Goulburn Broken
Regional Insights Paper

2020

Acknowledgement of Country

The Goulburn Broken CMA acknowledges and respects Traditional Owners and Aboriginal communities and organisations. We recognise the diversity of their cultures and the deep connections they have with Victoria's lands and waters. We value partnerships with them for the health of people and country.

The Goulburn Broken CMA and their people pay their respects to Elders past and present, and they acknowledge and recognise the primacy of Traditional Owners' obligations, rights and responsibilities to use and care for their traditional lands and waters.

Contact us

This document has been put together by the Goulburn Broken Catchment Management Authority (CMA) with contributions from our partners in natural resource management.

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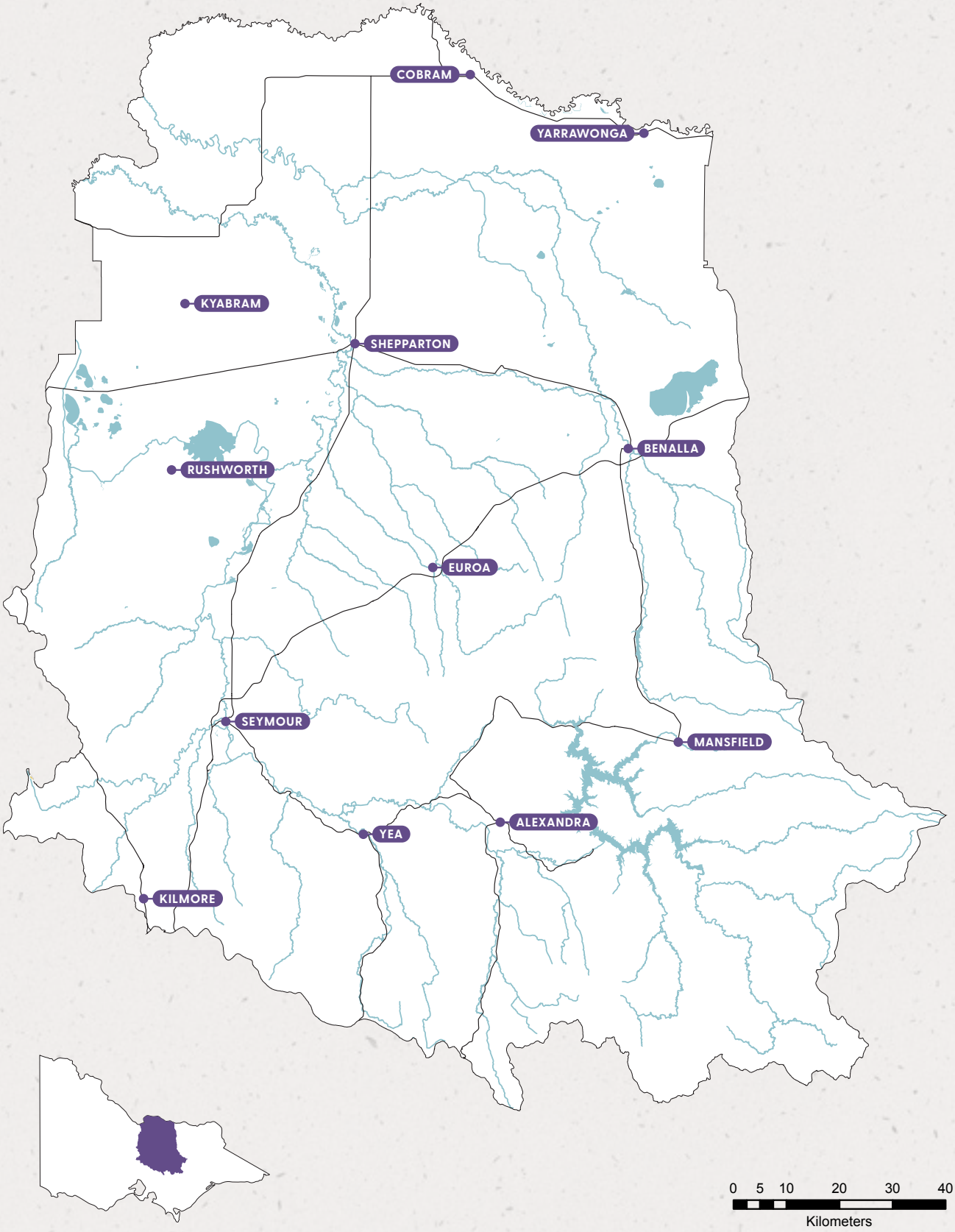
GOULBURN BROKEN CATCHMENT MANAGEMENT AUTHORITY

VICTORIA State Government

Contents

Goulburn Broken catchment



Background

Goulburn Broken catchment

The Goulburn Broken Catchment is situated in northern Victoria and is part of the Murray Darling Basin. It encompasses the valleys of the Goulburn and Broken Rivers and part of the Murray River valley covering 10.5% of Victoria. The Catchment stretches from close to the outskirts of Melbourne in the south to the Murray River in the north, Mt Buller to the east and the Mt Camel Range to the west.

The Catchment comprises of two Registered Aboriginal Parties: Yorta Yorta Nation Aboriginal Corporation (YYNAC) and Taungurung Land and Waters Council (TLaWC). Both organisations work to uphold Yorta Yorta and Taungurung people's interests with respect to culture and country. This includes active involvement in natural resource management (NRM) through joint management agreements and legislative rights to public land.

Land use is diverse across the Catchment, with approximately 63% managed for agricultural production and the remaining 37% for a mixture of nature conservation, forestry, rural residential and urban (ABARES 2018). The Catchment's natural resources support major agricultural, forestry and tourism industries; and also make it an attractive place to live for the expanding rural lifestyle populations.

Regional Catchment Strategy

The Goulburn Broken Regional Catchment Strategy (GB RCS) guides actions to improve and protect the Catchment's natural resources (water, land, biodiversity). Looking after these precious natural resources underpins the social, cultural and economic wellbeing of the diverse communities that make up the Goulburn Broken Catchment.

Victorian Government legislation (the Catchment and Land Protection (CaLP Act 1994)) stipulates that each Catchment Management Authority (CMA) must prepare an RCS for the region and to coordinate and monitor its implementation. Each RCS is updated every six years and signed off by the CMA Boards and Victorian Government Ministers. The RCS must also be co-developed with registered Aboriginal parties to include Aboriginal values and Traditional Ecological Knowledge.

The current GB RCS 2013-19 is now up for review and the Goulburn Broken CMA is coordinating a project to renew the GB RCS by June 2021 to ensure that it provides pathways to best meet future challenges and opportunities and is relevant to local communities and organisations. While the Goulburn Broken CMA is responsible for the coordination of the Goulburn Broken RCS, it is a strategic document for all organisations, groups and individuals contributing to integrated catchment management in the Goulburn Broken Catchment.

A resilience approach has been used to guide the RCS Renewal. This approach to catchment management focuses on connections between people and place; how these connections change; and allows us to consider at what point this could completely transform the catchment's social and ecological systems.

The Goulburn Broken CMA is also working to integrate Traditional Owner perspectives and knowledge as part of the renewal process, which relates to their physical and spiritual connection to Country. This is in line with the GB CMA's obligations under the CaLP Act and other agreements such as the Aboriginal Participation Guideline for Victorian Catchment Management Authorities, the Goulburn Broken CMA MOU with YYNAC and the Taungurung Recognition and Settlement Agreement.

To learn more about the GB RCS Renewal or the information behind this paper visit www.gbcma.vic.gov.au.

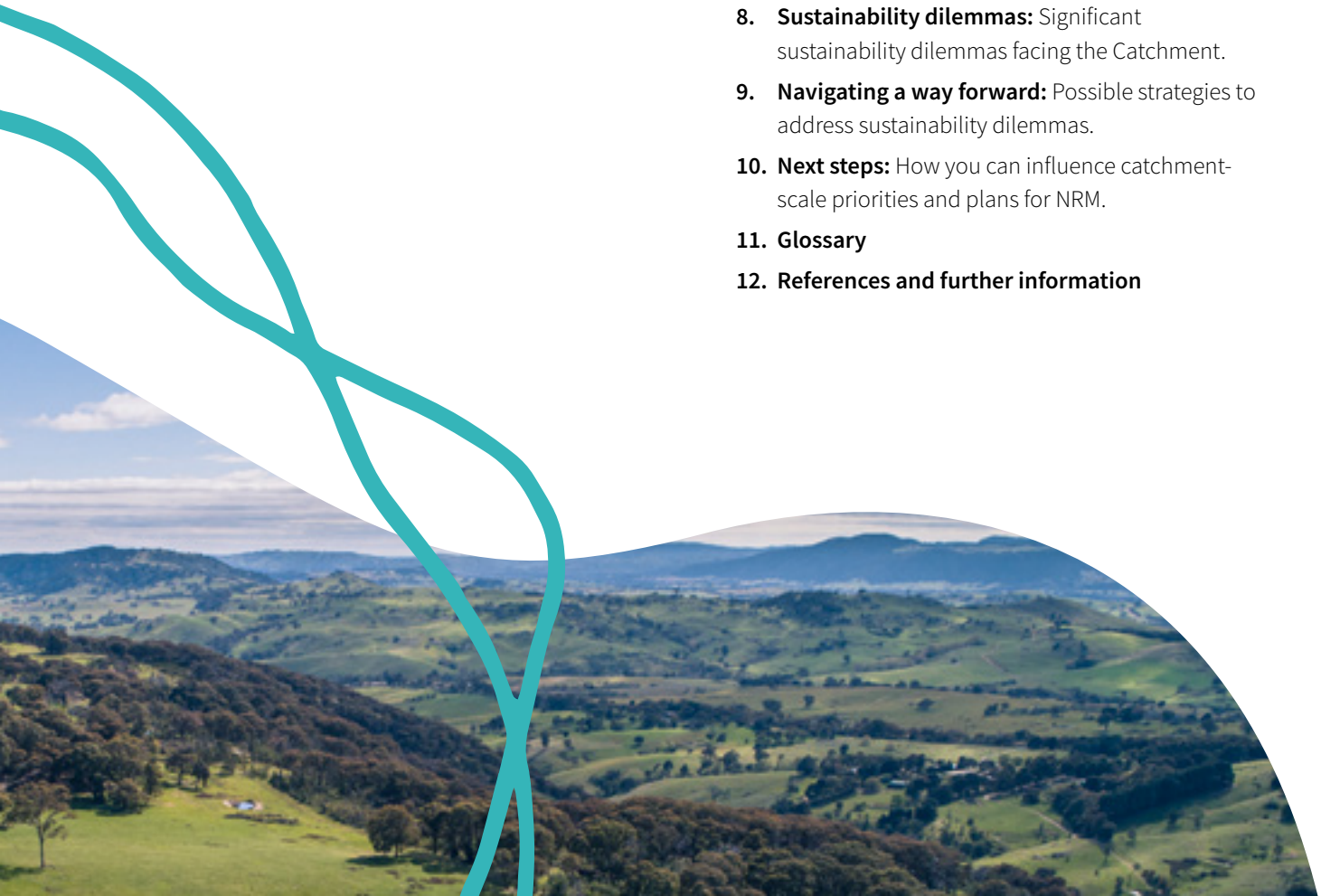
Introduction

Purpose

This paper aims to stimulate a Catchment conversation on how we should collectively enhance the Catchment's natural resources, which will be captured in the GB RCS 2021-27. This includes your aspirations and insights for the natural resources.

