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### **Place & Liveability in Darwin**

The Heart Foundation welcomes the City of Darwin's development of a Place & Liveability Plan that reflects the long-term aspirations of its community to make Darwin more liveable for its residents.

We further commend the City's undertaking of community engagement to ensure it delivers on what the community wants towards creating a safe, liveable, healthy, cool, green, clean, smart, prosperous, vibrant and creative city.

We hope that you will accept this submission as part of your consultation activities in lieu of completing an online survey. The survey did not seem the appropriate avenue for the Heart Foundation to submit feedback. However, our comments below largely correspond with your survey fields.

Please find our detailed submission at **Attachment A**.

If you have any questions relating to our submission, please contact Anna Gurnhill, Senior Active Living Officer, by email to [Anna.Gurnhill@heartfoundation.org.au](mailto:Anna.Gurnhill@heartfoundation.org.au)

Kevin Wrigley  
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## **ATTACHMENT A**

### **Summary of recommendations:**

1. The City of Darwin's Place & Liveability Plan should consider all the liveability principles proposed within the community engagement survey. In particular, we recommend that focus be placed on principles of physical connectivity, open space and recreational spaces, and safety and security.
2. A diversified approach to assuring the real and perceived safety of Darwin residents should be included. In particular we recommend that enhanced safety and security strategies be focused on addressing improved lighting, traffic calming measures, separation of car traffic from people walking and cycling, and passive surveillance.
3. Enhanced access to green spaces and adequate tree canopies should be prioritised. A minimum of 30% shade cover from trees and vegetation in urban areas should be achieved to reduce urban heat islands and promote physical activity of all residents.
4. Planning for liveability in Darwin should employ a systems approach to best capture the impacts of diverse variables on the day-to-day lives of its residents.

### **Designing for Heart Health**

The Heart Foundation is Australia's trusted for-purpose organisation working to improve heart disease prevention, detection, and support for all people living in Australia.

Cardiovascular disease is the cause of 1 in 4 of all deaths in Australia, with more than half of the population having 3 or more key risk factors for cardiovascular disease.<sup>1</sup>

The built and natural environments, together with transport mode choice, play a significant role in helping people engage in regular physical activity, reducing their risk of developing cardiovascular disease. Research shows that people who live in walkable communities are 1.5 times more likely to get enough physical activity.<sup>2</sup> The walkability of a neighbourhood has been found to be closely linked to cardiovascular health, with research showing that the proportion of people with healthy cardiovascular disease risk profiles is 22% higher in neighbourhoods with high walkability when compared to neighbourhoods with low walkability- areas where walking is unsafe, inconvenient or difficult.<sup>3</sup>

### **The Northern Territory Context**

The Northern Territory has the highest national age-standardised rate for acute coronary syndrome (ACS) admissions. While the national age-standardised rate for ACS admissions in Australia is 21.1 per 10,000, the Northern Territory sees a rate of 47.2 per 10,000 - the highest among all states and territories.<sup>4</sup> Most cardiovascular disease risk factors are preventable through a healthy lifestyle, including a healthy diet, regular exercise and maintaining a healthy weight. Currently, 4 in 5 adults in Australia do not get enough physical exercise, placing them at increased risk of a range of chronic diseases.<sup>5</sup> In the Northern

Territory, 66.4% of people do not get enough physical activity.<sup>4</sup> Physical inactivity remains a major health issue and is calculated to cost Australia \$2.4 billion each year in additional health costs alone.<sup>6</sup>

The National Heart Foundation's 'What Australia Wants – Living Locally in Walkable Neighbourhoods' has shown that 29% of people living in the Northern Territory believe their current neighbourhood helps activity levels a lot, 39% believe it helps a little, and 31% believe the current environment doesn't really help or doesn't help at all.<sup>7</sup> Among people living in the Northern Territory, 68% are in favour of government directing more of its roads funding into walking and cycling infrastructure, and 69% are supportive of speed limit reductions in neighbourhood streets.<sup>7</sup>

The Heart Foundation has a vested interest to ensure that urban areas and local neighbourhoods across Australia are designed to be both walkable and liveable, for transport and recreation purposes. Our flagship program, [Healthy Active by Design](#), provides resources that put health at the heart of design principles, to support councils and practitioners with an evidence-based toolkit to implement healthy and walkable built environments.

## Healthy Active by Design

The Heart Foundation has a vested interest to support people living in Australia to increase their levels of physical activity by providing walkable urban areas and local neighbourhoods across the country, for both transport and recreation purposes. To support industry professionals and decision makers to create more walkable, liveable neighbourhoods for heart health, the Heart Foundation's evidence-based Healthy Active by Design toolkit for active living incorporates eight design features of the built environment that can increase walkability and physical activity for all Australians.<sup>8</sup> The toolkit also includes a module for Healthy Active Ageing, with an additional module for Walkability in Areas of Disadvantage currently in design. The eight design features are:

1. Public open space
2. Community facilities
3. Buildings
4. Destinations (density)
5. Movement networks
6. Housing diversity
7. Sense of place
8. Healthy food.

