

state of the
environment report
2009/10

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city of villages

Legend

\$	Cost
%	Percent
°C	Degrees Celsius
Ha	Hectare
kg	Kilogram
kL	Kilolitres
kWp	Kilowatt-peak
LGA	Local Government Area
m ³	Cubic metre
ML	Megalitres
mm	Millimetre
MWh	Megawatt hour
pphm	Parts per million per hour
ppm CO ₂	Parts per million carbon dioxide
t	Tonne
tCO ₂ e	Tonnes of carbon dioxide equivalent
µg/m ³	Micrograms per cubic meter

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future focus

The City of Sydney is forging ahead with its plans and actions to green council operations, retrofit the local government area (LGA) with green infrastructure and support both residents and businesses to live and operate more sustainably.

The City has plans for a low-carbon trigeneration network, a recycled water network and an automated waste collection system, and is leading Australia and possibly the world.

Trigeneration energy systems would provide precincts or clusters of buildings with low-carbon electricity and zero carbon heating and cooling, while reducing greenhouse gas emissions by 40 to 60 per cent.

The City's goal is to produce 100 per cent of Sydney's energy needs locally by 2030 with 70 per cent coming from trigeneration and the remainder from renewable energy, such as solar, and reduced consumption through energy-saving measures such as LED street lighting.

Sustainable Sydney 2030 and the City of Sydney Environmental Management Plan establish the environmental vision, targets and actions for Council and the local government area. The City's targets are:

■ Our emissions

- Maintaining 100 per cent carbon neutrality from Council operations and services, by using less energy and greenhouse offsets. This was first achieved in 2008
- Achieving a minimum 20 per cent reduction in Council emissions by 2012 based on 2006 levels through energy-saving measures
- Targets listed for the community also apply to City operations.

■ Community emissions

- Achieving a 70 per cent reduction in greenhouse gas emissions from our LGA by 2050 based on 1990 levels. This is equal to a 70 per cent reduction in greenhouse gas emissions from our LGA by 2030 based on 2006 levels
- Ensuring 100 per cent of electricity used in our LGA comes from local energy by 2030 (70 per cent from trigeneration and 30 per cent from renewable energy).

■ Transport

- Ensuring 10 per cent of all trips within the LGA are made by bicycle by 2016.

■ Water

- Recording a zero increase in mains water used by Council and across the LGA by 2015 based on 2006 levels. This target includes 25 per cent of water used by Council and across the LGA to be recycled by 2015.

■ Waste

Achieving:

- 66 per cent resource recovery of residential waste from our LGA by 2014
- 66 per cent resource recovery of waste generated by Council and its contractors by 2014
- 63 per cent resource recovery of commercial and industrial waste from our LGA by 2014
- 76 per cent resource recovery of construction and demolition waste from our LGA and Council projects by 2014.

■ Open space

- Having 24 square metres of public open space per resident.

message from the lord mayor

I am happy to report that we are on target to meet the ambitious goals set by Sustainable Sydney 2030. In fact, we are leading the nation on climate action – both as a local government area (LGA) and within our own operations.

The City has been carbon neutral since 2008, we have cut greenhouse emissions from our properties by 16 per cent, with a further five per cent reduction expected in the coming year. Annually, we put \$2 million annually into a renewable energy fund to create a sustainable city. From a community perspective, we plan to reduce emissions across the city by 70 per cent by 2030, based on 2006 levels. In addition, around 25 to 30 per cent of the city's energy will come from renewable sources such as solar, wind and marine electricity, and renewable gases recovered from all forms of waste, including agricultural and farm waste by 2030.

Our green infrastructure plan is set to retrofit Sydney with sustainable energy, waste and water technologies efficiently and cost-effectively. Tenders for the City's decentralised energy plans are under way to investigate trigeneration, renewable energy and waste-to-energy technology as well as a decentralised water plan.

We plan to install super-efficient trigeneration systems across the city. A trigeneration system produces low-carbon electricity and zero-carbon heating and cooling for buildings and is nearly three times more energy efficient than a coal-fired power station. This means electricity in the City will not only be cleaner, but also cheaper for residents and businesses.

Drinking water is a precious resource under growing threat from climate change. The City is implementing strategies to reduce water consumption, to clean and recycle water and recover more water locally from sources currently untapped. Work has started on capturing and reusing 740 million litres of storm water per year from Sydney Park and Green Square. Newly installed rainwater tanks are irrigating parks and sports fields.

By 2030, the City will reduce water use by 25 per cent from the 2006 level of 500 million litres through a range of initiatives such as dual flush toilets, rainwater harvesting, recycling of grey water from baths and laundries and a city-wide recycled water network.

The collection and conversion of waste using automated waste collection and alternative waste treatment could result in 50 per cent of the waste stream being converted into renewable energy and significant reductions associated with transport emissions.

Our aim is that 10 per cent of all trips within the LGA will be made by bicycle in 2016. We are nearing completion of the first 10km of 55km of separated bike paths, part of a 200km network of usable routes to get people to their destination. The City has developed a regional cycling network along with 14 other inner Sydney councils. This network will deliver an economic benefit of \$4 for every dollar spent.

We continue to work with businesses, residents, all levels of government, non-government organisations, industry groups, the Council of Capital City Lord Mayors, the ICLEI Local Governments for Sustainability and the C40 Large City Climate Leadership Group to reduce the environmental impact of our activities.

Addressing climate change is vital at the local and global level. The achievements and plans outlined here show our commitment and innovation in creating a greener future for Sydney.



Clover Moore MP
Lord Mayor

achieving sustainable sydney 2030

The City is continuing to implement Sustainable Sydney 2030, the City's plan for sustainable development over the next 20 years and beyond. We are working on a variety of projects to achieve our targets including a 70 per cent reduction in greenhouse gas emissions by 2030.

Environmental Sustainable Development

Key projects for 2009/10 include:

- **Green Champions Program.** The City of Sydney established this program to encourage employees to develop and incorporate environmental considerations in all aspects of their work. Green Champions run education campaigns, share information with staff about utility usage and implement challenges and programs to educate and engage employees to use less energy and water, and reduce waste to landfill in line with the targets of Sustainable Sydney 2030.
- **Environmental Memberships.** In 2009/10, the City maintained environmental memberships and/or collaborated with many environmental organisations and Government departments, including: Australian Conservation Foundation; Clean Up Australia; Cooks River Foreshore Working Group; Environment Business Australia; Green Building Council of Australia; ICLEI – Local Governments for Sustainability; Institute for Sustainable Futures; Keep Australia Beautiful; Nature Conservation Council of NSW; NSW Department of Environment Climate Change and Water; Observatory Hill Environmental Education Centre; Pyrmont Ultimo Landcare; Rozelle Bay Community Native Nursery; Southern Sydney Regional Organisation of Councils; Streamwatch; Sydney Metropolitan Wildlife Service; Sydney Water Corporation; The Sydney Coastal Councils Group; The Watershed; Total Environment Centre (Green Capital); and WWF Australia.
- **Environmental Management Plan.** At 30 June 2010, all of the 53 actions of the Environmental Management Plan (EMP) had been initiated. For a complete description of the actions and targets, view and download the EMP at www.cityofsydney.nsw.gov.au/EMP
- **Lobbying and Advocacy.** In 2009/10 the City made various submissions on environmental issues, policy and programs including Mandatory Disclosure of Commercial Office Building Energy Efficiency; Australian Energy Regulator on Electricity Retail Exemptions: the Prime Ministers' Task Group on Energy Efficiency; NSW Planning Discussion Papers on Small Scale Wind and Solar; and Concept Plan Applications for New Base Load Power Stations in NSW.
- **CitySwitch Green Office.** The City coordinates the national CitySwitch Green Office Program, which has achieved an impressive reach of more than 1.4 million square metres of commercial office space across Australia. The program encourages City businesses to improve their office energy efficiency and reduce CO2 emissions. CitySwitch aims to reduce greenhouse gas emissions by transforming the commercial office tenant market and creating demand for energy-efficient building stock. Members commit to benchmarking their office energy consumption and creating an energy action plan. This program can quickly reduce emissions in older building stock by encouraging green tenancy fit-outs, which have an average lease turnover time of five to seven years. In Sydney, this successful program has a growing membership that includes 14 per cent of our commercial office space.

