

# Climate Change Resilience Strategy

2021–2031





# Acknowledgement of Country

Council acknowledges the Traditional Custodians of the land, pays respect to Elders past, present and emerging and extends that respect to all Aboriginal and Torres Strait Islander peoples in the City of Logan.



*The smoking ceremony is an ancient custom among Indigenous Australians and is believed to ward off bad spirits.*

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Cover image: Loganholme Waste Water Treatment Solar Farm





*Pied Cormorant roosts on a broken tree overlooking Logan wetland*

# 1. Introduction

Logan City Council's Climate Change Resilience Strategy 2021-2031 (the Strategy) is Council's road map to building resilience in response to the effects of a changing and variable climate. It supports our commitment to being a carbon neutral and green city.

The City of Logan and the rest of Australia, like many parts of the world, can expect climate change to exacerbate the frequency and severity of events such as floods, droughts, heatwaves and bushfires. We will increasingly be affected by changes in temperature, rainfall, sea level and extreme weather conditions (Syktus et al. 2020). The impacts of such events in many parts of the world include population displacement, damage to infrastructure and species shift (IPCC, 2019).

Less recognised are the indirect flow-on effects and opportunities. These can be changes to policy, legal frameworks, technology and markets. Examples include higher insurance costs or inability to get insurance for newly flood affected areas following policy changes to insurance premiums or risks associated with changes to legal liability case law.

This Strategy will enable us to embed consideration of climate change into corporate decision-making. It will guide our planning and response to both slow moving and fast changes in our climate. It also aligns with our goal of being a certified carbon neutral organisation and builds on the many energy efficiency, climate change resilience and carbon reduction actions we have already delivered.

Supporting our adopted Carbon Reduction Strategy, Sustainability Policy and Sustainability Framework which focus on climate change mitigation and adaption, this Strategy has been developed to guide the city towards building climate resilience and enabling the city to withstand and recover quickly from the risks posed by a changing climate.

By taking steps to understand and improve our capacity to respond to climate change impacts, we will enhance the resilience of our organisation and our community. This Strategy provides a platform for long-term planning and establishes Logan City Council as a leader in climate change resilience and adaptation.



## 2. Strategic Fit

All levels of government are responding to the current and projected impacts of climate change. Table 1 identifies the key international, national, state and regional level strategic links that are most relevant to this Strategy.

Table 1: Strategic documents relevant to this Climate Change Resilience Strategy

Strategic Document	Strategic Level Link	Strategy
2016 Paris Climate Change Agreement – Australian ratification	International Climate Change Agreement	Target: Keep global temperature rise below 2°C above pre-industrial levels and pursue efforts to limit the increase to 1.5°C  Article 7: covers a range of climate change adaptation recognitions and commitments
Sendai Framework for Disaster Risk Reduction 2015-2030	International Agreement adopted by UN Member States	Provides outlines of targets and priority actions to address climate change risks through a disaster risk reduction focus
World Health Organisation Sustainable Development Goals	International Agreement adopted by UN Member States	The Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including poverty, inequality, climate change, environmental degradation, peace and justice.  Goal 13 – Climate Action
National Climate Resilience and Adaptation Strategy	Australian Government Strategy	Provides a set of principles to guide effective adaptation practice and resilience building within a changing climate
Queensland Climate Adaptation Strategy (Q-CAS)	Queensland State Government Strategy	Provides a partnership framework for local governments to develop regional innovative adaptation solutions, embedding climate risk in planning and development decisions for a changing climate via Queensland Climate Resilient Councils (Q-CRC) and QCoast2100 programs
Queensland Strategy for Disaster Resilience	Queensland State Government Strategy	Provides a partnership with local governments and other stakeholders to deliver and implement disaster resilience policy and proactive resilience initiatives to reduce exposure and vulnerability to risk
Queensland State Planning Policy (SPP)	Queensland State Government Policy	Recognises planning must consider climate change mitigation and adaptation at all levels
Queensland Planning Act 2016	Government Legislation	Requires local government planning schemes to consider and respond to climate change
Queensland Disaster Management Act 2003	Government Legislation	Requires local governments to prepare a disaster management plan in line with State Guidelines. This includes emergency and disaster response and recovery actions in relation to climatic events

