Green Report

Annual Environmental Report
2022/23

The City of Sydney acknowledges the Gadigal of the Eora Nation as the Traditional Custodians of our local area.

CITY OF SYDNEY

Contents

Cover image: City of Sydney employees at the Bay Street Depot recycling pop-up (Photo by Abril Felman / City of Sydney)

Published November 2023

Message from the CEO

The United Nations' Intergovernmental Panel on Climate Change (IPCC) tells us that we need to address carbon emissions in this decade to avoid the worst impacts of climate change. Cities have a vital role in managing climate change. We can drive change through our planning controls and programs and by working with our community and other governments.

Our new performance standards for net zero energy buildings lock in energy efficiency and use of renewable energy through our planning controls. These standards were developed with strong support from the property industry, demonstrating that working in collaboration is the best way to create the changes we need for a clean energy future. This work influenced the NSW Government's Sustainable Buildings state environmental planning policy (SEPP) that will help buildings across the state achieve net zero emissions by 2050.

This planning change complements work from our strata and business programs. The Better Buildings Partnership released building electrification resources, CitySwitch has built a program for net zero office tenancies, and our Smart Green Apartments program supports owners corporations to understand their energy use and identify opportunities for energy efficiency including electrification feasibility studies.

Our properties teams are translating this work internally with a focus on planning for net zero and the critical electrification transition for our assets, so we can stop fossil gas use in coming years.

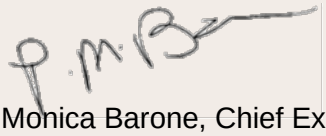
We are aware that we cannot rely on the high rainfall of previous years to continue. With an El Nino event declared we are expecting higher temperatures, drought conditions and water restrictions in future years. Our parks and properties teams are focussed on water efficiency, infrastructure upgrades, and the use of data to ensure we are not wasting water.

I am proud of our ongoing strong collaboration in the Greater Sydney region, ensuring that together we get better results. This year I was delighted by the news that the street lighting upgrade program led by South Sydney Regional Organisation of Councils (SSROC) has been substantially completed. Street lighting is the largest source of electricity use for councils, however our ability to reduce use is dependent on Ausgrid's infrastructure decisions. This work started with a summit in Sydney Town Hall in 2011, and has succeeded with strong championship from SSROC to coordinate councils and Ausgrid. 33 Councils now have LED streetlights through this program, 75% of the total lighting portfolio across the Ausgrid network.

The Resilient Sydney program, hosted by the City of Sydney, brings together all 33 Greater Sydney councils so we can prepare for a changed climate in this region. The program secured funding this year to develop its second strategy, ensuring it can continue to focus on critical activities and deep collaboration.

Following the Covid lockdowns, we brought life and culture back into the city through our events. Events unite communities, support the local economy, enhance tourism and empower local creative sectors. They also have an environmental impact. We've been working to improve the sustainability of the events we manage, and to support event producers. This year's case study puts a spotlight on day-to-day actions from our events management teams, the ongoing projects for our major events, and the results of focussed sustainability initiatives for Sydney World Pride.

I continue to be proud of the strong achievements of the City of Sydney, and the way our employees and community work together on the challenges we face.



Monica Barone, Chief Executive Officer

Year in review

Operational highlights

In 2022/23 we continued our dedication to environmental sustainability with practical, continuous improvement of our operations.

We installed food waste dehydrators at 3 of our biggest sites. The dehydrators convert food waste into a soil conditioner we use in our parks, creating a circular solution. This project reduces waste to landfill, avoids future methane emissions from food decomposing in landfill, adds nutrients to the soil, and reduces the amount of water needed to keep the park green.

We continue to transition our fleet, plant and equipment away from fossil fuels. Our parks teams no longer use petrol blowers, and 80% of our hedge trimmers are electric. We purchased our first electric ride-on lawn mower following a successful trial this year. We added 2 specialised electric vehicles to our fleet. These vehicles collect street litter on the new pedestrianised light rail line, reducing noise and air pollution in the city.

Most of the street lighting in our area is now LED, following a major 5 year project between the City of Sydney and Ausgrid to upgrade lighting. Public lighting is one of highest uses of electricity for councils, so this project has been important in targeting energy use and reducing our operational costs.

A new LED street light in Haymarket (Photo by Ausgrid)

With drier conditions predicted we are targeting water use and upgrading our recycled water systems. Improved water use monitoring allowed us to identify and fix leaks in toilets, taps, drinking fountains, irrigation pipes and pool equipment. This saved 140,000 kilolitres of water and $500,000. This year we upgraded park water harvesting and recycling systems. These systems supplied around 49 megalitres of recycled water for irrigation in 2022/23, a capacity increase of 37%.

Local area highlights

In 2022/23 we completed 3 initiatives to support our community to reduce their emissions.

Our planning controls now include performance standards for net zero energy buildings. This change was adopted by Council in 2022/23. The controls will help meet our goal of net zero emissions for the local area, as they require a step change in energy performance for new buildings and major refurbishments.

We ran a campaign to boost adoption of 100% accredited GreenPower electricity plans, highlighting an option for residents of a dense urban environment to contribute to renewable energy production when they might not be able to install solar panels.

8% of our local area emissions come from transport so a shift to electric vehicles is an important part of our goal to hit net zero. This year we released the Electrification of transport strategy and action plan. This plan sets out 21 actions to encourage the transition to electric vehicles. The importance of this strategy is highlighted by a drop in local area emissions in 2021/22. Changes in transport emissions, especially from changed travel during the lockdowns and Sydney Trains' use of renewable electricity since July 2021 was the main cause of the decrease. We expect 2022/23 reported emissions to increase because people returned to normal travel patterns.

We're not only focussed on emissions reduction. We also supported residents and local businesses to adopt sustainable water use and recycling practices by providing infrastructure and supporting community events.

This year we completed upgrade works on our water recycling treatment plant at Green Square. These works increase the water recovery rate from the scheme, ensuring we can continue to supply recycled water for non-potable water uses to private buildings in the Green Square town centre.

We provided new options to recycle tricky items. There is a new recycling pop-up service at our Bay Street Depot and upgraded recycling stations at 16 locations in the local area for small electronics, batteries, mobile phones and light bulbs. We focussed on textile waste reduction, offering clothing reuse and repair events, in partnership with local organisations and supporting reduction in textile waste in the fashion industry with one of our grants.

Trees are the largest living things in the urban environment and are important for climate adaptation. This year we released key strategic documents that will guide decisions into the future, strengthening our ability to meet our canopy cover target. The urban forest strategy, street tree master plan, tree species list, and tree management and donation policy will help us improve biodiversity and reduce the urban heat island effect.

Operational targets

Target	Latest result
Carbon	
80% **reduction in emissions** generation by end June 2025, from 2006 baseline	74.5% **reduction against baseline** (June 2023)
Maintain emissions from the City's fleet below 2014 levels, and aim to achieve zero fleet emissions by 2035 or sooner	18% **reduction against baseline** (June 2023)
Water	
zero increase **in potable use** annually until 2025, from 2006 baseline	6% **reduction against baseline** (June 2023)
Waste	
90% **diversion from landfill**, with 50% source separated **recycling**, from City-managed properties by end June 2025	90% **of our waste was diverted from landfill** (June 2023) 51% **source separated recycling** (June 2023)
15% **reduction in total waste** generated from City-managed **properties** by end of June 2025, from 2019 baseline	0.3% **reduction in total waste generated against baseline** (June 2023)
70% **resource recovery** of waste from **office strip out and fit out** by end of June 2025	This data is not available for this reporting period. A measurement process is being established
90% **resource recovery** of **construction** and **demolition waste** generated and managed by City operations by end June 2025	94% **recovery** of **construction** and **demolition waste** (June 2023)
50% **resource recovery** of waste from **City parks, streets** and **public places** by end June 2025	57% **resource recovery** from **City parks, streets** and **other public places** (June 2023)

LGA targets

Target	Latest result

Carbon

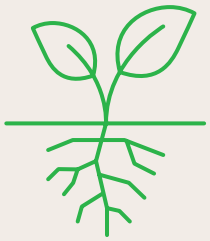
Target	Latest result
70% **reduction in greenhouse gas emissions** by 2030, from 2006 baseline	41% **reduction against baseline** (June 2022)
net zero emissions by **2035**	
50% of **electricity** demand met by renewable sources by 2030	29% **of demand met by renewable sources** (NSW average, June 2023)

Water

Target	Latest result
Reduce residential **potable water use to** 170 litres per person per day by 2030	204 litres per person per day (June 2022)
10% **reduction in non-residential potable water use** per m2 by 2030, from 2019 baseline	32% **reduction against baseline** (June 2022)
50% **reduction in the annual solid pollution load** discharged to waterways via stormwater by 2030	**Gross pollutants** reduced by 16% **Total suspended solids** reduced by 11% against 2006 baseline (2023)
15% **reduction in the annual nutrient load** discharged to waterways via stormwater by 2030	**Total phosphorous** reduced by 7% **Total nitrogen** reduced by 4% against 2006 baseline(2023)

LGA targets continued

Target	Latest result



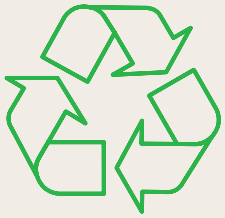
Greening

Increase overall **green cover to** 40% across the local area, including **27% tree canopy by 2050**

30.6% green cover (2022)

19.8% canopy (2022)

Waste



90% diversion from landfill of **residential waste,** with 35% as source-separated recycling by 2030

Diversion from landfill 51% (June 2023)

Source separated recycling 31% (June 2023)

90% diversion from landfill of **commercial and industrial waste** by 2030

47% **diversion from landfill** (estimate, 2021)

90% diversion from landfill of **construction and demolition** waste by 2030

76% **diversion from landfill** (NSW average, June 2021)

15% reduction in **residential waste** generation per capita by 2030, from a 2015 baseline

11% **per capita reduction in waste since 2015** (June 2023)

Climate action

Climate change affects all of us. Bold **action** in this critical decade will help to avoid its worst impacts.

We continue to lead with **ambitious** targets and **decisive** action to meet them.

Our operations

The City of Sydney has measured, reduced and offset its operational greenhouse gas emissions since 2007. In 2011, we became the first government authority in the country to achieve carbon neutral certification from the Australian Government. We have maintained this certification and continue to reduce our operational emissions.

Our results

The City of Sydney's emissions have dropped 74.5% since our 2005/06 baseline. In 2022/23, we had a slight increase in our emissions from 2021/22 - from 12,144 tonnes CO2 equivalent (CO2-e) to 13,515 tonnes CO2-e. This is largely a result of changes made in 2023 by the Australian Government to the emissions factors used for diesel and petrol. These fuel types are now more carbon intensive as production has moved overseas. This change accounts for 70% of the total increase. A further 25% of the increase is from the recent inclusion in the data of fuel used by one of our major contractors, which was made possible this year through improved data availability. The remainder is from changes to our operations as we returned to normal service delivery following Covid lockdowns.

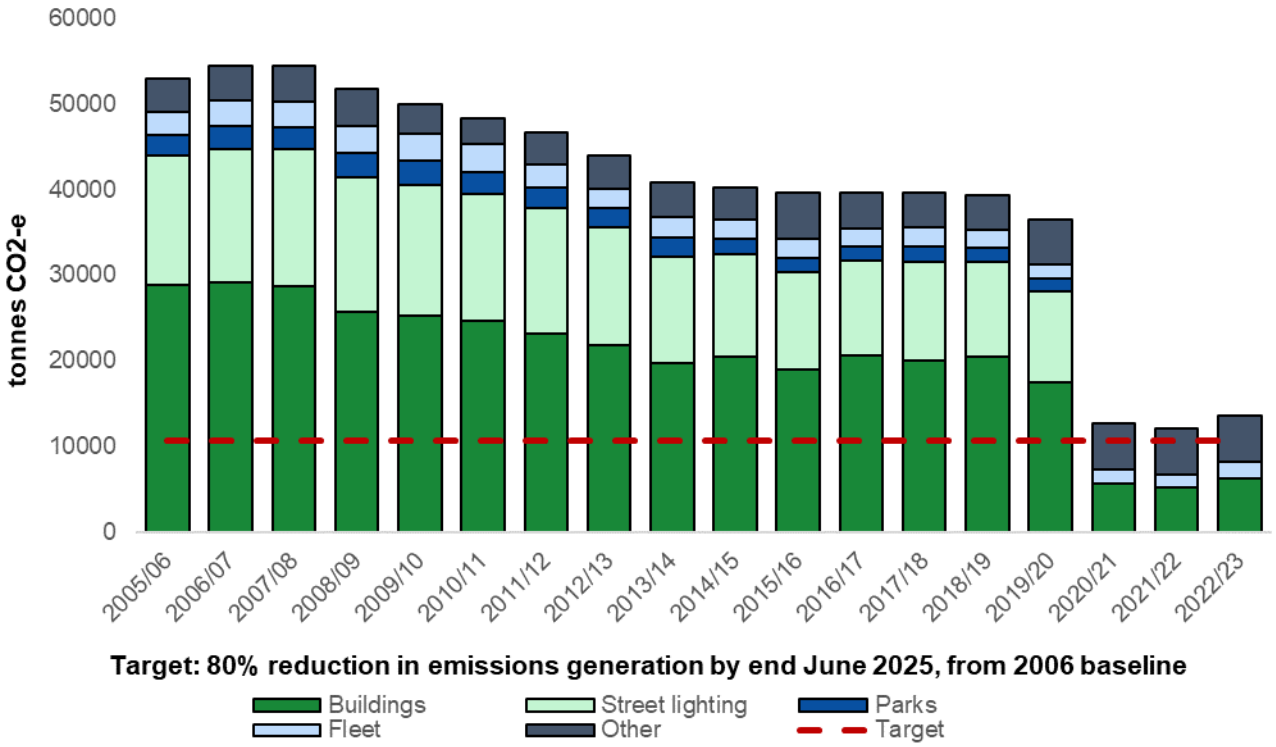


Figure 1: Operational carbon emissions

Driving sustainability: Energy efficiency and renewable electricity

We buy 100% renewable electricity, significantly cutting our greenhouse gas emissions, but we're still focused on trimming our power use as part of our net zero approach.

