ENVIRONMENTAL SUSTAINABILITY POLICY COMMITTEE

AGENDA

2 FEBRUARY 2021

Notice is hereby given, in accordance with the provisions of the Local Government Act 1993 that an **ENVIRONMENTAL SUSTAINABILITY POLICY COMMITTEE MEETING of ORANGE CITY COUNCIL** will be held in the **COUNCIL CHAMBER, CIVIC CENTRE, BYNG STREET, ORANGE WITH AN OPTION OF ONLINE CONFERENCING PLATFORM ZOOM DUE TO COVID-19 REQUIREMENTS on Tuesday, 2 February 2021.**

David Waddell

CHIEF EXECUTIVE OFFICER

For apologies please contact Administration on 6393 8218.

AGENDA

1 INTRODUCTION

1.1 DECLARATION OF PECUNIARY INTERESTS, SIGNIFICANT NON-PECUNIARY INTERESTS AND LESS THAN SIGNIFICANT NON-PECUNIARY INTERESTS

The provisions of Chapter 14 of the Local Government Act, 1993 (the Act) regulate the way in which Councillors and designated staff of Council conduct themselves to ensure that there is no conflict between their private interests and their public role.

The Act prescribes that where a member of Council (or a Committee of Council) has a direct or indirect financial (pecuniary) interest in a matter to be considered at a meeting of the Council (or Committee), that interest must be disclosed as soon as practicable after the start of the meeting and the reasons given for declaring such interest.

As members are aware, the provisions of the Local Government Act restrict any member who has declared a pecuniary interest in any matter from participating in the discussion or voting on that matter, and requires that member to vacate the Chamber.

Council's Code of Conduct provides that if members have a non-pecuniary conflict of interest, the nature of the conflict must be disclosed. The Code of Conduct also provides for a number of ways in which a member may manage non pecuniary conflicts of interest.

RECOMMENDATION

It is recommended that Committee Members now disclose any conflicts of interest in matters under consideration by the Environmental Sustainability Policy Committee at this meeting.

2 COMMITTEE MINUTES

2.1 MINUTES OF THE ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE MEETING HELD ON 16 OCTOBER 2020

RECORD NUMBER: 2021/12
AUTHOR: Lindsay Hall, Sustainability Officer

EXECUTIVE SUMMARY

Environmental Sustainability Community Committee met on 16 October 2020 and the recommendation from that meeting are provided to the Environmental Sustainability Policy Committee for adoption.

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy "7.1 Preserve - Engage with the community to develop plans for growth and development that value the local environment".

FINANCIAL IMPLICATIONS

Nil

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

1 That Council acknowledge the reports presented to the Environmental Sustainability Community Committee at its meeting held on 16 October 2020.

2 That Council determine recommendations *{3.2, 3.3, 3.4.1 & 3.7}* from the minutes of the Environmental Sustainability Community Committee meeting of 16 October 2020.

3.2 - STORMWATER HARVESTING - WAYNE BEATTY

I. That the project conceptual design be forwarded to the committee
II. That a project works outline in map view be forwarded to the committee
III. That the verbal report from Council's Water and Sewerage Strategic Manager be acknowledged.

3.3 - WATER SENSITIVE CITIES REPORT - PROGRESS UPDATE

I. That the Environmental Sustainable Community Committee Water sub-group meet with relevant Council staff and communications team to produce a short summary of 'What a water sensitive city is and the related benefits'.
II. That Environmental Sustainable Community Committee Water sub-group meet with relevant Council staff and communications team to refine the report to be presented to Councils Environmental Sustainable Policy Committee for consideration.
III. That a map of Councils 'purple' pipeline be provided to the Environmental Sustainable Community Committee.
IV. An updated info graph of Councils water supply system be provided to the Environmental Sustainable Community Committee.
V. That Council staff investigate information sharing and promotion of water saving technology for residents in Orange.

3.4 - GREAT SOUTHERN BIOBLITZ ORANGE 2020

I. That the Great Southern Bioblitz be run again next year.

3.7 - *DRAFT CLIMATE CHANGE POLICY AND MANAGEMENT PLAN*

I. Item 3.7 be deferred for discussion at a specific workshop in 2 weeks - 30 October 2020.
II. Provide ESCC a workshop agenda.
III. ESCC members familiarise themselves with both the Draft Climate Change Strategic Policy and Draft Climate Change Management Plan and prepare questions/comments for the workshop.
IV. That Council provide ESCC a mechanism to discuss/comment on both documents as a group in preparation of the workshop.

3 That the remainder of the minutes of the Environmental Sustainability Community Committee meeting held on 16 October 2020 be adopted.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

SUPPORTING INFORMATION

Nil

ATTACHMENTS

1 ESCC 16 October 2020 Minutes
2 ESCC 16 October 2020 Agenda, D20/62305⇩

ORANGE CITY COUNCIL

MINUTES OF THE

ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE

HELD IN COUNCIL CHAMBERS, CIVIC CENTRE, BYNG STREET, ORANGE

ON 16 OCTOBER 2020

COMMENCING AT 8.00AM

1 INTRODUCTION

ATTENDANCE

Cr S Nugent (Chairperson), Cr R Kidd, Ms Shahreen Alford, Mr Robert Alford, Mr Ronald Finch, Mrs Kate Hook, Mr Andrew Kennedy, Mr Nick King, , Ms Melanie McDonell, Mrs Anne Salter, Mr Cyril Smith, Ms Kate Willoughby, Mr Ken Freedman, Director Development Services, Water Treatment Manager, Manager City Presentation, Water and Sewerage Strategic Manager, Sustainability Officer, Intern Sustainability and Environment.

1.1 Apologies and Leave of Absence

RECOMMENDATION **Ms S Alford/Mr A Kennedy**

That the apologies be accepted from Mrs Neina Campbell, Miss Anwen Carney, Mr Daniel Fock, Mr Gavin Hillier, Dr David Mallard, Mr Peter West, Ms M Shaw, Museum and Heritage Coordinator, Water Management Officer, Project and Research Officer, Parks Supervisor, Manager Engineering Services, Manager Waste Services and Technical Support for the Environmental Sustainability Community Committee meeting on 16 October 2020.

1.2 Acknowledgement of Country

The chairperson conducted the acknowledgement of Country.

1.3 Declaration of pecuniary interests, significant non-pecuniary interests and less than significant non-pecuniary interests

Cr Reg Kidd declared a less than significant non-pecuniary interest in Item 3.6 Energy Sub-Group - Energy Report, discussions relating to Solar farms as he has previously been approached to have a solar farm on his property.

2 PREVIOUS MINUTES

RECOMMENDATION **Mr A Kennedy/Mr R Finch**

1. That the Minutes of the Meeting of the Environmental Sustainability Community Committee held on 14 August 2020 (copies of which were circulated to all members) be and are hereby confirmed as a true and accurate record of the proceedings of the Environmental Sustainability Community Committee meeting held on 14 August 2020.

2. That Mrs Melissa Brown be removed from the attendance list of the minutes of the Environmental Sustainability Community Committee meeting of 14 August 2020. Mrs Melissa Brown was not in attendance and is no longer a member of the Environmental Sustainability Community Committee.

3 PRESENTATIONS

3.1 ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE CHARTER UPDATES

TRIM REFERENCE: 2020/1946

Changes to the Committee Charter include:

1. Member ship now allows two or more councillors (one whom shall be chairperson, as elected by Council)

   This is changed from requiring 4 Councillors on the Committee a result of Councils decision to allow 2 Councillors to form the Committee.
2. Title change from General Manager to Chief Executive Officer

   This was changed to reflect Councils current nomenclature.

RECOMMENDATION **Mr C Smith/Ms S Alford**

That the verbal report provided by Councillor Nugent (Chairperson) be acknowledged.

MATTER ARISING **Mr A Kennedy/Cr S Nugent**

That the Environmental Sustainability Community Committee be reminded of Item 5.2 '*Environmental sustainability community committee 2020 and beyond - Cr Stephen Nugent and Andrew Kennedy'* from Environmental Sustainability Community Committee meeting 14 February 2020 that *the committee would like to create a 'Legacy document' for the next ESCC group to consider*'.

3.2 STORMWATER HARVESTING - WAYNE BEATTY

TRIM REFERENCE: 2020/1943

Update on the progress with second stage of Blackmans Swamp Stormwater harvesting Scheme Project. Current activities include flow modelling (to be available by end of the year), advertising to the community and Council. Project to be made available on Council's website. Council will have access to the site from next week for Geo-technical works to be carried out

Current land being acquired through compulsory acquisition process. Council should have access to the entire site by the end of 2020. The review of environmental factors will hopefully be progressed by then (approved).

Will the project be available for community comment? Yes, community are able to make comments during the exhibition period.

Will there be a public meeting for comment? Potentially yes, as a result of a recent Council decision – significant/major Developments/projects may require planning consultation in the first half of the exhibition period. This project will likely have a public forum for the community.

Is there a current design available? There is an initial conceptual design, this can be forwarded to ESCC.

A project works outline in map view be forwarded to the committee.

RECOMMENDATION **Mr C Smith/Mr A Kennedy**

I. That the project conceptual design be forwarded to the committee
II. That a project works outline in map view be forwarded to the committee
III. That the verbal report from Council's Water and Sewerage Strategic Manager be acknowledged.

3.3 WATER SENSITIVE CITIES REPORT - PROGRESS UPDATE

TRIM REFERENCE: 2020/1950

Progress from Item 3.5 *Update Orange Transitioning to a Water Sensitive City - Cyril Smith* from Environmental Sustainable Community Committee Meeting 14 February 2020:

That the Environmental Sustainability Community Committee recommends to the Environmental Sustainability Policy Committee that Council appoint staff necessary to engage with the Cooperative Research Centres Water Sensitive Cities to develop a strategy to compile information for a preliminary report, Orange transition to a water Sensitive City, to be completed for presentation to Orange City Council for consideration.

Josh Bennett (Council's Sustainability and Environment Intern) presented the Water Sensitive Cities Report. The report is structured by:

1. What a Water Sensitive City is
2. What Council is currently doing and what Council has already achieved in regards to being a Water Sensitive City, including Stormwater Harvesting Projects.
3. What the Cooperative Research Centres Water Sensitive Cities (CRCWSC) is able to provide Council in regards to Transitioning Orange to a Water Sensitive City.

3 main options for the report available from CRCWSC include:

1. **Rapid benchmarking assessment**

   The CRCWSC can undertake a rapid benchmarking assessment of Orange City Council's current water sensitive practices using the Water Sensitive Cities Index Tool. The WSC Index outlines seven goals and 34 indicators of a water sensitive city and identifies current areas of strength and areas for improvement. This activity would involve a desktop analysis and several interviews with key council staff.

   Outputs: a high-level identification of focus areas to improve water sensitive performance. This is designed to generate commitment for future activities that focus on bringing all stakeholders along the journey.

2. **Benchmarking workshop**

   The WSC Index can also be delivered through a collaborative benchmarking workshop which guides participants through a process to develop a shared understanding of current challenges and opportunities in relation to water sensitive cities. This process is critical for achieving buy-in and support across a broad range of council staff and external stakeholders who need to be involved in these discussions.

   Outputs: a detailed analysis of current water sensitive performance that has agreement and endorsement from broad stakeholders and sets the scene for future visioning and transition planning.

3. **Participation in NSW Regional Advisory Panel**

   The CRCWSC invites Orange City Council representatives to attend and participate in the CRCWSC's NSW Regional Advisory Panel. This is a group of CRCWSC industry and government partners who meet to share knowledge and experiences around water sensitive cities and discuss ways of progressing more water sensitive action for NSW.

Resource implications for moving forward with this report need to be considered.

Provide further information on what going to a water sensitive city means. More detail required on the benefits including promotional benefits and identify high rewards with low inputs.

The CRCWSC was established and funded by the Commonwealth Government, a number of members have left the CRCWSC

Regarding Orange's stormwater supply. Orange's current treated effluent is transferred to Cadia under contract. The purple pipeline reticulates harvested stormwater from the stormwater catchment ponds, this water is filtered and UV treated and sent up to a storage tank in Anson street, this supply is topped up with municipal drinking water supply on an 'as needed' basis. The amount of stormwater being harvested and pumped to the storage tank is recorded

The 'purple' pipeline is planned to be extended into North Orange subdivisions but not to the South (Shiralee).

Regarding future housing developments, are there any mandatory requirement for rainwater harvesting tanks and/or greywater systems to be implemented? No there is not.

Further discussion is required on this in promoting the use of and installation of rainwater tanks in Orange and information sharing on Grey water systems and waste water reuse in the future.

Can water restrictions be kept at a future minded level? There is an item on the agenda for Council's next meeting to discuss the recommendations to implement permanent water saving measures or 'Rules' similar to those used by Victoria.

We have been on water restrictions since 2010. Keep in mind it is an election year. The words mean different things in different places (in reference to water restriction language) The minister is taking on board the need to standardise this language to remove confusion. OCC already uses the water use per person/per day and are pushing this standardisation of what water restrictions mean (using water use per person per day as opposed to criteria for when and where to use water)

There is a notice of Motion for Cr Munro to remove all water restrictions in OCC.

Likely that if permanent water restrictions are adopted by OCC it would be the same as level 1 and 2 water restrictions. The difference is that restrictions can be enforced easier through legislation, community members are still unable to waste water which can be enforced through legislation.

Flood plain management plan going to Council next week needs to be looked at by everyone for comment. Flood plain management and stormwater harvesting plans are discussed internally between staff/departments.

RECOMMENDATION **Mr C Smith/Mrs A Salter**

I. That the Environmental Sustainable Community Committee Water sub-group meet with relevant Council staff and communications team to produce a short summary of 'What a water sensitive city is and the related benefits'.
II. That Environmental Sustainable Community Committee Water sub-group meet with relevant Council staff and communications team to refine the report to be presented to Councils Environmental Sustainable Policy Committee for consideration.
III. That a map of Councils 'purple' pipeline be provided to the Environmental Sustainable Community Committee.
IV. An updated info graph of Councils water supply system be provided to the Environmental Sustainable Community Committee.
V. That Council staff investigate information sharing and promotion of water saving technology for residents in Orange.

3.4 GREAT SOUTHERN BIOBLITZ ORANGE 2020

TRIM REFERENCE: 2020/1948

The Great Southern Bioblitz Orange 2020 went ahead on September 25-28th 2020 (4 days)

The event was created, promoted and executed in a 4 week timeframe, suggested to provide more lead up time if the project is to be implemented again in the future.

The Biodiversity walk and talks were planned for the Saturday however were cancelled due to poor weather.

Overall Stats for Orange Bioblitz from the weekend

- 64 Observations
- 41 Species
- 21 Identifiers
- 8 Observers

Southern Hemisphere results:

- 91,179 observations
- 12,395 species
- 2,110 Identifiers
- 3,106 Observers

Friends of the Botanic Gardens ran a bird watching workshop on the Sunday at The Orange Botanic Gardens, 7 community members were involved and found 42 different species during the workshop.

The iNaturalist app can be used outside of the BioBlitz program.

RECOMMENDATION **Mr N King/Mr C Smith**

I. That the Great Southern Bioblitz be run again next year.
II. That the verbal report provided by Councils Sustainability Officer be acknowledged.

3.5 COUNCILS OPERATIONAL PLASTICS REPORT - PROGRESS UPDATE

TRIM REFERENCE: 2020/1949

On 24th July 2020 Council made this decision:

That Council prepare a report outlining;

- Current use of single-use plastic across all operations;
- Available alternatives to single-use plastic items currently in use in Council operations/sponsored event
- Achievable time frames to phase out single-use plastics in Council operations
- Achievable time frames for developing a single-use plastic policy that addresses the reduction of single use plastics in Council operations and events, supports the 2025 national packaging targets, and identifies suitable alternatives, including time frames for implementation.

Council is investigating how much we're currently using single-use plastics and plastic packaging, and whether we can avoid using them, in future. As part of this investigation, line managers are being surveyed to inform the report.

RECOMMENDATION **Cr S Nugent/Ms S Alford**

That the verbal report provided by Council's Sustainability Officer be acknowledged.

3.6 ENERGY SUB-GROUP - ENERGY REPORT

TRIM REFERENCE: 2020/1969

Cr Reg Kidd declared a less than significant non-pecuniary interest in this item, during discussions relating to Solar farms as he has previously been approached to have a solar farm on his property.

The item was determined as not being operational in nature and therefore allowed for discussion, in line with the Committee Charter.

Aim of the report is to suggest and discuss a way forward to reducing energy costs to Council.

Council staff are currently working on a plan to model energy management systems on a Council asset to be able to apply the model to other Council sites over time.

There is a concern that solar famers may be located on productive farmland. There are cases where the co-benefits to solar farming in agricultural productions are realised, such as protecting livestock (sheep) and being able to establish cropping underneath solar panel.

It is important that false facts are not put out there in relation to solar farming.

RECOMMENDATION **Mr R Alford/Ms S Alford**

That the verbal report provided by Committee member Robert Alford be acknowledged.

MATTERS ARISING **Mr R Alford/Ms S Alford**

That Council staff consider a policy on the location of, and the aesthetics of solar farms in the Orange Local Government Area.

3.7 DRAFT CLIMATE CHANGE POLICY AND MANAGEMENT PLAN

TRIM REFERENCE: 2020/1995

Defer to meeting in 2 weeks' time.

RECOMMENDATION **Cr S Nugent/Mr A Kennedy**

That:

I. Item 3.7 be deferred for discussion at a specific workshop in 2 weeks - 30 October 2020.
II. Provide ESCC a workshop agenda.
III. ESCC members familiarise themselves with both the Draft Climate Change Strategic Policy and Draft Climate Change Management Plan and prepare questions/comments for the workshop.
IV. That Council provide ESCC a mechanism to discuss/comment on both documents as a group in preparation of the workshop.

THE MEETING CLOSED AT 9.35AM.

ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE

AGENDA

16 OCTOBER 2020

Notice is hereby given, in accordance with the provisions of the Local Government Act 1993 that a **ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE MEETING of ORANGE CITY COUNCIL** will be held in the **COUNCIL CHAMBERS, CIVIC CENTRE, BYNG STREET, ORANGE AND VIA ONLINE MEETING PLATFORM ZOOM on Friday, 16 October 2020** commencing at **8.00AM.**

David Waddell

CHIEF EXECUTIVE OFFICER

For apologies please contact Lindsay Hall on 63938208.

AGENDA

EVACUATION PROCEDURE

In the event of an emergency, the building may be evacuated. You will be required to vacate the building. The Committee Clerk will now identify the emergency muster point.

Under no circumstances is anyone permitted to re-enter the building until the all clear has been given and the area deemed safe by authorised personnel.

In the event of an evacuation, a member of Council staff will assist any member of the public with a disability to vacate the building.

1 INTRODUCTION

MEMBERS

Cr S Nugent (Chairperson), Cr R Kidd, Ms Shahreen Alford, Mr Robert Alford, Mrs Melissa Brown, Mrs Neina Campbell, Miss Anwen Carney, Mr Ronald Finch, Mr Daniel Fock, Mr Gavin Hillier, Mrs Kate Hook, Mr Andrew Kennedy, Mr Nick King, Dr David Mallard, Ms Melanie McDonell, Mrs Anne Salter, Ms M Shaw, Mr Cyril Smith, Mr Peter West, Ms Kate Willoughby, Mr Ken Freedman, Director Development Services, Manager Building and Environment, Water Treatment Manager, Manager City Presentation, Manager Waste Services and Technical Support, Water and Sewerage Strategic Manager, Museum and Heritage Coordinator, Parks Supervisor, Project and Research Officer, Water Management Officer

1.1 APOLOGIES AND LEAVE OF ABSENCE

1.2 ACKNOWLEDGEMENT OF COUNTRY

I would like to acknowledge the Wiradjuri people who are the Traditional Custodians of the Land. I would also like to pay respect to the Elders both past and present of the Wiradjuri Nation and extend that respect to other Aboriginal Australians who are present.

1.3 DECLARATION OF PECUNIARY INTERESTS, SIGNIFICANT NON-PECUNIARY INTERESTS AND LESS THAN SIGNIFICANT NON-PECUNIARY INTERESTS

The provisions of Chapter 14 of the Local Government Act, 1993 (the Act) regulate the way in which Councillors and designated staff of Council conduct themselves to ensure that there is no conflict between their private interests and their public role.

The Act prescribes that where a member of Council (or a Committee of Council) has a direct or indirect financial (pecuniary) interest in a matter to be considered at a meeting of the Council (or Committee), that interest must be disclosed as soon as practicable after the start of the meeting and the reasons given for declaring such interest.

As members are aware, the provisions of the Local Government Act restrict any member who has declared a pecuniary interest in any matter from participating in the discussion or voting on that matter, and requires that member to vacate the Chamber.

Council's Code of Conduct provides that if members have a non-pecuniary conflict of interest, the nature of the conflict must be disclosed. The Code of Conduct also provides for a number of ways in which a member may manage non pecuniary conflicts of interest.

RECOMMENDATION

It is recommended that Committee Members now disclose any conflicts of interest in matters under consideration by the Environmental Sustainability Community Committee at this meeting.

2 PREVIOUS MINUTES

RECOMMENDATION

That the Minutes of the Meeting of the Environmental Sustainability Community Committee held on 14 August 2020 (copies of which were circulated to all members) be and are hereby confirmed as a true and accurate records of the proceedings of the Environmental Sustainability Community Committee meeting held on 14 August 2020.

ATTACHMENTS

1 Minutes of the Meeting of the Environmental Sustainability Community Committee held on 14 August 2020

ORANGE CITY COUNCIL

MINUTES OF THE

ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE

HELD VIA ONLINE MEETING PLATFORM ZOOM ON 14 AUGUST 2020

COMMENCING AT 8.05AM

1 INTRODUCTION

ATTENDANCE

Cr S Nugent (Chairperson), Ms Shahreen Alford, Mr Robert Alford, Mrs Melissa Brown, Mr Ronald Finch, Mrs Kate Hook, Mr Andrew Kennedy, Mr Nick King, Dr David Mallard, Ms Melanie McDonell, Mrs Anne Salter, Ms M Shaw, Mr Cyril Smith, Mr Peter West, Director Development Services, Water Treatment Manager, Manager City Presentation, Manager Waste Services and Technical Support, Water and Sewerage Strategic Manager, Sally Kirby (Guest), Intern Environment and Sustainability (Guest).

1.1 Apologies and Leave of Absence

RESOLVED **Ms M McDonell/Mr A Kennedy**

That the apologies be accepted from Cr J McRae, Mrs Neina Campbell, Miss Anwen Carney, Mr Gavin Hillier, Mr Daniel Fock, Ms Kate Willoughby , Mr Ken Freedman, Manager Building and Environment, Museum and Heritage Coordinator, Parks Supervisor, Project and Research Officer for the Environmental Sustainability Community Committee meeting on 14 August 2020.

1.2 Acknowledgement of Country

1.3 Declaration of pecuniary interests, significant non-pecuniary interests and less than significant non-pecuniary interests

Nil

2 PREVIOUS MINUTES

RESOLVED **Ms M McDonell/Mr A Kennedy**

That the Minutes of the Meeting of the Environmental Sustainability Community Committee held on 26 June 2020 (copies of which were circulated to all members) be and are hereby confirmed as a true and accurate record of the proceedings of the Environmental Sustainability Community Committee meeting held on 26 June 2020.

MINUTES OF ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE 14 AUGUST 2020

MATTER ARISING **Mr A Kennedy/Ms M McDonell**

That a separate briefing on the climate change policy be arranged for ESCC.

3 PRESENTATIONS

3.1 RENEWABLE ENERGY PROGRESS - DAVID WADDELL

TRIM REFERENCE: 2020/1422

Council is planning to spend up to $290,000 of this year's $500,000 renewable energy budget on solar system installations for 3 sites - The Olympic pool, Civic Centre and Wade Park. $182,000 on replacement of 2117 lights within Councils buildings with efficient LEDs. In addition to the proposed solar sites, Council is investigating the possibility of installing a solar/ battery system at Councils animal pound.

RECOMMENDATION **Ms S Alford/Ms M Shaw**

That the verbal report presented by Councils Chief Executive Officer be acknowledged.

3.2 VERBAL REPORT - WATER UPDATE AND PROJECT UPDATE ON PROPOSED BLACKMANS SWAMP CREEK STORMWATER HARVESTING STAGE 2

TRIM REFERENCE: 2020/1395

The Review of Environmental Factors (REF) process will require a study into the environmental impacts of the proposal including downstream (Summer Hill Creek). Subject to the REF process, it is planned to split the review into 2 stages. The first stage is to consider the construction elements of the project.

Other considerations are the ability for the project to filter water and improve water quality knowing there are historically issues with erosion and flooding upstream of and in the project area. Stage 2 is to consider further workshops with community groups, habitat, tourism, OLALC engagement.

Current engagement with the Orange Local Aboriginal Lands Council resulted in including an artwork competition for the project, potential for gathering spaces (yarning circle) for cultural purposes and the naming of the site. Currently the name is proposed to be Dandu Dhaagun – East Orange Wetlands. Dandu Dhaagun is the Wiradjuri phrase meaning Wetland.

Blackmans Swamp Stage 2 was planned and modelled in 2009 with water flow data that was available at the time. Engineers are now improving the models with more reliable and recent data on water downstream impacts of Blackmans Swamp Creek Stage 2.

Wetlands are anecdotally 'dumping' grounds for fish and other introduced aquatic species, with or without knowledge of the impacts on the ecological system.

Council should consider the risk that the wetland project could be a mechanism for exotic fish species to be introduced into the creek system which may cause habitat damage in the proposed project are and further downstream.

A proposed jetty as a method of reducing habitat destruction by community members who might attempt to recreationally fish in the wetlands regardless of restrictions.

It would be good to have gauges installed at the site to gather accurate data on stormwater runoff flow rates.

RECOMMENDATION **Mr C Smith/Ms M Shaw**

That the Environmental Sustainable Community Committee support the project for its many benefits to the community and commend Council for the foresight on planning the project and engaging well with the community.

MATTER ARISING

That Storm Water Harvesting be included as an item in the next agenda for the meeting on 16 October 2020 for discussion.

3.3 PLASTICS FREE JULY 2020 SUMMARY - LINDSAY HALL

TRIM REFERENCE: 2020/1401

The plastics subcommittee would like to begin planning events for Plastics Free July 2021 to include 'big ticket' tangible actions.

RECOMMENDATION **Mrs K Hook/Mr N King**

That the verbal report presented by Councils Sustainability Officer be acknowledged.

3.4 PROPOSED SPORTING PRECINCT TREE REMOVAL - BIODIVERSITY WORKING GROUP

TRIM REFERENCE: 2020/1402

Councils Manager City Presentation has begun to assess the site and found 550 trees including remnant eucalypts and good examples of exotics such as pin oaks and sequoias. 6-10 mature trees are being looked at to be transplanted. Some exotics and natives on the site are in decline. Biodiversity offsetting is also being considered. The South Eastern corner of the site contains trees with hollows providing habitat potential. Existing trees on the edge of the proposed site which can be retained should be retained and protected during development.

Huge number of tree plantings but also a large number of carparks for the proposed site offers the opportunity for onsite treatment of overland flows and high quality urban design should be considered for this development. Water harvesting/reuse onsite is being considered for irrigation purposes.

MINUTES OF ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE 14 AUGUST 2020

RECOMMENDATION **Mr P West/Mr A Kennedy**

1 That any native species particularly mature eucalypts and old growth trees providing habitat hollows growing on the site be retained wherever possible.
2 2 That an offset plan be provided to compensate for the removal of any significant trees. This should include planting and maintenance of replacement trees, and/or committing to protecting an existing area of remnant vegetation in the Orange LGA.
3 3 That wherever possible, trees be relocated nearby to provide continuity of habitat, aesthetic value and shading of existing or new recreation/public amenities.

3.5 GREAT SOUTHERN BIOBLITZ PROGRAM - LINDSAY HALL

TRIM REFERENCE: 2020/1403

The Great Southern Bio blitz is a program out of the US which was adopted in Australia earlier this year, this is the first year trailing this event in Australia. The aim is that over a 4-day period everyone tries to gather as much biodiversity data as possible across a designated area (we would focus on OCC area) this is going to run from 25th to the 28th September 2020 (first 4 days of the school holidays)

iNaturalist is an app (this can be downloaded onto most smart phones, no cost) to be used in conjunction with the program which allows anyone who has the app to submit data (take a photo, record gps cords and notes) and anyone in the OCC area that submits data during the 4 days counts towards our project tally. What happens next is anyone on the app registered can then see what others have posted and can make comment on the images and data and can help to identify particular species. You can register yourself to the overall project if you want to which will provide access to the online community who are already registered to the project.

Any data collected over the 4 days could also be submitted to the current review of biodiversity across Council.

