

# Upper Merri Creek Sub-Catchment



**Issues  
Paper**

July 2019



The project partners proudly acknowledge the Merri Creek’s Aboriginal communities and their rich culture, and pay their respects to their Elders past and present. We also recognise the intrinsic connection of Traditional Owners to Country and acknowledge their contribution to the management of land, water and resources.

We acknowledge Aboriginal people as Australia’s first peoples and as the Traditional Owners and custodians of the land and water on which we rely. We recognise and value the ongoing contribution of Aboriginal people and communities to Victorian life and how this enriches us. We embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.

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# Overview

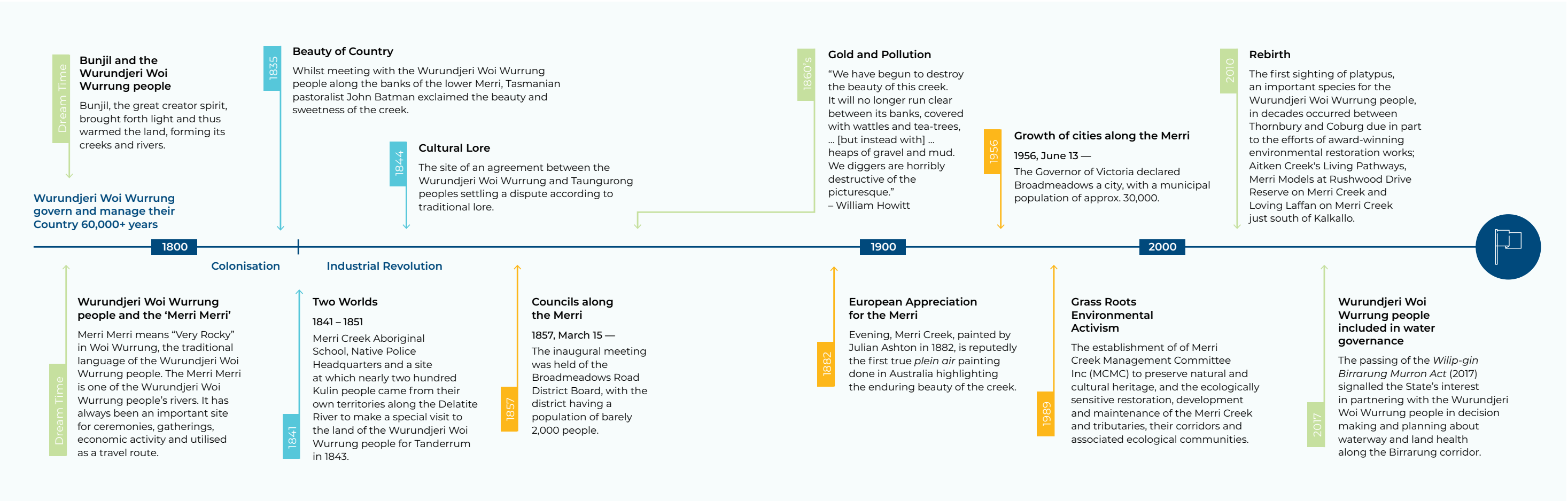
This document introduces the Upper Merri Creek sub-catchment, and the opportunities to create communities and places where people want to live through the planning decision about water. This approach is called integrated water management.

The Upper Merri Creek sub-catchment includes Melbourne’s North Growth Corridor which spans three council areas – Hume City Council, City of Whittlesea and the Mitchell Shire Council – and also features established suburbs, rural landscapes, creeks, remnant bush and grasslands.

The Merri Creek forms part of the Yarra River (Birrarung) catchment that encompasses the traditional lands of the Kulin Nation, including the Wurundjeri Woi Wurrung people. Archaeological evidence shows that Aboriginal Wurundjeri Woi Wurrung people lived and prospered in the Yarra (Birrarung) catchment for at least 30,000 years. More than 3,000 Aboriginal Wurundjeri Woi Wurrung cultural artefacts have been recorded in the Yarra (Birrarung) catchment, with a majority of these found within 100 metres of a watercourse or swamp.

The Yarra River (Birrarung) is a centrepiece of Wurundjeri Woi Wurrung Country and serves as a key site for conducting ceremony, trading, fishing and hunting. The Merri Creek is also significant, particularly where the Merri Creek meets the Yarra River (Birrarung) in inner Melbourne. Its name is derived from the term ‘Merri Merri’, which means ‘very rocky,’ referring to the volcanic rock formations found along the Creek.

↓  
Figure 1 — A timeline of events and changes that have shaped the Upper Merri Creek sub-catchment  
References used are listed at the back of this document.





Development pressure today means the area will change dramatically over coming decades as large portions of the rural landscape become urbanised. How we manage this development has huge implications for the future character of the area.

The community, together with councils and government agencies, need to consider important questions such as: How can we protect the environment and preserve biodiversity as the population expands? What unique characteristics do we want to preserve? What sort of neighbourhoods do we want to live in? How do we ensure everyone has access to open space? How can we manage growth in a way that fosters inclusive communities?

To answer these questions, partners such as the Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation, Victorian Planning Authority (VPA), councils, Melbourne Water and Yarra Valley Water are coming together with the local community to pilot a coordinated approach to decisions about the communities we want to live in and the ways that water management can achieve this.

The big idea is to create an integrated water management (IWM) plan for the Upper Merri Creek sub-catchment that delivers water services more efficiently and produces better outcomes for the local community and the environment.