Energy efficiency can be understood as the first fuel: the more efficiently we run our operations, the more renewable energy there is to decarbonise other parts of the economy. We continue to improve energy efficiency with a dedicated fund for facility upgrades and efficient equipment replacement.

Fleet Emissions

Emissions from our fleet increased 502 tonnes CO2-e, an 18% decrease from our 2014 baseline. As discussed above, this is largely driven by changes to the Australian Government emissions factors for diesel and petrol. Our annual fleet emissions increased slightly by 502 tonnes CO2-e, however we continue to remain well below our 2014 baseline. As discussed above, the increase is largely driven by changes to the Australian Government emissions factors for diesel and petrol. Without the changes in these factors our reported emissions would have continued to reduce, as we continue to take action such as electrifying our fleet vehicles and driver education.

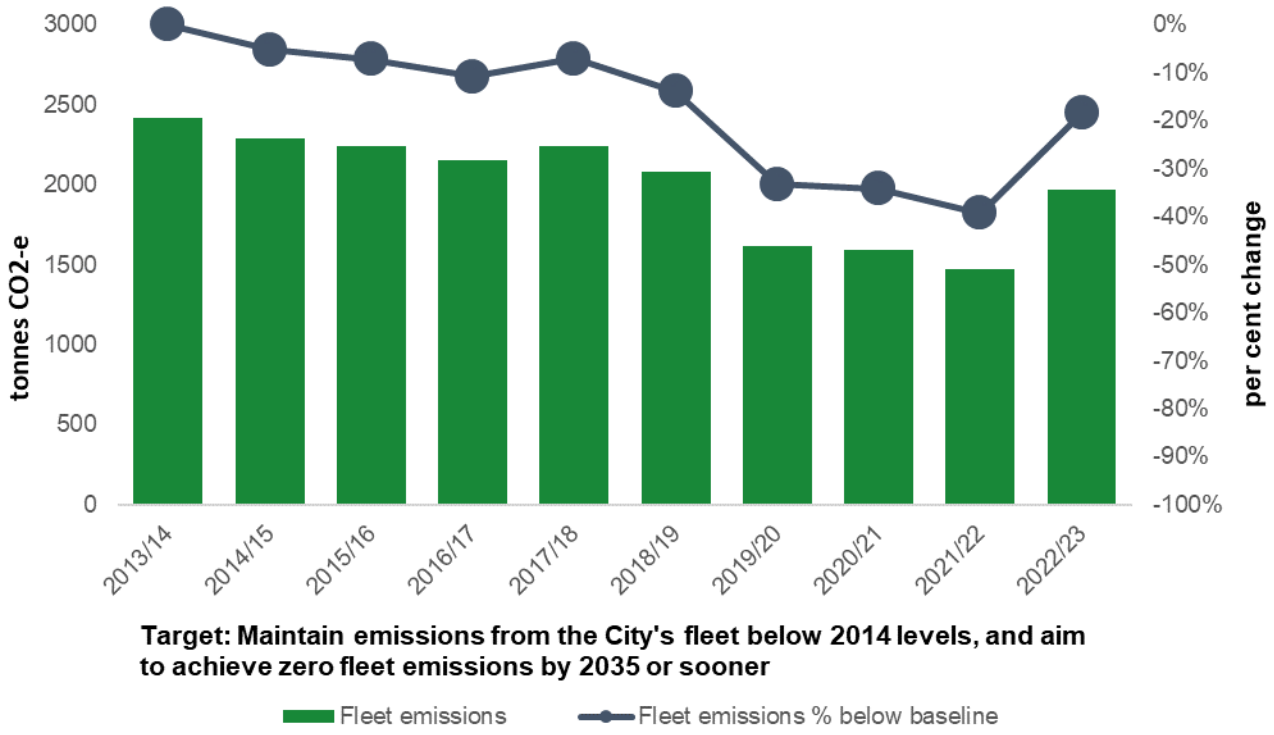


Figure 2: Operational fleet emissions

New Year's Eve event fireworks

Fireworks and light displays create carbon emissions, which we are directly responsible for. These emissions are included in our annual carbon inventory and have been offset since New Year's Eve 2006. Between 2007 and 2015 we developed detailed annual emissions inventories for the whole New Year's Eve event. These showed that year-on-year event emissions did not change significantly and contribute a small share of our total operational emissions. 2015 New Year's Eve event emissions were 552 tonnes of which the combustion of fireworks made up only 4.8 tonnes, or 0.9 per cent of the event emissions. Since 2016 we have reported and offset 662 tonnes of emissions each year for the New Year's Eve event as part of our ongoing organisational carbon neutral certification. This includes a 20% buffer above 2015 emissions, to ensure that emissions are not under reported.

Working towards our target

Our operational target is to cut emissions by 80% from 2006 levels by June 2025. This target doesn't include offsets. We are committed to maintaining our carbon neutral certification, so we offset unavoidable emissions. Visit Climate Active for our latest reports.

To achieve our target, we will reduce reliance on co-generation and tri-generation systems, convert all our gas pool heating systems to electric and convert more of our fleet vehicles to electric. Any new buildings will be fully electrified, with no new fossil fuel connections. Where available, we will use lower global warming potential refrigerants in our heating and cooling systems.

Electrification is a key opportunity. Electric vehicles use around one-third the energy of fuel vehicles. Almost one-third of our fleet is now electric (19 vehicles and 1 truck) or hybrid (73 hybrid cars and trucks). Heat pumps are 3 to 5 times more energy efficient for heating space or hot water compared to gas boilers.

How we do it

Measure

We prepare a detailed emissions inventory each year and verify it independently to ensure accuracy.

Avoid and reduce

We achieve energy and emissions savings in our buildings, street lighting and fleet operations by efficiency upgrades, electrification, using renewables and effective monitoring.

Renewable energy

We have installed solar panels on many of our sites, supplying electricity directly where it is used. From July 2020 we have purchased 100% renewable electricity.

Offset

We offset unavoidable emissions, increasingly from quality Australian projects. These support regional initiatives. In 2022, 21% of our emissions were offset from Indigenous savannah fire and land management in northern Australia. Our aim: 100% high-quality Australian regenerative offsets by 2025.

Reducing work travel emissions

Our travel policy requires employees to prioritise walking, cycling and public transport for work trips. Bicycles are available for staff at Town Hall House and Alexandra Canal Depot, and we provide training to build confidence and safety.

We have a fleet of electric vehicles and require any team member who regularly drives for work to complete driver efficiency training to reduce fuel consumption.

Powering our parks and open spaces

Since 2021 we have introduced battery powered equipment to manage our parks and open spaces.

We replaced petrol blowers with 100% battery powered alternatives. This conversion has helped us reduce our emissions, noise pollution and the weight of equipment used by parks maintenance teams. As battery technology improves, 80% of our hedge trimmers are now battery powered and we plan to have 100% conversion in 2024.

Following a successful trial of an electric ride-on lawn mower in Hyde Park in 2022 we now have 2 electric ride-on lawn mowers.

Sydney Lunar Festival plinths and solar trees (Photo by Abril Felman / City of Sydney)

Solar power for Lunar Festival

For the Sydney Lunar Festival 2023, 12 solar-powered illuminated plinths lit up George Street for 3 weeks. These plinths are a new feature for the festival, replacing the zodiac lanterns of previous years. They were purposefully designed to be reusable, allowing new artworks of that Lunar New Year's Zodiac animal to be displayed with minimal material waste.

Our major events and festivals team worked closely with local technical company DPLR to develop and install the new plinths. Custom designed solar trees power the plinths with energy stored in on-board batteries, eliminating the need for generators.

Street lighting upgrades

The City of Sydney was the first local government in Australia to convert its street lighting to energy efficient LED in 2015.

However, Ausgrid owns the majority of street lighting in our area. In 2018, the City of Sydney and Ausgrid agreed to upgrade the lighting in our area to LED.

By April 2023, 7,595 lights on footpaths and roads were replaced.

Most of the street lighting in our area has now been switched to LED technology which uses less energy and produces a better light quality. The transition also saves on maintenance costs.

Our street lighting is emission-free, because we buy 100% renewable electricity.

Reducing fleet emissions

Electric vehicles for street litter

We now use 2 electric vehicles to collect street litter bins along the light rail line from Central to Circular Quay.

Electric vehicles use less energy than petrol or diesel engine models, and there are no

greenhouse gas emissions as we purchase 100% renewable electricity.

Importantly for an urban environment like ours, they produce no toxic air pollution, and do not add to the noise of the city.

These small vehicles are easy to control, save manual labour and avoid potential injuries.

Australasian Fleet Champions Awards

The City of Sydney was highly commended for sustainable journeys at the Australasian Fleet Champions Awards in October 2022.

The award recognised our work as one of the first organisations to start converting our fleet vehicles, and our use of telematics technology to improve efficient route planning and reduce the number and size of our vehicles.

These changes enable us to reduce our emissions impact while not compromising our services.

The City's electric waste collection vehicle (Photo by Chris Southwood / City of Sydney)

Action for our city

We aim to achieve net zero emissions in our city by 2035, aligning with global requirements to avoid the worst impacts of climate heating. While the City of Sydney can't tackle the climate crisis alone, we can lead and encourage others to do the same.

Our programs, grants and partnerships support building owners, residents and businesses to improve energy efficiency and switch to renewable energy. We actively support and advocate for zero emissions transport, buildings and energy supplies. In our local area, we encourage the use of transport with no or reduced emissions.

Our results

Greenhouse gas emissions for the City of Sydney's local area have been decreasing year on year.

In June 2022 they were 41% below 2006 levels, down from 31% in June 2021. This reduction reflects the impact of the pandemic when fewer people were in the city for work and transport usage was low, but is also a result of a decarbonising grid and Sydney Trains buying renewable electricity. Emissions from transport in the financial year to 2022 were more than 60% lower than the previous year, which reflects the lockdowns and changed work patterns.

From 2005/06 to 2021/22, the city economy grew by 37.3% adjusted for inflation, residential population grew by 32.3% and employment by 33.7%, even as total emissions have significantly reduced.

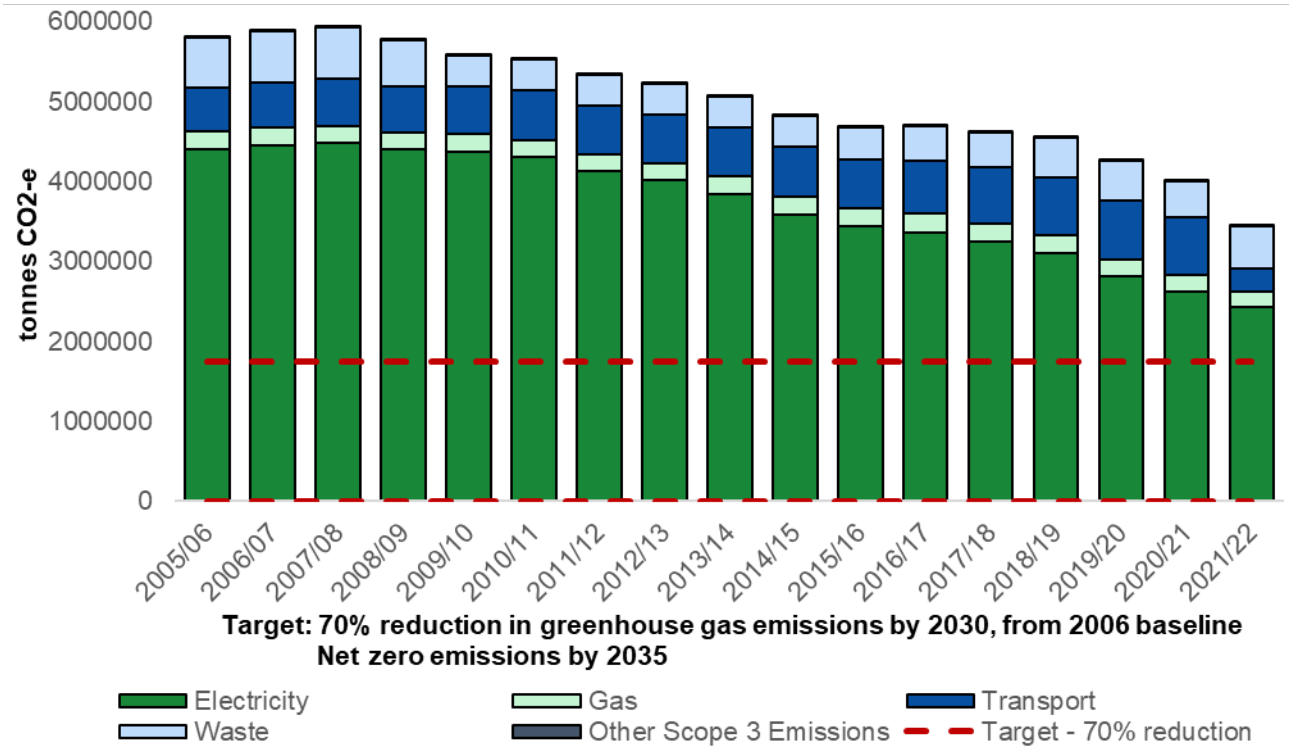


Figure 3: City of Sydney local area emissions

Air quality

The NSW Government operates 2 high quality air quality monitoring stations in our area, one in Alexandria and another at Cook and Phillip Park. During the reporting period, local air quality was consistently reported as 'good' (the best rating).

How we do it

Measure

We measure the emissions for our local area using best-practice international standards.

Flagship programs

Our targeted programs enable our communities to reduce their carbon emissions. Flagship programs include the Better Buildings Partnership, Sustainable Destination Partnership, CitySwitch, and Smart Green Apartments.

Promote renewable energy sources

We actively encourage businesses, residents and other organisations to switch to GreenPower electricity plans.

Promote active transport

We encourage a move away from private vehicles and towards walking, cycling and public transport, as well as a shift to electric vehicles.

Advocacy

We advocate to state and federal governments on a wide range of issues from improving the performance of existing buildings through ratings and disclosure, to national energy and emissions targets, supporting electric vehicles, improving fuel standards, climate justice and other issues.

