City of Sydney Green Environmental Sustainability Progress Report

January to June 2015

A detailed biannual overview of the City of Sydney's progress against our environmental sustainability targets for both the Local Government Area (LGA) and the City's own operations.

Sydney2030/Green/Global/Connected



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Legend

| CO ₂ | Carbon dioxide | m² |
|-----------------|-----------------------|---------------------|
| Kg | Kilogram | ML |
| kL | Kilolitres | MWh |
| kWp | Kilowatt peak | MWe |
| LED | Light Emitting Diode | |
| LGA | Local Government Area | tCO ₂ .e |

| Square meters |
|------------------------------|
| Megalitres |
| Megawatt hour |
| Megawatt equivalent |
| Tonne |
| Tonnes of carbon dioxide equ |
| |

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Sydney2030/Green/Global/Connected

Sydney2030

Sustainability at the City of Sydney

The City of Sydney is committed to securing Sydney's future, its prosperity and liveability. The City defines Sustainability in keeping with the Brundtland Report of 1987 as meeting the environmental, social and economic needs of the present without compromising the ability of future generations to meet their own needs.

The City recognises the importance of an enduring, balanced approach which takes into account the City's economy, ecology, society and culture. We are addressing each with bold ideas and good governance. The results mean better outcomes now and in the future, for everyone. Sustainable Sydney 2030 is a plan for a Green, Global and Connected city.

GREEN with a minimal environmental impact, green with trees, parks, gardens and linked open spaces with healthy ecosystems and where the air, land and waterways are clean. Green, with highly efficient buildings and transport systems, Green by example and Green by reputation. Addressing climate change is the biggest challenge we have locally and globally. Improving energy efficiency and identifying alternative sources of energy, including renewable energy, continue to be a priority.

GLOBAL in economic orientation. Global in links, partnerships and knowledge exchange. Global and open-minded in outlook and attitude.

CONNECTED physically by walking, cycling and high quality public transport. Connected "virtually" by world-class telecommunications, connected communities through a sense of belonging, contribution, social wellbeing and quality, and connected to other spheres of government and to those with an interest in the city.

Environmental commitment

The City's Environment Policy applies to all City of Sydney's operations, assets, activities and staff. An Environmental Management System (EMS) supports the City's commitment to ensuring sustainable asset management and operations.

Green Report

January to June 2015

environment policy

The City of Sydney is the local government authority responsible for the central business district and more than 30 suburbs over 26.15 square kilometres. The City provides services for more than 180,000 residents and 20,000 businesses. On any given day, the local population swells to more than 1 million. Sydney is a vibrant, cosmopolitan city with a diverse population, with people from 186 nations, including one of Australia's largest Aboriginal communities.

The City of Sydney has adopted ambitious greenhouse gas emission reduction targets in response to mounting evidence of a warmer, more unstable climate. These targets can be found at www.cityofsydney.nsw.gov.au/greenreport.

All levels of government, the private sector and the community have a vital role to play to ensure that we: stabilise emissions to maintain an acceptable global climate, ensure the city can cope with the impacts of rising sea levels and increased heat and flooding, reduce the unsustainable growth in energy. water and resource demands, prevent pollution and waste to landfill, ensure energy security and minimise impacts of climate threats and pressures from population increase, including on green space and urban ecology objectives.

The City is committed to protecting the environment through: complying with relevant legislation and regulation, complying with relevant government policy commitments and continuous improvement of environmental management processes.

We are prioritising and planning actions needed to prepare the city for the environmental, social, cultural and economic impacts of climate change. These include; a Resilience Strategy for Sydney being developed with the support of the Rockefeller Foundation's 100 Resilient Cities initiative and a Climate Adaptation Strategy to assess and mitigate risks from climate change for the local government area and our own operations.

The objectives shown below are taken from the City of Sydney's Sustainable Sydney 2030 Community Strategic Plan (2014), Direction 2: A Leading Environmental Performer. The Plan is reviewed every four years.

our commitments

Objective 2.1

Energy consumption and greenhouse gas emissions are reduced across the local government area.

City now

- Reliance on centrally provided energy infrastructure outside the city. - Legacy in existing buildings, lifestyle and work practices of a

high energy consumption era. - Reasonable level of engagement in property industry

regarding the importance of efficient buildings. City in 2030

- Continuous improvement in energy efficiency, energy productivity and greenhouse gas emissions.

- Ultra efficient buildings.

- A growing number of regenerative buildings or precincts that help to improve the carbon footprint of their surrounds.
- Networks of low and zero carbon local energy production and sharing.

Objective 2.2

Waste from the city is managed as a valuable resource and the environmental impacts of its generation and disposal are minimised

City now

- City focused on diverting residential waste from landfill. City in 2030
- A city that sees waste from all sectors as a valuable resource. - Waste management practice of all sectors are coordinated to minimise environmental impacts.

Objective 2.3

Potable water consumption and gross pollutant loads to the catchment are reduced across the local government area City now

- Water is seen as a cheap, renewable resource.
- Invisible drains that quickly remove water which is treated like waste

City in 2030

- The value of water is properly recognised.
- Potable water use is rationalised and opportunities to replace demand with recycled water are realised.
- The quality of city waterways meet the needs of the community while minimising impact on the environment.

Objective 2.4

City residents, businesses, building owners, workers and visitors improve their environmental performance.

City now

- An urban management practice that focuses on what is easier new development.
- Leading environmental practice in silos not enabling

transformative change. City in 2030

- A community that understands the environmental impact and one that collaborates in the development and implementation of initiatives that improve the environmental performance of the city.
- An urban development norm that means that all new and redeveloped buildings operate with high environmental performance - supported by robust State and local planning policy and standards.

Objective 2.5

The City of Sydney's operations and activities demonstrate leadership in environmental performance.

City now

- A commitment to strategic environmental initiatives City in 2030

- International recognition for environmental leadership across all areas of the City of Sydney activities.

Objective 2.6

The extent and quality of urban canopy cover, landscaping and city greening is improved.

City now

- The city has some tree lined streets and great urban parks.
- Urban canopy is 15.5 per cent of the city area and there is very little remnant vegetation or landscape
- The City is working with the community to green local streets and spaces

City in 2030

- The City is planting trees into every available road and footpath, and residents and developers are planting large canopy trees on private property.

- The urban canopy has increased and the community are enjoying the financial, social and environmental benefits of their trees
- The urban heat effect has reduced and there are wildlife corridors
- linking the city's major parks.
- The city has the highest quality parks and open spaces maintained to best practice standards.
- The community are active participants in protecting and enhancing the city's trees, parks, flora and fauna.

Monica Barone Chief Executive Officer April 2015

Our targets - City of Sydney Operations

| Emissions | |
|---|--|
| 26 per cent reduction of 2006 emissions by 2016* | |
| 70 per cent reduction of 2006 emissions by 2030 | |
| Energy | |
| Five per cent of electricity by renewables by 2016* | |
| 70 per cent electricity produced by trigeneration by 2030 | |
| 30 per cent electricity by renewables by 2030 | |
| 100 per cent local energy generation by 2030 | |
| No reliance on coal-fired electricity by 2030 | |
| Water | |
| Zero increase in 2006 mains water by 2016* | |
| Mains water consumption reduction to 10 per cent below 2006 levels by 2030 | |
| Water usage in City parks of 180L per square metre of irrigated space by 2016* | |
| Waste | |
| 54 per cent resource recovery of facilities waste by 2016* | |
| 98 per cent resource recovery of maintenance, construction, demolition waste by 2016* | |

Fleet

Zero increase in emissions from the City's fleet of vehicles based on 2014 levels*

Our targets - Local Government Area

| 70 | per cent reduction of 2006 emissions by 2030 |
|------------------|---|
| En | ergy |
| 70 | per cent electricity produced by trigeneration by 2030 ¹ |
| 30 | per cent electricity by renewables by 2030 |
| 100 |) per cent local energy generation by 2030 |
| No | reliance on coal-fired electricity by 2030 |
| Wa | ter |
| 10 | per cent mains water consumption reduction of 2006 levels by 2030 |
| 30 | per cent of water demand through recycling using local sources by 2030 |
| 50 per | per cent reduction in stormwater pollutants (total suspended solids) and 15 cent reduction in nutrients by 2030 ² |
| Wa | ste |
| 66 | per cent resource recovery of municipal waste by 2014 ^{±3} |
| 76 | per cent recovery of construction waste by 2014 ^{±3,4} |
| 63 | per cent resource recovery of commercial waste by 2014^{\pm} |
| Gre | eening Sydney |
| 50 | per cent increase in current canopy cover by 2030 and 70 per cent by 2050 |
| 1 2 3 4 | At least 360MWe (Megawatts electricity) From the Decentralised Water Master Plan These targets will be superseded by the Waste 2030 Strategy currently in development This is an aspirational target based on Government targets. Whilst not responsible for |

All targets appear in *Sustainable Sydney 2030*, with the exception of \pm , which appear in the Environmental Management Plan and \ast which are new incremental targets for 2016 adopted by council on 12 May 2014.

January to June 2015 Review

The City's commitment to environmental leadership to 2030 is demonstrated by our ambitious targets for emissions, energy, water, waste and green space for council operations and in our Local Government Area (LGA).

Awards

The City received recognition for our sustainability programs through a number of awards in the reporting period, including;

- The City won the 'Top Collector' Award for recycling the highest number of mobile phones in NSW at 2015 MobileMuster Local Government Awards
- Prince Alfred Park Pool was named Facility of the Year at the Aquatic & Recreation Institute Awards. The judges commended the pool for its design, sustainability, customer service and community engagement

Highlights – City of Sydney Operations

By end 2014/15 in our own operations we;

- reduced fleet emissions by 127 tonnes CO²-e for the same period last year – used 72 per cent sustainable bio-diesel (page 17)
- saved 801,776 sheets of paper and 60,935 litres of water through sustainable procurement (page 33)
- lowered the carbon emissions for the 2014 New Year's Eve event by 173 tCO²-e. This represented a net reduction of 25.9% compared with the previous year (page 34)

- began trialing a new environmentally-friendly asphalt blend on city roads that uses old printer toner, warm mix asphalt (page 16)
- registered 293 organisations and 4,804 people for the Sydney Rides Business Challenge organised by the City's Cycling and Walking team in April (page 18)

Highlights – Local Government Area

In addition to greening its own operations, the City has provided continuing support to local businesses, residents and visitors to operate and live more sustainably.

To end 2014/15 the City of Sydney has;

- publicly exhibited the City's Energy Efficiency Master Plan from March to May 2015 (page 6)
- once again exceeded the recovery target by achieving 68.53 per cent resource recovery for 2014/15 (page 45)
- developed and publicly exhibited City's first Sector Sustainability Plan The Residential Apartments Sustainability Plan in April (page 61)
- recycled nearly 80,000 containers since the reverse vending machines were installed in June 2014 (page 42)
- signed its fourth Environmental Upgrade Agreement for a commercial office building in Surry Hills - estimated to deliver carbon emission reductions of 850 tC02-e once completed (page 60)

Climate change

The best available scientific evidence tells us that greenhouse gas emissions from human activity, particularly our use of energy from fossil fuels, are contributing to climate change and the change is occurring faster than initially predicted⁵.

Climate change occurs as a result of "greenhouse gases" building up in the atmosphere. These gases include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and chlorofluorocarbons (CFCs). The gases trap heat radiating from Earth toward space, warming the surface of the planet.

The Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Synthesis Report was released on 2 November 2014. The report states that human influence on the climate system is clear, recent emissions of greenhouse gases caused or produced by humans are the highest in history, and warming of the climate observed since the 1950s is unprecedented⁶.

Ocean and air temperatures and sea levels have risen and continue to rise and mass from glaciers and ice sheets are being lost. A warming climate is increasing the frequency and severity of many extreme weather events and is changing rainfall patterns, creating risks for human well-being, the economy and the environment⁷. Only stopping or dramatically reducing greenhouse gas emissions can slow the changes we are experiencing now.

Sydney is already starting to feel the effects of average global and Australian temperatures rising. Australia's climate has warmed by 0.9°C since 1910⁸. The city recorded its hottest day ever on 18 January 2013 peaking at 45.8°C at Observatory Hill. Last spring was the third warmest on record for maximum temperatures, with the equal highest number of days above 30°C (13 days), triple the spring average. Maximum temperatures were 2.1°C above average with minimums 1.7°C above average. Rainfall at Sydney Observatory Hill was 33 per cent below average, with the most significant rainfall associated with thunderstorms and a low which broke October daily rainfall records in parts of Sydney⁹.

Cities have a critical role in reducing greenhouse gas emissions because although they cover only two per cent of the Earth's land surface, they have more than 50 per cent of the population and cause 75 per cent of the world's emissions.

The City is developing a **Climate Adaptation Strategy** to help us prioritise and plan actions needed to prepare the city for the environmental, social, cultural and economic impacts of climate change.

Centralised coal-fired power generation is responsible for 80 per cent of the City's greenhouse gas emissions and a large proportion of Australia's emissions. Power stations lose nearly two-thirds of their primary energy to the atmosphere with further losses in the grid and are a major user of water.

The City is working to reduce carbon emissions by 70 per cent by 2030, one of the most ambitious targets set by any government in Australia.

We are:

- installing energy efficient street and park lights
- operating an award winning low-emission vehicle fleet
- rolling out Australia's largest building-mounted solar panel project
- · carrying out energy efficient retrofits of major buildings
- reducing emissions and energy bills through energy efficiency programs
- installing low-carbon high efficiency trigeneration



For more on the City's plans visit <u>www.cityofsydney.nsw.gov.au</u> or <u>www.sydney2030.com.au</u> or click on the 2030 icon at left to view a video on renewable energy.

- ⁵ National Aeronautics and Space Administration (NASA) <u>http://climate.nasa.gov/causes/</u>
- ⁶ IPCC Climate Change 2014 Synthesis Report: Summary for Policmakers http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_SPMcorr2.pdf
- ⁷ Climate Council Report *Unpacking the IPCC Fifth Assessment* Report "<u>http://www.climatecouncil.org.au</u>

⁸ CSIRO State of the Climate – 2014

http://www.csiro.au/Outcomes/Climate/Understanding/State-of-the-Climate-2014.aspx

⁹ Bureau of Meteorology http://www.bom.gov.au/climate/current/season/nsw/sydney.shtml

Part 1 City of Sydney Operations

Since the targets for *Sustainable Sydney 2030* were set, the City of Sydney portfolio has undergone major change.

The emissions from major additions to the portfolio since 2006 (Ian Thorpe Aquatic Centre, Epsom Road Depot, Surry Hills Community Centre, Redfern Oval Grandstand, 343 George Street, Mandible Street and the Tote Building) have exceeded the removal of major properties from the portfolio (Lawson Square and the Domain Parking Station).

In addition, new City buildings and assets will increase total emissions and make meeting the City's absolute emissions targets more challenging.

nges: top; Artist impression of the Green Square Library and, bottom; Solar panels installed at Sydney Town Hall



Green Infrastructure

As part of *Sustainable Sydney 2030*, we're working to turn Sydney into a low-carbon city which doesn't rely on coal-fired electricity. We're creating a smarter, more sustainable Sydney through innovative plans for reducing energy and water use, producing energy from renewable sources, collecting and treating waste and using a decentralised water system. We call this Green Infrastructure.

The City is developing a suite of Master Plans to help us determine the best way to implement green infrastructure projects in our own operations and the City of Sydney LGA. A number of these plans have been approved with others due to be released late 2015:

- Decentralised Energy Master Plan Trigeneration
- Decentralised Energy Master Plan Renewable Energy
- Advanced Waste Treatment Master Plan
- Decentralised Water Master Plan
- Climate Adaptation Strategy
- Energy Efficiency Master Plan

These plans, combined with our own individual efforts to reduce our impact on the environment will create a Green, Global and Connected city.

A number of technologies we're investigating have been successfully installed in other countries; however, putting them all together is what makes the City's Green Infrastructure plans so exciting.

We have already started some of this work. We have completed the concept designs and begun the tender process for installation of **Trigeneration**, providing electricity, heating and cooling to Sydney Town Hall and Town Hall House (page 37).

We are investigating options for **renewable energy**. We have installed solar power and hot water systems in many of our buildings (page 15) and we're looking at other renewable energy opportunities.

We are also looking at options for our waste. The **Draft Advanced Waste Treatment (AWT)** Master plan was endorsed by Council in September 2014. The Master Plan describes technologies that recycle rubbish and keep it out of landfill and technologies which can be used to turn waste into energy. We already send much of our household waste to AWT facilities (page 44).

Our **Decentralised Water Master Plan** has been approved and we are starting the work of building a recycled water network that could be used for toilet flushing, watering gardens and more. This will help preserve Sydney's precious supply of drinking water (page 19).

The City's **Climate Adaptation Strategy**, currently in development, will look at ways we can prepare the city for the environmental, social, cultural and economic impacts of climate change, such as heat waves, storms, droughts, flooding, bushfires and related air quality risks. The plan will also address how the City will interact with other agencies and levels of government and what role the community will play.

The City's draft **Energy Efficiency Master Plan** has been publicly exhibited (March to May) looking at the policy framework, technologies and actions we can use to reduce energy consumption and therefore greenhouse gas emissions across the local government area. A proven benefit of energy efficiency programs is the productivity gains that can result. Energy productivity is an area where Australia falls well short of global best practice, so this Master Plan will contribute to a positive change for the City's energy users.



For more on the City's plans visit <u>www.cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left to view a video on the City's plans.

Emissions

Waterfall chart

This waterfall chart indicates reductions of the Council's operational emissions against the 2005/06 baseline against which the City's emissions reduction targets are set.

When buildings are bought or sold, the City's greenhouse gas emissions vary. To assess this variation, the "Portfolio Change" component has been included in this graph. It should be noted that irrespective of the **Portfolio Adjustment, the City's emissions targets are absolute.** To meet its target to reduce 2006 emissions by 70 per cent, the City must reduce its annual emissions (excluding offsets) to below 15,892 tC02-e by 2030. The waterfall chart shows the contribution of programs towards meeting our target.

The City has been measuring, reducing and offsetting all of its operational greenhouse gas emissions since 2006/07. In 2011, the City of Sydney became the first of any level of Government in Australia to be certified as Carbon Neutral under the Australian Government National Carbon Offset Standard.



The City remains <u>carbon neutral</u> by continuing to implement emission saving projects, developing a greenhouse gas emissions inventory with independent verification, and through the provision of accredited offsets equivalent to 100 per cent of the organisation's emissions.

The Building Energy and Water Efficiency retrofit for City owned buildings reached practical completion in June 2014 (page 14). A tender for the large scale installation of solar photovoltaic panels and solar hot water on City of Sydney buildings is underway (page 15), and work is in progress to upgrade 6,448 City owned street lights with energy efficient light emitting diode (LED) technology (page 13).

Please note: The chart below has been modified slightly since the last reporting period to show efficiency measures in blue. For more information please see Explanatory Notes to Graphs (pages 79-83).