The paper collates the key information on the current state-of-play and emerging trends in NRM in the Goulburn Broken Catchment under each of the following sections:

1. **The story so far:** Outlines the 'what, why and how'.
2. **Catchment values and perspectives:** Shared values and different worldviews held by the Catchment community.
3. **Drivers of change:** Major drivers influencing the Catchment.
4. **Catchment profile – environment:** A summary of current environmental condition and trends.
5. **Catchment profile – social and economic:** A summary of current socio-economic condition and trends.
6. **Local landscape changes:** Key changes occurring at the local landscape scale.
7. **Indicators of change:** Key thresholds beyond which the Catchment undergoes significant change.
8. **Sustainability dilemmas:** Significant sustainability dilemmas facing the Catchment.
9. **Navigating a way forward:** Possible strategies to address sustainability dilemmas.
10. **Next steps:** How you can influence catchment-scale priorities and plans for NRM.
11. **Glossary**
12. **References and further information**



Information presented in this paper was collected from a number of sources, including engagement with natural resource management advisory groups, TLaWC Baan Ganalina (water knowledge group) and YYNAC: a socio-economic analysis of Australian Bureau of Statistics Census data; and theme-based background documents (i.e. land, biodiversity, water and community). Refer to Section 12 for more detail.

For the Goulburn Broken RCS Renewal to be effective it needs to capture the aspirations, experiences and ideas from the diversity of stakeholders involved or interested in NRM and that includes you! Key discussion questions are listed below – we'd love to hear your responses via our **online survey**.

Discussion questions

1. **From the information presented in the GB Regional Insights Paper:**
   - 1.1 What surprised you, concerned you or is missing?
   - 1.2 What were the key take-home messages?
2. **How do you think feedback and the information presented in the GB Regional Insights Paper should be reflected in the GB RCS 2021-27, specifically:**
   - 2.1 What aspirational goals should we include to improve and protect the Catchment's natural resources (water, land, biodiversity and community)?
   - 2.2 What priority actions should we include to address the five sustainability dilemmas?

SECTION 1

The story so far

Purpose of this section

The purpose of this section is to tell a short story that describes the current situation and potential opportunities for the Goulburn Broken Catchment's land, water, biodiversity and communities.

There could not be a better time than now to plan for a healthy, vibrant future for the Goulburn Broken Catchment's people and environment. In recent years, drought, record transfers of water out of the catchment to meet downstream demand, and more frequent and intense fires have highlighted how vulnerable our native species, our waterways and our communities are. Then, just as rain arrived and there was a glimmer of hope that people could start planning a way forward and nature could start healing, along came COVID-19. While it has affected the way our Catchment's communities work, the economy and families, it has shown how resilient humans are and, more importantly, highlighted how critical the environment is to our wellbeing. During lockdown people have drawn inspiration from watching the birds and insects in the garden, growing and making their own food, exercising and spending time outdoors and connecting with nature.

The region's Traditional Owners have always valued this connection. They have long understood the need to care for the country that provides them with food, water and shelter; the emotional and wellbeing benefits that come with a healthy environment; and the responsibility that comes with being custodians of the land for future generations.

> *"Yorta Yorta people have managed and cared for their Country since time immemorial - it is not a new concept or a privilege to be managing Country; it is our responsibility. Yorta Yorta must be appropriately resourced to continue this stewardship role at all levels from research and policy development through to on-ground caring for Country roles and service delivery."*
>
> ***Yorta Yorta Nation Aboriginal Corporation***

"Taungurung Recognition of Settlement Agreement ... allows us to be involved as equal and valued partners in all matters of planning and decision-making regarding our land and waters, and to look for our economic independence through caring for Country. Furthermore, it enables the opportunity to raise awareness of Taungurung culture as a Nation and to redefine our relations with the settler society."

Taungurung Land and Waters Council

The Catchment's communities also embrace the diversity of people, industry, land use and landscapes the region's natural resources support; the economic prosperity and opportunities derived from access to good soils, secure water supply, varied landscapes and wildlife; and the clean air and extra space provided by a country lifestyle.

But things are changing and while change is nothing new, the pace, scale and complexity of change is. Climate change has led to the increased frequency and intensity of wildfire, drought and flood; technological advancements have revolutionised the way we work, travel, farm and communicate; government is also changing and reactive; and we're becoming increasingly urbanised. How, where and why water, land and biodiversity are used and valued is also changing and this is putting the region's natural resources and people under even greater pressure. Supporting the community and nature to adapt to this change and identify a series of pathways so we can transform together in a positive way, underpins renewal of the Goulburn Broken RCS.

And there is much to be positive about. Across the board, there is acknowledgement of the wisdom in adapting to the Traditional Owners' way of thinking - that if we look after nature, nature will look after us. The increased recognition of Traditional Owners' rights over land and water will see thousands of years of this ecological knowledge incorporated into new, more sustainable ways of managing natural resources. Today's younger generations are also challenging the status quo, demanding a new style of leadership that is inclusive and accountable and where ethical and sustainable practices are as important as making a profit.

That's why right now is the perfect time to identify options – and there will be many options – for the Goulburn Broken Catchment community, and the environment that sustains us, to adapt or transform in the face of inevitable change. This paper aims to start those discussions and identify some of these alternative pathways.

Through these discussions we hope to draw out some of the key elements of the catchment-scale NRM change that needs to occur – the what, who and when. Capturing the aspirations, experiences and ideas of a range of people involved or interested in NRM is critical to the Goulburn Broken RCS renewal process.

While the GB RCS is the Catchment's document, the GB CMA is responsible for coordinating its renewal and implementation. The strategy plays an important role in guiding actions towards our shared visions for our community and environment. To ensure the strategy is meaningful and is truly a strategy for everyone involved in NRM, we really want to hear what you think about the information we've provided in this paper. This is why we've included the key discussion questions in the introduction (see page 3) and would love it if you provide your responses and any other feedback via our **online survey**.

SECTION 2

Catchment values and perspectives

Purpose of this section

Understanding shared values and community perspectives highlights where we have the capacity and interest to collectively shape change towards a more sustainable future. This section aims to test whether the shared values mostly align with your values and aspirations for NRM.

A diversity of values and perspectives are held across the Goulburn Broken Catchment community. This diversity helps shape the Catchment's identity and increases its resilience to change. In renewing the GB RCS it's important to understand the community's values and perspectives, as collaborative action will be required if we are to achieve significant change and improve and protect the Catchment's natural resources (water, land, biodiversity). Listed below are some of the shared values and perspectives of the Catchment community.

Shared community values

Highlighted below are the shared values of the Catchment community collated from discussions with over 200 people involved in NRM in the Catchment, including Traditional Owners, farmers, Landcare volunteers, lifestyle landholders, scientists and government.

Diversity of people, industry, land use and landscapes.

Traditional Owners' connection to land and waters is a crucial element to Aboriginal identity, the Catchment is the canvas to revitalise and exercise culture.

Community connectedness and a feeling of belonging.

Landscape beauty that includes the tall trees, the rivers and wetlands and the rich biodiversity.

Country lifestyle that is safe and has access to services.

Economic opportunities for our towns, industries and Caring for Country activities.

Traditional Owners' inherent obligation to speak for and look after the Country of their ancestors.

Nature-based recreational opportunities (including Caring for Country activities) that improve our physical and mental health.

Community perspectives

Amongst the Catchment community there are three overarching perspectives or worldviews of nature, which are common throughout the world and well-researched. The worldviews are: nature management, nature stewardship and nature wisdom. These different worldviews fundamentally impact how an individual sees their relationship with nature, what they believe the problems are and what should be done about them. The three worldviews are described in Table 1 below. Priorities and actions included in the GB RCS will need to cater for each of these worldviews.

Table 1: Descriptions of the three overarching perspectives or worldviews of nature found in the community.

	Nature Management	Nature Stewardship	Nature Wisdom
Relationship	• Humans are separate from nature and our success is dependent on how well we manage nature. • The value of other species and parts of nature are based primarily on how useful they are to us.	• Humans are linked to nature and our success depends on how well we manage nature for our benefit and for the rest of nature. • We have an ethical responsibility to be caring managers, or stewards, of nature for future generations.	• Humans are a part of and totally dependent on nature. • Our success depends on learning how nature sustains itself and integrating such lessons from nature into the ways we think and act.
Problems	• Humans can understand and solve any problem because of our ingenuity and technology.	• We will probably not run out of resources, but they should not be wasted.	• Nature exists for all species. • Resources are limited and should not be wasted.
What should be done	• We should encourage better technology and management to redesign nature to provide what we want and support us and our ever-growing economies.	• We should encourage environmentally beneficial forms of economic growth and discourage environmentally harmful forms.	• We should encourage nature- sustaining forms of economic growth and discourage nature -degrading forms.

SECTION 3

Drivers of change

Purpose of this section

This section aims to share the current understanding of the drivers of change, and to then consider the opportunities and challenges for NRM.

Drivers of change are the external forces influencing how the catchment operates and therefore shaping future pathways. The major drivers of change impacting catchments and NRM throughout Australia are outlined in Table 2 below. While these primary drivers of change are obvious, and to an extent predictable, what they lead to - the way humans respond to them – make them far more complex, less predictable (response to fire being a notable example, river regulation another) and have the potential to create unforeseeable outcomes.

In addition to the underlying drivers of change, sometimes unanticipated or acute shocks, such as COVID-19, fire, industry adjustment or drought, can also have a major impact on catchment dynamics and NRM often over a shorter, intense period of time.

