CITY OF SUBIACO

Draft Climate Change Response Plan

Acknowledgement of Country

We acknowledge the Whadjuk Noongar people as the Traditional Custodians of the area. We recognise their cultural connection to the land and waterways of Subiaco, and their continuing contribution to our City.

Language

It is important to note that there are alternative spellings of Noongar (e.g., Nyungar, Nyoongar, Noongah) and Noongar words. Noongar language, like all traditional languages in Australia, is an oral language.

Throughout this document, we have maintained the spelling as Noongar, however we respectfully include all Indigenous peoples of south-west Western Australia.

Acknowledgements

Kaedisha Westberg: The City acknowledges Kaedisha Westberg, Whadjuk Ballardong Noongar artist, for her artwork included in this Plan, in particular the Noongar artwork depicting Country and themes from the Dreaming.

Geri Hayden: The City acknowledges Geraldine Hayden, Nyoongah Elder, for her invaluable contributions and sharing of Traditional Knowledge throughout the development of the Plan.

Dana Garlett: The City acknowledges Djida, Dana Garlett, for her artwork, which has been incorporated throughout this Plan, and in particular, included in the Noongar Six Seasons graphic, and Wandaraguttagurrup infographic.

Mayor's message

The City of Subiaco is committed to leading the way for local governments with our proactive approach to the challenges of climate change. We are proud to have been the only certified carbon neutral local government in Western Australia, since June 2021.

Our Draft Climate Change Response Plan is a comprehensive roadmap for realising our vision: *Climate change risks and opportunities are embedded in decision making, informed by Western Science and Traditional Knowledge. Our community is educated and supported to adapt to and mitigate its impacts on climate change.*

Under this Draft Plan, the City will continue to proactively reduce greenhouse gas emissions, adapt our environment and infrastructure, and equip our community to face the current and anticipated impacts of climate change.

Council recognises that these are challenges requiring a collective effort; and we are dedicated to working alongside our community to reduce emissions and foster a more resilient future for us all.

Together, we can create a positive, lasting impact for our local environment and the generations to come.

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Draft Climate Change Response Plan

Introduction

Noongar Country – Our duty to protect the environment

This artwork, created by Noongar artist Kaedisha Westberg, is inspired by themes in the Dreaming, such as the interconnectedness of the Country.

The land, animals, and Noongar the human, are represented throughout the artwork.

In the artwork you can see the hills, the pathways, meeting places, and footprints that each animal and the human has taken, and their movement on land.

The humans put their handprints for all to see, which symbolises our duty to care for all the plants, animals, the land, and waters.

This aligns with our commitment to environmental stewardship and reinforces the need to honour and protect Noongar Country, as we face the challenges of climate change.

Global climate change

Global context

Human activities are accelerating the release of greenhouse gases into the atmosphere, driving human-caused climate change. Key contributors include the reliance on non-renewable energy sources, primarily fossil fuels, industrial production, transportation, and land use changes. The impacts of climate change, such as rising temperatures and more frequent extreme weather events, disproportionately affect vulnerable communities, those who have historically contributed the least to the current crisis.

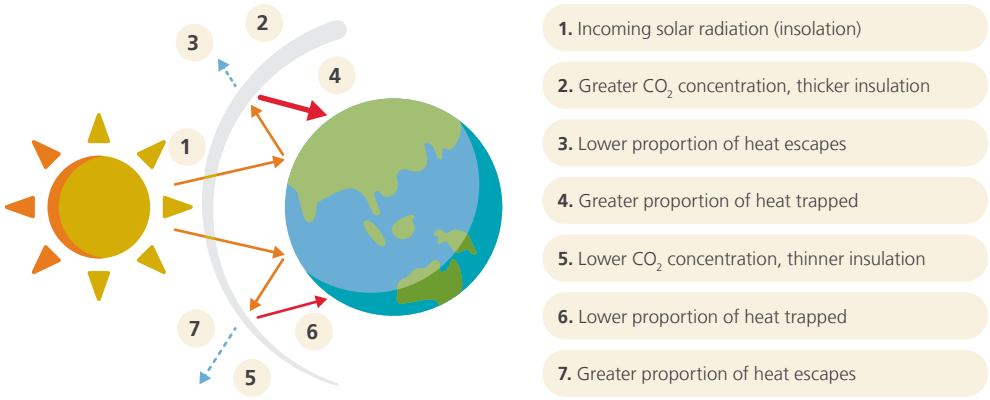
While climate change is a global challenge, local governments play a crucial role in reducing emissions and building resilience to its impacts within their communities.

The greenhouse effect

The greenhouse effect is the term used to describe the natural role of greenhouse gases in retaining a level of heat energy within the atmosphere, most of which is derived from the sun. The greenhouse effect is crucial for maintaining life on Earth, however the amount of heat energy needs to remain within a narrow band to maintain a liveable climate. As the atmospheric concentration of greenhouse gases increases, so too does the level of heat energy retained within the atmosphere, resulting in increasing average temperatures. This results in human-caused climate change.

The greenhouse effect is shown in **Figure 1** below.

Figure 1: The greenhouse effect



The Paris Agreement

The Paris Agreement, ratified by Australia in November 2016, sits within the United Nations Framework Convention on Climate Change (UNFCCC). The Agreement commits signatories to significantly reduce their greenhouse gas emissions by 2030, through Nationally Determined Contributions (NDCs), to keep global temperatures well below two degrees Celsius above pre-industrial levels. Australia's NDC, which was updated in 2022, commits Australia to reduce greenhouse gas emissions to 43% below 2005 levels by 2030, and achieve net-zero emissions by 2050. For Australia to meet its commitments under this agreement, local governments must show leadership by actively reducing emissions.

Scope and context

As a signatory of the Western Australian Local Government Association's (WALGA) Climate Change Declaration, the City acknowledges that climate change is occurring, and that greenhouse gas emissions from human activity are the cause.

The City is taking a strategic approach to manage its climate change responsibilities, amidst the challenges of a changing climate, a growing population, evolving community expectations, and broader societal trends. This Plan consolidates efforts to address climate change, outlining key projects, and objectives for achieving transformational change.

It serves as a guiding resource for the City's approach to address climate change and will ensure that effective and sustainable solutions are established for both present and future needs.

Strategic alignment

Embarking on a new Council Plan for the next ten years, together with community, Council has set the vision and strategic direction for City's flourishing environment:

Green canopy, tree-lined streets and open spaces define our identity and are essential for climate resilience, biodiversity and wellbeing. Their future management and growth is an ongoing priority.

This plan will guide the City's response and resilience to climate change, building upon previous initiatives in the Sustainability and Resilience Strategy (2016–2021) (SARS), and Corporate Carbon Reduction Plan (2020–2030) (CCRP).

The CCRP was developed as a key action of the SARS, providing targets and actions to reduce greenhouse gas emissions from the City's operations. The first section of this Plan, Corporate GHG Emissions Reduction, acts as the first review and update of the CCRP.

In line with the City's Reconciliation Action Plan, the City has engaged with Traditional Owners throughout the development of this Plan and will maintain this engagement throughout its continued development and implementation.

Legislative context

Under the *Local Government Act 1995*, the City is required to operate with a focus on environmental sustainability and the proactive management of climate change risks.

Section 3.1 of the Act sets out the general function of local government and states:

> "3.1(1) General function
> (1A) Without limiting subsection (1), the general function of a local government must be performed having regard to the following —
> (a) the need —
> (i) to promote the economic, social and environmental sustainability of the district; and
> (ii) to plan for, and to plan for mitigating, risks associated with climate change; and
> (iii) in making decisions, to consider potential long-term consequences and impacts on future generations..."

Addressing climate change

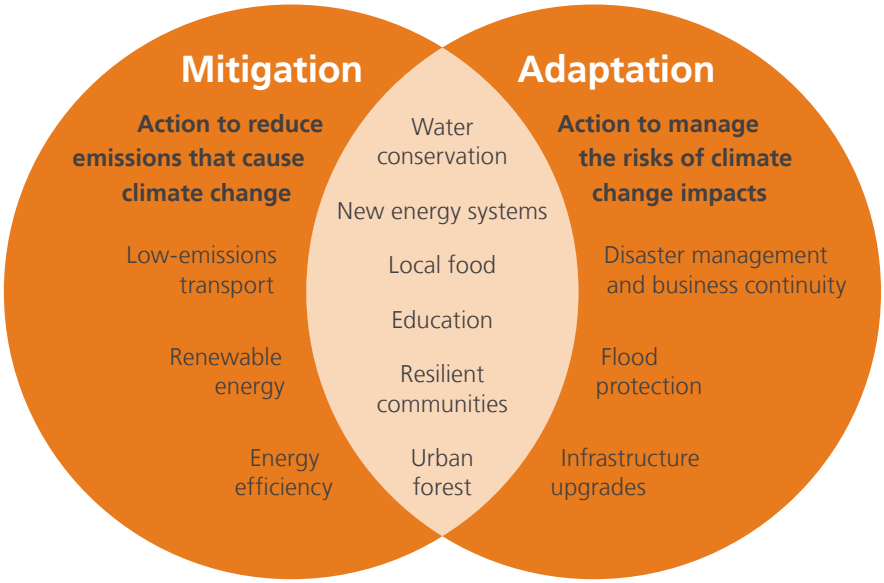
To address climate change effectively the City must undertake both mitigation and adaptation.

Mitigation refers to reducing or preventing the emission of greenhouse gases into the atmosphere and directly addressing the root causes of human-caused climate change. This includes transitioning to renewable energy, improving energy efficiency, and reducing waste.

Adaptation involves adjusting our systems and infrastructure to cope with the impacts of climate change. These might include measures such as planting drought and fire-resistant native vegetation.

Figure 2 provides a visual summary of mitigation and adaptation, outlining specific examples that can be integrated into the City's operations.

Figure 2: Climate change mitigation vs adaptation



Key concepts included in this Plan

Key concepts and definitions referred to throughout the Plan have been outlined in **Table 1** below.

