



REIMAGINING BENDIGO CREEK

June 2020

Recognition statement

Aboriginal peoples have lived in the part of Australia known as Victoria for more than a thousand generations. The people belonging to the Country of the Recognition and Settlement Agreement area, through bloodline and kinship, are known as the “Djaara” (people of the area). Over time, many Djaara have come to identify as “Dja Dja Wurrung” (Yes Yes tongue/speak), which relates to the collective language group. Djaara spoke the Dja Dja Wurrung language¹.

Dja Dja Wurrung people (Djaara) have lived on our traditional lands and cared for our Country over many thousands of years. For us, Country is more than just the landscape, it is more than what is visible to the eye - it is a living entity, which holds the stories of creation and histories that cannot be erased. Our dreaming stories of Djandak (Country) explain the creation of our lands and how Dja Dja Wurrung people evolved². Bunjil, the Eagle Hawk, is our creator and helps us to understand our connections to each other through his law.

Mindi, the giant serpent, is his enforcer implementing the laws and ceremonies that ensure the continuation of life.

Each place on our Country is known and valued, has a name and a song, and this is embedded in our landscape along with murrups – spirits imprinted on the water, birds, plants, animals, rocks, mountains and ancestral spirits².

We continue to perform ceremonies to honour each of the spirits and our traditional rites, our Welcome to Country being one example. The spirits link us back through time in a continuing connection with our past and our traditions, and our stories instil an on-going respect for our Country. Our songs and stories tell us of how the world was and how it should be, and we feel a moral responsibility to care for our Country as it binds us to the past, present and future.

Our ancestors looked after this Country and we are duty bound to look after it for the next generation. We feel an affinity with the land when we’re on Dja Dja Wurrung Country; the ancestor’s spirit is in the rock, the tree, within the earth and sometimes in the wind and rain clouds².

There is an inner peace that runs through us, a feeling of recognition and belonging. We maintain this strong physical relationship with Dja Dja Wurrung Country by continuing to access it, looking after it and by using its natural resources².

The Recognition and Settlement Agreement between the Dja Dja Wurrung people and the State of Victoria was celebrated at Yepenya on 15 November 2013. Signing this Agreement, the Dja Dja Wurrung agreed to withdraw all Native Title claims in the federal Court and that this be a full and final settlement on this matter¹.

The Recognition Statement signed at the Ceremony, recognised the Dja Dja Wurrung as the Traditional Owners of Central Victoria and provides the context for what was negotiated in the Agreement.

It is a means by which Dja Dja Wurrung culture and traditional practices and the unique relationship of Dja Dja Wurrung people to their traditional Country are recognised, strengthened, protected and promoted, for the benefit of all Victorians, now and into the future¹.

For more information:

<https://www.justice.vic.gov.au/your-rights/native-title/dja-dja-wurrung-settlement>

Dja Dja Wurrung Clans Aboriginal Corporation

1. *Dja Dja Wurrung Clans Aboriginal Corporation and the State of Victoria (2013), Recognition and Settlement Agreement, Volume 1 of 2 under the Traditional Owner Settlement Act 2010(Vic)*

2. *Dja Dja Wurrung (2014), Dhelkunya Dja - Dja Dja Wurrung Country Plan 2014 - 2034, Dja Dja Wurrung Clans Aboriginal Corporation*

Acknowledgements

This is a collaborative project between the City of Greater Bendigo, Dja Dja Wurrung Clans Aboriginal Corporation, Department of Environment, Land, Water and Planning, North Central Catchment Management Authority, Coliban Water, Department of Health and Human Services, Goulburn Murray Water, Parks Victoria, and the local community.

The *Reimagining Bendigo Creek* Plan draws on the contributions of many. Sincere thanks are extended to project partner representatives on the Steering Group, and to Working Group members, including representatives of the local community and of various agencies and organisations. Your collective knowledge, ideas and words have been instrumental in creating this Plan. We also wish to acknowledge those participants from the wider community of Greater Bendigo for their contributions.



Members of the project's Steering and Working Groups at the frog ponds at No. 7 Park, Kangaroo Flat

Partner Foreword



Our community has a unique challenge and special inter-generational opportunity to restore the health of the Bendigo Creek, its catchment and tributaries. In doing so we will honour the Dja Dja Wurrung Traditional Owners and their Country, respect the land and its creatures, and create a place of beauty, respite and leisure that defines Bendigo and is valued by us all.

The Reimagining Bendigo Creek Plan sets out a shared vision for this future and provides a guiding framework to get there. It is the outcome of a wide-ranging organisational and community collaboration over almost two years - shaped by the knowledge and ideas of many - and represents a shared commitment for many years and decades to come.

I extend my sincere thanks to community members, representatives of local organisations and agencies, and in particular the Dja Dja Wurrung for sharing their knowledge and for their active involvement, leadership and support.

If you are interested and passionate about the future of our waterways and the health of our city and community, I invite you to not only invest some time to read this Plan, but to talk about it with others in your community and seek out ways to get involved.

Councillor James Williams
Chair, Reimagining Bendigo Creek
Steering Group

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Why reimagine the Bendigo Creek?

WHY? Because we believe we can.

Close your eyes and imagine you are sitting on green grass next to a creek with water so clean that your children are splashing about in the pools of water, where Platypus swim, you can fish here and the trees provide shelter for native birds, who are singing along to the wind as it rustles through the leaves.

INTRODUCTION - A PLAN FOR OUR BENDIGO CREEK

Reimagining Bendigo Creek is a turning point. It marks the beginning of a process of renewal, understanding and connection over many generations³.

This document presents a guide for that process - a vision and plan for creating a healthier, more inclusive, more connected and more beautiful Creek that we all respect and value.

Just as the collaboration of community and organisations has guided the plan's creation, we must all work together to turn it into reality; for our benefit today and in the interest of future generations.

There is a lot to do and this will take time, effort and resources. For this reason, the plan will be at least 50 years in the making with incremental changes over that time.

The kinds of changes and improvements outlined in the plan cover the large and the small, the relatively simple and much more complex. Some are achievable relatively quickly, within just a few years. Others require transformative change over a much longer timeframe.

More information

The development of the Plan is the product of an ongoing consultative approach, building on inputs and direction gained by successive stages of the project and related documents which provide helpful context and background to the Plan itself:

Reimagining Bendigo Creek draft plan (January 2020)

Reimagining Bendigo Creek: Our Partner and Community Perspectives of Issues and Opportunities (July 2019)

Reimagining Bendigo Creek: Vision and Concept (September 2019)

Project bulletins (December 2018, August 2019 and January 2020)

These documents are available at:

www.bendigo.vic.gov.au/bendigocreek

3. Carolyn Vivian, *Reimagining Bendigo Creek Working Group*

SNAPSHOT OF THE PLAN

Vision and Principles

The essence of *Reimagining Bendigo Creek* is encapsulated by its vision and principles which have guided the plan's preparation and will guide how decisions are made in the future.

Creek-wide Strategies

The strategic planning framework for the Bendigo Creek as a whole, with reference to its catchment and tributaries.

Precincts

The application of the Creek-wide strategies to four precincts:

- ① **Kangaroo Flat:** Big Hill range to Bay Street, Golden Square
- ② **Golden Square – Bendigo:** Bay Street, Golden Square to Weeroona Avenue, North Bendigo
- ③ **White Hills:** Weeroona Avenue, North Bendigo to Howard Street, Epsom
- ④ **Epsom – Huntly:** Howard Street, Epsom to Bendigo-Tennyson Road, Huntly

Implementation

The implementation section proposes options for how we can improve how we work together to achieve the vision for Bendigo Creek.

Catchment

Goal: A healthy Bendigo Creek by improving the catchment and creating flood resilient communities

S1

Limit the impact of climate change with water sensitive urban design and traditional ecological knowledge

- Build a Water Sensitive City

S2

Manage flood risk with appropriate infrastructure, landscape treatments and community preparedness

- Manage flood risk and build community capacity to respond
- Integrated water quality monitoring program
- Manage groundwater inflows to the Creek

S3

Restore aquatic habitats and ecosystem function of the Creek and its tributaries

- Strengthen and diversify natural areas, including habitat for native wildlife
- Naturalise constructed channels and drains

S4

Improve how our city landscape relates to the Creek and tributaries

- Open and active Creek interfaces



Connections

Goal: Bendigo Creek forms a continuous and integrated public space network for our community to enjoy and move freely through



Connect places and spaces with a network of accessible public corridors

- Provide continuous public land along the Creek
- Extend the Bendigo Creek Trail
- Create the Low Line Trail
- Link the Creek and tributaries
- Integrate public transport



Improve the Creek's corridor access

- Prioritise safe, user-friendly path access along the Creek
- Create more cross-Creek links
- Provide good maintenance access



Increase Creek-based interaction and recreation opportunities

- Connect public spaces
- Diversify recreation amenities
- Enable waterway interaction



Create a safe Creek environment for everyone

- Improve safety infrastructure
- More eyes on the Creek



Culture

Goal: Bendigo Creek embodies our diverse cultures and is actively cared for by the Community



Empower Dja Dja Wurrung Traditional Owners to practice their cultural traditions and promote their cultural and spiritual connections to the Creek

- Respect and recognise the Dja Dja Wurrung
- Restore cultural practice, ceremony and customs to the Creek



Promote positive community perceptions of the Creek

- Provide more public information about the Creek
- Create an attractive Creek environment



Foster community caring for the Creek

- Reinforce the shared sense of responsibility
- Provide hands-on participation opportunities
- Learn from Dja Dja Wurrung Traditional Owners



Strengthen the diversity of experiences along the Creek

- Retain the contrasting character of the Creek
- Reveal the diverse layers of history
- Reflect all cultures

What does the Plan mean for me?

A healthier waterway, place and lifestyle for everyone to enjoy.

We will create a better Creek and catchment for everyone to explore and enjoy: Green, open and shady places for picnics and gatherings and quiet places to sit and ponder; a network of paths to get around; access to good water; and the chance to be more immersed in our city's landscape, to experience nature and to connect with Country.

CONTEXT

For over 60,000 years, under the care and management of the Dja Dja Wurrung people, Bendigo Creek evolved and flourished as part of the wider landscape and ecology.

Djaara people, the Traditional Owners of the Dja Dja Wurrung Clans, oral traditions, knowledge and memory of Traditional Owners, together with records of early colonisation, tells us a story that the Creek once consisted of a series of connected and meandering chain of clear pools, varying in depth and size, some of which are likely to have held permanent water; historical records indicate that wildlife was abundant.

Colonisation and the exploitation of gold beginning in the 1850s – brought about what has inarguably been the most radical disruption to Bendigo Creek and its surrounding landscape.

In this short period, the landscape was devastated, leading to the emergence of up side down Country, and with it, a new city, society and culture.



Up side Down Country

Djaara people refer to the landscape heavily impacted by mining as up side down Country.

Goal 6: Land

Our up side down Country is healthy again⁴.

Enormous and lasting impacts

The present conditions of Bendigo Creek are directly connected with post-colonisation and the extensive mining activity that defined this period.

The heavily engineered drain that we see today was created to straighten, regrade and remove obstructions from a once-natural Creek. This allowed vast volumes of gold mining sludge to be channelled out of the city and deposited across the landscape, producing contaminated soils and sediment that persist until the present day.

The function of the catchment has also been drastically altered by mining and more recent urbanisation. Stormwater from across the urban area enters the Creek via a growing network of pipes and drains, and with increasing volume and velocity. This has led to increased silting, littering and pollution of the waterway, and to a consistently poor quality of water that is unswimmable, let alone drinkable. Large volumes of contaminated groundwater has accrued in former mineworkings, some of which is discharged to the Creek.

There has been a steady loss of indigenous vegetation, both along the Creek and throughout its catchment, and non-indigenous plants often dominate the landscape. Opportunities for wildlife to flourish have been heavily reduced by the fragmentation and degradation of habitat and competition from pest animals.

Our city and community is largely disconnected from the Creek, both physically and emotionally. Most parts of the city – homes and businesses – are turned away from the Creek, and our perceptions are often negative or otherwise reflect a lack of awareness and understanding of the Creek's value.

The need for a changed approach

The future is in managing our waterways very differently to the past. Across Australia and around the world, planning and building projects are striving to once again make rivers, creeks and streams healthy systems that are an integral part of life in cities and towns.

From the Merri and Moonee Ponds Creeks in Melbourne to the LA River in California or Cheonggyecheon in Seoul, these projects - though not without their complexities and some shortcomings - have broad-reaching potential and benefits: the reintroduction of a more natural ecology and habitat, improvements to water quality, recreation and leisure opportunities, and healthier and happier communities through access to nature, human interaction and the experience of a more attractive outdoor environment.

In Bendigo, many projects, either completed or are underway, are contributing to a revitalised Bendigo Creek and tributaries. The original vision for a Bendigo Creek Linear Park dates back to the late 1980s. In more recent times, walking and cycling is being given far greater priority, with the Bendigo Creek Trail well advanced and numerous other connections along tributaries in place. Joint management arrangements have seen extensive weed control and revegetation works achieved and the construction of frog ponds in various locations on the Creek and its tributaries has provided a glimpse of what a more naturalised creek system might look like.

Other forces are compelling and driving the need for change. Our region is naturally water-scarce and dry, at once demanding that we highly value and care for our waterways and also increasing the threat posed by climate change to those waterways. There is expected to be less overall rainfall, higher intensity rainfall events that will stretch capacity during flooding, and greater impacts on the community, wildlife and habitat as temperatures rise and droughts are prolonged.

Although momentum has been gathering for decades, an urgent water agenda is now in sharp focus and major initiatives such as *Water Sensitive Bendigo* and *Caring for the Campaspe* are leading the way. An array of strategic planning and policy at State, Regional and local level is directing this water agenda and also guiding change in related and complementary aspects.

A new course for the Bendigo Creek

Reimagining Bendigo Creek is part of this agenda, and also an expansion of it, by addressing the multi-dimensional role of the Creek. This includes water management and waterway health at its heart, as well as a range of other aspects: improved ecology and environmental management, active transport and recreation, urban design and greening, land use and place integration, economic development and tourism opportunities, as well as the coordination of governance and management.

This Plan is an important step in charting a new course for the Creek that restores its place as an integral and positive part of Greater Bendigo's cultural, ecological and community landscape.

“The Creek was lined with tall gums, wattle trees bloomed profusely right down to the water’s edge, and wildflowers of every colour dotted the grassy slopes. The Creek itself consisted of a chain of crystal clear pools of sweet running water. The only sounds were those of the many birds, kingfishers and parrots giving bright colour to the scene. Platypus and kangaroos were numerous and occasionally dingo appeared”

William Haverfield,
Bendigo Creek, 1839



Bendigo Creek: Strategic planning context

*For more information on the kinds of strategic plans and policies linked to Bendigo Creek and this project, please refer to *Reimagining Bendigo Creek: Our Partner and Community Perspectives of Issues and Opportunities* (July 2019), available online at:*

www.bendigo.vic.gov.au/bendigocreek

A regionally significant waterway

The Bendigo Creek flows over 150 kilometres through the Country of the Dja Dja Wurrung and Barapa Barapa Traditional Owners, which includes the present day City of Greater Bendigo and the Shire of Campaspe (see Figure 1).