Table 2: Major drivers of change influencing the Goulburn Broken Catchment, and some of the secondary drivers and impacts arising from these drivers.

These drivers and impacts were identified through background information gathering and stakeholder engagement.

Primary drivers	Leading to
Global drivers	
Climate change	• Increased temperatures in all seasons • Decreasing annual average rainfall (and changing seasonal patterns) • Longer and more severe periods of drought • Increased frequency and intensity of extreme rainfall events • Increased frequency and severity of bushfires. • Reduced catchment water yields (stream flow and total water resource) • Drier conditions are resulting in vegetation decline, which effects habitat availability for associated animals. • Animals are under increasing stress due to the increasing number and severity of heatwaves. • Flow on negative effects of reduced water yield on water quality (including stream temperatures) and aquatic ecology • The community has noticed and starting to see climate change as real. • Victorian Climate Change Act, emission reduction targets. • Changes to the distribution and incidence of pests and diseases.

Primary drivers	Leading to
National Drivers	
Technological innovation	• Allowed farms to expand with less labour required. • Enabled older people to remain managing land. • Allowed more people to work from home. • Facilitated the emergence of online businesses. • Social media has emerged and creating a platform for communication – good and bad. • GPS guidance and mapping technologies have supported precision agriculture. • Technology to support agriculture and other industries is expanding at a rapid rate e.g. drones, mobile applications, etc • Virtual fencing potential
Transition to services economy	• Urban population growth • High housing prices in Australian cities. • Increased demand for lifestyle blocks close to towns • Increasing urban incomes creating demand for recreation and amenity experiences. • Young in high growth areas where there's affordable housing and commuting distance to service centres • Increase in land prices, making it difficult for farm expansion • Rural lifestyle gentrification pressures (e.g. Mansfield) and weekender patterns of settlement • Locations close to mountains or waterways have high employment in tourism-related sectors. In addition, locations close to waterways have increased economic opportunities for wineries, horse studs, high value agriculture. • Government funding priorities are shifting away from agriculture and NRM.
Ageing population	• Population is ageing in agriculturally dominated landscapes and small towns exacerbated by younger people move to urban centres for job opportunities. • Increased employment in human services • Declining memberships of community groups
Changing role of government	• Government is directing the agenda more with less influence from the community. • The majority of the Australian population lives in metropolitan areas, giving them greater influence over political decisions than rural and regional areas. • Reduced funding to regional NRM, increased reporting and compliance. • Previously resourced activities now depend on volunteerism. • Greater reliance on local government to deliver additional activities previously funded by state and federal government.
Increasing role and recognition of Traditional Owners and First Nations peoples	• Greater inclusion of Traditional Owners in NRM, including land and water management. • Strategic policies guiding Traditional Owner involvement in catchment planning, e.g. Water for Victoria plan, GB CMA MOU with YYNAC, National Water Initiative, Taungurung Recognition and Settlement Agreement. • Legislative changes that have formalised co-management of specific areas, and legal obligations for land managers of Crown Land areas. These have resulted in more complex processes for decision-making and implementation. • Greater acknowledgement, integration and incorporation of Traditional Ecological Knowledge. This has highlighted the need for greater resourcing in this area. • Greater acknowledgement of cultural aspirations as documented in Country Plans, which provide guidance and work plans to Traditional Owner groups.
Water is a tradeable commodity	• Water moving to highest value commodities • Creation of environmental water entitlements. • Transfer of irrigation water out of the Catchment to meet downstream demands. • Competition for water between environmental, cultural, recreational, agricultural, urban and investment uses. • No water owned by Traditional Owners for cultural flows in Victoria under existing government legislation.

Emerging trends and changes at the Catchment-scale for NRM were identified through stakeholder consultation, with four broad trends identified (see Table 3 below). All of these trends are influenced by or a direct response to the drivers of change listed on the previous pages.

Table 3: Emerging trends in the GB Catchment since 2013.

Trend	Description
Agriculture is changing	• Next generation of farmers are coming in (younger, higher post-secondary education levels and greater environmental awareness). • Increase in corporate farms. • Increased in off-farm income. • New industries starting to emerge e.g. solar farms. • Bigger farms are getting bigger in dryland areas (good beef and lamb prices). • More lifestyle and hobby farms. • Reduced dairy in the north and increased cropping. • Urban expansion in the south.
Biodiversity under pressure	• Greater community awareness of the importance of nature. • Increased community use of nature for recreational pursuits e.g. fishing, 4-wheel driving, camping – both by the local community and increasingly from those who live outside the Catchment. • Condition and health of habitat continues to decline (e.g. woodland birds, insects and canopy collapse) with new threats (e.g. climate change, recreation and urban encroachment, firewood collection) further compounding pre-existing threats (e.g. Pest Plants Animals and clearing). • Adapting revegetation species to match new climate conditions. • In some landscapes there is an increase in vegetation cover and connectivity due to land use change from agriculture to lifestyle properties (e.g. Rushworth area); while in others there's been a loss of scattered paddock trees due to an increase in cropping, which is in turn reducing landscape connectivity.
Water issues are more prominent and complex	• Hotter, drier and more extreme events are the new normal increasing pressure on water resources. • Water priorities and direction driven from outside the catchment impacting on water availability and the unseasonal movement of irrigation water flowing down the Goulburn River and Barmah Forest. Limited support to address the regional impacts. • Water scarcity and the threats of future impacts from climate change have configured a more complicated scenario to incorporate Traditional Owner aspirations.
Urban population growth and land use is changing	• Mansfield, Nagambie, Yarrawonga etc growing – with many absentee owners. • More lifestyle and retiree landholders. • Increased 'dormitory' areas where people work in town but live in the hinterland.

These major drivers of change and the emerging trends mean that the Catchment community needs to be prepared for change. Particularly when responding to an increasingly disruptive climate and significant changes to the traditional land use, economy and way of life in the Catchment. Some of these changes may impact negatively on our shared values and aspirations (e.g. climate change), while others will create new opportunities (e.g. greater incorporation of Traditional Ecological Knowledge).

SECTION 4

Catchment profile – environment

Purpose of this section

The catchment condition and trends are the local expression of the drivers of change described in the previous section. This section aims to explore these trends for land, biodiversity and water and to gather your feedback on their impacts for NRM and any new trends emerging.

The condition of the Goulburn Broken Catchment's natural resources can be assessed by looking at broad themes of land, biodiversity and water. All of these themes are inter-connected and management actions on-ground typically address all the themes. Table 4 below provides a snapshot of catchment condition and trend since 2013 against each theme.

Table 4: A snapshot of catchment condition against the themes of land, biodiversity and water.

More detailed information is available in the Goulburn Broken CMA's Annual Reports.

LAND

Catchment Condition	Summary Description
1990 POOR **2019** SATISFACTORY **Trend 2013-2020** DECLINING adaptation phase* **Long-term risk (given current support)** MEDIUM	• Historical land management decisions are a major driver of land health. • Changing climate creating opportunities, challenges and necessity for more sustainable land management. • Significant amount of land is managed for lifestyle, hobby farms, weekenders and recreation, urban uses in many parts of the catchment. • More diverse economic use of land e.g. horse studs, wineries, solar farms, tourism and glasshouse production. • Increasing numbers of farmers are involved in conservation farming practices (e.g. minimum tillage). • Public land management is occurring across a greater area of reserves than in previous years through increased focus on remnant protection, including funding for pest plant and animal control. • Reducing area of land is irrigated. • Public land co-management between Traditional Owners and government agencies.

BIODIVERSITY

Catchment Condition	Summary Description
1990 VERY POOR **2019** POOR **Trend 2013-2020** DECLINING majority in transformation phase* **Long-term risk (given current support)** VERY HIGH	• Native vegetation extent declines continue due to current and historical grazing, ploughing, permitted and illegal clearing on private land. • Native vegetation quality is reducing in remnants and reserves due to wildfires, pest plant and animal impacts, and compounding effects of climate change. • Current evidence shows that species declines - in numbers and distribution - continue, due to past management and a range of current threats that have not been adequately abated. • Increase in people, from within the catchment and outside, using biodiversity for recreation, tourism and lifestyle reasons are having greater impacts on quality of habitat. • Increasing numbers of community members are being engaged in conservation principles and actions through a range of incentives and engagement activities. • Funding does not align with the scale of change required to move towards resilient natural systems. • Increase in capacity and financial support of Traditional Owners to be actively engaged in planning and delivery of NRM. • Decline of biodiversity and habitat conditions reduces the presence of flora and fauna species valued by Traditional Owners.

WATER

Catchment Condition	Summary Description
1990 VERY POOR **2019** SATISFACTORY **Trend 2013-2020** DECLINING adaptation and transformation phases* **Long-term risk (given current support)** MEDIUM	• Water is now linked physically across the catchment and to the areas of Victoria, NSW and South Australia. • The water market facilitates water movement for consumptive uses (urban, industry and irrigation) and the Environmental Water Holders determine movement for the environment. The water market also enables movement of water between consumptive and environmental use. • Increased emphasis and support for Traditional Owner rights to access water for cultural and economic benefits however currently no water is owned by Traditional Owners for cultural flows in Victoria under existing government legislation. • The changing climate means that demand outstrips supply of water in many parts of the catchment, much of the time. • The major water quality issues are now low oxygen and blue-green algae and are difficult to predict and manage. • Water is increasingly valued for amenity and recreational uses.

** The trend refers to resilience phase / type of change the theme area is experiencing generally (e.g. adaptation, transformation), refer to Figure 7 for further information.*

SECTION 5

Catchment profile – social and economic

Purpose of this section

The catchment condition and trends are the local expression of the drivers of change described in Section 3. This section aims to explore these trends for the community theme and to gather your feedback on their impacts for NRM and any new trends emerging.

This section provides a snapshot of catchment condition for the socio-economic/community theme (Table 5 below), and key insights from an analysis of publicly available Australian Bureau of Statistics (ABS) socio-economic data (Barr 2020) across the catchment (Sections 5.1 to 5.3).

The key insights are presented in three groupings drawn from the report:

1. The first is presented using four broad groupings of where people live: town residents, rural residents, full-time farmers and part-time farmers (see (5.1) Where people live, Table 6).
2. The second describes the unique socio-economic clusters of the population and where they are located on a map of the catchment (see (5.2) Clustering of rural population, Figure 1).
3. Finally, the information is presented according to how the community is using the natural resources (see 5.3 NRM Purpose Grouping, Figure 2 and Table 8).

