# Loop Paths and Links

Connecting Ballarat via river and creek corridors

The Yarrowee River and connecting tributaries provide a natural spine of mostly undeveloped land often within adjacent green space. This plan identifies existing trails within the corridor, including the Yarrowee Trail, and missing links or opportunities to improve pedestrian and cyclist loops and connections throughout Ballarat and surrounds. Reach Masterplans provide detailed information of proposed loops and links along river and creek corridors.

The development of small - medium scale loop paths around features of interest or in urban areas, such as East Ballarat, encourage local walking and allows a wide range of users to choose the walk length and experience that best suits them. Creating larger scale loops for longer rides / walks between suburbs and smaller townships in the region for more active users, promotes an healthy lifestyle in Ballarat. Longer loop trails may be a day trip length and should provide high quality visitor infrastructure and experiences. Longer loops may also be used as routes for running / cycle events.

#### Trail Heads

Proposed Trail Heads create key access points along the trail network and provide places to meet, review and commence a walk, run or ride with features to facilitate an easy journey. Trail Head areas include features such as carparks, picnic facilities, toilets, drinking fountains, bike repair stations, possible play spaces and signage. The signage provides clear wayfinding /directional, safety and compliance information on possible routes including distances and destinations along the trail network.

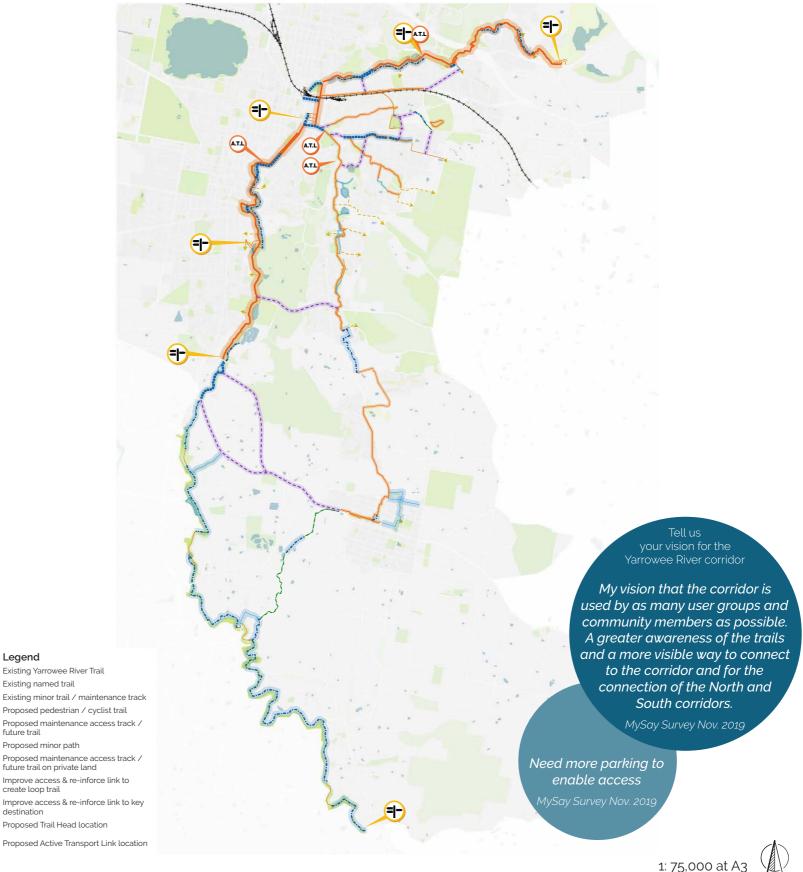
### Active Transport Links

Active Transport Links recommend pedestrian and cycle trail infrastructure that allows people to park outside the CBD and walk / ride along the Yarrowee River Trail into the CBD and connect people to the train station, schools, shops and services. Features of the Active Transport Link include a carpark and may include bike repair stations, drinking fountains, signage / branding, canopy tree planting and path edge planting. Upgrade of existing trails or development of new trails may be required

### Walk and Cycle Maps

The development of a trail map / brochure for the Yarrowee River and tributaries loop trails will encourage visitors to explore Ballarat's Waterways. Indication of distances and durations as well as showcasing destinations including key features, tourism locations and local businesses will promote the region.

The maps should be made available at the Visitor Information Centre and digital version online for visitors to plan their journey in advance.



Yarrowee River and Tributaries River Corridor Masterplan 2019-20

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Legend

future trail Proposed minor path

create loop trail

Existing named trail



Thomson Hay Landscape Architects and Roger Thomas

12 August 2020 10.3.1 Ordinary Council Meeting Agenda

## Yarrowee River - Northern Reach

### Landscape character and general conditions

The northern reach of the Yarrowee River starts from Gong Gong Reservoir and flows through the north eastern suburbs of Ballarat including Gong Gong, Nerrina, Brown Hill, Black Hill and Ballarat East; up to the start of the channelised section near Eastern Oval.

The river corridor feels most natural in the upper reach, with generally a wide reserve (total width varies between 24 – 160m, average width is 70m). There are rocky outcrops (granite and sandstone), extensive remnant indigenous vegetation, dense tree canopy, relatively intact instream vegetation, and undulating topography with surrounding hills and gullies. Adjoining housing / development is generally well set back from the river.

Many reserves adjoin the Yarrowee River corridor, including Kirks and Gong Gong Reservoir Parks, Ditchfield Bushland Reserve, Monte Christo Bushland Reserve, Brown Hill Reserve, Black Hill Reserve, Chisholm Street Reserve and Nerrina Wetlands Reserve. These reserves provide for a range of passive and active recreation activities and events including Mountain Biking trails at Black Hill, sports fields and playgrounds at Brown Hill, bird watching at Ditchfield and visitor facilities for picnics and events in the gardens at Kirks and Gong Gong Reservoirs.

The Yarrowee River trail starts / ends at the Gong Gong Reservoir and is well used by walkers, runners and cyclists. The trail goes through a tunnel under the Western Freeway and continues up to Eastern Oval. The trail surface is mostly granitic sand, with some sections of asphalt or gravel, and some sections on local roads (in Black Hill area). Some signage is provided along the trail including trailhead signage at Gong Gong Reservoir, and some interpretive signage at key locations about local flora and fauna.

EVC's in the northern reach are mostly Valley Grassy Forest and Herb-rich Foothill Forest, with small intrusions of Heathy Dry Forest. Ditchfield Bushland Reserve is an area of high quality natural vegetation. Planted indigenous species have been added in places. Indigenous remaining vegetation includes a few fern species upstream of Brown Hill.

The established residential areas in the northern reach have a distinctive neighbourhood character with larger residential allotments and an extensive canopy of native trees. The forecast population growth for Brown Hill is 60% over the next 20 years (refer to BHL). Proposed infill housing developments in the northern reach of the Yarrowee River need careful planning to ensure they do not adversely affect the values of the river corridor.

## Assessment of the 1995 Masterplan

The river corridor has seen a successful transformation since the original masterplan, from a weed infested swamp to a valuable environmental and recreational asset.

Extensive works have been undertaken including:

- · weed removal and control,
- revegetation of canopy trees and understorey,
- development of the Nerrina Wetlands and smaller offline ponds to improve stormwater management and quality.
- construction of trails for walking, cycling and maintenance access, and
- the Wattle Flat Pootilla Landcare Group have done great work maintaining the Ditchfield Bushland Reserve.

Riparian planting from the LINCS project has restored a natural-looking environment wherever it has occurred from Black Hill to upstream of Brown Hill.

The condition of much of the river before the 1995 masterplan can be seen along stretches of the south bank of the river between Ainley and Stawell Streets where thick growth of weedy grasses and other exotic vegetation dominates. This is a clear demonstration of the change, and also indicates that there is more opportunity for planting in some sections. Due to the extent and age of the combined environmental works, the northern reach should be used as a model for future development of the river /creek corridor elsewhere



Asphalt path in the Yarrowee River corridor





Typical northern reach bridge



Yarrowee River under freeway



Granitic sand path



Offline wetland





### Overview of recommendations for the Northern Reach

The following is an overview of the recommendations for this reach. Refer to the plans and the detailed recommendations in the front of this report for more information.

