

The Committee Manager
Legislative Assembly Environment and Planning Committee
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September 30, 2020

Dear Committee Manager

INVITATION FOR WRITTEN SUBMISSION TO THE INQUIRY INTO ENVIRONMENTAL INFRASTRUCTURE FOR GROWING POPULATIONS

The Goulburn Broken Greenhouse Alliance (GBGA) and Central Victorian Greenhouse Alliance (CVGA) welcomes the opportunity to lodge an information submission to this Inquiry.

The inquiry states “The wide-ranging review by the Legislative Assembly’s Environment and Planning Committee will consider community access to parks and open space, sporting fields, forest and bushland, wildlife corridors and waterways.”

This submission comments on green infrastructure encompassing street trees, water sensitive installations, and vegetated spaces in riparian areas, wildlife corridors, remnant urban bushland, landscaped streetscapes and formal parks and gardens. It also comments on challenges for sporting facilities. All these elements are important to achieve overall greening of an urban area and provide significant community benefit.

In this submission, ‘access’ is interpreted as the ability of the community to use green infrastructure that is fit for intended purposes and will provide community benefit for the long term, as well as the physical opportunity to connect to these spaces.

The inclusion of green infrastructure is an essential part of achieving resilient and liveable neighbourhoods in the face of expected climate change. This submission will particularly provide information on the role of these spaces in the context of a hotter, drier climate, drawing on examples in the GBGA and CVGA regions in Central, Northern and North East Victoria. A map of these alliance areas and list of members is included at the end of this submission. However, this response is not formally endorsed by any individual member and is a regional submission of the GBGA and CVGA.

The GBGA and CVGA would appreciate an opportunity to present to the Committee, if this opportunity is available.

Communities Depend on Green Infrastructure for Recreation, Health and Wellbeing

Many Australian and international studies demonstrate the range of community benefits from urban green infrastructure.

A review of studies examining the benefits of green infrastructure by Bowen and Parry(1) for the City of Melbourne and partners concluded :

Most studies demonstrated that green infrastructure is significantly beneficial for an individual’s physical, mental, and social health.

- Physical health: strong evidence to suggest that green infrastructure can facilitate physical activity, with an associated lowering in risk of obesity, some diseases, and mortality.

- Mental health: much of the evidence indicates that viewing or experiencing green space and natural environments is associated with reduced levels of perceived and physiological stress, positive mood, feelings and emotions, reduced symptoms of depression and anxiety.
- Social health: strong evidence to suggest that green infrastructure can improve a community's social cohesion and capital.

This work confirmed research by the World Health Organisation (2) that summarised the co-benefits to our communities:

“Interventions to increase or improve urban green space can deliver positive health, social and environmental outcomes for all population groups, particularly among lower socioeconomic status groups. There are very few, if any, other public health interventions that can achieve all of this”.

Communities will not gain these considerable benefits if green infrastructure is degraded by climate change, and hotter summers lead to people choosing to reduce use of these spaces.

What impact will climate have on green infrastructure?

I attach outputs from a tool for this region developed by North East Catchment Management Authority (NECMA) in 2019 (3) that allows projections to be accessed at local level. Although developed for north east Victoria, the projected climate patterns are expected to be similar across the GBGA area of 13 councils in northern and north east Victoria. The North East Climate Explorer tool shows:

- Summer temperatures that we now see as typical will extend over a longer period - by 2030 summer conditions will be a month longer.
- Days of high and extreme temperature will increase; on average a doubling of days over 35 degrees
- The autumn rain period has already become less consistent and predictable.
- In higher elevations, 2030 annual rainfall is not reduced, but 2050 annual rainfall is significantly decreased across northern and north east areas in the 2050 time range.
- Runoff to waterways will be reduced - in the order 20% lower by 2030 and 30% by 2050.

These projections have already shown in trends in recent years. (see attachment)

Climate change is changing the length and characteristics of the seasons. Water availability will be reduced while soil conditions are drier due to heat and evaporation. These hotter, drier conditions will make it more difficult to establish and maintain the green infrastructure that will be crucial for liveable neighbourhoods.

