

# IWM PLAN FOR THE UPPER MERRI CREEK SUB-CATCHMENT

This case study has been chosen to illustrate a place-based process for sub-catchment scale IWM planning. It highlights key learnings and best practice examples of:

- Collaboration between partnering organisations;
- Embedding Traditional Custodians in water resources planning and management;
- Accountability and transparency with communities and customers; and
- Integrated, robust and adaptive infrastructure planning supporting collective objectives

## Project description

The Merri Creek sub-catchment comprises creeks and waterways that are highly valued by the community, with some of the largest and most diverse remnants of native vegetation in the northern suburbs of Melbourne. The area is also home to protected, threatened and iconic plants and animals such as Platypus, the Growling Grass Frog, Golden Sun Moth and the Matted Flax-lily, and contains some of the best remnant grassland plains in Victoria.

Current development pressures stand to place substantive impact on the region. With large tracts of undeveloped rural and natural land in the Upper Merri Creek sub-catchment and a population predicted to grow from 196,000 in 2019 to 372,000 by 2031, urbanisation and climate change could have an enormous impact on habitat for vulnerable plants and animals, local waterways and sites of cultural significance.

How this development is managed has significant implications for the future character of the area. Unless a very large volume of stormwater (over 21 GL), is reused or managed effectively, the creeks in the Upper Merri Creek sub-catchment will be fundamentally changed by the increased amounts of stormwater as large portions of the rural landscape become urbanised.

The Wurundjeri Woi Wurrung Cultural Flows Assessment for the Upper Merri Creek states: “The wetlands are the kidneys, filtering the water as it passes through the land. In the Upper Merri Creek we note the importance of the wetlands areas currently referred to as Hearne’s and Hanna Swamps but also the role that constructed wetlands will play as urban development occurs in this part of our Country.”

To ensure the future prosperity of the environmental, social and cultural qualities of the Merri Creek sub-catchment, the community, together with Traditional Custodians, councils and government agencies were required to come together to consider key 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?

## IWM AT THE SUB-CATCHMENT SCALE

This project piloted a new partnership approach to address the complexities of integrated water management in the Upper Merri Creek sub-catchment, in Melbourne’s northern growth corridor.

The Upper Merri Creek sub-catchment is made up of the rural and forested parts of Merri Creek and the upper parts of the urban component of the Merri Creek catchment.



Figure 13: Boundary of Upper Merri Creek Sub-Catchment area (highlighted in green) in the context of Melbourne Water’s Healthy Waterways Strategy designated sub-catchments. Source: Adapted by Yarra Valley Water from Melbourne Water (2018).

Using a ‘sub-catchment’ (corridor geo-spatial scale) as the basis of an integrated water management plan is a new approach. Typically, water services have been planned by individual organisations (such as utilities or councils) to match their jurisdictional boundaries or to match urban planning boundaries such as a precinct structure plan or development site.

There is a growing sense of frustration amongst stakeholders with these approaches and a concern that opportunities for synergies between organisations or alignment with broader strategic objectives for optimising use of available water resources are being missed.

The IWM approach at a sub-catchment level is purposely focused on embedding a proactive and iterative (adaptive planning) approach that has the following benefits:

- Builds on the existing servicing schemes methodologies and further water management towards water sensitive city outcomes;
- Positions the water industry to collaboratively move to proactive planning for greenfield, infill and renewal development, and facilitates input to formal Victorian Planning Authority-led Precinct Structure Plans as they occur;
- Incorporates planning, development and infrastructure responses to collectively agreed issues and objectives at a sub-catchment level;
- Flexible and adaptive framework to support long term objectives and adoption emerging knowledge and technologies;
- Infrastructure is built not just to service individual development site needs, but also to service broader public objectives;
- Facilitates optimised and coordinated infrastructure investments and transparent cost sharing to achieve agreed outcomes, as well as more equitable funding;
- Development contributions more aligned with the costs of developing in defined (sub-catchment) areas; and
- Specifically engages all organisations with an influence on water, and includes Traditional Custodians and the community / customers in collaborative decision-making processes.

## Stakeholder and community engagement

Stakeholder and community collaboration was designed into the process from the outset.

The collaborating partners were the Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation, Hume City Council, City of Whittlesea, Mitchell Shire Council, Yarra Valley Water, Melbourne Water and the Victorian Planning Authority.

