31 October 2025

Healthway
healthway@healthway.wa.gov.au

ATTN: Select Committee into Land Development and Planning in Western Australia
Email: ldp@parliament.wa.gov.au

Subject: Inquiry into land development and planning in Western Australia (WA)

Thank you for the opportunity to provide a submission to this inquiry. Healthway's response focuses on the role of land use in health and wellbeing and how land use decisions and processes can be improved to support preventative health efforts in WA.

Our response is aligned with our *Strategic Plan 2024-2029: Creating a heathier Western Australia together*[3] and includes ten key recommendations to support improved health and wellbeing through land use and planning decisions.

Healthway - the Western Australian Health Promotion Foundation - is the only State Government agency solely dedicated to preventative health and health promotion efforts in WA. We offer our continuing support to the committee to maximise opportunities for land use in prevention as part of efforts to improve the health and wellbeing of the Western Australian community.

Should you wish to discuss any aspect of this submission, please do not hesitate to contact me on 9488 6839 or email carina.tan-vanbaren@healthway.wa.gov.au.

Yours sincerely

Carina Tan-Van Baren
Executive Director, Healthway

About Healthway

Healthway is the only State Government agency solely dedicated to health promotion and preventative health efforts in Western Australia (WA). We work across systems to create healthy environments, motivate behaviour change and influence policy to reduce and eliminate barriers to good health.

Healthway's work focusses on creating healthy environments to support our community to make more informed choices about health and leading a healthy lifestyle, reducing the need for hospital and clinical care. We do this through health promotion campaigns and education, grants and partnerships with sports, arts, racing and community organisations, research and advocacy to support policy and systems change across government and non-government organisations.

Overview

Land use and planning decisions have direct and significant impacts on population health including across all five of Healthway's priority health areas, namely:

- *Active living*: by influencing our proximity and access to places to be active and our transport options.
- *Mental wellbeing*: by influencing noise and air pollution, enhancing social, environmental and community connections and reducing loneliness.
- *Healthy eating*: by influencing the location and density of unhealthy food outlets and where the food we eat is grown.
- *Alcohol* and *tobacco* use: by influencing the location and density of outlets selling harmful products and therefore their promotion and accessibility.

Land use also directly impacts the time that families have available for daily activities and recreation, by elongating distances and travel times between places that would otherwise be shorter in mixed-use and walkable communities. For example, current urban sprawl leads to longer commute times, putting pressure and stress on already busy parents to navigate the day.

Our response seeks to highlight health impacts associated with land use and identify land use and design solutions, as well as opportunities to mitigate health impacts and improve the health and wellbeing of our communities.

As an overarching principle, Healthway strongly advocates for the consideration of public health in land use planning decisions and allocation of government incentives, subsidies and funding, especially as they relate to:

- Increasing infill housing around key transport hubs and in areas of existing amenity to support active living, mental wellbeing and social connections.
- Reducing and restricting development approvals and licensing of fast-food, tobacco and alcohol outlets.
- Supporting food security through local production of food.

Visual representation of land use

For context, figures 1-4[4] provide a visual representation of land use in WA.

In **Appendix 1**, we have also provided additional street-level case studies of land use in Perth and its impact on footpath and shade availability surrounding schools.[5] This data has been sourced from the Thriving Perth Portal.

Figure 1: Aerial photo of Alkimos (42km north of Perth CBD), showing land clearing for low-density single story housing, in low-beauty monotonous design, with limited proximity to amenities. **Photo Credit**: Harry Cunningham. www.harrycunningham.com

Figure 2: Aerial photo of Bull Creek train station (13km south of Perth CBD), showing 8-lane highway intersecting with a 9-lane roads accommodating a bus and train station. Road and surface car parking dominate land use. Walkable access is limited between two neighbouring housing estates. **Photo Credit**: Harry Cunningham. www.harrycunningham.com

Figure 3: Street level photo of a typical new-build house in Perth urban fringe, with low-density single-story design, large setbacks, wide road widths, and an astroturf and car-dominated frontage. The street has a lack of tree canopy and shade. **Photo Credit**: Harry Cunningham. www.harrycunningham.com

Figure 4: Comparison of land use decisions in Perth. The image on the left shows a car dominated garage fronted street with low-density housing. The two images on the right shows medium density pedestrian fronted streets with human scale features, such as a balcony and planting. Photo (left) Credit: Harry Cunningham. www.harrycunningham.com. Photo (middle and right) Credit: Street Level. www.streetlevelaustralia.org

Immediate benefits of healthy land use

Healthy land use decisions can accrue a range of short and long-term benefits. Land use policies and decisions that prioritise infill and healthy environments can directly deliver the WA Government's priorities of housing, jobs and health.[6]

Over the next three years, increasing density and urban infill by redirecting subsidies and incentives[7-10] can directly contribute to:

- Preventing and reducing homelessness by increasing housing affordability.[11]
- Progressing WA state government social and affordable housing targets such as the target of six per cent net increase in social housing by 2030.[12]
- Progressing government housing and infill housing targets such as 800,000 new homes by 2031, with a net infill target for Perth and Peel of 47 per cent (380,000)[13, 14]. It is noted the state government has agreed to a target of 26,000 homes a year for 2024-2029 through the National Housing Accord, with latest data showing WA is just behind this target.[15, 16]
- Progressing government housing density targets.[14] Perth and Peel@3.5million[14] sets a target equivalent to 26 dwellings per net site hectare. In 2022, the net dwelling density built was 23.5.[13]
- Practical economic management, building houses close to existing amenities and infrastructure, maximising value from existing amenities and infrastructure by making efficient use of existing public facilities such as schools and parks.
- Increasing foot traffic for businesses within local and established activity centres by increasing density.[17, 18]
- Creating local jobs close to where people already live provides time back to Western Australians to provide time for recreation and to relieve pressure and stress from activities of daily living.
- Potentially supporting 'Made in WA' initiative if local manufacturing can be used for higher density building materials.[19]
- Reducing the costs of car dependency and potentially road crashes, hospitalisations and road deaths as frequent public transport becomes an option for more people in the community.[20]
- Increased demand for Made in WA trains, supporting WA industry[19, 21] and reducing importation of overseas manufactured cars.
- Increased manufacturing of Made in WA medium and high density housing materials.[22]
- Supporting local economies in established areas by redirecting funds from road projects that facilitate urban sprawl to local activity centre upgrades.[10, 23]

Land use change is essential for health

Proximity, price and temporality are strong policy[1] levers, with proximity driven by land use policy decisions. For example, planning and land use decisions impacting healthy eating include:

- location of shops selling fresh produce and how close these are to homes (proximity);
- subsidies and taxes (price) on fruit and vegetables and unhealthy foods, such as fast foods; and
- the opening times of fruit and vegetable retail outlets (temporality).

As a specific example of strong and positive policy within local and state government regulatory control, land use regulations could limit the density and location of unhealthy food outlets by restricting approvals of new outlets and those within close proximity to schools on public health grounds.[24]

Current measures to address healthy eating are dominated by softer approaches such as public education campaigns and school-based programs.[25] While such approaches are important as part of a comprehensive response, they are insufficient on their own to shift the dial of population healthy eating behaviours.[26, 27] Significant changes to systems and infrastructure are needed to support population health improvements.

Despite sustained investment in school active transport programs since 1995[28-30], Perth has some of the lowest levels globally of walking and riding to school[31], with just one in four trips to school being walked or cycled compared to three in four only a few decades ago[31]. In addition, children's vegetable consumption sits well below the recommended daily intake[32, 33] and is a key focus of the Healthway-funded Crunch&Sip program. The objectives of both these programs could be enhanced and supported by strong policy such as removing regulations preventing mixed-use developments where houses are close to shops (increasing proximity).

Figure 5 outlines that the journey to better population health starts with land use planning — to facilitate improved access to places (proximity) and the option to take active and public transport (mobility). More than two-thirds (69%) of Western Australians support re-directing roads funding into walking and cycling infrastructure.[34]

[1] Examples of strong policy levers include regulatory instruments such as laws, regulations and standards, and economic instruments such as subsidies, fines and pricing.

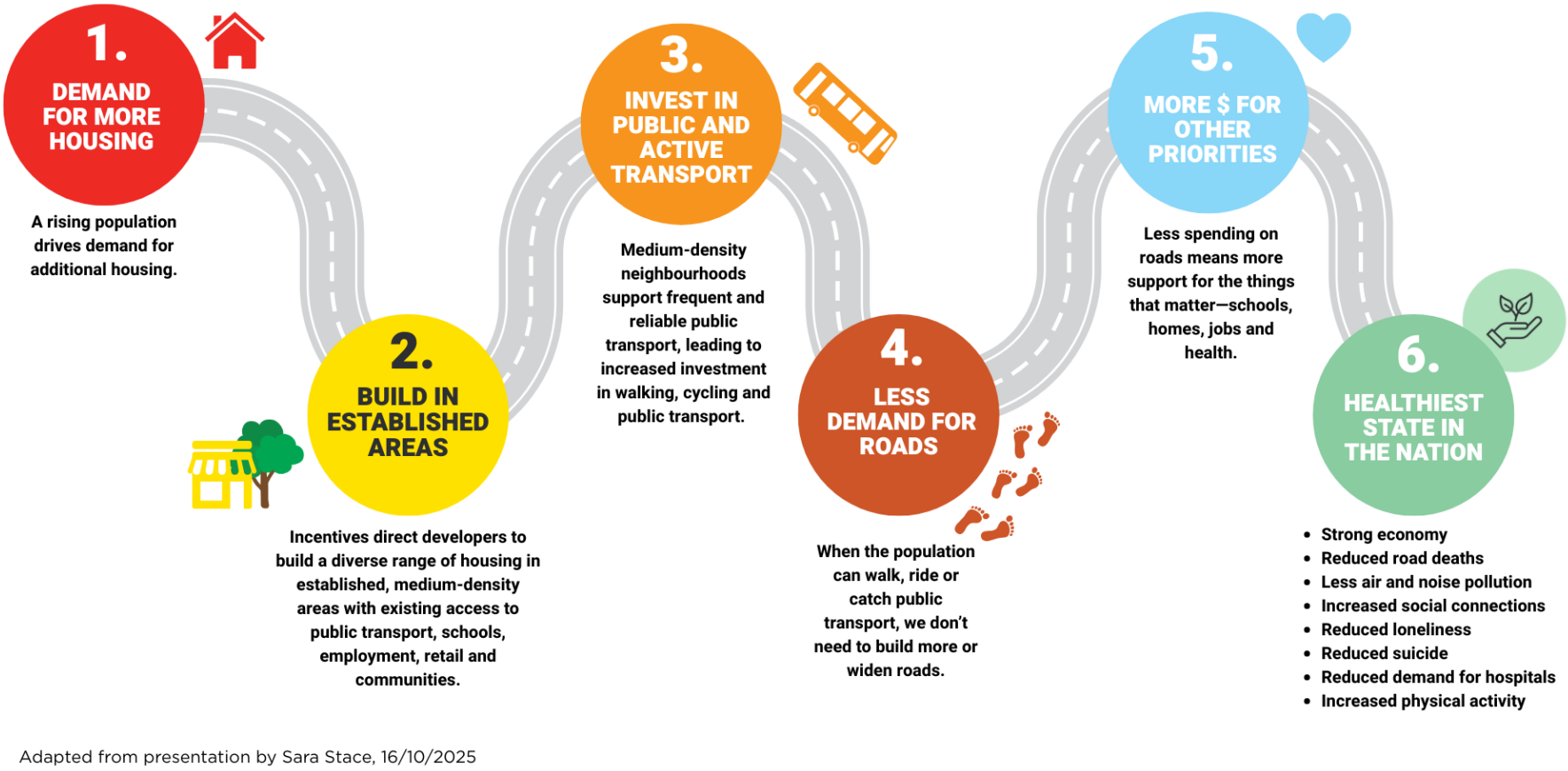

Figure 5: The journey to better population health starts with land use planning

Land use impacts physical activity

Research suggests that if physical activity requires willpower, such as walking to the shops, then something is wrong with where we live.[35] Effort is a combination of both proximity (distance between places) and amenity, such as clean air and low levels of noise, with easy to cross streets and places to stop and rest.[36]

A supportive built environment is essential for physical activity[18, 37, 38], where places are dense enough to be close to the places people want to go and there are adequate footpaths and other activity-supporting infrastructure such as shade and bus shelters.

The major land use lever[39] on population physical activity is proximity. When things are close, people have more time and reduced dependence on vehicle travel. Figure 6 provides an outline of how poor land use decisions impact on proximity and, subsequently, on health outcomes, through increasing car dependency and cost-of-living.

Land use, car dependency, cost-of-living and congestion

Car dependency is a known factor impacting cost-of-living. Industry data suggests car ownership is the second or third highest household cost in Australia (after housing), costing more than $24,000 per car per year.[40, 41] As a result of urban sprawl and lack of local access to walk or access public transport to jobs, schools and services, Perth has among the highest car dependency of major cities in Australia[42, 43].

