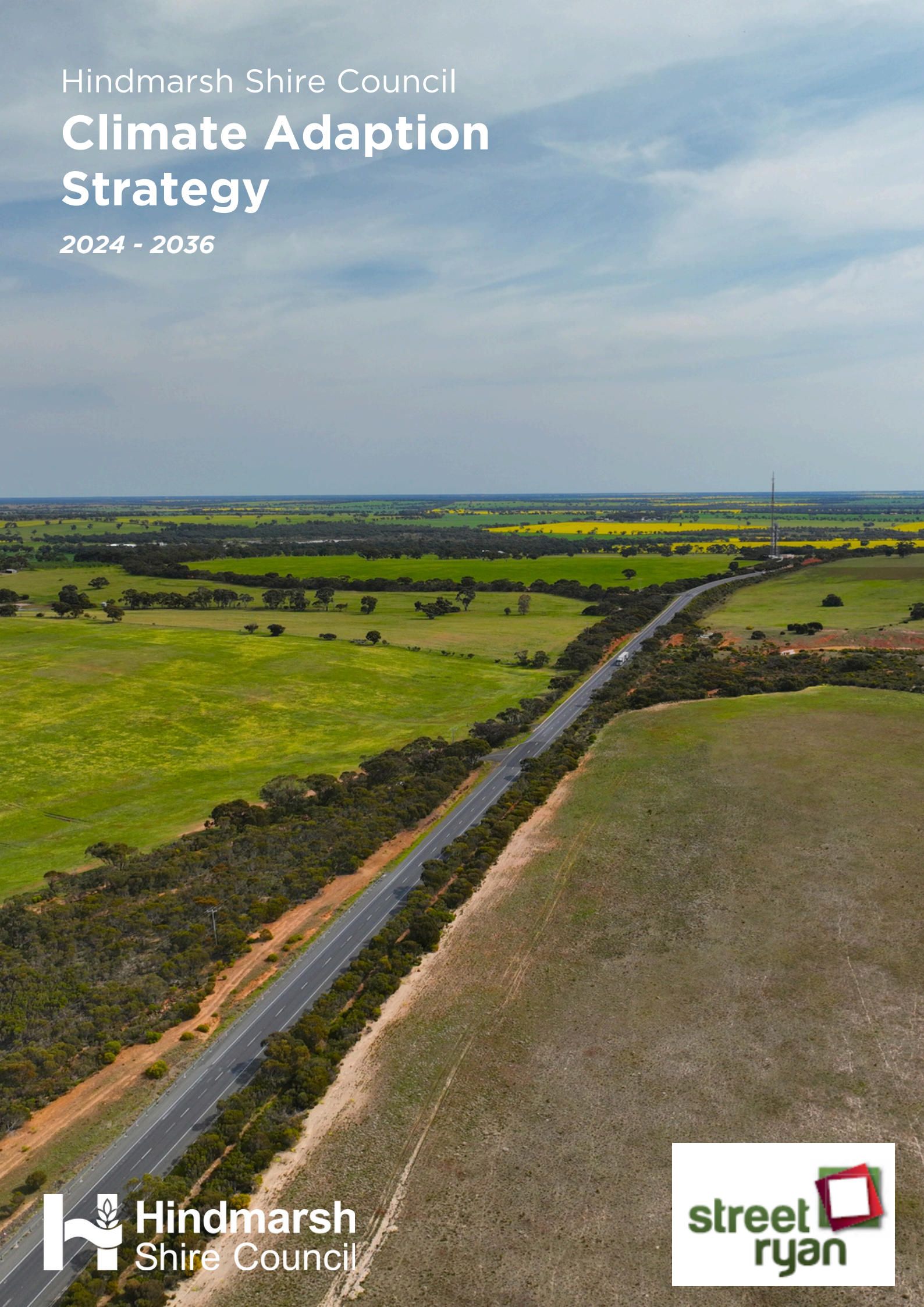
Hindmarsh Shire Council

Climate Adaption Strategy

2024 - 2036



Hindmarsh Shire Council

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SUMMARY

Background

Hindmarsh Shire's economy and its rural communities are strongly affected by the vagaries of climate. Climate determines the health of broadacre agriculture and agribusiness supply chains and liveability in the Shire's towns.

The first Hindmarsh Shire climate adaptation strategy, prepared in 2012, warned that the future climate is predicted to be hotter and drier than it is today. Since then, the Shire's climate has been more favourable than either averages or climate change expectations predicted, albeit with some destructive weather events (such as intense periods of spring and summer rainfall impacting transport infrastructure).

This document refreshes Hindmarsh Shire's Climate Adaptation Strategy by summarising recent and long-term climate trends and the accepted outlook for future climatic changes. It presents practical strategies and actions for which Council can make a meaningful contribution in offsetting potential adverse impacts from climate change and severe climate events.

Climate Trends and Future Climate

- Annual maximum temperatures have steadily climbed in the Shire through the twentieth and twenty-first centuries at an increasing rate. For example, in Nhill maximum temperatures have increased on average at 0.15°C per decade or 1.65°C since the early 1900s.

- Heatwaves in Hindmarsh Shire are more frequent than in the southern section of the Wimmera Southern Mallee. The Shire's communities, with ageing populations where 28% of residents are aged 65+ years (compared with a Victorian average of 17%), are more exposed to health risks during heatwaves than most of Victoria.

- The 'heat health temperature' threshold (an average of daily maximums and daily minimums) for Hindmarsh Shire is 32°C. The incidence of days when the threshold is exceeded is higher in the Shire than in the southern areas of the Wimmera Southern Mallee.

- (cont.) During 2004-23 there were years in which the number of consecutive days above the threshold were sufficient to be considered a heatwave in the Shire. However, over the past three years, when higher rainfall and cooler seasons were recorded there was only 1 day when the heat health threshold was exceeded (in 2021).

- Average rainfall across the Shire has recorded increases over the past 20 years due to the millennial drought of the 2000s being followed by several years of higher rainfall, especially in the years between 2016 and 2023. However, for those towns where weather station records allow a more long-term assessment, the trends show relative stability or a very slight decline in rainfall over more than a century.

- The incidence of frosts is expected to decrease over the coming years, but unseasonal fluctuations in the timing of frosts could maintain their severity.

