



# ACT HEALTHY WATERWAYS BASIN PROJECT

## CONSULTATION REPORT

February 2017



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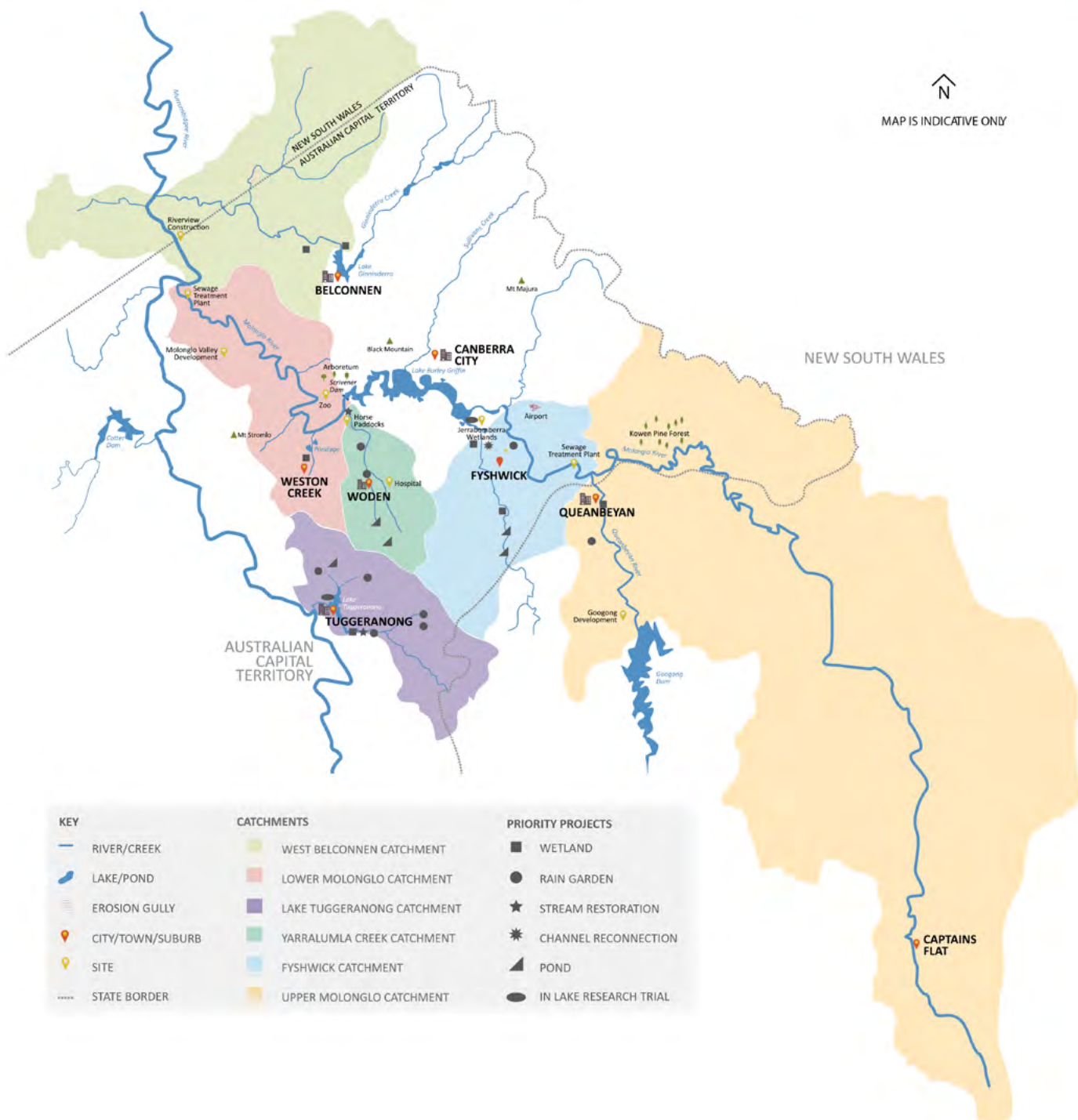
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# ACT HEALTHY WATERWAYS (BASIN PROJECT)

## SIX PRIORITY CATCHMENTS



# WHY WE NEED TO UPGRADE OUR WATERWAYS

Canberra's lakes and waterways are under increasing pressure, largely due to urban development, past land and water management regimes, climate change, and a lack of awareness about the kinds of activities that affect water quality.

Stormwater pollution risks public health and aquatic life and threatens the many social, economic and environmental benefits our lakes and waterways provide. Polluted stormwater also causes problems beyond our borders, affecting water quality downstream in the Murrumbidgee River system and, more broadly, in the Murray–Darling Basin.

## ACT HEALTHY WATERWAYS

ACT Healthy Waterways is a joint initiative of the Australian and ACT governments to protect and improve long-term water quality in the ACT and the Murrumbidgee River system, which are part of Australia's iconic Murray–Darling Basin.

More than \$93 million will be spent on up to 25 new water quality infrastructure as well as improved water monitoring, in-lake research and a campaign to let residents, businesses and visitors know how they can help look after our waterways.

It plays an important role in achieving targets in the ACT's Water Strategy, announced in 2014, which sets out how the ACT Government will manage the Territory's water resources over the next 30 years.

## BASIN PROJECT

The Basin Project involves the construction of a range of infrastructure – ponds, wetlands, rain gardens and swales as well as creek restoration and channel reconnection – designed to “turn off” or reduce the amount of nutrients, sediment and pollutants entering our waterways. The focus is on improving water quality higher up in the catchment where rainwater becomes stormwater.



## PRIORITY PROJECTS

Up to 25 projects (including in-lake research) have been prioritised across six catchments:

1. The established catchment of Lake Tuggeranong
2. The established catchment of Yarralumla Creek
3. The developing catchment of Upper Molonglo
4. The developing catchment of Lower Molonglo
5. The developing catchment of West Belconnen
6. The industrialised Fyshwick catchment.

A carefully balanced combination of factors was considered when selecting the projects, underpinned by thorough scientific research and consultation with technical experts, government and the broader community. The factors considered included:

- The predicted water quality outcomes each option would generate
- The cost of building and maintaining infrastructure over its lifetime
- Potential environmental impacts and site-specific practical constraints
- Broader economic costs and benefits, social values and community preferences.

All efforts will be made to deliver these projects within the allocated budget and timeframe.

# COMMUNITY INPUT IS VITAL

Input from the community has played a vital role in the Basin Project since it commenced two years ago.

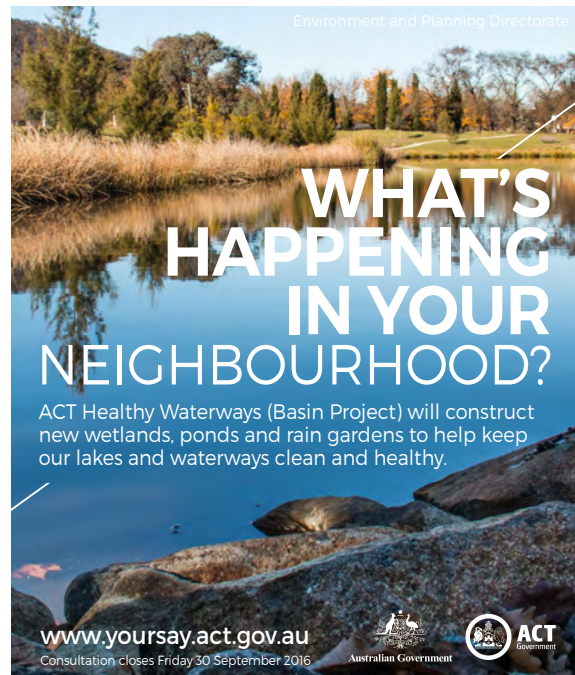
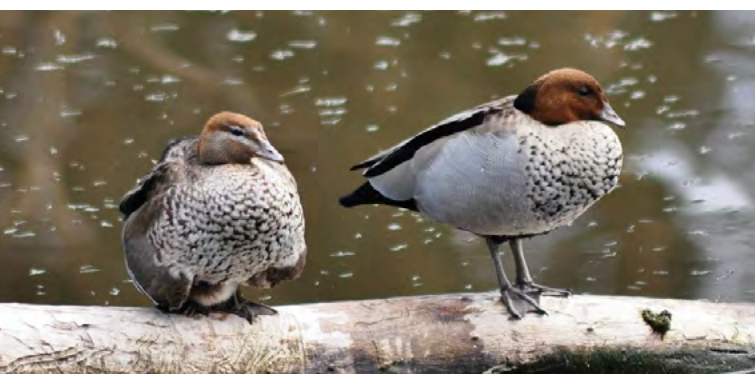
The project team initially identified over 500 potential sites across six priority catchments. A panel (including technical experts and community representatives) evaluated the list and the sites were prioritised according to cost and feasibility as well as the potential for improved water quality and increased amenity.