RECOMMENDATION **Mr P West/Mr A Kennedy**

1 That the Environmental Sustainable Community Committee support the Great Southern Bio Blitz Project.
2 That the Environmental Sustainable Community Committee Biodiversity Sub-group and any other interested members are involved in the planning and development of the project.

MINUTES OF ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE 14 AUGUST 2020

3.6 WATER SENSITIVE CITIES UPDATE - LINDSAY HALL

TRIM REFERENCE: F158

A preliminary report for ESCC is being prepared. Currently CRCWSC are unresponsive, based on early indications it is unlikely there is any funding from the CRC in this space however CRC will need to confirm. Despite this, a report on WSC's and Councils current approach to WSC's is being prepared to provide alternative recommendations if CRC no longer provide funding.

RECOMMENDATION **Mr P West/Member MS Shaw**

That the verbal report presented by Councils Sustainability Officer be acknowledged.

THE MEETING CLOSED AT 9.35AM

3 PRESENTATIONS

3.1 ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE CHARTER UPDATES

A Verbal report to be provided.

ATTACHMENTS

1 Charter - Environmental Sustainability Community Committee - August 2020, D20/60387

ORANGE CITY COUNCIL

ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE

2020/1581 **F158**

COMMITTEE CHARTER

PURPOSE

To advise Council and make recommendations in relation to:

- Community planning for waste and natural resources management services and associated learning programs
- Assist Council with educational strategies that will promote responsible use and management of natural resources, including climate change initiatives
- Facilitate Council's participation in relational planning strategies which promote resource conservation and sustainable environmental management
- That the Environmental Sustainability Community Committee have input into strategic planning across Council's operations where relevant to an environmental issue.

The Committee does not have a role in the operational function of Council. This is the responsibility of the Chief Executive Officer and staff. Equally, where Council has adopted a Strategic Policy or Strategic Planning document, the Committee must observe the Council position as set out in that policy, plan or document.

REPORTS TO

Environmental Sustainability Policy Committee

TERM

The Environmental Sustainability Community Committee shall dissolve at the General Election of Orange City Council. Council may dissolve the Committee at any time by resolution of Council.

MEMBERSHIP

Two or more Councillors (one of whom shall be Chairperson, as elected by Council)
Up to 15 community representatives
Chief Executive Officer (or nominee)
Non-voting Committee Clerk
Council staff as required (non-voting)

QUORUM

Majority of community members and at least one Councillor.

MEETING FREQUENCY

Bi-monthly, with specific meeting dates and times to be determined by the Committee.

VOTING

Each member of the Committee is entitled to one vote only. In the equality of votes, the matter is to be referred to Council for determination.

ENVIRONMENTAL SUSTAINABILITY COMMUNITY COMMITTEE CHARTER

REPORTS AND RECORDING
Matters to be considered by the Committee must be included in the agenda for the meeting, and must be provided in writing to the Committee Clerk at least 10 days before the meeting. Formal minutes of meetings of the Committee will be produced in accordance with Council's Code of Meeting Practice. The Committee may make recommendations to Council, via the Environmental Sustainability Policy Committee. Council may adopt, amend or decline any recommendation.

VACANCIES
Vacancies may arise during the term of the Committee. If a vacancy does occur, the Committee may invite an individual to join the Committee, or seek expressions of interest to fill the vacancy.

COMMITTEE CLERK
The Chief Executive Officer will provide a Committee Clerk who will be the representative of the Chief Executive Officer, and will exercise the functions of the Chief Executive Officer so far as they are relevant to the Committee and its Chairperson.

RELEVANT POLICIES/DOCUMENTS
Orange City Council Code of Conduct
Orange City Council Code of Meeting Practice
Orange Community Strategic Plan
Delivery/Operational Plan
Asset Management Plan Strategy and Plans

Copies of these and other documents are available on Council's website at www.orange.nsw.gov.au or from the Committee Clerk.

3.2 STORMWATER HARVESTING - WAYNE BEATTY

A Verbal report to be provided.

3.3 WATER SENSITIVE CITIES REPORT - PROGRESS UPDATE

A Verbal Report to be provided.

ATTACHMENTS

1 Water sensitive cities - ESCC - Orange Transitioning to a Water sensitive City Report - 2020, D20/60339

Water Sensitive Cities

Orange in context – Preliminary report

Contents

ESCC recommendation; Item 3.5 Orange Transitioning to a Water Sensitive City

That the Environmental Sustainability Community Committee recommends to the Environmental Sustainability Policy Committee that council appoint staff necessary to engage with the Cooperative Research Centres Water Sensitive Cities to develop a strategy to compile information for a preliminary report, Orange's transition to a Water Sensitive City, to be completed for presentation to Orange City Council for consideration.

What is a water sensitive city?

A city that interacts with the urban water/ hydrological cycle in ways that:

- -Provide water security for economic prosperity through efficient use of diverse resources
- -Enhance and protect the health of waterways and wetlands, river basins and coasts/bays
- -Mitigate flood and damage
- -Create spaces that collect, clean and recycle water

What are the main objectives/changes required?

- Serves as a potential water supply catchment, providing a range of different water sources at a range of different scales and for a range of different uses.

- Provides ecosystem services and promotes a healthy natural environment creating social, ecological and economic benefits
- Creates water sensitive communities where citizens have knowledge and can make wise decisions about water, actively engaging in decision making. Therefore, demonstrating positive behaviours about water conservation at home

Which areas best benefit from it?

- Improvement of liveability
- Climate change mitigation
- Ecological value
- Additional water supply and pricing
- Flood hazard reduction
- Improved groundwater quality

What is Orange City Council currently doing?

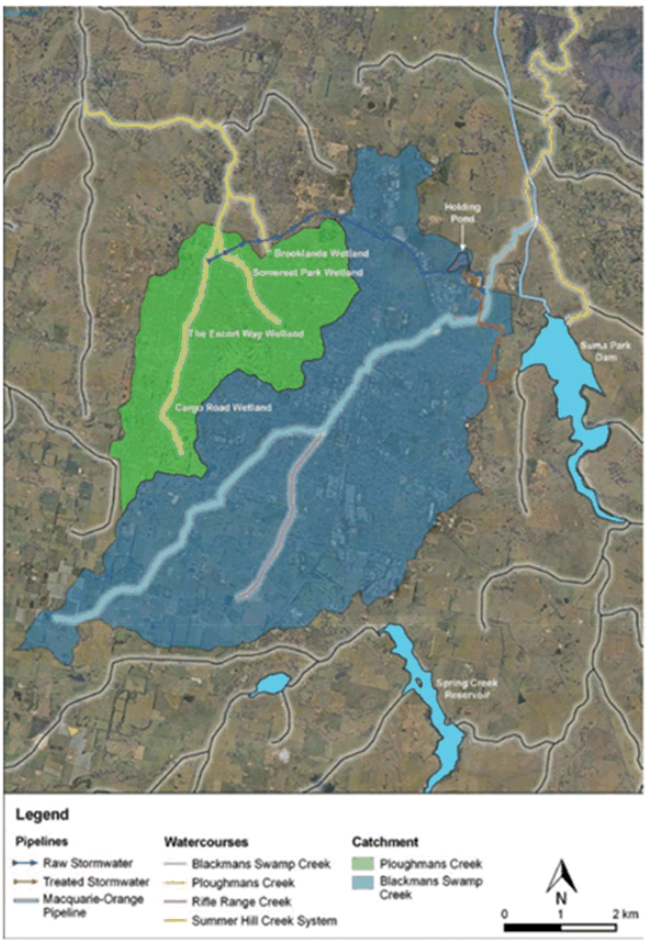
Wetlands stormwater harvesting projects

The Blackmans Swamp Creek stormwater harvesting scheme is the first large scale, indirect-to-potable stormwater harvesting project in NSW, if not Australia. Blackmans Swamp Creek and Ploughman's Creek stormwater harvesting scheme began in 2008. The scheme is ultimately capable of providing up to 2000 megalitres (ML) of additional water into oranges water supply each year. This represents up to 35% of the cities normal annual water usage. The overall concept of the stormwater harvesting scheme involves capturing the portion of high flows from Blackmans swamp creek and Ploughman's Creek during storm events and transferring this water into the nearby Suma Park Dam.

- Combined average harvesting potential of these projects is 1,350ML/year
- Blackmans Swamp Creek = up to 850ML
- Ploughman's Creek= 500ML
- This equates to approximately 25% of Oranges annual unrestricted water demand

During winter months, the snow has also been known to deliver a boost to water catchment. E.g 12th of August 2019 snow increased from 5.6 % to 28.3%, roughly 52ML.

→ Location of stormwater harvesting catchments and Suma Park Dam.



Critical issues throughout the development of this project was the need for the harvested stormwater to meet the appropriate standards of the *'Australian drinking water guidelines'*, this was achieved through the creation of multiple barriers within the water supply system to eliminate any possible contamination. Initially water runs through two large *Gross Pollutant Traps (GPTs)* that remove a portion of the larger pollutants from the stormwater. These are located on the creek itself and another on a major piped drainage line. These ponds partially existed as disused sludge ponds and were cleaned out and deepened to be used as part of the stormwater harvesting scheme. Once the necessary water quality standards have been achieved, the water is then pumped into the city's main water storage at *Suma Park Dam*. Monitoring has shown that the treated stormwater quality is predominately better than the water quality in the main water supply dam.

Water and stormwater harvesting in Orange

Dual water supply

Council has also been investigating the best use of its stormwater through implementing a dual pipe system. Dual pipe systems aim at reducing the consumption of drinking water and make the most of all water sources. Dual pipe system is supplied with recycled wastewater and used to supply household uses which do not require drinking standard water e.g. (garden irrigation and toilet flushing). Dual pipe systems have been included in all houses built in the Ploughman's Valley and north Orange since 2005, allowing residents to collect stormwater from the city's wetlands.

This reduces potable water consumptions, reducing water in ploughman's Valley and north Orange by 29%. Alongside with additional household savings (e.g. use of water efficient fittings) homes will achieve minimum 40% water saving requirement by BASIX sustainable planning measure. The completed dual water scheme (4,500 households) is estimated to use 330ML of stormwater for non-potable household uses which will reduce the volume of stormwater pollutants entering the waterways.

All recycled water is fully allocated to Cadia Valley Operations, one of Australia's largest gold mining operations. Orange City Council has developed a plan aimed at ensuring the environmental requirements and commitments including climate change risks.

Floodplain Management Plan

Orange City Council is responsible for local planning and land management in Blackmans Swamp Creek floodplain. Council proposes to develop a floodplain risk management plan in accordance with the *NSW Floodplain Development Manuel*. The policy provides a floodplain risk management system comprising of stages, these include:

- Flood Study- determines the nature and extend of the flood problem
- Floodplain risk management study- evaluates management options for the floodplain, existing and future.
- Floodplain risk management Plan- Involves adoption of the management of floodplain
- Implementation of the plan- Involves construction of flood mitigation works, ensures control measure are compatible with flood hazards
- Review of plan- Review is carried out after 10 years.

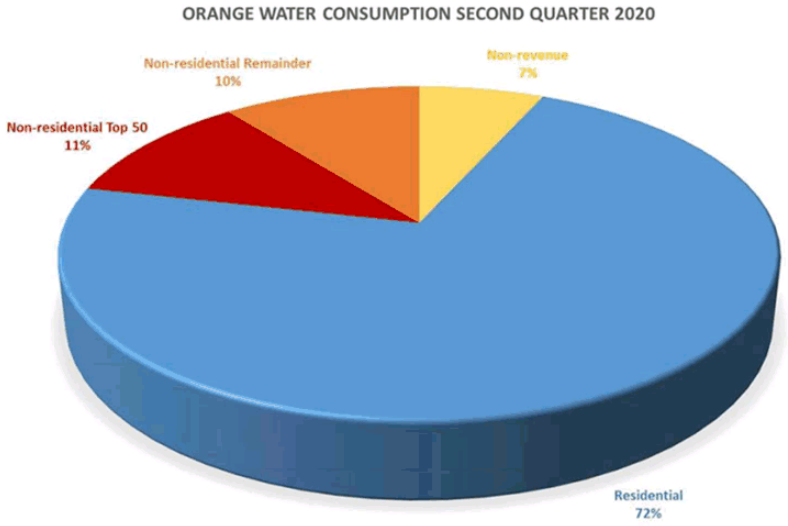
Stormwater Monitoring

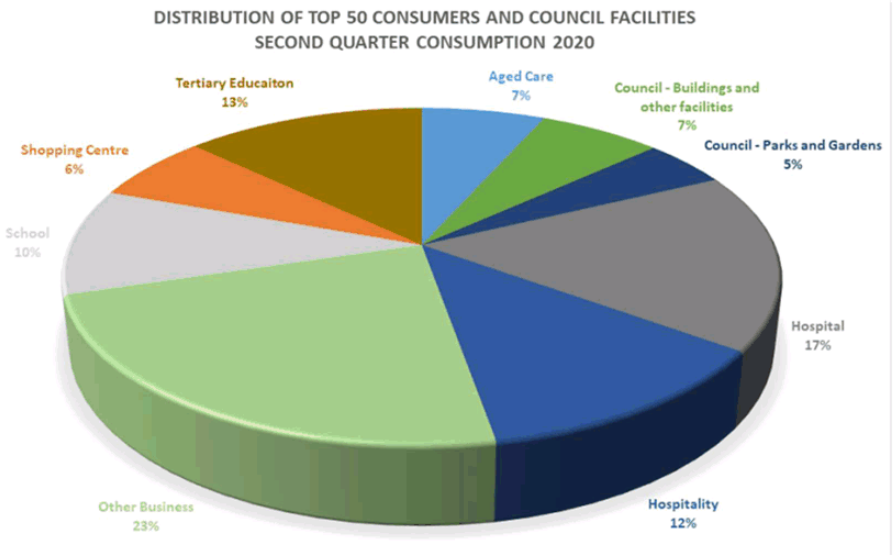
Allows for accurate quantification of runoff and pollutant entering the waterways. University of Sydney, initiated a comprehensive monitoring program. This program aims to retain and restore valuable features of the water environment, source control (water quality and quantity) and end of pipe management systems. Storm water drains and channels are a major unseen infrastructure, made up of around 233 km of storm drains and channels.

Water Audits

Both residential and business building owners were subject to water audits, finding where there may be issues in their water use, for example leak detection. Recommendation letters were given priority to the top 50 largest water users, implementing water saving action plans that aimed at reducing potable water use, and identified alternate water sources. For example, the use of water tanks for large water users such as pubs, clubs and the golf course. Also, the implementation of water bores.

Business Water Savings Action Plan needed to be submitted by each business before a certain date for each business. Examples can be found in the appendix.





Community engagement in water conservation

Community engagement included the shower head exchange program, the promotion and incentives for dual flush toilets, air rates on taps and rainwater tank subsidies. All programs aimed to facilitate water savings

Integrated Water Cycle Management Evaluation Study

The Orange City Council Integrated Water Cycle Management (IWCM) Evaluation Study identifies catchment, water resource and urban water cycle management issues relevant to the management and operation of Councils urban water service business. Integrated Water Cycle Management is a planning process developed by the NSW Department of Water and Energy (DWE), with defined steps to effectively integrate water supply, sewerage and stormwater to achieve sustainable management of these services. IWCM is a way of managing water in which all components of the water system are integrated so that water is used optimally.

For a local water utility such as Orange City Council, this means that the three main urban water services – water supply, sewerage and stormwater – share planned and managed in an integrated way to ensure that the maximum value is obtained from the resources and that benefits to the environment and community are realised.

IWCM deals with the complex linkages between the different elements of the water cycle. It addresses issues facing local water utilities as well as the more general issues facing the environment.

IWCM considers issues such as:

• The future urban water service needs and customer expectations;

• The availability of water including water sources such as surface water, groundwater, rainwater, effluent and stormwater; and

• The impact of water, sewerage and stormwater on other water users including the environment and future generations.

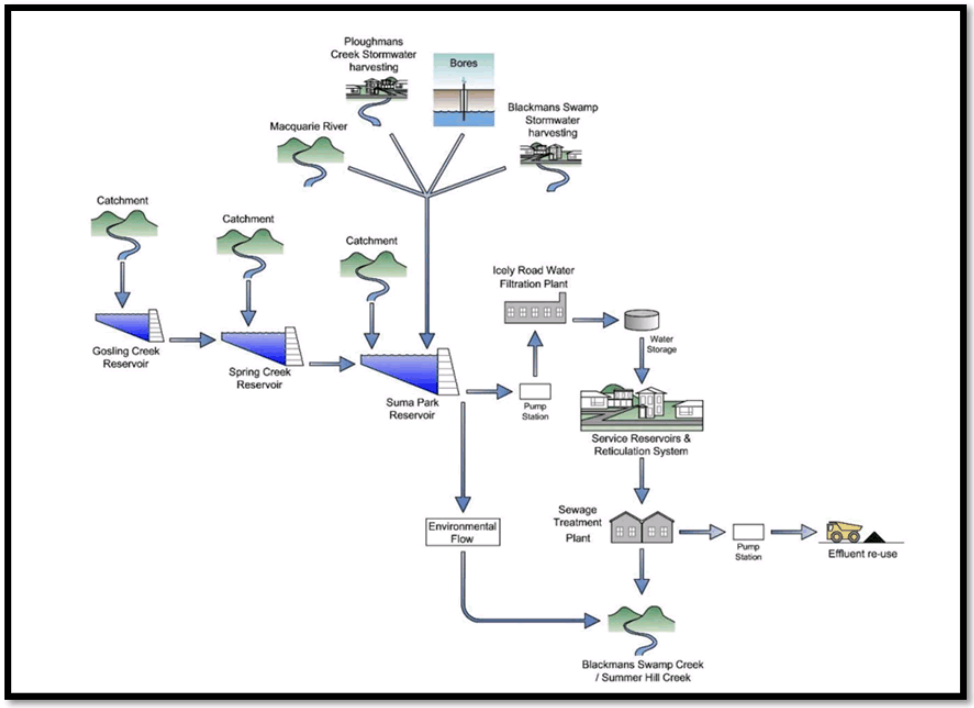
The current OCC IWCM was implemented in 2013 but is now being revised in 2020.

The Operation Environmental Management Plan (OEMP) Orange raw water supply system

The OEMP includes:

- Spring Creek and Suma Park Dams;
- The Blackmans Swamp Creek stormwater harvesting scheme (BSCSHS);
- The Ploughman's Creek stormwater harvesting scheme (PCSHS);
- Water supply bores
- The Macquarie River to Orange pipeline (MOP)

The objective of this OEMP is to provide a documented system that will help ensure environmental requirements and commitments made during the approvals process and conditions in other relevant licences and approvals are being implemented, monitored and reviewed when operating the Orange raw water supply system.



Orange's Raw Water Supply System

Cooperative Research Centres – Water Sensitive Cities Feedback

Opportunities for a water sensitive Orange City Council

The Cooperative Research Centre for Water Sensitive Cities (CRCWSC) recognises the significant amount of work Orange City Council has progressed to improve water security in the region, including the development of an IWCM plan and nation-leading indirect stormwater harvesting projects. Orange City Council is now at a point to connect up and build on these activities to articulate a strategic approach to ensuring liveable communities, resilience to climate change, sustainable resource use, and economic productivity for the future. The CRCWSC can support Orange City Council by providing the knowledge, tools and processes to develop this coordinated approach, and to connect Orange City Council with other regional local government areas to promote sharing of lessons and experiences.

CRC water sensitive cities has developed case studies to help encourage other cities to adopt research knowledge in real-life projects.

Case studies

The CRCWSC has worked in a number of regional areas to consolidate current water management activities and develop a shared strategic direction for stakeholders. A few of these examples are outlined below:

Bendigo network of champions

The CRCWSC delivered a series of collaborative workshops in Bendigo, Victoria to develop a water sensitive city vision and strategy across stakeholders from Council, State Government, water utilities, local consultants, and Aboriginal groups. Workshops and focus groups were also delivered with the general community to generate community buy-in and support for the process. The work in Bendigo delivered:

- A Vision and Transition Strategy for a Water Sensitive Bendigo including a benchmarking assessment
- Commitment across diverse stakeholders for achieving the vision in Bendigo, formalised by a Memorandum of Understanding
- An informal working group (including community members) to identify actions for implementation
- Tangible projects including Reimagining Bendigo Creek

Blue Mountains City Council Water Sensitive Strategy

Blue Mountains City Council (NSW) developed a Water Sensitive Blue Mountains Strategic Plan in 2019 which sets out a vision for the council area as a future water sensitive region. The CRCWSC facilitated a series of community workshops on this plan which assisted the development of a final version endorsed by Council in September 2019. The CRCWSC then helped Council work across its internal departments to implement this plan by delivering a benchmarking workshop to assess current performance and identify priority areas for action. The work was supported by Water NSW as part of their Urban Program which seeks to improve Council stormwater management practices.

Community visioning for Goulburn's water future

The CRCWSC worked with WaterNSW to develop a community vision for water in Goulburn Mulwaree Council as a way to raise the profile of this issue in Council and in the community. This was developed through a series of participatory workshops with a broad cross-section of the Goulburn community. This process highlighted what the community values regarding water in Goulburn and ideas for actions that Council and WaterNSW can support the community in delivering.

Water Sensitive Hornsby Strategy

The CRCWSC delivered a suite of collaborative workshops for Hornsby Shire Council to develop a water sensitive vision and strategy. This was largely driven by the development of the new Local Strategic Planning Statement and its identification of a number of new strategies to be developed. This work included:

- Benchmarking Hornsby's current water sensitive performance
- Developing a shared vision across council staff, DPIE, Sydney Water, and general community members
- Identification of strategic priority areas for Hornsby to achieve its vision

Ideas for Sydenham to Bankstown

The CRCWSC ran a series of design workshops with two councils in Sydney's Sydenham to Bankstown growth corridor: Inner West Council and Canterbury Bankstown Council. Other stakeholders included the Cooks River Alliance, Sydney Water and DPIE. These workshops helped each Council to rapidly develop its Local Strategic Planning Statements to meet State Government timeframes and to include best practice water management approaches that were suited to the area.
The two councils nominated this project for a NSW PIA Award.

What the CRCWSC could provide to Orange City Council

The CRCWSC can support Orange City Council in a number of ways in the immediate future to develop a coordinated and strategic approach to improving water sensitivity, and to connect with other councils and regions who have progressed their water sensitive city journey:

1. **Rapid benchmarking assessment**
   The CRCWSC can undertake a rapid benchmarking assessment of Orange City Council's current water sensitive practices using the Water Sensitive Cities Index Tool. The WSC Index outlines seven goals and 34 indicators of a water sensitive city and identifies current areas of strength and areas for improvement. This activity would involve a desktop analysis and several interviews with key council staff.

   Outputs: a high level identification of focus areas to improve water sensitive performance. This is designed to generate commitment for future activities that focus on bringing all stakeholders along the journey.

2. **Benchmarking workshop**
   The WSC Index can also be delivered through a collaborative benchmarking workshop which guides participants through a process to develop a shared understanding of current challenges and opportunities in relation to water sensitive cities. This process is critical for achieving buy-in and support across a broad range of council staff and external stakeholders who need to be involved in these discussions.

   Outputs: a detailed analysis of current water sensitive performance that has agreement and endorsement from broad stakeholders and sets the scene for future visioning and transition planning.

3. **Participation in NSW Regional Advisory Panel**
   The CRCWSC invites Orange City Council representatives to attend and participate in the CRCWSC's NSW Regional Advisory Panel. This is a group of CRCWSC industry and government partners who meet to share knowledge and experiences around water sensitive cities and discuss ways of progressing more water sensitive action for NSW.

Appendix
Business Water Audit template

7 April 2020

[redacted]

BUSINESS WATER AUDIT (BWA)

This letter is in relation to the water audit [redacted] which was undertaken on 16 December 2019. Council conducted audits of the top 70 water using businesses with the objective to reduce demand on the town supply in an effort to push back the introduction of Level 6 water restrictions.

The combined storage level of the Orange water supply is currently at 22.1%. With the operation of the Macquarie River to Orange Pipeline and Council's stormwater harvesting schemes along with surface inflows into our water storages due to recent rainfall, it is anticipated that the introduction of Level 6 restrictions may be been pushed back to July 2020. The future rainfall outlook also looks positive.

Following the third quarter meter reads from February 2020, a comparison of those Top 70 businesses was undertaken which revealed a significant overall reduction in water consumption from the 2019 February read. The comparison found the overall reduction in water consumption was in the order of 20 million litres for the quarter and whilst this is positive, it must be understood the 2019 read was during Level 3 water restrictions and the 2020 read was during Level 5 water restrictions.

However, not all of the Top 70 businesses reduced their consumption with about 20 businesses recording an increase in consumption.

It is noted that some of those increased consumptions will be the result of leaks and there may be other reasons for those increases such as increased productivity.

Your business was among the 20 businesses that recorded increased consumption, from consumption of 787 kl / quarter in February 2019 to 1,237 kl / quarter in February 2020. This is an increase of 450 kl / quarter as indicated on the attached updated water chart.

BUSINESS WATER AUDIT (BWA)
7 April 2020

Council sent you a report of the audit on 5 February 2020 that included your water chart and audit report form. The audit report included some initiatives and recommendations that could be considered by your business in an effort to reduce demand on the town water supply.

Your attached water chart has been updated with the last read (Feb 2020) which registered consumption of 1,237 kl for the quarter or an average of about 13,700 litres / day. This is higher than your previous average of about 11,000 litres / day.

The audit report also included a request to complete and submit a Business Water Savings Action Plan (BWSAP) which your Store Manager, Simon Fragar has done and this is appreciated by Council.

Your BWSAP declares the following actions have been implemented:-

- Installation of water conservation signage to advise customers of water conservation
- Increase water conservation awareness with all staff
- Daily meetings include water conservation
- Daily inspections include water conservation observations.

Your BWSAP includes a commitment to replace inefficient taps with efficient auto sensor types when the wash areas are upgraded and an ongoing commitment to monitor water usage and continued communications with staff regarding water conservation.

These actions will reduce demand on the town water supply.

The Business Water Audit is a tool to assist business users in conserving water and improving water efficiencies and informs the Business Water Savings Action Plan. The Business Water Audit and the Business Water Savings Action Plan have the common objective to reduce demand on the town water supply to stave off the introduction of Level 6 restrictions.

Council can only imagine the devastating impact the COVID-19 crisis must be having on your business with many businesses being forced to close and others suffering a substantial reduction in revenue. During these extremely difficult times, Council does understand your interest in water conservation is probably far in the back of your mind.

If your water consumption has increased due to unknown invisible leaks from your plumbing, and if not detected and repaired, these leaks will continue to register consumption on your water meter. At the time of the audit, you were advised about leak detection and recommended to undertake a drop test on your water meter. If you have not yet done so, it may be prudent to do the drop test to at least give you peace of mind that you do not have leaks contributing to unnecessary consumption and subsequently additional costs to your business.

BUSINESS WATER SAVINGS ACTION PLAN (WSAP)

PURPOSE

Business water consumers have an important role to play in conserving Orange's water and reducing the likelihood that greater restrictions will be introduced. This Business Water Savings Action Plan (WSAP) is a tool to assist business users in assessing their current water use levels and implementing changes that can be made to improve their water efficiencies. Potential benefits of completing a WSAP include:

- Improved management of water consumption resulting in reduced water-related costs;
- Change in staff behaviours and strengthened reputation;
- Development of a plan for the continuity of activities, where appropriate, in times of drought;
- Support of broad community efforts in reducing the likelihood that greater restrictions are introduced in the future.

APPLICATION

This WSAP form is general in nature in order to apply broadly to business water customers in the Orange LGA. Council recognises that many customers have already introduced water saving measures or practices, and have installed updated toilets, showers, tapware and machines. This information should be included in the WSAP.

Not all questions will relate to all organisations (use N/A where not applicable). When completing the WSAP, organisations will need to examine their water-related activities specific to their own functions and business. This information should be included in the additional spaces provided on the WSAP form. Please attach any additional information as appropriate.

If your organisation or business is a large water consumer, it may be necessary to undertake a more extensive water audit. The largest water users will be contacted directly by Council to review their water saving activities and any existing water savings action plans or water audits.

If your organisation or business has undertaken a water audit or implemented a Water Savings Action Plan within the past three years, this can be submitted to Council in place of a completed Business Water Savings Action Plan.

Additional resources and website links to support the completion of this WSAP are available at orange.nsw.gov.au/waterwise.

