

Reference: AF12/377

25th January, 2016

MEMBERS

NOTICE is given that the Environmental Sustainability Sub-Committee will meet in the following Meeting Room on the day, date and time as follows:

Environmental Sustainability Sub-Committee
(Conference Room – Level 1):

Tuesday, 2nd February 2016 at 7:30 a.m.

An agenda for the meeting is enclosed.



Mark McSHANE
CHIEF EXECUTIVE OFFICER

ENVIRONMENTAL SUSTAINABILITY SUB-COMMITTEE
Meeting to be held on Tuesday, 2nd February 2016 at 7.30 a.m.

AGENDA

1. ENVIRONMENTAL MANAGEMENT – Crater Lakes Water Quality Program – Valley Lake Water Testing – Ref. AF11/403
2. ENVIRONMENTAL MANAGEMENT – Environmental Waste Management and Education Program – Recycle Right Bin Tagging – Ref. AF11/408
3. ENVIRONMENTAL SUSTAINABILITY REPORT NO. 1/2016 – Environmental Management – Environmental Sustainability Initiatives – Proposed Sustainability Innovation Fund – Ref. AF11/407
4. ENVIRONMENTAL SUSTAINABILITY REPORT NO. 2/2016 – Environmental Management – Climate Change – Summary of COP21 Paris Climate Agreement – What does it mean for Mount Gambier - Ref. AF11/2278
5. ENVIRONMENTAL SUSTAINABILITY REPORT NO. 3/2016 – Environmental Management – Council Carbon Emissions – City of Mount Gambier 2014-2015 Greenhouse Gas Emissions – Ref. AF12/388
6. ENVIRONMENTAL MANAGEMENT – Environmental Sustainability Sub-Committee – Reports for Information – Ref. AF12/377

ENVIRONMENTAL SUSTAINABILITY SUB-COMMITTEE

Meeting to be held in the Conference Room, Operational Services Area, Level One of Civic Centre,
10 Watson Terrace, Mount Gambier, on Tuesday 2nd February 201 at 7:30 a.m.

AGENDA

PRESENT: Cr I Von Stanke (Presiding Member)
Crs D Mutton, P Richardson and S Mezinac

COUNCIL OFFICERS: Daryl Sexton, Director - Operational Services
Aaron Izzard, Environmental Sustainability Officer
Carmel Ron, Environmental Sustainability Officer
Sarah Moretti, Administration Officer - Operational Services

APOLOGIES: moved the apology received from be accepted.
seconded

COUNCIL MEMBERS

AS OBSERVERS:

WE ACKNOWLEDGE THE BOANDIK PEOPLES AS THE TRADITIONAL CUSTODIANS OF THE LAND WHERE WE MEET TODAY. WE RESPECT THEIR SPIRITUAL RELATIONSHIP WITH THE LAND AND RECOGNISE THE DEEP FEELINGS OF ATTACHMENT OUR INDIGENOUS PEOPLES HAVE WITH THIS LAND.

MINUTES: moved that the minutes of the previous meeting held on Tuesday, 1st December 2015 be taken as read and confirmed.
seconded

QUESTIONS: (a) With Notice - nil submitted.
(b) Without Notice -

1. ENVIRONMENTAL MANAGEMENT – Crater Lakes Water Quality Program – Valley Lake Water Testing - Ref. AF11/403

Goal: Environment
Strategic Objective: (i) Use every opportunity to increase the level of community understanding and awareness of the necessity of environmental sustainability

The Environmental Sustainability Officer reported:

(a) Water sampling of the Valley Lake was undertaken on the 21st of December 2015 by the Environmental Sustainability Officer and Community Health Officer. The purpose of the sampling was to test if any potentially toxic bacteria or algae are present in the lake.

(b) Summary of Sampling

Sampling was undertaken by boat from four locations on the Lake – Freemans Landing (1), Playground Point (2), Boat Ramp (3) and Middle Point (4) (indicated in Attachment A). Two samples from each location were taken. One sample from each site was analysed for bacteria, the other was analysed for algae.

(c) Summary of Results

Algae

Environmental Sustainability Sub-Committee Agenda for 2nd February 2016 Cont'd...

The statement on the algal report from the laboratory for each sampling location reads “A diverse range of algae was observed. Only non-toxigenic BGA (blue green algae) were detected however current levels are likely to influence water quality. These levels could also cause skin irritations in sensitive individuals”. Basically, this means that no known toxigenic taxa were observed in the sample, including the blue green algae *Microcystis aeruginosa*. Hence, (blue green) algae are in the water, but not the toxic varieties.

As far as can be ascertained this is the first time the lake has been sampled for algae, so there are no historical results to compare to.

Bacteria

The NHMRC guidelines for managing risks in recreational water does not provide threshold values for the number of indicator bacteria in fresh recreational waters. Historical and international guidelines vary but generally have the following range:

- *E. coli* – no greater than 100-130 organisms/100mL.
- *Enterococci* – no greater 25-35 organisms/100mL.
- Faecal coliforms – no greater than 150 organisms/100 mL.

E. coli – No site exceeded 100 organisms/100mL. Playground Point was close, at 96 organisms/100mL. Playground Point is the section of the lake where most of the water birds congregate, just down from the playground area. So this is not surprising.

Enterococci – Two sites exceeded this value: Playground Point (390 organisms/100mL) and Freemans Landing (59 organisms/100mL). Playground Point exceeded by a fair margin. Freemans Landing is the shallow inlet area on the northern side of the lake. The other two sites were borderline – Middle Point (24 organisms/100mL) and Boat Ramp (28 organisms/100mL).

Faecal coliforms – No site exceeded 150 organisms/100 mL.

Compared to the sampling that was undertaken on 28-07-2008 the bacteria values are higher, though that sampling was done in winter, as opposed to summer. Water temperature and amount of sunlight could have an impact on water quality.

(d) Interpretation of Results

Given the results, swimming or other aquatic recreational activities at Playground Point and Freemans Landing is not advised. *Enterococci* can cause a variety of illnesses, including enteric and respiratory illnesses.

- (e) With regard to signage, wording on the current signs near the boat ramp say “Swimming Prohibited” and “WARNING Due to the quality of the water in the Valley Lake, direct human contact with water should be avoided” (photos of signs are in Attachment B). Council should consider changing the wording on the signage to “Bacteria and algae that potentially pose a risk to human health have been recorded in the Valley Lake water at times, particularly close to shore. Water skiing and other aquatic recreational activities are done at own risk”. A sign with this wording should also be placed on the shoreline at Playground Point.

moved it be recommended:

- (a) The report be received;
- (b) signage at the Valley Lake in the vicinity of the boat ramp be changed to “Bacteria and algae that potentially pose a risk to human health have been recorded in the Valley Lake

Environmental Sustainability Sub-Committee Agenda for 2nd February 2016 Cont'd...

water at times, particularly close to shore. Water skiing and other aquatic recreational activities are done at own risk". A sign with this wording also be placed on the shoreline at Playground Point.

seconded

2. ENVIRONMENTAL MANAGEMENT – Environmental Waste Management and Education Program – Recycle Right Bin Tagging - Ref. AF11/408

Goal: Environment

Strategic Objective: (i) Use every opportunity to increase the level of understanding and awareness of the necessity of environmental sustainability

The Environmental Sustainability Officer reported:

- (a) As a result of the success of the Recycle Right Bin Tagging program trial conducted from February to April 2015, the City of Mount Gambier, with the support of Limestone Coast Local Government Association, continued to roll out this program within the City.

Based on the trial, the program was run for three collections across six weeks with an introductory education tag in the fortnight before tagging, a total of four visits to each household. Week 1 data was collected on Tuesday 27th October and the program was completed on Tuesday 8th December.

- (b) Before beginning the program, Council identified an area and number of households which would be involved in the program; a total of 152 residential households were chosen. The area chosen was at the end of the recycling and waste truck route, to ensure that bins could be inspected prior to being emptied.
- (c) The trial was successful in reducing both the number of recycling bins presented with contamination and level of contamination in recycling bins with incorrect items, and in reducing the number of waste bins presented with contamination. (See Attachment for result tables and graphs).
- (d) On first inspection the average number of contaminated recycling bins was 54%, which decreased to 42% by the end of the trial. This resulted in a 22% reduction in contamination across three collections.