achieving sustainable sydney 2030

- **The Watershed.** The City continues funding the Watershed Sustainability Resource Centre in King Street, Newtown, in partnership with Marrickville Council. The Watershed provides workshops, publications and seminars for residents, helping thousands of people to live more sustainably. Based in the heart of Newtown, the Watershed has gained a reputation as a hub for innovative environmental education. It is an important channel for supporting the community to reduce energy and water use as well as contributing to Sustainable Sydney 2030. In 2009/10, about 2,600 residents attended 111 Watershed workshops in a variety of venues across the City's LGA. Topics included composting; worm farming; natural cleaning; eco-renovations and introduction to sustainable living; natural personal care, baby care and pet care; and solar photovoltaic panels. The Watershed, held in high regard by the local community, government agencies and other stakeholders, is a successful model of an effective inter-council partnership.
- **Small Business Live Green.** The City of Sydney offers small to medium businesses assistance to reduce their environmental impact across water, energy consumption and waste generation. This program is part funded by Sydney Water through their Every Drop Counts program. The Small Business Live Green Program provided assistance to 90 businesses to help them reduce their water consumption. More than 348 kL per day of water savings have been identified with average reduction in costs to business of \$4,500 per year.
- **Residential Environmental Action Strategy.** This strategy, adopted by Council in June 2009, has prompted the establishment of a number of programs to engage residents to live sustainably. These include:

 - **Sustainable Living Seminar Series.** At these interactive seminars, run in partnership with the Home Ideas Centre in Alexandria, residents learn about a range of topics such as installing solar hot water; installing solar photovoltaic panels, installing rainwater tanks; re-using household grey water; green roofs; and green building and renovating. Participants also had the chance to talk to product suppliers.
 - **Live Green Workshop Series.** In 2009/10, Live Green workshops at the Surry Hills Community Centre covered solar, worm farming, growing food, living with less chemicals and biodiversity in your backyard. The success of the workshops means there will be new topics next year.
 - **Apartment focused workshops.** The Smarter, Greener Apartment Buildings Forum at Customs House, Greening your Owners Corporation, and Greening your Apartment Building forums targeted executive committees, owners corporations and service providers.
 - **Home Energy Consumption Trial.** Energy Monitors were installed in 100 homes across the LGA. The monitors display constant electricity usage/cost/greenhouse emissions for participants' homes. Residents can see what their baseline electricity usage is and how much lighting, heating, appliance use and stand-by contribute to their electricity bills. Participants are providing positive feedback about their energy monitors as they get instant feedback on the cost savings of their new energy-efficient behaviours.

- **Power Mates.** These simple devices encourage energy saving by measuring power, green house gas emissions and the cost of home appliances. They are available for loan from our libraries.
- **Social Housing Sustainability Program.** This program is focused on providing education, resources and help to our Culturally and Linguistically Diverse (CALD), Aboriginal and Torres Strait Islander and Social Housing partners to live a more sustainable life. The program is branded as Sustainable Action Values Everyone (SAVE). It is funded through the NSW Environmental Trust Urban Sustainability Program with the City of Sydney as lead partner. Other partners are Housing NSW, Marrickville Council, the City of Canterbury and Randwick City Council.
- **Environmental Grants.** The City provides funding and in-kind support to community groups to implement programs with a direct environmental benefit. The 2009/10 grants were provided to:
 - CarriageWorks – SustainableWorks for creative workshops to illustrate how to make simple community gardens
 - Chippendale Fresh Food Cooperative for a street fair to launch of the cooperative
 - Friends of the Earth Sydney “Permablitz” to create a sustainable closed-loop food cycle
 - Green Strata Network to create an accessible online knowledge base about retrofitting existing apartment buildings
 - Nature Conservation Council of NSW for The Carbon Footprint Challenge – how to source, grow, buy and dispose of food and drink waste
 - Piquant Publishing for the Food for the Future Magazine, which encourages sustainable, local food supplies
 - The Factory Community Centre Inc to create a rooftop farm as a community enterprise resource generated through a sustainable stormwater management system at Raglan Street, Waterloo.
- **Awards.** The City's Paddington Reservoir Gardens restoration project was honoured with the Australian Institute of Landscape Architects (AILA) 2010 Australian Medal for Landscape Architecture. The City's transformation of the former Water Police Site at Pyrmont to a glorious waterside public park, Pirrama Park, won the National Landscape Architecture Award for Planning and the dramatic upgrade of Redfern Park was awarded the National Landscape Architecture Urban Design Award. Paddington Reservoir Gardens, Pirrama Park, and Redfern Park and Oval were recently acknowledged for design excellence at the NSW Architecture Awards and are in the running for the national awards to be announced in October. Paddington Reservoir Gardens was also awarded an International Architecture Award at The Chicago Athenaeum and The Urban Centre for Architecture Art Design awards.

energy and 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 that the change is occurring faster than initially predicted. Cities have a critical role in reducing greenhouse gas emissions because they cover 2 per cent of the Earth's land surface, have more than 50 per cent of the population and are estimated to cause 75 per cent of the world's emissions. As a result of the consultations for Sustainable Sydney 2030, 97 per cent of people said they wanted the City to take action on climate change.

Centralised coal-fired power generation is responsible for 80 per cent of the City of Sydney's greenhouse gas emissions and 50 per cent of Australia's emissions. Power stations lose more than two thirds of their primary energy to the atmosphere with further losses in the grid. They are also a major user of water.

The City of Sydney is working to reduce energy use and greenhouse gas emissions by setting ambitious targets to reduce 2006 emissions by 70 per cent by 2030. These targets can only be achieved with the dedication of our organisation and support of our community to "live green" and with the provision of green infrastructure.

■ **Allan Jones MBE.** In 2009/10, the City engaged Allan Jones as the City's Chief Development Officer of Energy and Climate Change to drive the City's green infrastructure plans. Allan is the former CEO of the London Climate Change Agency and has previously provided expert advice to the City in developing its plans for a low-carbon future built upon green infrastructure as well as energy and climate change projects. Allan was responsible for the implementation of decentralised energy systems in the UK and brings substantial expertise to the City. The Green Infrastructure Plan is key to achieving the City's 2030 Vision of a combined energy, water and waste infrastructure and 100 per cent of energy used within the LGA to come from locally-generated, low-carbon and zero-carbon energy by 2030. The Green Infrastructure Plan is made up of five Master Plans.

■ **Decentralised Energy Master Plan – Trigeneration (Combined Cooling, Heat and Power or CCHP)*.** Centralised coal-generated electricity accounts for around 80 per cent of greenhouse gas emissions for the LGA. A consortium of Kinesis, Cogent and Origin Energy has been developing a master plan to identify the optimal size and location of trigeneration decentralised energy systems to deliver the Sustainable Sydney 2030 target of providing 70 per cent of the City's electricity requirements with low-carbon electricity and zero carbon heating and cooling. The master plan is underpinned by modelling of how energy (electricity and thermal energy) is used by buildings across the LGA, proximity to gas and electricity networks, and site suitability. A range of scenarios have been modelled for different engine and fuel types, and reticulating hot water and/or chilled water, to determine the optimal solution, balancing cost and emission reductions. A major opportunity to reduce greenhouse gas emissions exists by replacing electric air conditioning and the electric and gas heating with thermally driven systems that run from the waste heat captured from local electricity generation. The City is leading by example in this area and has sought expressions of interest and tenders for the design, installation, operation and maintenance of our first trigeneration systems for the Town Hall precinct, Customs House and the City's five aquatic centres. The tender also provides for a second option to finance the trigeneration systems and a third preferred option to establish a public/private joint venture with a Sydney Energy Services Company or ESCO to roll out the large-scale trigeneration identified in the Master Plan. The interim Master Plan for the energy dense zones of the city is anticipated to be completed in 2010. See also Trigeneration.