Food waste

While targeting food waste has a waste management benefit, it also reduces carbon emissions. Every tonne of food waste we divert and process saves 1.69 tonnes of carbon emissions.

External factors

The electricity grid is rapidly greening. The Australian Energy Market Operator (AEMO) and the Australian Government estimate the national grid will be 82% renewable as soon as 2030.

Net zero planning rules

Energy used by buildings is a significant contributor to greenhouse gas emissions. To reduce emissions and future proof buildings, the City of Sydney developed performance standards for net zero energy buildings to be introduced in the planning system.

The standards will improve energy efficiency and require use of renewable electricity in new office, residential, hotel, and shopping centre projects, as well as major refurbishments.

Council adopted the standards in August 2022. They have now been finalised by the NSW Department of Planning and Environment and came into effect on 1 October 2023.

Managing carbon in real time at the Opera House

Local business Buildings Alive received a City of Sydney innovation grant in 2022 to conduct real-time carbon management at the Sydney Opera House.

As the grid transitions to 100% renewables, there are times of the day when solar systems are producing more energy, especially during the middle of the day. Controlling how and when buildings use energy is a relatively low cost carbon reduction solution. It is essential to the renewable energy transition, but it is not being investigated or supported at the same level as new renewable energy and transmission projects. That's why this project, at this iconic building, is so important.

The grant supported a software solution for real-time renewable electricity and cost tracking which makes the Sydney Opera House more

grid-interactive, that is, using more energy when renewables are abundant, and less during peak times.

This software has allowed Buildings Alive to work with other clients to implement zero carbon plans based on real-time emissions. The software developed through this grant has resulted in access to real-time carbon data for over 200 large complex buildings in Australia and worldwide.

This work became a case study in a discussion paper by the Green Building Council of Australia on grid-interactive efficient buildings.

GreenPower

From June 2022 to July 2023, we ran a campaign to boost adoption of 100% accredited GreenPower electricity plans.

Targeting residents and small businesses, the campaign included outdoor, transit, radio, podcast, television, social media and online advertising, as well as media partnerships with brands such as The Design Files and realestate.com.au.

We hosted online workshops for employees and residents to help them understand GreenPower and learn how to make the switch. To support medium to large businesses, we continue to promote resources and case studies about GreenPower, large-scale generation certificates and power purchase agreements.

We've distributed materials through our business sustainability programs, such as CitySwitch, and our Smart Green Apartments network.

Many residents and businesses overpay for electricity. Recognising the volatility of the electricity market, we encourage residents and businesses to check their electricity plan and shop around using the federal government's Energy Made Easy comparison website, the Green Electricity Guide, and the Business Energy Advice program.

GreenPower campaign on the billboards at Town Hall station (Photo by Abril Felman / City of Sydney)

Net zero pathway for retail

Reducing emissions rapidly is the key to achieving our net zero targets for the City of Sydney's area. Unfortunately, small and medium businesses face barriers to act: many lack the resources to hire a sustainability manager or create a net zero plan.

In 2021, the City of Sydney awarded an innovation grant to create a net zero roadmap for the retail sector, an Australian first. The project was led by the Australian Retail Association (ARA) in partnership with local clean tech startup Greener as part of the UN-backed Race to Zero pledge. The partnership also produced Greener for Business, a sustainability management app that identifies immediate cost savings while outlining a simple net zero action plan for businesses. This represents the first low cost, accessible net zero tool for small to medium businesses in Australia.

The roadmap outlines the decisions, investments and actions that retailers can make to accelerate their transition to net-zero emissions. The roadmap consists of 6 video modules and a practical guide. The videos feature insights from 8 prominent businesses and climate experts, and cover net zero foundations through to sustainable supply chains.

Electrification of transport strategy

The City of Sydney adopted the electrification of transport in the city strategy and action plan in June 2023. Transport accounts for around 8% of total emissions in our area and a shift to electric vehicles is an important part of our goal to hit net zero.

The plan sets out 21 actions. We are committed to electrifying our own fleet. We will advocate to the state and federal governments to electrify public transport, to reduce the costs of electric vehicles in Australia and set better fuel efficiency standards. It sets out how we support electric vehicle charging in apartment buildings, on our streets and in our carparks.

Charging point at the Goulburn Street parking station (Photo by Chris Southwood / City of Sydney)

On-street charging

In February 2023, we installed an electric vehicle charging unit on existing Ausgrid infrastructure on St Johns Road, Glebe. This was the first of 9 units to be installed across the local area in 2023, as part of a trial to encourage wider adoption of electric vehicles.

Ausgrid and its partner EVX will manage and maintain the chargers and power poles, with the chargers operating under a user pays model.

We will evaluate the trial to assess the technology's success, community support for the infrastructure and parking allocation, and the level of demand for this charging method.

Cycling booms with more network connections

In 2022/23 we focussed on connecting up our bike network. We opened separated cycleways on 17 streets across our local area. Some were small, but crucial connections in the network especially in the city centre and in Erskineville-Alexandria area.

The number of morning and afternoon peak bike trips has risen by 18% in the year between March 2022 and March 2023. Many sites recorded the highest daily trip counts ever. For example, George Street cycleway in Waterloo and Castlereagh Street cycleway each had a 33% increase in trips in June 2023 compared with previous years.

Crown Princess Mary of Denmark was among those who enjoyed riding on the new cycleways in the city centre. She visited Sydney in April 2023 as part of a Pacific tour to highlight the consequences of climate change, highlighting bike use as a zero emissions transport method.

Crown Princess Mary of Denmark and Fiona Campbell, Cycling Strategy Manager for the City of Sydney (Photo by Abril Felman / City of Sydney)

Influencing for change

The City of Sydney frequently advocates to other levels of government for improved policies, targets, funding and programs aimed at reducing emissions and increasing resilience of our communities, built, and natural environments.

We also contribute to advocacy campaigns by the Council of Capital Cities Lord Mayors and the Southern Sydney Region Organisation of Councils.

In the reporting period we provided policy submissions on:

- energy performance
- building standards and ratings
- setting and tracking emissions targets
- fuel efficiency standards
- electric vehicles
- circular economy
- renewable energy
- embodied emissions
- energy regulations.

Energy performance in apartment buildings

We connect with 22 representatives across government, industry and community organisations through our quarterly Residential Apartments Sustainability Reference Group.

We sit on several government reference groups and continue to advocate for inclusion of strata in residential policy and investment strategies including mandatory disclosure of energy performance in Australian homes.

Fossil fuel non-proliferation treaty

In 2021 the City of Sydney joined a growing number of signatories to endorse the Fossil Fuel non-proliferation treaty.

This treaty was spearheaded by the island nations of Vanuatu and Tuvalu that are particularly vulnerable to sea level rise.

The treaty calls for an end to new coal, oil and gas projects, phasing out of existing production in a fair and equitable and way and investing in 100% access to renewable energy globally.

In support of this treaty, in August 2022 Council resolved to place restrictions on advertising for fossil fuels for any Council controlled signage or property, and a ban on accepting sponsorships from companies whose main business is the extraction or sale of coal, oil or gas.

Supporting our region

Carbon network participation

We participate in various groups that share information and best practice on setting climate goals and actions. Locally, this includes the Cities Power Partnership and Climate Emergency Australia. At an international level we work with the C40 and Carbon Neutral Cities Alliance international networks.

Australia as a renewables superpower

All levels of government and many business leaders are now aligned: Australia can, and should, become a renewable energy superpower. This was the topic for the City Talk in October 2022. Leaders from business, finance and community discussed the scale of the opportunity and the need for a greater focus on social license during the transformation.

Street Lighting Improvement Program

We are one of 29 councils benefiting from the Street Lighting Improvement Program, an initiative led by SSROC to convert Ausgrid lights to energy efficient LED.

The program started after a Mayoral summit at Sydney Town Hall in 2011 found that street lights were one of the highest uses of electricity and highest source of emissions for councils.

Under this program Ausgrid have changed more than 193,000 street lights to LED. This is 75% of total Ausgrid lighting and is the largest LED deployment in the country. Southern Sydney Region Organisation of Councils (SSROC) ensured the success of the program by working though complex ownership arrangements for street lights.

Total energy savings will exceed 78,700 mega watt hours per year (MWh/yr), an average 62% energy saving for councils.

Our strata and business programs

Partnering with businesses

Through our sustainable business partnerships, we connect with the commercial sectors that contribute the most to the city's environmental footprint.190 different organisations, including building owners, hotel operators, entertainment venue managers, legal firms, not for profits, and office tenants participate in sustainability efforts through Better Buildings Partnership, Sustainable Destination partnership, and CitySwitch. These organisations represent 61% of all hotel rooms in the city, 30% of our office space and 64% of our commercial office buildings.

Better Buildings Partnership

The Better Buildings Partnership is a collaboration between 12 property companies, who own 100 commercial office buildings in our local area. 2023 projects included improving building electrification, understanding opportunities for circular office fitouts, and developing a resilience strategy. Collectively, the partnership achieved 82% reduction in emissions intensity and 78%

BBP members from Brookfield Properties, Charter Hall, Dexus, Frasers property, The GPT Group, Investa, ISPT Super Property, Lendlease, Mirvac, Stockland and UTS. (Photo by Katherine Griffiths / City of Sydney)

reduction in water intensity from a 2006 baseline. View the annual report for details about the partnership's results and overall achievements.

Better Buildings Partnership electrification resources

Electrification of our built environment is critical for net zero emissions. The Better Buildings Partnership has a goal for all members to have a pathway to electrify their building portfolios by June 2025.

To help asset managers and facility managers develop plans to electrify their buildings, the partnership worked with sector experts to create a set of resources. The resources enhance the Green Building Council's guide on electrifying existing buildings, which was released in September 2022, and foster wider industry collaboration for advancing electrification in national commercial portfolios. A total of 83 asset and facility managers, representing 40 organisations, attended training on how to use the resources.

The resources (including a webinar) are available on the Better Buildings Partnership website.

Sustainable Destination Partnership

In 2023, members representing 33 accommodation and entertainment buildings across the city renewed their commitment to work together to reduce their environmental impact, with Destination NSW joining as a new member of the partnership.

The partnership defined a new business plan and started work on best practice waste management and a marketing and communications strategy.

Members attended a renewables masterclass series about options for renewable electricity including GreenPower and power purchase agreements. Collectively, the partnership saw a 33% reduction in emissions and 45% reduction in water intensity from a 2018 baseline. See the partnership's website for more about the results and overall achievements.

Leadership team of the Sustainable Destination Partnership. (Photo by Katherine Griffiths / City of Sydney)

CitySwitch

CitySwitch is a national program to support improved sustainability in office tenancies managed by the City of Sydney on behalf of a national steering committee which includes the City of Melbourne, City of Adelaide and North Sydney Council. Together the program supports 543 businesses to work towards net zero emissions.

210 office tenancies in our local area participate in the program. Participants attend webinars and workshops, learn about measuring carbon emissions, how to switch to renewable electricity and educate internal teams about climate action.

In Sydney, the average annual emissions from a CitySwitch business was 48kg CO2 equivalent per square metre compared to a national average of 71kg CO2 equivalent per square metre.

Read CitySwitch's annual report for more about results and overall achievements.

CitySwitch member, Domain. (Photo by Stephanie Zingsheim / City of Sydney)

Working with our strata communities

Smart Green Apartments

Smart Green Apartments works with owners, strata and building managers to improve environmental performance in apartment buildings in our local area. There are around 248 buildings and 14,150 apartments in the program. Participating buildings have received NABERS ratings and energy action plans which inform owners corporations of opportunities for energy efficiency upgrades.

Since 2016, owners corporations have invested $3,307,404 in upgrades which will return significant savings across their lifespan, including $13,909,714 in running costs and avoiding 54,048 tonnes of carbon dioxide equivalent emissions. On average, participating owners corporations can reduce their energy use by 35%.

Resilient strata communities

18 green building grants were awarded this year with a total value of $160,430. Grantees receive support such as NABERS energy and water ratings, energy action plans as well as renewables and electrification feasibility studies.

We offer tailored electrification feasibility studies to Smart Green Apartments and Green Building Grants participants. These studies are included in energy action plans, aiding NABERS rating improvement. We also support development of resources by the NSW Government and Owners Corporation Network about making residential strata buildings ready for electric vehicles, currently available on the NSW Government Energy Saver website.

The electrification of transport strategy and action plan was endorsed by Council this year and recognises the opportunities and challenges of retrofitting electric vehicle charging in apartment buildings.

Windsor Plaza strata manager and strata committee (Photo by Katherine Griffiths / City of Sydney)

Our Strata Leadership Network showcases best practice, fostering connections and capacity for resilience, and we have conducted webinars about GreenPower, waste and recycling, and effective communication in strata. A new online networking opportunity, Strata Social, is being trialled. The first sessions were about renewables and waste. Our monthly Sustainable Apartments email newsletter provides practical advice and information to 3,150 subscribers.

Waste and Materials

We promote **responsible** material management, encouraging reduced consumption, waste minimisation and resource sharing.

Goods and materials used in our city create environmental impacts locally and where they're sourced.

Our operations

Our long-term goal is to reduce our waste and maximise resource recovery, so materials aren't just used once and discarded. We have set targets to increase recycling and resource recovery and dramatically reduce how much waste goes to landfill.

We are responsible for managing waste and recycling from our own buildings, our construction and asset management projects, the parks and public spaces that we manage, and residential dwellings.

Our results

We have separate targets for waste from our properties and from the public spaces that we manage. We have more control over waste management in our properties, offering greater recycling opportunities compared to public spaces. The 2 graphs below show these differentiated targets and results. An explanation of our waste data, including definitions, is available on page 27.

Total waste generated from our properties was 942 tonnes in 2022/23, an increase of 214 tonnes compared to the previous financial year. This increase can be attributed to the impact of employees and visitors returning to the workplace and the city following Covid lockdowns

In 2022/23 we achieved 57% diversion of waste to landfill from our parks, streets and public places, maintaining and exceeding the diversion target of 50%.