Originating at the Big Hill range in Kangaroo Flat, the very top of the Bendigo Creek's catchment is largely urbanised; a characteristic which itself is unique and presents a particular set of challenges. For 20 or so kilometres, the Creek runs through the heart of the Bendigo urban area and is highly modified, constrained and impacted upon by urbanisation. Numerous tributaries feed into the Creek.

At the northern end of the Whipstick forest boundary, the Creek interacts with a number of culturally and environmentally significant wetlands including Winghee and Tang Tang Swamps and includes a series of billabongs and water courses.

Beyond Bendigo, the Creek enters and meanders through an expansive rural landscape, eventually finding its way to become Mount Hope Creek at the Terrick Terrick National Park and flowing into Ghow Swamp [Kow Swamp] just west of the town of Gunbower and the Murray River.

Over this journey the Creek draws upon an expansive regional catchment. The urban catchment of Bendigo alone comprises around 184 square kilometres (see Figure 2).

The Creek falls within the upper catchment of the Murray Darling Basin. This means activities within the Bendigo Creek catchment have potential to impact the availability and quality of water for downstream communities and ecosystems.



Figure 1: Regional context of Bendigo Creek



Bendigo Creek study area

The urban area stretch of the Bendigo Creek – between the Big Hill range and the Bendigo-Tennyson Road in Huntly, approximately 21 kilometres downstream – is the primary area of focus for the *Reimagining Bendigo Creek* Plan. The wider urban geographic context of Bendigo Creek is however crucial and very much recognised by this Plan. This context includes the Creek's various tributaries, which consist of a series of *ephemeral* creeks and gullies, and above all, the urbanised catchment of the Creek itself which includes most of Bendigo's urban area (see Figure 2).

Although the urban section of Bendigo Creek must be considered as a whole, there are some considerable differences in characteristics, issues and opportunities from one part to another. To allow this to be clearer and given appropriate focus, the overall corridor has also been divided into a series of four precincts. These are listed below in sequence, beginning at the top of the catchment. The precincts are also shown in Figure 2.

- ① **Kangaroo Flat:** Big Hill range (north-west of Crusoe Reservoir) to Bay Street, Golden Square
- ② **Golden Square – Bendigo:** Bay Street, Golden Square to Weeroona Avenue, Bendigo
- ③ **White Hills:** Weeroona Avenue, Bendigo to Howard Street, Epsom
- ④ **Epsom – Huntly:** Howard Street, Epsom to Bendigo-Tennyson Road, Huntly

Main Bendigo Creek tributaries (from upstream)

- A Dead Bullock Gully
- B Tipperary Gully
- C Charcoal Gully
- D Kangaroo Gully
- E Sunrise Gully
- F Sparrowhawk Gully
- G Golden Gully
- H Back Creek/Spring Gully
- I Racecourse Creek
- J Long Gully
- K Eaglehawk Creek
- L Huntly Back Creek



Ephemeral

In the context of waterways: creeks and gullies that flow with water seasonally.

Figure 2: Bendigo Creek study area, catchment and precincts

A PART OF DJA DJA WURRUNG COUNTRY AND CULTURE

Bunjil dreaming

In a time when the landscape was bare and featureless, ancestral spirits shaped the earth with Bunjil. Creating songlines, raising trees out of the soil and making places of power where an object was left behind, where a spirit had entered the earth or where a journey was completed and that spirit sat down in the land.

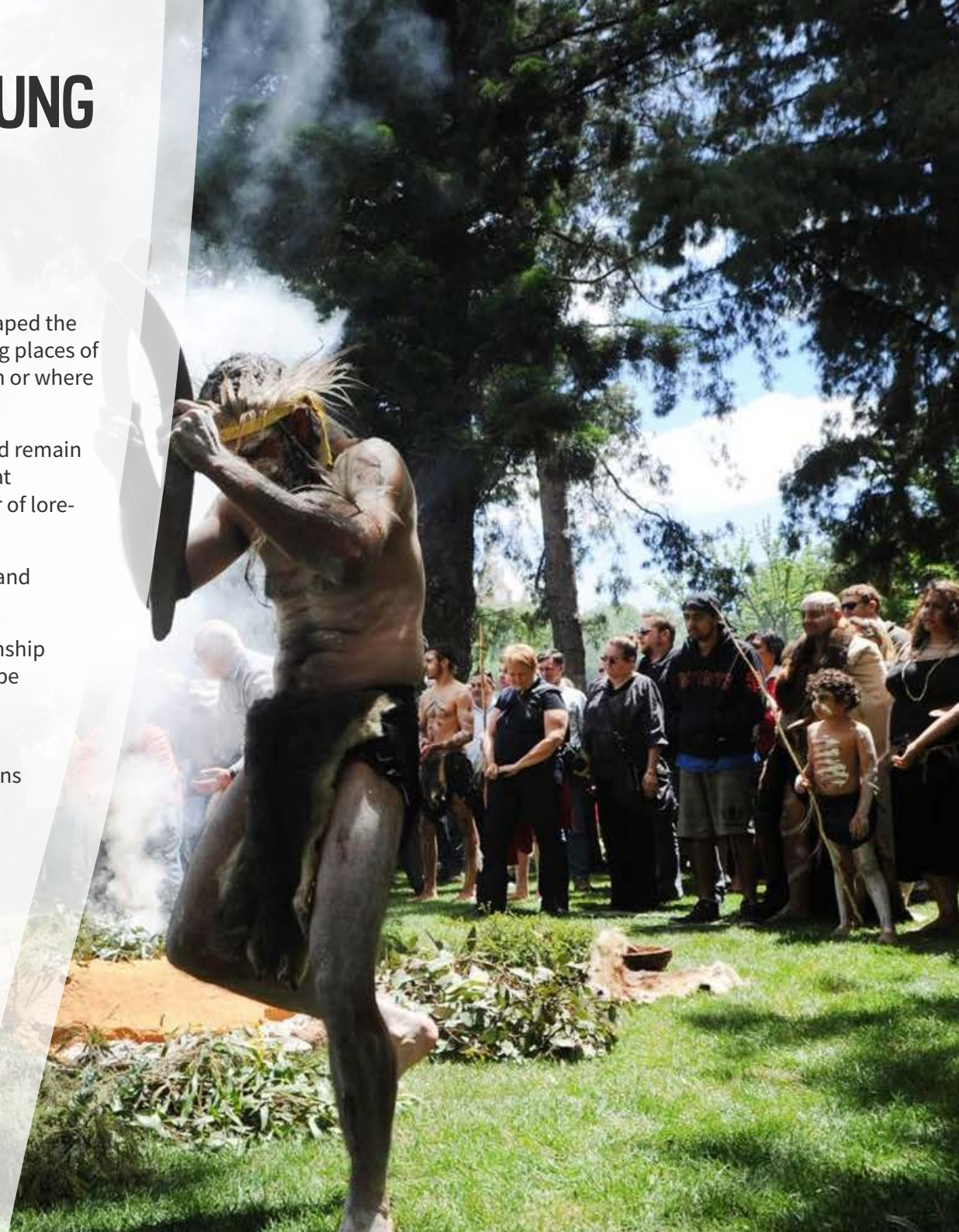
The ancestral spirits of the Jaara (people) that have shaped our Country and remain in the landscape today are Waa the crow (lord of the plains), Boleang the bat (watcher and protector of visitors) and Mindi the rainbow serpent (punisher of lore-breakers).

Waa and Boleang are the animals that the spirits of our ancestors reside in and hold special meaning to Jaara today.

Bunjil and his brother Waa created the people and bestowed the moiety/kinship system for the people to have eagle children and crow children that would be unrelated.

Once the Jaara, animals and plants were created, Bunjil had taught the people how to behave on earth and the lores to follow. A part of these lessons were how to conduct the ceremonies that would ensure the continuation of life. When Bunjil was satisfied with his work, he changed form into the wedge-tailed eagle and flew up into the sky to watch down on the earth. Today he is still looking down through the eyes of the Eagle and at night sits by his campfire in the sky known today as Jupiter.

Rebecca Phillips, Descendent of Caroline Malcolm / Jaara People / DDW language



Our Culture

Dja Dja Wurrung People have lived on our traditional lands and cared for our Country over many thousands of years. For us, Country is more than just the landscape, it is more than what is visible to the eye - it is a living entity, which holds the stories of creation and histories that cannot be erased.

Our dreaming stories of Djandak (Country) explain the creation of our lands and how Dja Dja Wurrung people evolved. Bunjil (the Eagle Hawk) is our creator and helps us to understand our connections to each other through his law. Mindi, the giant serpent, is his enforcer implementing the laws and ceremonies that ensure the continuation of life. Each place on our Country is known and valued, has a name and a song, and this is embedded in our landscape along with murrups (spirits) imprinted on the water, birds, plants, animals, rocks, mountains and ancestral spirits.

We continue to perform ceremonies to honour each of the spirits and our traditional rites, our Welcome to Country being one example. The spirits link us back through time in a continuing connection with our past and our traditions, and our stories instil an on-going respect for our Country. Our songs and stories tell us of how the world was and how it should be, and we feel a moral responsibility to care for our Country as it binds us to the past, present and future. Our ancestors looked after this Country and we are duty bound to look after it for the next generation.

Cultural significance of water

We feel an affinity with the land when we're on Dja Dja Wurrung Country; the ancestor's spirit is in the rock, the tree, within the earth and sometimes in the wind and rain clouds. There is an inner peace that runs through us, a feeling of recognition and belonging.

Traditional Aboriginal culture revolved around relationships to the land and water; relationships that hold deep physical, social, environmental, spiritual and cultural significance. Today, the land and its waterways remain central to our cultural identity and aspirations for community and economic development. Our rivers are the veins of Country, and provide food and medicine, and places to camp, hunt, fish, swim and hold ceremonies. They are places that are central to our creation stories, and many of our cultural heritage sites are associated with waterways – burial sites, birthing sites and middens. Our waterways are places that we connect with our ancestors and pass traditional knowledge on to our children and grandchildren; a primary responsibility of Dja Dja Wurrung men and women.

What does this mean for the Dja Dja Wurrung?

We are passing on good water to our neighbours.

We share a vision of healthy water with the Dja Dja Wurrung. Cultural practices and ceremony supports healing, encourages cultural interaction and enables reconciliation. We will walk with the Djaara people to make sure we are healing Country and water together.

Leadership in Creek restoration

The *Dhelkunya Dja Country Plan* includes the goal of healthy waterways. Goal 5 Rivers and Waterways: Our Rivers and Waterways are healthy and meet the needs of our people and the land. Accordingly, Dja Dja Wurrung already play a leadership role in the protection and restoration of Bendigo Creek environment.

The Wanyarram Dhelk (Good Waterhole) project 2016, was a partnership project between Djandak (Dja Dja Wurrung Enterprise Pty Ltd) and the North Central CMA, with funding being made available through the Victorian Government's Aboriginal Water Unit, DELWP.

Led by Djandak, this project addressed several key objectives within the Victorian Government's strategic policy *Water for Victoria* including Building capacity to increase Aboriginal participation in water management; improving storm water management for greener environments and healthier waterways; and working across government for healthier and resilient landscape with multiple agencies.

The Wanyarrem Dhelk project facilitated the use of traditional food and fibre plants on Country and created opportunities for the Dja Dja Wurrung community to work on Country, supporting Cultural obligations of the Dja Dja Wurrung Traditional Owners to heal and to manage Country and water.

BENDIGO CREEK REIMAGINED

The Vision of the Dja Dja Wurrung

There is a rippling along the Bendigo Creek, there is now undulation. Sounds, when there was none. There is a familiar sense of reawakening as we walk along the banks. There is open, clean water, verged by grasses and reeds that are strong and healthy like us. The Creek is healing and so are we.

Activity and conversation, voices of the community, people and children, looking for and anticipating life and movement within the Creek, hoping for new interactions. We now have a place to gather, to listen and to share.

The familiar sense and smell of smoke is around us, but not heat, a sweetened cleansing smell that is recognisable to us all, not feared, but welcoming and healing. You are amongst Cultural practice.

The ground is clean, and thick with Kangaroo Grass that gently brush against our hands and feet, there are now sensations underfoot, crinkling and crunching in the new life and healing, colours are yellow and as bright as the sun, they are unavoidable in their numbers. What was lost, has now returned.

Cultural practices and ceremony supports healing, and encourages cultural interaction, facilitating reconciliation and greater returns to the community.

Mission

“Change people’s hearts and minds to take united action so that in a generation’s time Bendigo Creek will be a healthy, connected and nurturing place.”

Principles

The following principles underpin *Reimagining Bendigo Creek* and provide a simple, tangible guide for making future decisions affecting Bendigo Creek.

The foundation for the principles is *One Planet Living*, an internationally-recognised sustainability framework, which has been adopted by the City of Greater Bendigo as a guide to attain our vision of becoming the world’s most liveable community.

How each of the *Reimagining Bendigo Creek* principles corresponds with the One Planet Living principles is indicated by the icons.



Ensure the Creek is a loved place that is welcoming and nurturing



Walk together to achieve shared outcomes



Encourage and support the Dja Dja Wurrung people to share, practice and promote their culture



Ensure all cultures are present, respected and encouraged



Create and protect a healthy, connected habitat for nature



Increase the adoption of water sensitive urban design across the catchment



Ensure that the level of flood protection is maintained or enhanced



Ensure sustainable community and cultural food production are parts of the Creek landscape



Encourage forms of active transport such as walking and cycling



Incorporate sustainable design and use recycled materials



Minimise the impact of waste and pollution



CREEK-WIDE STRATEGIES



CATCHMENT



CONNECTIONS



CULTURE

CATCHMENT

Goal: A healthy Bendigo Creek by improving the catchment and creating flood resilient communities

Imagine in the future...

It has been several decades since we reimagined Bendigo Creek; then a degraded urban waterway that required a progressive transformation.

It is hard to believe that there was a time when people did not know about Bendigo Creek, now a flourishing waterway that has been restored by actively managing the waterway, its tributaries and the catchment.

Water moves across the land through swales, earthen depressions and frog ponds. Stormwater that once drained rapidly from the City is now captured locally, cleaned and slowly returned to the Creek.

A coordinated program of retrofitting the catchment to reduce impervious surfaces, add vegetation cover and treat stormwater has been costly but pivotal to this transformation.

The widespread take-up of rainwater tanks, rain gardens and landscaping in established areas, together with a higher standard of urban development have made a difference.

Dja Dja Wurrung Traditional Owners are managing Country and healing water. Up side down Country is healthy again and Dja Dja Wurrung customs are practiced and respected, keeping Traditional Owners connected to past, present and future.