* All Master Plans are still subject to Council consideration, community and stakeholder consultation.

■ **Decentralised Energy Master Plan – Renewable Energy.** Arup has been developing a master plan to identify and quantify renewable resources within and outside the LGA to deliver the 30 per cent renewable energy target based on both current and future technologies that may become viable by 2030. Renewable energy sourced outside the LGA is based on the proximity principle (that is, closest to the LGA) to avoid any increases in network charges. The study is looking at various renewable electricity sources including solar photovoltaics, wind energy (on shore and off shore), hydro, solar thermal concentration, geothermal and marine renewables (including wave, tidal and marine current turbines). It is also assessing renewable gases derived from all sources of waste, including agricultural, farming, forestry, biofuels, waste and sewage and landfill gas. The intention is to use these renewable gas resources to supply the trigeneration and transport in the city. In this way, the City's trigeneration could ultimately be driven from non-fossil fuel sources. Energy dense gas to liquid technologies and/or gas pipeline injection could be used to enable renewable gases to be delivered to the City. The Master Plan is anticipated to be published in 2010.

■ **Decentralised Energy Master Plan – Alternative Waste Treatment.** Arup has been developing a business case for alternative waste treatment not only to reduce waste going to landfill but also to convert at least 50 per cent of waste to renewable gases for the city's trigeneration and transport. Using advanced alternative waste treatment technology will also enable the recovery of water for use in the proposed city-wide non-potable/recycled water network. The renewable gases resulting from this Master Plan will be fed into the Renewable Energy Master Plan. The Master Plan/Business Case is anticipated to be published in 2011.

■ **Decentralised Water Master Plan.** Tenders have been sought for this Master Plan which comprises a Total Water Cycle Management Plan and a city-wide non-potable/recycled water network. The Plan will identify, quantify and integrate all non-potable water resources available to the City, including stormwater, rainwater harvesting, grey water,

groundwater, sewer mining and water recovered from waste and air conditioning cooling towers – the largest use of water in the city. Heat from trigeneration may be used for the treatment of non-potable/recycled water and may be co-located with trigeneration in Green Transformer stations as part of the proposed Low-Carbon Zones. The contract is anticipated to be let in 2010 and completed in 2011.

■ **Automated Waste Collection Master Plan.**

Tenders for this Master Plan will be sought in 2010/11 and completed in 2011. The Master Plan will comprise the phased development of a city-wide automated waste collection system. The City will initially investigate using mobile systems until they have been developed into precinct-based systems requiring automated waste collection receiving stations which may be co-located with trigeneration in Green Transformer stations. Automated waste collection will enable waste to be evacuated via underground pipe network systems for collection at the waste-receiving stations at strategic locations around the city. This will eventually replace waste collection by refuse vehicles, significantly reducing transport emissions from waste collection.

■ **Carbon Neutral.** In 2008, the City of Sydney became the first carbon-neutral local government in Australia through energy efficiency, renewable energy, GreenPower and carbon offsets. We made this commitment voluntarily to reduce impacts of climate change, meet public and staff expectations, show leadership, influence sustainable market processes, and reduce costs through energy savings. In 2009/10, the City remained carbon neutral 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 City's emissions. The City's 2009/10 carbon-neutral program is compliant with the National Carbon Offset Standard and other relevant protocols. See www.cityofsydney.nsw.gov.au/Carbon.

energy and climate change

■ GreenPower and Renewable Energy Fund.

GreenPower is accredited renewable energy sourced from the sun, wind, water and waste. It is purchased by your energy company and fed into the grid. Renewable energy does not cause greenhouse gas emissions like electricity generated by coal, gas or oil. Since 2005, the City of Sydney has been increasing the proportion of GreenPower used each year for its total electricity consumption. However, this was a transitional stage while we were developing our energy and climate change projects. In 2010, the Council resolved to reallocate money previously allocated to GreenPower to a new Renewable Energy Fund to invest in renewable energy on the City's own buildings and operations. This new policy will enable the City to achieve a return on investment, reduce the City's annual electricity bills and carbon footprint and deliver the City's corporate target of 30 per cent renewable energy by 2030. The remaining emissions will be offset by more cost-effective carbon offsets so the City maintains its carbon neutral status.

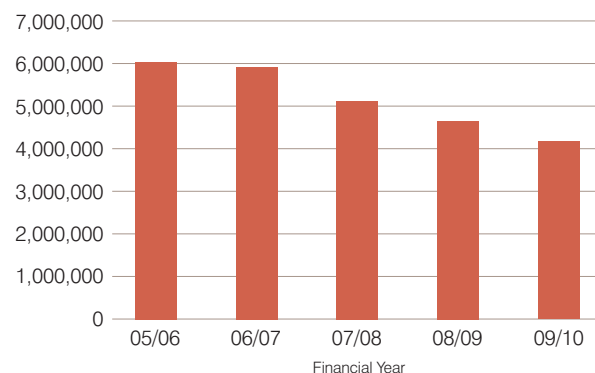
- **Solar Photovoltaics Program.** As the first project under the new Renewable Energy Fund the City of Sydney will undertake one of Australia's largest non-residential solar projects with the installation of more than 2,000kWp of photovoltaic panels on at least 30 of its properties over the next five years. The \$12.3 million project will cut greenhouse gas emissions by about 3,000 tonnes a year, and reduce the City's power bills by \$500,000. More than 30 council-owned buildings across the local government area have been identified as possible sites for solar panels. The City has already received expressions of interest for this project which will go out to tender in early 2011. The City has installed solar hot water and 74 kWp of photovoltaic systems on 18 sites in 2010, the largest being 240 solar panels installed on historic Sydney Town Hall. Together these projects have reduced carbon emissions by 180 tonnes a year. Some of these projects were financed by Federal Government grants. See RLCIP Grants.

- **Building Energy Efficiency.** The City's buildings, such as libraries, swimming pools and community centres, use about 55 per cent of the City's electricity. A number of projects have been undertaken and have reduced greenhouse emissions by 16 per cent by 2010.

- **Utilities Information Management System.** The City has implemented a system to automatically collect, record and report on its electricity, gas and water consumption, costs and emissions. The City has approximately 450 electricity accounts, 600 water accounts and 30 natural gas accounts that represent an annual expenditure of more than \$6 million per annum. The System for Tracking Everything Environmental, or STEvE, named through a staff competition, provides weekly reports to staff who manage the facilities. This creates an awareness of energy and water use and helps staff identify energy savings opportunities. The City believes it may be the first local government to implement such a system across its organisation.

- **Town Hall House Energy Efficiency.** The City's administration offices consume about a quarter of the electricity used within the building portfolio, therefore it is a priority for efficiency works. A number of minor improvements, such as lighting upgrades and operational changes like control strategies and fine-tuning, have reduced electricity consumption by almost 30% since 2005. This is illustrated in the graph below.

Electricity Consumption – Town Hall House (kWh)



Greenhouse gas emissions will be further reduced when a trigeneration system is installed, and a Building Energy and Water Efficiency Retrofit undertaken.

