Cooks River Sustainability Initiative

Draft Ashbury Subcatchment Management Plan

NSW Environmental TRUST

COOKS RIVER FORESHORES Working Group

Ashfield Council

City of Canterbury
City of Cultural Diversity

OurRiver
cooks river sustainability initiative

Front Cover (clockwise from left): 1. Mangroves along Cooks River, Ashbury 2. Typical houses in Ashbury 3. Permeable paving 4. Streetscape raingarden at Victoria Park, Zetland and 5. Blick Oval in Ashbury. All images OurRiver Project, 2009

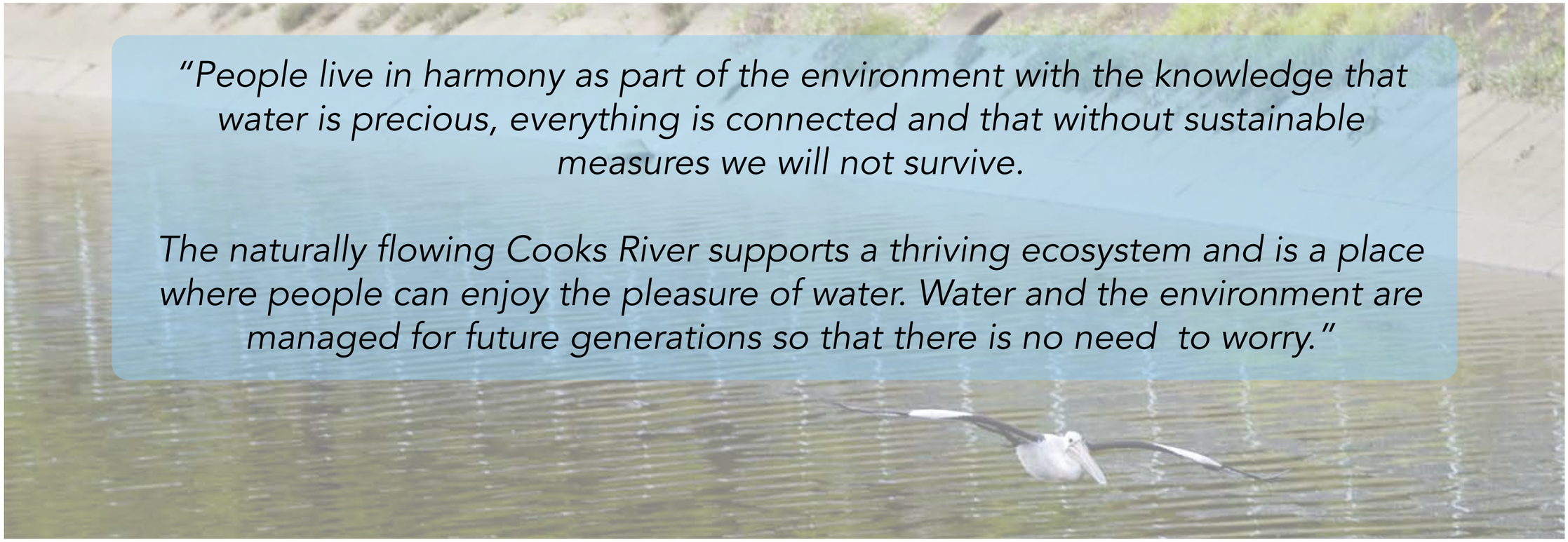
This document was prepared in December 2009 as part of OurRiver - Cooks River Sustainability Initiative. The authors would also like to acknowledge the input and assistance provided by Ashfield and City of Canterbury Councils, Ashbury residents and other stakeholders who have participated in interviews, attended meetings and workshops and provided valued information and support along the way.

Executive Summary

This document is a result of Ashfield Council's involvement in the OurRiver - Cooks River Sustainability Initiative. The OurRiver project is an initiative of the Cooks River Foreshore Working Group and is funded by the NSW Environmental Trust's Urban Sustainability Program from 2007 to 2010. It is a partnership between Ashfield, Bankstown, City of Canterbury, City of Sydney, Hurstville, Marrickville, Rockdale and Strathfield councils, and Monash University. The project is focusing on six local areas (known as subcatchments) and is working with councils and communities to develop subcatchment management plans that reflect local conditions, ideas and needs. The aim of the subcatchment management plan is to improve the health of the Cooks River and to involve local communities in planning and implementing more sustainable water management solutions.

A community water vision and associated goals and actions (page 12-14) were developed by members of the Ashbury Subcatchment community at workshops held in October and November 2008. The comments and ideas provided by the community as part of this planning process have formed the basis of the sustainable water options presented in this Plan. The Ashbury Subcatchment Management Plan will importantly inform and compliment Ashfield Council's Integrated Water Management Plan which provides a working guide for Council and community actions relating to water in the Ashfield area. The Integrated Water Management Plan endevours to deliver best practice results around water management and take initiatives for Water Sensitive Urban Design (WSUD) projects.

The Ashbury Subcatchment community water vision is shown below:



"People live in harmony as part of the environment with the knowledge that water is precious, everything is connected and that without sustainable measures we will not survive.

The naturally flowing Cooks River supports a thriving ecosystem and is a place where people can enjoy the pleasure of water. Water and the environment are managed for future generations so that there is no need to worry."

Contents

Glossary

Catchment: an area bounded by high points such as hills that funnel rain and run-off water to a particular waterway such as a river, lake or ocean. Creeks and streams carry much of the water in natural catchments, but in urban catchments, creeks and streams have often been replaced by stormwater drains.

Greywater: water that has been used (for domestic purposes) in the laundry, shower, bath, hand basins and is re-used for purposes such as watering the garden.

Rainwater: water that falls as rain.

Subcatchment: are smaller catchments within a catchment. The water flowing from many subcatchments comes together into the river, lake or ocean that the entire catchment drains to. OurRiver is focusing on six subcatchments within the Cooks River.

Stormwater: water (usually rainwater) that runs over paved surfaces and makes its way into stormwater drains.

Sustainable Urban Water Management (SUWM)*: the holistic management of water (including water supply, rainwater, stormwater and waste water) while minimising the import of large quantities of potable (drinking quality) water into cities and minimising the discharge of wastewater and stormwater to urban waterways and oceans. SUWM includes WSUD (see definition below) but is a broader term used to encompass non-structural elements related to water management such as policy, funding, education and community engagement.

Water Cycle: the continuous movement of water between the land, the ocean, rivers and creeks, and the atmosphere. Water is always cycling around, through, and above the Earth. As it moves through the cycle, water continually changes from liquid (rainwater, saltwater) to gas (water vapour) and back to liquid.

Water Sensitive Urban Design (WSUD): the integration of urban planning with the management, protection and conservation of the urban water cycle, that ensures that urban water management is sensitive to natural hydrological and ecological processes (Wong 2007). WSUD aims to protect natural systems (e.g., creeks and rivers), protect water quality (reduce pollution), reduce demand on drinking water supplies and reduce the intensity of peak stormwater flows to waterways. Some examples of WSUD are:

- Rainwater tanks - capturing and storing rainwater reduces the amount of stormwater reaching waterways and also reduces reliance on drinking water supplies.
- Raingardens - specially designed garden beds that stormwater is directed into. The plants and soil in the raingarden act as a filter to remove pollutants from stormwater. The raingarden also slows the flow of stormwater to waterways therefore reducing the intensity of peak flows. This mimics the processes that take place in undeveloped catchments.

www.wsud.org

Raingarden, Sutherland Shire Council, NSW.

www.wsud.org

Water feature that uses filtered rainwater, Kogarah Town Square

* *Various definitions exist for Sustainable Urban Water Management and Water Sensitive Urban Design. In this document the two terms have been used according to the definitions provided on this page.*

Introduction

Purpose of this Document

This document provides information about the Ashbury Subcatchment (see page 4 for more details), results of the subcatchment planning process undertaken as part of the OurRiver - Cooks River Sustainability Initiative, and options for improving water management in the area. This document is designed to be used by councils, community and other stakeholders to improve the sustainability of water management and the health of the Cooks River.