The most direct way to mitigate traffic congestion is to shorten the distance between homes and workplaces, where possible[44]. In doing so, a portion of the population will be able to walk, ride and take public transport – in turn increasing their physical activity levels, reducing congestion and the associated environmental health impacts, and reducing cost-of-living by reducing car dependency.[45]

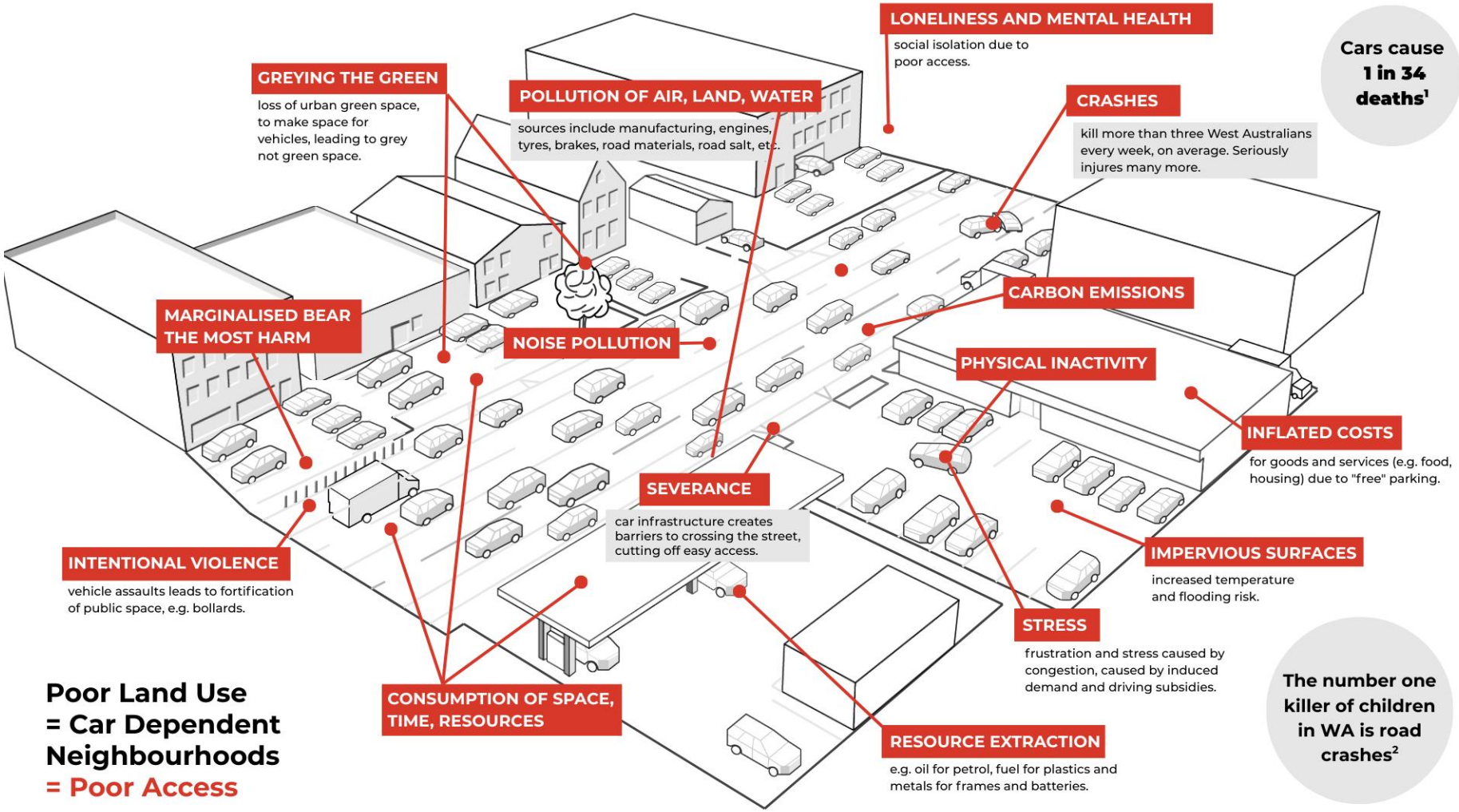

Figure 6: Land use planning, car dependency and impacts on physical activity and health. Within figure references: 1[45] and 2[46].

Proximity

Perth is considered to be the longest city in the world, with its metropolitan area stretching more than 150km from north to south. Land use drives proximity between the places people want to go, which is perhaps the single greatest contributor to population levels of physical activity.[18, 47, 48]

Proximity to everyday places such as shops, work, schools and recreation facilities is a precursor to active forms of mobility, such as walking and cycling. Focusing on mobility through investments in active transport, without concurrent effort to increase density, is a risk. There has been significant investment in active transport by the WA Government ($750 million between 2017 and 2025).[49, 50] However, levels of physical activity remain low[33, 51, 52] and Australian children rank 140th out of 146 countries globally for physical inactivity.[53, 54] Increasing proximity through land use policy reform is therefore essential to support mobility investments.

Medium density mixed-use land use can reduce human effort and increase physical activity.[35] A number of laws and regulations influence the built environment for walking and cycling in Australia[55]. For example, Australian minimum road widths are some of the highest globally[56]. These roads typically invite higher speed driving and occupy land in neighbourhoods that could otherwise be used for higher density and more affordable developments. In addition, street setback laws, such as the requirement for front yards, minimum parking requirements and density codes, restrict the costs and types of housing that can be built in WA[57], leading to market-distortion towards lower density housing and reduced support for everyday walking or frequent public transport services[48].

Two in three car trips in Perth everyday (2.8 million out of 4.2 million daily journeys) are under 5km in length and could be walked or cycled in 15 minutes or less [58]. However, many of these journeys require high effort to walk, often crossing wide roads with limited shade and in hot and noisy conditions.

One useful framework for integrating land use planning and health, and improving proximity, is the 9D's for healthy land use. This framework was first developed and published in The Lancet by Professor Billie Giles-Corti and colleagues[59, 60] and later expanded in the Getting Australia Active III policy guide:

1. Density (e.g., enough to support a walkable local economy and frequent public transport).
2. Mixed land use (e.g., removing restrictions on integrating cafes and shops alongside houses).
3. Desirability (e.g., ensuring housing and architecture is beautiful).
4. Destination accessibility (e.g., jobs and shops within 15 minutes of houses).
5. Demand management (e.g., minimising supply of free/subsidised car parking).
6. Distribution of employment (e.g., a job-housing balance of around 1.0).
7. Design of urban centres overall (e.g., high walkability).
8. Design of parks and recreational facilities (e.g., opening school grounds for community use).
9. Distance to public transport (e.g., train station within 800m of houses).

Appendix 1 provides street level examples showing the impact of setbacks and road widths.

Recommendation 1: Explore cross-sector regulation and law making between planning and health to ensure public health is prioritised in land use planning decisions.

Recommendation 2: Review and consider amending/removing regulations limiting mixed-use developments (e.g., that would allow a café to be built within a new housing development) to increase proximity to places people walk to.

Recommendation 3: Review and reduce minimum road widths to increase proximity and reduce traffic speeds on neighbourhood streets.

Recommendation 4: Review and consider amending/removing minimum parking requirements, in turn increasing affordability of housing and increasing proximity to places people walk to (reducing car parking as a land use).

Recommendation 5: Review and consider amending/removing setback requirements for new homes to increase proximity to places people walk to.

The commercial determinants of land use and health

The commercial determinants of physical activity (i.e., the systems, practices and pathways through which industry influences physical activity)[61] operate largely through land use decision making.[62, 63]

Powerful actors lobby for government subsidies that make urban sprawl profitable for industry but far more expensive for government[64]. For example, research conducted in Perth in 2009 shows that every new dwelling built on the urban fringe costs about $86,000 (equivalent to $128,000 in 2024 when adjusted for inflation) in taxpayer subsidies compared to a similar infill dwelling in Perth.[7, 8] An example of a corresponding subsidy for an infill dwelling would be a direct subsidy for the cost of headworks, connecting infill housing to water, waste water and electric. This accounts for the additional costs of outer (compared to inner city) development for additional roads, water, sewerage, telecommunications, electricity, gas, fire and ambulance, police, schools and health costs. Similar estimates have been found recently in Sydney[9].

In addition to financial cost, these indirect government subsidies for urban sprawl have led to poor land use outcomes for population health and liveability, as well as an undersupply of affordable housing that is close to jobs and activity centres.

An example of an indirect subsidy to housing developers is road building, widening and extending. Such subsidies incentivise development on the urban fringe. Specifically, all three levels of government contribute to the costs associated with roads, with the WA state government spending around $2.3 billion annually but collecting only around $2 billion annually in road related revenue from registration, stamp duty, licensing and parking levies.[10] This represents a $300 million indirect subsidy for land use that is passed on to housing developers to reduce the cost of housing developments on the urban fringe.[10] Redirecting this funding from road building to infill housing incentives for developers could help rapidly deliver on affordable housing that is close to jobs and activity centres. This $300 million annual subsidy for road building that facilitates urban sprawl represents a large investment by the WA Government. By comparison, the WA Government invests less than one-third of that amount into walking and cycling ($94 million).[50]

The planning and development industry is largely driven by commercial interests. When surveyed recently, only around half (57%) of representatives from the planning industry in Australia indicated they or their organisation were planning changes to increase the walkability of the built environment[65]. This signals a lack of incentive for developers to ensure health is embedded in planning and land use decisions.

While this is the case, we note a positive development in the WA Government's recent announcement of incentives to support infill housing through the $80 million Infrastructure Development Fund for upfront costs of headworks connecting 1,500 apartments to water, wastewater and electricity[66], and 10 hectares of free land provided for a new manufacturing facility for construction of housing[22].

Recommendation 6: Review and redirect direct and indirect subsidies for low-density housing on the urban fringe to subsidies for medium density infill housing.

Land use, road safety and transport emissions

Urban sprawl leads to higher car dependency by elongating distances between places. This increases driving exposure through increased distance travelled and increased dependence on the car for trips. Alternatives to driving, such as public transport, become less viable and frequent, in turn limiting access to alternative options and reinforcing expensive car dependency.[67]

Car dependency associated with land use has a range of impacts including on road safety and global warming. The Avoid-Shift-Improve model[68] suggests that, land use (through *Avoid*) is a key priority to reduce transport emissions and road deaths. For example, land use planning is an *Avoid* strategy for the need to travel by car, as building more connected communities through mixed-use medium density land use planning reduces travel distances, making alternative modes of transport more viable.

Car and other road emissions make up around one fifth (18%) of Australia's total greenhouse gas emissions.[69] Australian per-capita transport emissions are more than three times the average of similar nations (see Figure 7).

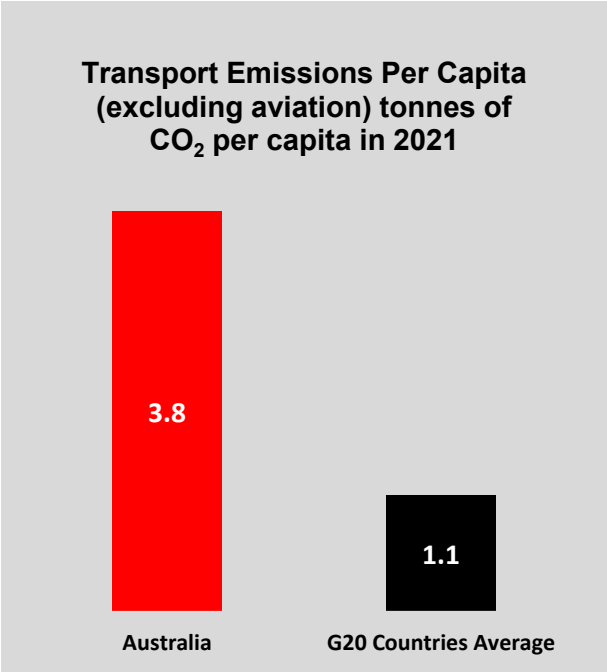

Figure 7: Transport emissions per capita for Australia compared to the G20 average (source: Climate Transparency, 2022[70])

Land use and density of fast food, alcohol and tobacco outlets

Much of the burden of chronic disease can be prevented by breaking down the barriers to accessing healthy options and supporting behaviour change to reduce risk factors in the community.

The design and location of our cities and towns, including the placement of outlets promoting and selling harmful products, such as tobacco, alcohol and fast food, can be counterproductive to promoting health and wellbeing and influence behaviours from a young age.