Table 1: Key concepts and definitions

Concept	Definition
Base year	A specific year against which emissions are tracked over time.
Boundaries	GHG accounting and reporting boundaries can have several dimensions, i.e. organisational, operational, geographic, business unit, and target boundaries. The inventory boundary determines which emissions are accounted and reported by the company.
Control	The ability of a company to direct the policies of another operation. More specifically, it is defined as either operational control or financial control (see Corporate GHG Emissions Reduction section).
CO_2^{-e}	Carbon dioxide equivalent. The universal unit of measurement to indicate the global warming potential of each of the six greenhouse gases, expressed in terms of the global warming potential of one unit of carbon dioxide. It is used to evaluate the release (or avoided release) of different greenhouse gases against a common basis.
Emissions	The release of GHG into the atmosphere.
GHG	For the purposes of this report, GHGs are the six gases listed in the Kyoto Protocol: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.
GHG emissions	Emissions from sources that are owned or controlled by the reporting organisation.
GHG offset	Offsets are GHG reductions used to compensate for (i.e. offset) GHG emissions elsewhere.
GHG source	Any physical unit or process that releases GHGs into the atmosphere.
Greenhouse effect	The process by which radiation from a planet's atmosphere warms the planet's surface to a temperature above what it would be without its atmosphere.
Green power	A generic term for renewable energy sources and specific clean energy technologies that emit fewer GHG emissions relative to other sources of energy that supply the electricity grid. Includes solar photovoltaic panels, solar thermal energy, geothermal energy, landfill gas, low-impact hydropower, and wind turbines.
Indirect GHG emissions	Emissions that are a consequence of the operations of the reporting organisation but occur at sources owned or controlled by another organisation.
Inventory	A quantified list of an organisations GHG emissions and sources.
Operation	A generic term used to denote any kind of business, irrespective of its organisational, governance or legal structures. An operation can be a facility, subsidiary, affiliated company, or other form of joint venture.
Operational boundaries	The boundaries that determine the direct and indirect emissions associated with operations owned or controlled by the reporting company. This assessment allows a company to establish which operations and sources cause direct and indirect emissions, and to decide which indirect emissions to include that are a consequence of its operations.
Renewable energy	Energy taken from sources that are inexhaustible (e.g. wind, water, solar, geothermal energy).
Scope	Defines the operational boundaries in relation to indirect and direct GHG emissions.
Stationary combustion	Burning of fuels to generate electricity, steam, heat, or power in stationary equipment.

Structure of Plan

The Plan includes four components addressing climate change through mitigation or adaptation shown in **Figure 3** below.

Each of the key sections of the Plan are discussed in more detail below:

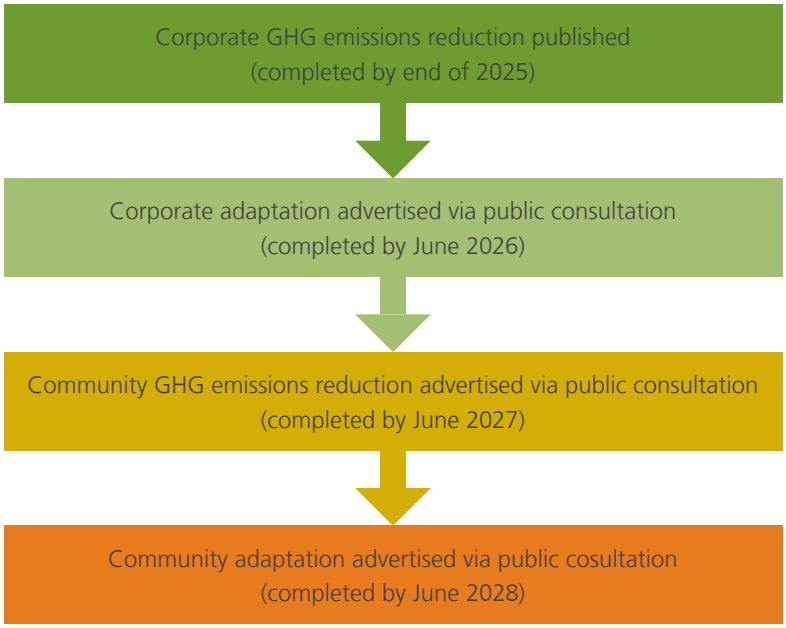
Corporate GHG Emissions Reduction: Focusing on reducing emissions attributable to City operations.

Corporate Adaptation: Informed by risk assessment workshops with internal staff. Adaptation will be centred on amending City assets, operations, and services to adapt to unavoidable impacts of climate change.

Community GHG Emissions Reduction: Guiding and supporting the broader City of Subiaco community (residents, businesses, and visitors) to reduce emissions.

Community Adaptation: Informed by risk assessment workshops with the community. Adaptation will be centred on actions that the local government can implement to improve the resilience of its community to climate change.

Figure 3: Climate Change Response Plan timeline of development.



City of Subiaco context

The City plans to continue providing community with innovative experiences, cohesive streets and pleasant public spaces. The City invests in improving and updating our buildings and infrastructure, open spaces, its urban forest, and recreation facilities. This attitude of continual improvement opens many opportunities to integrate climate change mitigation and adaptation.

The impacts from climate change are felt acutely at the local level. Due to the City's location, topography, environment, and land uses, it is most susceptible to the impacts of:

- increasing average temperatures
- more frequent and intense heatwaves
- an overall drying climate
- more concentrated rainfall
- increased storm intensity and frequency.

The City may be indirectly impacted by harsher fire weather affecting neighbouring areas, as well as sea level rise, and more intense nearby coastal processes.

Western Australian context

Human activities, primarily the burning of fossil fuels, are increasing GHG emissions and contributing to climate change.

Some key sources of emissions from human activity in Western Australia are detailed in **Figure 4** below.

Figure 4: Key emission sources in Western Australia.

Human activities are increasing greenhouse gas emissions, leading to long-term changes in our atmosphere and climate.

Greenhouse gas emissions in Western Australia have continued to increase.

Currently, the main sources of greenhouse gas emissions in Western Australia are:

- **Energy production and use,**
- **Agriculture,**
- **Industrial processes, and**
- **Waste.**

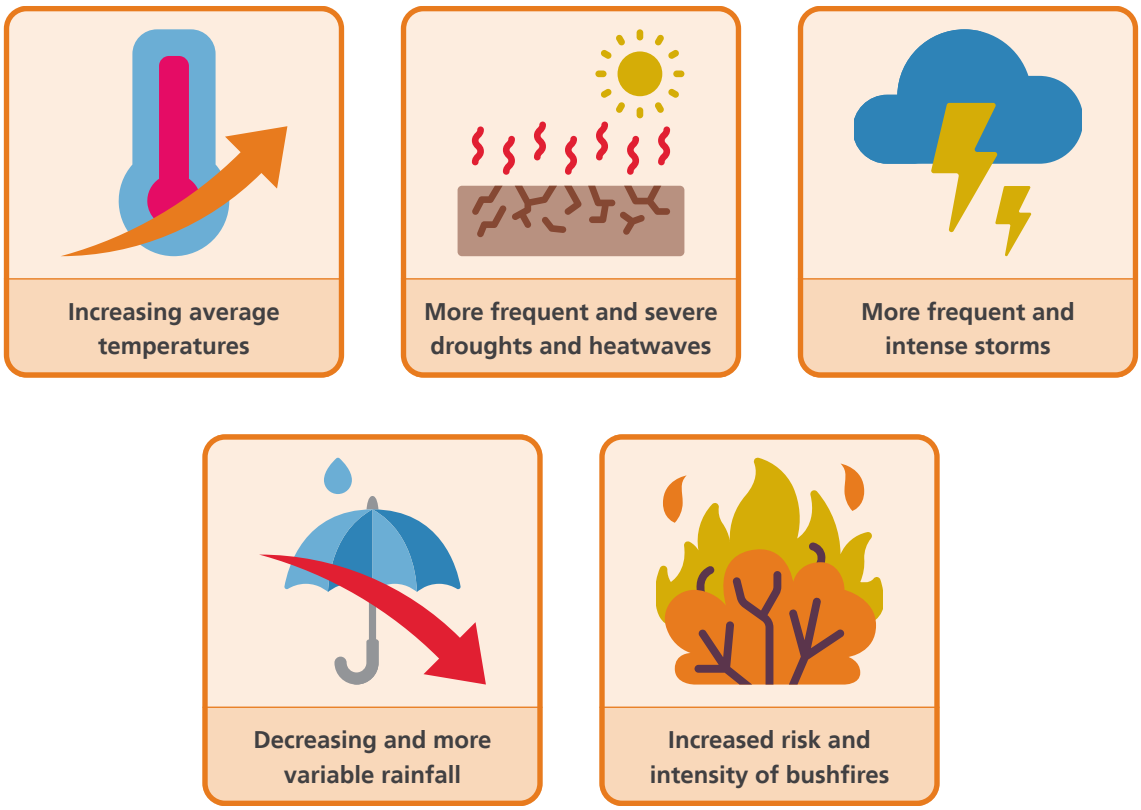
Our climate is changing

The average temperature of Western Australia has increased by 1.3°C since 1910, which is more rapid than the global average of 1.0°C. As a result, all weather is now occurring within a warmer and more energetic atmosphere, resulting in the following changes, shown in **Figure 5** below.

The driest October to April recorded in Western Australia occurred from 2023 - 2024.

Figure 5: Climate change in Western Australia

Western Australia is experiencing changes in climate.



Our changing climate has local impacts

Climate change impacts all aspects of society, including our ecosystems, wellbeing, and economy - some of these impacts are shown in **Figure 6** on the next page.

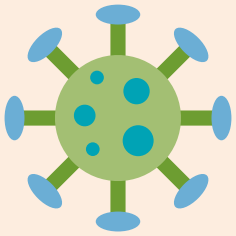
Figure 6: Climate change local impacts.

Climate change can impact local ecosystems due to the loss of species and biodiversity, changes in habitat, and the spread of invasive species.

Changing local rainfall patterns impacts water availability.

Severe weather events, such as flooding, can damage infrastructure, which may affect economic stability.

More frequent and intense heatwaves and extreme weather events impact the health and safety of the community, particularly of vulnerable residents.