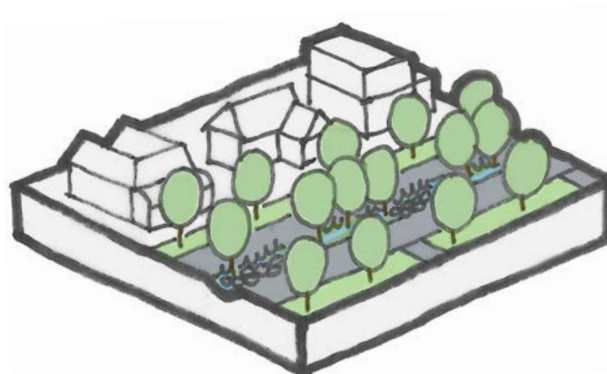
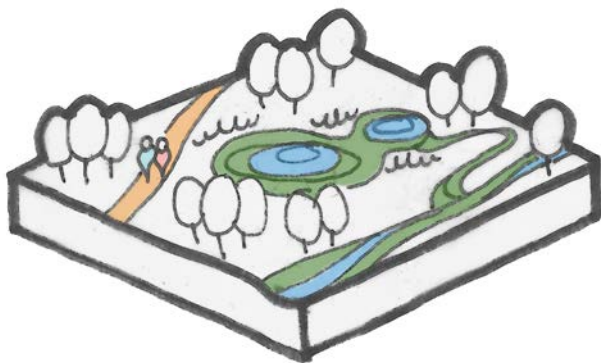
Extensive protection and revegetation efforts along the Creek edges with indigenous vegetation have restored and returned in abundance, and as a result, habitat for native wildlife is connected, providing safe places for animals to rest. Water quality has improved and we are passing on good water to our neighbours.



S1

Strategy 1

Limit the impact of climate change with water sensitive urban design and traditional ecological knowledge



Build a Water Sensitive City

Apply a range of water sensitive urban design (WSUD) techniques and traditional ecological knowledge across the catchment and tributaries, including retrofitting public parklands and streets with rain gardens, constructed wetlands, swales and permeable pavements.

Increase tree canopy cover and vegetation along creeks, gullies, open spaces and streets with consideration to pre-colonisation flora and fauna.

Harvest and store stormwater in wetlands and tanks for later beneficial use and/or temporarily retain stormwater on-site to reduce hydraulic impact on Creek and tributaries.

Revegetate floodplains and riparian areas with indigenous, and where appropriate, native vegetation.

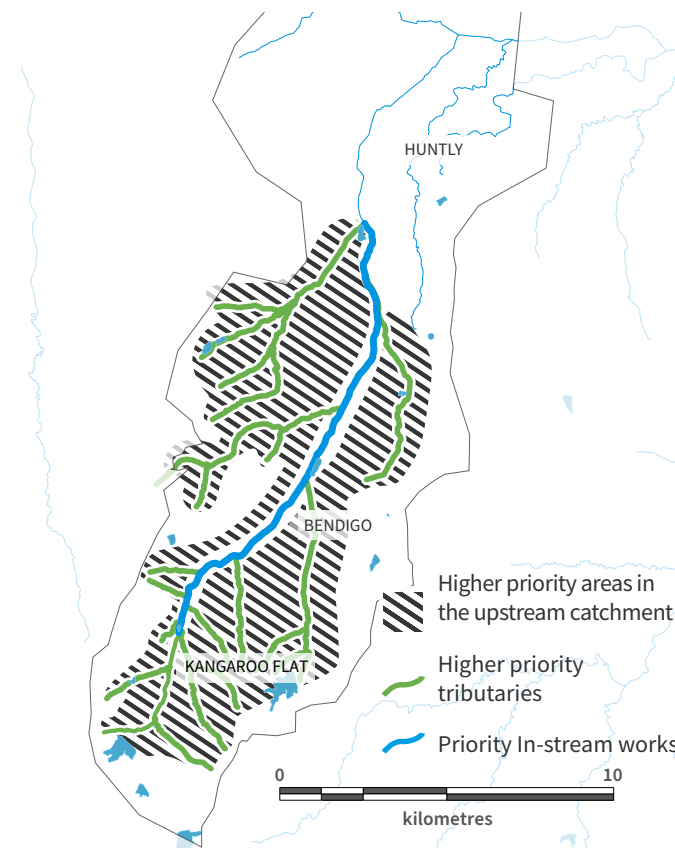
In partnership with Dja Dja Wurrung identify to protect and restore areas with food and fibre plants.

Increase the area of permeable surfaces within private and public land.

Improve the capacity of soil to absorb water, using perennial native grasses, mulches and organic matter.

Install infrastructure to trap and collect litter (e.g. gross pollutant traps, nets, floating booms, etc).

Create green roofs on buildings.

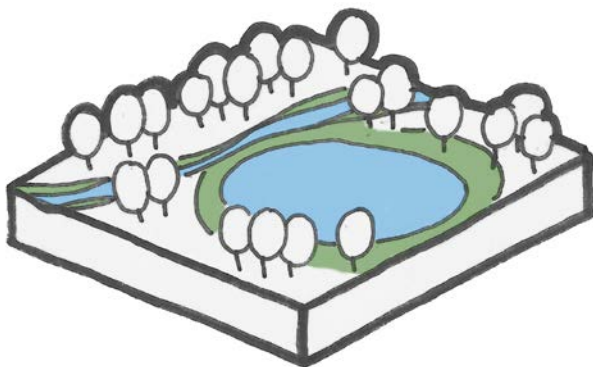


Undertake a diverse program of WSUD which combines: targeted upstream catchment and tributaries; improvements to maximise downstream benefits; and targeted in-stream improvements.



Strategy 2

Manage flood risk with appropriate infrastructure, landscape treatments and community preparedness



Manage flood risk and build community capacity to respond

Investigate options to reduce flood risks within Bendigo, initially focusing on Kangaroo Flat and Golden Square.

Evaluate the costs and benefits of undertaking flood prevention activities in the upper catchment (e.g. series of retention basins or similar) versus downstream works (e.g. new or replacement of existing levees).

Undertake modelling to better understand potential flood impacts under intense storm events from climate change.

Preserve the flood retention/retarding capacity provided by open space areas within the floodplain.

Continually manage drainage assets and remove blockages that could create flood risks.

Replace drainage assets that are deteriorating and upgrade drainage assets to increase flood conveyance.

Progressively retrofit the catchment to reduce the amount of impervious surfaces and increase on-site storage (e.g. rainwater tanks).

Build community awareness of flood risks and increase skills and capacity to respond to floods.

Integrated water quality monitoring program

Develop a long-term water quality monitoring program that combines innovative technologies, citizen science and Traditional Ecological Knowledge.

Manage groundwater inflows to the Creek

Continue to investigate potential risks associated with recovering groundwater in historic mine workings and broader groundwater salinity issues, including how groundwater may impact on aquatic ecosystems.

Evaluate management options to manage potential impacts of groundwater salinity and contaminants.

What does this mean for flooding?

The safety of our community remains our priority

Agencies including the City, North Central CMA and VicSES are already working closely and with local communities to understand and manage the impacts of flooding. We will continue to investigate the best options and technologies to reduce flood risks, and continue to actively manage our resources to ensure we are all safe.



Indigenous and native vegetation

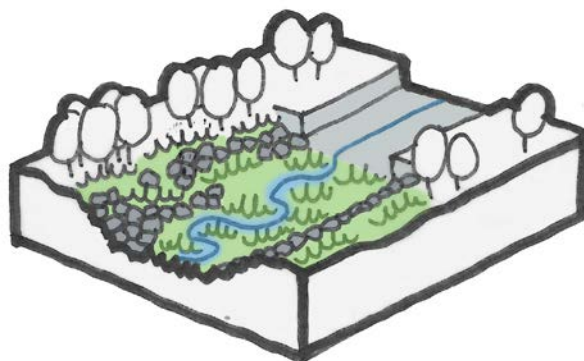
Indigenous vegetation refers to plants known to have grown within the Greater Bendigo municipal area prior to European settlement.

Native vegetation refers to plants native to Australia.

S3

Strategy 3

Restore aquatic habitats and ecosystem function of the Creek and its tributaries



Strengthen and diversify natural areas, including habitat for native wildlife

Preserve and enhance existing patches of indigenous vegetation.

Revegetate the Creek and tributaries with the broader aim to create continuous corridors of habitat and shade along the Creek, its tributaries and into the surrounding landscape.

Reduce pest plants and introduced species, and replace with indigenous vegetation to improve in-stream habitat.

Diversify in-stream and riparian zone habitats including creating variable-depth pools (frog ponds), rock riffles and log piles.

Preserve and enhance existing biolinks to/from the Creek particularly between the Bendigo Regional Park and Greater Bendigo National Park.

Naturalise constructed channels and drains

Preserve stretches of constructed channel that are historically-significant (protected under the *Heritage Act 2017*) or constrained by flood conveyance capacity.

Progressively replace or soften other concrete or stone-lined sections with natural forms and features.

Target naturalisation works on degraded or failing channels and drains.

Retrofit channels and drains with shallow pools, pebbles and rock riffles, woody habitat, deep-rooted indigenous and native vegetation (as appropriate) within the creek bed, rocky embankments, and leaky weirs and cascades.

Undertake complementary works as required to ensure that the existing level of flood protection is retained.



Creek naturalisation

The naturalisation of waterways can occur to different degrees and take various forms, depending on a range of factors such as water volume and available space.



Cooks River, Sydney: moderate degree of naturalisation with rocky embankments in channel form with interspersed low vegetation.



Ryans Creek, Melton: higher degree of naturalisation with a series of ponds connected by meandering streams, a more natural riparian zone and contoured surrounding landscape.



Strategy 4

Improve how our city landscape relates to the Creek and tributaries



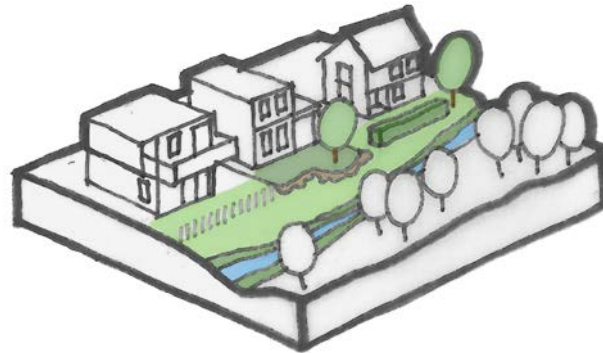
Open and active Creek interfaces

Design and reorientate buildings (homes and businesses) to face and interact with the Creek.

Reduce, and improve the appearance of, boundary fences along the Creek edge.

Manage encroachments into public open space areas of the Creek corridor.

Develop guidelines to ensure that future development is setback an appropriate distance from the Creek edge and its tributaries.



What does this mean for the plants and animals?

A Creek abundant with life.

Only three things are required for our native animals to thrive: food, shelter and community. Improvements to water quality and a greater diversity of habitat will see the Creek become a place of life and refuge for so many more of our native plants and animals.

Actions



- A1** Develop an integrated water quality monitoring program for the Bendigo Creek and its tributaries
- A2** Investigate the feasibility of naturalising channels and drains in targeted locations throughout the catchment
- A3** Investigate and manage groundwater to better understand the risks associated with salinity and contaminants and how these may impact on creek ecosystems
- A4** Develop and implement a staged program of Water Sensitive Urban Design works throughout the catchment works guided by Traditional Ecological Knowledge
- A5** Develop and implement precinct-based environmental management plans for the Bendigo Creek
- A6** Develop a flood mitigation study for Kangaroo Flat and Golden Square
- A7** Seek funding for further flood mitigation studies within the Bendigo Creek catchment
- A8** Develop guidelines to ensure that future development is setback an appropriate distance from the Creek edge and its tributaries
- A9** Amend the *Greater Bendigo Planning Scheme* to include policy and controls to improve the relationship of the built environment along urban waterways

CONNECTIONS

Goal: Bendigo Creek forms a continuous and integrated public space network for our community to enjoy and move freely through

Imagine in the future...

The Bendigo Creek is intrinsically connected with its landscape and community. It is an intuitive and popular way to navigate the city and provides habitat and places of rest for our native wildlife.

People move freely and safely along the Bendigo Creek Trail that extends from Kangaroo Flat to Huntly as a result of a chain of underpasses and priority road crossings. The Low Line Trail offers users the opportunity to interact with the Creek without interruption, while bridges connect communities across the Creek. The Trail has become the spine of a wider network of connecting paths through its tributaries linking most of the Bendigo urban area.

The Creek corridor has been blended with the landscape around it – streets, parklands, bushland and other spaces. It is a treasured haven for people to spend their leisure time. There is abundant shade and shelter from the elements, places to stop, rest and relax, signs to guide your way and lighting for safe use at night.

It has become an attractive place to interact with other people and with nature itself.

Not only has our community embraced the Creek, our native terrestrial and aquatic wildlife are abundant as a result of ongoing land management guided by the Traditional Ecological Knowledge of the Dja Dja Wurrung Traditional Owners.



The Low Line Trail

The Low Line is a proposed shared path within and alongside the bed of the Bendigo Creek's constructed channel sections.

Various adopted City strategies recognise and support this project, which will complete one of two missing links in the Bendigo Creek Trail - the gap between High Street, Golden Square and Rosalind Park.

S5

Strategy 5

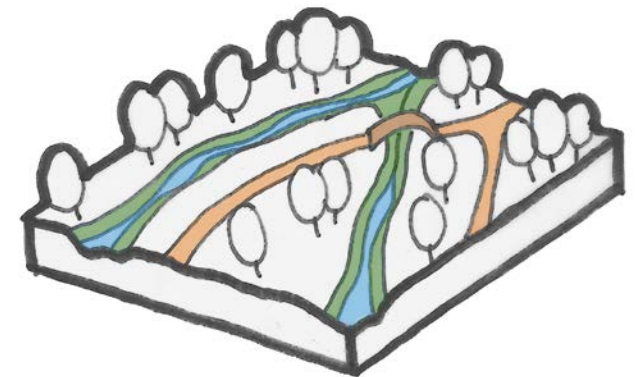
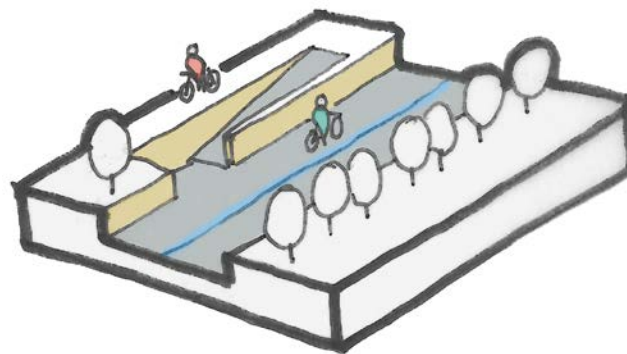
Connect places and spaces with a network of accessible public corridors



What does this mean for transport?

We are all better connected.

We aim to create pedestrian and bike paths from Kangaroo Flat to Huntly and along all Creek tributaries so residents can leave the car at home. We want to install lights and safe access points to the creek at road crossings. We want to link our paths to our communities and to public transport options.



Provide continuous public land along the Creek

Connect areas of accessible public land along the length of the Creek through the urban area.

Avoid further fragmentation or loss of existing public open space areas along the Creek and other urban waterways.

Consider strategic land purchases to improve Creek connectivity as opportunities arise.

Extend the Bendigo Creek Trail

Extend the Bendigo Creek Trail from Epsom to Huntly.

Create the Low Line Trail

Create a safe walking and cycling path within and/or alongside the Bendigo Creek channel section between Hargreaves Street and Lake Weeroona.

Link the Creek and tributaries

Continue connecting the Bendigo Creek Trail with paths along its tributaries.