## Liveability principles

The Heart Foundation strongly supports the liveability principles presented by the City of Darwin's community engagement survey, and we rate each principle as highly important. The liveability principles listed relate strongly to the design features of Healthy Active by

Design and are each major contributors to planning urban spaces that promote safe, active and vibrant built environments.

In focusing on the three most important principles for promoting the liveability of a neighbourhood, the Heart Foundation recommends that the City of Darwin prioritises the following principles:

**Physical connectivity:** refers to walkability, cycling infrastructure and ease of movement within the community, including connectivity to public transport.

Connectivity is core to promoting active living and is central to all Healthy Active by Design features as it links together the built environment, walkability and heart health. Connectivity and easy access from residences to shops, essential services, social spaces and public transport are essential elements to building liveable spaces that also bring people together. Of particular importance is that planning for connectivity must consider inclusive and equitable access for all.

Good connectivity hinges on the configuration of urban design, transport planning and traffic engineering that permit people to navigate their area with a variety of direct routes to arrive at local destinations safely, easily and conveniently. Evidence shows that high levels of street connectivity can better promote the use of walking for transportation, and that this is mediated by the availability of convenient, practical and utilitarian destinations.<sup>9</sup>

Living close to a mix of destinations, including public transport access points, is associated with higher levels of active transport and physical activity across all age groups.<sup>10-13</sup> The active and public modes of transport that connectivity promotes also reduces transport emissions and improves air quality – which further contributes to reducing cardiovascular disease and improving heart health.<sup>14</sup> Density and infill development is critical to achieving modal shift to active and public transport. For people to be able to walk, wheel and cycle in urban areas, there needs to be destinations that can be accessed by these modes within a walkable catchment, including public transport stops.<sup>15</sup>

**Open space and recreational spaces:** refers to parks, playgrounds, and recreational areas that promote physical activity, leisure and community interaction.

Public open space encompasses the variety of spaces within the urban environment that are readily and freely accessible to the wider community for recreation and enjoyment. The Heart Foundation recommends that planning for the City of Darwin's Place and Liveability Plan be strengthened through references to 'quality' public open spaces.

Quality public open spaces are particularly critical in neighbourhoods with increased density and urban infill, to ensure places for recreation, play and socialising.<sup>16</sup> Evidence has shown that the quality and maintenance of green spaces is important for physical and mental health.<sup>17</sup>

Proximity to green spaces has significant positive effects on heart health and cardiovascular risk factors:

- Living in areas with higher density of green spaces is associated with lower odds of hypertension, high cholesterol, and diabetes, particularly for women.<sup>18, 19</sup> Greater availability of green spaces around homes can reduce blood pressure in adults, likely through mechanisms such as stress reduction, increased physical activity, and reduced exposure to noise and air pollution.<sup>19</sup>
- The health benefits of green spaces are maximised when they are easily accessible and walkable. A study of over 1 million adults found that those living in areas with both high 'nature scores' and high walkability had 9% lower odds of cardiovascular risk factors like hypertension, high cholesterol, obesity and diabetes compared to those in areas with low nature scores.<sup>20</sup>

Living near accessible, walkable green spaces - particularly those with facilities for physical activity - appears to have meaningful benefits for heart health and reducing cardiovascular risk factors. Urban planning and public health initiatives to increase green space access could help reduce the burden of cardiovascular disease.

**Safety and security:** refers to the safety of residents and visitors and includes factors such as low crime rates, effective emergency services, well-lit streets and preparedness for natural disasters.

Real and perceived safety are crucial to the liveability and walkability of local neighbourhoods. When a place feels unsafe, local residents may reduce the frequency of their outings in the community, which may limit opportunities to engage in physical activity outside as well as limit the ability to form connections with community.<sup>21</sup> The impact of increasing the sense of safety of a place particularly affects women, who are 4.5 times more likely to walk for exercise if they perceive average levels of safety when compared to low levels of safety in a neighbourhood.<sup>22</sup>

**Recommendation 1: Any plan to enhance Place & Liveability in Darwin should consider all liveability principles proposed in the community engagement survey. In particular, we recommend that focus be placed on principles of physical connectivity, open space and recreational space, and safety and security.**

## Liveability in Darwin

The City of Darwin's Place & Liveability plan will offer an important opportunity to build on the existing strengths of Darwin, as well as the work the City has already undertaken in this space, through community input.