Strategic Document	Strategic Level Link	Strategy
Queensland Prevention, Preparedness, Response and Recovery Disaster Management Guideline	Queensland State Government Guidelines	Guides local government in developing local disaster management plans including planning for mitigation of natural hazards in a changing climate
Queensland and Emergency Risk Management Framework (QERMF) Risk Assessment Process Handbook	Queensland State Government Risk Framework	Standardises risk assessment methods for management of disasters and includes consideration of climate change
Logan City Council Corporate Plan 2021-2026	Corporate Plan Priorities	<p>3. ENVIRONMENT</p> <p>We will consider the environment holistically and consider impacts broadly in terms of sustainable development, climate and waste recovery</p> <p>6. INFRASTRUCTURE</p> <p>Through continuous planning, delivery and maintenance of our city's physical infrastructure, we will ensure we can support our rapidly growing community into the future</p> <p>7. HIGH PERFORMING ORGANISATION</p> <p>Our values of community first, our people, excellence, leadership and integrity will guide the way we deliver our services to make a positive difference to our community</p>
Logan City Council Operational Plan 2021-2022	Logan City Council strategic document	EN3.6 - Continue to implement sustainability initiatives including increased use of renewable energy, energy efficient technology and carbon reduction projects
Logan Planning Scheme 2015	Logan City Council strategic document	Guides development and sets policy direction and includes general provisions to ensure climate change is factored into natural hazard assessments through risk assessment and adaptation actions
Logan City Disaster Management Plan	Logan City Council strategic document	Guides the Local Disaster Management Group and provides a framework on how to prevent, prepare for, respond to and recover from a disaster or emergency, including natural climate disasters
Logan City Council Sustainability Policy and Sustainability Framework	Logan City Council Policy and strategic document	Sets a policy direction in relation to sustainability for decision-making for Council and includes climate action and carbon emission reduction goals
Logan City Council Carbon Reduction Strategy and Action Plan	Logan City Council strategic document	Provides a framework and identifies actions to enable Council to become a carbon neutral organisation
Taskforce on Climate-related Financial Disclosures (TCFD)	Voluntary market mechanism	An international framework designed to support voluntary, consistent climate-related financial disclosures for investors, lenders, insurance underwriters and associated industries





Pathway through Greenwood Lakes Park



# 3. Vision - Where do we want to be?

**Our vision is:**

**That Logan City Council, and our city's environment, community and economy, will be resilient to the impacts of a variable and changing climate.**

# 4. Outcomes

This Strategy aims to achieve seven key strategic outcomes:

**SO1 - achieve carbon neutrality.**

We will reduce our organisation's impact on the changing climate by becoming carbon neutral. This will be through innovative, flexible and adaptive carbon reduction solutions

**SO2 - improve community capacity and resilience.**

We will support our community, businesses and industry to build climate change resilience. This will include increasing awareness and understanding of our changing climate and supporting our community to take actions to become more sustainable.

**SO3 - utilise science-based information.**

We will use science-based metrics and key performance indicators to define a process for identifying climate change impacts across the city. Key areas will include current and projected community, economic, environmental and governance impacts

**SO4 - manage climate change risks.**

We will undertake a risk assessment and management process of identified current and projected climate change impacts

**SO5 - implement adaptive management.**

We will develop a suite of actions to mitigate, adapt and build resilience to respond to the identified climate change risks

**SO6 - monitor and report.**

We will monitor and report on identified climate change risks and proposed actions. This framework will include both financial and non-financial aspects

**SO7 - improve Council capacity.**

We will embed climate change resilience into corporate governance tools, processes and documents. This will enable our people to lead and deliver on climate change resilience

This Strategy will enable a whole-of-council response to the risks and impacts posed by climate change. Our vision and strategic outcomes will be achieved through a systematic, staged and flexible approach.



## 5. Policy position

Council's policy position is outlined in our adopted Climate Change Resilience Policy, which states:

Logan City Council recognises that a variable and changing climate could potentially result in adverse consequences on the organisation and the Logan community. Council is committed to identifying and implementing mitigation, adaptation and resilience building actions to avoid and minimise climate-related risks.

Specifically, Council will:

- Recognise current and emerging climate scenario modelling identified by the Intergovernmental Panel on Climate Change (IPCC), Australian Government and Queensland Government
- Undertake assessments to identify its exposure to climate-related risks
- Embed climate change mitigation, adaptation and resilience considerations into its corporate governance documents relating to financial planning, asset management, strategic planning and disaster management
- Develop a Climate Change Resilience Strategy (and associated implementation plans) that identifies outcomes and actions to mitigate, adapt and build resilience to a variable and changing climate aligned to its Principles of Sustainability
- Report on our progress and performance in identifying and implementing climate change related mitigation, adaptation and resilience building actions

This policy position will guide our road map to increasing our climate resilience and align to the four key sustainability pillars identified in our Sustainability Policy and Framework – environment, community, economy and governance.



