

Attachment E

2021/22 Green Report



Green Report

Annual Environmental Report
2021-22

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

The Council of the City of Sydney acknowledges the Gadigal of the Eora Nation as the Traditional Custodians of our local area. We acknowledge Elders past and present and celebrate the diversity of Aboriginal and Torres Strait Islander peoples and their ongoing cultures and connections to Country.

Cover image: The City of Sydney's electric truck (Photo by Jennifer Leahy/City of Sydney)

Contents

Year in review	4
Tracking our progress	6
Climate action	9
Our operations	10
Action for our city	16
Our strata and business programs	22
Waste and materials	26
Our operations	27
Action for our city	31
Improving our roads	38
Greening our city	40
Our operations	41
Action for our city	44
Resilient Sydney	49
Water stewardship	51
Our operations	52
Action for our city	56
Appendix 1: Strategic Actions	59

Year in review

Operational highlights

In 2021/22 we maintained the substantial drop in our carbon emissions against our 2006 baseline. Our operational emissions have dropped 77 per cent against our baseline and we are on track to achieve our target of 80 per cent reduction by 2025.

We continued to improve the sustainability of our operations. We purchased our first electric truck, featured on our cover, trialling it across our various service areas to test usability. We created a circular food solution by installing dehydrators in Town Hall House and Alexandria Child Care Centre to treat food waste and convert it to a soil conditioner which is used in our parks. Our water metering project has delivered 30 mega litres of water savings from our properties in the first quarter of operation.

We released the new Greening Sydney Strategy, which sets an ambitious program of work to meet our goals of a green and cool Sydney that is resilient to the effects of global heating. For the first time, we have been able to measure the effect of our water quality infrastructure. This data will help us target improvements as we work towards a swimmable harbour.

Local area highlights

In response to Covid-19, we substantially increased our cycleway network, further facilitating the switch to zero emissions transport. Four new cycleways were completed in Zetland and the city centre, a further 12 cycleways have either been approved or have commenced construction.

Rooftop solar continues to grow, this year 5MW was installed, the largest growth to date. We featured a passive house demonstration in Martin Place, showing how good design can deliver comfort with no energy use.

Our food scraps recycling trial has collected over 1,000 tonnes of food waste from 19,000 households. We have expanded the Green Square water recycling network, supporting residents to reduce potable water use.

Two new community gardens were opened in Glebe and in Elizabeth Bay, and two new urban Landcare groups were established in Camperdown and at Sydney Park. We supported a local Aboriginal owned and operated social enterprise to improve three native plant gardens.

The results of a project to investigate the interaction between green roofs and solar panels were published. This trial site at Barangaroo demonstrated improvements in electricity generation and stormwater runoff, compared to a standard solar rooftop installation.

New report format

We have been producing the Green Report since 2003. This year we are shifting to an annual report, in line with global reporting practices. We took the time to review the content and format of the report, to ensure we could incorporate results from the new Environmental Strategy 2021–2025 and the new Greening Sydney Strategy. Our achievements for the year are reported across four themes:

- climate action
- waste and materials
- greening our city
- water stewardship.

We've included a case study on longer term changes to how we have improved the sustainability of our road and footpath renewal works. Improvement in sustainability often occurs through ongoing incremental effort over a long period of time and we want to make space for these stories.

Message from the CEO

While 2021/22 was a challenging year as we faced the uncertainty of ongoing Covid-19 effects, months of lockdown and February's storm events, I am proud to report that we continued to deliver on our ambitions to improve the environmental sustainability of the City of Sydney.

Our parks were in high demand as the benefits of nature and greening helped us all cope with the isolation of lockdown. We continued our urban renewal program, converting 3,365m² of roads and footways into gardens and green space.

In response to social distancing requirements we created pop-up cycleways. Due to their popularity we then fast tracked the construction of more cycleways on our network. Cycling is a great way to reduce carbon emissions in our city, and helps us be more active and engaged with our local area. I'm so pleased that we could take this step to improve active transport in the City of Sydney at a time it was most needed.

For many of our programs it was a time to pause and reflect. We have renewed the focus of the CitySwitch program, the Sustainable Destination Partnership developed a new draft strategy, and the Better Buildings Partnership commenced work on its new focus on net zero and circular economy.

We continued to reduce our operational carbon emissions. We are 3 per cent short of our target, but this gap will be difficult to tackle without the right supply chain options. We are investigating options to electrify our assets, to purchase renewable gas and better refrigerants, and switching to electric vehicles.

I am so proud of awards received for updates to our planning system that deliver improved environmental benefits in buildings. Our recently adopted net zero planning controls won the Cultural Change Innovation and Excellence category at the LG NSW Planning Awards, and were finalists for the Planning Institute of Australia's 2022 National Award for Planning Excellence – Climate Change and Resilience and its 2021 NSW Award for Planning Excellence – Climate Change and Resilience. Our improvements to the Design for Environmental Performance requirements associated with the development application process won the Innovation in Planning, Policies and Decision Making category at the LGNSW Excellence in the Environment Award.

We released our renewed vision for the City of Sydney, Sustainable Sydney 2030–2050 Continuing the Vision, to guide our focus to 2050. This vision document, along with our new Community Strategic Plan, was adopted by Council in June 2022. In developing this document we consulted extensively with our community. We were asked to continue and speed up our environmental actions to address climate change. A green city with trees and nature was always at the top of the list of what people value most. The vision and Community Strategic Plan reflect these ambitions.

This Green Report sets out our progress and achievements to deliver on our Environmental Strategy and Greening Sydney Strategy, both of which set the foundation to deliver on our renewed ambition for a green Sydney that supports community and nature.



Monica Barone, Chief Executive Officer

Operational targets

Target

Latest result



Carbon

80%

reduction in emissions generation by end June 2025, from 2006 baseline

77%

reduction against baseline (June 2022)



Maintain emissions from the City's fleet below 2014 levels, and aim to achieve zero fleet emissions by 2035 or sooner

34%

reduction against baseline (June 2022)



Water

zero increase in **potable use** annually until 2025, from 2006 baseline

32%

reduction against baseline (June 2022)



Waste



90% **diversion from landfill**, with 50% source separated **recycling**, from City-managed properties by end June 2025

93% of our waste was diverted from landfill
54% **source separated recycling** (June 2022)

15% **reduction in total waste** generated from City-managed **properties** by end of June 2025, from 2019 baseline

21% **reduction in total waste generated against baseline** (June 2022)

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

95% **recovery of construction and demolition waste** (June 2022)

50% **resource recovery** of waste from **City parks, streets and public places** by end June 2025

53% **resource recovery** from **City parks, streets and other public places**

LGA targets

Target

Latest result

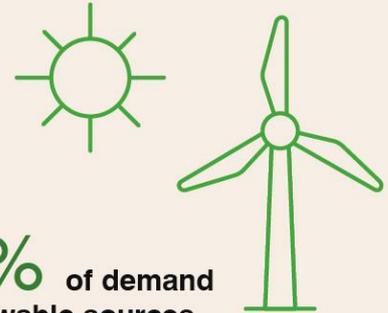


Carbon

70% reduction in greenhouse gas emissions by 2030, from 2006 baseline

31% reduction against baseline (June 2021)

net zero emissions by **2035**



50% of **electricity** demand met by renewable sources by 2030

25.6% of demand met by renewable sources (NSW average, June 2022)



Water



Reduce residential **potable water use to 170 litres** per person per day by 2030

180 litres per person per day (June 2021)

10% reduction in non-residential **potable water use** per m2 by 2030, from 2019 baseline

35% reduction against baseline (June 2021)

50% reduction in the annual **solid pollution load** discharged to waterways via stormwater by 2030

Gross pollutants reduced by **18%**
Total suspended solids reduced by **15%** against 2006 baseline (2022)

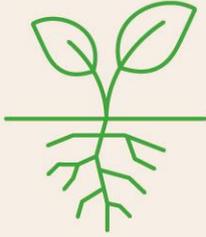
15% reduction in the annual **nutrient load** discharged to waterways via stormwater by 2030

Total phosphorous reduced by **8%**
Total nitrogen reduced by **2%** against 2006 baseline(2022)

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 49%

Source separated recycling 27%

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

47%

diversion from landfill (estimate, 2019)

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

77%

diversion from landfill (NSW average, June 2018)

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

14.5%

per capita reduction in waste since 2015 (June 2022)

Climate action



Climate change is affecting all of us. **Strong action** in this critical decade will help to avoid the worst impacts of climate change.

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

Our operations

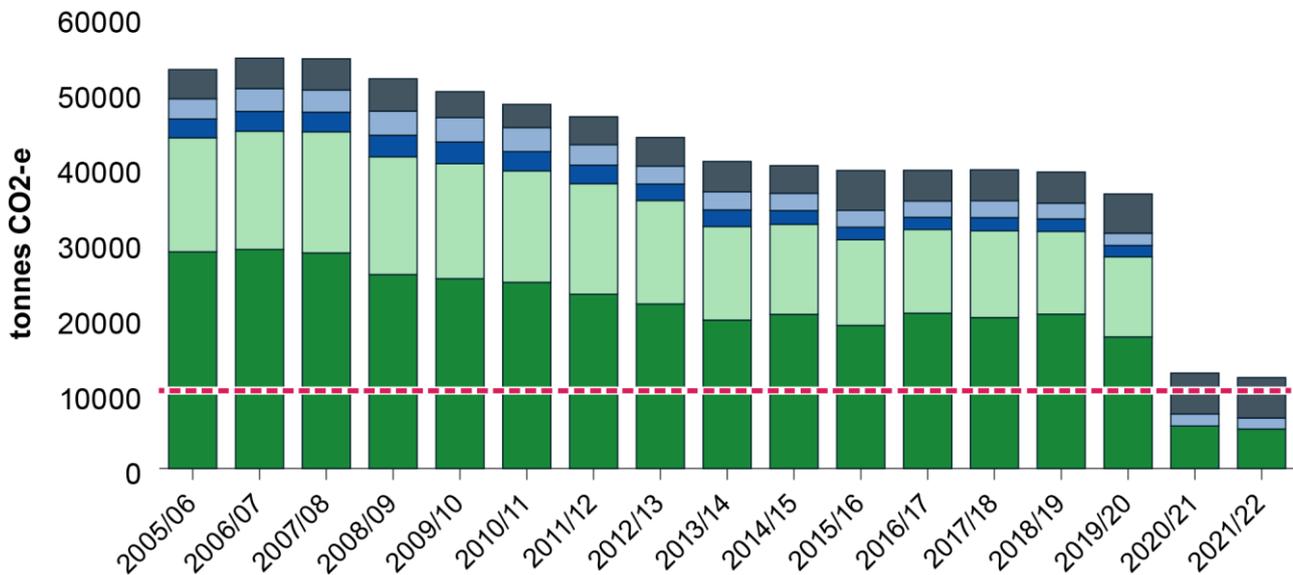
The City of Sydney has been measuring, reducing and offsetting all of its operational greenhouse gas emissions since 2007. In 2011, we became the first of any level of government in Australia to be certified as Carbon Neutral under the Australian Government Climate Active program (previously called the National Carbon Offset Standard).

We remain carbon neutral by continuing to implement emissions reduction projects, using renewable electricity, developing a greenhouse gas emissions inventory with independent verification each year, and by purchasing accredited offsets equivalent to 100 per cent of our residual emissions.

Our results

The City of Sydney’s emissions have dropped 77 per cent since we started measuring in 2006 (our baseline). In the past 12 months we’ve dropped from 12,667 tonnes CO2 equivalent to 12,139 tonnes CO2 equivalent.

The reduction in our carbon emissions is driven by purchasing 100 per cent renewable electricity. We continue to track our overall energy and electricity consumption to ensure we are delivering our operations as efficiently as possible.



Target: 80% reduction in emissions generation by end June 2025, from 2006 baseline.

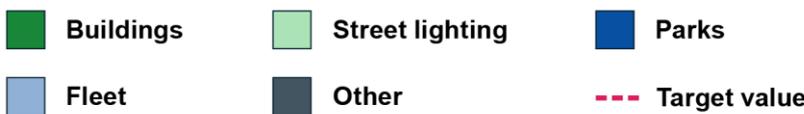
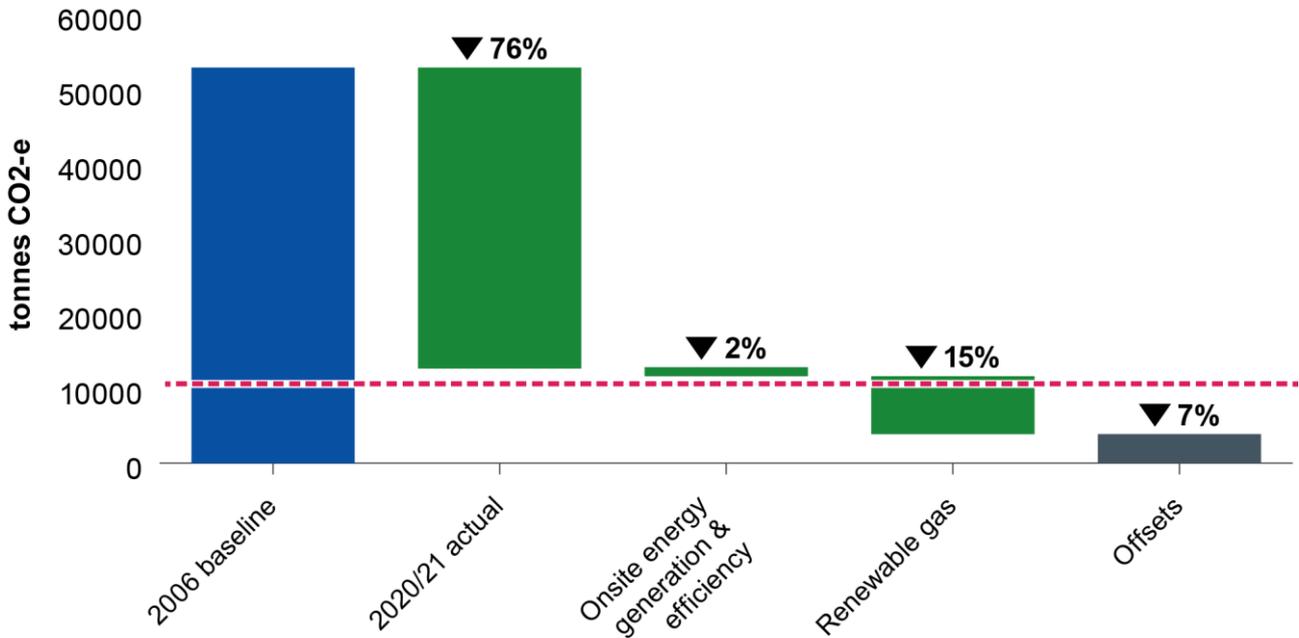


Figure 1: Operational carbon emissions

Forecast emissions

We have a strong target to achieve an 80 per cent reduction in our carbon emissions by 2025. To do this we need to understand changes in our projected emissions. The chart below shows projected changes based on known asset management plans and projects to target our remaining emissions.

