

*Chain of Ponds*  
**Moonee Ponds Creek  
Executive Summary**



## INTRODUCTION

The Chain of Ponds is a comprehensive investigation into what the Moonee Ponds Creek is today and what it may become in the future. It is a holistic plan that explores the relationship amongst the many variables and forces that affect the creek.

It listens closely to the multitude of diverse ideas and opinions expressed by the community, including what the creek means to different people. It attempts to reconcile the many disparate and often divergent understandings of the creek and its role.

Most importantly, it stakes a claim for the creek itself, it's importance to people, animals and plants, it's endurance despite a history of neglect, and it's future as a crucial and increasingly important landscape that provides a powerful connection with nature within a large city.

## PROJECT VISION

***To provide innovative, collaborative and inspirational planning and management that will improve the ecological health of the Moonee Ponds Creek, while supporting a happy, active and healthy community and protect the creek from inappropriate urban development.***

## THE CATCHMENT

The Moonee Ponds Creek is a major tributary of the Yarra River that begins at the edge of suburban Melbourne and runs 35 kilometres south through the outer and inner suburbs of northern Melbourne.

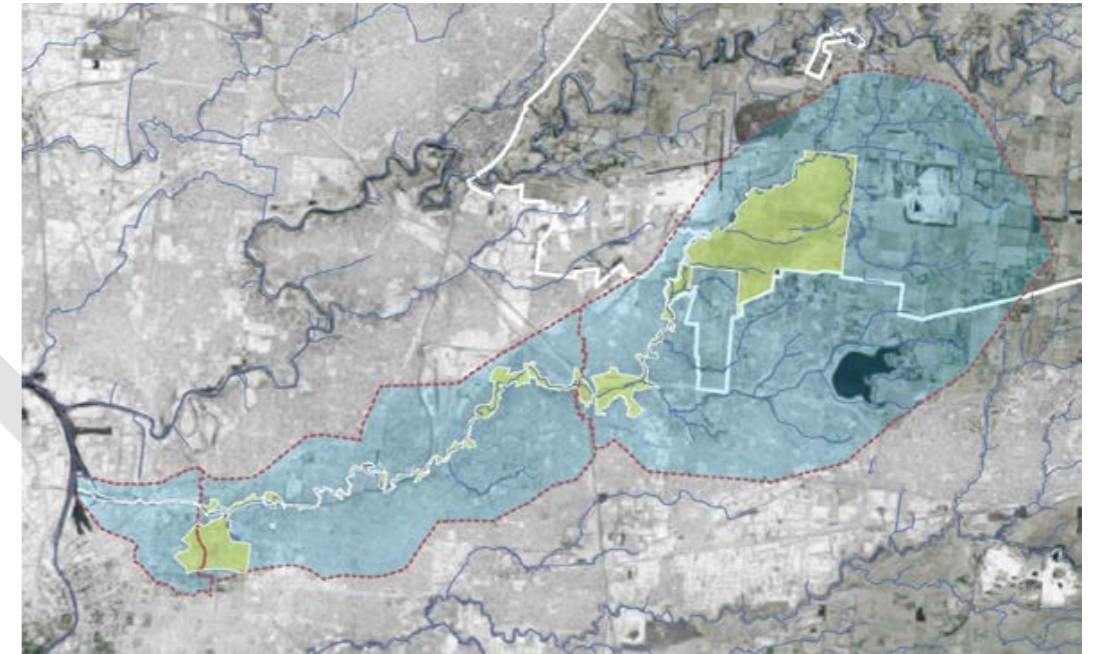
The creek drains an area of approximately 145 square kilometres. The catchment extends from Greenvale through parts of Broadmeadows, Glenroy, Pascoe Vale, Essendon and Moonee Ponds, before flowing southward through Flemington, Kensington, North and West Melbourne into the Yarra River. The catchment is now largely urbanised.

Until the latter part of the 19th century, the lower reaches of the creek comprised a chain of ponds draining into the West Melbourne Swamp (also known as 'Batman's Lagoon'). Since then, the creek has undergone extensive drainage and infrastructure works including significant realignment and it now joins the Yarra at Docklands.

## THE STUDY AREA

The study area for this project stretches from Flemington Road in the south to the Jacana Wetlands in the north. This 14 kilometre stretch of creek is located within the middle portion of the Moonee Ponds Creek catchment. It falls within the City of Moonee Valley and City of Moreland.

Although heavily modified, the upper sections of the creek generally follow the original alignment of the creek. Further to the south below Bell Street, the creek course has been significantly altered to accommodate drainage and freeway works, and today much of this section is concrete channel.



## SCOPE LIMITATIONS OF THE PLAN

The project scope has restricted the analysis to the City of Moonee Valley and Moreland City Council, resulting in some limitations. Wherever possible this plan has considered the whole catchment, as all the modifications and improvements fall within the catchment and will necessarily span the creek channel. Given this, it is recommended that eventually the study area be extended to explore opportunities throughout the catchment.

## CHRONOLOGY - A SHORT HISTORY

Like any landscape, the Moonee Ponds Creek is in a long and ever changing journey. Understanding this evolution and how differing attitudes have shaped the creek is an important step in managing this inevitable change into the future.

The chronology represents an important collaboration between the project team, Council and the Friends of the Moonee Ponds Creek. It communicates the need to understand the past to effectively design the future.

### A Living Creek

Prior to white settlement, the creek played an important role in Wurundjeri life as a meeting and gathering place. Grasslands and patches of open woodland dot the landscape, with deep pools of water. It reminds us that the creek was once a source of abundant wildlife and was an integral component of the ecology and human occupation of the region.

### An Agricultural Creek

The arrival of Europeans and the establishment of Melbourne marked the sub-division of the land to the high water mark of the creek. The landscape was cleared, fencing was erected and farming commenced. Sheep grazing was followed by wheat and other grains. Sand mining took place along the creek. The land was celebrated for its productiveness and the first State Farm was established on the banks of the creek in Parkville.

### A Sewer Creek

This stage experienced the despoliation of the creek and its treatment as an open sewer. Due to the lack of vegetation, erosion of the delicate creek embankment occurs and sedimentation becomes a major problem along the creek. Health concerns become common place and calls are made to undertake 'improvement' works to the creek. Flooding is a regular occurrence. Within a short period, the creek has been significantly altered in form and appearance.

### A Drainage Creek

After the establishment of the Melbourne Metropolitan Board of Works, works commence to provide sewerage infrastructure to the city and solve ongoing flooding issues along the creek. Many people are concerned about health and safety along the creek and the MMBW embark on a long term drainage scheme for the creek, which includes substantial alterations to its alignment and form, including construction of the concrete lining.