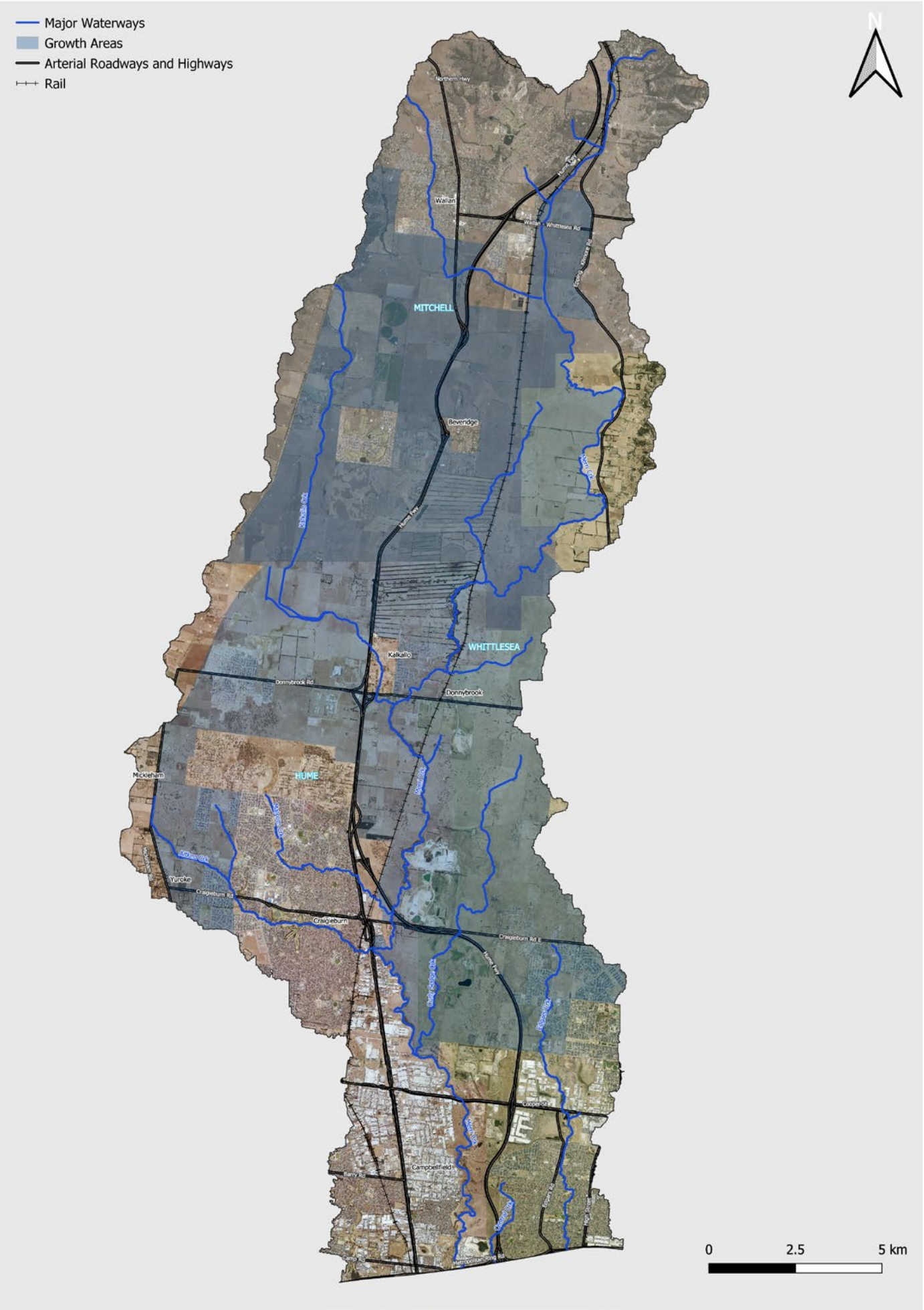
Collaboration and community input are crucial. Councils, government agencies and Traditional Owners cannot solve the big issues alone. A coordinated approach is needed to work across jurisdictional boundaries, understand community priorities, find innovative solutions to complex problems and facilitate effective planning so we can preserve and enhance the values of the Upper Merri Creek sub-catchment.

This paper summarises the current planning activities in the Upper Merri Creek sub-catchment and outlines the threats and opportunities that Traditional Owners, community, councils, and government agencies need to address together to create and realise a common vision for the future of the catchment.

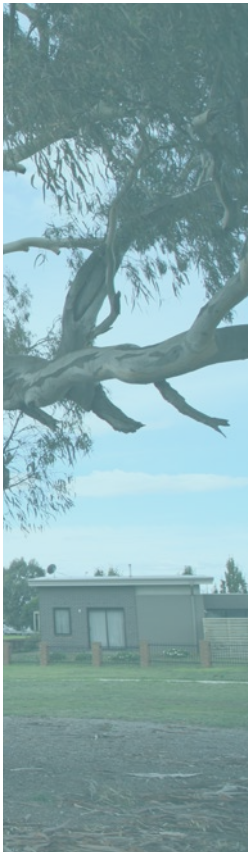
We have also included some key management questions that the community, councils, Traditional Owners and government agencies need to consider together when planning the future of the Upper Merri Creek sub-catchment.



Figure 2 — The Upper Merri Creek sub-catchment







# What are the challenges for the Upper Merri Creek sub-catchment?

## Population growth

Melbourne’s population is expanding rapidly and is projected to grow from 4.5 million to 8 million by 2051, making it Australia’s fastest growing capital city.

Much of the increasing population will be in Melbourne’s growth areas, including the North Growth Corridor which encompasses the Upper Merri Creek sub-catchment.

The speed of population growth is putting councils, existing infrastructure, community facilities and the environment under pressure.

Hume City Council	City of Whittlesea	Mitchell Shire Council
Population will increase from: <b>80,645</b> people in 2019 to <b>153,433</b> people in 2031	Population will increase from; <b>1,206</b> people in 2019 to <b>32,725</b> people in 2031	Population will increase from <b>18,000</b> people in 2019 to <b>60,000</b> in 2031

↑

Source: Data provided by Hume City Council, City of Whittlesea, Mitchell Shire Council

The push to build new houses to accommodate the expanding population means Hume City Council, the City of Whittlesea and Mitchell Shire Council are under significant pressure to improve the time taken to process planning applications for new housing estates and to work through planning applications.

As more and more people move into the area, existing infrastructure becomes strained and there is pressure on councils and government agencies to ensure infrastructure for power, water, roads, schools, hospitals and public transport keeps pace with the population growth.

Water is a finite resource and the rapid expansion of population in the Upper Merri Creek sub-catchment means water authorities and councils need to ensure there will be enough water for residents and the environment in the future.

There is also a need to effectively manage wastewater. The treatment of wastewater collected from homes and businesses can transform a waste stream into a valuable resource. For instance, recycled water could be used in homes and businesses where drinking quality water is not necessary to flush toilets or water gardens, or for irrigation in a range of settings such as playing fields, horticultural enterprises and industrial uses.

By making greater use of water sources such as stormwater and recycled water, we can also reduce the amount of higher quality water we need from our dams and desalination plants. To achieve this, councils and water authorities need to ensure that new homes and buildings include the necessary plumbing to use these new water supplies.



Climate change

Our climate is becoming hotter and drier, with less rainfall and more dramatic storm events.

As communities across the Upper Merri Creek sub-catchment become less rural and more urbanised, and the climate heats up, we will need to use more water to stay cool and hydrated. Water will also be crucial to maintain private gardens, keep street trees alive and sustain green public open spaces to reduce what is known as the urban heat island effect (where cities are warmer than surrounding rural areas).

Decreased rainfall means less water will be flowing into our water reservoirs and we can no longer rely on traditional sources of water to supply all our water needs. Instead, we need to broaden the range of water sources available to reduce our reliance on existing drinking water supplies and ensure we have enough water to meet the needs of the environment and an expanding population.