ORANGE CITY COUNCIL
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www.orange.nsw.gov.au

ORANGE CITY COUNCIL

ORGANISATION DETAILS

Organisation Name

Operating Name (if different)

ABN

Postal Address

Contact Details

Name:

Position:

Email:

Phone:

Industry Category

- ☐ Vehicle wash
- ☐ Construction
- ☐ Commercial nursery
- ☐ Food/pet food production
- ☐ Cannery
- ☐ Pet care
- ☐ Child care
- ☐ Educational services
- ☐ Health care services
- ☐ Aged care services
- ☐ Motels, hotels and registered clubs
- ☐ Caravan park and cabins
- ☐ Business with cooling tower
- ☐ Public water feature
- ☐ Public sporting field
- ☐ Parks and gardens (including street trees)
- ☐ Other (please identify)

Description of Organisation

WATER USE

Complete the following table with an estimate of the comparative amount of water used for each function or purpose. This will give you an indication of where water efficiency improvements may be most effective. Whist the biggest water-users in the home are washing machines, showers, taps and toilets, your business may have high water requirements in other areas. Water using activities specific to your business or organisation should be detailed under the Industry Specific Activities section below.

Water Using Area or Function	Estimated Amount of Water Used
Amenities – Kitchen, food preparation, dishwashers	☐ High ☐ Medium ☐ Low ☐ N/A
Amenities –Toilets and hand basins	☐ High ☐ Medium ☐ Low ☐ N/A
Amenities - Showers	☐ High ☐ Medium ☐ Low ☐ N/A
Cleaning - General	☐ High ☐ Medium ☐ Low ☐ N/A
Cleaning - Laundry	☐ High ☐ Medium ☐ Low ☐ N/A
Maintenance - Leaks	☐ High ☐ Medium ☐ Low ☐ N/A
Maintenance - Equipment	☐ High ☐ Medium ☐ Low ☐ N/A
Water Features (eg spas, pools, fountains)	☐ High ☐ Medium ☐ Low ☐ N/A
Outdoor – Gardens and lawns	☐ High ☐ Medium ☐ Low ☐ N/A
Outdoor – Water features (eg pools, spas, fountains)	☐ High ☐ Medium ☐ Low ☐ N/A
Other -	☐ High ☐ Medium ☐ Low ☐ N/A
Other -	☐ High ☐ Medium ☐ Low ☐ N/A
Other -	☐ High ☐ Medium ☐ Low ☐ N/A
Industry specific activities (List any activities below that are specific to your business – eg concrete mixing for builders, plant watering for commercial nurseries etc)	
	☐ High ☐ Medium ☐ Low ☐ N/A
	☐ High ☐ Medium ☐ Low ☐ N/A
	☐ High ☐ Medium ☐ Low ☐ N/A

WATER EFFICIENCY CHECKLIST

Complete this checklist to help identify actions that your organisation could undertake to improve water efficiencies. Indicate whether the action is currently undertaken (Yes/No). For water conservation activities not currently undertaken, include a proposed timeframe for action; this will be included in your plan (Section 4).

Managing Your Water	Yes/No	Recommendation	Action Timeframe (if No)
Is there at least one person in your organisation designated to monitor and improve water use?	☐ Yes ☐ No	Identify staff responsible for regular monitoring and championing water efficiencies	☐ Immediate/ongoing ☐ Short term ☐ Long term
When you receive a water rates notice, do you monitor and record your water use?	☐ Yes ☐ No	Check your water rates notice and record water consumption for each quarterly period. Compare water usage with previous periods. An unusually high consumption rate may indicate a leak	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you have policies and/or procedures supporting water efficient actions?	☐ Yes ☐ No	Document and communicate organisational water conservation actions (e.g. only running dishwashers when full)	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you have signage (posters, stickers, signs) to encourage water conservation?	☐ Yes ☐ No	Use signage to educate and/or remind staff, customers, and contractors of water saving practices.	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you engage staff in water-saving efforts?	☐ Yes ☐ No	Engage staff in water-saving activities through activities such as team meetings, newsletters, staff training.	☐ Immediate/ongoing ☐ Short term ☐ Long term
Other:	☐ Yes ☐ No		☐ Immediate/ongoing ☐ Short term ☐ Long term

Amenities	Yes/No	Recommendation	Action Timeframe (if No)
Have you installed water efficient taps?	☐ Yes ☐ No	Install water efficient tapware or use flow regulators to reduce water flow. Check the WELS*star rating of your tap equipment	☐ Immediate/ongoing ☐ Short term ☐ Long term
Have you installed automatic shut-offs for your taps?	☐ Yes ☐ No	Where appropriate, install taps with sensor-equipped automatic shut offs	☐ Immediate/ongoing ☐ Short term ☐ Long term
Have you installed dual flush toilet(s)?	☐ Yes ☐ No	Replace single flush toilets with water efficient dual flush toilets (6/3L or 4/5/3L). Check the WELS* star rating	☐ Immediate/ongoing ☐ Short term ☐ Long term
Have your replaced automatic (cyclic) flushing urinals with sensor flushing systems?	☐ Yes ☐ No	Replace automatic flushing urinal with sensor flushing systems to ensure water is only used when necessary. Regularly check that sensors are working correctly	☐ Immediate/ongoing ☐ Short term ☐ Long term
Have you installed water efficient showerhead(s)?	☐ Yes ☐ No	Install water efficient showerheads. Check the WELS* star rating and replace if not water efficient	☐ Immediate/ongoing ☐ Short term ☐ Long term

Have you installed water efficient dishwasher(s)?	☐ Yes ☐ No	Ensure your dishwasher is water efficient. Check the WELS* star rating and replace if not water efficient. Wait for a full load and scrape dishes (rather than rinse) before loading	☐ Immediate/ongoing ☐ Short term ☐ Long term
Other:	☐ Yes ☐ No		☐ Immediate/ongoing ☐ Short term ☐ Long term

Cleaning and Maintenance	Yes/No	Recommendation	Action Timeframe (if No)
Do you regularly check for leaks?	☐ Yes ☐ No ☐ N/A	Turn off all water using activities and check to see if the meter numbers or triangle is turning. If it is, you may have a leak. Check toilets, taps, and watering systems for hidden leaks	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you have an inspection and maintenance schedule for all water-using amenities and fixtures (taps, toilets, urinals, showers)?	☐ Yes ☐ No ☐ N/A	Regularly inspect water-using fixtures and appliances. Replace rubber seals and perishable components on a scheduled basis.	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you communicate with cleaning staff about water conservation?	☐ Yes ☐ No ☐ N/A	Communicate with cleaning staff about water efficient cleaning methods and policies	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you have a water efficient washing machine?	☐ Yes ☐ No ☐ N/A	High rated WELS* water efficient top-loading washing machines are recommended. Always use full loads	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you clean hard surfaces such as paths/driveways/ walls without using water?	☐ Yes ☐ No ☐ N/A	Use a broom or blower for all outdoor surfaces. Use water only for health and safety purposes.	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you clean tools using a bucket of water instead of under a running tap?	☐ Yes ☐ No ☐ N/A	Clean tools and other equipment items using a bucket of water instead of running a tap where possible.	☐ Immediate/ongoing ☐ Short term ☐ Long term
Other:	☐ Yes ☐ No ☐ N/A		☐ Immediate/ongoing ☐ Short term ☐ Long term

Equipment / Infrastructure	Yes/No	Recommendation	Action Timeframe (if No)
Do you use a pool and/or spa cover?	☐ Yes ☐ No ☐ N/A	Use pool / spa covers to reduce evaporation	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you have rainwater tank(s) connected to the toilet and garden?	☐ Yes ☐ No ☐ N/A	Install and use connected rainwater tanks for use in the garden and for toilets	☐ Immediate/ongoing ☐ Short term ☐ Long term
Other:	☐ Yes ☐ No ☐ N/A		☐ Immediate/ongoing ☐ Short term ☐ Long term

Outdoor Use – Lawns & Gardens	Yes/No	Recommendation	Action Timeframe (if No)
Is your irrigation system maintained and checked regularly for leaks?	☐ Yes ☐ No ☐ N/A	Implement a regular monitoring system (at least once a month) for your irrigation system. Damp patches on the ground or nearby road may indicate a leak and significant water loss.	☐ Immediate/ongoing ☐ Short term ☐ Long term
Have you adjusted automatic timers to ensure they are not watering for longer than needed?	☐ Yes ☐ No ☐ N/A	Water according to Level 4 or 5 restriction requirements. If this is not possible due to the primary function of your organisation, include alternative water conservation strategies in the 'Industry Specific' section below.	☐ Immediate/ongoing ☐ Short term ☐ Long term
Have you ensured that any watering is captured on lawns and gardens rather than on hard surfaces?	☐ Yes ☐ No ☐ N/A	Test and adjust watering systems to make sure water is captured on vegetation rather than on hard surfaces such as paths and roads	☐ Immediate/ongoing ☐ Short term ☐ Long term
Have you planted drought tolerant plants and low water lawns?	☐ Yes ☐ No ☐ N/A	Choose and consider replacing plants with varieties that are suited to a dry climate	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you group plants by water requirements?	☐ Yes ☐ No ☐ N/A	Place plants with a similar water requirement together to avoid overwatering	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you always check weather forecasts before your water lawns and gardens?	☐ Yes ☐ No ☐ N/A	Check weather forecasts to make sure you are not overwatering	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do your garden beds have a layer of mulch?	☐ Yes ☐ No ☐ N/A	Apply mulch to a depth of 7-10cm	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you improve your soils to encourage plant growth?	☐ Yes ☐ No ☐ N/A	Better soil quality can improve plant growth and water retention	☐ Immediate/ongoing ☐ Short term ☐ Long term
Do you use alternative water sources to irrigate your garden?	☐ Yes ☐ No ☐ N/A	Consider using alternative sources (rainwater, stormwater) where possible	☐ Immediate/ongoing ☐ Short term ☐ Long term
Have you considered how you will change your outdoor watering activities in the event greater water restrictions are introduced and outdoor watering is not permitted or extremely restricted?	☐ Yes ☐ No ☐ N/A	Carefully consider and start to develop strategies to address potential increase in outdoor water use restrictions	☐ Immediate/ongoing ☐ Short term ☐ Long term
Other:	☐ Yes ☐ No		☐ Immediate/ongoing ☐ Short term ☐ Long term

Industry Specific / Other	Yes/No	Recommendation	Action Timeframe (if No)
	☐ Yes ☐ No ☐ N/A		☐ Immediate/ongoing ☐ Short term ☐ Long term
	☐ Yes ☐ No ☐ N/A		☐ Immediate/ongoing ☐ Short term ☐ Long term
	☐ Yes ☐ No ☐ N/A		☐ Immediate/ongoing ☐ Short term ☐ Long term
	☐ Yes ☐ No ☐ N/A		☐ Immediate/ongoing ☐ Short term ☐ Long term

*The Water Efficiency Labelling and Standards (WELS) scheme is an Australian Government initiative in partnership with state and territory governments. The more stars on a WELS label, the more efficient the water use rating. Go to www.waterrating.gov.au for current information on water efficient products and standards.

WATER EFFICIENCY ACTION PLAN

Prepare a simple action plan by recording the actions marked 'No' in the Water Efficiency Checklist (Section 3) within the appropriate action timeframes.

Action Timeframe	Status
Immediate Actions	
	☐ Under consideration ☐ Resources allocated ☐ In progress
	☐ Under consideration ☐ Resources allocated ☐ In progress
	☐ Under consideration ☐ Resources allocated ☐ In progress
	☐ Under consideration ☐ Resources allocated ☐ In progress
Short Term Actions	
	☐ Under consideration ☐ Resources allocated ☐ In progress
	☐ Under consideration ☐ Resources allocated ☐ In progress
	☐ Under consideration ☐ Resources allocated ☐ In progress

	☐ Under consideration ☐ Resources allocated ☐ In progress
Long Term Actions	
	☐ Under consideration ☐ Resources allocated ☐ In progress
	☐ Under consideration ☐ Resources allocated ☐ In progress
	☐ Under consideration ☐ Resources allocated ☐ In progress
	☐ Under consideration ☐ Resources allocated ☐ In progress

PLAN COMMITMENT

To be completed by an organisation representative with the appropriate delegation. This may or may not be the contact identified in Section 1.

This organisation agrees to submit this Water Savings Action Plan (WSAP) to Orange City Council and commits to undertaking actions for improved water efficiency as identified in this plan.

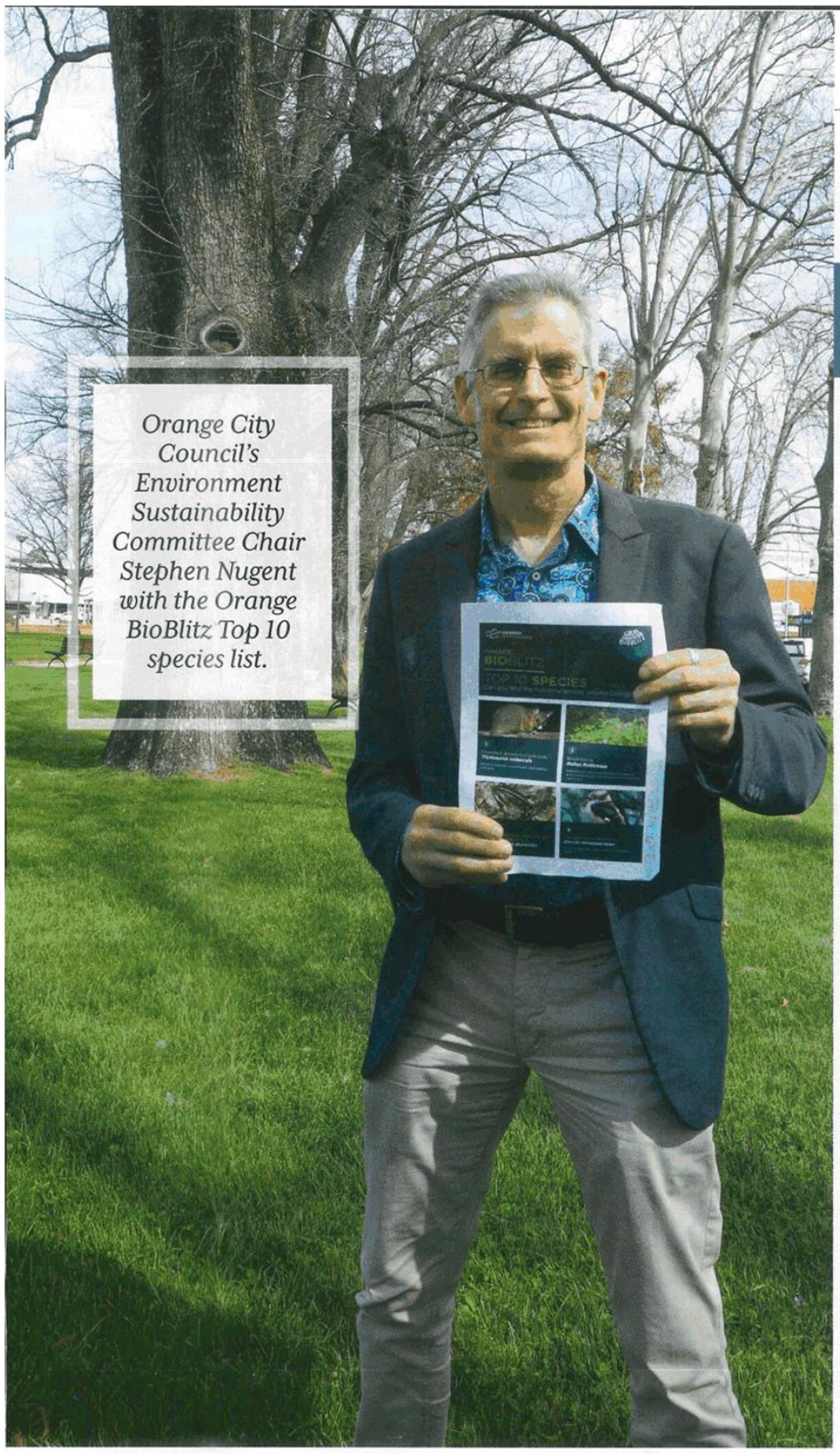
Name	
Position	
Signature	
Date	
STAFF USE - APPROVAL	
☐ Approved ☐ Not approved	Signature

3.4 GREAT SOUTHERN BIOBLITZ ORANGE 2020

A Verbal report to be provided by the Sustainability Officer.

ATTACHMENTS

1 Orange City Life - Great Southern Bioblitz Orange 2020, D20/60283
2 BioBlitz Walking Tracks Booklet, D20/60265
3 BioBlitz Top 10 Species, D20/60264
4 BioBlitz Poster, D20/60262
5 Great Southern Bioblitz Orange 2020 - Biodiversity Walk and Talk Eventbrite Page, D20/60292
6 BioBlitz Workshops - Walk & Talk, D20/60266



Citizen science nature hunt to kick off school holidays!

— JONATHAN ROE —

Get outdoors this weekend and join citizen scientists around the globe in discovering and cataloguing the diverse wildlife around us.

The Great Southern Bio Blitz is an international project to conduct intense biological survey and attempt to record all the living species within designated areas across the Southern Hemisphere in Spring. The idea is to highlight both the immense biodiversity spread across the Southern Hemisphere in the flourishing springtime, as well as to engage the public in science and nature learning.

Orange has registered as part of the global campaign and is encouraging local citizen scientists to take photographs of the different species they find and log the details in an app.

Mayor Reg Kidd said the Bio Blitz was a perfect start to the school holidays.

"It's a wonderful activity for people of all ages to join in on," he said. "It's free, it's educational and it encourages people to spend time in the great outdoors.

"This time of year in Orange is just absolutely perfect so why not enjoy being in nature and help scientists' research while you're at it."

The Great Southern Bio Blitz runs for four days from Friday September 25 to Monday September 28. To participate during that period simply visit www.inaturalist.org and download the INaturalist app. Then get outdoors, whether it be in our city parks, nature reserves of even your own backyard and record what you find.

"This is a great opportunity to learn about the local biodiversity," said Orange City Council's Environment Sustainability Committee Chair Stephen Nugent.

"The app is simple to use and freely available for any smart phone, desktop or tablet that allows you to take images and record GPS coordinates and notes on any

1

Common Brush-tail possum
Trichosurus vulpecula

Native to Australia. Is a nocturnal, semi-arboreal marsupial.

GREAT SOUTHERN BIOBLITZ

Can you find the following species around Orange?

5

Eastern Rosella
platycerus eximius

Native to southeast of the Australia continent and Tasmania, distinctive colours make it easy to spot.

6

Australian Painted Lady
Vanessa kersghawi

Native to Australia, may be found perching on vegetation in a sunny spot.

2

Blackberry
Rubus fruticosus

Blackberry infests around 9 million hectares of land in Australia and is listed as a weed of national significance.

species you find, it will also help to accurately document the species. "

Orange City Council is also hosting a public Biodiversity Walk and Talk on Saturday from 9am to 9.40am, or 10am to 10.40am at the Orange Botanic Gardens. Attendees must RSVP on EventBrite.

You can find local maps on Council's website and Facebook page with walking tracks for people to take as well as a list of the top ten species to look out for — both natives and invasive species.

"We're interested in finding species such as the Laughing Kookaburra, the Australian Painted Lady butterfly, the Australian Green Mantis and weeds such as Blackberry," said Cr Nugent.

"The Bio Blitz is timed perfectly with the start of the school holidays so why not get the family together and go on a nature hunt."

3

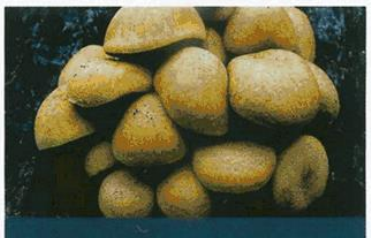
Pobblebonk Frog, Eastern or Southern Banjo Frog
Limnodynastes dumerilii

Native to eastern Australia

7

Superb Fairywren
Malurus cyaneus

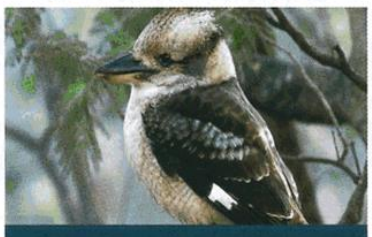
a passerine bird in the Australasian wren family, common across south eastern Australia



8

Spectacular Rustgill
Gymnopilus junonius

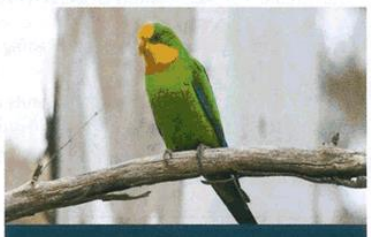
Typically found growing on tree stumps and logs, found in Europe, Australasia and South America



4

Laughing Kookaburra
dacelo novaeguineae

Native to Australia, listen out for its distinctive laugh.



9

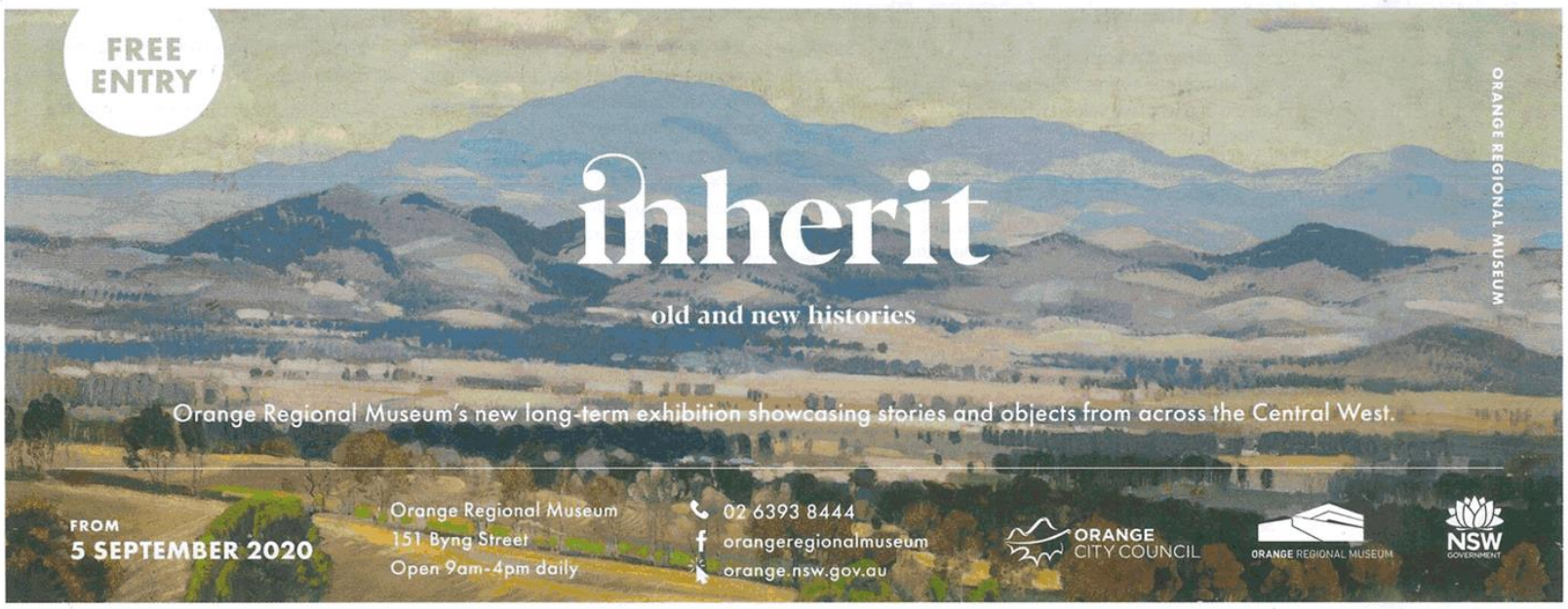
Superb parrots
Polytelis swainsonii

Listed as vulnerable on the Australian Environment Protection and Biodiversity Conservation Act 1999.

10

Australian Green Mantis
Orthodera ministralis

Native species that inhabits gardens all across Australia.



ORANGE CITY COUNCIL

GREAT SOUTHERN BIOBLITZ

ORANGE
BIOBLITZ

TOP 10
WALKING TRACKS
Bring along hat, sunscreen and water bottle

Contents

Botanic Gardens

The Orange Botanic Gardens are situated at the corner of Hill Street and the Northern Distributor Road, in a natural undulating 17 hectare site. The Gardens feature impressive native and exotic plant collections.

- Admission is FREE
- Off street car parking available
- Please leave bicycles outside of the gardens as bike riding is not permitted in the gardens
- Guided tours for large groups are available on request
- Playground and BBQ facilities are available at the Orange Adventure Playground
- Toilet facilities are available.

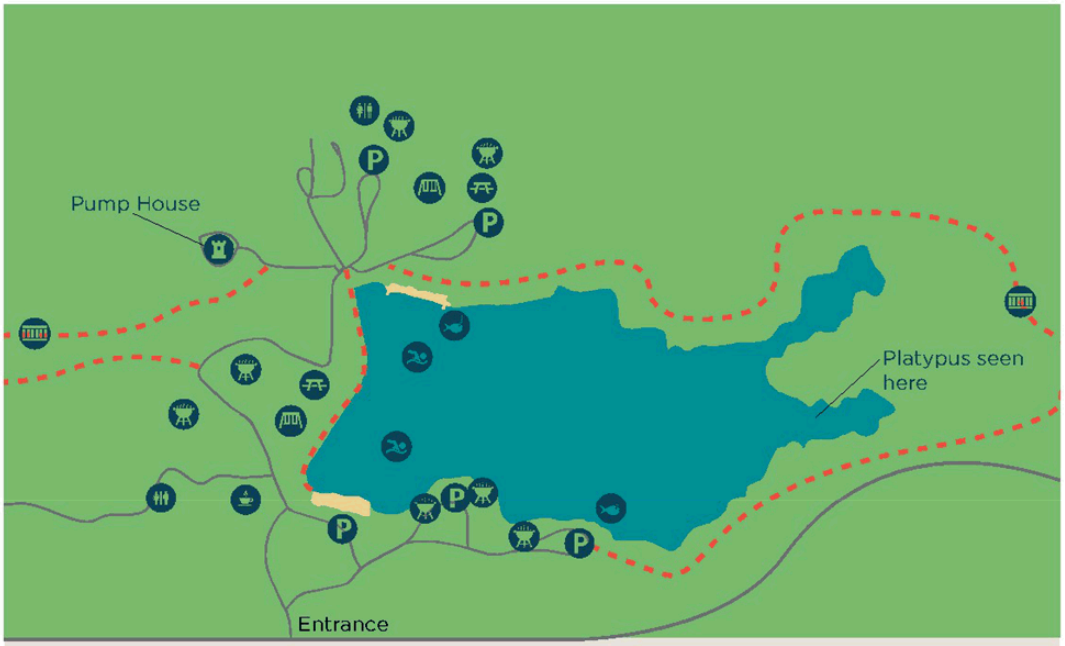
3

Gosling Creek

Gosling Creek is located just off Bargwanna Road, south of Orange.

- There is a large carpark available on both sides of Bargwanna Road as you turn off Bloomfield Road.
- Depending upon the distance, the track traverses around the perimeter of Gosling Creek and then out and back along Bargwanna Road.
- The track consists of bitumen & gravel surfaces and is relatively flat to gently undulating.
- There are toilets available at this location within Gosling Creek Reserve.