### A Recreational Creek

Early in the twentieth century, there is growing recognition of the need to provide suitable spaces for recreation for a growing population. The only cheap and available land is flood prone land along the creek, which leads to the location of recreational and sporting facilities along the creek. The seeds are sown for a linear park along the creek, although it fails to be constructed.

### An Urbanised Creek

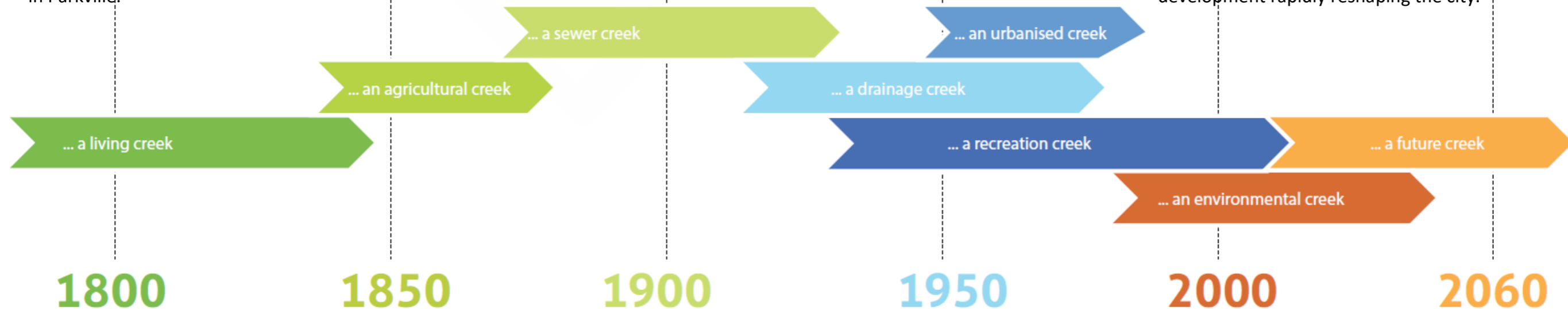
The post war period marks a significant phase in the growth of Melbourne with substantial migration from war ravaged Europe fuelling the rapid urban expansion of housing to the north along the creek. To service the new suburbs and the construction of a new international airport, as well as support the growing ownership of private vehicles, a new freeway is constructed on the creek floodplain. The creek is significantly realigned and channelled and the topography significantly altered.

### An Environmental Creek

The 1960's and 70's heralds a growing environmental awareness, with a significant shift in community attitudes towards the creek. There is growing recognition of the ecological and social importance of the creek and the need to protect and improve the creek from further works. The establishment of community groups seeking to improve the creek's health and function is a critical development.

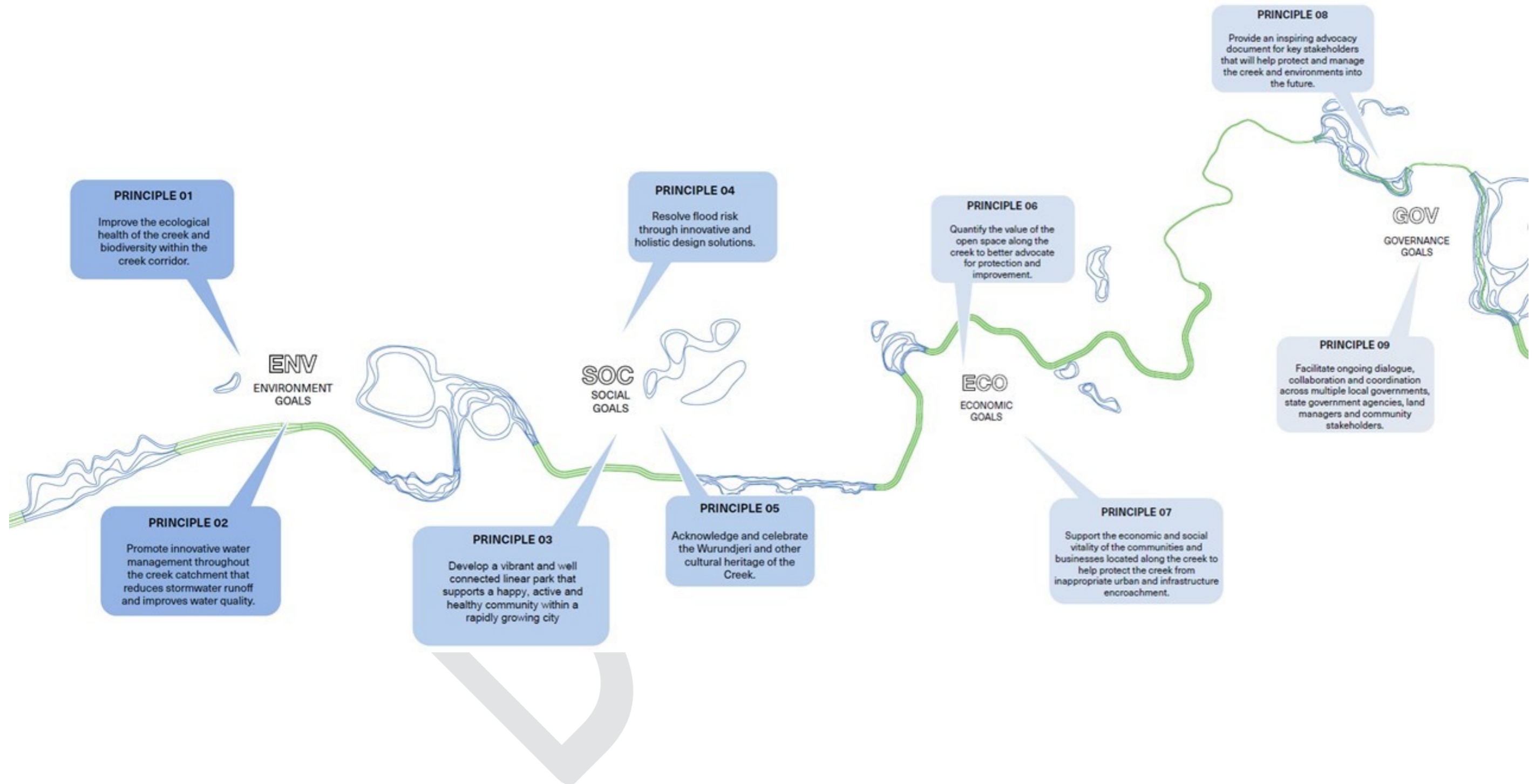
### A Future Creek

Today, Melbourne faces important decisions about the type of city we would like to inhabit, and how we should live our lives. There is almost universal recognition of the magnitude of human intervention in global natural systems, and the need to significantly change our management of the natural and urban ecosystems. Melbourne commences its 'second gold rush' with substantial population growth and urban development rapidly reshaping the city.



## AREAS OF INVESTIGATION

The project provides a framework for managing change and influencing decision making across the creek corridor by exploring recommendations, ideas and options for the improvement of the creek. It identifies appropriate design and ecological strategies with outcomes directed to four key areas.