The majority of water used in the Subcatchment comes from Warragamba dam and is treated to drinking quality standard. Only 2% of the drinking quality water in the Ashbury Subcatchment is consumed by humans for drinking and cooking - the rest is used for purposes that do not require such high quality water such as watering gardens and toilet flushing. 78% of the drinking quality water is discharged as wastewater to deep ocean outfalls. Starting in the 2009/2010 summer up to 15% of drinking quality water in Sydney will come from the Kurnell desalinisation plant. An under utilised source of water is rainwater that falls on the streets of the Subcatchment. In the Ashbury Subcatchment, most of this rainwater washes directly into the Cooks River carrying pollution such as litter, petrol and oil derivatives with it.

OURRIVER - Cooks River Sustainability Initiative

With water from the dams becoming a scarce resource, eight councils in the Cooks River Catchment became partners in OurRiver, a research project that is addressing urban water problems in innovative ways to improve the health of the Cooks River and the security of local water sources. OurRiver is an initiative of the Cooks River Foreshore Working Group and is funded through the NSW Environmental Trust's Urban Sustainability Program from 2007 to 2010. The project is a partnership between eight Councils - Ashfield, Bankstown, City of Canterbury, City of Sydney, Hurstville, Marrickville, Rockdale and Strathfield, and Monash University.

OurRiver is working with councils to improve the health of the Cooks River, to facilitate a catchment wide shift to sustainable urban water management within councils and community, and to establish a catchment wide alliance to support the continued rehabilitation of the Cooks River. The project is focusing on six local areas (known as subcatchments) and is working with council and communities in these areas to develop subcatchment management plans that reflect local conditions, ideas and needs. The OurRiver planning process is different from traditional processes due to its collaborative approach involved residents and other stakeholders, in its analysis of the social and physical characteristics of the Ashbury Subcatchment, and it's review of council's approach to water management. The six OurRiver subcatchment are marked on the map on this page.

The Cooks River Catchment with the six OurRiver Subcatchments marked.

Cooks River Catchment

The Cooks River starts in Bankstown and flows 23 km east to discharge into Botany Bay. The river is regarded as one of the most polluted urban rivers in Australia - a result of its historical use as a drain by industries along the river and the more current problems of polluted stormwater run-off from urban areas, and sewage overflows. The Cooks River Catchment covers approximately 11,000 hectares and is home to more than 500,000 people (CRVA 2009). There are 13 local government areas within the Catchment.

Subcatchment Planning Process

This planning process is a new approach based on research undertaken by Monash University which was successfully trialed in the Marrickville local government area as part of the Urban Stormwater Integrated Management (USWIM) project. The research found three key elements are necessary to ensure water in urban areas is managed in a more sustainable way:

1. Due to the complexity of urban water problems a range of professionals including engineers, planners, ecologists and social scientists are required to produce effective solutions.
2. The people affected by urban water problems, including residents, businesses, community groups and government departments need to work together more closely to identify solutions.
3. Plans should be developed on a scale smaller than a whole river catchment to account for the variation in communities and physical features in the catchment and to enable the use of more 'locally grown' solutions.

To address the elements outlined above, the planning process for the Ashbury Subcatchment:

- Involved Ashfield Council and City of Canterbury Council employees from diverse departments including Sustainability and Waste, Planning, Design, Parks and Communications;
- Worked collaboratively with local residents, council and other stakeholders to develop a vision for the Subcatchment, and goals and actions in order to achieve the vision; and
- Planned at the subcatchment scale so that local social, physical and organisational information could be used to tailor solutions to the Subcatchment and its community.

Left to right: 1. Residents, OurRiver and Council staff at Ashbury Subcatchment planning forum November 2008 2. Playground at Peace Park, Ashbury 3. Typical house in Ashbury 4. Peace Park, Ashbury.

Subcatchment Planning Implementation

How does Subcatchment Planning Fit with Existing Policy?

Federal

The National Water Initiative (NWI) is an agreement between the federal government and all state and territory governments. The NWI includes actions related to improving the capacity of all relevant stakeholders (including governments and communities) to achieve Sustainable Urban Water Management. Subcatchment planning is about councils, residents and other stakeholders working together to achieve this aim. Subcatchment planning also aims to deliver the following NWI objectives:

- provide healthy, safe and reliable water supplies
- increase water use efficiency in domestic and commercial settings
- encourage re-use and recycling of wastewater where cost effective
- encourage innovation in water supply sourcing, treatment, storage and discharge

State

There are a number of State level policies and plans concerned specifically with water, catchment management and local planning. This includes:

- NSW Government Integrated Planning and Reporting
- NSW Government Water for Life Metropolitan Water Plan
- Sydney Metropolitan Catchment Management Authority Catchment Action Plan

Subcatchment planning shares the following aims with these plans:

NSW Government Integrated Planning and Reporting

- Integrated planning with physical, social and organisational issues taken into account
- Increased stakeholder engagement with councils, state agencies, residents and other stakeholders working together on long-term plans
- Improved connection between councils' and communitys' vision

Water for Life Metropolitan Water plan

- Securing sustainable long-term water supply through recycling and water efficiency
- Protecting rivers and their catchments

Sydney Metropolitan Catchment Management Authority Catchment Action Plan

- Improvement in condition of riverine systems and important wetlands
- No decline in the condition of marine waters and ecosystems
- More people, communities and organisations have increased capacity to contribute to natural resource management

Council

Ashfield Council

The Ashbury Subcatchment Management Plan will inform and compliment the following documents:

- The Ashfield Community Strategic and Sustainability Plan
- Ashfield Council's Integrated Water Management Plan

The Ashfield Community Strategic and Sustainability Plan is the highest level plan that Ashfield Council will prepare for the Ashfield municipality. The purpose of this plan is to identify the community's main priorities and expectations for the future and to plan strategies for achieving these goals. The Plan sets strategic directions for both Council and the community over the next 10 years, including ensuring sustainable outcomes for the region. Similar to the process undertaken to develop the Subcatchment Plan, the creation of the Strategic and Sustainability Plan has included a strong focus on community engagement and public participation.

Ashfield's Integrated Water Management Plan has been developed in response to current and emerging issues that are impacting on the management of water resources, which is a vital and precious resource. The Plan provides a working guide for Council and community actions relating to water in the Ashfield area. Through an organisational process of investigation, assessment, development, implementation, monitoring and education, the Plan will endeavour to deliver best practice results against a set of goals, and take initiatives for Water Sensitive Urban Design (WSUD) projects.

Canterbury City Council

The Ashbury Subcatchment Management Plan will be integrated into City of Canterbury's Environmental Management Plan (EMP). The EMP is prepared in consultation with the Environmental & Sustainability Advisory Committee and sets the strategic direction for environmental sustainability for Council. The EMP is reviewed and updated annually and is a key document supporting Council's annual City Plan which outlines the actions that will achieve our goals each financial year.