The top five contaminants placed in recycling bins at the beginning of the trial in order of prevalence were containers and bottles with lids on, textiles/clothing, food and organic material, dirty soft plastics, and bagged waste.

The level of contamination presented in recycling bins also dropped across the trial by 11%; meaning that recycling bins that still presented contamination, presented a lower level of contamination.

Presentation rates of recycling began at 54%, due to the time the bins were inspected and with an adjustment of the timing of inspections increased to an average of 76%. Recycling bins were on average 73% full. Participation and capacity rates for recycling bins do not indicate a need for increased/decreased frequency in recycling collections.

On first inspection, the average number of contaminated waste bins, predominantly recyclables was 60%, which decreased to 47% by the end of the trial. This resulted in a 22% reduction in contamination across three collections.

The presentation rate of waste bins remained steady across the trial at an average of 76%. Waste bins were on average 68% full. Participation and capacity rates for waste bins do not indicate a need for increased/decreased frequency in waste collections.

Environmental Sustainability Sub-Committee Agenda for 2nd February 2016 Cont'd...

- (e) The following are strategies for improved, ongoing educational activities to assist householders to develop the desired knowledge and behaviours.
1. Continue with ongoing waste education using both Zero Waste branded material as well as new Council material; presentations to community and school groups and the A-Z Disposal Guide. Households from the trial who need improvement could be targeted by sending information packs directly to their address. Positive reinforcement is also extremely important to enhance the commitment of recycling from the community.
 2. Include incentives as a part of future bin tagging programs to provide greater promotion of the bin tagging program, and encourage wider community improvement in recycling. \$20 gift vouchers could be created as prizes and participants can be told that their results will be compared to others. This incentive could provide competition to improve recycling habits. After the prize has been allocated the winners could be interviewed for tips on how they use in their household to improve recycling.
 3. Increase local media activity through media releases and advertising. A range of advertisements on the main contaminants and poor recycling practice could be placed during and/or in the lead up to the bin tagging program in the papers most likely to be read in the area being tagged. Media attention to the bin tagging program can be very helpful in educating the community about why the trial is occurring and how they can do to improve their recycling behaviours.
- (f) When comparing the results from this bin tagging trial to the initial trial, the results show that the initial trial achieved more marked improvements from beginning to end. In the initial exercise, the overall number of contaminated recycling bins reduced by 41% compared to the 22% achieved in the most recent trial. Additionally, the overall number of contaminated waste bins reduced by 47% in the initial trial compared to the 22% reduction in the most recent trial.
- (g) Whilst this is the case, both results highlight the positive trend on improved behaviours that arises from providing direct feedback and positive reinforcement. This program provides an insight into the areas of recycling and waste which require improvement and gives the Council an alternative avenue to engage the public.

moved it be recommended:

- (a) The report be received;
- (b) Council continue the bin tagging program.

seconded

3. ENVIRONMENTAL SUSTAINABILITY REPORT NO. 1/2016 - Environmental Management – Environmental Sustainability Initiatives – Proposed Sustainability Innovation Fund – Ref. AF11/407

Goal: Environment

Strategic Objective: (i) Support initiatives that value and preserve our unique environment and contribute to environmental sustainability

moved it be recommended:

- (a) Environmental Sustainability Report No. 1/2016 be received;

Environmental Sustainability Sub-Committee Agenda for 2nd February 2016 Cont'd...

- (b) Council allocate an amount of \$20,000 in the 2016-2017 budget for the creation of an Environmental Sustainability Innovation Fund as outlined in ESR 1/2016.

seconded

4. **ENVIRONMENTAL SUSTAINABILITY REPORT NO. 2/2016 – Environmental Management – Climate Change – Summary of COP21 Paris Climate Agreement – What does it mean for Mount Gambier - Ref. AF11/2278**

Goal: *Environment*

Strategic Objective: (i) *Systematically build Council as an environmentally sustainable organisation*

moved it be recommended:

- (a) Environmental Sustainability Report No. 2/2016 be received;

seconded

5. **ENVIRONMENTAL SUSTAINABILITY REPORT NO. 3/2016 – Environmental Management – Council Carbon Emissions – City of Mount Gambier 2014-2015 Greenhouse Gas Emissions Ref. AF12/388**

Goal: *Environment*

Strategic Objective: (i) *Systematically build Council as an as an environmentally sustainable organisation*

moved it be recommended:

- (a) Environmental Sustainability Report No. 3/2016 be received;
- (b) Environmental Sustainability Officers undertake further investigation in regards to the City's greenhouse gas emissions and actions or alternatives to reduce and/or offset emissions.

seconded

6. **ENVIRONMENTAL MANAGEMENT - Environmental Sustainability Sub-Committee - Reports for Information - Ref. AF12/377**

The Environmental Sustainability Officer reported:

- (a) Environmental Sustainability Program 2016 - Project Progress

The current table outlining projects for 2016 is attached to the agenda for Members information.

moved it be recommended:

- (a) The report be received;
- (b) item (a) as above be received and noted for information.

seconded

Environmental Sustainability Sub-Committee Agenda for 2nd February 2016 Cont'd...

MOTIONS WITHOUT NOTICE

The meeting closed at _____ a.m.

25 January 2016

AF12/377

SM



1

2

3

4

Valley Lake

LAKE VIEW ROAD

HAY DRIVE

ES RESERVE

Recycle Right Bin Tagging Attachment

Table 1: Percentage of bins with contamination

Percentage of recycling bins with contamination	Week 1	Week 2	Week 3	Week 4
Recycling	54	65	56	42
Waste	60	43	51	47

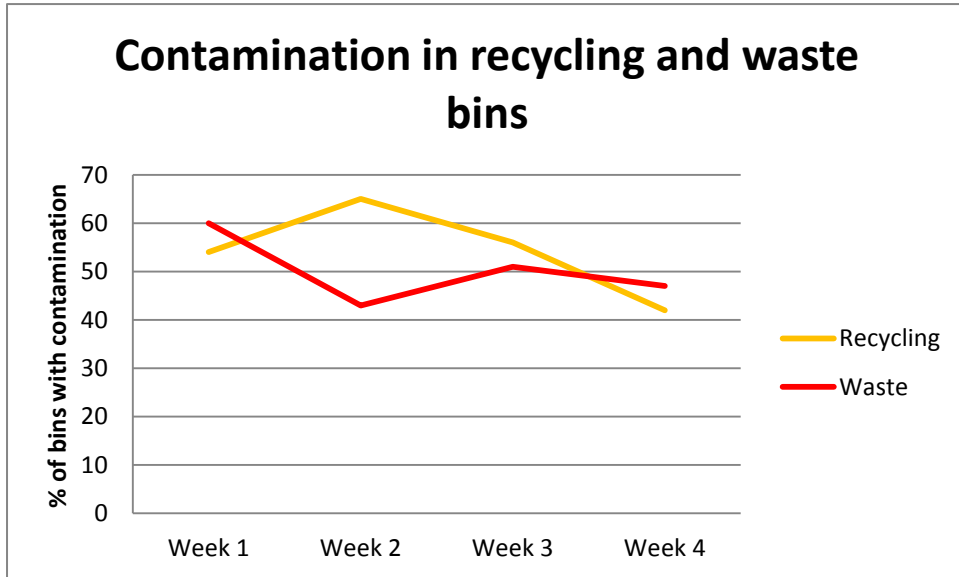


Table 2: Presentation rates of recycling and waste bins

Presentation rates	Week 1	Week 2	Week 3	Week 4	Average
Recycling	54	69	78	80	70
Waste	59	77	81	86	76

