

**Tweed Shire Council**

# **2023 Climate Change Risk Assessment**





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## Introduction

Tweed Shire Council has prepared this Climate Change Risk Assessment (CCRA) to review how the impacts of climate change could affect Council's assets, operations and programs.

Council staff have identified and assessed the risks that climate change poses to Council's assets and services. Staff assessed the effectiveness of existing responses ('controls') to each risk, then prioritised the risk based on the likelihood and consequences of each risk statement occurring.

The CCRA aims to assist decision-making, adaptation planning, budgeting and community engagement, while demonstrating that climate change is comprehensively considered across Council's assets, operations and programs.

135 risk statements have been described in Appendix 1, including:

- the assets and/or services affected
- current controls
- adequacy of controls
- likelihood
- consequence
- rating.

## Overview: key climate factors and risks for Tweed Shire Council



### 44 risks in the CCRA relate to rainfall

Climate change projections for the North Coast Region from the NSW and ACT Regional Climate Modelling (NARClIM) project expect rainfall variability in the region is projected to increase. Annual average rainfall projections range from a decrease (drying) of 8% to an increase (wetting) of 11% by 2030 and -6% to +31% by 2070.

Key potential impacts include:

- Damage, demand, restrictions and quality implications for water and wastewater supply and infrastructure
- Runway closures
- Infrastructure and equipment availability, damage and public/worker safety risks
- Emergency management demands and economic implications
- Insurance implications
- Private development loss/damage, housing capacity and mental health implications
- Environmental implications for water quality, waterways, waste, and animal/plant pests
- Disruption to electricity supply
- Disruption to community services including waste collection
- Disruption to supply chains
- Impacts on indigenous cultural heritage.



### 25 risks in the CCRA relate to fire weather

NARClIM modelling anticipates an increase in severe and average Forest Fire Danger Index values in the near future and the far future for the North Coast, occurring during prescribed burning periods (spring) and the peak fire risk season (summer).

Key potential impacts include:

- Preventative works, emergency and loss impacts on the community, including indigenous cultural heritage
- Effects on infrastructure, assets, and delays in construction works
- Disruption to electricity supply
- Increased costs.



## 14 risks in the CCRA relate to hot days

NARClIM modelling anticipates the annual average number of days with temperatures above 35°C in the North Coast will increase with an additional 3 hot days in the near future and 9 in the far future.

Key potential impacts include:

- Shifting demand and hours of use for sporting facilities, community services and centres and events
- Demand on ventilation and air conditioning
- Heat stress and power consumption
- Disruption to electricity supply.



## 22 risks in the CCRA relate to temperature

NARClIM modelling suggests the North Coast will experience an increase in all temperature variables (average, maximum and minimum) for the near future and the far future.

Key potential impacts include:

- Environmental implications for biodiversity, ecosystems, pest animal/plant species
- Impacts on cultural heritage material
- Water availability, demand, quality and restrictions
- Thermal comfort, demand and community wellbeing considerations for community services and open spaces
- Infrastructure maintenance and asset life
- Exotic invertebrate species and tropical disease
- Foodborne illness.



## 2 risks in the CCRA relate to all severe weather events

Key potential impacts include:

- Reallocation of resources in response to emergency management
- Financial losses.

### **Of the 135 risks identified, risks have been ranked based on the likelihood of their occurrence, the consequence of the risk:**

- 3 risks have been ranked extreme, with implications for key ecosystems, saltwater contamination of Council's fresh water supply, and loss or damage to Council's water and wastewater infrastructure
- 15 ranked very high
- 30 ranked high
- 77 ranked medium
- 10 ranked low.

### **The climate change risks identified affect the majority of Council functions particularly:**

- 66 risks relate to infrastructure and assets
- 21 risks relate to community services
- 19 risks relate to environment management and protection
- 15 risks relate to corporate functions
- 13 risks relate to land use planning and development.

## Why does Council need a Climate Change Risk Assessment?

The [National Climate Resilience and Adaptation Strategy](#) states:

*'Climate change poses growing challenges to our economic prosperity, the amenity of cities and regions, the health of our environment and ecosystem services and the wellbeing of our communities. Even with global action to reduce emissions, the impacts of climate change will continue to increase over the coming decades. Adapting and building resilience to our future climate is vital to our future prosperity.'*

The [NSW Guide to Climate Change Risk Assessment](#) states:

*'The climate of New South Wales, and the rest of the world, is changing. This means that the assumptions on which cities, towns and regions are planned and run must be reassessed. A climate change risk assessment aims to ensure council systems are resilient.'*

As a signatory to the [Global Covenant of Mayors](#) since 2017, Council is required to prepare a climate change risk assessment. More than 11,700 cities from 120 countries representing more than 1 billion people worldwide are part of this global alliance for local government climate leadership.

## What is not included in Council's Climate Change Risk Assessment?

Council's CCRA does not cover the broad implications of climate change for the Tweed Shire community. Community implications of climate change have been the focus of previous work such as the North Coast Integrated Regional Vulnerability Assessment and North Coast Enabling Regional Adaptation reports<sup>1</sup>.

The CCRA does not consider what additional adaptive action is needed. With each risk statement, Council staff have described what current provisions are in place or what systems we rely on to respond to each risk situation. Further work is planned to describe Council's climate change adaptation goals and targets, and to analyse the effectiveness and resource implications of additional measures in a Climate Change Adaptation Plan, however that is beyond the scope of the CCRA.

## What does climate change mean for the Tweed?

Consultants<sup>2</sup> reviewed the Tweed's historical climate records, current climate trends and the NSW Government's regional climate change projections to estimate what climate change will mean for climate factors in the Tweed.

<sup>1</sup> Available on Council's website: [tweed.nsw.gov.au/climatechange](https://tweed.nsw.gov.au/climatechange)

<sup>2</sup> 2022 BMT Climate change and extreme events in Tweed Shire

# Climate trends in the Tweed

Our climate is changing as a result of human activities. Global average temperatures have increased by 1.1 degree C since pre-industrial times. Climate conditions are already changing in the Tweed.

## Maximum temperature

*Increasing*



Australia's climate has warmed on average by 1.44 °C since national records began in 1910. Similar trends can be seen in the observed temperature record from NSW.

## Heatwave

*Increasing*



9 out of the last 10 years had at least 5 consecutive days of abnormally hot conditions in the Tweed Shire.

## Rainfall

*Variability Increasing*



Rainfall patterns since 2000 have become far more variable, with long periods of below average annual rainfall interrupted by intense rain and flooding.

## Sea level rise

*Increasing*



Satellite observation shows that sea level has risen by 0.1m around the Tweed Shire since 1993.

## Fire weather

*Increasing*



The number of annual dangerous fire weather days has increased by 20-25 days since 1950.