High density of fast food, tobacco and alcohol outlets leads to 'swamps', flooding the market with unhealthy products (and their promotion) and making it difficult for Western Australians to access healthier options. Regulations on land use can prevent 'swamps' One example is the City of Vincent's recent policy to restrict new tobacco retailers, described in further detail below.[71]

Fast food and alcohol

There is strong evidence that exposure (number and proximity) to fast food outlets, as a result of allowing land to be used for this purpose, increases unhealthy food intake and obesity rates.[72, 73] The density of such outlets and therefore the impact on people living in lower socio-economic areas is even greater.[73]

Healthway-funded research from 2022 shows there are around 2,500 unhealthy food outlets in Perth[74]. This is five times the number of supermarkets and is higher than similar high-income countries like the United Kingdom.[74]

In WA, unhealthy food outlets are often clustered in 'swamps' in lower socioeconomic areas, widening health disparities.[75] The most disadvantaged suburbs in Perth have more than twice the number of fast food outlets compared to the most advantaged.[75] In addition, 97 per cent of secondary schools are located within 1km of a fast food outlet. Healthway-funded research also found that the average secondary school in Perth is surrounded by 3 fast food outlets within 400m, or 12 fast food outlets within 1km.[76]

The WA community regularly express considerable concern about this proliferation in outlets selling unhealthy food in their communities.[77] For example, 81 per cent of development applications that were open for public consultation between August 2018 and June 2024 received objections to the provisions for drive-through fast-food outlet land use.[77] Through the *Planning and Development (Local Planning Schemes) Regulations 2015 (WA)*[1], new fast food outlets can be established without consideration of their impact on public health. In Kalamunda, despite strong community opposition[78, 79] to a fast food outlet development application (McDonalds) [80, 81], the development was able to proceed, suggesting the planning framework does not currently meet community expectations.

Similarly, Western Australian research shows that alcohol consumption appears to be impacted by liquor store density and proximity[82]. Systematic reviews support the conclusion of this WA research that decreasing the physical availability of take-away alcohol will decrease per capita consumption.[83]

Communities have further argued that they want control of their local area. Making health impacts a valid consideration in planning decisions will give communities the power to push back on fast food and liquor giants when they threaten the health and wellbeing of children and families.

Recommendation 7: Introduce an explicit recognition of public health as a relevant planning consideration by amending the deemed provisions for local planning schemes contained in Schedule 2 of the *Planning and Development (Local Planning Schemes) Regulations 2015 (WA)*.[1]

Tobacco

There has been considerable recent public discussion of the role of licensing in relation to the surge in illicitly traded tobacco.[84] This has resulted in calls for the WA Government to urgently progress tobacco control and action on illicit trade of tobacco by prioritising the adoption of strict caps on tobacco licensing. The load on enforcement personnel could be eased by significantly reducing the number of tobacco outlets.[84]

At the local government level, the City of Vincent has used a Local Planning Policy to restrict the opening of new businesses whose primary purpose is the sale of smoking-related implements or the use of tobacco and tobacco-related products on site.[71] A new smoking shop or premises will only be considered when it is not adjoining or adjacent to around 30 other uses as deemed by the policy, including residential buildings and a range of businesses.[71]

Land use impacts on mental wellbeing and social health

Streets that are not too noisy, that are easy to cross and with calm traffic and clean air foster social interaction and contribute to reducing the risk of social isolation and loneliness.[38] The recently published first public health guidelines[85] on social connection emphasise the role of land use including that it should:

- Ensure the built and natural environment is suitable for encouraging, facilitating and sustaining social connections.
- Ensure all spaces and activities are equitably accessible for all community members.
- Consider the social health impacts of policy decisions and include review existing policies to assess how they can foster social connection.

Concrete, non-permeable and non-vegetative surfaces cover more than half of Perth and Peel,[86] leading to hotter temperatures in urban areas and a poorer environment for walking and connecting with community.[87-90]

Low-density home building requires more concrete and vegetation clearing than higher density home building which requires less land to deliver the same number of homes. Further, land clearing is higher in greenfield (typically urban fringe) rather than brownfield (typically infill) housing sites.

Tree canopy is important for physical, mental and social health. Tree canopy and vegetation help to keep urban areas cool compared with concrete and other hard surfaces, which generally absorb heat. Tree canopy provides shade and essential protection from harmful ultraviolet (UV) radiation and, therefore, skin cancer.[91] Tree canopy supports opportunities and access to walking short journeys such as to the local shops or school[92], makes walking pleasant and incentivises mode shift from driving short journeys by car.[92, 93] Tree canopy has also been associated with positive mental wellbeing, with greater benefits than urban greening more generally. [94]

Several of Perth's inner city suburbs have shown declines in urban canopy cover between 2020 and 2024[86]. The same data shows that, in 2024, 85 per cent of roads and footpaths in Perth and Peel have no tree canopy cover[86]. See Table 1.

Table 1: Declines (red) and increases (green) in urban canopy cover between 2020 and 2024.

	Urban Canopy Cover	
Local Government Area	**2020**	**2024**
Bassendean	13%	13%
Bayswater	12%	10%
Belmont	11%	9%
Canning	11%	10%
Cottesloe	19%	15%
Fremantle	12%	11%
Joondalup	12%	12%
Melville	14%	15%
South Perth	17%	17%
Stirling	13%	13%
Victoria Park	11%	12%
Vincent	12%	14%
Wanneroo	9%	9%

Footnote: Data source[86].

Recommendation 8: When investing in increasing tree canopy, prioritise street trees to provide shade over footpaths, especially near schools.

Land use and food security

Local sustainable food production (decentralisation) is important for food security.[95] Food security means that healthy food environments are available with affordable, nutritious and quality food for all.

Land use laws that prevent the clearing of agricultural land on the urban fringe underpins strategies to reduce reliance on imported food and encourages local food to be grown.[96] It is essential to protect peri-urban agricultural land from rezoning for housing development, especially as ample infill land is available for housing.[14] Local and regional food systems can bolster food security when food production and processing is decentralised.

Recommendation 9: Introduce an urban growth boundary to protect land near urban areas for local food production, to support food security.

Alignment of current land use decisions with state government law, strategy, policy and targets

Land use intersects with WA Government health, transport and planning policies. The following outlines how these policies reinforce WA Government commitments to incorporating health considerations into land use processes and decision-making.

Liveable Neighbourhoods[97, 98]

Liveable Neighbourhoods is an operational policy that influences structure plans and subdivision for new predominantly residential urban development and major infill sites. It is currently under review. We are advised that a revised version will be upgraded to a State Planning Policy called Neighbourhood Design.

State Planning Strategy 2050[99]

The Strategy explicitly mentions “Urban intensification and regional expansion at appropriate locations can counteract a tendency towards development that leads to urban sprawl and the convergence of urban settlements. This will increase the need for well-planned, integrated and compact regional centres and towns generating local and regional economic activity.”

The Planning strategy also explicitly mentions food security.

Perth and Peel @3.5million[14]

Includes targets for infill housing, that are not currently being met. The framework guides the future growth of the Perth and Peel regions as a compact, consolidated and connected city that can accommodate a population of 3.5 million by 2050.[14]

WA Government Priorities for 2025-2029[6]

Includes a priority focus on health, including promoting active healthy lifestyles providing more support for mental health.

WA's first WA Play Strategy - forthcoming[100]

This will be a WA and Southern Hemisphere first strategy and will provide opportunities to support the increased regulation of land use to promote proximal access to greenspaces, schools, shops and jobs to facilitate play.

WA's first Active Travel Strategy and Action Plan - forthcoming[101]

This will be a WA first active travel strategy. The draft strategy and action plan explicitly mentions reducing urban sprawl and car-centric neighbourhoods to help facilitate more walking and cycling – supporting population active living.

State Public Health Plan 2025-2030[102]

This plan highlights that "challenges such as urban sprawl, environmental degradation, and social isolation can weaken connections and lead to negative effects on both physical and mental health and wellbeing."[102] The plan specifically supports the following actions areas relating to land use:

- Support regulatory initiatives that positively influence active lifestyles (Health-Focused Urban Design)[103] and social connections.
- Promote access to nutritious food options through food retail zoning and policies and encourage local food production.
- Foster collaboration between public health representatives, urban planners, state government agencies and community stakeholders to ensure that health is a focus in urban development strategies and plans at both state and local levels.
- Implement Public Health Assessments (through part 7 of the *Public Health Act 2016)* as a standard part of the planning and development approval process to evaluate the potential health effects of proposed projects and policies and to consider health in decision-making.
- Minimise environmental risks in or within planning proposals such as mosquitoes and other biting insects, air quality, contaminated land and water, wastewater management, public drinking water sources and soil condition.
- Ensure minimum separation distances between industrial and sensitive land uses.
- Develop and implement urban design and building code requirements that support climate-resilience, including protecting and increasing the tree canopy, creating green public spaces, improving stormwater management and using sustainable building materials.[90]
- Add climate risks to local land use plans and urban development policies.

Recommendation 10: Embed physical activity, food security and mental health targets into transport and planning budgets, to ensure that land use decisions by responsible agencies consider impact on public health.[2]

Local Government Public Health Plans

By June 2026, all 139 WA Local Governments are required to develop Public Health Plans as part of the *Public Health Act (WA)* 2016. These plans must align with the State Public Health Plan.[104]

Health Promotion Strategic Framework (2022-2026) [105]

The framework explicitly states that supporting active living requires:

- Good planning to build healthy, liveable and sustainable cities and that enable a variety of daily activities within walking distance of where people live, learn, work and play

- Sustainable transport that decreases car dependency and accommodates active transport (including well-connected bicycle lane networks, reduced traffic speeds, safe pedestrian paths and crossing points and end-of-trip facilities)
- Creating more quality public open space and green space to facilitate social connectedness and recreational activity, including tree canopy and urban greening on transport corridors.

Sustainable Health Review[106]

This 2019 review specifically recommended an action relating to land use laws, specifically "changes to planning laws to limit unhealthy food outlets and to support access to healthy food options, including near schools."

Civil society

Several national and global organisations have stressed the importance of land use planning for health promotion. These include:

- National Heart Foundation's Blueprint for an Active Australia 3rd Edition[107];
- Australian Prevention Partnership Centre's Getting Australia Active III[59];
- International Society for Physical Activity and Health's Eight Investments That Work for Physical Activity[108-110] ; and
- Global Action Plan on Physical Activity (2018-2030) from the World Health Organization which stresses the vital importance of urban design and the built environment for physical activity.[111]

Appendix 1

Young people are a priority health population for Healthway. Five examples are provided of land use decisions around schools in WA. These are:

- Case study 1: Belmont City College, Secondary School, Belmont
- Case study 2: Subiaco Primary School, Primary School, Subiaco
- Case Study 3: Lakelands Primary School, Primary School, Lakelands
- Case Study 4: Yanchep Rise Primary School, Yanchep
- Case Study 5: Two Rocks Primary School, Primary School, Two Rocks

Methods: Data provided from the Thriving Perth Portal.[5] Distance measures made using Google Maps 'measure distance' function.

Case study 1: Belmont City College, Secondary School, Belmont

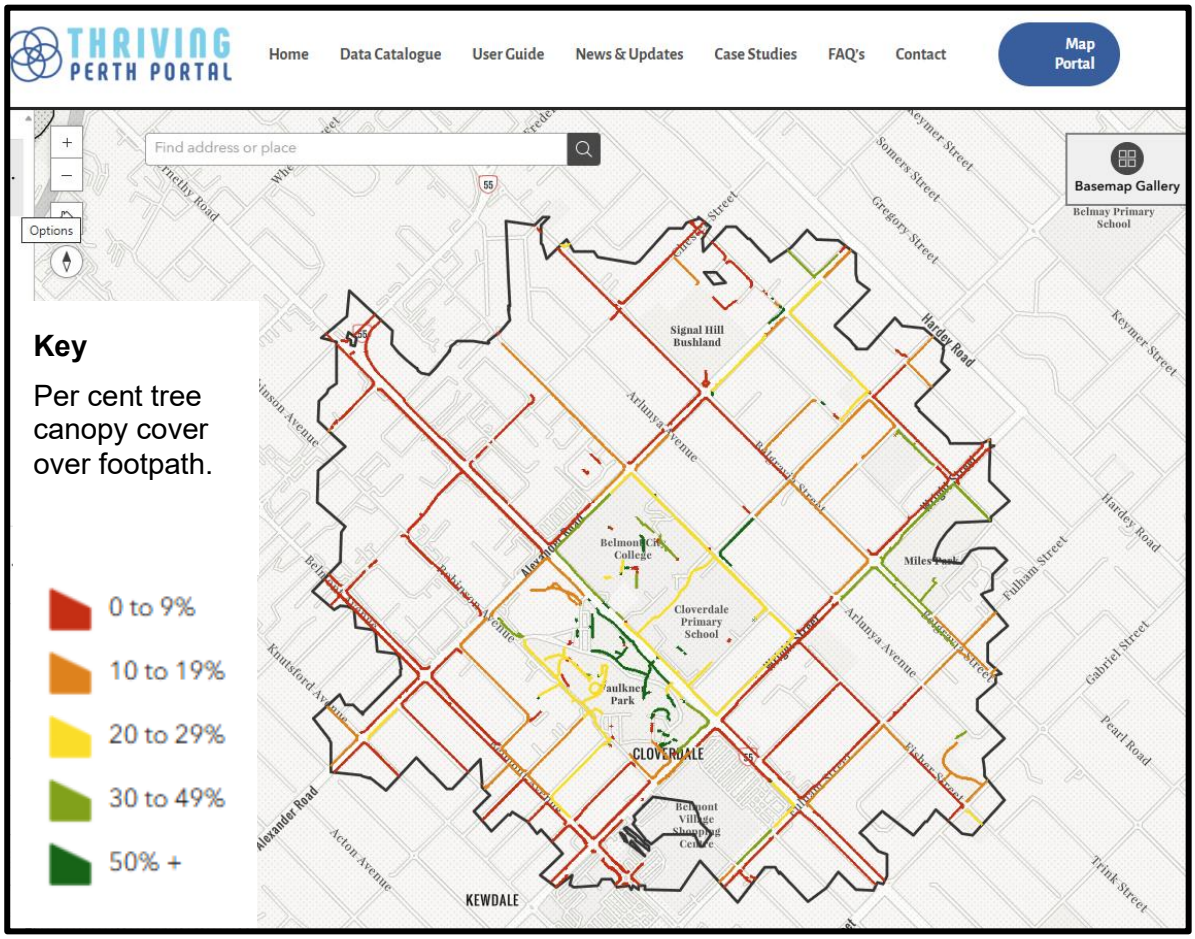

***Figure 1**: 800m walkable catchment area with very few footpaths with good shade coverage (dark green). Streets with no colour (e.g. Arlunya Avenue) have no footpaths. Thriving Perth Portal[5] data show that only 3.5% of street length within the school catchment area has shade coverage meeting the 50% Healthy Streets minimum benchmark (dark green).[112] Image Credit: Thriving Perth Portal.[5]*

Figure 2: Birds-eye view of area around secondary school in Belmont. Shows very limited street tree canopy coverage on streets surrounding schools. Image Credit: Google Maps Aerial View.