- **RLCIP Grants.** The Federal Government provided the City with two grants under the Regional and Local Infrastructure Program.
 - The first grant of \$662,000 was used to supply and install solar hot water to 10 buildings, two solar photovoltaic systems and a range of smaller energy and water efficiency upgrades for various sites.
 - The second grant of \$262,000 is being used to reduce energy consumption at Cook and Phillip Park Pool, Andrew Boy Charlton Pool and Victoria Park Pool. These works include a lighting upgrade, installation of variable speed drives to pool pump motors and high-efficiency electric motor replacement.
- **Building Operations.** The way a building is operated and maintained can influence its energy and water usage. Management initiatives can reduce energy and water consumption and have a high return on investment. These include:
 - incorporating sustainability obligations and measures into building service and cleaning contracts
 - reviewing time-clock settings
 - adjusting control system set points
 - ensuring maintenance procedures are adequate for the equipment
 - regular sustainability meetings for contractors and staff
 - providing timely feedback on results and performance through the STEvE system.
- **Trigeneration.** This project is currently out to tender for the design, installation, operation and maintenance of trigeneration systems for the City's buildings. All 200 of the City's properties have been included in the tender with seven key sites identified. A key requirement of the tender is to facilitate connections to other nearby non-City buildings, with additional options providing for the design, finance, installation, operation and maintenance of the trigeneration systems (Energy Services Company or ESCO option) or establishing a public/private joint venture between a Sydney ESCO or the City to roll out at least 360MW of large-scale trigeneration identified in the Decentralised Energy Master Plan – Trigeneration. Tenders are due in January 2011.
- **Building Energy and Water Efficiency Retrofits.** The City has received expressions of interest (EOI) for the retrofit of at least 44 of its major buildings including: Town Hall House, Cook and Phillip Aquatic Centre, Ian Thorpe Aquatic Centre, Martin Place, Customs House and the Woolworths building as well as depots, community centres, libraries and child care centres. Buildings currently account for more than half of the City's carbon emissions and water use. The EOI sets out a reduction in energy and water consumption of 20 per cent with a 23 per cent reduction in greenhouse gas emissions by 2012/2013 from 2005/06 levels. Tender bids could include a range of technologies such as LED lighting, movement detectors, building energy management systems, insulation, double glazing, dual flush toilets, rainwater harvesting or recycling of grey water. The request for tender will go out in early 2011.

energy and climate change

- **LED Lighting.** The City of Sydney has one of the largest public lighting portfolios in NSW with more than 20,000 street and park lights across the City's LGA. Nearly 13,500 lights are maintained by Energy Australia (EA Street Light Inventory) and 8,398 lights are maintained by the City (City of Sydney Street Light Inventory). To reduce the City's greenhouse gas emissions and associated energy and maintenance expenditure, the City proposes to replace its 8398 lights with semiconductor light sources called "light emitting diodes" or LED lights. LEDs consume less energy and last significantly longer than traditional light sources. It is expected that by using LED lights for the City's Street Light Inventory, the City's carbon footprint for all of the street and park lights in the LGA can be reduced by up to 21 per cent which equates to a reduction of the City's overall 2008/09 carbon footprint by up to 8 per cent*. The City is currently undertaking a trial of 250 LED lights. Phase 1 of the trial has been very successful with preliminary results indicating energy and greenhouse gas emission savings of between 11 per cent and 74 per cent per LED light depending on the manufacturer. Fourteen of the 16 locations where LED lights are being trialled recorded greenhouse gas emission savings of more than 40 per cent. Phase 2 of the trial is currently under way.
- **Sustainable Vehicle Fleet.** The City has reviewed its fleet management options and established targets to reduce fleet emissions by 20 per cent over the next four years. The City has secured delivery of one of the first production electric vehicles available in Australia – the Mitsubishi i-MiEV. This vehicle uses a large-capacity lithium-ion battery and an electric motor in place of a petrol engine. The i-MiEV emits no greenhouse gases and is recharged using zero-carbon renewable energy produced by 240 solar panels installed on Sydney Town Hall. The City has also retrofitted one third of its older diesel trucks to comply with stringent Euro 4 emission standards. The rest of the truck fleet will be upgraded during 2010/11. Five of the City's operational trucks have been replaced with diesel-electric hybrids, saving up to 39 per cent in fuel and emissions per vehicle. Six more trucks will be replaced with hybrids next year. Expressions of interest were called to source a provider of sustainable biofuels and eco-driver training services which can further reduce emissions.
- **C40.** In 2007, the City of Sydney joined the C40 Large Cities Climate Leadership Group, a network of international cities committed to action on climate change. The C40 Group works closely with the Clinton Climate Initiative to encourage the uptake of innovative ways to tackle global warming.

* Assuming a 60% reduction in greenhouse gas emissions in the COS Street Light Inventory and reductions calculated across both the COS Street Light Inventory and EA Street Light Inventory.

Greenhouse gas emissions

There are many greenhouse gasses, of which Carbon Dioxide (CO₂) is the most abundant. Different greenhouse gasses have different global warming potentials and longevity in the atmosphere and therefore concentrations are often expressed as CO₂-equivalent (CO₂e). There is general consensus in the scientific community that atmospheric concentrations of CO₂e need to be less than 450ppm in order to limit the probability of 'runaway', 'abrupt' or 'dangerous' climate change. According to the IPCC AR4 Synthesis Report, atmospheric CO₂e concentrations were already 455ppm in 2005, of which 379ppm is CO₂. By June 2009, long-lived greenhouse gasses in the atmosphere were estimated to be 467 ppm, of which CO₂ was 385 ppm (this is equal to 3.64 trillion tonnes, growing at 2 billion tonnes per month) This figure continues to rise and in 2010 is approaching 470ppm¹.

(tCO ₂ e)	2003/04 million	2004/05 million	2005/06 million	2006/07 million	2007/08 million	2008/09 million	2009/10 million	Trend million
Australia ²	553	585	585	573	580	575	577	~
City of Sydney LGA ³	no data	no data	no data	5.46	no data	no data	Being assessed	

1 www.dbcca.com/dbcca/EN/carbon-counter.jsp

2 Calendar year forecast estimate (including abatement measures) from Tracking To Kyoto and 2020, Australian Government Department of Climate Change, August 2009.

3 2006 estimate developed by Kinesis for Sustainable Sydney 2030. There are currently no reliable emissions estimates at the local government area level.

City of Sydney greenhouse gas emissions⁴

Greenhouse gas emissions for the City of Sydney organisation come from a range of sources – the major source being mains electricity used within our buildings and street lighting. Other emissions include fuel used by our fleet and contractors, natural gas used in buildings, work flights and taxi journeys, waste, and emissions from major events like Sydney New Year's Eve.

Emissions are categorised as Scope-1 (direct emissions created onsite, for example burning natural gas), Scope-2 (direct emissions created offsite for example, electricity), and Scope-3 (indirect emissions such as by contractors and travel emissions). Many carbon neutral organisations only account for Scope-1 and Scope-2 emissions. By also including Scope-3 emissions the City is taking responsibility for more of its emissions to be more transparent and accountable.

Total tCO ₂ e by scope	2006/07	2007/08	2008/09
Scope-1	4,259 (8%)	4,311 (8%)	4,234 (8%)
Scope-2	39,667 (73%)	38,644 (72%)	35,594 (71%)
Scope-3	10,103 (19%)	10,709 (20%)	10,559 (21%)
Total	54,029	53,664	50,387

Total tCO ₂ e by type	2006/07	2007/08	2008/09
Electricity emissions (all scopes)	47,159	45,943	42,317
Non-electricity emissions (all scopes)	6,870	7,721	8,070
Total	54,029	53,664	50,387

4 The City's first detailed emissions inventory in accordance with recognised standards and independent verification was prepared for 2006/07 then subsequently for 2007/08. The 2008/09 inventory was being independently verified at the time of publication. The 2009/10 inventory will be provided in the 2011 report. To achieve a zero net emissions balance the City purchases 100 per cent accredited offsets for all of its emissions.

energy and climate change

Electricity

(MWh)	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
City of Sydney LGA electricity usage⁵								
Households	No data	No data	No data	417,885	415,712	423,915	417,959	✗
Small business	No data	No data	No data	1,451,819	1,478,506	1,460,106	1,401,570	✓
Large business	No data	No data	No data	2,608,896	2,674,848	2,631,174	2,649,887	✗
Council electricity usage⁶								
Total	No data	No data	42,522	42,533	38,468	39,813	38,836	✓
Per employee	No data	No data	28	26.5	24	23.6	23	✓

⁵ Information provided by Energy Australia for suburbs in and around the City of Sydney. Data is not confined to the LGA and may be based on accruals and estimates.

⁶ Information provided by Planet Footprint using data from Energy Australia. Figures vary from previous reports due to improved estimates of street lighting electricity usage and the inclusion of new sites.