Changes in climate, such as temperature, rainfall, and wind, can improve the survival of some diseases and pathogens, posing health risks.

Climate change can further increase social inequalities that already exist within society, disproportionately impacting the most vulnerable community groups.

The impacts of climate change extend across all aspects of human society, and we are all required to think globally, and act locally.

Benefits to operating sustainably

While the impact of the City's efforts to reduce its emissions may be small on a global level, there are local benefits.

Environmental

- Improved local air quality
- Conservation of natural resources
- Preservation of ecosystems and biodiversity.

Cultural

- Ensuring the City operates sustainably, and actively engages with Traditional Owners, not only preserves the environment but also honours and supports Connection to Country.

Wellbeing

- Supporting staff to use active modes of transport for work-related travel encourages a healthy lifestyle and improves wellbeing.
- Mitigating the urban heat island effect reduces the impact of extreme heat on the community, helping to prevent heat-related health issues.
- Reduction of air pollution in local areas can reduce associated health risks.

Economic

- Cost savings from improved processes, equipment, machinery, and fleet vehicles.
- Protecting the City against price increases for utilities and fuel; and
- Preparing the City for a price on GHG emissions, either via regulatory or market mechanisms.

Traditional Knowledge

The City's history includes the cultural significance of the Aboriginal and Torres Strait Islander peoples, particularly the Noongar peoples. The Noongar peoples have inhabited the south-west region of Western Australia for tens of thousands of years.

Wandaraguttagurrup is located on the traditional lands of the Noongar peoples and was originally inhabited by the Mooro group, led by Yellagonga, the uncle of Yagan.

Wandaraguttagurrup is home to the Aboriginal heritage sites of Lake Jualbup and Mabel Talbot Park, where Lake Jolimont is located.

Traditional Owners have a rich culture which includes complex social structures, languages and traditions, ceremonies, and passing down Dreamtime stories that explain the creation of the land and its features. Important cultural sites, including bora grounds (ceremonial sites), rock art and song lines (paths that narrate cultural stories), are scattered throughout the region.

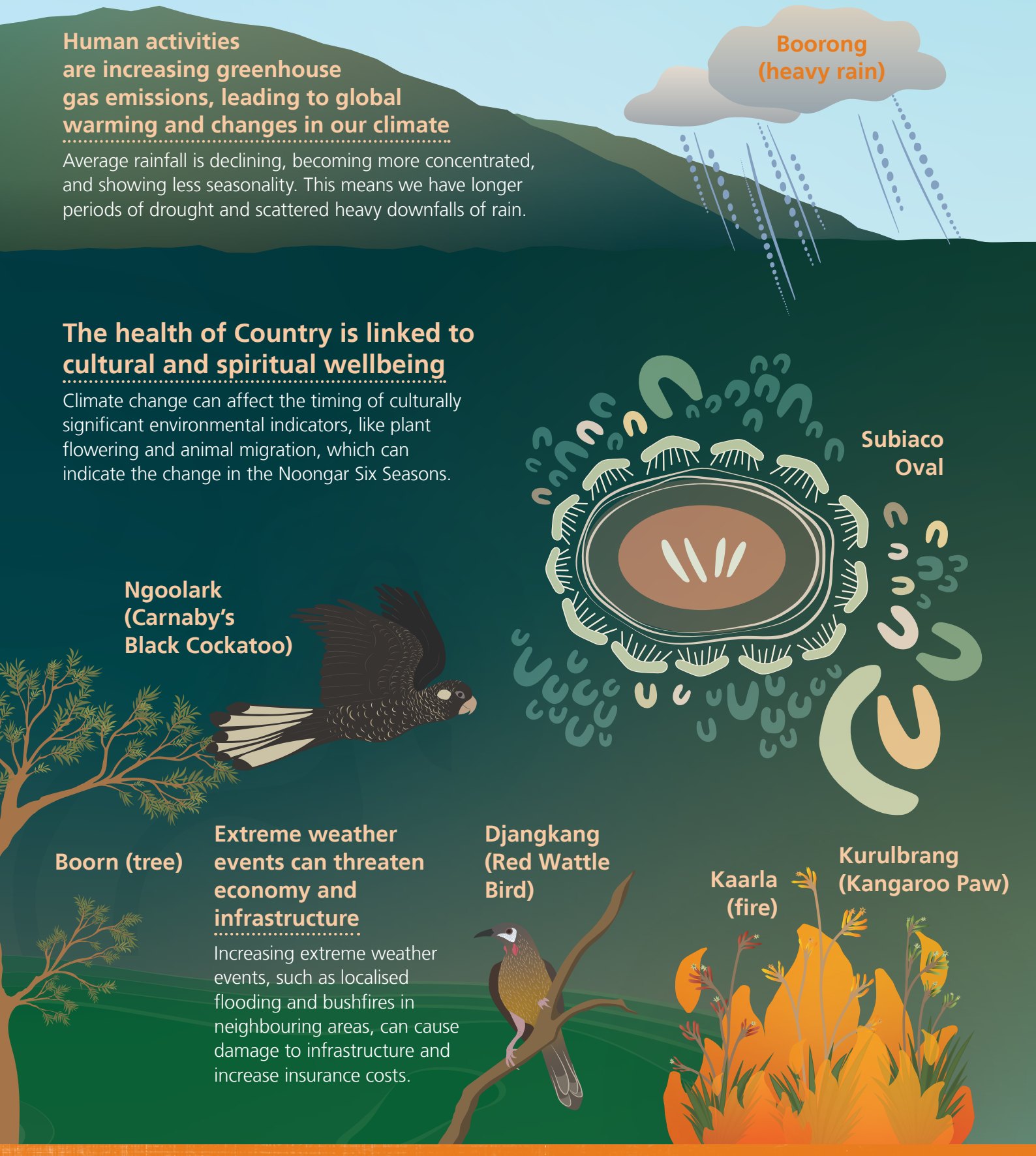
Connection to Country embodies the interconnected system of land, waterways, plants, animals, and the sky, representing a living, spiritual, and cultural bond that carries a deep responsibility to care for and sustain the environment for future generations. This worldview teaches a holistic understanding of the environment, recognising its interconnectedness and significance in all aspects of life.

Noongar peoples maintain a deep connection to the land, which is integral to their cultural and spiritual life. The Noongar peoples have a sophisticated understanding of the environment, practising sustainable land management techniques such as controlled burning to promote the growth of specific plant species and to prevent large-scale bushfires.

Figure 7 illustrates the interconnectedness of our environment and some anticipated impacts from climate change that the area is susceptible to.

Figure 7:

Our changing climate in Wandaraguttagurrup



Our built environment can amplify the impacts of a warming climate

Rising temperatures contribute to the urban heat island effect, intensifying heat in developed areas.

Freshwater ecosystem health

Increasing temperatures and decreasing rainfall can increase the frequency and duration of algal bloom events, affecting the biodiversity and health of freshwater ecosystems.

Country is interconnected

Mabel Talbot Park

Loss of biodiversity and culturally significant native species

Increasing temperatures and reduced rainfall can impact the distribution, breeding, and survival of native animals and plants.

Sites of cultural significance

The wetland heritage sites of Lake Jualbup and Mabel Talbot Park are alive with many plants and animal communities. These areas were common camping and hunting grounds for Noongar people.

Yaakan (Snake-necked Turtle)

Yanget (Bullrush)

Lake Jualbup

Understanding our climate through the Noongar Six Seasons

Country encompasses everything, including the land, waterways, sky, plants, animals, and people – and this interconnectedness is understood as a way of life by Traditional Owners. Traditional knowledge highlights that every aspect of Country holds meaning and purpose, and is interconnected.

Caring for Country centres on the importance of preserving the interconnected systems of Country now and for future generations – highlighting that the health of Country is connected to health and wellbeing (mental, physical, and spiritual).

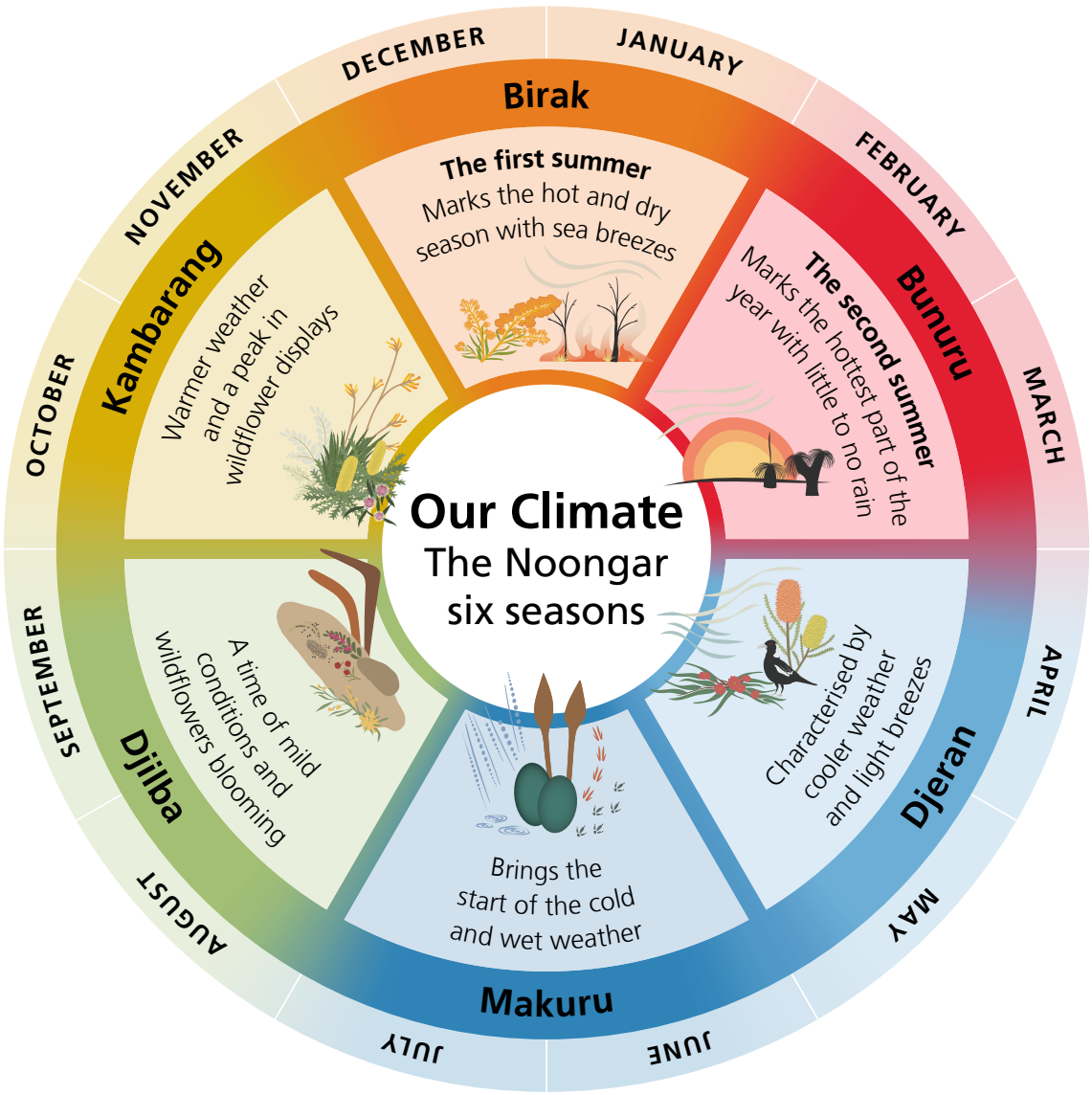
Each of the Six Seasons can be differentiated by changes in Country, such as shifts in temperature, plant growth, and animal activity.