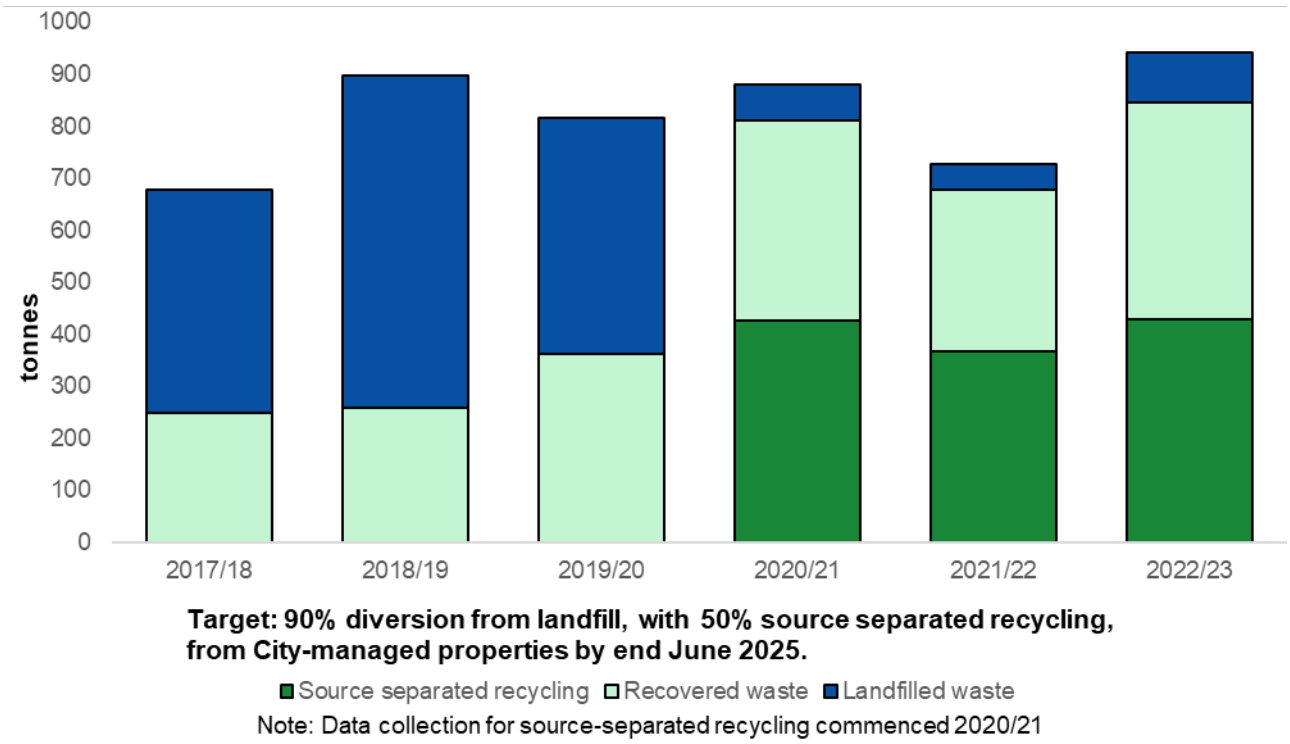


Figure 4: Operational waste from our properties

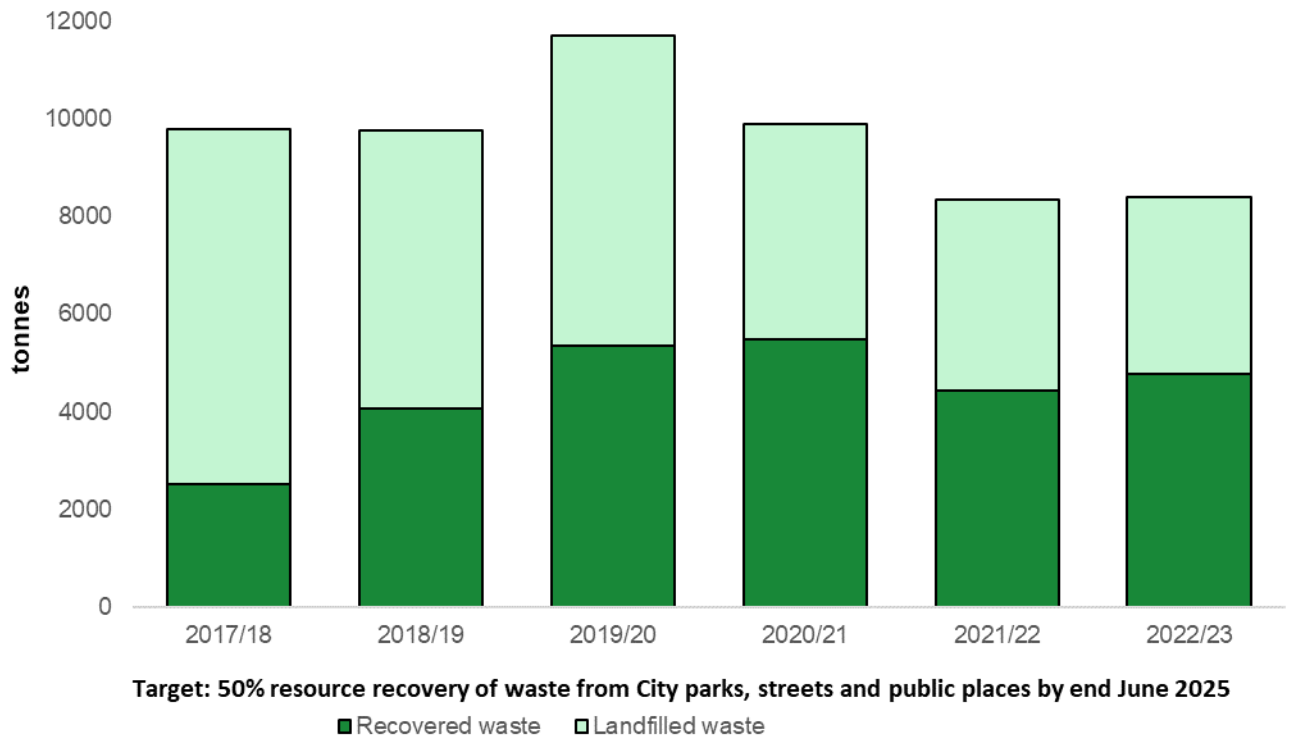


Figure 5: Waste from public spaces that we manage

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Landfill diversion rate, City properties	37%	29%	44%	92%	93%	90%
Source separated rate, City properties	NA	NA	NA	52%	54%	51%
Resource recovery rate, City parks, streets and public places	26%	42%	46%	55%[1]	53%	57%

Table 1: Operational waste recovery rates

Construction and demolition waste

In 2020/21 we added a new data source to our construction and demolition results. We are now able to report waste from our property and asset management projects as well as waste from our street and footpath renewal works. We expect results to fluctuate in the next couple of years as we establish more accurate data collection for our capital works projects.

At this stage we are unable to report on office strip out and fitout waste. We are working on a method to report in future.

[1] This figure contains updated data from that published in the City of Sydney Operational Plan report. Operational Plan data will be revised to align with these results.

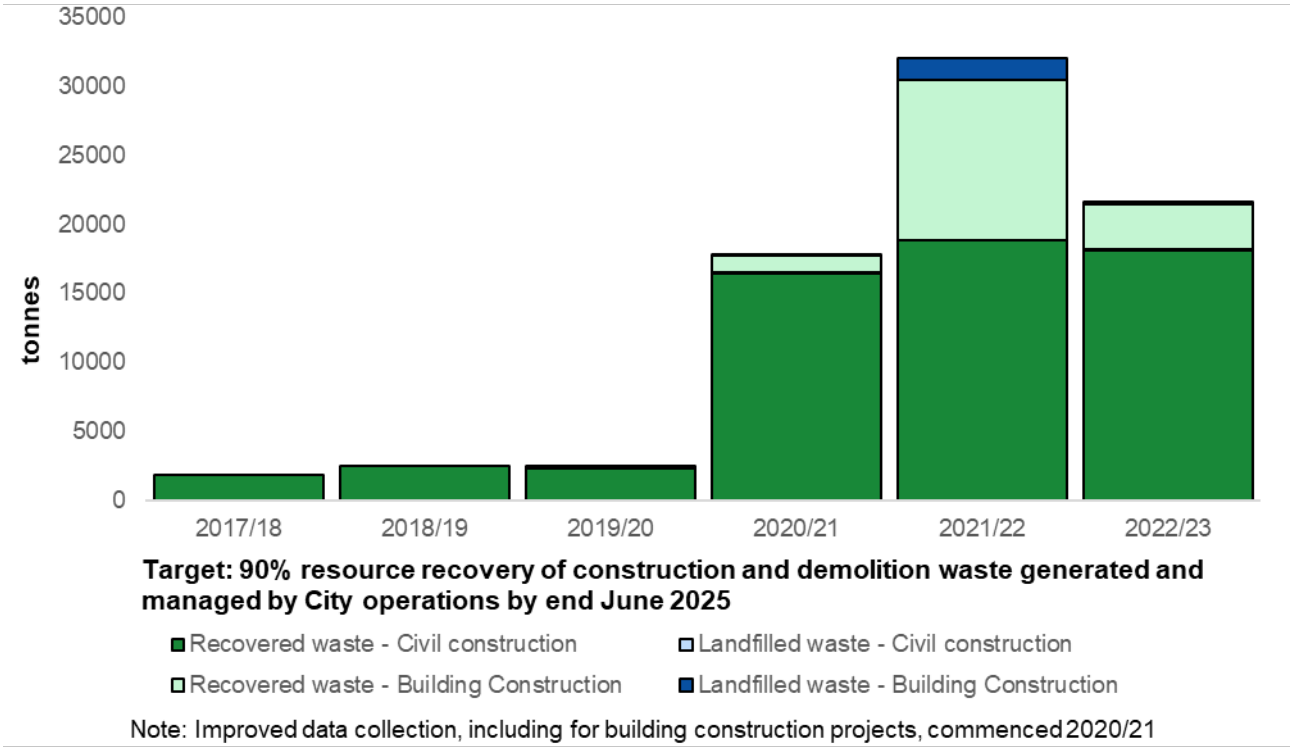


Figure 6: Construction and demolition waste from our operations

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Resource recovery rate, civil construction	100.0%	100.0%	95.0%	99.7%	99.9%	99.9%
Resource recovery rate, building construction	NA	NA	NA	92.8%	88.4%	93.8%

Table 2: Construction and demolition waste recovery rates

Understanding our waste data

We are responsible for managing waste and recycling from our own buildings, our construction and asset management projects, the parks and public spaces that we manage, and residential dwellings. We have set landfill diversion and recycling targets for each of these areas, and we actively monitor and track the waste and materials managed. While we are not responsible for collecting and managing the remaining commercial, industrial, construction and demolition waste generated in our local area, we recognise the significant impacts of these waste streams. The “Action for our city” chapter in this section of the report sets out what we do to help reduce waste and improve resource recovery in areas we don’t manage or control.

When considering our waste results, we split the total waste collected into recycling, recovery and materials sent to landfill. Recycling is where a product or material is processed to make the same or different products. Source-separated recycling is a more specific term, and refers to materials placed into specific bins that are then collected to be recycled, this includes food waste, paper and cardboard, and items that are collected in yellow lid bins. Recovery is where a product or material cannot be made into another product or material but can be processed to reduce its environmental impact before landfilling or to generate energy. It is a process usually applied to materials in our red bins. Landfill diversion refers to the sum of recycled and recovered materials.

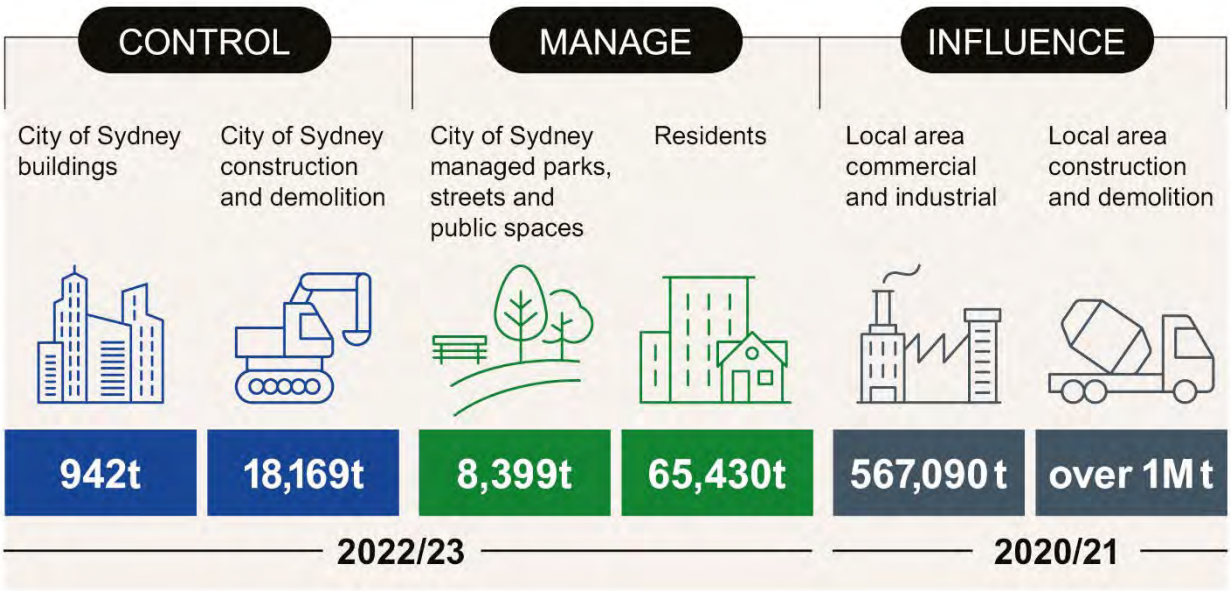


Figure 7: Understanding our waste data

How we do it

Measure

We are continually improving our reporting processes for our operational waste streams. We receive monthly reports from our waste contractors in line with the Better Buildings Partnership guidelines for operational waste. Waste data is entered into our sustainability platform every month. The platform allows us to continuously track and manage our waste performance.

Avoid and reduce

We aim to avoid creating waste. We have eliminated paper towels in buildings such as Town Hall House, we use paperless solutions for records management and council business, enable follow-me-printing, and provide information about avoiding single-use items.