As a result, the list was reduced to 188 (178 infrastructure and 10 in-lake projects) and the design team developed concept plans for each site ahead of the first round of community consultations in July 2015. Comments were received from a range of different sources, including experts in the field, community groups and people who attended the six catchment-based drop-in sessions. The feedback received helped shape the next step in the process: the development of preliminary plans for 24 priority projects, 12 reserve projects and in-lake research.

At drop-in sessions during September 2016, visitors could view the preliminary sketch plans, talk with the design team and provide feedback. The plans were also available online on the Your Say website (from 22 August) and the community invited to comment.

The project team used a range of communication tools and mediums to promote the September drop-in sessions and encourage comment on the Your Say website:

- Residents who live near each of the sites were notified via a letterbox drop
- Advertisements were placed in The Chronicle and the Canberra Weekly
- Stakeholders received regular email updates



- Updates and event listings were shared on the then Environment and Planning Directorate social media pages
- Posters and brochures were displayed in all ACT public libraries
- Information about the Basin Project was included in the ACT Government e-newsletters
- Internal emails advised ACT Government staff
- Access Canberra public screens featured information about the project and dates for drop-in sessions
- Articles were published in a range of publications and on associated websites, e.g. ACT Landcare, Youth Coalition of the ACT, various catchment groups.

Although the consultation period closed on 30 September, online comments remained open until 5 October to allow for last-minute submissions over the long weekend.

With the design phase consultation now complete, work is under way on developing plans to be submitted to the planning and land authority for development approval, a legislative requirement for all construction work in the ACT. This process includes a consultation period which offers another chance for members of the community to comment on the proposed infrastructure.



## FEEDBACK

Over 3000 people either visited the Your Say website or attended one of the six drop-in sessions. Following the funding announcement in May 2016, the project team presented to more than 14 community groups, talking directly to an estimated 300 people.

Feedback received prior to and during the consultation period was positive. People were supportive of infrastructure to improve water quality and felt the planned projects would be valuable community assets. Some identified opportunities for environmental education, particularly for children, and others for increased recreation.

A number of sites received no comments with a few generating a lot of interest. The Your Say website offered everyone the chance to express an opinion, ask questions of the project team and engage in a conversation with supporters and opponents alike.

## TAKING ACTION

During the August/September 2016 consultation period, comments about the overall project and specific sites were received via a range of mediums – the Your Say website, emails and correspondence sent to the project team, feedback forms completed at drop-in sessions and letters to the then Minister for the Environment and Climate Change.

Comments and suggestions relating to design were passed on to the design team for their consideration when drafting plans in support of the development applications. Comments not related to design have either been addressed by the project management team (for example, requests to add additional sites for new infrastructure) or passed on to the relevant ACT government agency (for example, increases in water rates, the maintenance of existing water infrastructure, the management of litter, etc.).



# LOWER MOLONGLO CATCHMENT



## Key facts

- Includes the Molonglo River downstream of Lake Burley Griffin below Scrivener Dam to the Murrumbidgee River.
- Only a small portion of the stormwater that runs off urban areas is treated before being discharged into the Molonglo River.
- Land use in the catchment is mixed and includes grazing, forestry and urban areas.
- Proposed urban development in the catchment is expected to place further pressure on water quality.

## Expected benefits

- The priority project will remove 113,000 kg/year of suspended solids, 182 kg/year of phosphorus and 610 kg/year of nitrogen from Lower Molonglo waterways.
- The new wetlands will improve the amenity of the space and offer more opportunities for recreation.

## Projects

**Wetlands between Cotter Road and Dixon Drive, Duffy (LM013):** Two new wetlands will be established in the open space. Reeds, grasses and trees will use the nutrients in the stormwater to grow and help remove sediment by reducing the speed of water flows. Sympathetic design will minimise the impact on existing vegetation and paths, currently used for walking, horse riding and cycling. Extensive landscaping will help to maintain amenity and the site is expected to be a favorite destination for families, walkers and cyclists.

## Reserve projects

Rain garden between Tristania Street and Streeton Drive, Rivett (LM006)

Wetland adjacent to Centre for Teaching and Learning, Freemantle Drive, Stirling (LM004)

Rain garden near Araluen Street, Fisher (LM001)

Wetland between Streeton Drive and Weston Creek stormwater channel, Holder (LM008C)

Rain garden near De Graaff Street, Holder (LM010)

For more information visit the Your Say website.

## Feedback summary

### Priority project

In regards to LM013, the community was supportive and many happily anticipated using the new recreational space. Some requested sufficient off-street parking and seating to accommodate classes of children who might visit from local schools.

### Reserve projects

Comments were supportive of the projects and hopeful that cost savings may mean that the rain garden near De Graff Street, Holder (LM010) in particular would go ahead.

For a more detailed summary of comments and responses, see Appendix A.

# UPPER MOLONGLO CATCHMENT



## Key facts

- Includes a mix of both rural and urban areas.
- Land practices along the Molonglo and Queanbeyan Rivers, as well as the urban areas of Queanbeyan, put a significant strain on water quality.
- Land clearing in the upper reaches of the catchment is linked to higher run-off, erosion and increased nutrient levels in the Molonglo River.
- New development is placing further pressure on water quality.
- Water quality monitoring indicates the highest level of pollution in the catchment occurs in Queanbeyan's urban areas.
- Only a small portion of stormwater that runs off urban and industrial areas is treated.
- The older layout of Queanbeyan means there is limited space for water-sensitive urban design infrastructure.

## Expected benefits

- The priority projects will remove 73,600 kg/year of suspended solids, 105 kg/year of phosphorus and 600 kg/year of nitrogen from the Molonglo and Queanbeyan rivers.
- Other benefits for the catchment include improved open space and recreational areas as well as an increase in the diversity of the area's natural habitat.

## Projects

**Wetland on the reserve adjacent to Morrisett Street, Queanbeyan (UM015):** A new wetland, on the city-side bank of the Queanbeyan River near the low level crossing, will improve water quality by trapping sediment and nutrients. It will also increase the area's appeal as a recreational space. The design allows the retention of some open space for existing activities such as dog walking.

## Rain gardens at Alanbar Street and Kenneth Place, Karabar (UM004):

Twin rain gardens - one within a roundabout and the other in open space - will slow run-off, with plants helping to remove sediment and nutrients. Both areas will be landscaped. The rain garden near Alanbar Street in open space has been designed to retain the existing mature tree on the north side of the site and the path will be realigned to go around the garden.

Please note there are no reserve projects identified for the Upper Molonglo catchment.

For more information visit the Your Say website.

## Feedback summary

### Priority projects

There was some very valuable feedback from Queanbeyan Palerang Regional Council (QPRC) about the wetland in Queanbeyan (UM015). They suggested moving the wetland further uphill, using open channels to allow for the movement of fish and the incorporation of a gross pollutant trap (GPT). They also offered ideas about how to protect the asset during flood events and asked that more space be allocated to general use.

QPRC anecdotally reported that the local Aboriginal community welcomed the extended habitat along the river and had requested some educational and cultural signage and interpretation, along with additional seating.

Other comments about the rain gardens in Karabar (UM004) included a request for a new path on the existing desire line, cautionary information about past flood events, the need to ensure rain gardens are resilient, and recommendations to involve local Aboriginal people.

For a more detailed summary of comments and responses, see Appendix A.

# FYSHWICK CATCHMENT

60 people viewed  
the plans online<sup>1</sup>



25 people attended  
drop-in session



10 comments  
received



9 positive  
comments  
or questions  
received<sup>2</sup>

<sup>1</sup> Unique visits to the Your Say website.

<sup>2</sup> Does not include conversations with people who attended the drop-in session or community meetings.

Nor does it include telephone conversations or email exchanges between stakeholders or members of the community and the project team.

## Key facts

- Drains into Lake Burley Griffin.
- Pollution from industrial areas, including heavy metals and hydrocarbons, and ageing stormwater infrastructure are the two key contributors to poor water quality, e.g. untreated stormwater drains from buildings and streets into pipes that run directly into Jerrabomberra Creek and the Molonglo River.
- Includes crop production, rural grazing land and intensely urbanised industrial and commercial areas.
- Water quality monitoring has shown that stormwater run-off in Fyshwick contains zinc levels double that of other urban catchments.
- A research project will also be undertaken.