The Environmental Management Plan (EMP) will list actions identified in the Subcatchment Management Plan that are planned for that year. The EMP identifies priorities, responsibility and financial year for implementation and assists staff identify the water related actions that can be integrated into their works program during the planning and budgeting stage.

The Ashbury Subcatchment

The complexity of urban water problems requires site specific solutions. It is therefore necessary to understand the local characteristics as part of any urban water planning process. Detailed research was undertaken to understand the physical characteristics of the Ashbury Subcatchment, its community and the organisations relevant to water management in the area. This will assist in the development of solutions that reflect local conditions, views and needs.

The Ashbury Subcatchment is positioned across two local government areas. It is located in the north east part of Canterbury and the southern part of Ashfield local government areas. It is approximately 102 hectares in area and covers most of the suburb of Ashbury. The Subcatchment was collectively chosen by staff from the two Councils to:

- Encourage further collaborative planning between the two Councils
- Encourage council-stakeholder engagement
- Improve the water quality and overall health of the Cooks River

The Subcatchment is very urbanised and almost entirely residential with some significant areas of open space including Blick and Campbell Ovals, Peace Park and Canterbury Racecourse, which fronts the Cooks River. Ashbury Public School and Canterbury Boys High School are located within the Subcatchment. Both schools, particularly Canterbury Boys High School, include large grassy playing fields that contribute to the area's open space.

Cooks River

Ashbury Subcatchment boundary outlined in red

Ashbury Subcatchment slopes downwards in a south westerly direction with the steepest sections being at the top of the Subcatchment. The Subcatchment drains via a network of stormwater pits and pipes directly into the Cooks River, which forms the southern boundary. This section of the river is located around halfway up the Cooks River and is approximately 1.8 km south of the tidal flushing limit. The quality of the water here is affected by not only the activities and management practices of Ashbury but also by the catchments upstream. Many years of water quality monitoring have shown that the Cooks River has experienced a high level of pollutants for a long time.

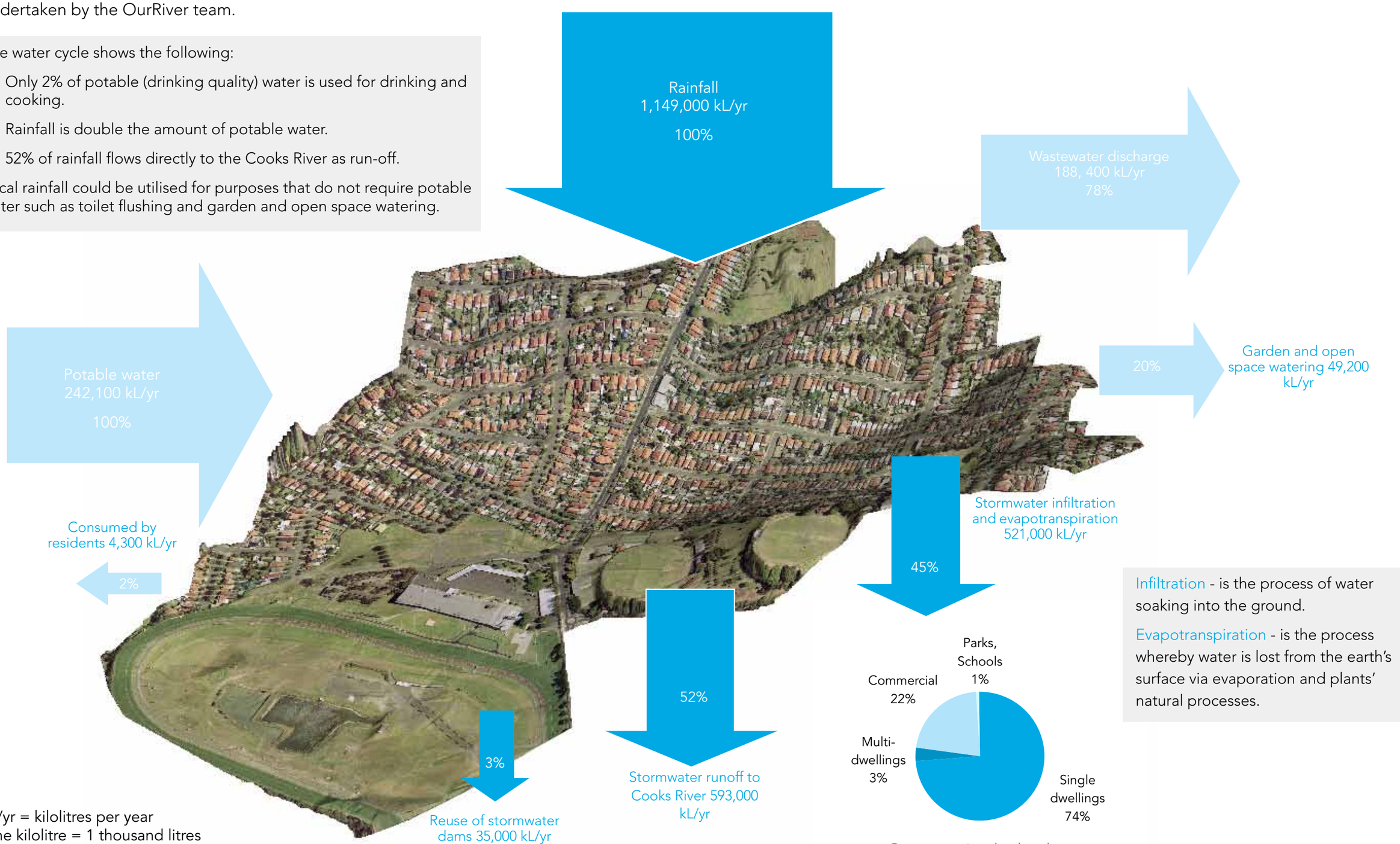
Subcatchment Water Budget

The water budget shows the water entering the area from rainfall and from Sydney's primary drinking water supply at Warragamba Dam (potable water). This diagram also shows how the water is used and where it goes after use. This water budget, also known as a water cycle, is based on data from the Bureau of Meteorology and Sydney Water, and stormwater modelling undertaken by the OurRiver team.

The water cycle shows the following:

- Only 2% of potable (drinking quality) water is used for drinking and cooking.
- Rainfall is double the amount of potable water.
- 52% of rainfall flows directly to the Cooks River as run-off.

Local rainfall could be utilised for purposes that do not require potable water such as toilet flushing and garden and open space watering.



kL/yr = kilolitres per year
One kilolitre = 1 thousand litres
(an olympic sized swimming pool holds 2,500 kilolitres).

Consumption by land use

Infiltration - is the process of water soaking into the ground.

Evapotranspiration - is the process whereby water is lost from the earth's surface via evaporation and plants' natural processes.

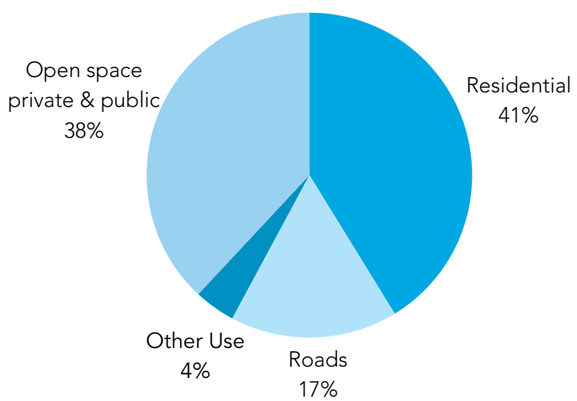
Physical Characteristics

Detailed information about the Subcatchment's physical characteristics has been gathered to help identify opportunities and constraints for the installation of Sustainable Urban Water Management infrastructure.