GreenPower in Australia

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
GreenPower usage (MWh) ⁷	No data	495,250	688,754	1,013,707	1,455,887	2,144,726	2,275,234	✓
Households using GreenPower	No data	150,374	281,701	565,977	748,377	940,560	838,492	✗
Businesses using GreenPower	No data	7,229	14,676	24,313	30,313	32,276	38,688	✓

⁷ National GreenPower quarterly reports www.greenpower.com.au

City of Sydney GreenPower⁸

From 2009/10 the City will remain carbon neutral through the purchase of offsets but will no longer purchase GreenPower. Instead, these funds are being invested in local renewables projects. See section on GreenPower and Renewable Energy Fund for more information.

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
Council GreenPower usage (MWh)	50	3,312	7,645	39,328	40,836	–	–	–
Percent of electricity use (per cent)	<1%	~10%	~20%	100%	100%	–	–	–
GreenPower cost (\$)	Sponsored	\$140k	\$272k	\$2.3M	\$1.9M	–	–	–
Main provider	TruEnergy	Climate Friendly	AGL	C0zero	C0zero	–	–	–
City installed renewables (kWp)	–	–	–	–	–	–	73.5	–

⁸ Includes GreenPower used by properties, public lighting. Smaller amounts of GreenPower for fleet offsets and events are not listed.

Air Pollution

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
Regional air quality (days stds exceeded)⁹								
Visibility – NEPH	3	0	1	3	0	2	5	✗
Ozone – 1hr	1	1	0	0	0	0	0	–
Ozone – 4hr	0	1	0	0	1	0	0	✓
Particulates (PM10)	0	0	0	2	0	4	5	✗
Customer requests – Air pollution/ odour ¹⁰	No data	No data	17	228	200	283	262	–

⁹ Data from Air Quality Index (Randwick) www.environment.nsw.gov.au. Note the higher days exceeded for visibility in 09/10 was the result of the dust storm affecting Sydney in September 2009.

¹⁰ Requests to City of Sydney Customer Service centre.

transport

For the past few years, public transport has been growing faster than car traffic. For example, in 2008/9 rail trips rose by 3.1 per cent and bus trips by 2.4 per cent while car trips fell 0.8 per cent across Sydney. Cycling is growing at more than 10 per cent per annum while the car share membership in the City of Sydney grew by almost 50 per cent in the past year.

These trends reflect shifts to more sustainable transport alternatives. The City is reinforcing and supporting these through a number of initiatives, including the provision of a 200 km network of bike paths and the encouragement of car sharing through supportive parking and other policies.

■ **Cycling.** Public transport, cycling and walking are vital if we are to reduce road congestion and make our city more sustainable. It is estimated that this can reduce Sydney's greenhouse gas emissions by about 4 per cent. The City is spending more than \$70 million to create a 200km bike network over four years. At present, only one per cent of all trips is by bike. The City's target is 10 per cent. We are building safe separated bike paths to encourage people to ride. We have joined with 14 surrounding councils to map out a 245km regional network for which we have sought national funding. More than 1,000 people attended the City's free cycling confidence or bike maintenance courses, and the City distributed 30,000 cycling maps. The City developed an Creating Cycling Communities with projects addressing the social barriers to people riding bicycles and encouraging better behaviour between road user groups. The new City Plan, our comprehensive planning controls, encourages generous provision of end-of-trip facilities, such as showers and bike parking, in new buildings.

■ **Car Share.** There has been rapid growth of car sharing in the LGA. Since 2007, the City has installed more than 190 dedicated car share spaces, catering for approximately 4,000 City residents and 500 City-based businesses. Membership is growing by some 180 residents a month. International evidence has continued to accumulate demonstrating that increased use of car sharing reduces total urban driving, reduces household vehicle holdings and increases walking, cycling and public transport use. It is estimated that the car sharing program has taken at least 550 cars off city streets and reduced on-street parking demand by at least 250 spaces compared to business as usual.

Fleet

Council fleet emissions prior to 2007/08 only reflected Scope 1 - 'tailpipe' (for example emissions directly from the vehicle) only and did not include Scope 3 - 'well to wheel' (for example emissions resulting from fuel and gas extraction, production and transport). By also including Scope-3 fleet emissions from 2007/08, the City is taking responsibility for more of its emissions to be more transparent and accountable.

Council Fleet emission data is directly proportional to the increasing distances travelled each year in delivering City services.

Total tCO2e	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
Council fleet emissions total ¹¹	2,795	2,981	2,692	2,980	2,998	3,208	3,220	~
Contractor vehicle emissions	No data	No data	1,060	1,315	1,438	1,571	1,373	✓
Total			3,752	4,295	4,436	4,779	4,593	✓
Emissions offset (per cent)	25%	50%	100%	100%	100%	100%	100%	✓
Main Provider	Greenfleet	Greenfleet	Greenfleet Climate Friendly	CO2 Aus	AGL	Cleaner Climate	pending ¹²	

Council fleet emissions (tCO2e) by Scope¹³

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
Scope-1	2,795	2,981	2,692	2,980	2,709	2,970	2,993	~
Scope-3	No data	No data	No data	No data	289	238	227	
Total	2,795	2,981	2,692	2,980	2,998	3,208	3,220	

¹¹ Full fuel cycle emissions calculated using 2008 National Greenhouse Accounts (NGA) factors developed by the Australian Government.

Council fleet emissions include light vehicle fleet emissions, heavy vehicle fleet emissions and emissions from incidental plant and equipment.

¹² Pending tenders for 08/09 and 09/10 offsets.

¹³ Trial closure of operations over January 2006 reduced emissions by 10 per cent. Biofuels were introduced in 2007/08 and ceased in 2008/09.

Transport

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
Vehicles per day in LGA ¹⁴	No data	No data	701,476	689,581	697,788	689,391	689,458	-
CoS staff with travel passes	194 (13%)	266 (18%)	321 (21%)	338 (21%)	363 (23%)	408 (24%)	362 (20%)	✗

¹⁴ Information provided by the NSW Roads and Traffic Authority (does not include Cross City Tunnel). Based on combined direction vehicle numbers for Sydney Harbour Bridge, Sydney Harbour Tunnel, Anzac Bridge, Oxford Street, Parramatta Rd, King Street, Regent Street, O'Riordan Street, Cleveland Street, and City West Link Road.

Cycleways

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
Cycleways installed (m)	Nil	Nil	Nil	Nil	Nil	200	4,800 ¹⁵	✓

¹⁵ Includes Bourke Road, Mandible Street, Bowden Street and Union Street. In addition, 1100m on Kent Street and 500m on College Street have commenced and will be completed in 10/11.

waste and recycling

Disposal of untreated waste to landfill is no longer a responsible waste management option. Decomposing garbage releases methane, which is 25 times more potent a greenhouse gas than carbon dioxide. Establishing a facility for Advanced Waste Treatment (AWT) is part of an integrated suite of works to achieve the vision and objectives of Sustainable Sydney 2030. Other key elements include two decentralised energy master plans – Trigeration and Renewable Energy. The AWT will contribute to our environmental objectives by converting waste into a synthetic gas which could be used in the City's trigeration network or converted to a transport fuel.

To assist the City in developing a comprehensive strategy for waste management, a business case is being developed which will provide detailed analysis, options and recommendations on: (a) environmental outcomes in terms of waste outputs, emissions and potential energy supply; (b) technical issues and developments in terms of collection systems, feedstock and transport mechanisms; and (c) delivery options for the establishment, construction, management and operation of an AWT.

■ **Advanced Waste Treatment.** The City is continuing to develop a business case for Advanced Waste Treatment to take us closer to 'zero waste'. In the meantime, the City continues to use Jacks Gully Waste Treatment facility to process more than half of our domestic waste (about 24,000 tonnes) in preference to any waste going to landfill. The City's current resource recovery rate will rise from 37 per cent to 57 per cent over the next 18 months. Jacks Gully Waste Treatment facility can recover up to 70 per cent of household waste for recycling, energy generation or production of high grade compost. The City is exploring options to take up any spare processing capacity in other waste treatment facilities for the rest of its waste.