Although the most recent ABS data available is for 2016, the findings are considered still relevant today given the drivers of change are reinforcing the 2016 socio-economic trends.

Table 5: A snapshot of catchment condition for the socio-economic/community theme.

More detailed information is available in the Goulburn Broken CMA's Annual Reports.

COMMUNITY	Catchment Condition	Summary Description
	**1990** SATISFACTORY **2019** SATISFACTORY **Trend 2013-2020** STABLE adaptation and transformation phases* **Long-term risk (given current support)** MEDIUM	• The people using and influencing the catchment's natural resources is becoming increasingly diverse, including agriculture, lifestyle and recreation. With many living in urban areas or outside the catchment. • The people managing the natural resources is not necessarily the same as those using them. Furthermore, they may be managed publicly (e.g. by the government) and/or privately (e.g. farmers, lifestyle landholders). • The more traditional 97 community NRM groups and 12 networks with over 5,000 volunteers are still actively involved in managing the natural resources. • Additional user groups such as tourism, hiking, kayaking are currently not very active in managing natural resources but value and appreciation is high. • See more detailed socio-economic

**The trend refers to resilience phase / type of change the theme area is experiencing generally (e.g. adaptation, transformation), refer to Figure 7 for further information.*

5.1 Where people live

Table 6 below outlines four broad population groupings of where people live, with town residents accounting for the majority of the Goulburn Broken Catchment population.

Table 6: Goulburn Broken Catchment population groupings of where people live (Barr 2020).

Classification	Description	Population Count	Proportion of population
Town residents	City and town populations.	134,087	74%
Rural residents	Persons living in rural areas not associated with a farm	30,176	17%
Full-time farmers	Persons living on farms in a household where there is at least one person whose main occupation is farming	5,128	3%
Part-time farmers	Persons associated with farms where no member of the household has farming as the main occupation	10,532	6%

Town residents

A range of socio-economic indicators for towns (population 500+) were developed around population, migration, dwelling occupancy, visitation, age structure, education, household composition, income, industry of employment and diversity. Overall, the main trend over the past 15 years has been a rise in the share of employment in the health and education sectors and a decline in the share of employment in manufacturing.

Contributions to the variation in town growth include: town size, planning constraints to town growth, proximity to water bodies or hills, proximity to facilities and employment in major centres, dependence upon an industry with declining or growing employment and bushfire impacts. Table 7 on page 16 includes the major findings from the data for the towns.

Between 1-3% of the population of the majority of towns within the Catchment are Indigenous. Kinglake West has slightly higher proportion between 2-4%, while Shepparton and Murchison have greater than 4% Indigenous population.

Rural residents

Rural population density shows clear clustering of settlement around the major towns, on the fringe of Melbourne, in the closer settled irrigation districts and in some mountain valleys that are tourism destinations. Low density can be seen in the mixed farming corridor from Avenel north to Yarrawonga and on the Strathbogie plateau. Although rural residents are employed in a range of sectors, the major employers are the health, education and cafes/tourism sectors.

For the majority of rural areas, less than 2.5% of the population is Indigenous, however there are a number of rural areas where the population is between 2.5%-5% (e.g. rural areas near Tongala, Avenel and Katamite) and greater than 5% in rural areas near Echuca, Seymour, Shepparton, Benalla and Merrijig.

Farmers (part-time and full time)

The region has a diverse agricultural base with the numbers of farmers approximately 25% dairy, 20% beef, 19% sheep, 14% grains, 11% horticulture and the remainder in other enterprises. The largest farms, as measured by value of agricultural production are in the irrigation areas north and west of Shepparton, with moderate-value farms found in the north of the Catchment. The value of agriculture decreases towards the south of the Goulburn Catchment and along the Hume corridor, with the smallest farms by value around Kilmore/Wallan. This is consistent with past analysis showing the impact of amenity on land values and thus farm scale.

One of the ABS datasets includes an estimate of median age and shows a clear relationship between higher median age and areas more distant from major towns. This corresponds to the farmland midway between Seymour and Benalla which is likely to reflect the process of farmland gentrification (the transfer of land from commercial farm use to rural residential and part-time farming).

5.2 Clustering of rural population

Socio-economic differences between the Goulburn Broken Catchment's rural population are shown according to where they are in the catchment in Figure 1 and Table 7, with each area exhibiting one, two or three points of difference when compared with state averages (Barr 2020). Section 6 describes these differences in more detail.

Figure 1: Subjective clustering of rural areas in the Goulburn Broken Catchment (Barr 2020).

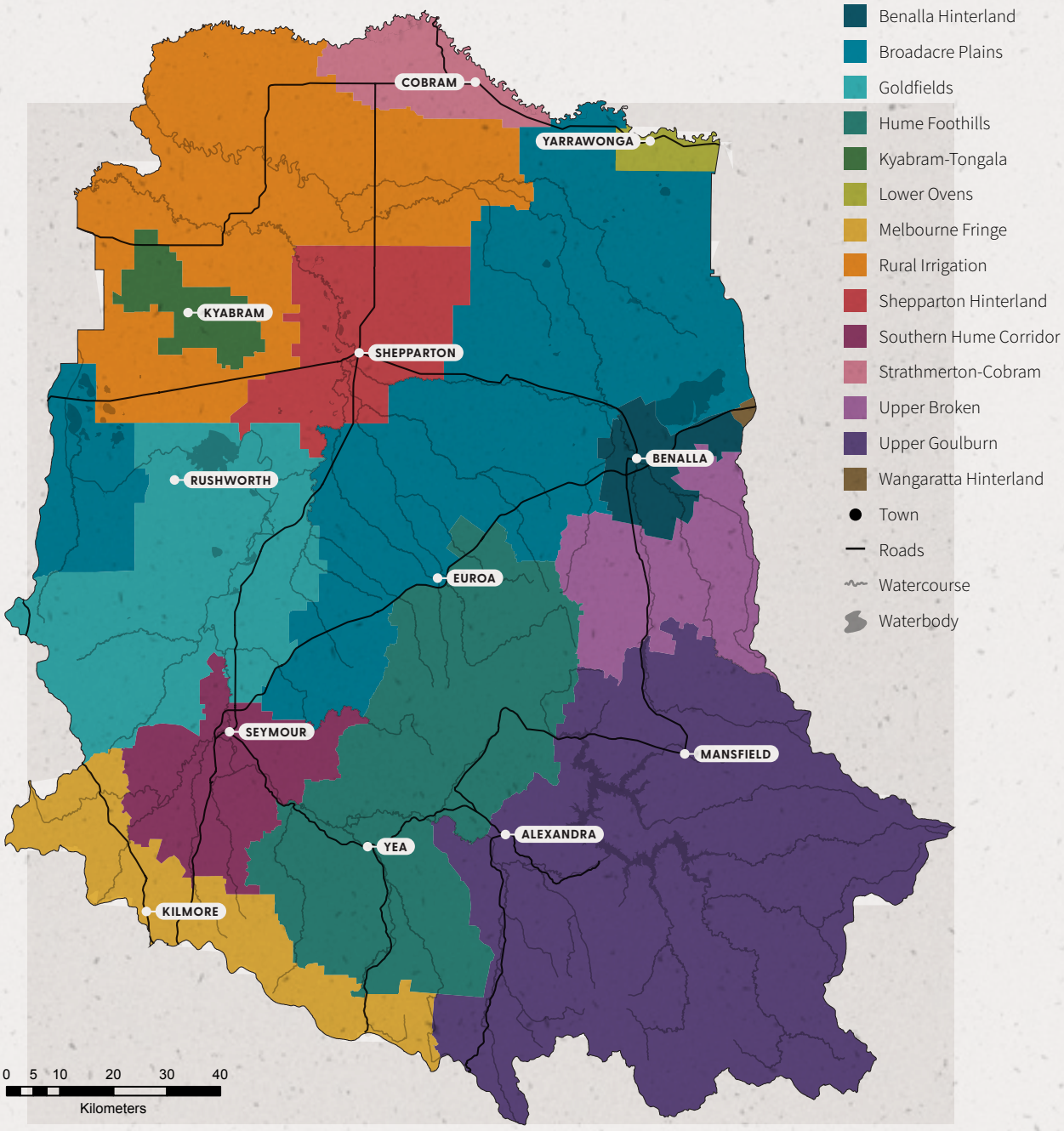


Table 7: Key characteristic differences of rural socio-economic classification areas compared with state averages (Barr 2020).

Socio-economic cluster	Points of difference
Benalla hinterland	Modest ageing, modest monoculturalism
Broadacre Plains	Very rural character
Goldfields	Ageing and low post-secondary education
Hume Foothills	Rapid ageing
Kyabram - Tongala	Younger, lower post-secondary education, low amenity visitation
Lower Ovens	Modest growth, monocultural
Melbourne Fringe	Urban, high post-secondary education
Rural irrigation	Younger, low post-secondary education, low growth
Shepparton hinterland	Younger, low post-secondary education, multicultural
Southern Hume Corridor	Low in rural character
Strathmerton-Cobram	Low post-secondary education, non-rural character, multicultural
Upper Broken	Monocultural, ageing
Upper Goulburn	High amenity visitation, growth, ageing

