



Environmental Action Plan

2022 – 2032



second
nature



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We pay respect to the Bidjigal, Birrabirragal and Gadigal people, who traditionally occupied the Sydney coast and the land and sea country of Waverley, and to Elders past and present. We acknowledge the survival and ongoing resilience of indigenous ways of knowing, being and doing, and work to ensure the actions in this Environmental Action Plan help strengthen connection to culture and community. By respecting Aboriginal and Torres Strait Islander peoples' intrinsic relationship with the land and waters, we can value, learn and strengthen protection of our environment.

A Message from our Mayor

Waverley is known for its spectacular coastline, but also for a community that is passionate about the environment and sustainability.

Waverley Council was one of the first local governments to set ambitious environmental targets for its organisation and community through a detailed and funded 10-year plan. Now in its fifth iteration, this Environmental Action Plan includes strengthened long-term targets and actions to realise our goals in:

- Reducing greenhouse gas emissions and preparing for climate change
- Protecting and enhancing biodiversity
- Conserving water and improving water quality
- Improving waste management and recycling

Through award winning programs, progressive education and implementation, and embedding Council wide approaches and actions, Waverley has enjoyed many successes. Our [2021 State of the Environment Report](#) confirms that we have met Council's water, energy and emission reduction goals, we have doubled our remnant vegetation in good condition and reduced kerbside and problems wastes significantly over the last few years.

But environmental challenges remain. Waverley is densely populated and welcomes millions of visitors each year. Plastic pollution and waste on our beaches and streets threaten our marine ecosystems. We must work hard to protect and restore our unique biodiversity and waterways, and we must ensure our residents, many living in apartments, have access to the support and knowledge they need to live a more sustainable life.

As well as eliminating greenhouse gas emissions from Council operations by 2030, we are also committed to reducing community greenhouse gas emissions, to net zero by 2035. This will not be easy, however to avoid the worst effects of climate change, we must urgently act together. This plan details how we will harness the values and motivations of our local residents, businesses and visitors to address our local and global environmental challenges, which will make our organisation and our community stronger, resilient and safer in the future.

Paula Masselos,
Mayor of Waverley



Waverley's Climate Scenario

Human activities are causing atmospheric concentrations of heat-trapping greenhouse gases to rise higher and faster than the past two million years. This is driving changes in the frequency, intensity, and duration of different weather events and patterns in Australia.

Australia's climate has warmed consistently since 1910. Rainfall is declining in the southeast, most notably in winter, extreme fire weather has increased, and oceans are acidifying, warming and expanding. Sea level rise and more frequent extreme weather events are increasing the risk of inundation and damage to coastal infrastructure and communities.

The impact of intensifying natural hazards, under rising global greenhouse gas emissions, increases climate change risks to human health and wellbeing, ecosystems, infrastructure and services, and will significantly impact our economy through damage costs.

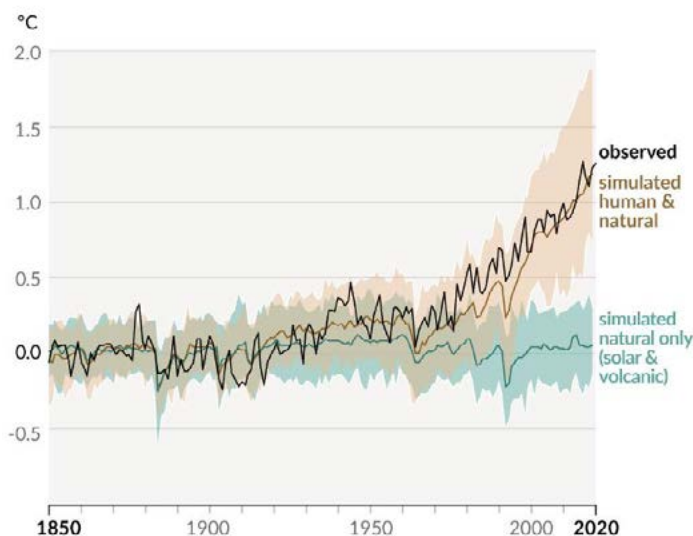


Figure 1- Change in global surface temperatures (Intergovernmental Panel on Climate Change 2021)

But while climate change is a global phenomenon, the impacts of climate change are experienced locally. So local responses are fundamental to planning, preparing and managing to local climate change impacts.

Historically, Waverley has warm to hot summers and mild to cool winters. Seasonal variation is minimal due to our coastal location. Annual rainfall is ~1200mm with significant variability year on year (between 809mm-2165mm over the last 50 years).