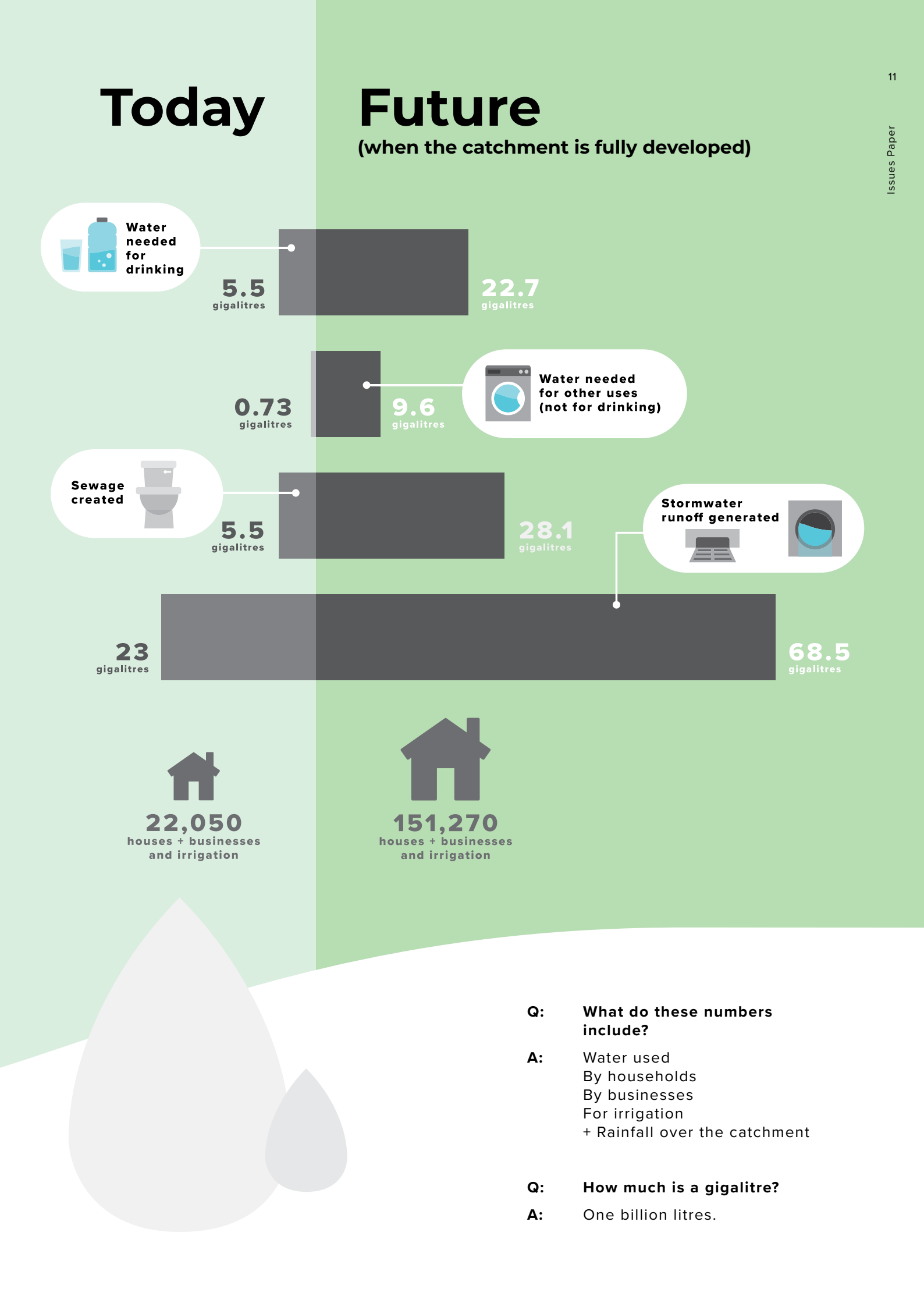
Building more desalination plants is an option, but these are very expensive and use huge amounts of energy, potentially contributing to further climate impacts if the energy used to operate the plants is not renewable.

Change in land use

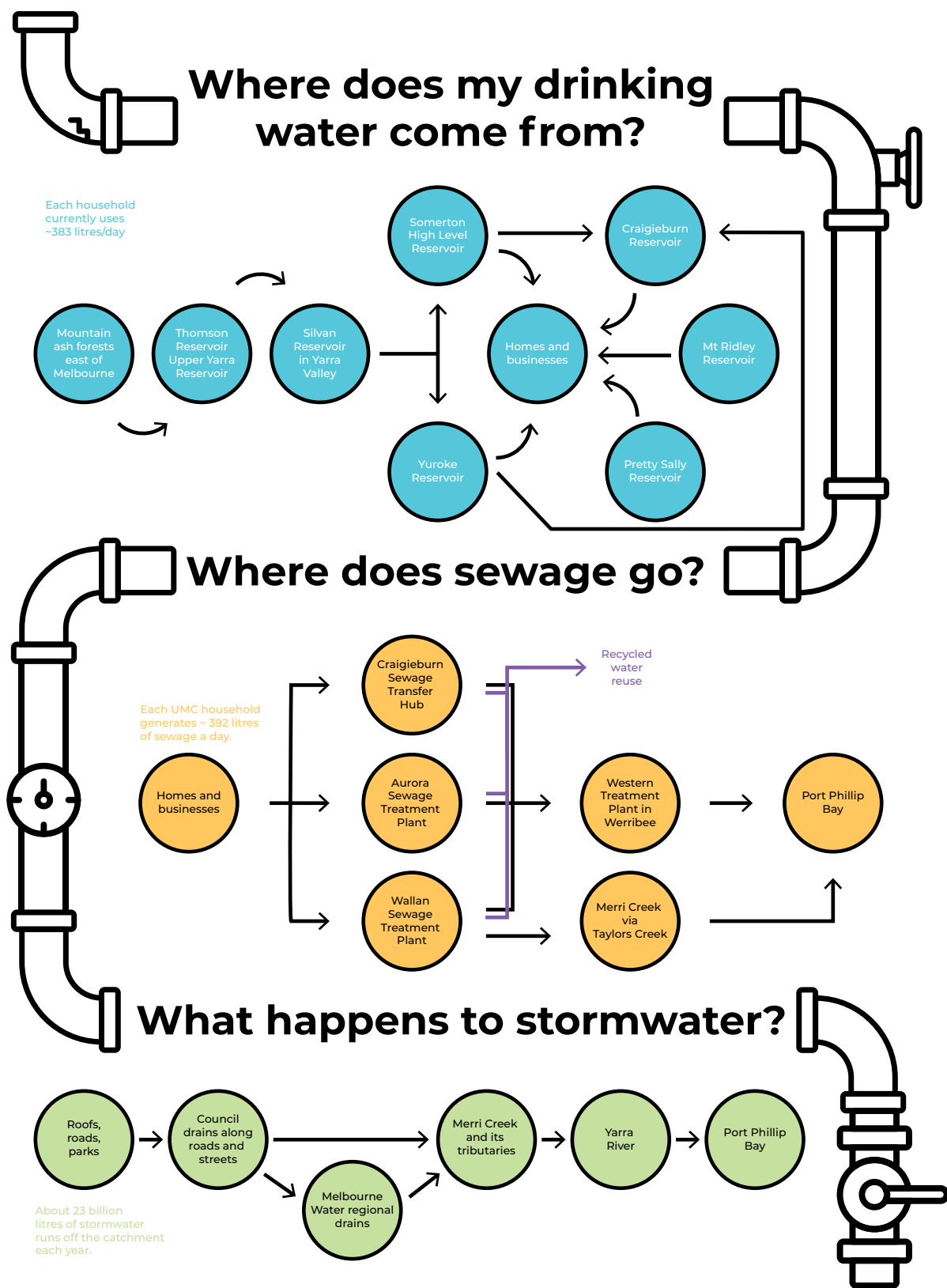
As the population grows, the landscape of the Upper Merri Creek sub-catchment will progressively shift from rural (in Mitchell) to urban, and to higher density living (in Hume and Whittlesea). The catchment will produce more water through stormwater runoff and wastewater from houses and business. Urbanisation also potentially changes the landscape from ‘green’ to ‘grey’ as trees and grassland are replaced by streets, roofs and buildings.



Figure 3 — Water Balance



- Q: What do these numbers include?**
- A:** Water used  
By households  
By businesses  
For irrigation  
+ Rainfall over the catchment
- Q: How much is a gigalitre?**
- A:** One billion litres.