Green infrastructure is a living, growing resource and local climate information is needed to assess and plan for the performance of green infrastructure in future conditions. The projected decrease in available water is similar to conditions during the millennium drought. Even hardy species suffered, and valued green spaces and trees died.

It is important to understand the NECMA projections use the current trajectory of climate change (using RCP 8.5), which would see a temperature increase of 4 degrees by 2100. The Paris Accord aims for a temperature increase less than 2 degree, desirably 1.5 degrees. Policy and action to mitigate climate change would significantly decrease the degree and cost of adaptation needed in the future.

Access: physical opportunity to connect to green infrastructure spaces.

The Bowen and Parry review showed that communities in proximity to green spaces will derive greater benefits as detailed above.

In urban planning, walkability to transport and facilities is often measured using a 400m distance. Existing urban areas need to be mapped for access of green spaces within a maximum 400m walkable distance to assess the equity of access to the health benefits of green infrastructure. A future hotter climate will discourage activity in the heat. Connected green streets and spaces will improve access and invite increased use.

The 'Sustainable Subdivisions Framework (SSF)' is a current project, led by the City of Wodonga in partnership with 15 Victorian regional and growth area councils, the Council Alliance for a Sustainable Built Environment, and the Victorian Planning Authority. The project has developed resources to provide a coherent framework for planning and design of sustainable urban areas. This enables the developer/designer to demonstrate environmental performance of the subdivision. In 2020/21, the SSF trial stage, working with partner councils and developers, will refine the SSF and validate the benefits of sustainable subdivisions.

The SSF (4) includes a number of categories which relate to green infrastructure”:

‘Site Layout and Liveability”, in particular access to and site responsive subdivision which retains natural features (such as canopy vegetation) for incorporation into public open space and streetscapes

Streets and Public Realm”, which focuses on designing people focused streets and open space, including playgrounds, parks and sporting fields, to set the preconditions to create pedestrian and bicycle friendly neighbourhoods in which people of all abilities can easily and safely move around. Further, that the Public Realm can be designed as inviting, vibrant places that support local community and economy, and drive biodiversity, urban cooling, and integrated water management outcomes.

‘Ecology’, which highlights how subdivisions can retain and enhance ecology to provide key ecosystem services including: habitat for wildlife, urban temperature regulation, runoff mitigation, food supply and recreational and aesthetic benefits.

‘Integrated Water Management’ demonstrates how all aspects of the water cycle, including reduced water consumption, beneficial use of recycled and stormwater and water sensitive design can be integrated and collaboratively managed in subdivisions, which is critical to ensuring the future water security of our communities.

‘Urban Heat’ recognises that green infrastructure will reduce the level of heat experienced and the hours of heat during hotter summers. For example, a study in Parramatta showed that two nearby streets experienced the same hot summer in very different ways, with a shaded street being 10 degrees cooler and heating to 40 degrees for 5 days, compared with the unshaded street experiencing 15 days over 40 degrees. These patterns of green urban cooling were also documented by central Victorian councils in the CVGA ‘Cool It” study.

The SSF recommends connected, inviting and walkable green spaces that support local community and economy, and drive biodiversity, urban cooling, and integrated water management outcomes. Future residents should be able to move around the subdivision using ‘cool routes’ - active transport routes between destinations that provide protection from direct heat through measures including green infrastructure. This amenity is a reasonable expectation for all residents.

Access: Fit-for-purpose facilities adapted to climate change

Sporting teams and activity are often the heart of rural communities through direct participation, support groups and fan interest. Sports infrastructure and fields are essential foundations. The reduction in available water during the millennium drought is similar to reduction expected due to climate change. The experience in the millennium drought shows that Councils will need to

plan and embed adaptive action to retain the functional use of green infrastructure and ensure continued opportunity to participate.

In dry seasons the demand for the better maintained and watered parks and sportsgrounds can be considerable. In the millennium drought smaller towns suffering water stress used sports facilities in the regional cities, increasing demand significantly. In 2006 parks and sportsgrounds were so dry, winter season sports could not commence due to safety considerations. Dry, brown parks were not inviting to use. Communities experienced social dislocation like that experienced this year due to COVID. This is the picture of the expected climate future.