- Projections by CSIRO and the Bureau of Meteorology for the Grampians region, including Wimmera Southern Mallee, indicate that:
  - There is expected to be less rainfall in the cool season but no rainfall changes in the warm season.
  - Overall, rainfall is likely to decrease, with the greatest decreases expected in spring and winter.
  - The frequency and intensity of extreme rainfall events is expected to rise. However, despite an overall trend of declining rainfall, more of the rain that does fall will be in increasingly extreme downpours leading to an increase in the incidence of flooding events.
  - Time spent in drought is projected to increase over the course of the twenty-first century.
  - Fire weather, measured by fuel dryness and dry, windy conditions, is expected to be harsher in future bringing an increase in the frequency of very high and extreme fire danger days.

Indicative Climate Outlook for Hindmarsh Shire

Indicator	Current	Year 2030	Year 2070
Temperature (days above 35°C)	24 days	30 days	40 days
Heatwaves (days above heat health threshold)	3 days	5 days	9 days
Frost Days	31 days	23 days	10 days
Rainfall	310-360mm	298-346mm	288-335mm

The Strategies

Five broad strategies have been developed, with 35 actions to guide Hindmarsh Shire Council's work program in delivering, partnering and advocating for realistic climate change adaptation. Significantly, these strategies support the Australian Net Zero Plan to transition to a legislated target of net zero greenhouse gas emissions by 2050:

- **Strategy 1**: Ensure ongoing liveability and visitor appeal by supporting Hindmarsh Shire's resilient communities in preparing, enduring and recovering from severe climate events.
- **Strategy 2**: Transition the Shire's built environment to withstand impacts from a changing climate.
- **Strategy 3**: Protect and enhance the Shire's natural resources and natural environment.
- **Strategy 4**: Encourage farming and business communities to adopt climate change mitigation practices.
- **Strategy 5**: Facilitate and lead by example through responsible Council policies, staff training and budgetary initiatives.

Introduction

In 2012 Hindmarsh Shire Council developed its first Climate Change Adaptation Strategy. This strategy set the scene for possible futures for Hindmarsh Shire's climate, much of which remains pertinent and, while some considerable progress has been made (such as the completion of the Wimmera Mallee pipeline bringing improved water security; for towns, recreational waterways and irrigators), there is a pressing need to continue to acknowledge and act on steps to reduce the impact of climate change.

The 2012 Strategy observed:
"*Hindmarsh's future climate is expected to be drier and hotter than it is today, with an increased frequency and intensity of extreme events. The number of frosts is expected to decline, while hot days and droughts are expected to increase. Rainfall intensity is expected to increase, however, as total rainfall is expected to decline, runoff captured for consumptive uses is expected to decline*"[1].

Perversely, the climate in the Shire over the past 5 years has been more favourable than either averages or climate change expectations would have predicted, albeit with some destructive weather events (such as intense periods of spring and summer rainfall impacting transport infrastructure). Rainfall has generally been timely for very strong agricultural production, and the exceptionally rare three consecutive years of La Nina oceanic and atmospheric conditions up to 2023 restored the Wimmera Southern Mallee's water storages to near capacity. Even the massive and long-empty Lake Hindmarsh has held and retained a significant level of water since the end of 2022, and there were minor flooding incidents along the Wimmera River. While rainfall averages have not declined over the past 25 years, the temperature averages have gradually increased.

Throughout Australia, the climate has always been variable. Australia is the driest inhabited continent in the world, where old and weathered soils and landforms add to unreliable seasonal changes; 70% of Australia is either arid or semi-arid land. Semi-arid is defined as areas that receive an average annual rainfall between 250-350 millimetres, an average rainfall range that has occurred in the north of Hindmarsh Shire over the past quarter century.

[1] RMCG, Hindmarsh Shire Climate Change Adaptation Strategy, May 2012
[2] The average annual recorded rainfall in Rainbow between 1998 and 2023 has been 309 millimetres, while over the previous century it was just above the semi-arid range, at 351 millimetres per annum.

Clearly, Australia's climate has always varied and will continue to do so. This climate variability means that some periods are cooler and wetter than average (as was the case in the early 2020s), while others are hotter and drier (eg during the Millennium Drought of 1996 to 2009). However, long-term averages are changing, and the incidence of severe climatic events is increasing.

This document is a relatively brief refresh of Hindmarsh Shire's Climate Adaptation Strategy. It summarises the climate trends and outlook for the Shire and presents practical strategies and actions by Council to help offset potential adverse impacts from climate change and severe climate events.

Climate Trends and Outlook

Overview

The prosperity of Hindmarsh Shire's economy is highly dependent on climate. Broadacre agriculture and agribusiness supply chains are the dominant contributors to the Shire's estimated $¾ billion annual economic output and broadacre agriculture has been the largest employing industry in Hindmarsh Shire since its colonial settlement. Vastly improved agricultural technologies, genetic improvement programs, and changing farm management practices have generated enormous improvements in broadacre production and crop yields, but the industry and the entire supply chain remain susceptible to the vagaries of climate.

The Shire's emerging tourism industry, largely based on natural environmental, historic and cultural attractions is also strongly affected by climatic conditions, with drought conditions and risks of fire/fire danger and flood/flood warning weather reducing the viability of waterways, wetlands and natural ecosystems, threatening the ability to stage events, and negatively impacting tourist visitation. These same climate factors directly influence liveability in Hindmarsh Shire communities. Conversely, services critical to the Shire's residents such as retail, hospitality/food service, health and wellbeing, and sports and recreation facilities.

Myriad research and strategic planning documents concur that the outlook for Wimmera Southern Mallee municipalities is for a climate that is progressively warmer and drier on average than in the past, but the changes will also bring an increase in irregular swings of climate extremes. These irregular swings are expected to include incidences of prolonged wet weather (including storms and heavy rain in spring and summer months), days of extreme and catastrophic fire danger, occasional heavy frosts, and strong winds.

The 2012 Hindmarsh Climate Adaptation Strategy reported:
"*The future climate in Hindmarsh is predicted to be hotter and drier than it is today. The Wimmera region has warm to hot summers with an average temperature of around 27 - 30°C. In winter, average temperatures are between 13 - 15°C and frosts are common. During the last decade (1998 to 2007) average annual temperatures in the region were only 0.10C warmer than the 30 years (1961 to 1990) average. Average daily maximum temperatures increased by 0.6°C, however daily minimum temperatures decreased by 0.3°C. Summer shows the greatest increase in average temperature (0.4°C), while maximum temperatures increased the most in spring and summer (0.7°C). Minimum temperatures decreased in all seasons.*

There has been a marked decline in the region's rainfall over the past decade. Between 1998 and 2007 the region's average rainfall was 16% below the 1961 to 1990 average. Decreases were greatest in winter and spring, while average summer rainfall actually showed a small increase. There were 11 fewer rainy days each year"[1].

