City of Kalamunda

Draft
Climate Change Action Plan

June 2022

Mayor's Forward

I am pleased to present the City of Kalamunda's first Climate Change Action Plan.

Adaptation to climate change safeguards people from the global effects of higher temperatures, rising seas, fiercer storms, catastrophic bushfires, unpredictable rainfall and more acidic oceans.

The Action Plan provides a practical approach to dealing with a changing climate, building a strong green economy and further reducing greenhouse gas emissions.

A green transition, including a shift to renewable energy, the manufacturing of electric vehicles and construction of energy-efficient buildings, will create local employment opportunities.

Climate change is having local impacts upon our community notably in matters of extreme weather events, a drying climate and its impacts upon water supply and vegetation and an overall increase in average temperatures which impact the very young and our elderly.

Climate Change is a global threat. Local Government is committed to meeting international obligations through Australia's participation in protocols and agreements established under the United Nations Framework Convention on Climate Change (UNFCCC), including but not limited to the Paris Agreement and successive international treaties.

The City will actively pursue achievement of our Climate Change Action Plan to address risk to the environment, economy, infrastructure, and community health, safety and wellbeing in the City of Kalamunda, brought on by Climate Change.

"We must end fossil fuel pollution and accelerate the renewable energy transition, before we incinerate our only home." ANTÓNIO GUTERRES, United Nations Secretary-General, 18 May 2022.

Introduction

We in the City of Kalamunda have a part to play in reducing greenhouse gases, as part of the urgent global effort under the Paris Agreement to keep global warming below 1.5 degrees Celsius.

On 10 August 2021, the City of Kalamunda joined other Western Australian Local Governments by signing the WALGA Climate Change Declaration. Now we have prepared a Climate Change Action Plan to address risk to our City's environment, economy, infrastructure, community health, safety and wellbeing.

Climate change is both a crisis and an opportunity for the City of Kalamunda.

This plan will ensure we are prepared and ready to adapt to the climate challenges that lie ahead. It will also commit the City's support and advice to businesses and community to help them meet these challenges.

This is a live document that will evolve over time as new information and technologies, and government initiatives become available. The City of Kalamunda will conduct an internal operational evaluation every two years to track progress and opportunities.

What is Climate Change?

According to the United Nations, Climate change can be a natural process where temperature, rainfall, wind and other elements vary over decades or more. In millions of years, our world has been warmer and colder than it is now. But today we are experiencing unprecedented rapid warming from human activities, primarily due to burning fossil fuels that generate greenhouse gas emissions.

Increasing greenhouse gas emissions from human activity act like a blanket wrapped around the earth, trapping the sun's heat and raising temperatures.

Examples of greenhouse gas emissions that are causing climate change include carbon dioxide and methane. These come from burning fossil fuels such as gasoline for driving a car or coal for generating electricity. Clearing land and forests can also release carbon dioxide. Landfills for rubbish are another source. Energy, industry, agriculture and waste disposal are among the major emitters.

Greenhouse gas concentrations are at their highest levels in 2 million years and continue to rise. As a result, the earth is about 1.1°C warmer than it was in the 1800s. The last decade was the warmest on record.

Many people think climate change mainly means warmer temperatures. But temperature rise is only the beginning of the story. Because the Earth is a system, where everything is connected, changes in one area can influence changes in all others. The consequences of

climate change now include, among others, intense droughts, water scarcity, severe fires, rising sea levels, flooding, melting polar ice, catastrophic storms and declining biodiversity. People are experiencing climate change in diverse ways. It affects our health, ability to grow food, housing, safety and work. Some of us are already more vulnerable to climate impacts, such as people living in small island developing States. Conditions like sea-level rise and saltwater intrusion have advanced to the point where whole communities have had to relocate. In the future, the number of "climate refugees" is expected to rise.

Every increase in global warming matters. In a 2018 report, thousands of scientists and government reviewers agreed that limiting global temperature rise to no more than 1.5°C would help us avoid the worst climate impacts and maintain a liveable climate. Yet the current path of carbon dioxide emissions could increase global temperature by as much as 4.4°C by the end of the century.