Adaptation to counter a climate driven decline needs climate information to plan actions:

- Use of different grasses, or modern synthetic surfaces
- Use of stormwater retention for watering
- Diversify water sources to improve choices in dry seasons, within an Integrated Water Management Plan
- Understanding the long term response of tree, plant and grass types to future conditions (the GBGA is using the North East Climate Explorer for this purpose)
- Develop plans to ration the access to sports facilities and parks during dry seasons (Alpine Shire and Benalla Rural City explored this in the Rec-Less project in 2013)

The Western Alliance for Greenhouse Action “How Well Are We Adapting” (5) program measures councils’ responses to climate change across services and operations. Indicators themes include “Our local parks and sports fields” The website documents key best practice examples. <https://adapt.waga.com.au/OurLocalParks#>

Access: Urban Ecology for the long term benefit of the community

Another key green asset are bushland corridors other remnant areas. Many towns and cities in the regions are built on or near waterways. The remnant vegetation in riparian and other bushland areas frames the urban areas, retaining ecological value and corridors for walkways through vibrant bush areas. The value of these spaces has been proven during COVID, with increased visitation, some areas recording a doubling in use.

Communities look to councils to actively develop the opportunities and benefits of waterway and bushland vegetation. Our regional cities provide excellent examples.

A unique project is RiverConnect, that aims to see the Goulburn and Broken Rivers riparian areas recognised as the life and soul of the Shepparton-Mooroopna communities and to connect the community to these green areas. It is a community project with many partners under the leadership of Greater Shepparton City Council. The four main objectives are; connecting community, connecting environment, connecting Aboriginal people and connecting education. The mission of the RiverConnect project is to create a vibrant, more cohesive Greater Shepparton community through developing a strong sense of belonging and connecting to our rivers. The aim is to achieve this by understanding and enhancing environmental, cultural, recreational, and economic value of the rivers.

The natural character of the City of Wodonga is defined by the surrounding hills, where hilltop areas and a network of linear reserves have been conserved in a connected network of parklands. The parklands provide natural viewpoints for all parts of Wodonga, and a network of nature trails. Management of around 3000 hectares of the parklands is increasing in complexity as the population grows and development gets closer to these environmental assets. The trend to hotter, longer summers will emphasise the value of these green areas, but is increasing community concern and expectations about fuel management in the parklands. Wodonga Council masterplans for the hilltop areas use a range of measures for fire protection. One tool is

controlled burning. Climate change is reducing the window of suitable conditions for burning as a risk management approach. However, perceptions of fire risk lead to unrealistic expectations of widespread fuel reduction, when targeted fuel reduction will reduce risk while preserving the habitat values of the parklands. Urban communities can also be intolerant of smoke from controlled burning. This is an example of concerns faced by rural councils as bushland managers.

Urban environmental assets also provide ecosystem services, filtering runoff before entering waterways. This is enhanced by water sensitive design. Greater Shepparton City Council has implemented Water Sensitive Urban Design with 15 constructed wetlands to treat urban stormwater. Several are outstanding community assets. One site at Victoria Park Lake is a popular natural walking area and another the protects the natural wetland at Gemmills Swamp Wildlife Reserve.

Bendigo, as an inland city, is an exemplar of applying the methods of the CRC for Water Sensitive Cities to plan its transition to a Water Sensitive City that fulfils the multiple objectives of ecosystem protection and restoration, security of supply, flood control, public health, amenity, liveability and economic sustainability, among others.

The GBGA and CVGA acknowledge the funding provided by the Victorian Government for councils to develop Integrated Water Management Plans (IWMPs) that consider open space linkages, water sensitive urban design infrastructure and improved community access to urban waterway corridors amongst other considerations. The IWMPs developed in partnership with CMAs, water utilities and DELWP have identified the need for new green infrastructure. This will also improve urban ecology and amenity. Councils in the regions face the expectation to fund IWMP development without the funding assistance available in Melbourne catchments.