4

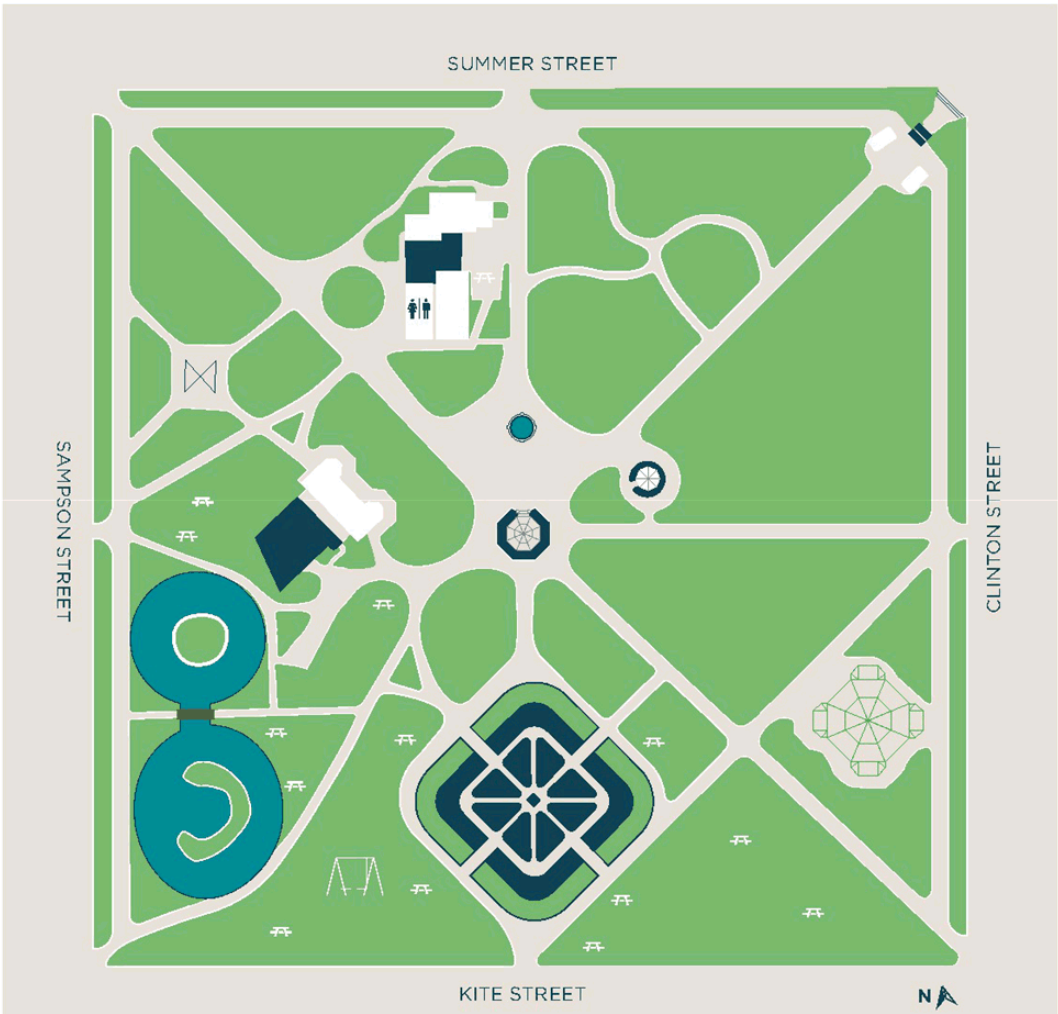


Lake Canobolas

Lake Canobolas reserve is located just off the Lake Canobolas Road west of Orange.

- There is plenty of car parking available in the carpark in front of the lake as you enter the reserve.
- The track is a mix of bitumen road and gravel track.
- There are toilets available at this location and the Café is open depending upon the season.

5

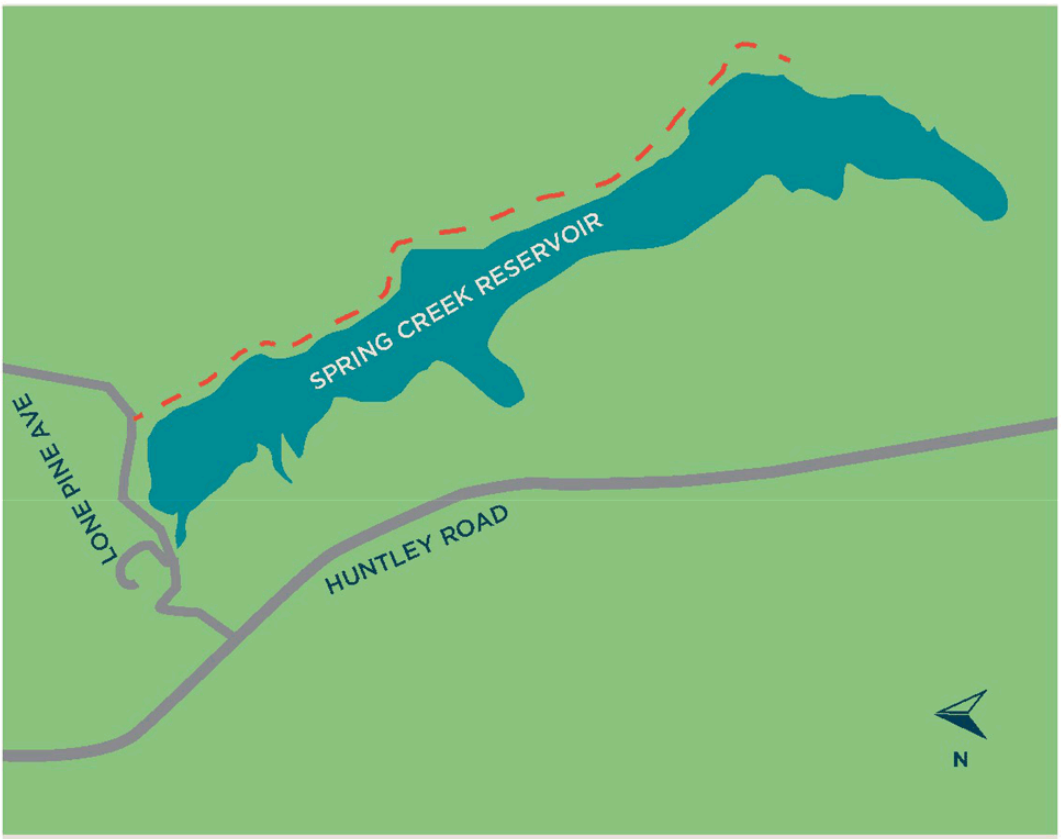


Cook Park

Cook Park is 4.5 hectares of parkland in the heart of Orange, built alongside Summer Street.

- The Park Guildry is open 7 days, 10am to 4pm, closed on Christmas Day and Good Friday
- Picnic tables and toilet facilities are provided
- Dogs are permitted in the park but must be kept on a lead
- Guided tours are available for large groups on request
- The park includes wheelchair access

6

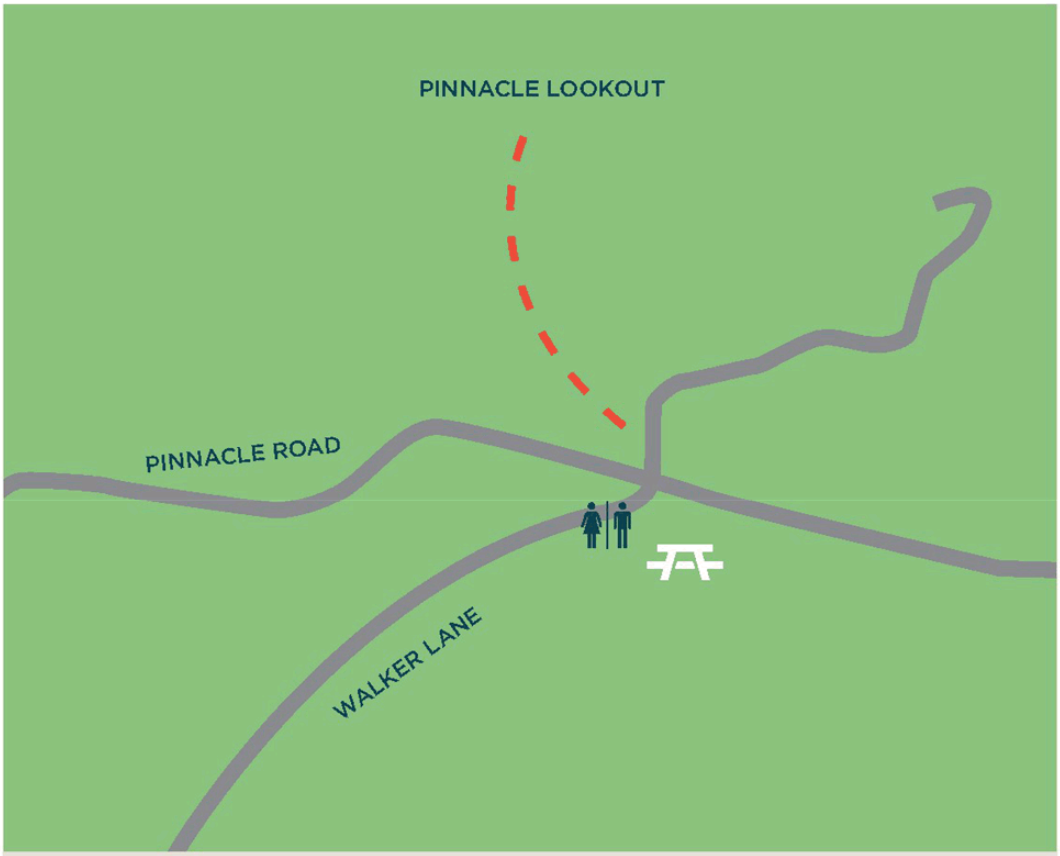


Spring Creek Dam

Spring Creek Dam is a minor embankment dam across the Spring Creek

- The Spring Creek Dam is located approximately 4 kilometres (2.5 mi) south-east of the city of Orange
- There are currently no toilet facilities at Spring Creek Dam
- The walking track continues until the dam wall

7



Pinnacle lookout/reserve

Set amongst the tall shady gum trees on the southern side of Pinnacle Road

- The reserve features picnic shelters, toilets and barbeques constructed from bluestone.
- The northern side of the road has a 30 minute return walking trail that climbs to Towac Pinnacle with spectacular views of Towac Valley.

8

Blackmans Swamp/Elephant Park

Elephant Park track starts and finishes at the ORC shed at Elephant Park on Woodward Street, Orange.

- There is car parking available in the carpark in front of the ORC shed and along Woodward Street.
- The track consists of a gravel surface a number of wooden bridges.
- There are toilets available in Elephant Park.

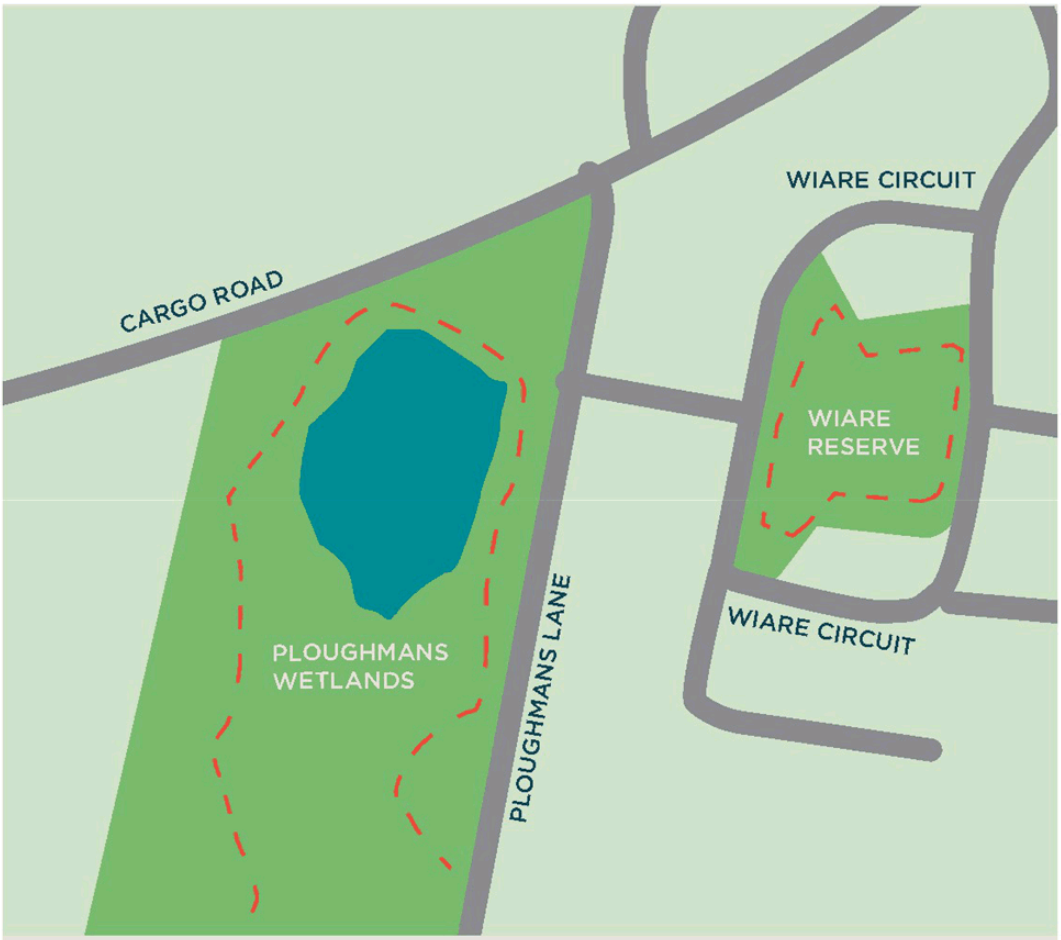
9

Diamond Drive Reserve/Waratah Oval Lake

118-114 Diamond Dr, Orange NSW 2800, Australia

- Waratah Oval will have toilet facilities

10



Ploughmans Wetlands

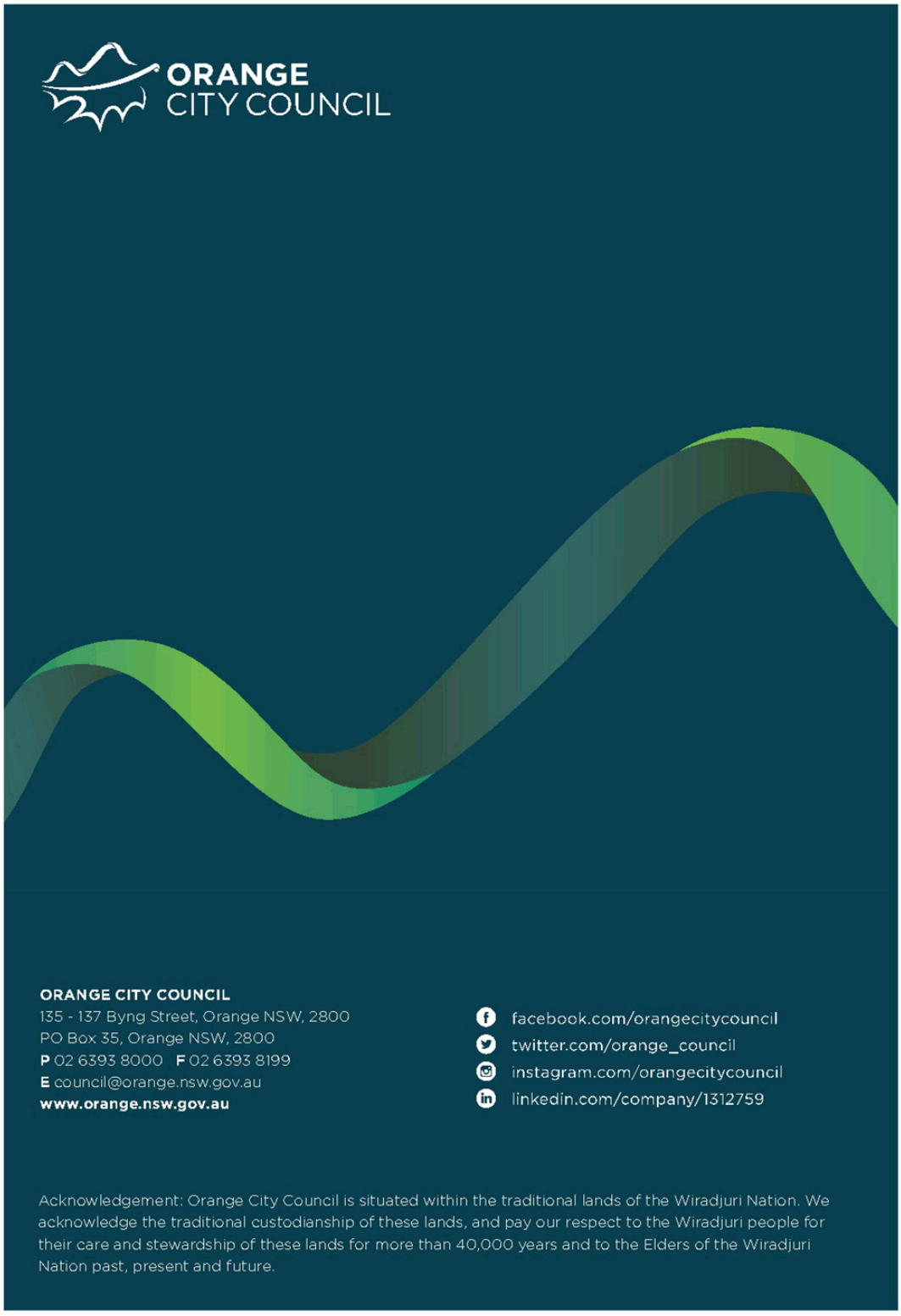
- Ploughmans Wetlands has become a popular destination for locals to enjoy daily exercise routines and to take a break to enjoy the surroundings.
- Ploughman's creek is located on the corner of Cargo Road and Ploughman's Lane. The terrain is gently sloping on either side of the drainage lines, with the lower areas prone to waterlogging and the upper slopes better drained.
- Concrete pipes under Cargo Road connect the wetland with lower Ploughmans Creek.
- A bitumen road runs along the eastern boundary of the wetland.
- Currently there are no toilets at this facility

Wiare Reserve

Located off Wiare Circuit, Orange.

- No toilet facilities available

11


ORANGE
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ORANGE CITY COUNCIL
135 - 137 Byng Street, Orange NSW, 2800
PO Box 35, Orange NSW, 2800
P 02 6393 8000 F 02 6393 8199
E council@orange.nsw.gov.au
www.orange.nsw.gov.au
facebook.com/orangecitycouncil
twitter.com/orange_council
instagram.com/orangecitycouncil
linkedin.com/company/1312759
Acknowledgement: Orange City Council is situated within the traditional lands of the Wiradjuri Nation. We acknowledge the traditional custodianship of these lands, and pay our respect to the Wiradjuri people for their care and stewardship of these lands for more than 40,000 years and to the Elders of the Wiradjuri Nation past, present and future.

ORANGE CITY COUNCIL

GREAT SOUTHERN BIOBLITZ

ORANGE BIOBLITZ

TOP 10 SPECIES

Can you find the following species around Orange?

1

Common Brush-tail possum
Trichosurus vulpecula

Native to Australia. Is a nocturnal, semi-arboreal marsupial.

2

Blackberry
Rubus fruticosus

Blackberry infests around 9 million hectares of land in Australia and is listed as a weed of national significance.

3

Pobblebonk Frog, Eastern or Southern Banjo Frog
Limnodynastes dumerilii

Native to eastern Australia

4

Laughing Kookaburra
dacelo novaeguineae

Native to Australia, listen out for its distinctive laugh.

5

Eastern Rosella
platycerus eximius

Native to southeast of the Australia continent and Tasmania, distinctive colours make it easy to spot.

6

Australian Painted Lady
Vanessa kersghawi

Native to Australia, may be found perching on vegetation in a sunny spot.

7

Superb Fairywren
Malurus cyaneus

a passerine bird in the Australasian wren family, common across south eastern Australia

8

Spectacular Rustgill
Gymnopilus junonius

Typically found growing on tree stumps and logs, found in Europe, Australasia and South America

9

Superb parrots
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Listed as vulnerable on the Australian Environment Protection and Biodiversity Conservation Act 1999.

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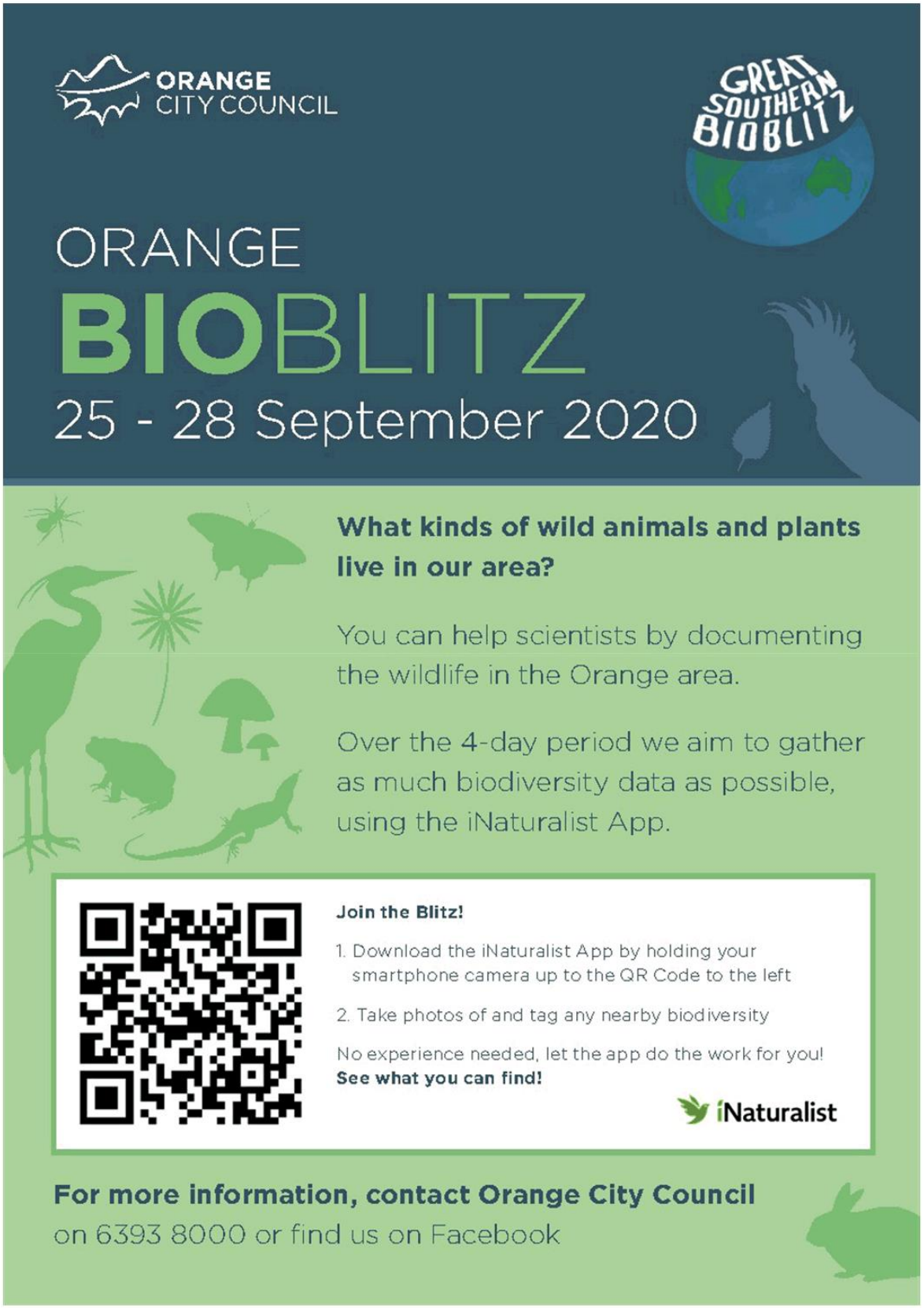
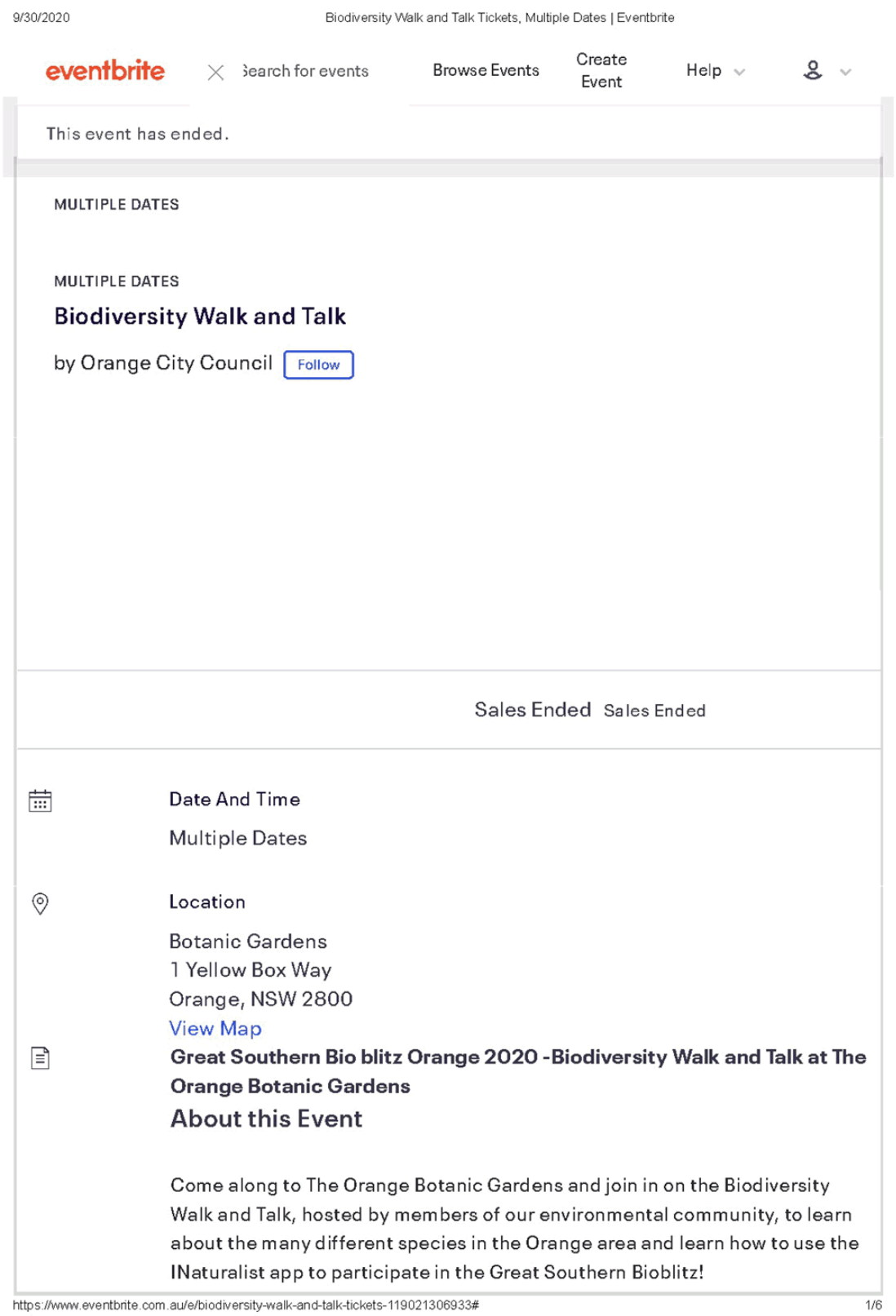
Australian Green Mantis
Orthodera ministralis

Native species that inhabits gardens all across Australia


ORANGE CITY COUNCIL
GREAT SOUTHERN BIOBLITZ
ORANGE
BIOBLITZ
25 - 28 September 2020
What kinds of wild animals and plants live in our area?
You can help scientists by documenting the wildlife in the Orange area.
Over the 4-day period we aim to gather as much biodiversity data as possible, using the iNaturalist App.
Join the Blitz!
1. Download the iNaturalist App by holding your smartphone camera up to the QR Code to the left
2. Take photos of and tag any nearby biodiversity
No experience needed, let the app do the work for you!
See what you can find!
iNaturalist
For more information, contact Orange City Council
on 6393 8000 or find us on Facebook



9/30/2020 Biodiversity Walk and Talk Tickets, Multiple Dates | Eventbrite

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This event has ended.

MULTIPLE DATES

MULTIPLE DATES

Biodiversity Walk and Talk

by Orange City Council Follow

Sales Ended Sales Ended

Date And Time

Multiple Dates

Location

Botanic Gardens
1 Yellow Box Way
Orange, NSW 2800
View Map

Great Southern Bio blitz Orange 2020 -Biodiversity Walk and Talk at The Orange Botanic Gardens

About this Event

Come along to The Orange Botanic Gardens and join in on the Biodiversity Walk and Talk, hosted by members of our environmental community, to learn about the many different species in the Orange area and learn how to use the INaturalist app to participate in the Great Southern Bioblitz!

https://www.eventbrite.com.au/e/biodiversity-walk-and-talk-tickets-119021306933# 1/6

On Saturday September 26 from 9am to 9.40am, or 10am to 10.40am at the Orange Botanic Gardens.

Orange City Council has registered as part of the global campaign, which encourages citizen scientists to take photographs of a range of different species in their local area and log the details in the INaturalist app.

The Great Southern Bio Blitz runs for four days from Friday September 25 to Monday September 28

Please note:

Conditions of participation

COVID Safety

- You must register for the event via Event Bright

- You must sign in onsite prior to workshops (registration table will be available)

- You must not enter if you are feeling unwell, have any COVID symptoms or have traveled to any COVID hotspots recently

- Ensure you are socially distancing at all times (1.5m)

- You are strongly encouraged to wear a mask during the workshops

- Use available hand sanitiser when registering/entering the site

You must wear appropriate enclosed footwear (no thongs, slip on shoes, sandals, heels)

Please bring along and wear sunscreen and a hat

No disrupting flora or fauna

No disrupting habitats

No climbing on any trees or structures

No swimming or entering bodies of water

No pets allowed (we need to improve our chances of seeing and documenting species)

Vandalism/property damage will not be tolerated


ORANGE
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BIOBLITZ
25 - 28 September 2020
GREAT SOUTHERN BIOBLITZ


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BIOBLITZ
25 - 28 September 2020
What kinds of wild animals and plants live in our area?
You can help scientists by documenting the wildlife in the Orange area.
Over the 4-day period we aim to gather

as much biodiversity data as possible, using the iNaturalist App.