For more information on the City's carbon neutral program, visit <u>www.cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left.

Annual Greenhouse Gas

This graph tracks actual annual greenhouse gas emissions by category to the *Sustainable Sydney 2030* target of a **70** per cent emission reduction against the 2005/06 baseline and tracks identified projects the City is progressing over the short term for its own operations.

The graph incorporates projects currently in progress and their proposed effects. It is anticipated that as projects currently in progress begin to deliver scoped benefits, overall emissions will reduce accordingly.

Emissions from mains electricity are calculated based on the emissions factor of 0.99, which includes both scope 2 and 3 emissions. Greenhouse gas emissions are calculated using <u>National Greenhouse Factors Dec</u> 2014.

Please Note: This graph has been updated since the previous report to include results for 2014/15. The rate of greenhouse gas emissions decrease is lower than in previous years, which is likely because the energy efficiency retrofit was completed in previous reporting periods.

The City's solar PV and LED lighting upgrades would have contributed to the energy reductions shown. Installing trigeneration to Town Hall House is likely to be the next biggest emissions saving. The upgrade of street lighting owned by Ausgrid would also reduce the City's emissions significantly.

For more information see Explanatory Notes to Graphs (pages 79-83).



Quarterly Greenhouse Gas

This graph tracks actual quarterly greenhouse gas emissions for Council operations by category since we started measuring and reporting on these emissions in 2005/06.

This graph, while providing a more timely measure of greenhouse gas emissions, is subject to seasonal variations (i.e. increased gas for heating in winter and for cooling in summer).

Emissions from mains electricity are calculated based on the emissions factor of 0.99, which includes both scope 2 and 3 emissions.

This chart shows a continued downward trend in line with the various energy savings and renewable energy projects underway. It shows an increase in total emissions between Q3 2014/15 and Q4 2014/15, which largely reflects seasonal variation as observed in previous years. The emissions result in Q4 2014/15 is comparable with the same period last year (Q4 2013/14).

Please Note: This graph has been updated since the previous report to include results for Q4 2014/15.

For more information see Explanatory Notes to Graphs (pages 79-83).



Major Projects – Emissions

| Project | Description | Key milestones | Status | Responsible |
|-------------------------------------|--|---|---|----------------|
| Trigeneration Master Plan | City-wide trigeneration to deliver the <i>Sustainable Sydney</i> <i>2030</i> trigeneration target of 330MWe or more. | Final Trigeneration Master Plan amounting to 477MW formally adopted by Council following public consultation. | Final Trigeneration Master Plan adopted by Council in June 2013. | Sustainability |
| Renewable Energy Master Plan | Renewable energy for the LGA comprising renewable electricity and renewable gases both inside and in proximity to the LGA. | The Renewable Energy Master Plan formally adopted by Council following public consultation. | Final Renewable Energy Master Plan adopted by Council in December 2013. | Sustainability |
| Energy Efficiency Master Plan | Investigating the policy framework, technologies and actions to reduce energy consumption and greenhouse gas emissions across the local government area. | Completion of an Energy Efficiency Foundation Report identifying realistic energy savings potential for building sectors within the LGA to inform development of the Energy Efficiency Master Plan. | Draft Energy Efficiency Foundation Report exhibited publicly (March-May 2015) | Sustainability |
| Climate Adaptation Strategy | "Adaptation for Climate Change: A long term strategy for the City of Sydney" has been prepared to assess risks and prioritise adaptive actions to prepare the city for the environmental, social, cultural and economic impacts of climate change. | Consultants RPS/KPMG have completed their project work and report including; climate science assessment and modelling, risk identification, assessment and interdependency analysis and stakeholder engagement. Adaptation actions have been identified and pathways proposed. The City also conducted a deliberative engagement process with residents. | Drafting of the City's strategy has been completed. Expected submission to Council in August 2015. | Sustainability |

| Project | Description | Key milestones Status | | Responsible | |
|--|--|--|--|---|--|
| Trigeneration | Development of trigeneration at City owned buildings and/or City owned sites. Advocacy for regulatory change in the national electricity markets to facilitate development and roll-out of precinct scale trigeneration | Design, construction, operation and maintenance of a trigeneration plant to meet the business hours energy requirements of Town Hall House, and Sydney Town Hall Feasibility investigation and performance specification for installation of trigeneration at two or more aquatic centres Submission of rule change that facilitates local energy to Australian Energy Markets Commission | The City entered into a contract with the preferred tenderer for trigeneration plant at Town Hall House in March 2015 and preliminary works have commenced Investigation report confirming feasibility of trigeneration at two aquatic centres finalised in June 2015 Regulatory changes issues paper prepared and engagement with industry stakeholders completed. Support for AEMO rule change to reduce barriers to trigeneration received from several key stakeholders. External advice sought on appropriate wording of proposed rule change submission to AEMO. | Sustainability/ Green Infrastructure | |
| LED lighting | Tender to replace the most energy inefficient lighting luminaires to reduce energy and emission consumption. | Negotiations completed and Contract was executed with GE- UGL. Three year roll out program covering 6,448 luminaires. | Installation in Progress For more see page 13 | City Infrastructure & Traffic Operations | |
| Stage 1 Building Energy and Water Efficiency Retrofit (Origin/Ecosave) | A collection of projects tendered as one project to achieve a 23 per cent greenhouse gas emissions reduction from the City's property portfolio | All works are now complete. Measurement and verification of Greenhouse Gas emissions savings to be completed 30 January. To be reported from Q1 2014/15. | Installation complete. 6-month fine tuning period complete. Measurement and verification in progress. For more see page 14 | City Projects & Property | |
| Renewable Energy (solar photovoltaic) | Installation of renewable energy projects to meet target for 30 per cent renewable energy by 2030 | Solar photovoltaics tender awarded for design, installation, commissioning, and monitoring. | Installation in Progress For more see page 15 | City Projects & Property | |

Operational Projects - Emissions

| Project | Action | Outcomes | Status | Responsible | Ву |
|---|---|--|---|--|----------------------------|
| Utility Consumption Management | Educate City staff to interpret the STEvE reports and take corrective action to reduce energy use through the City's Green Champions program. | Integration into City processes. | In Progress | City Projects & Property/ Green Champions | on-going |
| Environmental Sustainability Platform (ESP) | Develop the ESP to gather and utilise emissions data, providing strategic information to reduce emissions to Sustainable Sydney 2030 targets and the means to report in accordance with international initiatives. | Information about emissions. An open approach conforming to the Digital Strategy. Reporting consistent with other cities worldwide. | In Progress Agreements are currently being negotiated | Sustainability Programs and Sustainability Strategy | End 2015/16 |
| Fleet | Fleet emissions contribute approximately seven per cent of the City's total emissions. A Fleet Management Strategy addressing asset renewal, alternative fuels, new technologies and driver education is underway. | A four year program to reduce fleet emissions by 20 per cent before end 2014. Maintain fleet emissions at 2014 levels until 2016 | Completed and exceeded In Progress Achieved for 2014/15 | Strategy and Assets | End 2013/14 End 2016 |
| Environmental Management | Implement environmental management processes to ensure all City staff are aware of their responsibilities in regards to environmental management. | Continuous improvement of environmental management | On-going | Sustainability Strategy | on-going |

LED Lighting

Sydney was the first city in Australia to roll-out new energy-efficient light emitting diode (LED) street and park lights. The City of Sydney is replacing 6,448 conventional lights; saving nearly \$800,000 a year in electricity bills and maintenance costs and reducing greenhouse gas emissions in City owned street lights by a minimum of 40 per cent.

A joint venture of GE and UGL Limited, selected by tender, is installing the majority of the LED street lights in the City of Sydney LGA, as part of a \$7 million three year project. The project was approved with a carbon abatement cost of \$17 per tonne. Simple payback is estimated within ten years.

To date, 6,447 LED luminaires have been fitted in the City (6033 from the GE UGL LED lighting contract and 414 others) and energy savings have exceeded the target by 18%. The City's LED program was recognised for leadership and innovation at the 2014 Institute of Public Works Engineering Australasia (NSW) annual awards.

Sydney is one of the largest users of street lighting in NSW with 22,000 lights. Of these, 13,500 are maintained by Ausgrid and 8,500 by the City. During the reporting period, 897 luminaries (lights) were changed. Approximately 98 per cent of the installation is now complete (6033 out of the reduced total of 6152).



Image: Scott street, Pyrmont, Before (Left) and after (Right) LED Street light installation.

The GE/UGL project is on target for August 2015 completion. The last consignment of luminaires will be delivered in August. The total number of installations under this contract has been reduced to 6152. The reduction is due to the removal of some parks which will have LED's installed as part of park masterplan improvements.

During the project the City has approved designs and ordered 414 LED luminaires for locations outside the GE/UGL contract. These luminaires will save an additional 246 tC02-e per year from the traditional technologies that would previously have been in place.

| Luminaire changes - actual (#) | Luminaire changes - target (#) | Reduction C0 ₂ -e (per cent) | Reduction C0 ₂ -e from baseline (per cent) | | |
|--|--------------------------------------|--|---|--|--|
| Quarter 3 2014/1 | 5 | | | | |
| 644 | 540 | 58 | 0.38 | | |
| Quarter 4 2014/1 | 5 | | | | |
| 253 | 540 | 49.22 ¹⁰ | 0.10 ¹¹ | | |
| Contract to date | | | | | |
| 6,033 | 6480 | 47.19 ¹² | 43.03 ¹³ | | |
| Sor more information about the City's LED lighting visit | | | | | |

www.cityofsydney.nsw.gov.au or www.theclimategroup.org or click on the 2030 icon at left.

¹⁰ Percentage reduction CO2e from actual luminaire changes this quarter

¹¹ Percentage reduction CO2e from baseline for actual luminaire changes this quarter

¹² Percentage reduction CO2e for total luminaire changes contract to date 13

¹³ Percentage reduction CO2e from baseline for total luminaire changes contract to date

January to June 2015

Building Energy and Water Efficiency Retrofit

The City awarded a tender to retrofit **45** of its major buildings with energy and water savings measures. The retrofit is estimated to cut energy use by **6,641 MWh** (megawatt hours), reducing greenhouse gas emissions by 23 per cent and water consumption by 56,313 kL per year. The energy and water savings will be independently verified. Payback is estimated within nine years.

The project has reached practical completion and is currently undergoing measurement and verification by an independent assessor. The consultant has carried out 6 months of fine tuning to ensure all performance targets are met.

Over the last few months, energy and water saving equipment have been commissioned, fine-tuned and monitored to achieve the prescribed results. Following the commissioning period the City of Sydney's Property team will record 12 months utility usage figures to verify the savings achieved and maintained. These will be verified using industry standard measurement and verification in line with the Best Practice Guide to Measurement of Energy/Water Savings.

Projects implemented to date include;

- lighting upgrades
- voltage reduction on lighting circuits
- amenities upgrades
- building management control system (BMCS) upgrades and fine tuning
- pool circulation pump upgrades
- provision of waterless woks to food retail tenants
- voltage power optimisation
- boiler and compressor optimisation
- desktop computer power management, and more

Benefits of implementation include;

- improved National Australian Built Environment Rating System (NABERS) ratings for commercial offices and tenancies
- significantly avoided maintenance costs

| Works Completed (per cent) | Emission savings (t C02e) | Energy savings (MWh) | Water savings (kL) |
|----------------------------------|---------------------------------|----------------------------|-----------------------|
| Target | | | |
| 100 | 7,105 | 6,641 | 56,313 |
| Actual | | | |
| 100 | To be verified* | To be verified* | To be verified* |

* The results of measurement and verification will be updated in the next report

Solar Photovoltaic (PV) Installation

In July 2012 Council awarded a tender to install solar photovoltaic panels to multiple sites that it owns including properties, sports fields, town halls, libraries, council depots, and community centres. The project has passed the halfway mark, with around 2,559 panels installed across 22 sites so far and adds to six previous installations including the heritage listed Sydney Town Hall.

When complete, this multi-million dollar installation is expected to produce almost **two GWh** (gigawatt hours) of clean renewable energy saving up to **2,074 tonnes** of $C0_2$ -e annually. The output of the panels will be reviewed regularly. For sites where panels are already installed the indicative cost per tonne of carbon abatement is approximately \$10.

It is estimated the panels will supply the equivalent of up to **12.0** per cent of the City's own energy requirements following the completion of the Building Energy Retrofit and LED Street lighting projects. The installation of the panels is funded using budget previously allocated to purchasing Green Power (however the City also remains carbon neutral through the purchase of carbon offsets).

Further installations are underway, however the City is running out of sites that are both suitable for solar and with sufficient demand for the energy produced. This is required to minimise exports to the grid at rates that are uneconomic.

The City is working with others to propose changes to the National Electricity Rules to recognise the value of local generation which could go part way to overcoming this barrier, extends across Australia and is not just limited to the City of Sydney. Other options are sharing energy with tenants, private energy networks, and storage solutions.

Installation of the remaining systems will take place over the next two and a half years. Attachment 3 lists the City's buildings where solar photovoltaic panels and solar hot water has already been installed (page 71).

| Period | Panels installed (m²) | Energy production ¹⁴ (kWh) | Emission savings ¹⁵ (tC0 ₂ -e) | Energy production ¹⁶ (kWh p.a) |
|----------------------------|-----------------------------|---|--|---|
| to end Q4 2014/15 | 1,478 | 471,371 | 1,026 | 984,763 |
| Total contract (target) | 2,575 | 821,771 | 2,074 | 1,953,440 |



Image: Solar PV panels at Victoria Park Pool



For more information about the City's solar installations, visit <u>www.cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left.

¹⁶ cumulative energy production for the project to date

¹⁴ projected energy production for panels installed in the reporting period

¹⁵ projected emissions savings for panels installed in the reporting period

Sustainable Asphalt Trial

In Q4 2014/15 the City began trialing a new environmentally-friendly asphalt blend on city roads that uses old printer toner, warm mix asphalt and a high percentage of recycled content.

The City is using the product combined with other sustainable techniques to resurface sections of road across the city centre, Burton Street in Darlinghurst and Watkin and Church streets in the inner west.

Tonerpave - There are a number of benefits to using printer toner asphalt mix, including:

- Saving energy the printer toner mix is warmed 20 to 50 degrees lower than regular asphalt taking significantly less energy to produce.
- Reducing landfill reusing printer toner in our roads means fewer cartridges end up in landfill. Approximately 20,000 tonnes of cartridge waste has been recycled in asphalt across Australia since the initiative began in 2012.
- Reducing crude oil in our roads using printer toner in the asphalt mix reduces the amount of bitumen, which is derived from crude oil.

TonerPave technology was used in the mix and was developed by the City's road contractor, Downer EDI Limited (Downer) in partnership with cartridge recycling company, Close the Loop.

Downer incorporated the unique process within its asphalt manufacturing, using toner powder which contains comparable particles to that of asphalt. The use of printer toner in the asphalt mix reduces the amount of bitumen, which is derived from crude oil.

Warm mix asphalt - The innovative new asphalt mix uses recycled materials including toner from discarded printer cartridges and is warmed at temperatures of 20 to 50 degrees lower than regular asphalt, meaning it takes less energy to produce.



Image: Processed printer toner to be mixed with asphalt

Following a successful trial in 2010, the City now only uses warm mix asphalt for its re-sheeting program. It is estimated that warm mix asphalt reduces carbon emissions by almost 20,000kg compared to traditional hot mix asphalt.

Recycled asphalt pavement - Recycled asphalt pavement is a material that has been processed and used again in new asphalt. Historically, the material was either disposed to land fill or down-cycled (recycled as a lower value material).

The City currently uses a recycled asphalt pavement content of 15% to 20% for its road resurfacing program. The use of the recycled pavement contributes an annual saving of around 23,000kg of carbon emissions. This trial will increase the recycled pavement content to 30% which will further boost carbon emission savings.

Transport

Fleet emissions

Having achieved our four year target for a 20 per cent emission reduction by end 2014, the focus in 2014/15 was not to exceed 2013/14 emission levels until new low-emission fuels and technologies become available in Australia.

The combined fleet emissions from Q1 to Q4 2014/15 were 2,223 tCO²-e. This is a reduction of 127 tonnes CO^2 -e for the same period last year. A total of 1,093,748 litres of fuel was consumed by the fleet over 2014/15, of which 72 per cent was sustainable bio-diesel.

The success of the City's Sustainable Fleet Management program was recognised with wins in two prestigious environmental awards programs – the **NSW Green Globe Awards** and the **NSW Local Government Excellence in the Environment Awards**. The multi-faceted Sustainable Fleet Management program achieved a **26** per cent reduction in fleet emissions over four years to 2014, without reducing services to the community.

On-going discussions with manufacturers of electric light commercial vans have been fruitful, with a trial Renault Kangoo ZE electric vehicle currently available for fleet evaluation. Industry discussions also continue on the introduction of hydrogen fuel cell powered electric vehicles and partnership options for the necessary hydrogen production infrastructure.

The City's diesel-electric hybrid truck fleet continues to expand with over 60 vehicles now in operation. The hybrid trucks, when paired with sustainable biodiesel can reduce CO_2 emissions by up to 39 per cent. A continued focus on driver education will progress with the introduction of an eco-driving strategy in early 2015/16. This will introduce drivers to best practice principles based on research and partnership with the National Transport Commission and other leading fleet operators.

Driver development will be enhanced by training key staff within business units to work "in cabin" with our operational drivers to improve their low emission skills and behaviours.



Image: The Renault Kangoo ZE electric vehicle

Staff Travel Plans

City staff members are encouraged to walk, cycle or use public transport wherever possible when travelling around town to meetings, site visits and between City venues.

City staff plan their travel using a simple Transport Hierarchy;

- 1. Active Transport (walking or cycling using the City's own bike fleet)
- 2. Public Transport (buses and trains)
- 3. Drive Green (the City's own fleet of low and zero emissions vehicles)

To support the use of active transport, staff is encouraged to use the City of Sydney's bicycle fleet in preference to fleet cars and taxis. The bike fleet includes a range of bikes suited to various operational requirements, including; a cargo bike, some electric assist bikes and bikes with additional carrying capacity. Staff members wanting to use the fleet are given detailed training and provided with appropriate personal protective equipment. Electric cars in the City's vehicle fleet also ensure longer distances can still be travelled with zero local emissions.

The bike fleet is housed in recently completed end-of-trip facilities on Level 1 of Town Hall House which also provides security access for staff riding or walking to work, promoting active transport. The Pitstop facility includes 150 bike parking spaces, 150 lockers, en-suite and accessible bathrooms, showers, change rooms and a water station. Since opening on 13 October 2014 an average of **70** people have accessed the Pitstop daily.

Between March and April 2015, the City's Cycling and Walking team ran the Sydney Rides Business Challenge, which promoted riding especially to and from work. 293 organisations and 4,804 people registered for the Challenge including 1,100 new riders. The Challenge was also promoted internally. 146 City staff took part, collectively logging almost 21,000km during the event.