This is not achievable for smaller councils. As an example, the IWMP for Mansfield township recommends alternative water sources for homes and industry, and to water environmental infrastructure, creek redevelopment, and development of wetlands and flood retarding basins. The works are worth more than \$50M in the case of Mansfield Shire Council. This far exceeds what a resource constrained council can fund and to implement the plan. Of 38 Victorian councils categorised as small and large shires, 21 are resource constrained. Additional financial assistance will be needed if townships are to achieve the same standards and benefits of green infrastructure enjoyed in larger regional cities and Melbourne.

The Sustainable Subdivisions Framework recognises the importance of urban ecology for communities within the category of Urban Ecology. This recognises the high neighbourhood amenity when residents can interact with nature in the immediate neighbourhood in a healthy urban environment that supports local wildlife. In developing areas, remnant vegetation is a crucial basis of the design of a subdivision to integrate urban ecology in neighbourhood amenity. In planning considerations, local vegetation does not have the same strength of protection if not rated as high significance or State significance. This encourages developers to favour offsets rather than prioritise 'avoid and minimise' principles. Loss of remnant vegetation creates long term impact for community efforts to improve urban ecology, as old trees cannot be replaced for a generation.

Suggestions to Improve Environmental Infrastructure

Drawing on the information in this submission, the following themes are submitted for consideration of the Inquiry in its deliberations.

Council Governance and Planning: In 2020, the importance of Council's role to respond to climate change risk has been elevated by inclusion in the Local Government Act and priority in the development of Public Health and Wellbeing Plans. Another key council role is Planning Authority. The Sustainable Subdivisions Framework is an example of many climate change responses that need a strong policy foundation. This can be provided by including the Planning and Environment Act 1987 in Schedule 1 of the Climate Change Act 2017 to ensure that planning decisions have regard to climate change. The SSF phase will involve the development community in improving the framework and its application. The trial will also show if formal planning provisions are needed.

Respond to climate change through green urban cooling: Application of the SFF will develop new areas with strong urban ecology and cooling through green infrastructure. This needs signals to prioritise the application of planning controls to better ensure the protection of existing green infrastructure (particularly mature trees and urban canopy) to facilitate climate resilience and the associated health and wellbeing outcomes.

Existing urban areas also need to provide the same amenity and benefits. Existing areas need to be evaluated for the area, location and conditions of green infrastructure and cool walkways for access. This can be integrated with integrated water management projects. Overall planning may point to land acquisition, creek redevelopment, planting, and other green development to provide the multiple benefits of green amenity. Resource constrained regional councils will need assistance to achieve consistent green standards that provide climate resilience and water sensitive design for local communities.

Funding to recognise the community benefits of green infrastructure: Government funding needs to recognise the considerable and multiple health, community and environmental benefits of all green spaces and corridors in urban areas. The 2020 Victorian Community Sports Infrastructure Stimulus Program is providing \$68million to build and upgrade community sports facilities. The physical and mental health benefits of other green spaces need to be recognised with commensurate funding that can achieve lasting environmental benefit, and prepare for the impacts of climate change. This is particularly necessary for large and small shires.

Community understanding of bushland and its management: The Victorian government could assist councils to manage public perception of fire risk from vegetated areas adjacent to urban areas, especially residential fringe, and rural residential areas. The fire risk of natural areas needs to be assessed and communicated to local populations, with an understanding that tree removal or frequent burning will destroy amenity, while converting vegetation to weedy, dense grassy areas that will burn rapidly. Climate change is reducing the annual window of opportunity for controlled burning as a risk management measure. Despite being risk averse to fire danger, residents and some agricultural industries are sensitive to smoke. Trials of indigenous burn methods need to be increased to measure opportunities to reduce risk while maintaining amenity. Councils, DELWP and Parks Victoria would be assisted by a coordinated approach and resources for community education about the natural values and fuel management, that recognises the complexity of the risk/amenity issues to cities and towns in rural areas.