The emissions that cause climate change come from every part of the world and affect everyone, but some countries produce much more than others. The 100 least-emitting countries generate 3 per cent of total emissions. The 10 largest emitters contribute 68 per cent. Everyone must take climate action, but people and countries creating more of the problem have a greater responsibility to act first.

Climate change is a huge challenge, but we already know many solutions. These can deliver economic benefits while improving our lives and protecting the environment. We also have global agreements to guide progress, such as the UN Framework Convention on Climate Change and the Paris Agreement. Three broad categories of action are: cut emissions, adapt to climate impacts and finance required adjustments.

Why is Climate Change a threat?

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.[1]

We face higher average temperatures, and an increase in the annual number of days in Perth over 35 degrees Celsius. A steady decline in rainfall has seen a 60 percent reduction of inflow to metropolitan dams since the 1970s.

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. [2]

[1] Climate Change in Western Australia, WA government Issues paper - September 2019, p1

[2] Bureau of Meteorology 2016, State of the Climate 2016, Australian Government. Available from: http://www.bom.gov.au/state-of-the-climate/State-of-the-Climate-2016. pdf. [Accessed 16 April 2019].

What is the potential impact on the City of Kalamunda?

The City of Kalamunda is as prone to experiencing all these changes as any part of southwest Western Australia.

In its largely residential areas, it will be vulnerable to rising temperatures that concentrate heat in urban areas, leading to the 'heat island effect.'

Some cities have begun measuring the rise in heat island effect.[3] In places with few trees, bitumen roads and carparks, our City residents could experience temperatures 4 to 8 degrees higher than in other areas.

Climate change has the potential to affect the health and wellbeing of our residents, particularly the elderly and the very young. [4]

The City has a high cross-section of citizens who may be especially vulnerable if the urban heat island effect sets in. it has a higher proportion of babies and junior school-age children, and a higher proportion of older workers, retirees and seniors than the average in Greater Perth.[5] The older people are often living in and around Kalamunda township, and many young families make their home in our foothills' suburbs.[6]

In the Perth Hills region, streams that once flowed year-round are now seasonal.[7] Perth has experienced a 20% fall in average rainfall since the 1970s and stream flow has declined much further.[8]

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.[9] Less water in stream beds adversely affects our parks and reserves and could mean more costly water bills.

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[3] 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

[4] https://www1.racgp.org.au/ajgp/2018/july/climate-change-and-the-public-health

[5] https://profile.id.com.au/kalamunda/service-age-groups

[6] That foothills area includes the high density residential areas of Forrestfield, Wattle Grove East, Maida Vale, and High Wycombe.

[7] Kevin Petrone and others, *Streamflow decline in southwestern Australia, 1950-2008*, Geographical Research Letters, 2010.

[8] Water Corporation web-site. https://www.watercorporation.com.au/water-supply/rainfall-and-dams/streamflow/streamflowhistorical

[9] Ian Smith and Scott Power, *Past and future changes to inflows into Perth (Western Australia) dams*, Journal of Hydrology: Regional Studies, November 2014.

The entire City of Kalamunda is already designated as a high bushfire-prone area. A warming climate means a bigger risk of bushfire due to greater drying of forests and woodlands and more leaf fall and forest litter.

The City may face a longer and more costly fire mitigation season.[10]

Climate change causes biodiversity loss because even the most adaptive native plants and animals cannot adapt to rapid heat increase.

The City of Kalamunda is a key part of the Southwest Australia Eco-region, one of 34 biodiversity hotspots in the world. We live in a region that has more than 1500 plant species, or 0.5% of the world's plant population. But the region has lost 70% of original vegetation and many species are already threatened.

[10] Already the City has three people working full time all year in City-controlled properties, plus 4-5 contracted bushfire officers.

How this Climate Change Action Plan is structured

It is recognised that any action plan addressing Climate Change could deal with a plethora of topics all of which would be relevant to the issue. However, the City has to take a practical approach in its view as to what are the main areas of focus.