## Expected benefits

- The priority projects will remove 1,755,100 kg/year of suspended solids, 2630 kg/year of phosphorus and 9797 kg/year of nitrogen from waterways in the catchment.
- Other benefits include improved open spaces and recreational areas as well as an increase in the diversity of the area's natural habitat.

## Projects

**Wetland, Eyre Street, Kingston, adjacent to Jerrabomberra Creek (FW012):** Water from Jerrabomberra Creek will be diverted to a new wetland before returning to the creek. The existing networks of walking tracks that run through the Jerrabomberra Wetlands have been incorporated into the design.

**Pond, Jerrabomberra Creek, corner of Hindmarsh Drive and Monaro Highway, Symonston (FW020):** The storage capacity of the existing pond will be increased to enable more stormwater to be treated before being returned to the creek.

### Channel reconnection, Jerrabomberra

**Wetlands, Dairy Road (FW025):** A channel on Jerrabomberra Creek will be rehabilitated to create a new wetland. This will help improve water quality in the creek and add to the amenity and ecology of what is a highly modified part of the Jerrabomberra Wetlands.

### Pond adjacent to Jerrabomberra Creek, between Bonshaw Road and Payenda Circuit, Symonston (FW021):

The existing pond adjacent to Jerrabomberra Creek (in the open space between Lanyon Drive and Hindmarsh Drive) will be enlarged and connected to the creek. This will increase the storage capacity of the pond and enable more stormwater to be treated before it returns to the creek.

### Wetland and potential stormwater use, Matina Street, south of Mill Creek Oval, Narrabundah (FW019):

A new wetland will take advantage of open space between Matina Street and the Monaro Highway. Low flows from Jerrabomberra Creek will be diverted to the wetland before returning to the waterway, while high flows will bypass the wetland and continue along the existing creekline. The wetland will be a valuable recreational space for the local community.

### Rain garden, Gladstone Street, Fyshwick (FW001):

Two treatment options (a gross pollutant trap and a rain garden) will remove pollutants and sediment from the water before it flows into the Molonglo River which, in turn, feeds into Lake Burley Griffin.

### In-lake research project, Jerrabomberra Creek and lakes:

Jerrabomberra Creek will be part of a catchment research project that will examine the effectiveness of earth banks in controlling wetland wetting and drying. The results have implications for issues like carp management and nutrient removal. Work is progressing on identifying the scope of this project.

Please note there are no reserve projects identified for the Fyshwick catchment.

For more information visit the Your Say website.

## Feedback summary

### Priority projects

FW019 (Matina Street, Narrabundah) was the only project in this catchment to attract comments from the community. There was a great deal of support for the wetland, with many existing users keen to see the site better utilised and restored to a more natural state. Requests for more stable paths and trails and improved amenity (eg. on-site rubbish bins) were common as was a suggestion that new trails could connect with the wider cycling network and provide access to other wetlands close-by.

Representatives from Canberra Airport raised concerns that the projects close to flight paths may present a bird-strike risk. This relates to five of the six projects planned for the catchment, including FW019.

### Action taken

The ACT Healthy Waterways team continues to liaise with representatives from the Canberra Airport regarding bird-strike and a risk assessment will be conducted.

For a more detailed summary of comments and responses, see Appendix A.



# LAKE TUGGERANONG CATCHMENT



## Key facts

- The highest levels of pollution entering the lake come from the Kambah and Wanniasa stormwater drains.
- This network of older stormwater pipes and concrete-lined channels were designed to move run-off into Lake Tuggeranong as quickly as possible, along with pollutants like leaves, chemicals, animal faeces and grass clippings.
- Tuggeranong Creek feeds into Lake Tuggeranong which, in turn, flows into the Murrumbidgee River.
- Large volumes of untreated water frequently overwhelm the capacity of the lake to process pollutants, creating conditions that lead to blue-green algal blooms.

## Expected benefits

- The priority projects will remove 689,100 kg/year of suspended solids, 954 kg/year of phosphorus and 4533 kg/year of nitrogen from stormwater inflows to the lake.
- Other benefits include enhanced open space, an increase in the diversity of the area's natural habitat and the potential for irrigation of local sporting fields.

## Projects

**Rain garden and potential stormwater use, Chirnside Circuit, Kambah (TG003):** A new rain garden in open space south of the Kambah West District Playing Fields near Drakeford Drive will improve the overall ecology and amenity of the site. The existing cycleway will not be affected but some trees may need to be removed to allow for construction.

**Rain gardens and potential stormwater use, Athllon Drive between Langdon Avenue and Fincham Crescent, Wanniasa (TG008):** A series of rain gardens will be established adjacent to St Anthony's Primary School near Athllon Drive. Some of the captured and treated stormwater may be used to irrigate Wanniasa Playing Fields.

**Rain garden, Upper Stranger Pond, Isabella Plains (TG010):** A rain garden upstream from Upper Stranger Pond will help remove sediment and nutrients from stormwater. Depending on conditions, water from the pond could be used to irrigate Isabella Plains Neighbourhood Oval and nearby playing fields. The area will also be landscaped to incorporate vegetation and planting beneath existing trees.

**Swale, Corlette Crescent, Monash to Isabella Pond (TG012):** Part of the concrete channel between Corlette Street, Monash and Isabella Pond will be converted to a swale. Vegetation in the swale will help treat stormwater before it enters the pond and increase the diversity of the area's natural habitat. The swale will occupy a wider area compared to the current concrete channel.

**Rain garden and potential stormwater use, north of Isabella Drive near Kirkcaldie Circuit, Fadden (TG023):** The new rain garden may be combined with an irrigation system so captured and treated stormwater can be used to irrigate Chisholm District Playing Fields. While some existing trees will need to be removed, the project includes extensive landscaping and new planting.

**Pond and potential stormwater use between Kett Street and Drakeford Drive, Kambah (TG030):** A new pond in open space near the Burns Club will capture stormwater that could be used to irrigate the adjacent Kambah East District Playing Fields. The site will be landscaped to enhance the existing open space.

### **Rain gardens, Fadden Pines Reserve, Fadden**

**(TG029):** Two rain gardens will improve the open space between Isabella Drive and Coyne Street. The area will also be landscaped to incorporate vegetation and filtering media to remove nutrients and sediment. The design minimises the removal of existing trees and leaves a large landscaped area as a recreational space for the local community.

### **Wetland, Isabella Pond, Drakeford Drive,**

**Monash (TG011C):** A wetland will be constructed on the edge of Isabella Pond in conjunction with the proposed upgrade of the Isabella Weir spillway for flood mitigation purposes. These improvements will help remove nutrients from the stormwater that enters Lake Tuggeranong via the pond. NB: This project is funded directly by the ACT Government and has been progressed as part of the broader Isabella Weir spillway upgrade works (for flood mitigation) being undertaken by Chief Minister's, Treasury and Economic Development Directorate. A development application covering the weir and the wetland has been approved.

### **In-lake research Lake Tuggeranong:**

Lake Tuggeranong will be part of a catchment research project to improve understanding of how changes in sediment movement and oxygen profiles affect algal blooms, including:

- managing change in the movement of sediment, potentially using sediment curtains
- managing dissolved oxygen profiles, potentially using bubblers.

Work is progressing on identifying the scope of the research project.

## **Reserve projects**

Rain garden and potential stormwater use, Bugden Avenue, opposite Kellett Street, Gowrie (TG017)

Rain garden and potential stormwater use opposite Viking Park, McBryde Crescent, Erindale (TG014)

Rain garden north of De Little Circuit, Greenway (TG007B)

Rain garden north of Holy Family Primary School, Weathers Street, Gowrie (TG018)

For more information visit the Your Say website.

## **Feedback summary**

### **Priority projects**

The rain gardens in Fadden Pines Reserve (TG029) generated the most interest. This is already a popular recreational space, with users welcoming the increase in amenity.

Some suggested other sites for projects in addition to those identified. Many highlighted existing issues around pollution, particularly general rubbish that finds its way into waterways. They also identified a need for community education to encourage people to take personal responsibility for the quality of water.

Operation and maintenance of the infrastructure post-construction (including graffiti) were raised as a concern. Some asked questions about access and parking.

### **Reserve projects**

There was very little feedback on the reserve projects. Feedback was supportive and related to the increased amenity.