Going forward Waverley can expect:

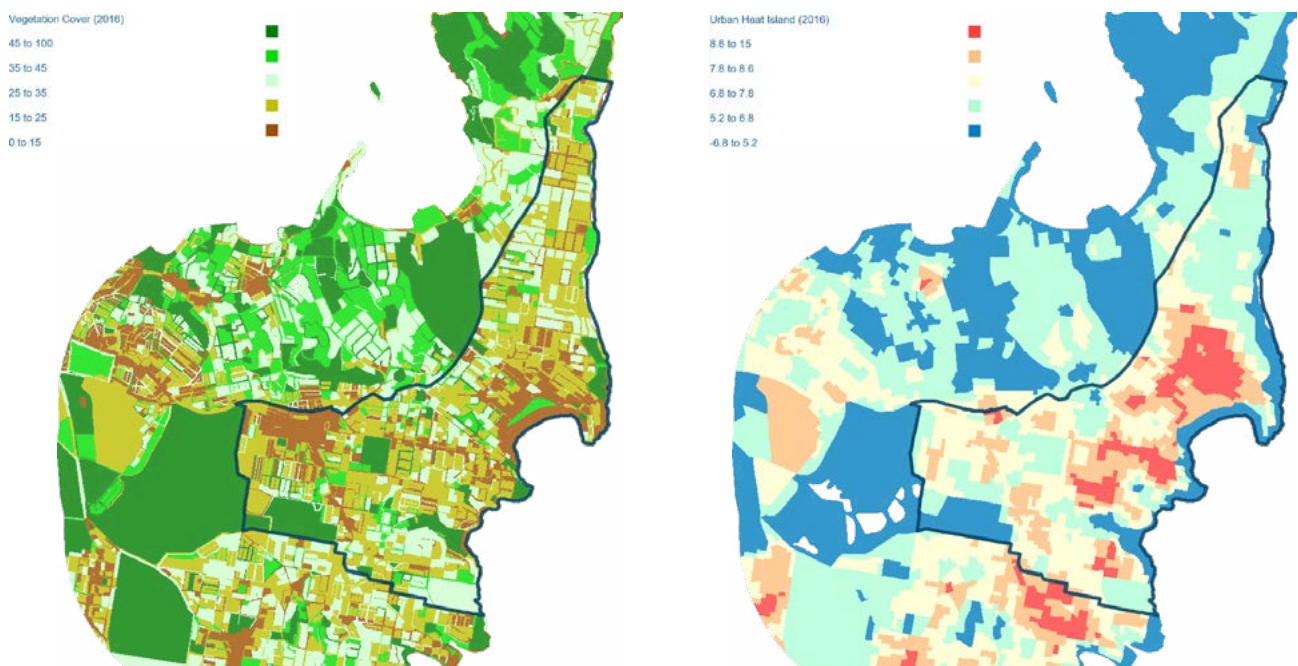
- Average temperatures to increase yearly
- More frequent extreme heat (days above of 35°C)
- Extended drought periods
- Changing seasonality of rainfall
- Increased intense rainfall events
- Increased air quality risks associated with regional bushfire
- Longer summers and shorter winters, with a likelihood of increased storm activity in Summer and Autumn
- Increasing coastal risks. Under current emission rates, Sydney's mean sea levels are projected to rise 15cm by 2030 and 50cm by 2070, but storms and wave setup can also increase local water levels (BMT 2021).

How can we Plan and Respond?

It's important we plan to reduce climate related vulnerabilities in Waverley now, as risks are likely to increase in the future. Planning and responding to changes in climate can involve adaptation to practices, policies, designs and materials. There is no single solution, but by working together with community, business and government we can increase our climate resilience.

We can:

- Increase and protect urban vegetation to provide cooling and health and wellbeing benefits
- Engage with communities to prepare for emergencies resulting from extreme weather
- Ensure appropriate design of buildings (e.g. shaded windows, insulation and effective ventilation).
- Protect essential services at risk from climate hazards (e.g. transport, telecommunications and water infrastructure).
- Identify thresholds for unacceptable change in natural areas.
- Incorporate future sea level rise risk into coastal infrastructure planning.
- Develop community led responses to build neighbourhood resilience to climate change.



Maps of Waverley Council showing the correlation between Vegetation Coverage and Urban Heat Island Effect, where colour represents degrees of temperature difference to a natural surface (vegetation) on a hot day. (NSW DPIE 2019)



01 Sustainability Leadership

Circular, Resilient and Sustainable Council

Council leading
by example and
delivering results

Positive impact of
operations, policies
and processes

Fostering advocacy
and community-led
environmental action

This Environmental Action Plan outlines how Council will continue to be a leader in environmental sustainability by implementing targeted measures and emission reductions covering transport, climate resilience, urban ecology, water management and waste and sustainable materials. To meet community expectation, we hold Council to the highest standards of environmental performance and stewardship of our local area.

Waverley's ambitious environmental goals are informed by our commitments to address the [Climate and Biodiversity Emergency](#), adopt [circular economy principles](#) and a long-standing commitment to embed environmental sustainability across Council's operations and outcomes.

Our targets are informed by science, best practice and developed collaboratively to ensure ongoing positive impact on our local environment, people and the planet.

This includes supporting all staff with the right tools and knowledge, championing leadership by council decisions makers, and reflecting our environmental values in key strategies including investments, planning and asset management.

Actions by Council alone won't be enough to tackle environmental issues and create a vibrant and resilient community, that takes care of each other, our natural environment and our local places. We will continue to partner with the community and advocate for positive change, so as to influence action by other levels of government and stakeholders to achieve better environmental results.