## Sea surface temperature

*Increasing*

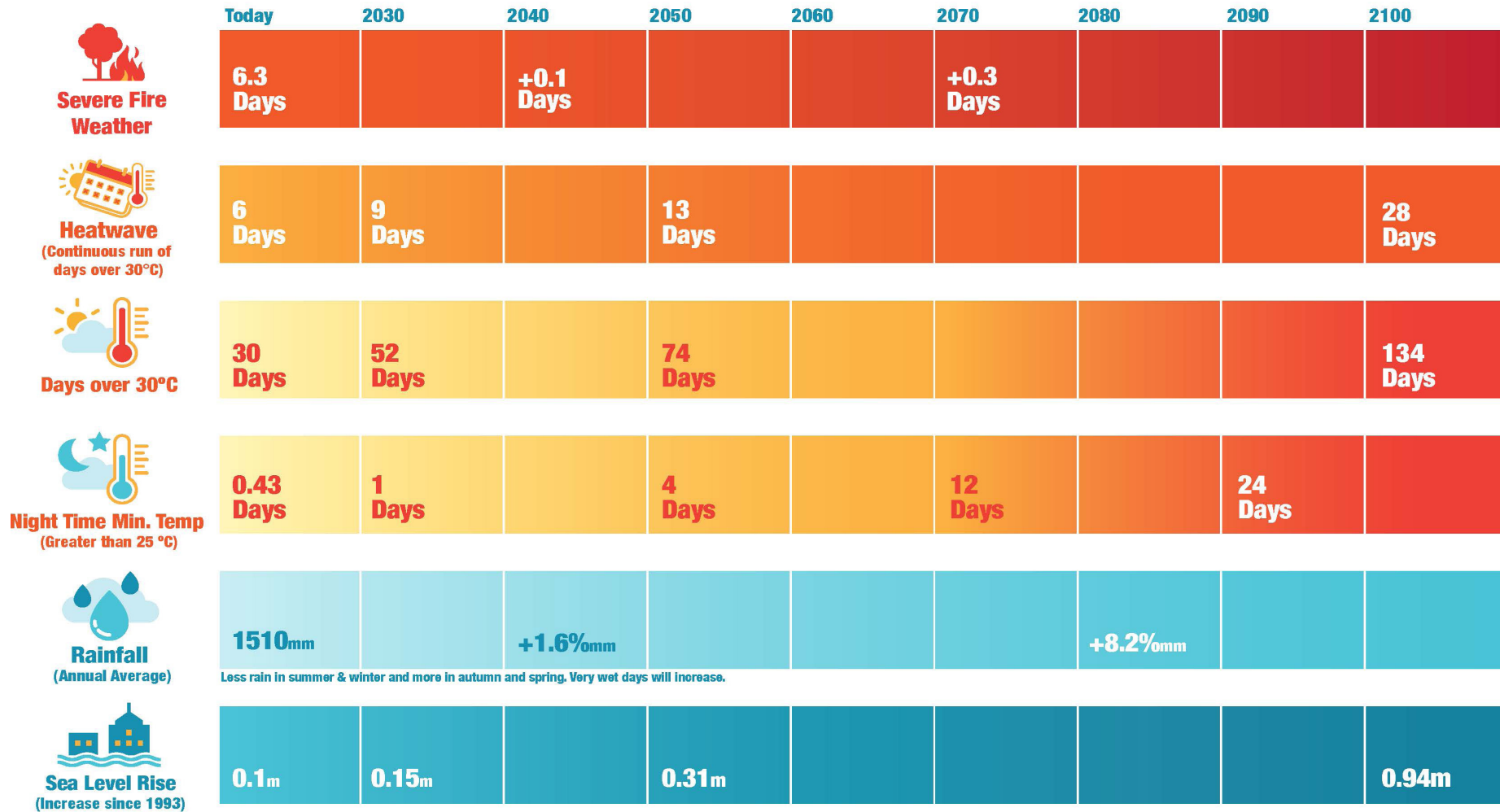


In the period 1950-2019, temperatures have been increasing around Tweed Shire at a rate of 0.12-0.16°C/decade



# Climate change projections for the Tweed

Based on the current rate and future projections for global greenhouse gas emissions and regional climate projection <sup>1</sup>



1. Future projections are based on a high emission scenario of Representative Concentration Pathway 8.5.

## Council's guidance documents

Responding to climate change has been a strategic focus for Council for over a decade. In Council's current [Community Strategic Plan 2022 – 2032](#), one of its goals is to work together to reduce our impact on the natural environment and adapt to climate change for a sustainable future.

On 19 September 2019 Council declared that we are in a state of climate emergency that requires urgent action by all levels of government, including local councils. In response, Council's Interim Climate Change Action Plan describes 57 actions in response to the climate emergency. Updating the Tweed Climate Risk Assessment was one of the new adaptation actions described in the plan.

Council's [Climate Change Management Policy](#) was adopted in June 2020. It contains guiding principles relevant for Council's response to the risks associated with climate change such as:

- meeting community, legislative, and moral drivers to address climate change.
- balancing economic, social and environmental outcomes in Council's response to climate change, looking for beneficial outcomes
- taking a precautionary approach where there is uncertainty
- ensuring that natural and built assets and services are resilient to climate change, especially native species vulnerable to extreme climatic conditions
- provide practical assistance to the community to reduce emissions and guide grassroots adaptation actions
- share information with the community
- partner with others
- use reputable scientific knowledge, technologies, risk assessment, monitoring, evaluation and reporting.

Key priorities from Council's Climate Change Management Policy include:

4. Embed climate change-related risks within Council's Integrated Planning and Reporting Framework.
9. Undertake a comprehensive climate change risk assessment process to identify and assess the risks that climate change poses to council assets, operations and services and prioritise risks that require further action as a basis for decision-making and planning.

Council's [Enterprise Risk Management Policy](#) and protocol have also formed the basis on which Council's CCRA has been developed. Relevant extracts are provided in Appendix 2.

## What is Council's role in responding to climate change risk?

In responding to future risks associated with climate change, Tweed Shire Council has many roles:

- Informing itself about climate change projections for the Tweed
- Assessing the risks to Council's assets, operations and programs
- Assigning responsibility for managing risks it has control and influence over
- Effectively using Council's systems and resources to reduce risks to the best extent possible
- Providing information and working collaboratively to build understanding, resilience and adaptive capacity in the community to respond to climate change risks.

## Emergency management

In response to significant weather events, Council participates in emergency preparedness, communication, response and recovery activities, including rapid assessment and restoration of key public assets following natural disasters. Council's roles in emergency management are outlined in the Tweed/Byron Local Emergency Management Plan.

## Reducing emissions

Reducing Council's own operational greenhouse gas emissions, and supporting the community to do the same, contributes to global efforts to reduce the risk of climate change for communities, economies and ecosystems.

Details about Council's achievements, current projects and plans to reduce emissions are available at [tweed.nsw.gov.au/climatechange](https://tweed.nsw.gov.au/climatechange).

## How was the Climate Change Risk Assessment prepared?

Council received assistance from Statewide Mutual to establish a risk assessment process compliant with the Australian Standard for Risk Management – AS ISO 31000. Statewide Mutual collated climate change projections for the North Coast Region from the NSW and ACT Regional Climate Modelling (NARClIM) project and hosted a workshop of over 50 Council staff contributors.

## Risk identification

Further meetings with Council officers from each of Council's asset types, services and programs led to the development of a comprehensive list of situations that may occur and, if they do, may have an impact on the objectives of Council. The identification process asked the following questions:

- a. What might happen or, more simplistically – what can go wrong or what might the opportunities be (risk event)?
- b. What would cause it to happen?
- c. What would the effect on Council's objectives be?

## Stakeholder engagement

To meet Climate Change Risk Assessment preparation guidelines and bring robustness and third-party review to the process, stakeholders with relevant technical information were invited to review Council's climate change risk statements and risk assessments. Reviewers were asked to provide specific changes, general comments or material to share to help Council assess and prioritise these risks to assets, operations and programs.

Tweed Shire councillors were also invited to review and comment on the draft climate change risks statements.

## Review

To meet Global Covenant of Mayors requirements, a review of Council's CCRA will commence in 2026 unless triggered earlier. The review will evaluate:

- have CC risks been integrated into the governance of the organisation?
- have CC risks been periodically evaluated?
- have controls been implemented and maintained?
- have controls effectiveness been re-assessed?
- have CC risks been fully considered and reported in Council reports?
- have CC considerations been included in specific projects and project risk registers

## Conclusion

Tweed Shire Council's Climate Change Risk Assessment highlights:

- the extent to which many of Council's key program areas, and therefore community priorities, face significant threats from changing climate patterns
- Council's extensive existing policies and processes in place which are contributing to managing Council's risks from climate change
- the importance of contributing effectively to global efforts to reduce and drawdown greenhouse gas emissions
- the need to evaluate and act on ways to improve the effectiveness of how climate change risks are managed.



## Appendix 1: Climate Change Risk Assessment table

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
SLDE15	An increase in sea level causes <b>loss/ changes to key ecosystems</b> , negatively impacting on plant and animal species. These loss / changes reduce ecosystem services (such as nutrient and sediment removal) from wetland, mangroves, salt marsh and littoral rainforest areas.	Conservation Coast & Waterways	Local Environmental Plan (LEP) Tweed Vegetation Management Strategy Inundation mapping Biodiversity DCP Flooding controls Stormwater Management and Flooding Management Plan Coastal Management Program Coastal Management Planning and State Policy	Partially Effective	Almost Certain	Major	<b>EXTREME</b>
SLFW21	An increase in sea level and tidal anomalies causes <b>inundation and saltwater contamination of Council's fresh water supply</b> resulting in a complete failure and loss of the water supply.	Water & Wastewater Operations	Temporarily placement of blocks Preferred option has been selected by a Project Reference Group to prevent saltwater entry into the weir. Concept designs are being developed. Mini link to SEQ water supply design is complete, stakeholder endorsement sought then tender to market.	Partially Effective	Almost Certain	Major	<b>EXTREME</b>
SLFW22	An increase in sea level, compounded by the increased number of flooding events and tidal anomalies, increases the frequency of <b>loss/damage to Council's water supply and wastewater infrastructure increasing the frequency of interruptions or loss of services.</b>	Water & Wastewater Operations	Coastal Management Program Coastal Hazard DCP Asset Management Planning	Not Effective	Almost Certain	Major	<b>EXTREME</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
AAEC	More frequent and severe weather events impact on the <b>reallocation of staff resources to emergency management and response resulting in strategic priorities being delayed.</b>	All	Reprioritise activities within affected units Emergency response funding	Partially Effective	Likely	Major	<b>VERY HIGH</b>
TDE15	Increased average temperature enables the <b>introduction and proliferation of exotic vertebrate and plant species.</b>	Natural Area Management	Surveillance Regional network Community engagement campaign - installing infrastructure to mitigate impacts on priority threatened species.	Partially Effective	Almost Certain	Moderate	<b>VERY HIGH</b>
HDACS05	An increase in the number of hot days causes a <b>shift in demand and hours of use for sporting facilities</b> leading to reduced ability for use, less availability/capacity to meet demand, increased demand at night and increased demand for lighting (2/5 currently lit) and increased infrastructure investment required, and greater electricity costs for clubs, or shifting demand to sites that are lit, leading to greater wear and tear.	Parks & Active Communities	Leasing and licencing policy Sportsfield Strategy Open Space Strategy Program of Works Sportsfield Maintenance Program Plans of Management	Partially Effective	Almost Certain	Moderate	<b>VERY HIGH</b>
RFFI39	An increase in rainfall increasing the frequency and severity of flood events causing <b>loss/damage to Council's water supply and wastewater infrastructure</b> increasing the frequency of interruptions or loss of services.	Water & Wastewater Business & Assets Water & Wastewater Operations	Business Continuity Plans	Partially Effective	Almost Certain	Moderate	<b>VERY HIGH</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFFI42	An increase in rainfall intensity <b>reducing the water quality in Council's water supply</b> reducing operational capacity and increasing the frequency of water restrictions and interruptions to service.	Water Supply and Wastewater Services	Water Restrictions Trucking of water to Village Plants (Uki and Tyalgum) with restrictions. Service Reservoir and Clear Water Storage capacity (1-2days average).	Partially Effective	Almost Certain	Moderate	VERY HIGH
TCI09	Increased average temperature increases energy use throughout Council's facilities <b>increasing costs to Council and deterioration of cultural heritage material</b> and museum collection. Examples of Council facilities include the Museum and art galleries, in both climate controlled settings and non climate controlled facilities such as Boyd's Shed and the collections store.	Parks & Active Communities Tweed Regional Gallery Tweed Museums	Monitoring temperature and humidity levels Generators on site, and ability to procure new generators Renewable Energy Action Plan Electricity contracts for price stabilisation <b>Climate control not installed at Museum Collection Store</b>	Partially Effective	Almost Certain	Moderate	
TCI12	Increased average temperature <b>reduces quantity of water available and increases planned demand for water</b> increasing the frequency of water restrictions and the need to increase water supply capacity / sources.	Water Supply and Wastewater Services	Future Water Supply Augmentation Strategy and Actions Emergency water supply options investigation Drought and Water Restrictions Policy Rainfall and dam level monitoring Usage monitoring Water Efficiency Strategy and Actions Community education Future demand management strategy for Council Building water efficiency standards Review project priorities in line with climate change demand forecast update	Partially Effective	Likely	Major	