## ENVIRONMENT – ECOLOGY

***Improve the ecological health of the creek and biodiversity within the creek corridor through the protection, enhancement and restoration of natural systems.***

With growing evidence pointing to the environmental, social and economic benefits of nature in cities, ongoing conservation of biodiversity is an important objective.

What is both surprising and encouraging is the extent to which both plants and animals still inhabit the Moonee Ponds Creek, despite the degree of modification and damage to the original landscape. It is important not to underestimate the ecological value of the creek, as degraded as it may be, or the extent of revegetation works that have occurred within the last thirty years. The creek remains an extremely important habitat corridor within the city that should be protected, enhanced, improved and celebrated.

There are a range of threats and constraints to the ecological operation of the Moonee Ponds Creek corridor including –

- Loss of vegetation cover (lack of protection)
- Limited floral and habitat diversity
- Fragmentation of habitats
- Human and urban impacts (heat island, pollution, litter, impervious surfaces)
- Urban encroachment and loss of permeability
- Predation from domestic and feral animals
- Introduced and invasive plant species
- Impacts from proposed roads, buildings and infrastructure

**GUIDING PRINCIPLE**  
*Improve the ecological health of the creek and biodiversity within the creek corridor through the protection, enhancement and restoration of natural systems.*

Goals	Actions
Retain and protect significant vegetation	Advocate to the State Government to sustainably and actively manage remnant vegetation patches and develop baseline data and monitoring programs for remnant natural assets.
	Review mechanisms to protect and enhance vegetation on public and private land, including options to strengthen planning controls such as the environmental overlays.
Increase corridor width to better support the ecological function and integrity of the creek	Develop a strategic land acquisition and retention plan to support a minimum 30m connected vegetated buffer to the creek
Explore ways to reconnect fragmented habitats along the creek	Establish riparian creek buffer plantings to a minimum 30m where space available
	Respect riparian vegetation by prioritising the location of infrastructure (sealed bike paths, sporting infrastructure etc) outside the 30m vegetated buffer zone (where available)
	Encourage adjoining private land owners to plant and protect indigenous species that contribute to the corridor, especially in constrained areas of the corridor
	Undertake strategic revegetation to link or create stepping stones between areas of habitat along, and abutting, the creek corridor
Provide greater areas and diversity of habitat across the corridor and improve urban ecology	Provide constructed wildlife crossings that support the movement of animals between fragmented habitats
	Establish a variety of different planting types (eg closed woodland) along the creek corridor and within patches
Restore aquatic vegetation and instream habitat	Look at opportunities to replace mown exotic grass (with little habitat value) with indigenous vegetation
	Provide increased vegetation and habitat plantings within new and existing infrastructure, such as artificial nesting boxes, to provide protection for a range of species. Ensure appropriate monitoring
	Explore modifications to sections of the concrete channel to encourage more instream vegetation and slow water velocities
Encourage ecological resilience to climate change and outside impacts	Explore and introduce new management techniques and concepts aimed at reducing the need for management resources in the future
Reduce pollution	Explore new plant communities utilising indigenous plants capable of thriving within the urban environment
	Increase canopy tree shade to the channel and creek corridor, to help combat higher water temperatures and reduce the urban heat island effect
	Investigate strategic research partnerships to investigate the effect of air, noise and water pollution on the ecological health of the creek
Research	Work with VicRoads to explore alternative noise wall designs that offer greater habitat benefits and connectivity
	Undertake more detailed and regular research into the ecological operation of the creek
Retain and protect significant vegetation	Actively manage remnant vegetation patches and develop baseline data and monitoring programs for remnant natural assets.

## ENVIRONMENT – WATER INVESTIGATION

**Promote innovative water management throughout the creek catchment that mitigates stormwater runoff and pollution to improve water quality.**

Comprehensive water investigations were developed in response to the overwhelming community desire to remove the concrete channel of the Moonee Ponds Creek. It was realised quickly that this could not be solved with one intervention. One of the issues with the Moonee Ponds Creek is not only that it can suffer from too much water, it can also experience not enough.

Improvements to urban waterways such as the Moonee Ponds Creek require integrated stormwater management based on a catchment wide approach. The creek and the immediate adjacent linear park form are affected by, and are the direct result, of the management and planning of stormwater and flood management, built form policy and controls, designs of public infrastructure and the movement of people and animals.

The investigation recognises opportunities within the broader creek catchment (offline) and those which operate more directly on water within the creek itself (on-line).

