

*Lithgow*  
CITY COUNCIL

# Supplementary State of Environment Report

2018/2019

## About this report

The 2018/19 State of Environment Report provides a summary of key Environment Indicators undertaken in relation to environmental issues and the objectives identified by the community of the Lithgow LGA in the Community Strategic Plan 2030 – Our Place, Our Future. This report should also be read in conjunction with the Lithgow City Council Annual Report – A Year in Review 2016/17, 2016/18 and 2018/19 available on Council's website <http://council.lithgow.com/ipr/>

## Legislation

### **LOCAL GOVERNMENT ACT 1993 - SECT 428A**

#### **State of the environment reports**

##### **428A State of the environment reports**

(1) *The annual report of a council in the year in which an ordinary election of councillors is to be held must include a report (a "state of the environment report") as to the state of the environment in the local government area in relation to such environmental issues as may be relevant to the objectives for the environment established by the community strategic plan (the "environmental objectives").*

(2) *A state of the environment report must be prepared in accordance with the guidelines under [section 406](#).*

(3) *The state of the environment report is to:*

*(a) establish relevant environmental indicators for each environmental objective, and*

*(b) report on, and update trends in, each such environmental indicator, and*

*(c) identify all major environmental impacts (being events and activities that have a major impact on environmental objectives).*

(4) *A state of the environment report for a council's area may be prepared as part of and for the purposes of a state of the environment report for a larger area (such as a region or a catchment management area) and a report for the larger area that includes the required information in respect of the council's area may be included in the council's annual report as the council's state of the environment report.*

## State of Environment Reporting

In 2016/17, Lithgow City Council's Annual Report – A Year in Review was changed to include progress against State of Environment Indicators (to view these documents go to <http://council.lithgow.com/ipr/>. Prior to this Council produced two State of Environment Reports as additional documents in the year of the Ordinary Election 2012 and 2016.

[State of the Environment Report 2012-2016](#)

[State of the Environment Report 2011-2012](#)



NE1.1 - Reduce, reuse and recycle our resources

## NE1.1.1 Provide garbage disposal facilities within the LGA

Lithgow City Council is responsible for the following landfill sites:

Capertee	Glen Davis	Portland
Cullen Bullen	Lithgow	Wallerawang
Angus Place, Meadow Flat, Hampton & Tarana Waste Transfer Stations		

The **kerbside waste collection** service is provided to a number of villages and Lithgow suburbs through a contract between Lithgow City Council and JR Richards. The current domestic service includes the weekly collection of a 240litre MGB for household waste and 240litre MGB for fortnightly recycling collection of standard recyclable items such as glass, aluminum, steel, plastics, paper and cardboard.

The recyclable materials are transported by JR Richards to Poytrade Recycling in Rydalmere, Sydney for further management. Household waste is disposed at the Lithgow Solid Waste Facility. Urban areas with a kerbside service also have access to a bulky waste and green waste collection service throughout the year.

Henry Plant and Equipment Hire is contracted to construct, operate and manage the Lithgow Landfill seven days a week. The scope of works includes controlling the weighbridge, waste placement, compaction and placement of daily, intermediate and final cover, construction of new waste cells and resource recovery activities.

Additional community waste education is being implemented throughout Lithgow to increase recycling and reduce waste to landfill. The volume of waste received at Council landfills is recorded and reported annually. Council provides information to the community via:

- the Waste App (available for download from the App Store or Google Play)
- Lithgow City Council website: <http://council.lithgow.com/>
- Lithgow Waste website [www.lithgowwaste.com.au](http://www.lithgowwaste.com.au)
- Media releases and alerts which are posted on Council's website ([www.council.lithgow.com](http://www.council.lithgow.com)) and facebook page @LithgowCityCouncil

### Links to plans & strategies

- Lithgow Council Waste & Recycling Strategy 2016-2026.

**1215.63t** recycling material collected.

**80%** increase in participation in the environment and waste education program

**210** participants in Greenwaste collection service with **10t** collected

**622** participants in clean-up collection service with **56t** collected

**3,320kg** of chemicals collected in the Netwaste Chemical Collection Service

**43,662t** of waste disposed of at Lithgow Solid Waste Facility

## Comply with the Environment Protection Licenses for Lithgow Solid Waste Facility and Portland Garbage Depot

The EPA conducted a random audit without prior notice of the Lithgow Solid Waste Facility on 3<sup>rd</sup> April 2019. The Audit was part of an Environmental Compliance Audit Program for licensed landfills. As a result of the audit the following non-compliances were identified:

- Code red (significant environment significance) – 0
- Code orange (environmental significance, lower priority) - 0
- Code yellow (lower priority but still important and must be addressed) - 7
- Code blue (no direct environmental significance) - 13

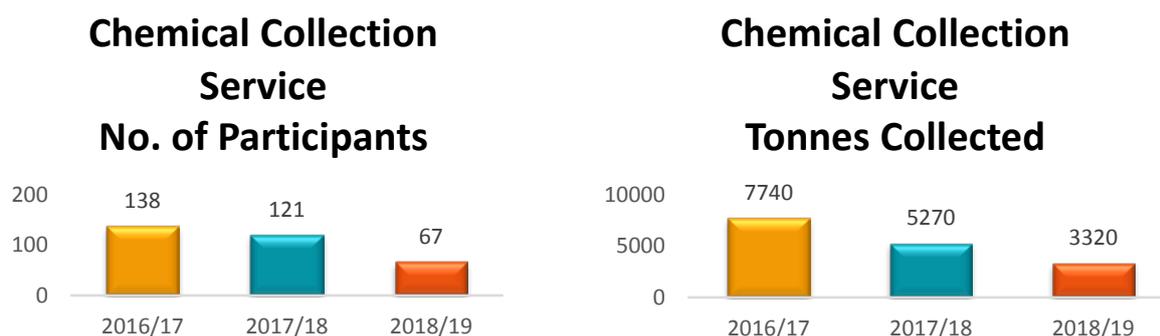
No other incidences of non-compliance have been identified in relation to waste management facilities.

## To fulfil Council's appropriate regulatory authority responsibilities under the Protection of the Environment Operations Act.

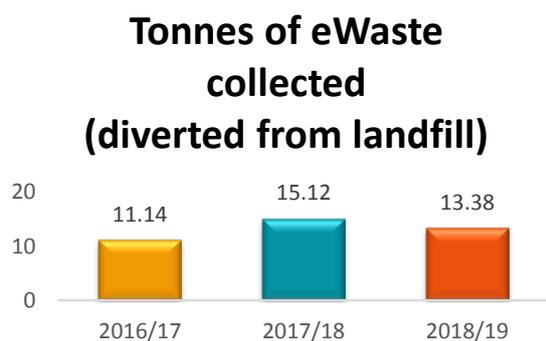
Incidences of non-compliance identified by external authorities, Council Officers or members of the community in relation Protection of the Environment Operations (POEO) Act 1997, are actioned in a timely manner. Throughout the 2018-19 reporting period there were no actions in relation to the POEO Act, however Council Officers continue to monitor activities to ensure the safety of the community and the environment.

## Assist in the provision of the Chemical Collection Service provided by NetWaste

A household chemical collection service was provided on the 7th October 2018, funded by the NSW Environment Protection Authority and supported by NetWaste. This project was well supported by the Lithgow LGA with over 67 residents attending the one-day event. Over 3,320 kg of hazardous household chemicals were collected on the day for safe disposal and/or recycling. Following completion of the Resource Recovery Centre at the Lithgow Landfill the community will have access to Household Chemical disposal facility funded in partnership with the NSW EPA through the Waste Less Recycle More Program.



## Attend meetings and participate in NetWaste Programs



Council has been working closely with NetWaste through the development of waste projects within the LGA. Together we have submitted a number of successful grant applications and engaged a number of contractors through tenders and the quotation process providing significant financial savings to Council. Through regional partnerships Council currently participates in the following programs; environmental monitoring at landfills, scrap metal and e-waste collection, waste oil collection, mattress recycling, along with the annual Household Chemical Collection Service described above.

## Undertake an Environmental Education Program targeting school aged children

The environmental and waste education program has never been more popular with an 80% increase in participation from the previous year. Over 600 students attended the program with educational materials provided on recycling and waste avoidance to students.

Education programs continue to be delivered throughout the LGA promoting the hierarchy of avoidance, reuse, recycle and dispose. Other subjects include 'Wonderful Wiggly Worms', 'Food Glorious Food', 'Litter, Litter Everywhere' & 'Better Get It Sorted'. Council's most recent program the "Nude Food Competition" challenged participants to consider options higher up the Waste Hierarchy model of 'rethink/avoid, reduce, reuse, and recycle' by looking at what waste in their lunchbox can be avoided.