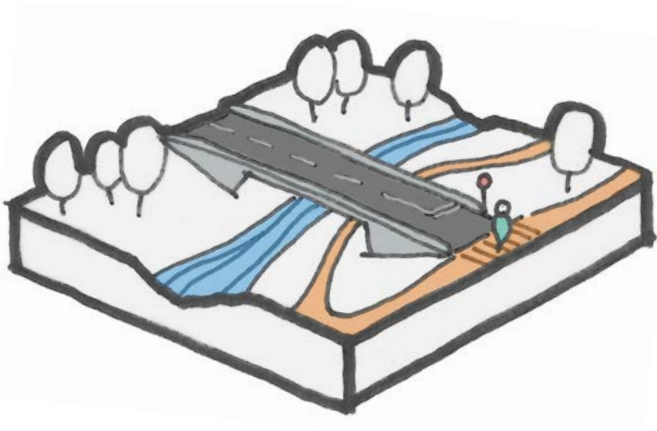
Integrate public transport

Connect public transport to the Creek via paths along the corridor that link to up with railway stations and bus stops.



Strategy 6

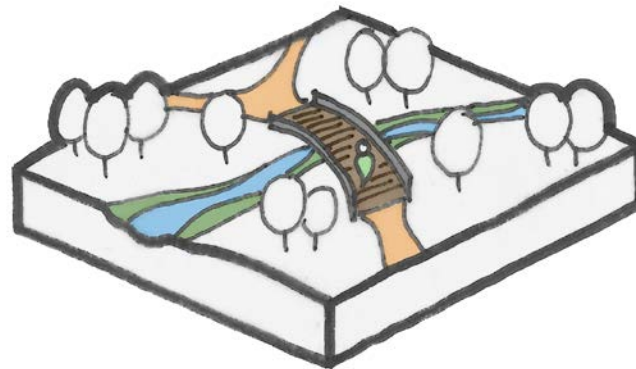
Improve the Creek's corridor access



Prioritise safe, user-friendly path access along the Creek

Provide safe crossings and underpasses of roads that intersect with the Creek corridor.

Provide safe entry and exit points into the Creek.



Create more Cross-Creek links

Provide footbridges in strategic locations that tie into the wider circulation network.

Provide bridges for users in locations that link to a wider network.

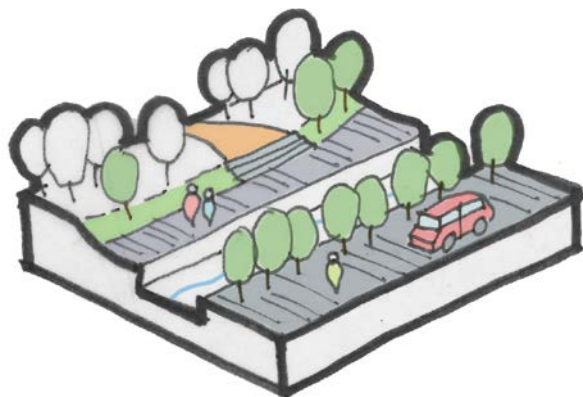
Provide good maintenance access

Provide maintenance access to and along the Creek corridor.



Strategy 7

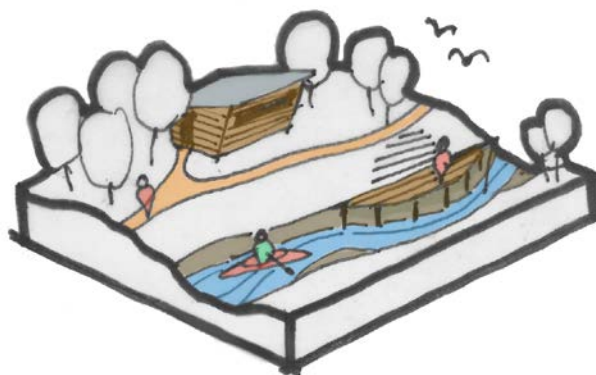
Increase Creek-based interaction and recreation opportunities



Connect public spaces

Improve public parks and streets along waterways to integrate and interact with the Creek landscape.

Support schools along the Creek to integrate gardens, outdoor education spaces and play spaces on the Creek.

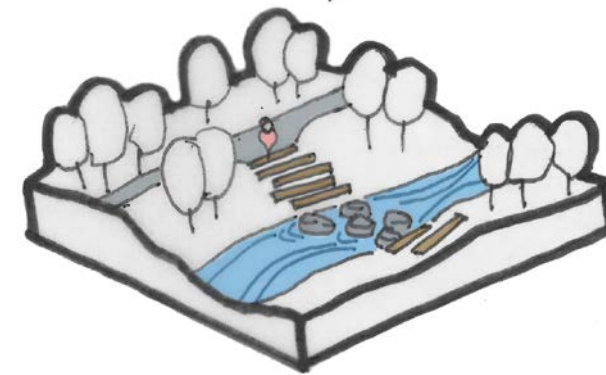
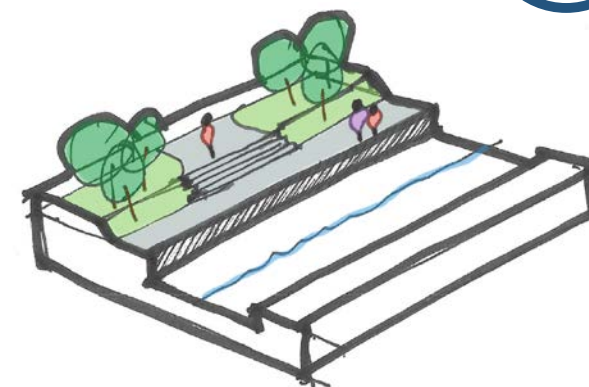


Diversify recreation experiences

Improve infrastructure and amenities in targeted locations to support passive and active recreation.

Provide places for enjoyment and leisure (e.g. walking, cycling, fishing, bird watching, play, community gardens).

Incorporate educational and interpretative signage as points of interest along the Creek.



Enable waterway interaction

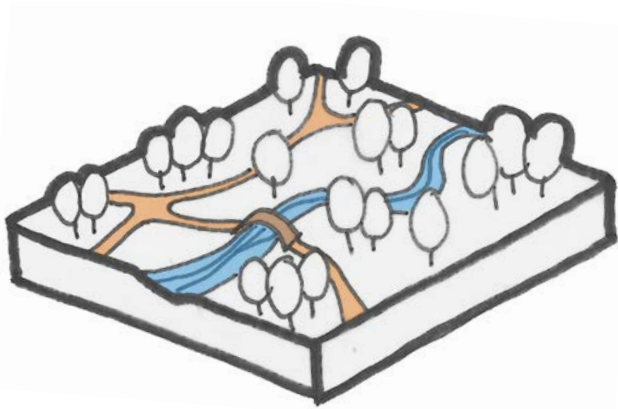
Provide natural play spaces that include natural crossings, stepping stones, terraced edges, embankments and shallows.

In urban areas, incorporate structures to enable waterway interaction such as promenades, platforms and boardwalks, steps and ramps.



Strategy 8

Create a safe Creek environment for everyone



Improve safety infrastructure

Provide multiple access points into and out of the Creek corridor.

Employ a flood safety warning system for Creek users and residents.

Lighting for community use with limited disruption to residential amenity and wildlife.



More eyes on the Creek

Design buildings and spaces to face and interact with the Creek.

Promote more activity along the Creek.

Actions



A10

Design and implement the Low Line Trail sections of the Bendigo Creek Trail

A11

Investigate options for the potential continuation of the Low Line Trail section within the bluestone channel between Charing Cross and Chapel Street

A12

Develop a Bendigo Creek corridor access plan

CULTURE

Goal: *Bendigo Creek embodies our diverse cultures and is actively cared for by the Community*

Imagine in the future...

The Creek has been enriched by a respect for and celebration of its diverse historic layers, cultural associations and landscapes. It offers a journey of meaningful places and diverse experiences.

The Dja Dja Wurrung continue to lead efforts that are restoring the ecological health of the Creek and that have created places of cultural connection. Dja Dja Wurrung aspirations for the Creek are being achieved through Cultural practices and land management.

Broader community efforts have brought renewal and restoration. Programs to revegetate the Creek landscape, to restore habitat and to monitor creek health are well-established and have wide reach.

Community awareness, participation and leadership has allowed us to finally 'see' the Creek. It is now so much more than a drain or something once forgotten.

We value the diversity of roles that it plays and though our associations with the Creek are often different, they are overwhelmingly positive and connected with direct experience.

It has once again become a place that is respected and revered as a vital part of life on Country and in the Greater Bendigo region.





Strategy 9

Empower Dja Dja Wurrung Traditional Owners to practice their cultural traditions and promote their cultural and spiritual connections to the Creek



Respect and recognise the Dja Dja Wurrung

Support Dja Dja Wurrung to create a language name for the Creek.

Dja Dja Wurrung are supported to play a leadership role in healing land and water.

Support Dja Dja Wurrung's aspirations to heal water outlined in the *Dhelkunya Dja Country Plan*.

Continue to support and promote Wanyarram Dhelk as a leading demonstration of a restored waterway, cultural landscape and community place.

Restore cultural practice, ceremony and customs to the Creek

Support Dja Dja Wurrung people to identify areas and create permanent places along the Creek to come together and hold ceremonies.

Support Dja Dja Wurrung to deliver Wi (Cultural fires in the landscape) to restore the health of Country.

Support Dja Dja Wurrung to strengthen their people's knowledge.

Partner with Dja Dja Wurrung Traditional Owners to share Cultural knowledge through education programs on Country.



Wi (cultural Fires in the Landscape)

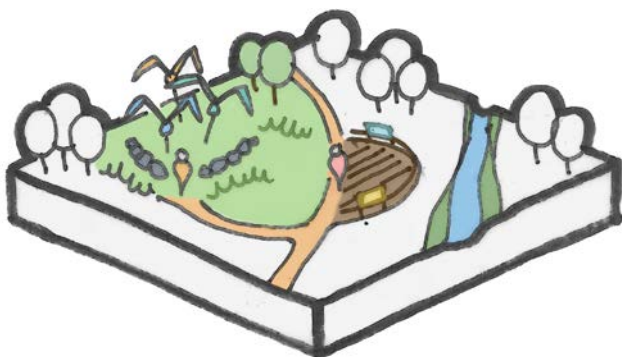
Dja Dja Wurrung people have skilfully managed the burning of landscapes for tens of thousands of years as a cultural practice and to heal and preserve the land.

Fires burn with low intensity, producing light and patchy smoke, and do not burn large areas.



Strategy 10

Promote positive community perceptions of the Creek



Provide more public information about the Creek

Develop and implement a community awareness and education program on the Creek's history, its importance and future potential.

Use engaging and insightful information displays to tell the Creek's story.

Express Dja Dja Wurrung's connection to Country through various forms (e.g. statues, Aboriginal Flags, Art, interpretive signage and monuments).

Create an attractive Creek environment

Improve the health, appearance and function of the Creek corridor to attract community use.

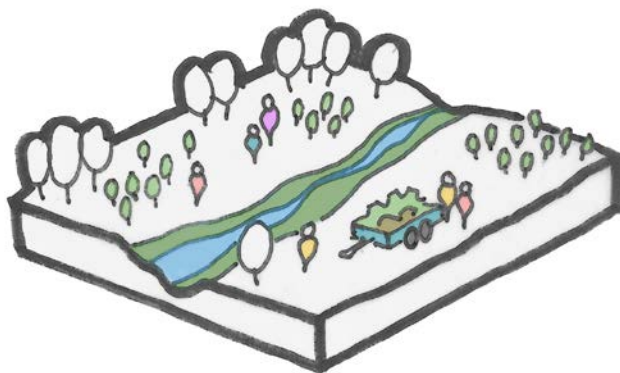
Increase the visual prominence of the Creek corridor within the urban landscape of Bendigo.

Strengthen local neighbourhood connections to the Creek corridor.



Strategy 11

Foster community caring for the Creek



Reinforce the shared sense of responsibility

Promote the importance of and need for community involvement to improve and manage the Creek.

Provide hands-on participation opportunities

Empower schools, volunteers and community groups to adopt areas for environmental/cultural education, recreation, play, planting, improvements and maintenance.

Provide government support for community initiatives (e.g. grants, on-ground assistance, technical information and advice).

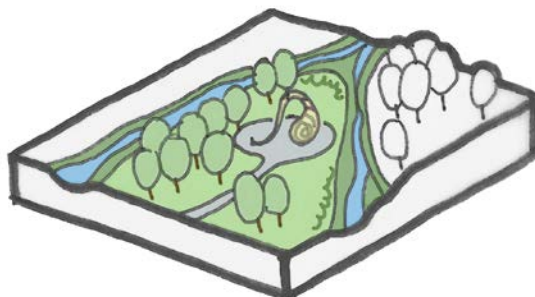
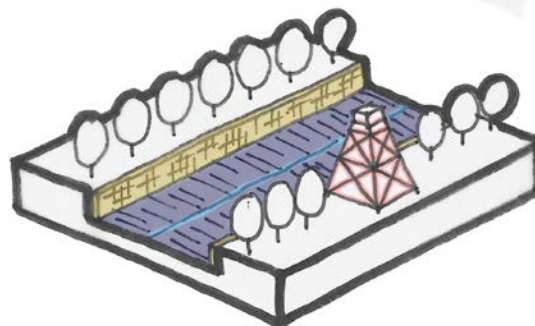
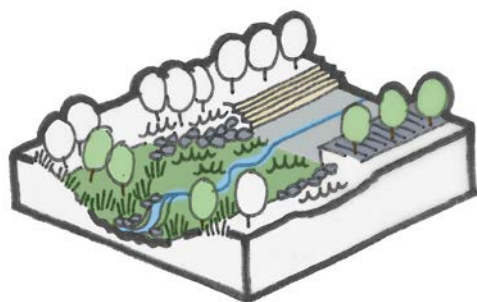
Include community representation in decision-making related to the Creek.

Learn from Dja Dja Wurrung Traditional Owners

Support Dja Dja Wurrung to showcase project areas that provide information on Traditional Ecological Knowledge to the wider community and land managers.

Partner with Dja Dja Wurrung to develop spaces along the Creek that facilitate reconciliation.

Partner with Dja Dja Wurrung to share Cultural knowledge through education programs on Country.



Retain the contrasting character of the Creek

Reinforce the distinctive shifting character of the Creek corridor by preserving, enhancing or creating contrasting sections (e.g. varying channel form: historically significant stone-lined channel, informal/naturalistic creekline, boxed concrete channel).

Recognise that the existing character of some areas will change with time (e.g. different degrees of creek naturalisation).

Reveal the diverse layers of history

Preserve and promote the Creek's historic and symbolic places and heritage features.

Integrate heritage places/attractions with the Creek corridor (e.g. Central Deborah Goldmine, Dai Gum San, Former Bendigo Gasworks).

Emphasise Creek tributary junctions as meeting places and focal points for creative expression (water elements, plantings and artwork).

Provide opportunities to see and experience the original Creek landscape (e.g. recreated landscape or augmented reality experience).

Reflect all cultures

Represent all cultures and their connection to the Creek, expressed through various forms (e.g. art, heritage, landscape, interpretive signs,) to enrich the Creek landscape and communicate the cultural diversity, stories and history of the Creek.