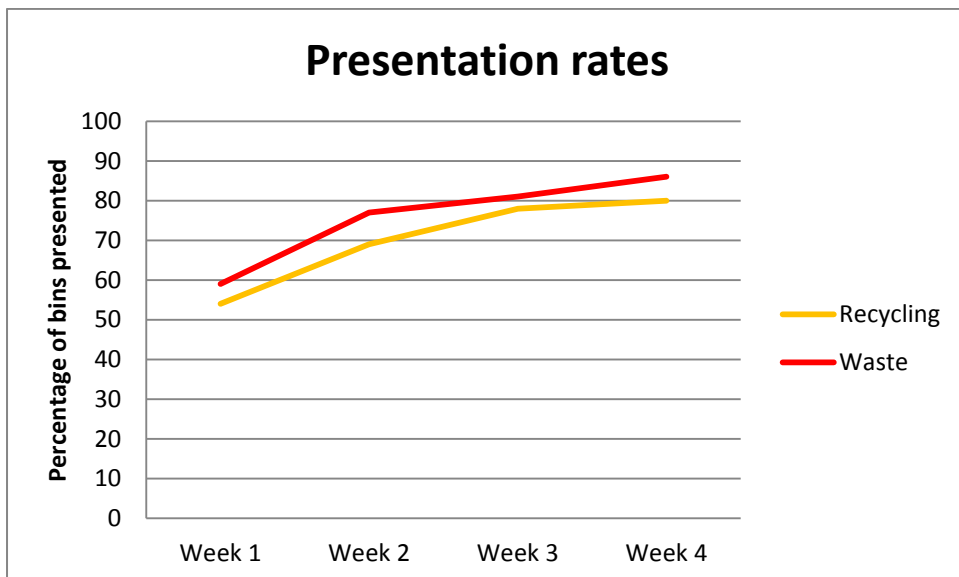
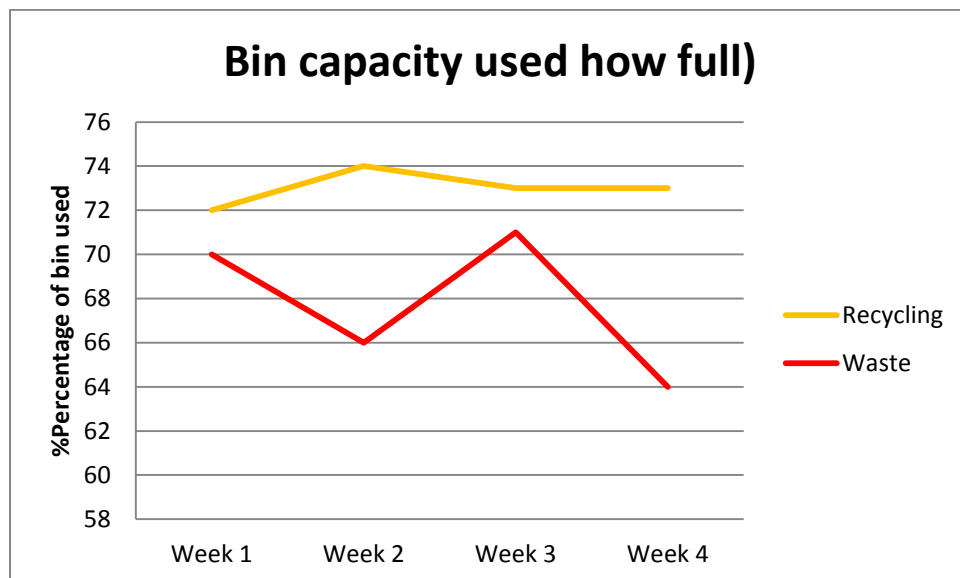


Table 3: Percentage of the capacity of bins used

Percentage of bin 'full'	Week 1	Week 2	Week 3	Week 4	Average
Recycling	72	74	73	73	73
Waste	70	66	71	64	68

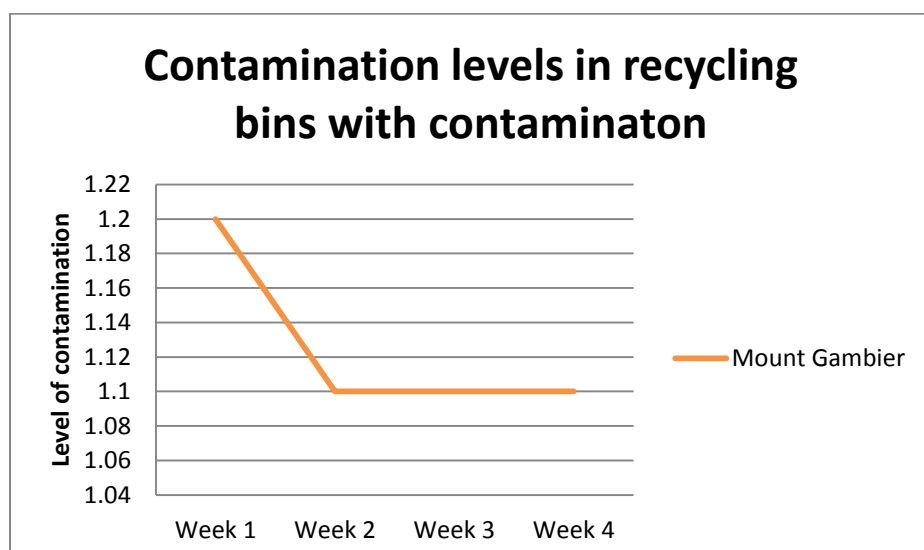


Level of contamination

- 1 = less than 10% of the contents were a contaminant
- 2 = between 11–30% of the contents were contaminants
- 3 = gross contamination with more than 30% of the contents contaminants.

Table 6: Average contamination levels in recycling bins with contamination

Average contamination levels in recycling bins	Week 1	Week 2	Week 3	Week 4
Mount Gambier	1.2	1.1	1.1	1.1



ENVIRONMENTAL SUSTAINABILITY REPORT NO. 1/2016

<p>SUBJECT: ENVIRONMENTAL MANAGEMENT – Environmental Sustainability Initiatives – Proposed Sustainability Innovation Fund - Ref. AF11/407</p>

Goal: Environment
Strategic Objective: (i) Support initiatives that value and preserve our unique environment and contribute to environmental sustainability

The City of Mount Gambier has made a strong commitment to embrace environmental sustainability. Council has become very aware of its environment and that of the community and wishes to act as a local leader and also aid in demonstrating environmental sustainability actions and environmental compliance.

As part of Council's commitment to ongoing learning and continued improvement in the area of environmental sustainability within the community, the establishment of an Environmental Sustainability Innovation Fund is being proposed.

The Sustainability Innovation Fund would offer merit-based grants to individuals and groups to research new technologies and develop new products, processes and services which lead to positive social, environmental and economic outcomes. After completion grant recipients will have a commitment to actively share their learning's, information and knowledge with the wider community at no cost. This may include, but not be limited to, a public presentation about their project.

The topics covered by the Fund are broad and could include any project relating to:

- Water
- Renewable Energy
- Energy Efficiency
- Transport
- Housing & Buildings
- Waste & Recycling
- Natural Environment
- Well Being
- Local Food

In administering these funds Council could look to:

- Encourage creativity and exploration of ideas within the local community.
- Establish Mount Gambier as a national leader in small scale environmental sustainability innovation.
- Enhance the resilience of the community – in line with the City Development Framework.
- Support activities that could reduce environmental impact.
- Promote forward thinking and innovation amongst residents of Mount Gambier.
- Increase skills, capacity and knowledge within the community.
- Reduce costs of undertaking and continuing activities.
- Improve efficiencies in current practices.
- Increase value for users within the community.
- Remove barriers of undertaking and continuing activities.

The Sustainability Innovation Fund proposed would be a merit-based grants program which means applications must rate highly against the merit criteria. The value of the grant would be dependent on the number of applications and budget allocation by Council. Sustainability

Environmental Sustainability Report No.1/2016 Cont'd...

Officers will present applications and recommend allocation of funds to the Environmental Sustainability Sub-Committee. The ESSC may look to have delegation of Authority to divide funds.

The total value of the proposed fund is suggested to be \$20,000 per annum. It is proposed to run the program in 2016-2017 as a trial. The results and subsequent recommendations will be brought to Council after the initial 12 months.