Understanding these seasons helps us to better respond to environmental changes, and understand our climate.

The Six Noongar Seasons include — Birak, Bunuru, Djeran, Makuru, Djilba, and Kambarang.

Some of the changes of environment experienced in each of the Six Seasons are outlined in **Figure 8** below.

Figure 8: The Noongar six seasons



Our vision for 2035

Climate change risks and opportunities are embedded in decision making, informed by Western Science and Traditional Knowledge. Our community is educated and supported to adapt to and mitigate its impacts on climate change.

Action plans

Corporate GHG Emissions Reduction

The City's mitigation will be guided by the five key targets:

1. Maintain certification as a carbon neutral organisation annually from 2020–2035.
2. Achieve 100% electrification of all City-owned facilities by 2035 and maintain 100% renewable electricity in all City owned sites (excluding leased properties).
3. Reduce total energy consumption (electricity and natural gas) by 25 percent by 2030, compared to a FY 2018/19[1] baseline.
4. Reduce fuel consumption from heavy fleet vehicles by 10% by 2030 compared to a FY 2019/20 baseline, and maintain an average of 50 g CO_2^{-e} per km or lower for the light fleet.
5. Reduce total corporate emissions by 50% by 2030 compared to a FY2019/20 baseline of 3,225.81 t CO_2^{-e} and achieve net zero corporate emissions by 2040.

Corporate Adaptation

- Expected completion in 2026

Community GHG emissions reduction

- Expected completion in 2027

Community Adaptation

- Expected completion in 2028

1 The City's energy consumption was lower in FY2019/20, likely due to facility closures in response to the COVID-19 pandemic. As a result, the City has retained FY2018/19 as the baseline year for this target.

CITY OF SUBIACO

Corporate GHG Emissions Reduction

Introduction

The City's first Corporate Carbon Reduction Plan 2020-2030 (CCRP) was endorsed at the Ordinary Council Meeting held on 17 March 2020, and this Corporate GHG Emissions Reduction section forms the first significant review of the CCRP. The City's baseline emissions in the first release of the CCRP were 3,279 tonnes of carbon dioxide equivalent (t CO_2^{-e}), across Scopes 1, 2 and 3 for financial year (FY) FY2018/2019.

The following six targets were included in the first CCRP:

Past targets

- **Target 1:** Obtain and maintain certified carbon neutral status 2020–2030
- **Target 2:** 100 per cent renewable energy by 2025
- **Target 3:** Energy consumption reduced by 20 per cent by 2025
- **Target 4:** Fleet vehicles meet Climate Change Authority's standard by 2025
- **Target 5:** Reduce operational greenhouse gas emissions by 45 per cent by 2030
- **Target 6:** Transparency and reporting

Progress to date

The City has made substantial progress toward the six targets, including certified carbon neutral emissions as an organisation for four consecutive years, and reducing total corporate emissions by 39.9% since the FY 2018/19 baseline year. Detailed progress towards each of the six targets is outlined in the Targets and Actions section.

Review undertaken

Since 2020, the City reduced gross GHG emissions through:

- procurement of renewable electricity
- adoption of energy efficient systems
- uptake of electric light fleet vehicles, and
- phasing-out of natural gas from City sites.

The City recognises its obligations to the community of Subiaco, and beyond, to act on climate change. In FY 2023/24, the City's assets and operations resulted in just under 2,000 t CO_2^{-e}, having reduced total emissions (scope 1, 2 and 3) by 39.9% since FY 2018/19.

Key changes included in this review are:

- Revised targets and actions
- Revised emissions reporting baseline year from FY2018/19 to FY2019/20, aligning with updated emissions data, methodology, and baseline year for Climate Active reporting.

Through successful implementation of this Plan, the City will continue to steadily reduce emissions to 2030 and beyond.

The City is dedicated to meeting and maintaining the following five targets to reduce greenhouse gas emissions from operations:

Revised targets

1. Maintain certification as a carbon neutral organisation annually from 2020–2035.
2. Achieve 100% electrification of all City-owned facilities by 2035 and maintain 100% renewable electricity in all City owned sites (excluding leased properties).
3. Reduce total energy consumption (electricity and natural gas) by 25 percent by 2030, compared to a FY 2018/19 baseline.
4. Reduce fuel consumption from heavy fleet vehicles by 10% by 2030 compared to a FY 2019/20 baseline, and maintain an average of 50 g CO_2^{-e} per km or lower for the light fleet.
5. Reduce total corporate emissions by 50% by 2030 compared to a FY2019/20 baseline of 3,225.81 t CO_2^{-e} and achieve net zero corporate emissions by 2040.

Reporting framework

This section includes a reporting framework that updates GHG emission actions to align with current City priorities, completed targets, and changes in the energy sector every four years.

The next significant review of this section will be completed in 2029.

The greenhouse gas assessment that the City undertakes for corporate emissions reporting is based on the parameters and assumptions summarised in **Table 1** below.

A full description of these can be found in Appendix 1.

Table 1: Information regarding the City's corporate GHG reporting

Component of GHG Assessment	Information Required
Activity Data	In accordance with the Climate Active Organisation Standard, measured (actual) data has been used for calculations where possible. Modelled data or conservative estimates are used where actual data is unavailable. Where estimates are used, they are justified with respect to data availability and the relative size of the estimated emission source (i.e. this is not used for emission sources that are expected to be large). **Actual data:** • Measured data from a suitable source from the reporting year, e.g. electricity or natural gas consumption as reported in utility bills, or litres of fuel recorded from fuel card receipts. **Actual data from the previous year:** • As above, from the previous year. **Modelled data (extrapolated, projected, data conversion):** • Extrapolated: partial year or a representative sample from a group of facilities/vendors, or survey data that is extrapolated to a full dataset. • Projected: where data is expensive or difficult to collect, actual data may be collected once every few years and adjusted for inflation/staff numbers, or other relevant factors to estimate the current years data. • Data conversion: converting data from one type to another through known conversion units. **Estimated data:** • Online calculators or general statistics used as a proxy (e.g. Australian Bureau of Statistics [ABS] statistics, or other robust, peer-reviewed statistics). **Uplift factor:** • A percentage adjustment made for a certain emission source where data is unavailable. The uplift factor should be based on similar organisations and match the highest emission range.
Base year	In the first release of the CCRP, the City selected FY 2018/19 as the base year for corporate GHG reporting. Across the past five years, the City's data and methodology for recording emissions data has improved. To improve comparability across similar methodology, the City has set the FY2019/20 as the baseline for the revised emissions reduction target (Target 5), this is also the City's base year for Climate Active carbon neutral certification.
Calculations	Emissions are calculated by multiplying the relevant activity data by a suitable emission factor and global warming potential.
Consolidation approach	The organisational boundary was defined on the basis of operational control. Under this method, the organisation accounts for 100% of GHG emissions from operations over which it has control.

Component of GHG Assessment	Information Required
Electricity accounting	There are two methods for calculating electricity emissions, being location-based and market-based methods. The City calculates electricity emissions using the market-based method. **Market based method:** Calculates electricity emissions in the context of the electricity purchases, reflecting the organisation's investments in different electricity products and markets including voluntary purchases of renewable electricity and mandatory schemes such as the Renewable Energy Target.
Emission sources	Based upon the methodology applied as detailed above, the following emission sources are included in the City's GHG inventory: **All Scope one emissions, including:** • Gas, reticulated or bottled, consumed in City operated facilities. • Fuel use in City fleet vehicles, as well as sub-contractor vehicles where the City has direct operational control. • Fugitive emissions from refrigerated cooling systems. **All scope two emissions, including:** • Electricity use in City facilities. • Electricity use for City-owned public lighting. • Electricity use for pumps and other infrastructure. • Electricity use in Western Power operated street lighting that is charged to the City. **Scope three emissions, including:** • Indirect emissions from the extraction, production and transport of fuel burned at generation. • Indirect emissions attributable to the electricity lost in delivery in the transmission and distribution network. **Other Scope three emissions, including:** • Corporate travel including flights, public transport and taxis, rental vehicles, and accommodation. • Corporate waste. • Consumption of office paper. • Emissions due to operations where the City occupies space as a tenant. • Accommodation and facilities. • Cleaning and chemicals. • Construction materials and services. • ICT services and equipment. • Postage, courier, and freight. • Products. • Professional services. • Contractor fuels. • Office equipment and supplies. • Working from home. • Water use.
Emission sources excluded	Under the carbon neutral organisation standard, emissions sources can be excluded if they are not material, even if they are relevant, as this indicates their impact is small relative to the overall footprint. Examples of emissions sources that are **not** currently included in the City's GHG inventory are: • City-owned commercial investment property (outside of operational boundary). • City resident waste disposal (outside of operational boundary). • Food and catering (immaterial). More information about the City's annual corporate emissions since FY 2019/2020 can be found on the Climate Active website, found **here**.