Land Use

Size: 102 hectares (ha)

- The Subcatchment is located across Ashfield Council (13 ha) and City of Canterbury (89 ha);
- Subcatchment land use is dominated by residential (41%) with some commercial;
- Public open space occupies 10% of the Subcatchment, which includes 2 parks and 2 ovals;
- Private open space occupies 28% of the Subcatchment, which includes the Canterbury Racecourse and buildings owned by Sydney Turf Club. This area will potentially be redeveloped in the near future.
- Roads cover 17% of the Subcatchment area.
- Other land uses make up 4% of the Subcatchment area and include two schools, two churches, land associated with Sydney Water's reservoir adjacent to Peace Park and an electrical substation.
- Commercial areas, not including the Turf Club, cover less that 1% of all land uses.



Land use in Ashbury Subcatchment

Residential Dwellings

There are approximately 749 residential dwellings in the Subcatchment (ABS 2006). Residential dwelling type affects the type of water solutions that are possible. In the Ashbury Subcatchment, around 94% of dwellings are separate houses and many with medium sized backyards. This means space is potentially available for water conservation devices such as rainwater tanks and residential raingardens to treat stormwater.

94%
Separate Houses

1%
1-3 Storey Unit Blocks

4%
Semi Detached Dwellings

Less than 1%
Shops and other dwellings

Water Quality Indicators

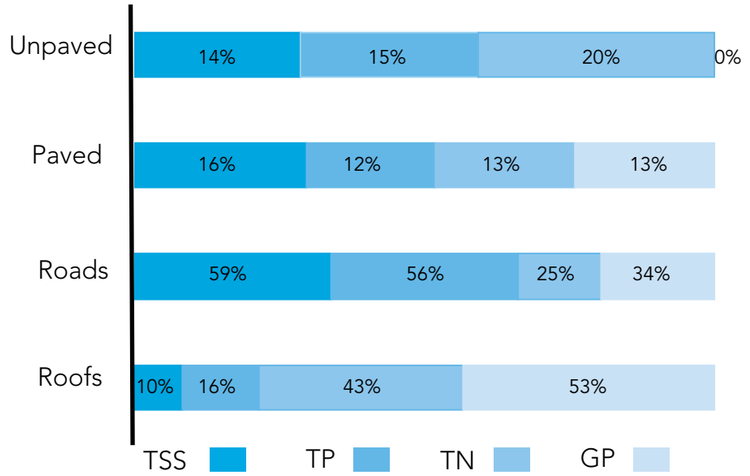
There are four main water quality indicators that are often used to determine if water is in good condition or not. They are: total suspended solids, total nitrogen, total phosphorus and gross pollutants.

Total suspended solids (TSS) -	Includes small fine particles of dirt, leaf litter, etc. in water. It can reduce the amount of light that passes through water and carry with it other pollutants.
Total Nitrogen (TS) & **Total Phosphorus** (TP) -	While essential for plant growth, high levels of these can lead to greater weed growth and algal blooms.
Gross pollutants (GP)-	These are the larger, coarser pollutants such as litter (including plastic drink bottles) and leaves. They contribute to levels of nutrients and heavy metals as well as making the water visually unappealing.

Pollution and Surface Types in the Ashbury Subcatchment

A major source of pollution for the Cooks River is the large area of hard (paved) surfaces in urban areas. As rainwater runs over these surfaces it collects a variety of pollutants including litter and dirt, and other less visible substances such as heavy metals. Approximately 43% of the Ashbury Subcatchment is made up of hard (paved) surfaces including roads, pavements and roofs. These hard surfaces generate approximately 95% of pollutants found in stormwater in the Subcatchment.

Litter and leaves along the Cooks River



The table below shows the estimated amount of pollutants currently found in stormwater in the Subcatchment. The Best Practice Stormwater Targets shown in the table below are draft targets set by the NSW Government for new development areas (Landcom, 2009). Based on these targets gross pollutants for example, should be reduced by 90% from the current level of 11,400 kilograms per year to 1,140 kilograms per year.

Pollutant	CURRENT Average pollution loads (kg/yr) *	BEST PRACTICE Stormwater Targets (% reduction)	TARGET Pollution loads (kg/yr)
Gross pollutants	11,400	90%	1,140
Suspended Solids #	134,600	85%	20,190
Total Phosphorus	275	65%	96
Total Nitrogen	2,060	45%	1,133

* Estimated with MUSIC modelling software
#Note: removal of suspended solids will result in a reduction of heavy metal and hydrocarbon loads.

Social Characteristics

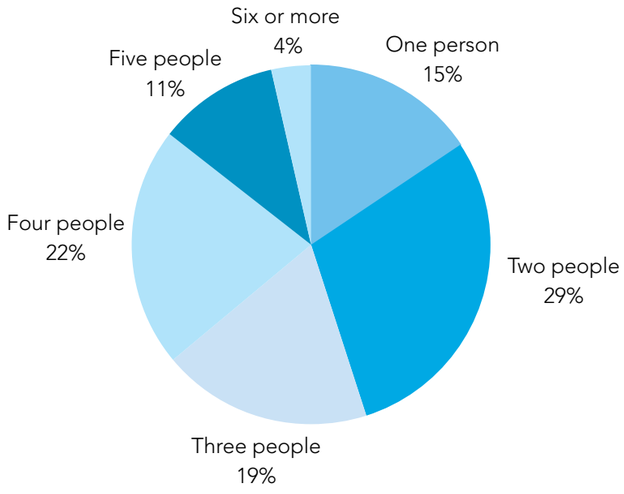
Data from the 2006 Australian Bureau of Statistics Census was used to determine the social make-up of residents in the Subcatchment. Residents were also surveyed to determine current knowledge, attitudes and behaviour related to water including receptivity to water recycling and re-use. The Census data and survey results provide important information that can be used to tailor community engagement and education programs.

Key Statistics

- Population – 2,239 residents
- Origin – 35% born overseas; Italy (7%) followed by Greece (3%) and Lebanon (3%)
- Languages spoken at home – 42% non-English, including Italian (13%), Arabic (6%), Greek (6%) and Cantonese (4%)
- Years at current residence - 92% lived at same address 1 year ago and 77% lived at same address 5 years ago

Household Types

Number of people per household

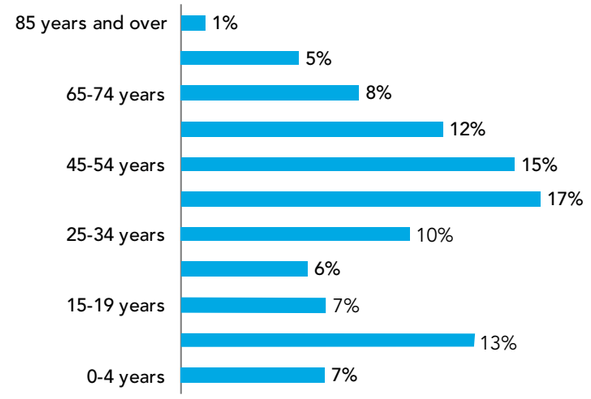


- 30% of families are couples with no children
- 29% of families are couples with children under 15
- 24% of families are couples with no children under 15