The guidelines for the proposed Sustainability Innovation Fund could be:

1. All of the innovation fund is allocated by grants administered by the ESSC;
2. Any individual or group residing/located within the City of Mount Gambier with an idea that can lead to positive social, environmental and economic outcomes i.e. triple bottom line, are eligible to apply;
3. The maximum amount of any grant available is \$5000, although this amount will vary. It is envisaged that most grants will be \$500-\$1,000 per application.
4. The criteria to successfully apply for a grant to include:
 - a) Potential of positive environmental, social and economic outcomes achieved. Verification through data collection and monitoring will be looked upon favourably;
 - b) Level of innovation.
 - c) Project design;
 - d) The capacity and capability of the applicant to undertake the project, including providing referees to that effect;
 - e) Transferability potential, both knowledge and economically;
 - f) The works shall be undertaken within six (6) months of approval of grant;
 - g) The successful applicant must submit to Council, an invoice or receipt of payment for the completed project, prior to the grant being issued*

*Where reasonable

RECOMMENDATION

- (a) Environmental Sustainability Report No. 1/2016 be received;
- (b) Council allocate an amount of \$20,000 in the 2016-2017 budget for the creation of an Environmental Sustainability Innovation Fund as outlined in ESR 1/2016.

Sighted:



Carmel RON
ENVIRONMENTAL SUSTAINABILITY OFFICER



Daryl SEXTON
DIRECTOR – OPERATIONAL SERVICES

AF16/24
21st December 2015
SM

(Refer Item of Environmental Sustainability Sub-Committee Minutes)

ENVIRONMENTAL SUSTAINABILITY REPORT NO. 2/2016

SUBJECT: ENVIRONMENTAL MANAGEMENT – Climate Change – Summary of COP21 Paris Climate Agreement – What Does it Mean for Mount Gambier - Ref. AF11/2278

Goal:

Environment

Strategic Objective:

(i) Systematically build Council as an environmentally sustainable organisation

Climate Change / Human Influenced Global Warming

Human influenced global warming, commonly referred to as 'climate change', is a consequence of the release of greenhouse gases like carbon dioxide, methane and nitrous oxide into the Earth's atmosphere. These gases are produced from a range of natural sources as well as from human activities such as burning fossil fuels for energy production, transport, industrial processing, waste management, agriculture and land management. Greenhouse gases trap the Sun's energy in the Earth's atmosphere leading to changes in the global climate¹.

The Intergovernmental Panel on Climate Change (IPCC) is the world's leading international body for the assessment of climate change. The IPCC releases an assessment of the state of scientific knowledge relevant to climate change about every 6 years. Working Group I of the IPCC released its part of the Fifth Assessment Report in September 2013 and made the following conclusions:

- Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the sea level has risen, and the concentrations of greenhouse gases have increased;
- Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850 when detailed temperature records began;
- The atmospheric concentrations of carbon dioxide, methane, and nitrous oxide have increased to levels unprecedented in at least the last 800,000 years;
- Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system; and
- Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions¹.

Climate Predictions for Mount Gambier

In April 2015 URPS prepared a report for the SENRMB, SELGA and RDA Limestone Coast on climate projections for the Limestone Coast¹. These projections were based on expert climate information provided by the IPCC, CSIRO and the Bureau of Meteorology. While there is natural variability in the climate of the Limestone Coast region, climate change will create a different future climate with warmer and drier conditions.

The following are the climate change predictions for Mount Gambier:

- Median annual maximum temperature is projected to increase from baseline conditions by 1.1°C to 2.9°C by 2090, while extreme heat could increase from 21 days per year over 35°C to 31 days per year by 2070.

Environmental Sustainability Report No.2/2016 Cont'd...

- By 2050 the number of days exceeding 35°C will increase by 50% to 75% compared to the baseline, and by 2070 will increase by 75% to 117%. In contrast, the number of days exceeding 40°C will double by 2050 and increase by 100%-200% by 2070.
- Rainfall is projected to decline by 4.8% to 11.1% compared with baseline conditions by 2070. Spring rainfall is projected to decline 17% to 27.6%.
- While median annual rainfall is tending towards a decrease, the extremes are projected to increase. There is high confidence that the intensity of daily rainfall events will increase. This will result in more intense storms.
- General fire weather danger is projected to increase from 9% to 29% by 2090.
- The number of days per year with a 'severe' fire danger rating is projected to increase by 19-27% by 2030, and from 36% to 55% by 2090.
- By the end of the century sea levels are expected to rise by approximately 0.5 m.
- By 2050 Mount Gambier will experience a climate more similar to Penola. By 2090, Mount Gambier will have a climate more similar to Perth¹.

Recent Climate Records & Trends for Mount Gambier

The following local climate summary was provided by Darren Ray of the Bureau of Meteorology:

The El Nino event this year has been one of the strongest on record. The peak time of year of impact is in spring and early summer, so the extremes and records experienced this year are a combination of both this influence from natural variability on top of the longer term warming trend apparent in the long term records.

2015 for Mount Gambier saw 512.4 mm rainfall, the driest year since 1982, another El Nino year, and 5th driest year on record since 1942, when the rainfall recording started at the aerodrome, and 72% of the long term average. January, April and May were the only months with above average rainfall for the year.

February 2015 was one of the hottest on record for Mount Gambier, but autumn and winter tended to be slightly cooler than average. Spring was hotter than average, with October hottest on record for South Australia and Mount Gambier. December was also the hottest on record, with 42.8°C on the 19th the second hottest December day on record for Mount Gambier, and 9 days $\geq 35^\circ\text{C}$ for the month a new record for Mount Gambier. The previous was 8 in 1960, also an El Nino year.

As an example of the impact of climate change on the amount of records being set, temperatures have risen by ~ 1 degree in summer since 1960. As a simple analysis, if you took 1.0 degrees off each of the 2015 observed December maximum temperatures, 2 less days $\geq 35^\circ\text{C}$ would have occurred, and there would not have been a new record set for days $\geq 35^\circ\text{C}$. So while it was particularly extreme because of the El Nino event, a feature of natural variability, the background trend is making this more extreme than it would otherwise have been.

With the extreme heat being countered somewhat by the slightly cooler than average conditions through the autumn and winter, maximum temperatures ended up 1.1C above average and minimum temperatures 0.5C above average. South Australia had its 7th hottest year on record, Australia its 5th hottest, while globally 2015 will become the new hottest year on record, and 2016 is widely expected to beat 2015, as the year after El Nino events is often very hot globally.

In summary:

Mount Gambier 2015 Climate Observations & Records

Environmental Sustainability Report No.2/2016 Cont'd...

- December was the hottest on record.
- 9 days $\geq 35^{\circ}\text{C}$ for the month – a new record.
- 42.8°C on the 19th was the second hottest December day on record.
- October was also the hottest on record for Mount Gambier (and South Australia as a whole).
- February 2015 was one of the hottest on record.
- Driest year since 1982, and the 5th driest year on record.
- Rainfall was 72% of the long term average.
- Only 3 months of 2015 had above average rainfall.