*The Albert River and Logan's Carter Park*



# 6. Where are we now?

## 6.1 2020 Climate Change Governance Assessment

As part of Council’s membership of the Queensland Climate Resilient Councils (QCRC) program, a review of our key corporate documents was undertaken in 2020. This assessment identified the extent to which Council addressed climate change resilience within these governance documents. The results of the assessment are identified in Figure 1.

Council has committed to improving this performance through implementation of this Strategy.



Figure 1: Logan City Council’s initial scores for each climate change governance indicator

## 6.2 Current Climate Change Predictive Model

Under the Queensland Government endorsed climate change predictive model, (‘business as usual’ scenario - RCP 8.5), the following key predictions are expected:

- Average temperatures for Logan will be 1 degree Celsius hotter by 2030 and 4 degrees Celsius hotter by 2090 (Syktus et al. 2020). The City of Logan currently has an average of 4.5 days per year where temperatures exceed 35 degrees Celsius (BOM 2020b)
- There will be a significant increase to the current average in hot and very hot days from 2 days by 2030 to 30 days by 2090 (Syktus et al. 2020)
- The intensity of drought will increase, and heavy rainfall events will likely become more extreme
- Bushfire hazard risk and intensity have potential to increase due to increased hot and dry conditions. Logan currently has up to 46 per cent of land within a bushfire prone area. Increasing drier conditions may see this increase (LCC 2020a)



## 6.3 Council Asset Risks

Another significant area that could impact Council is the effect a changing climate will have on its assets. With an estimated \$6.5 billion worth of Council-owned or managed assets this impact could be significant.

A spatial analysis has been undertaken across the city to identify potential hazard exposure of key assets. Understanding the potential impacts on our assets will help us plan and manage these risks. The climate-related natural hazards that would most impact on our assets are:

- bushfire
- flooding
- storm tide inundation

The following are major at-risk assets:

- our buildings
- our properties
- sewerage infrastructure
- social infrastructure
- transport infrastructure
- water supply infrastructure; and
- our parks and reserves.

The number of our properties and assets subject to climate-related hazards is predicted to significantly increase (Syktus et al 2020).

## 6.4 Existing Initiatives

We have already begun the journey to build climate change resilience. Existing initiatives that address climate change impacts to varying degrees include:

- The City of Logan All Hazard Risk Assessment has transitioned from the National Emergency Risk Assessment Guidelines (NERAG) to the Queensland Emergency Risk Management Framework (QERMF) and includes specific actions in response to increasing extreme heat events, bushfires and floods
- City of Logan Carbon Reduction Strategy and Action Plan - provides a road map to achieve carbon neutrality by 2022:
  - We have installed over 1,000 kW of solar PV which when fully operational will save an estimated 1,150 tonnes of CO<sub>2</sub> emissions and \$200,000 in electricity costs annually
    - » as an example, the 100 kW solar system at our Marsden Depot provides 43 per cent of the entire depot's total electricity needs, saving an estimated 139 tonnes of CO<sub>2</sub> emissions annually and reducing the sites electricity costs by \$21,600 per year
  - We have replaced traditional street lighting and park lights at 13 locations to compact fluorescent lamps and LED bulbs increasing our energy efficiency
  - We own and maintain 1,282 energy efficient LED lights in Yarrabilba
  - We have also installed over 67 solar lights
  - We have partnered with Energex to install over 2,290 energy efficient LED luminaires in new developments and road upgrades
- We have delivered an Australian first, off-grid water quality solution via a solar powered electro-chlorination facility at the Round Mountain Reservoir. The electro-chlorination equipment converts common salt to chlorine to maintain water quality. The facility is powered by 323 solar panels - the 95 kWh capacity Tesla battery will help provide safe drinking water for up 170,000 residents for 20 years
  - This solar powered equipment produces no greenhouse gas emissions and saves council an estimated \$50,000 per year in operational costs

- The Sustainability Policy and Framework - adopted by Council to embed sustainability in all decision-making and activities, including climate action:
  - Between January to March 2020 prior to COVID-19, we reduced our paper use by 30 per cent; and
  - Between April to September 2020, we reduced our paper use by 50 per cent, saving around \$80,000.
- Our Energy Management Framework delivered an automated Energy Management Dashboard, which:
  - Allows us to monitor and track electricity use, costs and carbon emissions over time
  - Helps build organisation capacity and awareness of the value of energy efficiency.
- We have implemented a range of innovative actions to transition our fleet to a cleaner and more sustainable fleet including:
  - Improved our vehicle fleet policy to encourage more efficient vehicles
  - increased fuel efficiency by over 10 per cent as well as reducing the overall running costs since 2015/16
  - Changed our vehicle passenger fleet with 9 per cent of our fleet now being electric or hybrid vehicles
  - Incorporating tender specifications for new plant fleet equipment that includes emission reduction engineering and how manufacturers meet this requirement
  - Achievement of Level 3 Green Stamp Environmental Accreditation. The Green Stamp program is run by the Motor Trades Associations of Australia (MTAA). We have moved beyond legislative requirements by incorporating sound environmental and sustainability management practices in plant fleet operations.