As a result of the purchase of 100 per cent renewable electricity, efforts that target changes to our natural gas emissions and refrigerant emissions will have the most impact. Over the period to 2025 we plan to purchase renewable gas to reduce our emissions a further 15 per cent against the 2006 baseline. This, combined with portfolio changes and efficiency projects, means that in 2025 we will need to offset 3,900 tonnes CO₂e.



Target: 80% reduction in emissions generation by end June 2025, from 2006 baseline.

Figure 2: Forecast operational emissions to 2025

How we do it

Our reduction in carbon emissions is the result of a suite of integrated actions.

Measure

We prepare a detailed emissions inventory each year and have it verified independently to ensure it is accurate.

Avoid and reduce

We continue to identify and deliver energy and emissions savings in our buildings, street lighting, and fleet operations through efficiency upgrades, electrification, replacing fossil fuel use with renewable alternatives, monitoring and management.

Renewable energy

We have installed solar PV on many of our sites, supplying electricity directly where it is used. From July 2020 we have purchased 100 per cent renewable electricity. This has made a significant reduction in our emissions as depicted in Figure 1.

Offset

We reduce our carbon liability by using offsets for emissions that cannot be avoided. We have been purchasing an increasing share of higher quality offsets from projects in Australia. These offsets enable us to support projects in regional

areas. In 2021 we purchased offsets from Indigenous savannah fire and land management in northern Australia equivalent to 9 per cent of our total emissions. Our goal is to use 100 per cent high quality Australian regenerative offsets by 2025.

Relevant links - [Climate Active](#)

Reducing work travel emissions

Our Travel Policy for staff applies a transport hierarchy which requires employees to prioritise walking, cycling and public transport for work trips. Fleet bikes are available for staff at Town

Hall House and Alexandra Canal Depot, and we provide training to build confidence and ensure safety.

We have a fleet of electric vehicles and require any staff member who regularly drives for work to complete driver efficiency training to reduce fuel consumption. Our fleet procurement exceeds requirements of state and federal governments in terms of emissions reductions and safety. All our charge points have been upgraded to Type-2 to align with industry standards.

Electrifying our fleet

The City of Sydney is improving energy efficiency, reducing carbon emissions, and improving local air quality by progressively switching our fleet and minor plant to electric vehicles.

Vehicle electrification

We were an early mover in this space, purchasing our first electric vehicles in 2014. Since then, we have expanded the fleet to 19 vehicles, comprising 30 per cent of all cars in our fleet. This means that from 2020 our fleet

emissions dropped when we began using 100 per cent renewable electricity. A further 59 per cent of the fleet is hybrid.

In 2021 we purchased our first fully electric truck. In 2022 we took delivery of an electric buggy (for street cleaning and small bin collections) and ordered a fully electric footway sweeper.

We are now assessing future charging infrastructure needs that would enable expansion of our electric fleet as suitable vehicles become available and cost effective.



The City's first electric truck. (Photo by Jennifer Leahy / City of Sydney)

Electrifying our minor plant

We are in the process of switching the smaller machines we use in our parks to electric models.

Most of our blowers and trimmers are now electric. Options to replace mowers and whipper snippers are being investigated.

This is creating less noise and pollution, improving the experience for park users. There is also better weight distribution leading to an improvement in comfort for our parks team.

Shoalhaven solar farm

In 2022 we began using a third offsite renewable electricity plant as part of the transition to 100 per cent renewable electricity in our operations.

The Shoalhaven project was developed by Flow Power with local community group Repower Shoalhaven, a not-for-profit volunteer community enterprise that develops community solar projects. The 8,000-panel solar farm will

generate 3 megawatts of power each day. This is equivalent to the energy needed to power 1,500 homes.

The solar farm has been built at Nowra Hill on a site once used to empty bucket toilets. Since the land is contaminated, its uses are limited. The project shows what can happen when a local community looks at the climate crisis, asks 'what can we do?' and takes action.

The City of Sydney was a major investor and helped subsidise the Shoalhaven solar farm's renewable certificates cost, allowing it to sell off some surplus power at a competitive rate to local customers. Supporting the growth of the renewables industry is a key component of our Environmental Strategy and our race to net zero by 2035.

Street lighting upgrades

We are working with Ausgrid to accelerate the replacement of over 7,600 less efficient Ausgrid owned streetlights with LED equivalents. Stage one delivered 3,056 lights on local roads. Stage



City of Sydney staff visit the new Shoalhaven solar farm. (Photo by City of Sydney)

two commenced in late 2021, targeting over 4,600 streetlights on main roads with completion scheduled for late 2022.

The project is estimated to save 3,600 MWH per year, representing 50 per cent of energy consumption before the project commenced. These savings offset the planned installation of 1,770 additional LED lights across the local area as part of the pedestrian lighting improvement project.

Partnering with the Aboriginal Carbon Foundation

To maintain our carbon neutral certification, we are required to offset any remaining emissions on an annual basis.

In recent years we have purchased an increasing share of carbon offsets from quality Australian projects, investing in the nature-based solutions that are needed domestically to reduce emissions and restore biodiversity and ecosystem health.

For the past two years, we have purchased offsets created by Aboriginal practitioners in the top end of Australia using the [savanna burning methodology](#).

This is a way of managing the environment that Aboriginal communities have practiced for tens of thousands of years, with smaller and more controlled fires during the early, cool dry season. This produces far fewer carbon emissions compared with larger, hotter, uncontrolled fires (which the cool burns prevent).

There are multiple benefits in addition to carbon savings. It helps to control weeds and creates the conditions for native wildlife, plants and grasses. It also provides economic, social and cultural benefits to the communities and practitioners.

As well as meeting our carbon neutral objectives, this relationship is one example of how we are delivering on our [Stretch Reconciliation Action Plan](#).

Addressing future emissions

Building net zero framework

We have developed a net zero framework to drive further energy and carbon savings in our operations. This framework focuses on the sustainability of operations in our building portfolio by focusing on three distinct but interrelated parts.

First, a renewed focus towards making our assets more energy efficient. We are introducing a benchmarking tool, continuous efficiency monitoring and ensuring clear accountability to address issues. We're upgrading assets with more efficient technologies including lighting. Energy efficiency optimisation will reduce energy related emissions and costs.

Second, we will continue to use renewable electricity to power our operations. We will also explore pathways to introduce renewable gas into our non-electricity powered operations with the help of emerging technologies or upgrade projects.

Third, we will actively work towards electrifying our assets where practical. We will consider end of life phasing-out of current assets, availability of cost-effective technologies enabling electrification and the level of complication in retrofitting technologies into a diverse building portfolio.

Embodied emissions

As the first step in understanding the supply chain emissions from our operations, we commissioned a study to estimate the embodied carbon in our three-year capital works plan.

The study estimated total embodied carbon emissions for the three-year program at 179,000 TCO₂-e. Approximately 46 per cent of the total emissions are associated with footpath, roads, stormwater and cycleway projects. Our case study on Improving Our Roads (page 38) details some of the ways we are already improving our practices to reduce embodied carbon emissions.

New air quality sensor

A new air quality station has been installed by the NSW Government on City of Sydney land near Green Square. Data from this site is now available from the [NSW Government website](#). This is the second regulatory grade sensor in our area, adding to another one at Cook + Phillip Park. Air quality in our area is generally rated as good for most of the year.

We have also been working with UTS to install several smaller sensors to measure heat, humidity and air quality at the local level.

Disclosure

In 2021/22 we continued to publicly report our emissions.

- [CDP](#) report
- Climate Active certification
- Annual Report

Action for our city

In 2021 we brought forward our local area net zero goal from 2040 to 2035, in line with the Paris Agreement. While the City of Sydney cannot tackle the climate crisis alone, we can lead and encourage others to do the same within their communities.

Our programs support energy efficiency improvements through partnerships with building owners, residents and businesses. We provide grant funding for innovative climate initiatives. We actively support the transition to renewable energy across the electricity grid, and in partnership with transport providers. We focus on making it easy and attractive to take transport with reduced or no carbon emissions.

Our results

Greenhouse gas emissions for the City of Sydney local area have been decreasing year on year. In June 2021 they were 31 per cent below 2006 levels. This has largely been achieved through greening the grid, however it also reflects energy use changes due to the pandemic.

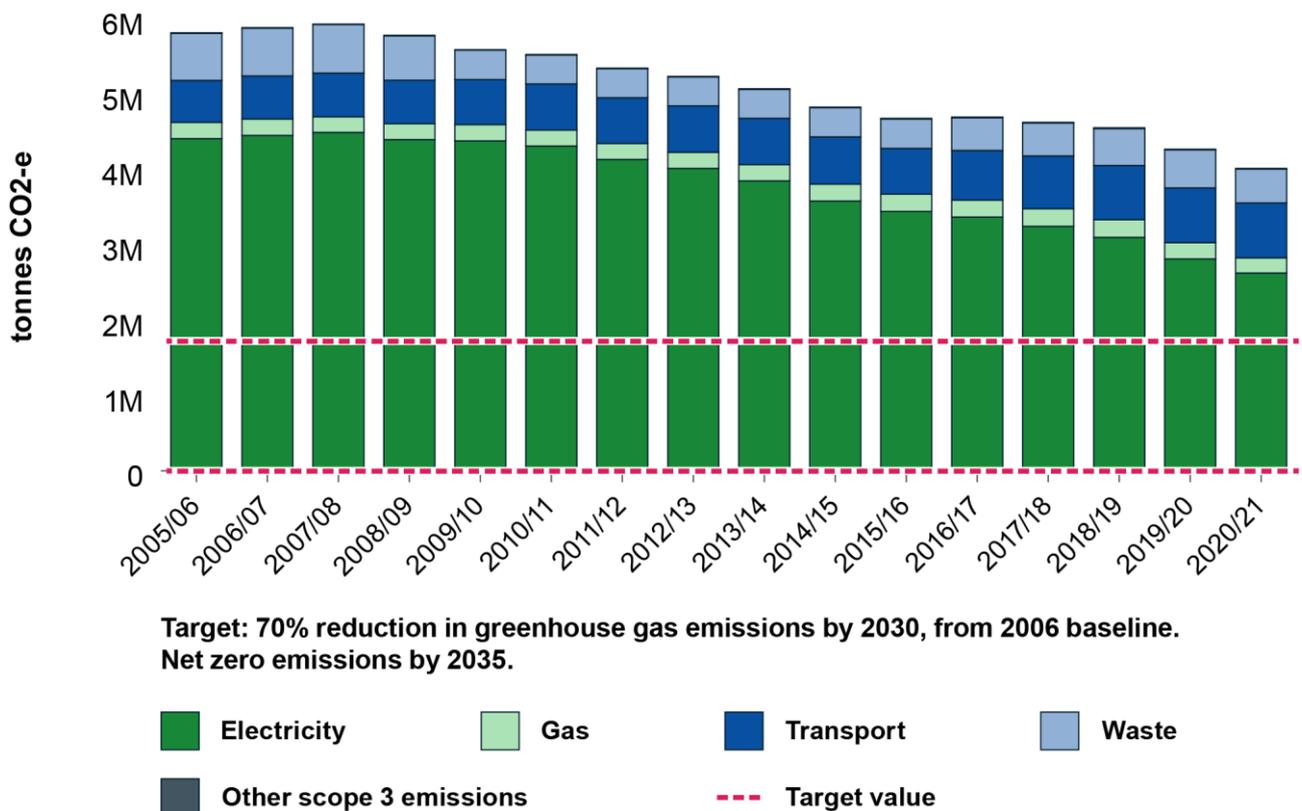


Figure 3: City of Sydney local area emissions

How we do it

The change in emissions is the result of a suite of integrated actions in the context of a decarbonising grid and changes by our communities in response to concerns about climate change.

Measure

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

Program delivery

We design and deliver targeted programs to enable our communities to reduce their carbon emissions. Flagship programs include the [Better Buildings Partnership](#), [Sustainable Destination Partnership](#), [CitySwitch Green Office](#), and [Smart Green Apartments](#).

Promote renewable energy sources

Consumption of grid electricity and gas produces 70 per cent of the local area's greenhouse gas emissions. We actively encourage businesses, residents and other organisations to use renewable energy sources and opt for 100 per cent GreenPower electricity plans.

Promote active transport

Transport is the second biggest contributor to emissions after energy used in buildings. We

encourage a move away from private vehicles and towards walking, cycling and public transport, as well as supporting businesses to 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) estimates the national grid may be at least 80 per cent renewable as soon as 2030.

Switch to renewables

2021 was the largest year for installing rooftop solar to date, with 5MW installed in the local area. This takes the total rooftop solar installed in our community to 21MW on over 2,041 rooftops. We continued to use innovation grants and knowledge exchange programs to unlock greater community access to solar. We supported community group Inner West Community Energy to hold Sydney Solar Villages – a series of information nights providing support and planning information for residents looking to install solar in heritage areas. The Ultimo Solar Roadmap grant project was successful in identifying a range of viable community solar projects in Ultimo. A feasibility study on using industrial roofs as solar farms generated information on the opportunities and barriers for the southern part of our local area.

Tailored support on renewables for business was delivered through a CitySwitch webinar and a tailored GreenPower guide: Pathways to Renewables for Small and Medium Businesses. We also focused on sharing more success stories – an article published in City of Sydney News and shared through City of Sydney business channels highlighted a strata group and school that switched to renewables.

GreenPower campaign

In June 2022 we launched [getgreenpower.sydney](https://www.getgreenpower.sydney) as part of a mass awareness campaign to accelerate the take-up of 100 per cent accredited GreenPower electricity plans. Targeting residents and small businesses, the campaign includes outdoor, transit, radio, podcast, social media and online advertising, as well as media partnerships.

Green Report 2021/22

To support medium to large businesses, we continue to promote resources and case studies on power purchase agreements.

Many residents and businesses overpay for electricity. Single O cafe in Surry Hills discovered it was on the wrong electricity plan. By switching to a large market contract, it was able to save \$29,000 in energy costs over 3 years.

Recognising the volatility of the electricity market in 2022 and the sharp rise in prices, we're encouraging 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](#).

Ice box challenge

Our grants fund many great environmental programs that raise awareness and help us to meet our targets.

Funded by an environmental performance grant, the Australia Passive House Association ran the [Ice Box Challenge](#) in Martin Place to demonstrate the benefits of passive house building standards.

Two locally built structures were filled with equal amounts of ice and displayed in Martin Place from Monday 21 February to Friday 4 March.

One box was built to Australian building code standards.

The other box was built to meet the international [passive house standard](#), an energy efficient building performance standard.