Figure 3: Street level in Belmont, Sydenham Street, within 100m of the school. Shows a wide road, with large setbacks (front yards), and very limited tree canopy coverage and only one footpath. Image Credit: Google Maps Street View.

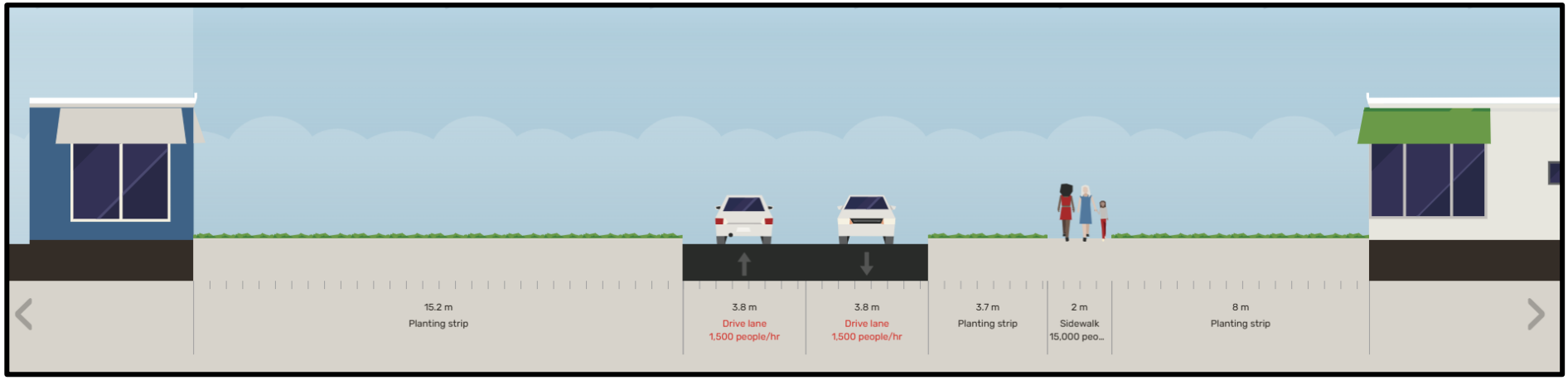

Figure 4: This illustration provides an example of distribution of space on the street (Sydenham Street, MRWA Classification: Access Road). The total distance between two houses (including the front yard setbacks) is 36.5m. Image Credit: Streetmix.

Figure 5: Street level street in Belmont, on Arlunya Avenue, within 800m of the school. Shows a wide road, with large setbacks (front yards), large verges, no footpaths, very limited tree canopy coverage, and only one footpath. Image Credit: Google Maps Street View. Image Credit: Google Maps Street View.

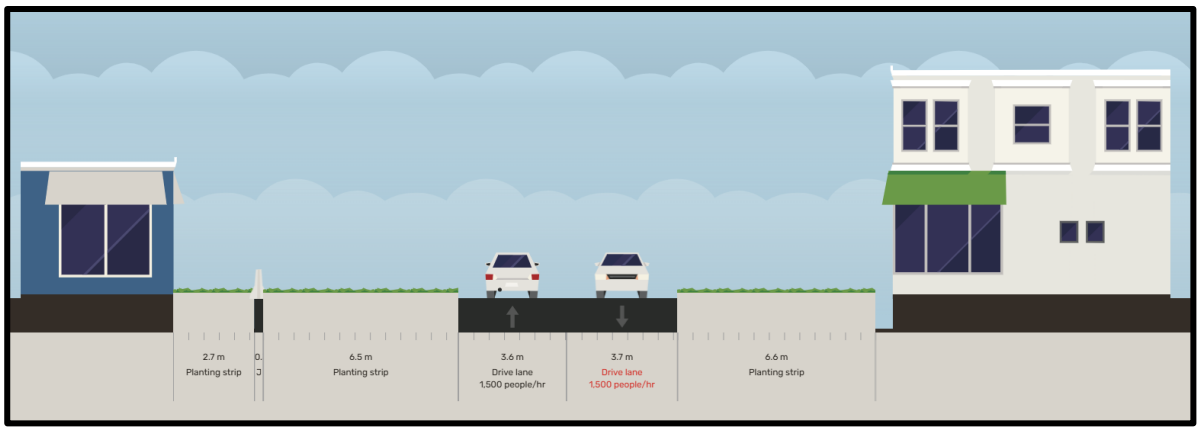

Figure 6: This illustration provides the current (actual) distribution of space on the street (Arlunya Avenue). The distance between two houses (including the front yard setbacks) is 23.4m. Image Credit: Streetmix.

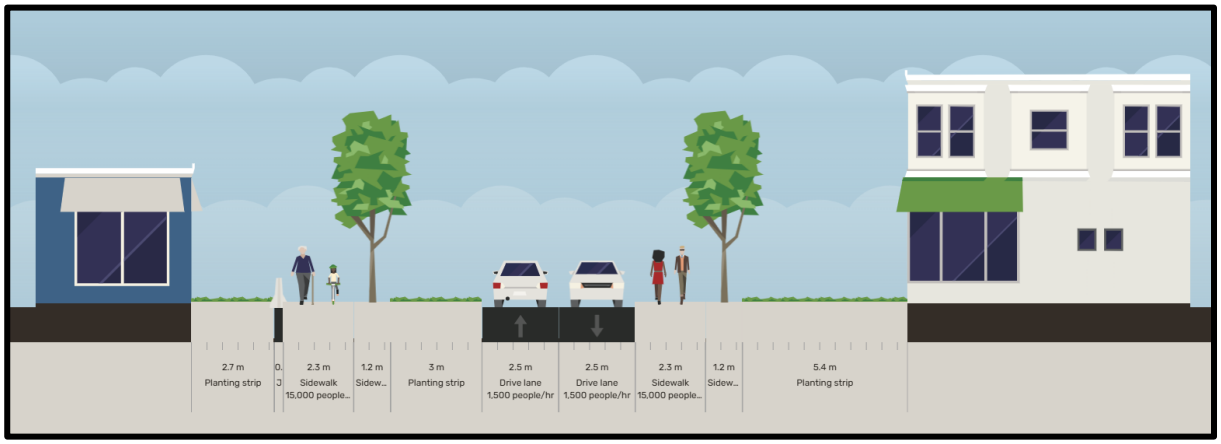

Figure 7: Using the same width as Figure 6, this illustration provides an example of reimagined distribution of space on the street (Arlunya Avenue), giving priority to footpaths and verges with trees. Image Credit: Streetmix.

Case study 2: Subiaco Primary School, Primary School, Subiaco

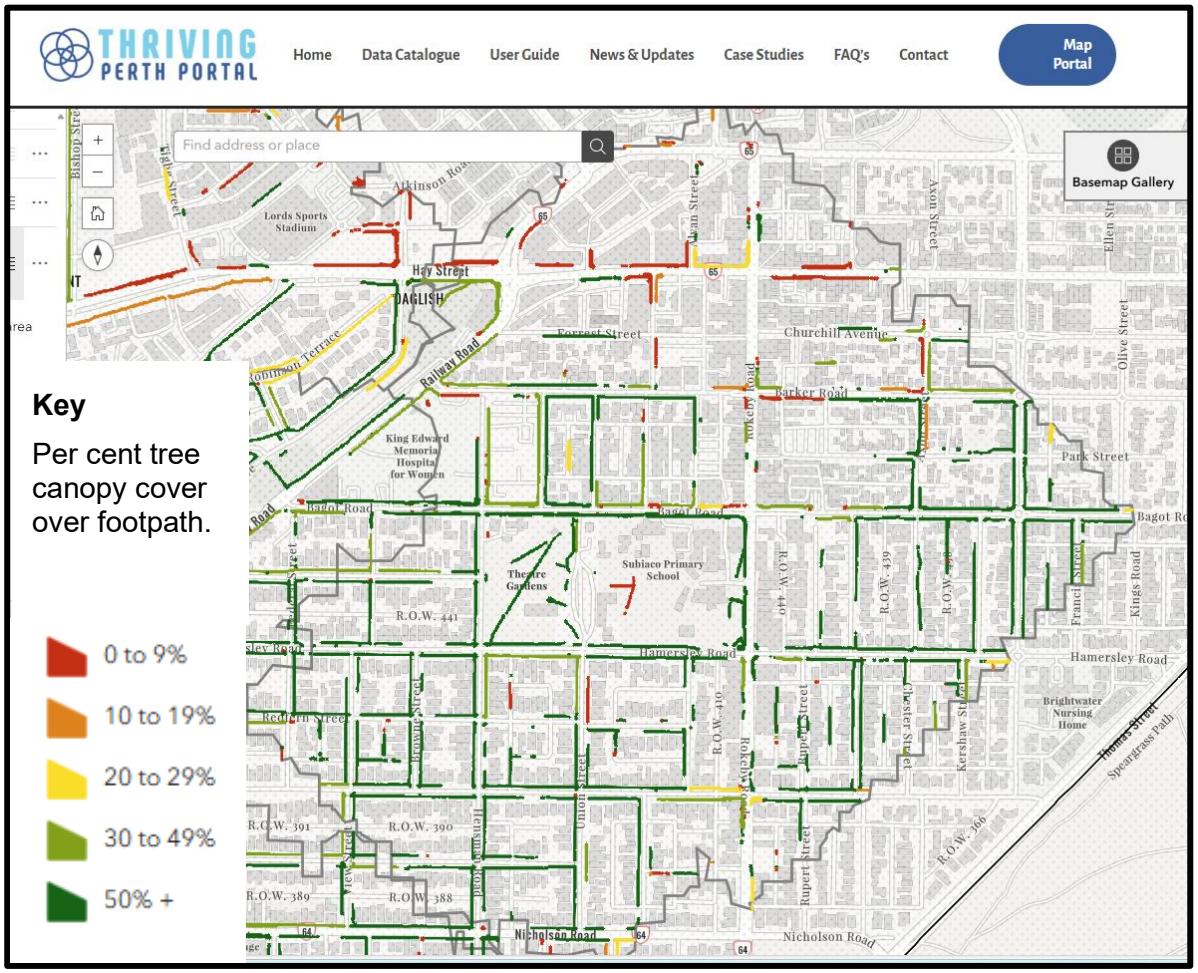

Figure 8: 800m walkable catchment area around the school. Thriving Perth Portal data[5] show that most streets have footpaths (71.2%) and most (63.8%) of the street length within the school catchment area has shade coverage meeting the 50% Healthy Streets minimum benchmark (Dark green).[112] Image Credit: Thriving Perth Portal.[5]

Figure 9: Birds-eye view of area around school in Subiaco, within 100m of a school. Shows high tree canopy coverage and footpaths on both sides of most roads. Image Credit: Google Maps Aerial View.