A single-use campaign at Town Hall House encourages employees to reuse coffee mugs at the reusable cup library, and to take a container when visiting a local business to buy take-away lunch.

Source separation

Mixed recycling, paper, secure paper and food scraps collections are available in all office locations.

We run regular internal communication campaigns to ensure everyone is aware of what to do.

In the last financial year we updated signs for all our indoor bins to increase recycling and reduce contamination. We introduced organic waste recycling at Bay Street Depot and Ultimo Community Centre.

Building design

We developed guidelines to ensure our community buildings are designed to avoid unnecessary waste and enable increased source separation.

Good Environmental Choice Australia (GECA) certified waste services

The City of Sydney is the first local government in Australia to have its own waste services contract GECA certified. Achieving this standard means waste management from our properties has been independently verified providing transparency on its environmental impacts.

From food to fertiliser

To help us achieve our target of 90% diversion from landfill from our properties by June 2025, we installed food waste dehydrators at Town Hall House, Eveleigh Child Care Centre and Ultimo Community Centre. This project operates on a circular economy model, by transforming the City of Sydney's food waste into a soil conditioner for our green spaces.

The units work by shredding food waste, heating it to 100 degrees to eliminate pathogens, deodorising and dehydrating it. After a cooling process the soil conditioner is ready to use. This product is a nutrient-rich fertiliser which helps promote plant growth.

Current trials include applying the soil conditioner to bedding displays in Hyde Park, garden beds in some of our smaller pocket parks and on tree bases before applying mulch. By applying the soil conditioner, we are feeding our soil to improve structure which reduces water use and increases resilience to changing weather conditions.

We are already seeing results in Hyde Park with larger plants, increased flowering and greater root development. Next phase will be to incorporate the conditioner into turf topdressing soil, to assess the impact on turf growth by feeding our soil.

The project is a collaboration between multiple teams within the organisation as well as subcontractors and is a great example of cross collaboration between divisions.

The project is majority funded by a grant from the NSW Environmental Trust, as part of the EPA's Waste Less, Recycle More program.

Soil conditioner from the dehydrator being applied to City of Sydney's green spaces (Photo by Abril Felman / City of Sydney)

Crumb rubber trial

As part of our commitment to a circular economy, we participated in research to understand whether waste tyres can be used in asphalt. The surface of Sussex Street, from Liverpool to Goulburn streets was renewed using asphalt containing recycled crumb rubber from the equivalent of 120 passenger vehicle tyres.

The asphalt was laid as part of a trial, in collaboration with South Sydney Regional Organisation of Councils (SSROC), and 11 other councils. The Royal Melbourne Institute of Technology and The Australian Flexible Pavement Association will test and monitor the trial sections over the next 12 months to report on sustainability outcomes and to assess performance benefits across different road and traffic conditions.

Action for our city

Our long-term waste objectives for our local area are to reduce waste, recycle as much as possible while retaining a material's highest value and treat what is left over in the most sustainable way.

We cannot achieve this alone. We require the support and partnership of industry, government and our communities.

Our results

Our landfill diversion rate has declined since 2018. This is caused by continued high use of red lid bins by residents, and NSW EPA legislative changes in 2019, as our waste service provider was no longer able to convert organic material from red lid bins into a land remediation product.

To address this shortfall, since 2019 we have increased the number of services and materials we can accept for recycling to make it easier for our residents to avoid having to put waste in the red bin, and stepped up our advocacy at a state and federal level. Despite these efforts, we will struggle to meet our 2030 landfill diversion targets, due to external market challenges and the availability of recycling technology and infrastructure. This is a systemic issue, requiring a change in how governments, industry and communities view the value of materials we use.

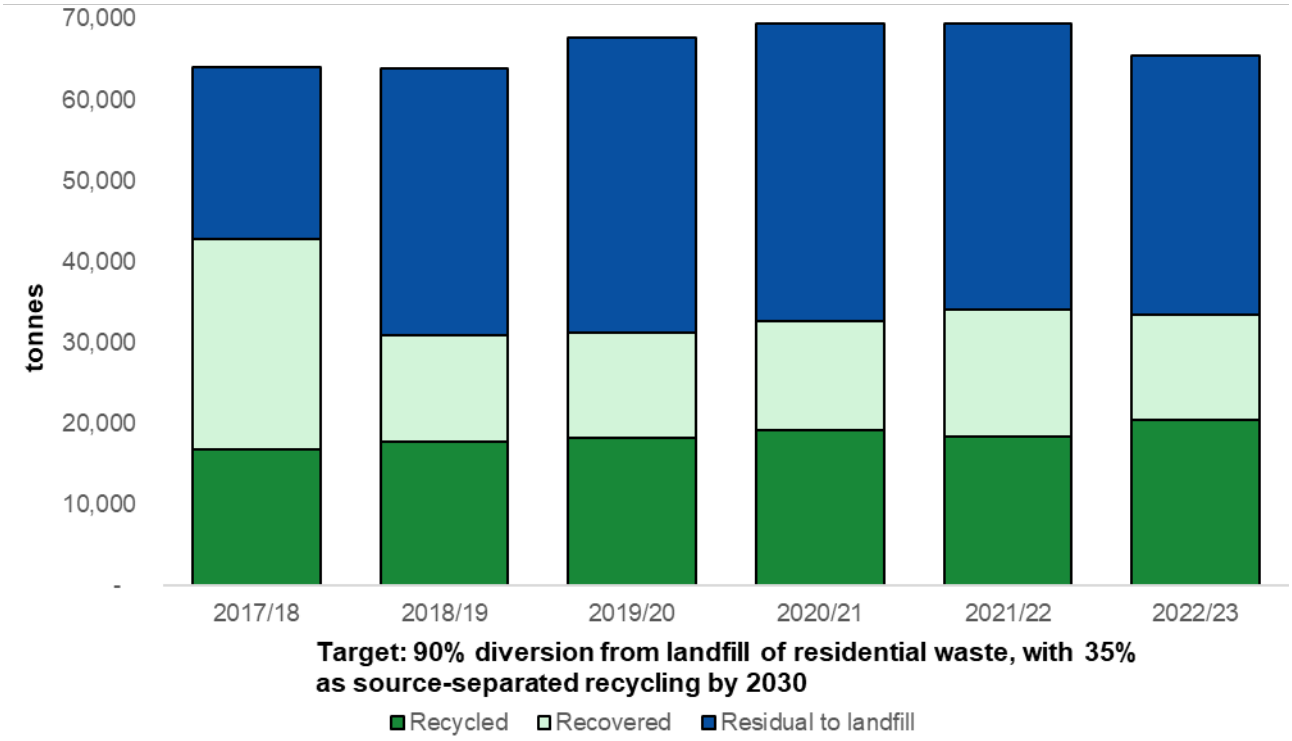


Figure 8: residential waste generation

(Total waste collected shown in this graph contains updated data from that published in the City of Sydney Operational Plan report. Operational Plan data will be revised to align with these results)

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Landfill diversion rate	67%	48%	46%	47%	49%	51%
Residential recycling rate	26%	28%	27%	28%	27%	31%

Table 3: Residential recycling and landfill diversion rates

How we do it

Measure

We measure residential material streams through managed contracts and work with agencies to estimate commercial and construction waste generated in our area.

Tailored services

Our resident services focus on maximising resource recovery in the most efficient and convenient manner.

Our residents have access to more than 12 separate collection or drop-off services for recycling. We always seek to provide services that will maintain the value of the materials we collect.

We design our services to consider materials people generate as waste and seek the most appropriate processing solutions available.

Events and activities

Our waste avoidance events and activities directed to residents and visitors, in person and online, foster a community that avoids, reuses, and reduces waste.

Events include clothing and toy swaps, sewing repair workshops, school waste avoidance education programs, online recycling masterclasses, and community pop-up stalls. We provide the Ask a Waste Expert online service to answer residents' questions about recycling.

Planning requirements

Our Development Control Plan (DCP) and associated waste guidelines are regularly reviewed and updated to enable good design of waste management and source separation in new buildings.

Grant funding

We provide funding to support new and innovative resource recovery and circular economy solutions for positive changes across our local area.

Advocacy

We consistently advocate for system and legislative changes in industries beyond our control, to reduce waste or manage the material streams we collect. Our partnership with South Sydney Regional Organisation of Councils (SSROC) is a core element in our advocacy efforts.

Our employees are also active in stakeholder engagement and working groups that focus on the circular economy such as the Green Building Council of Australia, Circular Australia, and the Australian Packaging Covenant Organisation.

External factors

We recognise the importance of the relationships we have with policy developers, regulators and operators of waste and resource recovery facilities. Circular economy, resource recovery and waste are sectors heavily impacted by global industries and supply chains and our responses to managing materials in this evolving space need to be flexible and responsive.

Supporting recycling in our communities

Ultimo recycling pop up

The Ultimo recycling pop-up at Bay Street Depot opened on 29 November 2022 for residents to recycle up to 12 tricky items not accepted in household bins. It is open on Tuesdays from 2pm to 7pm.

Since opening, 905 residents have dropped off 7.5 tonnes of tricky items for recycling, with the most popular items being electronics, batteries and light bulbs.

Residents are surveyed when they visit the pop-up to gather important data about what they are recycling. They can do this on their mobile device or employees can do it for them. Employees weigh, sort and separate the items ready for collection by recycling processors. The information is managed digitally, feeding into an online dashboard that updates in real time.

Feedback has been positive, with residents appreciating more frequent access to community recycling. The pop-up also draws attention to passers-by, with over 200 residents stopping by to enquire about the service.

Expanding our free recycling stations

We've upgraded and installed recycling stations in 16 locations and residents can now drop off small electronics, batteries, mobile phones and light bulbs.

Batteries, mobiles, light bulbs and electronics don't belong in residential waste bins. By recycling them, residents are helping save precious resources, reducing the need for mining raw materials and keeping items out of landfill.

Over 80% of our residents now live within 750m of a recycling station, making it easier than ever to get rid of items sustainably.

Community education info stall (Photo by City of Sydney)

Food scraps recycling trial – award finalist

Our food scraps recycling trial was a finalist in the Waste 2023 Excellence in Innovation Awards. The distinction recognises outstanding waste management projects in Australian local councils.

The aims of our food scraps recycling trial were to test the service in houses and apartment buildings, maximise food waste recovery and determine the possibility of a broad service rollout.

As one of the largest trials of its kind in Australia, it demonstrated that kerbside food waste collection can succeed in apartment buildings.

Tackling coffee cup waste

In 2022/23 we held 47 pop-up info stalls about recycling and reusing at locations around the city. 3775 individuals visited the stalls, learning about alternatives to disposable coffee cups and proper disposal of non-yellow bin items like electronics and polystyrene. We also educated 899 residents across 9 pop-up stalls in shopping centres about simple behaviours to be more waste wise at the shops.

To complement in-person education, we presented 21 free webinars to 338 residents about how to recycle tricky items like batteries and coffee pods, why reducing waste matters and what happens to recycling after it's collected.

Clothing reuse and repair events

To encourage clothing reuse and reduce textile waste, we held clothing reuse and repair events, in partnership with local organisations.

The Clothing Exchange organised 4 clothing swaps where 472 people attended and recirculated 723kg of clothing by swapping their preloved items with others.

Educators from Sew Make Create taught learnt simple mending techniques to extend

Sew Make Create team teaching sewing techniques (Photo by Cassandra Hannagan / City of Sydney)

wearability and reduce clothing waste at 14 adult sewing and repair workshops in Woolloomooloo, Alexandria, Glebe and Redfern.

Sew Make Create and Reverse Garbage taught children aged 8 to 11 years-old about creative upcycling ways to reduce clothing waste at 12 school holiday upcycling workshops in our libraries.

Reducing fashion waste

A City of Sydney grant funded FashTech Lab 2.0, an Australian Fashion Council initiative to digitise development of fashion collections.

The program introduced fashion brands to digital design and sampling methods. These methods cut textile waste in prototyping, cut supply chain impacts like carbon and water use in production, reduce overheads and sampling costs.

7 Sydney-based fashion brands worked with Australian technology partners in a 6 month pilot program. The program demonstrated that the use of digital design methods:

- reduces textile waste by 259 square metres
- uses 635 cubic metres less water and 3 tonnes less carbon in processing, production and sample use and disposal

Hempcrete panel

In 2021, the City of Sydney awarded an innovation grant to the Friendly Farms Network to investigate the potential for organic hemp panels as a regenerative building solution.

Hemp can be grown on marginal degraded land. Part of the plant known as hurd makes a great building material when combined with various binders.

Growing hemp removes carbon from the atmosphere which can be locked away into the building materials.

This grant engaged 15 key stakeholders from across all aspects of the Australian Industrial Hemp industry, including growers, processors, manufacturers, and architects. It found that industrial hemp can be grown organically as a truly regenerative construction material and the industry is ready to scale.

Hemp panels in a variety of formats are already being commercialised. Stakeholders were highly positive of the materials as both block and panel formats.

Friendly Farms intends to prototype a Tiny Hemp Home-Office with input and products from the stakeholders engaged.

Circular economy grant outcomes

City of Sydney grants continue to support the circular economy in our local area.

Recently completed grants include:

- Giveable – digital learning modules designed to educate micro, small and medium-sized enterprises (MSMEs) about circular economy principles and the potential of recycled materials in an accessible way.
- Seabin – deployment of 4 Seabins across Sydney Harbour, removing floating rubbish, plastic and oils while capturing baseline data about the health of waterways in the harbour.
- Cercle - a project to test a reusable coffee cup solution in the 200 George Street precinct in Sydney. Cercle offer a convenient alternative to disposable coffee cups for office workers in the precinct who purchase from a participating cafe.
- Dempstah – a trial to create a recycled textile yarn from clothing donated to Salvation Army that was not suitable for resale and would typically need to be discarded to landfill.

Influencing for change

We work with industry, academia and not for profit organisations to support and advocate for a transition to a more circular economy. We are active in stakeholder engagement and working groups that focus on the delivery of these outcomes such as the Green Building Council of Australia, Circular Australia and the Australian Packaging Covenant Organisation.