An extensive marketing campaign promoting Walking and Riding called "Give Yourself a Lift" commenced in May, targeting key transport hubs and busy

commuter routes throughout the city including train stations, bus posters, street banners, office building and cinema advertising. Two short videos were also produced highlighting the benefits of walking and riding.

The following table shows the kilometres travelled by staff using the City Bike Fleet since its introduction in January 2012 and the number of staff members who have completed training to enable them to use the bike fleet. Distances travelled are measured using odometers mounted on each bike.

| Bike Fleet | Q1 201 4/15 | Q2 2014/15 | Q3 2014/15 | Q4 2014/15 | Year to date | Program to date |
|-------------------|-------------------|---------------|---------------|---------------|-----------------|--------------------|
| Staff trained (#) | 23 | 27 | 21 | 30 | 101 | 452 |
| Distance(km) | 369 | 854 | 939 | 814 | 2,976 | 9,785 |



Image: The Pitstop end-of-trip facilities at Town Hall House

Water

Decentralised Water Master Plan

The 2003–2010 droughts brought home the impacts of taking water for granted. The recent floods have also reminded us that Australia's historic drought and flood cycles are predicted to become more intense with climate change.

The drought led to water restrictions and a growth in individual recycled water systems as Sydney tried to adapt to unpredictable and dramatic weather cycles. However, there was no integrated city wide strategy to mitigate or adapt to these events. It is imperative the city's water supply is sustainable, drought-proofed and utilised to adapt to climate change.

The city has the oldest water supply and sewerage infrastructure in Australia, and now is the time to rethink how we deliver the city's drinking and nondrinking water supplies for the twenty first century.

Currently, we only drink two per cent of the drinking quality water we pump to our city. Even taking other drinking quality water demand uses into account, such as showering and bathing, it still accounts for no more than half our water consumption. The other half is for non-drinking uses such as toilet flushing, air conditioning and irrigation of our parks and gardens. In response, the City of Sydney has developed a Decentralised Water Master Plan.

The Master Plan identifies actions and investments the City of Sydney can make to reduce its reliance on potable water, increase the use of recycled or alternative sources of water for non-potable use, and improve the quality of stormwater discharged to Sydney Harbour and Cooks River. This will make our city more self-sufficient and able to address climate change issues such as the urban heat island effect. It will also free up drinking water supply capacity, which is particularly important in times of drought.

The Master Plan was produced by the City and is based on three technical appendices – a Water Efficiency Plan, a Recycled Water Plan and a Water Sensitive Urban Design and Stormwater Infrastructure Improvement Plan.

The **Decentralised Water Master Plan** provides a blueprint to:

- Reduce mains water consumption across the local government area (LGA) by 10 per cent of 2006 levels by 2030 through water efficiency programs
- 2. Reduce mains water consumption in Council's own buildings and operations to 10 per cent below 2006 levels by 2030 through water efficiency and connection of Council facilities to park-based or precinct scale recycled or alternative non-potable water supplies. With the growth in Council buildings and operations portfolio and irrigating parks and gardens to adapt to climate change and reduce the urban heat island effect, the City anticipates water consumption will increase by 30 per cent on a 'business as usual' basis. Reducing 2006 mains water use will provide an effective target of a 40 per cent reduction in mains water consumption by 2030 in practical terms.
- 3. Replace 30 per cent of mains water demand across the LGA with recycled or alternative non-potable water generated from local water resources by 2030.

The 30 per cent target can only be delivered in partnership with NSW and Federal governments to help deliver the City's LGA contribution towards the national target of 30 per cent of Australia's wastewater being recycled, with 10 per cent by the City of Sydney implementing measures and 20 per cent by NSW and Federal government funding and/or implementing measures.

4. Reduce sediments and suspended solids discharged into the waterways by 50 per cent and nutrients by 15 per cent from stormwater runoff generated across the LGA by 2030.

The technical appendices were prepared by international consultancy firm GHD with assistance from the Institute for Sustainable Futures and P3iC. The Master Plan was adopted by Council in 2012.



This waterfall chart is taken from the Decentralised Water Master Plan and outlines the steps the City of Sydney is taking to meet its target for a 10 per cent reduction in its 2006 mains water use by 2030. This graph was first shown in this report in Q1 2013/14.

Council has set a target to reduce mains water demand in our own operations to 10 per cent below 2006 levels by 2030. This is despite an anticipated 30 per cent increase in its water demand by 2030.

Water saving projects includes;

- Building water efficiency retrofits to high-to moderate water using properties (in progress)
- Installation of 30 smart meters for early detection and fixing of leaks within parks (complete)
- Installation of 11 park-based small scale stormwater harvesting schemes with estimated mains water savings of up to 28 ML per year (complete)
- Upgrade of 27 parks irrigation systems to improve system operation, reliability, and water use efficiency (complete)
- Precinct scale stormwater harvesting schemes at Sydney Park (page 27) and Green Square Town Centre (page 26). These two projects have received co-funding from the Stormwater Harvesting and Reuse grant program (in progress).

Mains water savings will be delivered by water efficiency measures on irrigation, park amenities and buildings and connection of Council facilities to recycled or alternative non-potable water schemes (park based or precinct scale) that are planned to be built as a result of the Master Plan. Water efficiency measures are expected to deliver mains water savings of up to 77 ML per year and connecting Council facilities to recycled or alternative non-potable water schemes are expected to deliver mains water savings of up to 95 ML per year.



Please note: The waterfall chart above will be updated in future reports as more information becomes available.

For more information see Explanatory Notes to Graphs (pages 79-83).



For more information about the City's water management plans and for downloads of the Decentralised Water Master Plan, visit www.cityofsydney.nsw.gov.au or click on the 2030 icon at left.

Decentralised Water - Mains water use

City of Sydney Operations

700

600

Annual Water Consumption



This graph shows annual water consumption by category. The 2014/15 period shows an increase in total water consumption above the City's interim target of zero increase from the 2005/06 baseline by 2016. This is largely due to a mains water leak at the Epsom Road Depot. This leak has now been rectified. Other temporary increased water consumption has been noted at Sydney Park due to plant establishment and wetland top up requirements during the upgrade works. This consumption will reduce once the upgrade works are complete.

Please note: The data for 2014/15 will be updated in the next report using actual consumption figure data supplied by Sydney Water in October 2015.

For more information see Explanatory Notes to Graphs (pages 79-83).



Image: Water Sensitive Urban Design (WSUD) and stormwater recycling in Sydney Park, St Peters



To view the Decentralised Water Master Plan, visit <u>www.cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left to watch a video on the City's plans.

Quarterly Water Consumption



This graph shows water consumption by category, as in the previous graph but here is represented on a quarterly basis.

Please note: This graph has been updated since the last report to include data for Q3 and Q4 2014/15. This includes estimated data which will be updated in the next report.

For more information see Explanatory Notes to Graphs (pages 79-83).

For Q3 2014/15, data shown is 99 per cent actual data. For Q4 2014/15, 91 per cent of the data is estimated. This is due to the time lag in obtaining data from Sydney Water. Data for 2014/15 will be updated and reported in the next period.

Sydney Water accounts are currently provided through manual meter reading. Most City of Sydney water meters can be fitted with a transmission device that allows for real-time consumption reporting via the STEvE reporting system. This provides the ability to deliver energy and water reports to City staff in real time, allowing the City to manage our water usage.

The City has installed transmission devices for 30 large water consuming sites. This enables real time monitoring of water consumption and will assist with the reduction of estimation of error in future water bills. Future sites are constantly reviewed for the potential roll out at more sites.

Water Consumption – Parks

Since 2006, the number of parks and open spaces requiring irrigation in the Local Government Area (LGA) has increased by 52 per cent. These include Wentworth Park, Redfern Park, Redfern Oval, Pirrama Park, Harmony Park, Prince Alfred Park, Paddington Reservoir Gardens, Peace Park, Lillian Fowler Reserve and Coulson Street Reserve. The total irrigated area as of June 2015 is 808,479 m² against the baseline of 531,953m².

Council has committed to a new interim target for water usage in City parks of 180L per square metre of irrigated space by 2016. City parks and open spaces are currently trending at 198L per square meter of irrigated space. The increase in the interim target is due to wetland top-up and upgrade works at Sydney Park. The current trend should be corrected through reduced water use once the wetland development is complete.

The 2012 Parks Water Saving Action Plan outlines nine action items that will contribute to achieving the City's sustainable water targets. These include staff training, new technologies and improvements to reporting. A full list of actions is shown in the table on page 24.

The City has replaced the existing irrigation systems at Waterloo Oval, Edmund Resche Reserve and Pirrama Park. These upgrades will improve water efficiency and reliability of systems, and reduce the need for frequent maintenance often required by aging systems.

Improvements to the data capture, via Cloudmaster, and record keeping are establishing a more reliable data set in which to evaluate and establish real water targets for high water use parks. Repairs and commissioning of irrigation systems will be included in this report as they are upgraded. On-going training and specifications that establish the City's targets are providing greater efficiency in water use. As new technologies and systems become available, the City will explore each option for future alternate water supply. A draft report has been submitted exploring options for water separation for ten key water use sites.

| Year | Efficiency intensity (L/ m²) | Increase in irrigated area from baseline (%) | Efficiency gains (%) | Water use actual (KL) |
|------|------------------------------------|---|-------------------------|-----------------------------|
| 2006 | 233 | 0 | - | 124 |
| 2009 | 212 | 22 | - | - |
| 2010 | 198 | 24 | - | 131 |
| 2011 | 184 | 24 | 10 | 145 |
| 2012 | 168 | 33 | 28 | 135 |
| 2013 | 191 | 36 | 12 | 165 |
| 2014 | 181 | 52 | 12 | 146 |

Water Savings Action Plan

| ltem | Action | Timeframe | Status |
|------|--|----------------------|-------------------------------------|
| 1 | Evaluate and establish water targets for: Top 10 water consuming sites Top 20 water consuming sites Top 30 water consuming sites | 2013 2014 2015 | Complete Complete In progress |
| 2 | Conduct irrigation efficiency testing on top 20 water using parks | 2015 | In progress |
| 3 | Develop program for implementation of the efficiency measures recommended through efficiency testing for: Top 10 water consuming sites Top 20 water consuming sites | 2015 2015 | Commencing Commencing |
| 4 | Monitor and record water usage to maintain accurate data: Installation of STEvE data logger at top 30 water consuming sites Improve capability of Cloudmaster and develop web based system – IT project approved for 15/16 financial year | 2015 2015 | Complete In progress |
| 5 | Implement water savings actions in future maintenance contract | 2012 onwards | On-going |
| 6 | Improve documentation and record keeping | 2012 onwards | On-going |
| 7 | Train staff in irrigation management and assessment and efficiency testing | Operational | On-going |
| 8 | Explore options and use for alternative water supply | Operational | On-going |
| 9 | Develop a standard specification for water savings initiatives to be incorporated in future projects | Operational | On-going |

Floodplain Management

In NSW, local councils are responsible for managing flooding. The NSW Government Flood Prone Land Policy assists in determining if development on floodplains is appropriate and sustainable. The Floodplain Development Manual, developed by the NSW Government requires preparation of a Flood Study and a Floodplain Risk Management Study and development and implementation of a Floodplain Risk Management Plan.

The City of Sydney local government area comprises eight drainage catchment areas in; Alexandra Canal, Blackwattle Bay, Centennial Park, City area, Darling Harbour, Johnston's Creek, Rushcutters Bay and Woolloomooloo.

The City has committed \$1.8 million to city-wide Floodplain Risk Management Studies, which includes \$600,000 in NSW and Federal Government grants. We have allocated \$57 million for Green Square essential infrastructure drainage improvements, and \$59 million over the next 10 years for drainage capacity works across Sydney.

As part of our floodplain management approach, the City is undertaking the first ever city-wide look at the drainage issues and flood risks that exist in Sydney. The work being undertaken includes a series of surveys of catchment areas. These surveys will help us understand where drainage and mitigation works are required to ensure water flow and drainage is properly managed across the local government area. This will dramatically reduce flood risk and safeguard local homes and businesses.

The City has completed flood studies for all eight drainage catchments within the Local Government Area. The First Floodplain Risk Management Plan was approved by the City in June 2013.

The City has subsequently adopted Floodplain Risk Management studies and plans for the Alexandra Canal, Johnstons Creek and Blackwattle Bay catchments. These studies and plans provide a comprehensive suite of actions that will be undertaken to manage flooding risks within the respective catchments. Implementation of its Floodplain Management Plans has begun with construction commencing on the Green Square Trunk Drain. This project will see the creation of a large underground drainage culvert running 2.3 kilometres through the Green Square town centre from Link Road in Zetland to the Alexandra Canal. The culvert will drain floodwaters away from homes, businesses and roads in and around Joynton Avenue, Lachlan Street, South Dowling Street and Botany Road.

The proposed \$100 million drainage work will take up to three years to complete, and will be co-funded by Sydney Water.

The proposed drainage works will also include stormwater quality improvement devices, such as pollutant traps and rain gardens to meet the objectives of the City's Decentralised Water Master Plan (page 19) which aims to reduce stormwater pollutants entering water ways.

| Catchment | Data collection | Draft Flood Study | Draft Flood Plain Risk Study & Plan |
|--|--------------------|----------------------|---|
| Alexandra Canal | Complete | Complete | Complete |
| Blackwattle Bay and Johnston's Creek | Complete | Complete | Complete |
| Rushcutters Bay, Centennial Park and Woolloomooloo | Complete | Complete | Complete |
| City area and Darling Harbour | Complete | Complete | March 2017 |

Green Square Water Reuse Project

In September 2013, the City entered into a contract with Flow Systems for the design, construction, operation, maintenance and administration of the Green Square Water Reuse project for up to 10 years. Flow Systems is delivering the project using their wholly-owned subsidiary, Green Square Water.

The project will deliver up to 320 million litres of recycled stormwater to the new buildings and open spaces in the Green Square Town Centre, saving precious drinking water and reducing water bills for residents.

Flow Systems is a private water utility and will be licensed to operate the Green Square Water Re-use project under the Water Industry Competition Act. The Act is administered by IPART and is aimed at ensuring the ongoing protection of public health, consumers and the environment.

The project has moved from the concept phase to detailed design and construction. It involves the extraction of stormwater from the proposed trunk drainage system being delivered by the City and Sydney Water, and construction of recycled water treatment plant and pump station at the former South Sydney Hospital site.

The recycled water pipe network will be constructed in stages as the precinct is developed. The stages will be constructed by Flow Systems or by the land developer.

Construction of underground storage tanks in the former Sydney Hospital site has commenced and due to be completed towards the end of 2015.



Image: Recycled water reuse process at Green Square Town Centre

Sydney Park Water Reuse Scheme

The City of Sydney has completed the second stage of Sydney Park's water reuse scheme. The plant and pump equipment is currently being commissioned and due to be operational by mid-2015. The project will contribute to the City's 2030 targets to replace drinking water through local water capture and reuse and also to reduce stormwater pollutants entering our waterways.

This project is part of a suite of initiatives being formulated under the Decentralised Water Master Plan and is being partially funded by the Australian Government's Water for the Future initiative through the National Urban Water and Desalination Plan.

The Sydney Park Water Reuse Scheme Stage II follows the successful implementation of Stage I, completed in 2010. In 2012/13 Stage I harvested and treated 50 million litres of stormwater, providing a sustainable water source for the wetlands.

Stage II expands the capacity of the wetlands to supply water for irrigation within the park, as well as offer a recycled water supply for potential offsite reuse in the local government area. Stage II is in the final stages of completion and handover with the park now open and planting gradually being established.

The project includes landscape improvement works to enhance the park's ecosystems, features and recreation opportunities. New planting, lighting, seating and picnic areas will be installed and pathways will be improved. Wetlands will be connected via a picturesque series of water cascades and visitors will be provided with information about the water treatment and ecological function of the wetlands.

Water harvesting is the diversion and storage of stormwater that would otherwise drain away. Once captured, the water can be treated to remove storm water pollutants and make it suitable for re-use. The \$11.3 million upgrade will allow up to around 850 million litres of stormwater to be captured and cleaned each year.

The works involve diverting stormwater via a new underground pipe into the Sydney Park wetlands from the stormwater channel that runs within the park near the corner of Euston Road and Sydney Park Road.

Water will be treated using a gross pollutant trap which removes litter, coarse sediment and organic matter from stormwater via a physical screen, and a bio retention system which collects water in shallow depressions and filters it through plant roots and soil. As water is drawn from the system for reuse, it will receive further treatment through filtration and ultra violet (UV) cleansing processes.

A sustainable water supply protects the wetlands from problems such as poor plant establishment, blue green algae blooms and rapid growth of unwanted, aquatic plants such as azolla, which blocks sunlight.



Image: Stormwater collection at Sydney Park, St Peters



For more information, including downloads of the water reuse design scope and construction phasing plan, visit <u>cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left.

Major Projects – Water

| Project | Description | Key milestones | Status | Responsible | Ву |
|--|---|--|--|---|------------------|
| <u>Decentralised</u> <u>Water Master Plan</u> | Develop targets and actions for water recycling, water sensitive urban design and improving water use efficiency. | Develop implementation plan for endorsed Decentralised Water Master Plan. | Master Plan endorsed February 2013. Implementation plan being developed and priority actions being implemented on an on-going basis. | Sustainability | December 2015 |
| <u>Sydney Park</u> <u>Water Reuse</u> <u>Scheme - Stage II</u> | Deliver the city's largest water harvesting system to help meet targets. Project includes the ability for water to be reused for irrigation and to top up the wetlands system. | First of a suite of initiatives being formulated under the Decentralised Water Master Plan. Part funded by the Australian Government's <i>Water</i> <i>for the Future</i> initiative. | Completed. Handover Stage II to operator. | City Projects & Property / City Greening & Leisure | December 2015 |
| Floodplain Management Risk Management Studies and Plans | Develop Floodplain Risk Management Studies and Plans for all eight stormwater catchments within the local government area. | Develop studies and plans for catchments in; Alexandra Canal, Blackwattle Bay, Centennial Park, City are, Darling Harbour, Johnson's Creek, Rushcutters Bay and Woolloomooloo. | Draft flood studies complete for all catchments. Floodplain risk Management Plan adopted for Alexandra Canal, Blackwattle Bay and Johnstons Creek. | City Infrastructure and Traffic Operations | March 2017 |
| Green Square Water Reuse Project | Deliver recycled stormwater to new buildings and open spaces in Green Square Town Centre, saving drinking water and reducing water bills for residents. | Construction of recycled water reticulation pipes to coincide with development of residential apartment buildings. | Detailed design Commenced construction of storage tanks. | City Projects & Property / COO | March 2018 |

Organisational Projects - Water

| Project | Action | Outcomes | Status | Responsible | Ву |
|---------------------------------------|--|--|--|----------------------------|----------|
| Non mains water usage reporting | Develop a register of sites that are connected to non-mains water source for non-potable consumption such as irrigation and toilet flushing. | Register of non-mains water using sites. | Complete Further action required to ensure consumption of non-mains water is recorded – audit scheduled | Sustainability | End 2015 |
| Parks Water Savings Action Plan | Develop targets and actions for water use efficiency specifically for Parks. | Develop implementation plan | In Progress For more see (page 24) | City Greening & Leisure | End 2015 |
| Smart and real | Install sub-meters and data loggers on the significant sites for real-time water metering | Real-time monitoring and reporting of water consumption on significant sites. | Complete | City Property | Complete |
| significant water intensive sites | significant sites for real-time water metering. | | | City Greening & Leisure | Complete |





Waste

The City as an organisation generates waste in the course of carrying out its functions. As a responsible member of the Better Buildings Partnership, the City is taking steps to monitor and engage with improvements to how it manages its waste generation and recycling recovery.