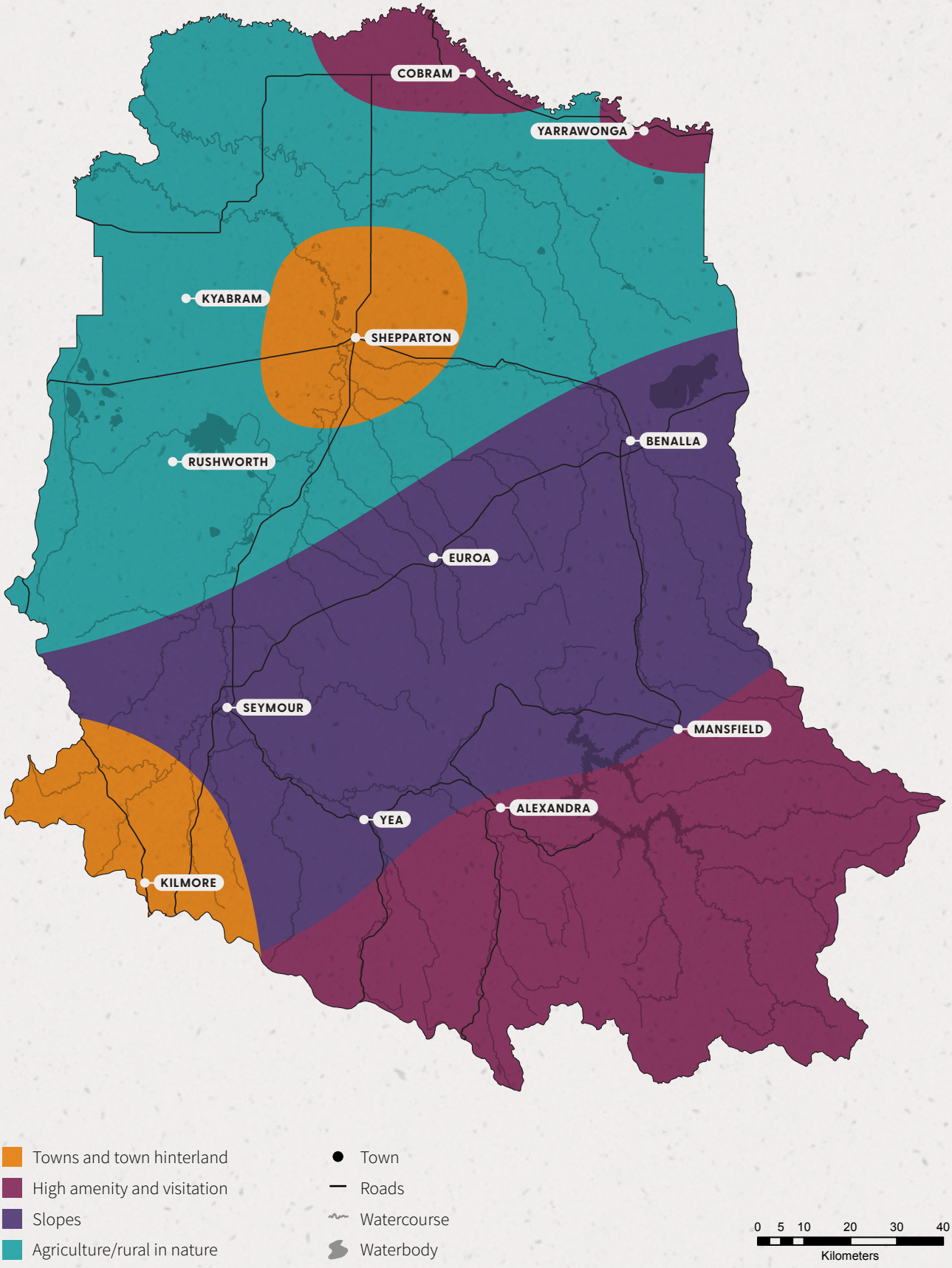
5.3 NRM Industry/Use Grouping

Socio-economic differences between the Goulburn Broken Catchment's rural population are shown according to the main 'use' or 'industry' that the community makes of the land, water and biodiversity assets and then where they are in the Catchment in Figure 2 and Table 8 below. These socio-economic clusters highlight the significant changes occurring within the Catchment, with the character of some areas changing rapidly from traditional agriculture/rural nature to lifestyle and amenity. This has major implications for how natural resources are managed and for what values/benefits. It also changes how we engage with communities in these areas, who with an increasing dependence on off-farm income may not engage with more traditional incentive or group-based programs.

Table 8: Grouping of the socio-economic communities according to their major industry/use of natural resources.

Socio-economic cluster	Points of difference
Towns and hinterland	People work in towns, smaller properties, higher income
High amenity and visitation areas	Upper Goulburn, Strathmerton-Cobram, Yarrawonga, Nagambie and Southern Forests – associated with water and the mountains, high absentee-owners.
Slopes (Benalla Hinterland, Hume Foothills and Upper Broken)	Higher education, rapidly ageing (possibly retirees moving in) and low dependence on agriculture.
Agriculture / rural nature	Donut around Shepparton, lesser extent Murch/Nagambie areas (also has commuters/lifestylers on the poorer land)

Figure 2: Location of socio-economic communities according to their major industry/use of natural resources.



SECTION 6

Local landscape changes

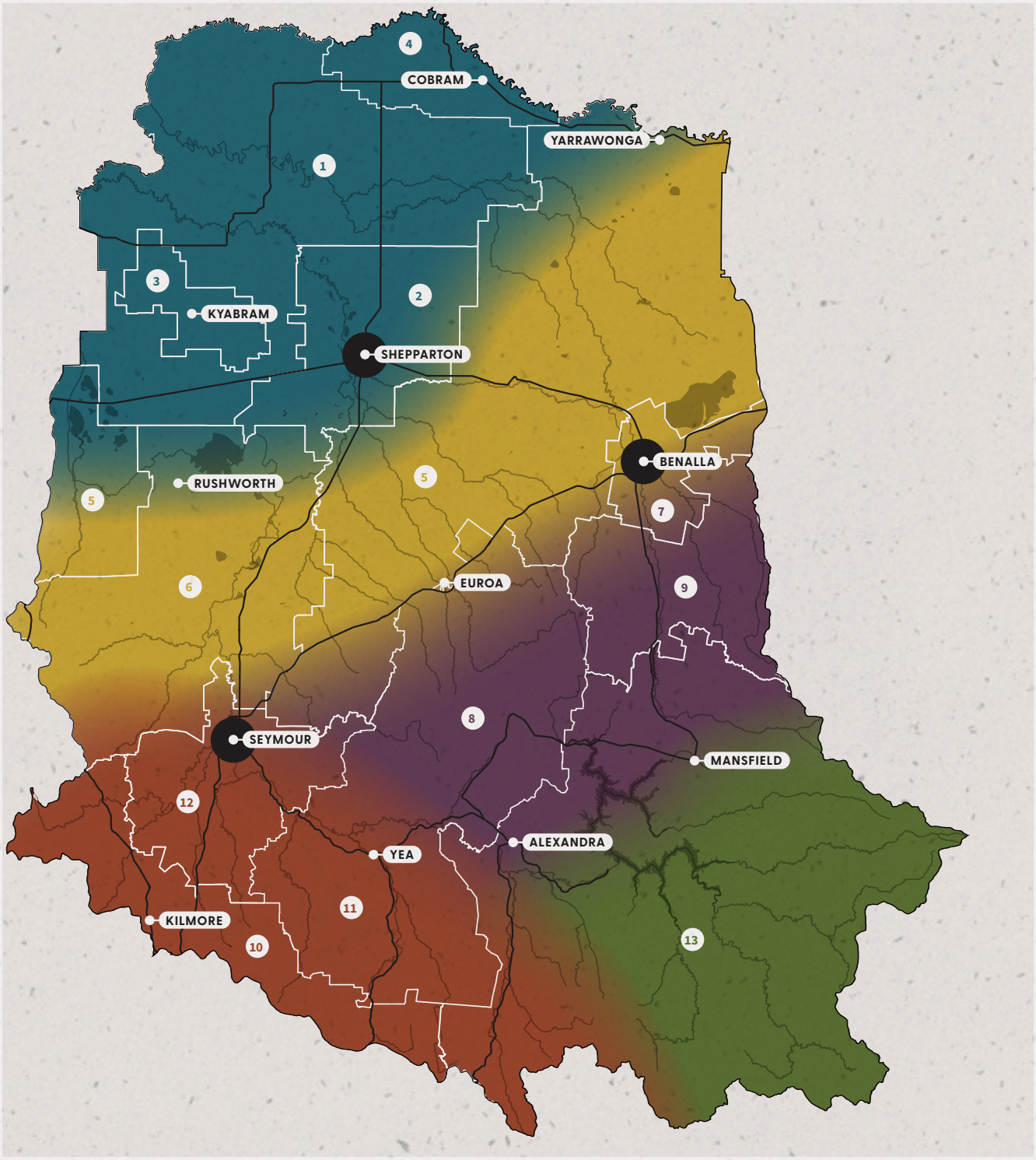
Purpose of this section

The drivers of change and trends discussed in the previous sections are resulting in a variety of socio-economic changes at the local landscape scale. This section describes these changes and seeks your feedback as to whether they align with your own observations.

Local landscapes of consistent systems of people and place (also known as socio-ecological systems (SES) or sub-Catchment areas) exist at a range of connected scales, from individual farms to the whole-of-Catchment scale. The scale chosen for decision-making needs to consider the balance between being small enough to understand the details sufficiently, while large enough to allocate resources efficiently.

Figure 3 on the next page shows proposed local SES areas for the GB RCS, these are based on the existing areas in the current GB RCS 2012-2019 and finer-scale socio-economic differences within each of these areas identified by Barr 2020. The GB RCS enables planning at both the catchment-wide and local SES scales, allowing priorities and actions to be set at the most relevant scale.

Figure 3: Proposed local landscape / SES areas for the GB RCS.



Agricultural Floodplains
1. Rural Irrigation
2. Shepparton Hinterland
3. Kyabram-Tongala
4. Strathmerton-Cobram

Productive Plains
5. Broadacre Plains
6. Goldfields

Upland Slopes
7. Benalla Hinterland
8. Hume Foothills
9. Upper Broken

Commuting Hills
10. Melbourne Fringe
11. Hume Foothills
12. Southern Hume Corridor

Southern Forests
13. Upper Goulburn

Urban Centres

Roads

Watercourse

Waterbody

0 5 10 20 30 40
Kilometers

Table 9 below details some of the social and economic changes that have occurred over the last six years across each of the current local SES areas.

Table 9: Summary of the social and economic changes impacting the Goulburn Broken Catchment's current local SES areas (socio-economic information sourced from Barr 2020).

Refer to Figure 3 for the geographic area of the zones within each local SES area (e.g. Rural irrigation, Strathmerton-Cobram, Hume foothills etc).