The following improvements are recommended:

- Upgrade the Yarrowee River trailhead at Gong Gong Reservoir (in association with CHW) and introduce new trail head at Nerrina Wetlands
- Wayfinding signage
- Provide loop paths and wider paths in high use / urban areas and providing linking path connections to destinations and other trail networks
- Provide Active Transport Links including car parking and signage
- Improve links and interface to other reserves by removal of existing fences
- Indigenous revegetation and natural regeneration including canopy trees along trail and reduce extent of rass mowing
- Planning policy / controls for new developments adjoining the river to enhance the river corridor environment and values
- Protect and enhance Ditchfield Bushland Reserve
- Upgrading existing reserve on Morres Street including formalising carparking for mountain bike trails

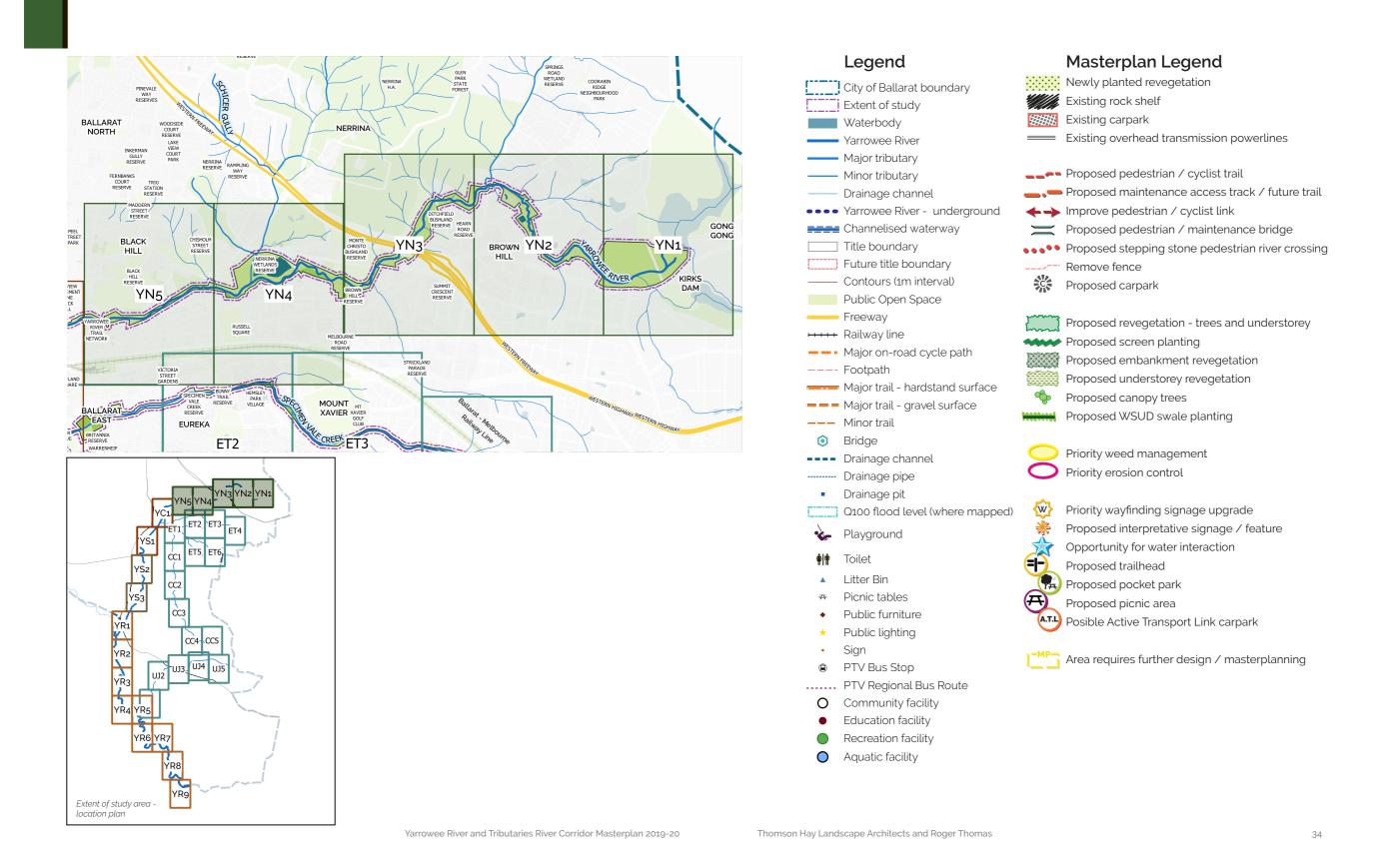
Yarrowee River corridor

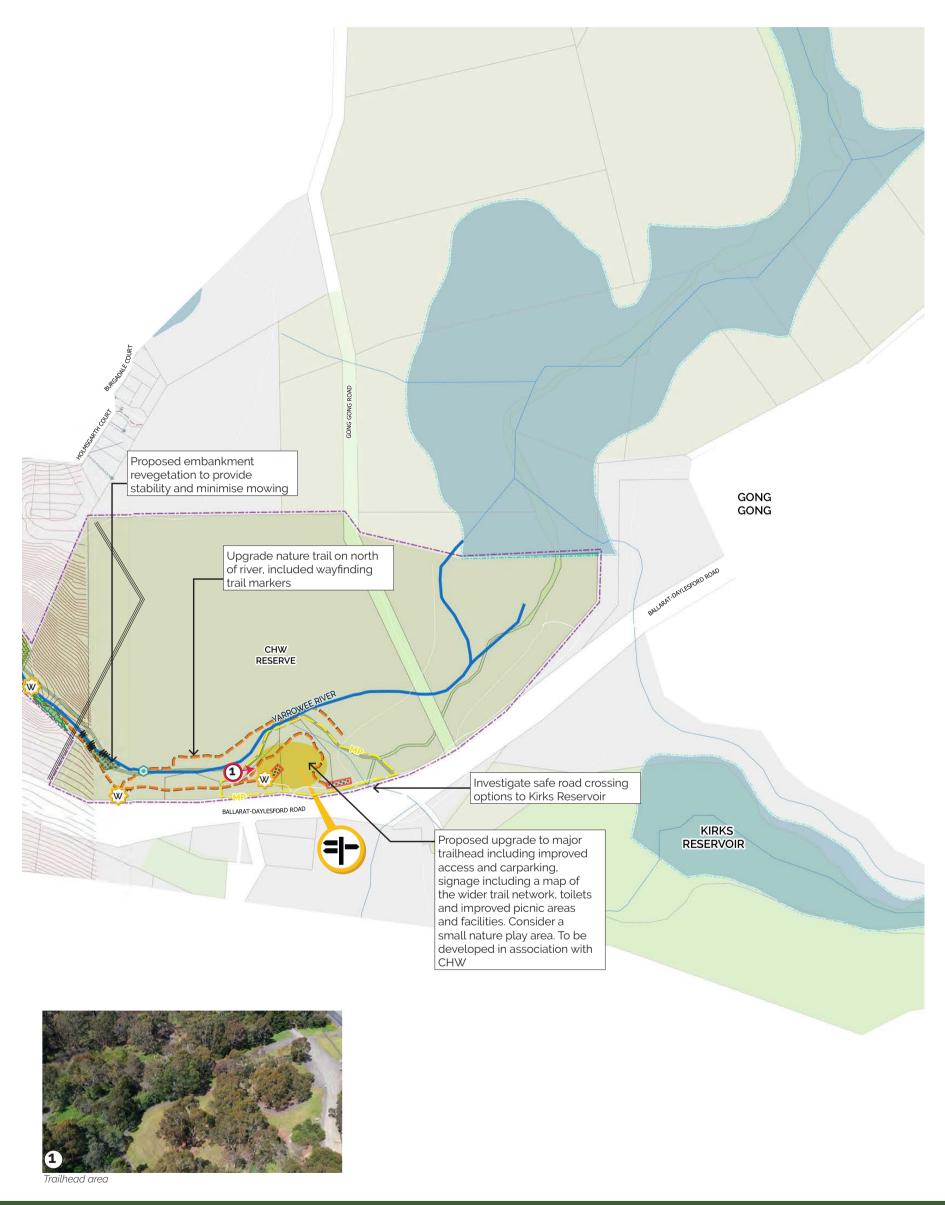
A natural community asset free of woody weeds and revegetated and maintained for both the community and nature to thrive. A healthy river with environmental flows from the Gong Gong all the way through Ballarat. A natural treasure for Ballarat

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Yarrowee River and Tributaries River Corridor Masterplan 2019-20