Measurement of organisational facilities waste generated commenced in 2012/13 with the City's waste collection contractor providing data on tonnes of waste collected.

The City is developing the capacity to centralise reporting on the percentage recovery of maintenance, construction and demolition waste across a number of operations.

Facilities Waste

The City is preparing a resource recovery action plan and reviewing contract requirements to meet the incremental target of 54 per cent resource recovery of facilities waste by 2016.

The City provides a number of services through its libraries, community centres, aquatic centres, community facilities and depots all of which generate waste and recycling. In addition, the City's workforce of close to 2,000 employees generates waste and recycling at their place of work. The generation levels in the table are derived from collection reporting of waste and recycling for those facilities matching these criteria. In the year to date the City achieved an average recycling rate of facilities waste of 45 per cent.

The table at right shows waste generated in tonnes for City of Sydney facilities excluding non-City of Sydney tenants.

| | Q1 2014/15 | Q2 2014/15 | Q3 2014/15 | Q4 2014/15 | Year to date |
|------------------------------|---------------|---------------|---------------|---------------|------------------|
| Waste generated (tonnes) | 397 | 381 | 402 | 412 | 1592 |
| Recycling rate (per cent) | 44 | 45 | 45 | 45 | 45 ¹⁷ |

Please Note – rounded recycling rates include additional recovery made by treating waste after collection. In addition, waste generated tonnages are influenced by tenancy occupation levels in City owned facilities and buildings.



Image: Recycling station in Surry Hills Library

¹⁷ Year to date figure is an average for the year

Maintenance, Construction and Demolition Waste

As part of the setting of an organisational waste incremental target, measurement of the waste generated by Council activities such as Parks and Gardens, pavement management and minor construction operations were evaluated.

A target of maintaining a **98** per cent recovery rate was adopted by Council in May 2014. By accepted industry standards a 98 per cent or higher recovery rate constitutes an effective zero waste level.

In Q3 and Q4 2014/15, the City generated an estimated **656** tonnes of waste from parks and gardens and 5,275 tonnes of waste from Council construction services. The City was able to recycle or divert over **99** per cent of this waste.

In the year 2014/15, the City generated an estimated **12,340** tonnes of waste from its operations and recycled or diverted over **99** per cent of this waste.



Image: Street Cleaning and Waste Management

| January to June 2015 | Organisational Waste (Tonnes) | Material Recycled (Tonnes) | Diversion Rate (per cent) |
|---|-------------------------------------|----------------------------------|---------------------------------|
| Parks and Gardens maintenance (tonnes) ¹⁸ | 656 | 656 | 100 |
| Council Construction and Infrastructure Maintenance (tonnes)* | 5,275 | 5,218 | 99 |
| Overall (tonnes) | 5,931 | 5,874 | >98 per cent |
| 2014/15 | Organisational Waste (Tonnes) | Material Recycled (Tonnes) | Diversion Rate (per cent) |
| Overall (tonnes) | 12,340 | 12,275 | >98 per cent |

The table above gives tonnages for maintenance, construction and demolition waste for the reporting period and the year 2014/15

¹⁸ Includes recycled soils, woodchip and green waste. Does not include litter bins.

* Includes Council-labour minor construction, demolition and maintenance works.

Major Projects - Waste

| Project | Description | Key milestones | Status | Responsible | Ву |
|---|--|--|--|----------------|----------------|
| Advanced Waste Treatment Master Plan | Identifying preferred treatment options and actions for diversion of waste and recovering energy from waste to reduce greenhouse gas emissions. | Council endorsement of Advanced Waste Treatment Master Plan Implementation Plan | Endorsed September 2014 Implementation Plan by end 2015/16 | Sustainability | End 2015/16 |
| Waste Management in New Developments | Policy and Guidelines to establish minimum design in new developments to optimise resource recovery practices. | Executive review of policy update Public Exhibition of Policy and Guidelines | Policy review completed May 2015 Policy to be included within DCP with Guidelines as attachment | Sustainability | June 2015 |
| Waste Strategy 2030 | A strategic roadmap to deliver a globally recognised approach to converting Waste to Resources. The Waste Strategy will supplement the Sustainable Sydney 2030 plan and apply to all waste streams in the City local government area, not just residential. Incremental targets will assist in tracking progress to final goals. | Draft Waste Strategy 2030 | In progress. For more information see page 47 | Sustainability | March 2016 |

Sustainable Procurement

The City of Sydney is committed to doing business with ethical and socially responsible suppliers. We recognise that by practicing sustainable procurement we can significantly reduce our environmental impact, encourage the development of more sustainable and ethical goods and services and deliver other economic and social benefits for the community.

The City sees our suppliers as partners in our sustainability program. We take great care in selecting the companies who supply us with products and services, and expect each of them to operate to internationally, nationally and locally recognised standards and appropriate codes of practice.

The City is committed to working with our suppliers to find greener, more cost effective products for use in our many projects including; the construction of roads and community buildings, in Public Domain Landscaping and Parks (page 52), provision of low-emission vehicles and sustainable fuels (page 16) supply of luminaires for our LED Lighting (page 13), new technologies used as part of our Building Energy Efficiency Retrofits (page 14) for use at our many Events (page 34) and by our administrative staff.

A new Electronic Invoicing Process was rolled out across Council in December 2014. Benefits of the new system see the freeing up of large areas across Council that were originally given over to document storage. Savings are realised by not having to store and maintain these documents over protracted periods of time.

In May 2015, a comparison of paper usage was conducted for the years 2012 and 2015. Sustainable savings were realised by the reduction in paper usage and the electronic storage of documents, providing real-time information for end users.

The table at right shows sustainable savings the City has achieved over a three year period.

| Paper Stats - 2012 vs. 2015 | | | | | | |
|-----------------------------|-----------|----------|---------|--|--|--|
| | 2012 | 2015 | Savings | | | |
| Paper Sheets | 1,551,396 | 749,620 | 801,776 | | | |
| tC02e | 48 | 23 | 25 | | | |
| Water Consumption (L) | 117,906 | 56,971 | 60,935 | | | |
| Cost of Paper + Personnel | \$37,575 | \$28,932 | \$8,643 | | | |

The City's Procurement team in conjunction with financial systems has developed a suite of reports to track usage on Cabcharge and Petty Cash. Access to these reports allows Senior Management to target areas of expenditure, or areas where sustainable improvements through reduced travel can be put in place



Sustainable Event Management

The City runs many events each year to celebrate the diverse cultural, sporting and recreational aspects of Sydney. These include both small events and larger events such as Sydney New Year's Eve and Chinese New Year.

We recognise the importance of a balanced approach to event management which takes into account the city's economy, ecology, society and culture. Our goal is to reduce the impact of events we manage and approve on the environment. The City's Sustainable Event Management Policy and Guidelines encourage, and in some cases require, that events run by the City:

- minimise waste generation
- maximise recycling
- minimise energy consumption
- maximise use of renewable energy
- minimise water consumption
- conserve bio-diversity
- minimise impacts on climate change and
- promote principles of sustainability.

Event organisers are asked to make sure; there are no petrol generators on floats, that food stalls provide recycled cutlery and containers, that waste is recycled at all events and waste products from food stalls is disposed of safely. All major events run by the City of Sydney include a *Sustainable Sydney 2030* project, many of which are related to environmental sustainability. For example, free valet bicycle parking is offered at many City events.

Our Events team do all they can to incorporate environmental considerations into the events we run, including using LED lighting, sustainable fuels in generators and waterless urinals where possible.

The environmental and sustainable policies and practices of contractors is a consideration in the procurement process, for example; events staff working closely with contractors to minimise truck and logistics movements of heavy equipment.

Each year the City undertakes a Green House Gas assessment of Sydney New Year's Eve. For the 2014 event, the estimated total carbon emissions were **467.2** tonnes of carbon dioxide equivalents. Compared with the previous year, this represented a net reduction of **25.9%**.

The main reasons for the reduction were: a decrease in electricity consumption due to the use of LED rope light (rather than incandescent) for the Bridge Effect; a reduction in the merchandise program with a lower number of official commemorative coins being produced and sold and there being no t-shirt merchandise; and a slight reduction in the total waste to landfill.



Image: 2014 Sydney New Year's Eve
Part 2 City of Sydney Local Government Area (LGA)

Since the targets for *Sustainable Sydney* 2030 were set, the City of Sydney local government area (LGA) has undergone significant growth and is expected to continue to grow.

Regardless of future growth, the 2030 targets set by the City of Sydney are absolute.



Emissions

Waterfall chart & annual emissions

This water fall chart is based on the original chart presented in *Sustainable Sydney 2030* which has been updated to reflect more accurate emissions savings results from the Energy Efficiency, Renewable Energy, Advanced Waste Treatment, and Trigeneration Master Plans.

Since 2007 total greenhouse gas emissions across the local government area have continued to fall and this is despite significant growth in the economy (17%), the number of new residents (12%) and businesses (13%), new developments and other economic indicators.

Most greenhouse gas emissions in the City of Sydney local government area are due to buildings. Emissions are falling due to improved energy efficiency awareness and practices, and the increase of renewable energy in the grid and locally. However as buildings become more efficient, and as more people live and work in the area - emissions from transport are growing as a proportion of the total.

The graphs below were produced using the Kinesis CCAP reporting tool and shows greenhouse gas emissions by sector for the local government area based on utility data and other information sources.



Please note: The charts below have been updated since the last reporting period. For more information please see Explanatory Notes to Graphs (pages 79-83).



January to June 2015

Decentralised Energy – Trigeneration Master Plan

Trigeneration is a key part of the City's *Sustainable Sydney 2030* goal to reduce greenhouse gas emissions by 70 per cent and for no reliance on coal fired electricity by 2030. Changes to regulations and the Federal Government's decision to lower the future carbon price mean that trigeneration projects in some of the City's trigeneration precincts may not go ahead. We will continue with plans to install trigeneration systems in our own buildings, starting with a plan to provide electricity, heating and cooling to Sydney Town Hall and Town Hall House. We will continue to lobby to remove the regulatory barriers to trigeneration.

In *trigeneration*, electricity is produced locally and the waste heat from the process is used to supply heating and hot water. Waste heat is also converted into cooling via a heat-driven chiller system. In this way, trigeneration provides cooling, power and heating as illustrated below.

The final *Decentralised Energy* – *Trigeneration Master Plan* forms part of the City's Green Infrastructure Plans (page 6) and follows from the interim Trigeneration Master Plan which was published in 2010/11.



The final <u>Decentralised Energy – Trigeneration Master Plan</u> has been updated from the previous interim plan to include new results for additional "hot spot" zones bringing the new total feasible trigeneration potential to 477MWe capacity (previously 360MWe).

The final report also contains updated information about the negligible air quality impacts, the availability of case supplies, and case studies for buildings to connect into the thermal energy network. The Trigeneration Master Plan shows that, if implemented, a decentralised energy network could:

- Reduce greenhouse gas emissions within Low Carbon Infrastructure Zones by 39 per cent to 56 per cent below 2006 levels by 2030
- Reduce greenhouse gas emissions across the City of Sydney LGA by 24 per cent to 32 per cent below 2006 levels by 2030
- Provide lower cost CO₂ abatement than solar, wind, hydro, or coal or gas fired power station carbon capture and storage
- Provide the city with an energy solution that is transformative, future proof and will provide an energy infrastructure that other green infrastructure can take advantage of.



To view the *Decentralised Energy* – *Trigeneration Master Plan*, visit <u>www.cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left.

Decentralised Energy – Renewable Energy Master Plan

The City of Sydney has set a target of reducing greenhouse gas emissions across the entire local area by 70 per cent below 2006 levels by 2030. This includes a target of 30 per cent of electricity from renewable sources.

A Decentralised Energy - Renewable Energy Master Plan has been developed to focus on technologies that deliver the greatest outcome for our city for the lowest cost. The plan is based on the most detailed technical, financial and economic assessment of renewable energy opportunities for the Sydney region. Based on worldwide renewable energy best practice, the Master Plan focuses on the mix of renewable energy resources and most effective technologies.

The Plan identifies that there are sufficient renewable energy resources, such as solar, wind and energy from waste to meet 100 per cent of the city's electricity, heating and cooling by 2030.

The Decentralised Energy – Renewable Energy Master Plan is an important part of the City's strategy to improve energy efficiency and reduce greenhouse gas emissions. The Master Plan forms part of the City's Green Infrastructure Plans (page 6). It complements the City's Decentralised Energy – Trigeneration Master Plan and the Energy Efficiency Master Plan currently being developed.

The City of Sydney is installing solar panels on a number of its buildings (page 15). We call this "showing by doing".

The most exciting part of our city using renewable energy is that as the cost of coal-fired electricity rises, the cost of renewable energy is falling as new technology becomes available and countries around the world embrace decentralised energy networks.

The Decentralised Energy – Renewable Energy Master Plan was endorsed by Council in December 2013.





To view the *Decentralised Energy* – *Renewable Energy Master Plan*, visit <u>www.cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left.

Green Transport

With a rapidly growing resident and worker population in the inner city, good transport is more important than ever. The City is committed to promoting safe, healthy and convenient transport for residents, workers and visitors. We are improving conditions for walking and cycling, promoting car sharing, and investing with the NSW Government in the transformative Sydney CBD and South East Light Rail.

Cycling

The City is promoting safe and courteous cycling with free bike tune ups, bells, maps and sessions through our StreetShare program.

A key project within the StreetShare program is the Share the Path (STP) campaign. Now in its fourth year, Share the Path continues to speak to bike riders about the importance of ringing their bell early, slowing down and avoiding travelling too close when passing pedestrians whilst using the City's bike network. It also urges pedestrians to listen for bells, be alert and aware of bike riders.

Initiatives seek to build empathy between shared path users to encourage safe and appropriate behaviours. The SydneyCycleways team is out and about on shared paths and cycleways in inner Sydney four times a week talking to pedestrians and riders about respecting each other's journey and sharing spaces with courtesy and grace.

The number of daily bike movements in the City of Sydney local government area has doubled from 25,868 in March 2010 to 52,190 in March 2015.

The last block of Kent Street cycleway (Bathurst to Liverpool) was opened in early 2015 as scheduled and the Liverpool Street (Sussex to Elizabeth) and Castlereagh Street (between Liverpool and Hay) cycleways are scheduled to be completed by the end of 2015.

Image: Cyclists use Union Street cycleway

| | Q1 2014/15 | Q2 2014/15 | Q3 2014/15 | Q4 2014/15 | Year to date |
|---|---------------|---------------|---------------|---------------|-----------------|
| Share the Path sessions | 39 | 36 | 38 | 32 | 145 |
| STP Tune Ups (#) | 269 | 339 | 339 | 254 | 1201 |
| STP maps issued (#) | 454 | 331 | 430 | 349 | 1564 |
| STP bells issued (#) | 305 | 298 | 329 | 267 | 1199 |
| Free cycling courses (# participants) | 117 | 113 | 96 | 105 | 431 |
| Free maintenance courses (# participants) | 142 | 90 | 139 | 92 | 463 |
| Balance Bike Clinic | | | 531 | 753 | 1284 |



Walking

The City recognises the popularity of walking, with over 92 per cent of trips in the city centre by walking and over 29 per cent of employed residents walking to work.

The City continues to improve our streets, parks and plazas for pedestrians. Work includes extensive new tree plantings and landscaping, footpath renewal and widening, and new pedestrian crossings. We are also creating shared zones for safe walking and cycling and assisting in the implementation of the NSW Government's 40km per hour zone in central Sydney.

The City's first Walking Strategy and Action Plan was endorsed by Council in April this year. Also in April, the City hosted international walkability experts Tim Pharoah and Robert Stussi to help develop walkability tool for use across the LGA.

In May, the City completed its first full audit of the livable green network footways. This data is being used to help inform and prioritize the City's work to make the city more walkable.

Our surveys continue to be conducted twice a year in May and October, providing valuable data to guide further improvements.

In October the City launched the first step in a comprehensive wayfinding and tactile signage network that will make the city more accessible for people of all abilities. The \$8 million Legible Sydney Wayfinding System will link central Sydney streets using around 2,100 tactile and braille street signs, pedestrian-friendly maps, information pylons, new signs and digital technology. The rollout of the new wayfinding system was welcomed by Age and Disability Discrimination Commissioner Susan Ryan.

Car Sharing

Car sharing schemes allow people to drive when they need to, without the hassle and cost of car ownership. As of the end of June 25,685 city residents and businesses were members of a car share company.

A single car share vehicle can take up to ten cars off the road, and cater for up to twenty car share members. This takes pressure off limited inner city street parking, and increases the use of walking, cycling and public transport.

The City has provided approximately **650** on-street car share parking spaces. In addition, our new local planning controls will increase the number of car sharing spaces provided in new commercial and residential developments such as Harold Park, Frasers Broadway and the Green Square Town Centre.



Images: The new tactile and braille street signs in use

Water

Mains Water Consumption

The Decentralised Water Master Plan was completed and a draft copy of the Decentralised Water Master Plan endorsed by the Council for public exhibition in August 2012. Following this, the Master Plan was exhibited and submissions incorporated into the final plan. The Decentralised Water Master Plan was endorsed by Council in February 2013.



Please note - Information for 2014/15 will be provided by Sydney Water in October 2015 and updated in the next report.

For more information see Explanatory Notes to Graphs (pages 79-83).



For more information on the Decentralised Water Master Plan see page 19, visit <u>www.cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left. The infographic at right is also on the City's website.



Waste Highlights this quarter

On 6 and 7 June 2015, the City hosted a special **e-waste recycling event at Bunnings** Warehouse in Alexandria diverting **15 tonnes** of e-waste from landfill from **515 drop-offs. 48 per cent** of participants had not been to an e-waste event before. Televisions and computer equipment were the most common items collected.

The City's e-waste program began in 2008 and has diverted over **360 tonnes** of e-waste from landfill with over **11,000 participants** taking part in the events. The City's e-waste marketing activity generated over **6,000** unique visits to the e-waste webpage, double the amount of visits compared to previous events.