Represent the Millennia of occupation of the Dja Dja Wurrung Traditional Owners along the Creek, their values and deep connection to Country, expressed through various forms (e.g. statues, Aboriginal Flags, art, interpretive signage and monuments).

What does this mean for our culture?

We want to build a rich cultural experience for everyone.

We encourage people to celebrate all culture and history linked with the Creek. To do this, we will work towards creating spaces and places that protect and promote cultural, natural and built heritage areas and share stories through interpretation, education programs, events and public art.

Actions

A13

Develop a plan to embed and express the Dja Dja Wurrung story along Bendigo Creek

A14

Develop and implement an integrated interpretation, wayfinding, public art and lighting plan for the Bendigo Creek corridor

A15

Develop a joint-organisational program to promote positive public perceptions of and involvement with the Bendigo Creek



PRECINCTS



1

2

3

4

PRECINCT 1: KANGAROO FLAT

Crusoe Reservoir to Bay Street

Overview

This is where our precious Bendigo Creek begins its journey. The head waters begin within the Greater Bendigo Regional Park surrounded by Box Ironbark forest. The native and indigenous vegetation includes a variety of wattles and eucalypts including the iconic Red Ironbark and provides critical food and habitat during the migration of the critically endangered Swift Parrot.

The Bendigo Creek is replenished by its surrounding catchment and water supplies such as the Crusoe and No. 7 reservoirs and the chain of ponds known to most as 'the frog ponds'. This is where community, social and economic wellbeing are supported and provides a place for people of all ages and cultures to feel connected to history along the Creek.

The ridgetop views of the city, shared paths and natural play areas attract many people to this place. The local group, Friends of Crusoe Reservoir and No. 7 Park, work towards protecting the natural values of the Park while promoting healthy living and environmental education programs.

The appearance of the Creek within this landscape has been somewhat altered by dams and channels that were originally constructed for mining, grazing, fire protection and water delivery purposes.

The forested setting of the Creek is soon interrupted by the urbanised environment of Kangaroo Flat – reduced to the slimmest of corridors, hemmed in by rows of back fencing to homes and dissected by numerous busy road crossings.



The Creek is surrounded by the Box Ironbark forest and forms part of the Greater Bendigo Regional Park, supporting a diversity of native frogs, fish, birds, mammals and reptiles, and provides habitat and food for the critically endangered Swift Parrot



The frog ponds create an experience of what parts of the Bendigo Creek might have been like prior to heavy modification

The Friends of Crusoe Reservoir and No. 7 Park work in partnership with the City and Dja Dja Wurrung so that all visitors can enjoy and appreciate the heritage values and natural environment of the area



Characteristics & features

Significant relics of Bendigo's gold mining history can be found at the Crusoe Reservoir and No. 7 Park. The cleverly designed reservoir and water purification system was the first of its kind in Australia in supplying treated drinking water to Bendigo's gold miners of the 1860s



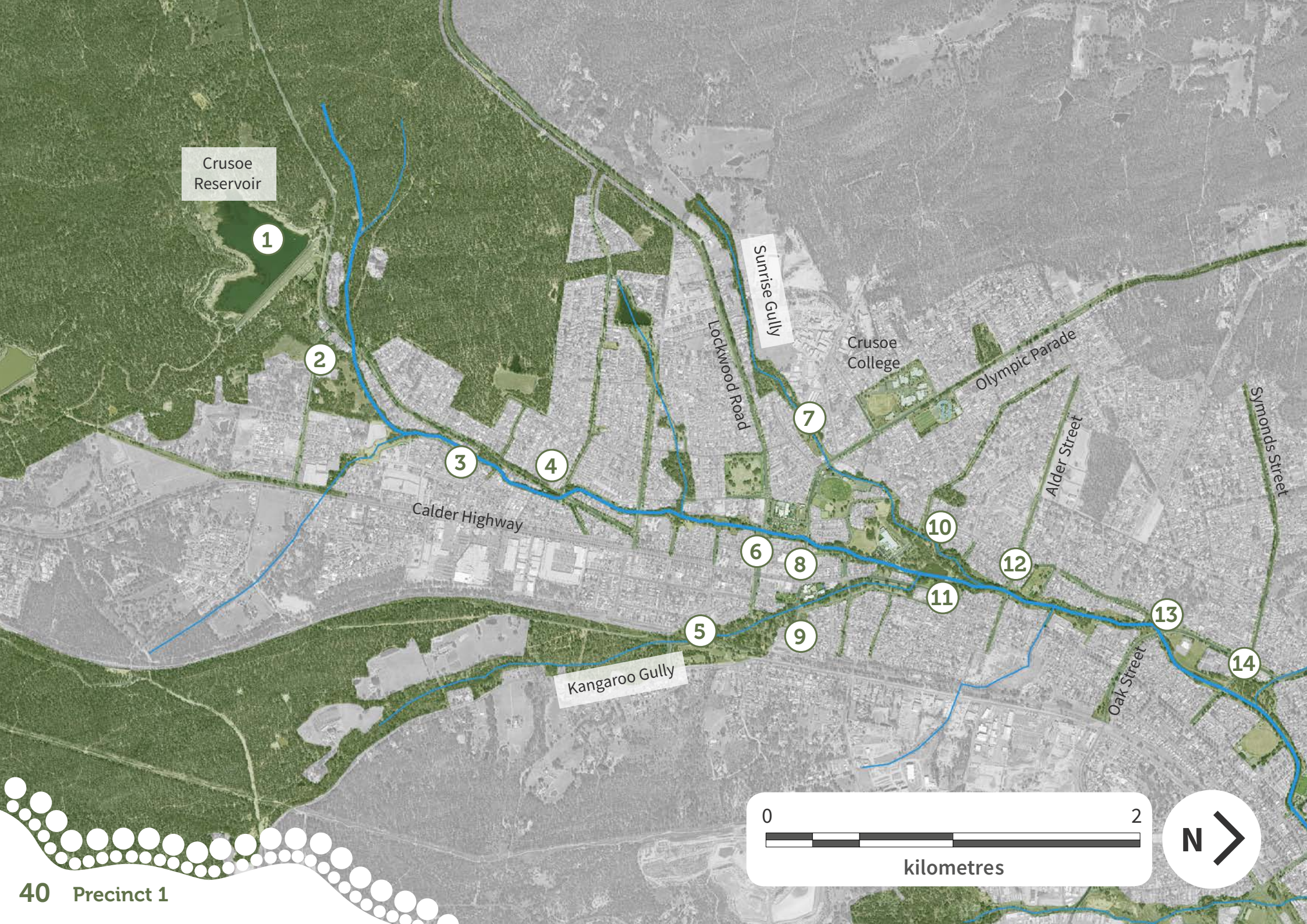
There are long, narrow stretches of corridor fringed with vegetation but under pressure from the surrounding urban area



The area is a popular destination for cycling, walking, jogging and fishing

The area displays some great examples of revegetation and habitat restoration works such as frog ponds, stormwater harvesting, nest box installations and native grass lawns





Crusoe Reservoir

1

2

3

4

Calder Highway

Sunrise Gully

Lockwood Road

Crusoe College

Olympic Parade

Alder Street

Symonds Street

7

6

8

10

12

11

5

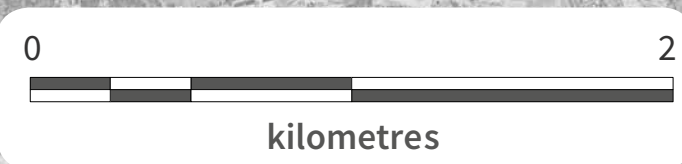
9

Kangaroo Gully

13

14

Oak Street



Intended precinct outcomes after implementing the Creek-wide strategies

	Location	Outcomes
1	Crusoe Reservoir and No. 7 Park	<ul style="list-style-type: none"> Protection and strengthening of ecological values and water treatment at the top of the catchment Recognition of Dja Dja Wurrung cultural significance, gold mining history and relics Improved passive recreation amenities at Crusoe Reservoir Review and continued implementation of the <i>Crusoe Reservoir and No.7 Park Interim Management Plan 2006</i>
2	Furness Street	<ul style="list-style-type: none"> Safe, priority access for pedestrians and cyclists (road crossing)
3	Missing link in Creek Trail	<ul style="list-style-type: none"> Public access to the Bendigo Creek corridor between Hasker Drive and Queen Street, subject to investigation
4	Queen Street/Crusoe Road	<ul style="list-style-type: none"> Safe, priority access for pedestrians and cyclists (road crossing)
5	Kangaroo Gully	<ul style="list-style-type: none"> Improved ecological function of the waterway
6	Lockwood Road	<ul style="list-style-type: none"> Safe, priority access for pedestrians and cyclists (underpass or road crossing)
7	Sunrise Gully	<ul style="list-style-type: none"> Improved ecological function of the waterway
8	Station Street	<ul style="list-style-type: none"> Safe, priority access for pedestrians and cyclists (underpass or road crossing)
9	Kangaroo Flat Railway Station	<ul style="list-style-type: none"> Continuous pedestrian/cycle connection between Kangaroo Flat Station and the Bendigo Creek
10	Browning Street	<ul style="list-style-type: none"> Safe, priority access for pedestrians and cyclists (underpass or road crossing) Improved water quality and reduced flood risk with installed water sensitive urban design infrastructure
11	Gateway Park	<ul style="list-style-type: none"> Restored bridges in the area (e.g. the Lions' timber bridge) Improved biodiversity values through the restoration of green spaces, enhancing indigenous vegetation, including Dja Dja Wurrung food and fibre plants, and linking habitat corridors to the surrounding landscape Continued implementation of the <i>Gateway Park Master Plan 2012</i> Improved water quality and reduced flood risk with installed water sensitive urban design infrastructure
12	Alder Street	<ul style="list-style-type: none"> Safe, priority access for pedestrians and cyclists (underpass or road crossing)
13	Oak Street/Mackenzie Street West	<ul style="list-style-type: none"> Visual connection of the Creek landscape across Oak Street Improved water quality and reduced flood risk with installed water sensitive urban design infrastructure
14	Mackenzie Street – Bay Street	<ul style="list-style-type: none"> High standard of design integration with the Creek environs for potential larger scale, future redevelopment sites (Christian Fellowship, City of Greater Bendigo Nursery, vacant land) Improved water quality and reduced flood risk with installed water sensitive urban design infrastructure

PRECINCT 2: GOLDEN SQUARE - BENDIGO

Bay Street to Weeroona Avenue

Overview

From Bay Street, Bendigo Creek begins its transition from a more natural form and setting to a highly modified channel within a heavily urbanised environment. This stretch of the Creek in particular was transformed to move sludge during the gold rush, and in more recent decades to efficiently drain stormwater flows from the city. There are few remnants of a waterway that was once brimming with wildlife, deep pools and grassy woodlands where it is thought platypus could be seen splashing about.

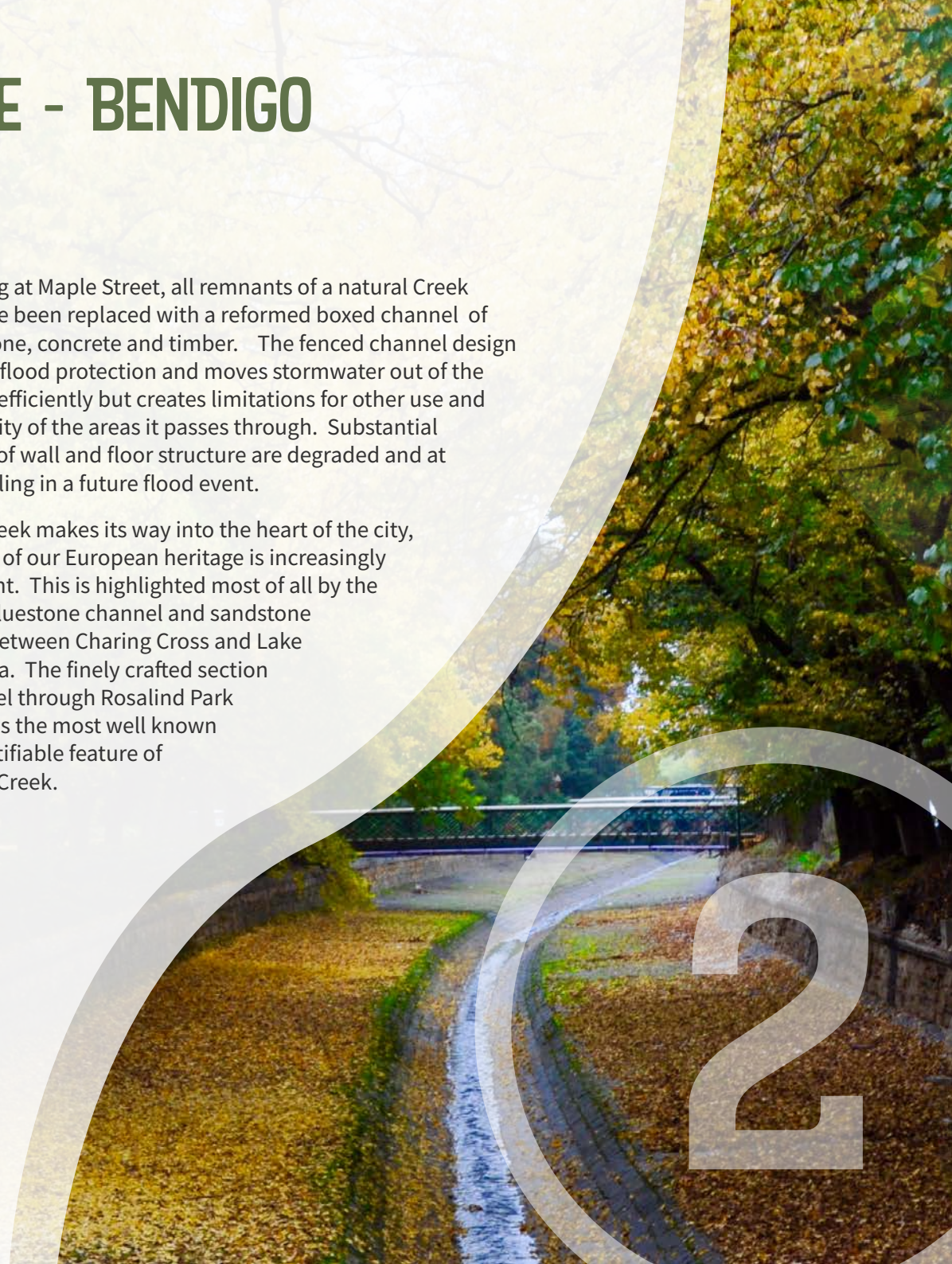
Whilst the Creek corridor is now wider than before, little space has been kept for significant vegetation. Mostly narrow fringes of eucalyptus trees or uniform rows of introduced tree plantings are present, though there are barren and bare areas. The result is a more harsh, exposed and less welcoming creek setting in some places.

The Creek also feels more open to, though not well-connected with, other spaces and parts of the city. This is most visible at the various parklands (Rosalind Park, Loddonderry Reserve, Lake Weeroona) and tourist destinations (Central Deborah Goldmine, Dai Gum San) that occur along the way. Urban streets also begin to make an appearance alongside the Creek, opening substantial stretches of homes and businesses to the Creek frontage.