After 11 days in Sydney's relentless humidity, just 0.8kg of ice was left in the Aussie code box, while a whopping 413.8kg remained in the passive house box.

A fun and interactive public installation, the Ice Box Challenge proved to be our most popular environmental promotion to date.



The Ice Box Challenge in Martin Place (Photo by Australian Passive House Association)

An active city

We are focussed on reducing car use as a key strategy to reduce the environmental impacts of transport and help us achieve our goal of net zero by 2035. Decreasing car use reduces emissions, improves air quality, and allows for reallocation of space to improve the quality of public life in our most public places – our streets.

We have an integrated approach to reducing the amount of motor vehicle travel in our area. It starts with using development control to limit the amount of parking in new developments, with maximum parking rates rather than minimums. We work to increase the number of people riding on our extensive bicycle network. We aim to be a city for walking, actively improving the pedestrian experience.

We work to increase the number of people riding on our bicycle network. We support the car share system, as it supplements sustainable transport options and contributes to the large amount of households in the City of Sydney area who do not own a car.

George Street pedestrianisation

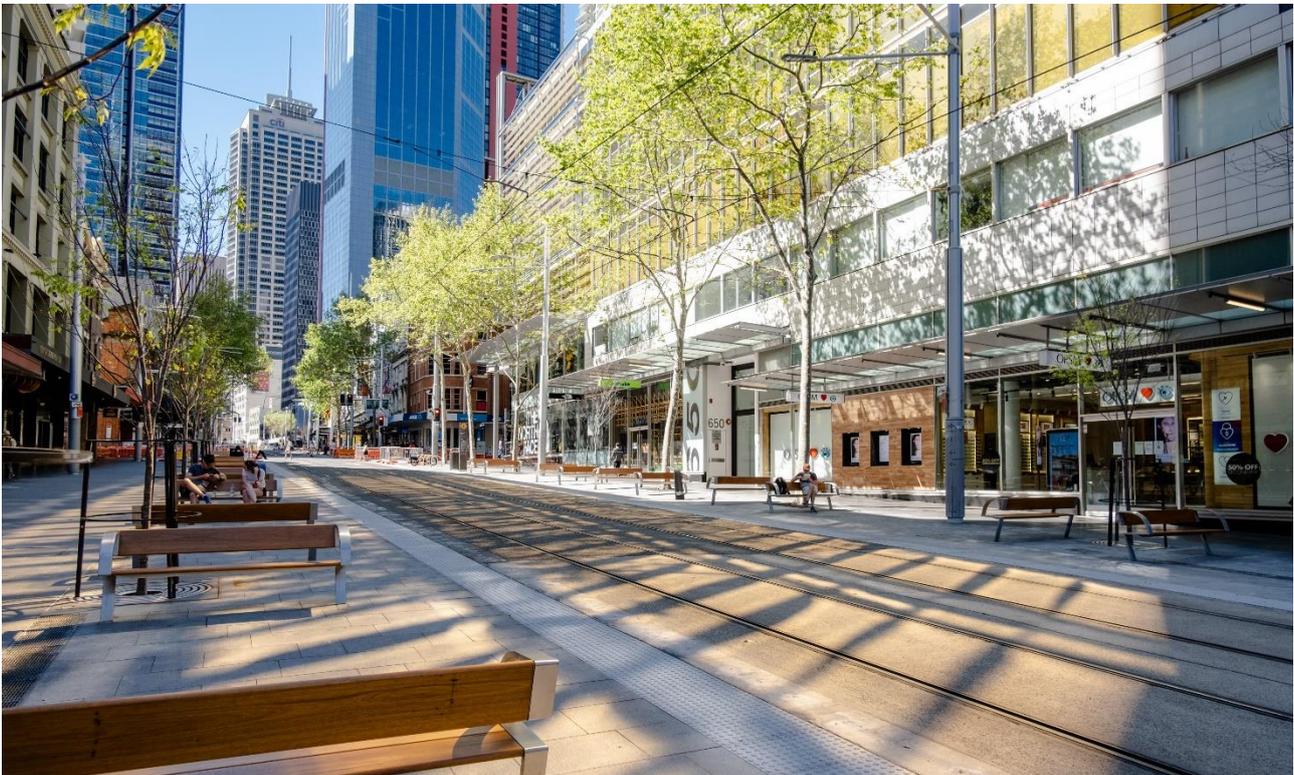
In 2021 George Street's transformation as a pedestrian boulevard was extended from Bathurst Street to Rawson Place, creating more than 9,000m² of additional space for people walking and dining in Sydney's city centre. This new pedestrian boulevard is part of the City of Sydney's \$43.5m project to create additional space for walking, dining and seating. It aligns with the light rail tracks running the full length of George Street from Haymarket to Circular Quay. The project was supported with more than \$1.1m from the state government and \$7m from the federal government.

Increased cycleways

More people riding bikes as the first choice for everyday transport enables us to achieve a city for walking, cycling and public transport. A network of separated cycleways provides direct and safe access for people riding throughout the city.

During 2021/22 we substantially increased our cycleway network.

In the city centre, two separated cycleways opened on Chalmers Street between Central



George Street South boulevard new pedestrianised section (Photo by Chris Southwood/City of Sydney)



A pop up cycleway on Henderson Road, Alexandria (Photo by Chris Southwood/City of Sydney)

station and Prince Alfred Park, on Liverpool Street between Sussex Street and Darling Harbour, and on King Street between Pitt and Phillip streets. Nearby, the separated cycleways on Saunders and Miller streets in Pyrmont also opened.

Separated cycleways were completed in the Green Square town centre along Zetland Avenue between Joynton Avenue and Portman Street and along Portman Street between Hansard Street and Frog Lane. Nearby, separated cycleways were opened on MacDonald Street in Erskineville, and on Gadigal, Potter and Crystal streets in Waterloo.

Construction started on several other cycleways including along Pitt Street and College streets in the city centre, Bridge Street, Railway Parade and Henderson Road in Erskineville, Ashmore and Harley streets also in Erskineville and on the new Ashmore to Green Square connector road.

Council approved several more separated cycleways – three in the city centre along Castlereagh Street, Liverpool Street and Oxford Street, and one in Alexandria on Mitchell Road and Huntley Street.

Influencing for change

Planning controls

This year we made submissions on multiple state and national proposals that have the potential to improve energy use in buildings. These included the National Construction Code, BASIX standards, NatHERS, NABERS, Climate Active and GreenPower.

Energy efficiency support for households

We are collaborating with the NSW Government to ensure its energy efficiency stimulus, incentives and support programs include strata communities and low-income communities. We successfully advocated to the NSW Government to ensure sustainability infrastructure and associated by-laws and decision-making support are included in the evolution of relevant strata legislation.

Mandatory disclosure for residential sales

We have continued to advocate that apartments and apartment buildings (as a whole) be included in national residential disclosure policy development.

Transport planning proposals

We directly respond to transport related planning proposals to secure improved public transport to serve our growing area. In 2021 our advocacy helped influence the NSW Government's Metro West commitment, including a station at Pyrmont.

We also influenced the NSW Government's 2021 Tech Central Place-Based Transport Strategy, to include investigating an additional stop at Central in the proposed Metro West extension between Hunter Street and Zetland. We also influenced the new bus network for South East Sydney, reinforcing the need for local community connections and network redesign around the light rail.

Zero emissions vehicles

Zero emissions buses servicing Sydney makes a significant contribution to reducing emissions. We are advocating for zero emissions buses to operate in the City of Sydney area by 2030, as part of the NSW Government's current commitment to electrify all buses in Greater Sydney by 2035.

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.

Our strata and business programs

We work in partnership with city residents and businesses to drive collective action to achieve our environmental targets. Most of the emissions in our local area come from buildings so we work with apartment and commercial office owners, accommodation and cultural institutions, and office tenants to improve building efficiency and sustainability, toward net zero by 2035. Our programs and partnerships drive collaboration and innovation around performance ratings, procuring renewables, decarbonising supply chains, reducing waste and increasing circular economy and resilience.

Partnering with businesses

Through our sustainable business partnership programs, we engage with the key commercial sectors that contribute the most to the city's environmental footprint. The Better Buildings Partnership, Sustainable Destination Partnership and CitySwitch engage in sustainable action with 87 different organisations including building owners, hotel operators, entertainment venue managers, and office tenants from legal firms to not-for-profit groups. These organisations represent 61 per cent of all hotel rooms in the city, 27 per cent of office space and 52 per cent of commercial office buildings. In 2020/21 these organisations collectively saved 96,745 tonnes of carbon and 828,385kL of water, significantly contributing to the achievement of our environmental targets.

The image displays a grid of logos for various organizations. The logos are arranged in three main sections: MEMBERS, ASSOCIATE MEMBERS, and SUPPORTING MEMBERS. The MEMBERS section includes logos for AMP CAPITAL, Brookfield, Charter Hall, CITY OF SYDNEY, dexus, FRASERS PROPERTY, GPT (The GPT Group), investa, ISPT SUPER PROPERTY, lendlease, mirvac, Stockland, and UTS. The ASSOCIATE MEMBERS section includes logos for CBRE, Colliers INTERNATIONAL, and JLL. The SUPPORTING MEMBERS section includes logos for GECA, Green Building Council Australia, NABERS, and PROPERTY COUNCIL of Australia.

Members of the Better Buildings Partnership

Better Buildings Partnership

This year the Better Buildings Partnership embarked on a new strategy to accelerate targets to net zero emissions, shift the sector to adopt circular economy practices and explore opportunities to collaborate on resilience, accessibility and reconciliation.

The Better Buildings Partnership has achieved an overall carbon emission reduction of 63 per cent from the 2006 baseline year and a 65 per cent reduction in potable water consumption. These results have been impacted by people working from home due to the Covid-19 pandemic.

Detail on the results and overall achievements of the partnership is available in its [annual report](#).

Sustainable Destination Partnership

Food waste is a key environmental issue for the entertainment and hospitality sector and has been a strong focus for the Sustainable Destination Partnership. The Love Food Sydney project trained 207 hospitality staff in food waste avoidance action.

In 2020/21 the partnership delivered reductions of 28 per cent in carbon emissions and 33 per cent in water consumption from the 2018 baseline year. Three members are carbon neutral with seven having a public commitment to net zero emissions. 17 buildings delivered third-party sustainability ratings and 34 are reducing single-use waste.

The success of the partnership has resulted in a new draft strategy and governance arrangement agreed for the next 3 years. Ongoing work will focus on accelerating decarbonisation, reducing waste and promoting Sydney as a sustainable destination.

Sydney has achieved a ranking of 15 (out of 73) in the Global Destination Sustainability Index.

Detail on the results and overall achievements of the partnership is available in its [annual report](#).



Members of the Sustainable Destination Partnership (Photo by City of Sydney)

CitySwitch

CitySwitch is a national program to support improved sustainability in office tenancies which is hosted and managed by the City of Sydney. In 2021, Sydney, Melbourne, Perth, Adelaide and North Sydney supported 607 signatories to implement sustainability opportunities. In 2021, these tenancies collectively saved 762,341 tonnes of carbon and \$62.6m through energy saving opportunities and offsets.

In our local area, 221 office tenancies participate in the program. REST, BVN Architects and BN Law were all welcomed to the program this year as new signatories. Sydney signatories reduced their collective emissions by 68,053 tonnes in 2021. The first face to face event since the Covid-19 pandemic was held in collaboration with signatory Clayton Utz and focused on sustainable food practices in offices.

Last year we hosted the CitySwitch Awards which recognise program signatory results. The event was delivered collaboratively with City of Melbourne and broadcast nationally.

The CitySwitch program has undergone a strategic evolution to increase its impact and address the urgent need for office-based businesses to decarbonise. A flexible pathway model has been developed for business to use as a framework to achieve net zero emissions. Monthly webinars and newsletters were delivered to build sustainability capacity in the sector.

Detail on CitySwitch's results and overall achievements is available in its [annual report](#).



City Switch Awards, April 2022 (Photo: City of Sydney)

Working with our strata communities

Smart Green Apartments

Smart Green Apartments works with owners, and strata and building managers to improve environmental performance in apartment buildings in our local area. There are 232 buildings, 171 strata plans with 37,158 residents in 18,864 apartments in the program. All buildings have received energy action plans and NABERS ratings which inform owners corporations of opportunities for

Green Report 2021/22

energy efficiency upgrades. Owners corporations have implemented energy efficiency projects that have avoided 31,776 tonnes of carbon dioxide equivalent and saved owners corporations a total of \$4.6m since 2016. Owners have directly invested \$2.8m in building sustainability upgrade projects.

By participating in Sydney Water's WaterFix program, 3,026 apartments within 14 buildings have also had their water fixtures and fittings retrofitted. These upgrades have achieved water savings of more than 1,123 millilitres and have saved owners corporations approximately \$2.15m in reduced water bills.

Resilient Strata Communities

33 environmental ratings and assessments grants were awarded this year with a total value of \$265,704. Owners corporations saved 425 tonnes of Co2 and \$76,056.

Eight apartment buildings across our programs now use GreenPower.

Our Strata Leadership Network highlights best practice and fosters capacity and connections for resilience. In September 2021 we held a webinar on emergency preparedness, and in May 2022 a workshop on improving community cohesion in apartments. Our monthly Sustainable Apartments electronic newsletter provides practical, up-to-date information and has 3,928 subscribers.

We engage with 18 representatives from government, industry and community organisations through our quarterly Residential Apartments Sustainability Reference Group. We continue to advocate for mandatory disclosure of energy use, through NABERS ratings for apartment buildings.



22kW of solar installed at The Galleria. Michael Whitby, Strata Committee Treasurer. (Photo by Katherine Griffiths/City of Sydney)

Waste and materials



Goods and materials used in our city create **environmental impacts** locally and in the places they are sourced.

We work to promote **responsible management** of our materials, helping everyone to reduce what they consume, minimise waste and share resources.

Our operations

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

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

Our results

Total waste generation from our operations has reduced by 17 per cent (154 tonnes) in 2021/22 compared to the previous financial year. This result can be attributed to the impact of Covid-19 on our operations.

We have separate targets for waste from our properties and waste from public spaces that we manage. The waste generated in our properties tends to be more consistent than waste generated in public spaces, and so we have more options to recycle materials from our properties. The two graphs below show these differentiated targets and results.