Image: A cyclist dropping off e-waste to be recycled at the Bunnings event.



Image: New reverse vending machine being used at Wynyard Park.

The City extended its NSW EPA funded trial of **reverse vending machines** (RVMs) until June 2016 launching **two new RVMs** at **Wynyard** and **Redfern**. The trial will increase public place recycling, provide cleaner streets through reduced littering and support incentive based beverage container recycling initiatives as the NSW government works to develop a state container deposit scheme.

Surveys undertaken as part of the RVM trial indicated that there is a strong support for a container deposit scheme in NSW with **93 per cent** of online survey respondents reporting they would recycle more if an incentive was offered. Nearly **80,000** containers have been recycled since the machines were installed in June 2014.

The City promoted the new machines through lenticular Citylight posters and using lift and lobby advertising in surrounding offices, as well as social media. In its first day, the City's Facebook and Instagram video generated over 1,600 likes, 140 comments and 140 shares.

In January, the City leveraged its **New Year's Eve campaign** to raise the profile of its hardworking cleansing team. The campaign also created awareness of the amount of litter generated during celebrations, and called on revellers to dispose of their rubbish thoughtfully.



Image: (Above) A garbage truck branded with NYE campaign message.

As part of the campaign, City ambassador, Jack Thompson carried the message to audiences through a light-hearted video, which also featured staff. The video attracted over **38,000 views** on YouTube and Facebook. The City's fleet of **34 garbage trucks** and street sweepers as well as **100 garbage bins** were also branded for the event.

The City **won the Top Collector Award** for recycling the highest number of mobile phones in NSW at this year's MobileMusters Local Government Awards recovering **2,640 mobile phones** and batteries. This is the second year in a row that the City has received a top accolade at the MobileMuster Local Government Awards.

The City provides ten convenient recycling stations at community centres and libraries for mobile, light bulb and battery recycling and has successfully diverted over 100,000 household batteries and 8,400 light bulbs from landfill since commencing the service in November 2013.



Image: (Above) An apartment building's bin room before (left) and after (right) receiving the City's WRIP service.

In 2014/15 approximately **342 apartment buildings** had their bin rooms upgraded through the City's the Waste & Recycling Improvement Program (WRIP) to improve the way apartment waste is managed and enhance recycling rates.

Around **1150 buildings** have now received the service since it commenced in 2010/11, with the remaining **441 apartment** buildings scheduled to receive this service by September this year.

Advanced Waste Treatment Master Plan

The Sydney region is facing a waste disposal bottleneck with landfills reaching capacity by 2021 and available waste processing falling well short of demand. The Renewable Energy Master Plan identified that after recycling, the remaining waste generated within the City of Sydney by both residents or businesses could be converted into a gas for energy use.

The Advanced Waste Treatment Master Plan reviews the technologies available internationally that could achieve this vision. It sets out the potential reduction in levels of domestic, commercial and industrial waste going to landfill as non-recycled waste as well as the portion of renewable gas that could be produced by the City's LGA domestic, commercial and industrial waste to replace fossil fuel natural gas.

Rather than replacing recycling, the City's draft plan calls for a facility that could recover the energy resource remaining in waste after the best recycling efforts have been undertaken. This would help the City avoid greenhouse gas emissions from waste ending up at landfill, and replace some of the emissions from the use of fossil fuel for energy use.

The Advanced Waste Treatment provides a blueprint for:

- By 2030, advanced waste treatment avoiding up to 95 per cent of municipal domestic, commercial and industrial waste from going to landfill through a combination of recycling materials and converting non-recyclable waste into renewable gas;
- Replacing 100 per cent of fossil fuel natural gas consumption in our own operations, including the planned trigeneration systems supplying our own buildings, with renewable gas derived from non-recyclable domestic waste;

 Reducing greenhouse gas emissions across the City's LGA by 6.9 per cent from avoided landfill gas emissions and conversion of non-recyclable waste into renewable gas for the City's planned trigeneration network.

The Advanced Waste Treatment Master Plan was produced by the City and relies on a technical appendix; the Review of Gasification Technologies prepared by consultancy firm Talent with Energy. A number of additional studies underpinned the Master Plan.



The Master Plan was endorsed by Council in September 2014. To view the Master Plan, visit <u>www.cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left.



Resource Recovery Recycling Rate



Please Note: The Resource Recovery Recycling Rate is defined as the amount of waste diverted from landfill which includes: Recycling, White Goods, Garden Organics, E-waste, Household Problem Waste and material recovered through AWT processing. This is shown as a percentage of the total domestic waste generated

For more information see Explanatory Notes to Graphs (pages 79-83).

From April 2011 all domestic waste has been processed at SITA Environmental Solutions Advanced Waste Treatment (AWT) Facilities. This means that none of the City of Sydney's domestic waste is sent directly to landfill.

The City has achieved its highest ever resource recovery rate and has once again exceeded the City's recovery target by achieving 68.53 per cent resource recovery for 2014/15. The City's quarterly recovery rate was 69.55 per cent for Q4 2014/15.

The City recognises that disposal of untreated waste to landfill is no longer a responsible waste management option. Loss of potential resources and environmental harm arise from methane gas emissions from decomposing garbage. Methane as a greenhouse gas is 25 times more potent than carbon dioxide.

Establishing a treatment facility suitable for energy recovery to further reduce emissions is part of an integrated suite of long term waste solutions being investigated by the City. The aim is to integrate waste treatment with other key Green Infrastructure elements including two Decentralised Energy Master Plans – Trigeneration and Renewable Energy.



For more visit <u>www.cityofsydney.nsw.gov.au</u> or

http://www.zerowaste.org.au/ or click on the 2030 icon at left.

Electronic Waste

Australians generate more than 140,000 tonnes of electronic waste (e-waste) each year and most of it ends up in landfill. As well as putting more pressure on limited landfill capacity, e-waste can be hazardous as it contains toxic materials.

To keep e-waste out of landfill, the City runs four quarterly e-waste collections through the Bay Street, Depot in Ultimo each year. During 2014/15 1935 residents dropped off a total of 59.67 tonnes of e-waste for recycling over all the collection events. This electronic waste is sent for processing by SIMS Metal in Sydney where 98% of all material is broken down and recovered for recycling in Australian facilities where possible.

Through the City's recycling stations at libraries and neighbourhood service centres, the City recycled 1.34 tonnes of mobile phones, batteries and light bulbs this period.

| Performance | Q1 2014/15 | Q2 2014/15 | Q3 2014/15 | Q4 2014/15 (Bunnings site) | Year to date | Total to date |
|------------------------------|---------------|---------------|---------------|-------------------------------------|--------------------|---------------------|
| Residents | 414 | 465 | 541 | 515 | 1935 | 11420 |
| Electronic waste (tonnes) | 12.47 | 17.27 | 14.93 | 15.00 | 76.1 ¹⁹ | 399.4 ¹⁹ |

¹⁹ Total tonnages includes e-waste from apartment trial



Image: Promotion for the City's e-waste recycling event at Bunnings, Alexandria.

Waste Strategy Development

Interim Waste Strategy

The City's <u>Interim Waste Strategy</u> establishes the framework for the comprehensive management of waste in the city. It aims to reduce waste, maximise resource recovery and find solutions for hazardous material. In addition, the Strategy looks for solutions to reduce greenhouse gas emissions, provide cleaner streets and integrate waste, water and energy infrastructure. The City has achieved its target of a 68 per cent diversion of waste from landfill by 2014.

Regional Waste Strategy

The City has assisted in the development of a Regional Waste Strategy. A Regional Waste Strategy is a State Government requirement. Councils within the Southern Sydney Regional Organisation of Councils (SSROC) have cooperated to identify potential regional solutions for energy recovery from waste, improving recycling rates, diverting waste from landfill, illegal waste dumping and litter. The Regional Waste Strategy was approved by SSROC in August 2014. A three year action plan was developed by SSROC to assist in developing and implementing the Regional Waste Strategy.

City of Sydney Waste Strategy 2030

The City is preparing a Waste Strategy 2030 to set targets, objectives and actions for managing the City's waste streams as resources. The Waste Strategy 2030 will address the resource recovery from residential, City organisational, commercial and construction waste streams.

Consultation with internal stakeholders has commenced. A co-operative working relationship with the NSW Environment Protection Authority which has released its Waste Avoidance and Resource Recovery Strategy 2014-2021 will assist the delivery of key program objective.

A strong position on Waste to Resources will mean the City can integrate the waste from multiple sources generated in the local government area to achieve a common vision.

The integration of Advanced Waste Treatment into the Strategy will allow the City to plan for both material and energy recovery to an optimal level

Please note: The waterfall chart below has not been updated since last reporting period. For more information see **Explanatory Notes to Graphs** (pages 79-83).

City of Sydney Waste Diversion

Residential Target 2014





Clean Streets Program

The City's Clean Streets program aims to improve cleanliness of the City's streets and laneways, reduce clutter and increase community pride. There are dozens of laneways across the City where bins are being stored on the street permanently and suffer from issues like illegal dumping, litter and graffiti. Our programs aim to reduce this dramatically.

Waste education staff has permanently **removed up to 35 residential garbage and recycling bins** from being stored in Llankelly Place, Potts Point by establishing internal waste collection from within the residential apartment buildings in the area. Poor waste management had plagued the area for over 14 years.

Many of the properties had minimal waste storage areas and coupled with frequent collection meant that bins were often left out on the street attracting illegal dumping and littering. The new internal collection arrangement was the result of extensive stakeholder engagement with the residents, building managers and business owners in the community and has made a dramatic improvement on the amenity of the area.

Over the last six months the **Clean Streets** program has also achieved positive results in **10 streets and laneways**. Longdown Street in Newtown, Centre and Wells Streets in Redfern, Jones and McKee Lane in Ultimo, Thompson Street in Darlinghurst, Bourke Street in Woolloomooloo, Goodchap and Little Bloomfield Streets in Surry Hills have also seen improvements in the reduction of illegal dumping and bins being left on the street following collaborative campaigns in the area by City Rangers, Waste Services and Cleansing staff.



Images: Llankelly Place, Potts Point before (top) and after (below) storage improvements.



Greening Sydney

The City of Sydney recognises the importance of trees and other plants in providing significant environmental, social and economic benefits for the community. There is growing recognition internationally of the role of cities and local governments in supporting and promoting biodiversity.

The City is committed to increasing tree coverage, improving urban ecology and biodiversity and supporting community greening to make Sydney one of the world's leading green cities. To achieve this, the City has developed the *Greening Sydney Plan*. The Plan acknowledges the importance of ecology and biodiversity to city living and supports the development of the *Urban Ecology Strategic Action Plan* (page 50).

Three **strategic focus areas** have been identified informing the objectives and targets of the Plan:

- Urban Canopy developing and protecting the city's urban forest
- Urban Ecology greening to improve habitat for biodiversity
- Community Empowerment to green and care for our urban landscape.

There are three **delivery focus areas** for achieving the Plan:

- Public Domain greening for quality streetscapes and public spaces
- New Development maximising greening opportunities
- Community Greening empowering the community to green our city.

Under the *Greening Sydney Plan*, the City will deliver some 42 programs and projects in partnership with residents, local business, developers and volunteer groups.



For more, visit <u>www.cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left.

Images: Left: Tree planting by City Staff, and Right: The Community keeping the City streets green

The City's programs have planted over **10,704** new street trees since 2005 and installed **53,174** square metres of landscaping throughout the City's streets since 2008.

Major projects to be implemented under the Plan include:

- increasing the city's urban canopy by 50 per cent on current canopy rates of 15.5 per cent by 2030 to a total of 23.25 per cent
- implementation of the Urban Forest Strategy
- implementation of the Urban Ecology Strategic Action Plan
- implementation of the Street Trees Master Plan
- review of the Register of Significant Trees²⁰
- implementation of Tree Management Policy
- plantings in all available footpath locations
- investigation of Water Sensitive Urban Design (WSUD) opportunities
- development of a green roof policy²¹
- supporting establishment of verge and community gardens
- developing and supporting a green volunteers network.

²⁰ Project completed. All other projects in progress.



Urban Ecology Strategic Action Plan

The ecological health of urban areas influences not only the diversity and abundance of plant and animal species, but also the quality of life of urban residents. Improved urban ecosystems can consequently have both environmental and social benefits.

The City's Urban Ecology Strategic Action Plan was adopted by Council in March 2014. The Plan outlines the City's approach to identify, protect and rebuild locally indigenous plant and animal populations. The Plan is part of the City's work to restore and conserve our urban ecosystems to create a liveable city for all of its inhabitants.

The Plan outlines actions to be implemented to conserve and enhance biodiversity across the local government area. A number of actions are already in progress and many will be on-going.

Conservation Volunteers Australia has been engaged to recruit and manage a group of volunteers in the **Sydney Park Bush Regeneration Volunteer Project.** The Project started in June 2014 and will run until June 2017. Volunteers are working across various sites in Sydney Park that have been identified as bush restoration areas. To date, a total of **537** volunteers have participated since the program began on 4 June 2014.

Planting works along Johnstons Creek Canal, Glebe foreshore, in Sydney Park, and Orphan School Creek have commenced with a total of **11589** plants planted across these sites since December 2014.

The third **Annual Spring Bird Survey** will be conducted through September and October 2015. Data is being collated to compare against the baseline survey held in 2013. The event provides the local community with the opportunity to learn more about local bird populations and provide useful information to monitor changes. An online <u>fauna reporting tool</u> for community and staff to report uncommon fauna species was uploaded onto the City's website in October and has received **104** entries to date. The Urban Ecology Strategic Action Plan was highly commended at the NSW Parks and Leisure Awards for 2015. Further support for urban ecological programs included the extension of the seawall pot program in partnership with Sydney University and the Royal Botanic Garden and Domain Trust.

There has been 14,455m² of increased bush restoration sites since July 2014, a 31% increase from 2012 baseline. Native fauna species are recorded at 88 from the online tool, community bird survey and microbat surveys. A formal survey is required to track diversity against the 2010 baseline.



Image: Working with NPWS and Depot staff to relocate our priority fauna Blue Tongue Lizards



For more, visit <u>www.cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left.

Community Gardens and Community Planting

The City recognises that community gardening offers residents the opportunity to grow and harvest their own produce and help reduce household waste through community composting. Community gardens also create more green patches bursting with vegetables, plants and flowers, across our city.

The City continues to support and implement community gardens in the local government area, with 20 in place at the end of June 2015. The City also supports a number of other planting programs and gardens across the LGA including; five Landcare groups, three community footpath verge gardens and one community composting group as at the end of June 2015.

The City also encourages greening initiatives and working with organisations to green our villages. National Tree Day is a national event that has been supported and implemented between Planet Ark and the City for the past 20 years. Over 800 local residents, visitors and the community are anticipated to attend and plant more than 6,000 native tubestock plants at the event schedule for 26th July 2015.



Image: National Tree Day's 20 year anniversary

Community planting events happen throughout the year to assist existing Bushcare groups or to allow new open spaces to green by inviting the local residents and community to participate in planting native seedlings.

The City is supporting a **community composting group**, which has a management and site plan in place. The site was prepared in July of 2014 and the group started composting in August. Quarterly audits of their four compost bins are being conducted with no issues recorded to December 2014. The Group has a total of 15 members and good support from neighbours. The community gardens draft policy and guidelines are currently out for public exhibition to the 31st July 2015.

| Performance | Q3 2014/15 | Q4 2014/15 | 2014/15 target | Year to date | Total to date |
|--------------------------------------|---------------|---------------|-------------------|-----------------|------------------|
| Community Gardens (#) | No new | No new | >18 | No new | 20 |
| Landcare groups (#) | No new | No new | trend | 1 | 5 |
| Community footpath verge gardens (#) | No new | No new | trend | No new | 3 |
| Community composting groups (#) | No new | 1 | trend | 1 | 1 |



For more information, including a map of community gardens, visit <u>www.cityofsydney.nsw.gov.au</u> or click the 2030 icon at left.

Parks and Trees

The City of Sydney recognises that green spaces are one of a city's most important natural assets. They are crucial to maintaining the high quality of our public realm and achieving Sustainable Sydney 2030, by assisting the creation of green corridors and increased canopy cover.

The City is also delivering a number of small <u>parks upgrades</u> within the LGA. Since 2008, **46** small parks have been completed, including **four** completed during Q3 and Q4 2014/15 and several more currently being planned.

Under the Greening Sydney program a number of areas have been converted to increase the vegetated space within the City. During Q3 and Q4 the City completed **3**,**926m**² of landscaping (grass and planting installation). This means we have well exceeded the annual target of 8,000m².

The City's <u>Street Tree Master Plan 2011</u> is a blueprint for street tree plantings across the City of Sydney. The objectives of this Master Plan are to improve and develop the number, health, longevity and form of street tree species; and to enhance the distinct character of the various City precincts. With this Master Plan, we will continue to provide healthy street trees which will beautify our urban environment today and will become a legacy for future generations.

Rain Gardens are one of the simplest forms of Water Sensitive Urban Design (WSUD) used for treating stormwater prior to discharge to the main stormwater system and ultimately to our waterways and bays. A total of **133** rain gardens have been installed to date, with several planned for construction in 2015/16.



For more, visit <u>www.cityofsydney.nsw.gov.au</u> or click the 2030 icon at left.

Please note: Numbers in the table at left are compiled from various sources and may include adjusted totals as more accurate data is received. Canopy cover is measured every five years. Measurement is planned for 2015/16.

Image: Jubilee Park

| Performance | Q3 2014/15 | Q4 2014/15 | 2014/15 target | Year to date | Total to date |
|---|---------------|---------------|-------------------|-----------------|------------------|
| Small park upgrades (#) | 2 | 1 | 3 | 7 | 46 |
| Landscaping (grass/planting) (m ²) | 1752 | 2174 | 8,000 | 10,896 | 53,174 |
| Rain gardens (#) | 0 | 0 | trend | 0 | 133 |
| Street trees planted since 2005 (#) | 459 | 454 | 700 | 913 | 10, 704 |
| | Q3 2014/15 | Q4 2014/15 | 2030 target | Year to date | Total to date |
| Canopy cover (on current) (per cent) | No data | No data | 23.5 | No data | No data |



Green Roofs and Walls

Green roofs and walls make an important contribution to the urban environment. They help mitigate the impacts of the urban heat island effect, slow and clean stormwater, improve air quality, increase habitat for biodiversity and create additional space for urban food production and recreation. The Green Roofs and Walls Policy – the first of its kind in Australia, was formally adopted by the Council in 2014.

The City has developed resources to inform, inspire and encourage building owners to include green roofs and walls in their developments. These include a guide to waterproofing for green roofs and walls, a green roofs and walls inspiration guide and case studies showcasing two of the City's own green roof projects, Surry Hills Library and Beare Park amenities block.