# How will these challenges impact the Upper Merri Creek sub-catchment?

## Environment

The Upper Merri Creek sub-catchment is located in the upper part of the Yarra catchment which flows into Port Phillip Bay. It is largely rural but encompasses the North Growth Corridor which will undergo major changes in coming years.

The sub-catchment contains highly valued creeks and waterways with some of the largest and most diverse remnants of native vegetation in the northern suburbs of Melbourne. These include Merri Creek, Hernes Swamp, Kalkallo Creek Wetlands and the Kalkallo Common Grasslands.

The area is also home to protected, threatened and iconic plants and animals such as platypus, the Growling Grass Frog, Golden Sun Moth, the Matted Flax-Lily, and contains some of the best remnant grassland plains in Victoria.

The large tracts of undeveloped rural and natural land in the Upper Merri Creek sub-catchment mean urbanisation and climate change will have an enormous impact on habitat for vulnerable plants and animals, local waterways and the environment.

If more of the rural and semi-rural land is developed using conventional approaches, significantly less rainwater will filter through the ground to become groundwater that sustains local wetlands and waterways such as the Merri Creek.

Instead, rain will run off the roads and footpaths as stormwater, taking pollutants and litter into our waterways. The waterways in the Upper Merri Creek sub-catchment flow into Port Phillip Bay, so pollution that is washed into them with stormwater not only has negative effects on local waterways, it also pollutes the bay. This threatens the use of waterways and beaches for swimming, fishing and boating activities.

Local waterways are also under pressure due to climate change, which is projected to decrease streamflows to some Melbourne catchments by 50 per cent by 2065. The Victorian Government's 2018 Healthy Waterways Strategy indicates climate change will lead to 11–20 per cent less average annual rainfall runoff regionally but higher streamflow peaks following storms.

Additionally, the availability of water for the environment in the Upper Merri Creek sub-catchment will fall from 'high' to 'moderate' if current water management approaches are continued into the future. These decreased streamflows have dramatic, negative implications on waterway health. Without sufficient flows, local waterways and wetlands such as Hernes Swamp will struggle to maintain viable habitats for birds, fish and frogs, including the threatened Growling Grass Frog.

The way that development is managed will impact on waterways in the Upper Merri Creek sub-catchment. Inappropriate development can overshadow waterways, limit public access and connectivity within communities, destroy floodplain habitat and permanently change the character of waterways. Sediment runoff during construction works is also an issue.

←  
Figure 4 — Where does my water come from?

# Key project questions: tell us what you think

## Stormwater

Unless a very large volume of stormwater is reused, the creeks in the Upper Merri Creek sub-catchment will be fundamentally changed by the increased amounts of stormwater.

What should we do with the stormwater in the catchment?  
How can we reuse it?

Do we need to accept change in the environmental character and appearance of some waterways?  
How might this affect Indigenous values associated with local waterways?

→

Figure 5 —  
Ecological Values

## Water sensitive urban design

Water sensitive urban design (WSUD) is an approach to designing urban areas that stops stormwater containing litter and pollutants from running into waterways, causing erosion and damaging habitats. Instead of allowing high volumes of stormwater to run into waterways when it rains, WSUD captures stormwater and reuses it in a way that mimics the natural water cycle.

- How will management of WSUD assets such as raingardens and sediment ponds be resourced and maintained so it is not left up to councils?
- Can WSUD solutions be applied to existing suburbs as well as new developments in the Upper Merri Creek sub-catchment? What is the WSUD strategy for the whole catchment?
- What would an institutional framework for managing WSUD assets look like to ensure this infrastructure is sustainable? How can we ensure this governance structure is adaptive?

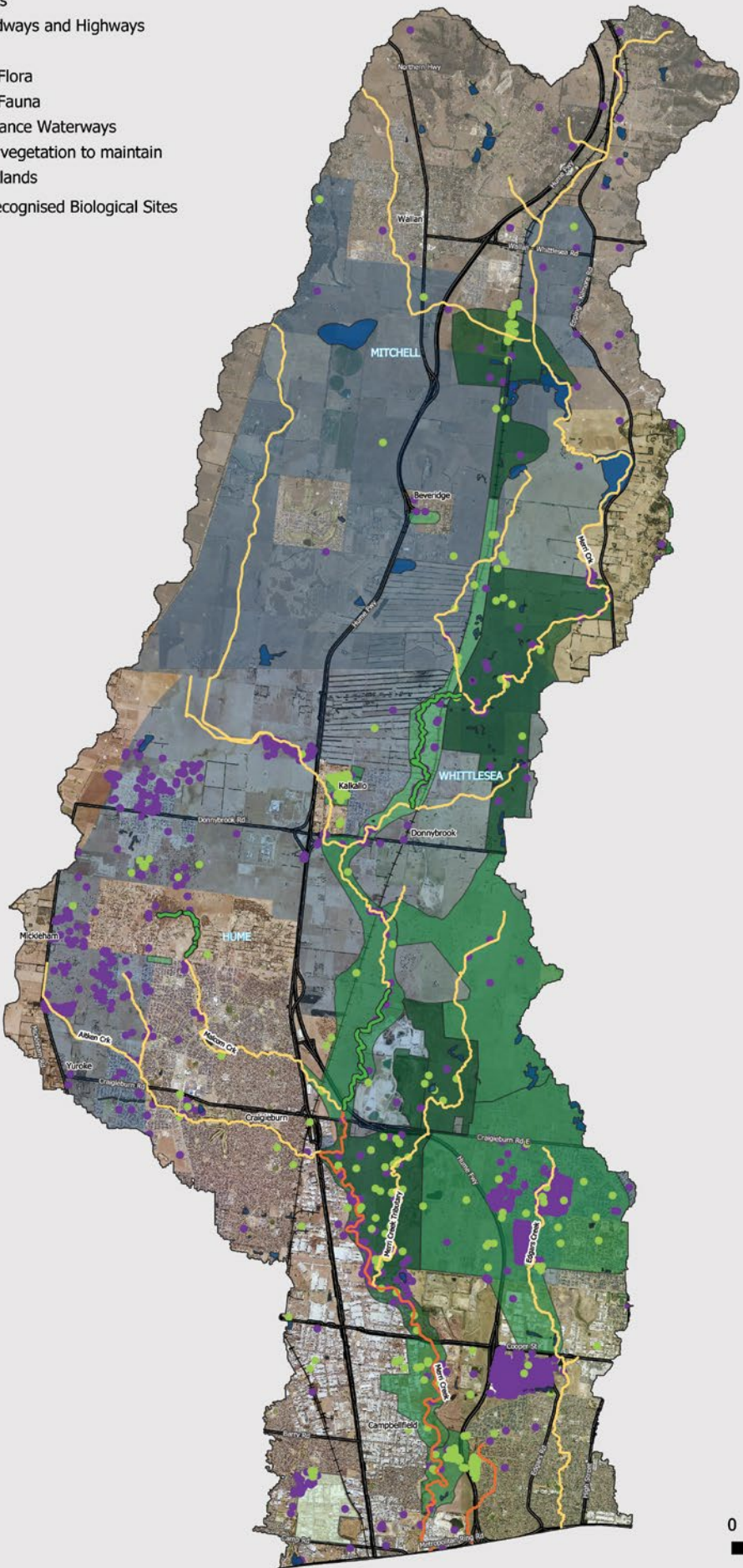
## Wastewater

Unless we find a use for treated wastewater, it will be discharged to Port Phillip Bay. Is there an alternative?