In addition to the schools' program Council offered a composting and worm farm workshop to the community which has been well attended. Residents are provided with information and practical examples on a range of topics, including:

- How composts and worm farms can benefit your garden and reduce your waste
- Setting up your own worm farm or compost system (including a practical demonstration of a 'do it yourself' worm farm)
- What can go into your worm farm or compost system
- Tips for maintaining your worm farm or compost system and solutions for common problems

Council continued a **Recycling Bin Inspection Program (BIP)** across the Lithgow LGA. The BIP aimed to assess recycling bins in Portland, Lithgow, Wallerawang and Bowenfels as a snapshot of current recycling behaviors. Overall, 66% of all inspected recycling bins contained no contamination, up from 63% last year. A big congratulation as 86% of inspected recycling bins contained three or less contaminants. All inspection areas recorded similar results with no clear 'best' or 'worst' performing area.

**66%** of recycling bins contained no contamination

**86%** of recycling bins contained none or minor contaminants

Consistent results across all areas surveyed.

**Halloween** – as one of the year’s largest public events Council works with local business and store holders to share the message of “rethink/avoid, reduce, reuse, and recycle”. Council has a Public Place Recycling Program (PPR) at Halloween with the aim to increase onsite recycling; minimise contamination of onsite recycling bins; and to determine contamination levels in recycling bins and resource loss rates in general waste bins. To support the presence of the recycling bins, two Recycling Rovers were in attendance. The Rovers were responsible for the collection of data on the use of recycling and general waste bins at the event, as well as to provide face-to-face engagement with patrons about correct recycling and waste disposal methods.

Overall, the quality of recycling observed in the recycling bins was of an exceptional standard with 84% of recycling bins exhibiting low or no contamination. Just over half (52%) of the general waste bins inspected displayed ‘moderate’ resource loss (observed recyclables). The most common resource loss item observed overall was ‘plastic containers / cups’ (23%).

## Case Study - Waste Infrastructure Feasibility Study

The object of the project is to identify and assess opportunities to develop waste management infrastructure in the Lithgow LGA.

Following on from the Lithgow Council Waste Strategy, a detailed feasibility study/master plan was identified as necessary to fully investigate all existing waste management services and facilities in the LGA. The investigation would help deliver an integrated facility network that is efficient and effective and provides a quality service to residents, ratepayers and businesses.

The project involves a number of steps:

1. Development of Resource Recovery Centre (RRC) at Lithgow SWF to increase resource recovery and reduce waste going to landfill. The RRC is being developed under a separate project.
2. Reviewing rural landfills with the aim of rationalising sites, meeting increasingly stringent regulatory requirements, improving resource recovery and maintaining a quality service to residents.
3. Reviewing existing landfill capacity at Lithgow landfill to determine timeframe for a new landfill.
4. Based on the life of Lithgow landfill and limitations of the Blackmans Flat future landfill site, assessing potential alternative sites for a landfill and resource recovery facility.
5. Undertaking a pre-feasibility assessment for a potential future site identified through step 4.

## The Impact

The project ensures that waste infrastructure meets the needs of the community and maximises resource recovery, minimises environmental impact and offers a high-quality level of service to residents.

Efficient waste management has many environmental benefits through diverting waste from landfill, maximising value of resources and minimising environmental impacts of waste facilities. Appropriately planned infrastructure is critical in achieving efficient waste management.

The project ensures the Lithgow community has a local landfill facility for many years into the future and is not required to send waste outside the LGA. Security of waste management has significant environmental and economic benefits to the community.

## Productivity Improvements

The project is being completed in steps so that costs are not incurred investigating options that are not feasible. The completion of this project will maximise the efficiency of waste management in the LGA. Landfill space is becoming increasingly valuable and security of waste infrastructure avoids future costs associated with waste management.

Budget	
Original Budget	\$30,000
Actual Spend (to 30 June 2019)	\$21,370

It is noted there are commitments to spend the remaining allocation.

## Learnings

Lithgow Council is well positioned in terms of landfill capacity and has the opportunity to use waste infrastructure to significantly improve resource recovery with possible economic development opportunities in the LGA.



Tarana Waste Transfer Station

## Case Study - Tarana Waste Transfer Station

The objective of this project is to provide a facility where the Tarana community can dispose and transfer waste safely and in an environmentally sensitive manner.

The following were considered in the design of the new facility:

- Options assessment on the most suitable land.
- Waste storage in larger skip bins,
- Continued recycling options,
- Design allows for easy transfer of waste from vehicles,
- Enclosed storage area to reduce windblown litter,
- Secured area to minimise vandalism and illegal dumping,

### The Impact

The site is located between the western railway line and the Rural Fire Service shed in the village of Tarana. Tarana residents have access to the Waste Transfer Station and a camera will be installed to help prevent disposal of prohibited items and out of area waste. Due to the recent success of the Tarana markets additional discussions with the community focused on achieving an aesthetic consistent with the transfer stations purpose and other community uses within the vicinity.

### Productivity Improvements

The completion of this project will reduce the volume of windblown litter leaving the site as a result of the properly constructed and fenced waste transfer station. This will reduce the staff time required to collect windblown litter and improve the amenity of the village.

Budget	
Original Budget	\$120,000
Actual Spend	\$120,000

### Learnings

Significant work was undertaken to determine the most suitable location for this facility to ensure minimal impact on the community while being accessible. The new waste transfer station will provide residents with easy access to continued waste disposal with increased accessibility and security.

## Case Study - Lithgow Solid Waste Facility Development

The Lithgow Solid Waste Facility (SWF) is the primary waste facility in the Local Government Area and continued operation is critical in meeting waste disposal requirements for local residents and businesses.

The object of the project is to undertake capital works and studies at the Lithgow SWF to allow continued landfilling and to meet increased regulatory requirements and industry standards.

The following works have been completed as part of the project:

- Preparation of a Development Application and detailed design for the Lithgow Resource Recovery Centre to be constructed on the site
- Updating the software and other improvements at the weighbridge and gatehouse
- Completion of a Water Management Study
- Completion of a Landfill Capping Concept Design

The project ensures Lithgow SWF:

- can continue to operate as a landfill whilst providing improvements for resource recovery and customer service.
- continues to meet environmental regulatory requirements plus implement improvements to meet modern standards.
- continues to provide appropriate waste management services in the LGA.

## Productivity Improvements

Appropriate planning and incremental development of Lithgow SWF removes the risk associated with the site resulting from either regulatory intervention or sudden changes in operation.

Budget	
Original Budget	\$200,000
Actual Spend (to 30 June 2019)	\$130,049

It is noted there are commitments to spend the remaining allocation.

## Learnings

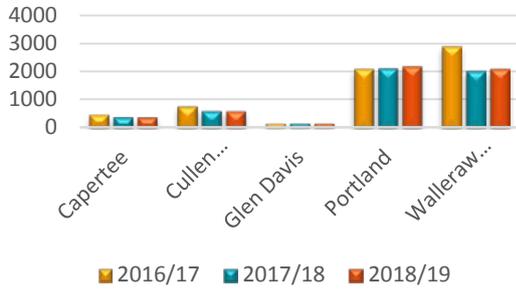
As the waste regulatory environment changes along with community expectations in terms of resource recovery and amenity, it is important that waste facilities can update to keep track of these changes and ensure continuity of operations.

## Saving the Environment One Mobile at a Time!

**MobileMuster** is a program that Council has been involved with for many years, and this year Council wishes to congratulate residents on recycling 14kgs of mobile phone waste.

MobileMuster provides a free, safe and secure recycling service. Everything collected is recycled for resource recovery to the highest environmental standards. Nothing is resold for reuse and any data left on handsets is destroyed in the recycling process.