Component of GHG Assessment	Information Required
GHGs	For the purposes of this report, GHGs are the six gases listed in the Kyoto Protocol: carbon dioxide, methane, nitrous oxide, hydroflyorocarbons, perfluorocarbons, and sulfur hexafluoride.
Relevance	Emissions from a particular source are generally considered relevant if they meet the criteria below: 1. The emissions from a particular source are likely to be large relative to the organisation's electricity, stationary energy, and fuel emissions. Sources that comprise <1% of the inventory (and not more than 5% collectively) are generally not considered material. 2. The emissions from a particular source contribute to the organisation's greenhouse gas risk exposure. 3. The emissions from a particular source are deemed relevant by key stakeholders. 4. The responsible organisation could influence emissions reduction from a particular source. 5. The emissions are from outsourced activities previously undertaken within the organisation's boundary, or from outsourced activities typically undertaken within the boundary for comparable organisations. Under Climate Active, an emission source must be included if it satisfies at least two of the criteria above.
Scopes	**Scope 1:** direct emissions that occur from sources that are owned or controlled by the reporting organisation; for example, emissions from fuel combustion in owned or controlled vehicles or other equipment. **Scope 2:** indirect emissions from the generation of purchased electricity that is consumed by the organisation. Scope 2 emissions physically occur at the facility where electricity is generated. **Scope 3:** all other indirect emissions that are a consequence of the organisation's activities, but occur from sources not owned or controlled by the organisation. Examples include the extraction and production of purchased materials, transportation of purchased fuels, and use of sold products and services.
Uplift factors	An uplift factor is an adjustment applied to increase the total carbon inventory to account for material, relevant, or attributable emissions, which can't be reasonably quantified or estimated.

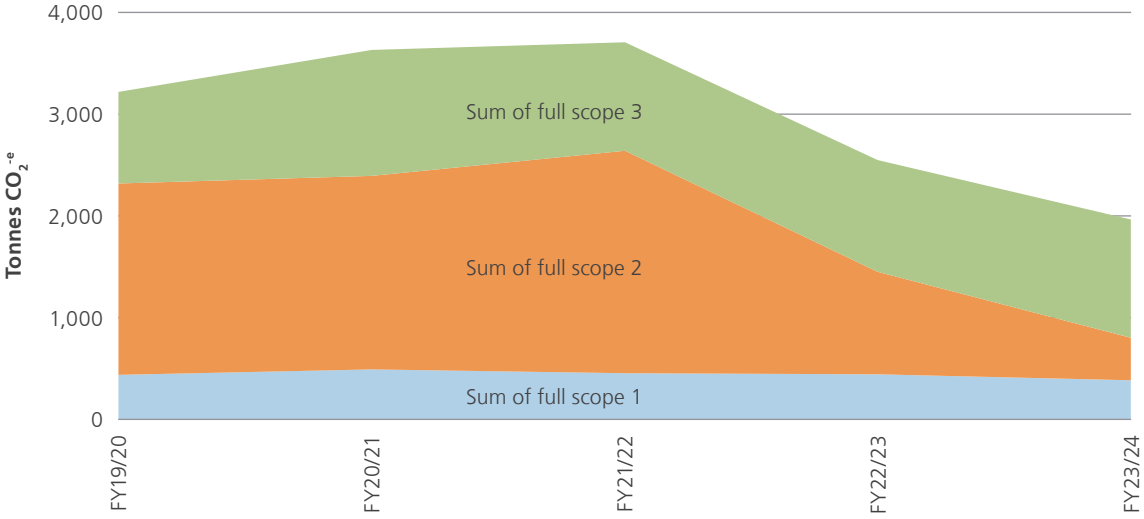
Progress to date

This section outlines the City's revised baseline GHG emissions year (FY 2019/20) and emissions boundary, followed by progress made through the Corporate Carbon Reduction Plan (2020–2030), Sustainability and Resilience Strategy (2016–2021), and broader strategic framework.

Changes in corporate GHG emissions by scope

Between FY 2019/20 and FY 2021/22, most of the City's emissions (~59%) were Scope 2 from electricity usage. With the transition to renewable energy for major sites in 2022, Scope 2 emissions decreased significantly. Scope 3 emissions now make up the largest share (~59%). Scope 1 emissions have remained relatively consistent over the years (~19%). While Scope 3 emissions are complex to reduce, the City remains committed to identifying innovative solutions to drive further reductions and enhance sustainability. The changes in scope emissions by year, are detailed in **Figure 1** below.

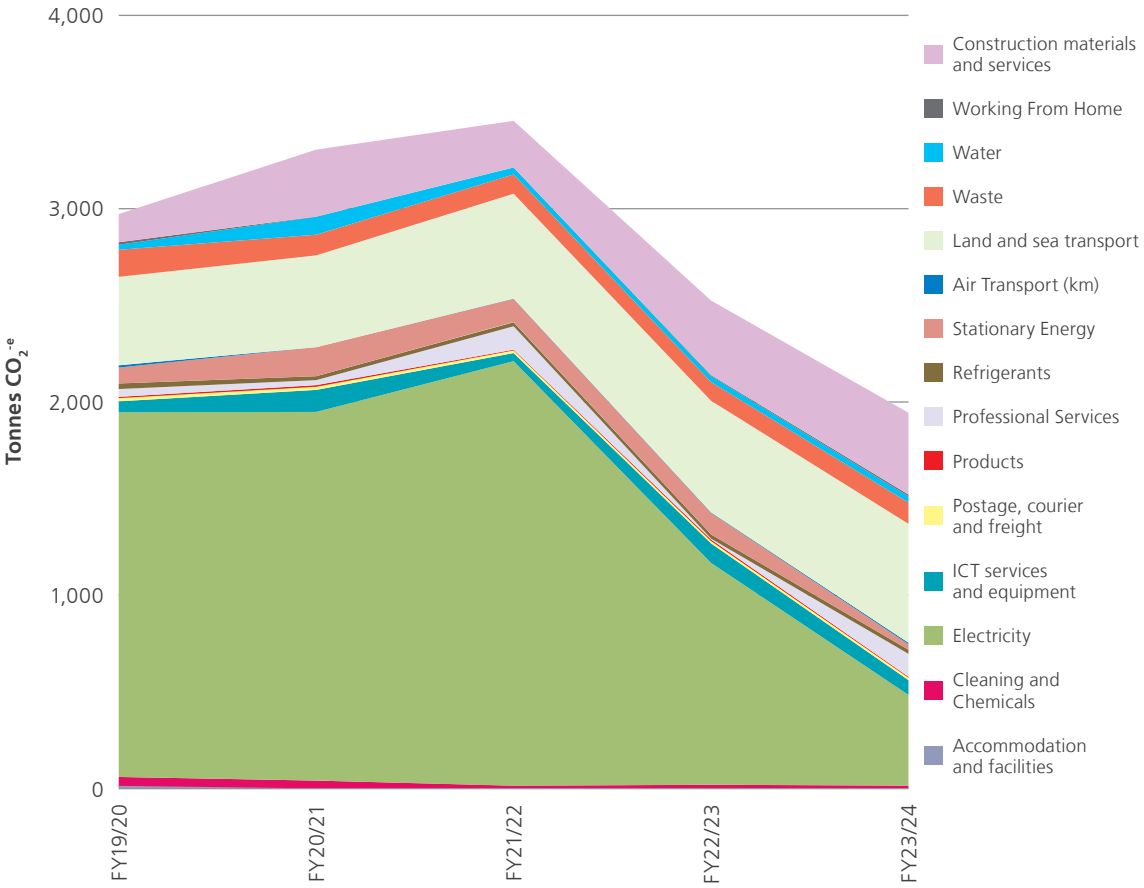
Figure 1: Corporate GHG emissions (tonnes CO_2^{-e}) by financial year and scope



Changes in corporate GHG emissions by source

As of FY2023/24, the main sources of the City's corporate GHG emissions can be attributed to electricity (21%), construction materials and services (21%), and land and sea transport (31%). The City's emissions from each source over time are shown below in **Figure 2** below.

Figure 2: Corporate GHG emissions by financial year and source



Targets and actions

This section outlines the City's past targets, provides an update on progress toward each target, and details revisions made to align them with the City's ongoing advancements.

The City has revised the original CCRP action plan, adding actions to directly reduce emissions from operations and meet revised targets. This includes integrating climate change considerations into operations, with success indicators to track progress and ensure continuous monitoring and accountability.

Funding and resource implications

Most actions in the Plan can be funded within existing budgets. For projects requiring additional funding, Branch Managers will assess budget constraints annually, with any variations considered in the annual budget. Additional funding for specific projects will be addressed during annual budget planning.

Target 1:

Maintain certification as a carbon neutral organisation annually from 2020–2035.

Past target

In the first release of the CCRP the City aimed for: Obtain and maintain certified carbon neutral status 2020–2030.

Progress report

The City achieved carbon neutral certification through Climate Active for the past four years (since FY 2019/2020). The City's emissions reporting data is publicly available. The City's certifications are included below:

1. Carbon neutral certification FY 2019-2020
2. Carbon neutral certification FY 2020-2021
3. Carbon neutral certification FY 2021-2022
4. Carbon neutral certification FY 2022-2023

The City increased the accuracy of emissions reporting and data management since the first release of the CCRP.

Some actions are outlined in **Table 2** over the page.