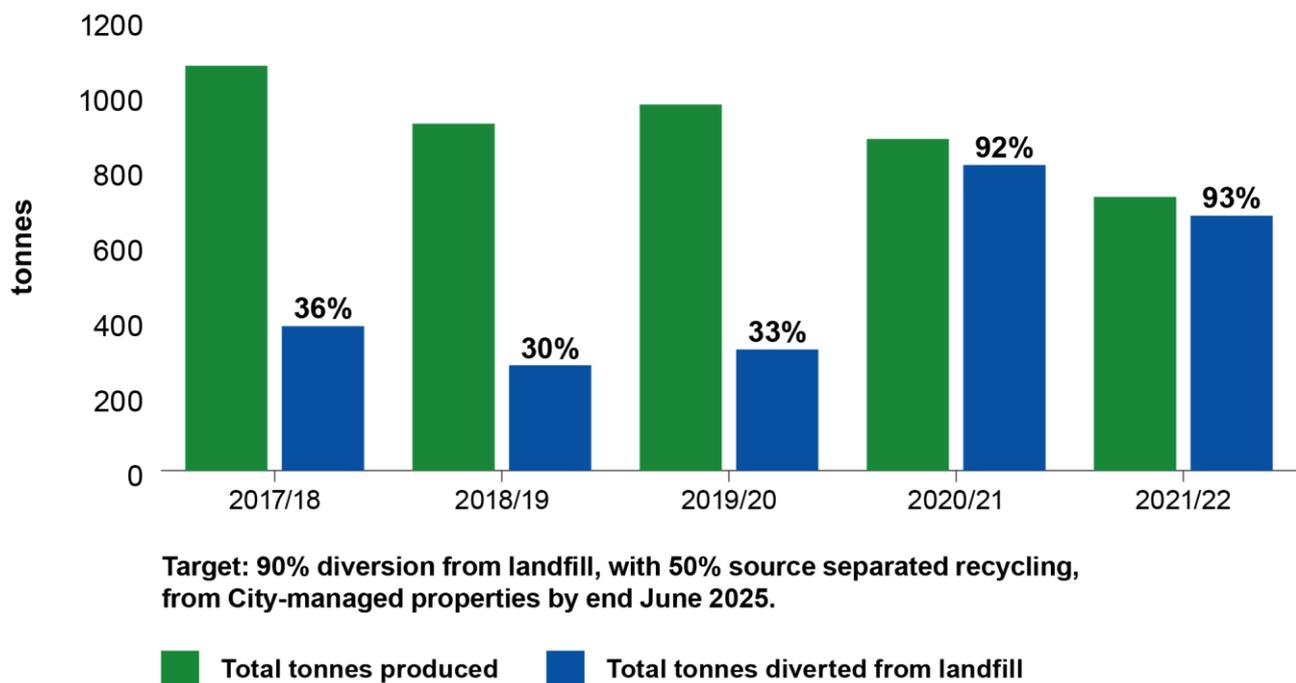


Figure 4: Operational waste from our properties

Green Report 2021/22

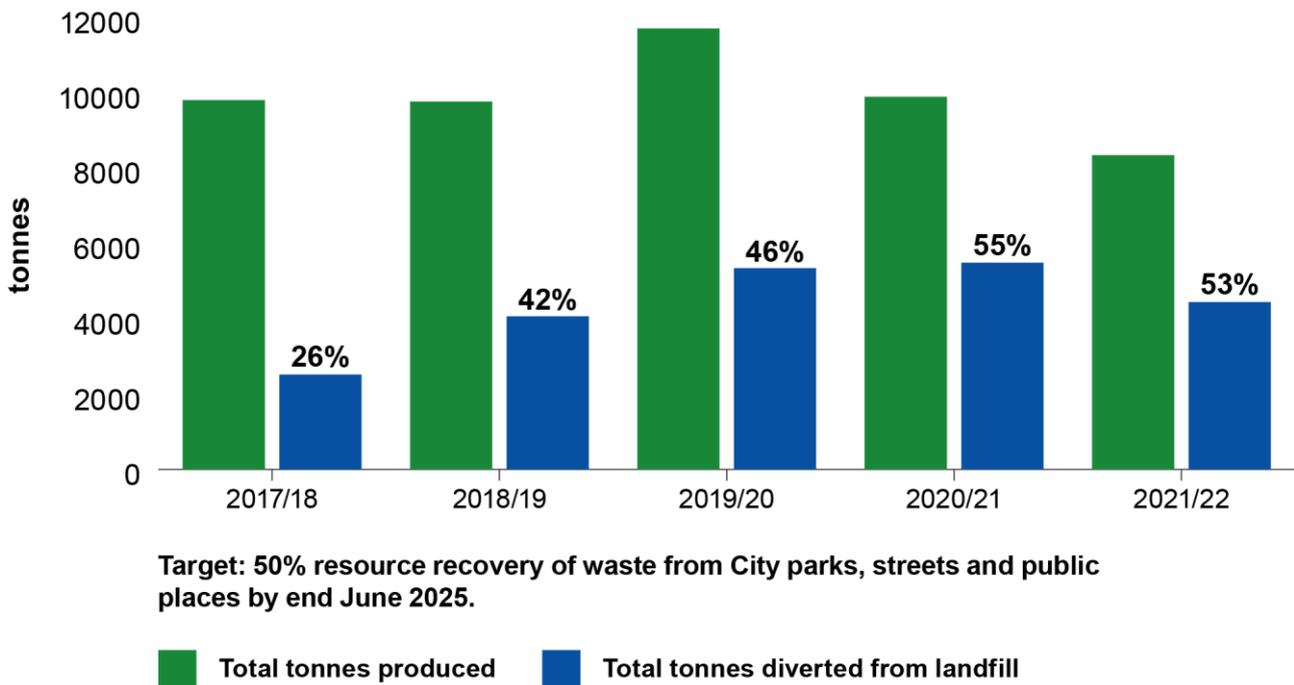
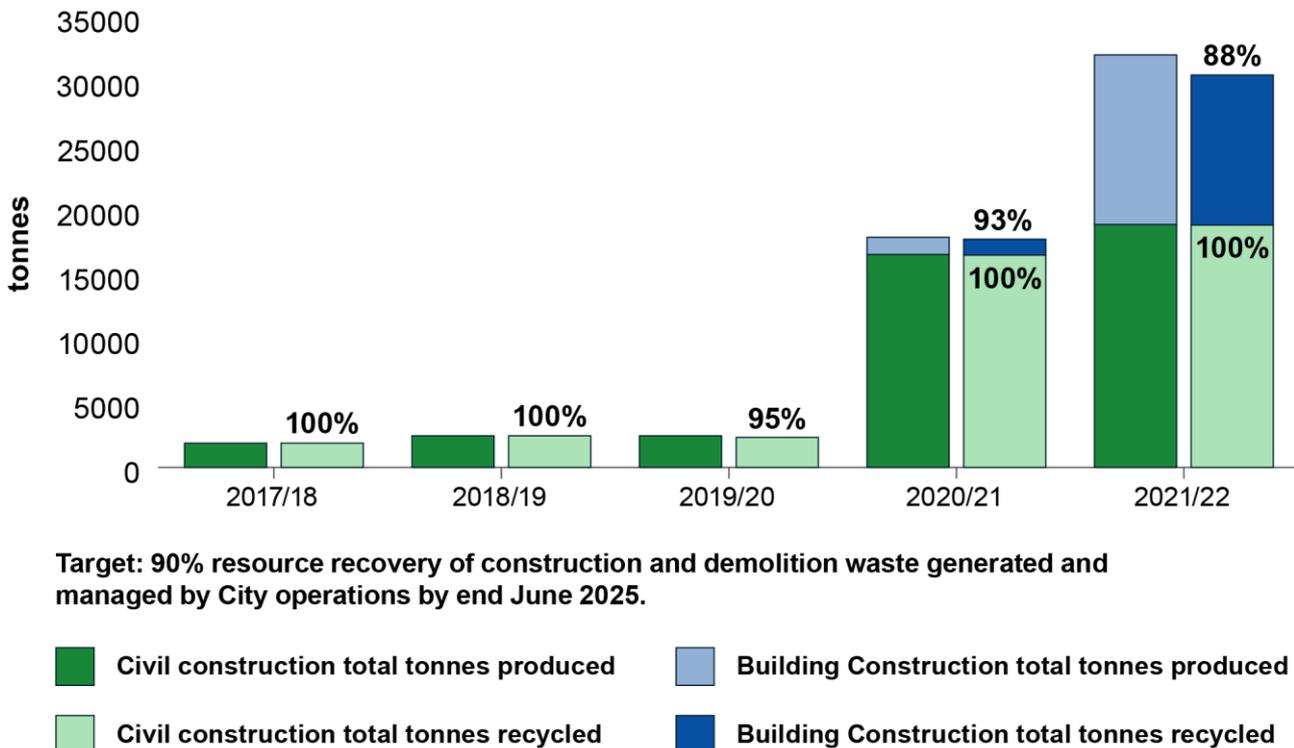


Figure 5: Waste from public spaces that we manage

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 in addition to waste from our street and footpath renewal works. We expect results to fluctuate in the next couple of years as we establish data collection procedures for our capital works projects.



Note: Data collection for building construction projects commenced 2020/21

Figure 6: Construction and demolition waste from our operations

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.

Understanding our waste data

The City of Sydney is responsible for managing waste and recycling produced in our own buildings, from our construction and asset management projects, in the parks and public spaces that we manage, and from 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. We have programs to assist in reducing waste and improving resource recovery.

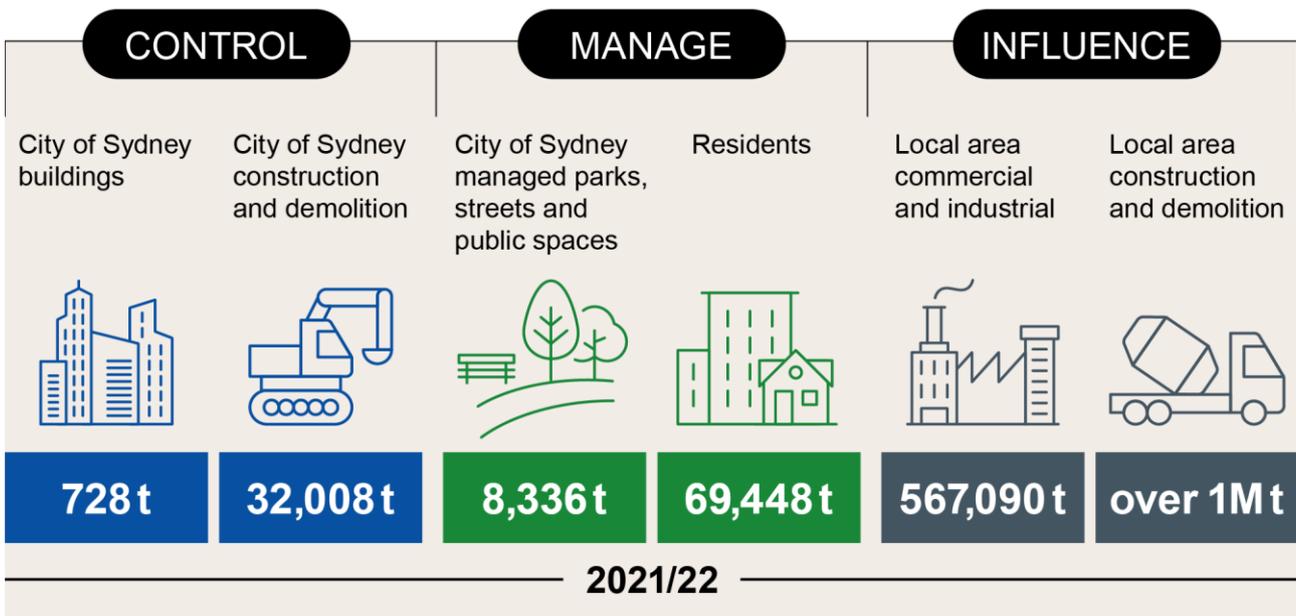


Figure 7: Understanding our waste data

How we do it

The change in our waste and recycling performance is the result of targeted initiatives across our properties, open spaces and streets.

Measure

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

Avoid and reduce

We have implemented initiatives such as removing under desk bins, encouraging staff to clearly segregate their waste using central bins and providing information on how to avoid creating waste from single-use items. At Town Hall House, we replaced paper towels in bathrooms with hand dryers to eliminate our single largest waste stream in the general waste bin.

Source separation

We provide a variety of bins for staff to pre-sort their waste. Mixed recycling, paper, secure paper and organics collections are available in all office locations. We provide clear signs and

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

Building design

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

GECA certified waste services

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

Property improvements

Onsite food waste

To help us achieve our target of 90 per cent diversion from landfill from City-managed properties by end of June 2025, this year we installed two food dehydrators at Town Hall House and Alexandria Child Care Centre. This project transforms food waste into a soil conditioner to be used in our green spaces, delivering a circular materials outcome.

The units work by shredding food waste, heating it to 100 degrees to eliminate pathogens, deodorise and dehydrate it. After a cooling process, the resulting soil conditioner is ready to use. The product is then used in our parks and gardens.

The project is driving \$20,000 in annual savings for waste services and \$100,000 in soil conditioner costs.

The project is a collaboration between multiple teams including our sustainability infrastructure

team, cleansing and waste, city greening and leisure, childhood services team and its subcontractors, and is a great example of cross collaboration between divisions.

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

Replacing hand towels

Following a waste audit that revealed paper towels made up about 12 per cent of the landfill waste in a selection of our buildings we chose to replace paper towels with hand dryers in Town Hall House earlier this year. There's a high environmental cost in creating and using paper towels, from cutting down trees to transport, processing and disposal.

This change is moving us toward our target to reduce waste from our properties by 15 per cent by June 2025. Paper towels are a single-use item as they cannot be recycled, so this change has helped to substantially reduce our single-use items.

Action for our city

Our long-term waste objectives for our local area are to reduce the amount of waste produced, to recycle as much as possible while retaining a material’s highest value and to 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 to achieve these objectives.

We deliver programs to our communities through our waste avoidance and resource recovery engagement teams.

Our results

When considering our residential waste results, we split the total waste collected into recycling, recovery and materials sent to landfill. Recovery refers to the results of processing waste from red bins before it goes to landfill. This process reduces the total volume of the waste we send to landfill and reduces carbon emissions. Recycling covers items that are collected in yellow lid bins. Landfill diversion refers to those materials not sent to landfill – the sum of recycled and recovered materials.

Figure 8 shows our recycling and landfill diversion rates as a per cent of total materials. Figure 9 shows total materials in tonnes by recovery pathway.