Our targets

Net Zero

council emissions
by 2030 (scope
1, 2 and 3)

100%

Renewable
Energy

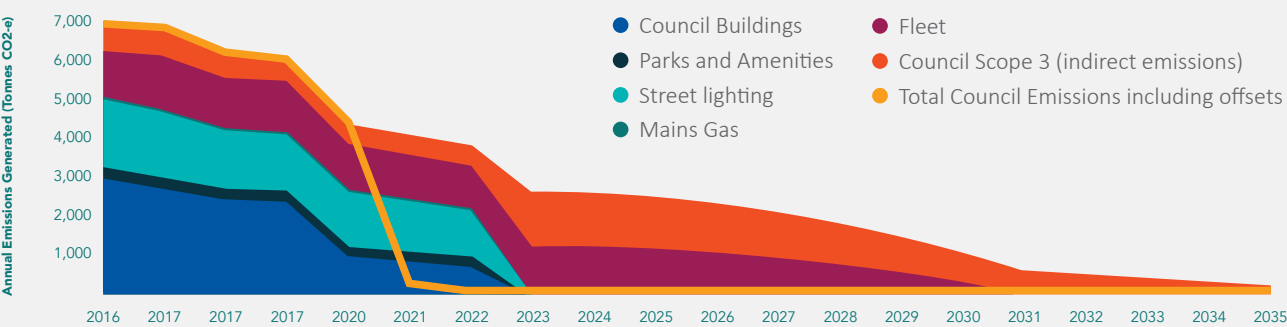
0%

increase in
Council
Water use

Improve

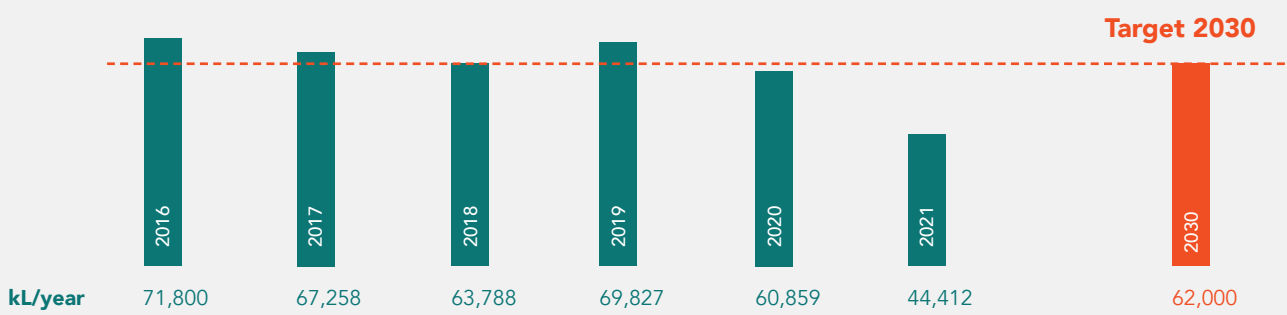
Council's sustainability
performance

Waverley Council Net Zero Emissions 2030



Source: Waverley Council

Annual Council water consumption



Source: Waverley Council (NB Temporary decreases in 20/21 were due to major projects under development)

Key Deliverables

Net Zero emissions for Council operations

Waverley Council will achieve Net Zero emissions by 2030 by pursuing ongoing energy efficiency, purchasing 100% renewable energy, and ending fossil fuel use for Council operations, buildings and facilities. Since 2020, Council has offset our fuel and energy emissions to be carbon neutral. Forward actions will include identifying solar and battery opportunities, fleet transition to electric vehicles and quantification of waste, transport, procurement and embodied carbon impacts. Accredited offsets will be obtained where required to maintain our climate neutrality, supported by rigorous monitoring and reporting.

Second Nature engagement and education

Delivering community education, engagement and behaviour change programs that create positive impact and enable the achievement of Council goals and program outcomes. This includes working with schools on sustainability challenges, delivering coordinated engagement with residents in houses and multi-unit dwellings on energy, water and waste as well as delivering knowledge and workshops that build community capacity to be sustainable and resilient.



Improve Council sustainability performance

Shifting from compliance-led sustainability performance to systemic achievement of goals and targets. This will be achieved by providing leadership, strengthening accountability, and providing staff training and resources to achieve no increase in water use, more procurement of recycled and recyclable materials, sustainability embedded in the design and operation of Major Projects, and moving towards zero waste, low impact events.

Support Community-led environmental action

Continuing to support community and business led initiatives and advocacy to tackle environmental issues by enabling collective impact programs and activities such as [Power to the Future](#). This includes working with government stakeholders to enable effective delivery of programs and activities such as community gardening and composting, and building the capacity of local community group, and offering [Environmental Small Grants](#) to support local on-ground sustainability initiatives.