In the short distance from Bay Street to High Street there are sporting facilities, a primary school, residential neighbourhoods, shopping centres and other businesses that flank the Bendigo Creek, however most are disconnected, and face away from the Creek.

Beginning at Maple Street, all remnants of a natural Creek form have been replaced with a reformed boxed channel of either stone, concrete and timber. The fenced channel design provides flood protection and moves stormwater out of the city very efficiently but creates limitations for other use and for amenity of the areas it passes through. Substantial sections of wall and floor structure are degraded and at risk of failing in a future flood event.

As the Creek makes its way into the heart of the city, evidence of our European heritage is increasingly prominent. This is highlighted most of all by the crafted bluestone channel and sandstone walling between Charing Cross and Lake Weeroona. The finely crafted section of channel through Rosalind Park is perhaps the most well known and identifiable feature of Bendigo Creek.



There are various extents of channelisation – from stone-lined sections in the Bendigo City Centre, to deteriorating timber and concrete box channel walls towards Golden Square, to an open, grassed channel with concrete drain from Maple Street to Bay Street



The banks of the Creek are lined with significant and mostly historic buildings, public spaces and infrastructure

A significant site of rich European settlement through the Creek's course and surrounding landscape; the story of significant modification over time can be experienced



Characteristics & features

Provides an opportunity for education around what is influencing the creek's water quality and opportunity for revegetation.



The area is a popular destination for cycling, walking and jogging despite the major gap in the Bendigo Creek Trail



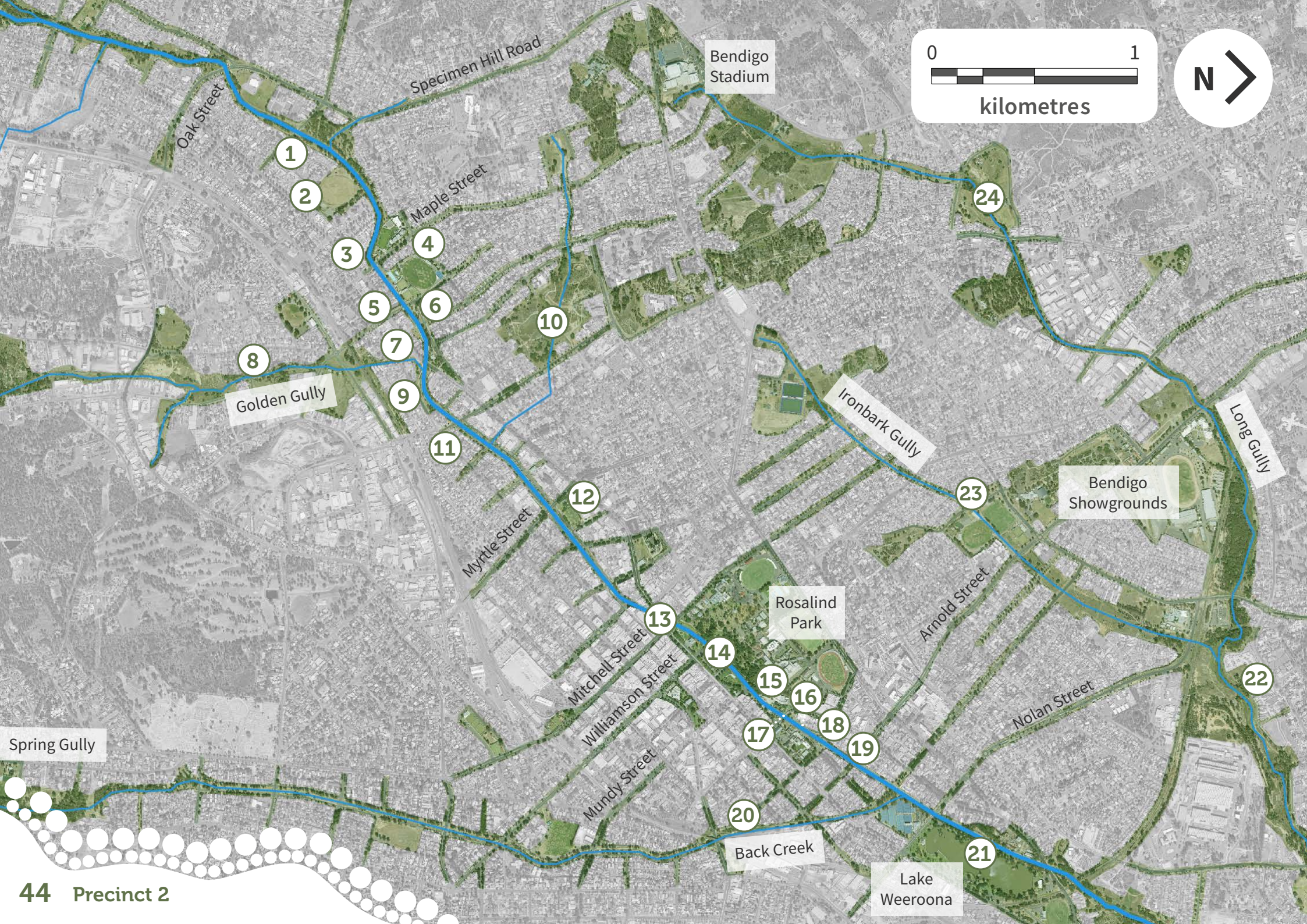
In the Bendigo City Centre, the Creek is hidden for a length of 250 metres as it passes under Oscars Walk at the Bendigo Centre, Charing Cross, and the piazza at Rosalind Park



Creek Street travels between Thistle Street in Golden Square and Short Street in Bendigo. This provides the most continuous stretch of an active interface between our City and the Creek



While the Creek through Rosalind Park may look nice, the smell can be unpleasant. Sulphur-rich groundwater from former gold mines discharge into the Creek emitting odours



Intended precinct outcomes after implementing the Creek-wide strategies

	Location	Outcomes
1	Bay Street	<ul style="list-style-type: none"> • Use of the large, open Creek reserve to slow and treat water and to increase vegetation cover • Naturalisation of the Creek channel • Improved passive recreation opportunities • Safe, priority access for pedestrians and cyclists (road crossing) • Visual connection of the Creek landscape across Bay Street
2	Backhaus Oval	<ul style="list-style-type: none"> • Integration and connection of the Oval reserve with the Creek corridor
3	Golden Square Primary School, Maple Street	<ul style="list-style-type: none"> • Active school involvement with Creek environs and with the care of the Creek • Safe, priority access for pedestrians and cyclists (road crossing)
4	Golden Square Recreation Reserve	<ul style="list-style-type: none"> • Integration and connection of the Reserve with the Creek corridor • Improved water quality and reduced flood risk using installed water sensitive urban design infrastructure
5	Wade Street	<ul style="list-style-type: none"> • Safe, priority access for pedestrians and cyclists (underpass or road crossing)
6	Booth Street	<ul style="list-style-type: none"> • Review of the long term need for vehicle access over the bridge due to close proximity of other crossing options
7	High Street/Hargreaves Street to Short Street	<ul style="list-style-type: none"> • Walking and cycling access along the floor of the Creek (Low Line Trail), beginning at High Street/Hargreaves Street • Regular access points from the Low Line Trail to street/park level
8	Golden Gully	<ul style="list-style-type: none"> • A shared path via Golden Gully to connect to the proposed rail trail with associated amenities and infrastructure (e.g. trees, seats, lighting, wayfinding) • Improved ecological function of the tributary • Improved water quality and reduced flood risk using installed water sensitive urban design infrastructure
9	Hargreaves Street creekside reserve	<ul style="list-style-type: none"> • An attractive and usable creekside public open space • Improved passive recreation amenities • Integration with future redevelopment of the adjoining public housing site
10	Former mining site at Thistle Street/Chum Street	<ul style="list-style-type: none"> • Increased flood retention and improved water quality using water sensitive urban design infrastructure

Intended precinct outcomes after implementing the Creek-wide strategies

	Location	Outcomes
11	Creek Street (North and South)	<ul style="list-style-type: none"> A continuous creekside thoroughfare that allows safe shared use by pedestrians, cyclists and motorists Space along the Creek edge for tree plantings and vegetation to shade and soften hard surfaces
12	Londonderry Reserve (see pages 48 and 49)	<ul style="list-style-type: none"> Integration of the Reserve with the Creek corridor Stormwater retention/treatment in this area, including trialling of innovative water sensitive urban design solutions in a highly urbanised setting
13	Short Street to Lake Weeroona	<ul style="list-style-type: none"> Completion of the Bendigo Creek Trail using part of the Creek channel, safely and without compromising heritage values (Low Line Trail). Regular access points from the Low Line Trail to street/park level A practical and creative design response to the major crossing point at Charing Cross, including treatment of the tunnel section
14	Rosalind Park (see pages 50 and 51)	<ul style="list-style-type: none"> A sensitively designed access point to the Low Line Trail Improved relationship and connection between the Creek and Rosalind Park Piazza/Charing Cross Managed impact of odours caused by sulphur emissions in the Creek to an extent that is feasible Community information and education at this location to highlight the influence on creek water quality Continued implementation of aspects of the <i>Rosalind Park Precinct Master Plan 2014</i> that relate to Bendigo Creek
15	Dai Gum San (Chinese Precinct)	<ul style="list-style-type: none"> Connection of the Chinese Precinct with the Creek corridor Highlighting of the Bendigo Chinese Association with the waterway and the Gold Rush
16	Joseph Street	<ul style="list-style-type: none"> A continuous creekside thoroughfare that allows safe shared use by pedestrians, cyclists and motorists Space along the creek edge for tree plantings and vegetation to shade and soften hard surfaces
17	Bridge Street/Chapel Street	<ul style="list-style-type: none"> Safe, priority access for pedestrians and cyclists (underpass or road crossing)

Intended precinct outcomes after implementing the Creek-wide strategies

	Location	Outcomes
18	Baxter Street	<ul style="list-style-type: none"> Safe, priority access for pedestrians and cyclists (underpass or road crossing)
19	Arnold Street	<ul style="list-style-type: none"> Safe, priority access for pedestrians and cyclists (underpass or road crossing)
20	Back Creek	<ul style="list-style-type: none"> Naturalisation of the Creek channel without compromising flood protection Improved ecological function of the waterway Integration of key public space with the Creek (e.g. Ewing Park, Wolstoncroft Reserve)
21	Lake Weeroona (see pages 52 and 53)	<ul style="list-style-type: none"> Integration of Lake Weeroona parkland with the Creek corridor and with currently unused public open space on the opposite side of the Creek Modification of the Creek channel to create a semi-natural waterway landscape without compromising flood protection Preservation of part of the constructed channel to reflect past engineering practice and treatment of the Creek Use and improvement of the Lake Weeroona waterbody as a high profile expression of the healing of water and Country A connection to the former Bendigo Gasworks, subject to the site being made available for public access Integration of the former Bendigo Gasworks with the Creek as part of a future adaptive re-use of the site including the adaptation of Lake Weeroona as an offline stormwater quality treatment system Strategic purchase of adjacent land as it becomes available to consolidate with the Creek corridor and Lake Weeroona parkland
22	Long Gully	<ul style="list-style-type: none"> Restored presence of surface water in appropriate areas Improved ecological function of the waterway
23	Ironbark Gully	<ul style="list-style-type: none"> Naturalisation of the Creek channel without compromising flood protection Restore the presence of surface water in appropriate areas Improved ecological function of the waterway
24	Long Gully Recreation Reserve	<ul style="list-style-type: none"> Increased flood retention and improved water quality using water sensitive urban design infrastructure

LONDONDERRY RESERVE

Present conditions



Potential change

Connection of the parkland (Loddonderry Reserve) to the Creek. Replacement of road with additional open space

Stepped terraces and ramps to access the Creek

Grassed embankment with copses of native and indigenous trees and areas of understorey

Retention of Creek Street North road access from Vine Street

Slow release of healed water to the Creek

Deep-rooted vegetation planting of channel floor

Lower pedestrian promenade along creek

Preservation of creek channel heritage

Low Line Trail along Creek floor

This is an artist's impression to illustrate potential future outcomes only. The ideas shown could also be adapted to different parts of the Creek. Further technical studies, planning, design and consultation will be required.

CHARING CROSS-ROSALIND PARK

Present conditions



Potential change

Creekside native plantings to soften and enclose the Creek edge incorporating food and fibre plants

Artistic lighting and facing of the Charing Cross bridge/tunnel

Extension of the Piazza into the Park with terraced seating area

Lawned terrace to invite interaction with the Creek

Opening of short section of Creek wall for Low Line Trail access and ramp

Artistic/animated lighting of parts of the Creek floor at night

More open barriers along the Creek edge

This is an artist's impression to illustrate potential future outcomes only. The ideas shown could also be adapted to different parts of the Creek. Further technical studies, planning, design and consultation will be required.

LAKE WEEROONA

Present conditions



Potential change

Lawned embankment with native landscaping to define and enclose Creek corridor

Naturalised Creek edges of interlocking rocks and deep-rooted native plants, incorporating food and fibre plants, replacing sections of the concrete channel

Creation of parkland on the opposite side of the Creek to expand Lake Weeroona

Weir with tiered cascades to create crossing point of the creek. Permeable structure to allow continuous low flow

Link to Former Gasworks

Low Line Trail along lower Creek embankment

Stepping stone crossing of Creek

Widening of Creek channel into embankment to increase capacity

*This is an artist's impression to illustrate potential future outcomes only.
The ideas shown could also be adapted to different parts of the Creek.
Further technical studies, planning, design and consultation will be required.*

PRECINCT 3: WHITE HILLS

Weeroona Avenue to Howard Street

Overview

Shortly after Weeroona Avenue, the Bendigo Creek reverts quite abruptly from a formed concrete channel to a semi-naturalised waterway. It flows past the Peppergreen Farm, the Dja Dja Wurrung frog ponds known as Wanyarram Dhelk (Good Waterhole), and behind Weeroona College. Continuing on through the Bendigo Streamside Reserve the Creek passes White Hills Primary School and makes its way between the Bendigo Botanic Gardens and White Hills Recreation Reserve and then alongside the Epsom Primary School.

The most unique feature of this precinct is that it contains remnants of the Creek's original path in two locations - at the Bendigo Botanic Gardens and in the area south of Howard Street. Although the Creek does not flow in these sections, they provide a small glimpse of how the landscape used to be.

The Creek corridor through this precinct begins to form part of the River Red Gum Woodland and Grassy Floodplain. All waterways are culturally significant to the Djaara people and this area is being restored by the Dja Dja Wurrung to improve waterway health and reintroduce cultural values. At Wanyarram Dhelk a series of ephemeral frog ponds have been reintroduced, connected by meandering streams and filled with indigenous cultural plantings to filter the water.

Urban pressures on the Creek are still very apparent. Substantial areas are choked with weeds and silting is a major problem. This precinct also includes a two-kilometre long stretch of industrial development alongside the waterway; a source of high volumes of untreated runoff. This substantial area also has limited public visibility of and access to the Creek.

Substantial sections of the Creek pass through or alongside large areas of public open space, such as at Lake Weeroona, the White Hills Cemetery and the Bendigo Botanic Gardens. There are also examples of more generous areas of Creek reserve and modern residential housing development facing the Creek reserve.