The guides, case studies and more can been downloaded from <u>www.cityofsydney.nsw.gov.au/green-roofs-and-walls</u>



Image: Beare Park Amenities Block Green Roof and Wall

Significant development is occurring in the City and has resulted in a jump in the number of green roofs and walls. Since 2012, 112 development applications that incorporate green roof or walls have been reviewed. During this reporting period, the City received 26 new development applications which included green roofs and walls.

Currently the City has at least 120,442 square meters of green roofs and walls. This period saw the finished construction of green roofs associated with the Harold Park Precinct 3 in Forest Lodge and at the University of Technology Sydney in Ultimo.



Visit <u>www.cityofsydney.nsw.gov.au</u> or click the 2030 icon at left for more, including a map of green roof and wall sites.

| Performance | 2013/14 total ²¹ | 2014/15 new sites | Total to date | Total area (m²) |
|-------------------------------|--------------------------------|----------------------|------------------|--------------------|
| Green roofs in the LGA (#) | 56 | 29 | 85 | 117,462 |
| Green walls in the LGA (#) | 34 | 4 | 38 | 2,980 |
| Total green roofs and walls | 90 | 33 | 123 | 120,442 |

Please note: Numbers in the table are of identified completed green roofs and walls. Green roofs and walls are difficult to track due to the time difference between their approvals and completions.

²¹ 2012/13 was the first year of measurement.

Sustainability Programs Highlights this period

Late in 2014 Council adopted a new Grants and Sponsorship policy that includes three new environmental performance grant programs. These grant programs have been designed to address specific barriers to action and to help catalyse the innovative solutions that will be required to deliver Sustainable Sydney 2030. In the last 6 months, 5 organisations have been awarded funding for feasibility or demonstration projects to help spur Innovation within the City of Sydney. Three organisations received funding for Ratings and Assessments. And one further residential apartment building was funded to implement specific Building Operations measures.

In the 4th quarter the City signed its fourth Environmental Upgrade Agreement for a commercial office building in Surry Hills. This upgrade is estimated to deliver carbon emission reductions of 850 tonnes per annum once completed. The City recognises that the EUA finance mechanism can be improved and has been working with the NSW Government and key stakeholders to address issues and barriers to its uptake.

The City strongly advocated for the continuation and expansion of the Commercial Buildings Disclosure Act that the Federal government has been reviewing in the last six months. Learning from our engagement with tenants and building owners through our CitySwitch and Mid-Tier pilot programs the City believes that mandatory disclosure of building performance is a necessary and effective means to achieve significant environmental performance gains (and reduced operating costs) for building owners and tenants.

The City's first Sector Sustainability Plan has been developed and this Residential Apartments Sustainability Plan publicly exhibited. The ten year plan recommends 30 strategic actions from a direct action retrofit program to capacity building workshops and advocacy to state and federal governments for critical policy changes to drive significant improvements, in line with Sydney 2030 targets.



Sydney2030/Green/Global/Connected

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Residential Apartments Sustainability Plan

A plan to achieve environmental performance in new and existing apartment buildings

August 2015

Reference: 2015/326562-01 Final August 2015

city of villages

Overview – Sustainability programs

| Sector | Project Name | Stage | Status | Start | End |
|--|--|----------|--------|--------|----------|
| Business | Smart Green Business – Phase III | Underway | | Jul-13 | Jun-16 |
| - 22,000 businesses - 80 per cent are Small to Medium Enterprise | CitySwitch Green Office – National | Underway | | Jul-08 | Jun-18 |
| | CitySwitch Green Office - Sydney | Underway | | Jul-08 | Jun-18 |
| | Better Buildings Partnership | Underway | | Mar-11 | Jun-16 |
| | Environmental Upgrade Finance Service | Underway | | Dec-11 | on-going |
| Residential | Smart Green Apartments (Buildings) – Phase I | Underway | | May-11 | Jun-15 |
| 200,000 population 2/3 live in apartments 50 per cent rent and High transient levels 10 per cent social housing | Green Villages | Underway | | Oct-10 | on-going |
| | Green Living Centre | Underway | | Sep-09 | Jun-17 |



The <u>Smart Green Business Program</u>, run in partnership with Sydney Water assists non-office based businesses in the local government area to improve environmental performance. During the first four years (to June 2013) the program assisted 366 small to medium sized businesses.

Phase III of this program commenced in July 2013 to support medium to large non-office based businesses with an initial focus on the accommodation sector. The program provides hands on sustainability advice and implementation support for water and **waste** reduction and provides referral to State energy efficiency programs.

In quarter's three and four, the Smart Green Business Program recruited **18** businesses, completed **17** water and **18** waste audits. This brings the total for the year to **99** businesses joining the program.

Waste outcomes have improved, achieving a total of **1,517** Tonnes per annum diverted from landfill and delivering **1,950** tonnes of carbon emissions saved per annum during Q3 and Q4. The average operating cost savings made by businesses implementing projects is **\$10,000** per year.

During quarter three, one of the program customers, the Shangri La, implemented all water recommendations that had been identified through the audit process. This has resulted in the Shangri-La achieving yearly savings of 25 mega-litres of water, 305 megawatt hours and 100 tonnes of greenhouse gas emissions, which mean that they enjoy reduced operating costs estimated to be \$95,000 per annum.

| | Q3 2014/15 | Q4 2014/15 | 2014/15 target | Year to date | Program to date |
|---|---------------|---------------|-------------------|-----------------|--------------------|
| Businesses Recruited | 10 | 8 | 121 | 99 | 178 |
| Businesses Implementing | 34 | 12 | 0 | 114 | 160 |
| Potable water savings implemented (ML per year) | 66 | 17 | 275 | 295 | 620 |
| Waste diverted from landfill (Tonnes per year) | 0 | 1,517 | 4,481 | 3,991 | 5,510 |
| Energy savings implemented (MwH per year) | 570 | 149 | 200 | 2,394 | 5,262 |
| Greenhouse gas emissions saved (tCO ₂ -e per year) | 227 | 1,723 | 3,795 | 5,140 | 8,345 |

CITY SWITCH (National)

GREEN OFFICE

<u>CitySwitch Green Office</u> is a national office tenant energy efficiency program run in partnership with the cities of Sydney, North Sydney, Willoughby, Adelaide, Perth, Melbourne and the national partner: Net Balance Foundation. The program is also supported by the NABERS national administrator: the Office of Environment and Heritage (NSW). The City of Sydney is the national administrator.

The program provides advice, resources and recognition to participants who commit to achieving highly energy efficient offices as measured by the NABERS Energy rating system.

By the end of the 2014/15 year the CitySwitch program has engaged with 544 businesses across the greater metropolitan centres of Sydney, Melbourne, Perth and Adelaide, who in turn had registered 719 office tenancies to the program across Australia. In December 2014 the program had evidenced over 86,000 tonnes of carbon abatement and \$14.4 million in energy cost savings achieved by its businesses through the year.

In the last quarter of the year a new signatory business directory was launched to help further identify members and increase the public acknowledgement and recognition of CitySwitch awards. In May, the national program completed its successful two year partnership with the Net Balance Foundation, which had been funded by the federal government to extend CitySwitch resources and tools and to service small and medium sized businesses across regional and urban areas of Australia.

Upon the completion of this partnership the program has had to stop direct service to signatory businesses in Queensland, the ACT and in regional areas. However these businesses will continue to have access to digital resources provided through the CitySwitch web site. By June 2015 program funding partners had committed to continuing the program for a further three years with an updated vision and service focus. This will mean that CitySwitch will provide support to businesses on issues beyond energy efficiency. Issues such as renewable energy and other emission reduction options, waste, health and economic productivity topics will now be supported.

| Performance | Q3 2014/15 | Q4 2014/15 | 2014/15 target | Year to date | Program to date |
|---|---------------|---------------|-------------------|-----------------|--------------------|
| Signatories (#) | 16 | -27 | 230 | 79 | 544 |
| Tenancies (#) | 47 | 17 | 230 | 121 | 719 |
| Office floor Space - NLA (m ²) | 375,589 | 119,436 | 1,152,129 | 560,957 | 2,874,273 |
| Office floor space as proportion of Council areas (per cent) | 17.5 | 18.4 | 20 | 18.4 | 18.4 |
| Average NABERS energy rating (stars) ²² | 3.8 | 3.8 | 4.5 | 3.8 | 3.8 |

²² Average NABERS ratings estimated from the 33 per cent of tenancies that have reported their NABERS rating.

Please note: The table may include adjusted totals to reflect records updated Visit <u>www.cityswitch.net.au</u> or click on the 2030 button at left for more.

CitySwitch Green Office (Sydney)

In the City of Sydney, the <u>CitySwitch Green Office</u> aspirational targets are that by June 2015 the program will have engaged with more than 20 per cent of the city's commercial office space, being 980,547 square meters, and have delivered an annual CO_2 reduction of 54,000 tonnes.

By the end of the 2014/15 year the CitySwitch program was actively engaging 106 businesses in Sydney, to deliver information and personal support to assist businesses in their commitments to improve their energy efficiency.

As measured in December 2014 the average energy efficiency of Sydney businesses within the program was 4.1 stars using the National Australian Built Environment Rating Scheme against a target of 4.5 stars. By being so efficient these businesses collectively had reduced their annual carbon emissions by 58,400 tonnes.



Image: CitySwitch Workshop



Through the quarterly Cafe Series events and supporting workshops signatories were engaged on the benefits of best-practice leasing, an overview of the current climate change political context and how businesses can show leadership in this environment.

The program also ran a webinar launching a new CitySwitch tool aimed at helping businesses to assess and prioritise carbon abatement initiatives and a webinar developed in conjunction with Monash University on how to create and maintain successful internal sustainability teams. In total, 228 individual businesses attended CitySwitch events held over the course of the year.

| Performance | Q3 2014/15 | Q4 2014/15 | 2014/15 target | Year to date | Program to date |
|---|---------------|---------------|-------------------|-----------------|--------------------|
| Signatories (#) | -2 | 2 | 12 | 9 | 107 |
| Tenancies (#) | 2 | 2 | 12 | 13 | 135 |
| Office floor space (NLA -m ²) | 46,691 | 943 | 986,994 | 63,211 | 999,798 |
| Office floor space as proportion of Sydney (per cent) | 20 | 19 | 20 | 19 | 19 |
| Average NABERS energy rating (stars) ²³ | 4.1 | 4.1 | 4.5 | 4.1 | 4.1 |

²³ Average NABERS ratings estimated from the 33 per cent of tenancies that have reported their NABERS rating.

Please note: The table above may include adjusted totals to reflect signings late in previously reported quarter. 58

Better Buildings Partnership

The <u>Better Buildings Partnership</u> (BBP) is a collaborative partnership with Sydney's leading commercial building owners committed to assisting the City to meet its Sydney 2030 objectives. The Partnership plays an important role in developing and advocating for solutions to key issues and helps unlock improvements to environmental performance in the commercial building sector and connect to the City's green infrastructure plans.

The Partnership is directed by a Leadership Panel, consisting of the sustainability managers of the founding members, and delivers solutions as agreed in an annual work plan defined by its members.

During the financial year ending June 2015 the Better Buildings Partnership, a collaboration of Sydney's leading institutional landlords that together own or operate more than 50% of the commercial office space in the City Centre, announced that it was halfway to the Sydney 2030 70% carbon emissions reduction target. By being so carbon efficient the owners are collectively saving more than \$30 million every year from avoided electricity costs, from a baseline of 2006.

The Partnership released major research and tools in three key areas. Best practice leasing is a means to ensure great collaborate relationships between the tenants and landlords of office buildings that enable both parties to seek and implement environmental performance improvements. The partnership has defined new industry standards and commenced training industry professionals to promote the uptake of these lease clauses.

The partnership has also evidenced that nearly two-thirds of current leases for tenants in the City Centre include green clauses, which is double the amount of tenants since the partnership began its work in this area. The partnership has released research that indicates that more than 80% of the fixtures and fittings from a tenancy are sent directly to landfill at the end of a tenancy term within commercial office buildings. This standard practice results in a significant environmental impact and lost opportunity.

Fortunately the partnership also evidenced through two trials that more than 60% of the fitout waste can be either reused or recycled, and has developed guidelines to assist members to achieve this best practice in the future.



The partnership also launched an operational

waste guideline that clarifies the procurement, reporting and management of waste and recycling from building operations. The work has been well received by industry as the new standard for data reporting and is now being integrated into industry rating systems.

The partnership was awarded the Banksia Foundation innovator of the year in November 2014 recognising the work in best practice leasing, and was highly commended for its collaborative progress toward sustainability through its collective impact model by the New South Wales Office of Environment and Heritage's Green Globe awards.

| Performance | Q3 2014/15 | Q4 2014/15 | Year to date | Program to date |
|--|---------------|---------------|-----------------|--------------------|
| Commercial office building floor space participating in Sydney CBD (per cent) | 51 | 51 | 51 | 51 |
| Members – | | | | |
| Founding (#) | as prev | as prev | 13 | 13 |
| Ordinary (#) | as prev | as prev | 2 | 2 |
| Associate (#) | as prev | as prev | 8 | 8 |
| NABERS energy rating (stars) ²⁴ | | | 4.3 | 4.3 |

²⁴ Average NABERS ratings reported from December 2014 figures

click on the icon at left.



Environmental Upgrade Finance

The City's environmental upgrade finance scheme is part of the NSW Government's recently introduced Environmental Upgrade Agreements (EUA), which allows councils to enter into agreements with property owners and finance providers in order to fund works aimed at improving the energy, water or environmental efficiency of their building.

Environmental upgrade finance also allows the cost of an upgrade to be shared with the tenant. Under the agreement, a building owner may pass on part of the cost of the upgrade to the tenant providing the amount does not exceed the financial saving that the tenant will benefit from as a result of the upgrade. This means that tenants can enjoy the benefits of an environmental upgrade in the short-term and operating cost savings in the long-term.

During the 2014/15 year the City signed its fourth Environmental Upgrade Agreement for a commercial office building in Surry Hills. This upgrade is estimated to deliver carbon emission reductions of 850 tonnes and \$189,000 worth of energy cost savings per annum once completed.

The City continued to build capacity in the market for the Environmental Upgrade Agreement service by holding 77 stakeholder meetings to discuss the service and potential projects; Delivering an online and print advertising campaign in industry publications; Delivering 6 presentations and workshops to over 300 people representing 184 companies/businesses; and publishing a case study for the 169 Phillip Street, Sydney Environmental Upgrade Agreement.

The City also assisted 7 building owners during the year who either were or are actively pursuing Environmental Upgrade Finance to upgrade their buildings.

The City has also completed 2 pilot services for energy monitoring and building tune ups for privately owned commercial office buildings (mid-tier). These have yielded valuable information to the City on the potential for these building owners to improve their buildings' environmental performance.

The owners participating in the pilots implemented energy and water audit recommendations saving 168 Tonnes Greenhouse Gas emissions and over 3 Mega litres potable water annually.

The City has coordinated industry and government agencies to tailor existing training courses and resources to include specific sustainability skills and knowledge development for contractors, facility and property managers who engage with privately owned commercial buildings in the City.

The City has advocated for a national focus in facilitating improved environmental performance in the privately owned commercial office buildings sector. The City has been supporting a national pathway for sustainability action through an initiative led by the Green Buildings Council of Australia. The City also used its learning in this sector to support Council's submission to the Federal government on their review of the Commercial Buildings Disclosure Act.

| Performance | Q3 2014/15 | Q4 2014/15 | Year to date | Total to date |
|---|---------------|---------------|-----------------|------------------|
| EUAs signed (#) | 0 | 1 | 1 | 4 |
| Total funds advanced for all signed EUAs (\$M) | 0 | 1.2 | 1.2 | 30.4 |
| Estimated emission reductions from signed EUAs (tonnes p.a) | 0 | 850 | 850 | 9,469 |



For more information visit <u>www.cityofsydney.nsw.gov.au</u> or click on the 2030 icon at left for the City's Guide to EUA.



The City of Sydney's <u>Smart Green Apartments program</u> works to create a more sustainable apartment building sector by inspiring, driving and supporting greener, more cost effective and efficient buildings, minimising environmental impacts and improving liveability in strata communities.

The program continues to support the 30 original Smart Green Apartments buildings and other buildings registering interest to improve their environmental performance through its Leadership Network, linking our buildings into the City's environmental grants and Smart Blocks information resource. Sixty nine buildings registered for SGA program updates in 2014/15, 29 of those registered in the last two quarters of the year.

The Smart Green Apartment Leadership Network is a forum for apartment owners and their managers to meet and share their sustainability experience. The City hosts quarterly network meetings and develops case studies on sustainability topics relevant to apartment buildings.

The December meeting focussed on waste reduction and presented the outcomes from the City's e-waste collection trial in six apartment buildings which in its first year (Jan-Nov 2014) recovered 15,727 kgs of e-waste for recycling. The February meeting saw 38 apartment building residents and building managers learn more about how to install solar on their buildings at the Solar for Strata meeting. The May meeting focused on how Building Management Systems can help strata stakeholders better manage their energy and water consumption and was attended by 30.

Smart Blocks is an online resource offering support to buildings to implement energy efficiency projects. Nationally 587 buildings have registered with Smart Blocks, 67 of these buildings are located within the City of Sydney LGA. Of these 67 buildings, 10 have completed energy efficiency projects utilising the Smart Blocks resource. A formal evaluation of the Smart Green Apartments has confirmed significant achievements for the 30 Phase 1 Pilot buildings. The projects being implemented in the 30 buildings represented annual greenhouse gas savings of approximately 2,627 tonnes-CO2e for completed projects and 564 tonnes-CO2e for projects in progress. The program identified apartment buildings can on average, reduce 30 per cent of energy and 26 per cent of water consumption through current efficiency measures, saving on average over \$70,000 per building, per year.

The City's draft Residential Apartments Sustainability Plan has now been publicly exhibited. This ten year plan targets greenhouse gas and water reductions in the apartment sector, reducing consumption of up to 40 per cent and 7 per cent respectively, as well as seeing up to 70 per cent of waste diverted from landfill by 2021. The draft plan recommends 30 strategic actions from a direct action retrofit program to capacity building workshops and advocacy to state and federal governments for critical policy changes to drive significant improvements in environment outcomes for new and existing buildings.

| Performance | Q3 2014/15 | Q4 2014/15 | Year to date | Program to date |
|--|---------------|---------------|-----------------|--------------------|
| New buildings registering interest (#) | 25 | 4 | 69 | 169 |
| Total buildings participating (#) | no new | no new | 30 | 30 |
| Average emission reductions identified per building (tC0 ₂ e pa) | no new | no new | 268 | 268 |
| Energy action plan recommendations implemented or in progress across all buildings (per cent) | no new | no new | 40 | 40 |





The <u>Green Villages</u> program works to drive, build and celebrate sustainable villages through the development of local sustainability programs, events and resources.

Over the year the Green Villages program attracted **598** participants to a total of **21** workshops meeting our annual engagement targets. The **8** workshops held during January to June were delivered through a City of Sydney Library and Green Villages partnership engaging with over **253** households. The partnership has broadened an already successful libraries program calendar and has seen Green Villages reaching new audiences.

