

## Climate Emergency Declaration City of Kalamunda

### Background

At Council’s 24 March 2020 Ordinary Council Meeting it resolved:

*That Council ENDORSE the Brief (provided as Attachment 3\*) for the Kalamunda Environmental Advisory Committee to undertake investigations, make recommendations and report back to Council.*

***“It’s not about saving our planet through addressing climate change and the loss of biodiversity. It is about saving us.”***

Sir David Attenborough in A Life on Our Planet.

### WHAT IS THE IMPACT OF CLIMATE CHANGE ON THE CITY OF KALAMUNDA?

Western Australia’s climate has changed during the past century. Perth and the southwest region have been impacted by climate change *“more than almost any other place on the planet.”*<sup>1</sup>

This is the WA government’s own written assessment, captured in four more quotes below:

*“We have seen **higher average temperatures**, and an **increase in the annual number of days in Perth over 35 degrees Celsius.**”*

*“There has also been a **steady decline in rainfall**, with a 60 percent reduction of inflow to metropolitan dams since the 1970s.”*

*“Already one of the most fire-prone regions in the world, Western Australia’s **fire risk has increased** over the past four decades, and fire seasons have lengthened due to warming, drying conditions.”*

In the future, climate change will lead to **increased average and maximum temperatures**, time spent in **drought** and **more extreme weather events**<sup>2</sup>.

<sup>1</sup> Climate Change in Western Australia, WA government Issues paper - September 2019.

<sup>2</sup> Bureau of Meteorology 2016, State of the Climate 2016, Australian Government.

***“Meanwhile, more severe heat waves and changing patterns of disease have the potential to affect the health and wellbeing of Western Australians, particularly the vulnerable.”***

The City of Kalamunda is as prone to experiencing all these trends as any part of southwest WA. As a largely residential area, it will be vulnerable to rising temperatures that **concentrate heat** in urban areas, leading to the ‘urban heat island effect.’

In places with few trees, bitumen roads, concentrated roofing and carparks, our City residents could experience temperatures 4 to 8 degrees higher than in shaded and ‘non-hard’ or vegetated surface areas.

GHD modelling for the City’s draft *Urban Forest Strategy* shows the **potential rise in land surface temperatures** across the City if there is no change in approach.

Some cities have begun measuring the rise in heat island effect<sup>3</sup>. In Melbourne the urban heat island effect is measured at 4 degrees hotter than average; in West Adelaide about one-third of the suburban area is 2 degrees hotter.

At Henley Beach, in Adelaide, one of the most heavily tree-lined streets in the study area measured day time temperatures of 34°C while neighbouring exposed streets measured upwards of 42°C, a difference of 8°C.<sup>4</sup>

And Perth? There have not yet been any such measurement studies, only GHD’s Urban Forest Strategy modelling that suggests similar trends in our City.<sup>5</sup>

So what would be the impact on the City of Kalamunda’s residents? The medical profession states that global climate change is *“potentially the defining challenge to public health in the 21st century.”*<sup>6</sup> It identifies the elderly and the very young as most vulnerable to the health effects of climate change.<sup>7</sup>

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<sup>3</sup> Mark Siebentritt, Growing cool cities – The role of irrigated green cover, presentation to workshops in Perth and other Australian cities, project managed by Edge Environment for Hort Innovation, December 2019

<sup>4</sup> Western Adelaide Urban Heat Island Project

<sup>5</sup> Urban Forest Strategy draft, City of Kalamunda

<sup>6</sup> Costello A, Abbas M, Allen A, et al. Managing the health effects of climate change: Lancet and University College London Institute for Global Health Commission.

<sup>7</sup> <https://www1.racgp.org.au/ajgp/2018/july/climate-change-and-the-public-health>

The City has a high proportion of citizens who may be vulnerable if the urban heat island effect sets in. It has a higher proportion than the average in Greater Perth of babies and junior-school age children, and a higher proportion of older workers, retirees and seniors.<sup>8</sup> **Older residents** are often living in and around Kalamunda township, while many **young families** have made their home in our foothills' suburbs.<sup>9</sup>

Those residents living in urban heat islands are likely to experience higher temperatures as more severe heat waves occur.

