



# DUBA, BUDU, BARRA

TEN STEPS TO A LIVING RIVER

THE PARRAMATTA RIVER MASTERPLAN





# RECOGNITION OF THE RIVER'S TRADITIONAL CUSTODIANS

We would like to acknowledge the Aboriginal traditional custodians of the land on which we gather. Their lore, traditions and customs have led to the bountiful land, rivers and ocean we all enjoy today. We would like to acknowledge all Aboriginal and Torres Strait Islanders living on the land today.

Aboriginal people have had a custodial role with the Parramatta River and the land surrounding and under it since time immemorial. For the estimated 29 family groups, scientific explorations have dated their occupation to around 30,000 years.

Aboriginal oral history tracks the changing body of the river itself from a small creek tracing the valley floor to the large scale body of water that has flooded the valley to form the river as it is today.

It is internationally recognised that Aboriginal nations manage land and waterways as living entities. As living entities, rivers have a body and spirit and require nourishment and care. We recognise the Parramatta River as a living entity, and the importance of Aboriginal leadership in the management of the Parramatta River and the lands surrounding it.

Aboriginal principles of biodiversity, water quality management and controlling the speed and flow of water together form the template for the sustainable preservation and protection of the land and waterways. These principles are based in belief, traditions, customs and practices.

Aboriginal knowledge of creeks, flood plains, mud flats and water run off that feeds into the Parramatta River will support water quality and ecological objectives within this Masterplan.

Aboriginal understanding of water-based activities will provide insight into future access to the river either in the form of swimming, water craft use or access to resources like the harvesting of plants and marine animals.

## DUBA, BUDU, BARRA (land, water and sky)

Aboriginal people hold a unique knowledge of the land, waterways, weather, climate and oceans that has been built up over tens of thousands of years. Aboriginal and Torres Strait Islander people acknowledge and refer to land, waterways, star maps and oceans as 'Entities' – beings that are alive, capable of decisions, interact with those around, and are distinct and independent but still hold a level of dependence on others for their survival.

This integrated approach understands the intricate nature of the interactions between entities and is key to protecting cultural heritage, preserving cultural development and creating the right balance points for thriving ecosystems.

The holistic approach of the Parramatta River Masterplan addresses DUBA (LAND) – developments, water systems, regeneration of biodiversity and stabilisation of river banks; BUDU (WATER) – feeding creeks and catchments, surface water, flow speed, and the river body itself; and BARRA (SKY) – the weather, calendar systems, climate, and day and night.

Aboriginal nations have successfully continued their cultural practices to maintain the custodial role in managing the DUBA, BUDU, BARRA, and we acknowledge and prioritise their important historical, present and future roles in breathing life into and creating sustainability on Country.

*Image courtesy of Ben Bowen Shared Path Aboriginal and Torres Strait Islander Corporation.*





Bridgewater Park, Rozelle



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## FROM OUR CHAIR



The Parramatta River is arguably Australia's most iconic waterway – and one which millions of people deeply connect with. Aboriginal people have had a close connection with the Parramatta River for thousands of years and we sincerely respect and acknowledge the continuing connection they have with the river and the land surrounding it.

The Parramatta River used to be swimmable. Following English colonisation, thousands of people would regularly gather around its shores or dive into its waters to participate in water-based events, learn how to swim or just cool off on a hot summer's day. Sadly, by the 1950s, most of our river swimming spots were closed due to pollution from local industry, sewage and stormwater runoff.

Over the last 20 years, we have seen great improvements to the health of the river, with advancements in regulation, technology and community awareness.

Wildlife has come back to the river and we are already swimming naturally at four sites along the river.

The Parramatta River is at the heart and soul of our region. The river's shores are set for another period of change, with the burgeoning Greater Parramatta to Olympic Peninsula corridor now named the 'Central River City'. Our scientific modelling shows that water quality can be improved even with predicted development but that additional management is needed to achieve this. The implementation of this ten-step plan will deliver the changes needed to do more for the river and its surrounds, rather than looking back in 20 years with regret.

The Parramatta River Masterplan is the culmination of years of collaboration with our many partners and the community, and we sincerely thank the thousands of people and organisations who have been involved with its development. Robust science, collaboration, cultural sensitivity and community decision making are at the heart of this plan to ensure that we deliver real outcomes for our living river and its communities.

This plan, of course, is only the beginning. We all have a role in making the river swimmable again. So, let's dive in and make it a reality together!

A handwritten signature in black ink, reading 'Mark Drury'.

**Clr Mark Drury**  
Chair of the Parramatta River  
Catchment Group

## SYDNEY DESERVES A WORLD-CLASS RIVER

One that the millions of people who live and work within 20 minutes of the Parramatta River can swim in again – like they once did.

Our goal is to make it happen by 2025. And it's going swimmingly.

Four swimming sites are already open. The most recent is Lake Parramatta, which we opened in 2015 as part of this initiative.

Twelve new sites have been scoped, with investigations on water quality, swim safety, ecological health and community interest informing the preferred options at each.

Five river health mascots have been identified and voted by the community. If we help them thrive, then our river will thrive too.

Fourteen organisations have led the cause, supported by local communities and many other partners.

And now, we have this ten-step Masterplan which sets out our agreed actions to turn our vision into reality.







# NOW IS THE TIME

**We have a once in a lifetime opportunity to make our river swimmable again.**

Sydney is changing rapidly and the Parramatta River is at the heart of that change. Development is booming, with high and medium density housing across the catchment predicted to increase by 64% and 58% respectively by 2025. We know that the river has been improving over the last few decades. We also know that if we do nothing, the new pressures placed on Sydney's infrastructure will likely see the river degrade.

The future can go two ways:

1. If we continue to manage the river and its catchment in the way we do, water quality and river health is predicted to worsen as the city grows.
2. If we improve our management, water quality and river health will continue to improve, and the river will be swimmable again.

That's what this Masterplan is about. It's a plan for action that will improve the river's shores and clean its waters. In doing so, we will create a home for nature and an oasis for the millions of people who live near it.



# TEN STEPS TO A LIVING RIVER

Our plan to make the Parramatta River swimmable again by 2025.

## 1. GET SWIMMING

There are already four places you can swim in the river.

## 2. KEEP WATCH

Put a Riverwatch water monitoring program in place.



## 3. CREATE NEW SWIMMING SPOTS

Our goal is to create three new ones by 2025.

## 4. STANDARDISE THE STANDARDS

Create consistent policies and practices across all catchment councils.

## 10. CREATE CLEAR LEADERSHIP

A collaborative effort across all our agencies, with Sydney Water as lead, will ensure success.

## 5. REDUCE RUNOFF

And, in doing so, reduce the rubbish and pollution flowing into the river.

## 9. REPORT BACK REGULARLY

To keep track of progress and involve everyone in the journey.

## 7. INVOLVE THE COMMUNITY

Everyone has a role to play in keeping the river clean.

## 8. BRING IN NATURE

A truly living river needs people, fish, birds, bats, frogs, turtles and plant life.

## 6. IMPROVE OVERFLOWS

So, when it rains, sewage doesn't end up in the river.



# THREE NEW SWIM SITES BY 2025

By 2025, our local communities will be able to enjoy a swim or a splash at three new swimming sites along the Parramatta River.

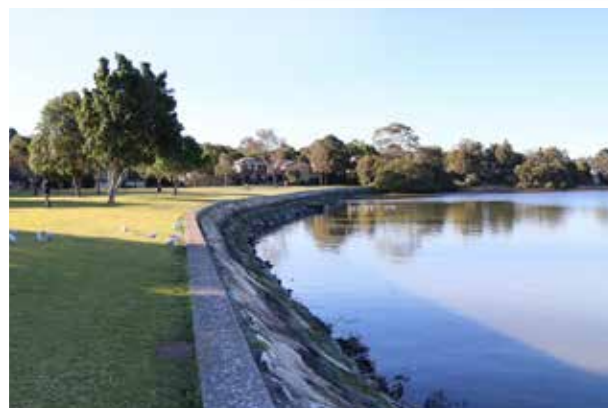
## Bayview Park, Concord

Bayview Park is bordered by the Hen and Chicken Bay Foreshore Walk, which offers stunning views of the Parramatta River. There is ample tree shade, covered picnic tables, barbecues and toilets, as well as a beautiful, sandy beach where children can play in the sand and explore the rock pools at low tide. Plans are now underway to allow natural river swimming with the addition of a new netted swimming area, shower and public water quality reporting.



## McIlwaine Park, Rhodes East

McIlwaine Park is located in Rhodes and looks out onto Brays Bay. The park is a very popular recreational spot with picnic tables, barbecues, toilets, play equipment and parking. Kayaking, canoeing, paddle boarding and other water-based activities will also soon become a common sight on Brays Bay under plans to activate the riverfront area through upgrades to the adjacent foreshore and construction of a new jetty.



## Putney Park, Putney

Putney Park is a large, regional park that features playgrounds for older and younger children, splash pools, a huge slide, extensive grass and natural areas, barbecue and picnic facilities and ample parking. It links to the Ryde River Walk and is a popular place for events. By 2019, the existing seawall will be upgraded, providing a series of sandstone steps down to the shore and the river, with activation towards natural swimming to follow.



## NEW SWIM SITE VISUALISATIONS







PART 1:

# THE PARRAMATTA RIVER





# THE PARRAMATTA RIVER CATCHMENT

The Parramatta River is one of Australia's most iconic waterways.

For indigenous Australians it served as a centre of life for tens of thousands of years.

When Sydney was colonised, it became the centre-piece of the new city, with farms and settlements stretching up the river to Parramatta and beyond. It is and has long been Sydney's lifeline and backbone.

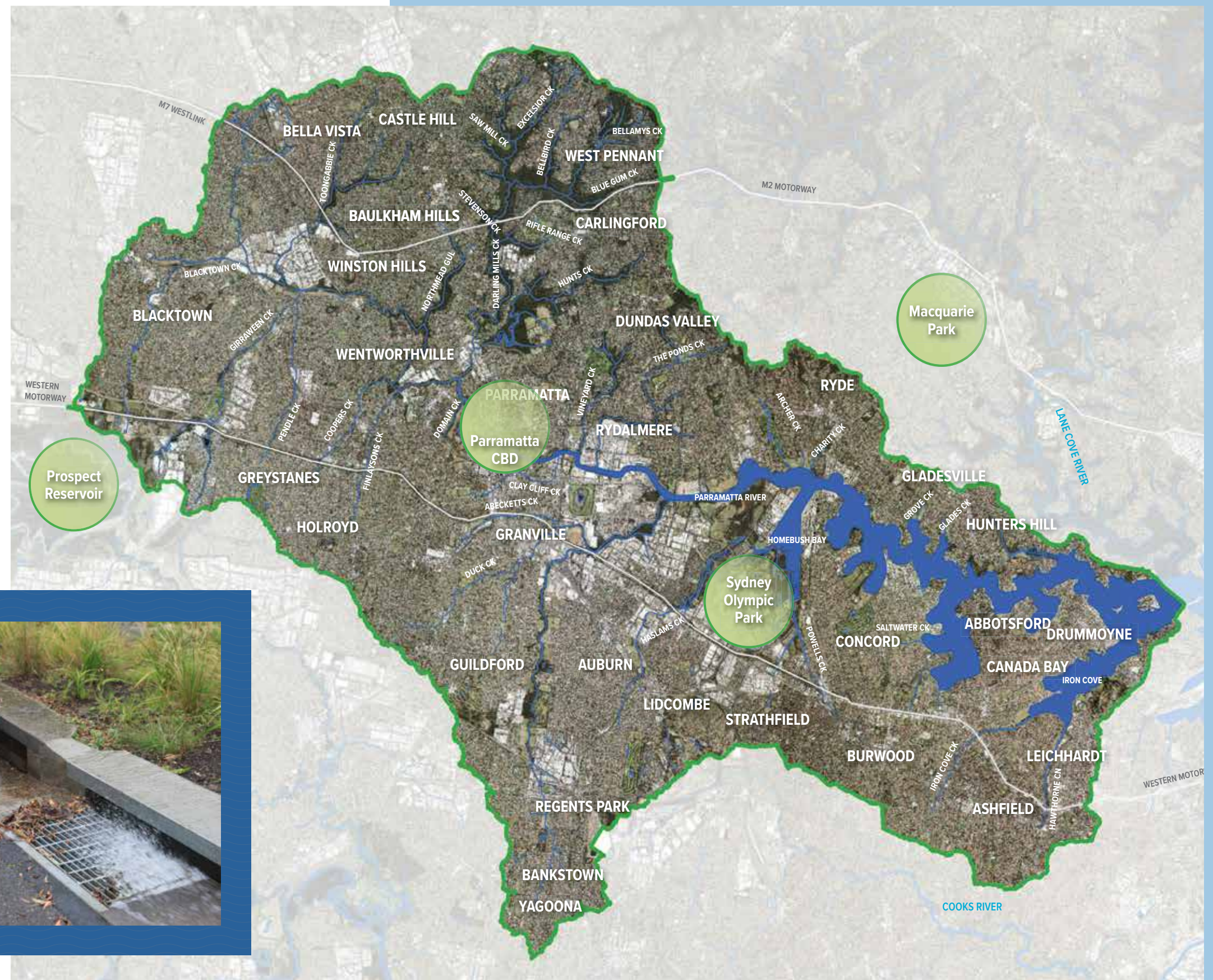
The catchment area itself covers 266 km<sup>2</sup>, extending from Blacktown Creek in the west to the Lane Cove River in the east.

The river is freshwater down to the Charles Street weir in the Parramatta CBD. From there it becomes estuarine – a mix of salty and fresh water, becoming saltier the further you travel downstream.

The catchment area is currently home to over 750,000 people from all walks of life and it's growing fast. So while the catchment is part of Sydney's history, it is also a new home to many Australians.

The catchment spans eleven local government areas: Blacktown, Burwood, Canada Bay, Canterbury Bankstown, Cumberland, Hunters Hill, Inner West, Parramatta, Ryde, Strathfield and The Hills Shire.

A healthy river and tributaries reflect a healthy community, so let's help the Parramatta River and its communities thrive.



## Where does our rainwater go?

The Parramatta River is big, but its catchment is a lot bigger. Every creek, gutter or stormwater drain that leads to the river forms part of the catchment. So, everything that we do within the catchment affects our ability to swim in the Parramatta River.

This includes what we do in our homes, backyards, streets, schools, workplaces and parks. Every time we build a building or design a new urban area, we affect the quality of water that runs off it and so the quality of the water in the river.