Since 2012, climate indicators have been mixed and the impact on Hindmarsh Shire's economy has generally been more favourable than anticipated. Climate scientists note that, far from suggesting this disproves warnings on climate change, it emphasises the erratic nature of climate forces generated by global warming.

[1] RMCG, Hindmarsh Shire Climate Change Adaptation Strategy, May 2012

Temperature

Bureau of Meteorology (BOM) data in Figure 2.1 shows that the trend for annual maximum temperatures recorded at Nhill has continued to increase over the decade from 2013 to 2022, at an increasing rate. The linear trend, since 1911, has been 0.15°C per decade, or a total increase of 1.65°C over the eleven decades.

Similarly, the annual mean temperature changes at Nhill over the eleven decades since 1911 (Figure 2.2) reveal an average increase of 0.11°C per decade, or a total increase of 1.21°C. Mean daily temperatures are defined as the average of the maximum temperature on a day and the minimum temperature on the following day.

Figure 2.1 Annual Maximum Temperature at Nhill Airport, 1911 to 2022

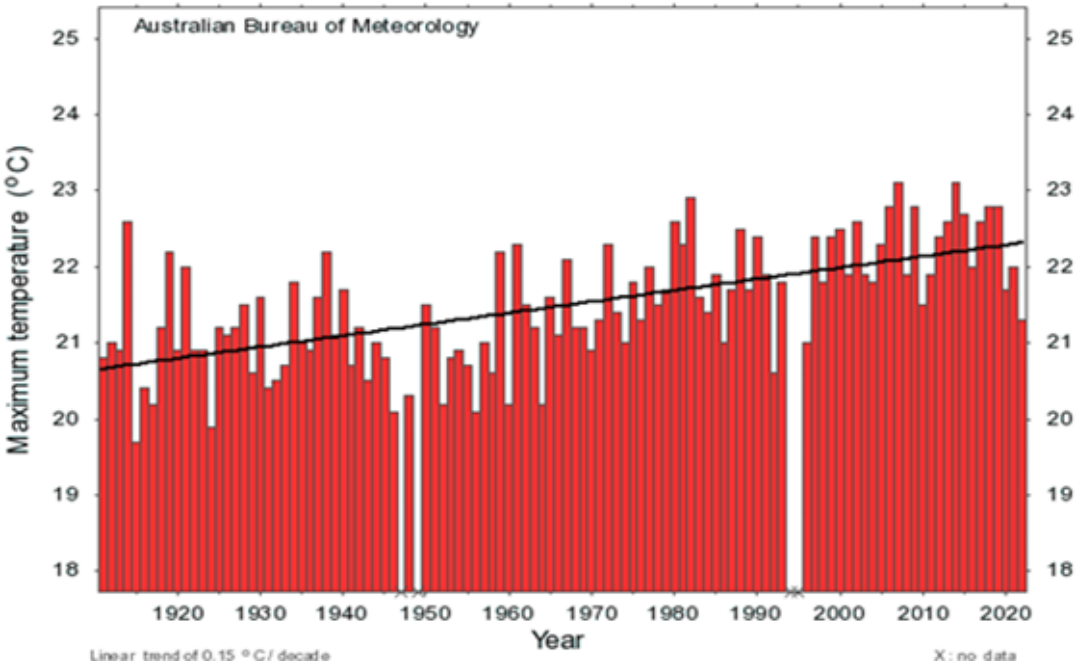
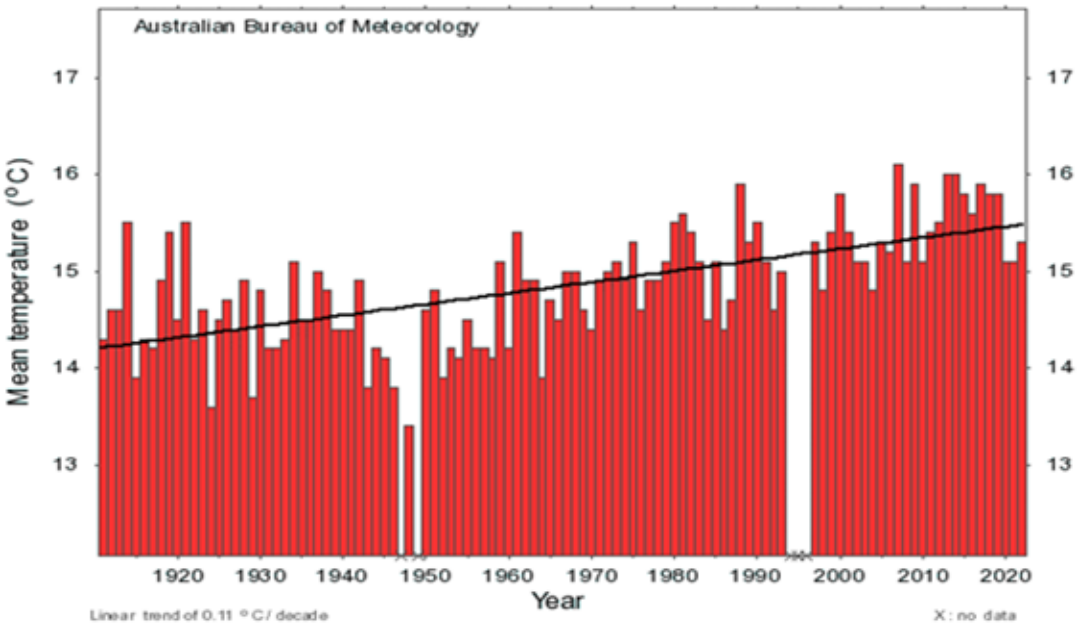


Figure 2.2 Annual Mean Temperature at Nhill Airport, 1911 to 2022



Heatwave Conditions

Heatwaves in Hindmarsh Shire are more frequent than in the southern section of the Wimmera Southern Mallee. The Shire's ageing population, with 28% of residents aged 65+ years (compared with a Victorian average of 17%), is exposed to health risks during heatwaves. While there is no agreed international definition of a heatwave since it is linked to a complexity of factors like humidity, demographics, urban/rural design issues and acclimatisation, the fundamental determinant is temperature (with differing impacts depending on the environment and communities). "*For consistent community understanding in Victoria, a heatwave is generally defined as a period of abnormally and uncomfortably hot weather that could impact on human health, community infrastructure and services. The Victorian Department of Health has a technical definition of a heatwave based on the minimum temperature threshold that is likely to impact on the health of a community, known as the heat health temperature threshold. Once forecast average temperatures are predicted to reach or exceed the heat health temperature threshold for a specific weather forecast district, the department will issue a heat health alert for that district*"[1].