### **Action taken**

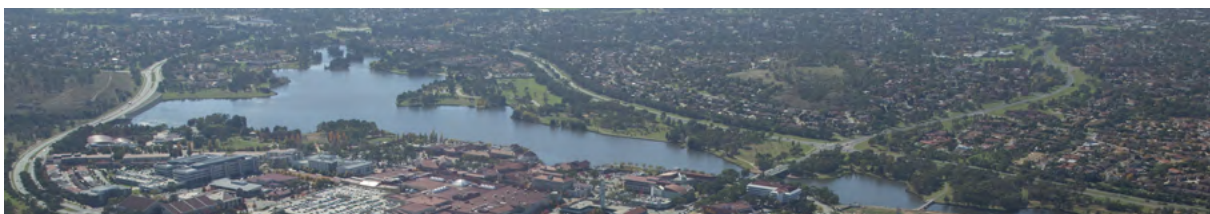
The project team advised that, although we would like to be in a position to look more closely at additional sites, they fall outside the project scope agreed by the Commonwealth Government.

During the detailed design phase vandal resistant material (no timber) will be selected. Works will be reconfigured to improve visibility, reduce opportunities for vandalism, and discourage inappropriate vehicular access and parking.

ACT Healthy Waterways includes a program to raise awareness about water quality issues and how residents, businesses and visitors can help look after our waterways.

Regarding maintenance, the ACT Government has undertaken to fund the operation and maintenance of the infrastructure.

For a more detailed summary of comments and responses, see Appendix A.



# YARRALUMLA CREEK CATCHMENT

**538 people viewed the plans online<sup>1</sup>**



**50 people attended drop-in session**



**72 comments received**



**35 positive comments or questions received<sup>2</sup>**

<sup>1</sup> Unique visits to the Your Say website.

<sup>2</sup> Does not include conversations with people who attended the drop-in session or community meetings.

Nor does it include telephone conversations or email exchanges between stakeholders or members of the community and the project team.

## Key facts

- Highly urbanised with only small remnant areas of nature reserve.
- Older network of stormwater pipes and concrete-lined channels, designed to transfer water out of the area as quickly as possible, result in fast-flowing run-off capable of causing rapid soil erosion.
- Water flowing from the stormwater drains is of poor quality, containing soil and sediment, organic matter (leaves and garden waste) and animal faeces.
- Hard surfaces like roofs, roads and paving transport pollutants and nutrients into the stormwater system, even during light rain.
- The main waterway, Yarralumla Creek, discharges high sediment and nutrient loads into the Molonglo River.

## Expected benefits

- The priority projects will remove 2,388,980 kg/year of suspended solids, 333 kg/year of phosphorus and 2018 kg/year of nitrogen from Yarralumla Creek waterways.
- The frequency and severity of erosion in Yarralumla Creek will be reduced and erosion in the lower reaches will be stabilised.
- Other benefits include improved open space, more recreational areas and the potential for irrigation of local sporting fields.

## Projects

### **Pond and potential stormwater use, Athllon Drive, Mawson (YA020):**

A new pond will be constructed opposite Marist College to capture stormwater which may be used for irrigation. The project will include landscaping, like understorey planting, which will improve the existing open space.

### **Rain garden, Reynolds Street, Curtin (YA012):**

A rain garden in the open space between walking paths in Reynolds Street will enhance the area and increase its appeal as a recreational space for the local community. The site will be landscaped to incorporate vegetation and filtering media to remove nutrients and sediment.

### **Creek stabilisation, Yarralumla Creek, Lady Denman Drive, Yarralumla (YA001):**

The project will involve stabilising and revegetating the banks of Yarralumla Creek where it enters the Molonglo River just downstream of Scrivener Dam. The lower banks will be landscaped with rockwork to prevent ongoing erosion which is a significant problem. The upper banks will be revegetated to improve stability and filter run-off.

### **Pond and stormwater use, corner of Wilkins and Beasley Street, Mawson (YA025):**

A new pond at the Mawson District Playing Fields will enhance the outdoor sports and recreation area and offer the potential to use the water to irrigate the playing surfaces. The area will be landscaped to improve amenity and habitat diversity. The site has been chosen to minimise the removal of existing vegetation.

### **Rain garden, Flood Memorial site near Service Street, Curtin (YA016):**

The highly visible open area in the Yarra Glen arterial corridor near Service Street in Curtin will be the site for a new rain garden. An existing cycle path will be realigned to go around the garden. The area will be landscaped to incorporate vegetation and filtering media to remove nutrients and sediment from stormwater.

## Reserve project

Rain garden, corner of Plunkett Street and Childe Place, Chifley (YA028)

For more information visit the Your Say website.

## Feedback summary

### Priority projects

Early feedback indicated concern among those living around the planned rain garden at Reynolds Street, Curtin (YA012). Vocal opponents mobilised the immediate community and, as a result, there was significant opposition at the beginning of the consultation period.

Some of their concerns stemmed from a misunderstanding about the nature of a rain garden and were amplified by the neighbourhood's experiences with periodic nuisance flooding on the proposed site. Many assumed there would be permanent pooling water, thereby attracting mosquitoes and snakes, exacerbating flooding and presenting a drowning risk for children. Those fears were confounded when peers referred to existing wetlands as an example of the type of treatment proposed.

As local residents and concerned citizens made their own investigations, with many attending a drop-in session, support for the project grew.

There was general support for the other projects in this catchment and many people asked questions to gain a better understanding of the detail. Queries about operation and maintenance post-construction were raised, others were keen to retain and add to the amenity proximate to each site and some raised concerns about pooling water.

## Reserve project

There was very little feedback on the reserve project aside from suggestions to use it as a replacement site for the Reynolds Street rain garden.

### Action taken

The project team focussed on providing accurate information and encouraged people to attend a drop-in session where they could talk directly to the project and design teams.

Queries about increased flood risk, pooling water and drowning, an increase in mosquito and snake populations, and a decrease in play areas particularly for children at YA012, were all addressed in an effort to allay concerns. While this increased support for the project, residual resident concerns exist.

Taking into account the concerns of residents and the relatively close proximity of YA012 to homes compared to other projects, this project will not be progressed and a replacement project will be considered.

All suggestions relating to design (other projects in this catchment) were passed on to the design team for their consideration when preparing plans for development application.

For a more detailed summary of comments and responses, see Appendix A.



# WEST BELCONNEN CATCHMENT



## Key facts

- Includes grazing land, rural areas and some urban development.
- Water quality problems are generated upstream in the Gungahlin area and include high levels of nutrients and suspended solids, largely a result of rainwater running through areas cleared for housing construction.
- Proposed housing developments in West Belconnen will put additional pressure on water quality in the area.
- When it rains the flow of water through the catchment can be relatively large. This can have a significant effect on water quality in Lake Ginninderra and the Murrumbidgee River.
- Most of the water drains, with minimal treatment, into Ginninderra Creek then into the Murrumbidgee River.

## Expected benefits

- The priority projects will remove 112,300 kg/year of suspended solids, 158 kg/year of phosphorus and 804 kg/year of nitrogen from West Belconnen waterways.
- Other benefits include enhanced open spaces, an increase in the diversity of the area's natural habitat and opportunities for recreation.

## Projects

### **Wetlands, Croke Place, McKellar (WB009):**

A series of wetlands will be constructed in the open space next to the northern bank of Ginninderra Creek, downstream of Lake Ginninderra. Flows from residential areas will move through the wetlands for treatment. In addition to helping maintain water quality in the creek downstream of the lake, the wetlands will add to the amenity and ecology of the area.

### **Wetlands and potential stormwater use, Corner of Krefft Street and Barnard Circuit, Florey (WB008):**

Located in open space between St Francis Xavier College and Krefft Street, the new wetland will help improve water quality by slowing stormwater and trapping sediment and nutrients.

Some of the captured and treated stormwater may be used to irrigate the St Francis Xavier College oval. Landscaping, including understorey planting, will improve the existing open space and provide opportunities for recreation and the enjoyment of nature.

## Reserve projects

Wetland, corner of Ginninderra Drive and Copland Drive, Melba (WB004)

Drain naturalisation / swale, Tattersalls Crescent, Florey (WB010)

Wetland between Shakespeare Crescent, Fraser and Halls Creek (WB013)

For more information, please visit the Healthy Waterways (Basin Project) Your Say website.

## Feedback summary

### Priority projects

Many people queried why there are no projects upstream of Lake Ginninderra or further downstream closer to the Murrumbidgee River.