Tree planting at Miller Park



- We are pioneering an innovative method with the operation of a pilot facility to recover energy from biosolids (sludge) at our Loganholme Wastewater Treatment Plant. The biosolids are dewatered and dried, before carbonised in a gasifier. The gasifier turns biosolids into biogas, a renewable energy that is used in the drying process. The biochar produced is an organic soil improver where nitrogen and phosphorus is bio-available but carbon is sequestered. The plant became operational in 2021 and now:
  - This process reduces the volume and cost of biosolid waste disposal by around 90 per cent
    - The addition of an onsite 1 MW solar farm in 2021, will make the facility energy neutral
    - We will save around \$500,000 in operating costs and reduce carbon emissions by an estimated 4,800 tonnes per year.
  - Delivery of a pilot trial for smart water metering which has enabled early detection of water leaks and saving water
  - Cedar Grove Environmental Centre delivered Queensland’s first sustainable wastewater treatment plant. This wastewater treatment plant delivers a net environmental benefit for the surrounding catchment by:
    - Removing nutrients entering the Logan River by 1.5 times the amount discharged in high quality reclaimed water from the treatment plant
    - Using an innovative biological treatment process that will ensure ultra-low nutrients are discharged through a constructed wetland to ‘polish’ the treated water
    - Helping water security in a changing climate - future recycled water could be used to irrigate suitable crops for farmers
    - Preventing 5,775 tonnes of nutrients entering the waterway each year through rehabilitation and revegetation of the Logan River banks upstream of the treatment plant. Around 37 hectares of previously cleared farmland on-site has been planted with native trees to offset approved vegetation removal by developers across the city
    - A proposed installation of a 150 kW solar farm to reduce greenhouse gas emissions and help reduce energy costs of the treatment plant
  - Sustainable Development - the Logan Planning Scheme 2015 articulates our strategic intent to achieve a no net loss of biodiversity values. It supports sustainable development and introduced an environmental offset policy to offset assessable vegetation clearing. Since 2015, we have planted over 70 hectares of vegetation within the city to compensate for loss of vegetation elsewhere.
  - Private Land Conservation - we provide a range of private land conservation programs to support private landowners to retain, protect and enhance the ecological values on their property. By 2022, there were over 600 properties participating in our Environmental Conservation Partnerships Program protecting 8,000 hectares of native bushland within the city.



*Biosolids gasification trial facility at Loganholme Wastewater Treatment Plant*



# 7. Where are we going?

## Our vision is:

**That Logan City Council, and our city's environment, community and economy, will be resilient to the impacts of a variable and changing climate.**

In 2021, the City of Logan's population was approximately 342,000. The city has a land area of 959 square kilometres, and is one of the largest and fastest growing cities in Australia.

As a large and complex organisation, Council has \$6.5 billion worth of city assets and an annual budget of \$940 million. Over 1,700 staff provide more than 85 diverse services to the community.

To achieve our vision, we must gain a better understanding of the extent of climate change risks and potential impacts.

As we build climate change resilience within our organisation, we will also improve our knowledge of local climate change impacts. This local knowledge will help build and inform actions that will lead to creating community climate resilience.

We will use best practice governance and climate change modelling to address identified risks.

Our focus moving forward will be to address three key elements of climate change resilience being:

- **Mitigation** - reducing and avoiding emissions. To be carbon neutral, to increase use of renewable energy and reduce carbon emissions
- **Adaptation** - responding to the impacts of a changing climate. Identifying transition and physical risks and plan to respond to these risks and predicted impacts
- **Resilience Building** - to have an increased level of adaptive capacity across the organisation. This will enable us to consider embedding climate change resilience into corporate governance

Our vision will see a resilient City of Logan that will be adaptable and diverse. Our ability to bounce back after change or difficulty, in undertaking proactive actions in a changing climate will result in improved outcomes for the city.

We have begun the journey to improve climate change resilience management in a strategic and considered approach. We will be responsive and resilient to climate change risks. We are supportive of innovative and sustainable solutions. We will continue to develop plans and implement adaptation actions to reduce and mitigate impacts to the organisation, our community, natural environment and economy. We will measure and align future actions based on the Intergovernmental Panel on Climate Change (IPCC) and review and update our plans when new scientific reports and information become available.