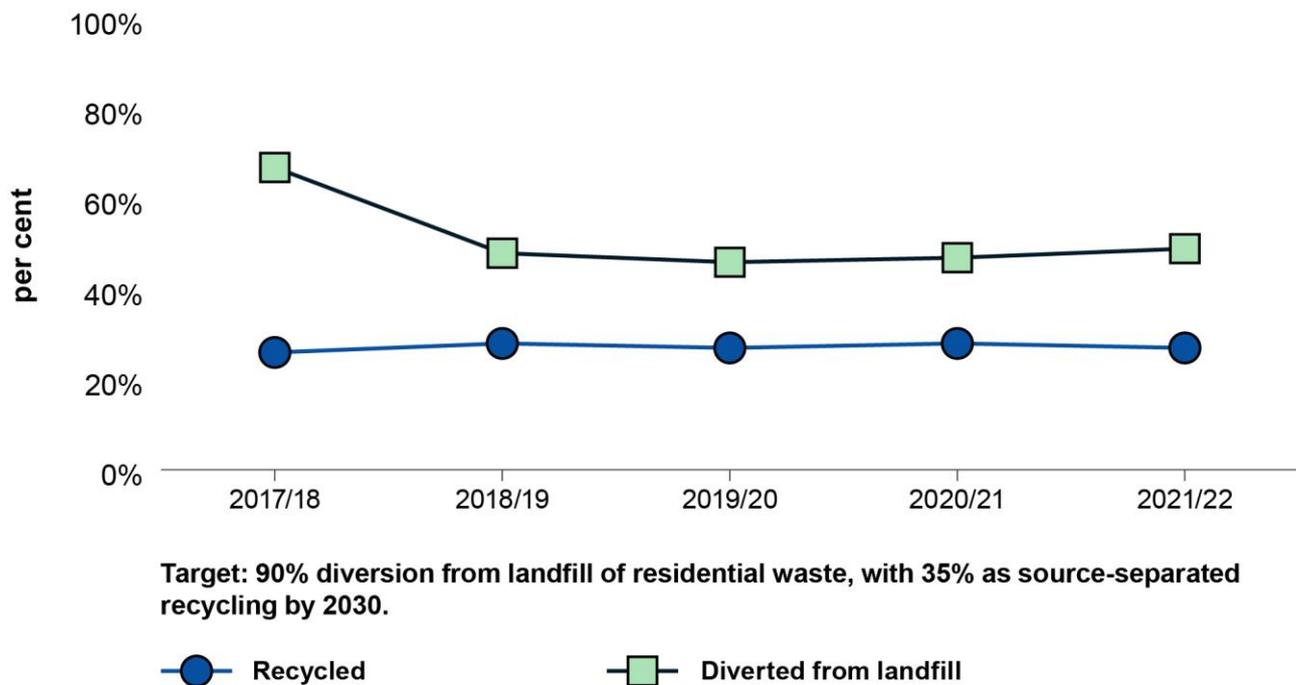


Figure 8: Residential recycling and landfill diversion rates

Our landfill diversion rate has declined since 2018. This is caused by a combination of ongoing high use of red lid bins by residents and NSW EPA legislative changes in 2019. These changes removed permission to use waste-derived products for land remediation. This meant that our waste service provider was no longer able to provide value-added recovery of materials from red lid bins.

Green Report 2021/22

To address this shortfall, since 2019 we have put targeted recycling programs in place and stepped up our advocacy efforts to improve waste outcomes for the city and our region. 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 an overhaul of how governments, industry and the community view the value of materials we use. Detail on our targeted programs, and advocacy efforts is contained in this section.

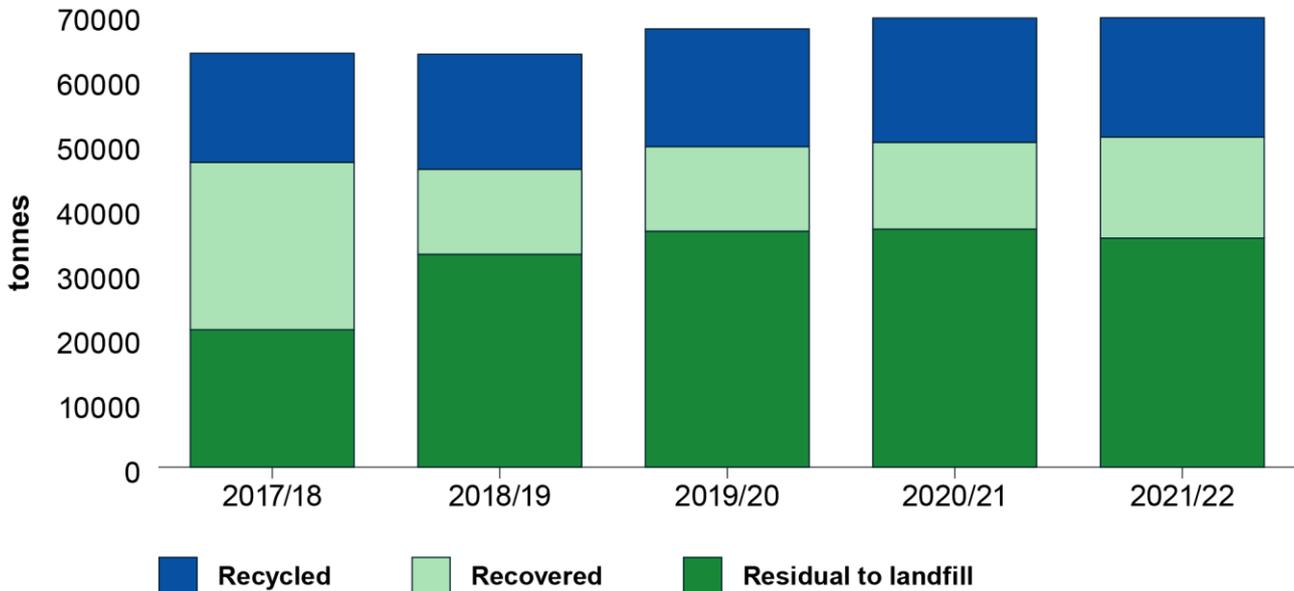


Figure 9: residential waste generation

How we do it

Our residents have access to more than twelve separate collection or drop off services for recycling and we are always investigating how to achieve the highest value outcome for the materials we collect.

Measure

Through the contracts we manage we can measure each material stream we collect from residential dwellings, and we work with other agencies to estimate results for commercial and construction waste generated in our area.

Service delivery

We deliver services to residents with a focus on maximising resource recovery of materials at their highest value in the most efficient and convenient manner.

We design our services to take into account the sorts of materials people are generating as waste and seek the most appropriate processing solutions available.

Events and activities

We deliver waste avoidance events and activities directly to residents and visitors, both in person and online to 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 respond to residents' questions on a range of recycling topics and items.

Planning requirements

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

Grant funding

We provide funding to support new and innovative resource recovery and circular

economy solutions that can deliver positive changes across our local area.

Advocacy

We regularly advocate for changes to systems and legislation where we don't have direct control over those industries that create 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.

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.

Tackling food waste

Our food scraps recycling trial has now recycled over 1,000 tonnes of food scraps.

A comprehensive project evaluation report for the trial has been completed and it indicated results of the project were very strong. The service delivered good participation and recovery rates, low bin contamination, high customer satisfaction, and multiple environmental benefits.

Oliver, a building champion in Darlinghurst, said his building loves how convenient and easy the service is to use. He said, "above all else, residents are proud and thankful that they have been given the opportunity to look after the environment".

Fiona's building started recycling food scraps early in the trial. For Fiona, it's an easy way to reduce greenhouse gas emissions and put food scraps to good use.



Fiona, food scraps trial champion (Photo by City of Sydney)

"I've also been using it for my coffee grounds. I'm really happy about that because they were going in the bin or down the drain," Fiona said.

We are continuing to provide the food scraps recycling service to current participating properties until a decision is made by council on the future of food waste recycling services.

Key results of the food scraps recycling service to 30 June were:

- A total of 1,104 tonnes of food scraps have now been collected and recycled.
- More than 19,000 households now have access to the food scraps recycling service across 248 apartment buildings and almost 1,000 houses.

Environmental benefits of the service to date include:

- landfill space savings: 1,073 m3
- greenhouse gas savings: 1,866 tonnes CO2-e
- energy produced: 64,447 kWh
- soil amendment generated: 7.9 tonnes fertiliser + 463 tonnes compost.

Encouraging reuse

Swapping is a clever and thrifty way for our residents to update their wardrobes, save money and help fight textile waste. Four swap events were delivered in partnership with The Clothing Exchange to encourage reuse for good quality clothing and toys.

In February, 75 residents attended the sold-out Darlinghurst Clothing Swap exchanging 400 items and diverting 120kg of clothing from landfill. At the Clothing Swap event at Tramsheds in Forest Lodge 115 participants swapped 183kg of clothing for reuse.

In March, the Glebe Toy Swap was attended by 40 residents, including children aged from two to eight years, who swapped 200 toys, diverting 98kg from landfill. At the Toy Swap event at Cliff Noble Community Centre in Alexandria 30 participants swapped 114kg of good quality toys, diverting all these valuable resources from



Tramsheds clothes swap, 2022 (Photo by Adam Hollingworth/City of Sydney)



JD Grant, Building Manager for Bullecourt apartments in bin room (Photo by Katherine Griffith/City of Sydney)

landfill by re-circulating their clothes and toys for reuse within the community.

To help upskill the community on reuse and repair, six free sewing mending and repair workshops for adults were delivered in Redfern Community Centre and the Juanita Nielsen Community Centre in Woolloomooloo. 59 residents learned basic sewing skills to help encourage clothing repair to avoid clothing waste.

A series of how-to videos were also developed for the community on sustainable fabric care. The videos cover which fabrics to buy and avoid, how to reduce the impact of polyester and caring for natural fibres.

Increasing recycling in apartments

The Recycling Helper Service engaged building managers across 30 apartment buildings and 3,821 residences through an opt-in trial to encourage residents to recycle right at the source. 90 site visits, 60 bin audits, 10 information stalls and tailored waste education actions were delivered to residents living in apartments.

An evaluation of trial data in early 2022 showed that engaged building managers and signs installed at point of disposal were key to helping improve recycling outcomes in apartment buildings. We have since made an [online expression of interest form](#) for building managers to seek recycling support. We are running a pilot across ten buildings to further test if signs installed at point of disposal improves recycling outcomes.

In June 2022, we introduced recycling services for 85 residences across ten social housing buildings in Redfern and will deliver tailored recycling education to support these residents to establish good recycling behaviours in a four-month social housing recycling pilot throughout June to September 2022.

Recycling tricky items

In 2021/22 30.8 tonnes of tricky items (including clothes, soft plastics and electronics) were recycled, arising from 8,918 pickups collected directly from residents' homes through the Doorstep Recycling Service. 19.95 tonnes were recycled from 642 drop-offs through our Household Chemical Cleanout event in February 2022.

The quarterly Recycle It Saturday events attracted 2,176 people that dropped off 53 tonnes of materials for recycling. The most popular items dropped off were electronics, textiles, paint and cardboard. This year, for the first time, we delivered two events in partnership with Waverley and Woollahra councils. This made the event accessible to a wider community and increased operational efficiencies across the three councils.

Community container collection

A reverse vending machine was installed in Sydney Park in December 2022, as part of the NSW Government's Return and Earn container deposit scheme. The machine is conveniently located in the car park area, on the corner of Euston and Sydney Park Road. The machine offers a 10c refund to consumers for depositing eligible drink containers. Containers collected by the machine are sorted without any contamination from other types of waste. This ensures they can be made into new cans and bottles repeatedly, assisting in closed loop recycling.

Single-use plastics

In support of the recent ban on single-use plastics by the NSW Government, we have developed an [online toolkit](#) for employees, event organisers and local community members to find more sustainable and reusable alternatives to commonly used single-use items.

Our approach is to try and go further than the state ban and reduce the use of all single-use items where possible. We know that regardless of its material type, single-use items cannot be easily recycled and have a negative impact on our environment such as increased greenhouse gas emissions and litter. As such we are phasing out the use of single-use items in our own buildings and at our events.

The toolkit is complemented by our updated [Guidelines for reducing waste at events and services](#).

Planning for clean and clear streets

Improvements were made to the Guidelines for Waste Management in New Developments and the Sydney Development Control Plan to include updates to City of Sydney waste truck access requirements and food waste storage within residential apartment buildings.

The statutory review of the 2017 Waste Local Approvals Policy was completed and in June the policy was approved by Council to go out on public consultation. The policy outlines how waste is to be managed safely and sustainably in the public place.

City employees reviewed 443 waste planning requests to ensure developments are designed with adequate space to separate materials for recycling and to store bulky items off the street for collection. This included 235 development application referrals, 106 re-referrals and 102 other requests such as conditions satisfied, pre-development applications and planning enquiries.

The Clean Streets program works with the community to solve chronic waste storage issues including bins left on the street and illegal dumping issues. This year we inspected 65 locations and provided information to 1,774 residents, strata and building managers on how to correctly store their bins. As a result, 264 bins which were being left on the streets are now either stored inside properties or have been removed as abandoned.

Influencing for change

In the past year we provided responses to many state and federal government consultation papers focused on waste and resource recovery, including the following.

NSW resource recovery framework review

This is the policy, regulatory and compliance framework administered by the EPA to facilitate beneficial resource recovery and circular economy outcomes. It seeks to divert waste from landfill in NSW and to minimise the risks to human health and the environment. It is the key lever to achieve the state's ambitious recovery targets, such as an 80 per cent recovery rate of all waste streams by 2030.

Our response sought to improve waste and recycling outcomes by creating long-term and sustainable markets for recycled materials and circular products, alignment of standards with other states and territories, and a mandatory source separation system for businesses of a particular size or which generate a particular volume of waste.

Stewardship for consumer and other electrical and electronic products discussion paper

This consultation sought feedback on a first principles look at how electrical and electronic products are managed throughout the supply chain.

Our response focused on the need to expand the scheme to include all electronic and electrical equipment, and to prioritise scheme integration with other parts of the circular economy, such as reuse, repair, and refurbishment, rather than existing solely for recycling and disposal.

regulatory framework and provide recommendations on critical reforms to facilitate improved circular economy outcomes. The work was used to inform councils' responses to the recent NSW EPA independent review of the Resource Recovery Framework.

Pathways for used clothing collections

The group also recently completed a report on pathways for used clothing collection that is designed to help councils better understand the textiles recovery market and to help identify opportunities for different types of collection and reprocessing services.

Supporting our region

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

The following initiatives were delivered in 2021/22.

Regional food waste study

A focus was on assessing the implications for councils in the region of implementing a food, or combined food and garden, collection service. This was in response to the NSW Government mandate for source separation of food in the recently released Waste and Sustainable Materials Strategy 2041. The project considered impacts to waste collection services, assessment of treatment technology options and necessary regional infrastructure requirements.

Advocacy for NSW EPA regulatory reform

Advocacy continues to be a key function of the working group and last year it commissioned law firm Clayton Utz to review barriers and opportunities in the current NSW legislative and

Improving our roads

The City of Sydney manages approximately 330 kilometres of roadway, 620 kilometres of kerb and gutter, and 530 kilometres of footpaths, providing important services and infrastructure to the community. Building and maintaining these assets has environmental impacts.