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References

- (1) Bowen, K. J. and Parry, M. (2015) The evidence base for linkages between green infrastructure, public health and economic benefit, Paper prepared for the project Assessing the Economic Value of Green Infrastructure.
- (2) World Health Organisation, Regional Office for Europe (2017) Urban Green Space Interventions and Health
- (3) NECMA (2019) Embedding Climate Change in Agriculture
<https://www.necma.vic.gov.au/Solutions/Climate-Change/Embedding-Climate-Adaptation-in-Agriculture>
- (4) Council Alliance for a Sustainable Built Environment (2020) Sustainable Subdivisions Framework (SSF) <https://www.casbe.org.au/resources/sustainable-subdivisions-resources/> and <https://6c5pw269zs2tv6x0418kzx2k-wpengine.netdna-ssl.com/wp-content/uploads/2020/09/6.0-Urban-Heat.pdf>
- (5) Western Alliance for Greenhouse Action “How Well Are We Adapting”
<https://adapt.waga.com.au/About>

MEMBERSHIP OF THE GBGA and CVGA

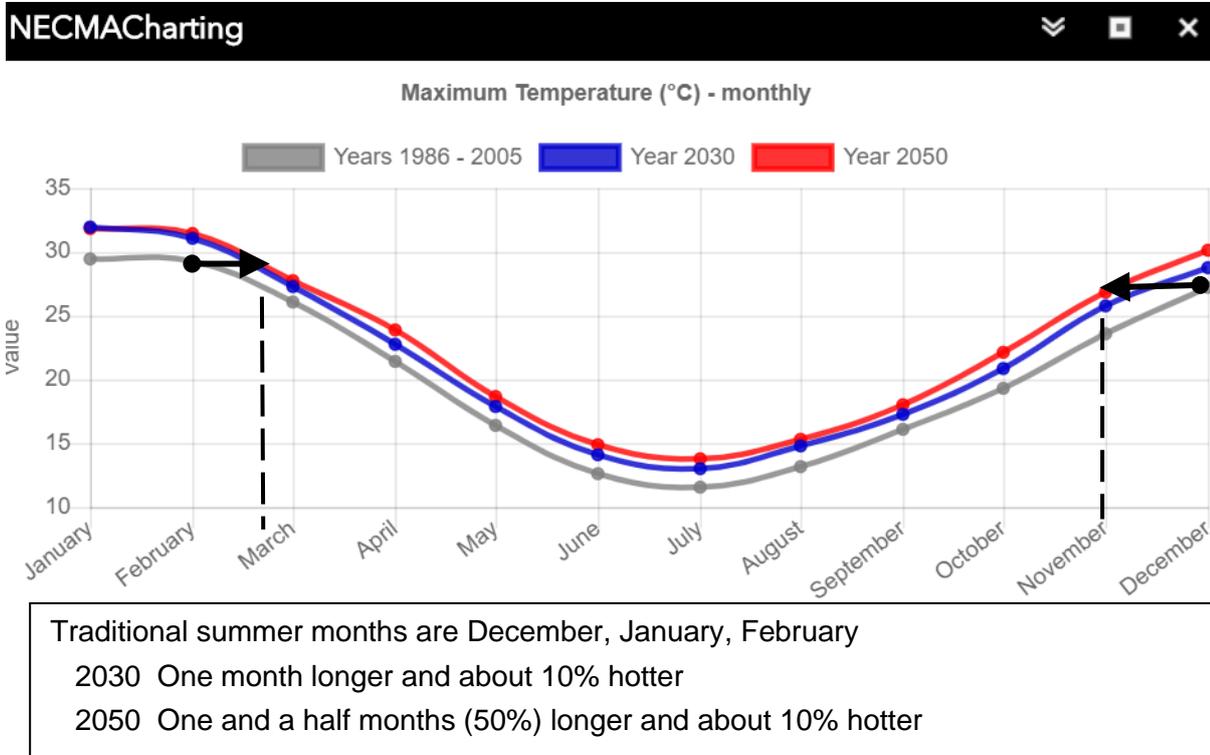
Goulburn Broken Greenhouse Alliance	Central Victorian Greenhouse Alliance
Alpine Shire Council Benalla Rural City Council Campaspe Shire Council Greater Shepparton City Council Indigo Shire Council Mansfield Shire Council Moira Shire Council Mitchell Shire Council Murrindindi Shire Council Strathbogie Shire Council Towong Shire Council Wangaratta Rural City City of Wodonga Goulburn Broken Catchment Management Authority North East Catchment Management Authority Department of Environment Land Water and Planning (Hume regional office) (associate member)	Ararat Rural City City of Ballarat Buloke Shire Council Central Goldfields Shire Council Gannawarra Shire Council City of Greater Bendigo Hepburn Shire Council Loddon Shire Council Macedon Ranges Shire Council Mildura Rural City Council Mount Alexander Shire Council Pyrenees Shire Council Swan Hill Rural City Council