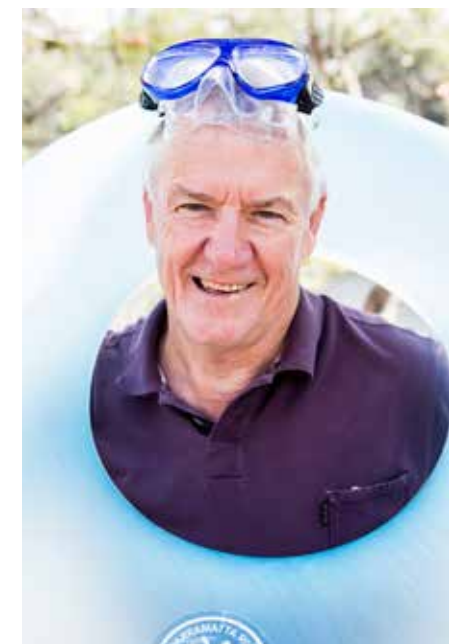




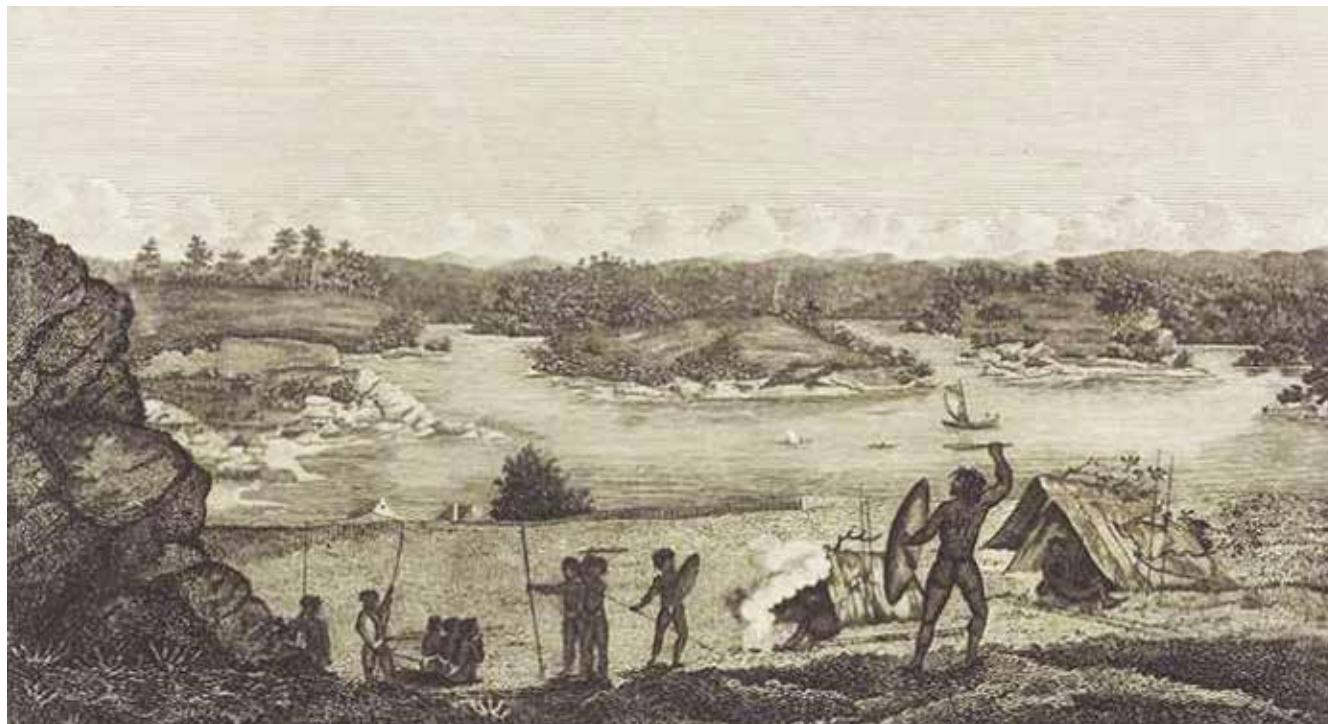
## OUR RIVER OUR RESPONSIBILITY

Everyone who lives, works and plays within the catchment has a role to play in making it swimmable again. In doing so, we also make our local creeks, rivers, wetlands and lakes cleaner and better places to love and enjoy in different ways.

Find out how you can help at:  
[www.ourlivingriver.com.au](http://www.ourlivingriver.com.au)







## A SACRED AND SPECIAL RIVER

The Parramatta River is regarded as a living entity by Aboriginal people both in spirit and body. It has been witnessed in many forms over thousands of years from a small creek following the valley floor to its current form filling the valley. The river and land surrounding it remain to this day an encyclopaedia for Aboriginal people maintaining dreaming storylines, culture and traditions.

Agriculture and aquaculture were key to the establishment of successful and sustainable Aboriginal society prior to 1788. The Parramatta River was also a key travel route to access trade and continue culture and was a key factor in colonial farmers being shown and creating crop lands up the river in the Parramatta region.

At the time of English settlement, sources describe the landscape as already having large agricultural fields of grain and yams, amongst other productions, which started near the Drummoyne area and extended west and north. In addition, there was large eel farming, rocky outcrops for shell fish and obstacles placed strategically in the river to slow the water flow

and create habitats for the balanced production of the river environment. The production of rock pools, intricate weaving of large nets, manufacture of tools (e.g. clay bricks, hooks, spears etc.) and cooking facilities (e.g. large ovens near eel farms) all created a complex and overlapping social network and communal culture.

Even though the area around the Parramatta River has been highly developed, many significant Aboriginal sites remain, including midden sites, carvings, burial sites, points of conflict, breeding areas and flood overflow zones. The region is well known to Aboriginal people and changes made to the landscape have not affected their recall of the river's use, history and impact.

*Above: Drawn by J. Eyre; engraved by P. Slaeger [sic], A native camp near Cockle Bay, New South Wales with a view of Parramatta River, taken from Dawes's Point, National Library of Australia, nla.obj-135782267.*

*Right: Burrumatta 2018. Image courtesy of City of Parramatta.*





# WHO IS BEHIND THIS MASTERPLAN?



Development of the Parramatta River Masterplan has been led by the Parramatta River Catchment Group (PRCG), with substantial input and support from stakeholders and community members from across the catchment.

The PRCG is an alliance of councils, government agencies and community groups who are together working to improve the Parramatta River and the creeks that flow into it.

The PRCG drives strategic actions through planning and research, coordination, advocacy, monitoring and reporting, communications and engagement – all to create a healthy river and enable Sydney-siders to once again enjoy the waters of this iconic river.

William Lawson Wetland, Blacktown

## Our financial members include:



## Our Associate (non-financial) members include:



## Other key organisations who have contributed to the development of this Masterplan include:





# OUR LIVING RIVER

In 2014, the Parramatta River Catchment Group launched *Our Living River* with a new vision, purpose and mission.

## OUR VISION

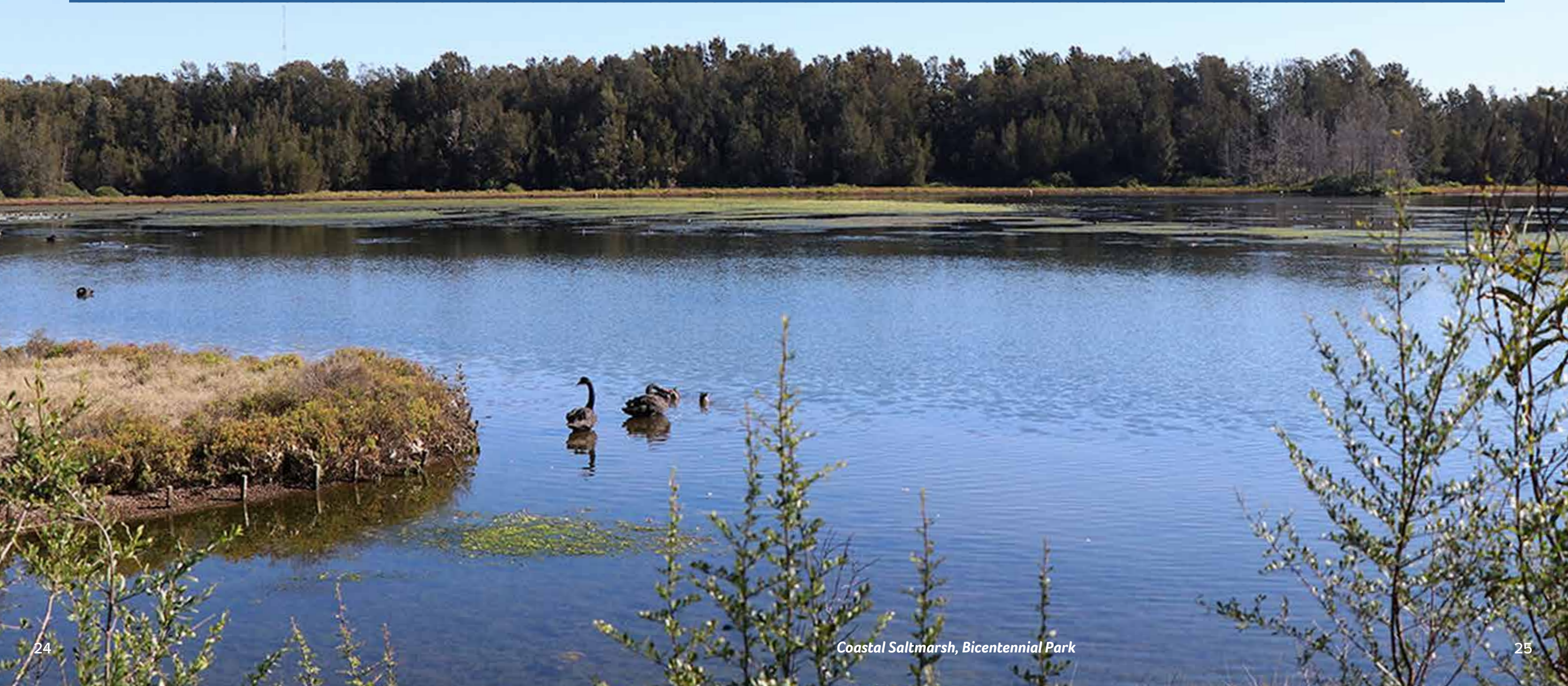
We believe Sydney deserves a world-class river.

## OUR PURPOSE

To make Parramatta River a living river.

## OUR MISSION

To make Parramatta River swimmable again by 2025.





# WHAT IS A LIVING RIVER?

A living river is one where people and wildlife can swim, splash or simply enjoy time on the shores of the river and creeks that flow into it. It means thriving ecosystems on the river banks and below the water.

We asked our partners and community what a living river means to them. Here is what they told us:



## AN ENGAGED COMMUNITY

that loves and cares for their waterways.



## CLEAN, CLEAR WATER

that is safe and supports life in the river.



## BUSINESS OPPORTUNITIES

enabling thriving local businesses due to the river's popularity.



## HEALTHY ECOSYSTEMS

in the river, the catchment and natural creeks.



## EASE OF ACCESS

through improved public transport and connected cycleways and walkways.



## QUALITY FACILITIES

for events, leisure, recreation and family fun.

We have considered all of these elements in our ten-step plan.



Kissing Point Beach



# A GLOBAL MOVEMENT

There's a global movement to make city rivers the centres of life like they once were. Now it's Sydney's turn.

*Dawn Fraser Baths, Balmain*



## Copenhagen

Harbour Bath offers an urban harbour landscape with dry-docks, piers, boat ramps, cliffs, playgrounds and pontoons, making it possible for the citizens of Copenhagen to go for a swim in the middle of the city.



## Berlin

This out of the ordinary swimming pool is called The Badeschiff, which is created from recycled cargo containers and floats on the River Spree in Berlin.



## London

Thames Baths is a proposal for a floating swimming pool in the River Thames that incorporates the tidal waters of the river, which will be clean enough to bathe in after the arrival of London's new sewage tunnel.



## New York

+ POOL is an initiative to build the world's first water-filtering, floating pool. The design filters the very river that it floats in through the pool's walls, making it possible for New Yorkers to swim in clean river water for the first time in 100 years.



# SWIMMABLE ONCE, CAN BE AGAIN

The Parramatta River was once one of Sydney's favourite swimming spots. This plan will make it possible again.

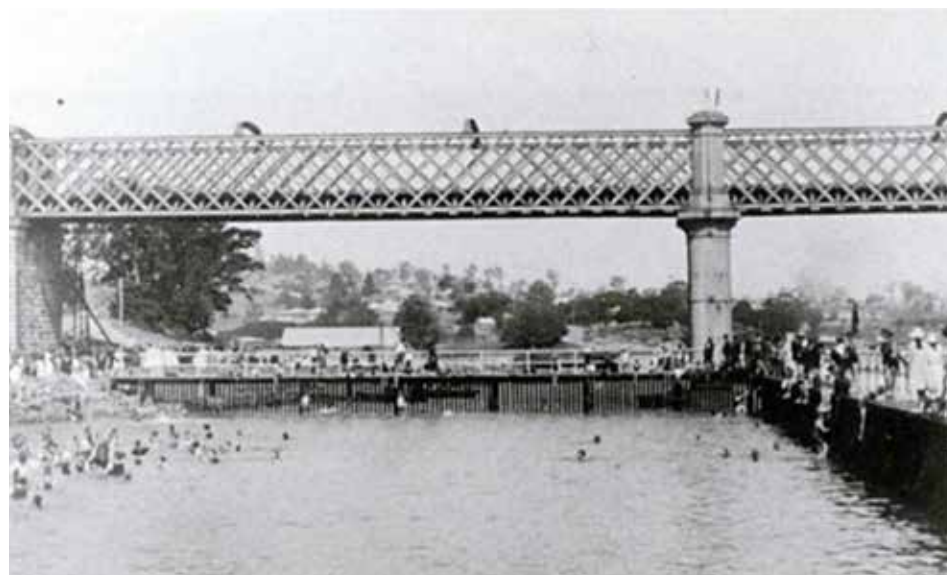
*"I used to swim in the Parramatta River, make rafts from the Bamboo that was growing near Drummoyne wharf, sail in PJ's, look for crabs and shells and loved growing up there. Dad has a rowing board and used it to set fishing traps and catch leather jackets and blue swimmer crabs."*



*"Our family all learnt to swim at the old Cabarita Baths (no lessons – self taught) and we spent many happy hours paddling around the shores of Mortlake and Cabarita."*

*In 1926, a Meadowbank Art Union Raffle offered over £4000 pounds of prizes (equivalent to over \$300,000 today) to help "purchase hours of health and happiness for 30,000 young Australians. The Art Union is to provide funds for the erection of baths at Meadowbank for free use of the Children."*

**Clockwise from top:**  
Crowds at Lake Parramatta, 1942;  
Lake Parramatta Life Saving Amateur Swimming Club, 1930;  
The Glades Bay Baths, 1951 (Ryde Library and Information Services);  
Meadowbank Baths, c1930 (Ryde Library and Information Services).



*"In the school holidays in 1944, I attended swimming lessons held in the Meadowbank baths. My memory is that they were held for 2 weeks and the time had to be adjusted because of the tides."*





# A BRIEF HISTORY

When could you swim in the river and when did it stop?  
Let history be your guide...