The City considers that there are four main focus areas for its Plan detailed below:

	What it is	Why is it important
Focus 1	Changing Climate Patterns	a. Sustained durations of hotter weather increases: i. Bushfire risks in the City ii. Heat related stress to people at risk including the frail and elderly iii. Heat related stress to animals that are vulnerable to temperature spikes iv. Increased demands on electricity networks for air conditioning and the like b. Reduced levels of rainfall: i. Reduces groundwater capability supporting our agricultural industries ii. Reduces viability of our natural vegetation which reduces our urban forest and destroys habitat for native fauna impacting the ecosystem iii. Reduces groundwater capability for maintaining public amenity in parks and playing fields c. Increased intensity of storm events results in: i. More instances of localised flooding of private and public property ii. Increased instances of tree limbs or whole trees failing and potentially causing injury as well as causing road closures

Focus 2	Carbon Footprint	Greenhouse gas emissions from non-renewable energy sources are a primary driver of climate change and are having a harmful effect upon the planet. There is a strong role that the City can play in moving towards a carbon neutral lifestyle for our citizens.
Focus 3	Waste	Waste going to landfill results in the production of methane which is more damaging to the environment than CO_2. The community and City working together can implement more sustainable waste practices which have long term benefits to the environment.
Focus 4	Sustainable Development	a. Sustainable development outcomes can have a positive impact upon the environment with appropriate use of Council planning controls. Whereas unconstrained, inappropriate development can result in unacceptable reduction in biodiversity and urban canopy, as well as result in water and energy inefficiency, waste generation and exposure of users to increased bushfire risks. b. Sustainable development can contribute toward: • Reduced demand on non-renewable energy sources • Reduced building operating costs • Reduced urban heat island effect and healthier homes and communities • Reduction of ecological footprint • Efficient use of resources and reduced waste • Bushfire safety

In proposing actions within the Plan for each focus area, it is considered that any actions undertaken by the City of Kalamunda would be aimed at four key audiences as set out below:

Key Audience	How the Plan would involve them and the City
Residents within the City of Kalamunda	Primarily by the City providing advice, education, and awareness. Secondary actions include roll out of waste management initiatives and potential changes to planning and building requirements.
Businesses and Commercial entities within the City of Kalamunda	Focus will be balanced through environmental controls in development and building and joint initiatives in waste management and energy practices.
State and Federal Government	Primarily through advocacy for greater regulatory and financial support for all sectors in tackling climate change.
The City of Kalamunda itself	Development and funding through annual budget processes of initiatives and actions to demonstrate leadership in the climate change space.

Focus 1: Changing Climate Patterns

Aim: To increase resilience in the face of changing Climate Patterns	
Action	Timeframe
For our Residents	
Educate Residents about Bushfire safety and preparedness	Ongoing
Examine implementation of SMS based warning systems of approaching extreme temperature events or storm surges	Medium Term
Examine ways of providing awareness and education campaigns to improve community resilience to extreme weather events	Medium Term
Provide the community with information regarding native drought tolerant planting that is more resilient to sustained dry spells	Short Term
For our Commercial and Businesses	
Provide local agricultural businesses with information regarding climate-smart agriculture initiatives	Ongoing
Complete Citywide Drainage Catchment Strategy "Kalamunda Flowing" to provide Businesses with information surrounding stormwater flows such that they can manage impacts within their property	Medium Term
State and Federal Government	
Advocate for improvements to the National Construction Code to increase resilience of buildings against increased impacts of hotter days, more frequent storms and bushfires	Ongoing
Advocate for increased funding for natural resource management programs especially those that enhance and protect waterways, native forests and bushland reserves	Ongoing
Advocate for funding from State and Commonwealth governments to increase community resilience for changing climate	Ongoing
And the City itself	
Develop SMART targets for these actions as part of finalisation of this action plan	Short Term
Review Bushfire Risk Management Plans and update specific risk assessments and mitigation actions	Ongoing
Subject to funding availability, continue or expand programs aimed at increasing naturally occurring tree and vegetation cover in the City	Ongoing