There are ecosystem impacts from the removal of resources for concrete, stone and asphalt, water consumption or carbon emissions from concrete manufacture, and air quality impacts from asphalt production.

Roads and footpaths contribute to the urban heat island effect, and introduce impermeable surfaces into our urban environment, increasing storm run-off, and reducing soil moisture recharge.

We have reduced these impacts through our decisions on how roads and footpaths are designed and maintained. This has been a sustained and long term effort, with each change improving our practices.

Urban heat island and greening

Since 2013 we have tackled the urban heat island effect and surface permeability by replacing 85,246m² of footpath with green verge, improving green space and the attractiveness of the local area. Where possible we install raingardens as we complete traffic safety improvements works and footpath upgrades.

These changes allow rain to recharge local soils, and filter and clean stormwater before it passes into local waterways. Our standard requirements for raingardens allows for recycled glass as a filter layer, with four raingardens in Rosebery constructed with this layer.

In 2014 we trialled a new pale coloured asphalt road surface to test whether it was a cost-effective way to reduce the urban heat island effect. The trial concluded that the pale asphalt provided a small improvement in ambient temperatures, but it was not as effective as other urban heat island reduction options such as cool roofs, street greenery and trees, standard concrete roadways and the conversion of asphalt footpaths to lighter coloured surfaces.

Better materials: Lowering embodied emissions, increasing circularity

Over the last decade we have proactively looked for innovative products that minimise environmental impact, while maintaining the functional aspects of the material, so we can continue to deliver long lasting, safe roads and footpaths.

This is one of our greatest opportunities to improve the circularity of materials in our region and deliver embodied carbon reduction benefits. It is not enough to send materials to be recycled, we also need to use recycled content products.

Asphalt improvements

We resurface around 35,000m² of road a year, so any improvements to our practices and material choices will deliver significant, ongoing benefits.

In 2012 we switched to the use of warm mix asphalt, which is manufactured at 130 degrees Celsius rather than 180 degrees Celsius for traditional asphalt. The use of warm mix asphalt has

Green Report 2021/22

several benefits including an estimated 10 per cent reduction in greenhouse gas emissions, and better local air quality due to reduced release of nitrogen oxide, sulphur dioxide and volatile organic compounds. This makes it a better choice for our construction teams and for our communities. It is also easier to recover and reuse. Warm mix asphalt is now part of the standard asphalt mix for road resurfacing across the local area.

Asphalt removed from roads during the resurfacing process can be recycled into new roads. Since 2018 we have used 15 per cent to 30 per cent recycled content in approximately 96,000m² of new road surfaces. We started this practice in 2014 with a trial of an asphalt made from 30 per cent recycled content. At the time, the NSW Government standard was 10 per cent.

In 2014, we trialled the use of an asphalt mix where toner powder recovered from waste printer cartridges is combined with ground tyres and oil to replace virgin bitumen. In 2018/19, 17,000m² of road was resurfaced with this mix.

We are now testing a mix that uses a wider variety of recycled materials including:

- soft plastics from plastic bags and packaging
- waste glass destined for landfill
- waste toner from used printer cartridges
- reclaimed asphalt pavement from end-of-life roads
- crumb rubber from end-of-life tyres
- coarse aggregate and sand from street sweepings and hydro-excavation materials.

Performance testing has shown that this mix improves road durability and resistance to cracking, with up to 65 per cent improvement for roads with heavy vehicle traffic. This lengthens the life of the asphalt, reducing the need for road replacement, and fewer materials are needed to provide the same service to our communities.

Trial locations include Chalmers Street, Surry Hills; Pine Street, Chippendale; and Belvoir Street and Davoren Lane, Surry Hills.

To continue our efforts to increase recycled content in our roads and footpaths, we have signed preferred supplier agreements under the Southern Sydney Regional Organisation of Councils (SSROC) Sustainable Pavements Tender. This tender aims to create local markets for recycled content and circular economy initiatives. The first stage specifies the use of recycled crushed sand made from waste glass. We are currently considering the potential for the use of crumbed rubber from stockpiles of vehicle tyres in asphalt. The SSROC Sustainable Pavements Tender incorporates the use of warm mix asphalt and recycled asphalt pavement as standard.

Concrete improvements

We use concrete that meets the requirements of the Green Star credits scheme in our footpath renewal program. 60,000m² of footpath has been replaced with Green Star Concrete in the past four financial years. This mix uses at least 40 per cent recycled aggregate, recycled sand, non-potable water instead of mains water, and replaces a portion of the portland cement with fly-ash.

In June 2022 we tested the performance and aesthetics of a low carbon concrete on a footpath in Catherine Street, Glebe. This product reduces the embodied carbon by 30 per cent by replacing some of the portland cement with other cementitious materials. It also contains reclaimed water and manufactured sand providing circular economy benefits. The trial will inform our approach to reducing embodied emissions in our capital works.

In 2019 we started a low-carbon concrete trial on Wyndham St, Alexandria. The trial uses geopolymers which can have up to 80 per cent less emissions than standard portland cement. Two 15 metre long by 3 metre wide sections of concrete road were laid, side by side at the same time to test performance in a high traffic location. This trial is a partnership with the University of New South Wales, through the CRC For Low Carbon Living, which is monitoring the project over 5 years so we can assess it for similar road building applications. Results to date indicate no difference in wear or performance.

Greening our city



Our community values a **green city** with trees and nature, and access to quality green spaces for recreation and respite.

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 space mitigate the effects of a dense urban environment. They substantially reduce the urban heat island effect which will get worse with increasing climate change. They provide respite and recreation for our community and allow for connection with nature delivering associated health and wellbeing benefits.

Our results

Since 2008/09 the area of parks and open space we manage in the City of Sydney area has grown from 188 hectares to 214 hectares.

In 2021/22 we planted 786 street trees, 254 trees in parks, and 67,365 new plants in our parks and street gardens.

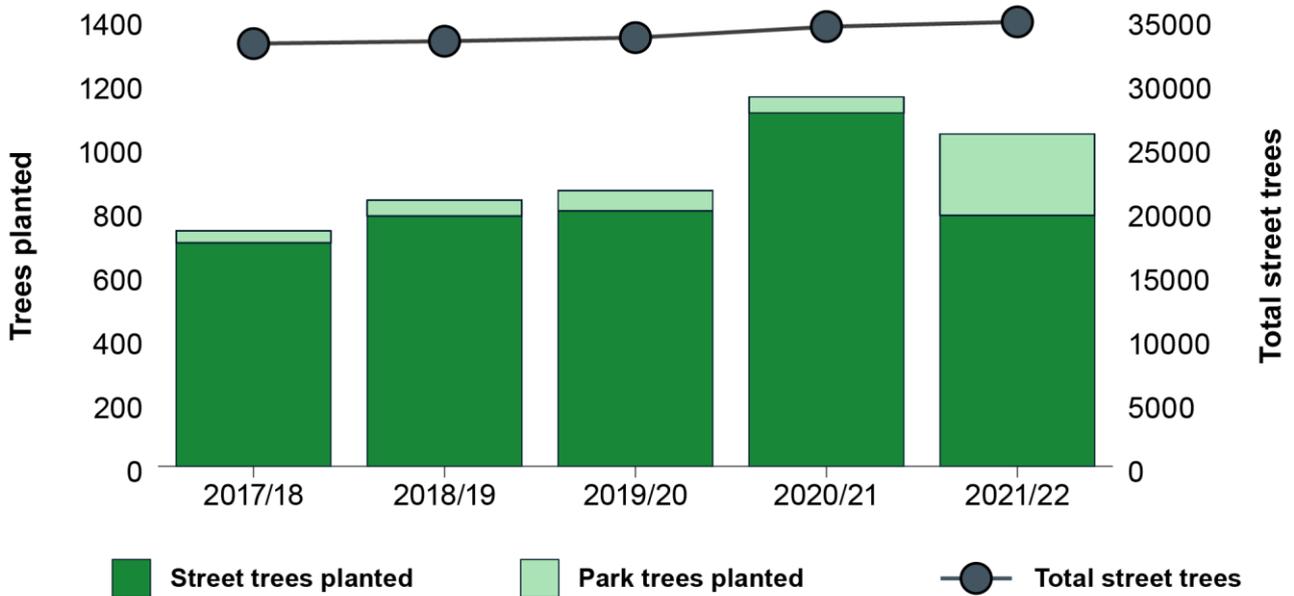


Figure 10: Trees planted on streets and in parks

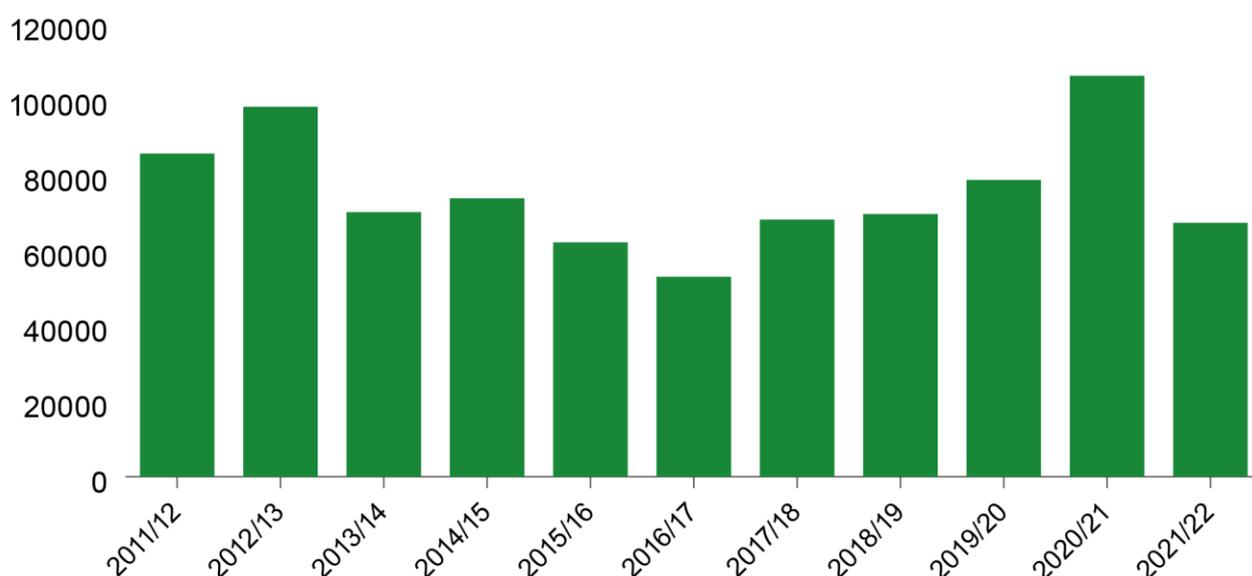


Figure 11: New plants in parks and street gardens

How we do it

Tree planting

We plant trees into streets, parks and in council 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, species, ensuring quality tree supply and tree planting, and establishing the trees with frequent maintenance for the first one to two years.

New plants in parks and street gardens

We plant shrubs, grasses and understorey plantings in parks and streetscapes across the local area. This includes increasing 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 recreation, 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](#).

Greening Sydney Strategy

In 2012, we released the first Greening Sydney Plan, which set our fundamental groundwork. We began measuring canopy cover and implemented targets to increase overall canopy cover to 22 per cent by 2030 and to 27 per cent by 2050.

We have made substantial gains in developing policies and programs to meet those commitments to urban greening. In 2021 we undertook a comprehensive review of the Greening Sydney Plan, including consulting with community, and adopted the Greening

Sydney Strategy 2021–2031. Our targets have been updated to increase overall green cover to 40 per cent across the local area, including a minimum of 27 per cent tree canopy by 2050.

Following adoption of the new strategy we are developing policies, programs and projects to help all parties achieve the targets by:

- increasing the number and type of street gardens and inroad plantings, and planting more street trees – we are currently undertaking a comprehensive review of the Street Tree Master Plan, to ensure we plant the largest tree species appropriate for the space



Womerah Gardens (Photo by Renee Nowytarger/City of Sydney)

- planting more trees in parks, to meet the individual park’s capacity for canopy trees, and minimising hard surfaces in the parks, where appropriate to do so
- reviewing our Development Control Plan, to increase canopy, greening, trees in deep soil and the number of green roofs, walls and façades on private property and ensuring every development application achieves its minimal greening target.

Adapting for climate

Trees are the largest living things in the urban environment and are the biggest contributors to vital green infrastructure – a city’s natural life support system. Trees are essential in cities. Their environmental, social, cultural and economic benefits are well established.

Selecting the most appropriate tree to be planted is an important process. It can be

crucial to the long-term success of a landscape. It can also be complicated, with many factors to be considered and balanced before making a decision.

A tree species list is being developed to include trees considered to be appropriate for planting in streets, parks and private property across the local area. This list is to help City employees, consultants, residents and developers to narrow down the potential options and decide on tree species that are most appropriate for the various site conditions, design attributes and personal preferences.

The list is being developed with the assistance of professional arboricultural consultants, academics, landscape architects, an Indigenous consultant and experienced urban forest practitioners.

Once completed, the list will be shared and promoted widely to assist with future tree planting to ensure a resilient urban forest for future generations.

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 all the community with equitable access to quality green spaces, and supporting the biodiversity of our city as part of a healthy ecosystem.

Providing quality workshops and activities for our communities gives them the confidence to increase the greenery in their spaces. Community gardens bring people together and active management of our bush restoration sites across the local area provide an important connection to our unique landscape.

Our results

Our tree canopy coverage has increased to 19.8 per cent, compared to the 2008 baseline of 15.5 per cent. Our green cover is 30.8 per cent as at 2022.

We currently manage 12.9ha of land for bush restoration, up from 4.2ha in the 2012 baseline.