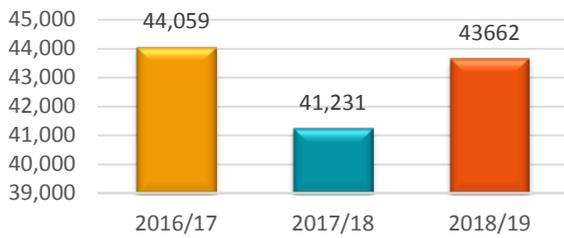
### Waste to Rural Landfill



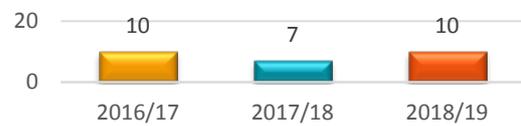
### Greenwaste Collection Service No. of Participants



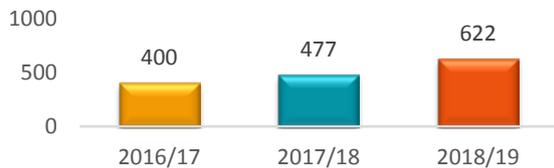
### Lithgow Waste Facility



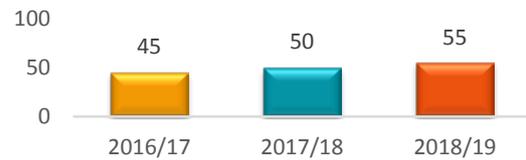
### Greenwaste Collection Service Tonnes Collected



### Clean Up Collection Service No. of Participants



### Clean Up Collection Service Tonnes Collected



### Average cost of waste service per household

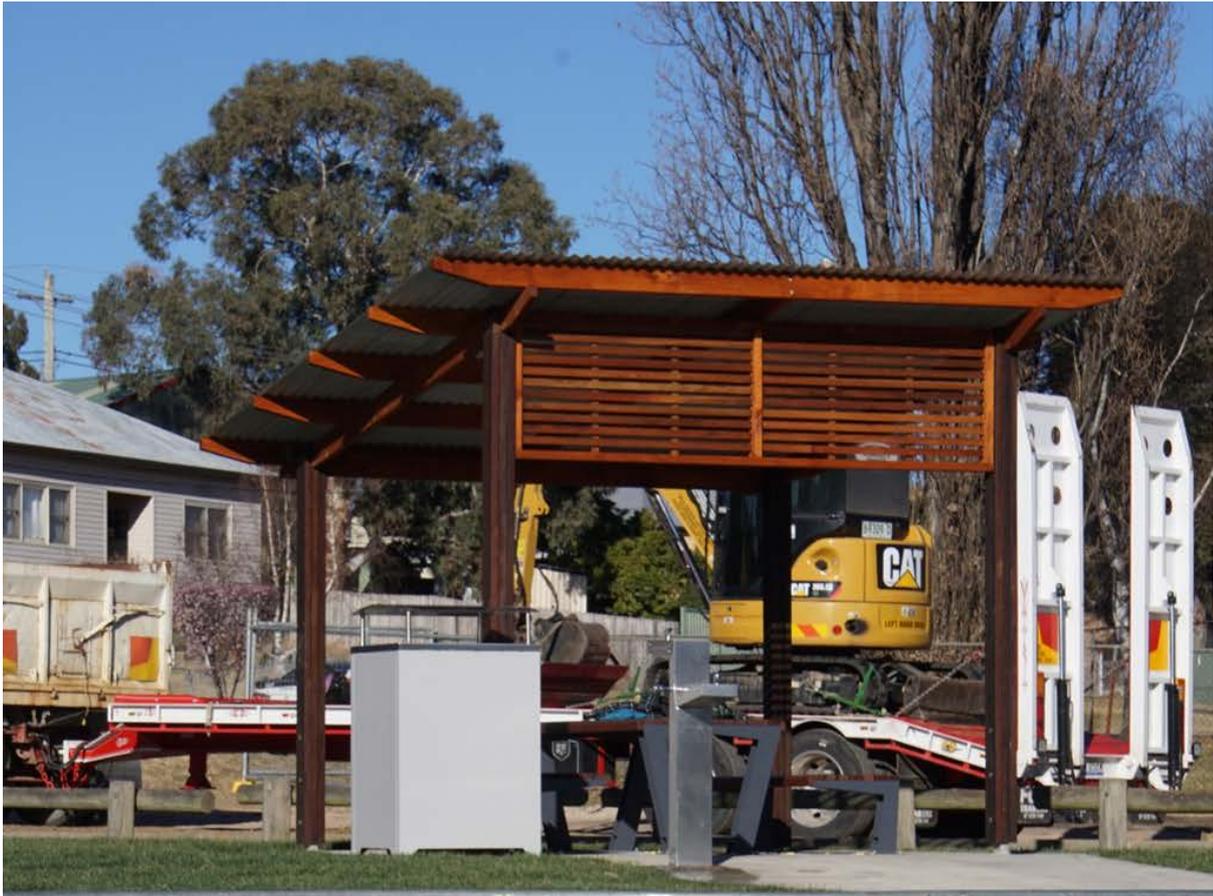


### Tonnes of eWaste collected (diverted from landfill)



During 2018-19 Lithgow Residents have contributed to recycling

**14 kilograms** of mobile phone components.



NE2.1 – Our natural environment is improved and protected

BE1.2 – We provide cultural and recreational infrastructure that meets the needs of our community

Develop and maintain gardens parks, reserves, street trees and other public spaces

## Lithgow Council is responsible for...

*44 parks  
and reserves*



*3 picnic  
& bbq  
areas*



*4 skate parks*



*1 Golf  
Course*



*11 Sports  
fields*



*Garden maintenance  
and weekly mowing of 213  
hectares (that's 213 soccer  
fields)*

## Provide a forum for Environmental Groups to discuss matters relating to the environment and advise Council

Quarterly meetings of the Environmental Advisory Committee are undertaken to engage a range of stakeholders for ideas and information to advise Council on environmental issues within the LGA.

## Attend Lithgow Oberon Landcare Association and other land care groups and provide support.

The Landcare Coordinator employed by Lithgow City Council has attended regular meetings of the Lithgow Oberon Landcare Association and supported a large variety of Landcare activities and strategic developments throughout the LGA. In addition, the coordinator supports many other community groups, participates in a variety of landholder and community events and assists with the delivery of several weed management, pest animal control and land management programs in conjunction with Local Land Services, National Parks & Wildlife Services and the Office of Environment and Heritage.

## Improve the community's knowledge of environmental issues.

To complement the Save Our Species project called "Swamped by Threats" which aims to protect swamps on the Newnes Plateau. Council has modified its school education program to teach the children of the important role swamps play in our ecosystem. This collaborative project Funded by the Environmental Trust aims to maintain viable populations of two landscape-managed fauna species - Giant Dragonfly, and the Blue Mountains Water Skink; and protect and improve the condition of three threatened ecological communities (Blue Mountains Swamps, Montane Peatlands and Swamps and Newnes Plateau Shrub Swamp).

Council has also secured and administered significant grant funding to achieve environmental outcomes while improving the community's knowledge of local environmental issues. These include; weed control and environmental works at; Hassans Walls, Farmers Creek and the development of a Roadside Vegetation Management Plan.

Throughout the year Lithgow Council's Landcare Coordinator has been working hard to re-establish Landcare activities throughout the LGA supporting Landcare groups, conducting community events with over 189 community volunteers/members attending.

Over 1500 native plants have been planted by volunteers and over 4ha of degraded land revegetated and work has been undertaken to improve threatened species and ecosystems through on ground works and forming key partnerships with other agencies.

**189** community  
volunteers attended  
landcare activities

over **1500** native  
plants planted by  
volunteers

over **4ha** of  
degraded land  
revegetated

**425** plants  
planted by the Green  
Army

**5,000+** plants  
planted by the Bush  
Doctor

**685** plants planted  
along Farmers Creek



More than **10 mature hollow bearing trees** were preserved for endangered species habitat via a grant from the Central Tablelands Local Land Services.

## Promote Lithgow City Council's involvement in Landcare activities through media, social media, website, Landcare Newsletter and activity Calendar.

During the July 2018 to June 2019 year, the Landcare Coordinator employed by Lithgow City Council has been involved in 13 different Landcare events, most of which involved volunteer community input. These events included:

- Community planting days along Farmers Creek
- Endangered species habitat protection
- Wildlife monitoring
- Weed and pest animal control workshops
- On-farm protection of mature hollow bearing trees

The Landcare Facilitator has been able to show Lithgow City Council's support for these valuable community activities and demonstrate Council's support for healthy communities and a healthy environment. This promotion has included local print and radio media outlets, the Lithgow Council and Lithgow Oberon Landcare Association web pages, and various newsletters and calendar of events.

Lithgow City Council provided four media releases covering specific Landcare issues between July 2018 and June 2019 as well as regular postings on the Lithgow City Council Facebook page. A regular Landcare newsletter and calendar of events was also produced and distributed throughout the Landcare network at least twice during the 12-month period.

## Link funding opportunities to groups, projects and activities in the area. Distribute information and assist where applicable in helping groups to acquire funding.

In April 2019, the Landcare Facilitator employed by Lithgow City Council assisted Tarana Community Farmers Market to apply for and receive a 'Well-Being Grant to Support Farming Communities' from the Federal Government. In addition, various other funding proposals have been drafted and either submitted in current funding application rounds and/or on hold for submission in future funding application rounds.

## Case Study - Landcare Coordination

The landscape in the Lithgow region is an extremely valuable asset that attracts thousands of tourists, offers a healthy environment for locals to live and work in and provides habitat for many unique flora and fauna species, some of which are not found elsewhere.