Waste Summit

We are working with other Sydney metropolitan councils to develop an advocacy plan for more resource recovery facilities and waste infrastructure planning. In May 2023, the City of Sydney hosted around 140 mayors, councillors, general managers/CEOs and management from Greater Sydney councils for the Metropolitan Sydney Mayoral Summit on Waste. Details on the summit can be found in the Resilient Sydney program report (page 50).

Supporting our region

We work closely with the South Sydney Regional Organisation of Councils (SSROC) and 11 of its participating councils for a regional waste strategy and actions. Our CEO Monica Barone is the chair of the waste working group.

In 2022/23 we participated in the following projects:

- A textiles action plan and market research project for Sydney councils.
- Food and garden organics collection regional modelling.
- Cost benefit analysis for recycled road paving project with NSW Government.
- Waste and resource recovery contract preparation and negotiation training for waste officers

SSROC contributed to the development of the recently announced national clothing product stewardship scheme.

Resilient Sydney

The Resilient Sydney program is now in its eighth year of implementing projects. This program is a collaboration across all 33 Greater Sydney councils to build local government capacity and community resilience, aligned to the global Resilient Cities Network program. Actions implemented from the Resilient Sydney strategy this year include climate action data support, training and assisting councils in creating evidence-based resilience plans.

Resilient Sydney data platform

The Resilient Sydney platform has evolved into a best practice network of environment managers and strategic planners from councils. The platform provides local and region-wide data to councils to make evidence-based policy and prioritise actions for resilience, improving environmental outcomes for communities across Greater Sydney. This standardised data approach ensures stable, consistent and long-term support for local governments to share knowledge and collaborate across levels of government.

Councils used platform data this year to make policies focussed on net zero planning, urban greening, resilient places, affordable housing policy and net zero planning. The Platform and service now has 330 local government users.

- 19 Sydney councils set net zero targets for their LGAs and are developing and implementing action plans
- 17 Sydney councils are progressing local resilience plans
- 28 councils used platform data to progress local urban greening projects, including identifying the places most in need of trees across Sydney
- 20 councils in the region are using GreenPower marketing material developed by the City of Sydney, through a partnership between the NSW Government, Resilient Sydney and City of Sydney to communicate and encourage their community to choose GreenPower.
- All 33 councils continue to have access to the innovative Net Zero App analytics calculator. This tool helps sustainability and planning teams assess policy impacts out to 2030, 2040, and 2050, aiding evidence-based strategies.

Social resilience and community connection

Isolation can lead to community risks and a higher rate of deaths in disasters. Resilient Sydney resilience ambassadors met in May 2023 to discuss social connection and resilience in high-rise and multi-unit communities projects. Presentations were delivered by Lane Cove Council, Willoughby City Council and Georges River Council, describing their social cohesion projects funded by the NSW Department of Premier and Cabinet (DPC) social cohesion grants for local government program, alongside an update from the state government. Councils were provided updates from the new NSW Reconstruction Authority, the federal National Emergency Management Agency and Resilient Sydney.

The Resilient Sydney team supported 31 councils of Sydney to participate in the yearly Neighbour Day campaign in March 2023. The campaign focused on actions communities can take to get better socially connected where they live and to support disaster preparedness.

Greater Sydney Waste Summit

On 18 May 2023 Resilient Sydney partnered with Southern Sydney Regional Organisation of Councils (SSROC) to host a Mayoral Summit bringing together city leaders from all 33 councils from across metropolitan Sydney. Participants discussed actions and issues regarding waste

South Sydney Regional Organisational of Councils waste summit (Photo by Nick Langley / City of Sydney)

management and a circular economy. 138 city leaders attended, comprised of mayors, councillors, general managers and CEOs, directors and management. Also attending were representatives from LGNSW, NSW Environmental Protection Authority, Greater Cities Commission, Western and Northern Regional Organisations of Councils, the Macarthur Strategic Waste Alliance and Western Parkland Councils. Attendees were informed of data and infrastructure gaps highlighting the region's inability to meet NSW and Commonwealth targets. This requires strategic infrastructure planning and government action for local circular economy hubs.

Resilient Sydney Strategy (2025-2030)

Resilient Sydney has started work to renew the technical and community research for a second Resilient Sydney strategy. The strategy is funded by a Disaster Risk Ready Fund grant from the NSW and Commonwealth governments. Letters of support were received from 33 local governments of Greater Sydney to contribute to the renewed strategy and program.

International partnerships

Resilient Sydney met with Asia-Pacific cities in the global Resilient Cities Network in November 2023 in Bangkok. Sydney is talking to other cities also preparing their 2nd resilience strategies, strengthening the new strategy being prepared for Greater Sydney. We continue to participate in global webinars, workshops and meetings with other global cities around urban and extreme heat. Sydney contributed to a community of practice about managing and mitigating stresses resulting from urban heat and storms and flooding. Cities also discussed their experiences of managing the pandemic.

Greening our City

Our communities value a green city with trees and nature, and access to **quality** outdoor spaces for rest and play.

Restoring our natural **environment** and increasing our green **infrastructure** supports the health and wellbeing of all of us and helps our climate resilience.

Our operations

Green streets, parks and open spaces are vital for the liveability of our city, softening the effects of a dense urban environment. They substantially reduce the urban heat island effect which will get worse with increasing climate change. Trees cool, enhance resilience, clean our air, and mitigate against climate change. Green spaces provide places for our communities to rest and play, along with health and wellbeing benefits from connecting with the natural world.

By 2050, experts forecast Sydney will be hotter and more susceptible to extreme or prolonged drought as well as high rainfall periods. Planting the right kinds of trees at the right time and in the right places has never been more important.

Our results

We measure our tree canopy cover every 2 years, with the next measurement scheduled for early 2024. In 2022, our canopy had increased to 19.8%, compared to the 2008 baseline of 15.5%. Our green cover in 2022 was 30.6%.

Since 2008/09, our parks and open spaces have increased from 188 hectares to 217 hectares.

We aim to plant 700 street and 50 park trees each year. In 2022/23 we planted 574 street trees, 336 trees in parks. We also planted 72,515 new plants in our parks and street gardens.

In 2020/21 we increased our tree planting program after receiving some grant funding, and to make the most of cooler and wetter weather conditions associated with La Nina. In the last two

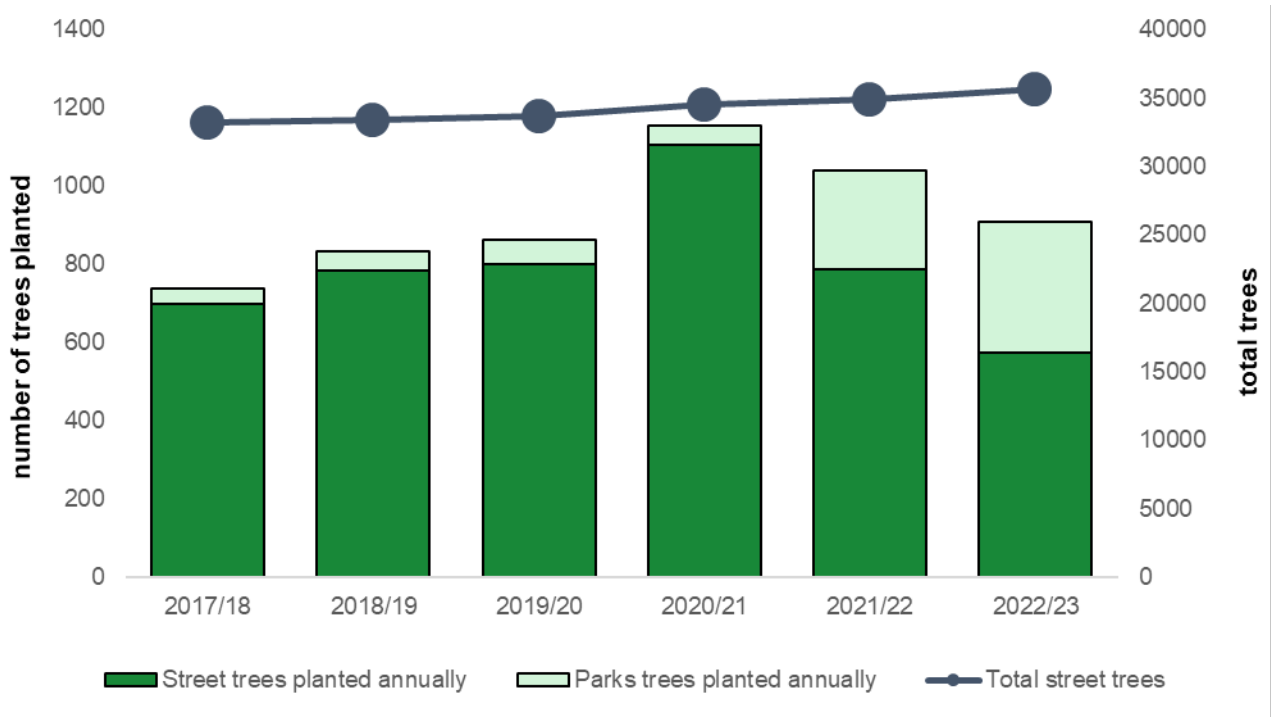


Figure 9: Trees planted on streets and in parks

years there has been a slight decrease in street tree planting while we reviewed our strategy and developed the new Street Tree Master Plan. We increased planting in parks during that time.

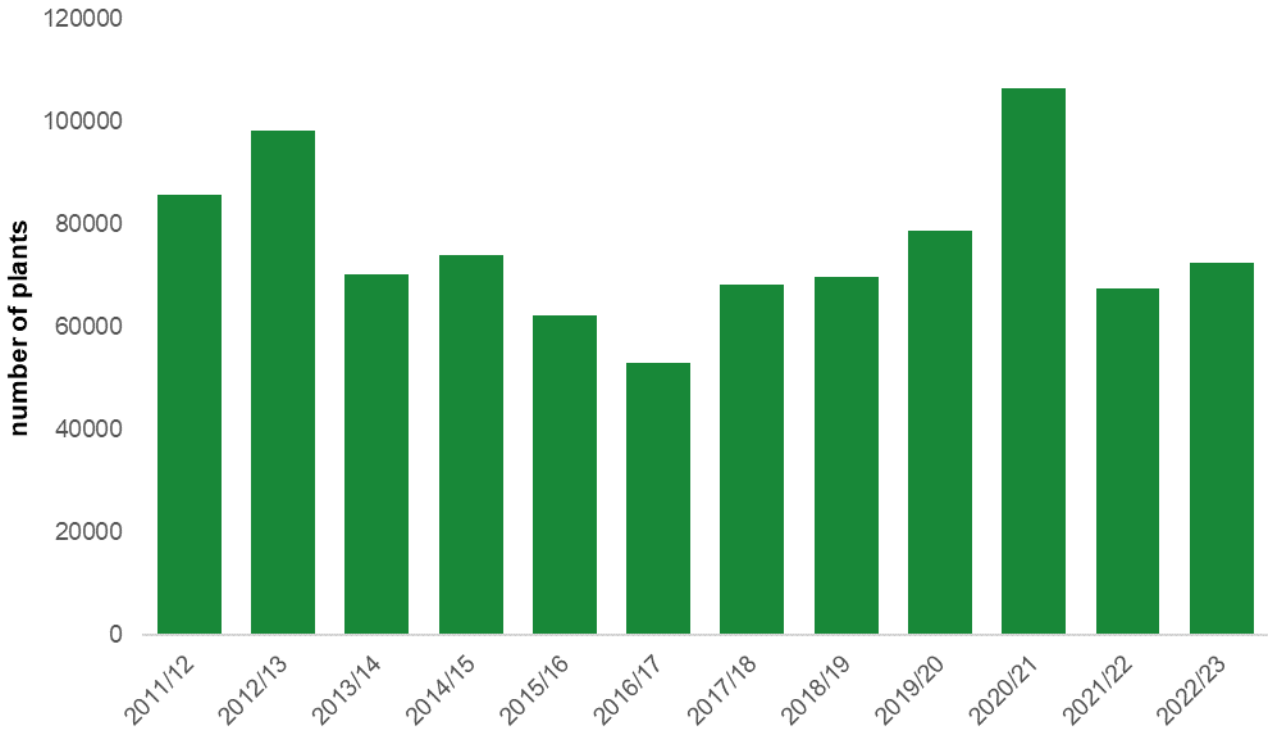


Figure 10: New plants in parks and street gardens

How we do it

Tree planting

We plant trees into streets, parks and our properties across the local area. Our qualified arborists select trees based on planting the right tree, in the right location and at the right time. This includes selecting appropriate planting sites and species, ensuring quality tree supply, and establishing the trees with frequent maintenance for the first 1 to 2 years.

New plants in parks and street gardens

We plant shrubs, grasses and understorey plantings in parks and streetscapes across the local area. We increase our green areas by converting previously paved areas to new garden beds and infill planting in existing garden beds.

Parks and open space

We manage accessible parks and open spaces for play, nature conservation and outdoor enjoyment. Park assets are vital for community health and wellbeing and for improving the quality of the urban environment. They include parks and reserves, playgrounds, streetscapes, verges, community/productive food gardens, and bush regeneration and habitat spaces. With our increasing population we aim to increase the area of parks and open space in line with the open space, sports and recreational needs study.

Growing our urban forest

Extensive work in the past 2 years has resulted in the adoption of detailed strategies to expand tree canopy and support resilient communities.

The urban forest strategy, street tree master plan, tree species list and tree management and donation policy, were adopted in June 2023 after community input. These documents guide decisions, enhance urban forest quality and quantity, and combat urban heat island effects.

We have planted over 16,000 trees since 2004, reaching almost 20% canopy cover. Our goal is to plant more trees, prioritizing low canopy areas, using a diversity of tree species to enhance resilience and urban cooling.

Street tree master plan

In June 2023, our updated street tree master plan won the NSW Australian Institute Landscape Architecture Award of Excellence in Landscape Planning and the ShadeSmart Award. The award recognises key plan improvements, the extensive community feedback, expert input in various fields, and climate-resilient species selection.

The plan embeds Aboriginal and Torres Strait Islander knowledge. Indigenous species were selected by Gumbaynggirr ecologist Ciaron Dunn. Species relate to the previous ecology of a specific area to assist with connecting with Country. Some iconic and locally indigenous trees are being reintroduced in areas of heightened cultural significance such as the harbour's edge and important civic places.