The Heart Foundation encourages the City of Darwin to consider a diversified approach in their Place & Liveability Plan, touching on all liveability principles. In particular, we believe

the following changes and improvements will make Darwin more liveable for the local community and into the future:

## 1. Safe, more walkable streets

Real and perceived safety are strong contributors to the desire of residents to be out in their community and engage in outdoor physical activity. A number of infrastructure elements in the built environment can have a significant impact on the safety of a neighbourhood. Implementing infrastructure elements that focus on safety and security contributes to enhanced liveability of a place by promoting activation and community connectedness. The following are some examples of urban design elements that enhance real and perceived safety:

- **Adequate lighting:** contributes to functionality by assuring basic orientation, as well as ambience to create an inviting atmosphere and user comfort.<sup>23</sup> Evidence shows that improved lighting in open public spaces after dark can reduce the fear of crime and increase walking activity, particularly for women.<sup>24</sup> The sense of safety in the dark evening time is important for promoting physical activity and active transport, as many people follow work schedules that may only permit physical activity in the evenings and/or early mornings.
- **Traffic calming measures:** impacts residents' willingness and ability to use movement networks as a means of active transport and for physical activity. Movement networks including streets and roads, paths and other infrastructure can be made to feel safer with the use of traffic calming strategies, including reduced speed limits, raised crossings, traffic calming devices, narrowing road space, and speed humps.<sup>25, 26</sup> Car speeds play an important role in risk of injury and death during collisions between people walking and people driving cars. When a collision between a person driving and a person walking occurs at 30 km/h, the chance of survival of the person walking is 90%, but this drops to 60% at collision speeds of 40 km/h, and 10% at 50 km/h.<sup>27</sup> Beyond reducing the rate of vehicle collision injuries, evidence suggests that traffic calming measures also promote greater levels of physical activity among local residents because of the improved sense of safety.<sup>25</sup>
- **Separation from car traffic:** separation of walking and cycling infrastructure from roadways. Evidence has shown that the satisfaction and perceived safety of people walking is influenced by proximity to traffic and whether a separation exists between walking infrastructure and roads.<sup>28-30</sup> Such separations may include curbed footpaths, garden beds between walking infrastructure and roads, or a paved shoulder offering a separate space to walk from cars.<sup>31</sup> The effect of separation from car traffic is also apparent for cyclists, who experience greater confidence and comfort where there is separation from vehicle traffic. Separation from car traffic is particularly valued by women and older adults who are more likely to report a preference for this cycling infrastructure feature.<sup>32</sup> Importantly, these separated paths should add convenience to people walking and cycling along their desired path rather than create a detour.<sup>31</sup>

- **Passive surveillance:** refers to the sense of security that comes from a public place being regularly populated by people either spending periods of time there, or passing by. This can be achieved through policies that promote activation of an area, such as regulations that allow for local business opportunities and mixed-use development, as well as improved amenities.<sup>33</sup> Improving the real and perceived safety of an area with adequate lighting, traffic calming measures and separation strategies can also encourage people to use the area, therefore promoting activation and passive surveillance.

**Recommendation 2: The City of Darwin should consider a diversified approach to assuring the real and perceived safety of its residents. In particular, we recommend that enhanced safety and security strategies be focused on addressing improved lighting, traffic calming measures, separation of car traffic from people walking and cycling, and passive surveillance.**

## **2. Improving tree canopy and shade planting**

Trees in urban areas bring a multitude of environmental, economic, social, health and wellbeing benefits.<sup>34</sup> Tree canopies, urban forests and gardens help to enhance the attractiveness of a space, and the provision of shade and evapotranspiration provide much-needed cooling relief, particularly in areas experiencing urban heat islands.

The Heart Foundation has a vested interest in the cooling effect of trees, as intense heat and heatwaves are significant causes of harm to the heart.<sup>35, 36</sup> Heatwaves are the deadliest extreme weather events in Australia, causing more injury hospitalisation and deaths than any other natural hazard.<sup>37</sup> In Australia, heatwaves have led to a higher risk of hospitalisations and deaths from heart disease and heart attacks.<sup>38</sup> Of greatest concern is that heatwaves are increasing in frequency and duration.<sup>39, 40</sup> Among those who are most vulnerable to injury and death from extreme heat include people with cardiovascular disease.<sup>41</sup>