There was general support for both projects and some strong opinions about plant selection - what should be retained, removed and planted. Questions also arose about the seasonal wetting and drying of the wetlands and the effect on mosquito populations.

Maintenance post-construction was a concern.

### Action taken

The project team advised that a comprehensive assessment process identified that infrastructure in Ginninderra Creek immediately downstream of Lake Ginninderra would deliver the most effective outcomes for improving water quality.

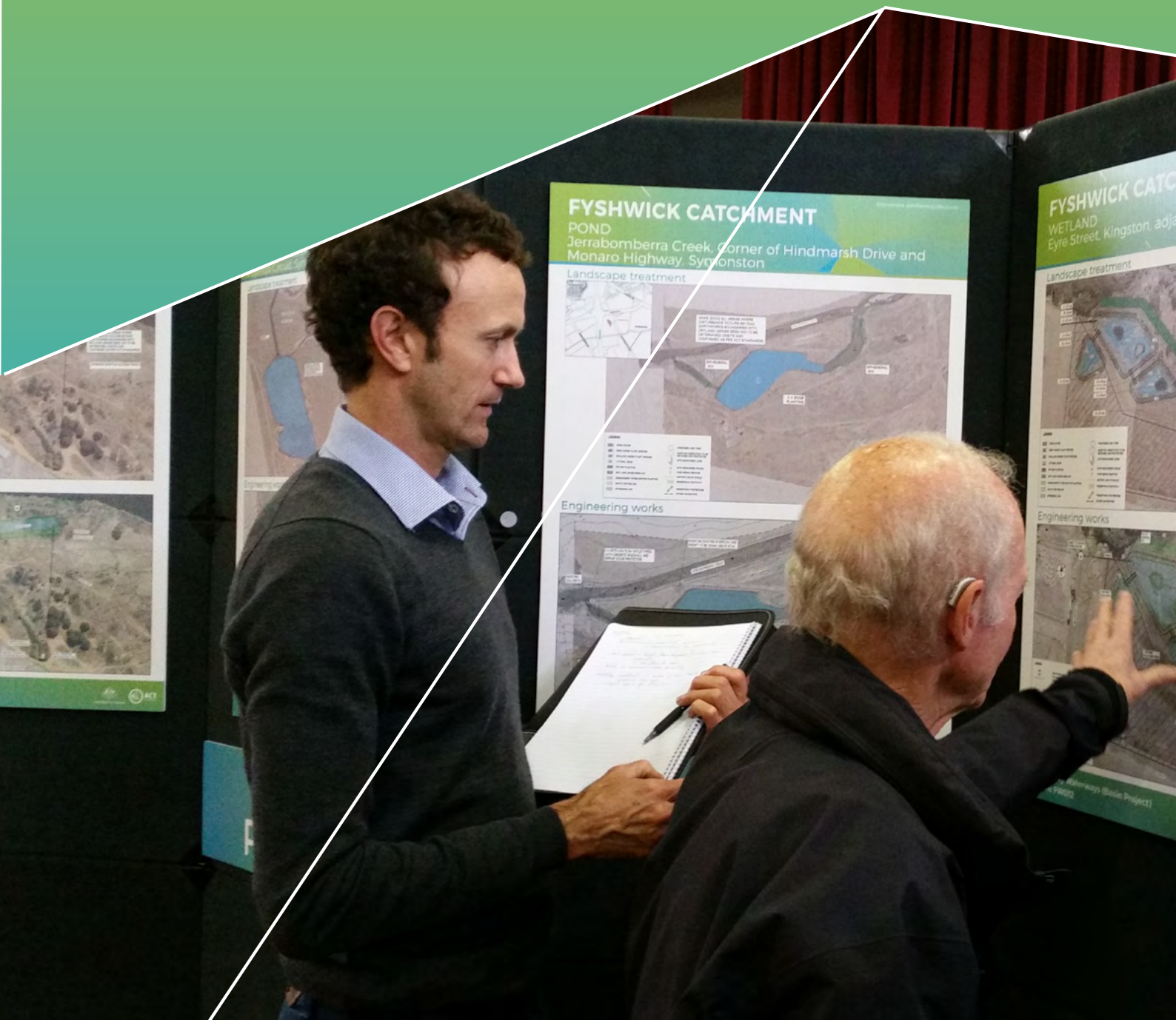
Regarding maintenance, the ACT Government has undertaken to fund operation and maintenance of the infrastructure.

### Reserve projects

There were no comments received about the reserve projects in the West Belconnen catchment.

# APPENDIX A

## SUMMARY OF KEY ISSUES ARISING FROM CONSULTATION



## General comments

Project description	Summarised comments	Responses and actions
Comments about water quality treatments or Basin Project in general.	<ul style="list-style-type: none"> <li>• Vegetated floating islands in wetlands should be used as a visible and effective way to improve water quality.</li> <li>• Independent Competition and Regulatory Commission (ICRC) - new water rates – not supported.</li> <li>• Clarification sought on whether the project could fund infrastructure outside of the priority catchments.</li> <li>• Shelter for birds should be provided away from the shoreline, eg. floating islands in wetlands and ponds.</li> <li>• Concern that ponds and wetlands emit odours during dry spells.</li> <li>• How will projects be sequenced?</li> <li>• Clarification sought on who has responsibility for project funding and delivery of works.</li> </ul>	<ul style="list-style-type: none"> <li>• A range of water treatment options – including floating islands – were considered during the assessment of sites. Subsequent selections reflect the most efficient and cost-effective methods for reducing harmful nutrients in stormwater.</li> <li>• We encouraged anyone concerned about rates policy to make a submission to the ICRC.</li> <li>• Although we would like to be in a position to fund infrastructure elsewhere, we can only work within the scope of the project as agreed by the Commonwealth Government.</li> <li>• Construction of the first projects is expected to begin in 2017. The order in which they unfold will depend on opportunities to generate greater value and efficiencies by combining work on various projects and site and seasonal constraints.</li> <li>• ACT Healthy Waterways (Basin Project) is a joint initiative between the Australian and ACT governments. The project is budget funded through a signed agreement between the two governments.</li> <li>• The work will be contracted out. The ACT Government is currently working through this process.</li> </ul>

## Lower Molonglo catchment

Project description	Summarised comments	Responses and actions
Wetlands between Cotter Road and Dixon Drive, Duffy (LM013)	<ul style="list-style-type: none"> <li>• Comments supportive – increases amenity and recreational opportunity, habitat, educational opportunities.</li> <li>• Seating to accommodate visiting students from local schools.</li> <li>• Include off-street parking and parking bays.</li> <li>• Bicentennial National Trail was marked in the wrong place on the map.</li> <li>• How much water would remain in the wetlands during drought / dry summers.</li> <li>• Interaction between the proposed works and the local BMX riders who use the track.</li> <li>• Plant additional trees in adjacent area.</li> <li>• Increased pedestrian traffic – need to include paths to accommodate commuting cyclists (high speed vs. pedestrians).</li> <li>• Plans for ongoing maintenance post-construction.</li> </ul>	<ul style="list-style-type: none"> <li>• Design specific comments have been passed on to our design team for their consideration when developing plans for development approval.</li> <li>• The wetlands will include several deep ponds that will store water to tide the wetlands over dry summers. The optimum size of these ponds will be calculated during the detailed design phase.</li> <li>• The proposed wetland will leave the BMX track undisturbed.</li> <li>• Although we would like to be in a position to fund tree planting in adjacent areas, this work is outside the project scope. We can only work within the scope of the project as agreed by the Commonwealth Government.</li> <li>• There are no plans to change or improve existing paths.</li> <li>• The wetlands will have a routine maintenance program. We anticipate that the gross pollutant traps will be serviced on a three month interval, with sediment ponds typically cleaned out on a five year interval.</li> <li>• The ACT Government has committed to fund operation and maintenance of assets constructed as part of the Basin Project.</li> </ul>
Rain garden near De Graaff Street, Holder (LM010) (R)	<ul style="list-style-type: none"> <li>• Upgrade existing playground.</li> <li>• Provide better access for people with disability and people with prams.</li> <li>• Retain open space for active recreation.</li> </ul>	<ul style="list-style-type: none"> <li>• Design specific comments have been passed on to our design team for their consideration when developing plans for development approval.</li> <li>• Note this is a reserve project and will go ahead only if any of the priority options are no longer considered viable or unexpected savings are made in completing the priority projects.</li> </ul>