# Northern Reach Scope and Reference





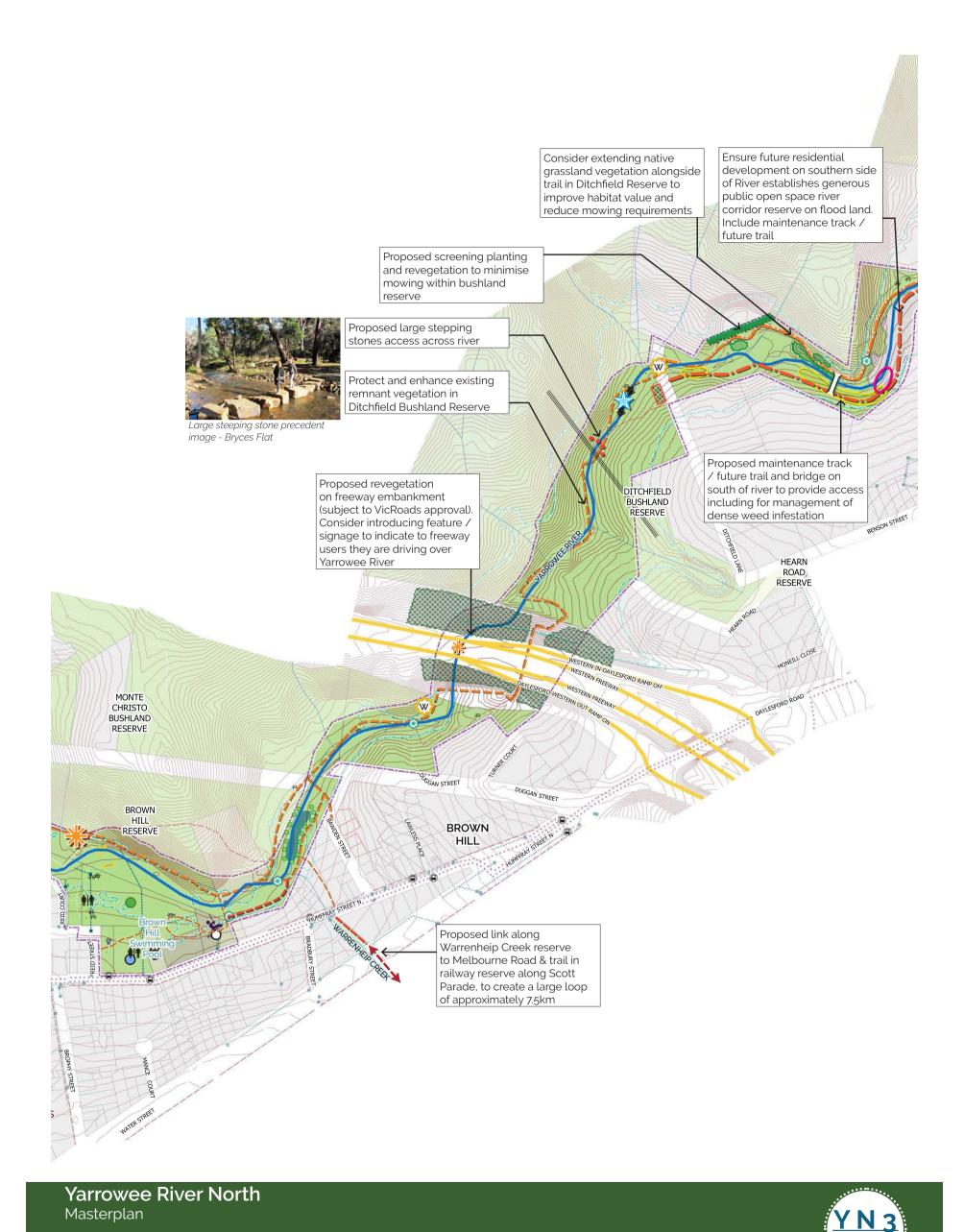




Yarrowee River and Tributaries River Corridor Masterplan 2019-20







Scale 1:5000 at A3





Yarrowee River and Tributaries River Corridor Masterplan 2019-20

 ${\it Thomson\, Hay\, Landscape\, Architects\, and\, Roger\, Thomas}$ 



Scale 1:5000 at A3



## Yarrowee River - Central Reach

## Landscape character and general conditions

The central reach is defined as the channelised / underground section of the Yarrowee River between Nicholson Street, Black Hill / Ballarat East and south of Hill Street, Redan / Mt Pleasant.

The river flows through central Ballarat, forming the boundary of adjoining suburbs of Golden Point and Mt Pleasant. The bluestone channel skirts around the Eastern Oval, goes underground on the north side of the railway, under Bridge Mall and the central business area, and resurfaces on the south side of Eastwood Street. The Canadian Creek joins the Yarrowee River at Steinfield Street. The channel continues past the White Flat Oval and Sunnyside Mill before spilling into a more natural earthen channel. The river corridor is contained within a steep valley in the vicinity of Hill Street, and relatively gentle grades elsewhere in the central reach. The channelised section of the river varies in width from 10m to 15m. There are some areas of channel that have little reserve around it, resulting in only a 10m wide reserve. Where there are adjoining reserves, the space varies from 40m - 115m wide.

The network of bluestone, brick and concrete channels and associated bridges are a significant aesthetic, heritage and cultural feature of central Ballarat. The channels were constructed from the 1860s to 1930s, as a result of gold mining activities and increased urbanisation. It is likely that the soil under these channels is contaminated. The channels are of limited social and environmental value forming barriers to human and wildlife movement within the city.

From Eastern Oval the Yarrowee River Trail follows Peel Street and Eastwood Street. The channel re-opens south of Eastwood Street. A granitic sand path begins from the White Flat Oval, heading south (terminating at Docwra Street).

The river corridor is highly modified throughout the central reach; however it has mostly an active frontage and adjoins significant public open space. There are opportunities to improve accessibility and provide a green pedestrian / cycle link to and through central Ballarat within the Yarrowee River corridor.

## Assessment of the 1995 Masterplan

Changes since the original landscape masterplan include:

- some areas of revegetation
- modest development of trails, and
- signage and safe pedestrian crossing points.

Many ideas from the original landscape masterplan have not been implemented, including a proposal to create an urban plaza and daylighting the Yarrowee River between Little Bridge Street and Eastwood Street. The Yarrowee River Urban Park is a key project in the Bakery Hill Urban Renewal Plan, with recommendations to redevelop existing car parking into 7,000m<sup>2</sup> of parkland and expose sections of the Yarrowee River. The park may include space for a playground, community events and stage / viewing area.



Bluestone channel near White Flat Oval



Northern end of channelised section of Yarrowee River Concrete channel



Bluestone channel through Eastern Oval. Oval facilities are fragmented by the channel.



Yarrowee River channel at Anderson Street with car parking on both sides



Revegetation planting near Hill Street



End of the channelised section of the Yarrowee River

Thomson Hay Landscape Architects and Roger Thomas

## Overview of recommendations for the Central Reach

The following is an overview of the recommendations for this reach. Refer to the plans and he detailed recommendations in the front of this report for more information.

The following improvements are recommended:

- Develop green pedestrian / cycle links to improve the pedestrian and cyclist connection between the north and south stretches of the Yarrowee River Trail
- Provide loop paths in high use / urban areas
- Wetlands and WSUD to improve water quality
  - Development of pocket parks in key areas
- Revegetation in selected areas
- Planting of exotic and native trees in selected areas
- Development of the Eastern Oval precinct to improve pedestrian / cycle links
- Yarrowee Urban Parkland upgrade as part of the Bakery Hill Urban Renewal Plan including the development of a CBD trail head

Yarrowee River corridor

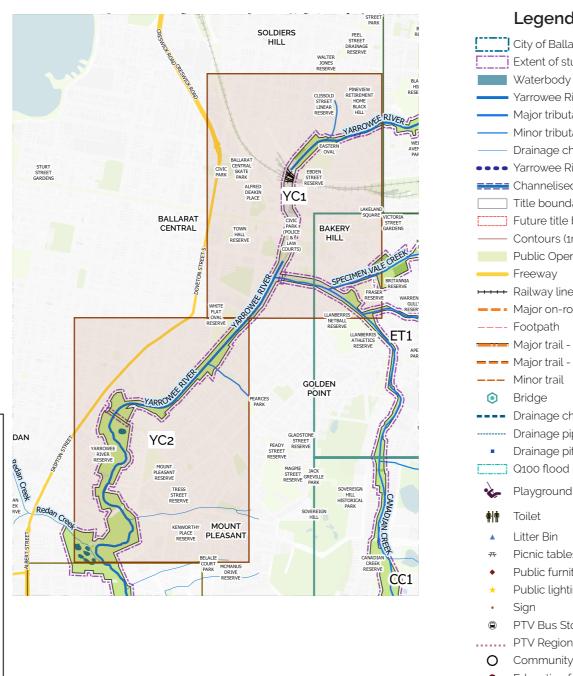
Access ability for people with a disability. Wonderful inner-city place to walk pets and connect with nature. Like bridges and ability to walk long or short, compared to min. 6kms at the lake.