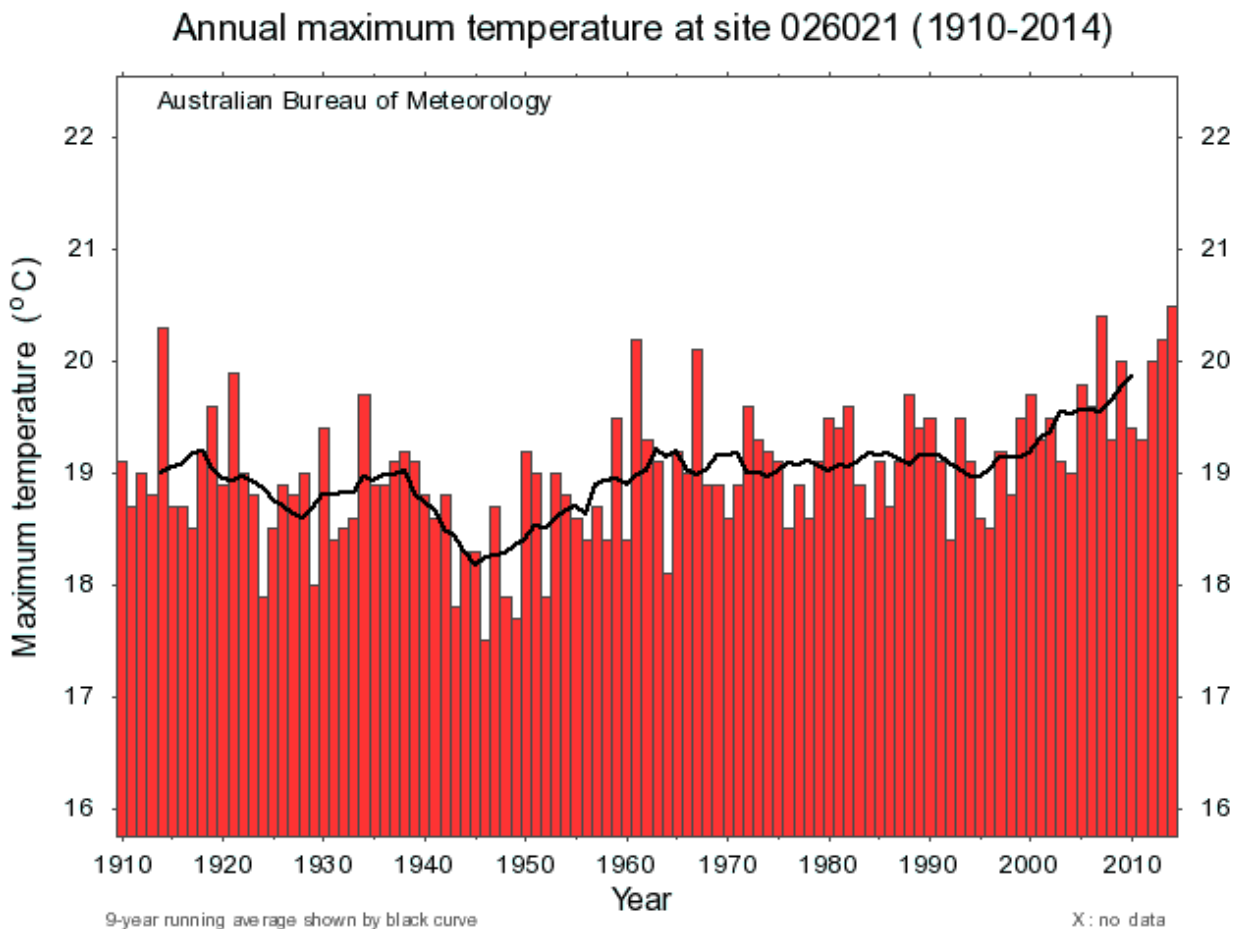


Figure 1: Annual average maximum temperature for Mount Gambier from 1910-2014, with 9 year running average.

The Paris Climate Change Agreement

In December 2015 the “COP21” Paris Climate Change conference was held in Paris, France. COP21 stands for the “21st Conference of Parties to the United Nations Framework Convention on Climate Change”. At the end of the conference, on the 12th December 2015, the “Paris Agreement” was signed. The agreement pledges:

- To keep the world’s temperature well below a 2°C increase above pre-industrial levels, ultimately aiming for no more than 1.5°C . (An ambitious target given that the global average temperature is due to hit 1°C degree of temperature increase in the very near future).
- Aim for greenhouse gas emissions to peak “as soon as possible” (probably in second half of the century), followed by rapid reduction.

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- No net greenhouse gas emissions by 2100. This would mean the entire planet will be carbon neutral by that time.
- All countries to have GHG reduction targets, which will be reviewed in 2023 and then once every five years to reflect highest possible ambition as per the individual capabilities of countries. Each emission reduction plan they submit must be more ambitious than the last.
- Developed countries to take lead in providing financial assistance to developing countries to reduce their emissions, with floor of \$100 billion by 2020 from variety of sources including “significant role” of public funds. Expansion of donor base to be considered in future.

Impacts of the Paris Agreement include:

- Will push out fossil fuels from economies, eliminating the use of coal, oil and gas for energy.
- Will significantly increase investment in renewable energy and other environmentally sustainable technologies.
- Will provide affordable green technologies to developing countries.
- Introduces ‘name and shame’ regime for nations that don’t have an ambitious climate plan.
- Introduces cooperative effort to reduce emissions, with higher burden on richer nations.
- Brings all countries on single accountability platform.
- Gives permanency for periodic enhancement of climate action plans.

Some of the Agreement is legally binding within the United Nations framework. The regular review and submission of emission reduction targets will be binding.

So too will the \$100 billion fund from developed economies to help emerging and developing nations decarbonise their energy mix - which means moving away from burning fossil fuels to clean energy sources, such as renewables.

What won't be legally binding will be the emission targets themselves. These will be determined by nations themselves. There will not be any sanctions or similar diplomatic punishments if a country misses its emissions target. Public pressure from the media, campaign groups and the public will have to keep countries and governments on course.

Within the agreement the targets are known as Intended National Determined Contributions (INDCs). To date, 187 countries have submitted their INDCs.

Observers have calculated that all of the current targets, if delivered, will only curb warming by 2.7°C. This is well above, not well below, the 2°C goal of the Paris Agreement. However, the agreement commits all nations to a process of increasing emission cuts every 5 years from 2020 to make a ‘fair contribution’ towards meeting that goal.

Council & Climate Change

The City of Mount Gambier has a history of strong support for Environmental Sustainability. As a response to the importance of environmental sustainability, at the November 2007 Council meeting Council established an Environmental Sustainability Working Party (ESWP), to assist Council to achieve its environmental sustainability goals and objectives. The EWSP is now known as the Environmental Sustainability Sub-Committee (ESSC).

At the 20 May 2008 Council meeting, Council formerly adopted the Natural Step Framework, to be used as a planning tool to enable Council to integrate environmental and social considerations into strategic decisions as well as daily operations. Council has undertaken many environmental sustainability projects since the establishment of the ESWP in late 2007 and

Environmental Sustainability Report No.2/2016 Cont'd...

adoption of the Natural Step Framework. Council is not yet meeting the conditions of the Natural Step Framework, but is moving in the right direction.

Council's Strategic Plan, Beyond 2015, strongly features environmental sustainability. Environment is one of the seven goals contained within the document, and as such, has a section devoted to environmental sustainability.

The City Development Framework Futures Paper also strongly features environmental sustainability, with one of the main four categories being "Our Climate, Natural Resources and Heritage". It also has a section devoted to environmental sustainability.

Council has adopted the CHAT Tool, to be used to assess the holistic outcomes of potential projects and programs. This ensures that along with the financial components, the environmental and social components are also considered – leading to more holistically beneficial projects. The tool is easy to use, systematic and measurable.

Some of Council's environmental actions in recent years include:

- Nationally significant installation of solar pedestrian lighting around the Blue Lake.
- Carbon neutral biomass boiler heats the pools at the Mount Gambier Aquatic Centre, the only carbon neutral boiler in the country at an aquatic centre.
- Solar system on the roof of the Library.
- Solar systems to be placed on the roofs of the Depot, Waste Transfer Station and Carinya Gardens admin building.
- Water and electricity retrofits of Council facilities.
- Park & Stride program – encouraging people to walk instead of drive for small shopping trips.
- Waste Education Strategy – educating the community in reducing waste, as well as contributing towards net savings in waste management.
- Energy audit of the Aquatic Centre, and audit of the Civic Centre heating and cooling systems.
- Useful Indigenous Plants Guide.
- State Government Black Spot funding for cycling projects over the past two years.
- Open Spaces State Government grant for \$200,000 for a rail trail across the city.
- Diverted over 500kg of domestic batteries from landfill. When buried in landfill batteries have the potential to leach heavy metals and other contaminants.
- Efficient Homes Project – educating the community on what building types are the most energy efficient in Mount Gambier's climate.

Council has been tracking its GHG emissions since 2011-2012. Currently emissions are trending upwards, mostly due to increased waste being deposited at Caroline Landfill.

Conclusion

Climate change is a significant issue facing humanity. Mount Gambier's climate is already changing, as evidenced by the local climate records that have been set in recent times. It will continue to change if global GHG emissions are not significantly reduced, and eventually in balance with nature's ability to sequester them.

Environmental Sustainability Report No.2/2016 Cont'd...

The international Paris Climate Agreement forms a historic basis for meeting the challenge of climate change. The Agreement will lead to a shift from the use of fossil fuels to renewable energy and other environmentally sustainable technologies and practices.


Mount Gambier has an opportunity to be proactive in terms of transitioning to a low carbon future. This can be achieved through actions such as energy efficiency, utilising renewable energy, and supporting environmental sustainability innovation, technologies and activities.

Council could consider working with the LCLGA, LCRDA, Green Industries SA and other relevant organisations on making the region a renewable energy and sustainability innovation centre.