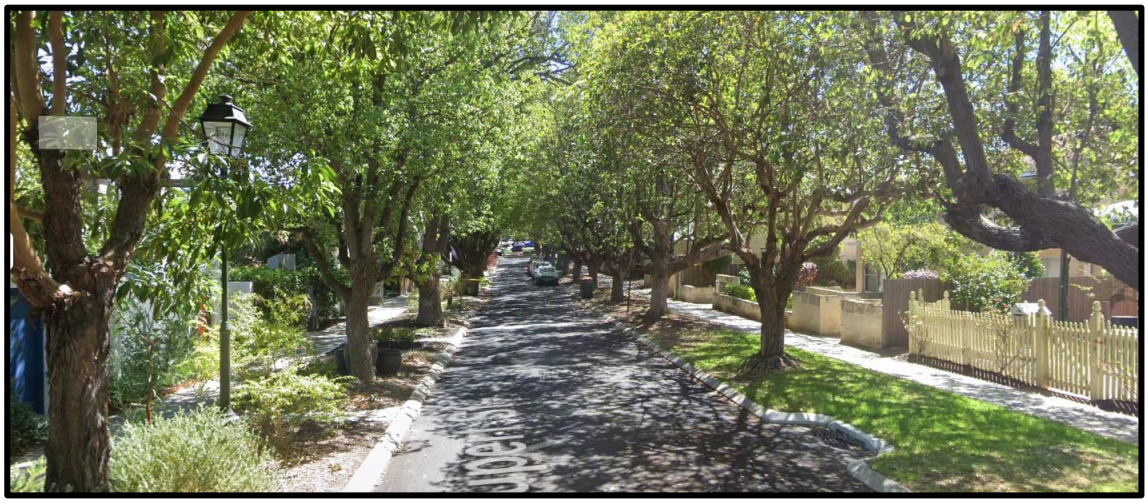

Figure 10: Street level in Subiaco, Rupert Street, within 100m of a school. Shows a narrow road, with reduced setbacks (front yards), high tree canopy coverage, and footpaths on both sides of the road. Image Credit: Google Maps Street View.

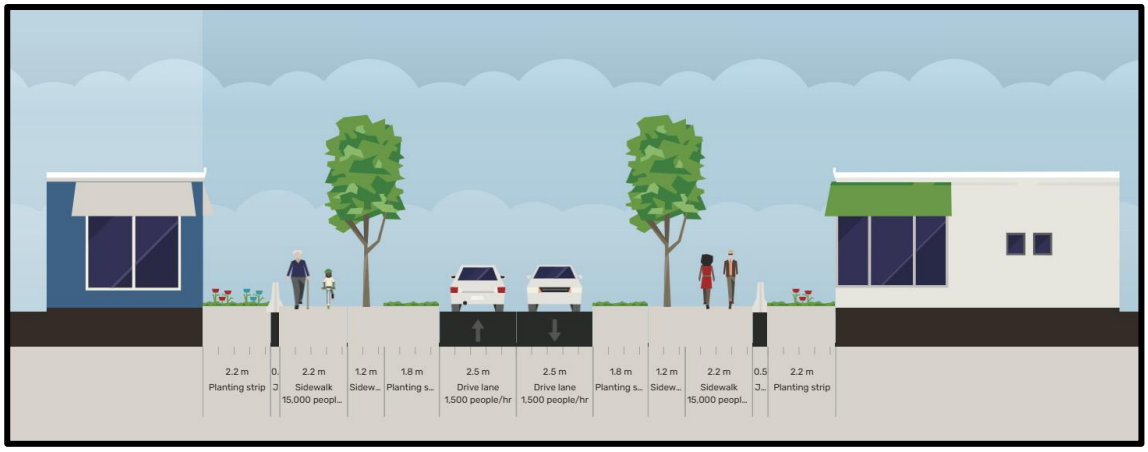

Figure 11: This illustration provides the current (actual) distribution of space on the street (Rupert Street). The distance between two houses (including the front yard setbacks) is 20.6m. Image Credit: Streetmix.

Case Study 3: Lakelands Primary School (new suburb)

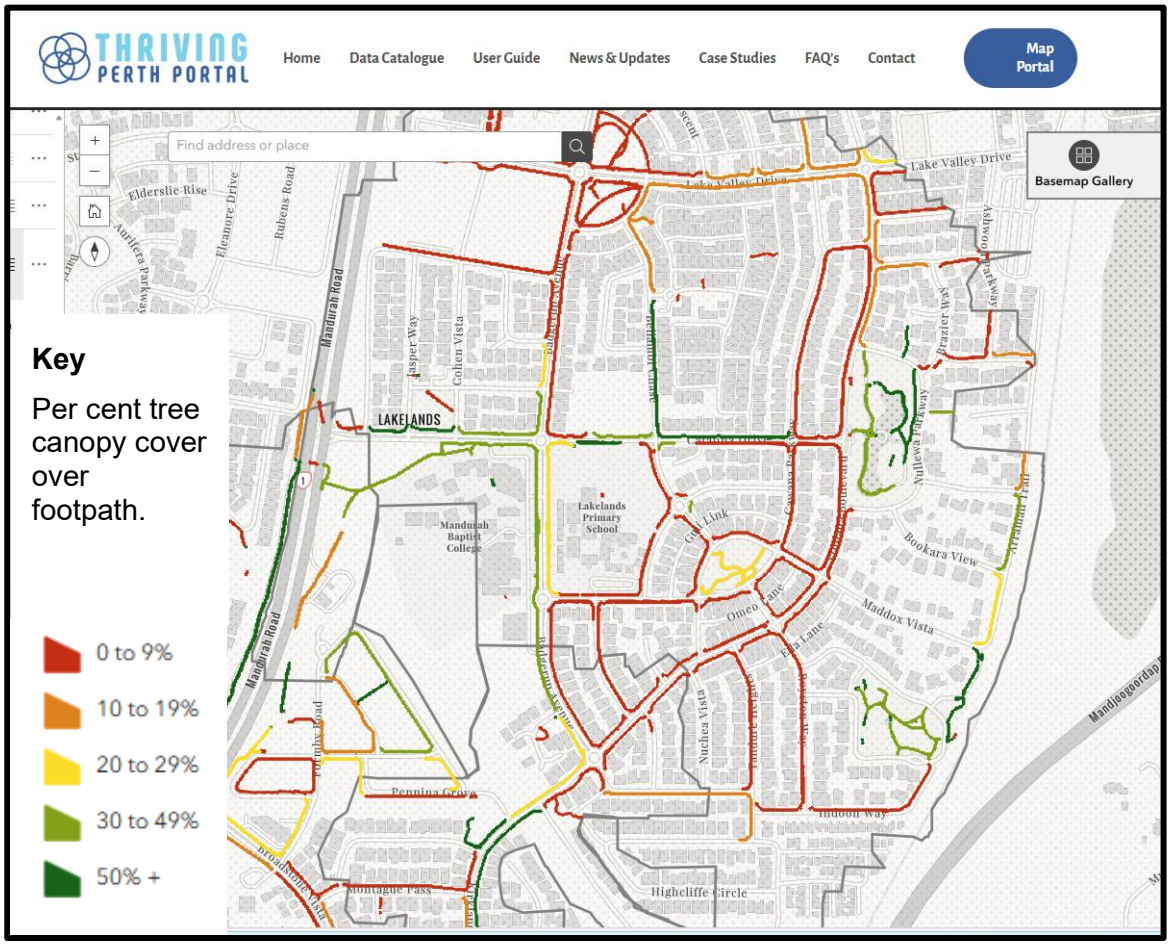

Figure 12: 800m walkable catchment area around the school. Thriving Perth Portal data[5] show that about two thirds of streets have footpaths (65.2%), but just 11.1% of the street length within the school catchment area has shade coverage meeting the 50% Healthy Streets minimum benchmark (Dark green).[112] Image Credit: Thriving Perth Portal.[5]

Figure 13: Birds eye view in Lakelands over Deepwater Way, with footpath on one side of the street, with large setbacks and no canopy coverage (very few trees of any size present). Image Credit: Google Maps Aerial View.

Figure 14: Street view in Lakelands, on Deepwater Way, with footpath on one side of the street, with relatively large setbacks and no canopy coverage. Very few small trees planted, limiting opportunity for canopy growth. Image Credit: Google Maps Street View.

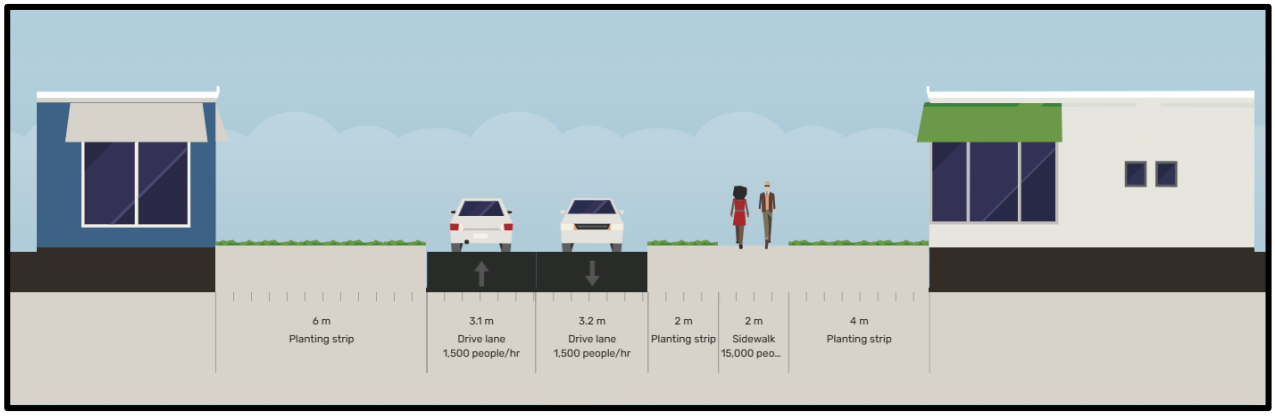

Figure 15: *This illustration provides the current (actual) distribution of space on the street (Deepwater Way). The distance between two houses (including the front yard setbacks) is 20.3m.* Image Credit: Streetmix.

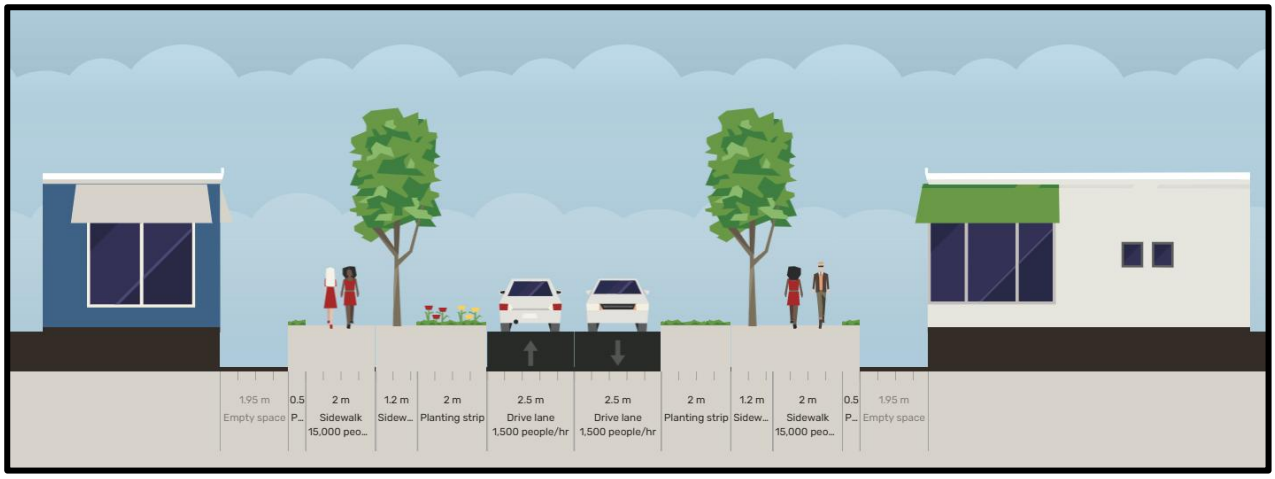

Figure 16: *This illustration provides the reimagined distribution of space on the street (Deepwater Way).* Image Credit: Streetmix.