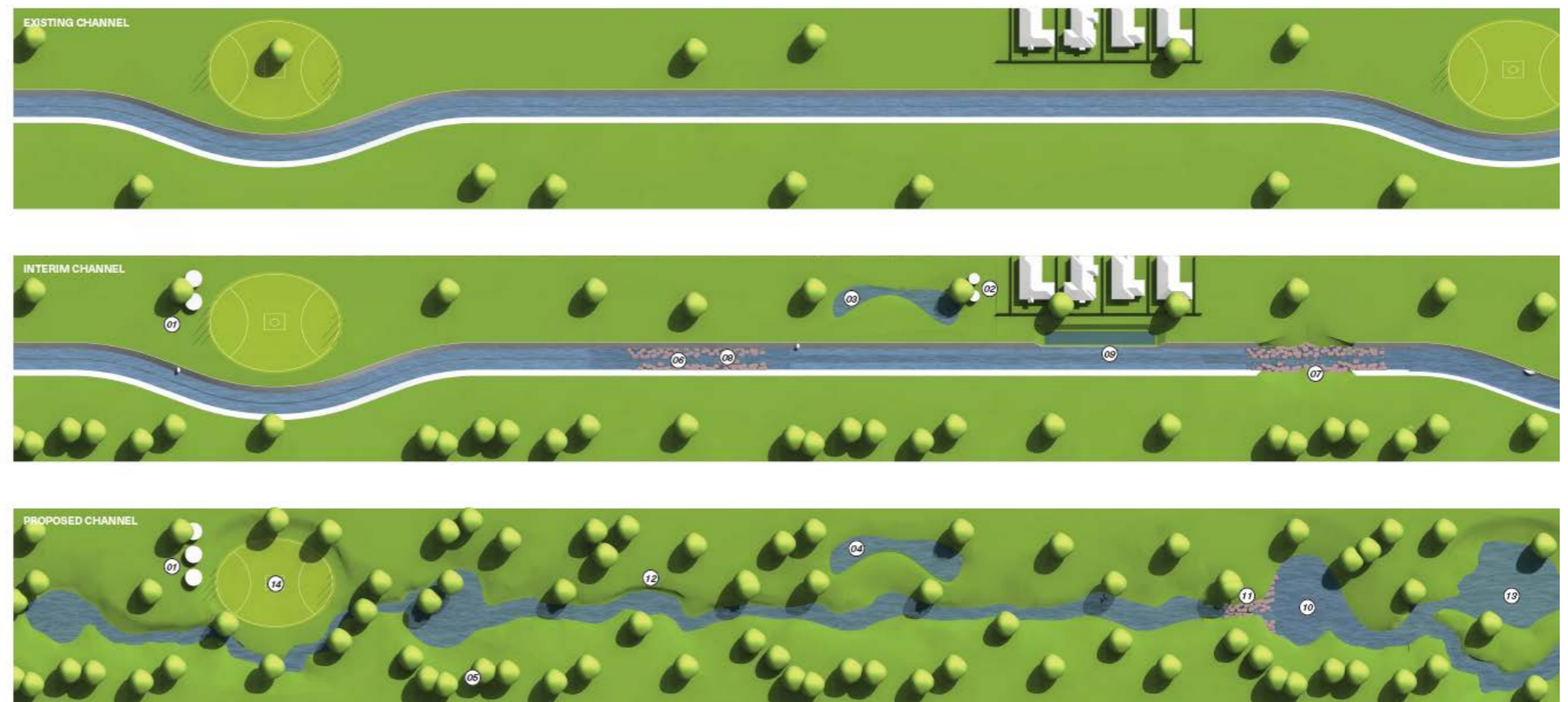
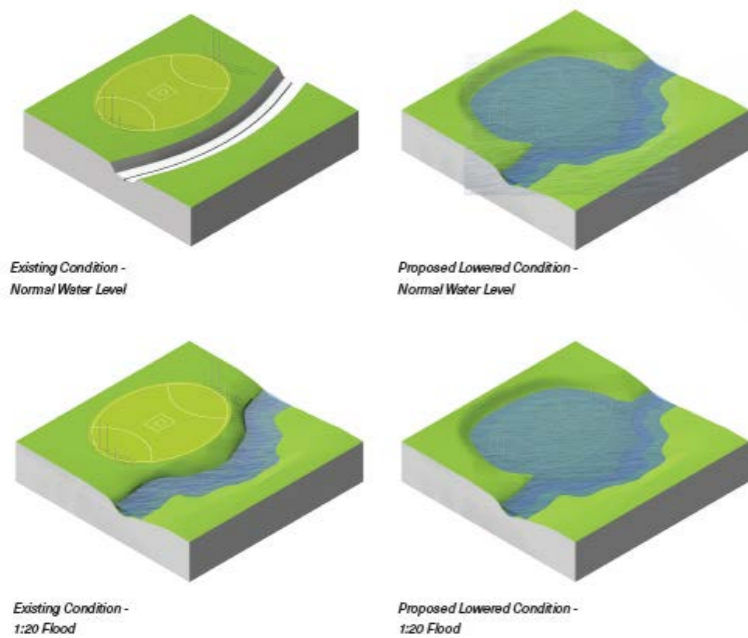
### **Transformation of the Creek through offline and online interventions**

#### Offline (In the Creek Catchment)

These are initiatives that operate within the broader creek catchment which can have an impact on the health and operation of the creek. They include strategies that manage stormwater runoff and quality prior to the water entering the creek itself. A total of 18 offline opportunities have been identified through the following categories,-

- Catchment Scale – through water harvesting and wetland opportunities
- Street Scale – canopy trees, permeable surfaces and raingardens;
- Lot Scale – water tanks and permeable surface

#### On-Line (On the Creek)



Within the Chain of Ponds, a total of 18 online initiatives have been identified that would improve Moonee Ponds Creek waterway corridor itself and the open space on both sides of the creek. This is from the creek centre line to the adjacent property boundary.

Online initiatives manage water quality and flows once the water has entered the creek. These ideas operate directly on the physical form and function of the creek itself and tend to be more visible and identifiable than the offline options. Online opportunities can be divided into the following categories-

- Flow control and water aeration - through weirs, rifle choke points and channel materials;
- Creek profile – through terracing, benching utilising different materials for increased community connection and ecology outcomes;
- Landform – utilising adjacent landform in order to detain water before it enters the creek, to recharge water tables, improve soil condition and provide landscape opportunities to increase social connection and habitat value of the landscape.

While individual options within each category can be pursued in isolation, the potential for significant improvements in creek health is only achieved when multiple options across both the catchment (off-line) and the creek (on-line) are considered in unison. In this manner, it is highly likely that creek improvements will be achieved through a multi-faceted and diverse approach to water management.

**GUIDING PRINCIPLE: Promote innovative water management throughout the creek catchment that mitigates stormwater runoff and pollution to improve water quality.**

Goals	Actions
Manage and treat stormwater within the catchment to reduce velocity and improve water quality	Implement a range of stormwater treatment tools within the catchment including wetlands and water sensitive design treatments to treat stormwater before entering the creek Enforce environmental management practices on construction sites according to best practice guidelines
Increase corridor width to better support the ecological function and integrity of the creek	Treat stormwater runoff from freeways, roads and sports fields to reduce nutrient loads into the creek Increase surface roughness of the channel to improve dissolved oxygen levels Manage tributaries and outlets (existing and proposed) to the Moonee Ponds Creek to mitigate erosion and excessive sedimentation downstream and impacts to water quality Implement flood mitigation actions from a catchment wide perspective
Encourage natural processes within the creek corridor	Advocate to Melbourne Water to explore how and when sections of the concrete channel can be removed and replaced with green infrastructure for ecological, social and environmental outcomes
Provide greater areas and diversity of habitat across the corridor and improve urban ecology monitoring	Explore how to control water entering the channel to slow water velocities, prevent erosion and support the introduction of riparian planting within the creek corridor. Undertake better monitoring of flows within the catchment to allow more informed decisions, particularly on supporting long term ecological objectives. Undertake updated flood modelling to better understand the current situation and the likely effect of climate change on flooding along the creek.
Restore aquatic vegetation and instream habitat	Continue to monitor nutrient loads in the creek
Manage and treat stormwater within the catchment to reduce velocity and improve water quality	Implement a range of stormwater treatment tools within the catchment including wetlands and water sensitive design treatments to treat stormwater before entering the creek



## SOCIAL – LINEAR PARK

### ***Develop a vibrant and well connected linear park that supports a happy, active and healthy community within a rapidly growing city***

During a site walk along the Moonee Ponds Creek in 2016, Wurundjeri elders lamented the anonymity, loss of identify and lack of visibility of the creek today. In contrast, they noted that the creek would have been both highly visible and extremely important to people, assuming great importance within the landscape as a gathering place and as a source of both food and shelter.

The purpose of a linear park along the Moonee Ponds Creek is to make the creek visible once more in the landscape and to celebrate its importance and great value to Melbourne. The linear park unites a series of fragmented and disconnected spaces along the creek that in isolation struggle to operate, but collectively offer enormous potential to the city.