Beenleigh Town Square





Round Mountain reservoir solar array



# 8. Key Areas of Interest

Council will focus on building climate change resilience under our four areas of sustainability – environment, community, economy and governance.

## 8.1 Environment

We appreciate the area now referred to as the City of Logan was originally inhabited by aboriginal people who were self-sufficient and cared for the environment. We acknowledge that First Australians experienced a life rich in traditional customs, spirituality and a strong connection to their land. We are committed to reconciliation, and respect the role of Elders, past, present and emerging who hold the memories, traditions, cultures and hopes of the First Australians.

Our city has a long history of effective action to protect ecosystems, manage threats and address biodiversity decline. These actions help to maintain natural levels of biodiversity and improve the health of ecosystems. Healthy ecosystems are more resilient to the impacts of climate change. We recognise our significant role in environmental management both now and into the future. We also recognise the private sector and our communities all play a part in managing and enhancing our natural environment.

Our Environmental Conservation Partnerships Program supports private landholders to protect the environmental values of their land for the future. As of 2022, these landholders manage 8,000 hectares of habitat and 172 kilometres of waterway for conservation purposes.

Climate change will drive a great deal of change in our biodiversity and ecosystems. Australia is taking action at many levels to ensure our ecosystems are healthy and resilient to this future challenge.

Council also has a part to play in building the resilience of our built environments across the city. We have a role in enhancing the land-use planning process. Consideration should be given to current and future climate change and disaster risks. Supporting our development industry to be smarter about where, when and how we build is key. This will ensure the climate resilience of our built environments and infrastructure over time. To deliver that resilience, planning policies need to be robust across a range of climate change outcomes and responsive to new information. Consistent construction codes and standards that explicitly consider future climate change will help us design, build, maintain and retrofit more resilient infrastructure.

## 8.2 Community

The well-being and health of our community is intimately linked with the environment. Environmental factors such as temperature, adequate safe food, air and water quality are important determinants of health. The changing climate is altering the environment in multiple and far-reaching ways. The greatest threats to our health are expected to come from extreme weather events. These include heat waves, rising temperatures and changing rainfall patterns.

Council runs and delivers a range of community services that support community well-being, good health and empower the community to take a more sustainable approach. We recognise our role in supporting grass-roots understanding of how the community can contribute to a more sustainable and healthy future through programs such as community grants, early childhood literacy programs, educational workshops, food safety, and the provision of sporting and recreational facilities.

We support the health and well-being of our internal staff community with a strong commitment to providing a safe and healthy work environment. Our health, safety and well-being policies and procedures ensure staff are not placed at risk while at work and provide pathways to build staff resilience. Staff that can adapt to situations or events help our capacity to deliver services for the community. This capacity also extends beyond our organisation and into our staff's personal community.

State and Federal Government as well as community organisations and health businesses provide a broader range of health services. These include primary and secondary health services, and caring and support services. They also include first aid, emergency food and shelters in extreme weather events. They also provide health education and outreach programs.



We will continue to engage, support and advocate for our community organisations to become more sustainable and adaptable. This will help them to plan for the future provision of community services in the face of a range of challenges, including the changing climate.

We have a key role in disaster management planning and response. We maintain a Local Disaster Management Plan which provides a framework on how to prevent, prepare for, respond to and recover from a disaster or emergency, including natural climate disasters.

The City of Logan have invested in various forms of communication to inform the community including a Disaster Management Dashboard, information on our website and social media sites, emergency management brochures and materials, community education newsletters, articles, presentations, activities and campaigns.

The City of Logan community is well placed to adapt to climate changes on health. We have good health education, access to technology and a strong public health system. We will continue to respond to our local public health needs, improve access to services and engage and advocate for the community regarding decisions about health needs and community services.

### 8.3 Economy

Like the rest of Australia, we are financially exposed to the impacts of natural disasters, and this risk is increasing. Through changing temperatures, rainfall and sea levels, among other factors, climate change is already modifying hazard levels and exacerbating disaster risks.

The insurance industry plays a critical role in disaster risk management, by providing a mechanism for individuals, businesses and governments to transfer their risks. The price and availability of insurance provides signals to the community about the level of risk from a range of hazards and provides some encouragement for disaster risk mitigation and reduced vulnerability to loss. Increases in insurance premiums can result in a reduction in insurance coverage, leading to under-insurance or no insurance in some circumstances.

Economic opportunities may arise in the form of new industries that provide goods and services that assist with reducing carbon emissions and managing the impacts of climate change. Supporting and promoting diversification in business, also builds resilience within the economy. We will continue to work with our business community and startups in supporting innovative and emerging technology.