Green Villages engagements covered sustainable food, waste avoidance and other green lifestyle topics. Worm Farming and Composting workshops continue to be very popular, with year, 88 composting units were distributed to City households.

In Q4 a Conscious Consumer workshop was delivered in partnership with Ethical Consumers Australia at Waterloo Library. The workshop attracted 44 participants and featured two guest panellists sharing their personal experiences and top tips for making a difference through everyday decisions with an emphasis on food and fashion.

Overall satisfaction with the workshops run during Q3 and Q4 was consistently high, with 86 per cent of survey respondents rating the workshop as "excellent" or "very good". The effectiveness of workshops as a catalyst to drive behaviour change is evident, with 87 per cent of survey respondents reporting having undertaken at least one new action since attending the workshop.

In May expanding on our digital engagement platforms the Green Villages web portal developed a new interactive video tutorial: '*How to start a worm farm in 4 steps: Vermiculture made easy*'. This represents a new delivery format for Green Villages, specifically tailored to time-poor residents who are more likely to engage online. The video has had nearly 6,000 views and positive feedback.

Green Villages continues to reach a broad audience with @greenvillagesyd named as one of the most influential twitter accounts in Sustainability nationally, based upon engagement and audience.

| Performance | Q3 2014/15 | Q4 2014/15 | Year to date | 2014/15 target |
|---|---------------|---------------|-----------------|-------------------|
| Workshops and forums (#) | 4 | 4 | 21 | 21 |
| Participants (#) | 104 | 149 | 598 | 630 |
| Participants implementing (%) ²⁵ | 79 | 94 | 93 | 85 |
| Green Villages website sessions (#) | 29,296 | 32,702 | 106,759 | 110,000 |
| e-news subscribers (# current) | 13,936 | 13,212 | 13,212 | 14,000 |
| e-news open rate (%) | 27.9 | 28.5 | 27.2 | 28 |



For more, visit <u>www.greenvillages.com.au</u> or click on the icon at left for a series of Green Villages videos.

²⁵ Implementation rate for participants three months post workshop

Green Living Centre

The <u>Green Living Centre</u> is a sustainability 'drop-in' information and education hub located on King St, Newtown. The centre is a partnership between the City of Sydney and Marrickville Councils committed to reducing the carbon footprint of the Newtown precinct in line with a 70 per cent reduction by 2030, based on 2006 levels.

During 2014/15 the Green Living Centre commenced delivery of a new three year Program Plan for 2014-17 aiming to increase awareness of low carbon living in the community and number of residents and businesses implementing solutions to reduce their carbon footprint.

Over the year the Green Living Centre has delivered 49 community engagements attended by 923 participants. In the first half of the year, the centre undertook program development work to create new Low Carbon programs for the Newtown precinct. This included: developing a carbon baseline for the precinct, conducting research on local community needs and attitudes, and commencing a community dialogue on Low Carbon Living.

The centre commenced its Low Carbon Food campaign *Newtown Eats* in Q3, in response to community feedback and research conducted Q2. This campaign ran from January to June, and focussed on raising awareness of low carbon food systems. It comprised 21 engagements attracting 377 participants.

The campaign was launched with a Low Carbon community dinner for Earth Hour, which aimed to initiate community conversations on Low Carbon food systems. The centre has also completed content for *Newtown Eats* local food guide currently in production. The guide uses the voices of Newtown to showcase low carbon food choices available in the local area.

The centre has commenced planning and developing partnerships for the Low Carbon Energy campaign and programs due to commence Q1 2015/16.

| Performance | Q3 2014/15 | Q4 2014/15 | Year to date | 2014/15 target |
|--------------------------------|---------------|---------------|-----------------|-------------------|
| Workshops and events (#) | 12 | 9 | 49 | trend |
| Participants (#) | 127 | 236 | 923 | 1,000 |
| Shop front visitors (#) | 905 | 1,151 | 3,838 | 3,500 |
| e-newsletter subscriptions (#) | 1,382 | 1,401 | 1,401 | trend |



Image: Newtown Eats community dinner for Earth Hour.

Environmental Grants

Environmental initiatives are supported by a number of grants and sponsorships from the City of Sydney. Through the grants and sponsorships program, the City aims to enable our residents and businesses to improve their own environmental performance.

Late in 2014 Council adopted a new Grants and Sponsorship policy that includes three new environmental grant programs. These grant programs have been designed to help address barriers to action and to help catalyse the innovative solutions that will be required to deliver Sydney 2030.

The grant programs are:

- Environmental Performance Innovation: in which funding is available for feasibility and demonstration projects which seek to prove the feasibility of new technologies that are currently not implemented in the local market, but that have the potential to achieve greenhouse gas emission reductions and resource efficiencies at scale within the City of Sydney;
- Environmental Performance Building Operations: in which funding is available to help lower the costs of implementing building operation efficiency measures, such as water retrofits in apartment buildings;
- Environmental Performance Ratings and Assessments: in which funding is available to undertake building performance ratings, such as a National Australian Built Environment Rating System (NABERS), and assessments that will enable a building or facility owner to understand their opportunities to improve environmental performance.

Applications for the Environmental Performance Grant Programs are open all year round.

A total of nine projects were supported by the City under the new Environmental Performance Grants between January and June 2015

Environmental Performance – Innovation

- Strata Plan 68853: BotanyCope Solar
- Investment Advantaged Software Pty Limited: Virtual Energy Assessments
- Planet Ark Environmental Foundation: Coffee 4 Planet Ark
- Sydney Renewable Power Company Limited: Sydney Renewable Power Company
- Talent with Energy Pty Ltd: Bay St Depot Renewable Hydrogen Refuelling Station - Feasibility Study

Environmental Performance - Building Operations

Strata Plan 67253: Water sub-metering

Environmental Performance - Ratings and Assessments

- The Trustees for Hunt's Service Trust: Hunt & Hunt
- Strata Plan 52659: Rockwall Apartments Energy Efficiency
- Maps Hotels and Resorts Sydney 1 Pty Ltd: NABERS Energy Rating



For more information click on the 2030 icon at left.

Attachments

The following attachments provide further information about planned data capture, KPI development and explanations to graphs.



Image: St. James Park

1. Planned data capture

| | City of Sydney (internal) | | Local Government Area (LGA) | | |
|---|--|---|--|--|--|
| | Current Status | Forward Plan | Current Status | Forward Plan | |
| Greenhouse gas emissions from electricity | Reporting underway from STEvE. Electricity currently is reported quarterly in arrears. Data provided by Ausgrid and checked against sub-metering at significant energy consuming sites. | Allocate consumption to relevant organisation business units. Electricity to be monitored in real time for ~ 90 per cent of sites. Remaining ~10 per cent of sites are to be estimated with actual data updated quarterly in arrears. | Reported through the Kinesis CCAP reporting tool which includes data from the electricity and gas networks and other sources. | Continue to monitor and report. Include data in Environmental Sustainability Reporting Platform currently being tendered. Platform projected to be in place 2015/16. | |
| Greenhouse gas emissions from natural gas | The City's larger gas usage sites are currently monitored in real time for all sites. Real time meters have been installed at Cook & Phillip Park Pool and the Ian Thorpe Aquatic Centre. For all other sites, gas data is reported quarterly in arrears. Additionally gas account data (usage) may be estimated in cases where they cannot read meters. | As above | As above | As above | |

1. Planned data capture (cont.)

| | City of Sydney (organisation) | | City of Sydney LGA | |
|--|---|--|--|--|
| | Current Status | Forward Plan | Current Status | Forward Plan |
| Greenhouse gas emissions from other sources | Emissions sources including flights, taxis, contractor fuel, onsite fuel usage, events and refrigerants are added to STEvE quarterly | In place. Refinements to this process to continue. | As above | As above |
| Installed co/tri generation and renewable energy | The City does not have co/tri generation installed to date, but has a record of installed solar power capacity and estimated annual output. | Install sub-metering to all new co/tri generation (dependent on site) and renewable energy to ensure it is reported | Information about renewable energy installations is available through the Clean Energy Regulator. The Australian PV Institute have developed a solar map with funding through ARENA at <u>http://pv-map.apvi.org.au/</u> Currently there is no formal mechanism in place for tracking installed co and trigeneration systems however the City of Sydney has developed a map at <u>http://tiny.cc/TrigenerationSydney</u> | Develop a formal system to report on cogeneration, trigeneration and renewable energy installed within the local government area. |

1. Planned data capture (cont.)

| | City of Sydney (organisation) | | City of Sydney LGA | | |
|--|--|--|---|--|--|
| | Current Status | Forward Plan | Current Status | Forward Plan | |
| Water | Currently reporting mains water consumption by category quarterly in arrears through STEvE. | Further details to be defined as part of the Decentralised Water Master Plan. Progress towards water intensity target/s in Parks to be monitored through Performance Planning. Audit of non-mains water use data capture scheduled by end 2015. Actions to ensure accurate data capture to be determined as part of audit process. | Reporting mains water consumption annually only. No existing process for accurately capturing and reporting non-mains water consumption. Data for LGA mains water usage available annually only. | Further details to be defined as part of the Decentralised Water Master Plan, including process to track estimated progress towards water quality target through modelling | |
| Waste | Limited organisational waste reporting available. Current reporting does not include recycling rates. | Further options for refining organisation waste reporting being investigated with the waste contractor in 2012/13. | LGA waste data available and reported in the Corporate Plan. | Further data being defined as part of the Advanced Waste Treatment Master Plan | |
| Greening Sydney | Organisational reporting currently not centralised | All data collected for this report to be collated through Performance Planning system | Canopy cover measured sporadically | Canopy cover to be measured more consistently | |
| Sustainabi lity Program - reporting outcomes | The Green Champions Program currently reports predominantly qualitative data. | From Q3 2013/14 the Green Champions program utilise enhanced STEvE reporting to enable reporting of quantitative results following implementation of initiatives. | A standard reporting framework has been adopted across the sustainability programs, which has been designed taking key elements from the Outcomes Hierarchy and Results Based Accountability methodologies. | The segmentation model developed will be used as a key input into the evaluation of programs. The scope and format for program reporting will continue to be assessed in- line with the review of City reporting requirements. The ability to set sector by sector environmental targets will be assessed when sustainability master planning work is complete. | |

2. Glossary of terms

| Source | Description |
|---|--|
| Annual Carbon Inventory | Internal database developed by the Sustainability Unit summarising annual greenhouse gas emissions from all City of Sydney assets and activities (buildings, street lighting, parks & other) resulting from consumption of electricity, gas and fuel and other sources. |
| City of Sydney Environmental Management Plan 2007 | The City of Sydney Environmental Management Plan established the City's environmental vision, goals, targets and actions for 2007-2017 years and beyond. It addressed the themes of energy emissions, water, waste, plants and animals. The targets have now been met or superseded by those in Sustainable Sydney 2030 or the City's incremental targets, approved by Council. |
| Performance Planning | Performance Planning (PP) is a TechnologyOne product that stores measures, projects and targets. Data can be imported or manually entered depending on the source. Managers are responsible for ensuring accuracy of the data. PP also contains Corporate Plan KPI's and projects. |
| STEvE (System for Tracking EVerything Environmental) | STEvE (the System for Tracking EVerything Environmental) is a Utilities Information Monitoring System that records energy usage by directly extracting consumption data from relevant authorities (Ausgrid, Sydney Gas and Sydney Water), and applies appropriate conversion factors to determine GREENHOUSE GAS emissions. The benefit of STEvE is that is has access to real time usage through direct interface with the appropriate energy supply authorities. This allows for real time monitoring and reporting of energy consumption. Currently only electricity is being reported in real time, with approximately 90 per cent of usage recorded via smart meters - the remaining 10 per cent of usage is estimated based on historical data, and updated with actual data quarterly in arrears. Gas and water consumption are currently reported quarterly in arrears. |
| Potable water | Water that is of drinking water quality for use in bathrooms, kitchens and for consumption. |
| Non potable water | Water that is not of drinking water quality. Uses include laundry, gardening, car washing, cooling towers and so on. Recycled water is for non-potable use. |
| National Greenhouse Accounts (NGA) Factors | Published by the Department of Climate Change " <i>The National Greenhouse Accounts (NGA) Factors</i> " has been prepared by the Australian Government and is designed for use by companies and individuals to estimate greenhouse gas emissions for reporting under various government programs and for their own purpose. |

2. Glossary of terms

| Source ²⁶ | Description |
|-------------------------------------|--|
| Scope 1 GREENHOUSE GAS emissions | Emissions directly occurring "from sources that are owned or controlled by the institution, including: on-campus stationary combustion of fossil fuels; mobile combustion of fossil fuels by institution owned/controlled vehicles; and "fugitive" emissions. Fugitive emissions result from intentional or unintentional releases of greenhouse gases, including the leakage of hydro fluorocarbons from refrigeration and air conditioning equipment". |
| Scope 2 GREENHOUSE GAS emissions | Indirect emissions generated in the production of electricity consumed by the institution. Scope 2 emissions physically occur at the facility where electricity is generated. |
| Scope 3 GREENHOUSE GAS emissions | All the other indirect emissions that are "a consequence of the activities of the institution, but occur from sources not owned or controlled by the institution" such as commuting, air travel for university activities, waste disposal; embodied emissions from extraction, production, and transportation of purchased goods; outsourced activities; contractor owned- vehicles; and line loss from electricity transmission and distribution". |
| State of the Environment Report | City of Sydney publication detailing the city and Local Government Area's environmental landscape and strategic approaches and initiatives to managing energy and emissions; sustainable transport; water; waste; plants and animals, land and noise. |
| Sustainable Sydney 2030 | City of Sydney publication that sets the 2030 vision for the city aligned to the strategic priorities of Green, Global & Connected. Sets the direction, defines at the road map and articulates the step changes required to achieving a more sustainable future. |

²⁶ Source for Scope 1, 2 and 3 GHG Emissions: The Greenhouse Gas Protocol (2004) Published by: World Business Council for Sustainable Development, World Resource Institute
3. Solar PV installations

| | Location | Status |
|----|---------------------------------------|----------------------|
| 1 | Bay Street Depot | Installation pending |
| 2 | 343 George Street | Installed |
| 3 | Abraham Mott Gymnasium | Installed |
| 4 | Alexandria Park Changing Rooms | Installed |
| 5 | Alexandria Child Care Centre | Installed |
| 6 | Alexandria Town Hall | Installed |
| 7 | Andrew Boy Charlton Pool | Installed |
| 8 | Bourke Street Depot | Installed |
| 9 | Epsom Road Depot | Installed |
| 10 | Erskineville Oval | Installed |
| 11 | Erskineville State Emergency Services | Installed |
| 12 | Erskineville Town Hall | Installed |
| 13 | Glebe Town Hall | Installed |
| 14 | King George V Recreation Centre | Installed |
| 15 | Mountain St | Installation pending |
| 16 | Paddington Town Hall | Installed |
| 17 | Pine Street Creative Arts Centre | Installed |
| 18 | Pirrama Park | Installed |
| 19 | Redfern Community Centre | Installed |
| 20 | Redfern Oval Grandstand | Installed |
| 21 | Redfern Town Hall | Installed |
| 22 | Surry Hills Community Centre | Installed |
| 23 | Sydney Park CARES Facility | Installed |

| 24 | Sydney Park Nursery | Installed |
|----|-------------------------|-----------|
| 25 | Sydney Park Pavilion | Installed |
| 26 | Sydney Town Hall | Installed |
| 27 | Tote Building | Installed |
| 28 | Ultimo Community Centre | Installed |
| 29 | Victoria Park Pool | Installed |
| 30 | Waterloo Library | Installed |

Solar hot water installations

| | Location | Status |
|----|-----------------------------------|-----------|
| 1 | Abraham Mott Hall | Installed |
| 2 | Alexandria Child Care Centre | Installed |
| 3 | Bourke Street Depot | Installed |
| 4 | Jane Evans Day Centre | Installed |
| 5 | Juanita Nelson Community Centre | Installed |
| 6 | King George V Recreation Centre | Installed |
| 7 | Kings Cross Neighbourhood Service | Installed |
| , | Centre and Library | motaned |
| 8 | Pyrmont Community Centre | Installed |
| 9 | Redfern Community Centre | Installed |
| 10 | Rosebery Child Care Centre | Installed |
| 11 | State Emergency Service Facility | Installed |
| 12 | Ultimo Community Centre | Installed |

4. Demographics

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|
| Residents ²⁷ (#) | 154,073 | 159,854 | 165,596 | 170,173 | 173,444 | 177,920 | 180,679 | 183,281 | 187,690 | 191,918 | 195,929 |
| Workers (# per day) ²⁸ | 350,000 | 365,000 | 377,000 | 385,413 | 405,230 | 417,645 | 418,478 | 424,960 | 438,492 | 442,256 | 447,563 |
| Visitors (# per day) ²⁹ | 450,000 | 475,000 | 475,000 | 480,000 | 475,000 | 475,000 | 480,000 | 483,000 | 500,000 | 510,000 | 520,000 |
| Visitors (# total - nights) ³⁰ | 8,732,065 | 9,000,032 | 9,039,918 | 9,462,835 | 9,519,826 | 9,358,668 | 9,804,849 | 10,096,232 | 10,004,209 | 10,050,000 | 10,100,000 |

Please note – this table was last updated in this reporting period to include 2014 data and adjust some previously estimated data.

³⁰ Estimate based on ABS Small Area Accommodation Statistics, adjusted for National and International Visitor Survey data obtained from Tourism Research Australia.

²⁷ Estimated resident population (ERP) figures have been sourced from ABS publication *Regional Population Australia (ABS Cat no 3218)* released in April 2014. Figures reflect ERP as at the end of June for each year shown. ERP for June 2014 have not been released. Estimate based on completions and unit mix for 2013-14.

²⁸ Estimate based on net absorption growth and change in vacancy rate revealed by Property Council Office market report.

²⁹ Estimate based on trend changes in city users based on employment and population change. However, visitors per day does not include residents or workers but others who shop, study or travel to the City for business, social or recreational purposes.