The heat health temperatures are based on average temperatures, not maximum daily temperatures. In Hindmarsh Shire the heat health temperature threshold is 32°C. Figure 2.3 shows the number of days when the average temperature exceeded the heat health temperature of 32°C. The incidence of heat health thresholds being exceeded in Nhill during 2004-23 averaged 3 days per year. However, there were years in which the number of consecutive days above the threshold was sufficient to be considered a heatwave. This included 6 consecutive days in 2009 and 5 consecutive days in 2014. Over the past three years, when higher rainfall and cooler seasons were recorded there was only 1 day when the heat health threshold was exceeded (in 2021).

Nhill has had an average of 24 days each year which exceeded 35°C over the 20 years from 2004 to 2023, as shown in Figure 2.3, and the number of days exceeding 40°C averaged 5 per year. this compares with an average of 19 days above 35°C and 3 days above 40°C in Horsham.

[1] Victorian Department of Health (2011), Heatwave Plan for Victoria

Figure 2.3 Days with Maximum Temperatures Exceeding 35°C and 40°C, and Average Temperatures Exceeding 32°C Nhill 2004-2023

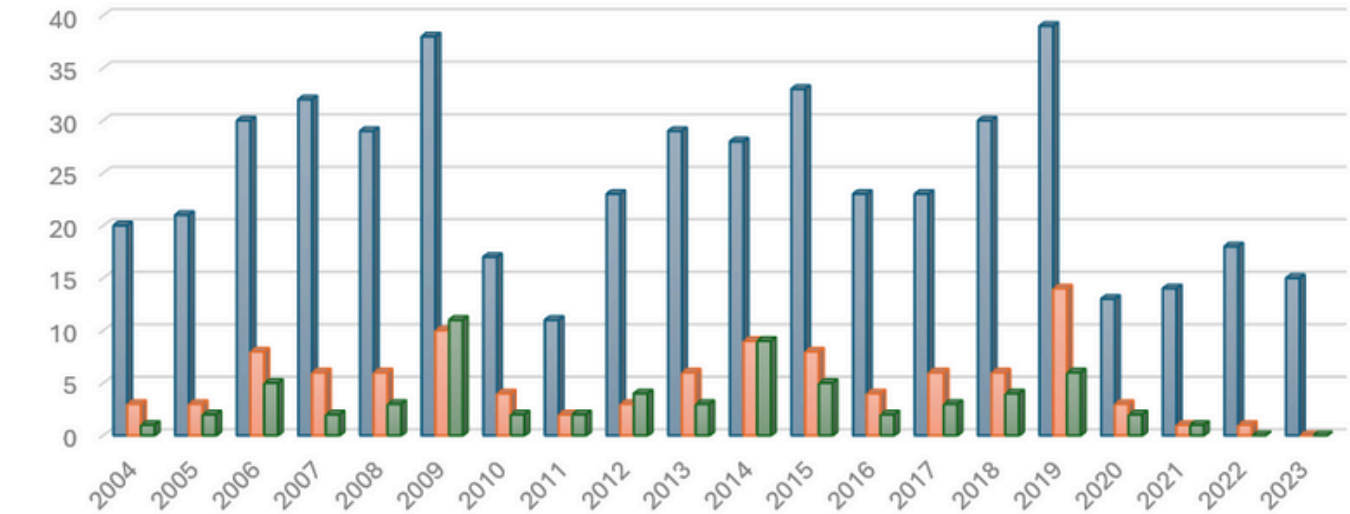
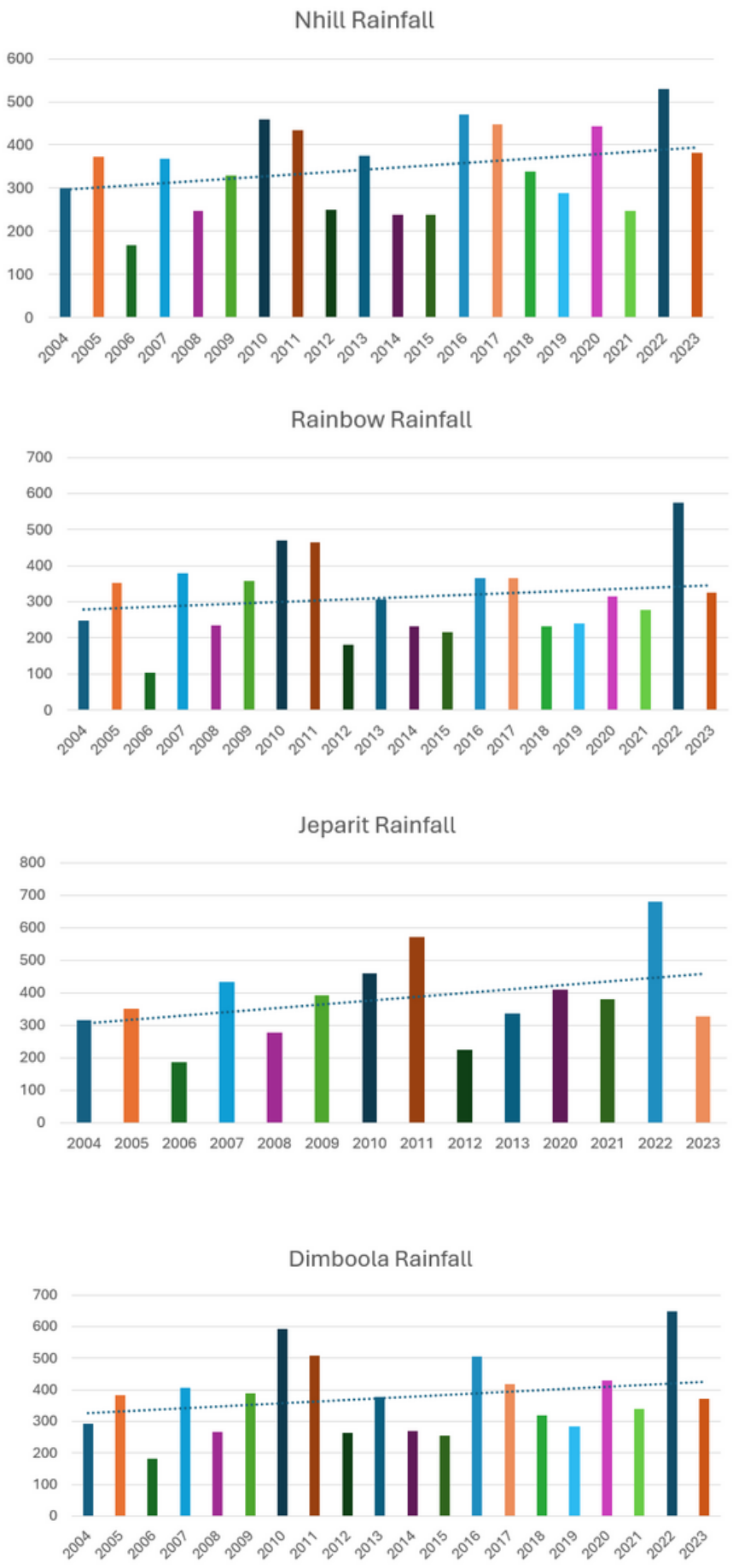