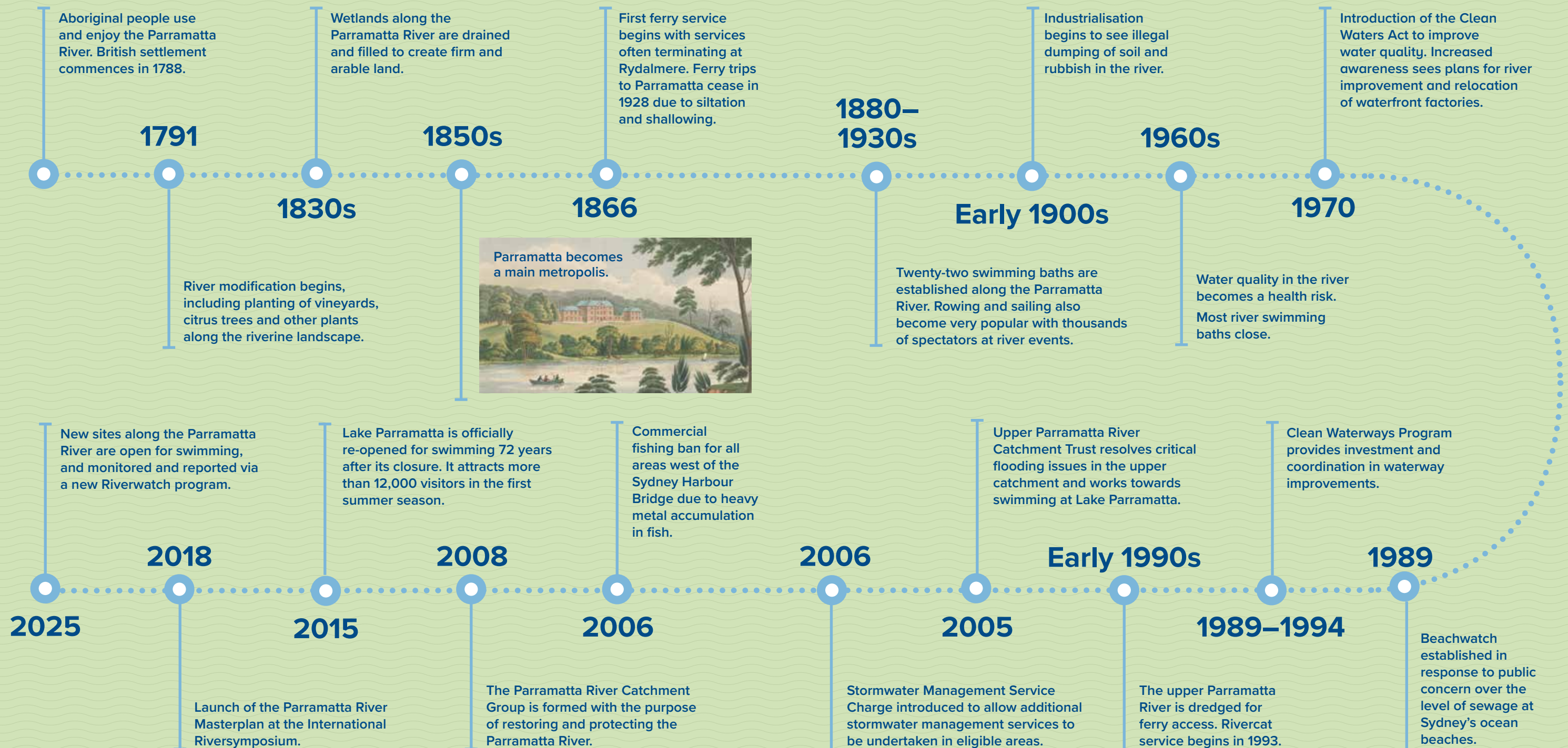
*The Olympic Carnival in Parramatta Park, 1914  
(National Library of Australia).*



*Lake Parramatta, 1938 (State Library of NSW).*



*View of bathers on constructed stone edge of Lake Parramatta, late 1930s (Parramatta Heritage Centre).*





# CHANGING CITY CHANGING RIVER

**Sydney is changing, and the Parramatta River is at the centre of this change. It is the geographic centre of Sydney and flows through the heart of one of the fastest growing regions in Australia.**

Indeed, it is the centrepiece of what is now being called Sydney's 'Central River City' in the three city vision for greater Sydney.

Until the 1950s, the Parramatta River was the focal point for many social and recreational activities. However, lack of regulation and rapid industrial development caused water quality to decline, leading to the closure of many popular river swimming spots.

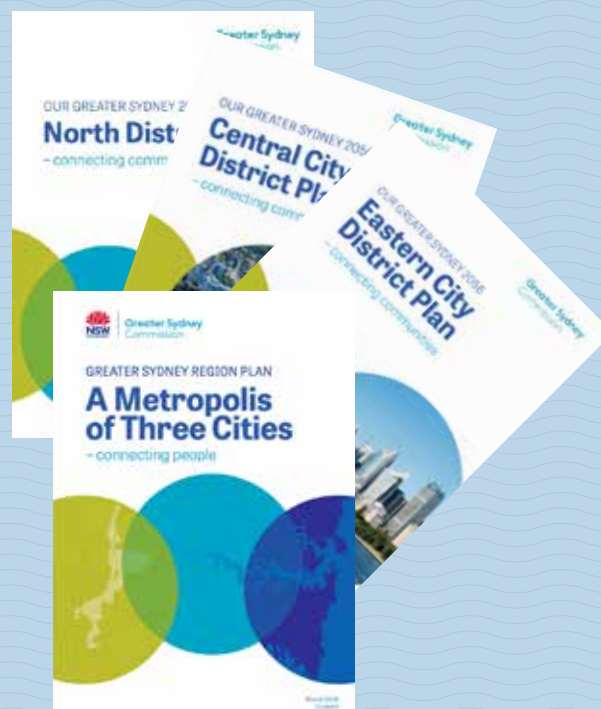
Regulation and technology have now advanced, and houses and businesses have replaced many of the old industrial sites along the river's shores. As a result, the condition of the river has been improving and interest in a healthy, swimmable river has renewed.

## Planning for change

Making the river swimmable again is inherently connected to the liveability goals of greater Sydney. It is specifically referenced in key state planning documents, including three District Plans and the Greater Parramatta and the Olympic Peninsula Plan.

Planning Priority C13 in the District Plans includes sections on both Parramatta River and Duck River. It specifically references the Parramatta River Masterplan.

Direction 11 in the Greater Parramatta and the Olympic Peninsula Plan is to "Make Parramatta River a great living waterway and connector, where people enjoy walking, cycling and safe swimming."



## A CHANGING CLIMATE

Sydney is getting hotter, and the further west you go the hotter it gets. This means, in future, we will need more places to cool down.

The Parramatta River and the local creeks that flow into it provide important, natural places for both people and wildlife in need of refuge from the heat.

**In 2017:**



**Parramatta had 22 more days above 35°C than it did in 1967.**



**Parramatta had 16 more days above 35°C than Sydney CBD did in the same year.**



# WHERE YOU CAN SWIM NOW

Is it possible to swim in the river again? Yes, it's already happening. There are four swimming spots you can already swim safely at in the river: Cabarita Park beach, Chiswick Baths, Dawn Fraser Baths and Lake Parramatta. The more you swim at these sites, the more you show the need to create new swimming spots along the river.



*View from Chiswick Baths*



## Cabarita Park beach

Cabarita Park beach is a wide, sandy beach bordered by rocks at either end. It is backed by beautiful parklands with great amenities, which provided a glorious lunch stop on our inaugural Parramatta River Source to Sea kayaking journey in May 2015.



## Chiswick Baths

Since the launch of the Our Living River campaign, the profile of Chiswick baths as a local swimming site has increased, and City of Canada Bay has responded with installing a new shower, undertaking a range of clean-up activities and holding two Family Fun Days at the site.



## Dawn Fraser Baths

Dawn Fraser Baths, built in the 1880s, is the oldest pool and swimming club in Australia. The baths structure is listed on the National Trust and on the Register of the National Estate. A major upgrade is currently underway to improve accessibility and restore the original heritage buildings.



## Lake Parramatta

Since it was opened in 2015, the popularity of swimming at Lake Parramatta has escalated, creating justification for additional infrastructure to improve access and local amenity, such as additional parking, a new playground, a BBQ facility, a viewing deck and paved access to the swimming site.



# LAKE PARRAMATTA – OUR FIRST SUCCESS STORY

Lake Parramatta is our biggest success story to date. It opened for swimming on Australia Day 2015. Here's how we made it happen.

1855

Lake Parramatta created by construction of a dam wall across Hunts Creek, one of the tributaries of the Parramatta River. The lake becomes a popular swimming area, with thousands of visitors every summer and events such as swimming carnivals, fundraisers and life-saving exhibitions.

1942

Local council bans swimming due to concerns about pollution caused by increasing urbanisation in the Lake's catchment area and drownings at the Lake.

1970–1980s

Sewage and stormwater pollution slowly brought under control.

1990–2000s

Scientific and other work show the lake could be made swimmable again. Tentative efforts made to return swimming under controlled circumstances, such as special events.

2014

Efforts to open the lake for swimming accelerated by the launch of the mission to make the Parramatta River swimmable again.

2015

On 24 January, Lake Parramatta is re-opened for public swimming, 72 years and 54 days after its closure. In its first season, it attracts more than 12,000 visitors.

2017/18

In its fourth season, visitation grows to more than 80,000 swimmers.



## Today

Lake Parramatta is one of the most popular swimming spots in inland Sydney with thousands of visitors every year.

TripAdvisor rates it 4.5 stars – one of the top three things to do in Parramatta. It has earned a Certificate of Excellence.

Water quality is monitored by a comprehensive program and is publicly reported on the City of Parramatta Council website.

A boat hire business has been established and the café is thriving. City of Parramatta Council has put in new facilities and infrastructure to service the growing number of visitors, including more car parking, a new playground and BBQ facility, new viewing platform and an improved path leading down to the swimming site.



*Top: Lake Parramatta 2015, reopened for public swimming for the first time in 72 years.*

*Above: Lake Parramatta in 1942, later closed for swimming due to poor water quality.*





**PART 2:**

# **DEVELOPING THE MASTERPLAN**





# HOW DID WE COME TO THE TEN STEPS?

The Masterplan has been designed based on scientific studies and community consultation.

From the very beginning, we have involved our community in decision-making for this Masterplan. Thousands of people have been involved in its development in some way. The more you tell us, the better it gets.

We have also consulted widely among the many stakeholders with the expertise, legislative power and influence to make it happen.

We have done this via:

- Parramatta River Catchment Group Full Group quarterly meetings
- Parramatta River Masterplan Reference Group biannual meetings
- Cross-agency Technical Groups for each of the seven key work streams.



**6700**

votes for a favourite swimming site



**12**

shortlisted future swimming sites



**5000**

votes for a favourite river mascot



**5**

confirmed mascots



**1500**

residents surveyed



**12**

on-site focus groups



**66**

Active Riverkeepers helping make the river swimmable



**158**

site desirability surveys



**9**

stakeholder workshops involving 24 agencies



**5**

PRCG community representatives



**1000s**

of people at our events and stalls



Sydney Home Show 2017



Source to Sea, 2015



Riverfest! 2017



Riverfest! 2016



Stakeholder Workshop, 2017

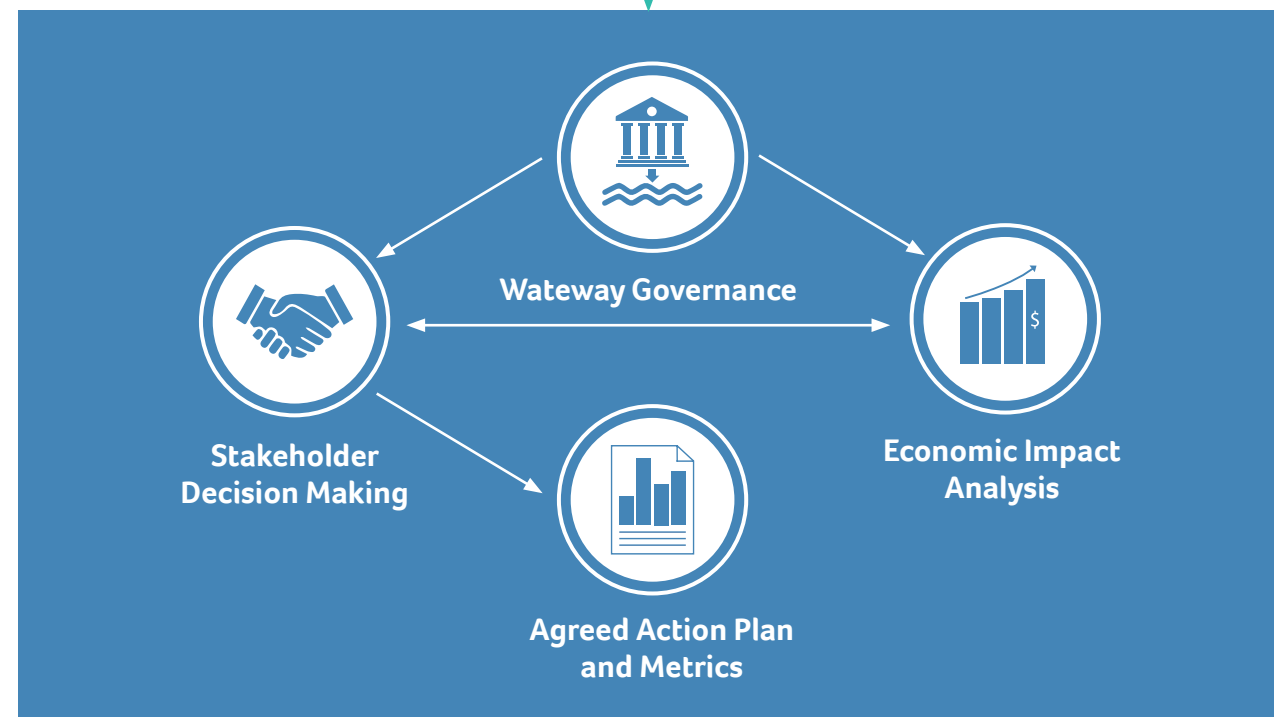


# THE MASTERPLAN PROCESS

## Stage 1 – Background Research



## Stage 2 – Decision Making



## PARRAMATTA RIVER MASTERPLAN

This process aligns with the *Risk-based framework for considering waterway health outcomes in strategic land-use planning decisions* (2017) developed by the NSW Office of Environment and Heritage and Environment Protection Authority. This approach considers links between development, waterway health and the community's uses and values of the waterways, and is consistent with the ISO risk management standard.

In Stage 1 of the Masterplan, we gathered evidence on water quality, community interest, swimming site activation and ecological health to develop an understanding of what makes a river swimmable.

In Stage 2 we focused on using evidence gathered during Stage 1 to make decisions on the actions, pathways and targets needed to form the final Masterplan.

The reports for each of the above work streams are the backbone of this Masterplan. They provide the detailed background research, action plans and processes behind each of the ten steps.

The vast library of research-based documents that has helped direct this Masterplan is available for download at [www.ourlivingriver.com.au](http://www.ourlivingriver.com.au).