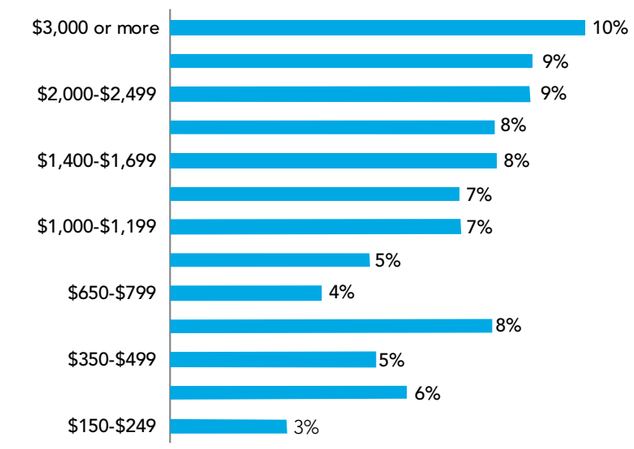
Education

- Current attendance (2006): 32% of residents
- Non-school qualification (2006): 45% of residents (over 15 yrs) have a non-school qualification
- 34% have a Bachelor degree or higher

Age Distribution



Weekly Household Income

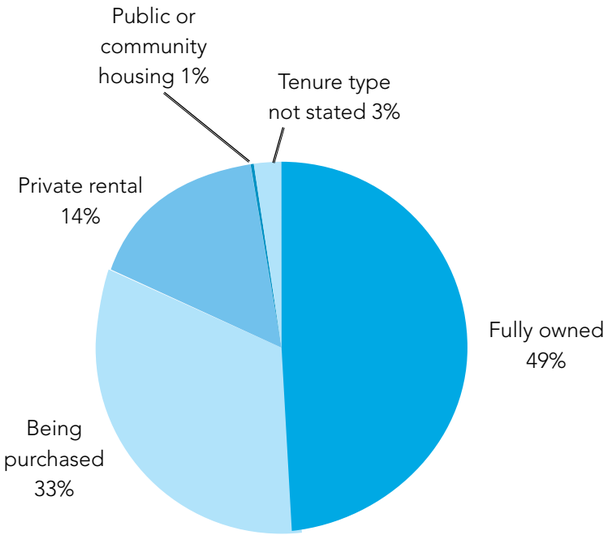


Employment

Of the active labour force (1,145 residents):

- 61% are employed full time
- 31% are employed part time
- 3% are unemployed

Shared walking/bike path along the Cooks River



Household Tenure

All data sourced from the Australian Bureau of Statistics 2006 Census

Residential Water Survey

The Residential Water Survey was undertaken in August 2008. The 132 responses from a total of 904 households provide an indication of the community's current knowledge, attitudes and behaviour related to water including their willingness to reuse water. A summary of results is shown here.

Knowledge of urban water systems

- 68% of residents answered correctly when asked where water in street drains normally goes (to the nearest waterway)
- 79% of residents underestimated the amount of water used by the average local household (440 litres for Ashfield LGA and 512 for Canterbury LGA)

Behaviour

28 people indicated that they currently use water from their rainwater tank as follows:

- 96% use it for the garden
- 61% for washing the car
- 21% for toilet flushing
- 21% for washing clothes

Demonstrating the movement of stormwater from streets to waterways using a stormwater model.

Greywater Systems

46 people indicated that they currently reuse greywater as follows:

- 94% use it for the garden
- 26% for toilet flushing
- 26% for washing the car

Water Saving Devices

75% of respondents have water saving devices such as showerheads and tap aerators.

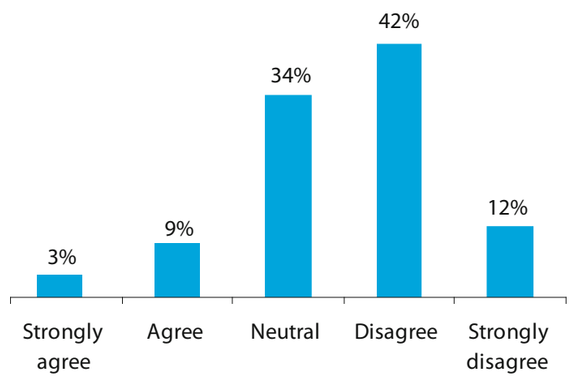
Receptivity to using rain and recycled water

Over 90% of respondents would consider using rainwater for watering the garden and over 80% would consider using greywater for the same purpose.

Attitudes

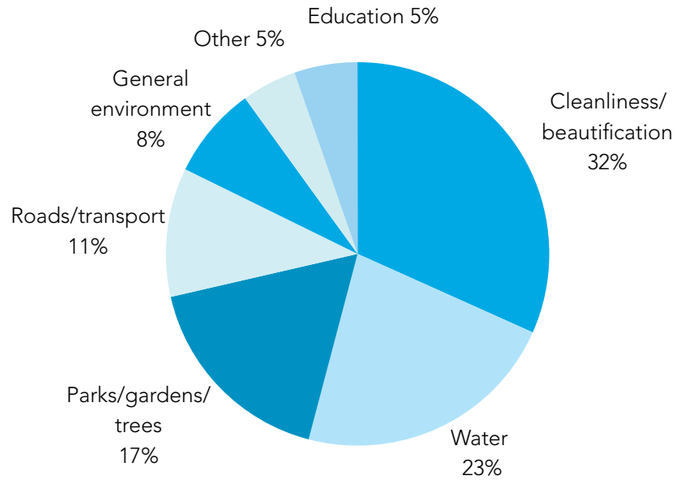
Do you think that government agencies should be mainly responsible for the waterway environment rather than businesses?

The majority disagreed or strongly disagreed indicating that they felt businesses also had a responsibility towards the waterway environment.



Major improvements wanted for the local area in the next 20 years

Residents were asked what they saw as being the most important major improvements needed in Ashbury in the next 20 years. Answers were grouped into the following categories:



* General Environment includes all environment related responses that do not fit into the other environmental categories such as water or waste management.

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Rainwater tank

Authorities and Land Users

Introduction

There are a range of organisations operating within the Subcatchment including government agencies, utility companies, schools and community groups. These organisations have responsibilities related to water, development and infrastructure (e.g., government agencies or utility companies), or have the power to make some decisions regarding water on their land (e.g., land users and public and private land owners).

Therefore in order to improve the health of the local waterways, urban water management solutions are required on both public and private land.

Ashfield Council

Is responsible for the eastern portion of the Ashbury Subcatchment, divided by Holden Street. Ashfield Council manages roads, parks, playgrounds and open space in the Subcatchment. It is also responsible for planning and services such as waste collection.

Canterbury City Council

Is responsible for the western portion of the Ashbury subcatchment, divided by Holden Street. They have similar responsibilities to Ashfield Council and the OurRiver project is also reviewing their policies, procedures and operations as above.

As part of the OurRiver project, a review of Ashfield and Canterbury Councils' policies, procedures and operations has been undertaken to identify opportunities for improving the organisation's ability to deliver Sustainable Urban Water Management.

Private landowners

There are a range of private landowners in the Subcatchment. This includes land in residential, commercial and industrial areas. These landowners have the power to make decisions (subject to Council approval) related to water quality, water consumption and flooding controls on their land.