Globally, extreme heat kills more people than other natural hazards, with a 1 degree warming linked to a 2-5% increase in mortality. The comfortable temperature range for humans is 20 to 27 degrees Celsius and our tolerance runs out between 35 and 40 degrees.

Perth has experienced a 20% **fall in average rainfall** since the 1970s and fresh water **stream-flow has declined** much further.<sup>10</sup>

The Perth-Peel Plan records a 50 per cent decline in stream flows in 100 years. In the Perth Hills region, streams that once flowed year-round are now seasonal.<sup>11</sup> Further decline in rainfall, higher temperatures and groundwater level dropping below the creek bed are predicted to reduce stream flows further by as much as three-quarters.<sup>12</sup>

Having longer periods without any water in stream beds adversely affects our parks and reserves. The cost of water consumption will rise.

A warming climate means greater drying of forests and woodlands, greater leaf fall and a **bigger risk of bushfire**. The City may face a longer and more costly fire mitigation season.<sup>13</sup>

Other costs could include **higher insurance premiums**. After the last fires in the eastern states and the recent floods, insurance premiums went up.<sup>14</sup>

<sup>8</sup> <https://profile.id.com.au/kalamunda/service-age-groups>

<sup>9</sup> It includes higher density residential areas of Forrestfield, Wattle Grove East, Maida Vale and High Wycombe

<sup>10</sup> Water Corporation web-site. <https://www.watercorporation.com.au/water-supply/rainfall-and-dams/streamflow/streamflowhistorical>

<sup>11</sup> Kevin Petrone and others, *Streamflow decline in southwestern Australia, 1950-2008*, Geographical Research Letters, 2010.

<sup>12</sup> Ian Smith and Scott Power, *Past and future changes to inflows into Perth (Western Australia) dams*, Journal of Hydrology: Regional Studies, November 2014.

<sup>13</sup> Already the City has three people working full time all year in City-controlled properties, plus 4-5 contracted bushfire officers.

<sup>14</sup> The Australian Academy of Science states that if warming exceeds 3°C, it is likely that many properties may become effectively uninsurable because of their exposure to climate-related risks. It is calling on the government to accelerate Australia's transition to net zero greenhouse gas (GHG) emissions.

Climate change causes **biodiversity loss** because even the most adaptive plants cannot adapt fast enough to rapid heat increase.

The City of Kalamunda is a key part of the Southwest Australia Ecoregion, one of only 34 biodiversity-rich hotspots in the world. It has more than 1500 plant species or 0.5 per cent of the world's plant population. The City has lost at least 70% of original vegetation and many **species are already threatened**.<sup>15</sup>

Our 'Home in the Forest' reputation and our rich sandplain nature reserves are at risk.

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<sup>15</sup> [https://www.bibbulmuntrack.org.au/media/files/jewel\\_of\\_the\\_australian\\_continent\\_1.pdf](https://www.bibbulmuntrack.org.au/media/files/jewel_of_the_australian_continent_1.pdf)

## WHAT IS THE CITY OF KALAMUNDA DOING TO TACKLE CLIMATE CHANGE?

Many of the City's actions currently in train have a clear linkage to climate change or form a response.

The **Local Environment Strategy** (LES) already speaks to Kalamunda becoming “a carbon neutral City to address the impacts of climate change”.<sup>16</sup>

It has four actions –

- *determine the City's current greenhouse emissions footprint;*
- *reduce that footprint by reducing energy consumption and rationalise assets;*
- *investigate renewable power supply options; and*
- *recover and reuse natural resources.*

The **Environment and Land Use Strategy** has actions to address the problem, such as:

*8.2 Improve urban tree canopy cover to address urban heat island effect, water-sensitive urban design (WSUD) principles and biodiversity linkages*

The City's **bushfire approach is also a climate change strategy**. It has received State approval for its Bushfire Risk Management Plan which has mapped the City for fire risk and adopted a holistic and proactive approach to managing risks associated with the drying climate. Residential properties must meet minimum requirements for bushfire management.