Table 2: Actions completed in line with Target 1

Year	Action	Outcome
2020	Emissions previously accounted for using an uplift (see Table 1: Activity Data) were calculated or modelled from actual data.	**Construction materials:** Emissions increased from 145.307 t CO_2^{-e} (estimated by applying an uplift of 5%) to 347.52 t CO_2^{-e} (calculated using actual data). Despite increasing the City's reported emissions, it more accurately describes the emissions from this source and is considered a positive improvement.
		Refrigerants: Emissions decreased from 29.06 t CO_2^{-e} (estimated by applying a 1% uplift) to 21.06 t CO_2^{-e}. This reduced emissions and improved the accuracy of the emissions reported.
2021	Improved data collection uses modelled data to quantify emissions from contractor fuel, replacing the previous uplift method.	Emissions from Land and Sea Transport (km) increased from 145.31 t CO_2^{-e} in FY 2019/20 to 173.17 t CO_2^{-e} in FY 2020/21, considered a positive improvement as the accuracy of the data improved.
2022	The City signed up to a data management platform for three years to improve accuracy and tracking of electricity, water, and natural gas usage for City owned facilities.	Data can be monitored on an ongoing basis, and is updated throughout the year.

Looking forward

The City will maintain certification as a carbon neutral organisation. This target has been extended from 2030 to 2035, ensuring that the City maintains neutral emissions for the next decade. The City will achieve this by purchasing equivalent offsets to total annual emissions produced from City operations.

In addition to offsetting 100% of corporate GHG emissions, the City commits to reducing total emissions. As the City's emissions profile improves, fewer carbon offsets will be required to offset its remaining emissions at an expected lower cost[2].

Baseline year

The City set FY 2018/19 as the baseline reporting year in the initial CCRP. Corporate GHG emissions reporting has since improved, due to enhanced reporting methodologies and data availability. As part of this revision, the City has updated the baseline year for emissions reporting to FY 2019/20. This aligns with the baseline year used for the City's carbon neutral certification through Climate Active, enhancing comparability between reporting years and targets.

2 Whilst it is expected that costs associated with purchasing carbon offsets will reduce with reducing emissions, actual expenditure cannot be predicted with certainty or be expected to decrease proportionately with declining emissions. This is due to fluctuations in the unit cost of carbon offsets over time.

Reporting

The City will continue to seek carbon neutral certification through an accredited organisation (currently Climate Active).

The annual Climate Active certification process currently includes:

- GHG inventory for the applicable year, compared to the City's FY2019/20 baseline.
- Public report.
- Independent audit report of the above documents (required every three years).
- Details of the certification, including the public reports, are published on the Climate Active website.

Annual emissions data from City operations will continue to be shared on the Climate Active website. This information can also be viewed from the City's website here.

The City commits to the actions in **Table 3** to maintain progress towards **Target 1**.

Table 3: Target 1: Action plan looking forward

Action ID	Action	Success indicator	Completion timeframe
1.1	Introduce training for City Officers to assist with the integration of emissions reporting and data capture processes. The training will ensure a basic understanding of carbon accounting throughout the organisation, such that accurate data is captured within the City's monitoring software.	At least one person in each relevant internal department has the capacity and knowledge to manage the ongoing collection and monitoring of data required for their Team's emissions reporting, with the data updated on an ongoing basis.	End of 2026
1.2	Carbon offset units are procured on an annual basis, equal to the City's reported full scope emissions to maintain carbon neutrality for City operations.	Offset purchases are made publicly available annually on the City's Climate Active PDS, or another accredited certification.	Ongoing (annually)
1.3	At least 20% of offsets purchased to achieve carbon neutrality are from Aboriginal owned or managed projects in Australia under the *Carbon Credit (Carbon Farming Initiative) Act 2011* (Australian Carbon Credit Units).	Carbon offset purchases are made publicly available annually on the City's Climate Active PDS and demonstrate at least 20% have been purchased from Aboriginal-owned or managed projects.	Ongoing (annually)
1.4	The City will report annually to Council about the City's emissions, and progress towards the Targets.	Internal progress reports towards all targets are provided to Elected Members annually and can be used for auditing processes.	Ongoing (annually)
1.5	Review this section of the Plan every four years to adapt to changing technologies and international legislation, and to reflect up-to-date City priorities.	The City publishes the update of the Plan every four years available to the public, with transparent reporting towards all included targets and actions.	During next review (2029)
1.6	Maintain quarterly meetings with the Internal Sustainability Working Group to deliver suitable actions of this Plan.	Quarterly meetings are held with the Internal Sustainability Working Group, comprising Officers from all directorates. Minutes are available for review internally.	Ongoing (quarterly)

Target 2:

Achieve 100% electrification of all City-owned facilities by 2035 and maintain 100% renewable electricity in all City owned sites (excluding leased properties).

Past target

In the first release of the CCRP, the City aimed for: *100% renewable energy by 2025*.

Progress report

In June 2025, all City-owned and managed assets and facilities will be utilising 100% renewable electricity; however, City-owned and leased facilities and City-leased facilities will not. The sites that are utilising renewable electricity, will be mainly attributed to the procurement of renewable electricity through the accredited GreenPower program.

Some of the key actions the City took towards this target are listed below in **Table 4**.

Table 4: Actions completed in line with Target 2

Year	Action	Outcome
2022	Signed on to Phase One of the Sustainable Energy Project (SEP) with WALGA, whereby seven of the City's largest sites are provided with renewable electricity.	Resulted in a 25.1% increase in purchased renewable electricity across the FY 2022/23, which equates to ~1,117,282 kWh of electricity and a ~636.85 t CO_2^{-e} reduction, compared to the same amount of electricity being sourced through the South West Interconnected System (SWIS).
2024	Renewable electricity (100%) Natural Power (GreenPower accredited program) for City owned streetlighting.	Across the financial year, 61.58% of the City's purchased electricity was from renewable sources.
2025	Signed on to Phase Two of the SEP from April 2025 for the next three years (2025-2028), whereby 100% renewable electricity will continue to be procured for contestable sites.	Projected to maintain similar renewable electricity usage and emissions reductions to that stated above.

Note: The City leases an office space for City staff which uses ~155,792 kWh electricity annually and emits ~83 tonnes of CO_2^{-e}. This has been excluded from the revised target.

Looking forward

After June 2025, the City will have achieved 100% renewable electricity for all City-owned and managed sites, predominantly through the procurement of renewable electricity. The City will phase out the remaining natural gas, as equipment is due for replacement. The City aims to increase the amount of solar used on City facilities, to decrease reliance on grid electricity.

City sites using natural gas in FY 2023/24 are outlined below in **Table 5**.

Table 5: Natural gas usage in City owned facilities – FY 2023/24

Asset	Consumption (GJ) in FY2023/24
Lords Recreation Centre	443.527
Operations Centre	21.142
Rosalie Park	60.909
Shenton Park Community Centre	4.904
The Palms Community Centre	3.469
Tom Dadour Community Centre	3.161
Total	537.112

The City commits to the actions in **Table 6** to maintain progress towards **Target 2**.

Table 6: Target 2: Action plan looking forward

Action ID	Action	Success indicator	Completion timeframe
2.1	Sign all remaining Western Power streetlights and non contestable sites (sites that use less than 50,000kWh of electricity per year) on to 100% NaturalPower contracts with Synergy in June 2025, in line with the target to achieve 100% renewable electricity.	Signing Western Power streetlights on to 100% NaturalPower will increase renewable electricity by ~593,529 kWh per year, reducing emissions by ~ 338.31 t CO_2^{-e}. Signing all remaining non contestable City-owned sites on to NaturalPower will increase renewable electricity by ~411,069 kWh per year, reducing emissions by ~ 234.31 t CO_2^{-e}	June 2025
2.2	Conduct a comprehensive audit of all City-owned and occupied facilities / appliances using natural gas. Identify energy needs, potential alternatives, and prioritize facilities for early transition.	Completion of audit for 100% of City-owned facilities with a prioritized transition list.	June 2025
2.3	Develop a transition roadmap outlining timelines, budget, and resource allocation.	Approved roadmap with actionable steps for each phase of the transition.	End of 2025
2.4	When gas appliances fail / are due for replacement in leased premises, they are replaced with an electric equivalent.	The City's Land and Property Procedures Manual includes a requirement for gas appliances to be replaced with electric alternatives when they fail / are due for replacement.	June 2026
2.5	Replace natural gas with energy-efficient electric alternatives in all City owned facilities.	Installation of electric systems in at least 50% of identified facilities.	End of 2027
		Installation of electric systems in all identified facilities, with the exclusion of the natural gas used for the hot water system at Lords Recreation Centre.	End of 2028
2.6	Conduct an energy audit, evaluate electric and solar thermal options, and analyse feasibility and costs to replace the natural gas hot water system used at Lords Recreation Centre.	Report prepared that evaluates alternative hot water system solutions incorporating renewable energy and identifies the most optimal solution(s).	June 2030
2.7	Based on the results of Action 2.6 (above), replace remaining natural gas appliances with energy-efficient alternatives using renewable energy at Lords Recreation Centre.	Installation of renewable energy systems in 100% of identified appliances that previously used natural gas at Lords.	End of 2035

Target 3:

Reduce total energy consumption (electricity and natural gas) by 25 percent by 2030, compared to a FY 2018/19 baseline.

Past target

In the first release of the City's CCRP, the City aimed for: *Energy consumption reduced by 20 percent by 2025.*

Progress report

The City has reduced energy consumption (electricity and natural gas usage) by 18% in comparison to the baseline year 2018/19[3] of 3,372,445 kWh. While the City has not met this target, only a further 2% reduction in energy consumption is required. The target has been extended to 2030, and the level of ambition has been increased.

Actions undertaken in line with **Target 3** are outlined in **Table 7** below.

Table 7: Actions completed in line with Target 3

Year	Action	Outcome
2022	The City replaced the hot water system at Lords Recreation Centre with a more energy efficient alternative.	Natural gas consumption reduced from 2012.56 GJ in FY 2022/23 to 547.11 GJ in FY 2023/24, equating to a 72.8% reduction of natural gas usage.
Annually	The City upgrades City owned streetlight to LED on an ongoing basis, upgrading an average of ~105 streetlights to LED per year.	Across the FY 2023/24 the City's electricity usage from streetlighting decreased by ~176,439 kWh (15.9%) in comparison to the previous year. For electricity transmitted via the SWIS, this equates to a reduction of 110.57 t CO_2^{-e}.

Looking Forward

The City of Subiaco aims to reduce energy consumption in facilities[4] by 25 per cent by the end of 2030 through:

- Efficiency: reducing energy consumed in City systems and services, particularly through streetlighting upgrades to energy efficient LED luminaires.
- Conservation: using data to understand how behaviour change, and planning can reduce energy consumption.