Can environmental flows in Merri Creek (or the Yarra) be provided using recycled water?

Recycled water competes with stormwater for reuse – what should we do with all the water? Although stormwater and wastewater are managed by different organisations, can we ‘merge’ the decision making to find the best use of this new water?

Are we ever likely to drink treated stormwater or recycled water? If yes, how would this be reflected in the integrated water management plan we are developing now?





Aboriginal cultural values

As the Traditional Owners of the Upper Merri Creek sub-catchment and its surrounding country, Wurundjeri Woi Wurrung people will bring their unique knowledge, connections and understanding of the creek and the wider sub-catchment to enhance the integrity of the integrated water management plan. At the same time, the Wurundjeri Woi Wurrung people recognise the role and contribution to the process that other partner stakeholders will bring to the development and strength of the plan.

The Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation has previously completed the Merri Creek Cultural Values Project (2012) and has developed a water policy called ‘Nhanbu narrun ba ngargunin twarn Birrarung’ for the entire Birrarung (Yarra catchment). This work has been instrumental in piloting a cultural flows assessment methodology as a framework for embedding Traditional Owner values and knowledge into water planning and management for the Upper Merri Creek sub-catchment.

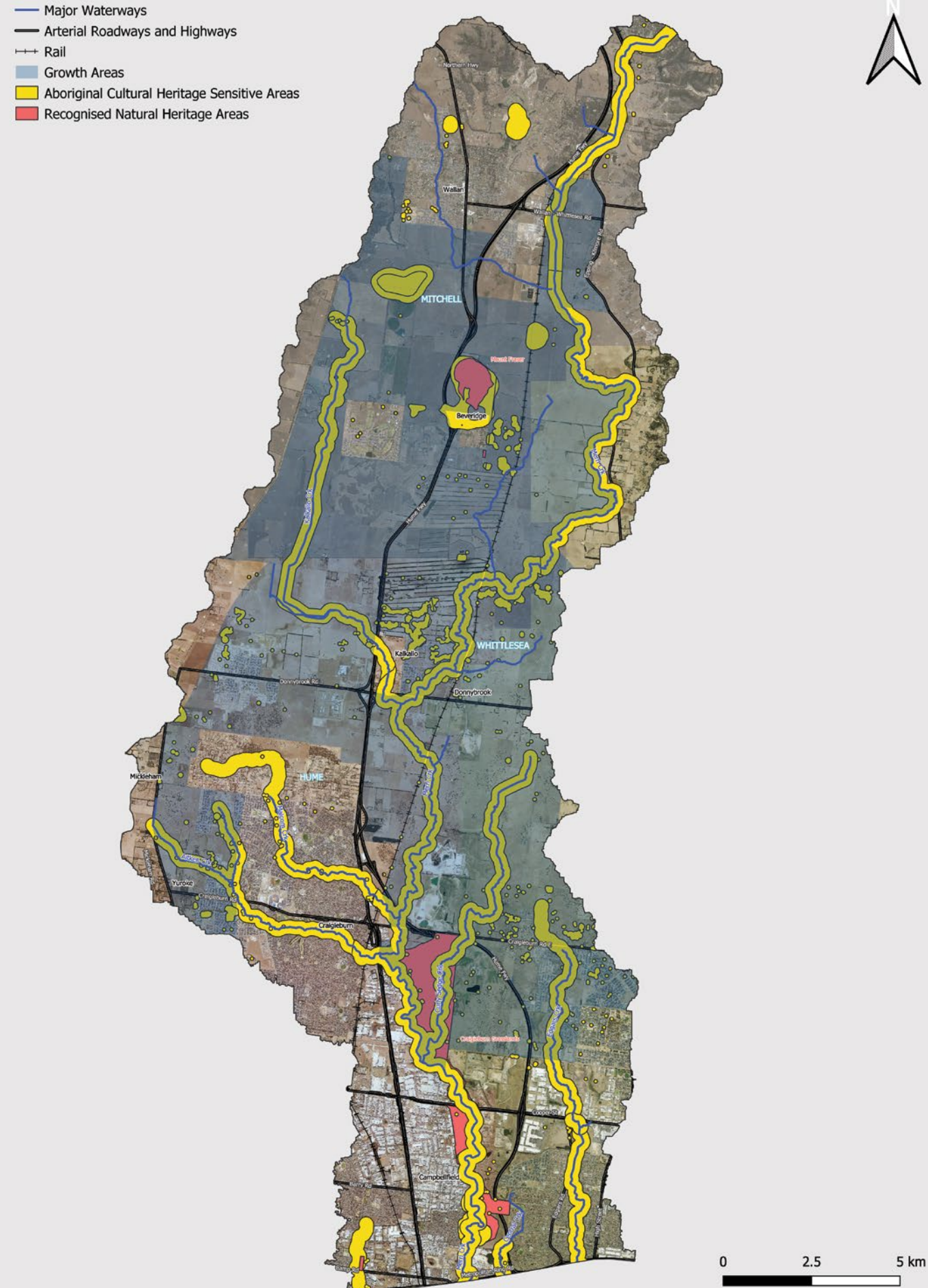
The framework was developed by the National Cultural Flows Research Project. It describes the different ways cultural flows can be implemented using law and policy. It also provides tools to assist Traditional Owners and water managers to undertake cultural flows assessments.

The Upper Merri Creek Sub-catchment Cultural Flows Assessment will be developed by the Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation.

Ways for water planning and management to support Wurundjeri Woi Wurrung’s objectives include:

- Preference being given to Wurundjeri Woi Wurrung’s Narrap Team to undertake a range of land and natural resource management services
- Exploring native produce enterprise (and other business) opportunities within the Upper Merri Creek sub-catchment
- Incorporating signage for geographical features and public spaces in Woi Wurrung language incorporating clan acknowledgements of place and historical custodianship
- Engaging with the Native Waters Network to hold a yearly event focused on knowledge sharing and incorporating a Merri Creek clean-up activity
- Recreating the waterway systems which were pre-historically and historically important and remain important features of the Merri Creek and its tributaries
- Developing strategies to establish cultural and environmental corridors within the Upper Merri Creek sub-catchment that provide connectivity within this area and to the broader Birrarung system
- Conducting comprehensive terrestrial and aquatic flora and fauna assessments across the sub-catchment to identify opportunities to reintroduce and restore native plants, birds and animals into the Upper Merri Creek sub-catchment, including species that are important to Wurundjeri Woi Wurrung people as totems, seasonal indicators and resources required for ceremony
- Incorporating Wurundjeri Woi Wurrung flora and fauna assessments as critical planning tools for future management of the sub-catchment.

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Figure 6 —  
Cultural values





Community

The Upper Merri Creek sub-catchment encompasses a diverse community living in a mixture of urban, peri-urban and rural land uses. It includes a mixture of cultures and socio-economic groups including people living below the medium income for Victoria.

Key management questions

How can the project partners work together to respond to community expectations for ‘new’ services like urban cooling and high quality open spaces? What do roles and responsibilities look like, and how might such services be delivered? What is the community’s expectation of how agencies should work together?

The community in the Upper Merri Creek sub-catchment is vulnerable to a range of impacts from population growth and climate change including affordability of housing and utilities, access to open space, flooding and heat exposure.