Tags

Australia Events | New South Wales Events | Things to do in Orange, Australia | Orange Classes | Orange Science & Tech Classes | #orange | #biodiversity | #orangensw | #bioblitz | #botanicgarden | #citizen_science | #biodiversity_conservation | #botanic_gardens_event

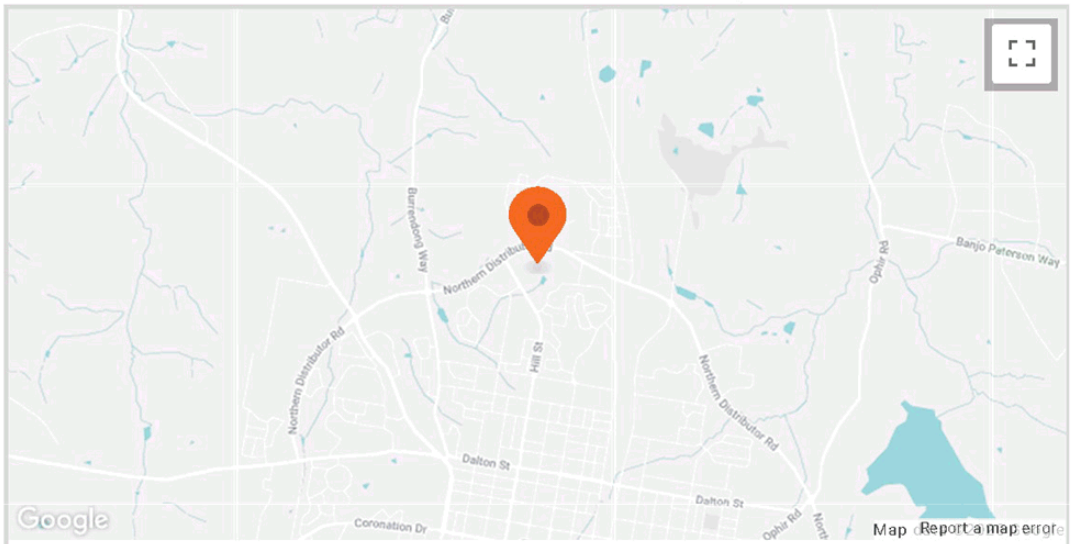
Location

Botanic Gardens
1 Yellow Box Way
Orange, NSW 2800
View Map

Orange City Council

Organiser of Biodiversity Walk and Talk

Follow Contact



Biodiversity Walk and Talk

at

Botanic Gardens

1 Yellow Box Way, Orange, NSW 2800

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ORANGE CITY COUNCIL
GREAT SOUTHERN BIOBLITZ
ORANGE
BIOBLITZ
BIODIVERSITY
WALK & TALK
Come along to the Orange Botanic Gardens and learn about the many different species in the Orange area and learn how to use the INaturalist app to participate in the Great Southern Bioblitz!
Orange Botanic Gardens
1 Yellow Box Way, Orange NSW 2800
(Meet at the chapel)
Saturday 26th September 2020
Session 1
9am-.9.40am
Session 2
10am-10.40am
You must register for the event at
www.eventbrite.com.au
NORTHERN DISTRIBUTOR ROAD
WORKS COMPOUND
YELLOWBOX WAY
HILL STREET
ROSELAWN DRIVE

3.5 COUNCILS OPERATIONAL PLASTICS REPORT - PROGRESS UPDATE

A Verbal report to be provided by the Sustainability Officer.

3.6 ENERGY SUB-GROUP - ENERGY REPORT

Report by Robert Alford (attached)

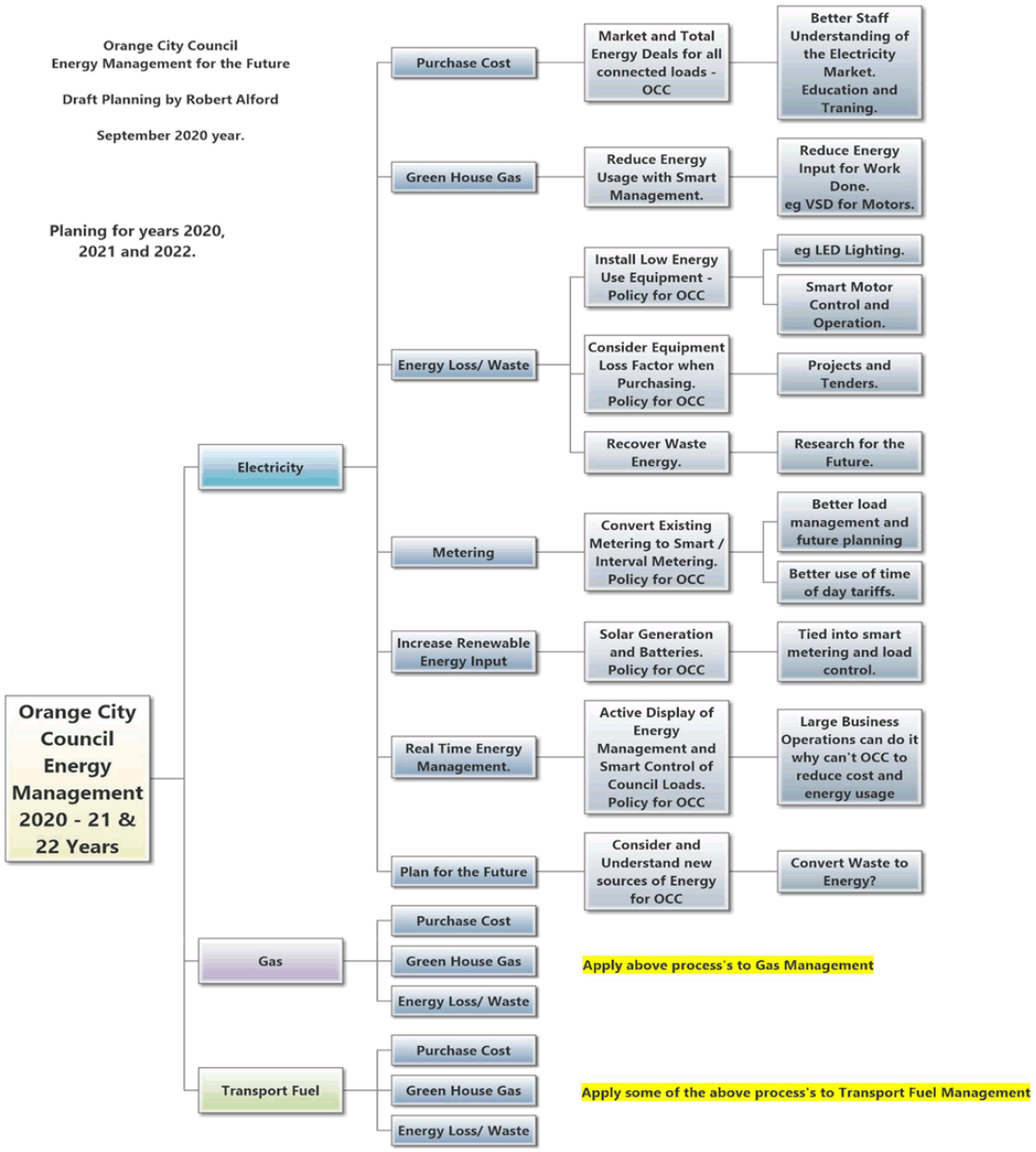
ATTACHMENTS

1 ESCC Meeting- Energy Subgroup and OCC September 2020, D20/60811

ESCC Meeting – Report Energy Sub-Group.

On Thursday the 10th September 2020, two members of the Energy Subgroup meet with several Orange City Council staff in the CEO's office to discuss Energy and The Orange City Council.

See below the basic outline for the items discussed:



The key out comes from the discussion are:

1. Take steps to reduce energy cost for Orange City Council.
2. Take steps to reduce the amount of energy used in the operation of Orange City Council.
3. Take steps to reduce Green House Gas, because of energy used by Orange City Council.
4. Take steps to reduce waste energy when energy is used for Orange City Council.
5. Possible use of Smart Energy Management Systems for Orange City Council operations.

Energy Reduction currently being undertaken by Orange City Council:

1. On-going installation of Solar Panels on project sites.
2. Replace older street lighting with LED lighting system.
3. Replacement of older building lighting with LED units at all council sites.
4. Replacement of the Old White Way Light in Summer Street with new Foot Path LED lighting.
5. When needed, replacement of old induction motors with VSD (Variable Speed Drives).
6. Replacement of the Civic Centre Air Condition Chiller System with new unit to reduce energy use and correct power factor. Unit cools with some heating the reduce the use of radiator type heating.

Future project planning for Energy Reduction:

1. A trial is to take place by OCC staff to model the real time energy used at the Orange Swimming Pool. This will combine the energy used from both electricity and gas energy inputs.
2. Modelling of energy use for future projects is a major step for Orange City Council and will combine all parts of the systems as listed in the discussion sheet used for the meeting.
3. To allow the future modelling more system information is needed to provide inputs for the Modelling process. Consideration to be installation of better metering and data systems to provide real time energy usage logging.

Prepared by Robert Alford for the Energy Subgroup 21st September 2020.

3.7 DRAFT CLIMATE CHANGE POLICY AND MANAGEMENT PLAN

Verbal report – policy and plan attached for discussion.

ATTACHMENTS

1 DRAFT - Strategic Policy - ST148 - Climate Change, D20/61933
2 DRAFT - Climate Change Operational Management Plan, D20/61934

ORANGE CITY COUNCIL

All policies can be reviewed or revoked by a resolution of Council, at any time.

CLIMATE CHANGE

ST148 **F22**

STRATEGIC POLICY

OBJECTIVES

The Climate Change Policy will identify how Council will manage, mitigate and adapt to the impacts of Climate Change and:

- To address Council's legislative responsibility to apply the precautionary principle in a risk management framework to strategic planning, operational and management decision making when considering the potential implications associated with climate change
- To reduce the risk from natural hazards, including the projected effects of climate change, by establishing adaptation strategies to minimise vulnerability to climate change
- To comply with applicable legal requirements and implement any relevant State government policies, guidelines and/or directives
- To develop and implement adaptation and mitigation actions as a response to climate change
- To provide effective and strong leadership to the Orange community to respond to climate change and build sustainability
- To provide commitment to be innovative, flexible and adaptive in our approach to climate change
- Adapting our existing activities and practices to realise the opportunities climate change provides.
- Leading, encouraging and working with our community to reduce their greenhouse gas emissions.

APPLICABILITY

All Council staff, Council insurers, community members

GENERAL

In meeting the challenges of climate change Council will:

Action plans

- Establish a Climate Change Operational Management Plan

Risk assessment

- Progressively undertake detailed risk assessments of climate change hazards consistent with Federal and State Government guidelines, such as increasing temperatures, flooding, bushfires, storms and drought.
- Embed climate change-related risks within Council's Integrated Planning and Reporting Framework.

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All policies can be reviewed or revoked by a resolution of Council, at any time.

Review of current plans

- Regularly review its plans, strategies, policies and benchmarks, where their content may be affected by climate change, to ensure they remain current as the science of climate change develops.
- Ensure that Councils actions, decisions and policy response to climate change remains current and reflects Council's operational capacity, community expectations and changes in climate change scenarios.

Integrated and collaborative approach

- Complement, collaborate and establish strong partnerships with community, key stakeholders and other tiers of government that strengthen the Council's adaptive capacity in response to climate change.

Funding and Resources

- Pursue grant and other funding opportunities to further examine and respond to climate change issues as they affect council and the community
- Ensure availability of appropriate resources for climate change initiatives

Definitions

Climate Change	A change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer.
Mitigation	Actions that can be taken to reduce the degree of climate change that may occur.
Adaptation	Actions that can be taken to prepare for the impacts of climate change.
Greenhouse Gas emissions	Various gases such as carbon dioxide and methane which are emitted into the atmosphere and contribute to the greenhouse effect.

RELATED LEGISLATION/GUIDELINES

- Clean Energy Act 2011
- Environmental Protection and Biodiversity Conservation Act 1999
- National Greenhouse and Energy Reporting Act 2007
- Environmental Planning and Assessment Act 1979 and regulations
- Local Government Act 1993
- Protection of the Environment Operations Act 1997 and regulations
- Threatened Species Conservation Act 1995 and regulations
- Orange City Council Local Environmental Plan (2011)
- NSW Climate Change Policy Framework (2016)

RELATED POLICIES/DOCUMENTS

Community Strategic Plan – Activate Orange (2018)

Strategic Policy – ST056 - Enterprise Risk Management

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All policies can be reviewed or revoked by a resolution of Council, at any time.

Responsible Area – Development Services

REVISION					
	DATE	RESOLUTION		DATE	RESOLUTION
1			6		
2			7		
3			8		
4			9		
5					
All policies can be reviewed or revoked by resolution of Council, at any time.					

SUMMARY OF AMENDMENTS

Amendment Date	Section/Reference and Amendment
October 2020	New Policy

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Climate Change Management Plan

A Plan for Councils Operational Approach to Climate Change

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ORANGE CITY COUNCIL

Executive Summary

Orange City Council acknowledges and respects the customs, traditions and knowledge of Aboriginal people and their unique relationship with the land, waterways and sea. We recognise our shared responsibility to Care for Country by addressing the causes of climate change that will impact on present and future generations and our environment.

This Climate Change Management plan for Councils operations summarises the drivers and actions that Orange City Council will take to reduce emissions from our activities and address the expected effects of climate change on council over the next 5 years.

Orange City Council has actively addressed and adapted to climate change and mitigated our impacts through efficiency and environmental projects over time. However, Council has not presented these projects as Climate mitigation or adaptation actions.

Council is committed to implementing this plan to meet the objectives of Councils Climate Change Strategic Policy and are committed to reporting annually to the community on our progress in delivering these actions. By sharing the approach we are taking to mitigate and adapt to climate change at the Orange City Council, we would like to encourage the broader community to also work towards adapting to our changing climate and mitigating our impacts.

Priorities for action:

This plan describes the actions we will take to understand our operational emissions, reduce emissions from our operations, understand climate change risks and adapt to climate change.

Priority sectors for mitigation actions include:

Stationary energy, Transport and Waste

We will address these sectors through the following priority areas:

1. Understanding councils operational emissions
2. Develop low carbon culture
3. Council events without emissions
4. Reduce emissions from our buildings and facilities
5. Carbon neutral goods and services
6. Reduce emissions from waste
7. Reduced emissions from transport

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Introduction

Climate Change Synopsis

Global

Kyoto protocol

The Kyoto Protocol operationalizes the United Nations Framework Convention on Climate Change by committing industrialized countries to limit and reduce greenhouse gases (GHG) emissions in accordance with agreed individual targets. The Convention itself asks those countries to adopt policies and measures on mitigation and to report periodically. The Kyoto Protocol was adopted on 11 December 1997. Owing to a complex ratification process, it entered into force on 16 February 2005. Currently, there are 192 Parties to the Kyoto Protocol including Australia (UNCC, 1997).

The first period of the Kyoto Protocol ran from 2008 to 2012. Australia met and exceeded its first period target of 108% of 1990 emissions levels by 2012. For the second period, 2013–2020, Australia has a target of 99.5% of 1990 emissions levels by 2020 (equivalent to 5% below 2000 emission levels by 2020).

Paris agreement

At the 21st United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP21) held in December 2015, the international community unanimously adopted the 'Paris Agreement' to reduce carbon emissions and decarbonise the global economy. In addition to the mitigation of carbon emissions, the Paris Agreement also addresses adaptation issues such as enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, as well as loss and damage associated with the adverse effects of climate change and extreme weather events. The Australian Government ratified the Paris Agreement in November 2016. Under the Paris Agreement, Australia will implement an economy-wide target to reduce greenhouse gas emissions by 26 to 28 per cent below 2005 levels by 203 Shifting global market drivers and preferences for low carbon products have the potential to influence Australia's economy, including through changing demand and prices for resources, manufactured items and agricultural products (United Nations, 2015).

National

The Commonwealth Government has played an important role in climate change adaptation and mitigation of climate change. Primarily through the funding of the National Climate Change Adaptation Research Facility (NCCARF) and other research and development programs. These programs have delivered some of the science needed to understand climate change and implement adaptation across Australia (NCCARF, 2020). However, a commitment to these or similar programs has been less than certain in recent years and some programs, such as the CSIRO's former Climate Adaptation Flagship, have been decommissioned. The National Review of Climate Change Policies does not include adaptation in its terms of

reference. Other states and territories are active in developing assertive climate change policies and actions, with a number also having developed adaptation strategies. New South Wales will continue to seek opportunities to collaborate and align these strategies across state boundaries.

Australia's comparatively high per capita emissions are due to our relative abundance of cheap fossil fuels, high dependence on coal-fired power generation and the emissions intensity of our exports (such as aluminium, steel and coal) (Australian Government, 2015).

State

NSW already experiences climate extremes such as floods, droughts, heatwaves and bushfires. Climate change is likely to exacerbate the frequency and/or severity of these events, and can be an amplifier of these and other hazards. In this context, it is important to plan and take appropriate action to better manage our climate risks. Well-considered and effective adaptation measures can help manage the adverse impacts of climate change on communities, the economy and natural systems. Many businesses, communities and local governments are already working to incorporate climate change into their planning and risk assessment processes and continue to seek increased action from the State Government. The NSW Government seeks to drive continuous resource efficiency from government operations and limit its impact on the environment.

NSW annual emissions per capita reduced from 29.9 tonnes CO2-e per capita in 1990 to 16.7 tonnes per capita in 2017. In comparison, annual emissions per capita in the UK, Germany and Japan are in the range of 7-11 tonnes CO2-e per capita. The majority of emissions in New South Wales are derived from electricity generation (51 $MtCO_2$-e), followed by transport (28 $MtCO_2$-e). Land-use is a net sink of emissions, reducing the State's total emissions by 12.7 $MtCO_2$-e (Adapt NSW, 2020).

Council

Based on long-term (1910–2011) observations, temperatures have been increasing in the Central West and Orana since about 1970, with higher temperatures experienced in recent decades. The region is projected to continue to warm during the near future (2020–2039) and far future (2060–2079). The warming is projected to be on average about 0.7°C in the near future, increasing to about 2.1°C in the far future. The number of hot days is projected to increase and the number of cold nights is projected to decrease. The warming trend projected for the region is large compared to natural variability in temperature and is of a similar order to the rate of warming projected for other regions of NSW.

The climate change projections are from the NSW and ACT Regional Climate Modelling project (NARCliM) project. The NARCLiM project has produced a suite of twelve regional climate projections for south-east Australia spanning the range of likely future changes in climate. NARCLiM is explicitly designed to sample a large range of possible future climates (Adapt NSW, 2020). Refer to the models in the appendix of this plan

Purpose

The purpose of this plan is to outline:

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- The role of Council in adapting and mitigating impacts of climate change to council
- Councils approach to adapting to and mitigating the impacts of Climate Change
- Sources of further information for Council employees and others and,
- To provide the mechanism to implement Council's Climate Change Strategic Policy

Scope

- This Plan applies to all the Orange Local Government Area
- This Plan outlines Council's commitment in relation to Climate Change Adaptation and Mitigation actions.
- This Plan does not provide detail on specific procedures.

Definitions

Mitigation - attends to the causes of climate change e.g. reduce and curb greenhouse gas emissions and negative contribution to climate change
Adaptation - addresses climate change impacts, aims to reduce vulnerability to the effects of climate change
Emissions - An emission of something such as gas or radiation is the release of it into the atmosphere
GHG - The emission into the earth's atmosphere of any of various gases, especially carbon dioxide, that contribute to the greenhouse effect.

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Current Operations

Councils Energy Use Snapshot

Electricity

In the 2019/2020 financial year (FY), Orange City Council had a total of 134 sites that were connected to the public electricity grid. Councils 'Buildings' category made up 64 of those sites, 'Water & Sewer' made up 48 sites, 9 sites were attributed to public street lighting and 13 sites for other.

Councils electricity use can be viewed at a sub-categorical level, as well as within each major category, this is shown below in table 1. Our largest user of electricity for Water & Sewer category was the Macquarie Pipeline with 2,914,326.20 kWh of energy used in the last financial year. The Aquatic Centre was the largest user of electricity within the building's category with a total of 403,838.20 kWh of electricity used from July 2019 to June 2020. The total electricity used by Council in FY 19/20 was 16,849,582.10 kWh. Overall, the below table provides a base against which opportunities for energy efficiency and solar PV can be assessed.

Table 1 Electricity consumption at a Sub-category Level from July 2019 to June 2020.

Asset Categories	Annual Electricity kWh	Annual Usage
Water & Sewerage	**10,747,158.60**	**64%**
Macquarie Pipeline	2,914,326.20	
Sewage Treatment works	1,657,167.30	
Filtration Plant	843,632.30	
Suma Park Pump	920,556.90	
Other	4,411,457.9	
Street Lighting	**2,555,594.70**	**15%**
Public Lighting	2,555,594.70	
Buildings	**3,183,209**	**19%**
Parks & Gardens	167,706.80	
Airport	253,580.80	
Civic Centre	798,986.30	
Community Centre	6,213.00	

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Aquatic centre	403,838.20	
Art Gallery/ Library	208,527.00	
Function Centre	23,898.60	
Orange Regional Museum	76,001.90	
Other Buildings	1,244,456.40	
Other	**363,619.80**	**2%**
Total	**16,849,582.10**	**100%**

Council's largest user of electricity by category was 'Water & Sewer' using 10,747,158 kWh of energy within FY 19/20. The lowest user of energy was the category 'other', which used 363, 619 kWh, therefore there is a difference of 10,383,539 kWh between the highest and lowest users of electricity. 'Buildings' had the second highest usage of electricity with 3,183,209 and 'Street lighting' sites were just below, with a usage of 2,555,594 kWh (*Figure 1*)

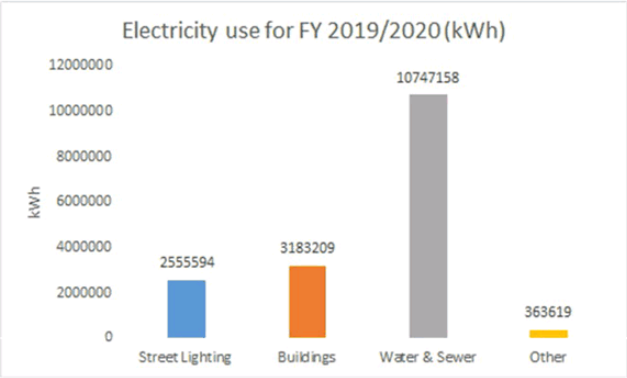

Figure 1 Councils Electricity use in kWh by asset category.

Within FY 2019/2020, the asset category that had the largest attributable user of electricity was 'Water & Sewer' which made up for 64% of councils total electricity use. The lowest category for electricity use was 'other' which only counted for 2% of the total energy consumption. Buildings were the second highest user of electricity with 19% of total consumption and 'street lighting' used 15% of total electricity consumption. Water and Sewer services are Councils highest users due to the nature of delivering those services to a majority of the community (*Figure 2*)

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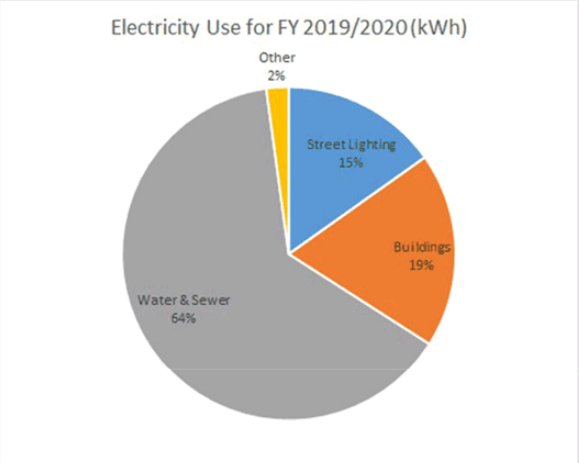

Figure 2 Council's electricity use breakdown by asset category for financial year 2019/2020.

Natural gas

In relation to Councils Natural gas use, there is 22 sites connected to Natural gas. Council 'Buildings' category represents a majority of gas use with 20 sites while there is only one 'Water & Sewer' site and 1 'Other' site using a small proportion of total Natural gas use.

In FY 2019/2020, council 'Buildings' category accounted for a majority of the total natural gas usage, totalling 99%. Sites in 'Other' represented 0.5%, while 'Water & Sewer' accounted for 0.2% of the total Natural gas use (*Figure 3*)

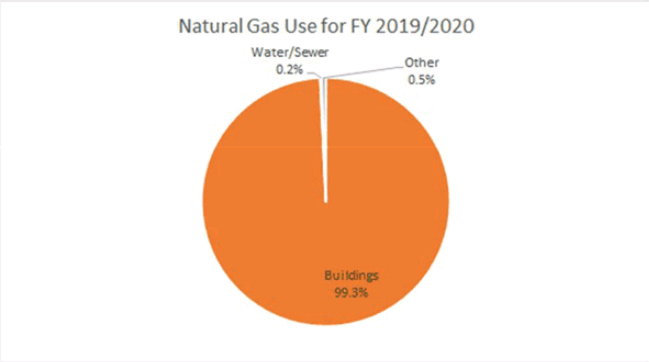

Figure 3 Natural Gas use by asset category in percentage.

In 19/20 FY, Council 'Buildings' used 14,534 GJ, while sites found in 'Other' used 76 GJ. 'Water & Sewer' was the lowest user if natural gas accounting for only 31 GJ. The gas used within the 'Water and Sewer' category came from Sewer operations. (*Figure 4*)

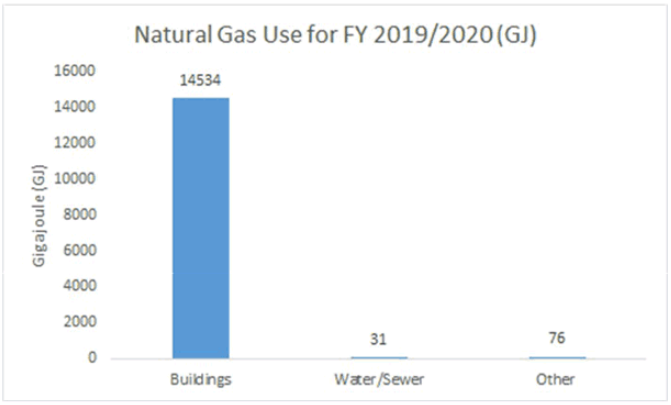

Figure 4 Natural gas use in Gigajoules (GJ) by asset category 2019/2020.

Transport and liquid fuel use

In FY 19/20 'Diesel' accounted for the majority of Councils fuel consumption using a total of 421.7KL, while unleaded petrol used 36.6KL (*Figure 5*). Diesel is used by Councils vehicle fleet and plant/ equipment for the provision of services. Fuel consumption data includes use from Councils vehicle fleet and plant/equipment use. Fuel use is not distinguished between use for transport and use for plant/equipment (e.g. generators, portable pumps, chainsaws etc.) (*Table 2*)

Table 2 Council fleet Kilolitres (KL) used from 2019/2020 financial year.

Fuel Type	*Kilolitres*
Unleaded petrol (excluding E10)	36.6
Diesel	421.7

Within FY 2019/2020, 'Diesel' accounted for 92% of Councils total fuel consumption while 'Unleaded Petrol' accounted for 8% (*Figure 5*)

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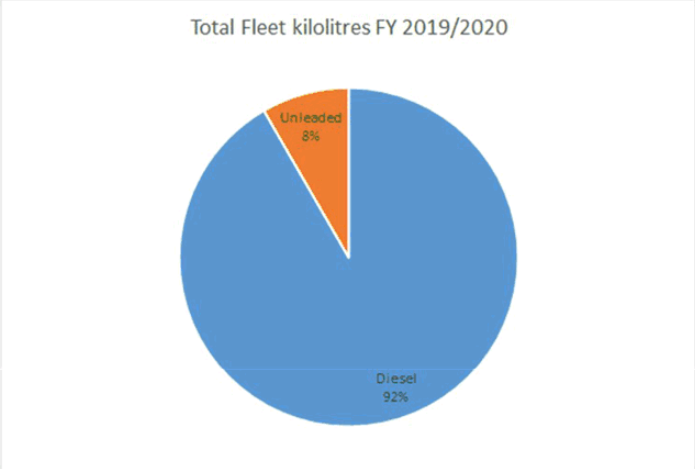

Figure 5 Councils transport use breakdown by fuel type 2019/2020 financial year.