The process aimed to develop:

- Stakeholder and community understanding of the complex challenges and opportunities for the Upper Merri Creek catchment;
- Insights and directions that build on past engagement in understanding community values, avoiding consultation fatigue;
- Trust with the community by ensuring the process was and continues to be transparent; and
- Use of scenario thinking and adaptive planning methodologies to support challenge the status quo.

At a workshop held on 25 September 2019, the community articulated a range of complimentary vision statements for the Upper Merri Creek sub-catchment. These were merged by the Steering Committee into the following Vision for the Upper Merri Creek:

*We all respect, care for, protect and enjoy our places and nature; supporting a connected and sustainable Community*

The overarching key messages that came through the discussions with the community are summarised as follows:

- Business-as-usual is not OK. Minimising the impact on the environment is important but the focus needs to be on regenerative practices.
- Water is central to how to design and develop sustainable, connected and climate resilient neighbourhoods.
- Traditional and natural methods are preferred over engineered solutions.
- Stormwater and recycled water need to be used more effectively to minimise impact on potable water supplies and to stop runoff into our waterways. However, there were some concerns around the quality of water and how to make alternative water sources fit-for-purpose.
- Choice is essential, particularly regarding housing options and design of neighbourhoods.
- Collaboration with the community is highly valued to create shared ownership of the solutions and build the capacity of the community to get involved.

## Outcomes sought

The Upper Merri Creek IWM sub-catchment principles were developed by the community and stakeholders to drive collective activities.

Participants were asked to provide input into a set of guiding community principles for the future of the Upper Merri Creek sub-catchment. The draft Principles were:

1. Design of neighbourhoods demonstrate our shared values of Caring for Country.
2. Neighbourhoods are place-based, supporting opportunities for people to be healthy, connect with one another and with nature.
3. Opportunities to learn, collaborate and work together to build stronger communities are ongoing.
4. Available natural resources are efficiently managed to ensure the needs of our waterways and natural landscapes are met.
5. Biodiversity and ecological systems are protected and enhanced across the sub-catchment and throughout residential and commercial areas.
6. Supply and use of water are fit-for-purpose and make best use of locally captured and treated stormwater and recycled water.
7. Knowledge of the natural aquatic system and achieving the required water quality is continually building and being drawn on.
8. Housing options and designs are sustainable, supporting stronger communities and provide for choice and affordability.
9. Local food production is planned at a variety of scales within the sub-catchment, and food growers are supported.

In the IWM plan these principles will be interpreted and aligned with broader Yarra catchment outcomes and associated indicators and measures, as defined in the Yarra Strategic Directions Statement (see Case Study 2 – Victorian IWM Framework).

The overarching key messages received from the community together with the Yarra Strategic Directions Statement have guided the development of targets for the Upper Merri Creek sub-catchment which also draw upon key information sources including:

- Healthy Waterways Strategy (September 2018): Co-designed Program for the Yarra Catchment
- DELWP IWM Strategic Direction Statement Outcomes – Indicators and Measures (2020)
- Wurundjeri Woi Wurrung’s Upper Merri Creek Cultural Flows Assessment (Expected in late 2020).

Within this context, the iterative and ongoing process for sub-catchment planning (being piloted in this project) aims to support each of the outcomes defined in *the IWM Principles and Best Practice for Water Utilities* paper.

Reflecting on the process and anticipated outcomes of this pilot project has prompted the drafting of Place-making Guidelines with three linked parts. This is a key outcome associated with Action Item 9 in the Yarra IWM Forum Strategic Directions Statement. The guidelines are currently being approached as follows:

- Part A: Place-based Planning
- Part B: Effective Engagement – incorporates supporting information on embedding Traditional Owner involvement and community engagement
- Part C: Customer Experiences – incorporates implementation platforms for agreed planning controls, development conditions, infrastructure investments, information/data sharing and coordinated communications.

To date, the developmental phase of the initial Upper Merri Creek IWM plan has particularly focused on delivering the following IWM Outcomes from this paper:

#### **Outcome 1b: Shared ownership, management & responsibility**

A Partnership Agreement was requested by Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation. This was developed (based on similar agreements with Victorian Catchment Management Authorities) and has been signed by each of the partnering organisations. It commits to Wurundjeri’s equitable involvement in the collaborative planning process.