02 Climate resilience

Reduce Community emissions and prepare for climate risks

Increase uptake of renewable energy and electric vehicles

Energy efficient buildings and infrastructure

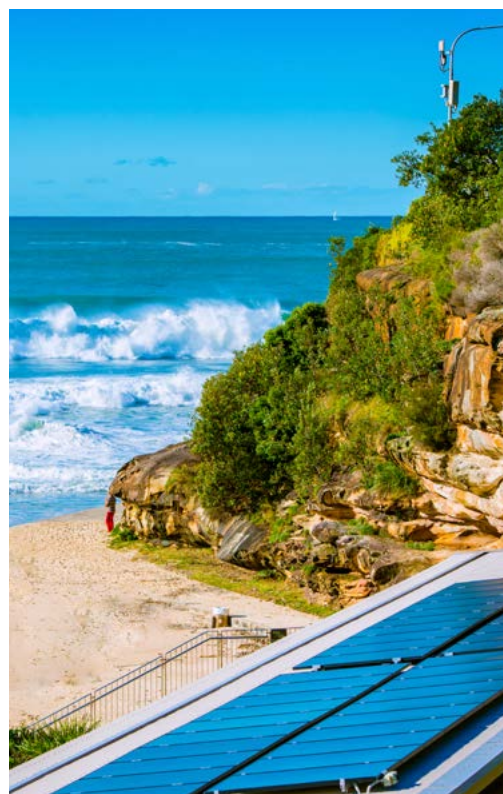
Identify and manage climate risks

Urgent greenhouse gas emissions reductions are required across all sectors of society, and the sooner achieved, the sooner the impacts of climate change will be reduced, not only in Waverley but globally. Therefore, action on climate change is the responsibility of every level of government, each organisation and individuals.

Historically, achieving Waverley's community emissions targets has been extremely challenging. However, over the next decade significant emissions reductions will be realised through the "greening of the grid", which is being

driven by renewable energy and net zero policies and targets.

Waverley is striving for Net Zero greenhouse gas emissions in the community by 2035 by ensuring our homes, workplaces, schools and transport choices support this exciting transition. Council will provide infrastructure, education, financing support and leadership that reflects our community's ambition for a safe climate; and respond with the urgency of action required to avoid the worst social, economic and environmental impacts of climate change, honouring our [Climate and Biodiversity Emergency Declaration of 2019](#).



Our targets

Net Zero

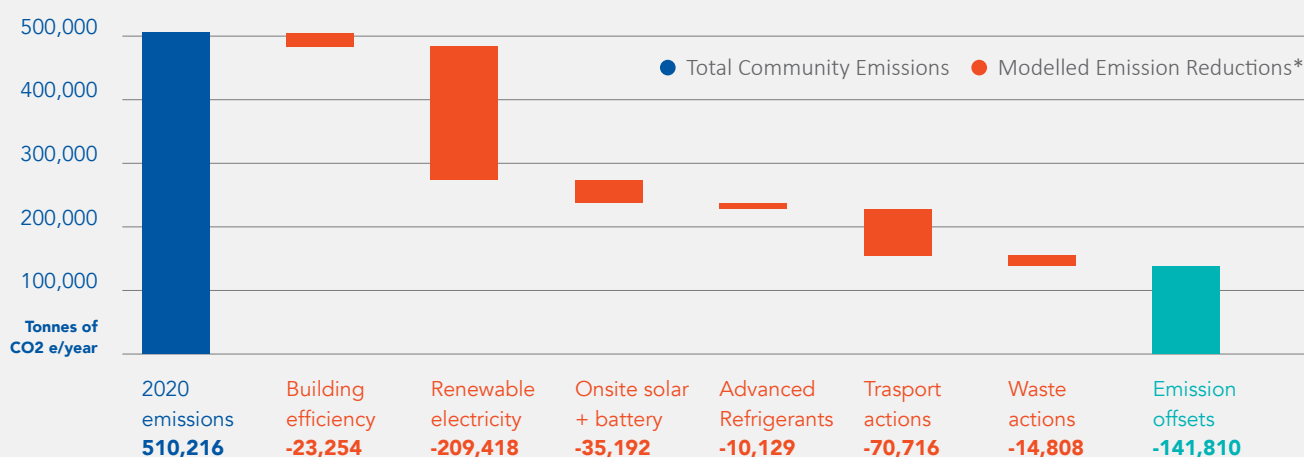
Community emissions
by 2035

Waverley's

climate resilience
is enhanced

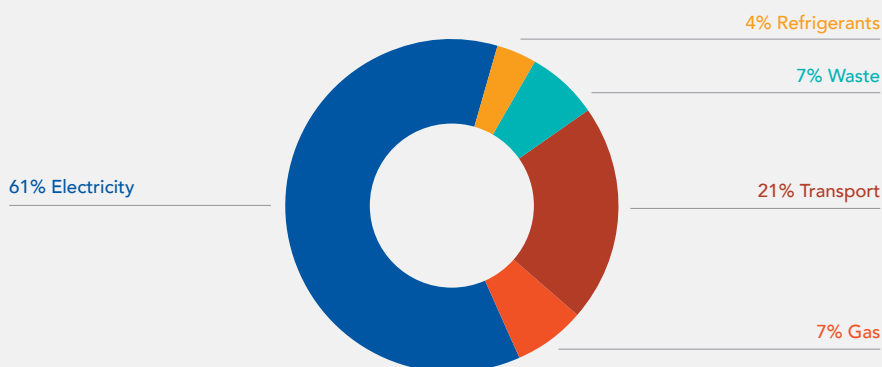
Net Zero means greenhouse gas emissions are reduced in line with the latest climate science and trajectory to 1.5°C, and any hard to abate residual emissions are offset.