Council Greenhouse Gas Emissions

Councils Emissions Snapshot 2019/20 (Financial Year)

Typically GHG emissions are classified into three *Scopes* explained in Table 3. Figure 3 depicts the emissions produced by industries typically associated with each scope

Table 3 Emissions scope description and examples.

	Description	***Examples***
Scope 1	Emissions released to the atmosphere as a direct result of an activity, or series of activities at a facility level.	Fuel combustion, Manufacturing processes , Fugitive emissions, Production of electricity
Scope 2	Emissions released to the atmosphere from the indirect consumption of an energy commodity. Scope 2 emissions from one facility are part of the scope 1 emissions from another facility.	Electricity that is transmitted to a certain area examples include Energy used to power buildings, lighting, and plant/equipment

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Scope 3	Indirect greenhouse gas emissions other than scope 2 emissions that are generated in the wider economy. They occur as a consequence of the activities of a facility, but from sources not owned or controlled by that facility's business.	Air travel, car travel, shipping, waste, paper use.

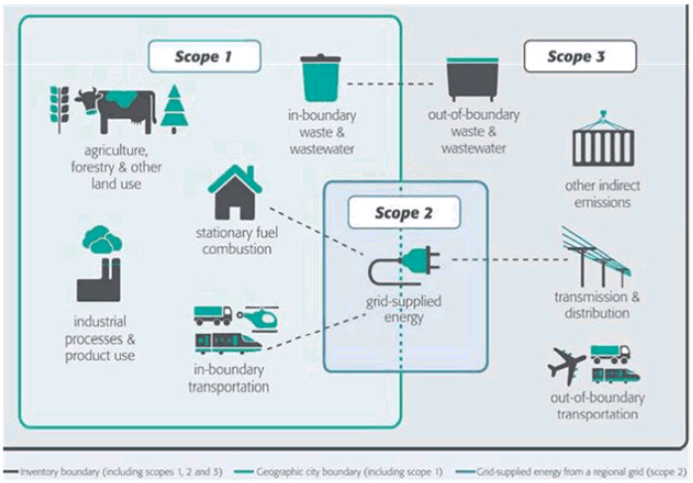

Figure 6 Illustration of emissions sources by scope (Iron bark Sustainability - Climate Action Webinar).

In FY 19/20 Councils total emissions footprint was 17,201.69 tonnes of greenhouse gas emissions. Table shows the details of the emissions footprint. Within FY 12/20, Scope 2 was the largest contributor of GHG emissions with 13,595.86 Tonnes of CO2-e. The second highest contributor was Scope 1 with 1,887.4 Tonnes of CO2-e while the lowest contributor of GHG emissions was Scope 3, which contributed to 1,618.43 Tonnes of CO2-e.

Table 4 Councils Emissions footprint (Tonnes CO2-E).

Emissions footprint for FY 19/20 in Tonnes of CO2-E							
Emission source	**Activity Data**	**Units**	**Scope 1 *t* CO2-E**	**Scope 2 *t* CO2-E**	**Scope 3 *t* CO2-E**	**Total *t* CO2-E**	**%**
Diesel for fleet	421.7	kL	1138.59			1138.59	**6.62%**
Petrol for fleet	36.6	kL	87.84			87.84	**0.51%**

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Natural Gas	14,534	Gj	754.39			754.39	**4.39%**
Bottled Gas	3100	L	4.96			4.96	**0.03%**
Electricity use Street lighting	2,555,595	kWh		2,069.63	229.96	2,299.59	**13.37%**
Paper consumption	11.9	Tonnes			107.78	107.78	**0.63%**
Electricity use council assets	14293988	kWh	1.62	11526.23	1280.69	12808.54	**74.46%**
TOTAL			**1,987.4**	**13,595.86**	**1,618.43**	**17,201.69**	**100.00 %**

Emissions from all waste activities (excluding electricity use from related buildings) have been omitted, emissions data from council's waste services are not currently collected for both council operations and the broader community's waste services. Emissions from sewer treatment activities have also been omitted as this data is not currently collected.

Electricity use for council assets' was the largest contributor of emissions with a total of 12, 808.54 t CO2-e. This category includes 'Water and Sewer' assets which represents council largest electricity category. The second highest contributor of emissions was electricity use from 'street lighting' which accounted for 2,299.59 t CO2-e. 'Bottled Gas' was the lowest contributor of emissions, contributing to just 4.96 t CO2-e. Bottled gas is mostly used by plant and to provide cooking facilities in Orange's Parks and Gardens (*Figure 7*)

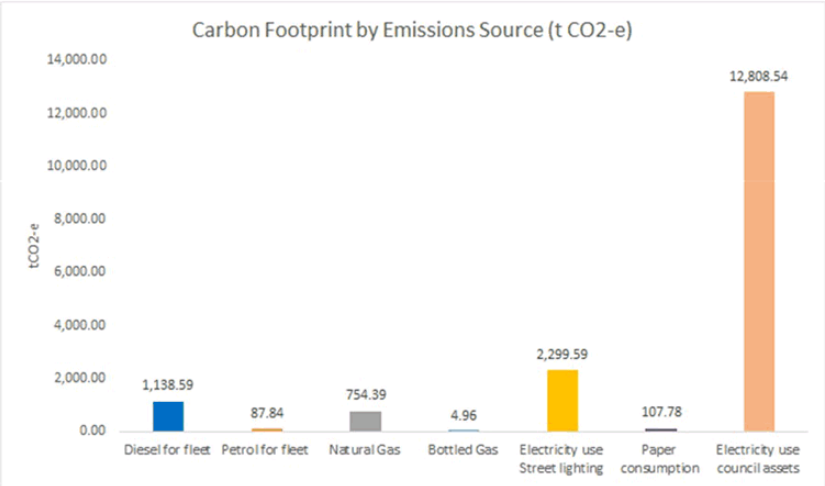

Figure 7 Carbon footprint by emissions source.

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Scope 2 was the largest contributor of emissions accounting for 79% of the total emissions in FY 2019/2020. Scope 1 was the second highest emission contributor accounting for 12%, while scope 3 was the lowest contributor of emissions accounting for only 9% of total emissions (*Figure 8*)

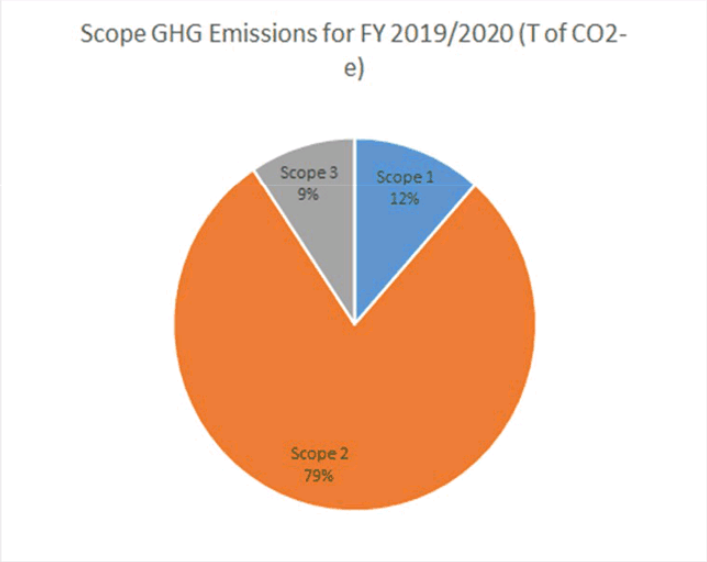

Figure 8 Greenhouse Gas Emissions by percentage for each scope.

Emissions Profile

Council's emissions profile shows that 'Water and Sewer' contribute to 46% of Oranges total emissions. The second highest contributor to emissions is buildings which accounts for 26% while the lowest contributor is 'other' at only 2% of Oranges overall emissions (*Figure 9*)

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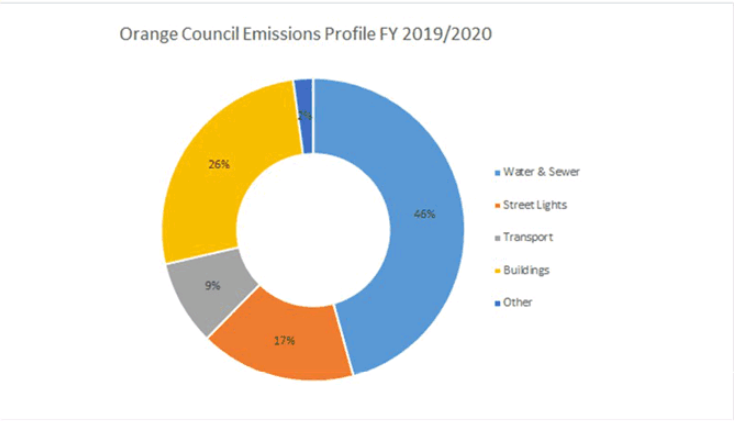

Figure 9 Total emissions profile from July 2019 to June 2020. Data provided by E21 Energy Plus.

Within Councils emissions attributed to electricity usage, 'Water & Sewer' had the highest contribution of CO2-E, equalling to 54% of total emissions from electricity usage. 'Council buildings' was the 2nd highest emitter, contributing to 24% of all electrical emission while the lowest emitter was 'other', accounting for only 2% of the total electrical emissions (*Figure 10*)

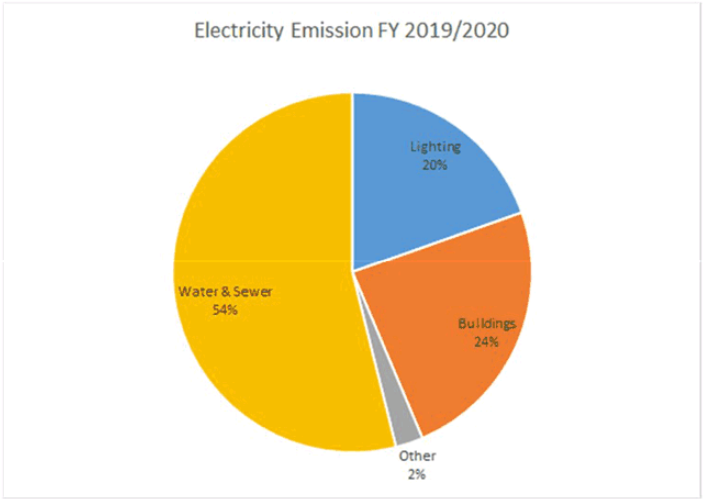

Figure 10 Distribution % of council electrical GHG emissions from July 2019 to June 2020.

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In FY 2019/2020, council 'buildings' was the main contributor of GHG emissions, representing 97% of the total gas emissions. 'Other' was the second highest, contributing 2% of the total emissions. 'Water & sewer' was the lowest contributor of emission at just 1% (*Figure 11*)

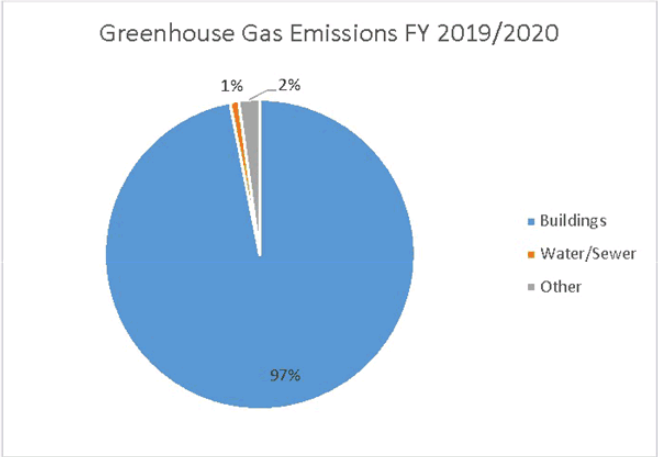

Figure 11 Distribution of council Gas Green House Gas emissions by percent from July 2019 to June 2020.

Existing Measures

Cities Power Partnership Action Pledges

The Cities Power Partnership is Australia's largest local government climate network, made up of 123 councils from across the country, representing almost 11 million Australians. Local councils who join the partnership make five action pledges in either renewable energy, efficiency, transport or working in partnership to tackle climate change. Orange City Council is a Power Partner and has pledged to take action in the following areas:

Table 5 Cities Power Partnership Action Pledges.

Action Pledges	
1. Renewable Energy	Power council operations by renewable energy, and set targets to increase the level of renewable power for council operations over time.
2. Energy Efficiency	Adopt best practice energy efficiency measures across all council buildings, and support community facilities to adopt these measures.
3. Sustainable Transport	Ensure that new developments are designed to maximize public and active transport use, and support electric vehicle uptake.

4. Energy Efficiency	Roll out energy efficient lighting across the municipality.
5. Collaboration	Develop education and behaviour-change programs to support local residents and businesses to tackle climate change through clean energy, energy efficiency and sustainable transport.

Cities Power Partnership pledge evaluation

Council progress in the above areas are reported annually to Cities power Partnership

State of Environment Reporting

The NSW State of the Environment 2018 is released every three years by the EPA. It describes the health of our environment – our land, water, air and ecosystems, and urban environment, at a state-wide level.

The NSW State of the Environment report provides credible, robust, state-wide environmental information for the NSW Government, decision makers, business and the community, assesses the status and condition of major environmental resources in NSW and examines environmental trends, describes pressures that affect the environment and responses to those pressures.

Orange City Council has opted to report to the EPA annually along with a number of NSW councils.

Mitigation

Climate change mitigation includes actions we take globally, nationally and individually to limit changes caused in the global climate by human activities. Mitigation activities are designed to reduce greenhouse emissions and/or increase the amounts of greenhouse gases removed from the atmosphere by greenhouse sinks.

Mitigation measures achieved:

The following are key examples of mitigation measures achieved by Orange City Council

Solar energy

Solar systems are already installed on 7 sites totalling approximately 210 kilowatts (Kw), including a large 99Kw system on the Orange Aquatic centre, which has produced 387 Megawatt hours since installation reducing councils' CO2 emissions by 314 tonnes. Also, council have agreed to a Power Purchase Agreement and the installation of 140 panel of solar on its depot roof. Alongside all of this, even the councils' childcare centres have installed solar panels on its roofs. Recent sites assessments have identified the potential for a number of locations for additional solar systems to be installed at council facilities.

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Street Lighting Project

Council is in the process of replacing 8500 streetlights, switching to energy efficient LED's expecting to save up to $500,000 annually on energy consumption. As of June 2020 a majority of council's streetlights have been replaced with energy efficient LED's, the below image is of Orange City and the orange markers represent street lights which have been replaced.

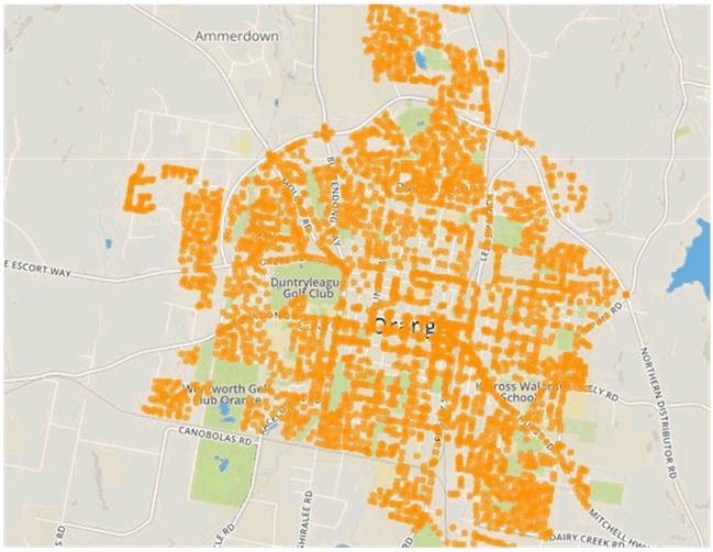

Figure 12 Map of Street lights in Orange which have been replaced (Orange marker).

The lights began to be replaced at the end of December 2019, since that time council has already seen significant savings. To compare, in May 2019 Street lighting consumed up to 270,000 kWh's of electricity for the month at a cost of $120, 000, producing 241 tonnes of CO2 (equivalent) emissions. In May 2020 street lighting consumed 180,000 kWh's of electricity at a cost of $34,000, producing 165 tonnes of CO2 (equivalent) emissions. Council is able to see a reduction of up to 90,000 kwh' of electricity, reducing up to 76 tonnes of CO2 emissions and saving up to $86,000 for that month alone.

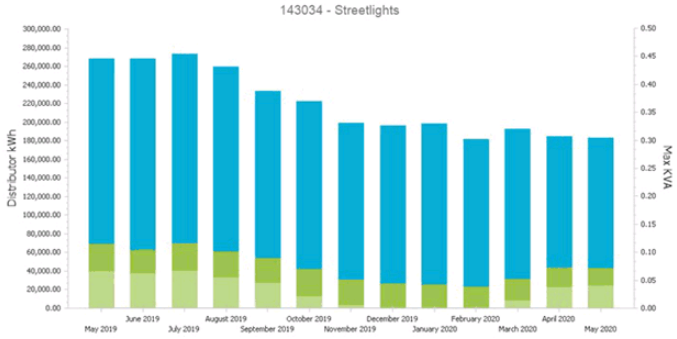

Figure 13 Orange City Council Street lighting electricity use by month over a year.

Lighting upgrades

Plans for the replacements of 2117 fluorescent lights to LED's at 17 council sites have been prepared, an assessment found lights in council's buildings used almost $170,000 of electricity a year, as well as about $34,000 in maintenance costs. The lights would cost $159,000 to purchase and about $155,000 to install using local installers. Under the NSW Government's Energy Savings Scheme, Council would be eligible for more than $130,000 worth of Energy Saving Certificates in return for reducing its energy use. The scheme seeks to reduce energy consumption in NSW by creating financial incentives for organisations to invest in energy saving projects. The certificates can then be sold back to parties such as electricity retailers, lowering council's total cost to about $180,000. This project could potentially reduce equivalent CO2 emissions by 740 tonnes annually. This project was approved in August 2020 as is currently in progress, the payback period from savings is expected to be 1.2 years

Chiller replacement project

In 2018 it was identified that councils cooling system on the civic centre building needed to be replaced. In September 2019, 2 York 500kw chillers (heat pumps).were installed which provide a highly efficient source of chilled water for cooling and humidity control for both the Civic Centre and the Gallery. Additionally as they are heat pumps the civic centre now has a source of hot water that can be used to support the building base heating load. The heat pumps produce the hot water very efficiently as they have a high coefficient of performance this greatly reduces the energy consumption. The original heating in the Civic Centre was generated through electric resistive duct heaters that are highly inefficient and expensive to run. This project has provided savings of **$64675** in electricity costs since the installation and commissioning of the chillers.

Inspiring and Integrating Change project

The project entails the lessons learnt as 3 central west councils (Orange, Dubbo and Bathurst) tackled sustainability challenges have been condensed into a Toolkit Booklet. The booklet was published in November 2012 and is aimed at sharing knowledge and experience gained from

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the Bathurst, Orange, and Dubbo (BOD) alliances *Inspiring and Integrating Change Project* and to encourage fellow councils to establish similar sustainability projects.

Through a variety of practical, on-ground projects, Inspiring and Integrating Change aims to motivate and inform other regional councils, organisations and individuals to create projects and implement policies which support sustainable development into the future.

Organic Waste Composting Facility: Euchareena Road Resource Recovery Centre (ERRRC)

The ERRRC is the Euchareena Road Resource Recovery Centre, a state-of-the-art composting facility which uses modern technology and monitoring equipment to recycle organic waste into Australian Standard for Composts, Soil Conditioners and Mulches (AS 4454). The ability to meet the AS 4454 standard means the product is in great demand. Using compost on gardens improves soil quality and water retention, provides nutrients to plants and promotes strong and healthy growth. Its organic certification means organic wineries can use the compost as part of their certification requirements.

In addition to being able to provide the community nutrient rich compost and improving soils across Orange but also reducing overall emissions through reuse, from waste that would have otherwise been placed into landfill.

Over the life of the project (2014-2020) 9844.5 tonnes CO2-E have been abated through composting eligible green waste for reuse. See Figure 14 for rates of waste received in FY 19/20.

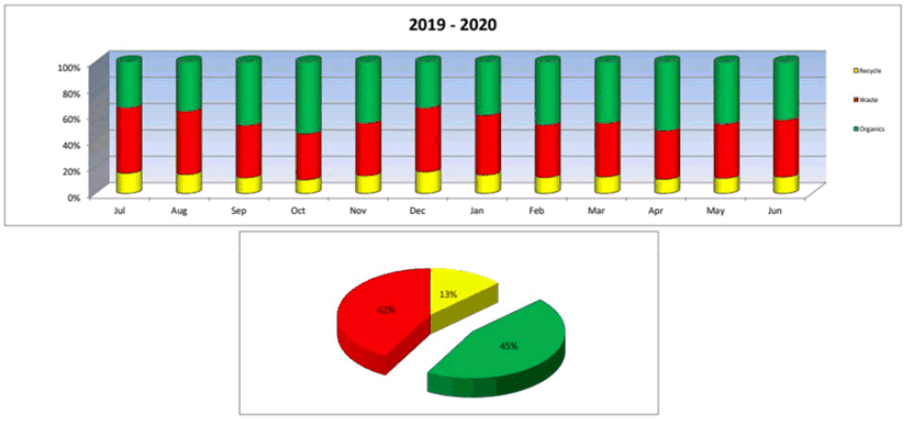

Figure 14 Orange City Councils waste diversion 2019-2020, Organics 45% (Green), Recycle 13% (Yellow), General waste 42% (Red).

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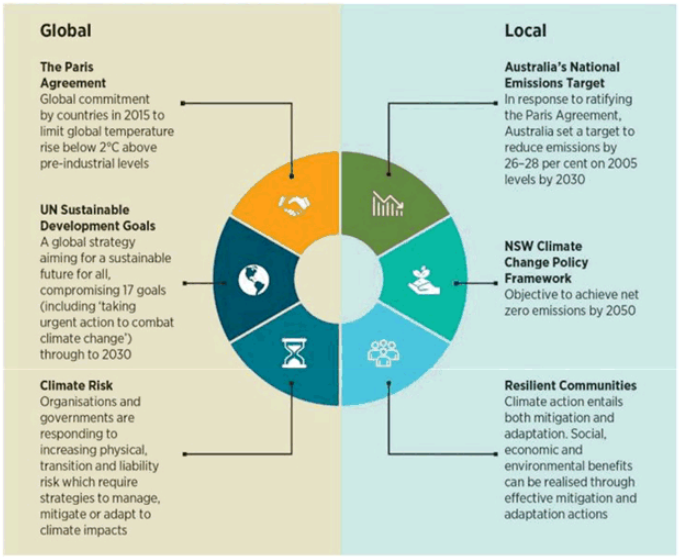

Figure 15 Global and local emission reduction targets and climate change risks (Net Zero Plan, 2020).

Emissions Reduction Approach

Background

At the 2019 United Nations Climate Action Summit experts warned that current global commitments to cut greenhouse gas emissions will likely lead to global temperature increases between 2.9°C and 3.4°C by 2100 (Net Zero Plan, 2020. The NSW Government has committed to reach net zero emissions by 2050 (OEH, 2016). This requires action by governments, communities and business. Carbon emission reduction actions include carbon-positive energy efficient buildings, smarter infrastructure, renewable energy technologies, waste solutions, sustainable transport services and increasing canopy cover and green restoration projects (Net Zero Plan, 2020). The following are priority emissions sources based on NSW's emissions profile

Stationary energy

Stationary energy covers energy used to power buildings, factories and infrastructure. It is the largest sector contributing 60% of NSW's greenhouse gas emissions in 2017, primarily form public electricity production. For community inventories, it usually represents the largest source of emissions and includes things like electricity consumption and the combustion of natural gas in heaters and boilers (OEH, 2016).

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Transport

Transport sector contributes to 21% of NSW's Greenhouse Gas emissions, with road-based transport contributing almost 84% of this figure.

A sustainable transport future can provide many benefits within a community, including

- Increased mobility for all members of the community
- Improved air quality through reduced emissions from cars and trucks
- More active communities
- Improved safety outcomes for pedestrians and cyclists
- Reduced isolation by improving access to facilities and connectedness

Waste

Waste accounts for 2.2% of total emissions from NSW in 2017. These emissions are associated with breakdown of organic matter in landfills and waste water treatments facilities, emitting methane (CH_4), one tonne of food waste in landfill emits 1.9 tonnes of CO_2 – equivalent emissions, as it breaks down over 100 years.

Figure 16 Emissions reduction priorities by attributable emissions and by opportunities for emission reduction actions by category based on NSW emissions profile.

Future Technologies

Digital advances have led to the popularity of the concept of smart cities that is seen as a major driver for sustainable transformation. Digital solutions can improve efficiency in cities' service provision and more effective energy use management. Orange is currently planning the future of our city which includes consideration of smart technology and an emphasis on energy efficiency and renewable energy use.

Electric Vehicles & Charging Stations

With intervention by the NSW government, falling purchase prices, model availability and increase in the difference between petrol/diesel fuels and electricity as a fuel sources; sales of electric and hybrid vehicles are expected to reach 49% by 2030 and 100% by 2040 of all new vehicle sales There are two primary barriers to widespread electric vehicle adoption in New South Wales: the lack of convenient, fast charging infrastructure and the limited range of affordable electric vehicles. In 2019, the NSW Government released its Electric and Hybrid

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Vehicle Plan to help overcome these barriers in New South Wales (Electric Vehicle Council, 2019).

With the expected increases in electric and hybrid vehicles, community members; and tourists wanting to visit our region, will require EV infrastructure to be made available. It is important that we use this opportunity, and have the potential, to ensure renewable energy sources are powering this electric vehicle network to gain the full benefits of lower emission transportation for our region (Energeia, 2018).

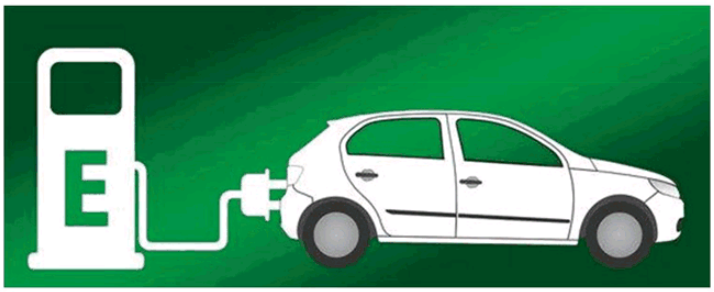

Figure 17 Electric vehicle charging illustration.

Energy Management Strategies

Energy management is one of the most demanding issues present within cities, therefore significant attention and effort needs to be dedicated to developing strategies for the management of a city's electricity, gas, water and renewable energy infrastructure. Cities constantly aim to deal with or mitigate, through the highest efficiency and resource optimisation, the problems generated by rapid urbanisation and population growth. Due to this, many countries have an increasing tendency towards smartening of their cities, and strive to achieve on going improvement and innovation.

Local governments aiming to reduce their city's energy usage and reduce emissions might begin by implementing a strategic energy management plan for local government operations. Within this plan, an energy usage reduction goal should be established. City's that practice energy efficiency and environmental stewardship do so across city operations and localise their best practices for certain buildings or building portfolios within the city. Council would benefit by implementing an energy management strategy to reduce energy usage, costs and emissions. The plan could be implemented using the *SMART* method.

Best Practices for *SMART* Energy Management Strategies

SMART acronym should be followed when developing energy management strategies.

Specific- Practices should be detailed and easy to understand. Consistent metric should be defined and used and the scope should be clearly stated and understandable.

Measurable- Goals cannot be achieved if they're not measured. The introduction and institutionalizing of an energy usage tracking system and the collection of past data is an essential step in tracking progress and developing feedback.

Attainable- Objectives must be not too aspirational to be achieved or too weak to make a difference. Local governments can set targets that are meaningful, have technical and economic potential and have saving potentials.

Relevant – The strategies aims need to be in line with a city's vision and should help a city achieve benefits such as energy and cost savings and emission reduction.

Time-bound- It is essential for goals to exist within a time frame. Baseline years that sets the standard in by which progress is measured and the target year that bounds the end point of the goal. Targeted time frames should aim to enable success in near, medium and long term.

Evidence-based Climate Action Planning

There are many factors that need to be considered in goal setting:

Evidence-based Climate Mitigation planning process

It is important that council is able to fully understand its current impacts on climate change and its role in creating change in order to better plan effective mitigations actions. Developing and analysing council's corporate emissions profile will provide the critical evidence for decision making and to take adequate actions. The following figure and table clearly identify the steps to achieve this.