Shade from trees has a significant impact on both surface and ambient temperatures. The effect is particularly notable in urban settings, where the built environment may create an urban heat island. Tree shade can reduce surface temperatures by 11—25°C, and ambient air temperatures by 1—5°C, improving thermal comfort and air quality for people using these spaces, such as people walking.<sup>42</sup> Furthermore, the strategic placement of trees and plants around buildings can reduce dependence on air conditioning. This is reflected in findings that show savings of 25—50% in air conditioning energy use from the placement of vegetation around buildings, thanks to the shade provided and the creation of a micro-climate.<sup>43</sup> The value of this impact is twofold, as reduced dependency on air conditioning results in lower carbon emissions from their use. Carbon dioxide (CO<sub>2</sub>) is a significant contributor to greenhouse gases that are leading to warming global temperatures as well as more frequent heatwaves in Australia.<sup>44</sup> Street trees are therefore particularly important in areas with hot



climates, such as Darwin, NT, and will be increasingly vital as climate change leads to warmer temperatures across Australia.<sup>45</sup>

In addition to the environmental impacts of shade planting in helping to cool a space, greenery and tree canopies have been found to significantly impact a neighbourhood's walkability and sense of community. Greenery along the route to school encourages children to walk to school, and promotes walking and cycling in adolescents and adults.<sup>46-48</sup> Aside from trees along commuting routes, green urban spaces such as parks have been found to promote physical activity in a variety of age groups. In the Australian 45 and Up Study, it was found that greener neighbourhoods see higher rates of walking and moderate-to-vigorous physical activity in older adults.<sup>49</sup> Access to greenspace also promotes a multitude of benefits to children and adolescent's mental and physical health through increased physical activity, social interaction, attention restoration and stress regulation.<sup>50</sup> Such findings are particularly prominent in low-income neighbourhoods, where there is significantly increased park use and physical activity when access to local parks, park equipment, walkability and aesthetics, including greenery, are improved. Trees also contribute to safety of people walking, with evidence from Melbourne showing that injury of people walking decreases as tree density and canopy cover increases. The study authors believe this is likely due to the separation that street trees can create between people walking and people driving motor vehicles, also offering to car drivers a visual wall that provides familiarity and perceived safety.<sup>51</sup> These findings further support the above recommendations to provide separation between walking and vehicle infrastructure, such as garden beds or street trees. To note, increasing the tree canopy will also require adequate maintenance of trees and pathways such as cleanup following extreme weather events and regular branch trimming as needed to prevent injury from debris.

The Heart Foundation recommends that the City of Darwin's Place & Liveability Plan include guidance that a minimum 30% shade cover in urban areas is achieved to reduce urban heat islands. Recent research has shown that Australia's annual public health costs related to cardiovascular disease could be \$19.3 million lower per 100,000 individuals 'for whom local tree canopy cover is increased from less than 10% to 30% or higher.'<sup>52</sup> The Heart Foundation recommends that extensive tree planting be prioritised.

**Recommendation 3: A minimum of 30% shade cover from trees and vegetation in urban areas should be achieved to reduce urban heat islands, and promote physical activity of all residents.**

### **3. A systems approach to urban planning**

Evident throughout this submission is the multitude of aspects involved in making a city liveable. As described above, interventions like improved lighting help enhance the aesthetics of a space while also contributing to a sense of safety. Mixed-use development provides convenience and vibrancy to a community. Tree canopies positively impact on urban heat islands and promote physical activity. Through these mechanisms, these



strategies impact on cardiovascular health by increasing residents' physical activity levels through active transport and other activities.

It is clear that multiple systems are at play in creating a walkable, liveable city. This highlights the need for any Place & Liveability Plan to employ a systems approach in the planning process. For the purpose of designing a liveable city, the following systems planning actions are recommended:<sup>53</sup>

- Stakeholder engagement from multiple sectors throughout the scoping, planning, implementation and evaluation phases of urban planning.
- Equitable engagement from residents as members of the community with vested interest in approaches that impact their day-to-day lives.
- Assessing and adjusting city governance models as needed to enable multi-stakeholder engagement, transparency and responsive decision-making.<sup>54</sup>
- Scoping for and employing the systems planning tools that will enable clear and holistic mapping of systems at play, such as mind maps and logical frameworks.

**Recommendation 4: The Heart Foundation recommends that any planning for liveability in Darwin employ a systems approach to best capture the impacts of diverse variables on the day-to-day lives of its residents.**

The Heart Foundation commends the City of Darwin for undertaking community engagement at the outset of this project. We appreciate the accessibility offered to community members and diverse stakeholders to provide insights and input to the Place & Liveability plan via a convenient online survey as well as multiple in-person drop-in community engagement sessions. We further encourage the City of Darwin to consider targeted engagement initiatives to ensure the equitable inclusion of vulnerable community members for whom the online survey format or drop-in engagement sessions are not suitable.

The Heart Foundation advocates for built environments that promote and support heart health, healthy eating, active living and physical activity. We particularly focus on getting more people walking more often, through policies, programs and partnerships. We invite the City of Darwin to refer to the [Healthy Active by Design](#) tools, evidence and case studies to creating positive change and directly influence the creation of a healthy city.

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