#### **Outcome 2a: Collective leadership, long-term vision and commitment**

Place-making Guideline Part A: Place-based Planning details the foundations of a collaborative approach. Notably, the way in which the process is implemented is as important as the outcomes generated. The foundations of this approach are:

- a. **Equitable involvement** – all partnering organisations including (but not limited to) Registered Aboriginal Parties / Traditional Custodians, local government, water authorities and the Victorian Planning Authority have equal input to the process.

- b. **Transparency** – all partnering organisations work collaboratively to identify the collective key issues and opportunities and engage with the community in developing agreed approaches for how water resources and services will be delivered in order to achieve collectively agreed outcomes.
- c. **Continual improvement** – the initial sub-catchment plan will articulate an agreed vision and detail how the outcomes will be achieved through planning requirements, development conditions, infrastructure investments and servicing approaches. These will be periodically reviewed and updated.

### **Outcome 2c: Indigenous partnership in water planning**

This IWM project had a commitment to partner closely with the Traditional Owners of this land, the people of the Wurundjeri Woi Wurrung Country. From the outset, the Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation was invited to partner in this project.

The Corporation was asked to provide a commentary on the process to date which is presented in this report as **Case Study 5b: The case for place-based planning on Wurundjeri Woi Wurrung Country**. In this case study the Corporation provides commentary and a cultural perspective on the Upper Merri Creek IWM Plan pilot project which includes the first application of the Cultural Flows Assessment methodology in an urban / peri-urban context.

The cultural flows assessment methodology was developed in 2018 as part of the National Cultural Flows Research Project (NCFRP)<sup>1</sup>. The project drew on a range of scientific research methodologies and generations of cultural knowledge to:

- Provide a greater understanding of Aboriginal values relating to natural resources, especially water;
- Equip First Nations with information and tools to ensure that Aboriginal water requirements and preferences are reflected in water policy; and
- Inform the development of new governance approaches to water management that incorporate aspects of First Nations' governance and capacity building.

In the Upper Merri Creek project, the Wurundjeri Woi Wurrung Water Unit have led the cultural flows assessment to identify and prioritise the economic, social, ecological and cultural values that are connected to the Upper Merri Creek sub-catchment, including areas of cultural significance that require access to water or protection from water.

### **Outcome 2d: Constructive organisational culture**

Within each partnering organisation it is important that diverse perspectives and a range of information is collected to create a shared understand of the key issues and opportunities from an individual organisations perspective. Workplace cultures which support diverse perspectives and bold conversations complement robust processes such as Scenario Thinking and adaptive planning and governance. This not only challenges the status quo, but

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<sup>1</sup> <http://culturalflows.com.au/>

commits to action for doing things differently, and requires dedicated effort as well as a new leadership paradigm.

For the Upper Merri Creek sub-catchment each partnering organisation sought to contribute to a shared perspective. This typically involved collation of organisation specific information from a range of sources and a workshop to synthesise the information, develop agreed priorities and identify issues and opportunities.

### **Outcome 3c: Public engagement, participation and transparency**

*Place-making Guidelines Part B: Effective Engagement* is intended to provide:

- Structure to support equitable engagement of partnering organisations;
- Specifically embed Registered Aboriginal Parties (RAPs) and Traditional Custodians in the planning and management of water resources and services; and
- Tools and advice to support communities to collaborate with partnering organisations in the development and implementation of sub-catchment (or alternative place-based) IWM plans.

### **Outcome 4a: Diverse fit-for-purpose water system services.**

Consideration of the collective objectives in the Upper Merri Creek has driven a strategic organisational change in how alternative water resources will be utilised – specifically, to enable more liveable communities and protect and/or enhance biodiversity in receiving environments.

For example, Yarra Valley Water will redesign their alternative water sourcing strategies – transitioning from prioritising use of recycled water in mandated purple pipe areas (which preserves capacity in downstream wastewater infrastructure), to prioritising the use of harvested stormwater for localised use.

This means there will now be a surplus of recycled water available, which can be used to support horticultural schemes and local food production – consistent with community principles.

A willingness for an organisation to re-prioritise and amend strategies to support the collective objectives is a fundamental element required in effective collaborative processes.

## **Options assessed**

The development and assessment of options drew upon well established and recognised water sector adaptive planning methodologies. These included place-based servicing schemes (single agency), scenario thinking, and the NCFRP Cultural Flows Assessment framework.

Key elements of the assessment process include:

- Understanding the key issues and opportunities in this sub-catchment from a broad range of perspectives;
- Balancing a range of statutory and community expectations; and

- Harnessing new technologies / creating new products (e.g. urban form, housing and commercial buildings).