## Upper Molonglo catchment

Project description	Summarised comments	Responses and actions
Rain gardens at Alanbar Street and Kenneth Place, Karabar (UM004)	<ul style="list-style-type: none"> <li>Maintain pedestrian desire line.</li> <li>Ensure native plant selection.</li> </ul>	<ul style="list-style-type: none"> <li>Design specific comments have been passed on to our design team for their consideration when developing plans for development approval.</li> <li>The project team will be guided by local knowledge, local government regulations and practicality in the selection of plants. In general, our approach is to identify species known to have grown in the vicinity, obtain advice about planting and establishing these under present conditions and use only seeds, roots and rizomes germinated or struck locally.</li> </ul>
Wetland on the reserve adjacent to Morrisett Street, Queanbeyan (UM015)	<ul style="list-style-type: none"> <li>Construct open channels with rocks to encourage fish movement.</li> <li>Include Aboriginal interpretation and seating area.</li> <li>Relocate the wetland further uphill to give more solid land between the wetland and the river.</li> <li>Ensure native plant selection.</li> <li>Include gross pollutant trap (GPT) to trap and reduce rubbish and slow flows.</li> <li>Banks need to be stabilised.</li> <li>Structural mitigation works required to protect the wetland from flooding.</li> <li>Retain some open space for active recreation.</li> </ul>	<ul style="list-style-type: none"> <li>Design specific comments have been passed on to our design team for their consideration when developing plans for development approval.</li> <li>The project team will be guided by local knowledge, local government regulations and practicality in the selection of plants. In general, our approach is to identify species known to have grown in the vicinity, obtain advice about planting and establishing these under present conditions and use only seeds, roots and rizomes germinated or struck locally.</li> <li>The project will include a gross pollutant trap (GPT) near the proposed diversion pit. A substantial proportion of litter and other gross pollutants are carried in the initial phase of storms or 'first flush'. This first flush will be diverted toward the new GPT and captured for removal and disposal. This will substantially reduce the quantity of gross pollutants entering the river.</li> <li>We are aware of the dynamic nature of the river at this location and the constraints. Although this is a natural deposition site, we acknowledge that river turbulence and temporary eddies may cause local scouring and dumping of sediment.</li> <li>During the detailed design phase, we anticipate that input from a river geomorphologist will guide the selection of plant types and locations as well as any structural mitigation works to protect the new wetland.</li> <li>The infrastructure will not take up the entire area available, retaining open space for active recreation.</li> </ul>

## Fyshwick catchment

Project description	Summarised comments	Responses and actions
Wetland and potential stormwater use, Matina Street, south of Mill Creek Oval, Narrabundah (FW019)	<ul style="list-style-type: none"> <li>Supportive comments - improved amenity, water quality, habitat, recreational opportunity, promotion of a sense of community.</li> <li>Make paths stroller and bike/scooter friendly.</li> <li>Cycle track to connect to Kingston bike paths and wider bike network (including connecting to the lake).</li> <li>On-site rubbish bins and water bubbler.</li> <li>Walking path to connect wetland to the lake.</li> <li>Extent of seating to be provided.</li> <li>Include provision for dogs to swim in the wetland.</li> <li>Duration of construction.</li> </ul>	<ul style="list-style-type: none"> <li>Design specific comments have been passed on to our design team for their consideration when developing plans for development approval.</li> <li>There are no bubblers in the plans as there is no potable water on the site.</li> <li>Bench seating is planned for two locations around the site.</li> <li>The wetland will not be in a dog off-leash area.</li> <li>Scheduling of construction for individual projects has not yet been undertaken. However, we anticipate construction on this site will take 12-18 months due to the size of the wetland and its proximity to the creek.</li> </ul>
All projects	<ul style="list-style-type: none"> <li>Canberra Airport concerned about the potential for bird-strike.</li> </ul>	<ul style="list-style-type: none"> <li>Risk assessments in relation to bird-strike will be conducted for all planned projects in the Fishwick catchment.</li> </ul>

## Lake Tuggeranong catchment

Project description	Summarised comments	Responses and actions
General comments	<ul style="list-style-type: none"> <li>Plan for ongoing maintenance post-construction.</li> <li>Include an upgrade to the existing ponds in Fadden Hills.</li> <li>Need for a public education program to change people's 'bad' habits.</li> <li>More street sweeping.</li> <li>Consult outside the ACT and with youth.</li> <li>Use a water filtration recycling system.</li> </ul>	<ul style="list-style-type: none"> <li>The ACT Government has committed to fund operation and maintenance of assets constructed as part of the Basin Project.</li> <li>The ponds in Fadden Hills are outside the scope of this project, as is a water recycling filtration system.</li> <li>ACT Healthy Waterways includes funding for a program to raise awareness about water quality issues and how residents, businesses and visitors can help look after our waterways.</li> <li>The Basin Project includes two projects across the border in NSW (Queanbeyan and Karabar) to reduce pollutant load upstream. The project is also part of a Commonwealth Government initiative to improve water quality in the Murray-Darling Basin and involves all the Basin states.</li> <li>The project team engaged with a number of community organisations, including the Youth Coalition of the ACT.</li> </ul>
Rain gardens and potential stormwater use, Athllon Drive between Langdon Avenue and Fincham Crescent, Wanniasa (TG008)	<ul style="list-style-type: none"> <li>Include a mesh barrier across drains in Wanniasa streets to collect rubbish and organics.</li> <li>Conduct a program to educate residents about gutters and drains and where water goes.</li> <li>Better rubbish collection at Wanniasa High School to assist water quality at this site.</li> </ul>	<ul style="list-style-type: none"> <li>Gross pollutant traps are commonly used throughout the ACT. They are effective in removing a range of pollutants from waterways, including rubbish, coarse sediment and litter.</li> <li>ACT Healthy Waterways includes funding for a program to raise awareness about water quality issues and how residents, businesses and visitors can help look after our waterways.</li> <li>Concerns about the management of rubbish at Wanniasa High School passed on to the ACTSmart Sustainable Schools Project Officer.</li> </ul>
Rain garden, Upper Stranger Pond, Isabella Plains (TG010)	<ul style="list-style-type: none"> <li>Risk of graffiti.</li> <li>Better fencing to prevent vehicle access to the water's edge.</li> <li>Prevent people from littering.</li> <li>Ensure proposed paths are maintained.</li> </ul>	<ul style="list-style-type: none"> <li>During the detailed design phase we will select materials that are vandal resistant (no timber) and reconfigure the works to improve visibility and reduce opportunities for vandalism.</li> <li>The proposed works do not include fencing. Our approach is to encourage greater use of the area by the community. A well used space is less prone to vandalism and littering.</li> <li>Although the rain garden will enable public access, the surface will not support a moving vehicle. Any attempt to cross it will likely lead to bogging. This should dissuade individuals from accessing the existing pond by means other than walking.</li> <li>The ACT Government has committed to fund operation and maintenance of assets constructed as part of the Basin Project.</li> </ul>