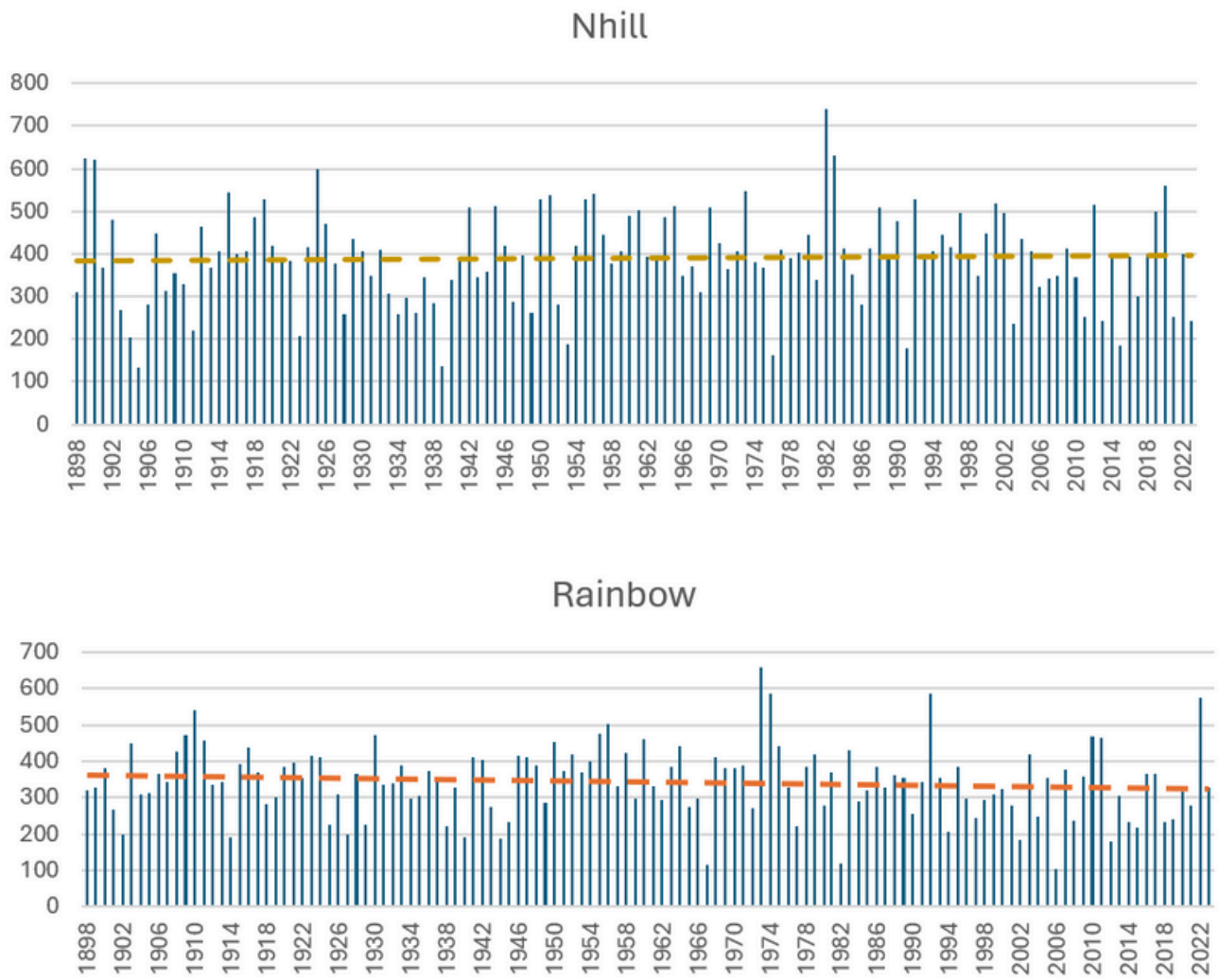
Figure 2.4 Rainfall Trends in Hindmarsh Shire 2004-2023



Rainfall

Unlike the records of maximum and average temperatures in Hindmarsh Shire revealing gradual trend increases, rainfall across the Shire has recorded a trend increase over past 20 years as shown in Figure 2.4 due to the millennial drought of the 2000s being followed by several years of higher rainfall, especially in the years between 2016 and 2023. However, for those towns where weather station records allow a more long-term assessment, presented in Figure 2.5, the trends are more subdued, with relative stability or a very slight decline in rainfall evident.