The City is pursuing **innovative ways** to meet community expectations for well presented, irrigated playing fields despite threats to the continued use or increased use of groundwater in a drying climate.

The first managed aquifer recharge (MAR) and reuse project has proven successful.<sup>17</sup> The City's draft **Non-potable Water Action Plan** proposes a second MAR along with water use efficiency measures for parks and playing fields.<sup>18</sup>

<sup>16</sup> Kalamunda Clean and Green Local Environment Strategy 2018-2028

<sup>17</sup> The City of Kalamunda's award-winning managed aquifer recharge (MAR) project at Hartfield Park does this and then reclaims it for irrigating sports fields when needed. It received the Innovating for Sustainability Award from Australian Water Association in WA in 2017. Plan for dedicated injection bore designed to receive up to 230,000kl, but potentially capable of providing more than four times the volume of water originally planned.

<sup>18</sup> The draft Non-potable Water Action Plan was adopted by Council on 23 June 2020.

Council will soon consider the draft **Urban Forest Strategy** which, if adopted, will be the key plan for addressing canopy cover to mitigate the heat island effect in urban environments.

The City has undertaken \$160,000 of new funding for **planting street trees** to reduce the heat island effect. So far in 2021, over 340 medium to large trees have been planted.

The City is currently seeking Expressions of Interest for industry partnership to develop **a large scale solar farm** aimed at reducing greenhouse gas generated electricity demand.<sup>19</sup>

If fully developed, it could offset the city's total carbon footprint of community buildings and street lighting/electricity.

In 2021, in partnership with Western Power, the City has also commenced projects that will see street lighting converted from lighting dependent on high greenhouse gas output to lower gas-emitting LED options,

The City has offset the \$6000 annual power bill of Kalamunda Amateur Drama Society Theatre by installing a PV system at the City's expense.

These various strategies and plans address climate change through mitigation in part and adaptation in a larger part.

The City's Waste Plan, now approved by State authorities, seeks to improve diversion from landfill to meet the statewide target of 70% less waste in landfill by 2025.

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<sup>19</sup> Council is considering sponsoring a solar PV farm at Pioneer Park. At its 27 October 2020 OCM it accepted a feasibility report for an initial 800KW array.

## WHAT MORE CAN THE CITY OF KALAMUNDA DO TO TACKLE CLIMATE CHANGE, WITHIN ITS RESOURCES?

***“We do not want business to do anything different from their normal business. We want business to do their business differently.”***

Kofi Annan<sup>20</sup> in his 2018 address to the MIT Sloan School (and to an earlier UN Sustainability Conference)

The City can develop and implement further actions contained in its Local Environment Strategy, Urban Forest Strategy, Biodiversity Strategy and ELUPS.

The City should adopt a timetable for **the City to become carbon neutral by 2050, but preferably earlier**. Nationally, local governments covering about half of Australia’s population have committed to a target of net zero greenhouse gas emissions by 2050 or a similar target.

Of Australia’s 57 largest LGAs, all are taking steps, half have such a target or compatible commitments, and four LGAs are already carbon neutral. The **City of Kalamunda is not yet one of these**, but it could:

- Commit to an **interim emission reduction** of 80% by 2030
- Develop energy usage technology for buildings that reduces our reliance on greenhouse gas generated power
- Switch **all street lighting** dependent on high greenhouse gas output to lower emitting gas LED options
- Increase its tree canopy cover target in the City by active planting that involves the community
- Reduce use of drinking water for irrigation and landscaping, and increase managed aquifer recharge projects.
- Support community-led initiatives to deal with climate change and apply for climate related funds to do this.<sup>21</sup>

The City can **set an example on emissions** directly through its own operations and can **influence its residents**.