Case Study 4: Yanchep Rise Primary School, Yanchep

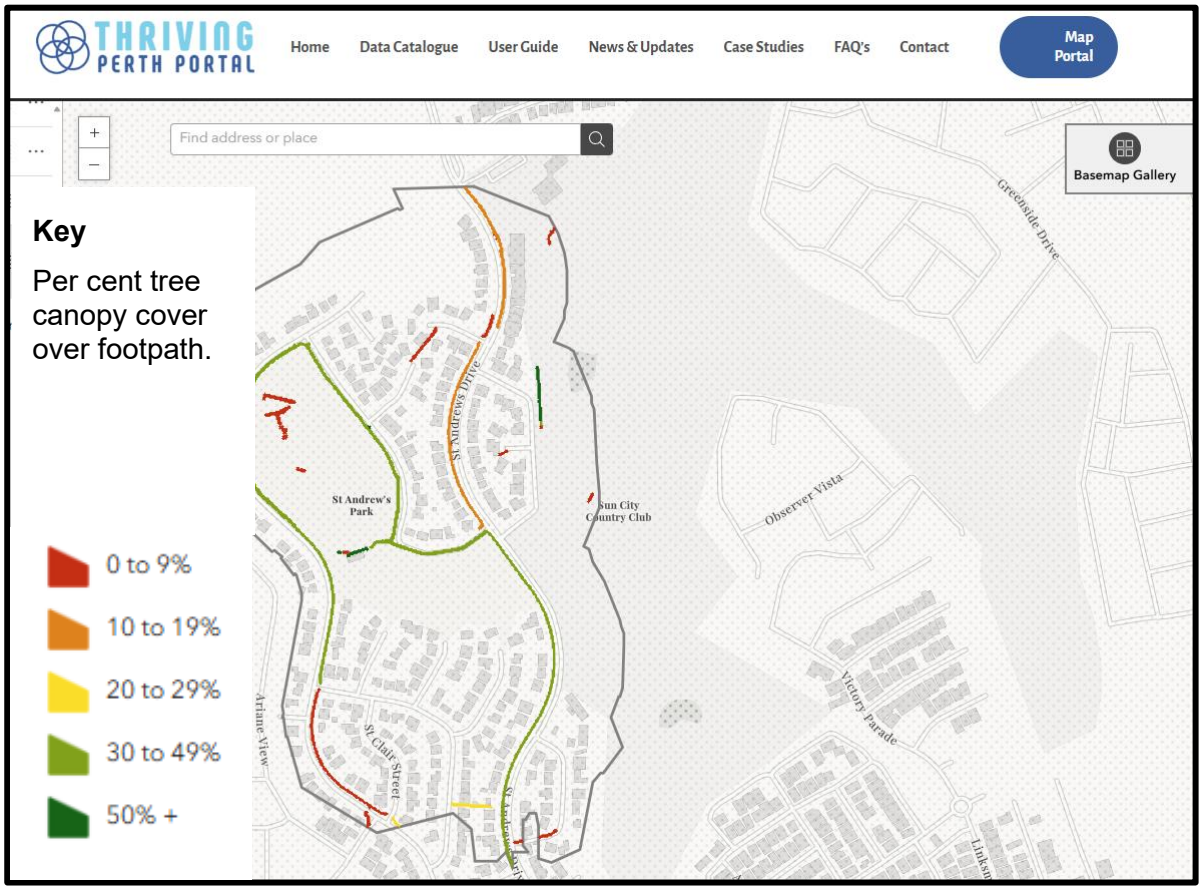

***Figure 17**: 800m walkable catchment area around the school. Thriving Perth Portal data[5] show that about two thirds of streets have footpaths (65.5%), but just 3.3% of the street length within the school catchment area has shade coverage meeting the 50% Healthy Streets minimum benchmark (Dark green).[112]* Image Credit: Thriving Perth Portal.[5]

Figure 18: Birds-eye views of same street in Yanchep shows little or no tree canopy coverage on streets surrounding schools. Most streets without any footpath. Image Credit: Google Maps Aerial View.

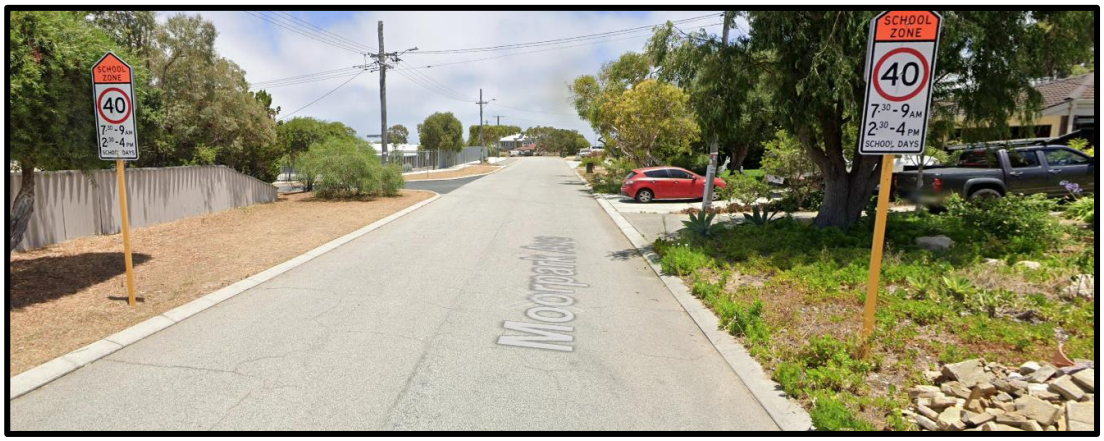

Figure 19: Street level street in Yanchep, within 100m of a school. Shows a wide road, with large setbacks (front yards), and very limited tree canopy coverage. Footpaths not provided. Image Credit: Google Maps Street View.

Case Study 5: Two Rocks Primary School, Two Rocks

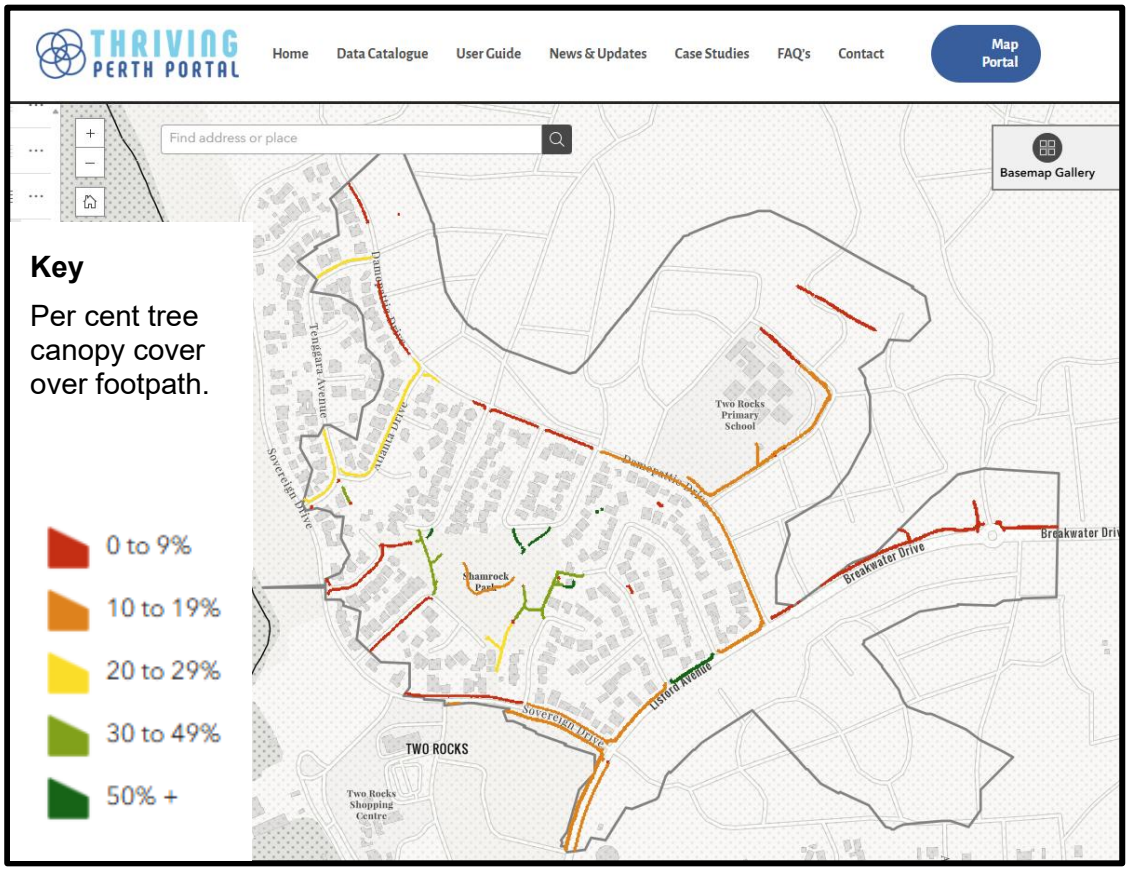

***Figure 20**: 800m walkable catchment area around the school. Thriving Perth Portal data[5] show that just 3.7% of the street length within the school catchment area has shade coverage meeting the 50% Healthy Streets minimum benchmark (Dark green).[112]* Image Credit: Thriving Perth Portal.[5]

Figure 21: Birds eye example in Two Rocks showing little to no tree canopy coverage, reflecting the street level lack of trees. Image Credit: Google Maps Aerial View.

Figure 22: Street level example in Two Rocks, example of an excessively wide residential street, with lots of impermeable concrete, due to large setbacks, painted bike lanes, and concrete median strips. Lack of trees. Image Credit: Google Maps Street View.

References

1. Government of Western Australia. Planning and Development Act 2005. Planning and Development (Local Planning Schemes) Regulations 2015. Published first 25/08/2015. Currency start 03/11/2024. Accessed 22/10/2025. Available from: https://www.legislation.wa.gov.au/legislation/statutes.nsf/law_s46246.html. 2025.

2. Reis RS. Walk the Vote: Why Democracy Is Important for Promoting Physical Activity Worldwide. Journal of Physical Activity and Health. 2025:1-3.

3. Healthway. Strategic Plan 2024-2029 Creating a healthier Western Australia together. Accessed 24/04/2025. Available from: https://www.healthway.wa.gov.au/wp-content/uploads/Healthway-s-Strategic-Plan-Feb-2024-FINAL-version.pdf. 2024.

4. Cunningham H. The Worlds Longest City. Photography Book. Accessed 08/10/2025. Available from: https://harrycunningham.com/books and https://au.blurb.com/books/12398252-the-world-s-longest-city. 2025.

5. Thriving Perth Portal. The Thriving Perth Portal is an interactive web-based mapping and decision-support tool that brings together spatial data from across key domains—including environment, planning, hydrology, climate, population, and health—into a single, accessible resource, enabling enable local governments to visualise and analyse the distribution of health determinants, outcomes, and environmental factors within their communities. Accessed 09/07/2025. Available from: https://thrivingperthportal.com.au/map-portal. 2025.

6. Government of Western Australia. WA Government Priorities 2025-2029. 'The little black book'. Published 26/09/2025. Accessed 30/09/2025. Available from: https://www.wa.gov.au/government/wa-government-priorities-2025-2029. 2025.

7. Roman Trubka, Peter Newman, Darren Bilsborough. Assessing the Costs of Alternative Development Paths in Australian Cities. Curtin University Sustainability Policy Institute (CUSP). Fremantle. Accessed 03/06/2025. Available from: https://www.earthsharing.org.au/wp-content/uploads/Curtin_Sustainability_Paper_0209.pdf. 2009.

8. Roman Trubka, Peter Newman, Darren Bilsborough. THE COSTS OF URBAN SPRAWL – INFRASTRUCTURE AND TRANSPORTATION. Environment Design Guide. Gen 83. Accessed 14/05/2025. Available from: https://www.crcsi.com.au/assets/Resources/b6e1625f-d90b-433d-945a-6afeff2e42f6.pdf. 2010.

9. NSW Productivity Commission. Building more homes where infrastructure costs less. Comparing the marginal costs of servicing growth in different areas of Sydney. Accessed 14/05/2025. Available from: https://www.productivity.nsw.gov.au/sites/default/files/2023-08/202308_NSW-Productivity-Commission_Building-more-homes-where-infrastructure-costs-less_accessible-v2.pdf. 2023.

10. Department of Infrastructure T, Regional Development, Communications and the Arts;. Australian Infrastructure and Transport Statistics: Yearbook 2024. Accessed 29/04/2025. Available from: https://www.bitre.gov.au/sites/default/files/documents/australian-infrastructure-and-transport-statistics--yearbook-2024--january-2025.pdf // Footote: The state government collects $2 billion in road related revenue annually (registration, stamp duty, licencing, parking levies), however, expenditure of state funds on roads exceeds $2.3 billion, representing a subsidy of $300 million annually. 2025.

11. Adam Crowe, Alan Duncan, Steven Rowley. Housing Affordability in Western Australia 2025: A long way from home. Accessed 15/10/2025. Available from: https://bcec.edu.au/publications/housing-affordability-in-western-australia-2025/. 2025.

12. Depatment of Communities. WA Housing Strategy 2020-2030. Accessed 14/10/2025. Available from: https://www.wa.gov.au/government/document-collections/wa-housing-strategy-2020-2030. 2020.

13. Department of Planning Lands and Heritage. Urban Growth Monitor 15. Perth Metropolitan, Peel and Greater Bunbury Regions. January 2024. Accessed 14/05/2025. Available from: https://www.wa.gov.au/system/files/2024-01/urban-growth-monitor-15-report-5jan24.pdf#:~:text=This%20is%20the%2015th%20edition%20of%20the%20Urban,urban%20development%20calculated%20as%20at%2031%20December%202022. 2024.

14. Department of Planning Lands and Heritage. Perth and Peel@3.5million. Accessed March 2018. Available from: https://www.wa.gov.au/system/files/2021-05/FUT-PP-Perth_and_Peel_Sub_Region_March2018_v2.pdf. 2018.

15. Australian Bureau of Statistics. Building Activity, Australia. Provides estimates of value of building work and number of dwellings commenced, completed, under construction and in the pipeline. Reference period June 2025. TABLE 38. Number of Dwelling Unit Completions by Sector, States and Territories. Released 15/10/2025. Accessed 15/10/2025. Available from: https://www.abs.gov.au/statistics/industry/building-and-construction/building-activity-australia/latest-release#data-downloads. 2025.