On-site community focus groups were held at all proposed swimming sites to understand current and future desirability (August 2017).



# WHAT OUR COMMUNITY TOLD US

## Community Research

To succeed in our mission of a swimmable river, we needed to understand how the community feel about swimming in the Parramatta River and what it means to them, so we can establish active, well-used swimming spots that meet community wants and needs.

We asked more than 1100 residents from across the 11 local government areas in the Parramatta River catchment about their current behaviour around water, barriers to swimming in the river, preferences for swimming site activation and appetite for recreation in the Parramatta River.

The research confirmed that people want a more convenient, natural swimming location.

Residents also highlighted the importance of sites as more than places just to swim but as

places to play, exercise, picnic or simply escape the urban bustle.

Interestingly, people in offshore council areas showed a particularly high level of interest in swimming in the Parramatta River. This included residents from Strathfield, Cumberland, Blacktown and The Hills Shire.

### Relevant documents

- Parramatta River Masterplan Community Research
- Community Research summary infographic

These reports can be downloaded at: [www.ourlivingriver.com.au](http://www.ourlivingriver.com.au).

Research showed us that, to make sure current sites are loved and used, and future sites follow the same path, we need to:



Ensure that barriers to swimming are overcome and/or levels of risk are communicated to swimmers.



Increase awareness of current and future sites.



Provide facilities at swimming sites such as toilets and showers, as well as picnic areas and playgrounds.



Report publicly on water quality results.





# WHERE TO SWIM NEXT

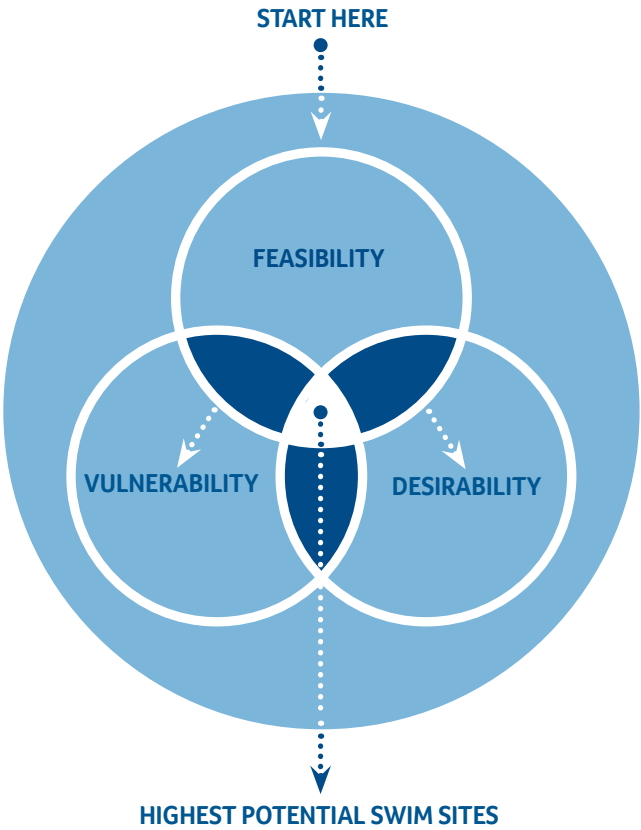
## Swimming site activation

Choosing the right places to invest our time and efforts is crucial to a smooth rollout that delivers what the community wants. Not all places with good water quality are safe for swimming, and not all safe places have the shore infrastructure in place to make them easy for people to access. Here’s how we have chosen which parts of the river to prioritise for each activity.

### Firstly, we shortlisted 12 potential swimming sites

We engaged the community and local foreshore councils to identify potential sites where people want to swim along the Parramatta River.

Over 6000 community votes were lodged for a favourite swimming site. Twelve potential new swimming sites were shortlisted. This initial selection was based on community interest and willingness of land owners to activate and manage the site.



### Then, we created a swimming site activation framework

The framework shows everyone what factors we need to consider before opening a swimming site and helps us to compare and choose the best sites.

#### Feasibility

This is a simple question of, “Is it possible?” To be a feasible swimming spot, we ask:

- Is it attached to public land?
- Is it easily accessible without damaging local wildlife?
- Does it pose any danger from boats?
- Does it have good water quality?
- Is it deep enough?

#### Vulnerability

In simple terms, how risky is the location? To understand this, we ask:

- If the water quality is good now, will it stay that way throughout the year?
- Are there dangerous things under the water?
- Is the water clear enough to see dangerous things under the water?
- Are there any dangerous currents?
- Is the river edge easy to get in and out of?
- Is the site heritage restricted?

#### Desirability

In other words, how many people will use the site if we spend the time and effort to open it? To answer this, we ask:

- Is it easy to get to by car, bike, public transport and foot?
- Is there lots of open space to relax and spend time?
- Is there shade and grass?
- Are there places to sit and eat?
- Is there a strong local council or other organisation that will take responsibility for the site?
- Does the community want it to happen?

We used this framework to assess each of our 12 shortlisted sites as well as the four current swimming sites.



## Example of a high level potential plan for design and activation of a swimming site



## Finally, we asked our communities to help assess the sites

A qualified urban planner undertook full, high level assessments at each site. We also held on-site community focus groups at all 12 potential swimming sites. A further 131 people completed online site desirability surveys. This gave us an excellent insight into what people love and don't love about the current sites and what they would like to see there in future.

We also explored precedents from Australia and internationally to provide inspiration for different types of possible site activations.

In August, 2017, all of this work was then reviewed at a 'swimming site prioritisation and interventions' stakeholder workshop to further refine and agree on the preferred types of activation for each site.

We also engaged specifically with Aboriginal communities to better understand how cultural heritage can be protected and promoted at the sites proposed, and to identify alternative locations that are culturally appropriate to the type of water access proposed.

**Now we have this framework, we can use it to assess other sites along the river as they are nominated.**

### Relevant documents

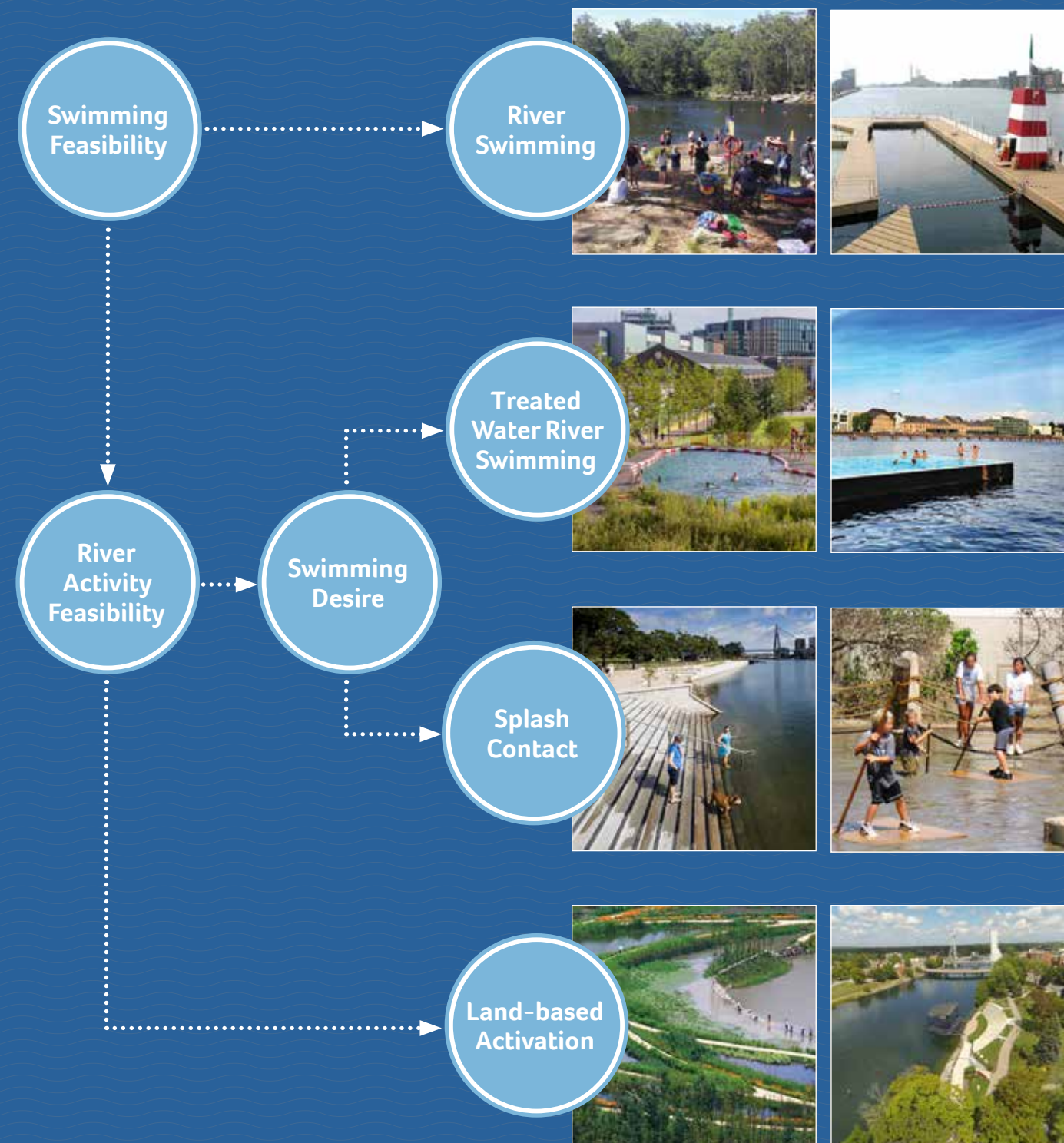
- Parramatta River Aboriginal Leadership Report
- Parramatta River Swimming Site Activation Framework
- Parramatta River Masterplan Stakeholder and Community Engagement Report
- Swimming Site Activation Overview
- Where can we swim by 2025? Parramatta River Water Quality Modelling Report.

These reports can be downloaded at [www.ourlivingriver.com.au](http://www.ourlivingriver.com.au).

# IT'S NOT JUST ABOUT SWIMMING

Just because a place isn't right for swimming doesn't mean it's not an important part of a swimmable river. Sitting, running or cycling on the shore or paddling and wading in the water

are also great ways to enjoy time by the water. And if community really wants swimming in a location, but it's not possible in the river, a treated water riverside pool could be an option.





# WATER QUALITY

## A swimmable river needs clean water.

To make the water cleaner, we first need to understand what impacts its cleanliness now and how we can improve it. After all, the Parramatta River has a history of contamination stretching back to European colonisation.

Even today, it continues to be polluted by industrial and municipal waste, as well as urban stormwater and sewerage systems.

To overcome this, we undertook a series of technical studies to understand:

### 1. What, how and when we need to monitor to assess suitability of a site for swimming.

Before new sites on the Parramatta River can be declared safe for swimming, we need to first assess the risk and monitor water quality. We undertook a literature review to understand how recreational water quality should be assessed in the Parramatta River. This work has provided the basis for a targeted Riverwatch monitoring program to ensure a future of safe river swimming. We have already begun Stage 1 of this monitoring program at six sites along the river.

### 2. The condition of the river now and as it changes over time.

We reviewed existing water quality data to determine the condition of proposed swimming sites in relation to both swimming and general ecosystem health. The bacterial indicator *Enterococci* was used as the main indicator of recreational suitability in line with the current Beachwatch program.

Other indicators of bacterial pollution proposed in our Riverwatch program have never been monitored in the Parramatta River, but are recommended for future monitoring programs at specific swimming sites. This will help us better understand the sources of bacterial pollution and adapt our management accordingly.

The four current swimming sites in the river are generally suitable for swimming during dry weather but can become unsuitable following rain. This is consistent with the Beachwatch recommendation that people should not swim at harbour beaches for three days following heavy rain.

Results show that water quality appears to be improving as a result of catchment management measures although many sites are still affected by nutrients from wastewater overflows and stormwater runoff.

The recommended Riverwatch monitoring program will fill in data gaps and provide key information needed to support future management decisions to make the river swimmable again. This is outlined in *Business Case: Riverwatch Monitoring Program* at [www.ourlivingriver.com.au](http://www.ourlivingriver.com.au).



*Above: Sediment laden water from construction site at Harris Park; Right: Residential development at Wentworth Point on the Parramatta River.*







### 3. Where could natural swimming be possible by 2025?

To answer this question, we undertook a detailed modelling study that investigated the future of water quality in the river under different management scenarios.

Data from this important work has helped guide target setting that will successfully meet regulatory objectives associated with river swimming.

An integrated modelling framework was adopted that combined the use of three models, which modelled:

- wet weather overflows
- catchment processes such as pathogen generation and stormwater runoff; and
- where these pathogens move and end up in the river.

A sub-daily simulation was used which captured changes in flow and pathogens over space and time.

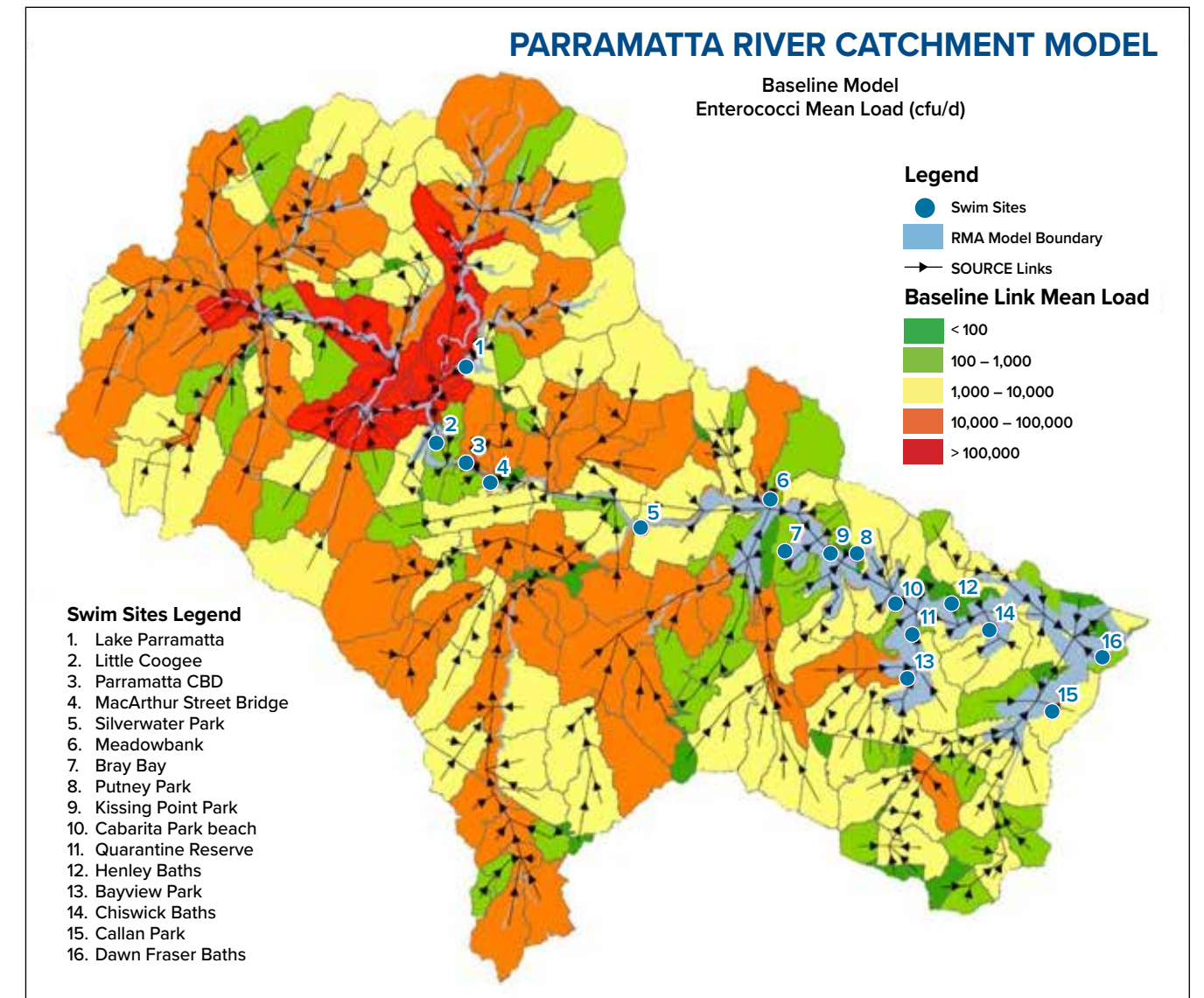
We investigated several management scenarios to understand how and where we can return swimming to the river.