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Yarrowee River and Tributaries River Corridor Masterplan 2019-20

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# Central Reach Scope and Reference



#### Legend Masterplan Legend

Existing carpark City of Ballarat boundary

Existing gross pollutant trap

Proposed on-road cycle lane connection Improve existing on-road cycle connection

--- Proposed pedestrian / cyclist trail

Drainage channel ← → Improve pedestrian / cyclist link

•••• Yarrowee River - underground Channelised waterway

☐ Title boundary

i Extent of study

Yarrowee River

 Major tributary Minor tributary

Future title boundary

—— Contours (1m interval)

Public Open Space

----- Railway line

-- Major on-road cycle path

---- Footpath

Major trail - hardstand surface

-- - Major trail - gravel surface

--- Minor trail

Bridge

--- Drainage channel

----- Drainage pipe

Drainage pit

Q100 flood level (where mapped)

Playground

Toilet

Litter Bin

Picnic tables

Public furniture

Public lighting

Sign

PTV Bus Stop

PTV Regional Bus Route

Community facility

Education facility

Recreation facility

Aquatic facility

Proposed instream litter trap

Proposed screen planting

Proposed carpark

Proposed path / channel edge low planting

Proposed 'Green Street' incl. canopy trees and WSUD Possible naturalisation of waterway

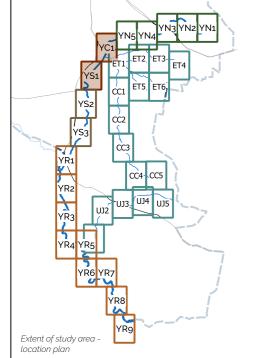
Priority wayfinding signage upgrade

Proposed interpretative signage / feature

Proposed trailhead Proposed pocket park

Posible Active Transport Link carpark

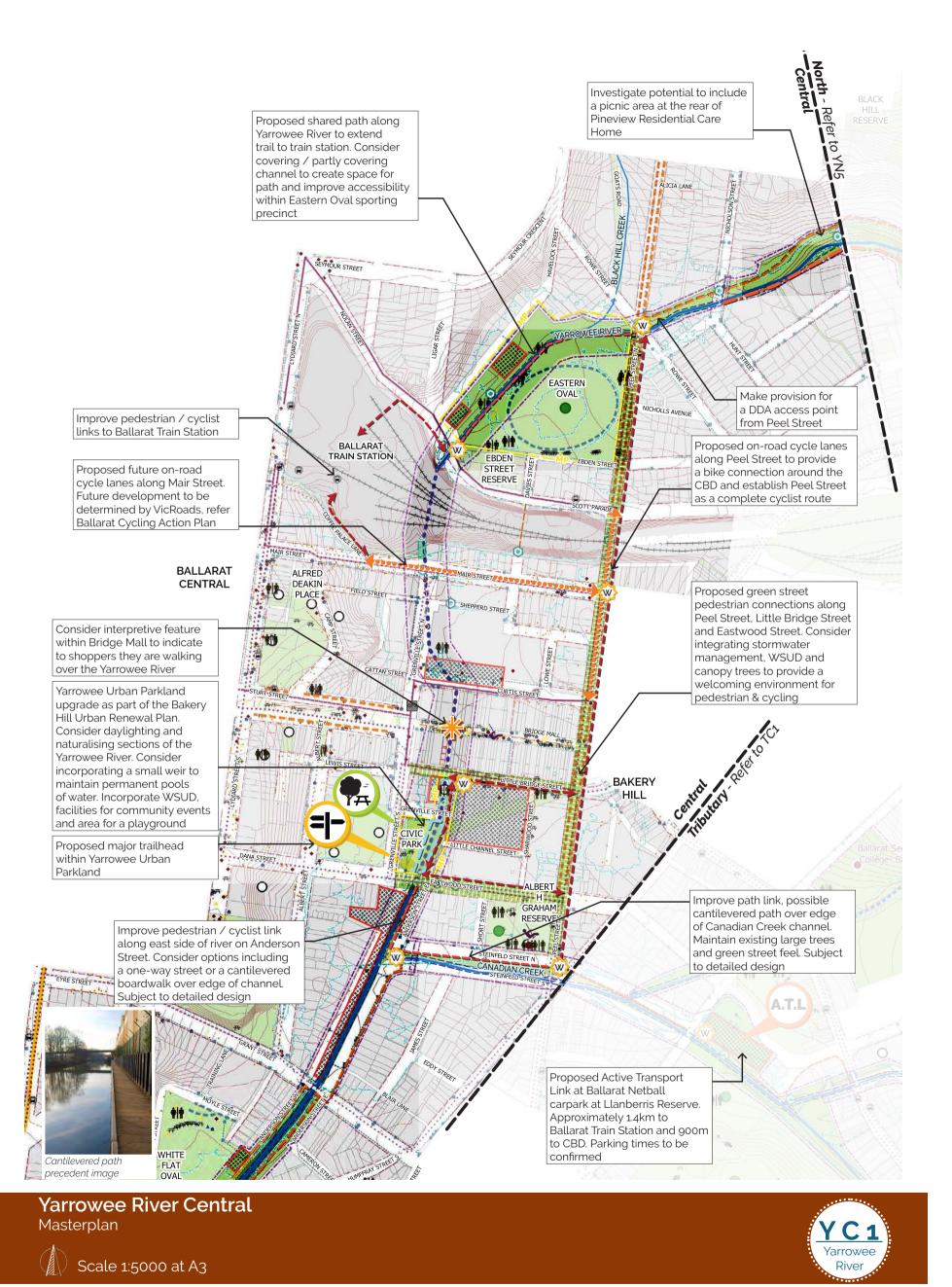
Area requires further design / masterplanning



Yarrowee River and Tributaries River Corridor Masterplan 2019-20

Thomson Hay Landscape Architects and Roger Thomas

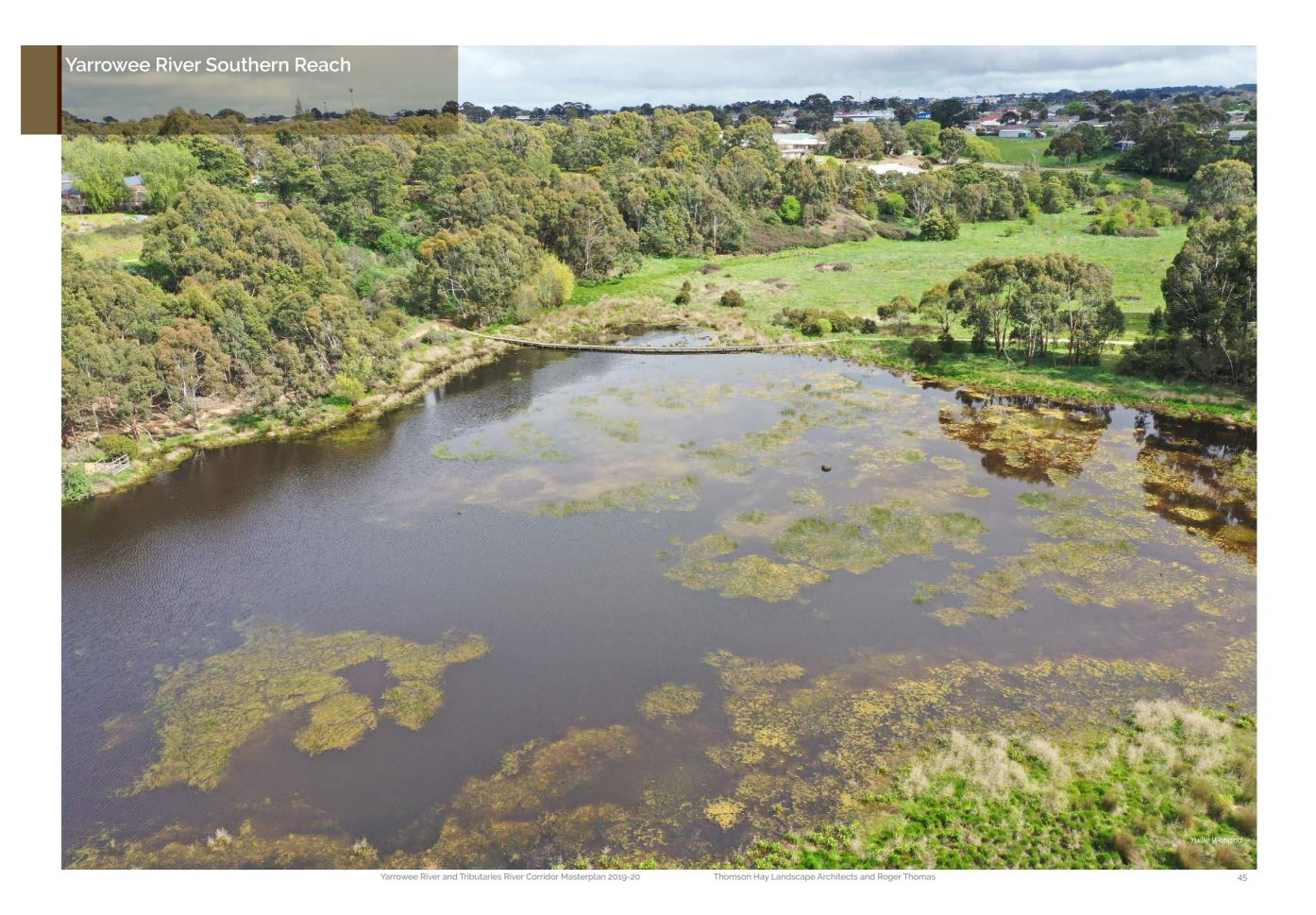
42







Scale 1:5000 at A3



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## Yarrowee River - Southern Reach

## Landscape character & general conditions

The southern reach of the Yarrowee River starts at the end of the channelised section near Hill Street and extends to Docwra Street bridge. The river flows south and forms the boundary of suburbs including Redan, Mount Pleasant, Sebastopol, Mount Clear and Maapie

Adjoining land use is mostly residential on the western side, with some industrial areas, Ballarat Gold Mine and Central Highlands Water Ballarat South Wastewater Treatment Plant adjoin the east side of the river corridor. Marty Busch Reserve is a significant sports facility adjoining the river corridor on the west side.