Figure 2.5 Long Term Rainfall Trends in Hindmarsh Shire 2004-2023



Climate change projections by CSIRO and Bureau of Meteorology[1] for the Grampians region, including Wimmera Southern Mallee, indicate that:

- In the near future (2030), year-to-year changes in rainfall will dominate trends caused by greenhouse gases. Recent research partly links the observed cool season rainfall reductions to climate change. By 2070 there is projected to be less rainfall in the cool season but no rainfall changes in the warm season.
- Overall, rainfall is likely to decrease, with the greatest decreases expected in spring and winter. Conditions outside these projections are also possible, from either natural variability (such as extended drought) or climate changes that are outside the range currently projected.
- The frequency and intensity of extreme rainfall events are projected to rise. However, despite an overall trend of declining rainfall, more of the rain that does fall will be in increasingly extreme downpours. This is likely to lead to an increase in the incidence of flooding events, particularly in urban areas and small catchments.
- Time spent in drought is projected to increase over the course of the century.
- Fire weather, measured by fuel dryness and dry, windy conditions, is projected to be harsher in future. An increase in the frequency of very high and extreme fire danger days is projected.

[1] State of Victoria Department of Environment, Land, Water & Planning 2015 Climate-ready Victoria: Grampians. November 2015. Climate change projections have been generated by CSIRO on behalf of the Victorian Government and are based on national projections released by CSIRO and the Bureau of Meteorology.

Climate Change Risks and Hindmarsh Shire Economy and Community Services

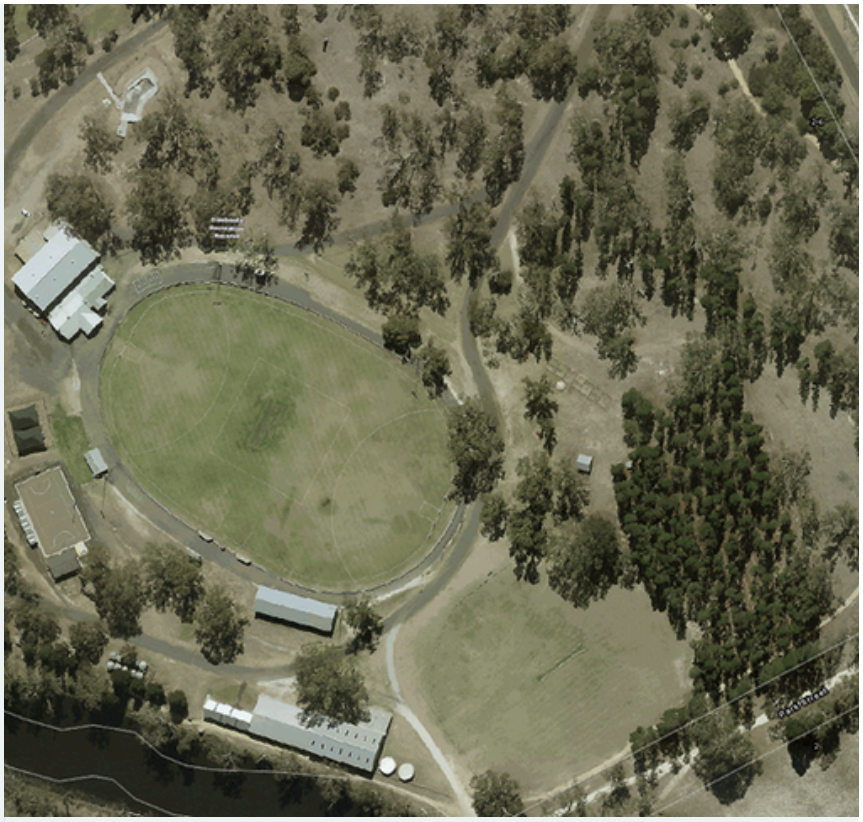
As the land of 'droughts and flooding rains' Australia's ancient, weathered geology and fragile soils have always been subjected to climate uncertainties. However, a recent string of good agricultural production seasons (in the early 2020s) is not evidence that climate change fears are overrated, but confirmation that climate change is bringing wilder swings in climatic conditions: Prolonged periods of unseasonal wet conditions with flooding and prolonged periods of dry and drought conditions. Both extremities place pressure on the natural environment, built infrastructure, other community assets, and community and visitor health.

Drought and its impacts are increasing with the changing climate, including the indirect impacts that drought has on mental health. This most often affects farmers and land-based workers who depend on environmental conditions for their economic livelihoods and those living in rural and remote communities.

Table 2.1 presents a matrix of the major types of climate change events and identifies the segments of Hindmarsh Shire's infrastructure, industries and communities that face the greatest risks from these potential events.

	Floods	Fire and Extreme Fire Risk	Heatwaves	Severe Winds	Severe Frosts	Storms and Hail	Low Rainfall
Agriculture							
Built Infrastructure							
Natural Environment Assets							
Transport and Accessibility							
Business Continuity							
Tourism							
Community Health							
Recreational Facilities							

Climate Change, Disaster and Gender



Overwhelmingly, the climate crisis, just like nearly every other humanitarian and development challenge, has a greater impact on women. This is due to the unequal sharing of power between women and men, the gender gap in access to education and employment opportunities, the unpaid care burden, the prevalence of gender-based violence, and all other forms of deep-rooted gender-based discrimination.

Entrenched and systemic discrimination can lead to gender-differentiated impacts of climate change on health, food security, livelihoods and human mobility, among other things. Intersectional forms of discrimination can make some women and girls more susceptible to climate change. In contrast, excluding women and girls from climate action makes it less effective and exacerbates climate harm.

A climate adaptation strategy should account for gendered impacts to be most beneficial and effective. Due to the interactions between climate, disasters and gender, Council will ensure that this Strategy is applied in conjunction with emergency management and business continuity planning from a gender-based risk perspective.

While climate change is a threat to everyone, it does not affect everyone equally. The impacts of climate change will be more acutely felt by more susceptible communities including:

- children and young people
- pregnant women
- people over 65, including those living alone
- people experiencing homelessness or insecure housing
- people experiencing financial hardship
- Aboriginal communities
- people with a disability
- Culturally and Linguistically Diverse (CALD) communities and new migrants
- people with one or more chronic conditions
- LGBTQIA+ communities
- Those working outside.

Mortality from heat waves is higher in women, and male suicide rates have been found to increase faster with increasing heat. Research indicates that after bushfires and other disasters, violence against women increases, intensifies and may be more likely to be excused or justified because of the stress and trauma experienced by perpetrators.