RECOMMENDATION

- (a) Environmental Sustainability Report No. 2/2016 be received;

Sighted:



Aaron IZZARD
ENVIRONMENTAL SUSTAINABILITY OFFICER



Daryl SEXTON
DIRECTOR – OPERATIONAL SERVICES

AF16/24
19th January 2016
SM

(Refer Item of Environmental Sustainability Sub-Committee Minutes)

Environmental Sustainability Report No.2/2016 Cont'd...

¹Limestone Coast (2015) Climate Projections Report, prepared by URPS and Seed Consulting Services as part of the consultancy led by URPS for the Limestone Coast Regional Climate Change Adaptation Plan Project

ENVIRONMENTAL SUSTAINABILITY REPORT NO. 3/2016

SUBJECT: ENVIRONMENTAL MANAGEMENT – Council Carbon Emissions – City of Mount Gambier 2014-2015 Greenhouse Gas Emissions - Ref. AF12/388

Goal: Environment

Strategic Objective: (i) Systematically build Council as an environmentally sustainable organisation

The City of Mount Gambier's corporate greenhouse gas (GHG) emissions for the 2014-2015 financial year have been calculated, in equivalent units of carbon dioxide (CO₂-e). Total emissions have been calculated using information supplied by the Department of the Environment (the National Greenhouse Accounts Factors) and the solid waste calculator created by the Clean Energy Regulator. Only Scope 1 & 2 emissions* are included in the totals, with Scope 3 being excluded, as per the National Greenhouse and Energy Reporting guidelines.

*Scope 1 & 2 are emissions that an organisation has control over e.g. on-site gas and electricity use. Scope 3 are emissions that an organisation has less control over e.g. street lights and manufacturing of products purchased.

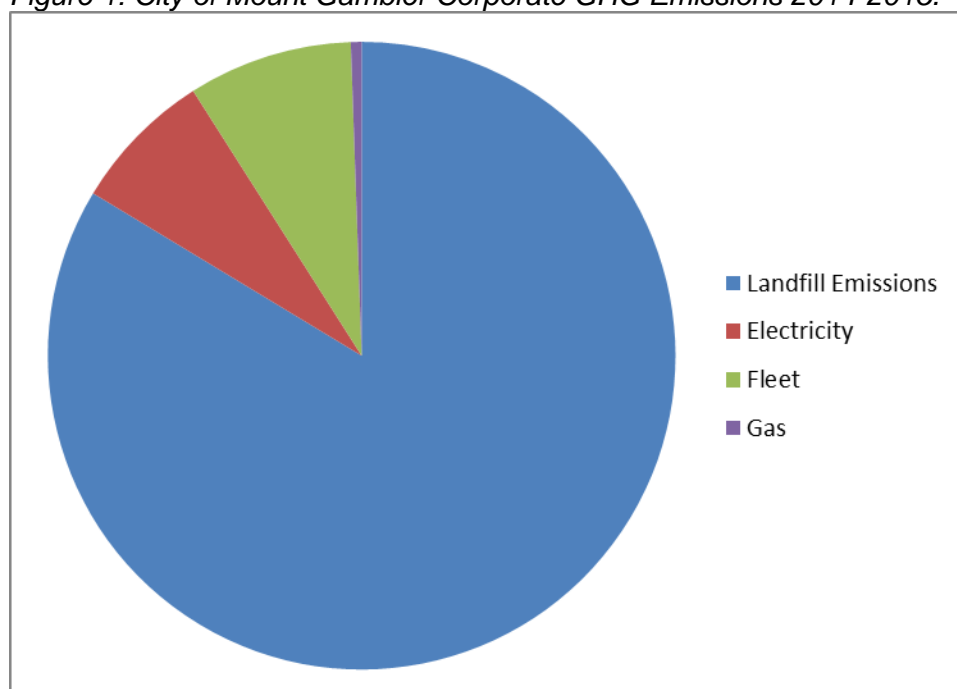
Total Emissions

Total emissions for the financial year 2014-2015 were approximately 9,312 tonnes CO₂-e. That figure includes emissions from electricity, gas, fleet and waste deposited in Caroline Landfill. Details are in Table 1 and Figure 1 below:

Table 1: City of Mount Gambier Corporate GHG Emissions 2013-2014.

Source of GHG Emissions	Emissions Tonnes CO ₂ -e	% of Total Emissions
Landfill gas emissions	7,790	83.7
Fleet (vehicles and plant use)	788	8.5
Electricity (excluding street lighting)	682	7.3
Gas	52	0.6
TOTAL	9,312	100

Figure 1: City of Mount Gambier Corporate GHG Emissions 2014-2015.



Environmental Sustainability Report No.3/2016 Cont'd...

By far the largest amount of emissions came from Caroline Landfill (7790 tonnes CO₂-e or 83.7% of total emissions), followed by Fleet (788 tonnes CO₂-e or 8.5%), Electricity (682 tonnes CO₂-e or 7.3%), and Gas (52 tonnes CO₂-e or 0.6%). Total emissions were more (14.47%) in 2014-2015 than they were for 2013-2014. GHG emissions in 2013-2014 were 8135 tonnes CO₂-e. This is due to slight increases in all the GHG emissions sources which could be the result of refined processes and increased accuracy of measuring data.

Figure 2: City of Mount Gambier Corporate GHG Emissions (tonnes CO₂-e) for the past five financial years.

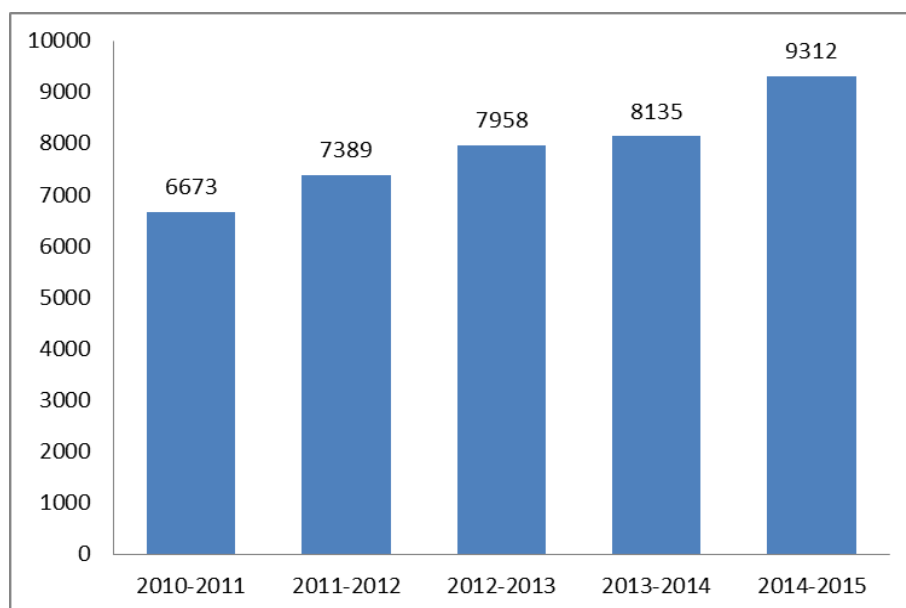
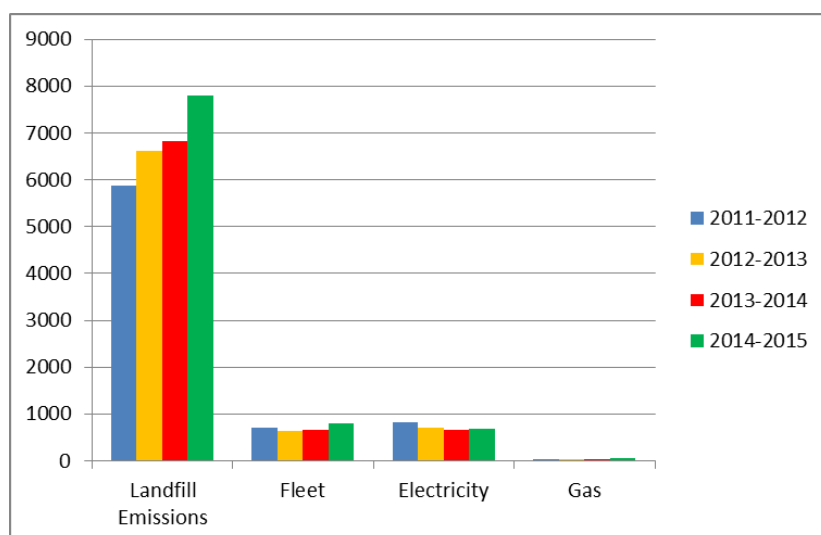


Figure 3: Change in greenhouse gas sources over the past four financial years (tonnes CO₂-e).