As Melbourne expands and available land is used up, scarcity of available land will increase prices, making housing less affordable. Water resources will also become scarcer. There will be an increasing need to ensure everyone in the community has access to affordable housing, power and water.

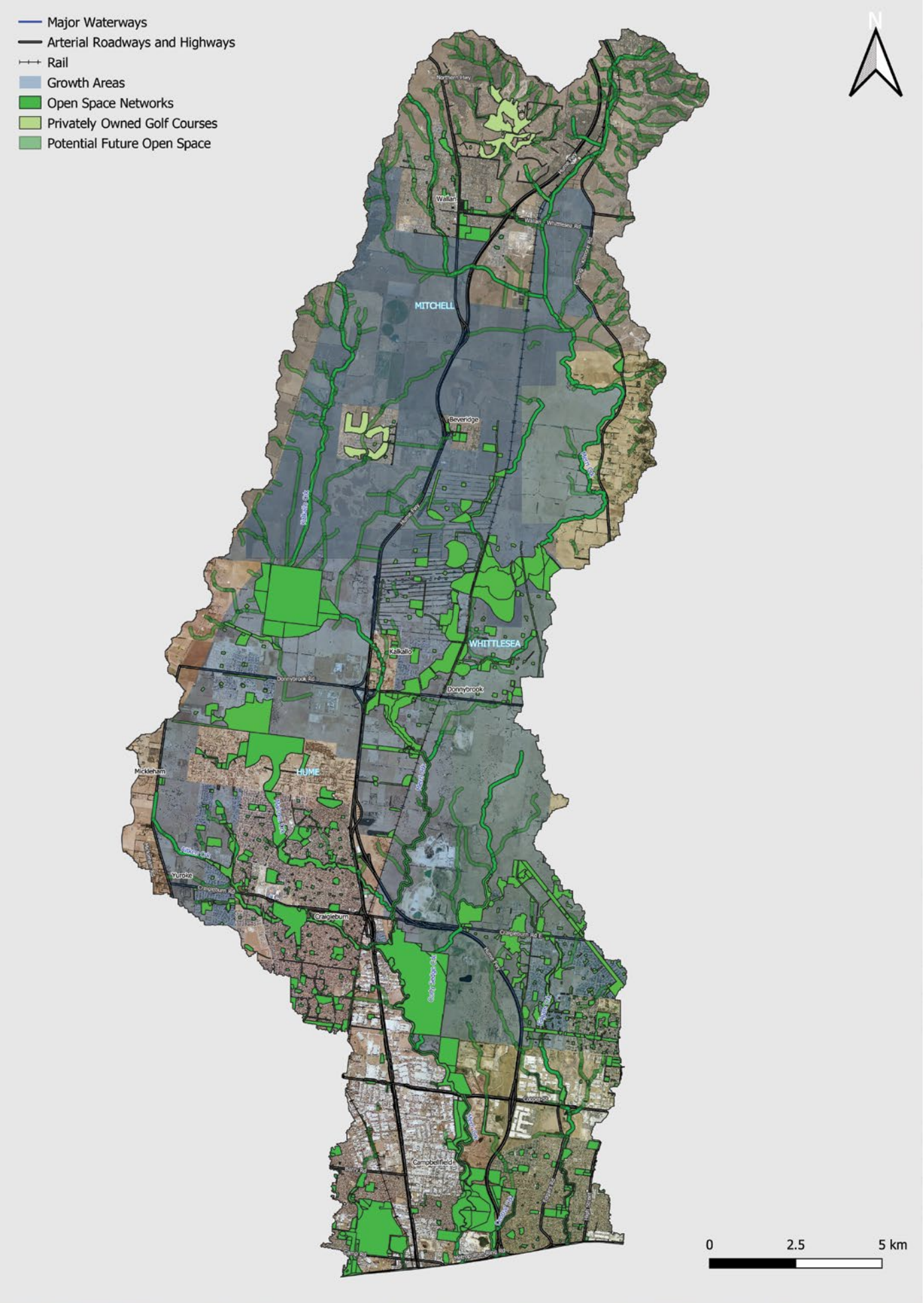
Equity of access to public open space, which is an important community asset, will also become an issue as the Upper Merri Creek sub-catchment becomes more urbanised.

Urban development of the Upper Merri Creek sub-catchment is a certainty, and will forever change its landscape. But if a new, integrated approach to planning suburbs and water services is adopted, urban development can ensure the community has access to high quality and connected open space, that local creeks are healthy, that streets and parks remain a comfortable temperature on hot days and that future droughts do not compromise the local economy.

Description of statistics	Hume City Council	City of Whittlesea	Mitchell Shire Council
Percentage of people born in Australia compared to 64.9% of people in Victoria born in Australia	57.7%	58.4%	79.1%
Other top responses for country of birth	<ul style="list-style-type: none"><li>• Iraq</li><li>• India</li><li>• Turkey</li><li>• Lebanon</li><li>• New Zealand</li></ul>	<ul style="list-style-type: none"><li>• India</li><li>• Italy</li><li>• The former Yugoslav Republic of Macedonia</li><li>• Greece</li><li>• China</li></ul>	<ul style="list-style-type: none"><li>• England</li><li>• New Zealand</li><li>• India</li><li>• Italy</li></ul>
Median personal weekly incomes compared to the Victorian medium income of \$644 per week	\$529	\$591	\$648

↑  
Source:  
[https://quickstats.censusdata.abs.gov.au/census\\_services/getproduct/census/2016/quickstat/LGA23270](https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA23270)  
[https://quickstats.censusdata.abs.gov.au/census\\_services/getproduct/census/2016/quickstat/LGA27070](https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA27070)  
[https://quickstats.censusdata.abs.gov.au/census\\_services/getproduct/census/2016/quickstat/LGA24850](https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA24850)

→  
Figure 7 — Existing open space networks





# What responses or opportunities are available?

## Planning

We need to change the way we plan for community and water services in the sub-catchment. Planning refers to strategic planning by councils, water services planning by utilities, cultural flows assessment by Traditional Owners, precinct structure planning by the Victorian Planning Authority and catchment management planning by catchment management authorities.

At present, there is a tendency for government agencies or councils to work exclusively within their own geographical and regulatory boundaries. By planning together at a catchment level, these agencies can create positive community and environmental outcomes more easily in the Upper Merri Creek sub-catchment. This collaboration produces a more coordinated approach to planning that enables organisations to deliver water services and infrastructure more efficiently.

Collaboration on its own is not enough; further protection is required for bushlands, grasslands, parks, creeks, rivers and wetlands. Planning can also be streamlined to provide consistent responses to developers from the various agencies.

Water planning also needs to recognise the rights of First Nations people, and the unique role that Traditional Owners can play in looking after water and land. We expect that the planning authorities will incorporate Aboriginal perspectives and visions for the catchment into their own planning documents.

A successful planning process is one that includes and documents local community perspectives. This begins by framing a planning question that engages the community, and then spending time listening to discussions about the issues that emerge. Following this, it will be the task of Traditional Owners, water utilities, councils and the State Government to work together to prepare a coordinated response and deliver the quality urban spaces the community has asked for, within the bounds of the statutory obligations of each agency.

### Key management questions

Existing agency policies are sometimes contradictory. Examples include the different ranking of water sources for reuse or policies around the acceptability of open-water bodies and street trees. How can we remove the risks individual agencies face and empower them to collaborate effectively?