Sydney Water Corporation

Sydney Water Corporation (SWC) owns and is responsible for the maintenance of the concrete channel that carries the Cooks River. SWC is also responsible for infrastructure associated with the delivery of drinking quality water and sewage disposal within Ashbury Subcatchment.

Schools

There are two schools within the Ashbury Subcatchment: Ashbury Public School, located near the top of the subcatchment within Canterbury City Council LGA and Canterbury Boys High School, located in the eastern portion of the subcatchment within Ashfield Council LGA.

Canterbury Girls High School and Primary School is located just outside of the Ashbury subcatchment.

Religious Organisations

There are two religious organisations that have buildings located within the Subcatchment:

- Baptist Church – Queen Street, Ashbury
- Uniting Church – Melville Street, Ashbury

Ashbury Bowling & Panarcadian Federation Club

Ashbury Bowling and Panarcadian Club is approximately 0.79 ha and includes 3 bowling greens and a club house.

Trinity Tennis Centre

The Centre is owned by Canterbury Council and is managed and run by Trinity Grammar School. It includes 6 tennis courts and a centre building.

The Canterbury Racecourse represents the largest portion of open space in the Subcatchment

Sydney Turf Club

Sydney Turf Club owns and is responsible for the management and maintenance of the Canterbury Park Racecourse. The Racecourse lies on approximately 34 ha of land and includes an event centre, parking and a race track.

Commercial

There are a handful of small commercial operations scattered mostly along King Street within this subcatchment.

Collaborative Planning

What is collaborative planning?

Collaborative planning is key to the subcatchment planning process. Collaborative planning means partnering with all stakeholders in each aspect of decision making including the development of alternatives and the identification of the preferred solution (IAP2 2004).

Collaborative planning in Ashbury Subcatchment

Ashbury Subcatchment stakeholders include:

- residents
- businesses
- schools
- government organisations

Collaboration with stakeholders so far has consisted of the following:

1. Survey: Residents and businesses completed a survey which included questions about their knowledge, behaviour and attitudes related to water;
2. Vision sessions: In October and November 2008 residents took part in workshops to develop the Ashbury Subcatchment 2050 community water vision (see page 2); and
3. Planning forum: Residents worked with the OurRiver team and Ashfield Council and Canterbury Council staff to develop goals and actions to achieve the community water vision (see page 12).
4. Interviews and meetings: OurRiver have discussed current water management practices at Council with staff and continue to work with staff across Council, exchanging information and ideas.

Ashbury Subcatchment Planning Forum in 2008

Benefits

The vision sessions and planning forum provided the community with an opportunity to share their local knowledge. It was also an opportunity to increase awareness of water management issues specific to the local area, and more general concepts such as Water Sensitive Urban Design.

The sessions also assisted the OurRiver team and staff from Ashfield and Canterbury Councils in determining the community's receptivity to water reuse and treatment techniques. Gaining this understanding is essential for creating a Subcatchment Management Plan that is appropriate for the Subcatchment and its community and that is supported by stakeholders.

Ongoing collaboration

Ongoing stakeholder involvement is planned to continue at least for the life of the OurRiver project. Residents may continue to be involved in a number of ways including on-ground activities (e.g., working bees related to on-ground WSUD works), and reviewing and re-prioritising goals and actions.

Since the completion of the Planning Forum in 2008, residents have met with the OurRiver team and Council staff on three occasions:

- Community meeting: In August 2009 to discuss the actions developed at the Planning Forum and review potential on ground works for the Subcatchment,
- Water Wise Tour: In November 2009 residents went on a tour to look at a stormwater harvesting project in Ashfield and a raingarden that filters stormwater from a street in Marrickville, and
- Community meeting: In February 2010 to discuss the progress of proposed on ground works and development of the Ashbury Subcatchment Management Plan.


Residents at the Ashbury Subcatchment Planning Forum in 2008

2050 Visions, Goals and Actions

The Ashbury Subcatchment 2050 Community Water Vision was developed by Subcatchment residents and Council staff at the vision sessions, held in October 2008. Following the vision sessions, the 2050 Community Water Vision was divided up into statements and categorised into common themes (Our People, Our Water, Our Government). At two planning forums, held in November 2008, the community chose which statements were most important to them and then developed goals and actions for each of these prioritised statements. The prioritised statements and their associated goals and actions are presented over the following three pages (12-14), these reflect the desires and wishes of the Ashbury Subcatchment community who attended the vision sessions and planning forums.

Our People

Vision: *"Our people are involved and take a collective community approach to live better with each other. We live in a safe environment. We have community gardens and grow food locally in Ashbury."*

2050 Goals

- Through community involvement we meet each other and learn to trust and understand each other
- Ashbury is a demonstration suburb in sustainable living

Interim 2020 Goals

1. Regular, diverse and inclusive community events occurring (e.g., growers markets, earthworks, celebrations of the environment)
2. Ashbury is seen as a model community for sustainable principles in action

Actions

1.1 Identify local sponsors and relevant volunteer organisations

1.2 Evaluate previous successful events that new subcatchment events could be linked to and develop these events knowing what has worked or is working well

1.3 Decide on priorities for events, identifying any larger community/ State/ Federal events that could be linked in with subcatchment events– first one could be 'sustainability' field day utilising Summer Hill Resource Centre and promoting Ashbury subcatchment plan

1.4 Develop a calendar of events

2.1 Establish support for raingardens at an individual residence level and at a community level

2.2 Start a local campaign to celebrate what people have already done regarding sustainable practices

2.3 Identify what would 'hook' people into this goal

2.4 Build on generational change

2.5 Look at ways of 'hooking' the kids in as early as possible (e.g., preschool where a raingarden could be built as a demonstration site)

2.6 Look for opportunities for sponsorship in any ideas for above

Our Water

Vision: *"Our Water is used wisely on a local scale; every person uses water sustainably and is largely self-sufficient for water. All properties manage water on-site, every building harvests water and there is a rainwater tank for every roof. The Cooks River catchment sustains native habitat."*

2050 Goals

- Every roof captures and re-uses the rainwater
- Local providence native habitat gardens along the River (re-established), which has been de-channelised with naturalised banks to provide for diverse habitat

Interim 2020 Goals

1. 80% of households capture/divert rainwater with 30% of households having separate potable and rainwater systems.
2. The banks of Cooks River within Ashbury subcatchment area are naturalised, which includes planting of native vegetation so that 50% of vegetation is native in the catchment area and along the river bank (these percentages could differ depending on whether the vegetation is along the river bank or elsewhere in the catchment). A target of 10% to be naturalised each year (to reach 100% by 2020)

Actions

1.1 Have government rebates and subsides to encourage this goal

1.2 All new developments, renovations (alts & adds) to capture and divert rainwater

1.3 Councils financially support installation and purchase of water tanks/ reuse systems (through mass purchasing) – possibly combined with rate installments so residents can pay off tanks etc.

1.4 Council to be a source of information on different ways to save water through workshops and training

1.6 Recycling/ swaps/ sharing are part of the system

1.7 Council to coordinate mass installation to households

2.1 Remove concrete and metal from the River bank walls and replace it with more appropriate materials to attract native fauna and flora (e.g., creating breeding grounds)

2.2 Council projects that interface with the River must encompass planting of native vegetation

2.3 Establishment of nurseries for plants indigenous to the catchment area (or low maintenance/low water usage)

2.4 Naturalising of nature strips

2.5 Establishment of a Cooks River Bank Naturalisation Fund (with contributions from 3 tiers of government)

2.6 Buy in or sign off from all politicians to commit and support goals

Our Government

Vision: *"Our government is a leader for communities providing education and practical strategies that people can use. Government leads by example with water storage systems in all government buildings and recycled water for public facilities. Intelligent water pricing & policy reflects the true value of water, supports innovation and provides appropriate government assistance via rebates.*

Building and planning regulations ensure minimum standards but are flexible in order to promote new ways of conserving and re-using water."