16. Government of Western Australia. Western Australian housing completions continue to gather pace. Published 15/10/2025. Accessed 15/10/2025. Available from: https://www.wa.gov.au/government/media-statements/Cook%20Labor%20Government/Western-Australian-housing-completions-continue-to-gather-pace-20251015. 2025.

17. National Heart Foundation of Australia. Good for Busine$$ The benefits of making streets more walking and cycling friendly. Discussion paper. Heart Foundation. Accessed 15/10/2025. Available from: https://irp.cdn-website.com/541aa469/files/uploaded/Heart_Foundation_Good_for_Business_2011.pdf. 2011.

18. Sarah Foster, Alexandra Kleeman, Melanie Lowe, Lucy Gunn, Chris De Gruyter, Manoj Chandrabose, et al. Designing for density Delivering healthy, higher-density neighbourhoods in Australia. Evidence review. National Heart Foundation of Australia. Published August 2025. Accessed 18/08/2025. Available from: https://irp.cdn-website.com/541aa469/files/uploaded/202508+Designing+for+density+HF+Evidence+Paper.pdf. 2025.

19. Government of Western Australia. Made in WA - unlocking future growth. Western Australia State Budget 2025-26. Page reviewed 19/06/2025. Accessed 14/10/2025. Available from: https://www.ourstatebudget.wa.gov.au/2025-26/made-in-wa.html. 2025.

20. Government of Western Australia. Driving Change 2020-2030. Road Safety Strategy for Western Australia. Accessed 05/06/2025. Available from: https://www.wa.gov.au/system/files/2021-07/Driving-Change-Road-Safety-Strategy-2020_2.pdf. 2020.

21. WA Government. First locally-made METRONET train makes maiden journey. Media Release. Published 07/04/2025. Accessed 21/10/2025. Available from: https://www.wa.gov.au/government/media-statements/Cook-Labor-Government/First-locally-made-METRONET-train-makes-maiden-journey-20240407. 2024.

22. WA Government. Government seeks new manufacturing facility to boost WA housing. Published 22/10/2025. Accessed 22/10/2025. Available from: https://www.wa.gov.au/government/media-statements/Cook%20Labor%20Government/Government-seeks-new-manufacturing-facility-to-boost-WA-housing-20251022. 2025.

23. Infrastructure Australia. Spend more, waste more. Australia's roads in 2014: moving beyond gambling. Industry consultation draft. Published July 2014. Accessed 01/05/2025. Available from: https://www.ycat.org.au/wp-content/uploads/2014/07/Draft-IA-Roads-Report.pdf. 2014.

24. Cancer Council WA, Common Cause Australia, Healthway. Fast Food Outlets and Better Planning Decisions. Message Guide. April 2025. Accessed 08/07/2025. Available from: Email. . 2025.

25. Gelius P, Messing S, Tcymbal A, Whiting S, Breda J, Abu-Omar K. Policy Instruments for Health Promotion: A Comparison of WHO Policy Guidance for Tobacco, Alcohol, Nutrition and Physical Activity. Int J Health Policy Manag. 2022;11(9):1863-73.

26. Love R, Adams J, van Sluijs EMF. Are school-based physical activity interventions effective and equitable? A meta-analysis of cluster randomized controlled trials with accelerometer-assessed activity. Obes Rev. 2019;20(6):859-70.

27. Bauman A. Report for Healthway on physical activity mass media campaigns. Accessed 27/05/2025. Available from: Internal report produced for Healthway. . 2022.

28. Department of Transport. Active Travel to School Working Group. *Active Travel to School Roadmap 2023-2030*. Department of Transport Western Australia. Accessed 24/04/2025. Available from: https://www.transport.wa.gov.au/mediaFiles/active-transport/AT_P_ATSchoolRoadmap.pdf.

29. James B. TravelSmart: An Obituary and Epitaph2017.

30. Department of Transport. Your Move. Your Move is an active lifestyle program that helps people with information and support to make it easier for them to walk, wheel and ride to the places they need to go. Department of Transport Western Australia. Accessed 24/04/2025. Available from: https://www.yourmove.org.au/.

31. Department of Transport. Department of Transport. The declining rate of walking and cycling to school in Perth. 2021. Accessed 24/04/2025. Available from: https://www.transport.wa.gov.au/mediaFiles/active-transport/AT_P_Declining_Rate_walking_cycling_to_school_in_Perth.pdf.

32. Hunter KE, Nguyen D, Libesman S, Williams JG, Aberoumand M, Aagerup J, et al. Parent-focused behavioural interventions for the prevention of early childhood obesity (TOPCHILD): a systematic review and individual participant data meta-analysis. The Lancet. 2025.

33. Department of Health. WA Health and Wellbeing Surveillance (HWSS) Surveillance System. Health and wellbeing of children in Western Australia 2022. Accessed 30/04/2025. Available from: https://www.health.wa.gov.au/~/media/Corp/Documents/Reports-and-publications/Population-surveys/Health-and-wellbeing-of-children-in-WA-2022.pdf. 2022.

34. National Heart Foundation of Australia. What Australia Wants – Living locally in walkable neighbourhoods: National Heart Foundation of Australia. First published 2020. Accessed 24/04/2025. Available from: https://irp.cdn-website.com/541aa469/files/uploaded/What_Australia_Wants_Report_.pdf. 2020.

35. Cheval B, Maltagliati S, Owen N. Effort Minimization and the Built Environment: Public Health Implications. Journal of Physical Activity and Health. 2025;22(7):772-7.

36. Healthy Streets. Healthy Streets checklist for new developments. Healthy Streets. Accessed from: https://www.healthystreets.com/resources#new-development-check. 2025.

37. Anna Timperio, Alison Lee, Lucy Gunn, Shannon Sahlqvist, Nicole Edwards, Afshin Jafari, et al. The heart of road use A people-first approach that embeds health in transport planning. Evidence review August 2025. National Heart Foundation of Australia. Accessed 04/09/2025. Available from: . 2025.

38. World Health Organization. Promoting walking and cycling: a toolkit of policy options. Accessed 19/05/2025. Available from: https://www.who.int/publications/i/item/9789240109902. 2025.

39. Ennis G. Dark PR : how corporate disinformation undermines our health and the environment. . Wakefield, Québec: Daraja Press; 2023.

40. Dodson J, Sipe N. Shocking the suburbs: Urban location, housing debt and oil vulnerability in the Australian city. Social Research in Transport (SORT) Clearinghouse. 2006.

41. Australian Automobile Association. Transport Affordability Index March Quarter 2025. Accessed 21/10/2025. Available from: https://www.aaa.asn.au/wp-content/uploads/2025/05/AAA_Affordability-Index-Q1-2025-1.pdf. 2025.

42. Prieto-Curiel R, Ospina JP. The ABC of mobility. Environment International. 2024;185:108541.

43. Newman P, Kenworthy J. The End of Automobile Dependence: How Cities Are Moving beyond Car-Based Planning. Island Press. Accessed 24/04/2025. Available from: https://link.springer.com/book/10.5822/978-1-61091-613-4. 2015.

44. He Y, Zeng A. Expanding bottlenecks reveals hidden bottlenecks and leads to more congested city centers. Physica A: Statistical Mechanics and its Applications. 2024;640:129707.

45. Miner P, Smith BM, Jani A, McNeill G, Gathorne-Hardy A. Car harm: A global review of automobility's harm to people and the environment. Journal of Transport Geography. 2024;115:103817.

46. Australian Insitute of Health and Welfare. Leading causes of death. Deaths in Australia. Lst updated 09/04/2025. Accessed 27/05/2025. Available from: https://www.aihw.gov.au/reports/life-expectancy-deaths/deaths-in-australia/contents/leading-causes-of-death. 2025.

47. Committee for Sydney. Putting our best foot forward A checklist for walkable density. Accessed 02/05/2025. Available from: https://sydney.org.au/wp-content/uploads/2025/03/Doing-density-well-walkable-final.pdf?utm_source=Town+Team+Movement&utm_campaign=6e88e752d0-EMAIL_CAMPAIGN_2025_MAY&utm_medium=email&utm_term=0_-8e37e9d742-516565059&mc_cid=6e88e752d0&mc_eid=0aef2e8a99. 2025.

48. Spencer A, Gill J, Schmahmann L. Urban or suburban? Examining the density of Australian cities in a global context2015.

49. Government of Western Australia. Record investment in cycling and walking paths continue. The McGowan Labor Government 2022-23 State Budget includes $347 million over the next four years for more cycling and walking infrastructure for Western Australians. Published 12/05/2022. Accessed 03/07/2025. Available from: https://www.wa.gov.au/government/media-statements/McGowan%20Labor%20Government/Record-investment-in-cycling-and-walking-paths-continue-20220512. 2022.

50. Government of Western Australia. Since 2017, the State Government has invested or allocated more than $750 million towards expanding the active transport network - the largest ever investment made by a Western Australian State Government. Accessed 05/08/2025. Available from: https://www.wa.gov.au/government/media-statements/Cook%20Labor%20Government/More-than-$80,000-in-grants-awarded-to-crank-up-WA-Bike-Month-20250804. 2025.

51. WA Deaprtment of Health. Western Australia Health and Wellbeing Surveillance System trend dashboard. Accessed 10/10/2025. Available from: https://www.health.wa.gov.au/Improving-WA-Health/Health-and-Wellbeing-Surveillance-System/Western-Australia-Health-and-Wellbeing-Surveillance-System-trend-dashboard. 2025.

52. Department of Health. WA Health and Wellbeing Surveillance (HWSS) Surveillance System. Health and wellbeing of adults in Western Australia 2022. Accessed 30/04/2025. Available from: https://www.health.wa.gov.au/~/media/Corp/Documents/Reports-and-publications/Population-surveys/Health-and-wellbeing-of-adults-in-WA-2022.pdf 2022.

53. Hyndman B. 140th out of 146: Australian teens do close to the least physical activity in the world. The Conversation. Accessed 02/10/2025. Available from: https://theconversation.com/140th-out-of-146-australian-teens-do-close-to-the-least-physical-activity-in-the-world-127434. 2025.

54. Guthold R, Stevens GA, Riley LM, Bull FC. Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1·6 million participants. The Lancet Child & Adolescent Health. 2020;4(1):23-35.

55. Nau T, Perry S, Giles-Corti B, Bellew W, Bauman A, Smith BJ. Mapping and analysis of laws influencing built environments for walking and cycling in Australia. BMC Public Health. 2023;23(1):108.

56. Main Roads Western Australia. Main Roads Supplement to the Austroads Guide to Road Design. Part 3: Geometric Design. Accessed 27/05/2025. Available from: https://www.mainroads.wa.gov.au/4ae20d/globalassets/technical-commercial/technical-library/road-and-traffic-engineering/guide-to-road-design/mrwa-supplement-to-austroads-guide-to-road-design-part-3-geometric-design/mrwa-supplement-to-austroads-guide-to-road-design-part-3-geometric-design.pdf. 2024.

57. Western Australian Planning Commission, Department of Planning Lands and Herritage. Residential Design Codes. Volume 1. This Planning Code is made under Part 3A of the Planning and Development Act 2005 and is cited as Residential Design Codes Volume 1 (R-Codes Volume 1). 2024.

58. Infrastructure Australia. Perth active transport improvements. Infrastructure Priority List. Infrastructure Australia. Accessed 06/05/2025. Available from: https://www.infrastructureaustralia.gov.au/ipl/perth-active-transport-improvements. 2025.

59. Bellew B, Nau T, Smith B, Bauman A. Getting Australia Active III: A systems approach to physical activity for policy makers Eds.) Getting Australia Active III: A systems approach to physical activity for

policy makers. Sydney, Australia. The Australian Prevention Partnership Centre and The University of Sydney. Accessed 29/04/2025. Available from: https://preventioncentre.org.au/resources/getting-australia-active-3-summaries/. 2020.

60. Giles-Corti B, Vernez-Moudon A, Reis R, Turrell G, Dannenberg AL, Badland H, et al. City planning and population health: a global challenge. The Lancet. 2016;388(10062):2912-24.

61. Gilmore AB, Fabbri A, Baum F, Bertscher A, Bondy K, Chang H-J, et al. Defining and conceptualising the commercial determinants of health. The Lancet. 2023;401(10383):1194-213.

62. McLaughlin M, Murphy J, Rigby BP, Ennis G. We Do Have Enemies and We Should Know Who They Are: The Commercial Determinants of Physical Activity. Journal of Physical Activity and Health. 2025:1-3.

63. Jochem C, Abu-Omar K, Baltruks D, Bauman A, Ding D, Kahlmeier S, et al. Commercial determinants of active travel: a crucial but overlooked barrier to health and sustainability. The Lancet Planetary Health. 2025.

64. Miller A, Osborne E, Edwards R, Macmillan A, Shaw C. The road lobby and unhealthy transport policy discourse in Aotearoa New Zealand: A framing analysis. Journal of Transport & Health. 2025;41:101999.