■ **E-waste.** The City has regular free e-waste recycling opportunities. Residents drop off broken and obsolete electronic equipment, knowing it will be recycled. Over the past year, the City provided four e-waste collections, which recycled 36 tonnes of e-waste collected from 1,160 drop-offs.

■ **Zero waste.** Our Zero Waste campaign and education programs aim to provide the knowledge, skills and capacity not only to recycle, but also to avoid waste generation and to reuse materials. The programs encourage the community to think of waste as a resource and to dispose of materials only as the last option. We run free composting and worm farming workshops engaging +500 residents each year. The City hosted the Household Chemical Cleanout collection in 2010, run by the Department of Environment, Climate Change and Water, and collected about 13 tonnes of hazardous household waste for recycling and safe disposal.

Waste and recycling

Indicator	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
Household waste¹⁶								
Total (t)	26,020	36,553	39,999	38,752	40,230	41,890	37,180	✓
Per person (kg)	230	238	257	234	238	237	205	✓
Household recycling¹⁷								
Total (t)	9,169	12,186	13,227	16,122	16,654	19,556	21,000	✓
Per person (kg)	84	79	85	97	99	110	116	✓
Landfill diversion (per cent)	26%	25%	25%	29%	29.3%	32%	36%	✓
Public place waste collection (t) ¹⁸	7,565	6,901	7,410	7,750	7,205 ¹⁹	7,451	8,044	–
Clean-Up Notices ²⁰	15	67	54	15	3	0	4	–
Litter infringements	80	122	671	1,412	1,340	1,406	531	–
Council A4 paper use (sheets/employee)	6,370	8,597	8,595	7,908	6,059	5,152	5,662	✗
Building materials recycled at Council facility (t) ²¹	21,417	18,950	26,727	19,894	19,349	25,725	19,803	–

16 Includes: domestic waste (including estimated AWT residue) and household clean-up material disposed to landfill.

17 Includes: commingled recycling, garden organics, white goods, e-waste and estimated AWT recovered waste.

18 Includes street cleansing waste, public bins, events and waste dumps.

19 10% of public waste in 2007/08 was recycled through the UR3R resource recovery facility.

20 Clean-Up Notices were first issued by the City in Q4 of 2003.

21 Burrows Road Materials Recycling Facility, St Peters.

water

As water storage levels decrease and the population increases, the conservation of water is a key environmental issue for the City of Sydney. Water pollution is also a major concern. While the water quality of Sydney's waterways has improved in recent times, these natural assets continue to be degraded by pollution from stormwater, sewer overflows, land contamination and vessels.

According to a report by the Water Services Association of Australia, Australian cities will face a growing demand for water over the coming decades as the population increases and the weather becomes hotter due to climate change. By 2026 major cities will face a 39 per cent increase in water demand or 600 billion litres annually.

The inner city currently imports 32 gigalitres of drinking-standard water from Warragamba Dam, but only 20 per cent is used for cooking, drinking and washing. The other 80 per cent could be supplemented by recycled water for toilet flushing (19 per cent), air conditioning cooling towers (15 per cent) and irrigation (3 per cent).

In response to these challenges, the City of Sydney is working to reduce water demand, explore alternative sources of sustainable water supply and improve stormwater quality.

■ **Decentralised Water Master Plan.** More than 3.2 gigalitres of rain and other water resources, equivalent to more than 1,200 Olympic swimming pools, could be captured and reused for irrigation and other non-potable uses under a proposed City of Sydney water strategy. The City is developing a Decentralised Water Master Plan aimed at producing more than 10 per cent of the LGA's water supply from local sources. Using a city-wide recycled water network, the plan would also reduce pollutants entering Sydney Harbour and the Cooks River by about 50 per cent.

■ **Property Upgrades.** City of Sydney Council buildings and operations account for 1.5 per cent of water use in the LGA with about 80 per cent used by apartments, commercial and institutional buildings. The City's consumption has fallen by 37 per cent to 432 mega litres per annum over the six years to 2008/09. This reduction is a result of water restrictions and initiatives such as retrofitting Council buildings, parks and pools with water-efficient, dual flush toilets and tap aerators. The City has installed rainwater tanks at nearly 20 childcare centres, kindergartens and community centres. There are also 20 stormwater harvesting and reuse projects completed or under construction to irrigate the City's park and sporting fields.

■ **Raingardens.** The City aims to achieve its target of 50 per cent reduction in pollutants entering waterways by introducing stormwater harvesting and integrating natural treatment devices such as raingardens into the City's roads and footpaths.

■ **Sydney Park Upgrade.** The City began work in May 2010 on an \$18 million project, jointly funded by the Federal Government, which will recover and cleanse 740 million litres of storm water from Sydney Park and Green Square for irrigation of gardens, parks and use by neighbouring businesses. The project will also prevent more than 500,000 kilograms of pollutants entering the Cooks River.

■ **Stormwater treatment projects.** The City of Sydney has undertaken a range of stormwater treatment and reuse projects and demand management initiatives, reducing Council's water consumption by 20 per cent from 2002/03 to 500 million litres in 2007/08 (1.6 per cent of LGA consumption).

More information on water initiatives, projects and progress is available at: www.cityofsydney.nsw.gov.au/environment/water.

Water supply

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
Potable water cost (\$/kL) ²²	\$1.013	\$1.013	\$1.264	\$1.48	\$1.83	\$1.87	\$1.87	–
Water storage level (per cent) ²³	42.6%	38.3%	41.8%	50.5%	66.7%	61.4%	57.6%	–
Average City of Sydney rainfall (mm) ²⁴	705	1,041	792	1,403	1,197	1,156	1,045	–

22 Sydney Water pricing for consumption more than 100 kilolitres per quarter. Source <http://sydneywater.com.au/YourAccount/PricingInformation/>

23 Sydney Catchment Authority June figures. Source <http://www.sca.nsw.gov.au/dams-and-water/weekly-storage-and-supply-reports>

24 Average rainfall for 5 monitoring stations around City of Sydney provided by Sydney Water.

Water usage

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
City of Sydney LGA water usage								
Total (ML)	32,891	34,508	33,712	34,419	32,471	32,602	31,032	✓
Commercial average (kL)	2,825	2,504	2,417	2,451	2,292	2,194	2,049	✓
Units average (kL)	176	171	172	170	161	160	159	✓
Houses average (kL)	200	191	190	183	173	175	180	✗
Council water usage								
Total (ML)	534	484	483	497	500	432	415	✓
Per employee (kL)	361	326	322	304	304	269	244	✓
Fountains (total kL)	No data	No data	43,094	21,839	15,176	13,224	11,665	✓

water

Water pollution

Indicator	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
Darling Harbour bacteria levels (percent of time at safe limit)²⁵								
Faecal coliforms								
Winter	41%	41%	59%	35%	55%	65%	No data	×
Summer	39%	23%	41%	32%	35%	61%	No data	×
Enterococci								
Winter	41%	32%	55%	40%	68%	43%	No data	×
Summer	74%	35%	69%	55%	48%	55%	No data	×
NSW Maritime rubbish collection (m³)								
Blackwattle Bay	96	99	116	126	93	95	79.5	–
Rozelle Bay	214	298	263	204	157	87	45	–
Rubbish from Council stormwater pollution traps (t)								
	1,104	1,372	1,102	1,290	1,334	1,263	1,205	–
Water pollution infringements								
	52	94	76	44	84	81	54	–
Customer requests²⁶								
Sewer overflows/ water leaks								
	No data	No data	25	170	144	191	194	
Stormwater pollution								
	No data	No data	5	85	68	93	88	

²⁵ Note, from 2010 Samples are no longer analysed for faecal coliforms, as recommended by NHMRC guidelines. Microbial levels have been assessed at Category D since 2005/06. This is the poorest category and indicates that there may be a significant risk of illness at the location. Further information about the microbial assessment category is found at <http://www.environment.nsw.gov.au/beach/microbialassessment.htm>

²⁶ Requests to City of Sydney Customer Service centre.

urban ecology

European settlement and subsequent urbanisation has had a significant impact on the natural biodiversity of Sydney. The City is working to conserve and improve our parks and streets with programs to improve the health and diversity of our urban ecology.