Urbanisation affects local and regional biodiversity, and policy frameworks attempt to compensate for the impacts of development on biodiversity through vegetation offset schemes. How could we protect or regenerate biodiversity through integrated water management?

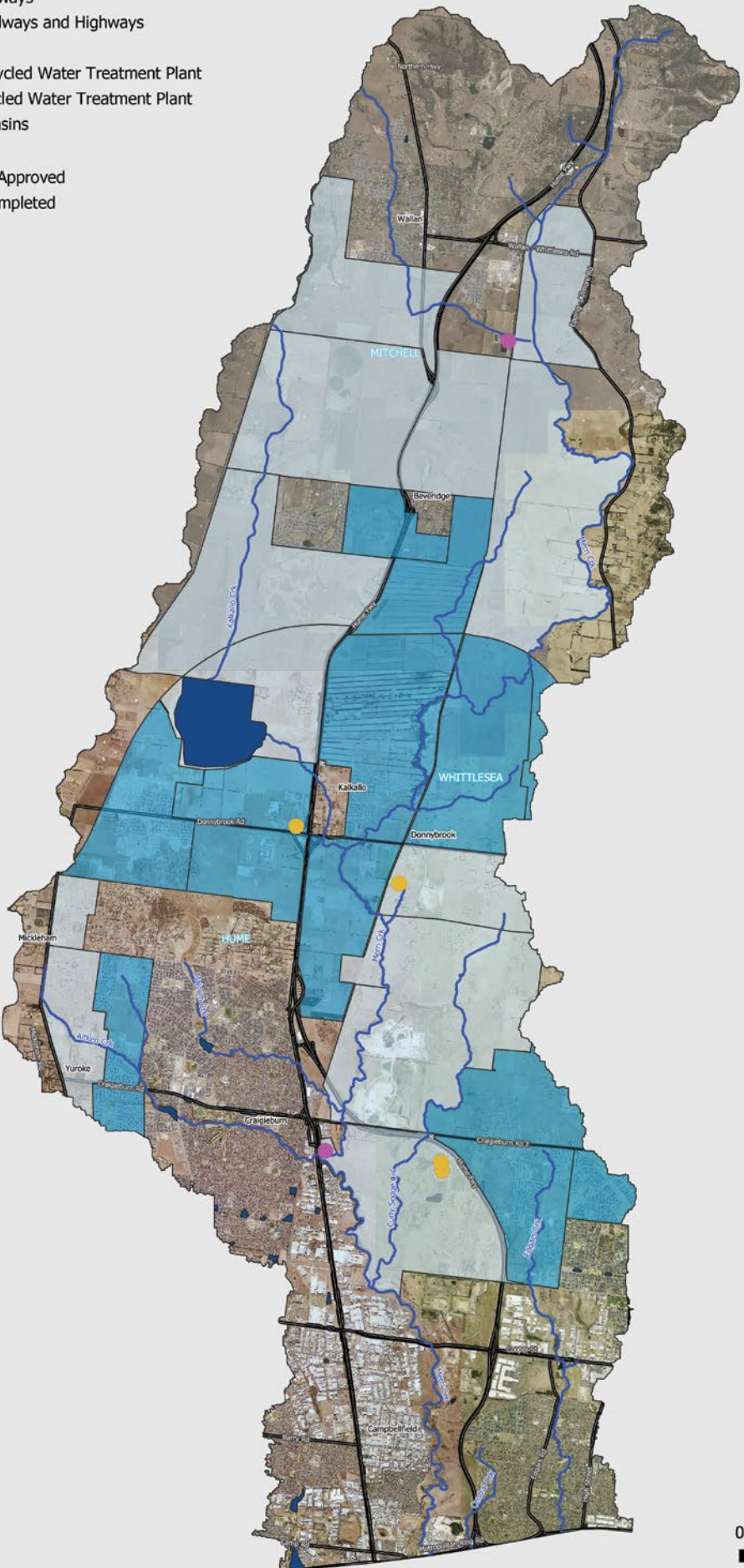
To realise a sustainable water future, we may need a different template for urban development that plans around waterways and open spaces, not around streets. Is this okay? How far can we go?

Some utilities have costs that have already been incurred such as Yarra Valley Water’s sewage treatment plant in the Upper Merri Creek sub-catchment that has already been built. Is it okay if these assets do not get used or if the proposed services such as recycled water are not provided?



Figure 8 — Infrastructure and growth

- Major Waterways
- Arterial Roadways and Highways
- Rail
- Existing Recycled Water Treatment Plant
- Future Recycled Water Treatment Plant
- Retarding Basins
- Growth Areas
  - Complete & Approved
  - Yet to be Completed





## Community engagement

The significant increase in population in the Upper Merri Creek sub-catchment creates an opportunity to shape new and inclusive communities and to promote economic opportunities for marginalised sectors of the community.

To understand the community’s views on the future of the region, community input will play an important role in the development of the integrated water management plan. However, a major barrier to community participation is that community understanding of water issues is low, and that we are attempting to plan for a community that does not yet exist.



Visit <https://youtu.be/4DZf2eY6heo> to view a Living Victoria video explaining more about integrated water management.

### What is integrated water management?

Integrated water management is a term planners use to describe the process of looking at all types of water when making planning decisions. It can highlight opportunities that otherwise stay hidden if services (for example, wastewater) are planned on their own.

The Victorian Department of Environment, Land, Water and Planning (DELWP) defines integrated water management as:

*A collaborative approach to planning that brings together all elements of the water cycle including sewerage management, water supply, stormwater management and water treatment, considering the environmental, economic and social benefits.*

An integrated water management plan could outline planning requirements, development conditions, scheduling of infrastructure, investment or funding arrangements for delivering water services in a catchment.