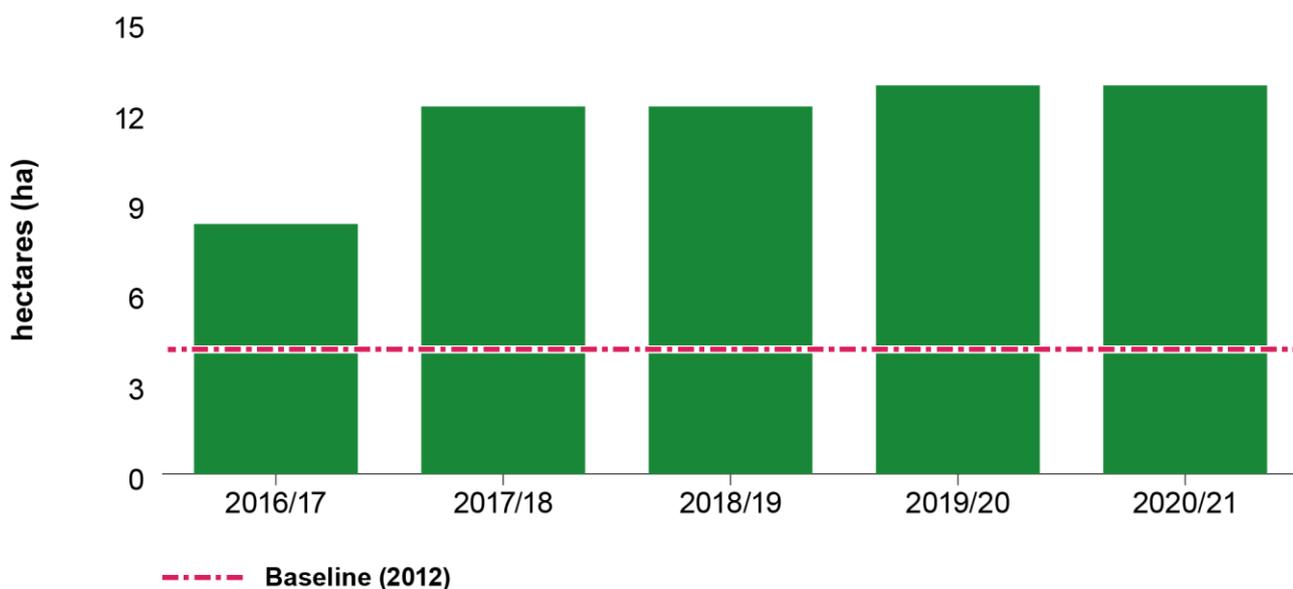


Figure 12: Extent of bush restoration land

How we do it

Community engagement programs

We run a variety of events tailored to promoting healthy interaction with wildlife so the community 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 actively 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, suppress weeds and create habitat.

Biodiversity

We monitor species diversity, with the help of the community through citizen science

programs, such as the Aussie backyard bird count. These programs provide an indicator of species present in the local area, and where they are found. We use this data to tailor projects to protect and enhance areas with identified species, an example is the nest box program targeting 20 species across the local area.

Greening our community

The City of Sydney supports community gardens, verge gardens, community composting and urban landcare groups within our city. Community gardens offer the opportunity for local residents to grow and harvest their own organic produce, convert food waste into valuable compost for soil fertilisation and connect socially with members of their local community which enhances community health and wellbeing.

We continue to support and implement community gardens in the local area, with 23 community gardens including two community footpath verge gardens, involving over 750 community members. A new garden has been developed in Elger Street, Glebe and a community garden will be developed as part of

the upgrade to the park on Lyons Road, Camperdown. The development of stage 2 of the Kings Cross Community Garden in Lawrence Hargrave Reserve, Elizabeth Bay has been completed.

Our volunteer urban landcare groups fulfill an invaluable role in planting and restoring native vegetation, weeding and litter removal. This in turn supports the development of nature corridors and improved biodiversity. Two new groups are being established in the City of Sydney area at the Nurses Memorial Garden, Camperdown, and Sydney Park.

The first community planting event since the pandemic was held in Sydney Park in May 2022 with 2,000 native tubestock planted by over 200 enthusiastic community volunteers. The tubestock were supplied by Aboriginal-



National Tree Planting Day at Bicentennial park (Photo by Renee Nowytarger/City of Sydney)

owned and operated nursery, Indigigrow. Further community planting events are planned throughout the year.

Community growing together at Sydney City Farm

We resumed onsite farm volunteer programs at the end of November 2021 after a break during the Covid-19 community lockdown. In 2021/22, 965 volunteer hours were contributed at the farm with 575 volunteer shifts. 192kg of food was harvested and donated to OzHarvest and to the Reginald Murphy Community Centre for use in their programs, helping feed people in need. The farm was also part of the [Sydney Edible Garden Trail](#) in April 2022. We held 33 education programs in 2021/22 attracting 718 attendees. 68 per cent of programs were delivered as webinars which helped the community to stay engaged while in lockdown. We lodged a submission and gave evidence at the [NSW Government public inquiry into food production and supply](#) in March 2022.

Green solar roofs in the city

A joint project between Lendlease, UTS and Jungleyfy investigated the interaction between a green roof installed around a rooftop solar array. The project found that this configuration produces more electricity and can filter a significant amount of stormwater.

Compared to a conventional roof:

- surface temperatures were up to 20°C lower on the green roof in summer.
- temperatures inside the building with the green roof were up to 7°C cooler in summer and 5°C cooler in autumn.
- solar panels work best when temperatures are up to 25°C – not higher.

Over the eight month study, solar panels on the green roof produced 3.6 per cent more electricity than those on the neighbouring rooftop, providing an extra \$2,595 worth of renewable electricity.

The green roof substantially reduced stormwater runoff. Results indicated that runoff from this green roof would be seven litres a second in a high intensity storm, compared to 600 litres a second for a conventional roof. This



The green solar roof at Barangaroo (Photo by Lendlease)

reduces the impacts of flooding during more intense storm events.

The study also found some unexpected creatures thrived on the roof, including native blue banded bees and lychee metallic shield bugs. Insect life increased seven-fold and bird life increased four-fold.

The City of Sydney provided funding for the research portion of the project through an innovation grant.

Working with Wildflower

The City of Sydney has been working with local Aboriginal owned and operated social enterprise, Wildflower: Gardens for Good through a knowledge exchange grant. Wildflower specialises in horticultural landcare while providing meaningful employment opportunities to marginalised members of the Aboriginal and Torres Strait Islander community. The project established endangered eastern suburbs banksia scrub in the Tramsheds in Annandale, revitalised an Indigenous garden used by social housing

residents in Redfern and established a native bushtucker garden bed in Forbes Street, Woolloomooloo.

Protecting our biodiversity

Biodiversity engagement activities

We run biodiversity engagement activities, webinars and workshops throughout the year to connect participants with nature and increase cultural understanding of plants and animals.

Last year we incorporated Indigenous cultural activities into the program including weaving workshops and a cultural walk around Sydney Park.

Successful night nature walks were held at Sydney Park where more than 20 species were identified including possums, microbats, spiders, a variety of insects and dozens of eastern dwarf tree frogs.

Supporting wildlife

The city has 13 native stingless beehives located at bushcare and community garden sites. As these hives mature and grow, and the



Wildflower: Gardens for Good team installing a new garden bed (Photo by City of Sydney)

hives are split, an additional 3 hives a year can be created and installed. Bees provide pollination of urban plants which supports plant and habitat creation.

40 new wildlife nest boxes have been installed in Sydney Park, Federal Park and Blackwattle Bay Park. The nest boxes create small hollows for native possums, microbats and small birds, protecting them from weather and predators, and providing a safe place to rear their young.

As part of an ibis monitoring program, 9 core sites are surveyed quarterly with a further 16 sites surveyed in the annual census each October. Results indicate an increase in roosting and breeding at the nine key sites. However, the number of ibis in the city may be lower than previous years due to climatic conditions and reduced food sources with fewer people in the city because of Covid-19 lockdown.

Influencing for change

We work with authorities and agencies, such as the NSW Department of Planning and Environment, Ausgrid and Transport for NSW to ensure they understand their impact, make informed decisions and are accountable for their actions on greening Sydney.

NSW Premier's Greening our City panel, Resilient Sydney and Ausgrid

We are a member of the NSW Premier's Greening our City panel. Panel members work in partnership with the Department of Planning and Environment to support the programs, proposed policy reforms and measures to achieve the Premier's Greening our City priority, which aims to increase canopy coverage by planting one million trees in Greater Sydney by 2022. This priority aims to reduce urban heat and increase Greater Sydney's resilience to climate change.

Similar expert advice is provided to Resilient Sydney and Ausgrid for arboricultural and urban forest policy, project and operational improvements across metropolitan Sydney.

We have provided assistance across a range of issues, most notably focused on canopy cover measurement and data acquisition, spatial analysis, spatial system functionality and

canopy cover target development for streets, parks and private property.

Supporting our region

Supporting land improvements through carbon farming in NSW

Our relationship with the [Aboriginal Carbon Foundation](#), an Indigenous not-for-profit organisation, has led to an initiative to develop demonstration projects for carbon farming on Aboriginal land in NSW, receiving funding from the [Carbon Neutral Cities Alliance](#).

In NSW the carbon farming method is likely to include biodiverse plantings, pest and weed control, and restoration of degraded land. It is hoped this demonstration will unlock opportunities for high quality local offsets that organisations will be able to invest in to meet their own goals while supporting Aboriginal enterprise and land restoration, as well as providing a way for organisations in urban areas to support land restoration and jobs in our regions.

Urban greening pledge

The City of Sydney entered a pledge with 30 cities around the world to increase greenery and reduce the impacts of flash flooding and the urban heat island effect.

The C40 urban nature declaration seeks to address heat and water-related risks resulting from climate change caused by carbon dioxide emissions.

All participating cities have committed to ensure 30 to 40 per cent of their total built-up city surface area consists of green space by 2030, to ensure spaces vulnerable to flooding are designed to absorb water, and to ensure 70 per cent of their city's population has access to green spaces or waterways within a 15-minute walk or bike ride by 2030, promoting accessibility and connection for vulnerable communities.

Our commitment to the C40 declaration follows years of work to green our city. Our [Greening Sydney Strategy](#) outlines our plans to cover 40 per cent of the local area in greenery by 2050.

Resilient Sydney

Local governments in metropolitan Sydney are actively working together as members of the program Resilient Sydney – a collaboration of all 33 councils, hosted by the City of Sydney. The network collectively addresses disaster and climate resilience across Greater Sydney, working to define major issues, align policies and take collaborative action – helping amplify the intent and influence of the City of Sydney’s community strategic plan and Sustainable Sydney 2030–2050 Continuing the Vision.

Key results for 2021/22

- 14 councils developing and implementing resilience plans
- 14 councils developing net zero plans
- 320 local government officers using the Resilient Sydney data platform
- Launch of the first Cool Suburbs tool for developments facing extreme heat
- 32 new urban greening strategy projects funded by grants from the NSW Government of \$1.37 million to 28 Greater Sydney councils
- Major workshop series for capacity building and engagement of councils on Greater Sydney’s RaceToZero, Greening our city, Community energy resilience

This year we have faced an ongoing pandemic, economic supply chain disruptions, rising costs and catastrophic storms and flooding. Actions in the [Resilient Sydney Strategy](#) have delivered new tools, templates and guidance to help councils grappling with compounding shocks and the financial, physical, and mental health impacts on communities. Activities focused on data to support net zero plans, metro and local urban canopy plans and greening projects, community energy and emergency needs and a tool to create cooler suburbs in the face of extreme and urban heat.

The Resilient Sydney data platform provides metropolitan councils with the environmental and resilience data they need to benchmark, monitor, and take action on local impacts and risks. The platform saves councils the time and expense of sourcing and analysing data, enabling them to focus on assessing and prioritising action. The platform now has over 320 users from 33 councils. Data provided includes emissions, energy, transport, water and waste information from 2013 to 2021.

For the Greater Sydney RaceToZero series, Resilient Sydney delivered three workshops in collaboration with NSW Treasury and Greater Cities Commission. Councils were provided training and case studies to set ambitious emissions reduction targets and accelerate action to address the climate emergency. The collaboration also launched a new scenario tool, the Resilient Sydney Net Zero app. The app enables councils to test policy options to meet their net zero trajectory for the first time. 14 Sydney councils have set community net zero targets and are developing and implementing action plans.

Resilient Sydney hosted workshops with NSW Government’s Greening our City team to help local councils develop targets and strategies towards the city-wide NSW Premier’s Priority of 40 per cent tree canopy cover. With over 100 attendees at each workshop, input shaped the NSW

Green Report 2021/22

Government's Greener Neighbourhoods Grants program and guidance documents. The grants program awarded \$1.37 million to 28 councils across Greater Sydney to deliver 32 new urban greening strategy projects.

In April 2022, the award-winning Cool Suburbs rating tool was successfully launched by the Western Sydney Regional Organisation of Councils (WSROC) with over 100 of Sydney's developers, planners and urban design professionals. After four years of development, the tool now enables developers and planners for the first time to allocate a rating for the extent to which design and construction features improve heat resilience in a development.

Resilient Sydney facilitated a workshop in March 2022 with Ausgrid and Endeavour Energy for NSW councils to provide views and input on the concerns of communities about future energy needs and resilience. Findings from the forum provide critical lived experience input on what communities need in a changing climate. Outcomes will inform the Distributed Network Service Providers 2024–2029 Regulatory Proposals to the Australian Energy Regulator regarding capital investments for energy networks.

Water stewardship



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

Our actions help deliver a more **sustainable** and **liveable city**, with healthy waterways, green spaces in drought and water as a feature that is celebrated by our community.

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.

The City of Sydney’s target is to keep operational water consumption below 2006 levels, even as we increase the area of parks and open spaces and add new buildings and facilities to our portfolio.

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 which flows into Botany Bay. Action to improve the quality of these waterways is an ongoing effort, with constant improvement year on year.

Our results

Water use results

In 2021/22 our operational potable water use has decreased by 32 per cent (from 431 to 292 mega litres a year) from the 2006 baseline. While water savings for the period 2021/22 are due to our ongoing efficiency activities and the identification and rectification of leaks, a large portion of savings is also attributed to increased rainfall and Covid-19 related closures of water intensive sites such as public and commercial buildings.