<sup>20</sup> Former UN Secretary General, joint recipient of the Nobel Peace prize and post UN duties ran a not-for-profit Foundation that advocated for tackling climate change.

<sup>21</sup> E.g. Future Drought Fund (\$5 billion) is available to support drought resilience measures, not just in agriculture but including new technology, better resource management and “community initiatives.”

Why is the latter so important? Because if you combine local government emissions and community emissions (100%), local government's contribution is only around 1% while the community's emissions comprise nearly 99% of the total.

Educating residents and offering **incentives to ratepayers** will help promote behavioural change.<sup>22</sup>

For example, the City can join other LGAs to encourage its community through policy and incentives like **installing EV charging stations** to encourage uptake by public and visitors (possibly in partnership with RAC). Council's own actions to reduce its 1% footprint could be to shift to Electric Vehicle use.<sup>23</sup>

It could offer resident **incentives for verge landscaping** that supports environmental outcomes like tree shade and vegetation cover to reduce heat sinks.<sup>24</sup>

The City could adopt **standards for energy-efficient design** for building and engineering requirements.<sup>25</sup> It could encourage larger scale actions by commercial interests through planning policies and incentives. These may include Solar PV micro grids for light industrial and residential developments.<sup>26</sup>

Landfill produces methane and other gases harmful to our environment. Conserving resources could include **fast-tracking the FOGO recycle bins** and adopting recycled waste products. For example, mulch from recycled vegetation, crushed building materials for fill and road construction.

In summary, our City is taking steps to responsibly address the biggest environmental threat facing us in the 21<sup>st</sup> century. It can do much more,

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<sup>22</sup> The City's LOCAL ENVIRONMENT STRATEGY states as a goal: "Achieving carbon neutrality – community engagement and promotion of behavioural change."

<sup>23</sup> The rural town of Katanning has two EV charging stations in its main street.

<sup>24</sup> Possibly through the Water Corporation's Waterwise Verge Enhancement Scheme or equivalent.

<sup>25</sup> Australian Engineers, for example, have warned that impending climate breakdown and biodiversity loss "are the two most serious issues of our time." Engineering activities are connected with over 65% of Australia's Direct Greenhouse Gas Emissions. "As such, engineering teams have a responsibility to actively support the transition of our economy towards a low carbon future. This begins with honestly and loudly declaring a climate and biodiversity emergency."

<sup>26</sup> Use of battery and local mini grid options as being developed through Western Power, Synergy and DevelopmentWA.



starting with a declaration of solidarity with other local governments<sup>27</sup> that we face a Climate Emergency.

**KEAC recommends to Council that it:**

- **Declare a Climate Emergency**
- **Endorse the WALGA Climate Change Policy**
- **Sign the WALGA Local Government Declaration on Climate Change**
- **Council should develop specific Actions within its Corporate Business Plan addressing the issues noted within this report**

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<sup>27</sup> Our neighbouring Shire of Mundaring declared a climate emergency in December 2019.

### APPENDIX ONE – ACTIONS AND IMPACTS

The **LOCAL ENVIRONMENTAL STRATEGY** contains these goals directly relevant to climate change.

Section	Strategy	Comment
Green Spaces	Local Biodiversity Strategy (LBS)	Implement all actions - all relevant to climate change
Natural resources	Water efficiency Protection of waterways Transit sustainability Carbon neutral City strategy	Implement all actions - all relevant to climate change
Managing Impact	LES Education Protection of biodiversity	Implement all actions that are relevant to climate change
Waste	State waste Avoidance and resource Recovery 2030 Community support Illegal dumping Material recovery FOGO	Implement all actions - all relevant to climate change

The City can revise its **ENVIRONMENTAL LAND USE STRATEGY** to introduce:

- Scheme amendment / local planning policies for urban development and retention of significant trees
- Strategies and policies for greening urban and public places. Specifically, planting more trees around sports reserves and in parks and playground areas.
- More water-banking schemes