The modelling shows that:

- Water quality will likely worsen with predicted development if we continue to manage the way that we currently do.
- Water quality can be improved under additional management scenarios, even with predicted development in the catchment.
- Improving river quality will require additional planning controls for stormwater management, wastewater infrastructure and community education.
- It is possible that more swim sites in the lower parts of the river could be opened for natural swimming by 2025.
- Other sites in the upper river would need more innovative solutions and/or increased application of existing solutions, to become safe for swimming.

These water quality modelling outcomes have been used to inform the types of swimming site activation that are feasible at each site by 2025.

Further modelling is recommended in consultation with the community and relevant stakeholders, particularly at the lower river sites where natural river swimming appears feasible.



Our water quality modelling allows identification of potential low risk subcatchments where further investigation of creeks for local splash play may be worthwhile.

The diagram above shows the current pollution load flowing from different subcatchments into the Parramatta River based on the water quality modelling study. Pollution load is predicted using the indicator enterococci, which is the primary indicator used by the Beachwatch program to measure suitability for swimming.

Areas shaded in green are likely contributing the least pollution load, while areas shaded in red are likely contributing the greatest pollution load. Creeks flowing from subcatchments shaded green are likely to have the best recreational water quality.

*Where can we swim in 2025: Parramatta River Water Quality Modelling Report* provides further analysis for prioritising subcatchments for future interventions.

### Relevant documents

- How should water quality be assessed in the Parramatta River – Literature Review
- Technical analysis of water quality in the Parramatta River
- Business Case: Riverwatch Monitoring Program
- Where can we swim by 2025? Parramatta River Water Quality Modelling Report.

These reports can be downloaded at: [www.ourlivingriver.com.au](http://www.ourlivingriver.com.au).



# OUR MASCOTS



## BAR-TAILED GODWIT

A fishing bird that lives on sand and mud-dwelling invertebrates found along the estuarine areas of the Parramatta River. Foreshore birds like the Godwit show we are maintaining our mangroves, saltmarsh and mudflats against urbanisation, pollution, weeds, erosion and reclamation.



## STRIPED MARSH FROG

Dwells across the catchment and thrives in clean water. Frogs can be a good indication of aesthetic, recreational and (often) primary contact water quality. A diverse frog community tells us that the freshwater and riparian environment is healthy.



## EASTERN LONG-NECKED TURTLE

Lives in freshwater creeks and needs deep ponds to swim and forage and sandy banks to lay eggs. Healthy turtles inform us that creeks are not overly polluted by pesticides and other chemicals, banks are not badly eroded and flows are just right.



## SOUTHERN MYOTIS

Australia's only fishing bat. It requires creekside vegetation and catches water insects and the smallest fish. The Southern Myotis benefits from the retention of native riparian vegetation that offers roosting sites. It also enjoys water bodies with good water quality.



## POWERFUL OWL

Lives in forests and woodlands and moves along native vegetation corridors, which stabilise creek banks and acts as a filter that limits erosion and cleans the water. This reduces the amount of pollution entering the waterways, such as sediment, litter, nutrients, oils, fertilisers and heavy metals.

Delineate special-purpose recreation and interpretive areas, including dog off-leash areas, to protect Godwit forage and roost areas from disturbance.

Create new oyster reefs as barriers to protect the mudflats the Godwits rely on from boat and ferry wake, and help protect shorebirds from human contact.

Construct off-line wetlands to treat and regulate stormwater flows and create habitat for riparian species.

Maintain smaller hollow bearing trees, and encourage man-made hollows and 'bat flats' for roosting.

Maintain and enhance areas of dense, fully structured vegetation, including large canopy trees.

Extend vegetation connectivity in priority corridors with particular focus on riparian areas.

Maintain large hollow bearing trees, and encourage man-made hollows and stags for owls to nest.

Conduct bush regeneration using dense canopy/understory plantings as roost sites and habitat for prey.

# HEALTHY ECOSYSTEMS

**A living river means many things. Our mission includes seeing the Parramatta River become a river that is packed with life and healthy ecosystems, where plants and animals can flourish in the water and surrounding environments.**

We identified five iconic species (our river mascots) living in the Parramatta River catchment that are valued by community and whose presence and habitat requirements link to the goal to make the river swimmable by 2025.

These five species represent the range of environmental domains in the catchment – terrestrial, riparian, freshwater and estuarine habitats – and the communities they are part of.

They are the centre of ecological action in the Masterplan and will be used as indicators of the health of our local waterways and catchment and our progress to making more areas safe for natural swimming. Management actions can be grouped into the following three areas in order of priority:

- 1. Habitat protection
- 2. Habitat management
- 3. Habitat creation.

Our mascots were chosen by our community. Following a desktop review of local community groups and threatened species records, 19 species were shortlisted and put up for public vote, with nearly 5000 votes being lodged over three weeks.

## Relevant documents

- Parramatta River Masterplan Ecological Health Report
- Ecological Health Summary Report

These reports can be downloaded at: [www.ourlivingriver.com.au](http://www.ourlivingriver.com.au).



# WATERWAY GOVERNANCE

To successfully achieve our mission, we will all need to do our part. There are many stakeholders involved in making the river swimmable again, and the current governance can be confusing and complex. A revised governance framework is being developed to enable greater clarity, coordination and leadership in delivering the Masterplan.

To understand the current governance and inform our future approach, we worked with our partner agencies to map the existing governance structures around waterway management, ecological health and swimming site activation and identify gaps and issues in these structures. A key recommendation from the review was the need to establish a lead state agency with sufficient powers, funding and whole of government support to drive delivery of this Masterplan.

A major stakeholder workshop was held on March 2018, which was attended by 45 participants from 22 organisations. At this workshop, the ten recommendations underpinning this plan were agreed, along with who is responsible and how we will

get there. Sydney Water was also agreed as the agency best placed to take the lead coordinating role.

A collaborative governance arrangement has now been agreed, which defines Sydney Water's lead role and the role of all agencies in Masterplan delivery and confirms that, collectively, the Parramatta River Catchment Group will continue to be the overarching body overseeing the Masterplan.

At the workshop, Aboriginal leadership was also recognised as a key gap that needs to be addressed in conversations around river knowledge, use and governance. We therefore commissioned a specific Aboriginal Leadership project to commence engagement on the appropriate inclusion of Aboriginal people within the governance framework.

## ABORIGINAL LEADERSHIP IN WATERWAY GOVERNANCE

The complex, intrinsic connection between Aboriginal culture and land and waterways is tied directly to belief systems that holds land and waterways as living entities with their own body, spirit and free will. This is a key starting point for all policy and decision making within Aboriginal communities as any changes must consider the effect on land and waterways and their 'thoughts' on this impact.

This creates some conflict in the modern era of policy making and needs to be considered in how Aboriginal people are included and take leadership in the future planning for the river. Decision making processes and parameters may not easily align with other members of the wider Australian community and will require translation and negotiation.

As the Traditional Custodians of the land and waterways, Aboriginal communities have the longest connection and working relationship with the area and therefore should be a priority for inclusion in any research, review or design of policy.

Some key considerations in relation to Aboriginal leadership around this Masterplan include:

- The use of language in establishing the priority of values and inclusion.
- Recognising Aboriginal people as a priority stakeholder in the protection, preservation and planning around the future use of the river and surrounding land.
- The inclusion of Aboriginal people in the design of legal representation and bodies to shape policy.
- The number of Aboriginal communities across the catchment and how

representation is then balanced across areas of governance, policy, advisory and advocacy.

- Having Aboriginal custom and culture at the core to ensure the continued connection and practice of culture that will build on modern techniques of water access, management, pollution and environment.
- Supporting Aboriginal communities to continue their role as custodians and develop economic opportunities to support the protection of a healthy swimmable river (e.g. festivals, net making for swimming areas, information sign posting and tourism operations).

To inform our discussions of these and other elements, two contrasting models were explored in New Zealand and Australia. These are outlined in the *Parramatta River Aboriginal Leadership: Case Study Report*.

The identification and inclusion of Aboriginal leadership is of significant importance to the overall success of this Masterplan. Continued work is needed to identify those responsible for different parts of the Parramatta River catchment to support the creation of collaborative leadership and Aboriginal custom through a balanced view of the entire catchment.

### Relevant documents

- Parramatta River Masterplan Waterway Governance Report
- Parramatta River Aboriginal Leadership: Case Study Report
- Parramatta River Masterplan Aboriginal Leadership Report.

These reports can be downloaded at: [www.ourlivingriver.com.au](http://www.ourlivingriver.com.au).



# ECONOMIC ANALYSIS

**We need to invest to make a healthy, swimmable river but we will only make these investments if there is clear evidence that they will deliver benefits and that people want them to be made.**

We are undertaking an economic analysis of investments proposed in this Masterplan to demonstrate their overall economic benefits and inform the business case that will be delivered with the final Masterplan. Choosing the right places to invest our time and efforts is crucial to a smooth rollout that delivers what the community wants.

The estimated costs of specific swim site developments range from less than \$50,000 to around \$7.5 million, depending on the facilities and level of treatment. Investments to improve river quality and river and land-based recreation opportunities have the potential to deliver significant returns on investment and an overall net benefit to Greater Sydney households. Work to date shows:

**There is a strong economic case for investing in both improving and maintaining good water quality in the Parramatta River.**

Recent work suggests that, overall, households in the Parramatta River catchment area are willing to invest a combined \$30 million for good water quality and healthy ecosystems and \$450,000 for every additional truckload of garbage taken out of the river each year. It is likely that many households outside of the Parramatta River catchment area boundary would also be willing to invest to improve the river's condition, which means the total willingness to invest is probably much higher.

**Investments in swimming sites can generate economic benefits and returns that far exceed the initial and ongoing investment.**

The opening of Lake Parramatta four years ago has revealed significant recreational and economic benefits. Last season, the lake attracted around 80,000 visitors, which equates to a total economic return of around \$1.4 million in visitor experience. Assuming that the lake's popularity continues, its benefits will far exceed the costs to ensure it continues to be a safe and enjoyable destination. Opening the lake for swimming has also helped create local economic activity, bringing revenue and jobs to the area. This includes a new boat hire business, thriving café, additional car parking, a new playground, BBQ facility and viewing platform and an improved path to the swimming site.

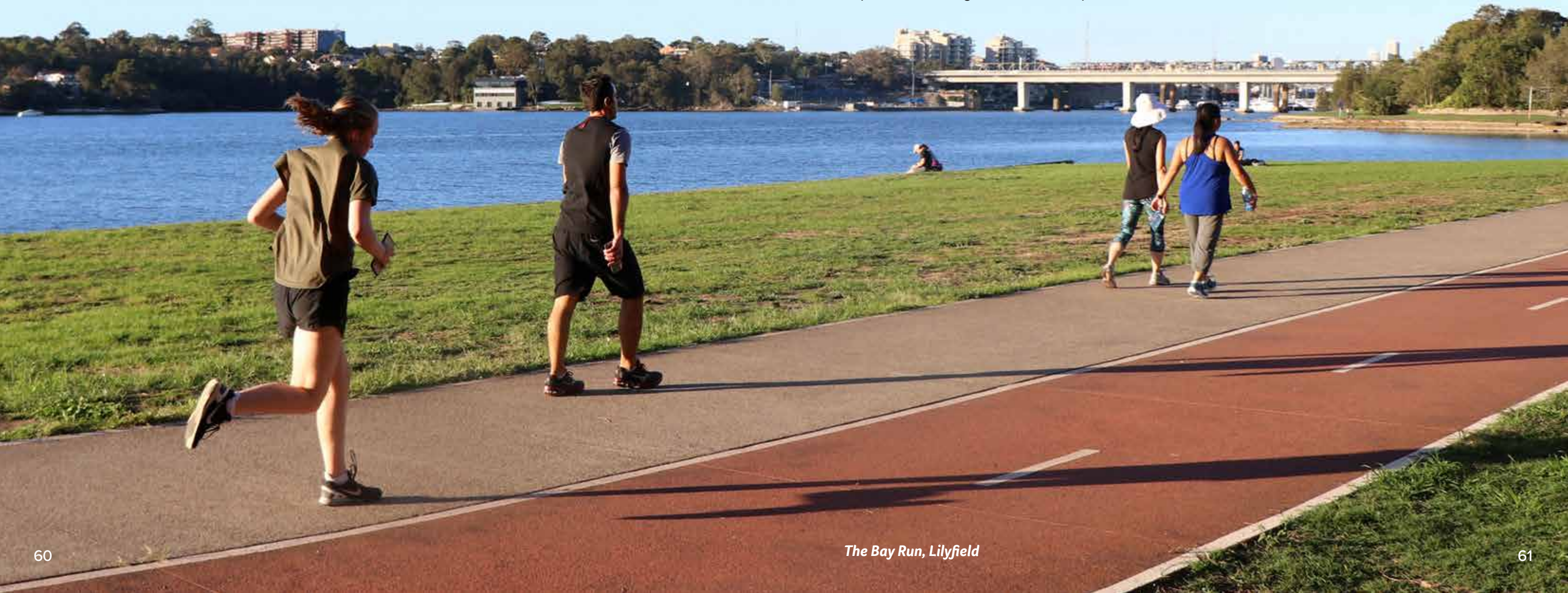
**The Masterplan investments are likely to generate additional economic benefits that can be hard to measure but do exist.**

Evidence shows that nature-based recreation can lead to physical health benefits and improved wellbeing and that nature provides

additional value to the known health and productivity benefits of other physical activity. Our Community Research also indicates that creating new river swimming sites could reduce swimming congestion at other sites across Sydney, as more than half of people said they would prefer to swim in the river than travel to the beach if it were half the distance from home. This has an added benefit to beach goers by reducing crowding at the site and reducing vehicle congestion in attending the site.