Logan North Library and Aquatic Centre

## 8.4 Governance

Climate change governance is emerging as a key focus area for governments and organisations. The extent to which climate change risk and adaptation is considered in our core governance documents may affect the implementation of our approach to climate change adaptation. Measuring and monitoring indicators for climate change adaptation and mitigation governance provide a platform for a consistent approach. This allows us the ability to monitor and improve our performance over time. Our initial focus and emphasis will be on our adaptation governance.

We seek to embed the consideration of climate change within the governance of our organisation. This can be done by understanding, quantifying and responding to risks. Adaptation is a core component of planning for a more resilient organisation.

There are two main challenges for us to address which will enhance our resilience in climate change governance. These are:

1. Incorporating and embedding consideration of climate change within the governance of our organisation demonstrated through key corporate documents
2. Enhancing our risk assessment process and explicitly quantifying the extent of climate change risks (e.g. financial exposure)

We aim to continue our commitment to incorporating consideration of climate change within our key corporate documents. We also commit to build on our recent positive score to achieve at least a 'basic' score for all the indicators in the Informed.City™ climate change governance assessment review. We aim to be in the top ten Councils for climate change governance in Australia (Burton 2020 pers. comm).

With respect to our risk assessment process, we understand that climate change is already revealing legal, social, economic and environmental risks. Logan City Council makes decisions that span generations including decision on infrastructure and planning for future population growth. As an organisation we need to assess and respond to the direct and indirect risks climate change presents.

The challenge is to be proactive and coordinated in our response, as climate change has many direct and indirect challenges, likely to change over time.

We will undertake a risk assessment process on a variety of risk types to the organisation. This will inform the pathway of how we will build resilience to climate change.

We have an opportunity to improve our understanding of the financial impacts of climate-related risks. A detailed assessment will be undertaken that quantifies the exposure of assets and provides information on a collective value of them. This preparedness in identifying potential financial exposure of climate change risks will help our organisation respond to the expectation of auditors.

In 2020, the Queensland Audit Office (QAO) released advice on climate change and financial disclosures. In the 2020 advisory, the QAO (QAO 2020) stated that:

Auditors will assess the impact of climate-related risks in the following ways:

- potential climate-related risks, as part of their risk assessment
- appropriate responses to identified climate-related risks
- whether climate-related risks are relevant for accounting estimates, including assumptions used to arrive at a fair value estimate and potential impairment

The Queensland Treasury Corporation (QTC) Green Bonds initiative facilitates the transition to a low-carbon, climate-resilient and environmentally sustainable economy. By better understanding our climate change risks, we may be eligible to access alternative funding mechanisms. Eligible projects include adaptation to climate change, including the implementation of climate-resilient infrastructure (QTC 2018). We commit to identifying financial opportunities such as these to help fast-track our organisation to be resilient and prepared against a changing climate.



# 9. How are we going to get there?

This Strategy sets out our road map to building resilience of our organisation’s environment, community, economy and governance to a variable and changing climate to enhance our climate resilience. This Strategy is one component of a multi-faceted approach to mitigating, adapting and managing the effects of a changing climate.

Climate change is a trans-boundary issue. Actions (or inaction) by one stakeholder can both improve and erode the resilience of another. Economies of scale and collectively sharing knowledge can improve climate change governance. An important part of the institutional arrangements and engagement with external stakeholders is the clarification of roles and responsibilities that are associated with climate change governance. Disaster resilience is a shared responsibility. When natural disasters occur, the resilience of Australian communities is a result of how well all stakeholders have worked to prevent, prepare, respond and recover from these disasters.

We will seek to identify and work collaboratively with all levels of government, relevant organisations and universities to continually update our knowledge and internal adaptive capacity.

## 9.1 Council’s plan of action

To deliver on our 7 key outcomes, we aim to implement the actions and projects identified in the Action Plan outlined below:

Action No	Action	Link to Strategic Outcome
<b>Natural Environment</b>		
EN1	Incorporate a strategic intent to achieve a no net loss of ecological values into our planning scheme	SO5
EN2	Identify significant climate change refugia for native flora and fauna and provide protection to these areas	SO3; SO5
EN3	Identify and protect species and ecosystems vulnerable to climate change impacts (plants, animals and vegetation)	SO4; SO5
EN4	Investigate opportunities to reduce heat island effects, increase our tree canopy cover across the city and enhance walkability of our neighbourhoods by increasing natural shade cover	SO3; SO4; SO5; SO7
EN5	Protect and enhance the ecological values of identified wildlife corridors, wetlands and waterway corridors	SO3; SO4; SO5
EN6	Support private land holders to protect, conserve and enhance ecologically significant areas on private property	SO2
EN7	Support First Nations people to share stories, knowledge and practices in sustainable land management activities	SO2; SO5; SO7