Three scenarios were built using the process of scenario thinking. This enhanced the evaluation and integration of information from the partnering organisation and promoted contingency planning.

In the Upper Merri Creek three scenarios were developed which included:

### **1. Scenario A: Status quo**

What will happen over the coming 5, 10, 20 and 50 years if we keep doing what we are doing?

### **2. Scenario B: Sustainability**

What will happen over this period if we seek to have sustainable communities within the sub-catchment? This considers:

- Alternative urban forms (housing and building design, streetscapes, public open spaces);
- Different options for the provision of services; and
- Fit-for-purpose use of all available water resources.

### **3. Scenario C: Regenerative**

What will happen over this period if we seek to have regenerative communities within the sub-catchment? This considers:

- Innovative approaches for achieving significant social, cultural, environmental and economic outcomes through alternative urban forms;
- Significantly different options for the provision of services; and
- Fit-for-purpose use of all available water resources.

In each scenario descriptions of housing stock, streetscapes, public open spaces, and commercial / industrial areas were described and examples illustrated. Options for governance and servicing approaches were outlined and indicative funding models were included in discussions to gauge community preferences and supported the development of the community's vision, overarching messages and principles for IWM in the Upper Merri Creek sub-catchment.

# Scenario C

## Water Sensitive City

In this scenario we consider what the future will look like in the Upper Merri sub-catchment if we apply re-imagined planning, regulatory, service deliver and governance approaches. The targets under this scenario are focused on regenerative development. The approach encompasses improving environmental, social, cultural and economic outcomes for communities in the Upper Merri Creek sub-catchment.

In this scenario water is at the centre of the design and maximised to drive positive social, ecological, cultural and economic outcomes for the community.

The design of the neighbourhoods, houses and commercial/industrial precincts is driven by the same approach balancing affordability, viability. Housing options are denser and designed around shared spaces and facilities to improve efficiencies in water use, capture and re-use. The streetscape predominantly natural with an abundance of green spaces and links support by irrigation.

The design of neighbourhoods is driven by innovations, social procurement and opportunities for building strong communities through increased opportunities to connect.

It relies on a collaborative approach across agencies and community - with community stewardship essential.



### Residential development

Under this scenario typical housing product options are less prevalent than alternative design models that incorporate modular and kit building concepts. All residential properties have a series of onsite stormwater and recycle water retention and reuse options. Design maximises infiltration and reuse of stormwater, reduction in potable (drinking) water use and minimises grey water effluent. A dedicated percentage of the site will include plant species that contribute to the achievement of the biodiversity and native vegetation targets. Housing materials are sourced through social enterprise models.

**What this will look like:**

- Purple roofs in garages, lawns and toilets
- Increased prevalence of on site water tanks
- Potential for rainwater in frontyards and on nature strips
- Roof-top gardens and on-site recycling/stormwater harvesting facilities in higher density developments
- Co-living or senior care units facing onto shared living areas, have shared facilities and converted terraces
- Appt. care combined with low cost student housing etc.

**Planning controls:**

- Planning controls conditions requiring minimum on-site retention
- Planning permit conditions requiring heat island effect mitigation
- Planning permit conditions requiring minimum native vegetation planting/biodiversity covenants on property titles

**Development controls:**

- Minimum standards for use of recycled / sustainable materials and offsets requirements for impacts
- Preferential procurement incentives for use of social enterprise providers for services.

### Commercial and industrial development

In commercial and industrial developments purple pipe networks of recycled water and local treatment plants will support stormwater capture and reuse. There will be dedicated programs to attract or incentivise water intensive industries and major water users to locate locally to maintain water supply. Intensive pavements and recycled materials will feature in the design of commercial and industrial areas. Stormwater harvesting from rooftops will be mandatory. Localised treatment of captured stormwater will be treated and delivered to the broader potable drinking water supply network. Rooftop or vertical gardens along with solar panels will both reduce urban heat island effects and make commercial and industrial developments more resilient. A major construction company focused on new technologies is established in the commercial/industrial precincts and an innovation precinct. This will optimise building design, materials supply and construction-delivering decreased costs for developers and more affordable and diverse options for home purchasers. The establishment of this construction company (local) likely through an existing, multi-tenanted setting up operations in the Upper Merri Creek will be transformational change in how we construct, run and deliver buildings.