The plan is delivered as an interactive online map. It presents species and planting details for each street, enhancing accessibility and usability.

Tote Park playground was refurbished in March 2023 (Photo by Abril Felman / City of Sydney)

Action for our city

Our vision is for a greener Sydney that will help improve our health and wellbeing, reduce urban heat impacts, and bring nature into the city. Our commitment to green living focuses on providing everyone with equitable access to quality green spaces and supports the biodiversity of our city as part of a healthy ecosystem.

Our results

We manage 15.2 hectares of land for bush restoration, up from 4.2 hectares in the 2012 baseline. In 2022/23 we reviewed all our bushland sites. This resulted in more accurate measurement of existing sites. We also gained new sites and changed some existing parkland areas to bushland areas.

Annually, we enlist local community members in the Aussie Backyard Bird Count, a week-long event in October. In our last bird count, we observed 71 species, an increase of 8 species on the 2012 baseline. Abundance of birds is slowly increasing, reflecting improvements in habitat availability locally.

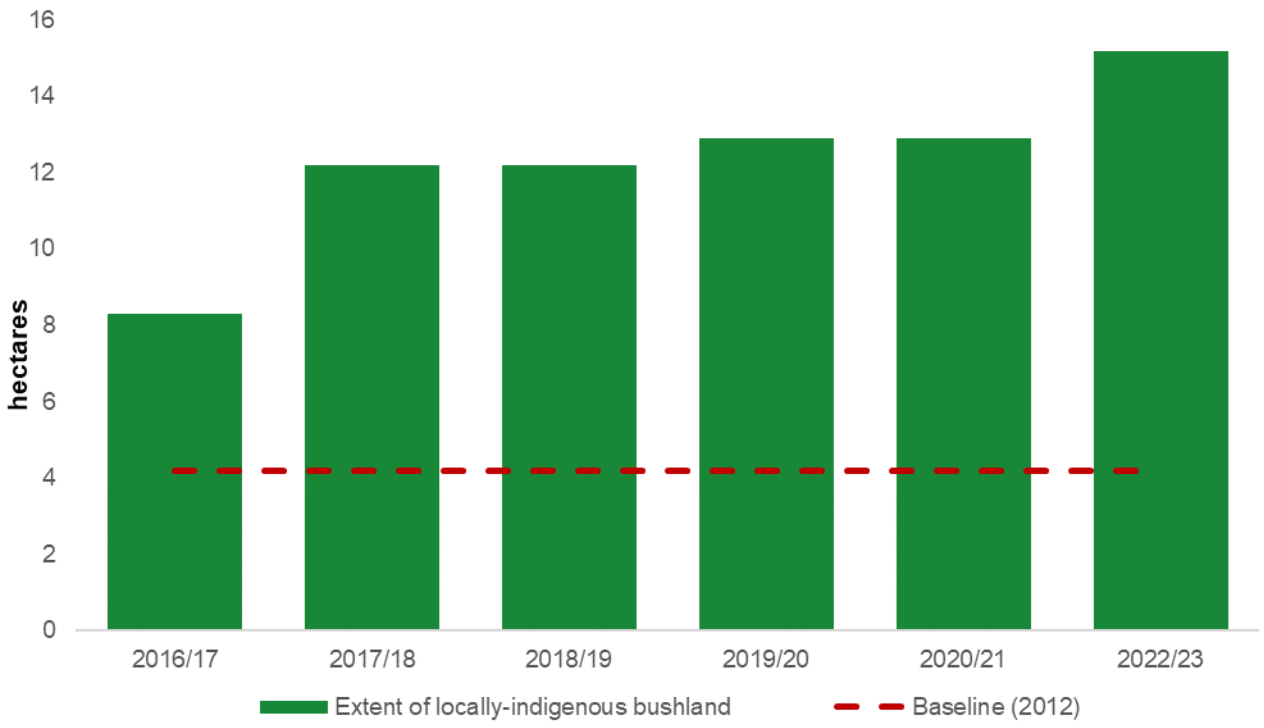


Figure 11: Extent of bush restoration land

How we do it

Community engagement programs

We run events tailored to promoting healthy interaction with wildlife so our communities can develop an understanding of the biodiversity in our city. We support community gardens, and the improvement of skills and confidence through programs at Sydney City Farm.

Native bush restoration

We protect, expand and improve the condition of bush restoration areas across the local area. These areas aim to improve the biodiversity of plants and animals. Our qualified bush regenerators work to establish structurally complex bush areas, improve plant growth, supress weeds and create habitat.

Biodiversity counts

We monitor species diversity through citizen science programs, such as the Aussie Backyard Bird Count. These programs identify and indicate local species presence and distribution. We use this data to tailor projects for protecting and enhancing identified species' habitats.

Nest box program

We have installed 105 nesting boxes across our parks network to provide additional habitat for local wildlife. Many Australian species use natural tree hollows for breeding, however, these are generally limited in urban areas. The installed nest boxes provide this habitat for our urban wildlife.

Sydney City Farm community seed swap

We are establishing an edible plant seed library at Sydney City Farm. Seed is collected each season, used to grow future crops and in learning programs. Surplus seed is shared more widely. In October 2022, we held a Community Growers Morning at the farm where 70 inner Sydney community gardeners and

Raised garden bed at Sydney City Farm (Photo by Abril Felman / City of Sydney)

home growers came together for tours, talks and a seed swap. The event was held with Inner West, Woollahra, Bayside and Randwick councils. Many attendees brought their own seeds to swap, and over 250 packets of seed saved from the farm were distributed. Seed saving is a positive way to build community, share knowledge around food production, and develop social resilience.

Supporting our region

Sydney Urban Agriculture Forum

We hosted the inaugural Sydney Urban Agriculture Forum at Sydney City Farm in November 2022, in partnership with Sustain Australia. The forum attracted 75 attendees who celebrated the work underway across Sydney to strengthen food systems and discussed future urban agriculture policy and practice. Keynote speaker Alex Greenwich MP provided a response to the inquiry into food supply and distribution in NSW.

Supporting land improvements through carbon farming in NSW

We continued our relationship with the Aboriginal Carbon Foundation, an Indigenous not-for-profit organisation. Funding was received from the Carbon Neutral Cities Alliance in 2021/22 for carbon farming demonstration projects on Aboriginal land in NSW. This work continued in 2022/23.

These demonstrations aim to create opportunities for premium local offsets. Organisations can invest in these offsets to achieve their goals, support Aboriginal enterprise and land restoration, and create jobs.

In NSW, carbon farming may involve biodiverse plantings, pest and weed control, and land restoration.

Sydney Urban Agriculture Forum: speakers, Councillor (Waskam) Emelda Davis, and City of Sydney staff (Photo by Abril Felman / City of Sydney)

Water stewardship

Water is crucial to the social, economic and environmental **wellbeing** of our city.

Our efforts create a **sustainable**, **liveable** city with healthy waterways, resilient green spaces and the resource valued by our communities.

Our operations

The way we manage water plays an important role in adapting to some of the big challenges that our city will face in the future. We need to manage water as efficiently as possible and secure access to drought resilient water sources to support greening and cooling across the city.

We are committed to responsible water management. We have set a target of no increase in potable water use compared to our 2006 baseline even as we increase our parks and open spaces, and add new buildings and community facilities. We focus on efficient practices and using recycled water obtained from rainwater, stormwater, bore water and other recycling methods.

Our results

Water use results

In 2022/23 our operational potable water use increased compared to the previous two years. This is a result of the opening of Gunyama Park Aquatic Centre, and increased use of our pools following easing of Covid restrictions.

We met our target of zero increase in potable water use against the 2006 baseline, using 405 megalitres, a 6% decrease from the 2006 baseline.

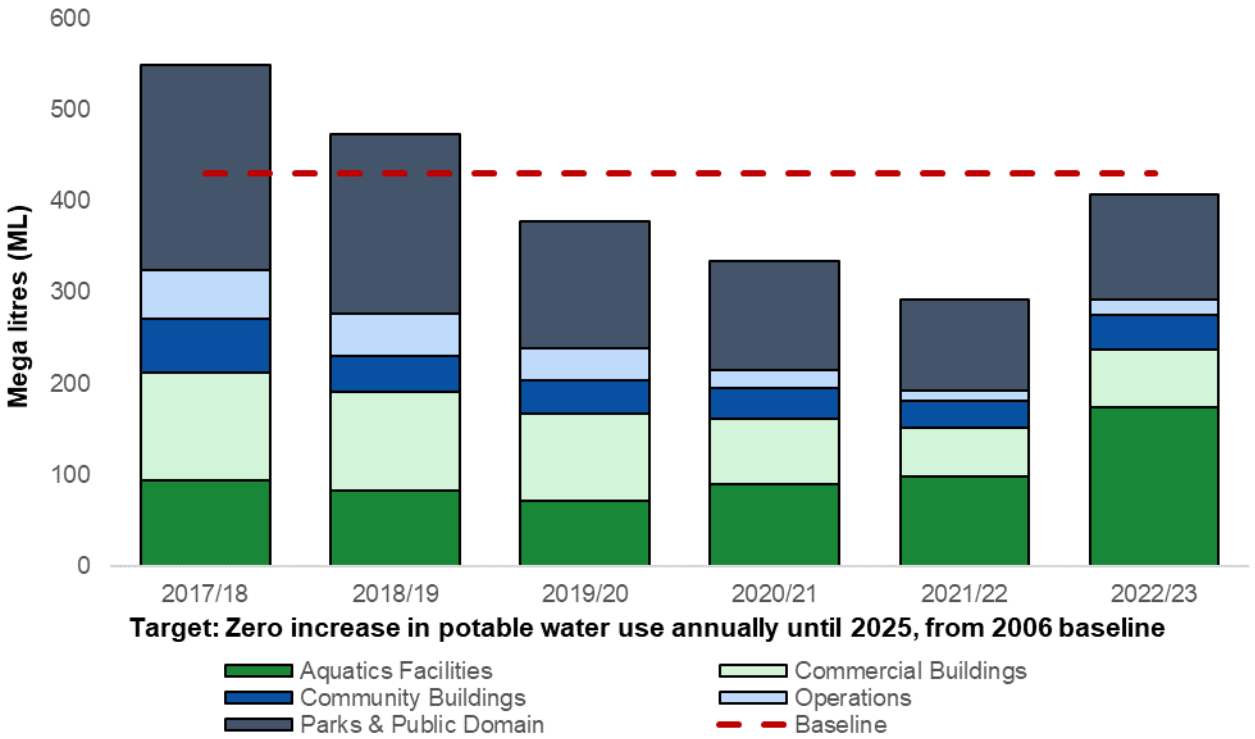


Figure 12: Annual water consumption against baseline, by use category

Since 2006 we have increased the irrigated area in parks by over 50% while continuing to reduce potable water use in parks. We are now using less water for every square metre of green space we manage.

Our 20 park-scale water recycling systems supplied around 49 megalitres of recycled water for irrigation in 2022/23. This is a capacity increase of 37% on the previous year and enough to meet 87% of irrigation demand for the parks supplied by these systems.

How we do it

Measurement and leak detection

We monitor water consumption through 165 smart water meters installed on main and sub water meters in our parks and buildings. This data enables us to identify leaks and efficiency improvements.

Installation of efficient fixtures

We install water efficient taps and toilets in our facilities when building or upgrading a site.

Water efficiency in our parks

We use water efficiently to keep our parks green and healthy. We manage water through operational planning. Employees receive efficiency training and awareness and we set specific service levels for best practice water management.

Remote irrigation management helps us schedule and monitor irrigation and quickly respond to weather conditions. We make sure our irrigation systems are efficient with best practice management throughout the asset lifecycle.

Water harvesting

We have 20 park-scale water recycling systems that supply recycled water to our parks and open spaces. These systems source water from ponds and bores, harvested rainwater and stormwater drainage.

We have 43 water reuse systems in our properties, and 4 in our community gardens. Water from these systems is used for irrigation and to water gardens, flush toilets, wash vehicles, top-up our swimming pools and to clean our streets.

Water savings projects

Archibald Memorial Fountain restoration

Water saving was a focus of restoration works on the Archibald Memorial Fountain in Sydney's Hyde Park.

Major hydraulic improvements and water savings measures included the installation of an advanced new waterproof membrane, an automatic wind sensor, pipework and jets using heritage-compliant and robust modern materials.

These upgrades reduced water use by 50% compared to the 2019/20 baseline of 120,000L per month, reduced the chance of leaks from aging pipes and significantly extended the asset life of the 90-year-old fountain.

Water leaks improvements

In 2022/23 we fixed 17 leaks from toilets, taps and drinking fountains, punctured irrigation pipework and broken pool equipment. Analysis of data from our smart water meters identified abnormal flows and leaks. 140,000 kilolitres of water and $500,000 was saved.

Benchmarking aquatic centre water use

Aquatic centres use a lot of water. With no clear industry benchmark, aquatic centre managers need a way to determine how our centres are performing and what opportunities we have for energy and water savings.

This year we developed an aquatic centre performance benchmarking tool, with support from 7 councils. The tool compares water and energy use in a particular centre against average use.

The results indicate there is potential for big savings in water and energy at all aquatic centres. Results will be updated regularly, so we can assess changes from improvements works.

The benchmarking tool is being made available to other councils across the country.

Victoria Park Pool (Photo by Katherine Griffiths / City of Sydney)

Water use in parks

We have a target to maintain potable water use at or below 2006 levels. This is equivalent to 124 megalitres per year for the maintenance of our parks, trees and water features.

In 2022/23 we continued to implement our smart irrigation program, which provides clear, accurate information to our parks teams. This program will ensure irrigation is based on conditions in the park, delivering the right volume of water at the right time to achieve quality community spaces.

Improving parks water recycling

This year we increased the supply of recycled water by upgrading the systems in Erskineville Oval, Pirrama Park and Sydney Park. Upgrades in Munni Channel, adjacent to Sydney Park, has enabled us to increase the water harvested from the Sydney Water network.

We identified an issue with the equipment at Pirrama Park, and completed significant maintenance works to ensure the system will continue to deliver harvested water in this area.