Local landscape	Social and economic changes since 2013
Agricultural Floodplains 	• Rural irrigation areas under the least influence from the irrigation towns (Shepparton, Tatura, Cobram, Tongala and Echuca) are dominated by agriculture, particularly diary and have experienced the greatest impact from low dairy prices, high water prices and periodic low water allocation seasons. • The Hinterland surrounding Shepparton (while still rural in character and horticulture the dominant agricultural industry) is seeing increased rural living and commuting to town. • Kyabram-Tongala area, while similar to the other irrigation areas has also felt the impact of the contraction of manufacturing in those towns. • Strathmerton-Cobram proximity to the Murray River shows less rural character (employment in agriculture) compared to the other irrigation areas, as it experiences significant growth in lifestyle living and tourism. • Reduction in area irrigated and increase in 'new' dryland. • Significant investment in irrigation modernisation.
Productive Plains 	• In the area south of Cobram and Yarrawonga extending almost to Seymour, farms are relatively large, the landscape is very rural in nature and agriculture is a relatively important employer. Value of land is little influenced by amenity pressures. • In the Goldfields region south of Rushworth, where the quality of agricultural land is lower and the area is closer to Melbourne, there has been an increase in visitor services and absentee land ownership. • In the lower Ovens surrounding Yarrawonga, proximity to the Murray River reveals areas of amenity influence, modest population growth and visitation. • Hinterland surrounding Benalla and as a result, the demographic structure of these rural areas is somewhat urban with more lifestyle properties. • Increase in farmer interest in sustainable and regenerative agriculture.
Upland Slopes 	• Upper Broken (as shown in Figure 3) is dependent on agriculture, notably beef industry, with low economic diversity, structural ageing and population decline. • Hume foothills (Strathbogies and approaches to the upper Goulburn amenity areas) population exhibits rapid structural ageing, higher incomes and higher post-secondary education levels suggesting that some of the farms are being targeted for retirement occupation by ex-city professionals. • Upper Goulburn (as shown in Figure 3 above) is characterised by the recreation opportunities of Mt Buller and Lake Eildon. The visitation economy is concentrated around Mansfield, with weekender structure gradually transforming the surrounding areas. Almost 50 per cent of properties in the Mansfield Shire are owned by people not resident in the Shire. The Upper Goulburn is a relatively comfortable distance from the eastern suburbs of Melbourne for weekend stays. • Continued increase of lifestyle/absentee owners each wanting a dam/bore on their property for water security.

Local landscape	Social and economic changes since 2013
Commuting Hills 	• The population of the Southern Hume corridor is urban in its characteristics, and at the same time quite different to the population of the towns of Seymour and Broadford that it surrounds. High education level, low structural ageing and modest growth rates indicate a connection with the economy of Melbourne to the south. • The area in the upper catchment that surrounds Kilmore and Wandong is quite different to the rest of the Catchment. It is a region experiencing strong growth driven by the economic engine of Melbourne, just over the divide. From a demographic and economic perspective, this small region is functionally part of Greater Melbourne. Farms in this area are financially small, indicating either small areas or un-intensive farming. • Pressure to clear mature trees, control fires and challenges to sustainably graze. • Local government has low capacity/resources to enforce native vegetation removal and cultural heritage compliance due to the rapid rate of growth.
Southern Forests 	• Majority of the Southern Forests is still public land with private land concentrated along the valleys. Forest is valued for timber, recreation and water supply for the towns. • Increasing pressure by recreational users from within the catchment but increasingly from outside e.g. Melbourne. Recreational use is growing in the warmer months, while the snow season is being reduced by the changing climate. • Traditional Owners are increasing pressure on government for greater protection of biodiversity and cultural values.
Urban Centres 	• Shepparton has a growing population, high workforce participation, residential migration and cultural diversity. • Murray irrigation towns with historic dependence upon dairy manufacturing have had declining employment in manufacturing since 2001 associated with shrinkage of dairy production due to drought, competition for water and international competition lowering milk prices. • Towns along the Murray or adjacent to a large water body with growth-oriented planning schemes show consistent growth (Cobram, Yarrawonga and Nagambie). • Towns within the economic orbit of Melbourne show strong growth (high population growth, larger households and construction industry employment unless impacted by bushfire (Kilmore, Broadford, Wandong as opposed to Hazeldene)). • Small towns in the mixed farming zone, generally south of Shepparton and north of the Hume, show structural ageing, smaller households, lower workforce participation, retail, health and education are the main employers (Murchison, Euroa, Violet Town). • Small towns show growth if they are in an attractive landscape and are close enough to a large town to function as a dormitory suburb (Nagambie). • Population decline is more common with isolation (Eildon, Thornton, Jamison, Goughs Bay) or historically agriculture or railway dependent towns often in riverine plain setting (Colbinabbin, Rushworth, Girgarre, Stanhope, Merrigum, Glenrowan). • Towns of moderate size, such as Seymour and Benalla, show long-term population decline. They have some significant pockets of low income, falling incomes, and structural ageing. Employment is in accommodation for travellers rather than tourists. • The impacts of the 2009 bushfires can be seen in population decline in Marysville and Kinglake areas. • Increased coordination and sharing of knowledge between NRM organisations and groups in urban areas through Integrated Weed Management forums/plans and reuse of treated water. This has provided a coordinated platform for projects and investment.

SECTION 7

Indicators of change

Purpose of this section

This section provides an overview of some of the important environmental, social and economic attributes of the Goulburn Broken Catchment and indicators of change. We are keen to get your input on which attributes and/or indicators are of potential concern to you and require Catchment-wide action.

To increase the resilience of the Goulburn Broken Catchment, and it's important social, economic and environmental services, we need to understand the change that is currently occurring and identify indicators of when we may be approaching significant change.

Significant change occurs when the characteristics of a catchment or a local landscape change so much that it is no longer the same. By understanding the current trends (Sections 3 to 6) and indicators of change (this section) we can better navigate towards a sustainable future (Section 9).

Planning with local communities in the Goulburn Broken Catchment over the past six years has identified critical attributes under the themes of water, natural vegetation and amenity, economy, and community, see Table 10. These critical attributes shape the identity and function of the Catchment. This section provides an overview of some of the important environmental, social and economic attributes of the Goulburn Broken Catchment and indicators of when they're approaching significant change, as identified by the community.

Table 10: Critical attributes of the Goulburn Broken Catchment, as identified by the community.

Theme	Critical attributes	Community-identified indicators of change
Biophysical attributes		
Water	• Rainfall • Waterways, wetlands and dams • Groundwater • Water availability (for Traditional Owner, cultural, recreational, domestic, environmental and agricultural use) • Water quality.	• Water yield and flows • Water temperature • Water quality (e.g. turbidity, low oxygen etc) • Water availability (for livestock and domestic, irrigation or environmental use) such that demand exceeds supply. • Irrigation water price. • Connected water system – Goulburn River issues. E.g. river flow is not natural, i.e. high flows in summer. • Create greater opportunities for Traditional Owner and cultural use.
Natural vegetation & amenity	• Landscape diversity • Landscape amenity (open spaces, air quality and environmental features) • Native plant and animal diversity, extent, quality and resilience (land and aquatic) • Paddock trees and corridors of vegetation (for agricultural production and environmental benefits) • Resilience to natural disasters (e.g. bushfires and floods).	• Health and population of threatened or high-value native species (e.g. frogs, Bush Stone Curlews). • Local extinctions (aquatic and terrestrial). • Extent and/or diversity of native species. • Health and population of paddock and tall trees. • A change of flora and fauna species in relation to extreme events. • Declining landscape amenity – dead trees and more open landscape. • Declining environmental health of significant cultural sites and the subsequent presence of food sources and significant species (flora and fauna).

Theme	Critical attributes	Community-identified indicators of change
Social attributes		
Economy	• Recreational use • Employment opportunities • Economic viability – farming, forestry and tourism • Planning for climate change • Moving to renewable energy sources.	• Tourism industry viability/growth • Forestry industry viability • Farm viability (e.g. increasing density of lifestyle blocks in parts of the catchment may make farming unviable due to high land prices). • Irrigation water price. • Soil erosion due to poor soil cover or extreme events (e.g. high intensity rainfall). • Weed load and/or the emergence of new weeds • Reduced livestock numbers, crops moving up the hill. • Demand for services (e.g. health, education). • Proximity to services, employment or transport. • Traditional Owner groups and organisations provide services to public infrastructure. E.g. Traditional Owner tourism, delivering on-ground works and providing training in fire management.
Community	• Aboriginal heritage and culture • Non-aboriginal heritage and culture • Connected, sense of belonging • Welcoming of new people and ideas • Resilience to extreme events (e.g. bushfires, floods, pandemics) • Lifestyle • Employment opportunities and security • Strong partnerships and good governance • Decreasing social welfare divide.	• Increasing awareness and achievement of Traditional Owner Country Plans, for example: – Reinstate traditional fire practices – Traditional Owners moved back to Country – Increased awareness of Traditional Owner culture and roles – Reduced access to Country and significant sites (depending on area and land tenure status). • Employment opportunities don't sustain community • Availability of commuter transport • More urban, less rural character makes connection more difficult • Lack of awareness and adequate protection of cultural heritage. • Closure of schools • Increasing mental health issues. • Town and rural planning issues. • Increased difficulty in dealing with change as population increases. • Increasing price of water for irrigated agriculture, especially in dry years. • Basin Plan additional 450 GL could leave Goulburn Murray Irrigation District in worse position due to increasing price of water and movement of water downstream. • Reduced quality of or access to nature-based experiences. • Services disappearing in some towns/areas. • Proximity to services, employment or transport.

Management actions to address the indicators of change need to consider whether collective or individual action is most appropriate. Many of the social and some of the biophysical indicators of change (e.g. threatened species, airborne weed spread) require ***collective action*** to address. In contrast, some indicators of change that are very localised and individual impacts have little effect on the broader catchment, can mean that ***individual actions*** are more appropriate (e.g. soil health, mental health). This is not to say that group learning or community awareness activities can't be used to promote individual action.

SECTION 8

Sustainability dilemmas

Purpose of this section

This section outlines five key sustainability dilemmas facing the Goulburn Broken Catchment that have been identified through early engagement and seeks your input as to whether they capture the main issues and problems facing your local landscape and/or organisation.

A sustainability dilemma is the local-scale expression of the NRM challenges we face. These dilemmas often arise where there are different stakeholder values and how we prioritise to accommodate different social, economic and environmental interests. Five sustainability dilemmas for the Goulburn Broken Catchment have been identified through stakeholder engagement and are listed below.

Land use sustainability dilemma

The diversity of who and how land is being used is increasing in the Catchment. Private land is increasingly valued for housing development, lifestyle and amenity uses, solar farms, and a broader range of agricultural systems. Public land is now co-managed by government and Traditional Owners; and has competing uses – nature conservation, recreation, cultural and forestry.

This means that engagement with the diversity of landowners managing natural resources needs to be more adaptable to ensure we engage with and are relevant to their different perspectives and values; and recognise the tensions that may exist between historical uses (e.g. agriculture, recreation) and new uses (e.g. solar, amenity, cultural).