Action No	Action	Link to Strategic Outcome
<b>Built Environment</b>		
EB1	Consider opportunities to incorporate sustainable building elements on our new buildings	SO2; SO5; SO7
EB2	Achieve carbon neutrality certification for the council	SO1
EB3	Support and encourage sustainable buildings and green infrastructure such as renewable energy installations, green roofs and living green walls	SO1; SO2; SO5; SO7
EB4	Incorporate sustainable built environment elements into the Planning Scheme	SO1; SO2; SO5; SO7
EB5	Investigate opportunities to advocate for more sustainable elements and criteria into building codes and infrastructure design codes	SO2; SO6
EB6	Identify and quantify our assets and infrastructure exposed to climate-related risks	SO3
<b>Community</b>		
C1	Enhance community awareness of local climate related risks and climate resilience through the provision of education and science-based information	SO2; SO3; SO4; SO5; SO6; SO7
C2	Support the community to increase the use of renewable energy and take proactive measures to build climate resilience	SO2; SO5
C3	Support community organisations to include renewable energy on our buildings	SO1; SO2; SO5
C4	Support community, business and industry to reduce energy consumption, water use and waste	SO2; SO5
C6	Update the Disaster Management Plan to include climate-risk related disaster response and recovery	SO2; SO3; SO4; SO5; SO6; SO7
C7	Support increased uptake of sustainable and integrated public transport through Logan's Way2Go Plan	SO2; SO5
C8	Support and encourage walkable neighbourhood design and community use, as well as safe active transport linkages throughout the city	SO2; SO5



Beenleigh Town Square



Action No	Action	Link to Strategic Outcome
<b>Economy</b>		
E1	Investigate opportunities for funding through the Queensland Treasury Corporation (QTC) Green Bonds initiative and other similar climate-risk related funding sources	SO2; SO5
E2	Review our risk assessment and financial management processes to improve our understanding of the financial impacts of climate-related risks	SO4; SO5; SO6
E3	Prepare annual disclosure statements that identify financial risk for climate related exposure	SO2; SO3; SO4; SO6; SO7
E4	Incorporate flood resilience into infrastructure design	SO2; SO3; SO4; SO5
E5	Assist business operators and service providers to understand potential impacts and risks	SO2; SO3; SO4; SO6; SO7
E6	Engage with startups and small and medium enterprises to develop opportunities in trialling emerging technology and innovative solutions to improve and build climate resilience	SO2; SO5; SO7
<b>Governance</b>		
G1	Develop a Climate Change Resilience Policy	SO3
G2	Incorporate and embed consideration of climate change within the governance of our organisation demonstrated through key corporate documents	SO3; SO4; SO7
G3	Embed climate change considerations in Council's long-term financial management planning processes and documentation	SO4; SO7
G4	Enhance our risk assessment process and explicitly quantify the extent of climate change risks into our corporate risk register and risk management framework	SO3; SO4; SO7
G5	Undertake a legal review of regulatory liability and other legal risks associated with climate change	SO3; SO4; SO7
G6	Prepare annual climate change financial disclosure statements	SO3; SO4; SO6
G7	Partner with federal, state and local governments and regional organisations to develop regional adaptation solutions aligned with State Government Sector Adaptation Plans	SO2; SO5
G8	Develop and increase staff awareness, understanding and environmental leadership of climate-related risks and potential impacts across the organisation	SO3

# 10. Implementation, Evaluation and Review

Logan City Council will develop implementation plans to identify the detailed projects and activities that will be undertaken to deliver the strategic outcomes and actions of this Strategy.

Progress will be measured against the actions to ensure we become a low-carbon and climate change resilient organisation.

Changes to climate science, policy and legislation, in addition to trends identified through the annual financial disclosure statement will be considered as part of an annual review of this Strategy.