**What this will look like:**

- Green roofs, solar panels, energy generation, previous pavements, recycled materials (culter gently sloping channels to provide water infiltration) and localised treatment plants will be prevalent. Maintenance and servicing of blue-green linked and will be provided through major enterprise employment.

**Planning controls:**

- Capital and non-structure demonstration compliance with water quality and quality targets
- Planning requirements for use of recycled materials and on-site environmental procurement of materials and services (leaves and offsets for not meeting minimum targets)
- Planning requirements requiring demonstration mitigation of urban heat island effects
- Planning permit conditions required renewable energy generation

**Development controls:**

- Development contribution rates specifically linked to the cost of growth in the Upper Merri Creek sub-catchment
- Development contribution levies include offset adjustments for any impacts on growth development external to the Upper Merri Creek sub-catchment e.g. loss of capacity in downstream sewerage infrastructure, impacts on lower reaches of waterways, reductions in potable demand / supply infrastructure
- Connectivity and inclusivity (affordability) requirements
- Carbon positive construction and operation including waste to energy considerations.

### Questions to consider...

1. Would you be interested in living in different housing models and neighbourhoods?
2. How can we support increased involvement of community in the management of shared public assets?
3. How can we better use the abundant availability of local non-drinking water resources (e.g. stormwater and recycled water) to support liveability outcomes for local residents?
4. How can we better use the abundant availability of local non-drinking water resources (e.g. stormwater and recycled water) to support urban ecological outcomes?
5. How can we better use the abundant availability of local non-drinking water resources (e.g. stormwater and recycled water) to support increased economic and employment opportunities?

## Overarching focus: Regenerative development

### Targets

**Potable (drinking) water use:**

- Average residential public water consumption is 100 litres per person, per day
- Residents and businesses have digital meters and access to apps to allow them to monitor their water usage and manage bills
- Rates and water bills are personalised to reflect the preferences and characteristics of the person/household or company installing them

**Recycled water:**

- An alternative water supply (treated stormwater or treated sewage) is provided in expanded mandated usage areas
- Recycled water from local treatment plants is stored in aquifers for reuse during times when supplies from harvested stormwater are not available and/or to provide baseline requirements to waterways
- Water can be for all recycled water resources are allocated to the Registered Aboriginal Party: the Wurundjeri Woiwurrup Aboriginal Corporation.
- An alternative supply recycle water supply network extends across the northern metropolitan precincts across Traralgon Road with all treatment stages in the Upper Merri Creek sub-catchment and a tertiary treatment plant. This alternative supply network supports knowledge of water within Wurundjeri Woiwurrup Aboriginal Corporation, supply into private pipe managed areas and horticultural/agricultural schemes in the green wedge and outside the urban growth boundary.

**Seawater:**

- Public water quality for waterways, Merri Creek and Port Phillip Bay for discharge from sewage treatment plants being of a suitable quality and flow regime to meet environmental and cultural flow requirements and all climate change impacts
- The operation of all sewerage treatment plants, a carbon positive. Opportunities to combine waste to energy facilities with sewage treatment are evaluated.
- Under the auspices of the Wurundjeri Woiwurrup Aboriginal Corporation incorporated ownership rights of the resources, enterprises utilising sewage / recycled water and bioplastics are developed.

**Stormwater and drainage:**

- Correct installation of low infiltration pipeline technology and a field auditing / compliance program ensures there are no adverse impacts from stormwater and gross pollutant run off from construction sites
- To prevent decline in stormwater condition, treat urban development so directly connected imperviousness (DGI) remains below 2% in the Merri Creek at Starmers Hill (Wharf). For every hectare of new impervious area, this requires harvesting around 4.5 MLy and infiltration 1.1 MLy, which is about 2.14 GLy and 2.70 GLy for full development to the urban growth boundary.
- To prevent decline in stormwater condition, most urban development upstream of Meun Railway Road so directly connected imperviousness (DGI) remains below 1% throughout the Upper Merri Creek catchment. For every hectare of new impervious area, this requires harvesting around 4.2 MLy and infiltrating 0.8 MLy, which is about 110 MLy and 28 MLy for full development to the urban growth boundary.
- Stormwater and drainage infrastructure captures runoff for reuse to support passive and active recreation. This includes (but is not limited to) watering of all public open spaces and open water bodies for both flooding mitigation and recreational purposes.
- Stormwater monitoring and reporting provides real time data on water quality and quantities in the Upper Merri Creek sub-catchment. This information is publicly visible.