The City commits to the following actions in **Table 8** to maintain progress towards **Target 3**.

3 The City's energy consumption was significantly lower in FY2019/20, likely attributable to the COVID-19 pandemic. As a result, the City has retained FY2018/19 as the baseline year for this target.

4 For Target 3, 'energy' refers to the consumption of electricity and all forms of stationary energy. Currently, natural gas is the only form of stationary energy used by the City.

Table 8: Target 3: Action plan looking forward

Action ID	Action	Success indicator	Completion timeframe
3.1	Replace bulbs in City-owned streetlights to energy-efficient LEDs and require all new City-owned streetlights to be installed with LEDs.	At least 80% of City-owned streetlights have been upgraded to LED bulbs by 2030. All new streetlights are installed with energy efficient LEDs.	End of 2030
3.2	Monitor behind-the-meter electricity generation and consumption.	Monitoring software is installed for all existing solar PV systems and is installed by default on all new solar PV installations.	June 2027
3.3	Use monitoring data from Action 3.2 (above) to develop an Energy Management System (EMS) that maximises use of electricity generated on-site and avoids unnecessary use of grid-purchased electricity.	EMS is in place at all sites (existing and new) with solar PV systems. Reduction in purchased electricity at facilities with solar PV systems.	June 2028
3.4	Use data from Action 3.2 to monitor cleaning, maintenance, and replacement requirements for existing solar PV systems.	Periods of energy generation that are 5% below expected efficiency are identified and rectified through maintenance. Systems that are not operating with expected rate of efficiency are assessed to determine whether replacement is required.	Ongoing
3.5	All new and major refurbishments to City-owned and occupied buildings must achieve the following: • Under $10M: a basic eTool assessment, or equivalent, that provides a benchmark for the project and suggestions for improving energy performance. Results to be reviewed by the project management group and designers. • Over $10M: Green Star certification. • Infrastructure projects over $5M should use the Infrastructure Sustainability tool developed by the Infrastructure Sustainability Council of Australia (ISCA). • Lessons from larger projects will be communicated to City project managers to ensure that all City projects benefit from these processes.	• For projects under $10M, an eTool assessment (or equivalent) with a clear energy performance strategy. • For projects over $10M, Green Star certification. • Infrastructure projects should provide a specific rating using the Infrastructure Sustainability tool by the Infrastructure Sustainability Council of Australia (ISCA).	Ongoing as required
3.6	Collaborate with the Western Suburbs Alliance (WSA) to identify opportunities for joint energy-saving projects, and renewable energy initiatives.	Participate in WSA GHG Reduction Strategy development and contribute to shared actions.	Ongoing

Target 4:

Reduce fuel consumption from heavy fleet vehicles by 10% by 2030 compared to a FY 2019/20 baseline, and maintain an average of 50 g CO_2^{-e} per km or lower for the light fleet.

Past target

In the first release of the CCRP, the City aimed for*: Fleet vehicles meet Climate Change Authority's standard by 2025.*

Progress report

The City has achieved the light fleet target, through the replacement of light fleet vehicles with electric alternatives.

The current light fleet structure and progress towards **Target 4**, are outlined in **Table 9** below.

Table 9: Actions completed in line with Target 4

Year/s	Action	Outcome
2019 – 2025	The City's light fleet has been progressively transitioned to predominantly electric fleet, and currently comprises of: • 11% hybrids (3 vehicles) • 70% electric (18 vehicles) • 19% petrol (5 vehicles).	The City's light fleet is modelled to produce a collective 47.115 g CO_2^{-e} per km, which is significantly lower than the past target of 105 g CO_2^{-e} per km.

Looking forward

Light fleet vehicles

The City will maintain 50 g CO_2^{-e} per km as an average for the light fleet vehicles (as an overall average). This will be maintained, and reduced, by requiring all new light fleet vehicles to be electric.

Heavy fleet vehicles

Despite significant improvements to the City's light fleet, diesel consumption has continued to increase due to heavy fleet vehicles and machinery. To address this, the City has established a target to reduce fuel consumption in heavy vehicles.

The City commits to the actions in **Table 10** to maintain progress towards **Target 4**.

Table 10: Target 4: Action plan looking forward

Action ID	Action	Success indicator	Completion timeframe
4.1	Maintain register of light fleet vehicles and replace with electric and hybrid alternatives (where technical specifications identify emissions of less than 50 g CO_2^{-e}) when due for replacement.	Register of light vehicles is maintained, including their emissions (per km). Across the light fleet, vehicle emissions are, on average, below 50 g CO_2^{-e}.	June 2026
4.2	Ensure adequate EV charging facilities are available, in proportion with vehicles at City facilities.	Evidence that one EV charger is available per three EVs at City facilities, where EV's are stationed.	Ongoing
4.3	Collaborate with the Western Suburbs Alliance to identify opportunities for streamlined waste collection.	Participate in WSA GHG Reduction Strategy development, and contribute to shared actions, as identified.	Ongoing
4.4	Use results of Route Optimisation project undertaken in 2023 for waste collection vehicles to amend collection routes and reduce unnecessary diesel consumption.	Report of the Route Optimisation Project is published internally.	End of 2027
4.5	Conduct an emissions audit to establish current emissions levels, vehicle types, age, and fuel consumption patterns for all heavy fleet vehicles. Categorise vehicles based on their emissions, rate of usage, and fuel type, and potential electric / more energy efficient alternatives.	Report produced for internal use, detailing baseline emissions for the City's heavy fleet.	June 2026
4.6	Use the vehicle specifications for light (Action 4.1) and heavy (Action 4.5) fleet, as well as GPS data, to calculate and monitor monthly emissions.	Fleet emissions are uploaded to City's emission reporting platform on a monthly basis.	End of 2026
4.7	Review available information to determine suitable alternatives for each vehicle type and purpose.	Database with details of alternative heavy vehicles identified for each vehicle type/purpose, supported by case examples where available: • Utility vehicle • Waste collection vehicle • Street sweeper • Steam roller • Tractor • RTV	June 2027
4.8	Undertake an Options Assessment for heavy vehicles that is considered in the decision-making process where heavy vehicles require replacement.	Report detailing the Options Assessment to be referenced in the fleet replacement plan.	June 2027
4.9	Participate in a pilot trial for suitable alternative vehicle(s) identified in Action 4.8 above. Electric / hydrogen-powered heavy fleet in specific use case or route (e.g., short-haul or urban routes) to test performance and identify challenges.	Complete pilot trial and report on: • vehicle performance and ability to meet the City's needs • fuel savings • maintenance needs, and • environmental impact.	End of 2028

Target 5:

Reduce total corporate emissions by 50% by 2030 compared to a FY 2019/20 baseline of 3,225.81 t CO_2^{-e} and achieve net zero corporate emissions by 2040.

Past target

In the first release of the CCRP, the City aimed for: *45% reduction in operational emissions by 2030, compared to a FY 2018/2019 baseline*.

Progress report

Since the first release of the CCRP the City achieved a 61% reduction in operational emissions from 2,495 t CO_2^{-e} in FY 2019/20 to 972 t CO_2^{-e} in FY 2023/24.

The City achieved a 38% reduction in total emissions from 3,226 t CO_2^{-e} in FY 2019/20 to 1968 t CO_2^{-e} in FY 2023/24. Due to significant reductions in scope 1 and 2 emissions, the City's scope 3 emissions now make up ~60% of the City's total emissions, and so the target has been expanded to include all scope 3 emissions.

Actions undertaken by the City in line with the past target are included in **Table 11** below.

Table 11: Actions completed in line with Target 5

Year	Action	Outcome
FY 2020/21	Fewer bin lifts (landfill waste) across Council facilities, with number of bins also reduced in size and/or quantity.	Reduced full scope emissions (landfill waste) by 24% (33.479 t CO_2^{-e}).
	Switched to a certified carbon neutral paper provider.	Reduced full scope emissions by 100% (5.008 t CO_2^{-e}).
	Internal focus on avoiding and minimising printing wherever possible.	Reduced full scope emissions by 38% (24.422 t CO_2^{-e}).
FY 2022/23	Signed on to Phase One of the Sustainable Energy Project (SEP) with WALGA, whereby seven of the City's largest sites are provided with renewable electricity.	Voluntary renewable electricity purchased for City facilities increased from 12.9% to 37.9% (46% reduction in full scope emissions compared to previous FY).
FY 2023/24	The City replaced gas powered equipment and appliances with electric and/or energy-efficient alternatives as they were due for replacement.	Natural gas consumption reduced from 2012.56 GJ during FY 2022/23 to 547.11 GJ during FY 2023/24 (72.82% reduction in natural gas emissions compared to previous FY).
	Renewable electricity (100%) Natural Power (GreenPower accredited program) for City owned streetlighting.	Across the financial year, 61.58% of the City's purchased electricity was from renewable sources, (58.84% decrease in full scope emissions compared to previous FY).

Looking forward

Near-term target

The past emissions reduction target has been revised to aim for a 50% reduction in total emissions by 2030.

For additional information regarding emission sources in the City's total corporate emission boundary refer to **Table 1**.

The largest emission reductions will occur from:

- increasing the use of construction materials with low embodied emissions
- 100% renewable electricity (excluding leased sites)
- ongoing investigation of additional solar and batteries
- continued electrification of the fleet
- phasing out of all remaining natural gas, and
- reduction of heavy-fleet fuel consumption.

The City commits to engaging with suppliers and using influence to encourage them to reduce their operational emissions.

Long-term target

The City commits to net zero corporate emissions by 2040, which is defined as a 90% reduction across total emissions (scope 1, 2, and 3).

This requires reducing the City's total corporate emissions from 3,225.81 t CO_2^{-e} in FY 2019/20, to 322.58 t CO_2^{-e} in FY 2039/40.

The City will spend the next four years increasing the accuracy and reporting of scope 3 emissions, and will roadmap the pathway towards reducing total corporate emissions by 90% by 2040 (allowing for 10% of total emissions to be offset). In the next review of this plan, a roadmap will be provided highlighting the net-zero pathway for total corporate emissions. The City commits to the actions in **Table 12** to reduce emissions across all scopes and maintain emission reduction progress towards **Target 5**.