65. Jordaan S. Healthy Active by Design: Industry Intent to Change Survey 2025 - Qualitative results. National Heart Foundation of Australia. Accessed 24/04/2025. Available from: https://irp.cdn-website.com/541aa469/files/uploaded/HaBD_-_Industry_Intent_to_Change_2025_Survey_Report_National_results.pdf. 2025.

66. WA Government. Infrastructure Development Fund to deliver 1,500 new apartments. Media Release. 22 October 2025. Accessed 23/10/2025. Available from: https://www.wa.gov.au/government/media-statements/Cook%20Labor%20Government/Infrastructure-Development-Fund-to-deliver-1,500-new-apartments-20251022. 2025.

67. Yeo J, Park S, Jang K. Effects of urban sprawl and vehicle miles traveled on traffic fatalities. Traffic Inj Prev. 2015;16(4):397-403.

68. Transport Professionals Australia. The Path to Net Zero. Decarbonising Australia's Transport System Policy Issues. Published November 2024. Accessed 21/10/2025. Available from: https://transportprofessionals.com.au/static/uploads/files/decarbonisation-policy-issues-paper-september2025-wfvswguhqbga.pdf. 2024.

69. Climate Change Authority. Transport. Sector pathways review. Part 1 Transport. Accessed 21/10/2025. Available from: https://www.climatechangeauthority.gov.au/sites/default/files/documents/2024-09/2024SectorPathwaysReviewTransport.pdf?utm. 2025.

70. Climate Transparency. Climate Transparency Report: Comparing G20 Climate Action. Accessed 21/10/2025. Available from: https://www.climate-transparency.org/wp-content/uploads/2022/10/CT2022-Australia-Web.pdf. 2025.

71. City of Vincent. LOCAL PLANNING POLICY: RESTRICTED PREMISES – SMOKING. Accessed 26/05/2025. Available from: https://www.vincent.wa.gov.au/documents/2117/local-planning-policy-restricted-premises-smoking. 2022.

72. Burgoine T, Forouhi NG, Griffin SJ, Wareham NJ, Monsivais P. Associations between exposure to takeaway food outlets, takeaway food consumption, and body weight in Cambridgeshire, UK: population based, cross sectional study. BMJ : British Medical Journal. 2014;348:g1464.

73. van Erpecum C-PL, van Zon SKR, Bültmann U, Smidt N. The association between the presence of fast-food outlets and BMI: the role of neighbourhood socio-economic status, healthy food outlets, and dietary factors. BMC Public Health. 2022;22(1):1432.

74. Pulker CE, Butcher LM, Klug F, Whitton C, Trapp GSA. A cross-sectional audit of the Australian community food environment highlights the prominent role of chain food outlets. Discover Food. 2025;5(1):66.

75. Trapp GSA, Hooper P, Thornton L, Kennington K, Sartori A, Billingham W, et al. Does fast-food outlet density differ by area-level disadvantage in metropolitan Perth, Western Australia? Health Promotion Journal of Australia. 2022;33(S1):262-5.

76. Trapp GSA, Hooper P, Billingham W, Thornton L, Sartori A, Kennington K, et al. Would you like fries with that? Investigating fast-food outlet availability near schools in Perth, Western Australia. Health Promotion Journal of Australia. 2023;34(1):85-90.

77. Cancer Council WA. "We don't need another Maccas": How our local communities are taking on fast-food outlets in WA. Published 2024. Accessed 29/10/2025. Available from: https://cancerwa.asn.au/assets/public/2024/09/Advocacy-Report-Fast-Food-Outlets-We-dont-need-another-Maccas.pdf. 2024.

78. Change.org. Petition. SAY NO to the proposed Development on Canning & Heath Road, Kalamunda: Prioritise Safety. 2371 verified signatures - correct at 8am 29/10/2025. Accessed 29/10/2025. Available from: https://www.change.org/p/say-no-to-the-proposed-development-on-canning-heath-road-kalamunda-prioritise-safety. 2025.

79. 6PR Perth, Simon Beaumont. Calls for public submissions in the fight against a proposed McDonald's in Kalamunda. Around 250 Kalamunda residents have gathered to protest a McDonald'sbeing built in the area. Published 10/02/2025. Accessed 29/10/2025. Available from: https://www.6pr.com.au/calls-for-public-submissions-in-the-fight-against-a-proposed-mcdonalds-in-kalamunda/. 2025.

80. City of Kalamunda. Community feedback open for Mcdonald's proposal in Kalamunda. Published 17/01/2025. Accessed 29/10/2025. Available from: https://www.kalamunda.wa.gov.au/news-details/2025/01/17/community-feedback-open-for-mcdonald-s-proposal-in-kalamunda. 2025.

81. City of Kalamunda. DA - Lots 29 (14) & 28 (16) Canning Rd & Lot 3 (5) Heath Rd Kalamunda. Accessed 29/10/2025. Available from: https://engage.kalamunda.wa.gov.au/da-lots-29-14-and-28-16-canning-road-and-lot-3-5-heath-road. 2025.

82. Foster S, Hooper P, Knuiman M, Lester L, Trapp G. Associations between proposed local government liquor store size classifications and alcohol consumption in young adults. Health Place. 2018;52:170-3.

83. Sherk A, Stockwell T, Chikritzhs T, Andréasson S, Angus C, Gripenberg J, et al. Alcohol Consumption and the Physical Availability of Take-Away Alcohol: Systematic Reviews and Meta-Analyses of the Days and Hours of Sale and Outlet Density. Journal of Studies on Alcohol and Drugs. 2018;79(1):58-67.

84. Dessaix A, Maddox R, Stone E, Freeman B. Policy incoherence: Leadership needed to combat illicit tobacco and end tobacco oversupply. Australian and New Zealand Journal of Public Health. 2025:100278.

85. Card KG, Refol J, Hill TG, Benoit C, Coplan RJ, Joordens S, et al. Public Health Guidelines for Social Connection: An International Delphi Study. Health Policy. 2025:105452.

86. Western Australian Planning Commission (WAPC), Department of Planning Lands and Heritage. Better urban forest planning - Perth and Peel. Urban tree canopy dashboard. Microsoft Power BI. Last updated: 29/05/2025. Accessed 29/05/2025. Available from: https://www.wa.gov.au/government/document-collections/better-urban-forest-planning-perth-and-peel. 2025.

87. Hulley ME. 5 - The urban heat island effect: causes and potential solutions. In: Zeman F, editor. Metropolitan Sustainability: Woodhead Publishing; 2012. p. 79-98.

88. Urban Heat Island Map of Perth. Map by: Alex Suanders. Cited in 202020vision research. Accessed 03/06/2025. Available from: https://www.greenerspacesbetterplaces.com.au/media/162990/wsattg_wa.pdf.

89. Whitby C. Is Perth at Risk to the Urban Heat Island Effect? Analysing factors that contribute to the heat island effect in Perth. Published 27 May 2022.Accessed 03/06/2025. Available from: https://storymaps.arcgis.com/stories/1e4054b9bf894647858232b8e119e0b1. 2022.

90. Weeramanthri T, Joyce S, Bowman F, Bangor-Jones R, Law C. Weeramanthri T, Joyce S, Bowman F, Bangor-Jones R, Law C. Climate Health WA Inquiry: Final Report. In: Western Australian Department of Health, editor. Perth 2020. Accessed 16/10/2025. Available from: https://www.health.wa.gov.au/~/media/Corp/Documents/Improving-health/Climate-health/Climate-Health-WA-Inquiry-Final-Report.pdf. 2020.

91. Cancer Council WA, Sunsmart. The Shade Handbook. A practical guide for shade development in Western Australia. Accessed 29/10/2025. Available from: https://cancerwa.asn.au/assets/public/2022/07/2020-12-03-shade-handbook-sunsmart.pdf. 2020.

92. Yu J, Zhang H, Dong X, Shen J. The impact of street greenery on active travel: a narrative systematic review. Front Public Health. 2024;12:1337804.

93. Tabatabaie S, Litt JS, Muller BHF. Sidewalks, trees and shade matter: A visual landscape assessment approach to understanding people's preferences for walking. Urban Forestry & Urban Greening. 2023;84:127931.

94. Astell-Burt T, Feng X. Association of Urban Green Space With Mental Health and General Health Among Adults in Australia. JAMA Netw Open. 2019;2(7):e198209.

95. Godrich SL, Chiera I, Stoneham M, Doe J, Devine A, Humphreys E. Increasing the Effectiveness of Rural, Regional and Remote Food Security Initiatives Through Place-Based Partnerships—A Qualitative Study. Health Promotion Journal of Australia. 2025;36(3):e70048.

96. Sustain The Australian Food Network. Solutions to food security in Australia: what's on the table? Analysis of Submissions to the Federal Inquiry into Food Security in Australia. Published August 2025. Accessed 09/09/2025. Available from: https://sustain.org.au/wp-content/uploads/2025/08/Sustain_Food-Security-Inquiry-Report_260825.pdf. 2025.

97. Commission. WAP. Western Australian Planning Commission. Liveable neighbourhoods: a Western Australian Government sustainable cities initiative. Perth: Western Australian Planning Commission, 2009. Accessed 24/04/2025. Available from: https://www.wa.gov.au/system/files/2021-05/FUT_LN_Liveable_Neighbourhoods_update_02.pdf.

98. Western Australian Planning Commission. Liveable Neighbourhoods. Updated draft 2015. Accessed 13/06/2025. Available from: https://www.wa.gov.au/system/files/2021-05/FUT-LiveableNeighbourhoods_2015.pdf. 2015.

99. Department of Planning Lands and Heritage. State planning strategy 2050. Accessed 14/05/2025. Available from: https://www.wa.gov.au/government/publications/state-planning-strategy-2050. 2014.

100. Government of Western Australia. Nation-leading boost to kindy access for WA families. Office of Early Childhood established to oversee trial rollout, workforce measures, curriculum development, and the WA Play Strategy. Media Release. Published 09/06/2025. Accessed 02/10/2025. Available from: https://www.wa.gov.au/government/media-statements/Cook%20Labor%20Government/Nation-leading-boost-to-kindy-access-for-WA-families-20250609 2025.

101. Department of Transport. WA Active Travel Strategy. Last updated 22/05/2025. Accessed 03/07/2025. Available from: https://transport.wa.gov.au/active-transport/wa-active-travel-strategy. 2025.

102. Department of Health. State Public Health Plan for Western Australia 2025–2030. Accessed 05/06/2025. Available from: https://www.health.wa.gov.au/~/media/Corp/Documents/About-us/Public-Health-Act/State-Public-Health-Plan-2025-2030.pdf. 2025.

103. Harris P, Kent J, Sainsbury P, Marie-Thow A, Baum F, Friel S, et al. Creating 'healthy built environment' legislation in Australia; a policy analysis. Health Promotion International. 2017;33(6):1090-100.

104. Department of Health. Public Health Planning Guide for Local Government Guide to support the preparation and ongoing review of local public health plans. Accessed 13/08/2025. Available from: https://www.health.wa.gov.au/~/media/Corp/Documents/Health-for/Public-health-planning/PHP-Guide-for-local-government.pdf. 2025.

105. Department of Health. Western Australian Health Promotion Strategic Framework 2022–2026. Accessed 05/06/2025. Available from: https://www.healthway.wa.gov.au/wp-content/uploads/Healthway-s-Strategic-Plan-Feb-2024-FINAL-version.pdf. 2022.

106. WA Department of Health. Sustainable Health Review. Final Report to the Western Australian Government. Perth, Western Australia. Accessed 25/06/2025. Available from: https://www.health.wa.gov.au/Improving-WA-Health/Sustainable-health-review/Final-report. 2019.

107. National Heart Foundation of Australia. Blueprint for an active Australia: Third Edition. National Heart Foundation of Australia, 2019. Accessed 29/04/2025. Available from: https://www.heartfoundation.org.au/blueprint. 2019.

108. International Society for Physical Activity and Health (ISPAH). ISPAH's Eight Investments That Work for Physical Activity. November 2020. Available from: www.ISPAH.org/Resources.

109. International Society for Physical Activity and Health. Infographic. ISPAH's Eight Investments That Work for Physical Activity: infographic, animation and call to action. British Journal of Sports Medicine. 2021:bjsports-2020-103635.

110. Milton K, Cavill N, Chalkley A, Foster C, Gomersall S, Hagstromer M, et al. Eight Investments That Work for Physical Activity. J Phys Act Health. 2021;18(6):625-30.

111. World Health Organization. Global action plan on physical activity 2018–2030: more active people for a healthier world. Geneva: World Health Organization; 2018. Licence: CC BY-NC-SA 3.0 IGO. Accessed 28/04/2025. Available from: https://iris.who.int/bitstream/handle/10665/272722/9789241514187-eng.pdf?sequence=1. 2018.

112. Healthy Streets. Healthy Streets Design Check Australia. Accessed 30/06/2025. Available from: https://www.healthystreets.com/resources#on-street-assessment.