The Redan Creek joins the Yarrowee River at Rubicon Street. The outflow from Central Highlands Water Ballarat South Treatment Plant adds a significant volume of water to the

The river corridor is a deep valley with relatively flat land to the west and undulating to the east. A well used trail has been constructed along the west bank (mostly granitic sand) and the river has a generous reserve either side (total width varies between 50 -150m). Tree plantings between Hill Street and Prest Street in the 1980's are the earliest revegetation works in the Yarrowee River corridor and are now well established. The area between Whitehorse Road and Docwra Street is somewhat degraded; issues include impacts from mining waste from 1850s gold rush (sludge), erosion of banks, steep slopes and weeds. There is soil contamination (lead) on the slopes below the Marty Busch Reserve, this is associated with the former Sebastopol Gun Club.

EVC's in the southern reach are mostly Swampy Riparian Woodland, with small intrusions of Heathy Dry Forest.

### Assessment of the 1995 Masterplan

Changes since the original landscape masterplan include:

- · extensive revegetation (mostly canopy trees),
- development of the Redan and Yuille wetlands to improve stormwater management / treatment and
- construction of trails for walking, cycling and maintenance access.

The area between Hill Street and Prest Street was the first part of the river planted (1982), and is gaining an attractive mature appearance. Downstream, the LINCS plantings are maturing, creating an attractive area for varied recreational opportunities. Central Highlands Water has contributed to some of the plantings in the vicinity of the Ballarat South Wastewater Treatment Plant.

These changes have significantly improved the environmental and recreation values of the river. The Yuille wetlands demonstrate significant environmental benefits and habitat value, and are a popular spot for bird watching.



End of the lined Yarrowee River channel



Potential lookout site on a river bend near Prest Street



Redan Wetlands



Erosion of CHW treatment plant pond bank Edae of lava flow



Areas of contaminated soil have struggled to grow veaetation due to sludae depths Yarrowee River and Tributaries River Corridor Masterplan 2019-20



### Overview of recommendations for the Southern Reach

The following is an overview of the recommendations for this reach. Refer to the plans and the detailed recommendations in the front of this report for more information.

The following improvements are recommended:

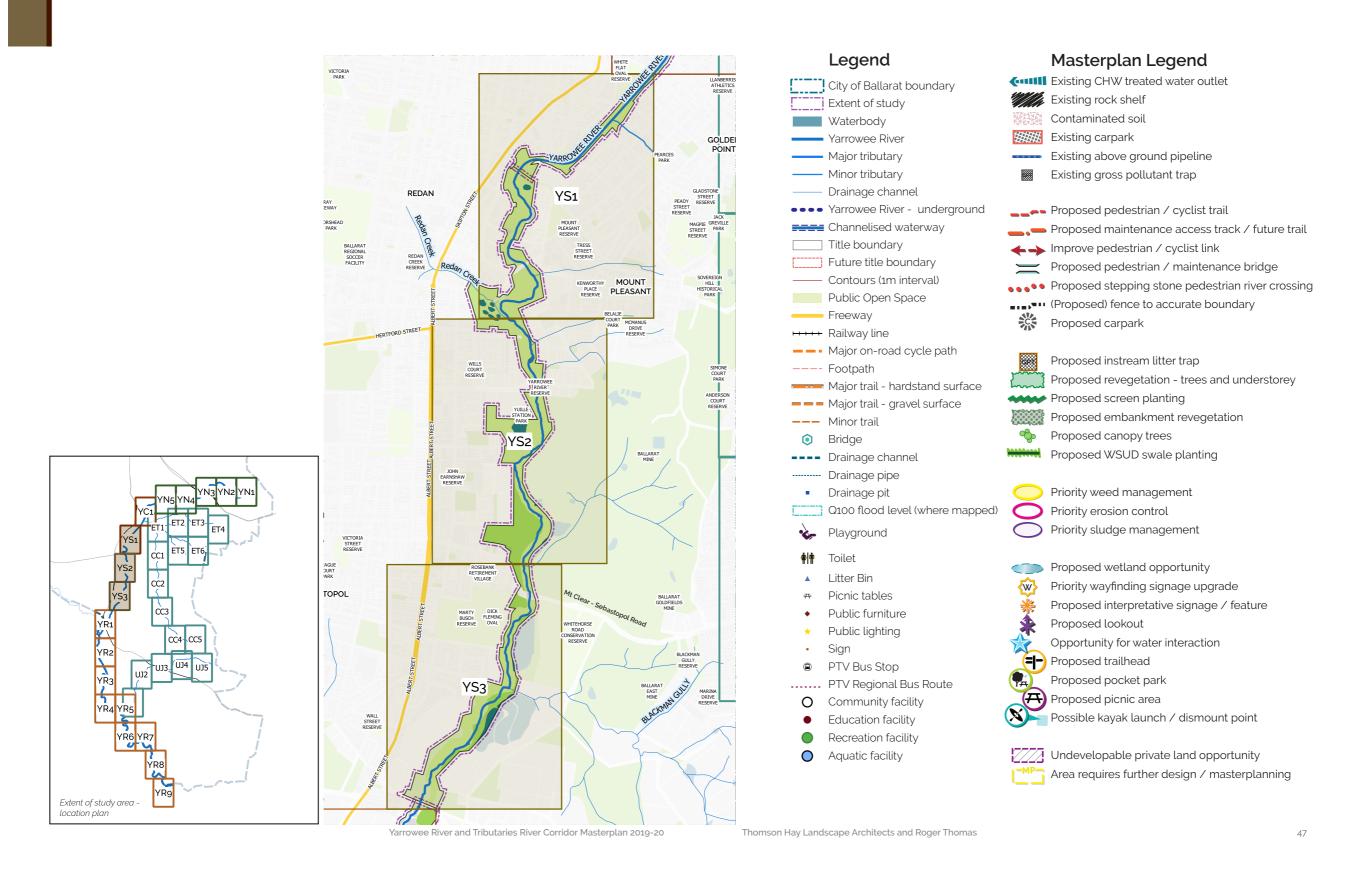
- Development of wetlands and WSUD features to improve water quality and habitat
- Erosion control along CHW treatment pond walls
- Improve links to other reserves
- Provide loop paths in high use / urban areas
- Weed control, indigenous revegetation, canopy trees and screening of undesirable
- Create loop paths at Yuille Wetlands and increase indigenous tree canopy cover
- Wayfinding signage
- Gross pollutant trap and / or litter trap within Sunnyside Mill Parklands
- Priority Project 1 Dowcra Street Trail Head
- Prest Street Lookout as part of Priority Project 1
- Priority Project 2 Sunnyside Mill Parklands
- Priority Project 3 Redan Wetlands Revitalisation

Yarrowee River corridor

*Need to improve the health /* quality of water particularly around wetlands at the South, heaps of rubbish & litter all around the South area (Redan / Sebastopol). Not good for river health downstream for Garibaldi & Napoleons