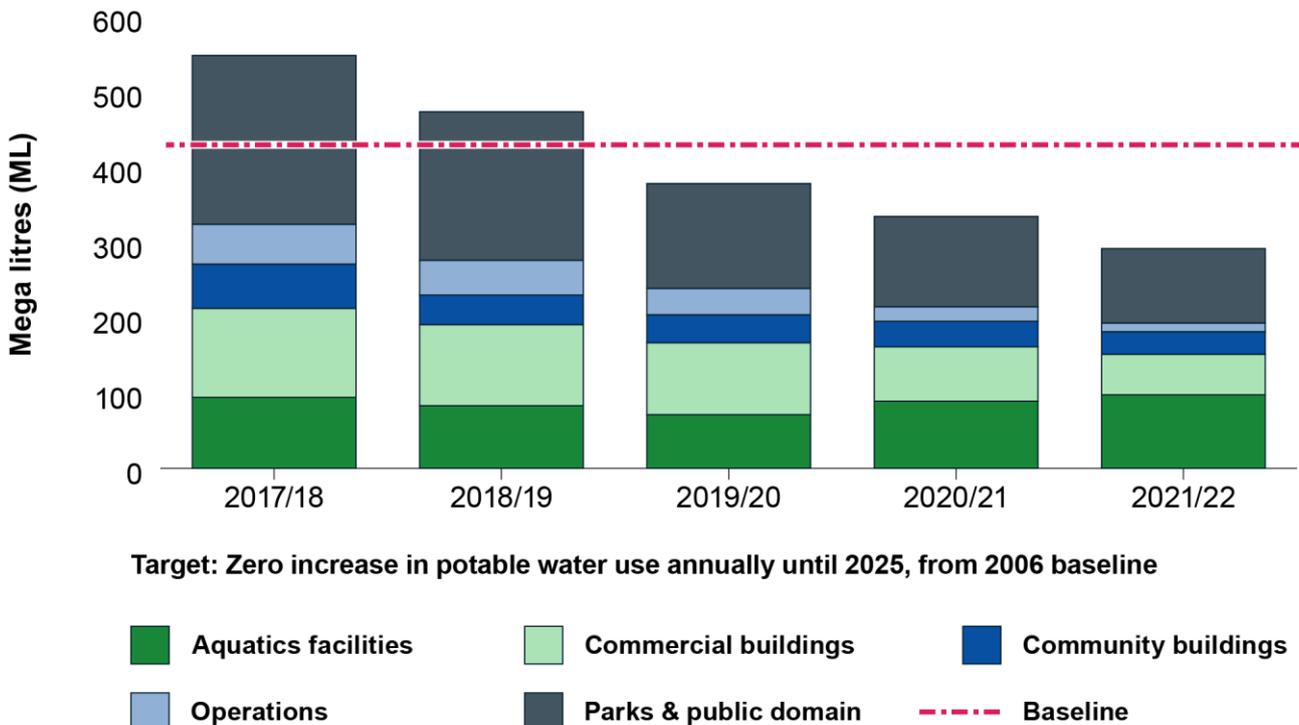


Figure 13: Annual water consumption against baseline, by use category

Since 2006 we have increased the irrigated area in parks by over 50 per cent and at the same time reduced potable water use in parks by about 25 per cent. We are now using less water for every square metre of green space we manage.

Water quality results

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

Results to date indicate we have reduced gross pollutants by 18 per cent, total suspended solids by 15 per cent, total phosphorus by 8 per cent and total nitrogen by 2 per cent.

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

How we do it

Our approach to meeting our water targets and becoming a water sensitive city involves reducing water demand and increasing our use of recycled water. We have been working to reduce the use of drinking water in our operations through water efficiency, leak detection and water recycling.

Measurement and leak detection

We monitor water consumption from our assets through 150 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.

Water efficiency in our parks

Our park managers and staff use water efficiently to keep our parks green and healthy. We manage water through operational planning. We deliver efficiency training and awareness to parks staff and set specific service levels to deliver best practice water management.

Our remote irrigation management system helps staff 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 16 park-scale water recycling systems that supply recycled water to our parks and

open spaces. These systems source water from ponds and bores, rainwater harvesting and stormwater harvesting from drains.

Together these sources supply approximately 38ML of recycled water for irrigation each year. The three sites that use the greatest amount of recycled water are Sydney Park, Harold Park, and the parks around Woolwash Pond in Zetland.

We have installed 43 water reuse systems in our properties, and four in our community gardens. Water from these systems is used for irrigation and to water gardens, flush toilets, wash vehicles and for street cleaning.

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 stormwater 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 parks maintenance employees.

Water efficiency projects

Water metering project

In January 2022 we completed a project to monitor water use from our assets in near real time. 150 smart water meters were installed on main and sub water meters in our parks and buildings. Smart water metering is one of the most effective tools to monitor and manage a site's water use, through early detection of abnormal water use and leaks.

Measurement of data alone does not lead to outcomes. Our sustainability infrastructure team monitors the highest alerts weekly, working with our facility teams, contract managers and maintenance contractors to find and fix issues before they become large and expensive.

Using this process we identified an increasing base-flow at the Customs House main meter, originating from the cooling towers. Further investigation found the increased flow was due to a faulty float valve, which was subsequently fixed, saving the City of Sydney 7884kL and approximately \$35,000 a year.

From April to June 2022 we addressed 30ML of water leaks and issues on our properties, saving around \$80,000.

February 2022 storm event

2022 saw rain falls far exceeding previous records. Significant storm events have caused localised flooding and severely impacted our parks and open spaces. Where possible we have attempted to reduce the damage by diverting rainwater into harvesting systems and storage tanks.

Bore and tank water quality is regularly checked to ensure flood waters do not contaminate our supply. Our recycled water systems are treated to make sure the water is safe to use for irrigation.

As a result, our recycled water systems are ready to supply harvested rainwater during the drier summer months. Current storage can supply over 90 per cent of current annual irrigation demand with recycled water at sites with where it is available.

Water savings in our parks

Water management at Sydney Park

We have made significant water savings in Sydney Park, one of our biggest iconic parks.

In the last three years we have reduced annual water use at Sydney Park by around 85 per cent. Since 2020/21 treated stormwater has been meeting over 91 per cent of irrigation demand.

We are saving around 25 mega litres of water every year.

These savings have been achieved through:

- State-of-the-art water treatment to produce recycled water for irrigation
- Storing harvested stormwater in a series of constructed wetlands to have water when we need it, as well as improve park quality and biodiversity
- Systematic identification and repair of leaks – two major leaks fixed since 2018/19
- Improved monitoring and control of irrigation through our online system, providing better oversight, alerts and automatic shut off.

Caring for our water quality

Gross pollutant traps

Our network of 47 gross pollutant traps prevented 236 tonnes of rubbish and sediment from entering the waterways in 2021/22. This is an increase on 207 tonnes in the previous year. This may be partly due to the unusually wet weather in February and March 2022, which would have washed more pollutants and debris off catchments.

In 2021/2022 we commenced investigation and preliminary design for potential new gross pollutant traps at seven sites, for delivery in future capital works programs.

Raingardens, swales and tree pits

In 2021/22 we acquired three new raingardens and 11 new tree pits as part of Green Square town centre road projects. This brings our total water sensitive urban design assets to 322, including 227 raingardens, 18 swales and 77 tree pits.



A raingarden adjacent to the Bourke Street Cycleway. (Photo: Simon Wood/City of Sydney)

These vegetated water sensitive assets use a mix of processes such as filtration through soil and nutrient uptake by plants to remove pollutants from stormwater runoff.

Since first installing raingardens in 2005, we have been consistently developing their design and construction to improve their pollutant removal, erosion control and drainage.

Assessing our water quality

This year we delivered the first comprehensive set of water quality data to assess how we are tracking towards our water quality targets.

The MUSIC software models a simulation and measure of infrastructure and service improvements since the 2006 baseline.

Results from the first run of the model demonstrate we have progressed approximately a third of the way towards the 2030 water quality targets. The model will be used to determine future actions and guide investment required to achieve our targets.

Action for our city

We want to be a water-sensitive city, one that meets our community’s water needs, 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.

While the last two years have seen flooding, Greater Sydney’s water storage dams have experienced severe drought in previous years, which is predicted to occur with growing frequency and longer duration because of climate change. Supporting the use of less potable water in our community means better water security for all of us.

Our results

We experienced a 20 per cent reduction in overall potable water use in the local area during 2020/21. Much of this reduction was in the non-residential sector. Non-residential water use dropped by 38 per cent while residential water use decreased by 6 per cent. This decline is likely due to the pandemic lockdown and work from home practices in the office sector, border closures and reduced travel impacting on the entertainment and hospitality sectors. The effects of La Niña rain events may also have impacted water use.

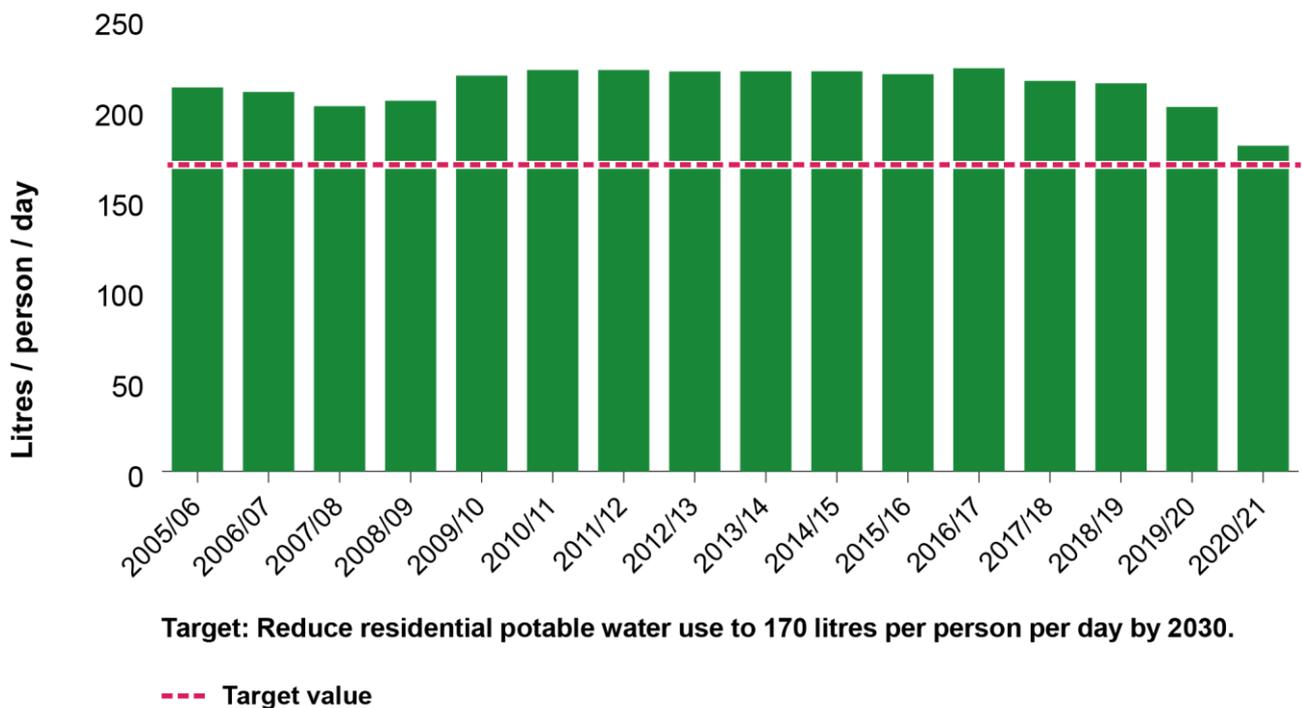


Figure 14: Residential water consumption

Green Report 2021/22

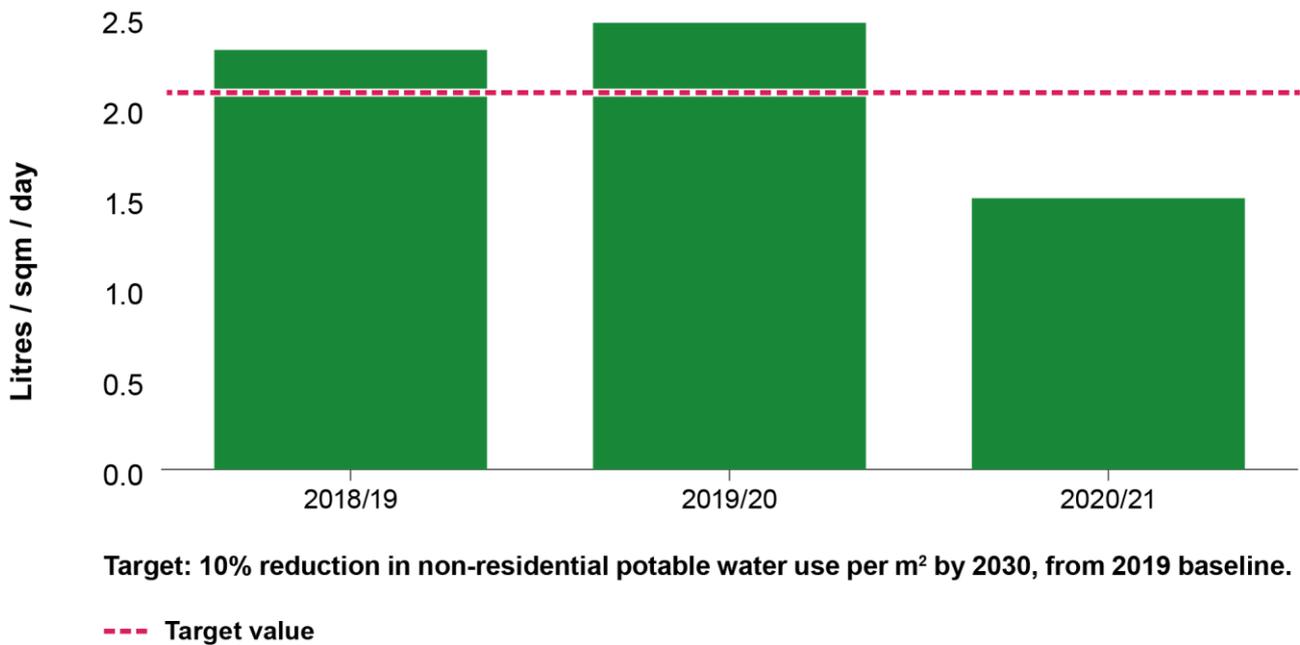


Figure 15: Non-residential water consumption

How we do it

Measure

We measure water consumption through data provided by Sydney Water.

Program delivery

We design and deliver targeted programs to enable our community to reduce their water use. The Sustainable Destination Partnership has a focus on reducing water use in entertainment and hospitality venues. Smart Green Apartments works with building managers to reduce water use in apartment buildings.

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, laundry use 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.

Water quality infrastructure is also delivered in the public domain by developers when they construct roads and parks that are handed over to the City of Sydney.

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

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.

Green Square water recycling scheme expansion

The Green Square town centre water scheme continues to grow.

In 2018 we switched on one of our largest stormwater recycling schemes. The system captures surplus stormwater flows, treating them to stringent water quality standards and makes it available for a number of non-potable uses through the town centre.

During the redevelopment of the Green Square town centre we required new developments to install dual plumbing. This ensures all residents in these new apartments help conserve drinking water by using non-potable water for uses that do not require drinking water. They also save money on their water bills as recycled water is supplied at a lower price than drinking water.

In 2021/22, the scheme continued to expand. Dual pipework was installed into new apartments being built on Rose Valley Way. We extended the pipework under Botany Road to service new affordable housing units.

Recycled water is used in our new civic spaces. The Drying Green uses recycled water for irrigation and to top up water in the wetland.

Influencing for change

Coastal management programs

We participate in two coastal management programs.

The Greater Sydney Harbour Catchment 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 and delivering a whole-of-catchment management plan, to achieve a strategic and coordinated management framework for the harbour.

During 2021/22, we provided data and other observations about the current state of stormwater management to help inform the stage one baseline assessment.

The Cooks River Alliance brings together stakeholders from across the catchment to develop a long-term strategy with actions to improve the health of the Cooks River using the NSW Coastal Management Act.



Drying Green Park's wetland (Photo: Abril Felman/City of Sydney)

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