2050 Goals

- Regulations reflect the technologies of the time

Interim 2020 Goals

1. Building and planning regulations including BASIX, are more stringent (no actions identified)
2. Zoning/planning laws are water sensitive and being 'Heritage' listed is not a barrier to innovative design

Actions

2.1 Council adopt/develop water sensitive DCP. Council has assessed what must be done and has developed a plan to meet requirements

2.2 Section 94 contribution from developers must be used for the River

2.3 New properties built or renovations to have rainwater tanks and greywater reuse systems

2.4 Hard surfaces must not exceed 75%

2.5 Mandatory stormwater treatment for businesses and Council properties

2.6 Water conservation mandatory for non-residential buildings which could include water saving devices, rainwater tanks, greywater reuse systems

Sustainable Water Actions - Non-structural

The Subcatchment Action Plan includes actions related to both structural (on-ground works) and non-structural (e.g., policy and education) solutions. A summary of the non-structural actions that relate to the Subcatchment is shown on this page. Options for implementing these actions will be developed in collaboration with relevant staff at both Ashfield and Canterbury Councils and members of the community.

Summary of non-structural actions for Ashbury Subcatchment	Implementation (Council or community)
Education	
• Expand current Council workshop series to include information on Water Sensitive Urban Design (WSUD). Target specific groups (e.g., Senior Citizens Assoc., youth etc.). Could include expanding information on councils' websites, fact sheets, technical support for WSUD, lists of preferred suppliers and useful WSUD links	Council
• Look at ways of targeting children and educating them in water sustainability (e.g., demonstration sites)	Council/NSW Dept. Education
Sponsorship & Community Support	
• Start a local campaign to celebrate what people have already done regarding sustainable practices including - identifying local sponsors and relevant volunteer organisations for promoting sustainable use of water or raingardens, etc. - organising swaps and recycling initiatives between residents	Community
• Decide on priorities for local/State events to utilise as a means of promoting achievements of Ashbury Subcatchment community and issues such as sustainable water use, rainwater/greywater use, stormwater pollution, etc.	Council/Community
• Buy in or sign off from all politicians to commit and support goals of Subcatchment Management Plan	Council/Community
Policies & Incentives (Council)	
• Council adopt/develop water sensitive DCP or something similar which could include: - mandatory stormwater treatment for businesses and council properties - all new developments, renovations (alt & adds) to capture and reuse rainwater and greywater - Section 94 contributions used for protection and improvement of Cooks River - 75% limit for hard surfaces	Council
• Councils financially support installation and purchase of water tanks/ reuse systems (through mass purchasing) – possibly combined with rate installments so residents can pay off tanks or via a rebate systems to achieve: - 80% of households capture/divert rainwater with 30% of households having separate potable and rainwater systems by 2050	Council/Community
• Council projects that interface with the River must encompass planting of native vegetation including aquatic species to increase habitat and biodiversity	Council
Other	
• Install a community garden in one of the schools	Community/NSW Dept. Education
• Identify where the walkway and cycle tracks are now and where there are gaps, determine track usage and issues	Council - City of Canterbury Cycleway Plan

Sustainable Water Actions - Structural

A summary of actions developed at the planning forum that are related to structural Water Sensitive Urban Design (WSUD) solutions is shown in the table below. A range of options for specific sites within Ashbury Subcatchment (see page 17) have been investigated by the OurRiver team under the supervision of an environmental engineer from Equatica Pty Ltd. Some examples of WSUD solutions are shown below.

Summary of Structural actions relating to Ashbury Subcatchment
Stormwater Treatment
• Put in water treatment and reuse at Pan Arcadian & Ashbury Bowling Club, Blick and Campbell ovals
• Establish 1 raingarden per year from completion of this plan starting with – i) a raingarden in the Canterbury Racecourse grassed car park area, ii) a raingarden at Peace Park or near the detention tank (Sydney Water Reservoir) and iii) a raingarden at the Scout Hall (with frogs)
• Investigate water treatment wherever possible along stormwater lines
• Install a GPT at West end of Racecourse
• Put in water treatment and reuse at Canterbury Boys High School including raingardens and pumps for rain tanks
• Investigate use excess water from sewer mining at racecourse
• There diversion of water back into the landscape through technology such as Aquakerb and similar inventions that recharge the aquifer
Stormwater / rainwater harvesting
• Have water features/ storage or other systems as Council managed assets (e.g., under a road) that allow households to feed or divert excess water into them that can be shared by the community or released back into the River when needed
• Council to lead by example with rainwater harvesting including: a) Explore options for utilising bowling greens for water harvesting and/or treatment (not Council owned) and b) Campbell and Blick ovals to have rainwater harvesting to supply amenities
• Site for capturing water (e.g., rainwater tank) potentially linked via environmentally friendly pipe system to a community garden
• Community Car Wash from harvested water
Other structural actions
• Remove concrete and metal from the River bank walls and replace it with more appropriate materials to attract native fauna and flora (e.g., creating breeding grounds). Plant native vegetation including aquatic species to encourage wading birds, etc. (including good understorey canopy, habitat)
• Investigate if it is worth separating the walking and cycling tracks or if the priority is to fix areas where the path is disjointed
• Use subsurface irrigation on parks and sporting fields to reduce amount of water needed starting with all new upgrades
• Naturalise nature strips in Subcatchment
• Council puts in sets of BBQ/picnic areas in place like near soccer fields and areas that allow for easy maintenance and not in areas where they might attract vandals

Water Sensitive Urban Design solutions

A **raingarden** is a specific type of garden that has been designed to receive stormwater flows. It is built with specialised layers of soils and plants that act as a filter to remove pollutants from water. Depending on the type of raingarden, the filtered water then either drains back into the stormwater system and into the nearest waterway, or soaks into the surrounding soil.

Harvesting rainwater or stormwater reduces the amount of water that needs to be imported from outside the Sub-catchment. It also reduces the amount of run-off and pollution that reaches the Cooks River.

Other structural solutions include swales, permeable paving (paving that lets water soak through to the soil below) and passive irrigation garden beds. These all help to mimic processes that take place in more natural non-urban areas. Any urban design elements that slow or reduce the flow of stormwater reaching waterways, increase the amount of water that soaks into the soil, or that filter stormwater contribute to healthier waterways. These sort of urban design features are known WSUD.

Raingarden, Cave Road, Strathfield South

Sustainable Water Actions - Structural

Options for Water Sensitive Urban Design in the Ashbury Subcatchment

As a result of the structural goals and actions identified by Ashbury residents (see page 16), several sites were identified in the Ashbury Subcatchment as being potentially feasible for building WSUD features. A list of options was developed for sites in Ashbury and structural concept designs were completed using WSUD technology that was determined to be most appropriate for that site. Raingardens, swales and rainwater harvesting are just a few of the WSUD measures that were investigated. The sites where concept designs were developed are located in a variety of locations across the Subcatchment and represent both water quality and water conservation projects. These sites are shown on the aerial photograph to the right.