Landcare is a grass roots approach for the improvement of land management practices, enhanced conservation outcomes and more sustainable agriculture. It enables individuals, landholders and stakeholder groups to be engaged and empowered in building healthier landscapes and more resilient communities.

The Lithgow Oberon Landcare Association (LOLA) has been successful in providing significant Landcare outcomes for the region over the last 22 years. In 2016, a partnership between LOLA and Lithgow City Council began which enabled the employment of a part time Landcare Coordinator, based within Council Offices.

This partnership has resulted in enhanced community engagement, better coordination with a variety of other stakeholders (such as Central Tablelands Local Land Services and the Office of Environment and Heritage) and increased Council involvement in a variety of Landcare initiatives that have improved our local environment.

## The Impact

Throughout the 2018-19 year, a total of 13 different Landcare events and activities were held, involving 189 participants. These events have enabled individuals to connect and network within their community as well as engaging with and being revitalised from interacting with the natural environment.

A total of 685 native plants were planted at Landcare events primarily along Farmers Creek, Lithgow. In addition, at least 10 mature hollow bearing trees were fenced off from livestock in the Lithgow local government area, preserving habitat for endangered animals. Also, the only known natural habitat for the rare and endangered *Asterolasia buxifolia* was maintained as well as key sites for the threatened Purple Copper Butterfly.

An active Landcare movement encourages landholders and community members to engage with each other, Council and other stakeholders on issues of concern. This process helps leadership and personal development as well as empowering the community to take coordinated action and improve their environment.

Budget	
Original Budget	\$50,000 provided by the Local Coordinator Landcare Initiative via Lithgow Oberon Landcare Association Inc.
Actual Spend	\$40,607.06
Funding/sponsorship (List providers)	\$14,657.50 worth of input from the community This is calculated from 165 volunteers involved across 10 different community events, providing 533 hours of unpaid input at \$27.50 per hour.
Cost Savings realised through efficiencies	\$64,657.50 total external resources received for the Landcare Coordination project in 2018/19.

## Learnings

The Lithgow region is on the edge of the Blue Mountains World Heritage Area. It has large areas with high bushland conservation value, over 100 threatened flora and fauna species as well as rural and semi-rural farmland. Thirty percent of all private land holdings over 10Ha in the region have absentee landholders who live more than 100km away. As a result, the region has a large range of land conservation issues and community dynamics. Lithgow City Council and the Landcare Coordinator are instrumental in engaging with the community to help address the diverse range of Landcare issues.



The pasture sowing demonstration day held at Tarana on 16 April 2019 attracted over 20 landholders.

### Links to plans & strategies

- Farmers Creek Masterplan, Lithgow City Council, 2017
- Central Tablelands Regional Strategic Weed Management Plan, Local Land Services, 2017-2022
- Central Tablelands Regional Strategic Pest Animal Management Plan, Local Land Services, 2018-2023
- NSW Local Landcare Coordinator Initiative, Local Land Services & Landcare NSW, 2016-2019

## Case Study - Hassan's Walls Weed Control

Lithgow City Council is the Crown Lands manager of Hassan's Walls Reserve on behalf of the Department of Primary Industries-Crown Lands. Council has been actively seeking grant funds to minimise the negative environmental impacts of weed infestation and reduce the associated biosecurity risk through the implementation of weed control and habitat improvement programs.

Council submitted a successful grant application securing \$29,900 of funding from the Public Reserve Management Fund Program. This funding was used exclusively for the control of environmental and noxious weeds within Hassan's Walls Reserve.

### The Impact

Through Council actively managing the reserve and meeting the obligations of the Biosecurity Act, Council is reducing the risk of weeds leaving the reserve and establishing on neighbouring properties while enhancing this natural asset. Hassans Walls Reserve is enjoyed by residents and visitors for a wide range of social and recreational activities, continued works aim to protect the reserve.

This project compliments and builds on previous works undertaken within the reserve and provides increased community participation with the aim of achieving lasting environmental outcomes. This year significant work was complete improving Purple Copper Butterfly habitat containing a high density of *Bursaria spinosa* plants within the open woodland community through removal of weeds. In addition, a large number of Radiata pines were removed to enable the establishment of native species and improve native habitat.

This and previous projects have engaged with the community through implementation of on ground works. Lithgow Oberon Landcare Association and Lithgow Pony Club have participated in delivery of projects allowing the sharing of skills and capacity building within the community to continue works into the future. The project has treated several the high value areas within the reserve while also identifying weed source's which will become the focus of future works.

Budget	
Original Budget	\$29,900
Actual Spend	\$29,900
Funding/sponsorship (List providers)	\$29,900 – Public Reserve Management Fund Program

### Learnings

This project enhanced biodiversity, reduced erosion, improved habitat value and controlled noxious weeds within Hassans Walls Reserve. These works have improved recreational opportunities, visual amenity of the area and increased public perception and awareness of the environmental asset.



## Farmers Creek Master Plan

National Tree  
Day 2018

25 volunteers

330 plants planted  
near the Albert Street  
Bridge, Glanmire Oval

**Farmers Creek** has enormous unrealised potential as a leisure/recreation, scenic and environmental asset. Enjoyment of much of the corridor is now prevented by weeds, encroachments or other barriers, minimal management, and simply the absence of access and facilities.

Balancing and prioritising the dual project objectives – of providing greater leisure/recreation opportunities and facilities, and connecting and enhancing public open space, while delivering environmental, biodiversity and water quality improvements was a focus in the development of the Farmers Creek Master Plan.

The continued implementation of the Farmers Creek Master Plan (FCMP) has seen the instillation of a pedestrian footbridge from Glanmire oval to Coalbrook Street across Farmers Creek. This is the first of three (3) bridges required to complete stage 1 of the FCMP. Future funding will see the instillation of two additional footbridges over State Mine Creek and Farmers Creek between Guy and Burton Street's. The instillation of the bridges will provide a continuous link from Geordie Street through to Lake Pillans for walkers and cyclists primarily along the Creek.

Council has also continued the construction on the shared path across Glanmire Oval with available funding. Two applications submitted to the Stronger County Communities (SCC) grant were unfortunately not funded. Further options for grant funding will be explored into the future to assist the implementation of the Farmers Creek Master Plan (FCMP).

Despite this significant Council funding (\$150,000) was allocated for the design and installation of one pedestrian bridge over Farmers Creek from Glanmire Oval to Coalbrook Street. The 1:100 flood modeling was used to guide the design and construction resulting in large concrete footing to secure the bridge in the event future flood events.

Significant environmental works to improve native habitat value and reduce the abundance of weeds within the riparian corridor has also commenced within Farmers Creek along Sandford Avenue. These works have been undertaken by a professional bush regeneration contractor with \$150,000 of external funding. These environmental works will continue in 2019/20 improving the habitat value of the riparian corridor. Maintenance works of previous native plantings has also been completed along Macauley Street in preparation for the coming stage of walking path development. A professional bush regeneration contractor has treated weeds, installed rock armoring to stabilise eroded drainage lines and established over 5000 native plants along Sandford Avenue to improve habitat value and connectivity of riparian corridor in Farmers Creek.

All of these works are consistent with the outcomes detailed within the Farmers Creek Master Plan (FCMP) which is available for viewing on Council's website <http://council.lithgow.com/farmers-creek/>

## The Impact

There have been a number of community planting days throughout the year providing the community opportunities to participate in the implementation of the FCMP and the rehabilitation of native vegetation on Farmers Creek. With the help of 25 willing participants as part of the Lithgow National Tree Day in September 2018, 330 plants were established near the Albert Street Bridge Glanmire Oval. Again 15 volunteers participated in a community planting day in April 2019 to establish another 450 plants.

The implementation of the FCMP will result in the restoration and revegetation of a degraded urban creek corridor. This will result in water quality improvement, enhanced scenic, environmental and biodiversity outcomes within the catchment.

The Masterplan delivers a staged “blueprint” for a connected network of parks and public open space, ranging from highly managed parklands and playing fields to restored Creekside bushlands. All are linked and activated by a high-standard shared path plus other connections and offering a variety of leisure/recreation facilities and attractions along the entire corridor. All are within easy reach of Lithgow’s urban areas, FCMP will enable far greater community access and enjoyment to Farmers Creek and its tributaries.

### Productivity Improvements

Through the acquisition of additional external funding (\$279,260) as a result of the Environmental Protection Authority prosecution of Clarence Colliery, Council has achieved environmental improvements for the community through rehabilitation of the creek and implantation of the FCMP. This has been enhanced by contributions from community volunteers in the participation of community planting days, adding value to the outcomes of the project. The participation of 40 volunteers equates to \$3,240 of additional value in the delivery of the project through community involvement.