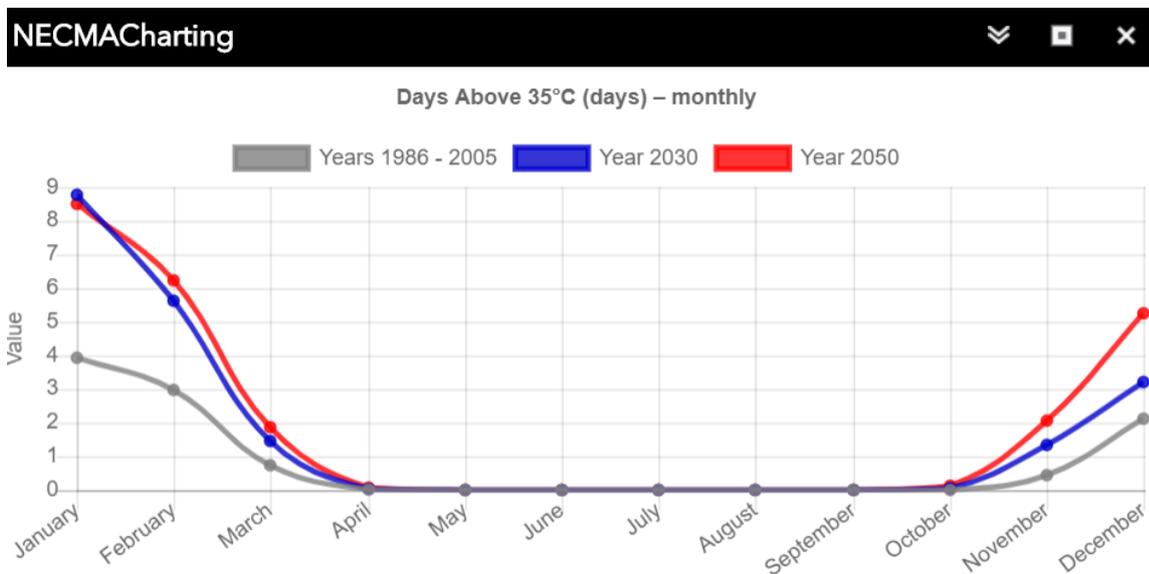
ATTACHMENT: CLIMATE INFORMATION FROM CLIMATE EXPLORER (WANGARATTA)

The North East Climate Explorer contains information about changing climate conditions for 20 factors of temperature and rainfall. Users can extract graphical information for a local area of about 15 square kms. I have information for Wangaratta to illustrate. The patterns are repeated for much of north east Victoria.