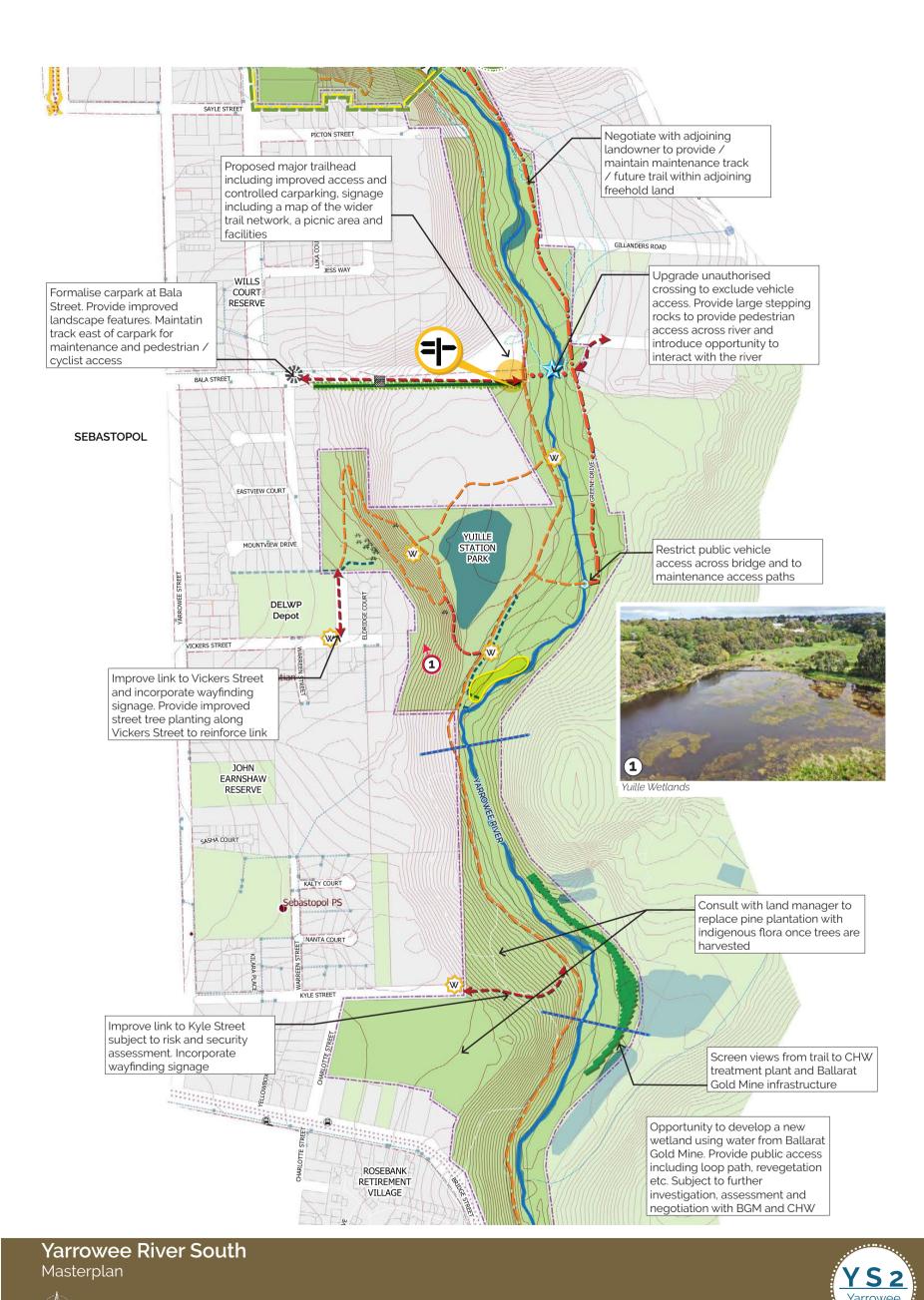
MySay Survey Nov. 2019

# Southern Reach Scope and Reference





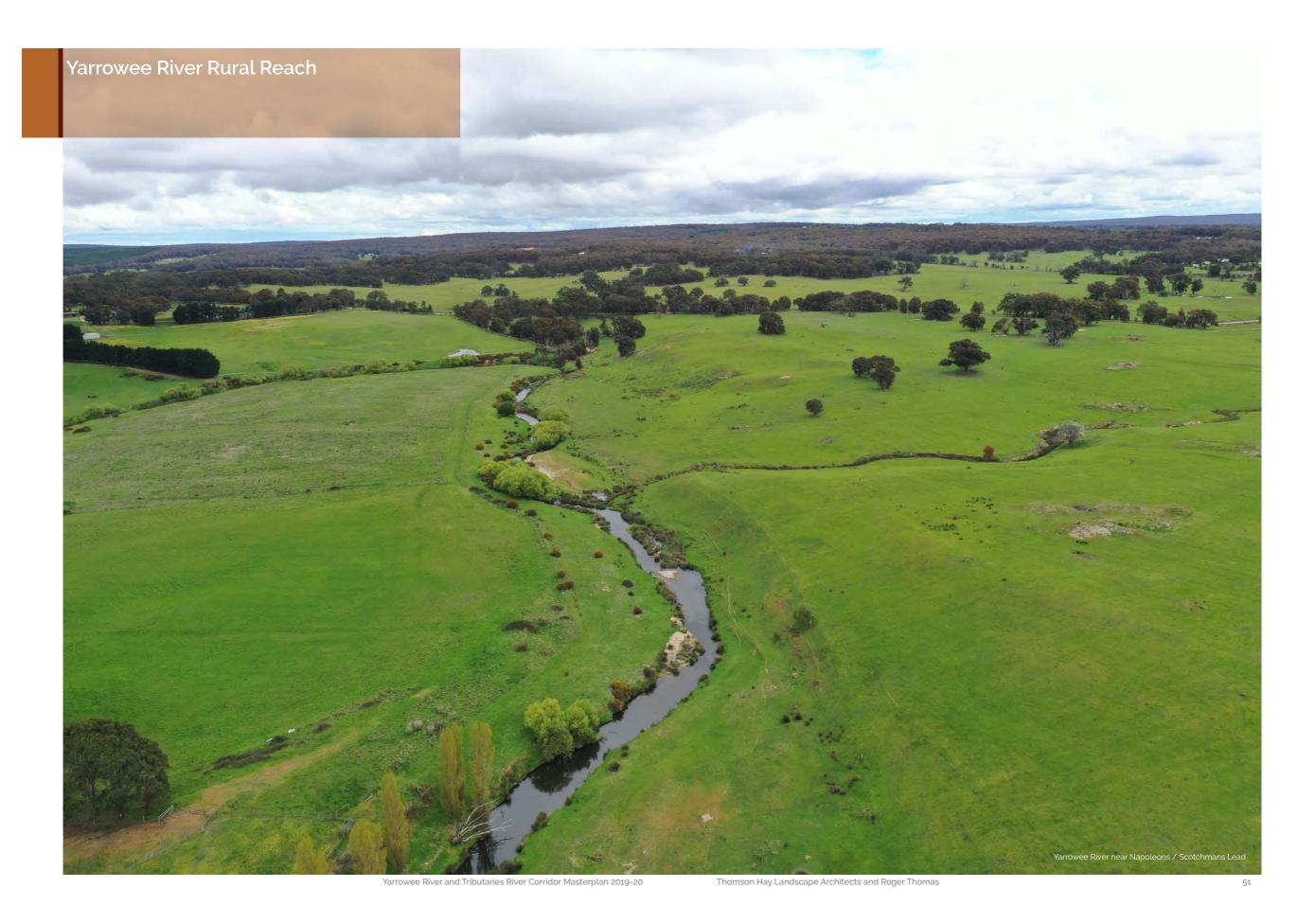
Yarrowee River and Tributaries River Corridor Masterplan 2019-20  $\,$ 



Yarrowee River and Tributaries River Corridor Masterplan 2019-20

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## Yarrowee River - Rural Reach

## Landscape character & general conditions

The rural reach of the Yarrowee River is defined as the section downstream from Docwra Street bridge, which flows through localities on the southern rural fringe of Ballarat including Cambrian Hill, Scotchmans Lead, Durham Lead, Napoleons and Garibaldi.

Winter Creek flows from Ballarat's western suburbs and joins the Yarrowee River downstream of Midland Highway bridge. Union Jack Creek which drains the Buninyong area joins the Yarrowee River downstream of Scotchmans Lead Road bridge.

The Yarrowee River forms the boundary of City of Ballarat and Golden Plains Shire along this reach. The study area for this project ends at the Buninyong - Mt Mercer Road bridge. From here the Yarrowee flows into the Leigh River and Barwon River, emptying into Bass Strait at Barwon Heads.

The river bed is generally wider and has a meandering course through the rural landscape. There are several billabongs left behind where the river has changed course over the years. Similar to the southern reach, there are flow on impacts from sludge, erosion of beds / banks and steep slopes.

A strip of crown land runs alongside the river (total width varies between 40 - 300m, average width is 100m). Much of the crown land has Riparian Management, Water Frontage or Grazing Licenses; with some sections of unreserved crown land.

The EVC's in the rural reach are Swampy Riparian Woodland upstream of confluence with Dog Trap Creek and Stream Bank Shrubland downstream. The vegetation along the river corridor varies from weed infested areas to newly planted and well established revegetation. Downstream of Glassons Road is generally weed infested with little indigenous vegetation. Gorse and blackberry continue to be a major problem in parts. Some adjacent landholders continue to graze to the water's edge and the most serious erosion issues occur in this section.