Budget	
Original Budget	\$300,000
Actual Spend	\$300,000
Funding/sponsorship (List providers)	\$150,00 - EPA
Volunteer Contributions	\$3,240 (40 Volunteers for 3 hours over two planting days @ \$27 per hour.
Cost Savings realised through efficiencies	\$153,240

### Learnings

Development and management of Farmers Creek to enhance its recreational, scenic and environmental values will be a long-term incremental undertaking. Accordingly, the Masterplan describes a prioritised, staged, implementation program. It acknowledges and accommodates the realities of Council’s available resources and budget cycles, plus the need for flexibility and opportunism in implementation.

The Masterplan will provide important strategic direction and co-ordination, and impetus for Council’s on-going annual program of construction and maintenance of recreation facilities, plus environmental works, along Farmers Creek. Council has already used the Masterplan to support prospective external funding applications through securing funding to undertake rehabilitation of native habitat within Farmers Creek.

### Links to plans & strategies

Lithgow City Council Combined Delivery Program 2017-2021 and Operational Plan 2018/19

- NE2.1.4 - Improve the community's knowledge of environmental issues
- NE2.1.6 - Plan or assist in coordinating activities that raise awareness and positively engage the community in managing their natural environment
- NE2.2.1 - Control environmental and/or noxious weeds on public land through Council and/or services provided by the Upper Macquarie Country Council.

Farmers Creek Management Plan <http://council.lithgow.com/farmers-creek/>



Pedestrian footbridge from Glanmire oval to Coalbrook Street across Farmers Creek.

## Case Study – Habitat and Hollows Project – Farmers Creek

The Farmers Creek Habitat and Hollow project funded by Environment & Waterways Alliance was developed in order to provide scientifically robust, ecological baseline data prior to the implementation of the Farmers Creek Master Plan (FCMP). The FCMP is a strategic document that guides the delivery of future environmental and recreational works within the Farmers Creek catchment, Lithgow. The plan has greatly assisted Lithgow City Council in securing considerable investment to address major environmental and related social issues, with opportunities for works including revegetation and riparian zone enhancement, weed management, erosion and stream bank/stream bed stabilisation works, and stormwater treatment solutions.

The Farmers Creek Habitat and Hollows project aims to clearly and comprehensively provide a baseline reference point to gauge the impacts or improvements achieved via the FCMP works by conducting an in-depth ecological assessment. This assessment was completed prior to on-ground works proceeding within the Farmers Creek catchment and included:

- Biometric vegetation assessment
- Riparian and creek channel condition
- Ground cover matrix
- Bird assemblage; and
- Aquatic indicators i.e. diatoms and macroinvertebrates.

Actions implemented in accordance with the FCMP will improve biodiversity within the riparian zone and can now be accurately measured in the extent of improvement to aquatic health.

### The Impact

Through providing greater leisure/recreation opportunities and facilities, and connecting and enhancing public open space, while delivering environmental, biodiversity and water quality improvements; significant benefit to community health and wellbeing will be achieved.

The project funding provided by the Environment and Waterways Alliance also provided for initial on-ground works to be conducted in order to improve habitat outcomes for local birds and mammals. It was recognised that the majority of the vegetation within the Farmers Creek riparian zone has been considerably altered due to historic land clearing for urban and industrial development, fuel and other uses. This has meant that the creek is largely devoid of tree hollows which are critical habitat for a range of native animals. Hollows take a long time to form naturally – typically in excess of 100 years – and are scarce throughout the project sites. Creating supplementary habitat for hollow dependent species such as parrots, gliders and microbats was considered a key priority for landscape restoration. This project funded the installation of 20 Hybrid Habitat Hollows adjacent to Farmers Creek as a mechanism to support biodiversity within the project area.

Civic Leadership benefits to Council/Community

As part of the project all of the Hybrid Habitat Hollows have been recorded on the Hollows as Homes website <https://www.rbg Sydney.nsw.gov.au/hollows-as-homes/hollows-as-homes> . Community members are actively encouraged to assist Council in monitoring the hollows by recording any animals that they may see using this new habitat.

Budget	
Original Budget	\$6,500
Actual Spend	\$6,500
Funding/sponsorship (List providers)	\$6,500 - Environment and Waterways Alliance



Pictured: Sugar Glider on Hybrid Habitat Hollow

## 20 Hybrid Habitat Hollows installed adjacent to Farmers Creek

### Learnings

The Farmers Creek Habitat and Hollow project has provided baseline data to gauge the impacts or improvements achieved through the implementation of the FCMP by conducting an in-depth ecological assessment of the Creek. In addition, the project provided initial on-ground works to improve habitat outcomes for local birds and mammals through the establishment of 20 Hybrid Habitat Hollows adjacent to Farmers Creek as a mechanism to support biodiversity. Actions implemented in accordance with the FCMP will improve biodiversity within the riparian zone and can now be accurately measured in the extent of improvement to aquatic health.



# Roadside Vegetation Management Plans

Port Macquarie Road, Capertee Valley

## Case Study - Lithgow Roadside Vegetation Management Plan

Councils are responsible for the management and protection of public lands that are under the care and control of a Council. This may include parks, reserves, operational land and road reserves.

Roadside reserves often contain significant biodiversity, including remnant vegetation that is absent in other areas of the landscape due to land-use changes. Because they are often continuous, particularly in rural areas, road reserves provide invaluable habitat corridors allowing for native animals and plants to migrate across the landscape. This aspect is particularly important to protect if we are concerned with preserving some level of resilience in the face of threats such as climate change, and feral predation or competition.

Vegetation on land under the care or control of Lithgow City Council may be threatened by inappropriate activities that reduce the extent and quality of native and other vegetation and wildlife habitats. The Council, as a land manager, has a responsibility to ensure activities do not have a detrimental impact on protected or threatened plants and animals or Endangered Ecological Communities. The Council, in its actions, is guided by the relevant legislation and operational guidelines such as the NSW Biodiversity Conservation Act 2016 or the Lithgow City Council Roadside Vegetation Management Guidelines.

(Lithgow Community Strategic Plan – Our Place, Our Future, 2030). The overarching vision statement is:

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*“A centre of Regional excellence that:*

*Encourages community growth and development*

*Contributes to the efficient and effective management of the environment, community and economy for present and future generations.”*

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Council, in consultation with the community of Lithgow LGA, also developed a vision for the Environment:

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*“Balancing, protecting and enhancing our diverse environmental elements, both natural and built, for the enjoyment and support of both current and future generations”*

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Council is therefore committed to work with the community and relevant stakeholders to create a network of road reserves that provide a safe environment for vehicle movement while recognising and protecting the conservation, landscape, cultural and recreation values of rural roadsides and vegetation

### The Impact

A Roadside Vegetation Management Plan (RVMP) is a mechanism to coordinate strategic management of roadside vegetation across the LGA. A robust RVMP will define the management principles that guide actions within the roadside areas and are consistent with corporate objectives and legislative requirements.

Legislation also triggers a risk management approach where processes are required to support strategic planning and on ground works, such as Preliminary Environmental Assessments, Reviews of Environmental Factors (Part 5 assessments), checklists and points of reference. This risk management approach needs to be applied to environmental management in general, and specifically to roadside vegetation management.

The plan aims to communicate management requirements to internal Council staff and to external roadside users including adjacent landholders. Staff from different sections of Council will be required to assist in delivering the plan. The management actions within the RVMP identify the action priority, timing, responsibility and resourcing, and can be linked to Lithgow City Council’s Delivery Plan and Operational Plan

Monitoring progress of the actions and progress towards Council’s goals for roadsides is an important facet of administering a RVMP. By linking the plan to Councils Integrated Planning and Reporting (IP&R) process there will be accountability for annual reporting and end of term reviews. Recording of daily work activities to assist with maintaining up to date records for areas of different conservation values, specific issues such as weed management, and additional biodiversity assets such as threatened species and endangered ecological communities.

Budget	
Original Budget	\$0
Actual Spend	\$35,850
Funding/sponsorship (List providers)	\$35,850 – Central Tablelands Local Land Services
Volunteer Contributions	\$0
Cost Savings realised through efficiencies	\$35,850

### Learnings

Forested roadsides are corridors that allow fauna, particularly birds, to move safely around the landscape. Many species are reluctant to move over cleared areas and use the roadside extensively as linear reserves or as “stepping stones” in the landscape. Many birds and mammals rely on hollows for breeding, denning and roosting and these are found in both living and dead trees (stags). Many species of microbats, along with birds, play a significant role in pest insect control. Dead wood, rocks and leaf litter also provide habitat in the roadside corridor. Roadside corridors, if looked after, can act as reservoirs of insect and other arthropod life that provide ecosystem surfaces such as pollination, decomposition and soil formation.