Undertake revision of all environment related strategies such that actions are noted that benefit the climate change action plan	Ongoing as strategies are due for review
Subject to funding, increase proportion of irrigated turf parks that are fed from aquifer recharge sources to maintain amenity in the face of reduced potable water availability	Ongoing
Subject to funding, implement program of converting areas of irrigated turf that are not essential to amenity needs to eco-zoning plantings that require less water	
Subject to funding, increase efficiency and effectiveness of irrigated turf areas through contemporary irrigation methods and turf management practices to reduce overall water consumption	Ongoing
Design Public Open Spaces to provide where practical increased shade for users	Ongoing

Focus 2: Carbon Footprint

The overarching intent of this focus area is that the City of Kalamunda (Council) achieves a 40% reduction in its own carbon footprint by 2030 and become carbon neutral by 2035 based on a 2020 baseline of its carbon footprint.

The City aims to support residents, businesses, and the community in their own efforts in reducing their carbon footprint.

Aim: To reduce the City's Carbon Footprint and Support the Community in their Carbon Reduction Journey	
Action	**Timeframe**
For our Residents	
Promote ability for Residents to access the "Switch your Thinking" website which provides education, awareness and commercial opportunities for residents to reduce their own carbon footprint	Ongoing
Promote linkages to Synergy's website where residents can become more informed as to their ability to reduce their carbon footprint through energy efficiency initiatives and renewable energy sources	Ongoing
Subject to funding, provide Electric Vehicle Charging stations in City owned parking areas to facilitate residents changing to Electric Vehicles	Ongoing
For our Commercials and Businesses	
Promote linkages to Synergy's website where businesses can become more informed as to their ability to reduce their carbon footprint through energy efficiency initiatives and renewable energy sources	Ongoing
Subject to implementation, provide businesses with access to renewable power from the potential City Solar Farm	Long Term
State and Federal Government	
Advocate for State or Commonwealth affordable schemes and initiatives that bring the community as a whole closer to carbon neutrality. This could be in the form of funding for key initiatives or regulatory action forcing Industry to become carbon neutral	Ongoing
Advocate to the State Government to have them undertake program of converting existing Western Power gas discharge streetlights to LED streetlights to reduce energy consumption and thus carbon emissions from power required. There are also side benefits in having improved road safety through better lighting and ongoing cost savings to rate payers through reduced street lighting costs	Ongoing

And the City itself	
Council adopts an intent to achieve a 40% reduction in its own carbon footprint by 2030 and become carbon neutral by 2035 based on a 2020 baseline of its carbon footprint	By June 30, 2023
Develop the 2020 Baseline Carbon Footprint Measurement from which carbon reduction targets will be measured against	By June 30, 2023
Develop SMART targets for these actions as part of finalisation of this action plan	Short Term
As part of annual Budget processes and subject to funding, efficacy and affordability implement initiatives that reduce the City's Carbon Footprint in line with the intent of this Climate Change Action Plan. Suggested actions include: • Procurement of higher proportion of electricity from renewable sources including possible self-generated renewal energy from Solar Farm • Implement energy efficiency measures in City facilities as part of ongoing renewal programs • Adopt best practice energy efficiency benchmarks for all new City facilities • Target zero emission outcomes for new City developments where practical • Conversion of passenger vehicle fleet to Battery Electric Vehicles and/or Hydrogen Supply • Subject to suitability, conversion of heavy vehicle fleet to Battery Electric Vehicles and/or Hydrogen Supply • Increase carbon sequestration provided by increased tree planting programs • Consolidation where practical of City owned facilities that are not fully utilised by community groups into a smaller number of buildings of higher utilisation and thus less energy usage per user	Ongoing