Net Zero Community Target 2035



*Community 2020 greenhouse emissions do not include food, freight, flights or construction emissions

Waverley greenhouse gas emissions by source 2019/20



Source: Resilient Sydney
and Waverley Council

Key Deliverables

Strive for Net Zero community emissions

Waverley has committed to an ambitious Net Zero target for community emissions by 2035, to support the [NSW Future Energy Action Plan 2020-2025](#). This will involve ongoing community education and engagement, the phase out of fossil fuels, advocacy for 100% renewable energy in the grid, support for installing solar and batteries locally and renewable energy purchasing.

Improve efficiency of buildings

Targeted support to increase renewables, optimize energy efficiency and capture opportunities for efficient technologies will be offered across residential and commercial sectors, through programs including [Building Futures](#) and [Solar my Suburb](#). We will promote incentives for the electrification of buildings and the removal of potent greenhouse gases. Council will advocate for high sustainability standards and the consideration of future climate in building controls.

Support Environmental Upgrades and incentives

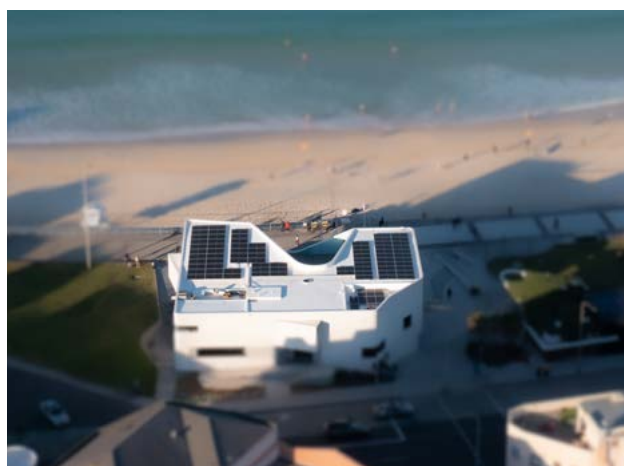
Council will leverage incentives and broker advice to support affordable emissions reductions for homes and businesses, including through [Sustainability Rebates for Apartments](#) and capturing cost effective opportunities from the [NSW Energy Savings Scheme](#) and other available rebates.

Encourage low emissions mobility

Council will encourage the uptake of Electric Vehicles and active transport, supporting the deployment of charging stations and aligning with the [NSW Electric Vehicles Strategy 2022](#). We will support shared vehicles as well as separated bike paths and optimised walking options including through natural shading of pedestrian routes.

Assess and address climate risks

While reducing emissions is vital, we must also plan and respond for the climate impacts we cannot avoid. Climate change is already contributing to changing seasonality and intensity of extreme weather. Council will prepare to manage risks including increasing temperatures, storms and coastal hazards, and apply an integrated Resilience framework to reduce vulnerabilities across Planning, Environmental, Community, Emergency and Infrastructure programs. Collaboratively, we will develop projects, investments and policies to strengthen Waverley's capacity to survive, adapt and thrive in the face of increasing uncertainty and disruptions from climate change.





03 Sustainable Water

Conserving water and improving water quality

Water harvesting
and Recycled Water
infrastructure

Stormwater Quality
Improvement and Water
Sensitive Urban Design

Water conservation and
quality initiatives, through
controls and engagement

Managing Waverley's water resources will be increasingly challenged by population growth and unpredictable impacts of climate change, such as extended droughts and floods. Securing clean and sustainable water sources will help conserve water, protect our waterways and support recreation, cooling and greening in Waverley.

Waverley's beaches consistently achieve good ratings through the NSW Government's [Beachwatch](#) program, which measures and reports water quality at Bondi, Bronte and Tamarama. However, water quality issues at our beaches do occur, particularly after rain due to stormwater run-off and also in our receiving catchments of Sydney Harbour and Centennial Parklands. Council manages Gross Pollutant Traps at our beaches and integrates Stormwater Quality Improvement Devices to remove pollutants from runoff and protect our waterways from the impacts of urban

development and visitation. Council has been actively working to ensure [Sydney Water](#) connect the remaining areas in Watson's Bay, Vaucluse and Rose Bay that aren't connected to the sewerage treatment system, so that untreated effluent no longer enters the coast at Diamond Bay and near to Eastern Reserve.

While achieving community water savings is challenging, Council will maintain its community water target at no net increase based on 2006 levels. We will continue to support the community to manage and conserve water through education, planning controls and programs and support commercial water users to manage water use, **while minimising pollution risks.**

While water demand can be influenced by annual temperature and rainfall fluctuations, last year's 10% reduction in community water use was most likely influenced through the impacts of COVID restrictions on commercial properties, and will be difficult to maintain into the future.