## Lake Tuggeranong catchment

Project description	Summarised comments	Responses and actions
Wetland, Isabella Pond, Drakeford Drive, Monash (TG011C)	<ul style="list-style-type: none"> <li>Impact of the weir upgrade on flood mitigation.</li> <li>Flood design levels used in planning.</li> <li>Storm flows versus low flows.</li> <li>The wetlands should be downstream of the weir.</li> <li>Plan for ongoing maintenance post-construction.</li> </ul>	<ul style="list-style-type: none"> <li>The Basin Project team will take responsibility for the construction of the south wetland as part of the much larger upgrade to the Isabella Weir spillway. Drawings were included in the consultation for information only and because of its relationship to this project.</li> <li>Comments about this project have been referred to Chief Minister, Treasury and Economic Development Directorate.</li> </ul>
<p><i>This project is funded directly by the ACT Government and has been progressed as part of the broader Isabella Weir spill-way upgrade works (for flood mitigation) being undertaken by Chief Minister's, Treasury and Economic Development Directorate. A development application has been approved. This covers both the weir and the wetland.</i></p>		
Rain garden and potential stormwater use, open space north of Isabella Drive near Kirkcaldie Circuit, Fadden (TG023)	<ul style="list-style-type: none"> <li>Error in project description relating to the location of the asset.</li> <li>Open space between Isabella Dr and Kirkcaldie Circuit is the preferred location.</li> <li>Vehicle access to the site.</li> </ul>	<ul style="list-style-type: none"> <li>Error in asset descriptor corrected.</li> <li>The asset was originally proposed for the open space between Isabella Dr and Kirkcaldie Cct. It was moved for several reasons, including: the need to remove a stand of pines, the slope and width of the site and concerns about encountering hydrocarbon contamination.</li> <li>The intent is to have a single vehicle access point on Isabella Drive, coinciding with the location of the maintenance bay for the gross pollutant trap. Access will be restricted to left in, left out.</li> </ul>
Rain gardens, Fadden Pines Reserve, Fadden (TG029)	<ul style="list-style-type: none"> <li>Informal vehicle access should be restricted, cause of erosion.</li> <li>Address access and parking issues.</li> <li>Upgrade existing toilets.</li> <li>Project may increase mosquito numbers.</li> <li>Gravel on nature strips harmful to stormwater.</li> <li>Need an education program about water quality.</li> <li>Effective ongoing maintenance critical.</li> </ul>	<ul style="list-style-type: none"> <li>Design specific comments have been passed on to our design team for their consideration when developing plans for development approval.</li> <li>The areas immediately surrounding the projects proposed will be landscaped to enhance amenity which will help with erosion on informal tracks.</li> <li>The toilets are outside the scope of this project.</li> <li>Mostly dry, rain gardens look very much like gardens on the surface but have a filtration system underground that reduces the levels of nutrients in stormwater before it re-enters the drainage system. As such, they do not feature regular or extended periods of surface pooling or ponding of water which generally means that, given larvae's 7-12 day lifecycle, mosquitoes are not an issue.</li> <li>ACT Healthy Waterways includes funding for a program to raise awareness about water quality issues and how residents, businesses and visitors can help look after our waterways.</li> <li>The ACT Government has committed to fund operation and maintenance of assets constructed as part of the Basin Project.</li> </ul>

## Yarralumla Creek catchment

Project description	Summarised comments	Responses and actions
Creek stabilisation, Yarralumla Creek, Lady Denman Drive, Yarralumla (YA001)	<ul style="list-style-type: none"> <li>• Include a path to allow access to lower section of creek plus seating, creating an opportunity for passive recreation and increased community ownership.</li> <li>• Extend works to the stone basket work below the gross pollution trap.</li> <li>• Retain access along the creek for walkers.</li> </ul>	<ul style="list-style-type: none"> <li>• Design specific comments have been passed on to our design team for their consideration when developing plans for development approval.</li> <li>• Works will be within the channel or 5-10m of the banks where stabilisation is required. There may be some access issues during construction but longer term the works are unlikely to impact access.</li> </ul>
Rain garden, Reynolds Street, Curtin (YA012)	<ul style="list-style-type: none"> <li>• Explain what a rain garden is and how it works.</li> <li>• Comparisons to wetlands in Dickson, Lyneham and O'Connor.</li> <li>• Plans for ongoing maintenance post-construction.</li> <li>• Upgrade the existing playground but retain rocks.</li> <li>• Future of the existing stormwater drains.</li> <li>• New planned playground should be 'nature play', planted with deciduous trees and with path extending through.</li> <li>• Put power lines on the western side underground.</li> <li>• Lack of consultation and detail provided on the website.</li> <li>• Methodology used to select sites.</li> <li>• Increased flooding as a result of the proposed works.</li> </ul>	<ul style="list-style-type: none"> <li>• A rain garden (or bio retention system) is not a pond or a wetland. It is a depression densely planted with natives, sedges and grasses, perennials and flowers. There is no extended ponding of still water (infiltration is 200mm per hour) and the maximum depth of water during storms is 30cm. Rain gardens are dry most of the time and typically hold water for no more than 3-4 hours after a rainfall event.</li> <li>• The ACT Government has committed to fund operation and maintenance of assets constructed as part of the Basin Project.</li> <li>• Design specific comments have been passed on to our design team for their consideration when developing plans for development approval.</li> <li>• The website only carries the overview images of the rain garden. A more comprehensive set of drawings was available at the drop-in session and are still available for examination and explanation at the Environment, Planning and Sustainable Development Directorate offices in Dickson.</li> <li>• Consultation with the community has been vital at all stages of this project since it commenced in early 2014. From the original list of over 500 sites, 188 projects were tested with the community in July 2015. All comments received during the current consultation period which ended on 30 September will be considered. There will be an additional opportunity to provide comment as part of the development approval process. Site signs have been installed.</li> <li>• Sites were selected using a course filter elimination process followed by a fine filter analysis. In prioritising the options, facts such as water quality performance, cost, amenity value, feasibility, environmental and heritage values were taken into account. The Reynolds Street site emerged as one of the top 25 sites across the entire Project.</li> </ul>

## Yarralumla Creek catchment

Project description	Summarised comments	Responses and actions
Rain garden, Reynolds Street, Curtin (YA012) (Continued)	<ul style="list-style-type: none"> <li>Relocate the rain garden to a broad acre site / away from local residences / closer to existing stormwater drains.</li> <li>Loss of green and open play space.</li> <li>Plant deciduous trees for summer shade, plant lots of natives.</li> <li>Potential for the rain garden to increase mosquito populations, number of snakes visiting the area.</li> <li>Drowning risk, especially for children.</li> <li>Odours during dry periods, and the risk of bacteria, fungi and moulds.</li> </ul>	<ul style="list-style-type: none"> <li>The sites chosen for the stormwater quality improvement works are generally located in open spaces that were established to be multi-functional. The 'park' at Reynolds street is a stormwater drainage corridor, a cycle-walking corridor, a utility services corridor, green space separating residential precincts and open space for informal activities. The proposed rain garden is consistent with the stormwater drainage function and has been located to take advantage of existing stormwater pipes and to address constraints associated with other services e.g. sewer, water, telecommunications.</li> <li>The source of the water quality problem is local; from near the Reynolds Street park and uphill and this asset will help to attack a large problem emerging in the Murrumbidgee.</li> <li>The existing stormwater drains will be retained. The proposed rain garden will augment capacity, not replace it. Currently there are no stormwater treatment works in the catchment above Reynolds Street. Contaminated stormwater is discharged directly into Yarralumla Creek and subsequently into Molonglo River.</li> <li>The existing drainage system is designed to carry the normal run-off underground and the 'unusual' run-off (e.g. during heavy storms) above ground. Only a small proportion is diverted for treatment (the initial run-off that contains the bulk of contaminants). By diverting it into a short-term storage and treatment area, the volume of flowing water in a flood is reduced.</li> <li>In developing the plans, the design team recognised the site's value as a play space for families and children. Although the rain garden may change the types of activities undertaken within its footprint, some open space will be retained.</li> <li>Within the treatment systems across the Basin Project sites (including the site in Reynolds St) all plantings will be native. Within the broader associated landscaping, planting will be a mix of native and non-native species to suit the context of the site and anticipated use.</li> <li>Rain gardens are designed to absorb water, not to create ponds. Rain garden will not hold water long enough for mosquito larvae to complete their 7-12-day life cycle. A well-designed rain garden with mature plants will not have standing water in it after 3-4 hours; all the water will have soaked into the garden.</li> </ul>

## Yarralumla Creek catchment

Project description	Summarised comments	Responses and actions
Rain garden, Reynolds Street, Curtin (YA012) (Continued)		<ul style="list-style-type: none"> <li>Snakes avoid active non-fringe urban areas, like the green space near Reynolds Street. They are far more attracted to a ready supply of rodents so compost heaps and chicken coops are far stronger lures than a rain garden full of lizards and frogs. Appropriate vegetation mixes, landscaping and maintenance regimes will help manage this risk.</li> <li>We are unaware of any drowning incidents in rain gardens in Australia. Rain gardens are normally dry and have a maximum depth during storms of 30cm. They are fitted with an overflow device to ensure that this limit is not exceeded and the water will begin to recede once run-off has stopped.</li> <li>Following a rain event, the rain garden will dry out quickly thanks to infiltration and under-drains that will return the treated water to the existing drainage system. The free-draining course soils within the rain garden are more efficient at draining water than the sandy-clay soils in the existing parkland. The rain garden will smell no worse than your neighbours' front gardens.</li> <li>Taking into account the concerns of residents and the relatively close proximity of the site to homes compared to other projects, this project will not be progressed and a replacement project will be considered.</li> </ul>
Rain garden, Flood Memorial site near Service Street, Curtin (YA016)	<ul style="list-style-type: none"> <li>Source of water for the rain garden.</li> <li>Plant and tree selection.</li> <li>Wildlife, particularly snakes, will be attracted to the area.</li> <li>Former tip site the preferred location for the project.</li> <li>Maintain walking and cycling links.</li> <li>Fix concrete drain to reduce flood potential.</li> </ul>	<ul style="list-style-type: none"> <li>Water for the rain garden will be diverted from the existing drainage pipes near Launceston Street.</li> <li>The rain garden will not hold any permanent water. It will include free-draining soils with under drains. The plants will be selected based on their ability to survive the extended dry spells we frequently experience in Canberra and, as such, we do not expect them to be particularly attractive to frogs and you shouldn't see any more snakes. Also, the general plant type is not normally preferred by kangaroos.</li> <li>The adjoining open space off Holman Street was considered. Geotechnical investigations confirmed the local 'former tip' anecdote. As the rain garden requires an excavation of about 1.2m, we consider it best to avoid disturbing the buried waste.</li> <li>Across the program we aim to maintain the existing cycle and walking connections although some will need slight alteration. We have gone to lengths to minimise disturbance. In this instance we have moved the rain garden about 50m north of the optimum position to avoid any interference with the flood memorial.</li> <li>Regarding the existing concrete channel, flow velocities and local flooding; our project funding is for improvement of water quality only; the issue of flood reduction is outside of our scope.</li> </ul>