Water sustainability dilemma

In addition to the impacts of climate and government policy changes (e.g. water trading), there has been significant changes in who is using the catchment's water and what they value it for (e.g. critical human needs, irrigation, cultural, environmental and lifestyle/recreational). There are also tensions over water ownership and access (e.g. Traditional Owners don't own any water for cultural flows in Victoria under existing government legislation).

This means that there is often too little or sometimes too much water to provide what is important to the catchment and its community. Reaching a balance that satisfies all is unachievable, particularly when planning for climate change. How do we best prioritise water use, both within the Catchment and beyond?

Nature sustainability dilemma

People need nature for the ecosystem services it provides however the resilience, extent and diversity of plants and animals, and their habitat, is decreasing (due to climate change, drought, fire, firewood collection, development etc.), while the community (residents and visitors) increasingly value and use nature for amenity, recreation and tourism.

This means there is a need to engage with a broader group, often from outside the catchment, who value biodiversity differently and have traditionally not been involved in its protection and management, on the importance of nurturing nature for future generations to enjoy.

Community sustainability dilemma

The majority of the Catchment's population lives and works in town, as Australia has transitioned to a services-based economy, so they may value the natural environment more to enhance their lifestyle than for earning a living.

This means that how communities are engaging in NRM is changing and approaches to engagement need to be adapted, and in some cases transformed (e.g. more one-off volunteering opportunities, raise awareness of Traditional Owner roles and ethics of Caring for Country).

Agriculture sustainability dilemma

Much of the private land in the Catchment is managed for agricultural production. While NRM on-farm is critical to the long-term sustainability of agricultural businesses (private benefit), it also provides a lot of additional benefits for the community and environment (public benefit). Despite the significant public benefits, most of the costs of NRM on-farm are borne by the agricultural businesses, as the majority of the environmental costs are not included in the price of food and government investment doesn't match the scale of the problem. Furthermore, there is often a long lag time between an agricultural businesses investment in NRM (e.g. revegetation) and the benefits of that investment (e.g. shade, shelter), which can act as a disincentive compared to other investment options.

This means that we need new ways of supporting and incentivising agricultural businesses if we want to manage natural resources and provide important public benefits.

The GB RCS is an important planning tool to help navigate the dilemmas described above. A key discussion question included in this paper (refer to Introduction) is what priority actions should we include in the GB RCS to address these sustainability dilemmas?

SECTION 9

Navigating a way forward

Purpose of this section

This section seeks your feedback on the types of change you'd like to see for NRM in the Goulburn Broken Catchment and outlines a framework for navigating the sustainability dilemmas outlined in the previous section.

We don't know how the drivers of change and subsequent trends will play out, however the GB RCS is an opportunity to build resilience by preparing for change (e.g. increasing diversity, planning for multiple scenarios, etc.) and creating pathways that will address the dilemmas in a way that aligns to the community's values and aspirations, see Figure 5.

Sustainable Multiple Future Pathways

Sustainable development requires us to balance the social boundaries (e.g. jobs, health, education etc.) and planetary boundaries (e.g. biodiversity loss, ozone depletion, freshwater use etc.) when selecting NRM options (see Figure 6). The social and planetary boundaries have been indicated for the Goulburn Broken by 'What the catchment values' (Section 2) and the 'Indicators of Change' (Section 7).

There are multiple future pathways, which one plays out depends on the future drivers and our management actions - the important thing is for the future pathway to not cross over critical tipping points if they breach unsafe planetary boundaries or undermine human rights (see Figure 6). In some instances, we have already crossed over critical tipping points, so transformation is necessary if we want to create a sustainable, safe and just future (e.g. biodiversity decline, Traditional Owners water rights).

Figure 5: Interactions between the past, now and future are complex, we don't know how the drivers of change or trends will play out, however the GB RCS is an opportunity to influence future pathways by building Catchment resilience.

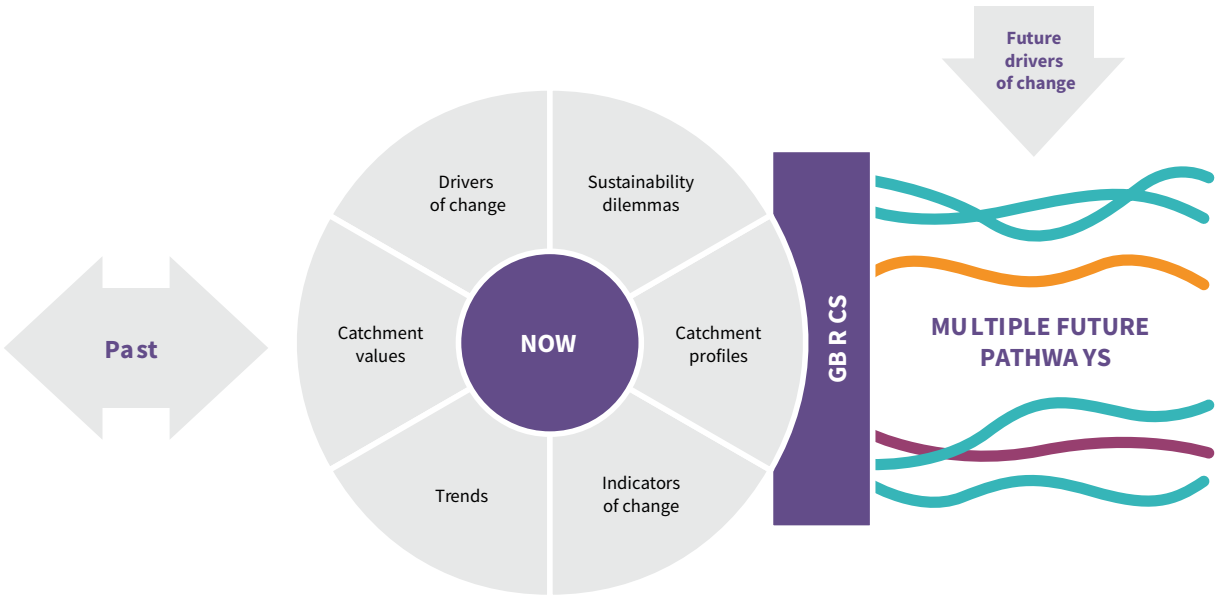


Figure 6: Balancing planetary and social boundaries is key to sustainable development, multiple trajectories or future pathways are possible (Source: wayfinder.earth).

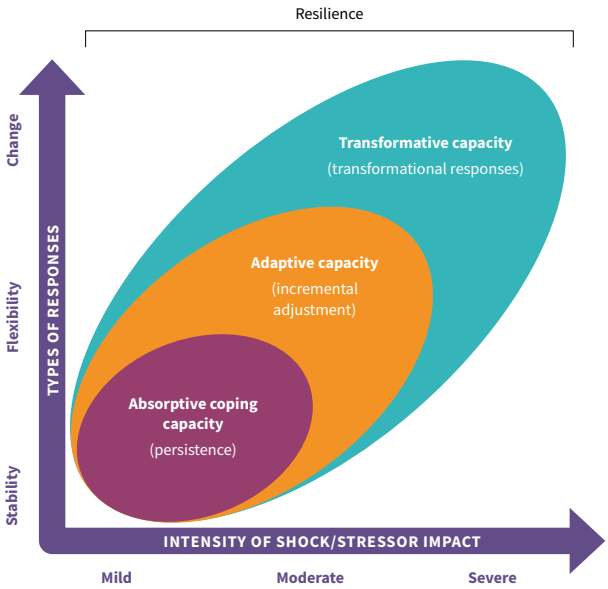
Responding to change

As the Catchment, or components of the Catchment, changes then opportunities and challenges emerge. How the Catchment, or components of the Catchment, shapes or responds to change is influenced by its capacity to:

- **Persist:** Capacity to stay essentially the same in the face of change. Persistence assumes that things will at some point return to "normal".
- **Adapt:** Capacity to deliberately adapt to change. Adaptation assumes that the changes will endure - the purpose will remain the same while the management will change.
- **Adapt while preparing to transform:** Capacity to deliberately adapt to change, whilst preparing to fundamentally transform the overall system in response to change.
- **Transform:** Capacity to fundamentally transform in response to change. Transformation means that not only the management changes but also the overall purpose will change. Transformation is a product of deliberate, significant change in response to enduring change.

Not one of the above responses are better than the other, we need all of them. Persistence, adaptation and transformation can all occur at the same time depending on the catchment component or location or timeframe (see Figure 7 below). Understanding the causes, direction and rate of change helps us navigate our way forward. To be resilient, systems need to be able to shape and respond to known and anticipated changes, while maintaining capacity to cope with unknown and unexpected future change.

Figure 7: How persistence, adaptation and transformation and the different change responses relate to one another.



Examples of adaptation and transformation for the Goulburn Broken are provided in Figure 8.

Figure 8: Examples of adaptation or transformation responses across the Goulburn Broken Catchment and potential impacts on NRM.

SECTION 10

Next steps

Purpose of this section

This section aims to outline some of the next steps in the GB RCS Renewal process, how you can be involved and how to provide any further feedback on the key insights outlined in this paper.

OCTOBER 2020 — GB Regional Insights Paper released

OCTOBER-DECEMBER 2020 — Stakeholder engagement

JANUARY-FEBRUARY 2021 — Development of draft GB RCS

MARCH-APRIL 2021 — Draft GB RCS released for comment

JUNE 2021 — Final GB RCS approved by the GB CMA Board

SEPTEMBER 2021 — Victorian Government approval & GB RCS operational

Have your say

For the Goulburn Broken RCS Renewal to be effective it needs to capture the aspirations, experiences and ideas from the diversity of stakeholders involved or interested in NRM and that includes you! You will have seen discussion questions throughout this paper – we'd love to hear your responses via our **online survey** or upcoming events.

To learn more about the GB RCS Renewal (including YouTube videos, workshops and fact sheets), upcoming events or the information behind this paper visit the GB CMA **website**.

Get involved

As the GB RCS is the overarching strategic document guiding all NRM actions in the Catchment, it's critical that all organisations, groups and individuals contributing to NRM in the Catchment have strong ownership and commitment to delivering on the GB RCS 2021-27. In the previous strategy, groups and organisations were able to sign-on to the strategy to show their commitment to its implementation. We're hoping to take this one step further this time and provide an opportunity for those interested to make an 'action pledge' to contribute to its implementation.