*Flood water over road, Logan. Photo courtesy of Megan Gould*







# 11. Key Terms and Definitions

Term	Definition
Adaptation	Taking action to avoid, withstand or benefit from current and projected climate changes and impacts.
Biosolids	Treated and partially dewatered sewage sludge.
Biodiversity	Biodiversity is the variety of all life forms on earth. This includes the different plants, animals and micro-organisms which they form part of both on land, in the sea and in freshwater ecosystems.
Climate Change	A change in global or regional climate patterns, in particular a change apparent from the mid to late 20th century onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.
Climate Change Impacts	Are the consequences of climate change - both expected and realised. They span the physical environment, ecosystems, human communities, and also includes the economic and social changes and impacts from a changing climate. This can mean both a direct and indirect impact because of climate change. Climate impacts research is typically interdisciplinary and frequently involves the construction of climate impact models.
Climate-related risk	Refers to potential negative exposure from climate change on an organisation. There are both physical and transition risks.  Physical risks from climate change include a potential increase or decrease in severity of natural hazards such as cyclones, droughts, floods, and fires as well as temperature change and changes in rainfall patterns.  Transition risks relate to change in policy, legal action, market responses, technology and asset values which could impact Council's capability to deliver the same standard of services.
Ecological value	Means the value of all the functions performed by terrestrial plants, wetlands and other water bodies to the abundance, diversity, and habitats of all forms of plant or animal life including fish and aquatic species.
Exposure	The extent to which an asset is situated in a place or location that could be negatively affected by hazards.
Greenhouse gases (GHG)	GHG are essential for life on earth as they maintain the warmth in our atmosphere at around 33 degrees Celsius warmer than it would be without them. In the atmosphere the main greenhouse gases are water vapour, carbon dioxide, methane, nitrous oxide, and ozone. Greenhouse gas emissions can be naturally occurring as well as human induced from burning fossil fuels, industrial processes and land clearing.
LGAQ	Local Government Association of Queensland
Mitigation	Actions and efforts undertaken to reduce the potential impacts of climate change.
Natural hazards	A natural process or occurrence that may cause property damage, loss of life, injury or other health impacts, social and economic disruption or environmental damage (such as bushfire and cyclones) or a biological event such as a disease outbreak.
Physical impact	A direct or indirect effect resulting from a changing climate. For example, the City of Logan will have more 'hotter' than average days and higher temperatures increasing susceptibility to heat stress events. Increased drought due to less rain and hotter temperatures will impact our natural areas and food production. Our physical assets such as buildings, roads, bridges may be impacted as a result of flooding, bushfires and storm damage.



Physical risk	<p>Unfavourable climate conditions that cause negative environmental, economic and/or social impacts.</p> <p>Physical risks from climate change can be event-driven (acute). They can also be from longer-term shifts (chronic) in climate patterns. Physical risks may have financial implications for organisations. For example, direct damage to assets and indirect impacts from supply chain disruption. An organisation's financial performance may also be affected. This may include changes in water availability, sourcing, and quality; food security; and extreme temperature changes (TCFD 2017).</p> <p>Climate risks have previously been related to extreme weather events or biological disasters.</p>
QCRC	Queensland Climate Resilient Councils
QERMF	Queensland and Emergency Risk Management Framework
RCP	<p>Representative Concentration Pathway. RCP tries to capture future trends and a range of climate change scenarios. It makes predictions of how concentrations of greenhouse gases in the atmosphere may change in future based on human activities. RCPs were used in the 2014 Fifth IPCC Report, with the 2021 Sixth IPCC Report also to include SSP (Shared Socioeconomic Pathways). The 4 RCPs range from very high (RCP8.5) to very low (RCP2.6) future concentrations.</p> <p>Currently global GHG emissions are close to RCP8.5. (NCCARF 2017).</p> <p>The Queensland Future Climate Dashboard (used for this Strategy) presents downscaled data and information for two emission scenarios.</p> <ul style="list-style-type: none"> <li>• RCP8.5: a future with little curbing of emissions. Carbon dioxide concentrations continue to rapidly rise reaching 940 parts per million by 2100. This scenario most closely resembles 'business as usual'.</li> <li>• RCP4.5: carbon dioxide concentrations increase steadily until after mid-century. Carbon dioxide concentrations stabilize around 2060 and reach 540 parts per million by 2100. (Syktus et al. 2020).</li> </ul>
Resilience	The capability of preparing for, responding to, and recovering from challenging conditions. The ability to bounce back after change or difficulty. This includes significant multi-hazard threats with minimum damage to public health and safety, the economy and security.
Risk	A combination of a hazardous event happening and the impact of that event.
TCFD	Task Force on Climate related Financial Disclosures
Transition impact	A transition impact relates to the flow on effects, 'fall-out' and/or opportunities that result from changes to policy, legal, technology and markets. It is the result of action or inaction to mitigate climate risks. For example, as a result of the City of Logan having more hotter days the community may increase their water usage. We would need to ensure the system network can handle the increased demand, that our systems are updated to cope with this demand and maintain water pressure, and that we have mechanisms in place to provide that water when needed.
Transition risk	Moving to a lower carbon, resilient economy may involve widespread policy, legal, technology and market changes. This will help mitigation and adaptation requirements related to climate change. Depending on how fast and detailed these changes are, transition risks create different levels of financial and reputational risk to organisations (TCFD 2017).





Aerial view of Logan City overlooking the Albert River and towards Loganholme



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