Figure 18 Ironbark sustainability - intervention planning process.

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Table 6 Iron bark sustainability's intervention planning process at a sub categorical level.

1. Insight	
Corporate emissions Inventory	Almost 72% of Australian councils have a corporate greenhouse gas inventory, either developed internally or with expert assistance. It is evident that councils are now taking the extra step to get their inventory accredited as 'Climate Active' for carbon neutral status. It is important for local government to develop corporate emissions inventories to deliver emission reduction requirements best suited.
2. Target	
	Climate change targets establish leadership and demonstrate commitment to action.
Science Derived Targets	Science derived targets are a target that aligns with the Paris Agreement. In the age of the climate emergency, working to a science derived target is the better way that a council can prove that they are taking the required action.
3. Strategy	
Evidence based Action Planning	Climate action planning should always be based on data that demonstrates the available opportunity, future projections and the reductions possible; this is evidence-based action planning. Evidence-based action planning framework can provide a detailed understanding of the most relevant, and effective approaches available to our council, and the relative costs and carbon abatement potential of these interventions. This enables councils to make informed decisions and drive significant and measurable carbon reductions within our community
4. Action	
Collaborative planning	Collaborative planning processes across all council departments.
Project Management	Managed the delivery from feasibility studies, through procurement, and implementation of renewable energy, and energy efficiency projects
Policy and regulation development	Support the development or adjustment of policies and regulations that result in emission reductions. This includes through road specifications, planning regulation, climate policies or others.
Advocacy coordination	Develop materials to ensure council is able to leverage our influence at the state and national level to achieve our targets.
5. Evaluate	
	It is essential council monitors results and share our learnings so that they we can understand the effectiveness of interventions and so that the evidence base in this field can continue to grow
KPIs, Trigger Points and Capacity Building	Key Performance Indicators (KPIs), suggested monitoring frequency, and Trigger Points help council evaluate if a project is going to plan. KPI- Elements of your plan that express what you want to achieve by when. They are the quantifiable, outcome-based statements you'll use to measure if you're on track to meet your goals or objectives. Trigger Points - a particular circumstance which causes an event.

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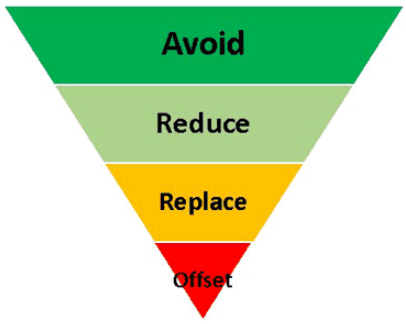
Identifying Opportunities to reduce emissions



Council can first investigate ways to reduce community emissions, starting with the sources of highest emissions identified in a corporate emissions profile. In this step council can identify as many options as possible and later refine through the emissions reduction pathway.

Emissions reduction actions can be considered according to the hierarchy outlined in Figure 19

Figure 19 Hierarchy of emissions reduction actions

Councils Operational Climate Change Mitigation Actions

Delivery Mechanisms,

Business as usual *-influencing existing programs, projects and works to incorporate delivery*

Planning for the future *- separate approval, determined through future annual planning*

The following climate change action plan aims to reduce emissions from councils' operations, build community and Councils capacity to deliver key objectives of the climate change strategic policy over the next 5 years. Each action references Councils current Cities Power Partnership commitments where applicable. Councils approach to operational emissions reduction is depicted in Figure 20.

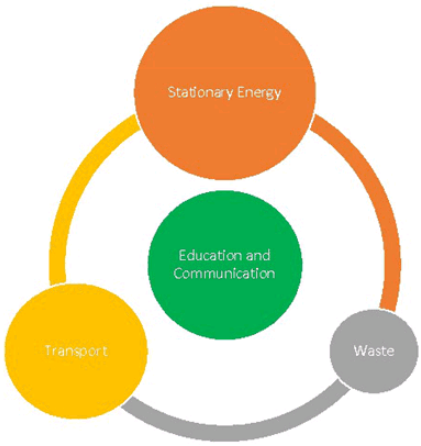


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Figure 20 Councils approach to operational emissions reduction actions by priority area based on NSW emissions profile. 1 Stationary Energy. 2 Transport. 3 Waste. Education and communication relate to all priority areas equally

Understanding Councils Operational Emissions

Table 7 Understanding Orange City Councils emissions and plans to deliver mechanisms/ timeframe for delivery.

Action	Work Area	Delivery Mechanism	Timeframe for Delivery	CPP
Develop and analyse councils' full operational emissions profile		Planning for the Future	2021	1, 2
Establish robust emissions data collection systems and methodology		Planning for the Future	2021	1, 2
Identify emission reduction pathways		Planning for the Future	2021	1, 2
Understand business as usual emission trajectory		Planning for the Future	2021 to 2022	
Identify opportunities to reduce emissions		Planning for the Future	2021	
Establish emission reduction targets		Planning for the Future	2022	
Define commitments and publish emission reduction targets		Planning for the Future	2022	
Monitor, evaluate and review actions		Planning for the Future	Annually	
Continually review Councils existing policies and recommend changes to ensure council's climate change policy is adequately reflected.		Planning for the Future	2021-2026	

Develop a low carbon culture

As caretakers of Oranges public assets, we need to consider the needs of present and future generations, and at the same time respect the diversity and cultural heritage of our community. It is important to ensure that we integrate reconciliation and social inclusion into our actions, as well as sensitivity to heritage and the needs of the community when approaching climate change action.

Table 8 Councils development of a low carbon culture and the mechanism/ timeframe for delivery.

Action	Work Area	Delivery Mechanism	Timeframe for Delivery	CPP
Continue to engage with Orange's local Aboriginal community and provide opportunities to integrate Aboriginal knowledge, cultural diversity and social inclusion in councils approach to Climate Change		Business as Usual, Planning for the Future	2021 to 2026	

Promote Councils emission reduction aims/achievements and options for patrons at our facilities to contribute to emissions reduction through sustainable choices of purchases and avoiding waste.		Planning for the Future	2022 to 2026	5
Promote Councils emissions reduction aims/achievements to the broader community, modelling and encouraging emissions reduction actions by the community.		Planning for the Future	2023-2026	
Conduct council staff training and behaviour change programs to ensure facilities and equipment are operated efficiently.		Planning for the Future	2021 to 2026	
Establish internal staff committee for the management and implementation of this climate change management plan.		Future Planning	2021	
Establish internal monitoring and reporting for the implementation of this climate change management plan.		Planning for the future	2021 to 2022	
Report the progress on implementing the plan to the public and to councillors annually.		Planning for the future	Annually	

Council Events

Orange's liveability, thriving culture and environmental sustainability are a source of community pride. Working on reducing emissions from events and celebrations are important, working with partners and suppliers calculating emissions is essential for the management of climate change.

Table 9 Hosting Council events without emissions and the mechanisms/timeframe for delivery.

Action	Work Area	Delivery Mechanism	Timeframe for Delivery	CPP
Develop communication materials and online communication campaigns to promote climate mitigation actions of our organisation at community facilities, information centres and events.		Business as Usual	2021 to 2026	5
Promote walking, cycling and public transport to event patrons		Business as Usual	2021 to 2026	3, 5
Work with suppliers and event partners to reduce packaging and food waste and increase the number of carbon neutral products and services		Business as Usual and Future Planning	2021 to 2026	
Support events that promote climate change action through sponsorship, information stalls, expert speakers and communications material that promotes actions patrons can take to reduce their emissions.		Business as Usual	2022 to 2026	3, 5
When the events guide is next reviewed, include information on how venues and event planners can reduce or offset emissions		Future planning	2021 to 2022	5

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Develop website content and/or fact sheets tailored to small, medium and large events on how to reduce or offset emissions from venues, catering, transport and waste process and the process of carbon neutral certification (for large events).		Future Planning	2021 to 2022	5

Carbon reduction for council buildings

Councils most recognised buildings are also some of the largest users of energy. The increased technology in relation to efficient buildings and renewable energy provide opportunities to reduce emissions and reduce ongoing costs. Orange council is committed to making the right decisions about community assets to monitor and eliminate greenhouse gas emissions.

Table 10 Carbon reduction for Council Buildings and the mechanisms/timeframe for delivery.

Action	Work Area	Delivery Mechanism	Timeframe for Delivery	CPP
Establish an energy management strategy. Deliver emissions reductions from council building assets by making the right decisions, with the right information and the right data and processes related to their energy performance.		Business as Usual and Future Planning	2021 to 2022	1, 2
Incorporate appropriate technology into the energy management strategy to guide actions to reduce emissions through the optimisation of current technology, procurement of new technology and future planning for a data centre		Business as Usual and Future Planning	2021 to 2022	1, 2
Introduce staff to the energy saving features of their work place at induction sessions for new staff, and promote actions to save energy through internal staff engagement.		Future planning	2023 to 2026	
Integrate energy efficiency objectives into the plans, specifications, and tender documents for new council buildings		Future planning	2021 to 2026	1, 2
Establish an energy management case study of a council building which demonstrates a transferrable template for energy management across Councils buildings		Future Planning	2021 to 2026	
Include renewable energy technology into the energy management strategy. Continually assess the need and practicalities of renewable energy technology and implement where practical to do so		Future Planning	2021 to 2026	
Install appropriate renewable energy technology on council buildings to offset energy usage and cost and reduce operational emissions.		Business as Usual and Future Planning	2021-2026	1

Carbon Neutral goods and services

To increase the number of major contracts with carbon neutral services, Orange needs to consider the impact of emissions across the decision-making life cycle of purchasing and procurement. This includes the development, category management plans, tender documentation, key performance indicators and contract management and reporting.

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Table 11 Councils carbon neutral goods and services and the mechanisms/timeframe for delivery.

Action	Work Area	Delivery Mechanism	Timeframe for Delivery	CPP
Measure and report emissions from major categories of supply and require contractors to report any large sources of emissions from sub-contractors.		Future Planning	2021 to 2026	5
Train contract managers in key concepts relating to carbon neutrality to enable them to evaluate, negotiate and manage carbon neutral services		future Planning	2020 to 2021	5
Work with councils Joint Organisation (JO) and similar organisations to amplify market demand for carbon neutral goods and services		Business as Usual Future Planning	2021 to 2026	
Communicate organisational expectations for carbon neutral goods and services in the procurement policy, tenders and related documents		Business as Usual	2021 to 2026	

Reduce carbon emissions from waste

The waste generated by Orange city councils operations includes waste from our offices and public facilities including community buildings, parks and gardens.

Table 12 Councils reduction of carbon emissions from waste and mechanisms/timeframe for delivery.

Action	Work Area	Delivery Mechanism	Timeframe for Delivery	CPP
Promote operational waste avoidance, diversion from landfill and recycling through council staff engagement programs		Future planning	2022 to2026	
Ensure Councils waste collection, office cleaning and parks and gardens maintenance support emission reductions from waste.		Future planning	2023 to 2026	
Collect and report data on waste from council operations and facilities		Future Planning	2022 to 2026	
Promote waste avoidance and recycling to patrons at community facilities through clear signage, and investigate other options to improve waste avoidance and reduction		Business as usual	2022 to	5
Promote waste avoidance, diversion from landfill and recycling through community engagement programs		Business as usual	2020 to 20205	

Reduced Carbon Transport

New vehicle technologies and alternatives transport that does not use fossil fuels can prevent emissions.

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Table 13 Councils reduced carbon transport and mechanisms/timeframe for delivery.

Action	Work Area	Delivery Mechanism	Timeframe for Delivery	CPP
Promote walking, cycling and public transport options to council staff for commuting and business travel.		Future Planning	2022 to 2026	5
Promote walking, cycling and public transport options to Orange's community for commuting and business travel.		Business as Usual and Future Planning	2023 to 2024	5
Investigate opportunities to increase the use of emission passive forms of transport and address existing barriers.		Future Planning	2026	5
Ensure vehicle leasing and council vehicles support efforts to increase vehicles that use zero carbon technology		Future Planning	2022 to 2026	
Design car park charging facilities for the projected increase in electric vehicles		Future Planning	2023 to 2026	3
Survey, monitor and report councils use of transport fuel and associated emissions		Business as Usual	2021 to 2026	
Apply fuel efficiency criteria to the purchase and lease of new vehicles		Business as usual	2021 to 2026	
Increase the number of vehicles with zero carbon technology such as electric and hydrogen powered vehicles.		Future Planning	2021 to 2026	

Adaptation

Adaptation to climate change is defined as an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Risk treatments developed and implemented by an organisation in response to a climate change risk assessment can be regarded as a type of climate change adaptation.

Adaptation measures achieved

The following are key examples of adaption measures achieved by Orange City Council:

Storm water harvesting

Wetlands stormwater harvesting projects

The Blackmans Swamp Creek stormwater harvesting scheme is the first large scale, indirect-to-potable stormwater harvesting project in NSW (*Figure 21*). Blackmans Swamp Creek and Ploughman's Creek stormwater harvesting scheme began in 2008. The scheme is ultimately

capable of providing up to 2000 mega litres (ML) of additional water into oranges water supply each year. This represents up to 35% of the cities normal annual water usage. The overall concept of the storm water harvesting scheme involves capturing the portion of high flows from Blackmans swamp creek and Ploughman's Creek during storm events and transferring this water into the nearby Suma Park Dam.

- Combined average harvesting potential of these projects is 1,350ML/year
- Blackmans Swamp Creek = up to 850ML/year
- Ploughman's Creek= 500ML/year
- This equates to approximately 25% of Oranges annual unrestricted water demand

During winter months, the snow has also been known to deliver a boost to water catchment. E.g. 12th of August 2019 snow increased from 5.6 % to 28.3%, roughly 52ML.

Figure 21 Orange City's stormwater harvesting projects.

Dual water supply

Council has also been investigating the best use of its stormwater through implementing a dual pipe system. Dual pipe systems aim at reducing the consumption of drinking water and make the most of all water sources. Dual pipe system is supplied with recycled wastewater and used to supply household uses which do not require drinking standard water e.g. (garden irrigation and toilet flushing). Dual pipe systems have been included in all houses built in the Ploughman's Valley and North orange since 2005, allows residents to collect stormwater from city's wetlands.

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This reduces potable water consumptions reducing water in ploughman's Valley and North orange by 29%. Alongside with additional household savings (e.g. use of water efficient fittings) homes will achieve minimum 40% water saving requirement by BASIX. The completed dual water scheme (4,500 households) is estimated to use 330ML of stormwater for non-potable household uses which will reduce the volume of stormwater pollutants entering the waterways.

All recycled water is fully allocated to Cadia Valley Operations, one of Australia's largest gold mining operations.

Figure 22 Orange City Councils dual water supply tap systems.

Adaptation approach

The Enabling Regional Adaptation (ERA) process has been designed to develop a shared understanding among stakeholders of the likely vulnerability to climate change and stimulate action to plan adaptation. The Western Enabling Regional Adaptation Report (which Orange is part of) has been published by the NSW Office of Environment and Heritage (2017) The ERA process provides a credible evidence base to inform government adaptation planning by developing regional understanding of the impacts of projected climate change and vulnerability for key systems. It also builds on the capacity of decision-makers to capture opportunities for regional climate change adaptation projects between sectors across local and state government. Through this process the ERA established a number of implications form the expected physical responses for the Central West Orana

Climate Change Risk Assessment

Beyond the ERA and to align with Councils Climate Change Strategic Policy and as part of the recommended review cycle process (*figure 23*), Council is conducting a review of its Climate Change Risk Assessment (CCRA). The aim of the CCRA is to:

- Identify potential risks to Council service areas as a result of climate change
- Analyse risk statements to determine preliminary level of risk

- Evaluate risks to develop a list of priority risk statements
- Identify adaptation actions through literature review and brainstorming
- Re-analysis of risk statements to determine effectiveness of adaptation actions

Climate Change projections for the Orange region which have been used to determine risk, can be found in the appendix of this plan.

Climate Change Risk Assessment Methodology Steps

Identify the risks

The identification of risks will consist of developing several risk statements through a brainstorming session which investigates the effects of the climate change impacts. Each risk statement should be developed as a cause-effect statement which describes what may happen to specific services and assets as a result of climate change impacts.

Analyse and evaluate the risks

Each risk statement will be analysed by determining its likelihood and consequence. The methods used will be consistent with AS/NZS ISO 31000:2009, and are adapted from the Commonwealth Government's Climate Change Impacts and Risk Management – A Guide for Business and Government. Council will use the existing corporate risk management framework.

Establish appropriate adaptation options

Key risks which are identified will be grouped into similar themes. Adaptation options targeting each risk are will be established through internal workshops with council staff. Some adaptation actions are able to be applied across multiple

Review implementation of adaptation options

Once appropriate adaptation actions are adopted, it is critical that the associated risks and adaptation actions are incorporated into 'Business as Usual' processes. For council this could be through the existing Integrated Planning and Reporting framework (*figure 21*).

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Figure 23 the review cycle process is a key part of successful climate change risk management.

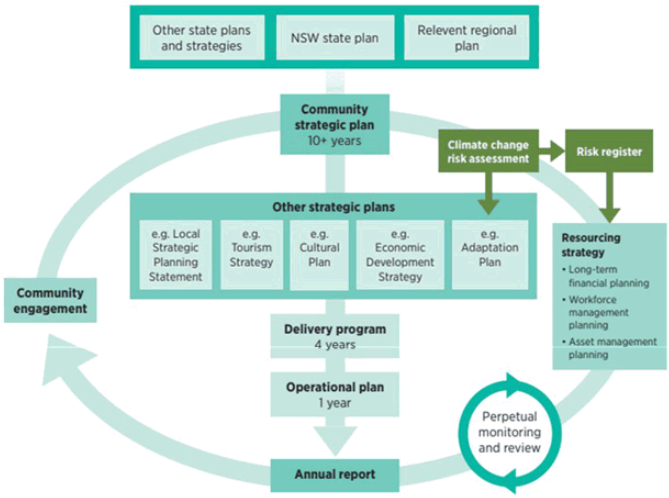

Figure 24 the integrated Planning and Reporting (IP&R) framework - modified to integrate climate change risk assessment.

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Councils Operational Climate Change Adaptation Actions:

Table 14 Councils climate risk assessment and adaption mechanisms/timeframe for delivery.

Action	Work Area	Delivery Mechanism	Timeframe for Delivery
Conduct Councils Climate Change Risk Assessment in line with councils existing Corporate Risk Management policy		Business as usual	2021
Consider climate change mitigation action planning, climate risk assessment and adaptation planning in the next review of the community strategic plan		Future Planning	2021-2026
Incorporate identified climate change risks and adaptation options into existing corporate risk IP&R framework and appropriate 'business as usual' operations		Future Planning	2021-2026
Develop communication materials and online communication campaigns to promote climate adaptation actions of our organisation at community facilities, information centres and events.		Future Planning	2022 to 2026
Review Councils Climate Change Risk Assessment		Future Planning	2026

Implementation

The current mechanisms to support the implementation of this plan are as follows:

Community Strategic Plan

The Community Strategic Plan is Orange City Council's chief planning document and financial blueprint. It aims to outline the aspirations and needs of the Orange community together with expected levels of service alongside financial modelling, asset management strategies and projected resources.

The Community Strategic Plan is a 10 year plan to guide Council and community activity. It is a State legislative requirement to develop this plan which will provide the community with a blueprint for its long-term growth, community development and infrastructure renewal.

The community strategic plan is separated into themes, the following themes relate to the implementation of this plan

Preserve - Balancing the natural and built environment.

This theme ensures that the unique natural, cultural, social and historical aspects of our community are preserved while recognising the need for growth and development. The community was strong in its desire to be more sustainable by promoting renewable energy, reducing waste and protecting our natural resources. There is also an expectation for

infrastructure to support a growing city, with roads, footpaths, parking and a vibrant CBD seen as priorities.

Objectives

7.2. Ensure best practice use of renewable energy options for Council and community projects

8.2. Develop and promote initiatives to reduce water, energy and waste in consultation with the community

8.3. Promote the range of recycling services

9.3. Ensure that an appropriate level of pedestrian amenity is provided throughout the community

Councils role

- Initiate and implement environmental programs and projects
- Encourage builders to offer energy efficient homes and renewable energy options in their designs

Community Participation

- Reduce, reuse, recycle
- Compost kitchen and garden waste
- Use the green bin
- Use recyclable bags and say no to plastic
- Install energy and water-saving options in your home
- Retain and plant native vegetation and trees on your property

Measuring Our Achievements

- An increase in the number of people participating in community engagement
- Reduction in waste to landfill
- Increase in the use of alternative energy sources
- Increase in the number of residents caring for their natural environment

Delivery/Operational Plan 2018/19 – 2021/2022

The four-year Delivery/Operational Plan details how the strategies outlined in the 10-year Orange Community Strategic Plan will be implemented generally over the next four years, and specifically identifies annual tasks to be undertaken. The following actions from the Delivery/Operational plan relate to this plan

7.2.1 Increase solar power

- Seek funding opportunities for solar expansion of Council facilities

- Roll out of solar panels on Council assets where funding permits

7.2.2 Maintain Cities Power Partnership membership

- Use membership to investigate sustainability options

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Budget

Renewable Projects – Works to be allocated, $500,000 for the next 3 years. 2021-2024

Orange Local Strategic Planning Statement 2020

In March 2018, amendments to the Environmental Planning and Assessment Act 1979 (EP&A Act) introduced new requirements for councils to prepare and make local strategic planning statements (LSPS). The LSPS acts as a link between the strategic priorities identified at a regional or district level, and the finer-grained planning at a local level expressed in council's local environmental plan and development control plans, to ensure consistency in strategic planning approaches. While mainly related to land use planning from the State to the local level the LSPS is also intended to connect and align with Council's broader role via the Community Strategic Plan.

The legal framework for the LSPS requires that planning priorities are established, consistent with existing strategic plans (including the Community Strategic Plan). The following Planning priorities which relate to the actions in this plan are:

Planning Priority 15

Manage energy, water and waste efficiently to ensure a sustainable urban environment.

Planning Priority 16

Adapt to the impacts of hazards and climate change

Climate Change Action Opportunities

NSW State Policy

The NSW Climate Change Policy Framework outlines the long-term objectives to achieve net-zero emissions by 2050 and to make New South Wales more resilient to a changing climate.

The policy framework builds on expanding clean energy, helping households and businesses reduce their bills by saving energy and preparing for the impacts of climate change. It guides the NSW Government's policy and programs. As a result of the state policy, Orange City Council has the potential to engage in this process and lobby to attract the state government assistance to our council and community.

NSW Electric and Hybrid Vehicle Plan

The NSW Governments Electric and Hybrid Vehicle Plan reflects our growing focus on future mobility and technology innovations which will modernise transport for the community and businesses across New South. The Plan will maximise the benefits of a transition to more electric and hybrid vehicles for NSW. Wales. NSW supports the transformation of transport through technology, and we recognise the need for a clear direction forward to guide government and industry actions on EVs. The Plan is intended to be a catalyst for positive

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change that will benefit communities and businesses. The actions in the Plan will help support the EV transition over the next five years, by moving ahead with partners in communities, councils, site owners, vehicle suppliers, charging providers, energy suppliers and others. The Government is ensuring that NSW is well placed and prepared for EVs and to capitalise on their many benefits. Orange City Council stands to engage in this process and look to participate in opportunities which arise from the plan to support our climate change objectives.

Climate Solutions Fund

The Emissions Intensity Reduction Program will be complemented by the Commonwealth's $450 million commitment to New South Wales from the Climate Solutions Fund (Fund) in addition to the other commitments under the Bilateral. The Climate Solutions Fund supports Australian businesses, farms and land managers to take practical, low-cost actions to reduce emissions. This commitment from the Commonwealth will allow New South Wales to take full advantage of the Fund over the next decade and will provide important environmental, economic and social benefits to local businesses and communities.

In addition to the Emissions Intensity Reduction Program and the NSW allocation of the Climate Solutions Fund, the NSW and Commonwealth Governments will commit a further $1.07 billion over 10 years under the Bilateral to the Energy Efficiency, Electric Vehicle Infrastructure and Model Availability, Primary Industries Productivity and Abatement, Coal Innovation, Clean Technology and Hydrogen programs.

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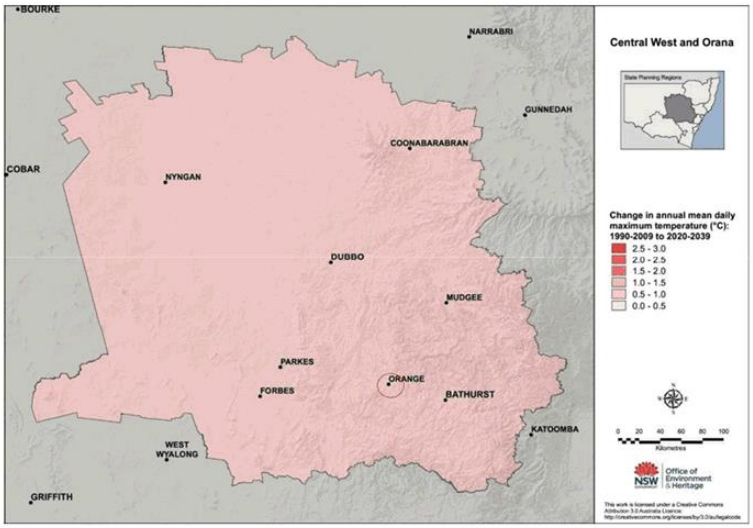
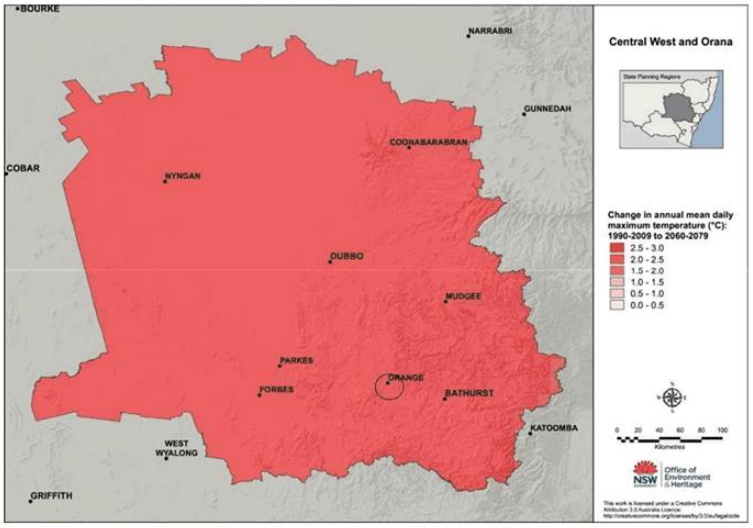
Appendix:

The following climate change projection maps for the region are sourced from the Central West and Orana Climate Change Snapshot





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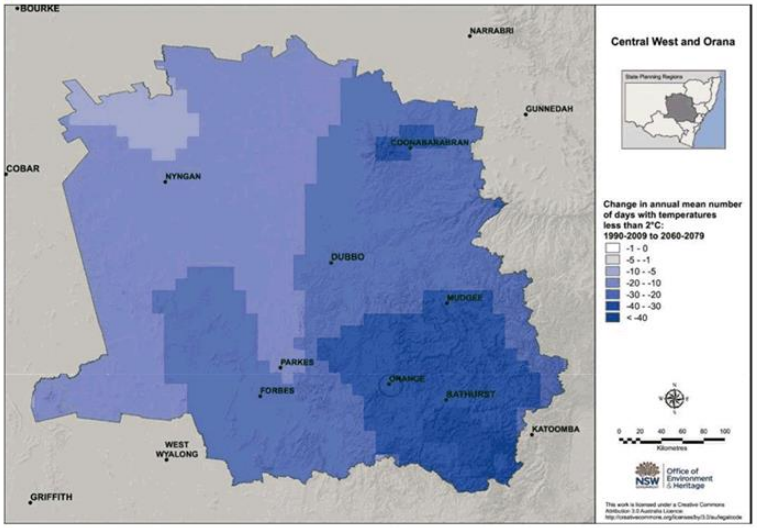