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
SLBE07	An increase in sea level rise causes <b>loss/damage to coastal nature reserves</b> , beaches, reducing the local economy and tourism services.	Economic Development Tweed Holiday Parks & Cultural Facilities	Coastal Management Program Coastal Hazard DCP Open Space Strategy Surf Lifesaving Agreement Asset Management Planning	Mostly Effective	Almost Certain	Moderate	<b>VERY HIGH</b>
SLAI02	An increase in sea level increases groundwater table levels resulting in inflow, leakage or surcharge impacting the effectiveness of existing <b>drainage infrastructure</b> .	Roads & Stormwater	DCP Specification D5 for new infrastructure Floodgates cleared of sand in low lying areas DCP A3 Development of Flood Liable Land: to projected 2100 climate change SLR levels Update of the Tweed Valley Flood Study with new AR&R 2019 inputs including climate change projections for rainfall.	Partially Effective	Almost Certain	Moderate	<b>VERY HIGH</b>
SLAL06	Ineffective decision making about existing and future urban development relating to sea level rise and coastal processes <b>results in more impacted population and assets (function and serviceability)</b> .	Strategic Planning & Urban Design Water & Wastewater Business & Assets Inclusive & Creative Communities Enterprise Risk & Emergency Management Economic Development Roads & Stormwater	Hazard mapping Planning controls Strategic planning projects Asset management plans	Partially Effective	Likely	Major	<b>VERY HIGH</b>
SLCI12	An increase in sea level causes changes to <b>public</b> land use due to erosion, re-alignment of shores, increased flooding, inundation, reduced drainage, wave overtopping events and salinisation <b>impacting on coastal open space availability and increasing maintenance costs</b> .	Coast & Waterways Parks & Active Communities	LEP Coastal Management Programme Open Space Strategy Inundation mapping Climate Change policy Crown Lands management plan	Partially Effective	Almost Certain	Moderate	<b>VERY HIGH</b>



Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
SLCI13	<b>An increase in sea level causes loss/damage to Council infrastructure,</b> negatively affecting Council's ability to provide services to the community and businesses. This infrastructure includes roads, carparks, bridges, stormwater drainage, flood mitigation, parks, recreational facilities, holiday parks etc. Note it does not include Water and Wastewater infrastructure.	Roads & Stormwater Parks & Active Communities Tweed Holiday Parks & Cultural Facilities Inclusive & Creative Communities Enterprise Risk & Emergency Management Coast & Waterways	Design for future resilience Asset management plans Routine maintenance and renewals LEP - requires amendment Long term financial plan	Partially Effective	Almost Certain	Moderate	<b>VERY HIGH</b>
SLFW23	An increase in sea level and tidal anomalies, compounded by the increased number of flooding events, increases the frequency of <b>Council's wastewater systems' operational capacity being exceeded</b> increasing the frequency of sewage overflows with increased risk to public health and environmental pollution and loss of service for affected areas.	Water & Wastewater Operations	Service shutdown: Pump station shutdown procedure Public health communications and messaging Monitoring	Not Effective	Almost Certain	Moderate	<b>VERY HIGH</b>
SLFW24	An increase in sea level increases groundwater levels increasing <b>infiltration and inflow into the wastewater gravity pipe systems</b> increasing the frequency of Council's wastewater system's operational capacity being exceeded increasing the frequency of sewage overflows with increased risk to public health and environmental pollution.	Water & Wastewater Operations	Sewer relining	Partially Effective	Almost Certain	Moderate	<b>VERY HIGH</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
SLFW28	An increase in sea level increases the frequency of <b>interruption to the electrical supply increasing the frequency of water restrictions and interrupts water supply to wastewater services.</b>	Water & Wastewater Operations	Back up generators Solar on some sites	Partially Effective	Likely	Major	<b>VERY HIGH</b>
AAEC	More frequent and severe weather events impact on the <b>reinstatement or removal of Council assets exposing Council to unanticipated financial losses.</b>	Financial Services	Federal and State grants Disaster Recovery Funding Insurance Operational decisions/Council resolutions e.g. not reinstating assets within the flood zone Infrastructure/Asset/Community Facility Reserves Loan Borrowings	Partially Effective	Possible	Major	<b>HIGH</b>
FWDE15	An increase in fire weather days <b>(compounded by increased drought) reduces the suitable time period available for controlled burning</b> resulting in higher risk to environmental and built assets from bushfire. Inability to conduct controlled burning will also increase the likelihood of the loss of fire dependent species and habitat.	Conservation Natural Area Management	Asset Protection Zone management Participation in the Bushfire Management Committee Implementing the Bushfire Risk Management Plan Tweed Vegetation Management Strategy	Partially Effective	Possible	Major	<b>HIGH</b>
FWEC18	Increased fire weather days increase bushfires causing <b>loss/damage to electrical supply infrastructure</b> increasing interruptions or loss of Council's vital assets and services.	Information Technology Parks & Active Communities Community Services	Back up generators	Partially Effective	Possible	Major	<b>HIGH</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
FWEC19	Bushfire event causing <b>disruption to network communication infrastructure</b> (TSC and third party providers).	Information Technology	Uninterrupted Power Supply: UPS battery (2 hours) Shutdown process Network suppliers - Redundancy, 2 links, so if 1 goes down, the other is available Secondary server room	Partially Effective	Possible	Major	<b>HIGH</b>
FWEC20	Bushfire events <b>disrupt electricity service to server infrastructure disabling significant range of Council operations.</b>	Information Technology	Back up server infrastructure UPS: 2 hours	Partially Effective	Possible	Major	<b>HIGH</b>
FWFI23	An increase in fire weather days increasing the potential of <b>bushfires causing loss/damage to water supply and wastewater infrastructure</b> increasing the frequency of interruptions or loss of services.	Water Supply and Wastewater Services	RFS/Fire & Rescue - Protection of priority assets Local EM Plan Maintenance of Assets Insurance	Partially Effective	Unlikely	Catastrophic	<b>HIGH</b>
FWFI24	An increase in fire weather days increasing the potential of <b>bushfires impacting on water supply catchments</b> , reducing water quality in Council's water supply reducing operational capacity and increasing the frequency of water restrictions and interruptions to service.	Water Supply and Wastewater Services	Asset Protection Zones Minimal on ground fuel load control Temporary restrictions	Partially Effective	Unlikely	Catastrophic	<b>HIGH</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
FWFI25	An increase in fire weather days increasing the <b>potential of bushfires impacting on water supply catchments, reducing the quantity of water available from Council's water supply, reducing operational capacity and increasing the frequency of water restrictions and interruptions to service.</b>	Water Supply and Wastewater Services	Asset Protection Zones Minimal on ground fuel load control Temporary restrictions	Partially Effective	Unlikely	Catastrophic	<b>HIGH</b>
HDAI07	An increase in <b>hot days affects the ventilation and air conditioning of Council facilities, especially civics centres</b> , putting extra load on systems, increasing power consumption and contributing to shortened asset life e.g. air handling units.	Parks & Active Communities	Asset Management Plan Building Maintenance Programs	Mostly Effective	Likely	Moderate	<b>HIGH</b>
RFDE24	An increase in rainfall increasing the frequency and severity of flood events causing <b>increased demand for Council waste pickups</b> and potential for significant financial, public health and reputational risk.	Resource Recovery	New waste collection contract enables collection capacity year round, and a booking service to manage demand Flood clean up during disaster management involved bringing additional capacity	Mostly Effective	Likely	Moderate	<b>HIGH</b>
RFBI03	An increase in <b>runway closures at the Murwillumbah Airfield</b> due to more frequent and severe rainfall and flooding events causing more maintenance work for Council and reducing the availability of the runway.	Economic Development	Aviation Act pilot responsibilities, airfield assessments (Murwillumbah Aero Club) Weather camera Ad hoc notification system to pilots	Mostly Effective	Likely	Moderate	<b>HIGH</b>



Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFCI06	An increase in rainfall causing more frequent/ severe flood events that result in <b>damage to Council's infrastructure (other than roads and stormwater assets)</b> .	Community Services Land & Economic Development Tweed Holiday Parks Tweed Regional Gallery Tweed Regional Museums Coast & Waterways Natural Area Management	Asset Management Plans - routine maintenance and renewal Access to repair grants varies Resilient infrastructure design Planning for betterment opportunities Insurance: partial control Fire trails: monitoring, reporting, respond to repairs needed	Mostly Effective	Likely	Moderate	<b>HIGH</b>
RFCI07	An increase in rainfall causing more frequent/ severe flood events that result in <b>damage to Council's roads and stormwater infrastructure</b> .	Roads & Stormwater	Asset Management Plans - routine maintenance and renewal Government repair grants Resilient infrastructure design Planning for betterment opportunities Insurance: partial control	Mostly Effective	Likely	Moderate	<b>HIGH</b>
RFCI12	An increase in rainfall intensity causes <b>asset damage that results in significant increase in public safety risks</b> [erosion, slips, pavement/ shoulder damage].	Roads & Stormwater	Damage response Asset management systems Grant funding Standard Operating Procedures Customer Service Requests Road Closure Procedures Communications	Mostly Effective	Possible	Major	<b>HIGH</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFCI14	An increase in flooding rainfall events creates <b>increased demand for Council facilities as interim emergency shelter or longer term recovery sites</b> impacting on site safety for workers, overloading site facilities, and impacting Artist in Residence studio occupants (Gallery), disrupting operations and delaying recovery.	Community Services Tweed Regional Gallery	Evacuation of staff, volunteers and studio occupants once road closures commence Communication with industry contacts Community Development staff liaison with recovery agencies.	Effective	Likely	Moderate	<b>HIGH</b>
RFCI15	More frequent and severe rainfall events causes <b>reduced insurance caps leading to further decreases in insurance cover</b> and higher demand on Council funds and impacts to the community to restore or relocate assets.	Community Services Corporate Governance Parks & Active Communities Infrastructure Delivery Land & Economic Development Water & Wastewater Business & Assets Resource Recovery Coast & Waterways	Planned relocation of Murwillumbah Depot and Pound Movement of plant prior to rainfall events	Not effective	Possible	Major	<b>HIGH</b>
RFCL18	An increase in rainfall increasing the frequency and severity of flood events causing <b>significant loss/damage to existing private development (built prior to contemporary standards) and implications for future housing capacity</b> in the Tweed.	Strategic Planning & Urban Design	Local Growth Management and Housing Strategy considerations State government policy and information	Mostly Effective	Possible	Major	<b>HIGH</b>
RFDE25	An increase in rainfall intensity causes <b>increased environmental impacts and debris from runoff</b> resulting in reduced waterway health and impacts on biodiversity.	Environmental Health Coast & Waterways	Riparian planting On farm stock watering grants Waterway Health grants Upper catchment erosion control works	Partially Effective	Likely	Moderate	<b>HIGH</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFDE26	Changes in rainfall distribution causing <b>changes to biodiversity particularly during drought</b> resulting in pressures on Tweed's biodiversity.	Conservation	Private land conservation programs Public land conservation programs Pest and weed management programs Native planting guidelines	Partially Effective	Likely	Moderate	<b>HIGH</b>
RFEC33	An increase in frequency and severity of wet weather events resulting in <b>property damage and impacts on the mental health and wellbeing of staff</b> and increases the risk of psychological distress and physical fatigue.	All	Employee Assistance Program Direct welfare calls Chaplaincy Service Peer support officers Local community groups NSW Government Disaster Response and Recovery Agencies	Mostly Effective	Likely	Moderate	<b>HIGH</b>
RFEC34	Severe rainfall events causing <b>disruption to network communication infrastructure (TSC and third party providers).</b>	All	UPS battery (2 hours) Shutdown process Network suppliers - Redundancy, 2 links, so if 1 goes down, the other is available Secondary server room	Partially Effective	Possible	Major	<b>HIGH</b>
RFEC35	Severe rainfall events <b>disrupting electricity service to server infrastructure</b> disabling significant scale of Council operations.	All	Back up server infrastructure UPS: uninterrupted power supply for 2 hours	Partially Effective	Possible	Major	<b>HIGH</b>
RFEC36	Severe rainfall events <b>disrupt road access to Council's main offices and worksites interrupting business continuity.</b>	All	Working from home: where possible Working from accessible offices (subject to power and internet) Business Continuity Plans IT equipment for staff	Partially Effective	Likely	Moderate	<b>HIGH</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFFI38	Increased rainfall increases the frequency and severity of flood events causing <b>loss/damage to electrical supply infrastructure increasing the frequency of interruptions or loss of Council's water supply and wastewater services.</b>	Water Supply and Wastewater Services	Business Continuity Plans Raising of electrical assets out of flood heights Water proofing of assets (Electronic and Electrical) Some limited sites with back-up Generators Some Solar Capacity on site	Mostly Effective	Likely	Moderate	<b>HIGH</b>
SLFW25	An increase in sea level increasing infiltration and inflow of saltwater into the wastewater gravity pipe systems results in <b>contamination of biological treatment process</b> and failure and ultimately not being able to provide an ongoing wastewater service.	Water & Wastewater Operations	No controls currently in place.	Not Effective	Likely	Moderate	<b>HIGH</b>
SLFW26	An increase in sea level increasing occurrence of <b>infiltration and inflow of saltwater increases corrosion of some assets</b> increasing the need for replacement of assets and therefore the cost of the water & wastewater service.	Water & Wastewater Business & Assets	Cathodic Protection Material Selection and construction practises	Partially Effective	Likely	Moderate	<b>HIGH</b>
SLFW27	An increase in sea level causes <b>inundation of areas with a water or wastewater service resulting in system failure</b> and being unable to provide an ongoing service.	Water & Wastewater Operations	No controls currently in place.	Not Effective	Possible	Major	<b>HIGH</b>
TCE06	Increased average temperature decreases the thermal comfort of poorly designed/built/insulated <b>existing</b> homes leading to heat stress, greater reliance on mechanical cooling and power consumption for residents and associated greenhouse gas emissions from grid electricity use.	Climate Change & Sustainability	Community engagement campaigns	Not Effective	Likely	Moderate	<b>HIGH</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
TDE14	Increased average temperature change results in <b>medium to long term/permanent impact on biodiversity &amp; ecosystems.</b>	Conservation Natural Areas Management Coast & Waterways Sustainable Agriculture	Service planning (Strategic) -on ground works (public/private) - monitoring - capacity building/education Tweed Vegetation Management Strategy Koala Plan Management	Partially Effective	Likely	Moderate	<b>HIGH</b>
TCI08	Increased average temperature adversely impacts vegetation in public areas/reserves/parks resulting in <b>more requirements for watering, irrigation and staffing.</b>	Parks & Active Communities Tweed Holiday Parks	Robust planting schedules for existing and new public parklands, being reviewed in the A5 Subdivision Design Guidelines review 80:20 ratio of natives to non-natives Contractors to assist with vegetation maintenance (e.g. mowers).	Mostly Effective	Likely	Moderate	<b>HIGH</b>
FWACS01	An increase in fire weather days increases the potential for <b>bushfires impacting upon the community</b> triggering a local emergency.	Inclusive & Creative Communities Enterprise Risk & Emergency Management	Client emergency management plans Follow LEMO directions for community halls	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
FWBCS02	An increase in fire weather days-increases the potential of <b>bushfires impacting upon the local economy</b> and affecting tourist perceptions and reducing visitation.	Economic Development Sustainable Agriculture	Communications and messaging (Tweed Tourism Company)	Not Effective	Likely	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
FWCI03	An increase in fire weather days increases the potential of <b>bushfires impacting on infrastructure and assets</b> causing community disruption.	Inclusive & Creative Communities Enterprise Risk & Emergency Management Roads & Stormwater Tweed Regional Gallery	Roadside Vegetation Management Standard Operating Procedures Response: Disaster response inspections CSRs Access to grant funding Road closure procedures Defer works on total fireban days Asset maintenance	Mostly Effective	Possible	Minor	MEDIUM
FWCI05	An increase in fire weather increasing the potential for <b>increased number of power outage incidents disrupting Council's Gallery and Museums climate control facilities risking damage to cultural material</b> , affecting professional reputation and ability to borrow cultural material from recognised institutions.	Tweed Regional Gallery Tweed Regional Museums	Business Continuity Plan: Seek direct connection to the electricity network remotely through facility's external climate control contractor Advise contractual lenders that electricity disruption is planned	Mostly Effective	Possible	Minor	MEDIUM
FWCI06	Increased fire weather and bushfire events causes <b>reduced insurance caps leading to further decreases in insurance cover</b> and higher demand on Council funds and impacts to the community to restore or relocate fire-affected assets.	Coast & Waterways Community Services Corporate Governance Infrastructure Delivery Economic Development Resource Recovery Water & Wastewater Operations	Asset Protection Zones Insurance Business Continuity Plan	Mostly Effective	Possible	Moderate	MEDIUM



Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
FWCL07	An increase in fire weather increasing the frequency and severity of bushfire events causing significant loss/damage to <b>existing private development (built prior to contemporary standards)</b> .	Strategic Planning & Urban Design Natural Area Management	Bushfire Resilience Project Planning for Bushfire Protection Education Asset Protection Zones	Partially Effective	Possible	Moderate	<b>MEDIUM</b>
FWCL08	An increase in fire weather increasing the frequency and severity of bushfire events causing concern from <b>existing private development seeking higher levels of maintenance in asset protection zones</b> .	Parks & Active Communities Natural Area Management	Asset Management Standards Development Assessment Controls and conditions Planning for Bushfire Protection	Mostly Effective	Possible	Moderate	<b>MEDIUM</b>
FWCL09	An increase in fire weather increasing the frequency and severity of bushfire events causing significant <b>loss/damage to existing private development with significant historic heritage values</b> .	Strategic Planning & Urban Development Natural Area Management	Planning for Bushfire Protection Asset Protection Zones	Partially Effective	Possible	Minor	<b>MEDIUM</b>
FWDC10	An increase in fire weather days causing an increase in bush fire activity resulting in <b>risks to Council personnel</b> from poor air quality.	Work Health & Safety	Public Health Alerts/Warnings Personal care plan (e.g. asthma)	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
FWDCS11	An increase in fire weather days increases the potential of <b>bushfires impacting on indigenous cultural heritage</b> .	Inclusive and Creative Communities	Reconciliation Action Plan Aboriginal Advisory Committee	Partially Effective	Possible	Minor	<b>MEDIUM</b>
FWEC117	An increase in fire weather days causing an increase in bush fire activity resulting in <b>risks to Council personnel</b> at their worksites or journey to/from worksites.	Human Resources	Early warning systems RFS alerts Fires near me	Mostly Effective	Possible	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
FWFI22	An increase in fire weather days increasing the potential of bushfires causing <b>loss/damage to electrical supply infrastructure</b> increasing the frequency of interruptions or loss of Council's water supply and wastewater services.	Water Supply and Wastewater Services	Generator Deployment WWTP Emergency Storage (at some plants)	Mostly Effective	Unlikely	Moderate	<b>MEDIUM</b>
HDAC01	More hot days <b>challenges the thermal comfort of poorly design/built/insulated new homes</b> leading to heat stress or greater reliance on mechanical cooling and power consumption for residents.	Development Assessment & Compliance Strategic Planning & Urban Design Building Surveying	Subdivision Design Development Assessment BASIX DCP A9 Energy Smart Homes Design and Place SEPP (under review, revised BASIX provisions)	Partially Effective	Likely	Minor	<b>MEDIUM</b>
HDACS02	An increase in hot days causes an <b>increase in demand for Council community services and centres</b> as community seek cooler locations and activities for recreation running the risk that capacity of facilities, resources and staff are put under strain.	Inclusive & Creative Communities Tweed Holiday Parks	Commonwealth mandated plans in place and followed as needed. Change in work mode to respond to emergency EMPLAN - Resource list of Evacuation Centres Holiday Parks: booking systems	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
HDACS03	An increase in hot days causes increased heatstroke, <b>mental health issues, possible general safety issues for vulnerable people</b> using Council programs and services leading to the need for additional welfare checks.	Community Services Work Health & Safety	Client risk assessments Referring vulnerable people to medical assistance	Mostly Effective	Possible	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
HDACS04	More hot days <b>challenges the thermal comfort of poorly design/built/insulated existing homes</b> leading to heat stress or greater reliance on mechanical cooling and power consumption for residents.	Climate Change and Sustainability	BASIX DCP A9 Energy Smart Homes Design and Place SEPP (under review, revised BASIX provisions) Education	Partially Effective	Likely	Minor	<b>MEDIUM</b>
HDCI08	An increase in hot days increases energy use and <b>potential for increased number of power outage incidents disrupting Council's Gallery and Museums climate control facilities</b> risking damage to cultural material, affecting professional reputation and ability to borrow cultural material from recognised institutions.	Tweed Regional Gallery Tweed Regional Museums	Business Continuity Plan: Seek direct connection to the electricity network remotely through facility's external climate control contractor Advise contractual lenders that electricity disruption is planned	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
HDCI09	An increase in hot days increases energy use and potential for <b>increased number of power outage incidents</b> disrupting Council facilities and operations, negative customer feedback and reputational issues.	Water & Wastewater Operations Parks & Active Communities Inclusive & Creative Communities	Business Continuity Plans Solar installations Alternative Power - Generators at Critical Sites	Mostly Effective	Almost Certain	Minor	<b>MEDIUM</b>
HDDI10	An increase in hot days <b>affects the ventilation and air conditioning of Council facilities</b> putting extra load on systems, increasing power consumption and contributing to shortened asset life e.g. air handling units.	Inclusive & Creative Communities	Asset Management Plan Building Maintenance Programs Monitoring (Gallery)	Mostly Effective	Possible	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
HDEC11	An increase in the number of hot days causes <b>increased heat stress incidents in operational staff</b> impacting their personal health and safety.	Work Health & Safety All work crews - RSU - PAC	Safe Work method statements Flexible working hours Council facilities air conditioning ESD principles in staff facility design to improve working conditions while reducing operational costs and greenhouse gas emissions TSC Environmental Design Guidelines for Buildings and Infrastructure	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
HDEI12	An increase in the number of hot days causes <b>increased heat stress incidents in operational staff resulting in loss of productivity.</b>	Work Health & Safety - All field based crews	Flexible working hours Forward planning practices, contract management, monitoring forward weather forecasts, Suitability of equipment e.g. air conditioned cabs, dongas etc Service planning (Strategic)	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
HDAEO6	An increase in hot days causes a <b>reduction in attendance and enjoyment by the community at Council events or at Council venues</b> and an increased risk of heat stress for participants.	Events Climate Change & Sustainability Parks & Active Communities Sustainable Agriculture Conservation Inclusive & Creative Communities	First aiders on site. Water and shade provided for outdoor events e.g. planting events or workshops.	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
RFBCS01	An increase in rainfall variability impacts economic activity and viability resulting in <b>loss of revenue (tourism sector and Holiday Parks).</b>	Economic Development Tweed Holiday Parks & Cultural Facilities Sustainable Agriculture	Flexibility of booking arrangements Post event communications and marketing	Partially Effective	Possible	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFBCS02	A decrease in rainfall reducing the quantity of water available from Council's water supply <b>increasing the frequency of water restrictions and negatively impacting businesses.</b>	Economic Development Sustainable Agriculture Water Efficiency & Connections	Concierge service to help businesses connect with the Water Unit Water efficiency programs and support for business	Partially Effective	Likely	Minor	<b>MEDIUM</b>
RFCCS04	An increase in rainfall causing more frequent/ severe flood events that result in damage to Council's <b>community infrastructure.</b>	Inclusive & Creative Communities	Asset Management Plans - routine maintenance and renewal Resilient infrastructure design Planning for betterment opportunities Insurance: partial control	Partially Effective	Likely	Minor	<b>MEDIUM</b>
RFCCS05	An increase in rainfall intensity causes more frequent <b>closure of infrastructure and facilities</b> resulting in community disruption e.g. more frequent community hall closures, and <b>reduced ability of staff to do welfare checks and deliver services to clients</b> , with potential risk of non-delivery of Commonwealth contracts.	Community Services	Building repair and maintenance Community Services: Shifted to online service delivery	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
RFCI08	An increase in rainfall causing more frequent/ severe weather events that result in <b>interruptions, delays and reworking of construction works.</b>	Infrastructure Delivery Water & Wastewater Business & Assets Parks & Active Communities Roads & Stormwater Coast & Waterways	Protecting temporary works Erosion and sediment control measures Allowing for wet weather contingencies Accessing reliable and timely weather forecasts	Partially Effective	Almost Certain	Minor	<b>MEDIUM</b>
RFCI09	An increase in rainfall intensity <b>impacts on Council depot plant and infrastructure</b> reducing its operational capacity.	Fleet Roads & Stormwater	Evacuation plans New depot located out of flood	Partially Effective	Likely	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFCI10	An increase in rainfall intensity impacting <b>Council's supply chain leading to a reduction in operational capacity</b> due to a lack of critical supplies.	Fleet Infrastructure Delivery	Fuel storage Inventory management	Mostly Effective	Possible	Moderate	<b>MEDIUM</b>
FWDE12	An increase in fire weather days increases bushfire threats to <b>agricultural areas</b> , disrupting their practices placing <b>greater demand for disaster support from the Sustainable Agriculture Program or a shift in program priorities.</b>	Sustainable Agriculture Economic Development	Delivery Program Sustainable Agriculture Strategy Rural Land Industry Management Committee	Partially Effective	Possible	Minor	<b>MEDIUM</b>
FWDE13	An increase in fire weather days increases the potential and impact of <b>bushfires impacting on threatened and significant areas of native, vulnerable and valuable habitat.</b>	Conservation Natural Area Management Pest Management	Asset Protection Zone management Participation in the Bushfire Management Committee Implementing the Bushfire Risk Management Plan Tweed Vegetation Management Strategy Post fire pest vertebrate species monitoring and control	Partially Effective	Possible	Moderate	<b>MEDIUM</b>
FWDE14	An increase in fire weather days <b>(compounded by increased wet autumn/winter periods) reduces the suitable time period available for controlled burning</b> resulting in higher risk to environmental and built assets from bushfire. Inability to conduct controlled burning will also increase the likelihood of the loss of fire dependent species and habitat.	Conservation Natural Area Management	Asset Protection Zone management Participation in the Bushfire Management Committee Implementing the Bushfire Risk Management Plan Tweed Vegetation Management Strategy	Partially Effective	Possible	Moderate	<b>MEDIUM</b>



Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFCL11	An increase in rainfall intensity causes more frequent closure of infrastructure and facilities resulting in community disruption e.g. <b>more frequent park closures.</b>	Parks & Active Communities Roads & Stormwater	Facility closure/reopening procedures MyRoad Info Asset Management Plans - routine maintenance and renewal Resilient infrastructure design Planning for betterment opportunities	Partially Effective	Likely	Minor	<b>MEDIUM</b>
RFCL13	An increase in frequent and severe rainfall events increasing the frequency and severity of flood events <b>increases potential for increased number of power outage incidents disrupting Council's Gallery and Museums climate control facilities risking damage to cultural material,</b> affecting professional reputation and ability to borrow cultural material from recognised institutions.	Tweed Regional Gallery Tweed Regional Museums	Business Continuity Plan: Seek direct connection to the electricity network remotely through facility's external climate control contractor Advise contractual lenders that electricity disruption is planned	Mostly Effective	Likely	Minor	<b>MEDIUM</b>
RFCL16	Increased frequency and severity of rainfall and flooding events creates <b>greater demand for emergency management assets and/or expansion of facilities</b> which is not currently budgeted for.	Corporate Governance	Grant funding	Not effective	Likely	Minor	<b>MEDIUM</b>
RFCL17	An increase in rainfall increasing the frequency and severity of flood events causing <b>significant loss/damage to existing private development</b> and implications for Council response programs.	Roads & Stormwater	Flood maps Levees Warning systems Buy back Property modification Flood modification Flood response modification	Mostly Effective	Possible	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFCL19	An increase in rainfall increasing the frequency and severity of flood events causing significant loss/damage to <b>existing private development with significant historic heritage values.</b>	Strategic Planning & Urban Design	Flood maps	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
RFDCS20	An increase in rainfall increasing the frequency and severity of flood events causing <b>significant loss/damage of indigenous cultural heritage.</b>	Inclusive and Creative Communities	Reconciliation Action Plan Aboriginal Advisory Committee	Partially Effective	Possible	Minor	<b>MEDIUM</b>
RFDE21	Increasing rainfall leading to potential <b>higher levels of leachate generation and stormwater run off.</b>	Water & Wastewater Operations	Testing and monitoring Bunds and swales in place Use stormwater for dust suppression Maintain capacity in stormwater and leachate management ponds Run pump trucks to remove leachate which is deposited at wastewater treatment sites Stormwater and leachate management system reviews and improvement works underway	Mostly Effective	Likely	Minor	<b>MEDIUM</b>
RFDI29	An increase in variability in wet and dry weather impacts on soil moisture levels impacting on <b>infrastructure foundations.</b>	Coast & Waterways Development Engineering Infrastructure Delivery Parks Operations & Community Assets Water & Wastewater Business & Assets Roads & Stormwater	Building Code of Australia Geotechnical Assessments Designs Design codes: WSAA codes Inspection regimes Asset Maintenance Plans	Mostly Effective	Possible	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFEC30	Increased frequency and severity of emergency events impacts staff resourcing particularly causing <b>reallocation of staff from risk management to emergency management</b> and creating greater demand for staff to manage insurance claims (internal and external) delaying governance activities.	Enterprise Risk & Emergency Management	Reprioritise activities within the unit	Partially Effective	Almost Certain	Minor	<b>MEDIUM</b>
RFEC31	An increase in frequency and severity of floods resulting in <b>risks to Council personnel at their worksites or journey to/from worksites.</b>	Work Health & Safety	Weather, river, tide level monitoring BoM forecasts and warnings Staff communications MyRoad Info Flood cameras	Mostly Effective	Unlikely	Moderate	<b>MEDIUM</b>
RFEC32	An increase in frequency and severity of floods resulting in <b>more frequent out of hours call outs and responses, sustained workload in recovery leading to staff fatigue.</b>	Work Health & Safety Water & Wastewater Operations Parks & Active Communities Roads & Stormwater Coast & Waterways Infrastructure Delivery	Fatigue management protocol Team-specific operational procedures	Mostly Effective	Possible	Moderate	<b>MEDIUM</b>
RFEC37	An increase in rainfall intensity causes <b>increased demand for emergency response resources in Council</b> and other response agencies.	Emergency Management	TSC Climate Change Management Policy: Key priority 8 EMPLAN Support systems for emergency preparedness, communication, response and recovery activities, including rapid assessment and restoration of key public assets following natural disasters	Mostly Effective	Likely	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFFI41	An increase in rainfall intensity increasing the frequency of <b>private on-site sewage management systems operational capacity being exceeded</b> increasing the frequency of sewage overflows with increased risk to public health and environmental pollution.	Building and Environmental Health	Inspections are scheduled to understand impact during wet weather events and systems are designed to cater for wet weather events	Mostly Effective	Likely	Minor	MEDIUM
RFFI43	A decrease in rainfall <b>reducing the quantity of water available from Council's water supply</b> increasing the frequency of water restrictions and the need to increase water supply capacity / sources.	Water Supply and Wastewater Services	TSC Climate Change Management Policy: Key priority 3 Drought Water Restrictions Policy Diversification of Water Supply Sources Implementation of PRG recommendations to look at non-rainfall water supply options Raising CHD project (planned)	Partially Effective	Unlikely	Major	MEDIUM
RFFI44	A decrease in rainfall <b>reducing the water quality in Council's water supply</b> reducing operational capacity and increasing the frequency of water restrictions and interruptions to service.	Water Supply and Wastewater Services	Type of water treatment plant and ensuring chemicals are on hand to handle changes to water quality (eg. PAC stored to dose at any point in time for algae bloom) Water sampling and testing regime Algal treatments SOPs	Mostly Effective	Almost Certain	Minor	MEDIUM
RFDE22	In increase in rainfall increases the frequency and severity of flood events disrupting the road network and <b>disrupting the ability of waste collection services to operate.</b>	Resource Recovery	Communication Rely on Roads & Stormwater Unit to provide safe access for trucks Self-waste drop off Alternative drop off arrangements made	Mostly Effective	Likely	Minor	MEDIUM