### Links to plans & strategies

BE1 – Our built environment blends with the natural and cultural Environment

NE1.3 - Provide environmental leadership through responsible natural resource management, legislative compliance and working cooperatively with the community, relevant environmental authorities and alliances.

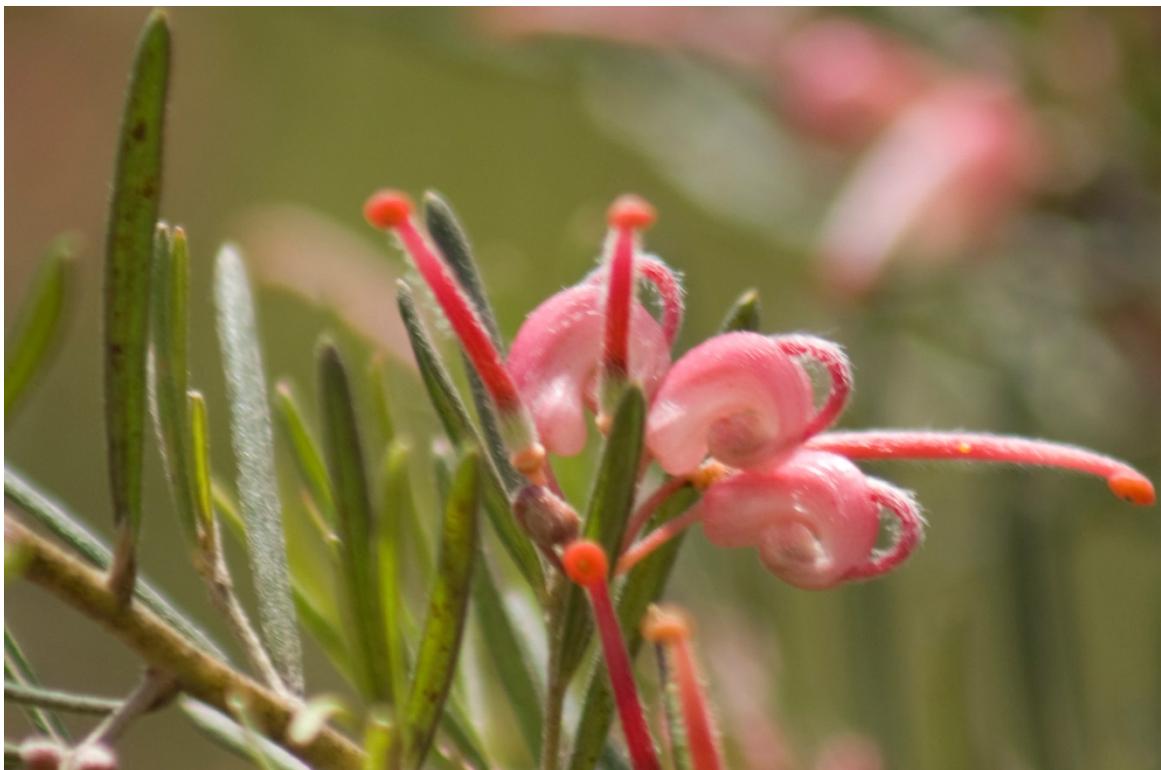
NE2.1 - Our natural environment is improved and protected.

NE2.2 - Minimise negative impacts on the environment.

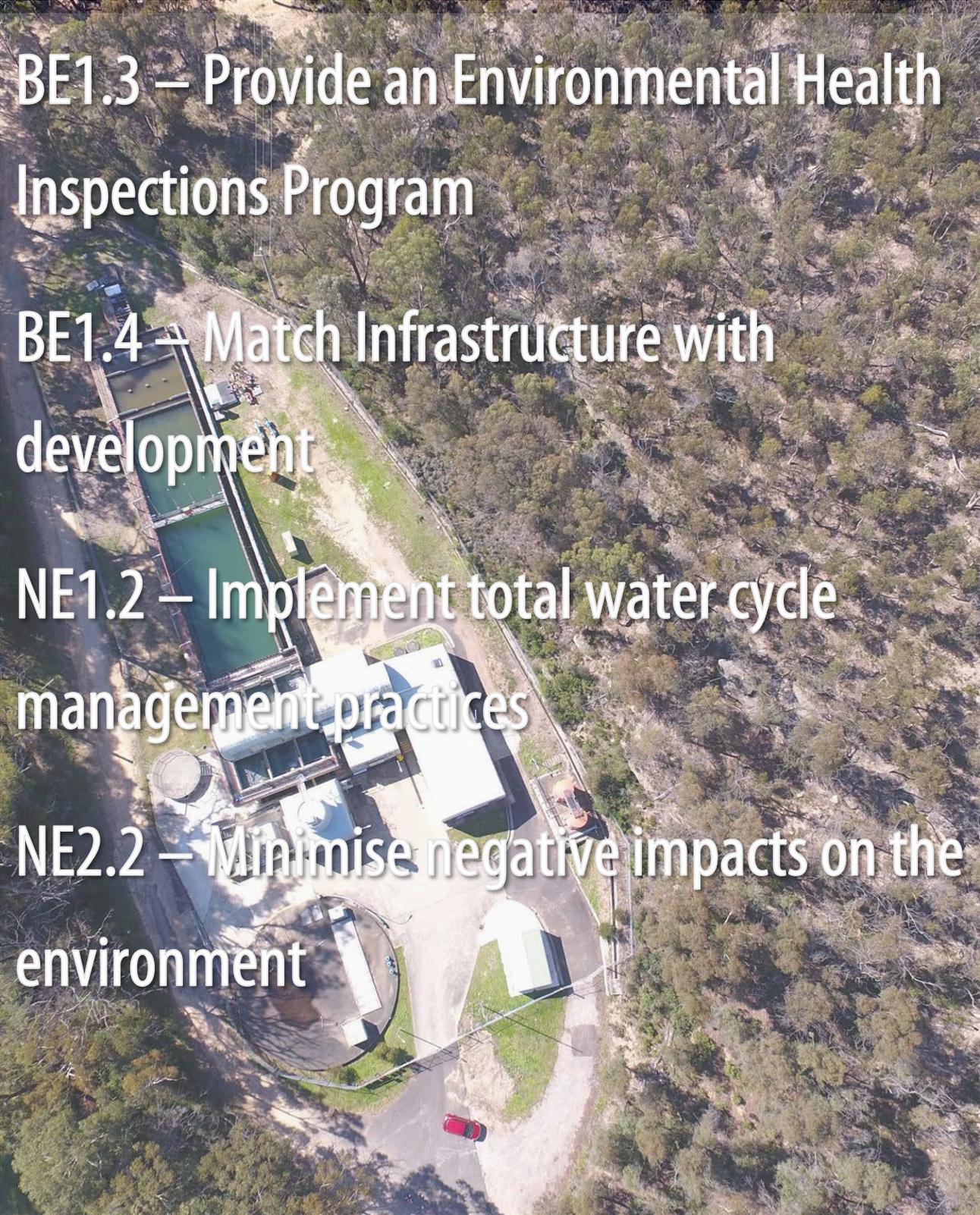
## Standard Working Procedure 10.1 – Maintenance Management of Roadsides in the Capertee

Council's Standard Working Procedure (SWP) 10.1 is an internal working document developed in 2010. In accordance with the NSW Threatened Species Conservation Act 1995, and the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), Council has a duty of care to preserve endangered and vulnerable species populations and ecological communities within the Local government Area.

The SWP provides guidance to staff and contractors when working in the Capertee Valley with the identification and protection of the rare and endangered plants of the Valley. It details the process and responsibilities of Lithgow City Council employees and/or its contractors whilst performing road work or related activity. A copy of "The Guide to Rare Plants in the Capertee Valley" is attached to the SWP.



*Grevillea obtusiflora subsp. fecunda* – A NSW and nationally endangered species is found on a few roadsides in the Capertee Valley and is vulnerable to roadside management.