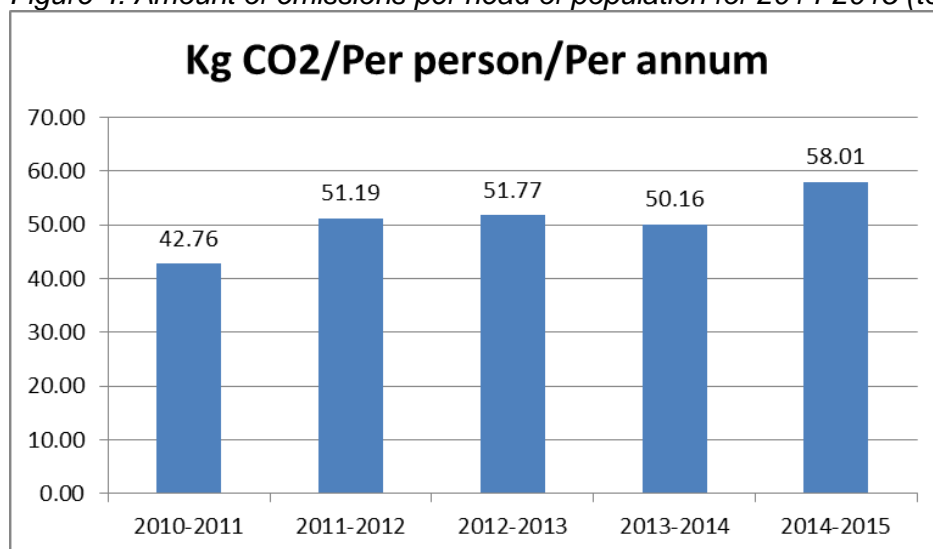
The volume of waste to landfill from the City of Mount Gambier's kerbside collection has remained fairly consistent over the past eight years, so the increase in volume to landfill is mostly coming from waste deposited by external organisations. In 2014-2015, the City of Mount Gambier was directly responsible for sending a total of 7,485 tonnes of waste to landfill (36.4% of all waste sent to landfill) from all sources- kerbside collection, waste transfer centre bins, recycling contamination, council bitumen and street sweepings. Whilst businesses and contractors do service residents and businesses within the City, a portion of the overall amount of waste sent to landfill is contributed by organisations from surrounding areas (Refer to note). With landfill emissions included in the overall total, there is a 14.47% increase in total emissions compared to the previous year.

Environmental Sustainability Report No.3/2016 Cont'd...

Emissions from the other sources (Fleet, Electricity and Gas) have increased by 15.6% compared to 2013-2014 values. This increase could be a result of the refining of our measurement processes over time. Given this refinement and that the values are not large; any increase between the years will result in significant relative percentage changes.

As a relative comparative measure, if emissions are averaged per head of Mount Gambier's population (excluding landfill emissions), that equates to 58.01 kg of CO₂-e per person for 2014-2015. That is more than the previous three financial years.

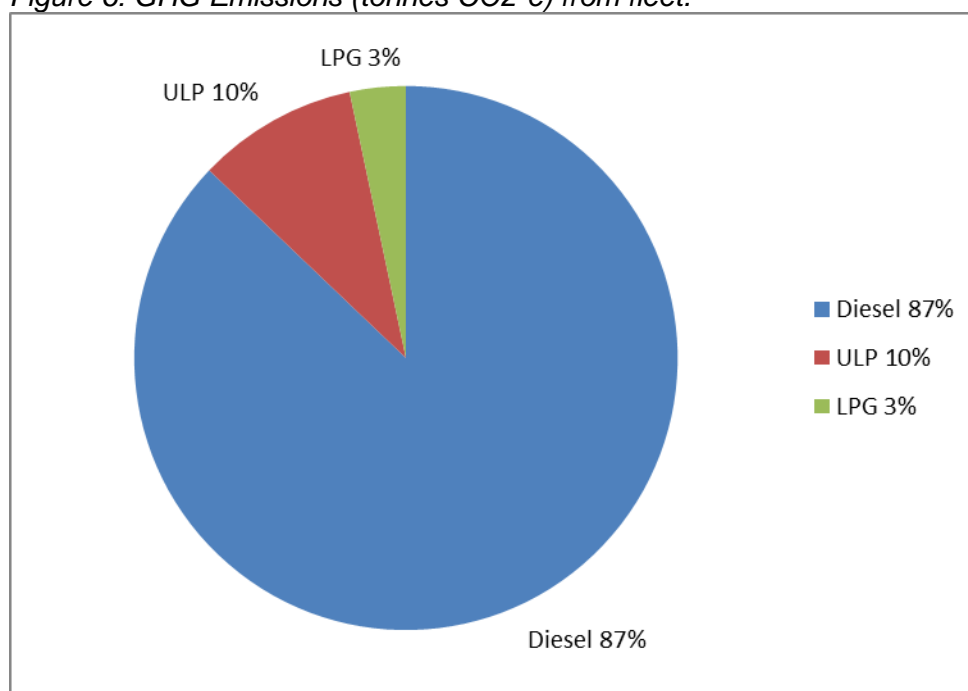
Figure 4: Amount of emissions per head of population for 2014-2015 (tonnes CO₂-e).



Emissions from Fleet

Emissions from fleet were the second largest source of Council's emissions at 788 tonnes CO₂-e, or 8.5% of total emissions. Diesel was the largest component of fuel used (254,324 L), followed by unleaded petrol (32,596 L) and liquefied petroleum gas (16.44L). Figure 6 below expresses these figures as a percentage of total fleet emissions. Fleet emissions are higher than in 2013-2014. More diesel and slightly more unleaded fuel and liquefied petroleum gas was used than the previous year.

Figure 6: GHG Emissions (tonnes CO₂-e) from fleet.



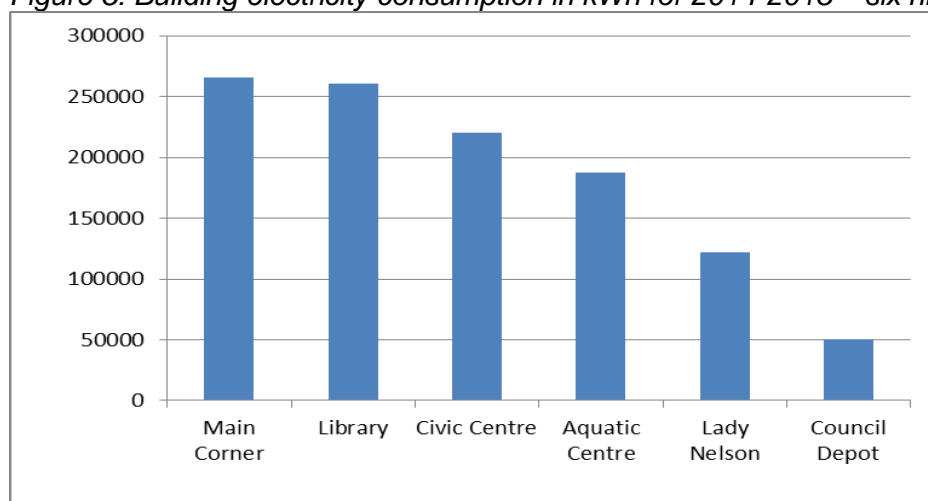
Environmental Sustainability Report No.3/2016 Cont'd...

Emissions from Electricity

Emissions from electricity were the third largest source of Council's emissions. This is electricity which is used in Council buildings, as well as public lighting, though excludes street lighting as this is a Scope 3 emission. Council's electricity accounts are 20% green power, resulting in 20% less GHG emissions from Council's electricity use. Electricity emissions were slightly higher than for 2013-2014, which could be a result of more accurate measurement.