Public access to the river is currently limited, and includes bridge crossing points at Midland Highway, Nolans Road, Scotchmans Lead Road, South Durham Bridge Road and Buninyong - Mt Mercer Road. There is a reserve connecting Colac - Ballarat Road and the Yarrowee River corridor at School Lane intersection at Cambrian Hill. Tommys Lane and Glassons Road also in Cambrian Hill provides access to the river; however the existing footbridge at the end of Glassons Road is unsafe and should be replaced.

A trail called Bridge to Bridge Walk starting from South Durham Bridge Road is being developed by the Garibaldi Landcare Group.

## Assessment of the 1995 Masterplan

Local Landcare Groups including Napoleons and Garibaldi have done great work on weed control and revegetation.

There is a very successful community planting downstream from Glasson's Road, where Napoleons Landcare Group has co-ordinated works and contributed numerous volunteer hours. Trees and shrubs provide an attractive environment on the west side of the river.

More recently, Napoleons Landcare Group have been targeting the Union Jack Creek confluence with Yarrowee River.

Garibaldi Landcare Group has established the Bridge to Bridge walk through their maturing plantings, although it does not yet fulfil its aim to walk along the river from South Durham Bridge to Garibaldi Bridge due to overwhelming weed problems in the

Areas of revegetation have been successful; however there is opportunity to extend the planting over the full length and width of the crown land reserve.



Severe erosion along the river bank





Billabong at the end of the Bridge to Bridge Walk



Nolans Road Bridge

### Overview of recommendations for the Rural Reach

The following is an overview of the recommendations for this reach. Refer to the plans and the detailed recommendations in the front of this report for more information.

The following improvements are recommended:

- Stock proof farm fencing to correct title boundaries along the river corridor to exclude stock access
- Weed and pest control and fencing
- Indigenous revegetation in reserve land including steep embankments
- Erosion control and sludge management
- Maintenance of access tracks future trail extension
- Provide walking / cycling trails and bridges based on demand
- Provide picnic facilities where there are existing features of interest
- Development of future trail head at edge of CoB land once future trail network extends to the Buninyong - Mt Mercer Road
- Wayfinding signage
- Kayak trail and associated facilities
- Development of wetlands at Winter Creek / Yarrowee River confluence
- Improvement of existing billabongs
- Priority Project 4 Rural Trail Extension upgrade reserve from Dowcra Street to Midland Highway. Carpark at Midland Highway - subject to authority consultation (including VicRoads)
- Indigenous revegetation of the river banks and aquatic zone
- Rescind grazing rights and licences to increase river corridor reserve land and corridor connectivity

Yarrowee River corridor

A fully revegetated and connected wildlife corridor from north of Ballarat to Garibaldi incorporating paths and reserves for community activity and education. Increased support to Landcare groups including site upkeep, bio monitoring and water watch

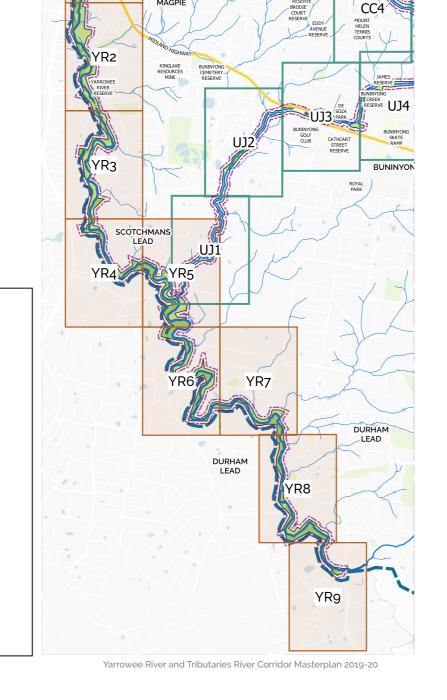
MySay Survey Dec. 2019

12 August 2020 10.3.1 **Ordinary Council Meeting Agenda** 

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# Rural Reach Scope and Reference

Extent of study area location plan



MAGPIE

#### Legend Masterplan Legend ביבי Existing farm track within reserve City of Ballarat boundary Existing steep bank Extent of study Newly planted revegetation Waterbody Former river bed / billabong Yarrowee River Existing rock shelf Major tributary Minor tributary Large rabbit warren Drainage channel • • • • Yarrowee River - underground --- Proposed pedestrian / cyclist trail Channelised waterway Proposed maintenance access track / future trail \_\_\_\_ Title boundary ←→ Improve pedestrian / cyclist link Future title boundary Proposed pedestrian / maintenance bridge — Contours (1m interval) •••• Proposed stepping stone pedestrian river crossing Public Open Space •••• (Proposed) fence to title boundary Freeway Proposed carpark ----- Railway line -- Major on-road cycle path Proposed revegetation - trees and understorey ---- Footpath Proposed embankment revegetation ---- Major trail - hardstand surface --- Major trail - gravel surface Priority weed management --- Minor trail Priority erosion control **(** Bridge Priority sludge management --- Drainage channel Priority vermin control Drainage pipe Drainage pit Proposed wetland opportunity Q100 flood level (where mapped) Priority wayfinding signage upgrade Playground Proposed interpretative signage / feature Ť Toilet Opportunity for water interaction Litter Bin Proposed trailhead Picnic tables (<del>A</del>) Proposed picnic area Public furniture Public lighting Possible kayak launch / dismount point Sign Possible kayak route (seasonal) PTV Bus Stop