Image Credit: Gergo Rugli



Our targets

0%

increase in community water use by 2030 (based on 2005/06 level of 6,208,915KL)

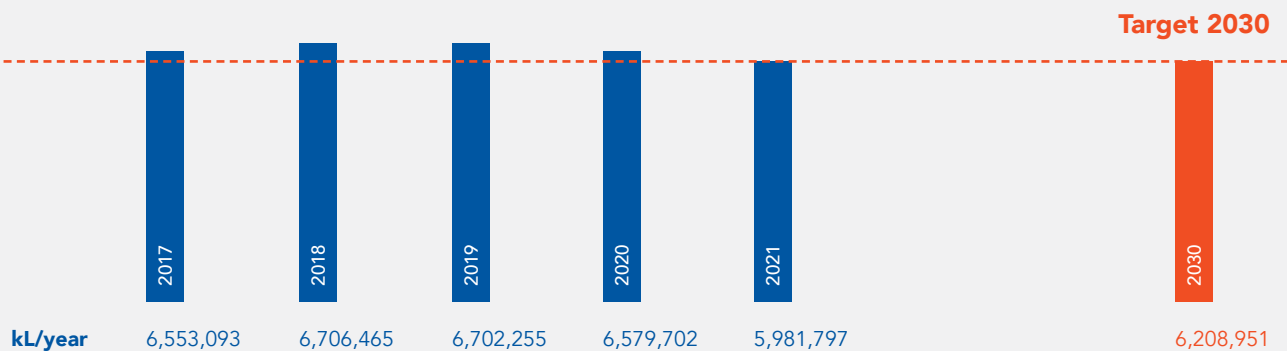
Pollution

in waterways is minimised by 2030

Good

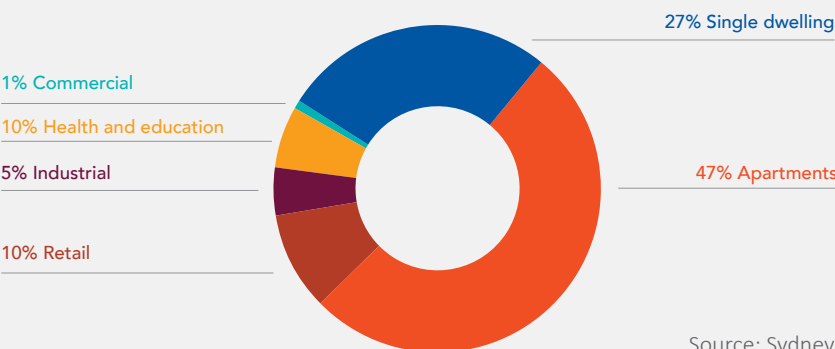
or better Beachwatch ratings for all beaches

Annual community water consumption



Source: Sydney Water.

Community Water Use by Sector 2019-20



Source: Sydney Water and analysed by Resilient Sydney, 2022

Key Deliverables

Maintain and optimise recycled water use to manage and minimise water use.

The ongoing use of [recycled water and stormwater harvesting](#) at Bondi, Tamarama and Bronte Beaches and Barracluff and Waverley Park is key to minimising Council's potable water use. This will be done in conjunction with smart irrigation systems and ongoing digital leak detection.

Improve and maintain stormwater management by removing remove sediment and pollutants.

Council will continue to remove multiple tonnes of waste and sediment to protect water quality at our beaches and support the marine environment and recreation. Future works will be focused on North Bondi and in the Sydney Harbour, Open Coast and Centennial Park catchments.

Water Sensitive Urban Design embedded in design of major projects and council assets.

Council streetscapes, cycleways, parks and stormwater assets, will maximise permeable surfaces and include raingardens, trees and other interventions to improve water quality and support urban greening and canopy on Council streets.

Work with neighbouring councils and Centennial Parklands, residents and businesses.

Council will collaboratively develop [Eastern Beaches](#) and [Sydney Harbour](#) Coastal Management Programs. We will promote and leverage water efficiency opportunities including Sydney Water's [WaterFix](#) programs for local commercial, strata and small business customers and work to prevent and promptly respond to local pollution incidents.



Image Credit: Charlotte Elliot





04 Managing Waste and Sustainable Materials

Moving towards a Zero Waste Community and a Circular Economy

Recycling right
and problem
wastes disposal

Organics
separation
opportunities

Education and
enforcement to reduce
litter and illegal dumping

Traditional linear waste processing is no longer sustainable. Going forward, Council waste management approaches will focus on circular economy principles to eliminate waste and reduce the continual use of new resources. This will ensure we can safely manage our waste, and minimise impacts on our environment and community.

Since 2016, Council has increased waste recovery from 32% to 58%, by diverting waste from landfill. Our kerbside red-lid bin waste, including food waste, is processed through a Mechanical and Biological Treatment facility at Woodlawn where metals and contaminants are separated out, and remaining organic material is directed to the rehabilitation of a mine tailings dam.

Transitioning toward a circular economy reflects Waverley targets for waste minimisation and increased resource recovery. It enshrines Waverley's commitment to managing waste

generated in our community from households, businesses as well as the public domain. By designing out waste, using resources more effectively to keep them in the system for longer, and ensuring a sustainable end of life of all materials, we can generate jobs, create a more robust economy, increase the accessibility of local suppliers, maximise the value of resources and reduce waste.

The [NSW Waste and Sustainable Materials Strategy 2041 Stage 1 plan: 2021–2027](#)

outlines actions required to meet legislated targets in waste reduction and greenhouse emissions, reducing harm to our environment, and boosting innovation to help drive the economy. Council is aligning its domestic waste service and targets with this strategy, which mandates halving organic waste sent to landfill by 2030. To meet this target, Council is working closely with its waste processing contractor to scope food and organics waste separation and recovery opportunities so that organic waste is used at its highest potential.