Through Sustainable Sydney 2030, the City is working to secure Sydney's future, its prosperity and liveability as a model green city, with a well-functioning habitat and increased biodiversity. The City's Greening Sydney Plan and Urban Ecology Strategic Action Plan will prioritise, protect, conserve and increase the City's native flora and fauna.

■ **Greening Sydney Plan.** We are developing a Greening Sydney Plan as one of the many cross-council initiatives to make Sydney a green, global, connected city – the main objective of Sustainable Sydney 2030. This plan is in development and will be progressed in 2010/11. Over-arching strategies to be explored in the plan include:

- developing and protecting the city's urban forest
- restoring habitat and biodiversity
- greening Sydney's arterial transport and utility corridors
- greening new developments
- empowering our communities to contribute to the greening of the City of Sydney
- greening local streets and spaces.

■ **Urban Ecology Survey and Strategic Action Plan.** In 2009/10 the City commissioned the Australian Museum to develop an Urban Ecology Survey to obtain baseline information to help identify and prioritise opportunities for conserving and increasing local biodiversity. This will inform the development of an Urban Ecology Strategic Action Plan. This is also to be undertaken by the Australian Museum in consultation with our community. The survey and plan will be completed in 2010/11.

■ **Pymont Ultimo Landcare and Rozelle Bay Community Native Nursery.** The City continued to support volunteer groups wanting to restore locally indigenous plant communities during 2009/10. The 109 volunteers from the Pymont Ultimo Landcare group provided a total of 2,155 hours planting around 2,000 locally indigenous plants, watering, mulching and weeding while volunteers from the Rozelle Bay Community Native Nursery provided a total of 800 hours propagating and planting over 2,000 locally indigenous plants, watering mulching and weeding in the Glebe area.

■ **National Tree Day.** To celebrate National Tree Day in 2010, the City ran two very successful tree-planting events. At Sydney Park, 4,000 locally indigenous plants were planted by more than 450 volunteers and at Arthur Paddy Grey Reserve in Glebe, a further 1,000 were planted by volunteers, mainly from the Glebe Society's Blue Wren Group. The City also coordinated a native plant giveaway to mark National Tree Day and the International Year of Biodiversity as well as encouraging residents to establish wildlife-friendly gardens.

■ **Community Garden Program.** In 2010, the City adopted a policy on community gardening. The policy provides assistance to residents to establish a community garden organisation or create a community garden on a street verge, and also supports school kitchen gardens. At 30 June 2009, there were 13 community gardens in the City of Sydney LGA. Two additional community gardens, currently under development, will be opened in Redfern in September 2010 – the James Street Reserve community garden and the Charles Kernan Reserve Food Garden ("Charlie's Garden"). The development of these new gardens aligns with a rise in interest in community gardens across Australia. The City continues to organise tours of community gardens, introducing them to people interested in starting a new community garden or improving an existing garden.

urban ecology

- **Trees.** The City of Sydney has about 29,000 street trees and 11,000 park trees. In 2009/10, the City planted 759 street trees. Programs are underway to improve the condition and canopy cover provided by trees. This includes the proactive inspection and maintenance of all our street and park trees, with each tree being assessed by qualified arborists at least once a year. The City has also developed a suite of Tree Management policies to ensure the protection and enhancement of the City's urban forest. This includes Tree Management Plans developed for our 19th century parks, to ensure historic and ageing tree populations are carefully managed. For example, new Hills Figs are being grown for Hyde Park to ensure the magnificent Central Avenue is preserved for future generations. Information on the benefits of trees, Guidelines for Arborist Reports, our Register of Significant Trees and Tree Management Policies are available on the City's website www.cityofsydney.nsw.gov.au/trees.
- **Animals.** The City recognises that pets are an enormous source of pleasure and companionship for the community. The City encourages residents to desex and microchip their pets through provision of discounted dog and cat desexing services for residents with valid Pensioner Concession or Health Care Concession cards. Information is available on the City's companion animals website: www.cityofsydney.nsw.gov.au/Residents/Animals.
- **Pests.** Unwanted exotic plants and animals significantly disturb natural systems. The City manages weeds and feral animals within our parks and open spaces and has a comprehensive pest control program.
- **City Farm.** The City is investigating the feasibility of establishing a City Farm, examining possible sites and management models. City Farms provide an opportunity to reconnect urban communities with the realities and values of the most basic of human needs – food. These facilities reach well beyond the commercial value of the food itself to educational, cultural and social values. The study draws on current literature from around the world, best practice examples from Australia and overseas, stakeholder consultation and field work investigations to establish issues, objectives, evaluation criteria and recommendations for a future Sydney City Farm.

Plants and animals

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Trend
Area of parks and open space (Ha)	377	377	377	377	377	377	377	
Area managed by the City of Sydney (Ha)	188	188	188	188	188	188	188.5	–
Number of bird species ²⁷	65–68	65–68	65–68	65–68	65–68	65–68	65–68	–
New and replacement street trees ²⁸	850	1,127	1,150	2,030	1,301	777	759	–
Native plantings for National Tree Day	11,660	6,547	8,000	4,665	5,400	4,500	5,600	–
Native plantings by Rozelle Bay Community Native Nursery	2,365	1,441	2,806	2,812	2,757	No data	2,112	–
Native plantings by Pymont Ultimo Landcare	No data	No data	~1,500 per year	~1,500 per year	~1,500 per year	~1,500 per year	2,000	–
Free native plants distributed ²⁹	90	1,500	2,250	1,198	772	No data	2,500	–
Customer requests – Weeds	No data	No data	1	24	19	32	31	
Customer requests – Vermin/pests/insects	No data	No data	18	270	177	328	282	
New aerial bundle cabling on electricity cables (spans)	100	95	45	15	9	0	147	✓

²⁷ Sightings by the Bird Atlassers Association, and bird watchers in Pymont and Glebe.

²⁸ Calendar year plantings.

²⁹ Includes World Environment Day, National Tree Day and other environmental events.

land and noise

Land

Since European settlement, the City of Sydney area has experienced a substantial degree of urbanisation. There is very little remaining of the original landscape, natural creeks and vegetation.

Today, the City of Sydney serves as a commercial, financial and cultural centre as well as supports a sizeable residential population. While urbanisation brings with it many economic and social benefits, it also places considerable pressure on the land. Human activities and buildings have altered the natural form and in some areas resulted in land degradation and contamination.

As the local government authority for the area, the City seeks to manage the land in an environmentally and socially responsible manner. This is a balancing act between the needs of work and social interactions, as well as ecological processes.

Noise

The City of Sydney manages unwanted neighbourhood noise from a variety of sources such as loud music, plant and machinery, licensed venues, household alarms, barking dogs and construction activities.

City officers receive and investigate complaints concerning "offensive noise" as defined under the Protection of the Environment Operations Act 1997. In determining whether a noise is offensive officers must give consideration to many factors including the frequency and duration of the noise, the time of the day it occurs, its volume and any tonal characteristics and how it is affecting the complainant.

In addition, under existing noise regulations there are certain time restrictions during which noise from residential premises, such as noise from air conditioners, should not be heard inside a neighbouring residence.

The City also controls noise through the development and enforcement of noise-related development consent conditions and associated policies. These include the City's Construction Sites Noise Code, which gives guidance for developers in minimising excessive noise from construction activities and the development of a city-wide Noise Management Policy, which seeks to integrate controls in partnership with other agencies to reduce the urban noise in the environment.

Demographics

	2004	2005	2006	2007	2008	2009	2010
Residents ³⁰	154,073	159,854	165,596	170,173	173,444	177,920	180,679
Workers (per day) ³¹	350,000	365,000	377,000	385,413	375,000	370,000	372,000
Visitors (per day) ³²	450,000	475,000	475,000	480,000	475,000	475,000	480,000
Visitors (total nights) ³³	8,732,065	9,000,032	9,039,918	9,462,835	9,519,826	9,358,668	9,804,849
City of Sydney employees	1,479	1,485	1,509	1,601	1,602	1,686	1,781

30 The data has been recast from the 2006 Census. Up to 08/09 is ABS ERP data, 09/10 is CoS projection as ERP unavailable.