Action for our city

We want to manage water responsibly and sustainably while meeting local needs and enhancing liveability and resilience. As our local area grows and the climate changes, more water will be needed for consumption, to green the city and combat the effects of climate change.

After 3 years of extreme rainfall, we are preparing for an El Niño year and the drier, hotter conditions the weather system brings. Lack of rain and hotter days puts Sydney's water storage dams under pressure. This is predicted to occur with growing frequency and longer duration because of climate change. Supporting the use of less potable water means better water security for all of us.

The City of Sydney is surrounded by Sydney Harbour, one of the most iconic waterways in the world. As a steward of our local area, our services impact the health and beauty of this waterway and that of the Cooks River that flows into Botany Bay. Action to improve the quality of these waterways is an ongoing effort, with constant improvement year on year.

Our results

We experienced a 5.5% reduction in overall potable water use in the local area during 2021/22 compared to the year before and 16.7% below the 2005/06 target.

However, residential daily water use per person increased by 13.1% and non-residential water usage increased by 5.85% per square metre from 2020/21. The increase in residential water use per person is a result of the local area's estimated residential population decreasing by 27,386, as

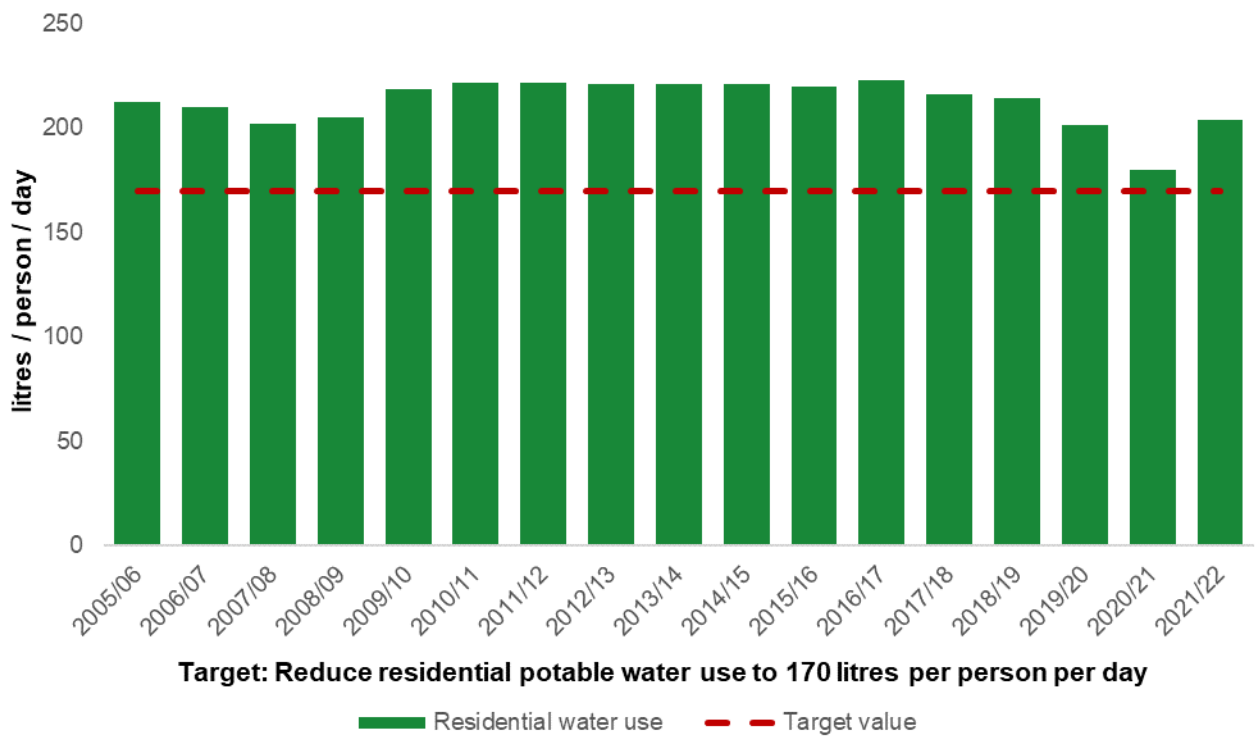


Figure 13: Residential water consumption

calculated by the Australian Bureau of Statistics. The increase in non-residential water use per square metre is likely a result of workers returning to offices after Covid lockdowns.

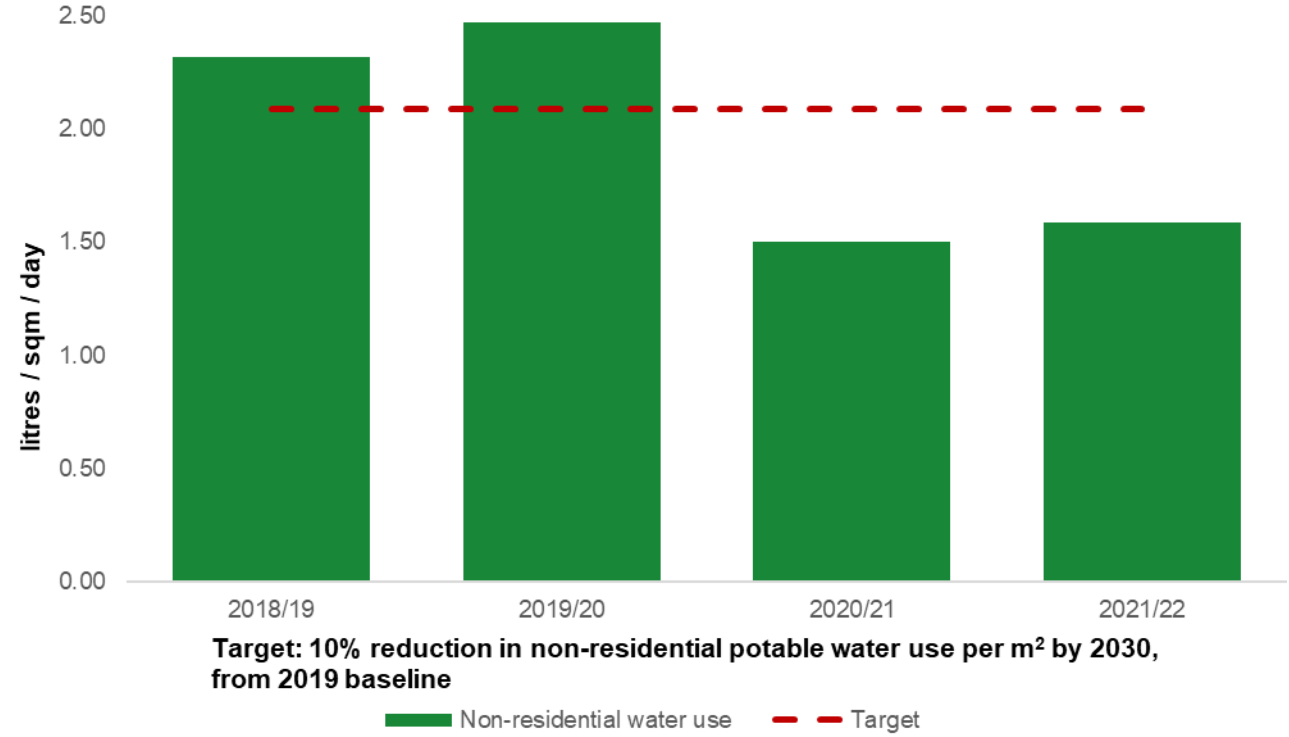


Figure 14: Non-residential water consumption

Water quality results

We have a target to reduce solid waste stormwater pollution by 50% and nutrient stormwater pollution by 15% by 2030, compared to 2006. Solid waste pollution is assessed using total gross pollutants and total suspended solids. Total phosphorous and total nitrogen are used to assess levels of nutrient pollution.

2023 results indicate we have reduced gross pollutants by 16%, total suspended solids by 11% per cent, total phosphorus by 7% and total nitrogen by 4%. These results are lower than last year, however we have used better data, so the results are more accurate.

We track our progress towards these targets using industry standard MUSIC (Model for Urban Stormwater Improvement Conceptualisation) modelling software. This software estimates stormwater pollutant loads and the performance of our existing water quality and water sensitive urban design infrastructure.

In 2022/23, our network of 47 gross pollutant traps prevented 262 tonnes of rubbish and sediment from entering our waterways.

How we do it

Measure

We measure water consumption in key sectors through data provided by Sydney Water.

Program delivery

Smart Green Apartments works with building managers to reduce water use in apartment buildings. Entertainment and hospitality venues and commercial buildings measure and report on water use and reduction progress through their involvement with the Sustainable Destination Partnership and Better Buildings Partnership.

Recycled water in Green Square

We manage a recycled water scheme that supplies water to residents and businesses in

Green Square for non-potable uses such as laundry use, irrigation, car washing, and toilet flushing.

Planning solutions

Through the Sydney Development Control Plan, we have developed water quality requirements to ensure stormwater discharge from large developments meets high water quality standards.

We encourage new developments in the Green Square town centre to install dual pipes.

Waterway health

We improve the health of our waterways by reducing stormwater pollution entering downstream waterways: the Cooks River and Sydney Harbour. We install and maintain water quality treatment systems such as gross pollutant traps, raingardens, wetlands and swales in our stormwater network.

Rubbish and sediment are also removed by street sweeping and routine maintenance of drainage pits and pipes.

We ensure our raingardens are well maintained with guidelines for use by our park maintenance employees.

Collaboration

We work with Sydney Water to support our community to reduce water use, identify potential water reuse and harvesting schemes, and improve our waterways.

Advocacy

We advocate for recycled water infrastructure to be installed so that new buildings can be connected to the recycled water network and reduce unnecessary potable water use.

Expanding recycled water options

This year we continued our work to support recycled water access for residents and businesses.

We expanded the Green Square water reuse scheme outside the Green Square town centre to supply recycled water to additional developments in the area.

We increased the recycled water recovery rate from the scheme by improving the water treatment plant and equipment. This project reduced energy consumption and boosted plant reliability to futureproof recycled water supply from the scheme. The scheme will be able to supply over 1 million litres of recycled water every day to developments connected to the scheme.

Silver medal for Green Square trunk drain

The Green Square trunk drain project received a prestigious silver medal at the International Water Association's Project Innovation Awards held in Copenhagen, Denmark.

The Green Square trunk drain collects stormwater from Zetland and carries it to the Alexandra Canal, more than 2km downstream. The drain reduces the flood risk in parts of Zetland, as well as capturing stormwater pollution and supplying water to the Green Square recycled water scheme. The project also built new shared pedestrian and cycling links in Alexandria.

The City of Sydney partnered with Sydney Water to fund and build the $140 million Green Square trunk drain.

Supporting our region

Coastal management programs

We support the development of 2 coastal management programs, by providing funding and staff time.

The Greater Sydney Harbour Coastal Management Program project team is managed by Sydney Coastal Council Group and chaired by Professor Bruce Thom from the NSW Coastal Council. In collaboration with 33 stakeholders across the catchment, the project team is working on developing a Coastal Management Program for strategic and coordinated management of the harbour. Stage 2 of this program was completed at the end of 2022, and identified coastal management needs and options for the study area.

The Green Square trunk drain runs under Geddes Avenue, reducing flood risk in the area (Photo by Abril Felman / City of Sydney)

The Cooks River Coastal Management Program project team is managed by the Cooks River Alliance and brings together stakeholders from across the catchment to develop a Coastal Management Program to improve the health of the Cooks River. In 2022/23 the project team started work on defining sea level rise risk for the Cooks River, including Alexandra Canal and parts of the Botany Bay foreshore.

Appendix 1: Strategic Actions

Environmental Strategy 2021–2025

Direction 1 – Smart and resilient City operations

1. Deliver energy, water and resilience outcomes through City asset design and management
2. Keep City parks green with water efficiency and alternate water sources
3. Regenerate the environment through the City's carbon-neutral commitment
4. Ensure the City's programs and services use resources efficiently
5. Reduce the amount of operational waste sent to landfill through avoidance and resource recovery
6. Reduce embodied carbon in our supply chain and support circular economy outcomes
7. Manage environmental risks and issues

Direction 2 – Efficient, future-proof buildings and transport powered by renewable energy

1. Improve energy efficiency, water efficiency and waste management in existing buildings
2. Drive all new buildings to be resource-efficient and net zero energy
3. Support the transition to zero-emissions transport
4. Encourage community uptake of renewable electricity and stimulate the green economy
5. Support our residents to reduce utility costs and environmental impact
6. Help businesses to reduce utility bills and demonstrate environmental achievement

Direction 3 – Regenerative and inclusive city

1. Incorporate the perspectives of Aboriginal and Torres Strait Islander people in environmental action
2. Address equity issues related to climate change
3. Build community resilience and momentum on climate action
4. Support the development of circular economy systems
5. Drought-proof the city by facilitating water recycling
6. Regenerate polluted waterways, air and land
7. Reduce the amount of residential waste sent to landfill through avoidance and resource recovery

Direction 4 – Strong foundations for delivery

1. Build staff capability to deliver environmental outcomes
2. Deliver high-quality internal and external environmental reporting and communications
3. Employ efficient and effective decision-making processes

Greening Sydney Strategy

Direction 1 – Turn grey to green

- Action 1 – Achieve the targets
- Action 2 – Greener laneways
- Action 3 – Harness innovation, technology and inspiration

Direction 2 – Greening for all

- Action 4 – Equitable greening distribution
- Action 5 – Fair access to quality green spaces
- Action 6 – Adapting for climate
- Action 7 – Growing food locally

Direction 3 – Cool and calm spaces

- Action 8 – Cool the hot spots
- Action 9 – Calm green spaces
- Action 10 – Celebrate water

Direction 4 – Greener buildings

- Action 11 – Green Factor Score
- Action 12 – Increase green roofs & walls
- Action 13 – Planning ahead

Direction 5 – Nature in the City

- Action 14 – Recognise and support Indigenous ecological knowledge
- Action 15 – Strengthen urban nature protection measures
- Action 16 – Urban ecology health check
- Action 17 – Reconnecting with nature

Direction 6 – Greening Together

- Action 18 – Support community participation
- Action 19 – Greening Sydney Fund
- Action 20 – Increase our community engagement