Note: Many actions to reduce scope 1 and 2 emissions are detailed under under Target 2 and Target 3. To avoid duplication, they are not repeated here but will contribute towards meeting Target 5.

Table 12: Target 5: Action plan looking forward

Action ID	Action	Success indicator	Completion timeframe
5.1	Conduct an annual waste audit of each major City facility to determine typical composition of general and commercial waste and assess changes in volume.	Annual waste audit completed, with data on waste composition reflected in emission calculations.	Annually
5.2	Increase FOGO and Containers for Change waste collections across City owned facilities.	Reduce kerbside waste by 10%	End of 2025
		Reduce kerbside waste by 20%	End of 2030
5.3	Water Corporation usage data feeds into data management platform to facilitate real-time monitoring and ongoing monitoring to implement water conservation actions.	Monitoring of emissions from supply and wastewater treatment resulting from City operations.	Current & ongoing
5.4	Upgrade water fittings, fixtures, and appliances, in City-owned and occupied buildings to best practice standards as replacement is required.	15% reduction in potable water consumption across City facilities.	End of 2030
5.5	Introduce selection criteria in tender requests that specifies/encourages use of lower-emission materials.	20% of tender contracts demonstrate a choice of materials with lower embodied carbon.	End of 2030
5.6	Introduce internal guidance on material selection: • Commonly used products • Available alternatives with comparable properties (strength etc) • Include t CO_2^{-e} per tonne / kg of material and alternatives	Database that provides common civil materials used, with comparable products that may be used in their place.	June 2026
5.7	Require that a Materials Recycling Plan (requiring receipts) is included within the scope of all City projects where materials are to be dismantled, removed, or demolished to ensure materials are recycled and landfill is the last resort.	Reduce demolition waste by 10% resulting from upgrades of City infrastructure.	End of 2030
5.8	Undertake a Passive Irrigation Pilot Project to provide passive irrigation to select natural or landscaped areas, reducing water consumption and electricity use for pumped irrigation.	Complete pilot trial and report on: • Change in the use of scheme water for irrigation within pilot site(s). • Change in electricity consumption for pump operation within pilot site(s).	June 2027
5.9	Select native, drought-tolerant species for planting within parks, reserves, and streetscapes to minimise watering requirements.	Reduced water used for tree establishment waterings by 10%.	June 2028
5.10	Roadmap total corporate emissions towards net zero (90% reduction across all scopes).	Finalised 10-year roadmap showing projected pathway towards net-zero corporate emissions included in the next review of the plan, in line with the City's long-term emission reduction target.	Included in the next review (2029)

Past target
Target 6:

Transparency and Reporting

In the first release of the CCRP, the City aimed for: *Transparency and reporting*.

Progress report

The City maintained annual reporting towards the targets, and maintained records that are accessible for auditing and accreditation.

Looking forward

The City will continue to report annually on progress towards the above targets and will publish annual reports on the City's website, demonstrating progress made towards all five targets on an annual basis. This has now been integrated as a key action towards **Target 1**, rather than an individual target.

Appendix

Information regarding the City's corporate GHG reporting

Table 1: Information regarding the City's corporate GHG reporting

Component of GHG Assessment	Information Required
Consolidation approach	The organisational boundary was defined on the basis of operational control. Under this method, the organisation accounts for 100% of GHG emissions from operations over which it has control, and does not account of GHG emissions from operations in which it owns an interest but does not control.
GHGs	For the purposes of this report, GHGs are the six gases listed in the Kyoto Protocol: carbon dioxide, methane, nitrous oxide, hydroflyorocarbons, perfluorocarbons, and sulfur hexafluoride.
Scopes	Setting the operational boundary involves identifying emissions associated with the organisation's operations, categorising them as direct or indirect emissions, and choosing the scope of accounting and reporting for indirect emissions. Emissions are separated into three scopes: • **Scope 1:** direct emissions that occur from sources that are owned or controlled by the reporting organisation; for example, emissions from fuel combustion in owned or controlled vehicles or other equipment. • **Scope 2:** indirect emissions from the generation of purchased electricity that is consumed by the organisation. Scope 2 emissions physically occur at the facility where electricity is generated. • **Scope 3:** all other indirect emissions that are a consequence of the organisation's activities, but occur from sources not owned or controlled by the organisation. Examples include the extraction and production of purchased materials, transportation of purchased fuels, and use of sold products and services.
Base year	In the first release of the CCRP, the City selected FY 2018/19 as the base year for corporate GHG reporting. Across the past five years, the City's data and methodology for recording emissions data has improved. To improve comparability across similar methodology, the City has set the FY2019/20 as the baseline year for the revised emissions reporting targets, this is also the City's base year for Climate Active carbon neutral certification.
Activity Data	In accordance with the Climate Active Organisation Standard, measured ('actual') data has been used for calculations wherever possible. Modelled data or conservative estimates are used only where actual data is unavailable. Where estimates are used, they are justified with respect to data availability and the relative size of the estimated emission source (i.e. this is not used for emission sources that are expected to be large). **Actual data:** • Measured data from a suitable source from the reporting year, e.g. electricity or natural gas consumption as reported in utility bills, or litres of fuel recorded from fuel card receipts. **Actual data from the previous year** • As above, from the previous year. **Modelled data (extrapolated, projected, data conversion):** • Extrapolated: partial year or a representative sample from a group of facilities/vendors, or survey data that is extrapolated to a full dataset. • Projected: where data is expensive or difficult to collect, actual data may be collected once every few years and adjusted for inflation/staff numbers, or other relevant factors to estimate the current years data. • Data conversion: converting data from one type to another through known conversion units. **Estimated data:** • Online calculators or general statistics used as a proxy (e.g. Australian Bureau of Statistics [ABS] statistics, or other robust, peer-reviewed statistics). **Uplift factor:** • A percentage adjustment made for a certain emission source where data is unavailable. The uplift factor should be based on similar organisations and match the highest emission range.

Component of GHG Assessment	Information Required
Calculations	Emissions are calculated by multiplying the relevant activity data by a suitable emission factor and global warming potential. **Global Warming Potential (GWP)** is a factor that describes the radiative forcing impact (degree of harm to the atmosphere) of one unit of a given GHG relative to one unit of carbon dioxide. As such, multiplying emissions by the GWP for a given GHG results in a quantity of carbon dioxide equivalent (CO_2^{-e}), providing a single unit to report GHG emissions. Emission factors were used to calculate GHG emissions by multiplying the factor (e.g. kg CO_2/L of diesel fuel) with activity data (e.g. litres of diesel fuel consumed). A different emission factor will apply to different GHGs. Emission factors were derived, wherever possible, from the National Greenhouse Accounts Factors (NGA Factors). Where a suitable emission factor was not available from the NGA Factors, a suitable emission factor sourced from the GHG Protocol, Climate Active, Intergovernmental Panel on Climate Change (IPCC), reports by government agencies in other jurisdictions, or peer-reviewed literature.
Electricity accounting	There are two methods for calculating electricity emissions, being location-based and market-based methods. The City currently calculates electricity emissions using the market-based method. The two methods are described below: **Market based method:** Calculates electricity emissions in the context of the electricity purchases, reflecting the organisation's investments in different electricity products and markets including voluntary purchases of renewable electricity and mandatory schemes such as the Renewable Energy Target. **Location based method:** Calculates electricity emissions in the context of the location, reflecting the emissions intensity of the electricity grid(s) it relies on to operate.
Relevance	Emissions from a particular source are generally considered relevant if they meet the criteria below: 1. The emissions from a particular source are likely to be large relative to the organisation's electricity, stationary energy, and fuel emissions. Sources that comprise <1% of the inventory (and not more than 5% collectively) are generally not considered material. 2. The emissions from a particular source contribute to the organisation's greenhouse gas risk exposure, 3. The emissions from a particular source are deemed relevant by key stakeholders. 4. The responsible organisation could influence emissions reduction from a particular source. 5. The emissions are from outsourced activities previously undertaken within the organisation's boundary, or from outsourced activities typically undertaken within the boundary for comparable organisations. Under Climate Active, an emission source must be included if it satisfies at least two of the criteria above.
Uplift factors	An uplift factor is an adjustment applied to increase the total carbon inventory to account for material, relevant, or attributable emissions, which can't be reasonably quantified or estimated.

Component of GHG Assessment	Information Required
Emission sources	Based upon the methodology applied as detailed above, the following emission sources are included in the City's GHG inventory: **All Scope one emissions, including:** • Gas, reticulated or bottled, consumed in City operated facilities. • Fuel use in City fleet vehicles, as well as sub-contractor vehicles where the City has direct operational control. • Fugitive emissions from refrigerated cooling systems. **All scope two emissions, including:** • Electricity use in City facilities. • Electricity use for City-owned public lighting. • Electricity use for pumps and other infrastructure. • Electricity use in Western Power operated street lighting that is charged to the City. **Scope three emissions, including:** • Indirect emissions from the extraction, production and transport of fuel burned at generation. • Indirect emissions attributable to the electricity lost in delivery in the transmission and distribution network. **Other Scope three emissions, including:** • Corporate travel including flights, public transport and taxis, rental vehicles, and accommodation. • Corporate waste. • Consumption of office paper. • Emissions due to operations where the City occupies space as a tenant. • Accommodation and facilities. • Cleaning and chemicals. • Construction materials and services. • ICT services and equipment. • Postage, courier, and freight. • Products • Professional services. • Contractor fuels. • Office equipment and supplies. • Working from home. • Water use.
Emission sources excluded	Under the carbon neutral organisation standard, emissions sources can be excluded if they are not material, even if they are relevant, as this indicates their impact is small relative to the overall footprint. Examples of emissions sources that are not currently included in the City's GHG inventory are: • City-owned commercial investment property (outside of operational boundary). • City resident waste disposal (outside of operational boundary). • Food and catering (immaterial). **More information about the City's annual corporate emissions since FY 2019/2020 can be found on the Climate Active website, found here.**

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