## Next steps

The Business Case to be delivered with the final Masterplan will focus on the costs and benefits of the proposed investments to improve water quality and river health. We will then take a staged approach to prioritising swim sites for future development by tracking visitor numbers and activity at existing swim sites and at the three new swimming sites along the river before and after they are redeveloped. By understanding existing site use and demand, we can better plan and prioritise future swim site developments.







**PART 3:**

**OUR PLAN**

**FOR THE RIVER**







# 1. GET SWIMMING

Right now there are four places you can swim in the river. The more we swim in them, the more others will join us and community support will grow. We can also learn what makes a swimming place great and what people want out of future swimming sites.

## Recommendation

Maintain, improve and promote the four current swim sites in the Parramatta River.

## When

Now.

## Who is responsible?

Lead agencies: City of Canada Bay, City of Parramatta, Inner West Council.

Support agencies: Community, local government, NSW Environment Protection Authority, NSW Health, NSW Office of Environment and Heritage, Parramatta River Catchment Group and Roads and Maritime Services.

## How we will get there?

- ✓ Continue to review, maintain, monitor and publicly report on the current Parramatta River swim sites at Chiswick baths, Cabarita Park beach, Dawn Fraser Baths and Lake Parramatta and new sites as they are opened.
- ✓ Incorporate swimming sites into relevant land use plans and instruments, including councils' new LEPs, and reference these in city-wide strategic plans.
- ✓ Continue to actively promote all existing swimming sites through the Our Living River community engagement campaign.
- ✓ Continue to improve swim site desirability in response to changing popularity and demand at existing swim sites, including the consideration of netted enclosures and life guards, as appropriate.
- ✓ Use the existing and any new swim sites to understand and measure the broader benefits of activating sites through measuring visitation attributes, including visitor numbers and demographics, duration of stay and type of activities.
- ✓ Incorporate swimming sites into relevant land use plans and instruments, including new LEPs, and reference these city-wide strategic plans.



Lake Parramatta



Cabarita Park beach



Chiswick Baths



Dawn Fraser Baths

## Why these actions?

Our water quality modelling suggests that the current swim sites in the Parramatta River will continue to have water quality safe enough for swimming by 2025. However, without additional management intervention, water quality decline could reduce our ability to swim at these sites in the longer term.

All of these sites are routinely monitored and publicly reported to the community. Water quality at Cabarita Park beach, Chiswick baths and Dawn Fraser Baths is reported under the NSW Beachwatch Program and water quality at Lake Parramatta is reported by City of Parramatta Council. Consistent with other harbour beaches, it is recommended that people do not swim at these sites for three days after heavy rain.

Community research has shown that, while there is a very high interest in swimming in

the Parramatta River, currently not many people know about existing swimming sites. Further promotion of these local swimming sites would help increase their popularity and better connect people with the river.

Sixty-eight per cent of swimmers said they were interested in swimming in the Parramatta River, and almost 1 in 10 (9%) people said they have swum in the Parramatta River in the last 12 months.

Only 38% of people were aware of the current swimming sites in the river. This dropped to just 20% of people aged between 18 and 24.

Using the Swimming Site Activation Framework, we have identified ways the existing swimming sites can be improved. The improvements can be made over time in response to a site's growing popularity or to attract more people to a site.





## 2. KEEP WATCH

A Riverwatch water monitoring program will help us measure change over time, protect existing swimming spots, open new swimming sites and understand what makes water quality change over time.

### Recommendation

Agree and progress the establishment of the Riverwatch monitoring program for the Parramatta River.

### When

Now.

### Who is responsible?

Lead agency: Sydney Water.

Support agencies: Community, local government, NSW Environment Protection Authority, NSW Health, NSW Office of Environment and Heritage, Parramatta River Catchment Group, Roads and Maritime Services, and universities.

### How we will get there

- ✓ Assess contaminants and their exposure pathways with reference to guidelines agreed by NSW Health and NSW EPA at proposed swimming sites and undertake additional monitoring of chemical contaminants as required.
  - a) For sites east of Kissing Point Park, undertake monitoring for bacterial contaminants following the Beachwatch criteria to confirm suitability for swimming;
  - b) For sites west of Kissing Point Park, consider conducting investigative studies on contaminants following the methodology outlined in Khan and Byrne (2016) to better understand risks to human health from viruses and bacteria in both wet and dry weather.
- ✓ Undertake comparative analysis of data from current river swimming sites as a benchmark for assessment of human health risk at new swimming sites (e.g. exposure to contaminants within the water column and sediment).
- ✓ Agree the process for the ongoing running of the Riverwatch monitoring program.
- ✓ Update and rerun water quality models with new monitoring data for specific swimming sites and extend modelling out to 2050. Update management priorities and monitoring program to reflect modelling outputs.

### Why these actions?

A Business Case for a Riverwatch monitoring program was developed to outline the recommended approach for monitoring water quality in the Parramatta River. Since its establishment in 1989, the Beachwatch program has been a successful driver in creating cleaner, healthier waterways along the NSW coastline.

Our proposed Riverwatch program complements the current Beachwatch program,

but provides a tailored approach to address issues specifically impacting the river. This will help us to better understand the risks from both viruses and bacteria, as well as where this pollution comes from.

Our Swimming Site Activation Framework Report offers alternative ways of making a river swimmable if natural swimming is not an option. A range of examples from Australia and around the world show how this can be done.



Swimming in Copenhagen Harbour seemed just a pipe dream 15 years ago. Today, it is home to a very popular swimming baths in the heart of the city. A real-time monitoring and automatic alarm system has been set up at the bathing sites to ensure the site is only open at times when it is safe for swimming. Images courtesy of [www.heatheronhertravels.com](http://www.heatheronhertravels.com).





## 3. CREATE NEW SWIMMING SPOTS

Our goal is to create three new swimming spots by 2025. Doing this means working out all potential options, then choosing the best three based on feasibility, vulnerability and desirability.

### Recommendation

Establish three new swimming sites in the river by 2025.

### When

From now to 2025.

### Who is responsible?

Lead agencies: Swim site land manager.

Support agencies: Developers, Greater Sydney Commission, local government, NSW Department of Planning and Environment, NSW Environment Protection Authority, NSW Office of Environment and Heritage, Parramatta River Catchment Group, Roads and Maritime Services, Sydney Water, universities.

### How we will get there

- ✓ Undertake a staged process to activate Bayview Park, Mcllwaine Park and Putney Park for swimming by 2025, incorporating the principles of water sensitive urban design and environmentally friendly seawalls into relevant site developments. Ensure all-ability access is embedded into the design of all new swimming sites.
- ✓ Integrate new swimming sites into relevant land use plans and instruments, including councils' LEPs, and reference these in city-wide strategic plans.
- ✓ Continue to work with Aboriginal people to better understand how cultural heritage can be protected and promoted at each site (e.g. through inclusions of nets, cultural ceremony and celebrations and tours) and, where relevant, to identify alternative locations that are culturally appropriate to the type of water access proposed.
- ✓ Identify and prioritise swim site activation locations in tributaries flowing into the Parramatta River using the swimming site activation framework and incorporate into LEPs and city wide plans.
- ✓ Undertake further assessment of other priority swimming sites, including additional water and sediment quality testing at Callan Park to confirm its suitability for swimming, and then proceed with activation as appropriate.

### Why these actions?

Using the swimming site activation framework, we have drawn upon expert opinion and community input to assess twelve proposed swimming sites along the river. Based on these, we have recommended appropriate levels of activation for each site and outlined the remaining steps needed to open each site for swimming.

Through the Aboriginal Leadership project, the Aboriginal community has identified some areas of cultural significance and, in some instances, have proposed alternative, nearby locations for the swim sites. We will continue to engage with the Aboriginal community as new sites are being considered, to ensure cultural heritage is protected and promoted.

We now have commitment from the relevant councils to create river swimming sites at Putney Park, Bayview Park and Mcllwaine Park, with the next steps underway to activate

these sites. Other proposed locations will be considered as we implement the Masterplan. Specifically, there is a high level of interest in activating Callan Park for swimming and additional water quality testing and exposure pathways assessment is underway to confirm the site's future suitability for swimming.

Future swimming is not just restricted to our 12 shortlisted sites. As new sites are identified, these can easily be assessed using the swimming site activation framework.

All 12 shortlisted sites lie along the main channel of the Parramatta River. Since assessing these sites, the concept of swimmable creeks has also gained momentum, with the demand supported by our community research results and its feasibility supported by our water quality modelling. New sites will be explored to provide more people with local, natural places to swim.



### Bayview Park, Concord

City of Canada Bay Council has approved initial funding to investigate construction of a swim enclosure and complete water quality testing, with plans that council and State Government will then provide joint funding to construct a netted swimming enclosure and outdoor shower, similar to Chiswick Baths.



### Mcllwaine Park, Rhodes East

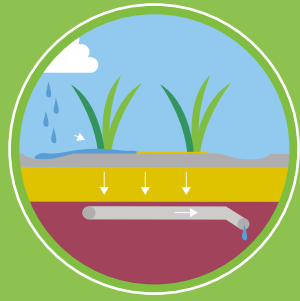
City of Canada Bay Council has approved plans and secured funding for the design and construction of river activation, including upgrades to the adjacent foreshore, construction of a jetty or other water sport launch facilities and further investigations to confirm suitability for river swimming.



### Putney Park, Putney

City of Ryde Council has approved development of a two-stage swim site activation. Stage 1 is now underway and will involve remediation of the existing seawall to include the creation of steps down to the existing beach area. Stage 2 (2019-2020) involves further water-based studies and actions to ready the site for safe swimming.





## 4. STANDARDISE THE STANDARDS

The Parramatta River's catchment spans 11 local government areas. To create a swimmable river, we need to work together to standardise policies and practices that impact water quality, such as approaches to baseline measurements, installation of rainwater tanks and creation of rain gardens.

### Recommendation

Establish a whole of catchment land use policy and statutory planning mechanisms.

### When?

By 2021.

### Who is responsible?

Lead agencies: NSW Department of Planning and Environment and Sydney Water.

Support agencies: Greater Sydney Commission, local government, NSW Office of Environment and Heritage, Roads and Maritime Services.

### How we will get there

- ✓ Align standards with the *Risk-based framework for considering waterway health outcomes in strategic land-use planning decisions*.
- ✓ Ensure the capture and use of stormwater on all new developments and redevelopments through either:
  - an overarching policy mechanism for the entire catchment; or
  - a review of BASIX water targets for low to medium density housing and state environmental planning policy for high density residential, commercial, industrial and roads.
- ✓ Ensure bioretention (or equivalent stormwater management) systems are installed on local and major roads using a prioritisation framework, starting with all new roads and moving towards broad catchment coverage over time.
- ✓ Ensure an ongoing funding source is allocated to the monitoring and maintenance of all bioretention (or equivalent stormwater management) systems installed.
- ✓ Align all the above with council policies across all council areas within the Parramatta River catchment with consideration of water sensitive urban design guideline (Roads and Maritime Services).

### Why these actions?

This proposed land use planning intervention was modelled in the water quality modelling study. The study showed that reducing hard surfaces is key to reducing the amount of bacterial pollution that reaches the river. Policy mechanisms therefore need to consider how we can reduce the amount of hard surfaces as the city grows. Ways to do this include rainwater tanks, stormwater harvesting and removing paving but also technologies such as permeable paving, passive irrigation techniques and bioretention systems (known as 'rain gardens').

Our waterway governance report highlights that waterway management is confusing and

complex. There is currently no statewide or regional policy on water sensitive urban design and, as a result, there is a huge variation in the scope and detail of such policy in each of the 11 councils in the catchment.

Local government practitioners identified the lack of a state-wide policy and associated regulation as being one of the major barriers to achieving a consistent and effective approach to stormwater management. A state policy would need to require changes to the Standard Instrument Local Environment Plan to enable the policy to filter down into local implementation.



Tennyson Street Rain Garden



Bruce Street raingarden



Scouller Street Rain Garden

### Bioretention systems

Bioretention systems are commonly called rain gardens. They are an attractive, low maintenance and self-watering garden that help to filter stormwater before it enters our rivers and creeks. They work by having a range of layers such as plants, sandy soil and

gravel, which filter out the different types of pollution as the water trickles through. They are usually created at street corners in the space where cars cannot park. Not only does this give us cleaner rivers, but we create safer street crossings and cooler streets.





## 5. REDUCE STORMWATER RUNOFF

Stormwater runoff, and all the rubbish and other pollution it brings with it, is the number one way our river gets dirty. A catchment-wide approach to reducing this runoff will use water sensitive design that absorbs and filters rain where it lands to improve water quality.

### Recommendation

Adopt a regional approach to the installation, maintenance and reporting of stormwater infrastructure and water sensitive urban design infrastructure.

### When

Ongoing.

### Who's responsible?

Lead agencies: City of Parramatta and Sydney Water.

Support agencies: Developers, local government, NSW Environment Protection Authority, NSW Office of Environment and Heritage and Roads and Maritime Services.

### How we will get there

- ✓ Undertake an audit of existing devices and structures across the catchment and routinely report on how well they are operating.
- ✓ Optimise the functioning of assets not currently operating to their design intent and/or justify the installation of new infrastructure to replace it that results in equal or better water quality outcomes for the river.
- ✓ Establish legal instruments to ensure that new properties maintain their stormwater retention devices to their design intent.
- ✓ Adopt a cost-benefit approach to assess and prioritise sites for additional water sensitive urban design infrastructure at a whole of catchment scale and establish funding mechanisms based on 'whole-of-life-cycle' management.
- ✓ Establish an ongoing capacity building program on integrated water management and water sensitive urban design, with tailored modules for all levels of council.
- ✓ Undertake compliance and education activities to reduce stormwater pollution entering the river as outlined in Step 7.

### Why these actions?

Our water quality modelling shows that water quality can be improved, even with predicted development in the catchment, but this will require additional management interventions. In order to improve water quality and justify new infrastructure, it is important that both existing and new stormwater infrastructure is maintained to its design intent and optimised where possible.

The waterway governance review highlighted that the policy settings for water sensitive urban design remain ongoing concerns, particularly

for local government. Primary concerns included the lack of consistency by planning agencies across the catchment and capital and maintenance funding for multi-functional stormwater infrastructure.

The review emphasised the need to:

- Enforce and monitor the outcomes of policies and standards that link to our mission.
- Better coordinate efforts of local councils and relevant state agencies in doing this.
- Prioritise capital and maintenance funding for water sensitive urban design in core budget allocations.

### Stormwater harvesting, treatment and reuse

Stormwater harvesting systems are an effective way of improving stormwater quality and flow into the Parramatta River. They also provide other community benefits such as reducing drinking water usage and irrigating backyards, parklands and sports fields, particularly during times of drought.