Figure 5 below highlights the six Council buildings which use the most amount of electricity. It should be noted that the Aquatic Centre is classified as Scope 3, as Council does not pay the electricity bill for this facility – hence this facility does not contribute to Council's GHG emissions total, but is included for comparison purposes.

Figure 5: Building electricity consumption in kWh for 2014-2015 – six highest users.



Offsets

Council does not participate in an official carbon offsets scheme, however, it does plant numerous trees in streets and reserves each year. The current tree planting program aims for a net gain of 300 trees per year. That is, 300 extra trees in addition to those trees which are planted to replace an existing tree. The total carbon offsets from these 300 trees equates to approximately 6.6 tonnes CO₂-e per annum – a minor amount when compared to Council's total emissions of 9,312 tonnes CO₂-e.

Conclusion

According to the Natural Step Framework, which was formally adopted by Council on 20 May 2008, Council should be trending its emissions downwards. The overall trend in emissions is up over the last three years, mostly due to increasing landfill emissions (from an increased amount in waste from contractors and the ongoing decomposition of waste deposited in the past). Fleet, electricity and gas emissions are generally trending slightly downwards, which is a positive result, but ideally the trend downwards would be more significant. Despite the general trend, this year has seen slightly higher emissions in electricity, fleet and gas, though this can be attributed to more refined measurement processes.

There are numerous options Council could implement to reduce its corporate emissions.

The action that would have the biggest impact on reducing Council's emissions is ceasing putting major organic wastes into Caroline Landfill, and/or reducing the amount of overall waste that is deposited in landfill, including from contractors and surrounding councils. Landfill gas accounts for over 80% of Council's emissions. If organic waste continues to be deposited into Caroline Landfill, especially if waste volumes continue to increase, emissions will continue to rise. This will ultimately increase the risk of leachate and/or landfill gas contamination, reduce the life of the

Environmental Sustainability Report No.3/2016 Cont'd...

landfill more quickly, and waste a resource that can be reused (organics can be composted for reuse). Additionally, highlighting the role which other councils play in contributing to the Caroline Landfill emissions and working towards improving this could have a big impact on reducing Council's emissions in the future.

Emissions from electricity could be further reduced by retrofitting Council buildings to make them more energy efficient, installing its own renewable energy systems such as solar power on Council buildings, or increasing the percentage of green power purchased. A combination of these actions could be implemented.

Emissions from fuel use could be further reduced in a number of ways. When fleet vehicles are replaced ensure significant importance is placed on fuel efficiency when selecting new vehicles. Staff could be provided with greater encouragement to walk or cycle to meetings and inspections within a reasonable distance. Additionally, a combination of hybrid and electric vehicles could be purchased on a trial basis. If the trial is successful then this could be rolled out on a broader scale.

The last option for Council to reduce its emissions is to purchase carbon offsets. Based on the GHG emissions in 2014-2015, carbon offsets could be purchased from Greenfleet at \$15 per tonne and the City of Mount Gambier could become carbon neutral for \$139,680. This option presents Council with an opportunity to embrace and enhance the City's strong commitment to improving environmental sustainability. Purchasing carbon credits to offset the emissions produced could allow Council to operate in a carbon-neutral manner while creating a greater incentive to reduce emissions at the source.

NOTE

Waste to Caroline Landfill 2014-2015 (Tonnes)

City of Mount Gambier	7484.64
District Council of Grant	378.98
Wattle Range Council	2583.67
Businesses	205.68
Waste Management Contractors*	9640.99
Special	266.83
Total	20560.79

*Locations vary from Allendale; Beachport; Bordertown; Coonawarra; Glencoe; Kalangadoo; Millicent; Mount Gambier; Naracoorte; Penola; Port MacDonnell; Portland; Tantanoola; and Wattle Range.

RECOMMENDATION

- (a) Environmental Sustainability Report No. 3/2016 be received;
- (b) Environmental Sustainability Officers undertake further investigation in regards to the City's greenhouse gas emissions and actions or alternatives to reduce and/or offset emissions.

Sighted:



Carmel RON
ENVIRONMENTAL SUSTAINABILITY OFFICER



Daryl SEXTON
DIRECTOR – OPERATIONAL SERVICES

AF16/24
20th January 2016
SM

Environmental Sustainability Program 2016 – Project Progress

Updated: 2nd February 2016

Project	Summary	Progress Notes
Salvage Yard	Investigate opportunities for re-establishing a salvage yard in Eucalypt Drive.	On 17 November 2015 Council resolved to abandon the EOI process, and authorise selected staff to liaise directly with potential operators. These discussions are now taking place.
Caroline Landfill Audit	Audit the trucks depositing waste to the landfill to identify opportunities to reduce the amount of recyclables and organics that are being deposited.	Contractors have been contacted to let them know the results of the audit and to find a way forward to reduce contamination.
Organics Next Steps	Investigate opportunities for reducing the amount of organic waste being put in Council's kerbside rubbish bins.	At the March 2015 Council meeting Council approved the release of 2,000 kitchen caddies with bio-bags to organics bin subscribers in the 2015-2016 financial year. The caddies have been ordered. Bulk buy opportunities for compost bins and worm farms are also being investigated.
Library Solar Power System	Installation of a 57kW solar system on the roof of the Library, to supply 25-30% of the Library's electricity needs.	The system is now switched on and fully functional. The display inside the library will be switched on in the near future.
Blue Lake Solar Lighting	Involves the installation of solar lights around the footpath around the Blue Lake.	Installation of the lights is now complete. All lights are now operating as designed.
Park & Stride Mount Gambier	The aim of this 12 month project is to encourage community members who come to central Mount Gambier to shop, to park in an off-street car park and walk to shop, rather than drive from shop to shop.	The program has been launched. So far there have been over 650 Facebook page likes, 150 Surveys completed, over 150 people make the public commitment, and thousands of Facebook 'Post Reach'. A variety of prizes have been given including shop vouchers and P&S eftpos cards.
Bin Tagging	This involves checking the contents of waste and recycling bins from 150 properties, and give specific feedback about what goes in which bins.	The second round of bin tagging is complete. The report is included in this month's agenda.
Efficient Homes Project	This project involves installing temperature loggers in houses constructed of a variety of materials – rammed earth, modern eclectic, modern brick veneer and limestone – and leaving them in situ for 12 months.	The final set of loggers for 2015-2016 have been installed in the fourth home. Loggers will remain in situ for 12 months.
Aquatic Centre Energy Audit	An audit of the electricity use of the Mount Gambier Aquatic Centre. It is anticipated that the auditors will make recommendations for improving the efficiency of the facility, leading to long term reductions in electricity costs.	Follow up investigations are currently being undertaken.
2016 KESAB Awards	Nominate City of Mount Gambier for numerous categories within the KESAB awards.	Nominations for the 2016 Sustainable Communities awards will open later in 2016. Any ideas for inclusion in Council's submission should be forwarded to the Environmental Sustainability Officers.
Resource Efficiency Review	Review of Council operations to identify what level of resources are currently being used, and identify opportunities for increased efficiency.	Some initial data received from Finance and suppliers. Analysis of data will commence in the near future as the ESO work program allows.
Fruit Tree EOI	Involved working with residents to put a small number of fruit trees in their local reserve.	The 2015-2016 EOI will be released in the first half of 2016.

Carbon Reporting	Measure and report on Council's carbon emissions for the 2014-2015 financial year. Assess if Council triggers any carbon and/or climate change legislation.	The 2014-2015 report is included in this month's agenda.
Mount Gambier: Edible City	Run a series of workshops on home food production, from beginner to more advanced topics.	Webpage is live. Workshops are being organised for 2016. A coastal food tour took place at Finger Point on Saturday 16 th January 2016.
Smaller Projects	<ul style="list-style-type: none"> - Smart Living profiles. - Talks at schools and community groups on environment and sustainability topics. 	<ul style="list-style-type: none"> - Five Smart Living profiles have been completed. - Talks undertaken on an ongoing basis upon request. Numerous radio interviews have been undertaken.
Environmental Events	<ul style="list-style-type: none"> - Clean Up Australia Day - Earth Hour - Ride to Work Day - Walk to Work Day 	<ul style="list-style-type: none"> - Sunday 6 March. - Saturday 19 March. - 19 October. - November.