Disasters also place pressure on people to conform to gender stereotypes and exacerbate existing gender inequalities, causing unequal health, social and economic outcomes for people of all genders. The stress and trauma associated with climate events significantly impact mental health, with women often bearing the responsibility of caring for family members affected by these events.*

*Health and Human Services Climate Change Adaption Action Plan 2022-2026

Climate Trends and Outlook

Climate Adaption Strategies

Five climate adaptation strategy areas have been developed to guide Hindmarsh Shire Council's work program in delivering, partnering and advocating for realistic climate change adaptation. The five strategies acknowledge and support the Australian Government's Net Zero Plan to transition to a legislated target of net zero greenhouse gas emissions by 2050:

- **Adaptation Strategy 1**: Ensure ongoing liveability and visitor appeal by supporting our resilient communities in preparing, enduring and recovering from severe climate events.
- **Adaptation Strategy 2**: Transition the Shire's built environment to withstand impacts from a changing climate.
- **Adaptation Strategy 3**: Protect and enhance the Shire's natural resources and natural environment.
- **Adaptation Strategy 4**: Encourage the farming and business communities to adopt climate change mitigation practices.
- **Adaptation Strategy 5**: Facilitate and lead by example through responsible Council policies, staff training and budgetary initiatives.

These five strategies are closely linked to the Hindmarsh Shire Council Plan themes.

Climate Adaption Strategies	Council Plan Theme
Strategy 1: Ensure ongoing liveability and visitor appeal.	**Our Community**
Strategy 2: Transition the Shire's built environment to withstand impacts from a changing climate	**Built and Natural Environment**
Strategy 3: Protect and enhance the Shire's natural resources and natural environment.	**Built and Natural Environment**
Strategy 4: Encourage the farming and business communities to adopt climate change mitigation practices.	**Competitive and Innovative Economy**
Strategy 5: Facilitate and lead by example through responsible Council policies, staff training and budgetary initiatives.	**Good Governance and Financial Sustability**

Guide to the Action Plan

Term	Meaning
Deliver	Council is responsible for delivering and managing the Action in it's entirity.
Facilitate	Council is not solely responsible for the Action, but will work to enable it's delivery.
Advocate	Council will engage with the responsible stakeholder to ensure delivery of the Action.
Investigate	Council needs more information to deliver the Action, so the first step is information gathering and scoping.
Partner	Council will co-deliver the Action with other stakeholders.
Ongoing	The Action does not have a clear 'end date' and will require regular/intermittent activity to be delivered.
Annual	The Action needs to be undertaken/addressed by Council annually.

Adaption Strategy 1			
Statement of Strategy	**Ensure ongoing liveability and visitor appeal by supporting our resilient communities in preparing, enduring and recovering from severe climate events.**		
Explanation	**Being a desirable place to live and visit means limited, and protected, exposure to climate extremes and a community which has plans in place to respond to climate emergencies.**		
Action No.	**Action Details**	**Council's Role**	**Timeframe**
1.1	Development of communications packages relevant to climate incidents, including seasonal emergencies such as Total Fire Ban Days, Extreme Heat Days and Extreme Storm Warnings. Communications packages should account for existing communication platforms and methods, should enable the most up-to-date and correct messaging to be distributed to the community, should be reviewed at least biannually and should be available in languages required by the community.	Deliver	2024 (Ongoing review)
1.2	Continued designation, promotion and preparation of fire and flood safe places (Emergency Relief Centres and Neighbourhood Safer Places). GEM Guidelines should be followed and incorporated into relevant emergency management plans.	Deliver	Ongoing
1.3	Advocating with the relevant authorities to give the highest possible security rating to potable water for Hindmarsh Shire town domestic consumption from the Grampians Storage Headworks, during times of drought and low-water levels.	Advocate	Ongoing

Adaption Strategy 1			
Action No.	**Action Details**	**Council's Role**	**Timeframe**
1.4	Advocating with relavent authorities for the prioritisation of high-security allocation of recreational water for key waterways in the Shire during times of drought (Dimboola Weir, Jeparit Weir, Rainbow Lake, Nhill Lake – the first three secured from WMP and the final from underground/bore supply)	Advocate	Ongoing
1.5	Develop a program plan to support tree planting initiatives on private properties within the Shire.	Deliver	2026
1.6	Work with key community, government and emergency management stakeholders to build community capacity and resilience to support resilience and recovery.	Partner	Ongoing

Adaption Strategy 2			
Statement of Strategy	**Transition the Shire's built environment to withstand impacts from a changing climate.**		
Explanation	**Maintenance of the Shire's roads and bridges, and other built infrastructure is by far the largest financial burden on Council and, even without the impact of climate disasters, the ability to keep pace with preventative and reactive repairs and maintenance is beyond Council's financial resources.**		
Action No.	**Action Details**	**Council's Role**	**Timeframe**
2.1	Set annual capital works programs that prioritise continuity of road and bridge networks to maintain access to, and within, the Shire for essential services and business operations. Consideration should be given to materials and methodologies that increase the resilience of the road network to severe weather events.	Deliver	Annual
2.2	Future Council infrastructure projects that are identified for community use (including recreational facilties, public spaces, community facilities and streetscapes) to be designed and oriented to maximise thermal comfort, energy and water efficiencies. This could include the use of shade trees, eaves and verandas to provide respite in instances of extreme heat and to help manage the heat sink effect. Consideration to be given to socio economic factors and access to shaded areas when planning and prioritising streetscape improvements in different communities.	Facilitate	Ongoing
2.3	Install rainwater and stormwater harvesting system to irrigate parks and landscaped areas of Hindmarsh towns	Investigate/ Advocate	2026
2.4	Assess the potential for treatment and recycling of wastewater in the Shire (by filtration, reverse osmosis, membrane separation, etc).	Advocate	Ongoing
2.5	Any new building projects commissioned by Council should include terms of reference, or design briefs, which require 'design for climate' considerations. This could include building orientation, building materials, renewable energies, water collection, landscaping and materials that, at end of life, can contribute to a circular economy through re-use or repurposing.	Deliver	Ongoing