This section is widely valued for its more natural landscape and shared paths.



Urban food production near the Creek's edge at Peppergreen Farm



A more naturalised Creek environment with very little formed channel

High levels of sediment build-up



The most continuous trail section of the Bendigo Creek where users can move freely without too many road crossings until the trail terminates at Howard Street



The Creek junctions with the Long Gully and Racecourse Creek tributaries, with a pronounced peninsula at the latter



Flanked to the east by an extended area of industrial development



A mix of positive and negative development interfaces to the Creek

Characteristics & features

The Bendigo Botanic Gardens, including the Garden for the Future. Remnants of the Creek's original course can be seen here and south of Howard Street



Substantial areas of undeveloped residential land to the north



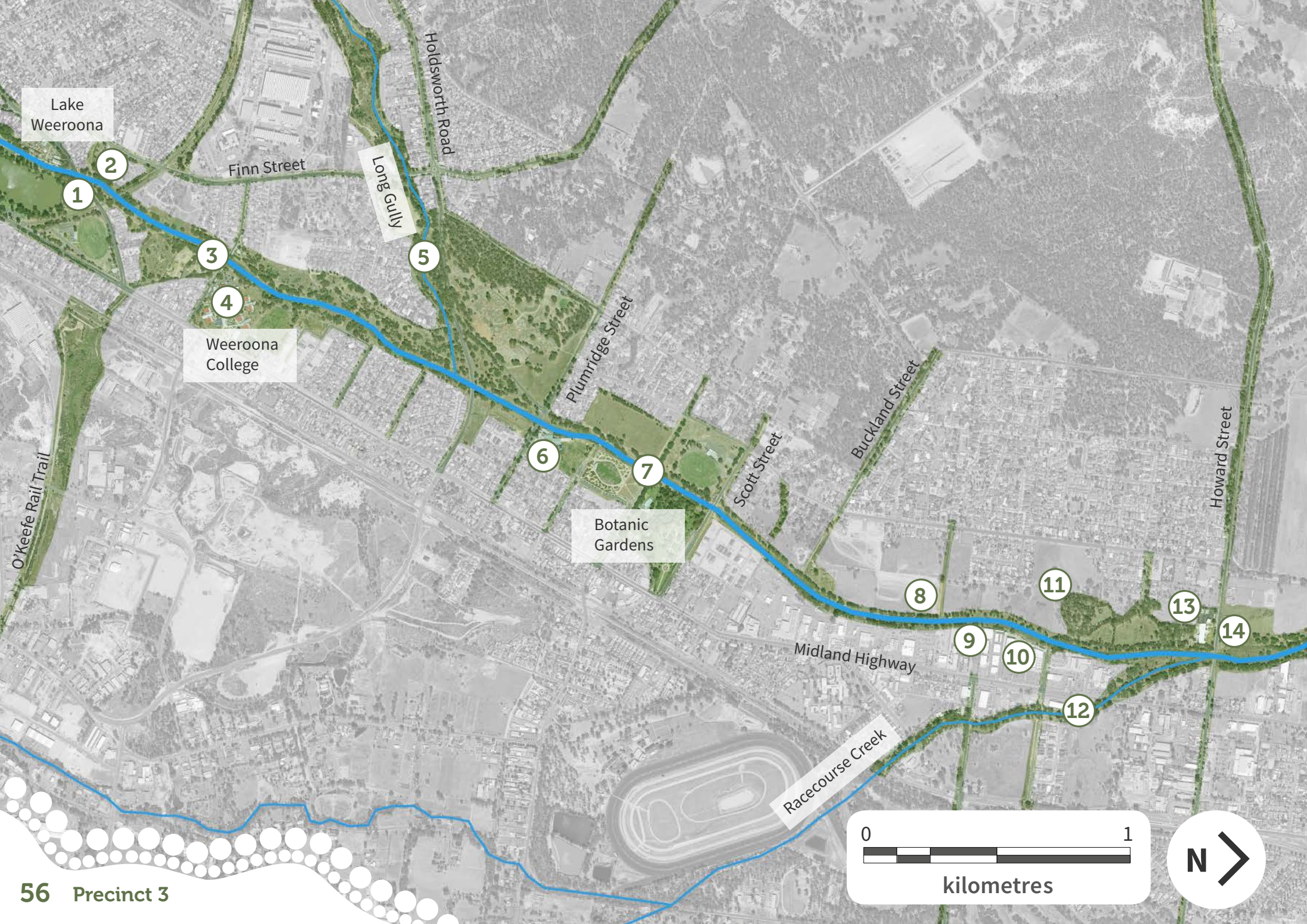
Dja Dja Wurrung restoration project, Wanyarram Dhelk, is a culturally significant place for the Djaara people for cultural practice, healing of water and country and for education



Beautiful stands of ancient large River Red Gums at the creek's edge



The flood plains are wider



Lake Weeroona

Finn Street

Long Gully

Holdsworth Road

Plumridge Street

Scott Street

Buckland Street

Howard Street

Weeroona College

Botanic Gardens

Midland Highway

Racecourse Creek



Intended precinct outcomes after implementing the Creek-wide strategies

Location	Outcomes
1 Channel outfall (Weeroona Avenue)	<ul style="list-style-type: none"> A slower pace of stormwater and managed sediment build-up arising from the extensive channelised sections of the Creek in Precinct 2
2 Peppergreen Farm	<ul style="list-style-type: none"> Integration of the Peppergreen Farm with the Creek landscape A modified creek bed potentially including shallow pools, pebbles/rocks, woody habitat and plant deep rooted native vegetation (i.e. grasses) along the Creek bed to slow water movement and improve water quality Natural play opportunities are incorporated for people to interact with the Creek i.e. Creek crossings and stepping stones Culturally significant foods and fibre plants along the Creek are integrated with the Peppergreen Farm to produce, harvest and sell food and fibre to the broader community
3 Wanyarram Dhelk (see pages 56 and 57)	<ul style="list-style-type: none"> A plan to reintroduce traditional burning practice into Bendigo Creek managed by Dja Dja Wurrung Dja Dja Wurrung spaces are created to celebrate culture, demonstrate and educate on Traditional Ecological Knowledge, support continued Cultural Practices and promote reconciliation Social amenities are enhanced in this area which includes the trail head of the O'Keefe Rail Trail Continued planting of culturally significant foods and fibre plants Cultural meeting circles and informal meeting places are created The Creek has a chain of ponds and riffles to improve water flows and support wildlife
4 Weeroona College	<ul style="list-style-type: none"> An outdoor education classroom on the Creek connected to the Weeroona College is created The school is supported to care for the Creek and participate in the River Detectives Program
5 White Hills Primary School	<ul style="list-style-type: none"> An outdoor education classroom on the Creek connected to the White Hills Primary School is created The school is supported to care for the Creek and participate in the River Detectives Program Safe, priority access for pedestrians and cyclists (road crossing)
6 Long Gully	<ul style="list-style-type: none"> Restored presence of surface water in appropriate areas Improved ecological function of the waterway
7 Bendigo Botanic Gardens / White Hills Recreation Reserve	<ul style="list-style-type: none"> The design of the Gardens is integrated with the Creek landscape The creek bed is designed to include shallow pools, pebbles/rocks, woody habitat and plant deep rooted native vegetation (i.e. grasses) to slow water movement and improve water quality The Gardens are connected across the Creek with a pedestrian and cycle access bridge A natural playground where people can interact with the Creek i.e. Creek crossings and stepping stones Improved water quality and reduced flood risk via an installed constructed wetland adjacent to the Creek

Intended precinct outcomes after implementing the Creek-wide strategies

	Location	Outcomes
8	Montis Lane	<ul style="list-style-type: none"> Montis Lane is connected across the Creek with a pedestrian and cycle access bridge
9	Toma Court	<ul style="list-style-type: none"> A pedestrian and cycle access bridge (with vehicle access as required) connection to link growing residential areas either side of the Creek
10	Industrial/bulky commercial area	<ul style="list-style-type: none"> Redirected and consolidated stormwater flows from large industrial sites for capture and treatment prior to release into the Creek
11	Undeveloped farmland south of Howard Street	<ul style="list-style-type: none"> Protection of sections of original creek course from urban encroachment
12	Racecourse Creek	<ul style="list-style-type: none"> Improved ecological function of the waterway
13	Epsom Primary School area (see pages 62 and 63)	<ul style="list-style-type: none"> The peninsula at the confluence of the Bendigo and Racecourse Creeks is used as a bridging point for a 'two-Creeks' boardwalk connection An outdoor education classroom and community space on the peninsula is created The school is supported to care for the Creek and participate in the River Detectives Program
14	Howard Street	<ul style="list-style-type: none"> Safe, priority access for pedestrians and cyclists (underpass or road crossing)

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WANYARRAM DHELK (Knight Street)

Present conditions



*This is an artist's impression to illustrate potential future outcomes only.
The ideas shown could also be adapted to different parts of the Creek.
Further technical studies, planning, design and consultation will be required.*

Potential change

Indigenous trees
to enclose and
shade the Creek
edge

Focal point at
convergence of
Bendigo Creek Trail
and O'Keefe Trail

Natural terracing
of Creek edge
to encourage
water access, and
interaction

In-stream frog
pond with
varying depth

Boardwalk
crossing at
Creek level
to encourage
interaction

Wide, meandering
low flow Creek channel
with scattered stones,
and cultural plantings of
food and fibre plants

Leaky weir formed
with local stone
and engineered
to withstand high
flows

BENDIGO & RACECOURSE CREEKS (at Howard Street)

Present conditions



Potential change

Low profile
boardwalk
crossing of
Racecourse Creek

Circular meeting space
/ outdoor classroom
on peninsula between
the Creeks and
revegetation of the
peninsula

Wide, low profile
boardwalk
crossing of
Bendigo Creek

Revegetation
of
embankment

Revegetation
of swampy
creek margin

Improved
riparian
zone

Increased
presence of
open water

Bendigo Creek
Trail to Huntly
(passes under
Howard Street)

*This is an artist's impression to illustrate potential future outcomes only.
The ideas shown could also be adapted to different parts of the Creek.
Further technical studies, planning, design and consultation will be required.*

BENDIGO CREEK TRIBUTARY - LONG GULLY (at Cecil Street)

Present conditions



Potential change

Indigenous treeline
along Creek corridor
and tree copses
between frog
ponds

Informal tree
groupings
along street
edge

In-stream
frog ponds of
variable depth

Layered and
diverse plantings
along waterway
margins

Sloped embankment
from street-level to
the creekline and
create a basin

Convergence of
local path link
with shared path
along Long Gully

Wider, meandering
low flow Creek
channel with scattered
stones and cultural
plantings

*This is an artist's impression to illustrate potential future outcomes only.
The ideas shown could also be adapted to different parts of the Creek.
Further technical studies, planning, design and consultation will be required.*

PRECINCT 4:

EPSOM - HUNTLY

Howard Street to
Bendigo-Tennyson Road

Overview

The Creek here is quite distinct from the other precincts, providing the experience of a more natural waterway surrounded by nature, away from the city.

Passing through an open and flat landscape and vast floodplain, the Creek corridor itself is contained and enclosed; both by long stretches of levee banks which provide flood protection for local communities and by substantial areas of vegetation and conservation reserve, most notably the Huntly Streamside Reserve.

Being more distant from urbanisation, you can hear the sounds of frogs and birds calling and the peaceful trickling of water as it makes its way over the pebbly floor of the Creek. The majestic display of large, mature River Red Gums that fringe the edges of the Creek is outstanding.

The Creek is more deeply incised through much of this precinct, particularly in Huntly - the result of gold rush era sludge being sent downstream and depositing thick layers of mine tailings that built up and reformed the landscape.

Perhaps more than any other part of the Creek, the local community association is strong. This area is recognized as having high cultural values to the Dja Dja Wurrung. Rural activities and a farming community are predominant, creating a strong connection to the Creek as well as to colonisation in the area. An enthusiastic and growing local community supports environmental health, wellbeing and education throughout this section of the Creek.



The Huntly Streamside Reserve is the largest contiguous conservation area on the Creek and is home to a comparatively rich diversity of native and indigenous plants, as well as native frogs, fish, birds, mammals and reptiles



Beautiful stands of ancient large River Red Gums emerge from the creek's edge making this River Red Gum Woodland ecosystem a unique environment



Urbanisation is limited and more distant from the Creek due to the substantial floodplain which is used mostly for grazing



The Creek's channels are deeply incised in the land as a result of massive sludge deposits during the gold rush



A connected corridor of indigenous vegetation supports and protects the movement of wildlife along this section of the Creek

Characteristics & features

Two local public schools make the Creek part of their environmental education programs



Northern Bendigo Landcare Group are the local custodians of the land, caring for and undertaking works to improve or maintain indigenous vegetation along the edges of the Creek



Long stretches of levees on both sides of the Creek provide flood protection but also create visual and physical separation



Eaglehawk Creek

Bendigo Water Reclamation Plant

Greater Bendigo Regional Park

Howard Street

Leans Road

Midland Highway

Huntly Streamside Reserve

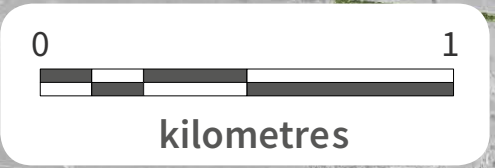
Back Creek

Huntly Township

Midland Highway

Epson-Barnadown Road

Bendigo-Tennyson Road



Intended precinct outcomes after implementing the Creek-wide strategies

	Location	Outcomes
1	Howard Street to Leans Road	<ul style="list-style-type: none"> The Bendigo Creek Trail is extended along the Creek corridor to the Huntly community. Base approach on options outlined in <i>Walk, Cycle Greater Bendigo 2019</i> and the <i>Greater Bendigo Public Space Plan 2019</i> Levees and flood detention infrastructure are constructed or reinstated
2	Eaglehawk to Bendigo Creek	<ul style="list-style-type: none"> The Eaglehawk Creek is linked with the Bendigo Creek with a shared path and supporting amenities Improved ecological function of the waterway
3	Epsom Village and Railway Station to Bendigo Creek	<ul style="list-style-type: none"> The Epsom Village and Epsom Railway Station are connected to the Creek with a shared path and supporting amenities and infrastructure on Howard Street (e.g. trees, seating, lighting, wayfinding)
4	Epsom to Huntly	<ul style="list-style-type: none"> Contiguous, publicly-accessible open space along the Creek has been created between these locations The Creek has a chain of ponds and riffles to improve water and support wildlife
5	Bendigo Water Reclamation Plant area	<ul style="list-style-type: none"> There are opportunities for public enjoyment of wildlife such as bird watching within restricted areas or adjacent to the Plant
6	Epsom Huntly Recreation Reserve	<ul style="list-style-type: none"> The Epsom Huntly Recreation Reserve is connected with the Creek Part of the levee is used as a vantage point and passive space linked to the Recreation Reserve
7	Huntly Township	<ul style="list-style-type: none"> The Huntly Township and the Huntly Streamside Reserve are connected with a shared path and supporting amenities and infrastructure (e.g. trees, seating, lighting, wayfinding)
8	Huntly floodplain	<ul style="list-style-type: none"> The open floodplain is preserved and a clear separation of urban/semi-urban development is maintained from the Creek corridor protecting communities and the ecological values of the Creek Improved water quality and reduced flood risk via installed water sensitive urban design infrastructure
9	Huntly Streamside Reserve	<ul style="list-style-type: none"> The cultural heritage significance of this part of the Creek to the Dja Dja Wurrung is respected and strengthened by supporting cultural practice and sharing stories, ceremony and culture through education programs, art and interpretive signs Walking and cycling access is improved to and within the Huntly Streamside Reserve, and its expansive area is used to create an immersive, enriching experience of nature, wildlife, water and Aboriginal cultural heritage The crucial ecological, cultural, educational and recreational functions of the Huntly Streamside Reserve are supported with appropriate joint-management and resourcing Environmental education is supported by interpretive walks and information signs The management of vehicle access is improved Pest plants and animals are being effectively managed A visitor experience plan for Huntly Streamside Reserve has been developed The Creek has a chain of ponds and riffles to support wildlife and increase amenity Biolinks / wildlife corridors between the Reserve and the Greater Bendigo Park and Greater Bendigo Regional Park are protected

IMPLEMENTING THE PLAN

The Plan and its implementation are a long-term, shared responsibility, yet it is presently uncertain how partner agencies and the broader community will work together to achieve the vision for the Bendigo Creek.