**Waterways and natural assets:**

- The improvement of the flow regime in refuge reaches to support instream values and restoration of plant and animal species is monitored by volunteers / school groups and results are publicly available.
- Establish a continuous riparian vegetation buffer (35km, 215 ha) and maintain existing vegetation (10 km, 40 ha) along priority areas (including headwaters) to at least a level 3 vegetation quality
- At least 50% of native high and very high quality vegetation (Origin: Quality data level 4 and 5 currently to 10 km) through effective monitoring and management of threats including protection of endangered PCBUs in these reaches. Fill any gaps and ensure additional high quality reaches are also protected
- Chain of pools and recreational / connectivity opportunities are incorporated into lower value reaches of waterways and drainage lines.
- A net increase in native vegetation by 167 ha is achieved by 2025.

**Built form / public open spaces:**

- All waterways, drainage lines and infiltration basins elements also contribute to improving connectivity with existing public open spaces (Upper Merri Creek shared trails and walkability / suitability of newly developed areas)
- Heat island effects of development are mitigated
- No residence is more than 400m from a green open space
- All vegetation is endemic to the Upper Merri Creek region
- Infrastructure that exists have dual purposes to support outcomes for marginalised sectors of the community or to support social outcomes e.g. women's refuges, homeless support accommodation

**Connected and inclusive communities:**

- Water related infrastructure (e.g. pipe racks etc), drainage lines and minor waterways provide connectivity through the Merri Creek and also culturally important places
- 50% of housing stock is 4 times the average annual household income
- 25% of housing stock is 2 times the average annual household income
- Household bills and rates are less than 1% of the average weekly income
- Five voice options are available for a diverse demographic including but not limited to young people / students / young families / baby boomers / early retirees / older people / aged support
- Local citizens practice community activities, food production, and employment opportunities
- Water authorities partner with and/or extend traditionally marginalised sectors of the community in the provision of services.

### Governance arrangements

Funding from rates and water bills is provided into service delivery organisations to support operations. Water authorities actively partner with major construction companies to develop new technologies that optimize building process, materials supply, and construction. New products are tested at the Hazelwynde and Kallaloo development sites with transparency of key learnings and opt in options available to the broader development industry. Cloud based technology is incorporated into the shared Upper Merri Creek sub-catchment on the platform for the data sharing, green credential, automated responses to development applications and real time process reporting.

### Aboriginal inclusion

The ownership rights of the traditional custodians in the Upper Merri Creek sub-catchment, the Wurundjeri people are recognised through the Inhabited Indigenous Plan (e.g. ongoing, localised, sub-catchment planning) to be undertaken and the final sub-catchment IWI plan requiring joint ownership by Wurundjeri Elders and the Office for Water. Profits from water authority development sites (Kallaloo and Hazelwynde) are used to seed an independent Victorian Aboriginal Water Trust which is operated by a peak body. The Victorian Aboriginal Water Trust provides funding to support Cultural Roles Assessments and investments in water (e.g. infrastructure or bank settlement purchased) to support economic outcomes for Aboriginal and Torres Strait Islander people living in Victoria. The rates and ownership rights of the Victorian Aboriginal Water Trust will be determined by the founding members of the trust. Ownership rights to all recycled water and bioplastics resources within the Upper Merri Creek sub-catchment lie with the Wurundjeri Woiwurrup Aboriginal Corporation. Preferences and objectives of Wurundjeri Woiwurrup Aboriginal Corporation are incorporated into the feasibility studies and business cases for all reuse schemes. Naming conventions are approved by Wurundjeri Woiwurrup Aboriginal Corporation.

Figure: Example of a scenario presented to Upper Merri Creek Community for discussion at 2019 Community Symposium. Source: Upper Merri Creek Steering Committee (2019).

A water balance for each scenario was generated to support comparisons and evaluation against the agreed vision and mission, as well as the obligations of each of the partnering organisations.