Thomson Hay Landscape Architects and Roger Thomas

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PTV Regional Bus Route

Community facility

Education facility

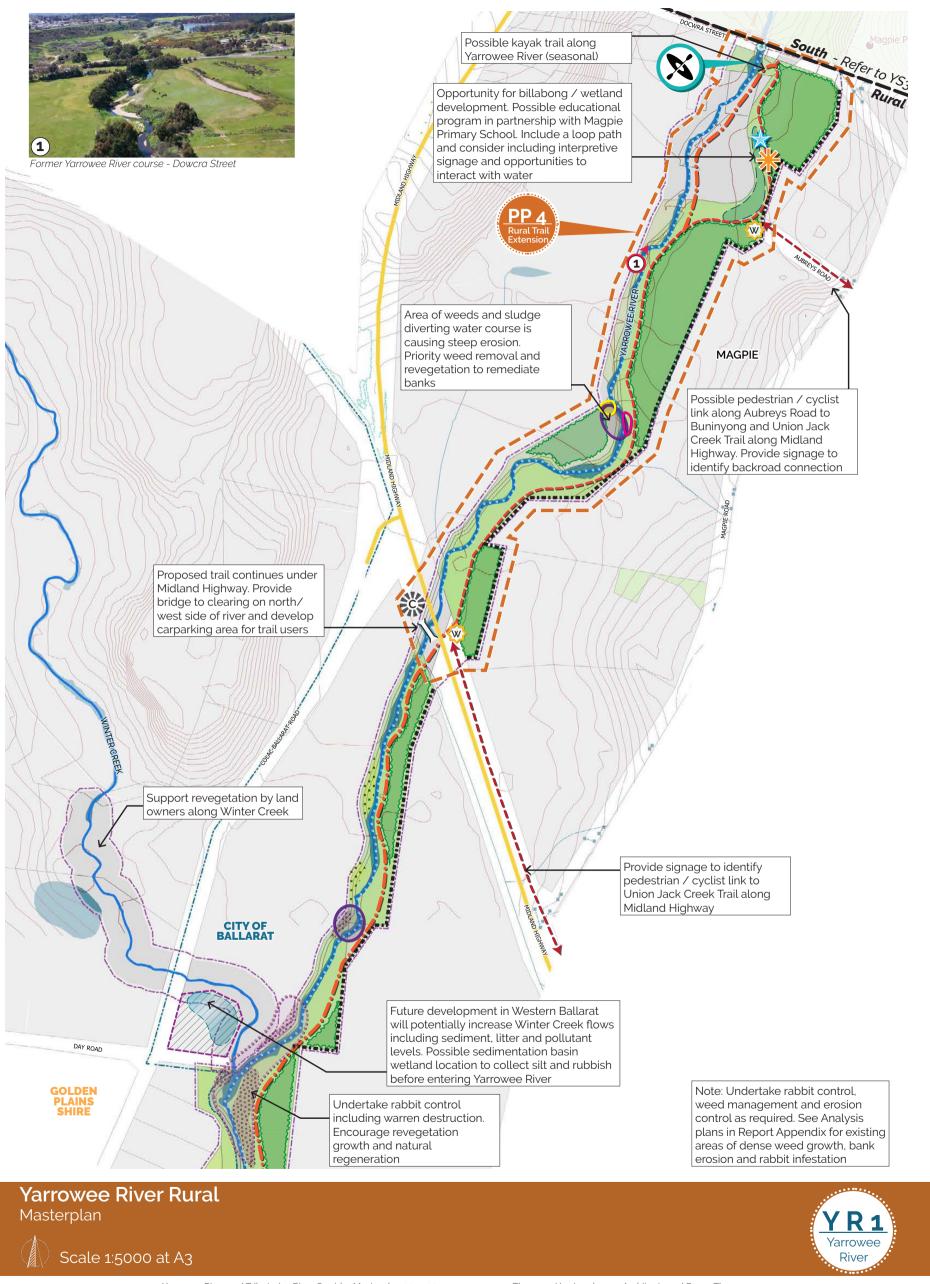
Recreation facility Aquatic facility

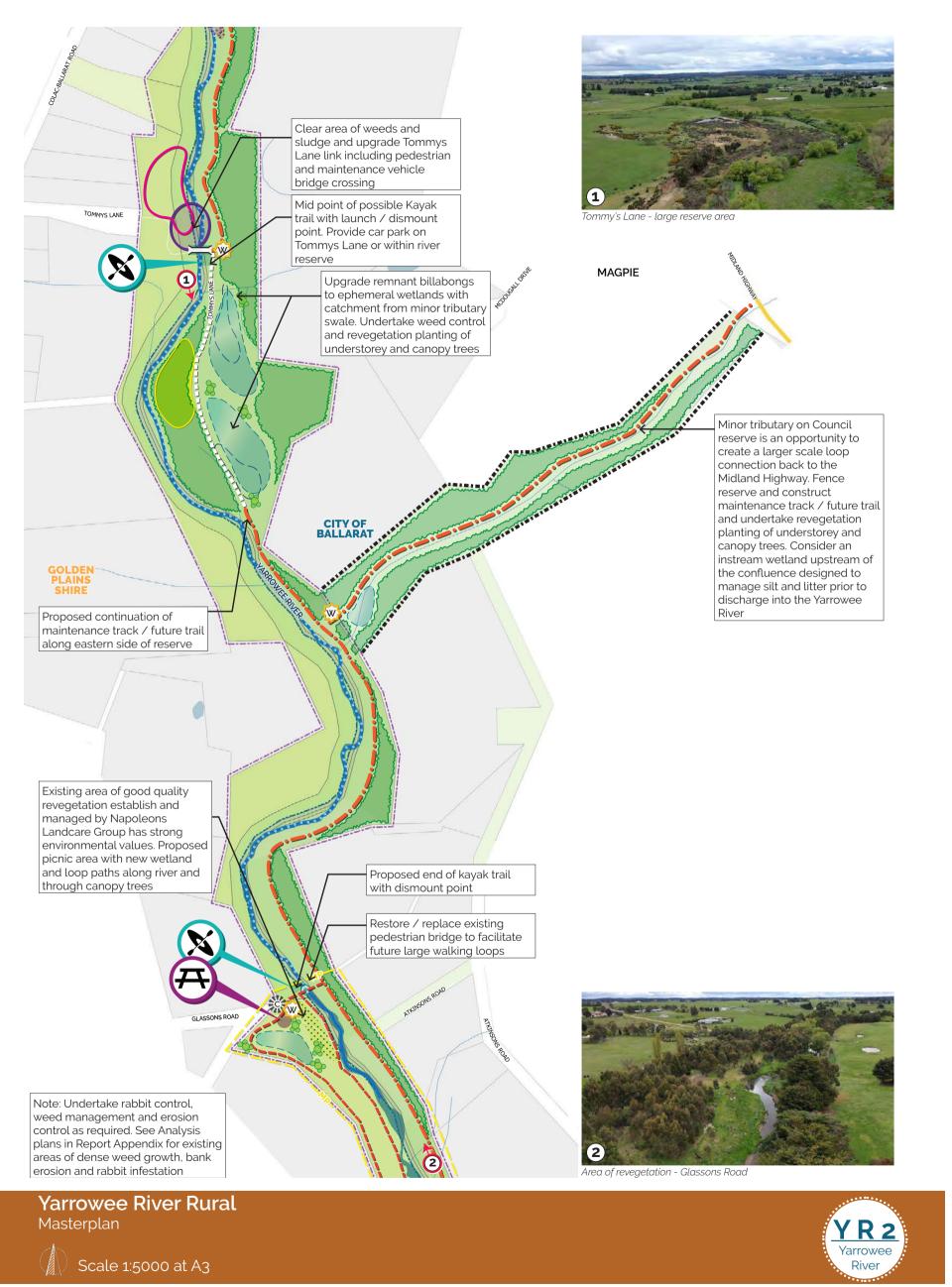
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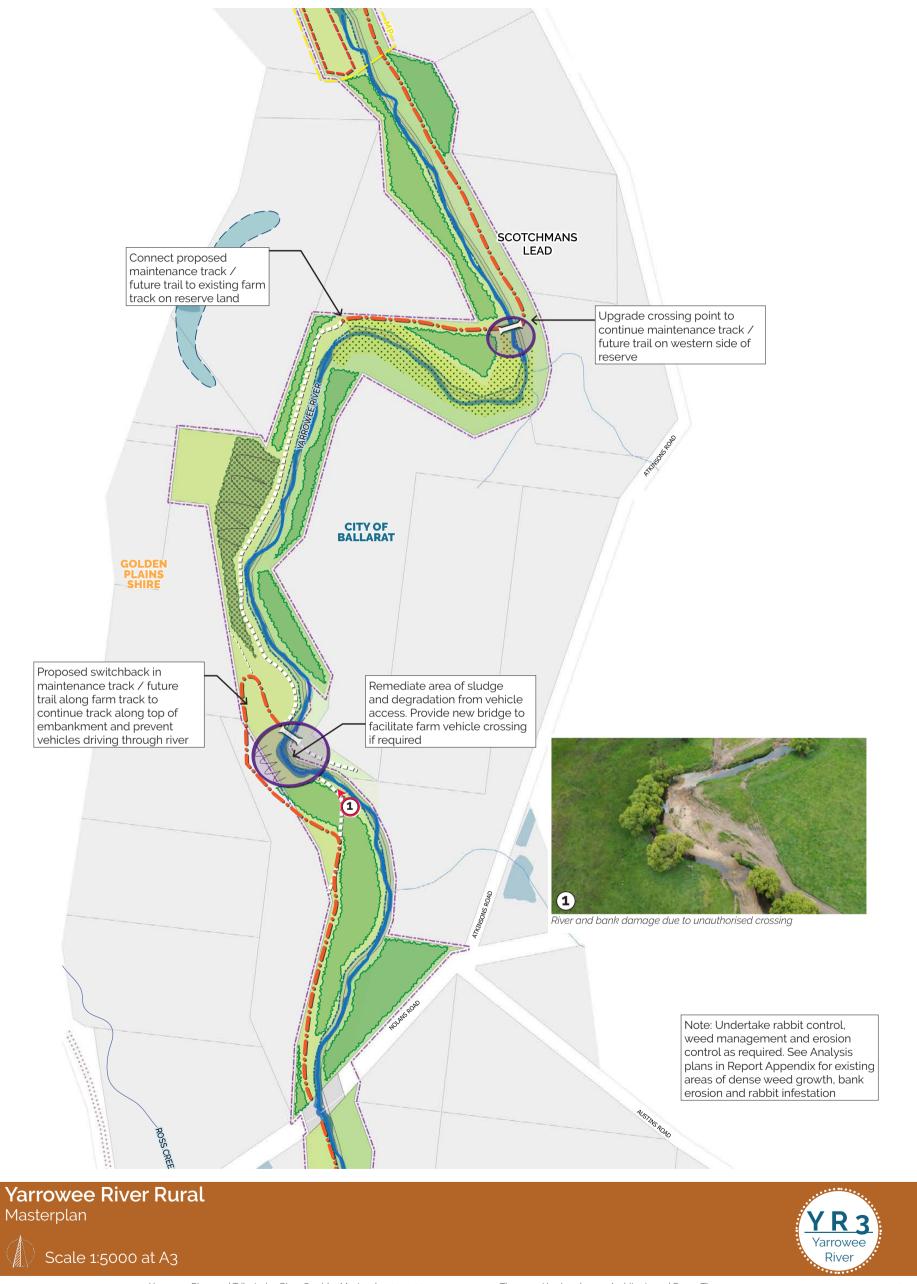
Area requires further design / masterplanning

Crownland outside of river reserve

- potenial sale opportuity









Note: Undertake rabbit control, weed management and erosion control as required. See Analysis plans in Report Appendix for existing areas of dense weed growth, bank erosion and rabbit infestation