#### Water for Our Community

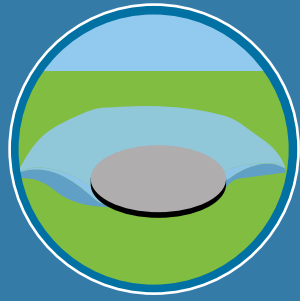
City of Canada Bay's 'Water for Our Community' project is one of the biggest stormwater harvesting, treatment and reuse systems in Sydney. Stormwater from a highly urbanised 172ha catchment area flows into a nearby canal where it is then harvested and pumped into a water treatment plant called the Cintra Watershed. Following treatment, the water is then pumped to large storage tanks and used for irrigating Council's open spaces. The project has reduced City of Canada Bay's reliance on potable water by 75% annually and allows for year-round irrigation of two golf courses and 15 playing fields across the Canada Bay area.



#### The Bill Mitchell Park Stormwater Harvesting and Irrigation Project

This project was undertaken by City of Ryde Council to capture stormwater from the 41ha Gladesville catchment area. The stormwater is filtered through a gross pollutant trap and then UV treated and stored in a large tank. It is then used to irrigate the local sports field and for town centre cleaning. A range of studies helped inform where the system was best placed to optimise the capture of litter and sediment. The key aim was to reduce the amount of sediment and other pollution from entering the river and impacting on local endangered saltmarsh and mangrove communities.





## 6. IMPROVE OVERFLOWS

Sydney's sewer system is over 100 years old, and was built for a smaller city. So, when it rains, stormwater can flow into the sewer system, causing it to overflow into our creeks and rivers. Understanding where, when and how this happens and putting measures in place to stop it are an essential part of making our river swimmable again.

### Recommendation

Improve water quality outcomes through targeted wet weather overflow management, focused on those overflows impacting existing and proposed swimming sites.

### When

Ongoing.

### Who is responsible?

Lead agencies: NSW Environment Protection Authority and Sydney Water.

Support agencies: Community and local government.

### How we will get there

- ✓ Undertake modelling to quantify the estimated improvements in water quality that will be achieved at the swimming sites identified in this Masterplan, with overflow reduction to be achieved through planned source control works.
- ✓ Work together to assess overflows that may impact the proposed swimming sites against the new wet weather overflow abatement risk-based framework to determine their relative risks compared to other public health issues in the catchment.
- ✓ Run additional scenarios in Sydney Water's hydrodynamic (RMA) model to develop practical and cost effective solutions that will have a measurable benefit to aquatic recreation at existing and proposed new swimming sites.
- ✓ Identify additional interventions (e.g. storage, treatment, works on private properties) that may lead to further improvements at strategic overflow points to provide additional improvements to existing and proposed new swimming sites.
- ✓ Undertake further modelling to quantify the potential improvements that may be achieved at the swimming sites with additional practical measures to reduce overflows or improve overflow discharge quality.
- ✓ Develop and implement a costed, strategic plan to reduce wet weather overflow impacts at priority sites (based on all the above work and environmental and public health criteria) by 2025 and beyond.

### Why these actions?

The water quality modelling study indicates that a combined approach to management that includes both targeted wet weather overflow and catchment interventions is needed to achieve a swimmable river. Two scenarios were modelled for wet weather overflow interventions, including the theoretical concept of 'turning off' all overflows, as well as 'turning off' the six worst identified overflows at key locations.

The modelling indicates that marked improvements could be made to some swimming sites based on the targeted wet

weather overflows scenario but not for all sites. There may be additional overflows further upstream that warrant further investigation. Also, there is a range of additional wet weather abatement interventions that could be explored within the risk assessment framework to achieve equivalent or improved outcomes for the river.

Through our stakeholder engagement workshops, our stakeholders generally agreed that the scenario of 'turning off' all overflows was unrealistic. There was a consensus that all other interventions modelled could be achieved, albeit depending on available resources.

### Sewer overflows and how we can manage them

Many of the sewer systems around the Parramatta River are over 100 years old. Because they are buried, they are difficult and expensive to dig up and replace. When it rains, stormwater gets into 'leaky' pipes and causes too much water to run through the pipes. Instead of allowing this water to back up into people's houses or cause other catastrophic environmental impacts, sewer overflow points are installed in strategic locations that allow the water to overflow from the sewer pipe and into the local waterway.

It is not considered practical to stop all overflows or close all overflow points off. Instead, a risk-based approach is being adopted to ensure that the management of overflows focuses on areas of high risk to public health and the environment.

A range of measures is being considered to limit how much and how often stormwater gets into the sewer and causes it to overflow. None of these can be looked at in isolation, and measures need to be considered as part of a holistic management approach. Measures include:

1. Periodic maintenance of the sewer, fixing 'leaky' sewer pipes or fixing illegal stormwater to sewer connections in houses.



Image courtesy of Paul and Ann Thornton.

2. Constructing storage areas or additional sewer network to handle the excess amount of stormwater that gets into the sewer. In some cases, this requires construction of a very large tank or sewer, potentially under existing houses, to store the excess flows.
3. Treating the overflow water before it is released to the environment to kill most of the bacteria and viruses living in it before it reaches the waterway.





## 7. INVOLVE THE COMMUNITY

**Most stormwater pollution comes from roof and street runoff and that is determined by the actions of the community living in the catchment area. Good management of building sites, picking up pet waste and not littering are just three ways communities can help create a swimmable river. Helping people understand this link is a key to success.**

### Recommendation

Undertake joint community education and compliance activities focused on reducing stormwater and source pollution where it is linked to community behaviour and actions.

### When

Ongoing.

### Who is responsible?

Lead agency: Parramatta River Catchment Group.

Support agencies: Community, Industry, Local Government, NSW Department of Education, NSW Department of Planning and Environment, NSW Environment Protection Authority, NSW Office of Environment and Heritage, Roads and Maritime Services, Sydney Water and universities.

### How we will get there

- ✓ Develop and undertake joint regulatory and education campaigns around issues of sediment laden runoff, dog droppings, illegal sewer connections, stormwater and chemical pollution from industrial sites, and environment incidents from Rivercats and other vessels. This includes demonstration days to show developers how to correctly implement sediment and erosion control methods on constructions sites, and use of the EPA's litter and illegal dumping materials.
- ✓ Undertake additional quantitative research and modelling to refine the scope and focus of future pet waste campaigns.
- ✓ Design all campaigns to align with council policies and ensure they work across local government boundaries.
- ✓ Measure the behaviour change impacts of all campaigns and report publicly to the community on its purpose and outcomes.
- ✓ Undertake further characterisation of stormwater sources and the relative risk to swimming and river health and prioritise and undertake additional campaigns on other issues identified.
- ✓ Support cultural activities around, on and in the river that improve understanding and management of river health.

### Why these actions?

The water quality modelling study identified pet waste pollution as one of the major sources of enterococci in the Parramatta River. Local and international studies indicate that around 60% of people pick up their pet waste and that education and compliance activities have the potential to increase this to 90%.

Several other issues that can affect water quality for swimming have also been identified by stakeholders, but were not able to be modelled for various reasons. These include litter, sediment laden runoff, illegal sewer connections and chemical contamination.

All of these issues relate to human behaviour, which can be influenced by education and

compliance activities and involving communities in the design of these activities.

Further research is needed around the characterisation of stormwater sources in order to better quantify their relative risks to river health and swimming. For example, academic research indicates that enterococci from pet waste has a much lower risk to human health than do human faeces. However, it also indicates that the volume of pet waste in the environment is very high.

Local data collection around pet waste would help further quantify and understand the risks to swimming. Likewise, source tracking of chemical contamination sources would provide more targeted and cost effective efforts in managing this exposure pathway.



### Get the Site Right

The Get the Site Right initiative is a joint educational and regulatory campaign that highlights the important role developers play in cleaning up the river and making it swimmable again.

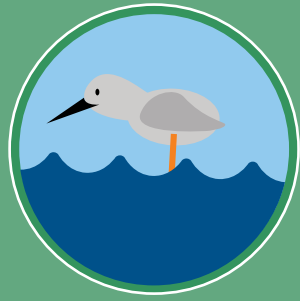
Sediment such as sand, soil and mud can runoff building sites into stormwater drains and out to the Parramatta River, impacting aquatic plant and animal life and people's enjoyment of the river.

Four, month long campaigns have been conducted to date, where compliance

officers go out in force across the catchment inspecting development sites. All 11 councils, the Environment Protection Authority and the Department of Planning and Environment team up to inspect developments of all sizes.

To support the initiative, educational materials are developed and disseminated to builders, developers and the general public, including an erosion and sediment control guidelines booklet, site inspection checklist, information flyers and promotional signage.





## 8. BRING IN NATURE

A living river also needs grasses, shrubs, trees and animals such as fish and birds to be a complete ecosystem. By maintaining and improving habitats for our iconic species, especially our five mascots, we can bring nature back to the river. Doing so means understanding current habitat health, establishing foreshore improvement programs and calling on citizen science to help track progress.

### Recommendation

Maintain, improve and create new habitats for the Parramatta River catchment's five iconic species mascots as indicators of water quality and catchment health.

### When

Ongoing.

### Who is responsible?

Lead agency: Parramatta River Catchment Group.

Support agencies: Greater Sydney Landcare Network, Greater Sydney Local Land Services, local government, NSW Department of Planning and Environment, NSW Department of Primary Industries, NSW Environment Protection Authority, NSW Office of Environment and Heritage, Roads and Maritime Services, Sydney Olympic Park Authority, Sydney Water, universities.

### How we will get there

- ✓ Establish a region-wide citizen science program, supported by scientific monitoring, to monitor and publicly report on the five Parramatta River mascots, as indicators of water quality and catchment health.
- ✓ Undertake management recommendations within key areas identified through the regional monitoring approach, including the creation and enhancement of estuarine habitat, offline wetlands, hollow bearing trees and dense, fully structured vegetation.
- ✓ Map and reference key habitat areas and priority corridors within regional strategic plans and Council LEPs in alignment with the *NSW Government Architect's Bushland and Waterways Guide*.
- ✓ Negotiate a more holistic management of the whole foreshore in relation to the riparian and tidal zone and across land managers factoring in sea level rise and associated impacts.
- ✓ Establish an ongoing capacity building program on River Health across all levels of council.
- ✓ Introduce signage at key locations with information on the five mascots and how to get involved in related Citizen Science activities.

### Why these actions?

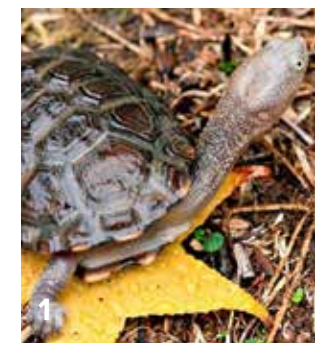
Our ecological health study articulates the connection between a swimmable river and ecosystem health through the identification of five iconic species (popularly known as mascots). These five iconic species will be the focal point for management and monitoring of the river's ecological health in a way that connects intimately to the values they provide to our growing communities.

The iconic species were identified by inviting the community to vote for their favourite mascot from a list of 19 potential plants or animals within the catchment that have links to improving water quality for swimming. The five species represent four habitat domains within the river and catchment: riparian, terrestrial, freshwater and estuarine environments.

The recommended management strategies and monitoring and evaluation frameworks developed for each species include a citizen

science program, reflecting the underlying community-based philosophy of this study, supported by a more rigorous environmental science approach. Both approaches are designed to provide data on changes to the species and underlying catchment conditions that may affect the species and their ecological needs. This can then feedback to management plans and our overarching strategy to protect, enhance and create habitats for these species.

Critically, there is a need to protect and manage existing habitats that face considerable pressure from urban development and climate change. Opportunities to create new habitats are available but should be seen as supporting and supplementary strategies that complement the existing natural systems that remain within the catchment. The methods proposed for monitoring and management of the iconic species are outlined in the *Parramatta River Catchment Ecological Health Report*.



### Our Mascots

1. Eastern Long Necked Turtle
2. Southern Myotis
3. Bar-tailed Godwit
4. Powerful Owl
5. Striped Marsh Frog



### Powells Creek Naturalisation

Sydney Water transformed a section of Powells Creek into a natural waterway. The project involved removing the deteriorating concrete and replacing it with natural sandstone, native plants, new cycle paths and walkways.

The naturalisation of the creek has established a fauna passage between Powells Creek and Mason Park Wetland and created new habitats for our local wildlife, including two of our mascots, the Bar-tailed Godwit and Powerful Owl.





## 9. REPORT BACK REGULARLY

Regular monitoring and reporting not only shows us if we're winning, it helps keep our river in the mind of everyone involved and reminds them that this is a long term project that is worth investing in.

### Recommendation

Undertake regular monitoring and report annually to stakeholders and the community on progress towards the Parramatta River Masterplan.

### When

Annually.

### Who is responsible?

Lead agency: Sydney Water.

Support agencies: Local Government, NSW Office of Environment and Heritage and Parramatta River Catchment Group.

### How we will get there

- ✓ Establish the process and confirm funding to support a whole-of-government review and 'State of the River' reporting on progress towards all actions within the Parramatta River Masterplan. This should quantify the changing pressures within the catchment, describe the state of the catchment and waterway and report on how effective actions have been in progressing our mission.
- ✓ Regularly monitor and publicly report on recreational water and sediment quality monitoring at swimming sites and ensure data is live, trackable and accessible.
- ✓ Undertake community consultation to understand what data they want access to in order to refine what and how data is reported.
- ✓ Regularly monitor and publicly report on progress of the five iconic species as indicators of water quality and catchment health.
- ✓ Expand upon the current Our Living River communication and engagement campaign to facilitate the use of swim sites, encourage community river stewardship and publicly report progress towards our plan for the river.
- ✓ Undertake a five-year review of the Parramatta River Masterplan in relation to the risk management framework and update management recommendations accordingly.

### Why these actions?

Our mission to make the river swimmable again has strong support from the community, and everyone has a role in achieving it. The development of the Parramatta River Masterplan has actively encouraged community involvement and decision making throughout. This will continue to be at the core of the Masterplan as we move into implementing it.

Our proposed monitoring and reporting program will encapsulate progress on all Masterplan recommendations, which includes:

- Quantifying the pressures within the catchment
- Describing the state of the river and its catchment, and
- Reporting on how effective actions or responses have been in addressing important water quality and environmental concerns.

Collaboration between the community and all our agencies is vital to delivering on our mission of making Parramatta River swimmable. Transparent and regular reporting between parties will build confidence and accountability.

The Visualisation Dashboard (below) is the reporting tool that creates this transparency and accountability between agencies. This dashboard will be managed by Sydney Water and will be used to update the community and

relevant stakeholders on how we are tracking on delivering the Masterplan.

Our local communities will be regularly updated on the progress towards our ten steps via the Our Living River website at:

[www.ourlivingriver.com.au](http://www.ourlivingriver.com.au).