Focus 3: Waste

Aim: Reducing Methane being generated by landfill and sustainable waste management	
Action	**Timeframe**
For our Residents	
Improve education and awareness for residents as to how to maximise their diversion of waste from landfill, reflective of future initiatives of the City such as Waste to Landfill and FOGO	Short to Medium Term
Improve education and awareness for residents as to the volume of waste they generate with a view of reducing their own waste generation through re-use and reduction actions	Short to Medium Term
Subject to funding, consider incentivised schemes such as worm farms and composting bins to reduce residential waste being disposed of	Ongoing
For our Commercials and Businesses	
Explore waste collection arrangements whereby food waste can supplement the City's FOGO waste and be processed into compost	Short Term
Explore feasibility of assisting commercial and businesses to be able to achieve higher recycling rates for packaging	Medium Term
State and Federal Government	
Advocate for increased investigations by industry, consultants and road authorities into cost effective means of increasing the amount of recycled material in road works	Short term
Advocate for start-up investment into more recycling facilities that can be accessed near to the City of Kalamunda	Ongoing
Advocate for incentives for Councils that implement best practice waste management schemes despite potentially being costlier than landfill	Ongoing
Advocate that governments mandate bans on unnecessary packaging for foodstuffs or at very least make the packaging 100% recyclable or compostable	Ongoing
And the City itself	
Develop SMART targets for these actions as part of finalisation of this action plan	Short Term
Prepare a guideline for assessing waste management plans submitted with development applications and encourage recycling and other waste initiatives.	Medium Term

Implement where practical proper waste separation bins in all City occupied facilities, parks and reserves	Short Term
Consider that where Lessees of City owned facilities are responsible for their waste management that the lease requires them to implement appropriate waste separation practices	Medium Term

Focus 4: Sustainable Development

Aim: To encourage new development that improves the environment and is more resilient to climate change	
Action	**Timeframe**
For our Residents	
Provide access to known education resources allowing residents to adapt to climate change in consideration of developing their properties. Education materials may include: • Passive design measures • Water efficiency • Energy efficiency • Responsible and appropriate use of materials • Bushfire resilience	Short Term
Investigate the availability of external resources to assist Residents to implement changes in their households aimed at increasing resilience to Climate Change	Ongoing
Investigate the introduction of a sustainability design verification statement/ assessment as a requirement for planning applications	Medium Term
Continue to assess proposals against the Sustainable Design Principles of LPP 9- Dual Density Design, where applicable	Ongoing
Investigate opportunities to include minimum sustainability standards for developments within the Local Planning Scheme that exceed existing regulatory requirements	Short Term
Investigate regulatory barriers that prevent Grey Water re-use in the City and if able to be overcome, promote the capability to residents	Short Term
Promote and celebrate outstanding sustainable development case studies to raise awareness of best practice standards and acknowledge developer performance	Ongoing
For our Commercials and Businesses	
Promote and celebrate outstanding sustainable development case studies to raise awareness of best practice standards and acknowledge developer performance	Ongoing
Ensure development of design guidelines that include sustainability outcomes for all new precinct and structure planning areas	Ongoing
Investigate the introduction of a sustainability design verification statement/ assessment as a requirement for planning applications	Medium Term

Continue to assess proposals against the Sustainable Design Principles of LPP 9- Dual Density Design, where applicable	Ongoing
Investigate opportunities to include minimum sustainability standards for developments within the Local Planning Scheme that exceed existing regulatory requirements	Short Term
Partner with the Department of Water and Environmental Regulation in implementing the light industry program to reduce pollution from small to medium industries	Medium Term
State and Federal Government	
Advocate for sustainability to be better incorporated into the state planning framework, such as updates to R-codes, liveable neighbourhoods and model subdivision conditions	Ongoing
Advocate for ongoing improvements to the National Construction Code to increase energy efficiency and reduce water consumption of buildings making them more sustainable	Ongoing
Advocate, via WALGA, for mandatory disclosure of building energy ratings at point of sale to improve market knowledge and encourage construction of buildings with higher energy efficiency standards	Short Term
And the City itself	
Develop SMART targets for these actions as part of finalisation of this action plan	Short Term
Scheduled reviews of Planning Strategies, Local Environment Strategy, Urban Forest Strategy and Local Biodiversity Strategy consider climate change matters at that time	Ongoing