An expanded linear park along the Moonee Ponds Creek can improve the health of the city and its inhabitants. The creek becomes visible once more, a new focus for a connected and healthy community.

Large urban parks were originally created as the 'green lungs' of the city, a respite from the negative effects of industrialisation such as pollution and noise.

While the industry has moved on, the role of the park remains as important today, when cities are now substantially larger and more densely populated and contact with outdoors and nature more removed and areas to relax and recreate are more readily sought. The linear park offers a place for social interaction, recreation and reflection. An outlet for people to connect with each other and the natural environment.

There is an opportunity for urban parks to house underlying ecological systems that are still present

**GUIDING PRINCIPLE: Develop a vibrant and well connected linear park that supports a happy, active and healthy community within a rapidly growing city.**

Goals	Actions
Provide a wider range of activities and experiences along the full length of the creek that encourage greater usage from people of all ages and interests	Implement a range of opportunities that offer different user experiences eg. shared trails, path and track network.
	Ensure gender equity in the provision of activities along the creek ie provide more opportunities for female sport participation.
	Advocate to State Government to undertake detailed activity and usage surveys that provide more information on the usage patterns to better inform planning of the linear park.
	Advocate for State leadership in adopting a suite of design components for the 'Linear Park' which are consistent along the creek corridor (eg. paths, furniture, signage and park elements) – see Linear Park section of this document
Provide opportunities for community connections to nature (separation from the urban environment)	Recognise the value of the existing concrete channel as a suitable surface for different activities, including cycling
	Explore opportunities to improve pedestrian access to the water's edge by increasing accessibility and reducing the steepness of the embankment in locations where possible
	Undertake regular community activities that support connectedness with the natural environment, including planting and field days
	Support friends and neighbourhood groups to become custodians of the creek
Improve linear and neighbourhood connectivity	Provide more low level water crossings to allow direct access to and across the creek (during normal flow periods)
	Develop strategic land acquisition and retention plan to support a minimum connected 100m wide open space corridor along the creek to support regular maintenance, emergency and pedestrian access
	Develop implementation plans for pedestrian loops and circuit routes linked by bridges at regular intervals along the creek
	Advocate to State to reconstruct the entire shared path to a new and higher standard, rather than continually fixing the patchwork of existing issues
Increase safety for park users	Advocate to State to resolve existing gaps within the shared user path, including at Vanberg Road, Essendon and investigate alternate routes on the City of Moreland side of the creek
	Promote the range of uses for the creek to encourage more participation, and in turn, protection and surveillance
	Review lighting strategies to ensure they meet a range of users with consideration of potential fauna impacts
	Where possible, reprofile steep sections of channel embankment to create safe, shallow and slow water velocity sections throughout the creek by undertaking modifications to the concrete channel
	Implement an education strategy on considerate path and open space use to help resolve conflicts between different users
	Undertake more detailed and regular pedestrian and cycle counts at key locations along the shared user path.

within the city, but are currently masked by the scale and simplicity of the built form and its infrastructure.

A total of 54 components have been developed to reimagine the linear park and provide direction for infrastructure, landscape and water to create a distinct urban park.

The creation of a significant linear park and reinstatement of the 'chain of ponds' is central to improving the visibility of Moonee Ponds Creek and the key component to the creation of a distinct linear park. The ponds signify how the creek by can be reclaimed by people, animals and plants. Rather than draining water away from the city as quickly as possible, hidden within buried pipes and concrete channels, the chain of ponds represents the emergence of a new urbanism that recognises the essential role that natural systems and biodiversity play within the health of

the city. The water is slowed and cleaned, and allowed to pond along the creek, providing a unique landscape attracting people through its offering of experience and difference.

Through its diverse history and potential as a critical asset to the city, the Moonee Ponds Creek Linear Park can be transformed.

To achieve this planning and constructing infrastructure to support a linear water focused park and its natural processes needs to be implemented within the creek corridor and its related catchment. The project reconnects the creek to its regional and ecological context, to achieve the community's desire to reimagine the creek. Once again, it can become a living and functioning asset to people and living things, within a more sustainable, social and functionally healthier city.

Areas of improvement are shown within the base plans. To achieve this, expanding the linear park corridor, removing pinch points and encouraging neighbourhoods to address and acknowledge the creek environment need to be delivered. Increased access to the waterway, other parklands (landbridge to Royal Park) shared paths, ephemeral environments, activities and a diverse, experiential landscape will attract visitors and the existing community.



- LINEAR PARK COMPONENTS**
- 01 Component 03 - Shared User Path
  - 02 Component 04 - Trail
  - 03 Component 05 - Track
  - 04 Component 06 - Path Intersection
  - 05 Component 07 - Park Entry
  - 06 Component 10 - Low Level Water Crossing
  - 07 Component 11 - Path Bridges
  - 08 Component 12 - Roadway Underpass
  - 09 Component 13 - Wildlife Underpass
  - 10 Component 15 - Upgraded Road Bridge
  - 11 Component 21 - Grassland
  - 12 Component 23 - Agricultural Planting
  - 13 Component 32 - Resting Place
  - 14 Component 33 - Gathering Space
  - 15 Component 34 - Play Spaces
  - 16 Component 35 - Community Gardens
  - 17 Component 36 - Sports Grounds
  - 18 Component 37 - Sporting & Recreation
  - 19 Component 38 - Carparking
  - 20 Component 40 - Energy Production
  - 21 Component 41 - Lighting