Adaption Strategy 3			
Statement of Strategy	**Protect and enhance the Shire's natural resources and natural environment.**		
Explanation	**Sustainable practices are needed to preserve landscapes and open spaces for future generations.**		
Action No.	**Action Details**	**Council's Role**	**Timeframe**
3.1	Collaborate with WCMA and GWMWater on achieving the best balance in water allocations, and water security prioritisation, for shared uses: Environmental, recreational, irrigation and domestic (reticulated town systems) supply from the region's surface water and groundwater resources and the Wimmera Mallee pipeline.	Advocate	Ongoing
3.2	Encourage cultural burns, for resource management benefits, in locations and circumstances when advised and controlled/managed by Traditional Owners.	Advocate /Partner	Ongoing
3.3	Collaborate with local Landcare groups to deliver education and advocacy programs around land and cultural management practices that: • Involve tree planting programs (as shelterbelts, livestock shade zones, windbreaks, etc). • Restore the spread of indigenous plants and trees across the Shire. • Help to maintain and/or restore habitat for native fauna. • Utilise best practice in soil and crop management to increase carbon capture, reduce emissions and retain moisture in soil profiles. • Educate both Council and external outdoor employees on flora management, selection of appropriate trees/shrubs and the preference for planting Indigenous plants and those that are adaptive or resilience to predicted weather changes. • Protect the sustainability of the Wimmera River through effective management of the riverbank and adjacent land.	Deliver/ Partner	Ongoing

Adaption Strategy 4			
Statement of Strategy	**Encourage the farming and business communities to adopt climate change mitigation practices.**		
Explanation	**Competitive and innovative economy policies which include climate change abatement objectives in both capital investment and operating practices. Also, support new innovative businesses that focus on climate abatement and climate adaptation solutions.**		
Action No.	**Action Details**	**Council's Role**	**Timeframe**
4.1	Acquire and/or provide access to agricultural practice notes and referrals covering soil management, revegetation and vegetation belts, water saving and recycling, and possibly commenting on crop rotations, biological applications for sequestering carbon, genetic improvement (for lower water usage, fungus and disease resistance, etc) and GMO versus non-GMO production).	Advocate	Ongoing
4.2	Support enterprise/business diversification and value-adding agribusiness opportunities such as intensive versus extensive production, utilising co-products, reducing waste, creating circular economies, biofuels, and waste-to-energy processing.	Facilitate/ Advocate	Ongoing
4.3	Encourage retail and service businesses to introduce renewable energies and energy efficiencies, and potentially participate in micro-grids through facilitation of information sessions and provision of relevant resources.	Facilitate/ Advocate	Ongoing
4.4	Become a Shire known for EV charging capacity – to encourage stopovers in the Shire's towns and articulate these stopovers into visitor experiences. This will build on the Shire's competitive strength as a halfway point between the Melbourne and Adelaide metropolitan areas.	Deliver	Ongoing

Adaption Strategy 4			
Action No.	**Action Details**	**Council's Role**	**Timeframe**
4.5	Advocate for renewable energy projects which contribute to the Shire's economy and jobs, and which assist the Shire to attract investment in both innovative technologies and value-added products (especially those which add-value to the Shire's agricultural commodities). Renewable energies considered to have potential in Hindmarsh Shire include: • Solar • Wind • Bioenergy (using waste streams to generate power) • Geothermal energy • Green hydrogen.	Facilitate/ Advocate	Ongoing
4.6	Actively encourage low-carbon emission business operations (new and existing) throughout the Shire.	Advocate/ Facilitate	Ongoing
4.7	Assess renewable microgrids for Hindmarsh Shire towns Rainbow and Dimboola and, subject to the outcomes, consider investment in microgrid energy systems for any or all of Hindmarsh Shire's four main towns.	Investigate	2026
4.8	Apply the Shire planning scheme to enable projects which have strong environmental credentials to be given support (subject to meeting other legislative requirements).	Deliver	Ongoing
4.9	Negotiate with incoming renewable energies providers to the region to ensure they create lasting community and economic benefits for the Shire.	Advocate/ Facilitate	Ongoing
4.10	Participate in, and support, Wimmera Southern Mallee Development's Drought Resilience plan.	Partner	Ongoing

Adaption Strategy 5			
Statement of Strategy	**Facilitate and lead by example through responsible Council policies, staff training and budgetary initiatives.**		
Explanation	**Responsible financial, asset and risk management, and leading climate adaptation approaches by Council's own internal actions.**		
Action No.	**Action Details**	**Council's Role**	**Timeframe**
5.1	Budgeting to allow for contingencies that might be required in dealing with climate emergencies (communications, support for emergency service organisations – CFA/SES, maintenance of safe places)	Deliver	Annual
5.2	Review Local Laws with consideration to additional appropriate measures to ensure that local safety measures consider climate impacts and risks	Deliver	2026
5.3	Enhance, innovate and further develop existing climate change abatement efforts (such as waste management collection, and the glass crushing and reuse collaborative program with other Councils in the region)	Deliver	Ongoing
5.4	Incorporate climate risks within Council's operational risk management plans. Good governance and financial stability policies and actions could encompass, for example: • Staff awareness and training updates. • Developing climate crisis plans and toolkits (for pre-, during and post-climatic events). • Budgeting for corrective maintenance and preventative maintenance. • Insurances covering climate events. • Suppliers offering products and services that are sustainable and meet climate event resistance tests, where possible	Deliver	2024/ Ongoing

Adaption Strategy 5			
Action No.	**Action Details**	**Council's Role**	**Timeframe**
5.5	Ensuring staff have access to information, projections, scenarios and data that enable them to make climate-informed decisions in their day-to-day roles. This includes socio-economic and demographic data, ensuring that - where possible - gender considerations in relation to climate risks and vulnerabilities are analsyed and actioned.	Deliver	Ongoing
5.6	Climate change event scenario planning is built into business continuity planning around key and essential services, both in delivery and access	Deliver	Annual
5.7	Review Council's Motor Vehicle Policy in view of environmental and climate change impacts.	Deliver	2025
5.8	Conduct Gender Impact Assessments on climate initiatives as required by the *Gender Equality Act 2020*, ensuring that gender inequalities are addressed at the planning stage.	Deliver	Ongoing
5.9	Work with young people, including the Youth Council and local schools to develop eduction programs and initiatives that engage young people in climate change mitigation, adaption and resilience.	Partner	Ongoing
5.10	Investigate development of Disaster Context document that describes socio-economic demographics from a gendered perspective.	Deliver	2027
5.11	Support Emergency Management and other relevant staff in undertaking Lessons in Disaster Training.	Partner	Ongoing

Document Control

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