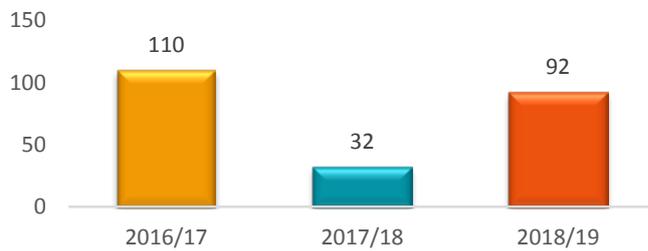
BE1.3 – Provide an Environmental Health Inspections Program

BE1.4 – Match Infrastructure with development

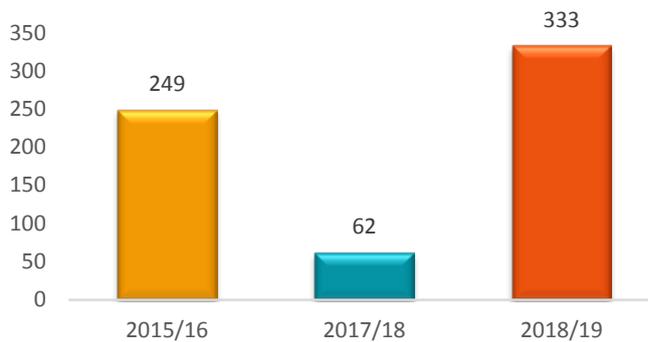
NE1.2 – Implement total water cycle management practices

NE2.2 – Minimise negative impacts on the environment

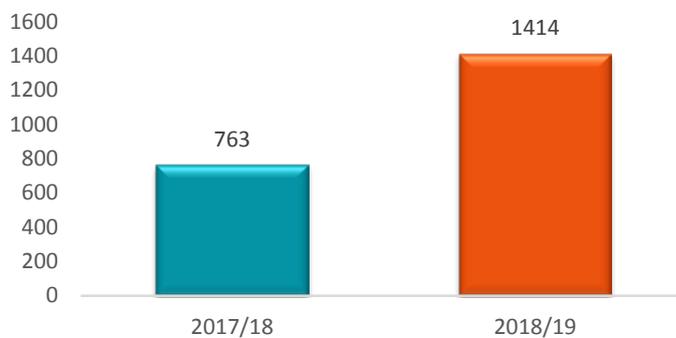
## Trade Waste Inspections Program



## Septic System Inspections



## Aerated Wastewater Systems



## Undertake activities identified in the Trade Waste Policy

Due to staffing changeover and organisational restructure, the inspection program of all trade waste properties was not completed this financial year. Significant progress has been made in the latter part of the financial year with the program expected to be on track early in the new financial year.

All trade waste discharges should be aware of the new Backflow Prevention Containment Policy 3.4, which requires all trade waste discharges with a pre-treatment device such as, grease arrestor or oil water separators to install a backflow prevention device. The purpose of backflow prevention is to protect the water supply from contamination by liquid trade waste premises connected to the reticulated water supply. Council has developed a range of Fact Sheets and established a list of accredited plumbers qualified to undertake these works on behalf of trade waste discharges. This information is available on Council's website <http://council.lithgow.com/liquid-trade-waste/> to assist business owners with these changes and gaining trade waste approval.

## Implement an inspection regime of systems and take appropriate action where systems are failing

Annual inspections and approval of on-site sewerage systems is ongoing for all unsewered properties in the Local Government Area to ensure compliance with environmental and public health performance standards and the Local Government Act S.68 Part C, Items 5 & 6.

## Provide the Alternate Fuel Rebate for the replacement of coal heaters with cleaner heating alternative to Lithgow, Wallerawang, Portland and villages.

Council provides the Alternate Fuel Rebate for the replacement of coal heaters with cleaner heating alternatives to residents in Lithgow, Wallerawang, Portland and Villages. Council received 6 applications for the replacement of coal burning appliances over the 2018/19 FY with 5 of these applications approved for funding.

### Coal Fired Heater Replacement Rebates



## Conduct routine monitoring of Council's reticulated drinking water supplies.

Council has continued to supply drinking water to residents in accordance with the Australian Drinking Water Guidelines with monitoring undertaken and reported to NSW Health weekly.

## Undertake routine monitoring of Farmers Creek, Lake Lyell, Pipers Flat Creek and Lake Wallace for blue green algae

Sampling following notification of Red Alert was undertaken through May and June 2019 until the Red Alert was lifted latter in June 2019.



Provide a secure and reliable water reticulation system to residents of the Lithgow Local Government Area.

2 prescribed dams	1 water treatment plant	9 reservoirs
3 water pump stations	242,671m of water mains	8,326 consumers connected to potable water

### Links to Plans & Strategies

- Strategic Asset Management plan
- Water and Sewer Strategic Business Plan
- Integrated Water Cycle Management Plan
- Developer Servicing Plans
- Best Practice Guidelines for Water & Sewer
- Drought Management Plan
- Drinking Water quality Management Plan

### Farmers Creek Dam #2

Water from Farmers Creek Dam is filtered at the Oakey Park Water Treatment Plant and supplied to Lithgow. The original lower dam (Dam #1) which was built in 1896 is no longer used. The upper dam which was built in 1907 has a capacity of 450 ML and has a top water level of 1000m AHD. Farmers Creek Dam has a small catchment area of 12 km<sup>2</sup>. The secure yield of Farmers Creek Dam has been estimated at 400 ML/a under current environmental flow release requirements.

### Clarence Water Transfer Scheme

The Farmers Creek Dam system is also provided with a supplementary supply from the Clarence Water Transfer Scheme. When there is insufficient natural water flow into the dam, up to 14 ML/day of water can be transferred from the Clarence Water Transfer Scheme.

### Fish River Water Scheme

Fish River Water Scheme sources of water are the Oberon Dam (capacity 45,400ML) and the Duckmaloi Weir (20ML). Water gravitates to the scheme with pressure booster stations at Narroneck and Mt Piper. Present water supply management for the use of water from the Fish River covers supply of drinking water to Lithgow's rural villages on a continuous basis but supply is also able to be connected to Lithgow town water under a supply arrangement. Provision for using this water is conditional and based on the availability of water from other sources such as Farmers Creek and Clarence Water Transfer Scheme. The FRWS currently operates for the villages beyond the water main junction at West Wallerawang.

### Water Restrictions

No water restrictions are currently in place and apply to all residents in the Lithgow Local Government Area. At the Council meeting held on 29 October 2018, Council resolved to remove water restrictions from the

Lithgow LGA.

## Case Study – Water Loss Management Program

Lithgow City Council is committed to conserving water and working with the community to preserve this precious resource. Council's water loss management system has allowed council to better account for all water produced.

Over a number of years Council has been undertaking works in accordance with recommendations contained within the Water Loss Management Plan. The Water Loss Management Plan identified that at the time, Council was losing approximately 36% of the water after it was treated or purchased from WaterNSW. Council has implemented and undertaken a number of actions from the Plan which has resulted in some improvement, yet at the end of the 2017/18 financial year Council's losses were still at 30% or in dollar terms, over a million dollars of lost revenue.

- In 2016/17, council installed meters on all council facilities which will result in a decrease in unaccounted water for Council.
- In 2017/18 Council rolled out new metered standpipes across the Local Government Area to allow easier access for all residents to bulk treated potable water.
- In 2018/19 Council commenced the Smart Meter Program the replacement of water meters to smart meters with meters being installed from May 2019.

### Smart Meter Replacement Program

One of the recommendations of the Water Loss Management Plan was to develop a meter replacement policy which included reviewing the current meters installed. The analysis of the meter fleet indicates that more than 50% of the meters currently installed exceed 20 years with only a slight reduction in this percentage at 25 years. What this indicates is that nearly half of the meters currently installed are the original meters that were installed when metering was first undertaken in the 1990's.

Industry practice determines that the useful life of a mechanical water meter, which is your common household water meter, is 10 years, with some manufacturers claiming 20 years useful life. After a period of 8 years use, the meter will begin to incorrectly measure the amount of water passing through. When meters begin to fail, in all but exceptional cases, the meter under registers.

To address this major issue as well as providing additional benefits, Council has resolved to undertake a meter replacement program with an Automated Meter Reading (AMR) system or more commonly known, Smart Metering. The benefits that can be achieved include but are not limited to:

- The ability for customers and Council to identify leaks early within private properties;
- Automatic monitoring with alarms that can detect if changes occur within the system that require attention, e.g. leaks, freezing, no water, meter tampering;
- Customers may monitor their own usage through an online portal should they choose to sign up;
- Avoidance of bill shock with near real-time data on consumption and excess use alarms;
- Extend the lifespan of the network through optimised operations and proactive maintenance

### Reducing Non-Revenue water

This project is a component of a larger program aimed at reducing non-revenue water. Non-revenue water is water that has been treated and is then lost from the network infrastructure, through either unbilled (authorised) consumption, apparent losses (unauthorised consumption - water theft, meter inaccuracies) and real losses (leakage). This project seeks to address meter inaccuracies to reduce to the amount non-revenue water which currently equates to between 30 – 36% of the amount of water that Council purchases and treats. Our target is to reduce this below 15% over the coming years.

With improved meter accuracy comes the potential for increased bills. Because of the age of the meters we expect there is a high number of meters that are incorrectly registering. When these types of meters fail, they will read less rather than more. Council is mindful of the potential impact on the residential bill and adopted options to minimize potential bill shock at the June 2019 Council Meeting.