Our targets

80%

recovery rate from all waste streams by 2030 from 2017/18 levels

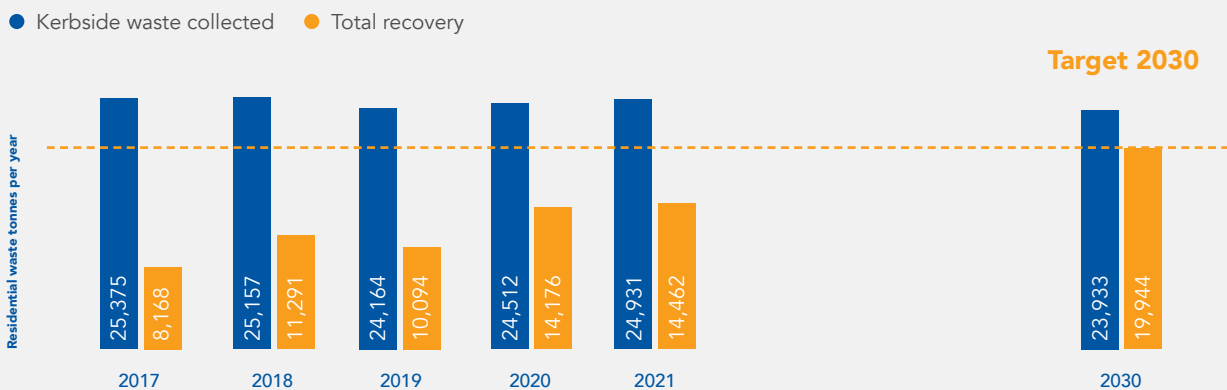
50%

reduction in organic waste sent to landfill by 2030 from 2017/18 levels

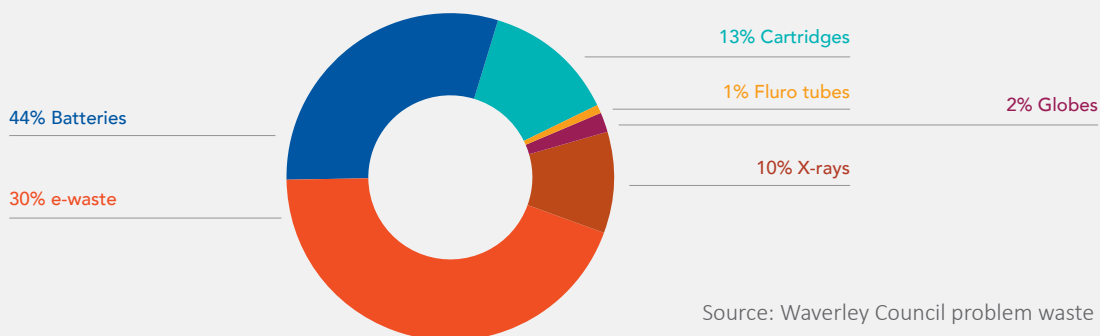
60%

reduction in litter by 2030 from 2009 levels

Residential Waste and Recovery



Problem Waste collected in 2020-21



Key Deliverables

Meet the NSW Waste and Sustainable Materials Targets

Council will prepare an updated Waste Strategy, to detail the implementation timeline for an enhanced waste and recycling collection service for the Waverley Community. This is to meet the State Government targets, including diverting organics from landfill by 2030. Council will continue to phase out single use plastics, design out waste through planning controls and increase the [recycled content in our assets](#) and procurement.

Deliver Community education and advocacy for waste avoidance and reuse

Community-focused Circular Economy programs will raise awareness about the importance of waste avoidance, reuse, recycling and repurposing before sending materials to landfill. Education and engagement focussed on recycling, problem waste recovery, food and organics management and recovery opportunities will target residents, businesses, and school communities. Waste education, clean-ups and knowledge sharing through webinars, community led actions and face to face activities will build capacity and support behaviour change that aligns with circular economy principles.

Prevent litter and illegal dumping

Education, infrastructure and enforcement will target local hotspots to ensure neighbourhood amenity is protected and our streets are clean for everyone to enjoy. Council will continue to provide enviropoles along our streets for cigarette butt waste, which can be recycled and repurposed into park benches and building materials.

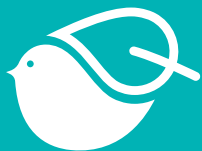


Strengthen resource recovery and recycling

[Problem wastes](#) such as electronics, batteries and globes can be toxic if they end up in landfill, which also prevents their valuable components from being recovered and reused. Council will enhance services to ensure dangerous wastes stay out of the red bin and support textile and other material recycling, reducing the need to source new materials.

Equally important is improving residential and commercial recycling rates. Our [Recycling Improvement Program](#) will support the community with the education and infrastructure they need to reduce contamination and ensure clean recycling streams.





05 Urban Ecology

Protect and increase local bushland, parks trees and habitat

Ecological
regeneration
and restoration

Habitat protection through
development and invasive
species controls

Supporting community
capacity to support
habitat connectivity

Waverley Council currently manages approximately 6 hectares of remnant native vegetation across 12 main sites (40 properties in total).