**SOCIAL - FLOODING RISK**

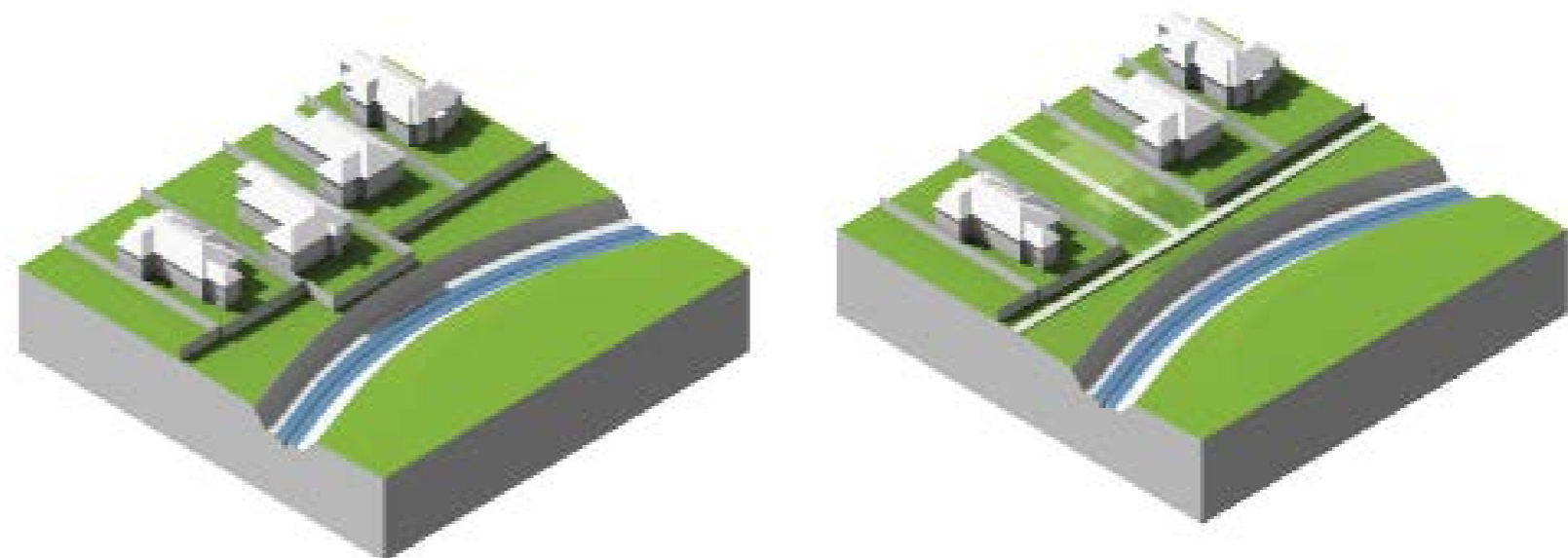
***Resolve flood risk through innovative and holistic design solutions.***

A critical Melbourne Water requirement for any modification to the Moonee Ponds Creek is to avoid increasing the risk of flooding to properties along the creek.

At the time of the development of this plan, Melbourne Water had not yet undertaken updated flood modelling for the entire Moonee Ponds Creek Catchment that takes into account the projected 15.5% increase in rainfall intensity by 2100 as a result of climate change. This is really critical at understanding how flood waters will be contained within the existing channel.

GUIDING PRINCIPLE Resolve flood risk through innovative and holistic design solutions.	Goals	Actions
	Manage the quantity of water entering the Moonee Ponds Creek through a catchment wide approach	Implement the set of tools for options for flood mitigation and management, including re-profiling the creek embankment, detention of water, rainwater tanks, increasing permeable surfaces and WSUD interventions (see water investigation section of this document) Explore how sports fields can be lowered to provide additional floodplain capacity to allow for creek improvements and mitigate downstream flooding
	Realise flood management within the catchment through strategic acquisition, retention of land and investing in infrastructure that delivery multiple outcomes.	Undertake a strategic land use review based on flood modelling results and State Government Smart Planning Reforms Identify strategic properties for acquisition in flood zones to reduce asset damage while achieving social, environmental and economic outcomes Advocate for the retention of open space that can mitigate flood risks throughout the catchment Prioritise green infrastructure options (wetlands and WSUDs) in place of traditional grey infrastructure (drainage pipes) asset renewals and upgrades
	Increase permeable surfaces within private and public landholdings	Implement permeable pavements where possible to reduce stormwater flows entering waterways

*Removal of pinch points and the creation of connectivity along the Moonee Ponds Creek*



**SOCIAL - URBAN DEVELOPMENT AND INFRASTRUCTURE**

***Protect the creek and creek corridor from inappropriate urban development and infrastructure encroachment.***

As the city’s population continues to grow, urban development and new and expanding infrastructure is required to meet the increased demand.

One of the defining characteristics of the Moonee Ponds Creek, particularly south of Essendon Airport, is the presence of prominent elements of urban infrastructure, including freeways, railways bridges, and drainage and sewer pipes. This infrastructure has dramatically shaped the form and alignment of the creek, resulting in a highly modified urban waterway with little remaining pre-settlement form.

With increased urban growth, the provision of open space in the city becomes more and more important and the protection of these spaces is paramount if they are to service future populations well. These spaces often need to provide for a range of sometimes complementary but sometimes contradictory services.

The complex web of varying parkland users and potential impacts from surrounding infrastructure needs careful consideration to ensure the valuable intention of these spaces is not compromised, whether that be for environmental, social or economic reasons.

It should also be acknowledged that the creek is an ‘urban stream’ and offers a range of experiences that more natural settings may not. Opportunities to acknowledge, celebrate and embellish the unique infrastructure should be explored.

	Goals	Actions
<p><b>GUIDING PRINCIPLE</b> Protect the creek and creek corridor from inappropriate urban development and infrastructure encroachment.</p>	<p>Protect the creek environs from the encroachment of urban development.</p>	<p>Implement a water sensitive city approach to planning which manages development and water, ensuring positive environmental outcomes for the creek corridor through local policy and advocacy to State planning regulations</p> <p>Resolve planning anomalies to ensure that all Council properties within the open space corridor fall within appropriate zoning (public park and recreation zone – PPRZ) and can be managed more effectively in to the future</p> <p>Advocate to State Government to work with adjoining Councils to introduce planning controls and development guidelines to ensure development complements the creek environment, including for example, ESO coverage.</p>
	<p>Ensure new and upgraded infrastructure does not compromise the creek environment.</p>	<p>Advocate for the protection of the creek from inappropriate urban and infrastructure encroachment, including freeways and sports fields that do not contribute positively to the creek environs</p> <p>Advocate for good design outcomes for the creek during the planning processes for new or expanding infrastructure which include management of stormwater, pollution (air and noise) amenity, ecology and public safety</p> <p>Develop appropriate design guidelines for infrastructure elements, such as sports fields and associated car parking, lighting and pavilions that reflect the creek environs</p> <p>Investigate and implement ecological sportsground and turf management practices to minimise the use of fertilisers and other nutrient run-off into the creek</p> <p>Work with VicRoads to identify outlets to the Moonee Ponds Creek which are at risk from freeway contaminants and implement a program to treat water before entering the creek</p> <p>Prepare and submit submissions to planning and infrastructure projects that impact upon the creek catchment</p> <p>Develop project briefs for improvements to the creek environs that can leverage resourcing from new infrastructure projects</p> <p>Apply Melbourne Water best practice guides for the development of creek infrastructure such as stormwater outlets</p>
	<p>Celebrate the unique nature of the urban stream environment</p>	<p>Explore creative ways to celebrate, enhance and utilise the unique infrastructure along the creek, such as with public art and potential recreational pursuits (rock climbing walls, skate boarding).</p>

## CULTURAL HERITAGE

### ***Acknowledge and celebrate the Wurundjeri and other cultural heritage of the Creek.***

Despite the disruptive effects of colonisation, Wurundjeri people have maintained their attachment to, and custodial responsibility for ‘Country’. The manner in which Aboriginal people identify with Country includes practicing culture and being present and active in that environment.