31 06/07 FES Cesus – count of workers, estimates for other years.

32 CoS estimate – tourist visitors, students, business visitors, shoppers.

33 Tourism NSW data.

Built Form³⁴

	2004	2005	2006	2007	2008	2009	2010
Households (dwellings)	82,342	86,093	88,664	89,764	91,522	92,918	95,234
Completed commercial development (sqm)	85,276	166,259	246,442	73,867	112,118	135,564	177,149
Completed residential development (sqm)	4,802	3,751	2,571	1,100	1,758	1,396	1,346

34 06/07 FES Census (Private Dwellings); other years – development statistics – residential completions.

Noise

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Customer requests							
Construction noise	No data	No data	15	274	183	348	354
Other noise	No data	No data	124	852	625	899	893

cultural heritage

In 2009/10, the City continued to build on our success and partnerships with many multicultural organisations and groups to celebrate the City's cultural diversity such as the Living in Harmony Festival, Chinese New Year Celebration, Primo Italiano Festival and Multicultural Art Competition. We are proud of our work to engage and support emerging communities such as the Indonesian and Korean communities and the provision of accessible information and services to these communities. The City has advocated for the rights of international students through our participation in the NSW Ministerial Taskforce on International Education and our submission to the Federal Government's Education Services for Overseas Students (ESOS) review. In addition to these achievements we have continued to work on capacity building through volunteering programs and funding support for multicultural initiatives. The City's Social Policy & Community Support Unit, NSW Police and the Chinese Australian Settlement Service (CASS) delivered five Safety Seminars from July to August to Chinese-speaking community groups across the City on the topics of Women's safety, home safety, safety for seniors, crime prevention and safety for school children.

Aboriginal and Torres Strait Islander programs

The City continues to consult and work with Sydney's Aboriginal and Torres Strait Islander communities through the Aboriginal and Torres Strait Islander Advisory Panel which met quarterly during 2009/10 to consider issues and projects of significance to these communities. The Panel has continued to help the City work towards the delivery of landmark Sustainable Sydney 2030 initiatives such as the Eora Journey.

NAIDOC Week

National Aboriginal and Islander Day Observance Committee (NAIDOC) celebrations are held around Australia in July each year to celebrate the history, culture and achievements of Aboriginal and Torres Strait Islander people. This year's NAIDOC Week was 5 to 12 July, although events can be scheduled outside of these dates.

During NAIDOC Week 2009, the City of Sydney directly supported five events through grants, sponsorship or in-kind support including a Flag Raising Ceremony, Aboriginal and Torres Strait Islander Elders morning tea, Community and Family Cultural Days, live entertainment and an Aboriginal and Torres Strait Islander history seminar.

Other activities during NAIDOC Week included:

- flying the Australian Aboriginal and the Torres Strait Islander flags over Sydney Town Hall for the course of NAIDOC Week
- displaying NAIDOC week posters in more than 220 bus shelter sites throughout City of Sydney LGA
- displaying 708 NAIDOC week banners in significant locations across the City for two weeks leading up to and during NAIDOC Week
- displaying NAIDOC Week 2009 promotional material in City libraries, community centres and throughout City marketing channels including the City's What's On website and e-newsletter.

Reconciliation Week

National Reconciliation Week 2010 marked the 10th Anniversary of the 'Bridge Walks for Reconciliation' with an event being staged at First Fleet Park that was supported by City of Sydney, National Sorry Day Committee and NSW Reconciliation Committee.

The event was attended by more than 400 people and continues to help raise awareness and understanding by encouraging the wider community to get involved in supporting the reconciliation process. It also provides a platform to celebrate diversity, encourage understanding and respect, break down barriers and challenge stereotypes.

Funeral of Charles 'Chicka' Dixon

A state funeral was held for Charles 'Chicka' Dixon, one of the most prominent Aboriginal activists of the 1960s and 1970s. The funeral was held on 31 March 2010 at Sydney Town Hall and attended by family, friends, community, federal and state politicians and the judiciary.

Chicka was one of the central campaigners for the 1967 referendum, an active participant in the Aboriginal Tent Embassy in the 1970s and a founder of both the Aboriginal Legal Service and the Federal Council for the Advancement of Aboriginal and Torres Strait Islanders. Chicka Dixon provided a key link between working-class Indigenous activists and the post-1967 young "Black Power" Indigenous activists.

Chicka was a worker, leader and activist best known for his ongoing fight and commitment for basic human rights for Aboriginal and Torres Strait Islander people. He was determined to combat racism and elitism and gain proper recognition for the extraordinary culture and character of his people and the great injustice done to them.

Aboriginal and Torres Strait Islander Cultural Mapping in the City of Sydney

During 2009/10, the City started a cultural mapping exercise by commissioning a Literature Review and Analysis of documentation that identifies Aboriginal and Torres Strait Islander sites of historical significance within the City of Sydney. This is the first stage in a broader project of cultural mapping to acknowledge Aboriginal and Torres Strait Islander cultural heritage in the public domain as part of the Sustainable Sydney 2030 Eora Journey Project.

History

The City's History Program is nationally and internationally recognised for its depth, rigorous research and commitment to ensuring all members of the community have the opportunity to access information on the LGA's history. In 2009/10 the City's history programs included:

- staging History Week celebrations. History Week, 5 to 13 September 2009, explored the theme "Scandals, Crime and Corruption". A series of free talks, archive workshops and displays entitled "Murder and Mayhem: Sydney's Crime History" was held on 4 September at Customs House and drew an enthusiastic audience of more than 200 people throughout the day. The City's event at Customs House was a feature event in the History Week calendar, which is coordinated by the History Council of NSW
- staging Heritage Festival activities. The National Trust Heritage Festival took place from 9 to 24 April 2010 celebrating the theme "The Making of the Nation". The City hosted a well-attended talk evening "Books and Mortar: 100 Years of Library Service" at Surry Hills Library on 15 April as part of the festival. Mitchell Librarian Richard Neville and professional historian Terri McCormack discussed the histories, inter-connection and legacies of the Mitchell Library and the City of Sydney Library, both of which recently celebrated 100 years of service to the community

cultural heritage

- completion of historical walking tour brochure *Skirting Sydney*
- appointment of a permanent Oral Historian to guide and develop the City's oral history collection as a world-leading urban collection
- staging the free exhibition "Unvaulted", developed by the City's Curator, in the newly refurbished Lower Town Hall. "Unvaulted" showcased many of the historic, unique and striking objects, artefacts and artworks that form part of the Sydney Town Hall Collection
- support for the on-going development of the Dictionary of Sydney (www.dictionaryofsydney.org). The Dictionary is an innovative, digital multimedia research repository that integrates and presents the history of metropolitan Sydney. The Dictionary of Sydney website went live in November 2009 and won a National Trust Heritage Award in April 2010
- public lectures, talks and presentations by the Acting City Historian. A number of presentations were made to conference groups, students, history groups and the general public
- support for publications through the History Publication Sponsorship Program.

Heritage

During 2009/10 the City continued reviewing its heritage conservation planning controls, heritage items and conservation areas, in preparation for the consolidated City Plan.

- The City of Sydney leads by example in heritage conservation by ensuring that its own heritage projects demonstrate best practice. The Paddington Reservoir Gardens project has received multiple awards including the 2009 Australia Award for Urban Design.
- Conservation works to Sydney Town Hall interiors were successfully completed. Conservation works to the clock tower and external stonework are the next scheduled project.
- Hyde Park Barracks is under consideration for World heritage listing as part of a national listing of sites related to convict transportation.

Information about heritage in the City of Sydney is available on the City's website www.cityofsydney.nsw.gov.au/Development/HeritageInformation.

The NSW Department of Planning's Heritage Branch also provides information on heritage items on their website at: www.heritage.nsw.gov.au.