The new system is considered a best practice tool which will help Council deliver water services to the community as cost-effectively as possible. The customer portal is expected to create greater sense of community awareness and responsibility towards the use of water.

The 'real-time' readings at properties means that Council and residents can regularly review water use and monitor for any indication of a leak, leading to cost savings for residents in relation to excess water charges. There is no direct cost to residents associated with the installation of the meter at properties or for access to the customer portal. The Smart Meter project is being funded through Council's Water Fund and will not result in any increase in water rates for residents.

The automatic meter reading or AMR devices are being used more frequently throughout Australia. Other councils who have implemented Smart Metering report that they have been able to identify customer leaks within the first weeks of the meters being installed, not only saving water but reducing the cost to residents. Federation Council, located in the Riverina region of New South Wales, reported in its first weeks of operation almost 200 leak notices were delivered to households and businesses notifying of a potential problem.

A common question asked is how do the meters detect leaks? Smart meters have the ability to collect and send data every 7 seconds. Over a 24 hour period it is expected that there should be a period where the meter reads zero consumption. When the system detects that a zero reading has not been recorded it sends a notification that a problem may exist.

### Engaging the Community

Council is committed to keeping the community informed during the roll out of the new Smart Metering System. A dedicated webpage <http://council.lithgow.com/smart-water-meters/> has been set up to provide answers to frequently asked questions about the program. In addition to this a Fact Sheet (Water Meter Replacement Program) has been scheduled to be inserted in the October Water Rates Notices. Two media releases were distributed:

#### **[Council Moving to Smart Metering 8 May 2019](#)**

#### **[Smart Metering – Update 6 Jun 2019](#)**

Following completion of the installation, residents will be provided with instructions on how to register for the MiWater portal and access and monitor their own water usage.



Pictured: An Example of a Smart Meter

Provide a secure and reliable sewerage reticulation system to residents of the Lithgow Local Government Area.

3 sewerage treatment plants	34 sewerage pump stations	146,035m gravity sewer
30,514m sewer rising mains	14,965m sewer trunk mains	7,715 sewerage service connections, connecting houses and businesses to the sewer network

### Links to Plans & Strategies

- Strategic Asset Management plan
- Water and Sewer Strategic Business Plan
- Integrated Water Cycle Management Plan
- Developer Servicing Plans
- Best Practice Guidelines for Water & Sewer

In recent years, Council has undertaken a major augmentation of its 3 sewerage treatment plants throughout the LGA. The augmentation has allowed the Lithgow, Wallerawang and Portland Sewerage Treatment Plants to treat sewerage to a tertiary level whilst also allowing for an increase in the amount of wastewater that can be treated which is ultimately better for the environment and the residents. Council has constructed these treatment plants with like for like systems and equipment to make the processes involved in treatment, operation and maintenance of the system more streamlined and efficient.

In the same way that Council is optimising its treatment systems, delivery of sewerage to the plants is improving with a number of projects throughout the LGA based on the renewal and construction of Sewerage Pumping Stations. Council is creating a more efficient model for delivering sewerage by removing a number of small pump stations that are deteriorating and directing them into new or refurbished larger, more advanced pump station/s that will allow future development and require less maintenance by utilising various new technologies.

### Case Study - Portland Sewerage Treatment Plant

The new Portland Sewerage Treatment Plant (STP) has been developed to treat the sewerage to a much higher standard which will have a beneficial effect on the environment downstream by reducing the levels of potential pollutants released into the environment. The increased size of the new STP will also allow enough capacity in the system for the growth of the township of Portland.

The new STP uses an Intermittently Decanted Extended Aeration process which is the same design principle as Council's other STP's which also includes the use of UV Radiation disinfection system. This design being the same will reduce stores costs for council to have an inventory of critical spares for all three plants which are interchangeable. This also means that the effluent quality will be of the same standards required for

discharge into the Sydney Drinking Water Catchment, this represents a significant improvement on the previous discharge quality.

This project is co-funded by the NSW governments Resources for Regions project through Infrastructure NSW and Lithgow City Council. The funding was received on a basis of 2/3 funded by Resources for Regions of \$10.05m and 1/3 by Lithgow City Council of \$4.950m. This significant investment in the Portland Community will allow for future urban Growth in all areas of the town.

### Key Facts:

- Project cost \$15,000,000
- Increase from 2,000 equivalent persons to 3,000 equivalent persons allowing for future growth of Portland.
- Will reduce the levels of potential pollutants released into the environment.
- Cost savings for Council will be achieved through alignment of parts with Lithgow and Wallerawang STP.

## Case Study - Cullen Bullen Sewerage Scheme

Council has been concerned for some time that a high proportion of existing on-site wastewater systems in Cullen Bullen are failing to meet the required operational and performance objectives. Evidence of failure includes:

- Sewage from septic systems running onto neighbouring properties.
- Sewage on flat sites ponding, resulting in complaints of smell, mosquitoes and a public health and safety risk.
- The overflow from septic tank absorption trenches discharging into stormwater drainage systems resulting in contamination of watercourses.
- Discharge of grey water into stormwater drainage systems resulting in contamination of watercourses.

In order to address these issues Council has investigated options to provide a sewerage scheme to service the residents of Cullen Bullen.

- Option 1 of a gravity sewerage system and Sewerage Treatment Plant to service the residents of Cullen Bullen would result in a budget shortfall and was also costly for residents to connect to.
- Option 2 a Pressure Sewer reticulation, which is a network of pressure mains (including pressure sewer laterals and property boundary assemblies) which transports sewage from properties to a nominated discharge point is the preferred option.

This project is co-funded by the NSW governments Resources for Regions project through Infrastructure NSW and Lithgow City Council with \$4,800,000 coming from Resources for Regions

### Key Facts

- Will provide connection to over 90 residential premises
- Using a real discount rate of 7 per cent, the total project generates a net present value of over \$4.2 million with a benefit cost ratio of 1.45.
- 73% of the on-site wastewater management systems inspected are failing.

## Provide stormwater infrastructure to allow for sustainable growth and development of the area and alleviate flooding.

As it stands, stormwater improvements are of major significance, particularly within the urban Lithgow and Marrangaroo areas. Currently, Lithgow is subject to substantial new development which is causing an increase in stormwater flow through aging infrastructure installed anywhere between 10 and 70 years ago. This issue is causing flood-related problems downstream.

Funding has been allocated to the feasibility study of stormwater improvements in the vicinity of the intersection of Laurence Street and Main Street, Lithgow. Anecdotally, this area has flooded each year and surveys were performed to determine the possibility of installing new subsurface pipes to alleviate this issue. However, as a result of the myriad of services within this area and concerns relating to the fall of the road itself, this solution was found to not be viable. Council has since completed extensive surveys and design work to improve infrastructure in this area. Designs have been put to public contractors in order to obtain an indicative cost. With this information, funding will be incrementally placed into reserve to facilitate this substantial requirement for work in future years. Including the required interim cleaning of this pipework, this project required an expenditure of \$53,208 this financial year.

In addition, throughout Lithgow many kerb inlets and subsurface pipes have had their capacity increased to resolve flooding concerns. Kirkley Street, Lithgow, Hartley Valley Road, Lithgow and Marrangaroo Golf Club have had Council-maintained stormwater infrastructure improved at a cost of \$437,553. All three of these projects were required as a result of infrastructure being deemed substandard as a result of ongoing urban development and changing weather trends. With impervious areas increasing in urban areas and rainfall events increasing in intensity with shorter durations, Council's stormwater infrastructure must be strategically upgraded to accommodate increased flows.

Lastly, stormwater infrastructure maintenance continued throughout the year at a cost of \$217,137.

### The Impact

The impact of this work is predominantly environmental and social. Flooding during high intensity rainfall events have a significant effect on the community with properties and lives at risk if it is not managed properly. Thorough assessment of impacts in this regard and improving those assets which are determined to be of greatest need results in increased safety of residents and property and lowers the risk of environmental damage.

### Learnings

A great deal has been learned about the age and condition of many of Lithgow's stormwater assets. Regardless of age, some assets are in the same condition they were almost 100 years ago however others have been constructed to far less stringent standards and have required capital renewal and reconstruction. At times, this data is largely unobtainable without significant capital contribution from Council and as such, asset degradation has largely gone unnoticed. This project has allowed Council staff the ability and means to inspect some of Council's more important infrastructure to determine priorities into the future.

Budget	
Original Budget	\$700,000
Actual Spend	\$707,898
Funding/sponsorship (List providers)	Infrastructure Levy Program (Approved Rate Increases)



Marrangaroo Stormwater Infrastructure Works



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