In July 2016, a Cultural Heritage Values Recording (CHVR) was undertaken by the Wurundjeri, as an important part of this project. The purpose of the recording was to identify and understand traditional and contemporary cultural values and meanings held by the Indigenous community associated with the creek corridor, and ways in which these values can be interpreted in a meaningful and practical way. The findings can be summarised into five themes.

#### Tangible Aboriginal Cultural Heritage

Moonee Ponds Creek and its associated corridor are amongst the most sensitive areas for Aboriginal Cultural Heritage in the municipality. However, the landscape has undergone significant modification since European contact and this has affected the integrity and overall intactness of tangible Aboriginal cultural heritage along the creek. This brings into question the broad brush designation of the whole creek corridor as an area of cultural heritage sensitivity under the Aboriginal Heritage Regulations 2007. However, in areas of low ground disturbance, investigations undertaken in proximity to the creek have located sub-surface cultural material.

#### Intangible Cultural Heritage

A primary part of the CHVR, intangible cultural heritage includes aspects of spirituality, law, knowledge, practices, traditional resources or other beliefs and attachments that tell a story about the land, its environment and the people who belong to it. The relationship between tangible and intangible values along the creek is particularly important because of the extent to which it has become altered.

#### Traditional Ecological Knowledge (TEK)

This relates to the accumulated knowledge, belief and adaptive practices handed down from generation to generation by Aboriginal people. TEK is increasingly being considered as providing a more sustainable approaches to land management.

#### Importance of Water

Waterways are highly significant in Indigenous custom as the source of important resources traditionally used by Aboriginal people, and as the focus of deep traditions for cultural practice.

Aboriginal people have long understood that water is directly connected to the health and wellbeing of the natural environment, and the state of waterways is an important part of the integrity of culturally important places.

It is important for the wellbeing of Aboriginal communities that they continue to have access to waterways for recreation, gathering resources and practicing and teaching traditional culture.

	Goals	Actions
<b>GUIDING PRINCIPLE</b> Acknowledge and celebrate the Wurundjeri and other cultural heritage of the Creek.	Respect the tangible and intangible indigenous cultural heritage along the Moonee Ponds Creek.	Consult regularly with the Wurundjeri regarding upgrades and improvements to the creek
		Engage the Wurundjeri Tribe Land and Conservation Council to undertake ‘Welcome to Country’ ceremonies at significant events
	Share traditional knowledge about the creek and landscape	Develop Interpretive signage at key locations which celebrate indigenous culture and knowledge
	Undertake due diligence and prepare Cultural Heritage Management Plans whilst planning for construction	Undertake due diligence cultural heritage checks when undertaking any significant earthworks within the creek corridor.
		Develop a cultural heritage management plan where required when implementing works

**ECONOMIC**

**Quantify the value of the open space along the creek to better advocate for protection and improvement.**

**Support the economic and social vitality of the communities and businesses located along the creek**

In order for the city to be resilient to different climate condition, infrastructure which worked very well over the last century will need to be adapted over the coming years. Renewing our infrastructure from grey to green, can create a number of complementary benefits for health and wellbeing, long-term economic prospects and liveability.

In the long term Moonee Ponds Creek might not be capable of coping with more intense rainfall, which can lead to further flooding and extending our flood overlays. It could be extremely disruptive and costly to modify grey infrastructure, but we can build naturalised infrastructure to detain and slow down water movement through detention basins, raingardens, wetlands and living streams. Stormwater can be mitigated and we can create diverse community spaces and enhance our local environment. Such ecosystem services save money in the long term and provide health benefits to our community such as urban cooling, recreation opportunities, disease prevention, and psychological benefits.

The final benefits are economic and range from energy savings, reduced burden on health and emergency services and increased land values, to greater productivity and creativity. Historically, economic benefits have driven decision making and city design, while ecological, environmental and human benefits (or costs) have largely been ignored, but have major economic consequences.

In 2016, Deloitte Economics produced a report for the State Victorian Planning Authority (VPA) found that the overall value of open space was approximately \$121,093 per hectare per annum. The authors noted that not all benefits have been quantified. The same report emphasised the value of linear and linkage corridors are much higher. State government short term budgetary considerations and KPIs around disposing of open space through the Fast Track process should be very seriously considered because it is very difficult, if not impossible, to reverse such decisions in the future. The incremental loss of open space may appear prudential from a short-term budgetary perspective, but needs to be considered from a strategic perspective for the whole community and the liveability of the city.

Unfortunately, too many earlier disposal decisions have been made along the Moonee Ponds Creek that make it very difficult and expensive to: improve connectivity, ensure the equitable provision and realise the full value of open spaces.

Goals	Actions
<b>GUIDING PRINCIPLE</b> Support the economic and social vitality of the communities and businesses located along the creek to help protect the creek from inappropriate urban and infrastructure encroachment	Quantify the value of the open space along the creek to better advocate for protection and improvement
	Support the economic and social vitality of the communities and businesses located along the creek.
	Protect and enhance urban biodiversity for its environmental, social and economic benefits to the City and its community.
	Deliver infrastructure which can resolve multiple outcomes.
	Identify points of access, pinch points and areas for expansion to increase visibility of the creek
	Promote the Moonee Ponds Creek as a key destination for nature, recreation and access
	Encourage improved interface with neighbouring properties through design guidelines
	Undertake large scale infrastructure projects which improve access to the broader community including, for example a land bridge connecting Royal Park to Travancore Park, with activation opportunities
	Utilise precincts such as the revitalised Moonee Ponds Creek to promote healthy lifestyle initiatives such as walking and cycling
	Deliver enhanced community spaces and diverse landscape outcomes which will attract tourists and visitors from surrounding areas and retain local involvement in the area
	Identify and deliver cool green spaces along the Moonee Ponds Creek linear park to reduce heat stress for the community in time of extreme weather conditions.
	Prepare briefs for large infrastructure projects to deliver outcomes for water quality, flood reduction, habitat, access and community spaces.
	Invest in green infrastructure across the city to relieve existing infrastructure, create cool green spaces for the mental health and wellbeing of the community.

## GOVERNANCE - COLLABORATION

**Facilitate ongoing dialogue, collaboration and coordination across multiple local governments, state government agencies, land managers and community stakeholders.**

A major challenge for the effective management of the creek corridor is multiple land ownership and management boundaries. Melbourne Water, Environment Protection Authority (EPA), VicRoads, Local Governments, CityLink/Transurban, community groups and local residents all have a role to play in how the creek is managed. Because agency objectives often differ, there are many conflicting agendas.

The Moonee Ponds Creek Collaboration Group was established in 2016, in response to the growing concerns from Council that the overall health of the creek and environs was further deteriorating due to the impact of infrastructure projects, development and management within the catchment. As an urban waterway, the creek had yet been established as a priority, however its role in the proposed Arden Macaulay precinct and the development of the Chain of Ponds document, provided the much need impetus to focus on the waterway, bringing together a wide variety of stakeholders, interest groups and landowners to the discussion.