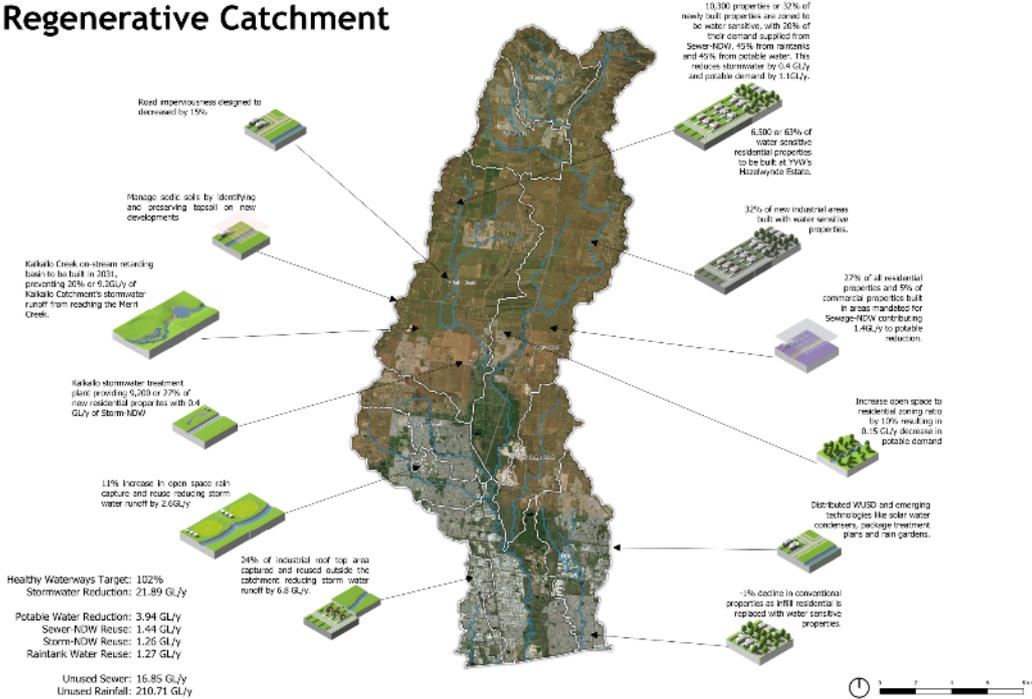


Figure: Mapping of proposed outcomes to be integrated into a water balance for the Upper Merri Creek, under a regenerative scenario. Source: Upper Merri Creek Steering Committee (2020).

A range of draft targets and key actions (yet to be endorsed as of July 2020) have emerged from this process which align with the community principles and Yarra IWM Strategic Directions Statement indicators and measures. These specify:

- **Planning requirements** – to be incorporated into preliminary advice and permits;
- **Development conditions** – to inform Victorian Planning Authority (VPA)-led Precinct Structure Plans (land-use planning documents) and developer constructed assets;
- **Concept locations of infrastructure** – to update and inform asset sequencing plans, servicing schemes and business plans and budgets;
- **Commitments to projects** – for example recycled water horticultural schemes, servicing contracts and joint ventures; and
- **Engagement events** – for example urban form design competitions, knowledge sharing Apps, community activation.

## Evaluation and financing

It is important that the initial discussion paper does not detail any preferred options or economic evaluations of projects and/or servicing approaches at this stage of the process as this can bias development of the scenarios.

Once targets and actions have been proposed as outcomes for the IWM plan these can then be evaluated using a range of tools currently available. Specific economic analysis is undertaken to evaluate alternative servicing approaches, for example the development of social enterprises, and working in partnership with community non-profit organisations, which deliver a broader range of social benefits.

The achievement of sub-catchment targets requires broad economic analysis to ensure the social and health benefits can be leveraged in incentives schemes.

## Reflections and key learnings

Key learnings from the Upper Merri Creek IWM process to date are:

- Collaboration between organisations requires significant time and effort (resourcing and support). Commitment to the collaborative process involves working on joint objectives that may not always be considered a priority of each organisation.
- Executive level commitment and support is required to support constructive organisational cultures that enable place-based planning and the sign-off, endorsement and delivery of joint IWM objectives and outcomes.
- Generating a collective understanding and communicating a shared perspective within organisations requires dedicated effort and support – it cannot be delivered effectively by a single individual or small team.
- A willingness to share issues and opportunities and amend organisational perspectives based on considerations of others is fundamental to moving beyond delivering services and infrastructure using the same BAU approaches. It requires leadership and focused effort.
- Significant capacity building and increased resourcing is required within government agencies, water authorities and with Traditional Custodians to develop effective, respectful and collaborative relationships that enable all parties to participate equitably in water planning and management.
- As this is not a statutory or legislated process, some partners have concerns about how the IWM Plan will become an effective tool in practice.