## Yarralumla Creek catchment

Project description	Summarised comments	Responses and actions
Pond and potential stormwater use, Athllon Drive, Mawson (YA020)	<ul style="list-style-type: none"> <li>Main north-south public transport corridor potentially conflicts with this project.</li> <li>Nature of treatment of existing stormwater drains.</li> <li>Still water will attract unwanted insects and mosquitoes and make the pond 'sad and sorry'.</li> </ul>	<ul style="list-style-type: none"> <li>Under the Woden Town Centre Master Plan (November 2015) the land is identified as part of the Athllon Drive precinct, with the prime focus being residential and recreation uses. It allows for medium and high-density residential development that is supported by areas of open space.</li> <li>The existing stormwater drains will continue to provide flood protection between Mawson and the Yamba Drive roundabout. If the proposed pond were constructed within the existing drain, any large flows in the drain would scour out the sediments and carry them into the Molonglo River. To avoid this, it is essential that the pond is built above the normal flood levels. This enables sediment to collect and then be removed, dried and taken away.</li> <li>We anticipate that water will flow in and out of the pond continuously.</li> </ul>
Pond and stormwater use, corner of Wilkins and Beasley Street, Mawson (YA025)	<ul style="list-style-type: none"> <li>Plans for ongoing maintenance post-construction.</li> <li>Education program needed for businesses and households about activities that affect water quality.</li> <li>Timing of construction.</li> <li>Retain existing bus shelter.</li> <li>Replant some of the trees that are to be removed.</li> <li>Expand playground.</li> <li>Location and intention of bench seating.</li> <li>No additional parking spaces be provided.</li> <li>Provide a lockable truck parking bay.</li> <li>Type of surface proposed for the maintenance tracks.</li> <li>Run-off from Mawson Medical Centre needs to be managed appropriately.</li> </ul>	<ul style="list-style-type: none"> <li>Design specific comments have been passed on to our design team for their consideration when developing plans for development approval.</li> <li>The ACT Government has committed to fund operation and maintenance of assets constructed as part of the Basin Project.</li> <li>ACT Healthy Waterways includes funding for a program to raise awareness about water quality issues and how residents, businesses and visitors can help look after our waterways.</li> <li>The existing bus shelter will be retained and the proposed benches are for viewing the pond.</li> <li>Advice suggests that the existing tree would not survive replanting. Landscaping will complement the existing character of the area.</li> <li>There is no plan to expand the existing playground. However, an upgrade may be an option.</li> <li>Locking the truck parking bay poses a safety risk. However, appropriate signage will be erected to dissuade people from using the space for parking.</li> <li>Maintenance access tracks will be constructed using concrete, with the finished surface to be determined as part of the detailed design process.</li> <li>Issues concerning run-off from the Mawson Medical Centre are outside the scope of this project.</li> </ul>

## West Belconnen catchment

Project description	Summarised comments	Responses and actions
General comment	<ul style="list-style-type: none"> <li>No projects upstream of Lake Ginninderra or further downstream closer to the Murrumbidgee River</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring shows that water quality coming out Lake Ginninderra is good as the Lake acts as a sediment basin protecting downstream receiving waters. The catchment below Lake Ginninderra outflow has been targeted by the Basin Project as it is the area that has most impact on the Murrumbidgee River. This catchment drains water directly from the surrounding urban areas with minimal treatment.</li> </ul>
Wetlands and potential stormwater, corner of Krefft Street and Barnard Circuit, Florey (WB008)	<ul style="list-style-type: none"> <li>Retain existing paths / walkways.</li> <li>Retain silver poplars and do not plant casuarinas.</li> <li>Remove poplars and cottonwoods and plant casuarinas.</li> <li>Wetlands will increase mosquito numbers.</li> <li>Project not needed as the environment is already good.</li> <li>Infrastructure will increase risk that water will become dirty.</li> <li>Effects of a dry summer on water levels.</li> <li>Occasional drying of wetlands beneficial.</li> <li>Relocate project closer to the outlet.</li> <li>Ongoing maintenance post-construction.</li> </ul>	<ul style="list-style-type: none"> <li>Design specific comments have been passed on to our design team for their consideration when developing plans for development approval.</li> <li>The existing cycle/walking path on the eastern side of the wetland will be retained and a new walking path added on the other side. There may be some minor disruption during construction to allow for site access.</li> <li>Poplars (both silver/white and lombardy) are class 4 pest plants in the ACT so are important species for control due to their invasive nature. Development inevitably requires tree removal, some of which will be re-used to create habitat and perching opportunities for birds. The project team aims for minimal disturbance to existing trees and vegetation.</li> <li>The project team will be guided by local knowledge, government regulations and practicality in the selection of plants. In general, our approach is to identify species known to have grown in the vicinity, obtain advice about planting and establishing these under present conditions and use only seeds, roots and rizomes germinated or struck locally.</li> <li>The wetlands will include deep pools designed to hold water during extended dry periods. The optimum size of the ponds will be determined during the detailed design stage. The benefits of fluctuating water levels in constructed wetlands are still being considered. However, occasional drying is known to break the mosquito breeding cycle.</li> <li>The project includes a gross pollutant trap and a sediment pond, designed to remove litter and sediment from stormwater before it enters the wetland, thereby keeping the water as clean as possible.</li> <li>A position closer to the outlet was originally assessed. However the current option is more feasible, will achieve the same water quality outcomes and avoid issues associated with the original plan (insufficient grade, length of pipe required and the associated expense, and the number of underground services that had to be traversed).</li> <li>The ACT Government has committed to fund operation and maintenance of assets constructed as part of the Basin Project.</li> </ul>

## West Belconnen catchment

Project description	Summarised comments	Responses and actions
A series of wetlands, Croke Place, McKellar (WB009)	<ul style="list-style-type: none"> <li>Occasional drying of wetlands beneficial.</li> <li>Ginninderra Creek flooding - affect on wetlands.</li> <li>Retain crab apple grove</li> <li>Reconfigure and relocate project to allow for existing grass fire trials</li> </ul>	<ul style="list-style-type: none"> <li>As these are constructed wetlands, the project team is considering the benefits of occasional drying, essential to the health of natural wetlands and also known to break the mosquito breeding cycle.</li> <li>The wetlands will be subject to inundation at different times.</li> </ul>
Wetland, corner of Ginninderra Drive and Copland Drive, Melba (WB004) (R)	<ul style="list-style-type: none"> <li>John Cleland Cres wrong on map.</li> <li>Retain existing crab apple tree.</li> </ul>	<ul style="list-style-type: none"> <li>Design specific comments have been passed on to our design team for their consideration when developing plans for development approval.</li> <li>Minimal disturbance of existing trees and vegetation is a priority.</li> <li>Note this is a reserve project will only go ahead if any of the priority projects are no longer considered viable or savings are made in their completion.</li> </ul>
Drain naturalisation / swale, Tattersalls Crescent, Florey (WB010) (R)	<ul style="list-style-type: none"> <li>Retain the walking / cycle path near Ginninderra Drive.</li> <li>Maintenance post-construction.</li> </ul>	<ul style="list-style-type: none"> <li>The path will not be affected although there may be some minor disruption during construction.</li> <li>The ACT Government has committed to fund operation and maintenance of assets constructed as part of the Basin Project.</li> <li>Note that this is a reserve project and will only go ahead if any of the priority projects are no longer considered viable or savings are made in their completion.</li> </ul>