Action pledges are not legally binding nor do they require a financial commitment but rather a commitment to act and support the aspirations of the GB RCS 2021-27. As part of taking an action pledge organisations, groups and individuals would:

- Articulate how they will contribute to the strategy's implementation e.g. deliver revegetation projects to contribute to the GB RCS's biodiversity objectives.
- Contribute to regional-scale change and the direction of natural resource management in the GB Catchment.

- Raise the profile of NRM challenges and opportunities in the Catchment by sharing GB RCS key messages.
- Become part of a network of like-minded organisations, groups and individuals.
- Be able to promote their contribution to catchment health.
- Promote their organisation's strategic goals in line with the RCS.

To find out more and to register your interest in making an action pledge **click here**.

Resilience principles to guide priorities

To help the GB CMA and partners select actions for inclusion in the GB RCS and relevant sub-strategies, resilience principles will be applied to ensure the strategy builds the resilience of the Goulburn Broken Catchment's land, water, biodiversity and community. Below are the 11 proposed principles:

1. **Develop a 'complexity' view of the world**

   The action(s) take into account the interactions between social, economic and environmental factors.

2. **Plan for change**

   The action(s) support/develop governance approaches that embrace change, which in turns helps the Catchment to prepare for, respond to and learn from change.

3. **Foster cohesion, self-organisation and local responsibility**

   The action(s) foster cohesive communities that have the internal capacity to find solutions, rather than relying on external support, are better able to respond to disturbance and capitalise on opportunities.

4. **Design for flexibility across multiple possible futures**

   The action(s) are flexible from the start, allowing for easy future adaptation when required.

5. **Manage connectivity**

   The action(s) maintain and restore connectivity to allow flows between parts of a system (e.g. knowledge, resources, etc). The proposed action(s) address the risks of under or over connection.

6. **Value, retain and build diversity and redundancy**

   The action(s) provides options and potential for different responses under stress. This includes building diversity (of people, cultures, practices, land uses etc) to increase the potential for different responses to shocks and stress. It also involves redundancy or back-ups that can perform similar roles in a system, which reduces the likelihood of failure and aids recovery.

7. **Focus on slow variables, leverage points and tipping points**

   The action(s) build 'system' awareness and focus efforts where they can be most useful (e.g. focussing on causes rather than symptoms of the problem).

8. **Learn for change**

   The action(s) support a 'learning-by-doing' and forward-focused learning approach that can drive adaptation and transformation. This is more useful than relying on hindsight and past experience when dealing with high uncertainty and change.

9. **Key change makers known and opportunity context conducive**

   The action(s) identify and engage the key individuals and groups that have the ability to implement the actions, e.g. influence, knowledge, power, connections etc. The action(s) are also appropriate given the broader opportunity context – the larger social, political and institutional setting in which the system and people part of (e.g. laws, policies, social norms, etc.).

10. **Be feasible and effective**

    The action(s) is socially, technically, environmentally and economically feasible, and will be effective in creating the desired change.

11. **Minimise unintended consequences**

    The action(s) consider any unintended consequences (e.g. don't transfer the burden to other people, negatively impact people's safety and wellbeing), are robust against an uncertain future and avoid new lock-ins and maintain as much adaptive and transformative capacity over time as possible.

The principles outlined above provide a mechanism to assess the resilience of possible actions/solutions, and to save time and resources during the implementation stage. Actions do not need to meet all the criteria fully but they should align to the majority of the principles reasonably well (Source: **https://wayfinder.earth/**).

SECTION 11

Glossary

Aboriginal	Refers to both Aboriginal and Torres Strait Islander peoples. They may have connections in and outside of Victoria.
Catchment Management Authorities	Victorian statutory authorities established under Victorian Government legislation (the Catchment and Land Protection (CaLP Act 1994) responsible for the integrated planning and coordination of land, water and biodiversity management in each of the 10 catchment and land protection regions. The regions correspond to naturally occurring drainage basins.
Country Plan	Also known as Caring for Country plan or Whole-of-Country plan is a plan developed by a Traditional Owner group (sometimes titled in Aboriginal language) that expresses their vision, aspirations, strategies and actions for their Country. Country Plans support Traditional Owners in communicating their rights, cultural authority or interest in Country.
Critical attributes	Critical property or characteristic of a system that shapes its identity and function. These attributes should be within an appropriate limit, range or distribution to ensure the system maintains its identity and function.
Drivers of change	The external forces influencing how the catchment operates and therefore shaping future pathways. E.g. climate change, technological innovations, population ageing.
Integrated Catchment Management	A whole-of-system approach for land, water and biodiversity planning and delivery for multiple outcomes within and across natural ecosystems. It captures the values and priorities of regional communities and brings together partners from across the catchment region to identify and respond to challenges that cannot be solved by one organization or stakeholder alone. Regional Catchment Strategies describe how integrated catchment management is implemented in Victoria.
Natural resource management	The management of natural resources such as land, soils, water, vegetation and biodiversity, with a particular focus on actions that protect or improve the environment for both present and future generations.
Regional Catchment Strategy	The primary integrated planning framework for the management of land, water and biodiversity resources. They seek to integrate community values and regional priorities with state and federal government legislation and policies. Each catchment management authority prepares a Regional Catchment Strategy in partnership with local communities and partners involved in integrated catchment management and registered Aboriginal parties. They are a requirement under Victorian Government legislation (the Catchment and Land Protection (CaLP Act 1994)) and are updated every six years.
Resilience	Resilience is the capacity of a system (people and the environment) 'to absorb a shock or setback and to flourish in spite of it, maybe even because of it' (Outback, Apr/May 2017). It does not mean "bouncing back" or ploughing through and doing what we have always done. It is the capacity to cope with change and continue to evolve in positive ways.
Socio-ecological systems	Consistent, integrated systems of people and nature that exist at a range of connected scales, from farm to local area to whole-of-catchment scale. The term emphasizes that humans must be seen as part of nature, not apart from it.
Socio-economic	Relating to or concerned with the interaction of social and economic factors.
Sustainability dilemma	A sustainability dilemma (also known as socio-ecological dilemma) is the local-scale expression of the sustainability challenges we face. These dilemmas often arise where there are different stakeholder values and how we prioritise to deal with different social, economical and environmental interests.
Traditional Ecological Knowledge	The knowledge held by indigenous cultures about their immediate environment and the cultural practices that build on that knowledge. Traditional ecological knowledge includes an intimate and detailed knowledge of plants, animals, and natural phenomena, the development and use of appropriate technologies for hunting, fishing, trapping, agriculture, and forestry, and a holistic knowledge, or "world view" which parallels the scientific discipline of ecology (Berkes 1993).
Traditional Owner	An Aboriginal person who has traditional connection(s) to an identified geographical area of Country.

SECTION 12

References and further information

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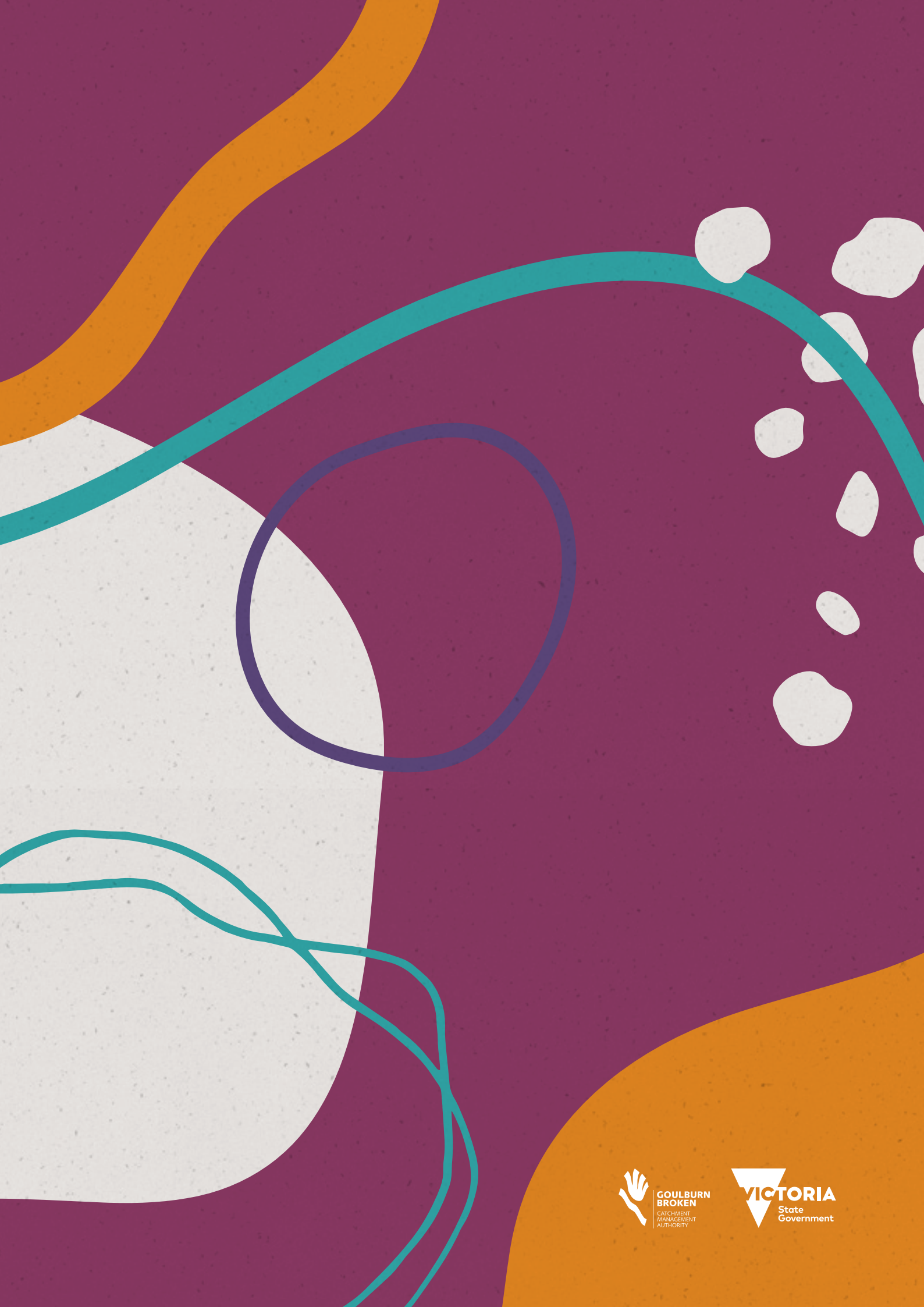
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