The options identified here do not represent the definitive list of potential options for the Subcatchment. Further investigation will reveal other opportunities to implement WSUD technologies to help reduce the amount of pollutants that leave the Subcatchment as well as reducing the growing demand on the drinking water supply.

On-ground works options	Main outcome	Land owner
Canterbury Park stormwater and rainwater harvesting (Blick & Campbell Ovals)	Water conservation	Canterbury Council
Tennis Centre rainwater harvesting	Water conservation	Canterbury Council
Peace Park rainwater harvesting	Water conservation	Canterbury Council
First Street raingardens (stormwater treatment)	Water quality	Canterbury Council
Fourth Street raingarden (stormwater treatment)	Water quality	Canterbury Council
Hardy Street raingarden (stormwater treatment)	Water quality	Ashfield Council
Hillcot Street raingardens (stormwater treatment)	Water quality	Ashfield Council
First St/Andrews Ave laneway porous paving (stormwater treatment)	Water quality	Canterbury Council
Revegetation of drainage swale at Canterbury Park	Biodiversity, water quality	Canterbury Council
Canterbury Boys High School raingardens (stormwater treatment)	Water quality	NSW Dept Education
Vacant land adjacent to Peace Park raingarden and swale (stormwater treatment)	Water quality	Energy Australia
Ashbury Bowling & Panarcadian Club rainwater harvesting	Water conservation	Private
Canterbury Racecourse raingardens (stormwater treatment)	Water quality	Sydney Turf Club

Ashbury Subcatchment showing the location of sites that are potentially feasible for WSUD features; these have been identified through the OurRiver project.

The implementation of these options will be dependant on funding availability and the WSUD designs being:

- deemed feasible
- cost effective
- providing the maximum environmental benefit
- enhancing the natural beauty and amenity of the local environment

OurRiver has funding to assist with the construction of two WSUD on-ground works projects that have come out of the identified options for Ashbury. More details on these projects can be found on pages 18-19.

OurRiver Funded On-ground Works

OurRiver has funding to begin implementation of the Subcatchment Management Plan, including support for the construction of on-ground works in the Ashbury Subcatchment area, and community and council capacity building. Currently two on ground-works projects have been identified by OurRiver and Ashfield and Canterbury City Councils for completion by the end of 2010. The location of the projects is Canterbury Park and the works will include:

1. Stormwater and rainwater harvesting that will capture, treat and store water for use at Blick and Campbell Ovals
2. Revegetation of a drainage swale to reduce water pooling and flooding, and increase the overall biodiversity of the Park

To facilitate the completion of future WSUD works in Ashfield's dense urban municipality, OurRiver will also support the development of training and workshops that will enable council staff to adapt and utilise available concept designs for things such as raingardens and street tree biofiltration pits.

Stormwater infrastructure and location of observed base flows in Ashbury (circled in blue). Blick and Campbell ovals can be seen at the bottom of the photo

Stormwater and Rainwater Harvesting Project - Canterbury City Council

The site selected for construction of the works is located within the open space area that includes Blick and Campbell Ovals. This action was broadly suggested by residents at the Ashbury Subcatchment planning forum and specifically relates to the following actions:

- Investigate water treatment wherever possible along stormwater lines
- Council to lead by example with rainwater harvesting
- Water conservation mandatory for non-residential buildings which could include water saving devices, rainwater tanks, greywater reuse systems

This project will provide an opportunity to harvest stormwater and constant base flows detected in the stormwater pipes in Ashbury. It will also include harvesting rainwater off the buildings at Blick and Campbell Ovals. Harvesting water from these three sources could potentially provide a significant quantity of water that would allow for an increase in irrigation of both ovals to current Sydney Water benchmarks, with additional water available for irrigating other nearby ovals and parks.

Stormwater harvesting equipment for similar project at Pratten Park, Ashfield.

How does Stormwater Harvesting Help the River?

Stormwater harvesting and reuse has many benefits for both managing flooding and environmental risks. Apart from providing an alternative water source to potable water, harvesting stormwater reduces stormwater volumes, flows and run-off frequencies to more natural levels, which in turn, reduces stream erosion, improves in-stream aquatic ecosystem health, and reduces the potential for minor flooding events. It also reduces stormwater pollutant loads in waterways, which improves catchment water quality and reduces potential for harmful algal or weed growth.

OurRiver Funded On-ground Works

Revegetation of Swale at Canterbury Park - Ashfield and Canterbury City Council

Some potential areas are being investigated for revegetation around a long swale located between Blick and Campbell ovals. The swale which is approximately 188 metres long and 2 metres wide, acts as a drainage channel for the park and is currently vegetated with turf . The benefits of works completed here would include:

- Increased absorption of stormwater flows
- Reduction in velocity of stormwater flows
- Increased habitat areas and biodiversity
- Provide educational opportunities on local native plants
- Provide an opportunity for residents to become involved with improving their local park

Plants chosen for the works would be composed of grasses and low shrubs that thrive in water logged soil and are native to the Canterbury area. It is anticipated that educational signage would also be included at the site.

One site at Canterbury Park being investigated for revegetation

What is a Vegetated Swale?

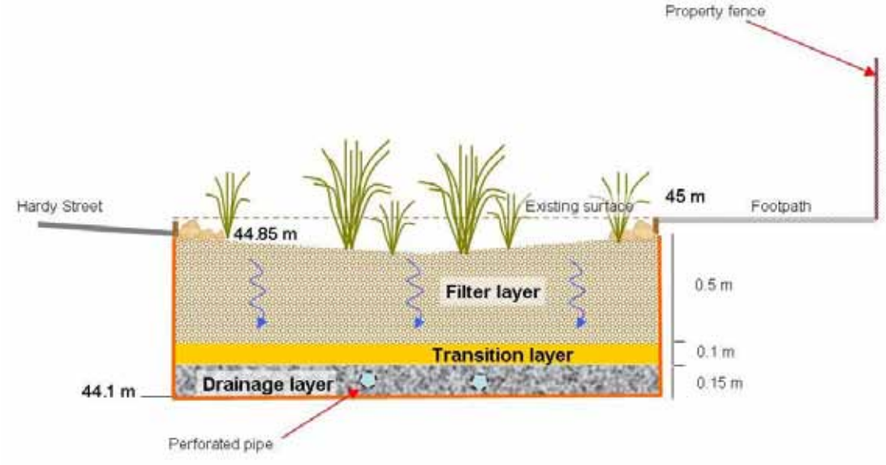
A vegetated swale is a broad, shallow channel with a dense stand of vegetation covering the side slopes and bottom. Swales can be natural or man-made, and are designed to trap pollutants, promote infiltration, and reduce the flow velocity of stormwater runoff.

Training for use of Standard WSUD Designs - Ashfield Council

Some funding will also be spent on building WSUD capacity at Ashfield Council by developing a training package for staff responsible for conceiving, designing and delivering capital works. This training package will enable staff to utilise and adapt available WSUD templates for design briefs and drawings that are applicable for a variety of capital works projects. In addition, training will be made available for staff responsible for operating and maintaining the WSUD elements incorporated into capital works projects.

Some examples of standard designs that may be utilised by Council include standard streetscape biofiltration units in the form of street tree pits or raingardens. These designs would be tailored to suit the typical dimensions and character of Ashfield Council streets and nature strips.

Street tree stormwater treatment (through filtration).



Streetscape raingarden (similar to street tree filtration)

Rawson Street, Haberfield

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