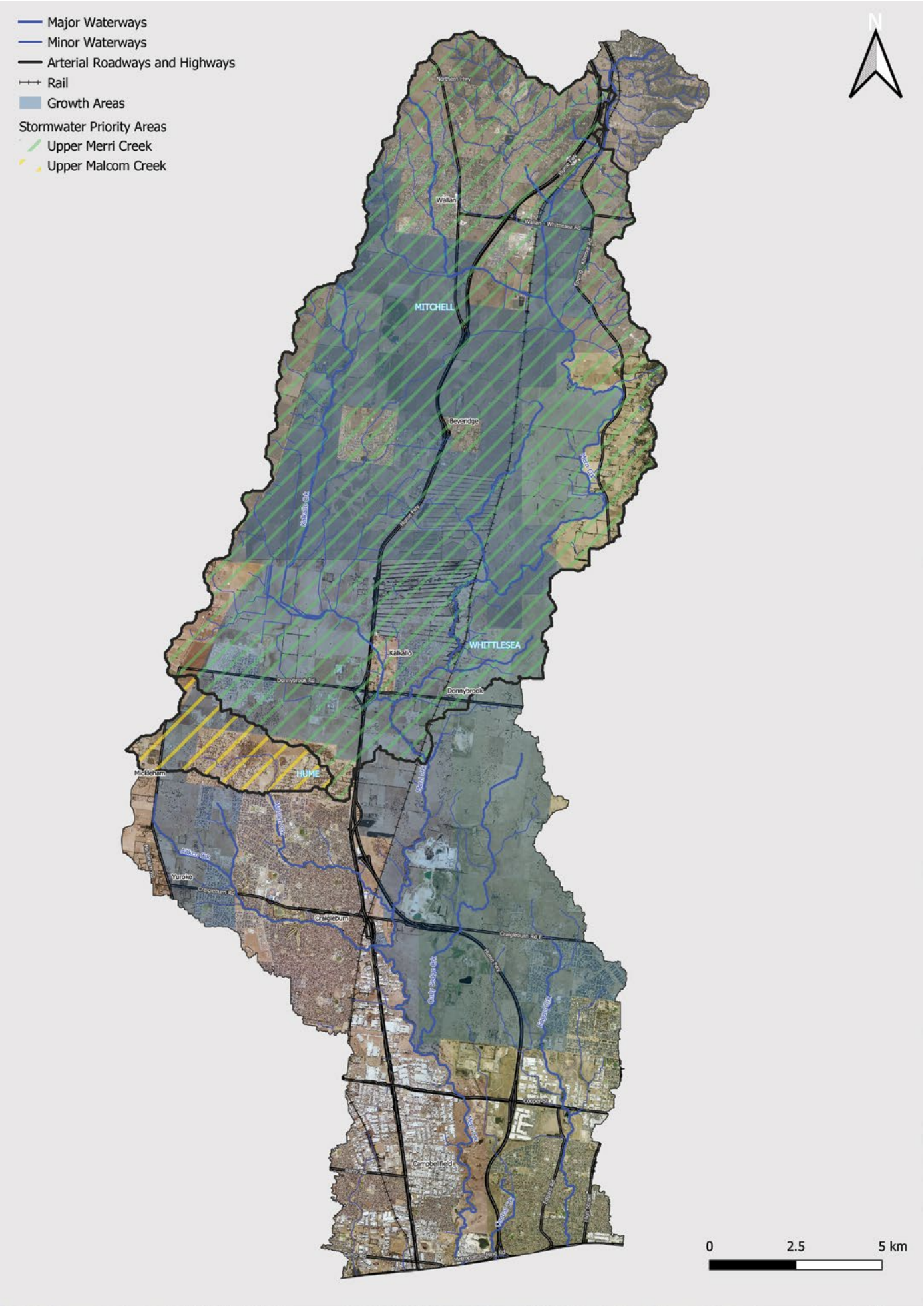
A stakeholder and community engagement plan for the Upper Merri Creek Integrated Water Management Plan has been developed to incorporate community input into the plan and build water literacy.

The objectives of the stakeholder and community engagement plan include:

- Deliver inclusive, accessible and genuine community engagement
- Provide a range of opportunities to participate
- Build trust with the community by ensuring the process is transparent
- Build stakeholder and community understanding of the complex challenges and opportunities for the Upper Merri Creek sub-catchment.



Figure 9 — Waterways and catchments





Collaboration

The project partners are committed to creating a community that people want to live in. Water can be seen as an ‘enabler’ of this when it brings people and institutions together to create approaches that support broader social, cultural and economic outcomes.

This project is therefore a collaborative process. The success of the Upper Merri Creek Integrated Water Management Plan requires collaboration and commitment from a variety of stakeholders. This process represents a departure from how things have been done in the past, and participants have embraced this fresh approach with its focus on shared benefits and innovative outcomes that can be achieved by working together across institutional boundaries.

Collaborators

Project Collaborators



Proudly supported by



# References for timeline

## 1. Bunjil and the Wurundjeri:

- a. Bunjil, the great creator spirit, brought forth light and thus warmed the land, forming its creeks and rivers by cutting the earth with the large knife he always carried.
- b. Source: Ellender, I., Christiansen, P., & Faithfull, T. (2001). People of the Merri Merri: The Wurundjeri in colonial days. Merri Creek Management Committee.

## 2. Water and the Wurundjeri

- a. Kurboroo, The Koala, stole all the water in the land in response to ill treatment at the hands of the Wurundjeri. Kurrukarook, Bunjils daughter, saw how upset the Wurundjeri were and made Bunjil and Kurboroo agree to return water to the land.
- b. Source: Ellender, I., Christiansen, P., & Faithfull, T. (2001). People of the Merri Merri: The Wurundjeri in colonial days. Merri Creek Management Committee.

## 3. Wurundjeri and the Merri Merri

- a. The Merri Merri ‘Very Rocky’, is one of the rivers within the land of the Wurundjeri – william group, and an important site for ceremonies, gathering and travel
- b. Source: Ellender, I., Christiansen, P., & Faithfull, T. (2001). People of the Merri Merri: The Wurundjeri in colonial days. Merri Creek Management Committee.

## 4. Beauty of the Merri Merri

- a. Whilst meeting with the Wurundjeri along the banks of the Merri, John Batman exclaimed at the beauty and sweetness of the creek.
- b. Source: Ellender, I., Christiansen, P., & Faithfull, T. (2001). People of the Merri Merri: The Wurundjeri in colonial days. Merri Creek Management Committee.

## 5. Dispute Resolution

- a. 1844? The site of an agreement between the Wurunjeri and Taungurong peoples settling a dispute according to traditional law. The Merri has a long history of transparent, culturally inclusive and community focused solutions
- b. Source: Ellender, I., Christiansen, P., & Faithfull, T. (2001). People of the Merri Merri: The Wurundjeri in colonial days. Merri Creek Management Committee. P.99-107

## 6. Gathering Site

- a. 1841-1845?, March 2 - At an encampment near the Merri Creek, nearly two hundred Kulin people came from their own territories along the Delatite River to make a special visit to the land of the Wurundjeri-willam the ceremony of Tanderrum.
- b. Source: Ellender, I., Christiansen, P., & Faithfull, T. (2001). People of the Merri Merri: The Wurundjeri in colonial days. Merri Creek Management Committee.

## 7. Councils along the Merri

- a. 1857, March 15 - The inaugural meeting was held of the Broadmeadows Road District Board, with the district having a population of barely 2,000 people
- b. Source: Hume Library Timeline

## 8. Modern Appreciation for the Merri

- a. Evening, Merri Creek, painted by Julian Ashton in 1882, is reputedly the first true *plein air* painting done in Australia highlighting the enduring beauty of the creek.
- b. Source: Australian Art Department, Art Gallery of New South Wales, 2006

## 9. Growth of Cities Along the Merri

- a. 1956, June 13 - The Governor of Victoria declared Broadmeadows a city, with a municipal population of approx. 30,000
- b. Source: Hume Libraries Timeline

## 10. Gold and Pollution

- a. We have begun to destroy the beauty of this creek. It willno longer run clear between its banks, covered with wattles and tea-trees, ... [but instead with ] ... heaps of gravel and mud. We diggers are horribly destructive of the picturesque. – William Howitt
- b. Source: William Howitt in Keesing N. 1971, History of the Australian gold rushes, by those who were there, O’Neil, Hawthorn, Vic

## 11. Rebirth

- a. First platypus sighting in decades occurred between Thornbury and Coburg due in part to the efforts of award winning environmental restoration works ; Aitken Creek’s Living Pathways, Merri Models at Rushwood Drive Reserve on Merri Creek and Loving Laffan on Merri Creek just south of Kalkallo.
- b. Source: Merri Creek Management Committee, 2011 & CERES PlatypusSPOT, 2010





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