(1) MAXIMUM TEMPERATURE (mean) Wangaratta



(2) DAYS ABOVE 35 degrees Wangaratta



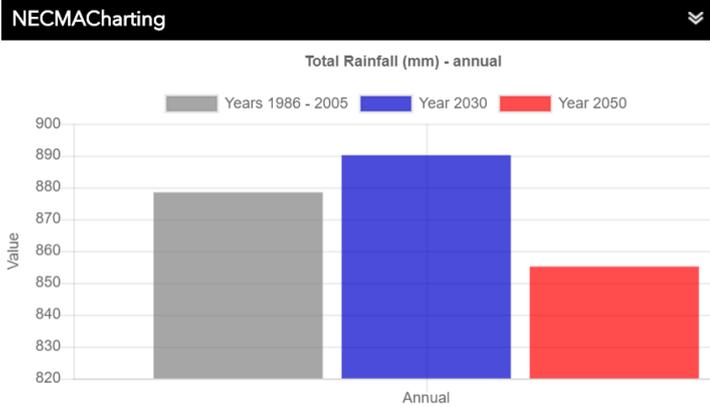
Number of days above 35 degrees projected to double in January and February. Note this is a mean for the 20 years around 2030 and 2050. There will be a range of days around this mean over the period. For instance, January 2019 in Wangaratta had 20 days above 35 degrees including 16 consecutive days. The order of increase projected could see some years with nearly all of January above 35 degrees.

RAINFALL

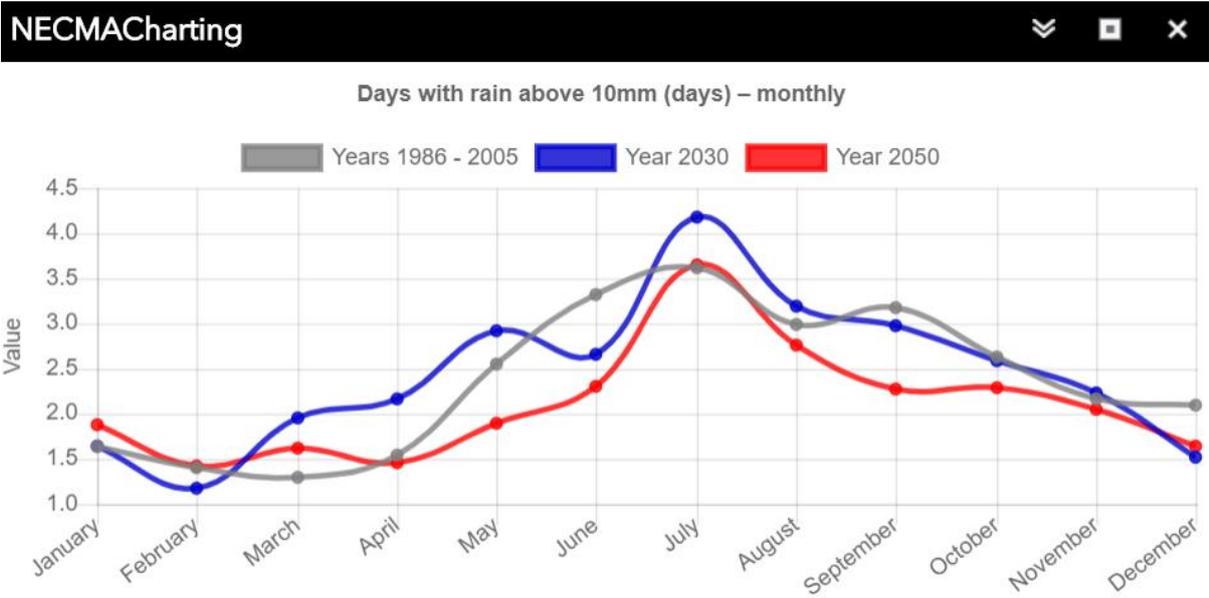
Projections of future climate show very good agreement on the trends for hotter conditions, the picture for rainfall is not as clear.

In Wangaratta, some rainfall increase overall is projected in the years around 2030 but decreasing significantly by 2050. Combined with the hotter conditions and increased evaporation, soil moisture will decrease and rain runoff to recharge waterways will decrease. A decrease in runoff in the order of 20% is projected for 2030 and a decrease of 30% in 2050, compared with the 20 years to 2005.

(3) Annual Rainfall (Wangaratta)



(4) Days with Rain Above 10mm (Wangaratta)



On average, days of rain increase in autumn in the years around 2030, but rainfall is decreased across the year by 2050.

Combined with a drying catchment, over the north east catchment, analysis shows this will significantly reduce runoff overall. Reduction in the order of 20% reduced streamflow by 2030 and 30% by 2050.