We are successfully managing the critically endangered ecological community Eastern Suburbs Banksia Scrub, protected under Commonwealth and State legislation on private and public land adjoining York Road and within Queens Park, and have supported the natural regeneration of a population of the threatened species *Acacia terminalis* subsp. Eastern Sydney (Waverley's only population of this species) back from the brink of extinction.

Through the implementation of the [Biodiversity Action Plan: Remnant Sites](#) 2015–2020, the area of remnant native vegetation in good condition in 2020 (9%) was more than double recorded in 2015 (4%). Our [ecological restoration projects](#) in Bronte Gully, Tamarama Gully and Thomas Hogan Reserve are actively progressing. Restoring these areas makes up for the

lack of greenspace in Waverley; providing valuable habitat to local animals and precious biodiversity to the community.

Our [Bushcare](#) volunteers continue to support our active management of remnant and restoration programs and the [Living Connections](#) program has improved habitat and connectivity in 165 private gardens. Key to the urban ecology of Waverley is the marine ecosystem of the coastline which is rich in biodiversity such as in the Bronte to Coogee Aquatic Reserve. Waverley will continue to promote, protect and work with government agencies and other stakeholders to ensure that this vital asset is improved.

Council is actively planting over 300 street trees each year and since 2012 the number of street trees has increased from approximately 10,000 to 14,000. Council is updating the [Tree Management](#) Framework, which will be incorporated into a new Greening Strategy, to protect and increase canopy, greening and habitat in Streets, parks and private property.





Our targets

0%

Loss of remnant vegetation from 2022 onwards

20%

of remnant vegetation is in good condition by 2030

25%

of remnant vegetation is in fair condition by 2030

29%

Green Cover (canopy and shrub) by 2030

1000

habitat gardens are established by 2030 (500 by 2024)

Improve

Marine diversity of the Waverley coastline

Remnant vegetation condition

2010

2020

2030



Good

11% increase by 2030



Fair

9% increase by 2030



Poor

2% decrease by 2030



Very Poor

18% decrease by 2030

Key Deliverables

Actively manage our remnant bushland and restoration sites

The Biodiversity Action Plan – Remnant Sites 2022-2031 will ensure ongoing bush regeneration of key remnants and adjacent buffer plantings along the coastal habitat corridor and near Queens Park to protect and enhance the 117 locally indigenous plant species in the area that have existed since before European settlement.

The Bronte Gully Ecological Restoration Action Plan, Tamarama Ecological Restoration Framework and Action Plan and Thomas Hogan Reserve Ecological Restoration Action Plan will continue to reinstate indigenous vegetation characteristics of natural coastal landscapes that will also be resilient to the impacts of climate change, increase habitat, cooling potential and the aesthetic beauty of our local area.

Engage the community to support and enhance urban ecology

The Waverley Bushcare Volunteer program, which harnesses community volunteers to support remnant and restoration programs will continue. We will expand the Living Connections program to support biodiversity corridors through enhanced habitat on private properties and help to monitor key local species. Council will also be exploring ways to engage with the community on coastal management and marine protection and restoration.

Manage our urban canopy and vegetation

Council will prepare and deliver a Canopy and Greening Strategy to achieve our Canopy and Greening targets across public and private property in Waverley, to secure cooling and improve habitat connectivity and climate resilience.



Many of our local species are able to coexist with development in the urban environment. Microbat species such as Gould's Wattled Bat *Chalinolobus gouldii* are found in areas of Waverley such as clifftop overhangs where they roost. Council will work to support our local native species through habitat creation on public and private property, reducing light pollution and reducing pest species where possible.



Waverley's Resilience Framework



Community aware & Safe

Local Emergency Management officers

Access & opportunity

Strategic Planning

Reduce climate risks

Environmental Sustainability

Resilient Systems

Asset Management

Improve social cohesion

Community Programs

References for Waverley's Climate Scenario on pages 4 and 5

1. Intergovernmental Panel on Climate Change (2021) Summary for Policymakers. Climate Change: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [MassonDelmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekci, R. Yu and B. Zhou (eds.)]. Cambridge University Press. Nov 2021
https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf page 6
2. Commonwealth of Australia (2021) Climate Data Online http://www.bom.gov.au/climate/averages/tables/cw_066037.shtml
3. Commonwealth of Australia (2020) State of the Climate 2020. www.csiro.au/en/research/environmental-impacts/climate-change/state-of-the-climate
4. NSW Office of Environment & Heritage (2014) Metropolitan Sydney Climate Change Snapshot
<https://climatechange.environment.nsw.gov.au/Climate-projections-for-NSW/Climate-projections-for-your-region/Metro-Sydney-Climate-Change-Downloads>
5. NSW Department of Planning, Industry and NARCIIM1.0 Climate Change Projections for Waverley, Environment, accessed May 2021.
6. BMT Commercial Australia (2021) Eastern Beaches: Regional Sea Level Rise Hazard Assessment (Ref: R.A11159.02.01)
7. NSW Department of Planning, Industry and Environment (2019) NSW Urban Heat Island to Modified Mesh Block 2016 and NSW Urban Vegetation Cover to modified Mesh Block 2016
<https://www.planningportal.nsw.gov.au/opendata/dataset/nsw-urban-heat-island-to-modified-mesh-block-2016>