5. Definition of Organisational Key Performance Indicators

| KPI Name | KPI Description | Data source | Business Unit | Calculation | Unit of Measure | Frequency | Additional info |
|---|---|---|--------------------|---|------------------------------|----------------------------------|---|
| | Statement of what the KPI is actually measuring | Where do we obtain and record this data? | Principal owner | Measure, numerator, denominator | percentage / number / etc | monthly/ quarterly/ annual | i.e. What does the KPI include / exclude? Comments on history. |
| Organisational Greenhouse gas emissions | Greenhouse gas emissions derived from all City of Sydney assets: buildings, parks, street lighting, fleet, events, taxis, flights and other minor sources. | Utilities billing data and other sources. | Sustainability | Combination of greenhouse gas emissions from gas, electricity and fuel consumption for the following categories (detailed separately) - Buildings - Parks - Street Lighting - Fleet - Other | Tonnes CO ₂ | Annual / quarterly | Includes greenhouse gas emissions from electricity, gas and fleet fuel usage across all City of Sydney assets. |
| Organisational Water Consumption | Quarterly water consumption of CoS sites including: Parks and public domain Commercial Operations Community Aquatic facilities | STEvE (collected through smart meters, meter readings and estimates) | Property | Combination of water consumption from CoS sites including: Parks and public domain Commercial Operations Community Aquatic facilities | ML | Annual / Quarterly | Some estimation is included in quarterly reports and updated in the following quarter. |

| KPI Name | KPI Description | Data source | Business Unit | Calculation | Unit of Measure | Frequency | Additional info |
|---|--|--|--------------------|--|--------------------|-----------|---|
| LGA Mains Water Consumption | Annual water consumption of the LGA | Sydney Water | City Strategy | - | MegaLitres (ML) | Annual | Sydney Water sends total LGA water consumption to Council at the end of financial year. Quarterly consumption information is not available. |
| LGA Domestic Waste | Domestic waste for the LGA broken down to : Kerbside recycling Waste delivered to AWT Waste to landfill Other | Unit records – (domestic Waste master) | City Operations | Combination of major types of domestic waste for the LGA: Kerbside recycling Waste delivered to AWT Waste to landfill Other (including hazardous & e-waste, white goods, garden organics and household clean-up material). | Tonnes | Quarterly | |
| LGA Domestic Waste Resource Recovery Rate | Amount of waste diverted from landfill including: Recycling, White Goods, Garden Organics, E-waste and material recovered through AWT processing. Shown as a percentage of the total domestic waste generated. | Processing/disposal facilities (where the waste is received) | City Operations | [Waste Diverted from Landfill] / [Total Waste] | Percentage | Quarterly | |

6. Definition of Sustainability Programs Key Performance Indicators (as at June 2015)

| Program Name | KPI Name | KPI Description | Data source/Calculation | Reported | Unit of Measure | 2014/15 ann. target |
|------------------------|-----------------------|--|--|--------------------|---------------------------------|------------------------|
| City Switch (National) | Signatories | Number of signatories in program | CitySwitch CRM system. (target NLA – current NLA)/5000sqm = target | Currently reported | Number | 230 |
| | Tenancies | Number of tenancies associated with signatories in program | CitySwitch CRM system. Count of signatories in each State (target NLA – current NLA)/5000sqm = target | Currently reported | Number | 230 |
| | Net lettable area | Square meters of office floor space (net lettable area) in the program | CitySwitch CRM system. Count of reported NLA | Currently reported | Square meters (m ²) | 1,152,219 |
| | Net lettable area | Percentage of commercial office floor space (net lettable area) in program as percentage of total office floor space in LGA | (NLA (m2) in program/NLA (m2) total in LGA)*100 | Currently reported | Percentage | 20 |
| | Average NABERS Rating | Average NABERS rating of all tenancies in program | Weighted average from annual progress report | Currently reported | Stars | 4.5 |
| | Signatories | Number of signatories in program | (target NLA – current NLA)/5000sqm = target | Currently reported | Number | 12 |
| | Tenancies | Number of tenancies associated with signatories in program | (target NLA – current NLA)/5000sqm = target | Currently reported | Number | 12 |
| City Switch (Sydney) | Net lettable area | Square meters of office floor space (net lettable area) in the program | CitySwitch CRM system. Count of reported NLA | Currently reported | Square meters (m ²) | 59,907 |
| | Net lettable area | Percentage of commercial office floor space (net lettable area) in program as percentage of total office floor space in LGA | (NLA (m2) in program/NLA (m2) total in LGA)*100 | Currently reported | Percentage | 20 |
| | Average NABERS Rating | Average NABERS rating of all tenancies in program | Weighted average from annual progress report | Currently reported | Stars | 4.5 |

| Program Name | KPI Name | KPI Description | Data source/Calculation | Reported | Unit of Measure | Target |
|--------------------------|---|---|--|--------------------|---|---------|
| Smart Green Business | Businesses recruited | Number of large businesses recruited to the program | | Currently reported | Number | 121 |
| | Businesses implementing | Number of businesses who have implemented (or are implementing) identified initiatives (water, waste and energy) | | Currently reported | Number | trend |
| | Water – cumulative savings implemented | Potable water consumption reduced through Smart Green Business projects | | Currently reported | Megalitres (ML) | 275 |
| | Waste – cumulative diversion implemented | Waste diverted from landfill through Smart Green Business projects | | Currently reported | Tonnes (t) | 4,481 |
| | Energy – cumulative savings implemented | Energy consumption reduced through Smart Green Business projects | | Currently reported | MwH | 200 |
| | Co2 - cumulative emissions saved | Cumulative Greenhouse Gas Emissions reduced through Smart Green Business projects | | Currently reported | Tonnes CO ₂ equivalent (tCO ₂ -e) | 3,795 |
| | Workshops | Number of workshops provided | # of workshops/forums held | Currently reported | Number | 21 |
| | Participants | Number of participants attending workshops | # of participants across all Green Villages workshops/forums | Currently reported | Number | 630 |
| Green Village Program | Participant implementation | Participants implementing improved practices/skills learned in workshops | per cent of survey respondents implementing new actions since attending a workshop | Currently reported | Per cent | 85 |
| | Visitors | Number of unique visitors to site | # unique visitors | Currently reported | Number | 110,000 |
| | Subscribers | Number of e-news subscribers | # current enews subscribers | Currently reported | Number | 14,000 |
| | Open rate | Percentage of subscribers who open the e-news | % e-news open rate | Currently reported | Per cent | 28 |

| Program Name | KPI Name | KPI Description | Data source/Calculation | Reported | Unit of Measure | Target |
|----------------------------------|--------------------------------|---|---|--------------------|--|--------|
| Environmental Grants | Awards/Projects funded | Number of grant applications awarded/projects funded | # projects funded in twelve month period | Currently reported | Number | |
| | Engagements | Number of community engagements held | # of workshops held | Currently reported | Number | trend |
| Groop Living Contro | Participants | Number of participants involved in engagements | # of participants across all workshops | Currently reported | Number | 1,000 |
| Green Living Centre | Visitors | Number of visitors to the Green Living Centre shop front | # of shopfront visitors | Currently reported | Number | 3,500 |
| | Subscribers | Number of e-newsletter subscribers | # of subscribers | Currently reported | Number | trend |
| | Buildings registered | Number of buildings which have registered interest in the program | # buildings registered | Currently reported | Number | - |
| Smart Green Apartments | Base building energy reduction | Average greenhouse gas emission reduction identified per building assessed | Tonnes CO₂e | Currently reported | tCO ₂ e | - |
| | Action Plans | Actions plans complete and considered (presentations done) | # of plans completed | Currently reported | Number | - |
| Better Buildings | Total net lettable area | Percentage total net lettable area involved in the program | | Currently reported | Per cent | 50 |
| Partnership | Members | Number of founding members, ordinary and associate members | | Currently reported | Number | trend |
| | EUAs signed | Number of EU template agreements signed (non- residential, non-strata) | # EUAs signed | Currently reported | Number | 7 |
| Environmental Upgrade Finance | Emission reductions | Estimated annual GHG reductions from upgrade projects that have signed an EUA | Tonnes CO ₂ e | Currently reported | Tonnes CO ₂ equivalent (tCO ₂ -e) pa | trend |
| | Total funds advanced | Total funds advanced | \$M | Currently reported | Amount | trend |

7. Green village program workshop detail

| Green Village Workshops – January - June 2015 | Venue | Date | Attendees |
|--|----------------------|-------------|-----------|
| Worm farming and composting | Green Square Library | 7 February | 45 |
| DIY Natural Cleaning | Waterloo Library | 28 February | 24 |
| Waste Not Want Not | Waterloo Library | 14 March | 27 |
| How to make non-toxic natural cleaning product (in mandarin) | Green Square Library | 21 March | 8 |
| Seed to plate: Thrifty Gardener | Waterloo Library | 11 April | 28 |
| Worm farming and composting | Waterloo Library | 9 May | 39 |
| Conscious Consumer: Food and Fashion | Waterloo Library | 13 June | 44 |
| DIY Natural Cleaning | Green Square Library | 20 June | 38 |
| Total Jan – June 2015 | | | 253 |

Explanatory notes to graphs

1. Organisation emissions waterfall and annual emissions graph

Changes to waterfall graph

The waterfall chart has been modified slightly since last reporting period to show efficiency measures in blue. No other changes were made to the waterfall graph for this report.

2006 Baseline - The 2005/06 data is used as the baseline against which the City's emissions targets are set and has undergone verification to a "reasonable" level by external auditors. Independent verification of the baseline year gives the City an absolute emissions target in tonnes CO2-e.

Portfolio change - Shows major portfolio changes the City has undergone since the targets for Sustainable Sydney 2030 were set. Irrespective of changes, the City's emissions targets are absolute. New accounts include: 343 George Street, Ian Thorpe Aquatic Centre, Redfern Oval Grandstand, Surry Hills Community Centre, the Tote Building and Waterloo Depot. Allowance is also made for Mountain Street. Closed accounts include Domain Parking Station and Lawson Square.

2030 Target to reduce 2006 emissions by 70 per cent by 2030.

LED Lighting and Energy Efficiency Retrofit projects – Previously some of the savings of this project were included in the "savings achieved" section. This made it difficult to see the contribution of this project to the overall council reduction. To continuously improve the quality of the data presentation the chart was changed in Q4 2012/13 to show the total project contributions more clearly.

Energy and Water Retrofit now complete by Origin (Ecosave) which required 23 per cent reduction of buildings 2006 greenhouse gas emissions.

Project to save 6,641 MWh of electricity annually. LED Lighting contract with GE/UGL to replace 6,448 lights owned by the City contracted to save 2,101MWh per year.

Solar PV – Based on Solgen tender 1,933 tCO_2e annual emissions savings for Yingli panels.

Renewable gas - Based on savings if the City replaced current usage with gas from renewable sources as outlined in the Renewable Energy Master Plan. Assumes 2012 gas usage levels in buildings. Does not make allowance for future acquisitions or disposals to property portfolio.

15/5 Trigen - Preliminary AECOM savings estimates for City owned sites.

Ausgrid - Approximate estimate based on 2,816 tC02e savings from the City's upgrade of 6,448 lamps (approx 0.412 MWh or 0.437 tC02e per lamp per year) applied to 12,400 Ausgrid lights by 2030.

Renewables inside LGA - Additional renewable electricity required to City's target based on forecast demand after the efficiency and PV projects above are implemented. Same proportion of within LGA generation (16.7 per cent) as identified for the broader LGA within Renewable Energy Master Plan applied to Council operations.

Renewables beyond LGA - Additional renewable electricity required to City's target based on forecast demand after the efficiency and PV projects above are implemented. Same proportion of within LGA generation (16.7 per cent) as identified for the broader LGA within Renewable Energy Master Plan applied to Council operations.

Fleet - Target to reduce 2009 fleet emissions by 20 per cent by 2014.

2. Quarterly and annual organisation greenhouse gas emissions

Quarterly results can be attributed to a number of influences:

- Seasonality of property data. Q1 has traditionally represented the highest quarter of electricity consumption for the financial year.
- Seasonality of street lighting data. Previous years (pre 2009/10) have contained street lighting data that was smoothed to account for billing cycles. Post 2009/10 actual street lighting data was available and consequently seasonal influences are reflected in the results, i.e. longer operating hours in the winter months
- Additional property assets. The addition of a number of properties has magnified the impact of seasonal high electricity consumption
- Kilometres travelled. The distances travelled in City vehicles continue to rise each year in order to deliver ever-increasing services to a growing population. Fuel consumption and greenhouse gas emissions increase proportionately.

We would anticipate a continued downward trend to be reflected in future quarter's results.

Buildings, parks and street lighting - sourced from *STEvE* (the System for Tracking EVerything Environmental)

Fleet - Sourced directly from Fleet Services (converted from Shell fuel consumption data)

Other GHG - Sourced from most recent Carbon Inventory. All data annual and averaged across quarters for reporting purposes.

Currently the City's solar photovoltaic (PV) installations are being separately metered to enable reporting of electricity generation. Energy generated and used at each site reduces that site's mains electricity requirements.

3. LGA emissions waterfall

The waterfall charts are updated and new information becomes available. The current version includes latest forecast emissions savings from the City's (draft) Energy Efficiency Master Plan and revised figures for the other Master Plans based on a review by Kinesis (January 2015)The table below describes the sources for the waterfall chart data.

| Title | tCo₂e | Source description |
|--|-----------|---|
| Estimated 2030 BAU Increase | -383,713 | 2030 BAU emissions based on draft Energy Efficiency Master Plan. |
| Energy Efficiency | 1,976,795 | Based on draft Energy Efficiency Master Plan. |
| Renewable Energy | 1,005,070 | Renewable Energy Master Plan with updated emissions factors (by Kinesis Jan 2015) |
| Trigeneration (7am-10pm Operation) | 716,183 | Trigeneration Master Plan with efficiency measures removed (by Kinesis Jan 2015) |
| Advanced Waste Treatment | 659,109 | Advanced Waste Treatment Master Plan (by Kinesis 2015) |
| Transport | 239,583 | Original Sustainable Sydney 2030 estimate (by Kinesis 2008) |
| 2030 TARGET | 1,774,727 | Sustainable Sydney 2030 target to reduce 2006 emissions by 70 per cent by 2030. |

4. Energy consumption data

This table was shown for the first time in the July to December 2014 Report and shows energy consumption data for the organisation and LGA. Please note, LGA data is shown to December 2013, which is the most up to date data available. This will be updated in future reports.

| Organisation | Electricity (MWh) | Natural gas (GJ) | Total energy (GJ) |
|------------------------------|----------------------|------------------|----------------------|
| Baseline | 42,427 | 21,894 | 174,631 |
| Most recent (to Mar 2015) | 32,208 | 31,524 | 147,474 |
| Difference | -10,219 | +9,630 | -27,157 |
| Difference (per cent) | -24% | +44% | -16% |

| LGA | Electricity (MWh) | Natural gas (GJ) | Total energy (GJ) |
|------------------------------|----------------------|------------------|----------------------|
| Baseline | 4,199,815 | 2,947,537 | 18,066,871 |
| Most recent (to Dec 2013) | 3,708,190 | 3,288,038 | 16,637,522 |
| Difference | -491,625 | +340,501 | -1,429,349 |
| Difference (per cent) | -12% | +12% | -8% |

Calculation:

| Difference | = |
|--------------|---|
| % Difference | = |

(Baseline – Current)

(Difference / Baseline) x 100

5. Water Graphs

Annual organisation water initiatives

All data - sourced directly from Sydney Water and contained within and reported from the *STEvE* system.

All data - measured quarterly in arrears. This is a consequence of the nature of water measurement and the need to read meters.

Classification of data - When there is more than one user of a meter, the STEvE system allocates that meter to the highest water user. The classification of properties may change over time and category total may vary, although total consumption will remain unchanged.

Cook and Philip Park Aquatic Centre is measured as a pool for the purposes of reporting, though there is some small park usage included in the water data.

Prince Alfred Park Pool was offline for the approved <u>redevelopment</u> of the park and facilities. It is included again in reporting from Q1 2012/13.

Quarterly Organisation Water Initiatives

All data - sourced directly from Sydney Water and contained within and reported from the *STEvE* system.

All data - measured quarterly in arrears. This is a consequence of the nature of water measurement and the need to read meters.

Classification of data - When there is more than one user of a meter, the STEvE system allocates that meter to the highest water user. The classification of properties may change over time and category total may vary, although total consumption will remain unchanged.

Decentralised water waterfall

This graph was first included in this report in Q1 2013/14. It is taken from the *Decentralised Water Master Plan* and outlines the steps the City of Sydney is taking to meet its target for a reduction in mains water use to 10 per cent below 2006 levels by 2030 and against forecast business as usual usage levels.

LGA Mains Water Initiatives Annual

All data - sourced directly from Sydney Water.

All data - measured annually in arrears. This is a consequence of the nature of water measurement and the need to read meters.

All water graphs

Aquatic Facility - Comprises the City's pools being Victoria Park Pool, Andrew (Boy) Charlton Pool, Cook and Phillip Park Aquatic Centre, Ian Thorpe Aquatic Centre and Prince Alfred Park Pool.

Community - Includes childcare centres, libraries, community centres and town halls.

Operations (depots, etc) - Includes depots and workshops

Commercial - Includes income producing buildings, such as Customs House, parking stations and retail shops. It also includes properties acquired for strategic purposes that do not fall into the above categories.

Parks and Public Domain - Includes parks, reserves, playgrounds, street closures, garden beds and nature strips. Also included are water features that are in the public domain.

Exceptions - Consistent with the City's greenhouse gas reporting principles, only sites where the City has 'operational control' are included. For example properties where a whole building is leased and the tenant has full building operations and maintenance obligations, such as the Queen Victoria Building and the Capitol Theatre.

Note - A number of City buildings are used for multiple purposes – for example Customs House is used for office and retail, along with library and exhibition uses. In allocating each property to one of the above categories, the dominate water user was the determinate factor. Over time the categorisation of a property may change depending on the use.

6. Water consumption data

This table is shown for the first time in the July to December 2014 Report and shows water consumption data for the organisation and the local government area.

Please note: data for the local government are (LGA) is based on actual data received from Sydney Water in October 2014 for consumption to end 2013/14. This is the most current actual data available due to the time lag in data being received from Sydney Water.

| | Baseline (KL) | Current (end 2013/14) (KL) | Difference (KL) | Difference (per cent) |
|--------------|------------------|----------------------------------|--------------------|--------------------------|
| Organisation | 412,919 | 409,717 | 3,202 | 0.8 |
| LGA | 33,712,079 | 35,365,532 | -1,653,453 | -4.9 |

Calculation:

- Difference = (Baseline Current)
- % Difference = (Difference / Baseline) x 100

7. Waste Graphs

Waterfall

This graph was first included in this report in Q1 2013/14. It outlines the steps the City of Sydney is taking to meet its target for diverting 68 per cent of domestic waste from landfill by 2014.

All data – Based on projections developed for the Interim Waste Strategy 2012

Avoidance data – sourced from estimates of residential composting activity and reuse of materials from the City as reported by the Bower Reuse and Repair Centre Cooperative.

Kerbside Recycling, Garden Organics, Cleanup waste, white goods/ metals recovery - sourced from receipts from City contractors.

e-waste and hazardous waste data – sourced from reports from waste collection events held by the City Of Sydney. Reducing these "problem wastes" increases potential resource recovery from AWT.

Advanced Waste Treatment (AWT) recovery data – sourced from reported diversion levels reported by City waste treatment contractor.

Please direct any questions about this report to:

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This report is published biannually for January to June and July to December by the City of Sydney at:

<u>http://www.cityofsydney.nsw.gov.au/council/forms-and-</u>publications/environmental-plans-reports