## 10. CREATE CLEAR LEADERSHIP

A big project needs clear leadership. The plan to make the river swimmable again was sponsored by 11 councils and three state government agencies. It also draws on Aboriginal knowledge and culture and collaboration with the community to bring a big mix of experience and opinions to the table. Sydney Water has been identified as the best placed body to lead this coalition via a collaborative governance structure that sets and delivers on clear targets.

### Recommendation

Establish a more effective whole-of-government approach to the governance of the Parramatta River Masterplan led by Sydney Water as the lead coordinating agency.

### When

Now.

### Who is responsible?

Lead agencies: Parramatta River Catchment Group.

Support agencies: Aboriginal stakeholders, community, Greater Sydney Commission, local government, NSW Department of Planning and Environment, NSW Environment Protection Authority, NSW Health, NSW Office of Environment and Heritage.

### How we will get there

- ✓ Establish Sydney Water as the lead coordinating agency to drive delivery of the Parramatta River Masterplan via a collaborative governance framework that reports to and gains endorsement from the PRCG Full Group.
- ✓ Review and amend the PRCG Memorandum of Understanding and have it signed by all members.
- ✓ Engage with Aboriginal leaders across the catchment to support the implementation of Aboriginal values, protection of cultural heritage and preservation of cultural development, respecting Aboriginal knowledge of biodiversity and river management and ensuring their direct involvement in the planning, design and implementation of actions within this Masterplan.
- ✓ Embed Masterplan targets for 2025 within the state strategic planning documents with a view to positioning the project as a State Significant Development or equivalent status. These include the Greater Sydney Commission's District Plans, the Metropolitan Water Plan, Department of Planning and Environment State Significant Developments, Marine Estate Management Authority and Coastal Management Program.
- ✓ Establish a policy for private industry investment into the Masterplan outcomes and overall river governance.

### Why these actions?

Our waterway governance review mapped the current organisational responsibilities and capacities across the catchment in relation to water quality, ecological health and swim site activations and offered alternative options to achieve our goals for the river. This involved a review of state agency and council operating requirements, assessment of governance issues from technical studies, as well as interviews and workshops with key local and State government stakeholders.

The review highlighted that the current governance of waterways is complex, confusing and inconsistent. The 2017 Metropolitan Water Plan also recognises this, explicitly stating that coordination of water planning and delivery between agencies and levels of government

is a key barrier to water management. The governance review clearly demonstrated a need for a revised governance framework and foremost recommended a lead state agency with sufficient powers, funding and whole of government support to drive delivery of the Parramatta River Masterplan.

Aboriginal leadership is recognised as a key gap that needs to be addressed in conversations around river knowledge, use and governance. We therefore undertook specific Aboriginal engagement around the Masterplan to gain a better understanding of Aboriginal history and culture around the Parramatta River and have conversations about how Aboriginal involvement can be incorporated into the delivery of the Masterplan and ongoing governance of the Parramatta River.



### Collaborative governance

We all need to work together to deliver the outcomes in the Masterplan. We have therefore established a collaborative governance framework to provide clarity on the roles of each stakeholder in delivering the Masterplan. A cross-agency delivery group has been established with a focus on strategic direction, guidance and the

operational elements of delivery. This group will be coordinated by Sydney Water, but individual projects and elements may be led by other agencies where appropriate.

Local government will continue to play a key role in the delivery of the Masterplan and overall river governance.



# ONE RIVER, MANY PLANS

**Our ten-step Masterplan is the overarching plan for the whole Parramatta River and its catchment. It is referenced in or connects with many other regional and local plans. Connecting with all of these other plans helps us build support for the river at all levels.**

These plans include:

- A Metropolis of Three Cities – The Greater Sydney Region Plan
- Our Greater Sydney 2056 District Plans – Central City, Eastern City, North
- NSW Environment Protection Authority Strategic Plan 2017–2021
- Greater Parramatta and the Olympic Peninsula Plan
- Parramatta River Catchment Group Strategic Plan 2016–2018
- Council Community Strategic Plans
- Parramatta River Estuary Coastal Zone Management Plan (2012)
- State Environment Planning Policy (Environment)
- Council infrastructure planning and resource plans
- NSW Coastal Management Reforms
- NSW Marine Estate Management Plan
- Sydney Harbour Water Quality Improvement Plan
- Greater Parramatta Interim Land use and Infrastructure Plan
- Council environmental, recreational and landuse strategies and plans.



## GreenWay Masterplan

The GreenWay is a 5.8km environmental and active travel corridor linking the Cooks River at Earlwood with the Parramatta River at Iron Cove.

It includes a wildlife corridor and bandicoot protection area and features bike paths and foreshore walks, cultural and historical sites, cafes, bushcare sites

and a range of parks, playgrounds and sporting facilities.

Inner West Council has adopted the GreenWay Master Plan to guide how the GreenWay corridor will be developed over the next 10 to 15 years. Around \$25 million of high priority works are anticipated to be completed by 2022 filling some of the missing links along the GreenWay.

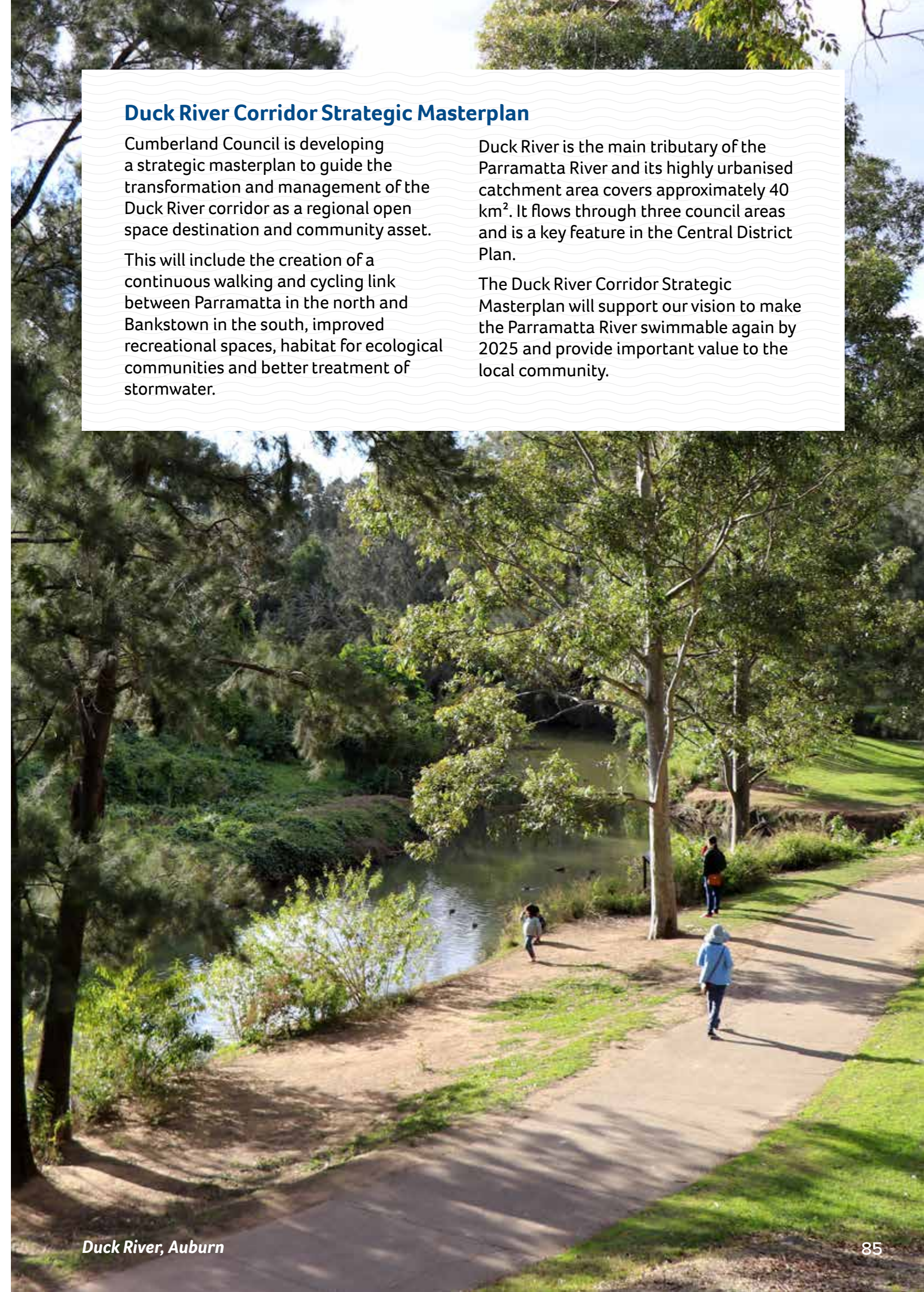
## Duck River Corridor Strategic Masterplan

Cumberland Council is developing a strategic masterplan to guide the transformation and management of the Duck River corridor as a regional open space destination and community asset.

This will include the creation of a continuous walking and cycling link between Parramatta in the north and Bankstown in the south, improved recreational spaces, habitat for ecological communities and better treatment of stormwater.

Duck River is the main tributary of the Parramatta River and its highly urbanised catchment area covers approximately 40 km<sup>2</sup>. It flows through three council areas and is a key feature in the Central District Plan.

The Duck River Corridor Strategic Masterplan will support our vision to make the Parramatta River swimmable again by 2025 and provide important value to the local community.



Duck River, Auburn





# OUR THANKS

Development of the Parramatta River Masterplan has been a highly consultative process with input from many organisations and people.

We give special thanks to the more than fifteen thousand community members who have contributed to this plan and our mission to make the river swimmable again through:

- Voting for your favourite swimming site along the river.
- Voting for your favourite plant or animal mascots.
- Sharing your stories of the Parramatta River with us at the Our Living River stall at one of the more than 50 community events we have held or attended.
- Attending focus groups or responding to telephone surveys to tell us about your current behaviour around water, barriers to swimming in the Parramatta River,

preferences for swimming site activation and appetite for recreation in the river.

- Attending on-site desirability assessments or responding to our online survey to tell us what you think about the 12 proposed swimming sites along the river.
- Telling us what you think about this draft Masterplan.

Many Councillors, community representatives, council officers, State Government officers, academics and consultants have also provided significant input into this plan. Without their generous time, energy, expert knowledge and guidance, this plan would not have been possible.

To all of you, we are extremely thankful. This Masterplan is dedicated to you and your role in helping to secure the future of the Parramatta River and creeks that flow into it for generations to come.

# TEN WAYS YOU CAN HELP THE RIVER

We all have a role in making the river swimmable again. While we are working towards our ten-step Masterplan for the river, here are ten simple ways that you can help do your bit.



- 1. Start swimming or enjoying our living river in other ways**  
It's a great way to show your support.



- 2. Pick up your pet waste**  
No one wants to swim in that!



- 3. Create less rubbish and put it in the right bin**  
Or you might end up swimming in it.



- 4. Get your site right**  
And keep dirt, chemicals and other waste out of our drains.



- 5. Join a Bushcare group or plant a habitat garden**  
And provide homes for our mascots.



- 6. Install a rainwater tank or raingarden**  
And use the rain where it falls.



- 7. Become a Riverkeeper**  
Have fun while helping us deliver our plan for the river.



- 8. Check your plumbing**  
And stop rainwater going into the sewer.



- 9. Report pollution to the Environment Line**  
So they can respond quickly.



- 10. Tell everyone about the importance of our living river**  
When community wants something, it happens.



# WHAT YOU NEED TO KNOW ABOUT THE RIVER

River swimming can be a truly special experience. However it's important to understand how it differs from swimming at the beach or in a pool. Here are a few things you need to know to make your time on the Parramatta River even more enjoyable.



## 1. You can swim in the river now, but only in designated areas

There are currently four sites where you can swim in the Parramatta River: Cabarita Park beach, Chiswick Baths, Dawn Fraser Baths and Lake Parramatta. There are also a number of areas that are suitable for water-based activities such as kayaking and sailing.



## 2. How we determine that a site is safe for swimming

Water quality at our four swimming sites are routinely monitored to ensure that they are safe for human contact. Suitability for swimming is assessed at these sites following the *The Guidelines for Managing Risk in Recreational Waters 2008* developed by the National Health and Medical Research Council. To stay updated with water quality at these and future swimming sites, go to 'Where can I swim on the Parramatta River' at [www.ourlivingriver.com.au](http://www.ourlivingriver.com.au).



## 3. You should avoid swimming for three days after heavy rain

Just as you shouldn't swim in an ocean beach for several days after a storm, it is recommended that you don't swim in any of the river swimming spots for three days after heavy rain due to temporarily poor water quality.



## 4. We recommend you don't just swim anywhere on the Parramatta River

Water quality is currently only routinely monitored and reported for our four swimming sites. While initial investigations indicate that water quality at other sites may be suitable for swimming, we do not yet have sufficient data to provide guidance on exactly when it is safe to swim at these sites. Also, as outlined in the section 'Where to swim next', there are many other factors that determine if a site is suitable for swimming, such as providing safe access and checking for underwater hazards.



## 5. There are sharks in the Parramatta River

The presence of bull sharks in the river are an indication that the water quality is improving and the ecosystem is getting healthier. While the risks posed by these animals to human health is quite low, to avoid encounters we would recommend swimming in a designated swimming site with a shark net.



## 6. Even though you can swim, you should still not eat the fish

It is still recommended that you do not eat any fish caught west of the Sydney Harbour Bridge. The human health risks of eating fish are many times greater than swimming. Heavy metals and other pollutants that may accumulate in fish are mostly found in the fine sediment on the river bed, rather than in the water that we swim in. Fish accumulate these pollutants through the food chain by eating other organisms that dwell in this fine sediment.



## 7. Lots and lots of people really want this to happen

Sydney-siders want a river that is clean and safe where they can swim and spend their leisure time. In fact, our community research results indicate that 68% of residents who swim are interested in swimming in a designated area in the Parramatta River.



## 8. Sydney is a river city

Sydney has amazing waterways and the Parramatta River is at its heart. As the city's population continues to grow west, the need for additional natural swimming spots closer to where people live will become even more important. Our community research shows that more than half the residents would prefer to swim in the Parramatta River than at the beach if it took them half as long to get to.



## TELL US WHAT YOU THINK

It takes ideas from everyone to change a river. The more you tell us, the better our plan gets.

The draft Masterplan was on public exhibition from 18 October 2018 to 29 November 2018. This was supported by the *Ten Steps to a Living River* brochure, social media video, engagement survey and display materials. We engaged face-to-face at nine community events as well as online through our various communications platforms.

A total 194 surveys and eight formal submissions were received. Most people were extremely supportive of the mission and ten steps, saying that they agreed with all ten steps, found it easy to understand and that the plan made them feel confident that the mission is possible.

It's never too late to tell us what you think. We will always keep listening and making this plan better, so join the conversation, get involved and stay connected.



Our Living River



@ourlivingriver



@ourlivingriver



info@ourlivingriver.com.au



Cabarita Park beach





[ourlivingriver.com.au](http://ourlivingriver.com.au)