The Collaboration Group has embraced the principles of the Chain of Ponds document, recognising a need for a coordinated approach to this asset. The group consists of 28 stakeholders groups.

The development of a Memorandum of Understanding, an agreement to undertake Planning Controls, data sharing and a mapping project have been some of the catchment wide initiatives that have developed from this group but there is momentum and commitment to achieve much more.

<b>GUIDING PRINCIPLE</b> Facilitate ongoing dialogue, collaboration and coordination across multiple local governments, state government agencies, land managers and community stakeholders.	Goals	Actions
	Develop an appropriate governance model to manage the creek effectively.	Develop the Moonee Ponds Creek Collaboration in to a more formal structure with an agreed Terms of Reference and clear designated responsibilities Continue advocacy to Melbourne Water and State Government for adequate stormwater catchment planning.
	Take necessary steps in coordinating a catchment approach to the waterway.	Councils and Melbourne Water to work together in prioritising projects based on mitigating water quantity entering into the creek and further utilising excess stormwater for social and environmental outcomes Melbourne Water/State Government to appoint a catchment coordinator to oversee projects are delivered across the variety of landowners and ensure investment is secured for priority areas Seek resources to deliver projects and funding opportunities Advocate to State Government for leadership in preparing planning controls with LGAs within the catchment
	Take necessary steps in coordinating land management across the multiple municipal boundaries	Undertake a consolidated review of all land ownership along the creek to assist in future project implementation, management and maintenance Resolve land ownership anomalies to allow better management of the creek Advocate for protection and retention of publicly owned and accessible land along the Moonee Ponds Creek
Continue Collaboration Group to retain a clear voice to advocate for improvements to the Moonee Ponds Creek	Collaboration Group to disseminate information to networks to inform and engage community. Advocate to funding for both internal and external sources	

## GOVERNANCE - STRATEGIC DIRECTION

***Provide an inspiring advocacy document for key stakeholders that will help protect and manage the creek and environments into the future.***

The Chain of Ponds document builds upon the important work that has already been completed by both the community and government over many years.

The Chain of Ponds does not seek to replicate these earlier investigations, but rather to extend upon the thinking and ideas already proposed. These documents include the Northern Waterways Study completed in 1976, which marked a crucial turning point in community attitudes towards the creek and heralding a new era of environmental awareness.

This was followed sixteen years later by the ground breaking Moonee Ponds Creek Concept Plan completed by the Melbourne Metropolitan Board of Works (MMBW) for the Moonee Ponds Creek Association in 1992. More recently, the 2011 Strategic Plan reaffirmed the need for ongoing work to improve the fortunes of the creek. These documents chart a collective vision for the creek and form a powerful statement of intent, which still resonates with the community today. It is sought that this document will assist with preparation of a reference document for the Moonee Ponds Creek, to create a new ESO overlay that covers the entire extent of the creek.

These documents remind us that any plan for the creek must be long term. The changes required to improve the health and function of the creek are significant and will not happen overnight. Any ideas for the creek must be flexible and adaptable to account for the significant changes that will occur over the next 50 years.

GUIDING PRINCIPLE Provide an inspiring advocacy document for key stakeholders that will help protect and manage the creek and environments into the future.	Goals	Actions
	Utilise Chain of Ponds document for ongoing activities relating to the Creek	<ul style="list-style-type: none"> <li>Moreland and Moonee Valley City Council to formally endorse document</li> <li>Gain endorsement from Melbourne Water and Collaboration Group for the document</li> <li>Utilise document to inform broader planning controls and urban design guidelines</li> <li>Utilise document to advocate to state government when planning large infrastructure projects and initiatives</li> <li>Encourage Melbourne Water and Councils to extend the study area to include the entire creek catchment (City of Hume and City of Melbourne plan which is currently underway)</li> </ul>
Utilise Chain of Ponds to prepare a suite of projects to implement across the catchment	<ul style="list-style-type: none"> <li>Encourage Melbourne Water and Councils to continue investigating the catchment and develop projects to realise the vision for an urban water sensitive city.</li> <li>As part of Melbourne Water's Urban Waterways Transformation Project, advocate for the Brosnan Crescent precinct to be transformed from concrete channel to an inspiring landscape. This precinct was the last section of concrete to be poured and offers a great opportunity to reverse the impact and provide a symbolic moment in the history of the Moonee Ponds Creek</li> </ul>	





## THE FUTURE CREEK – BROSANAN CRESCENT PRECINCT

The Brosnan Crescent precinct offers the perfect opportunity and location to realise many of the actions and recommendations of the Chain of Ponds and see the first steps in naturalising the creek along the creek.

In the 1970's the Strathmore Progress Association succeeded in halting the extent of concrete channel being constructed in this location. Now this site provides a symbolic setting for change, to remove the concrete channel and provide a revitalised creek setting. The area straddles the Moreland and Moonee Valley councils and stretches from Herbert St to Margaret St, Oak Park next to Brosnan Crescent Strathmore North. It is adjacent to the Strathmore North Primary School, Lebanon

Reserve and Oak Park Aquatic Centre, this precinct is a hub of educational and recreational activity.

The Creek from this point upstream to the Railway Viaduct at Strathmore Heights had already been realigned but had significant revegetation.

As noted by Anna Lanigan – Friends of Moonee Ponds Creek:

'This now provides an impressive example of rescued biodiversity and one that I, among many others, would like to see replicated downstream. The evidence is in the wildlife that frequents the creek within metres upstream of the concrete channel. The potential gain of visual amenity for residents and for the many recreational visitors to the Moonee Ponds Creek corridor is beyond measure'

The benefits of this significantly more naturalised section is the visible increase in wildlife and habitat that this provides. However this diminishes quickly within the concrete section. Revitalising this section of creek, will provide a unique opportunity to provide educational and monitoring opportunities for the community and improve the experience and amenity to recreational users of the Moonee Ponds Creek trail.

A future creek with improved ecology and setting for habitat, experiences with nature and green relief from the urban form is possible.



*Vision of Moonee Ponds Creek, Brosnan Cres Precinct by Robert Lovick*



*Robert Lovick for Urban-Water Transect studio, led by Dr. Michaela Prescott, RMIT University, 2017*



### Moonee Valley Language Line

العربية	Arabic	9280 0738	Ελληνικά	Greek	9280 0741	Español	Spanish	9280 0744
廣東話	Cantonese	9280 0739	Italiano	Italian	9280 0742	Türkçe	Turkish	9280 0745
Hrvatski	Croatian	9280 0740	Somali	Somali	9280 0743	Việt-ngu	Vietnamese	9280 0746

All other languages 9280 0747

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