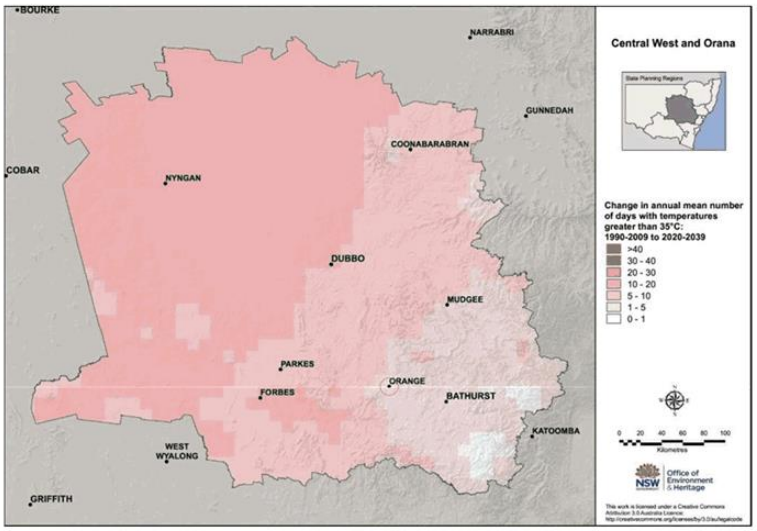

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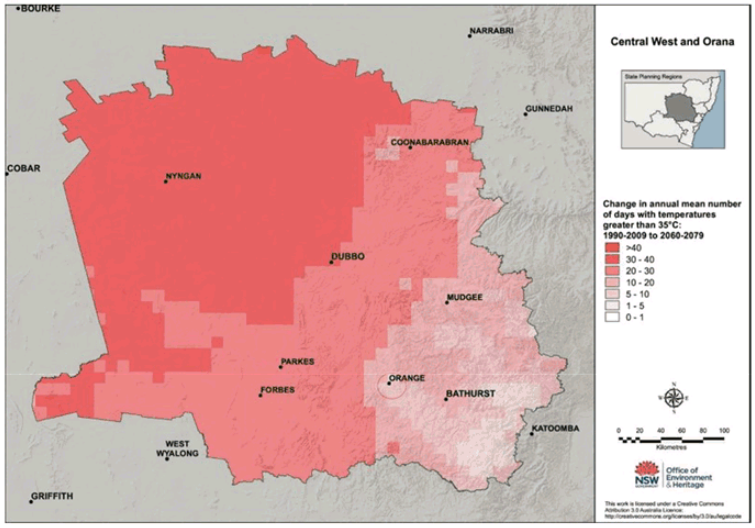

Climate variable (average across the region)	Trend	Projections	
		Near future (2030)	Far future (2070)
Atmospheric CO_2	Increase	A2 IPCC emissions scenario	
Max temperature	Increase	<0.5 – 1.5°C	1.5 – 3°C
Min temperature	Increase	<0.5 – 1.0°C	1.5 – 3°C
Hot days	Increase	1 – 20	1 – 30
Cold nights	Decrease	10 – 20	20 – 40
Heatwaves	Increase (frequency) Increase (intensity) Increase (duration)	1 – 1.5 events 1.5 -4.5°C 1.4 – 3.5 days	2.5 – 4.5 events 4.5°C 7 – 9 days
Annual rainfall*	Drying & wetting	–12% to +11%	–10 to +22%
Changes in average rainfall by season*	Drying & wetting	Summer –10% to +10% Autumn 0% to +20% Winter 0% to +10% Spring 0% to +20%	Summer –5% to +20% Autumn +10% to +20% Winter –10% to +20% Spring 0% to +20%

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Sector	Direct climate impacts	Indirect climate impacts	Adaptive capacity
Economy and industry	Decreased agricultural productivity	Enhanced economic adjustment Increased value of water	Infrastructure design and integration Regional knowledge base Resource availability and sharing
Human services	Increased hospital presentations	Declining health and wellbeing Increasing inequality and disadvantage	Community health Social equity
Settlements and infrastructure	Decreased agricultural productivity	Declining community wealth	Resource availability and sharing
Natural resources and ecosystems	Damage to ecosystems Changed surface water flows Increased potable water usage Increased energy demand	Loss of vulnerable ecosystems and services Increased value of water	Landscape resilience Resource availability and sharing
Emergency management	Increased demand for emergency services	Declining health and wellbeing Increasing inequality/ disadvantage	Resource availability and sharing Community health

ORANGE CITY COUNCIL - DOMESTIC WASTE STREAM DIVERSION RATES

JR Richards & Sons WASTE and RECYCLING SERVICES

	Recycle		Organics		% Diverted	Waste		Waste Stream
2019 - 2020	Total Tonnes	%	Total Tonnes	%		Total Tonnes	%	Total Tonnes
Jul	214.27	15%	490.36	35%	50%	702.44	50%	1407.07
Aug	257.88	14%	682.58	38%	52%	873.62	48%	1814.08
Sep	211.30	12%	864.66	48%	60%	713.34	40%	1789.30
Oct	212.17	10%	1127.14	55%	65%	725.54	35%	2064.85
Nov	290.87	13%	1020.50	47%	60%	877.42	40%	2188.79
Dec	236.19	16%	509.81	35%	51%	708.14	49%	1454.14
Jan	286.72	14%	841.36	41%	55%	942.80	46%	2070.88
Feb	220.57	12%	879.68	48%	60%	734.16	40%	1834.41
Mar	219.71	12%	821.43	47%	59%	717.50	41%	1758.64
Apr	221.18	11%	1090.61	52%	63%	767.60	37%	2079.39
May	272.01	11%	1128.04	47%	58%	987.65	41%	2387.70
Jun	220.90	12%	789.74	44%	56%	774.78	43%	1785.42
TOTAL	2863.77	13%	10245.91	45%	58%	9524.99	42%	22634.67

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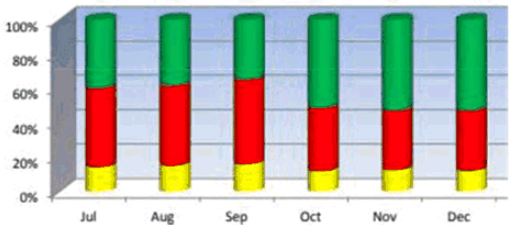
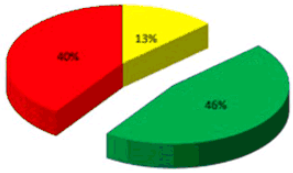
ORANGE CITY COUNCIL - DOMESTIC WASTE STREAM DIVERSION RATES

2018 - 2019	Recycle Total Tonnes	%	Organics Total Tonnes	%	% Diverted	Waste Total Tonnes	%	Waste Stream Total Tonnes
Jul	219.44	14%	615.25	40%	54%	712.30	46%	1546.99
Aug	275.68	15%	704.10	38%	53%	855.00	47%	1834.78
Sep	236.78	16%	518.86	35%	51%	731.24	49%	1486.88
Oct	242.73	12%	1050.25	51%	63%	757.50	37%	2050.48
Nov	328.82	12%	1391.76	53%	65%	914.49	35%	2635.07
Dec	257.48	12%	1132.77	53%	65%	753.82	35%	2144.07
Jan								
Feb								
Mar								
Apr								
May								
Jun								
TOTAL	1560.93	13%	5412.99	46%	59%	4724.35	40%	11698.27



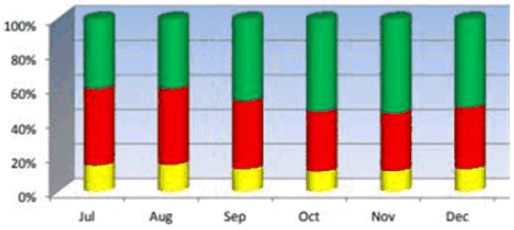


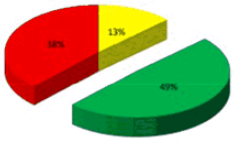
Orange City Council waste diversions 2018

ORANGE CITY COUNCIL - DOMESTIC WASTE STREAM DIVERSION RATES

2017 - 2018	Recycle Total Tonnes	%	Organics Total Tonnes	%	% Diverted	Waste Total Tonnes	%	Waste Stream Total Tonnes
Jul	239.09	15%	639.56	40%	55%	702.12	44%	1580.77
Aug	251.76	16%	653.37	40%	56%	711.52	44%	1616.65
Sep	308.91	13%	1118.90	47%	60%	928.34	39%	2356.15
Oct	267.33	12%	1225.04	54%	66%	792.40	35%	2284.77
Nov	273.53	12%	1255.86	55%	67%	766.78	33%	2296.17
Dec	362.83	13%	1410.91	51%	64%	977.26	36%	2751.00
Jan								
Feb								
Mar								
Apr								
May								
Jun								
TOTAL	1703.45	13%	6303.64	49%	62%	4878.42	38%	12885.51

ORANGE CITY COUNCIL

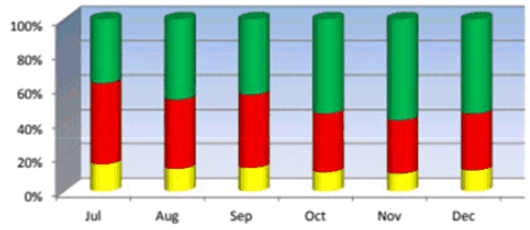


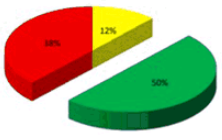


Orange City Council waste diversions 2017

ORANGE CITY COUNCIL - DOMESTIC WASTE STREAM DIVERSION RATES

2016 - 2017	Recycle Total Tonnes	%	Organics Total Tonnes	%	% Diverted	Waste Total Tonnes	%	Waste Stream Total Tonnes
Jul	310.56	16%	729.86	37%	53%	933.44	47%	1973.86
Aug	245.48	13%	879.98	47%	60%	763.92	40%	1889.38
Sep	307.67	14%	992.08	44%	58%	972.14	43%	2271.89
Oct	258.68	11%	1279.22	55%	66%	802.72	34%	2340.62
Nov	265.79	10%	1519.79	58%	68%	812.56	31%	2598.14
Dec	365.91	12%	1657.70	55%	67%	1007.44	33%	3031.05
Jan								
Feb								
Mar								
Apr								
May								
Jun								
TOTAL	1754.09	12%	7058.63	50%	62%	5292.22	38%	14104.94





Orange City Council waste diversions 2016

3 GENERAL REPORTS

3.1 ANNUAL WASTE DIVERSION AND EDUCATION STRATEGY IMPLEMENTATION - 2019/2020

RECORD NUMBER: 2020/2642
AUTHOR: Wayne Davis, Manager Waste Services and Technical Support

EXECUTIVE SUMMARY

Prior to the adoption of the current Domestic Waste and Recycling contract, Council undertook a trial with the community for a fortnightly waste collection. The results were considered by Council at its meeting of 16 February 2016 and resolved the following:

"RESOLVED - 16/049 Cr J Davis/Cr R Kidd

1 *That Council adopt a weekly waste collection service frequency for municipal solid waste (red lid waste bin) collection for up to five years of the new NetWaste Waste Services Contract.*

2 *That Council increase expenditure by $30,000 per annum to implement a comprehensive and ongoing education program to increase waste diversion rates to 70% by 2021, with progress towards this target to be the subject of an annual report to Council.*

3 *That, subject to Council not being able to achieve the State Government's required 70% waste diversion target by 2021, or being directed by the State Government to achieve this, Council retain an option to re-negotiate the NetWaste Waste Services Contract within five years to include fortnightly waste collection service frequency to assist in achieving the required 70% waste diversion target. In this circumstance, the matter be brought back to Council.*

4 *That authority be given to the General Manager to conclude contractual requirements for the NetWaste Waste Services Contract.*

5 *That approval be granted for the Council Seal to be affixed to relevant documents."*

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy "8.2 Preserve - Develop and promote initiatives to reduce water, energy and waste in consultation with the community".

FINANCIAL IMPLICATIONS

The implementation of all activities within the Strategy are funded as follows:

Council commitment to waste diversion	$ 30,000
Commitment within Orange Food and Garden Organics Contract	$ 50,000
Commitment within NetWaste Joint Recycling Contract	$ 50,000
Total Annual Funds	$130,000

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

That the information provided in the report on Annual Waste Diversion and Education Strategy Implementation – 2019/2020 be acknowledged.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

SUPPORTING INFORMATION

In July 2016, Orange City Council developed a five year Waste Diversion Education Strategy 2016-2021 entitled "Engaging the Community in Waste Minimisation and Resource Recovery". The Strategy acts as a guide to achieving a reduction in waste to landfill and diversion of recyclable materials within the Orange community.

This report provides a brief overview of actions undertaken within the 2019/2020 year to assess data and implement behaviour change initiatives as Orange City Council works towards the achievement of Key Result Areas and Targets outlined in the NSW Waste and Resource Recovery Strategy 2014-21 (NSW WARR). Key result areas follow:

Key Result Area 1	Avoid and reduce waste generation
Key Result Area 2	Increase recycling
Key Result Area 3	Divert more waste from landfill
Key Result Area 4	Manage problem waste better
Key Result Area 5	Reduce litter
Key Result Area 6	Reduce illegal dumping.

Target areas within the NSW WARR:

Key Result Area 1 – By 2021 reduce the rate of waste generation per capita

Key Result Area 2 – By 2021 increase recycling rates for:

- Municipal solid waste (MSW) to 70%
- Commercial and industrial waste (C & I) to 70%
- Construction and demolition waste (C & D) to 80%.

Key Result Area 3 – By 2021 increase the waste diverted from landfill to 75%.

2019/20 Waste Diversion Plan Initiatives and Data Results

Each year, EnviroCom undertake a number of waste education initiatives on behalf of Orange City Council. These programs aim to educate and engage the community, collect data and assess community attitudes, knowledge and behaviour in relation to waste generation and disposal behaviours with the aim of promoting and encouraging resource recovery and landfill diversion opportunities. As detailed below, initiatives undertaken over the last few years provide Council with data and evidence to assist in determining the feasibility of transitioning from a weekly to a fortnightly kerbside general waste collecting service.

Orange Audits 2019 and 2020

General waste and Food Organics and Garden Organics (FOGO) stream audits were conducted in Orange under the NetWaste Waste Education Plan (WEP) 2019-20. The following year, as part of the Orange Waste Diversion Education Strategy (WDES) WEP 2020-21, General waste, Recycling and FOGO audits were undertaken. The audits provide valuable data on waste behaviours of Orange residents. The breakdown of the contents of the average general waste bin between audit years is provided in Table 1.

Table 1. Orange audit results

Waste component		% of average general waste bin	
		2019	**2020**
General waste		48.22%	60.90%
Recyclable materials		19.64%	17.81%
FOGO materials	Total	32.14%	21.29%
	Food waste	*21.83%*	*13.6%*
	Garden waste	*5.92%*	*2.25%*
	FOGO-acceptable waste	*4.39%*	*4.56%*

Current school and community waste education initiatives in Orange

Orange City Council places great emphasis on the importance of education, particularly when it comes to waste, and is very active in this sector. Orange primary schools have been receiving waste education incursions since 2017, under the NetWaste WEP and more recently as part of the FOGO WEP. The topics covered in the primary school incursions focus on waste and a range of other environmental issues, and are as follows:

- Recycling Rules!
- It's a Wormy World
- Caught on Composting
- Don't Waste Biodiversity
- Being Resourceful
- Litter, Litter Everywhere!
- The Science of Sorting
- The Wrap on Wrapping
- Food for Thought

Feedback from all schools on these incursions is consistently positive, and presentations are in high demand (although COVID-19 did impact the school incursion program during 2020). All schools within the Orange LGA are offered the opportunity to receive free incursions (years K-6), as well as schools in the Bathurst, Forbes, Parkes, Blayney and Cabonne LGAs. This program is crucial to providing a clear understanding of waste management in the Central West and, by engaging school-aged members of the community, this information can, in turn, be passed on to family members and the broader community.

Community tours of the waste facilities in Orange (the ORRRC and the organics composting facility Euchareena Road Resource Recovery Centre) are offered on an approximately quarterly basis, inviting Orange residents to see up-close how the waste from each of their three bins is landfilled, recycled or composted. The tours run for three hours and attendees have the opportunity to ask questions and visit sites which are not usually accessible to the public. This initiative provides valuable education in waste management and will continue to be run in the future.

Similar to waste facility tours, regular pop-up displays (PUDs) provide an opportunity for residents to speak to Council representatives about waste services and ask any questions they may have about where to dispose of household items. Collateral is handed out to interested residents, including the ORRRC site map, three-bin flyer, recycling reminder magnet, instructions flyer on how to fold a kitchen caddy liner and various giveaway items. Most PUDs in Orange focus on NetWaste's current pledge campaign, which encourages residents to take the pledge to dispose of their food waste in the green-lidded food & garden waste bin for composting, instead of landfill via the red-lidded general waste bin. "Pledgers" are supplied with a free kitchen caddy, to assist in transporting food waste to the outside bin, as well as a pledge pack (consisting of a large bin sticker, pledge flyer and reminder of items accepted in the green-lidded bin). Recycling-themed PUDs supply yellow ecobins (recycling crates) and involve a fun activity, where residents try to spot five items which don't belong in the display recycling bin. Each year, around half a dozen PUDs are delivered in the Orange LGA.

Prior to COVID-19, community workshops were a staple in Orange, and delivered at events such as the Sustainable Living Expo, or as standalone evenings open to all members of the community. Since the COVID-19 pandemic, face-to-face community workshops have been adjusted for delivery as webinars. This method allows for a much larger audience than previously possible, and is more flexible for viewers who might not have been able to travel to the venue in-person. Past topics include worm farming, home composting, the state of waste in Orange and soft plastics recycling.

EnviroCom has been engaged to support waste diversion and promote correct recycling behaviours at large events in Orange, such as the Wine Week Markets and F.O.O.D. Week Night Markets. In the lead up to the events, signage was developed and information collated for market vendors and for event attendees, in order to ensure sustainable packaging options were selected by vendors and that each disposal point was clearly marked with the relevant accepted waste type. Over the course of each event, staff were positioned by the bin stations and assisted attendees in disposing of their waste in the correct bin, and answered any questions posed by attendees with regards to waste. This role was due to continue for future events but was unfortunately cut short due to the COVID-19 pandemic resulting in many cancelled events in Orange. The event support role will continue when regular event operation resumes.

Ophir Road Waste Data Report 2019-20

Since 2015, data collected by the Ophir Road Resource Recovery Centre weighbridge has been analysed to identify patterns and trends in waste behaviours in Orange. As demonstrated in the most recent report, there is a clear downward trend in overall waste generation, from 1.77 tonnes produced per capita per annum in 2016 to 1.35 tonnes in 2020. With regard to municipal solid waste, the WARR target for 2021 is a 70% diversion rate. In Orange, this figure has grown from 45% diversion in 2016 and currently sits at 58% diversion in 2020.

The overall waste diversion rate for 2020 is recorded as 43%, significantly lower than the WARR target of 75% by 2021. However, it should be noted that although the diversion rate has decreased, so too has the waste generation rate, as previously mentioned. Efforts need to be made in the C&I and C&D sectors to attempt to divert more waste materials from landfill, as the diversion rates of each of these streams is far lower than that of MSW. For further details, please refer to the Ophir Road Waste Data Report 2019-20 previously provided to Council.

C&D and C&I waste stream diversion efforts in Orange

In 2017, a project aimed at reducing Commercial and Industrial (C&I) waste was begun under the Orange Waste Diversion and Education Strategy. It was proposed that local cafes be approached and asked to take part in a free waste consultation, to assess the potential for waste reduction and recycling/diversion within the business. This expanded over the years to include other small and medium/large businesses, with a focus on cafes/restaurants in order to divert organics from landfill. EnviroCom was able to develop case studies, featuring local businesses which successfully managed their waste in a positive way and are now benefiting from the social and economic value this brings. The Business Waste project was due to continue under the 2020-21 WDES contract, but due to the COVID-19 pandemic and the restrictions placed on hospitality venues, this has been put on hold until a later date (anticipated to be 2021).

Forming a large part of the 2019-20 WDES contract, the C&D Processes Review was proposed by Council to bring into the focus the current disposal methods within the Construction & Demolition (C&D) waste stream. This project is made up of three phases, the first of which involves interviewing and inspecting construction sites around Orange, providing a valuable insight from those in the building and construction industry. The project will result in the development of a new Waste Management Plan for Council, to be included in DA applications submitted within the Orange LGA. The C&D Processes Review is due to be completed by the end of the 2020-21 financial year, to assist in increasing the diversion of C&D waste from landfill.

As the waste diversion hub of Orange, the Ophir Road Resource Recovery Centre (ORRRC) plays an important part in the city's waste management. In 2018, new signage was installed at the ORRRC to provide clear instruction on the types of waste accepted by the facility, and directions on where each drop off point is located within the site. This has assisted residents in learning more about alternative waste disposal methods and increased confidence in resource recovery. Hard copy site maps are available at the ORRRC weighbridge.

Comparison between Orange, Forbes and Parkes

Figures drawn from the JR Richards & Sons monthly reports allow comparisons to be made between nearby councils. Forbes and Parkes both have kerbside FOGO, recycling and general waste services, with the key difference that general waste is collected fortnightly in these areas, as opposed to Orange's weekly collection servicing frequency.

Diversion rates vary slightly between each LGA, with Orange recording the highest diversion in the FOGO stream (45%) and Parkes topping the list for recycling diversion (17%), closely followed by Forbes at 16%. It should be noted that as a "greener" and more vegetation-rich area, it is reasonable to expect that higher volumes of garden organics might be observed within the Orange FOGO stream than in either Forbes or Parkes. It is anticipated that a fortnightly general waste collection would encourage residents to better separate and thereby divert waste, by correctly using the FOGO bin for all food waste, and the recycling bin for all recyclables. In theory, this would free up space in the general waste bin to comfortably contain a fortnight's worth of residual waste.

An average general waste bin weight is calculated and provided in the JRR reports each month. For the 2019/20 financial year period, this ranged from 6.65kg (January) per household up to 11.63kg (May) per household in the Forbes LGA, with an annual average of 9.65kg per month. In Parkes, this figure sits between 9.13kg (May) per household and 13.03kg (January), averaging 10.95kg across the month. Orange has recorded higher but more stable figures, averaging 11.87kg per month and fluctuating between 11.36kg (November) per household and 12.77kg (May). From these figures, it is clear that Orange residents have the capacity to divert more material from the general waste bin by correctly using Council's 3-bin service and present lighter/less full bins. It can be inferred that the requirement to fit a fortnight's worth of waste into the general waste bin has encouraged Forbes and Parkes residents to either reduce their overall waste and/or better segregate waste materials.

Looking at the FOGO stream across the three councils, Orange presents the lowest amount of organic waste for diversion through the green-lidded FOGO bin per month, at 4.7kg per household. Forbes households present an average of 5.28kg in the FOGO bin in each month, and Parkes, a similar 5.23kg. This could be an indication that more food waste is being presented in the FOGO bin in Forbes and Parkes, corresponding with the lighter general waste bins. Although Orange households present less organic material for diversion, the contamination rate within the FOGO stream is considerably low, at just 0.01kg per household per week. The contamination rate for Forbes and Parkes is not stated in the monthly reports, but from the 2019 NetWaste audits a contamination rate of 4.44% was calculated for Parkes and 5.88% for Forbes. Orange noted a 1.66% contamination rate in the audited FOGO loads in the same report. It is possible that contamination is higher in Forbes and Parkes due to the likelihood of some households using their FOGO bin as an overflow option when the general waste bin capacity is exceeded between collection days. Furthermore, Orange households show clear seasonal peaks in bin weights (peaks in October and April), whereas Forbes and Parkes household bin weights fluctuate less on a month-to-month basis and show a small peak between February and April. This may be partly due to Orange's extensive greenspace and well-vegetated areas.

The recycling stream data shows a different story – the average Orange household presents a recycling bin of 5.38kg, Parkes households presented an average of 4.1kg and Forbes households presented the lowest average recycling bin weight, at 3.94kg.

Bin fullness and presentation in Orange

In addition to the audits, bin inspections have also been conducted in Orange for the FOGO stream since 2016, and recycling bin inspections commenced in 2018. The data collected from these programs has provided valuable insight into waste disposal behaviours in Orange and can assist in analysing whether Orange could switch, with minimal disruption to regular waste habits, to a fortnightly general waste collection.

Data of general waste bin fullness was collected in Orange for the first time in September 2020, as part of the annual bin inspection program. It is important to note that bin inspections provide only a snapshot into waste behaviours in the Orange LGA, and thus are not representative of the entire council area.

Five areas were mapped and inspected in Orange's bin inspections. Overall, more than half (55%) of general waste bins were observed to have a bin fullness rating of 1-59%, although 29% of bins were observed in the two highest fullness categories (90% and 100% full).

Table Two. Percentage number of general waste bins in each fullness category as a percentage of all inspected general waste bins.

Fullness category	Area 1	Area 2	Area 3	Area 4	Area 5	Total (average)
1-59% full	57%	73%	69%	66%	54%	64%
60-100% full	43%	27%	31%	34%	46%	36%

The majority of bins in all areas were recorded as 1-59% full. The data presented in Table Two suggests that some areas would possibly have little trouble (in regards to available capacity) in switching to a fortnightly waste collection, as the percentage of bins in the 60-100% full category was relatively low. Nevertheless, for those households with bins in the 60-100% full category, such a change may prove difficult.

Table Three. Percentage number of FOGO bins in each fullness category as a percentage of all inspected FOGO bins.

Fullness category	Area 1	Area 2	Area 3	Area 4	Area 5	Total (average)
1-59% full	47%	55%	57%	57%	56%	55%
60-100% full	53%	45%	43%	43%	44%	45%

Of the FOGO bins inspected, more than half (55%) were observed to have a bin fullness rating of 1-59% full. Only 9% of observed FOGO bins were 100% full. Encouraging households to utilise their FOGO bin for the disposal of all food waste will result in even less waste being presented in the general waste bin, thereby assisting residents to transition to a fortnightly general waste collection. While available capacity is not the biggest challenge here, a fortnightly general waste collection is likely to require a change in community waste disposal habits and behaviours that should be supported by targeted and strategic education and community engagement.

Presentation is defined as the bin being presented to the kerb for collection – unpresented bins, even if clearly visible on the property, are not inspected.

Table Four. Presentation rates of each waste stream between inspection years.

Waste stream	2019 (Mar) presentation rates	2020 (Sep) presentation rates
General waste	82%	83%
Recycling	79%	84%
FOGO	38%	53%

The presentation rate of the general waste bin during the inspection weeks averaged 83%, compared to recycling bin presentation at 84% and FOGO bin presentation at 53% (FOGO bin presentation fluctuates seasonally due to changes in the amount of garden waste). It is assumed that bins that are not presented for collection are not full, and therefore have capacity to fit more waste. A low FOGO presentation rate, even during spring/summer when garden waste disposal is high, could imply that the bin is not being used for the disposal of food waste. It is expected that residents would prefer to empty food waste from kerbside bins regularly to avoid odour and flies.

By changing the collection frequency of the general waste bin from weekly to fortnightly, it is possible that Orange City Council could see an immediate improvement in the diversion of recyclables and compostable materials from the general waste stream.

Summary

The data collected in Orange to-date have some limitations, as general waste volumes are not inspected prior to collection, and individual households with high waste volumes are not able to be accounted for. It is noted that measurements of individual container peaks, using weekly load average masses, significantly smooths the peaks, and it is the households at this peak generation that will struggle with a service frequency change. In future, to gather more information in these areas, Council may wish to consider the following:

- Continuing volumetric bin inspections in the general waste stream
- Continuing volumetric inspections in the FOGO and recycling streams
- Selected sampling of high volume general waste bins to identify any commonalities between high volume bins

From the data provided, it is clear that many Orange households have room for improvement when it comes to source separation, and that fully utilising the FOGO bin service rather than disposing of recoverable organic waste in the general waste stream will significantly improve resource recovery rates and free up space in the red-lidded general waste bin. The majority of households do not present a full general waste bin every week, so it is anticipated that most households will not be disadvantaged or lack adequate space for their waste if general waste collection was changed from weekly to fortnightly. Changes in regular waste habits and behaviours will be necessary for most households, to start using the FOGO bin as the preferred food waste disposal bin rather than the general waste bin.

For households that generate a high volume of general waste, support could be provided in several forms:

- Additional education around the recycling and FOGO bin services, as a reminder of all materials that are accepted in these streams
- Provision of a free or discounted kitchen caddy, potentially in combination with encouraging residents to 'take the pledge'[1] and receive the associated education materials, to assist in the take-up of the FOGO service
- Organisation of an exclusive waste facility tour or educational Q&A-style session for these households, to bring attention to the importance of waste diversion and discuss ways households can reduce their general waste
- The option to select a different bin configuration, such as two general waste bins collected fortnightly, one general waste bin collected weekly, or a larger general waste bin, in order to meet the required capacity for the household's waste.

Council will continue to work with its consultant and the community on initiatives to improve on reducing the overall waste volumes sent to landfill for the remaining one year of the five year strategy.

[1] The Pledge Campaign commenced in 2017 under the NetWaste contract, and encourages residents in Orange, Bathurst, Forbes and Parkes to take the pledge and commit to disposing of all household food waste in the green-lidded food & garden waste bin, rather than the red-lidded general waste bin.