Our immediate priority is to establish effective governance arrangements that can oversee the Plan's implementation. This includes establishing a governance structure, confirming the agreed actions to focus on over the short-term, and developing processes to coordinate resources and investment. Collectively these steps will sustain action over the longer term.

This section outlines the future governance arrangements and provides a high-level action plan.



Governance

Governance refers to the organisational structures and the associated decision making processes to guide management activities. These structures and processes are supported by a set of agreed rules, roles and responsibilities.

We talk about partnerships all the time, how will this project be different?

We will change people's hearts and minds.

We want this project to be a turning point. We will work together with our community and coordinate our resources to create a Bendigo Creek that we all love, that is a healthy, connected and nurturing place, and that we all take responsibility for.

Governance to implement the Plan

Water Sensitive Bendigo Partnership

To oversee the implementation of the plan, the agencies agreed to build upon the Water Sensitive Bendigo Partnership. This includes establishing a Reimagining Bendigo Creek Implementation Group and assigning a facilitator. The Implementation Group will include representatives from partner organisations as a means to enable cross-agency collaboration.

The immediate priority of the Implementation Group is to:

1. Coordinate and align partner organisations to deliver agreed actions
2. Seek opportunistic funding to progress the plan
3. Lead specific projects and investigations to progress the plan
4. Lead community and stakeholder engagement regarding the plan

It is important to note that the Implementation Group and the associated governance arrangements will evolve over time, as they will change to meet the needs of the stakeholders, the Creek and available resources.



Water Sensitive Bendigo Partnership

In 2019, nine organisations signed a memorandum of understanding for *Water Sensitive Bendigo*. This MoU defined a cross-agency governance structure, a stakeholder network, a coordination role for the City, and a requirement to develop and deliver an implementation plan. This governance arrangement is working towards making Bendigo *a thriving inland city where water innovation supports healthy people, green environments and resilient systems*.

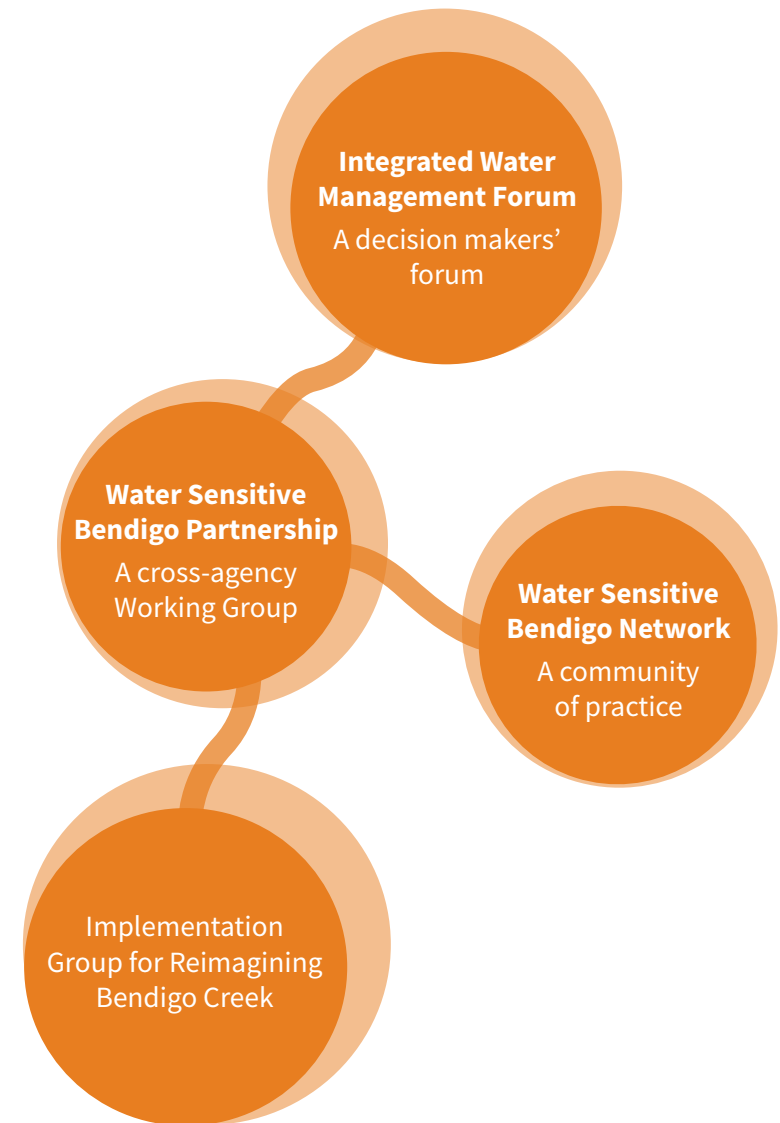


Figure 5: Governance Structure

Action Plan

Following is a compilation of actions described in preceding sections of the Plan.

An indication of the intended scope of actions is provided to assist in clarifying the focus and purpose of each action, and as a basis for more detailed scoping.

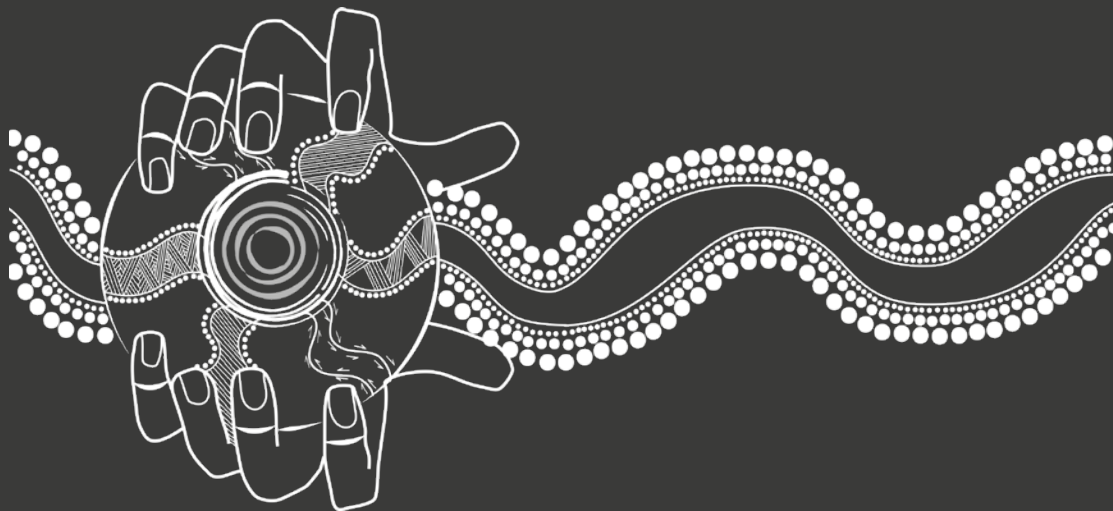
Implementation of each action will be led by a leading project partner (several organisations in several cases) and supported by other project partners.

	Action	Outline of intended scope	Lead partner	Supporting partners
A1	Develop an integrated water quality monitoring program for the Bendigo Creek and its tributaries	<ul style="list-style-type: none">• Integrate science-based approaches to measure stream flow, groundwater inflow and water quality with North Central CMA's Waterwatch citizen science program and Traditional ecological knowledge• Monitoring program for entire catchment wide: include urban stormwater, gullies and lakes• Utilise innovative technology and data sensors• Attract recurrent funding from partner organisations	North Central CMA	CoGB, CW, DDW, DELWP, GMW
A2	Investigate the feasibility of naturalising channels and drains in targeted locations throughout the catchment	<ul style="list-style-type: none">• Develop an agreed framework and criteria to guide the naturalisation of channels• Undertake spatial analysis to identify priority locations for naturalisation• Undertake technical investigations and cost-benefit estimates to determine feasibility	CoGB	DDW, CW, DELWP, HV, North Central CMA
A3	Investigate and manage groundwater to better understand the risks associated with salinity and contaminants and how these may impact on creek ecosystems	<ul style="list-style-type: none">• Continue to undertake technical investigations to better understand impacts from salinity and contaminants on creek ecosystem• Undertake a risk assessment of groundwater contaminants on creek ecosystem• Evaluate potential options including using constructed wetlands and aquatic plants	DELWP	CoGB, CW, EPA, GMW, North Central CMA

Action	Outline of intended scope	Lead partner	Supporting partners
A4	<p>Develop and implement a staged program of Water Sensitive Urban Design (WSUD) works throughout the catchment</p> <ul style="list-style-type: none"> Initial focus is to retrofit tributaries and the upper catchment's drains, streets and public spaces for the purpose of reducing impacts of erosion and sedimentation, hydraulic loading and nutrient impacts Develop a design guideline for WSUD infrastructure including defining triggers that require new and renewal projects to include WSUD infrastructure and works Build and refine the City's <i>2019 Urban Waterway Investigation</i> to identify priority sites for WSUD infrastructure Undertake supporting investigations, detailed designs, cost estimates, budget bids for priority sites for WSUD Develop a staged works program to construct WSUD infrastructure Integrate design and works with relevant plans and strategies including: <i>Green Greater Bendigo 2020, Greater Bendigo Public Space Plan 2019, and Walk Cycle Greater Bendigo 2019</i> 	CoGB	CW, DDW, DoT DELWP, GMW, North Central CMA, PV
A5	<p>Develop and implement precinct-based environmental management plans for the Bendigo Creek</p> <ul style="list-style-type: none"> Focus on pest and biodiversity management for the four precincts defined in the Reimagining Bendigo Creek Plan for the reintroduction of habitat and vegetation in suitable areas 	PV (Huntly Streamside Reserve) / CoGB (balance)	CW, Community groups, DDW, DELWP, North Central CMA
A6	<p>Develop a flood mitigation study for Kangaroo Flat and Golden Square</p> <ul style="list-style-type: none"> Investigate and assess flood mitigation options based on cost-benefit analysis 	CoGB	DELWP, North Central CMA, PV
A7	<p>Seek funding for further flood mitigation studies within the Bendigo Creek catchment</p> <ul style="list-style-type: none"> Undertake scoping and prepare funding bids 	CoGB	DELWP, North Central CMA, PV

	Action	Outline of intended scope	Lead partner	Supporting partners
A8	Develop guidelines to ensure that future development is setback an appropriate distance from the Creek edge and its tributaries	<ul style="list-style-type: none"> Jointly develop guidelines to cover all designated waterways in the City of Greater Bendigo Region in order to protect waterway function, reduce flood risk, protect and enhance environmental values, and allow future waterway remediation works Ensure greater consistency and certainty for the development sector 	North Central CMA	CoGB, DELWP
A9	Amend the <i>Greater Bendigo Planning Scheme</i> to include policy and controls to improve the relationship of the built environment along urban waterways	<ul style="list-style-type: none"> Investigate, evaluate and develop appropriate controls (policy, zones and overlays) Undertake planning scheme amendment process including public consultation 	CoGB	DELWP, North Central CMA, UDIA
A10	Design and implement the Low Line Trail sections of the Bendigo Creek Trail	<ul style="list-style-type: none"> Scope of Low Line trail is between Maple Street, Golden Square and Wattle Street, Bendigo Develop conceptual and detailed design of trail Develop cost-estimate and construction staging to undertake works. Seek funding for works and undertake works 	CoGB	Community Groups, DoT, HV, North Central CMA
A11	Investigate options for the potential continuation of the Low Line Trail section within the bluestone channel between Charing Cross and Chapel Street	<ul style="list-style-type: none"> Investigate heritage values and constraints to design Low Line between within the bluestone channel between Charing Cross and Chapel Street Develop conceptual design options in partnership with key stakeholders 	CoGB	DoT, HV, North Central CMA
A12	Develop a Bendigo Creek corridor access plan	<ul style="list-style-type: none"> Investigate and confirm a preferred initial option to extend the Bendigo Creek Trail to Huntly Confirm recommended locations and types of crossings of roads that intersect with the Creek, and of bridges over the Creek Identify maintenance access and safety requirements 	CoGB	Community groups, DoT, CW, DELWP, North Central CMA, PV

	Action	Outline of intended scope	Lead partner	Supporting partners
A13	Develop a plan to embed and express the Dja Dja Wurrung story along Bendigo Creek	<ul style="list-style-type: none"> A framework plan to guide how the Dja Dja Wurrung story on Bendigo Creek can be represented, expressed and promoted. This may include art, statues, demonstration sites, interpretive signs, seasonal calendar information, places of interest, places to go, cultural tours to illustrate what was and how we are working together to heal Country and water 	DDW	CoGB, Community groups, DELWP, North Central CMA, PV
A15	Develop and implement an integrated interpretation, wayfinding, public art and lighting plan for the Bendigo Creek corridor	<ul style="list-style-type: none"> Integrated design guidelines and precinct-based planning for interpretation signs, wayfinding, public art and lighting Investigate suitability for extended application to Creek tributaries 	CoGB	Community groups, DDW, DoT, HV, North Central CMA, PV
A14	Develop a joint-organisational program to promote positive public perceptions of and involvement with the Bendigo Creek	<ul style="list-style-type: none"> Commence a joint-organisational program to change community perceptions Develop education material including an online presence and media campaign Highlight through media and community events the positive examples and achievements of WSUD done in the City of Greater Bendigo Develop community creek appreciation and restoration activities 	CoGB / DDW / North Central CMA	Community groups, DELWP, CW, PV
A16	Agree upon and establish a cross-agency governance arrangement to implement the Reimagining Bendigo Creek Plan	<ul style="list-style-type: none"> Develop and/or renew a memorandum of understanding Seek funding and appoint project resources Embed processes 	CoGB	CW, DDW, DELWP, DHHS, DoT, GMW, North Central CMA, PV
A17	Develop joint funding application(s) to implement the Reimagining Bendigo Creek Plan	<ul style="list-style-type: none"> Develop business case or marketing material as required to support funding application 	CoGB	CW, DDW, DELWP, DHHS, DoT, GMW, North Central CMA, PV



Contact us

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