 2019. 18(1): p. 14.
4. Hooper, P., et al., *The building blocks of a 'Liveable Neighbourhood': Identifying the key performance indicators for walking of an operational planning policy in Perth, Western Australia*. Health and Place, 2015. 36: p. 173–183.
5. Boulange, C., et al., *Examining associations between urban design attributes and transport mode choice for walking, cycling, public transport and private motor vehicle trips*. Journal of Transport & Health, 2017. 6: p. 155–166.
6. Zapata-Diomedí, B., et al., Physical activity-related health and economic benefits of building walkable neighbourhoods: a modelled comparison between brownfield and greenfield developments. International Journal of Behavioral Nutrition and Physical Activity, 2019. 16(1): p. 11.
7. Chandrabose, M., et al., Built environment and cardio-metabolic health: systematic review and meta-analysis of longitudinal studies. Obesity Reviews, 2019. 20(1): p. 41–54.
8. World Health Organization, Global action plan on physical activity 2018–2030. 2018: Geneva: Switzerland.
9. Arundel, J., et al., *Creating liveable cities in Australia: Mapping urban policy implementation and evidence-based national liveability indicators*. Melbourne: Centre for Urban Research, RMIT University, 2017.
10. Davern, M., et al., Using spatial measures to test a conceptual model of social infrastructure that supports health and wellbeing. Cities & Health, 2017. 1(2): p. 194–209.
11. Giles-Corti, B., et al., The influence of urban design on neighbourhood walking following residential relocation: Longitudinal results from the RESIDE study. Social Science & Medicine, 2013. 77: p. 20.
12. Evans, G., The built environment and mental health. Bulletin of the New York Academy of Medicine, 2003. 80(4): p. 536–555.
13. Gunn, L., et al., Designing healthy communities: creating evidence on metrics for built environment features associated with walkable neighbourhood activity centres. The International Journal of Behavioral Nutrition and Physical Activity, 2017. 14(1): p. 164.
14. Murphy, M., et al., Supermarket access, transport mode and BMI: the potential for urban design and planning policy across socio-economic areas. Public Health Nutrition, 2017. 20(18): p. 3304.
15. Foster, S., et al., Liquor landscapes: Does access to alcohol outlets influence alcohol consumption in young adults? Health & Place, 2017: p. 17.
16. Livingston, M., Alcohol outlet density and harm: Comparing the impacts on violence and chronic harms. Drug and Alcohol Review, 2011. 30(5): p. 515–523.
17. Badland, H., et al., Testing spatial measures of alcohol outlet density with self-rated health in the Australian context: Implications for policy and practice. Drug and Alcohol Review, 2016. 35(3): p. 298–306.
18. Badland, H., et al., Public transport access and availability in the RESIDE study: Is it taking us where we want to go? Journal of Transport & Health, 2014. 1(1): p. 45–49.
19. Rachele, J.N., et al., Are Measures Derived From Land Use and Transport Policies Associated With Walking for Transport? Journal of Physical Activity & Health, 2018. 15(1): p. 13–21.
20. Department of Infrastructure, Transport, Cities and Regional Infrastructure. National Cities Performance Framework. Available from: <https://smart-cities.dashboard.gov.au/all-cities/overview>.
21. Davern, M., et al., Quality Green Space Supporting Health, Wellbeing and Biodiversity: A Literature Review. 2016, University of Melbourne (Melbourne, Australia).
22. Sugiyama, T., et al., Associations between recreational walking and attractiveness, size, and proximity of neighborhood open spaces. American Journal of Public Health, 2014. 100(9): p. 1752.
23. Francis, J., et al., Quality or quantity? Exploring the relationship between Public Open Space attributes and mental health in Perth, Western Australia. Social Science & Medicine, 2012. 74(10): p. 1570–1577.
24. Badland, H., et al., Are Area-Level Measures of Employment Associated with Health Behaviours and Outcomes? An International and Interdisciplinary Journal for Quality-of-Life Measurement, 2017. 134(1): p. 237–251.
25. Frank, L.D., M.A. Andresen, and T.L. Schmid, Obesity relationships with community design, physical activity, and time spent in cars. American Journal of Preventive Medicine, 2004. 27(2): p. 87–96.
26. Brackertz, N., J. Davidson, and A. Wilkinson, Trajectories: the interplay between mental health and housing pathways, a short summary of the evidence, report prepared by AHURI Professional Services for Mind Australia, Australian Housing and Urban Research Institute. 2019: Melbourne.
27. Yates, J. and Gabriel M., Australian Housing and Urban Research Institute. Housing affordability in Australia: Collaborative research venture 3: Housing affordability for lower income Australians: Background report. 2005.
28. Badland, H., et al., Examining associations between area-level spatial measures of housing with selected health and wellbeing behaviours and outcomes in an urban context. Health & Place, 2017: p. 17. The Australian Urban Observatory Liveability Report for Sydney.
29. Dodson, J. and Sipe, N. Planned household risk: Mortgage and oil vulnerability in Australian cities, Australian Planner, 2008. 45(1): p. 38–47.