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFDE23	An increase in rainfall increases the frequency and severity of flood events restricting <b>access to Stotts Creek Waste Management Centre via access roads.</b>	Resource Recovery	Notify access issues via My Roads Info to inform customers when road access is available Maintain domestic collection services and encourage use of alternate disposal sites e.g. Gold Coast	Mostly Effective	Almost Certain	Minor	<b>MEDIUM</b>
RFDE27	Change in rainfall distribution <b>reduces the suitable time period available for controlled burning</b> resulting in higher risk to environmental and built assets from bushfire. Inability to conduct controlled burning will also <b>increase the likelihood of the loss of fire dependent species and habitat.</b>	Conservation	Asset Protection Zone monitoring, management and reporting to RFS	Partially Effective	Possible	Moderate	<b>MEDIUM</b>
SLAI01	An increase in sea level increases groundwater table levels resulting in inflow, leakage or surcharge damaging <b>transport</b> infrastructure foundations.	Roads & Stormwater	Design for resilience Road maintenance Drainage Plans	Partially Effective	Likely	Minor	<b>MEDIUM</b>
SLAI03	An increase in sea level increases groundwater table levels resulting in <b>inflow, leakage or surcharge affecting existing private development (built prior to contemporary standards).</b>	Development Engineering Roads & Stormwater	Geotechnical considerations	Mostly Effective	Possible	Moderate	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
SLAL04	An increase in sea level causes inundation, resulting in the <b>failure of private onsite sewage management systems</b> and leading to <b>potential pollution and negative impacts on public health.</b>	Environmental Health	Private OSSM approvals are renewed every six years against the Australian standards which are modified from time to time to reflect sea level change and greater wet weather events. Local Government Act LEP Inundation mapping Coastal Management SEPP DCP	Effective	Possible	Minor	<b>MEDIUM</b>
SLAL05	An increase in sea level impacts on <b>closed landfills and historical ad hoc landfill sites resulting in contamination and leachate into waterways</b> , the contamination of water tables and the contamination of private land.	Environmental Health Resource Recovery	SEPP 55 Environmental Management Plans for landfill sites	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
SLCCS09	An increase in sea level rise increases the potential of <b>coastal erosion and storms impacting on indigenous cultural heritage.</b>	Inclusive and Creative Communities	Reconciliation Action Plan Aboriginal Advisory Committee	Partially Effective	Possible	Minor	<b>MEDIUM</b>
SLCI10	Increased sea level rise (compounded by the increased number of flooding events) <b>affects roads and impacts on Council, utilities, emergency services, the community and visitors' ability to access Tweed's coastal towns and communities.</b>	Roads & Stormwater Enterprise Risk & Emergency Management Tweed Holiday Parks & Cultural Facilities	Emergency Evacuation Plans (Holiday Parks) Notification/Communication Procedures (Holiday Parks)	Mostly Effective	Possible	Moderate	<b>MEDIUM</b>



Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
SLCI11	An increase in sea level rise causes loss/damage to coastal nature reserves, beaches, public recreational sites, public recreational facilities, scenic amenity and public accesses, resulting in <b>negative impacts on recreational activities and surf lifesaving activities.</b>	Parks & Active Communities Coast & Waterways Conservation Roads & Stormwater Tweed Holiday Parks	Coastal Management Program Coastal Hazard DCP Open Space Strategy Surf Lifesaving Agreement Asset Management Planning	Partially Effective	Almost Certain	Minor	<b>MEDIUM</b>
SLDEI16	Impact of saltwater intrusion on groundwater resource and implications for spear pumps and dewatering licences <b>impacts spear pump users during drought.</b>	Parks & Active Communities	?Monitoring/Testing to confirm salinity levels?		Possible	Minor	<b>MEDIUM</b>
SLDL17	An increase in sea level causes changes to private land use due to erosion, re-alignment of shores, increased flood levels, inundation, reduced drainage, wave overtopping events and salinisation <b>negatively affecting landholders, residents and businesses, placing greater demand for support and response from Council program areas.</b>	Sustainable Agriculture Economic Development Coast & Waterways Roads & Stormwater Strategic Planning & Urban Design	LEP Coastal Management Programme Inundation mapping Climate Change policy SEPP DCP Sustainable Agriculture Strategy Rural Land Industry Management Committee	Partially Effective	Likely	Minor	<b>MEDIUM</b>
SLEI18	More frequent and severe weather events impact on service provision and/or serviceability and an associated <b>loss of income</b> from water consumption	Water & Wastewater Business & Assets	Reserves	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
SLEL19	Decision making around urban planning and <b>existing</b> development relating to sea level rise and coastal processes results in claims or damage to reputation.	Strategic Planning & Urban Design	Community Engagement strategy Planning certificates Floodplain Development Manual Insurance	Mostly Effective	Possible	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
SLLEL20	Decision making around urban planning and <b>future</b> development relating to sea level rise and coastal processes results in claims or damage to reputation.	Strategic Planning & Urban Design Development Assessment & Compliance Development Engineering Roads & Stormwater Water & Wastewater Business & Assets	Community Engagement strategy Planning certificates Floodplain Development Manual Insurance	Mostly Effective	Possible	Moderate	<b>MEDIUM</b>
SLBE08	An increase in sea level increases groundwater table levels resulting in <b>inflow, leakage or surcharge to agricultural areas</b> , disrupting their practices placing <b>greater demand for support from the Sustainable Agriculture Program or a shift in program priorities</b> .	Sustainable Agriculture Economic Development	Delivery Program Sustainable Agriculture Strategy Rural Land Industry Management Committee	Partially Effective	Possible	Minor	<b>MEDIUM</b>
TACS01	Increased maximum and overnight temperatures increases <b>incidents of heatstroke, mental health issues, possible general safety issues for vulnerable people</b> increasing demand on Council programs and services.	Community Services Tweed Holiday Parks	Commonwealth mandated plans in place and followed as needed. Change in work mode to respond to emergency	Mostly Effective	Likely	Minor	<b>MEDIUM</b>
TACS02	Increased average and maximum temperatures <b>increases demand for Council community services and centres</b> as community members seek cooler locations and activities for recreation running the risk that capacity of facilities, resources and staff are put under strain.	Community Services Tweed Regional Gallery Tweed Regional Museums	Manage bookings and demand for facilities through Bookable Planning for new facilities	Mostly Effective	Likely	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFDE28	Increased rainfall variation changing the <b>abundance and distribution of invertebrate pests</b> impacting on the built and natural environment.	Building and Environmental Health	Service plans - capacity building/education - surveillance and monitoring programs in priority areas - Collaboration with other state and national agencies	Partially Effective	Likely	Minor	<b>MEDIUM</b>
TCCS03	Increased average temperature increases the demand for Council's swimming facilities resulting in an <b>increased demand for staff and contractor management.</b>	Parks & Active Communities	Flexible enterprise agreement with staff members Staff have experience and ability with shifts of demand through season changes	Mostly Effective	Almost Certain	Minor	<b>MEDIUM</b>
TCCS04	Increased average temperature <b>increases the demand for Council's swimming facilities and coastal swimming services</b> such as lifeguards resulting in an increased demand for staff, contractor and volunteer management.	Parks Operations & Community Assets	WHS safety requirements Surf lifesaving agreements Service planning (Strategic) Workforce Plan (Strategic)	Mostly Effective	Likely	Minor	<b>MEDIUM</b>
TCCS05	Increased average and maximum temperatures <b>reduces the thermal comfort of community facilities that don't currently have mechanical cooling</b> e.g. halls leading to deactivation and reduced usability of community space.	Community Services	Asset management plan	Not Effective	Possible	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
TCI07	Increased average temperature <b>increases community use of open space assets</b> resulting in negative impacts on increased operational demands and wear and tear on parks assets and increased environmental impacts (water and fertiliser use).	Parks & Active Communities	Service standards as per Asset Management Plan - open space maintenance - generic parks plans of management - sportsfield plans of management - site specific plans of management Changing operational response depending on demand	Mostly Effective	Almost Certain	Minor	<b>MEDIUM</b>
TCI10	Increased average temperature <b>increases maintenance requirements and reduces asset life.</b> Examples of Council assets and infrastructure include roads, surfaces, bridges.	Roads & Stormwater	Asset Management Plans (Note: These have not been adapted to climate change trends).	Partially Effective	Possible	Moderate	<b>MEDIUM</b>
TCI11	Increased temperature <b>reduces water quality</b> in Council's water supply reducing operational capacity and increasing the frequency of water restrictions and interruptions to service.	Water Supply and Wastewater Services	Future Water Supply Strategy and Actions Water sampling and testing regime Algal treatments Chlorine dosing Incident management: critical customer list SOPs	Mostly Effective	Almost Certain	Minor	<b>MEDIUM</b>
TDE16	Increased average temperature challenges the thermal comfort of poorly designed/built/insulated <b>new</b> homes leading to heat stress or greater reliance on mechanical cooling and power consumption for residents, and associated greenhouse gas emissions from grid electricity use.	Development Assessment & Compliance Climate Change & Sustainability Strategic Planning & Urban Design	BASIX DCP A9 Energy Smart Homes Design and Place SEPP (under review, revised BASIX provisions)	Partially Effective	Likely	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
TDI17	Increased average temperature <b>increases community use of waterways and coastal assets</b> such as boat ramps and coastal facilities resulting in negative impacts on environmental values and increased wear and tear on assets.	Coast & Waterways Tweed Holiday Parks	Asset Management Plans Coastal Management Program	Partially Effective	Possible	Moderate	<b>MEDIUM</b>
TEC18	An increase in temperature causes <b>increased heat stress incidents in operational staff</b> impacting their personal health and safety.	Parks & Active Communities Coast & Waterways Roads & Stormwater Infrastructure Delivery	Safe Work method statements Flexible working hours Council facilities air conditioning ESD principles in staff facility design to improve working conditions while reducing operational costs and greenhouse gas emissions TSC Environmental Design Guidelines for Buildings and Infrastructure	Mostly Effective	Possible	Minor	<b>MEDIUM</b>
TFCS21	Increased average temperature (compounded by more frequent and severe rainfall events) enables the <b>introduction and proliferation of exotic invertebrate species (mosquitoes) and tropical disease</b> leading to public health impacts.	Building and Environmental Health	Service plans - capacity building/education - surveillance, DNA testing and monitoring programs in priority areas - collaboration with NSW, Qld and National mosquito management groups - treatment	Mostly Effective	Likely	Minor	<b>MEDIUM</b>
TFCS22	Increased average temperature <b>increases the risk of foodborne illness/food poisoning</b> associated with inadequate temperature control of potentially hazardous food. Food poisoning bacteria grow fastest around 37 degrees C.	Building and Environmental Health	Food business inspections Food safety education tools and campaigns NSW Scores on Doors	Mostly Effective	Possible	Minor	<b>MEDIUM</b>

Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
FWCI04	An increase in fire weather causing more frequent/ severe weather events that result in <b>interruptions, delays and reworking of construction works.</b>	Infrastructure Delivery Roads & Stormwater Water & Wastewater Business & Assets Parks & Active Communities	Protecting temporary works Accessing reliable and timely weather forecasts Removing people and plant at risk	Mostly Effective	Unlikely	Negligible	LOW
FWEC116	An increase in fire weather days causes an increase in bush fire activity resulting in an <b>increased demand for Council resources to assist Emergency Services.</b>	Enterprise Risk & Emergency Management Human Resources	EMPLAN	Mostly Effective	Possible	Negligible	LOW
FWFI21	An increase in fire weather days increasing bush fire activity <b>increasing the demand for water</b> increasing the frequency of Council's water supply system's operational capacity being exceeded <b>increasing the frequency of water restrictions and interruptions services.</b>	Water Supply and Wastewater Services	RFS have systems in place to identify alternative supply services.	Mostly Effective	Unlikely	Minor	LOW
HDFI13	Increased hot days <b>increases the frequency of interruption to the electrical supply</b> increasing the frequency of <b>water restrictions and interruptions</b> to water supply and wastewater services.	Water & Wastewater Operations	Business Continuity Plans Some limited sites with back-up Generators Some solar capacity on site	Effective	Unlikely	Minor	LOW
HDFI14	An increase in hot days increases the frequency of Council's <b>water supply system's operational capacity being exceeded</b> increasing the frequency of water restrictions and interruptions services.	Water & Wastewater Operations	Water Efficiency Strategy and Actions Asset Planning, Capital Works Program, Asset Maintenance, Development Assessments Levels of Service targets	Mostly Effective	Rare	Minor	LOW



Ref	Risk statements Event/cause/consequence	TSC assets/services affected	Current controls	Adequacy of controls overall	Likelihood	Consequence for Council assets, service delivery, program objectives	Rating
RFFI40	An increase in rainfall intensity increasing the frequency of Council <b>wastewater systems operational capacity being exceeded</b> increasing the frequency of sewage overflows with increased risk to public health and environmental pollution.	Water & Wastewater Environmental Health	Asset Management Plans, and upgrades Inflow and infiltration management & education, pump controls etc	Partially Effective	Possible	Negligible	LOW
SLCI14	An increase in sea level creates <b>more demand for works to repair or retrofit Council infrastructure in areas affected by higher tides</b> , higher groundwater levels, higher inundation levels resulting in potential interruptions, delays and reworking of construction works.	Infrastructure Delivery Coast & Waterways Parks Operations & Community Assets Roads & Stormwater Water & Wastewater Business & Assets	Protecting temporary works Erosion and sediment control measures Allowing for tidal conditions Accessing reliable and timely weather forecasts	Partially Effective	Possible	Negligible	LOW
TCI13	Increased average temperature <b>increases frequency of interruption to the electrical supply increasing the frequency of water restrictions and interruptions</b> water supply to wastewater services.	Water Supply and Wastewater Services	Business Continuity Plans Solar installations Alternative Power - Generators at Critical Sites	Effective	Likely	Negligible	LOW
TEC19	An increase in average, minimum and maximum temperature causes increases <b>heat strain related issues resulting in reduction of productivity</b> in operational staff	Coast & Waterways Infrastructure Delivery Roads & Stormwater Parks & Active Communities	SWMS or Hazard Control Register e.g. Patrols Working in cooler parts of the day Electrolytes	Effective	Unlikely	Minor	LOW
TEI20	Increased average temperature <b>increases frequency of interruption to the electrical supply</b> increasing the electrical supply costs thereby increasing costs for water supply and wastewater services.	Water Supply and Wastewater Services	Renewable Energy Action Plan and installed solar New Power Purchasing Agreement in place to reduce costs Ability to procure new generators Electricity contracts for price stabilisation	Mostly Effective	Likely	Negligible	LOW

## Appendix 2: TSC Enterprise Risk Management Framework extracts

### TSC Enterprise Risk Management Policy

#### Risk Attitude Statement

14. The purpose of this risk attitude statement is to communicate our approach, and define boundaries, around the amount and type of risk that Council is willing to take in order to meet its strategic and operational objectives, to enable flexibility to deal with complex and competing concerns and to support and promote our organisational risk culture.

15. As a local government authority, Council works within a highly regulated environment. There is a range of 'optimal' risk taking which supports the right balance between maximising return for stable growth, ensuring compliance, enhancing reputation and safeguarding assets.

Risk category	Risk appetite	Risk tolerance
<b>Environmental</b>	There is considerable appetite for decisions that conserve and/or enhance ecological value or add benefit to our built assets. We hold little appetite for unauthorised adverse impacts on the natural or built environment arising outside normal business practices.	Short term negative impacts on the natural environment that are easily containable / reversed. Minor loss/ damage of built assets.
<b>Financial</b>	We will pursue avenues to continue to strengthen our financial position. We hold little appetite for financial loss arising from normal business activities.	Negative variation to Service/Project budgets <5%.
<b>People</b>	We will take a proactive approach to improving the health, safety and wellbeing of staff and the public. We will strive to eliminate or control foreseeable safety hazards and negative impacts within our responsibility, as far as reasonably practical.	Minor unforeseen incidents or injuries that may occur in the course of undertaking normal business activities. Short term diminishment of peoples' amenity.
<b>Legal and Compliance</b>	We will seek to ensure significant breaches of legislation or contractual arrangements do not arise. We will look to resolve issues of non-compliance in a consistent, equitable and the most cost effective manner. We hold little appetite for pursuing legal actions that have a low likelihood of successful outcome and/or are not in the interest of the public.	Minor or isolated breach of legislation, contractual arrangements, guidelines or standards. Opportunistic incidence of fraud/corruption involving a single person
<b>Operational Service Delivery</b>	We hold considerable appetite to improve and value-add in the provision of our services to the community and stakeholders. We hold little appetite for risks that might impact on our ability to continue to provide essential services.	Unintended disruption of essential services <4hrs. For all other services a target level is established that is appropriate to the service provided. Minor interruption to service with localised inconvenience.
<b>Image and Reputation</b>	We have considerable appetite to implement improved methods of communication flow with our community and stakeholders to ensure transparency and accountability. We hold little appetite for actions that may result in image or reputational damage to Council or the Shire but understand that negative publicity may occur where there are competing priorities and interests.	Short term dissatisfaction accompanied by media coverage outside the local area. Unpopular decisions provided the process can stand up to independent scrutiny.

## Accountabilities and Responsibilities for Managing Risk

23. Directors are responsible for...determining whether to accept or further treat residual risks that are assessed as high or above...

25. Managers and Unit Co-ordinators are required to identify, analyse, evaluate and treat, and where necessary escalate, risks that may impact on the objectives of their Unit. They are accountable for the implementation and maintenance of sound risk management processes and structures within their area of responsibility in conformity with Council's enterprise risk management framework including:

- a. Identifying and monitoring emerging risks to their Service Plans;
- b. Identifying, recording and periodically evaluating risks;
- c. Identifying, recording and assessing effectiveness of existing controls;
- d. Implementing and maintaining effective internal controls;
- e. Reporting known potential and emerging risks to their Director in a timely manner, where assessed as Medium to High and above, as identified within the Protocol; and
- f. Maintaining up to date risk registers through quarterly reviews and updates.

26. Managers and Unit Co-ordinators are also responsible for supporting good management practices that complement risk management including;

- a. Complying with and monitoring staff compliance with Council's policies, procedures and protocols, guidelines and designated authorities;
- b. Fully considering and reporting risk management issues within Council reports;
- c. Maintaining up-to-date information and documentation for key

- operational processes; and
- d. Incorporating risk treatment plans into sectional Service Plans, Council's Operational Plan and budget as required.

## TSC Enterprise Risk Management Protocol V2.1

### Tweed Shire Council risk management framework goal

28. To ensure that the risks facing the Tweed Shire Council are appropriately managed in order to protect the interests of the organisation, the services it delivers to its community and to assist in the decision making process.

### Controls: Effectiveness evaluation criteria

<b>Not Effective</b>	<50%	Not effective at all in mitigating the risk (will not have any effect in terms of reducing the likelihood and/or consequence of the risk)
<b>Partially Effective</b>	50-79%	Partial control most of the time (will have some effect in terms of reducing the likelihood and/or consequence of the risk)
<b>Mostly Effective</b>	80-99%	Effective in most circumstances (will have a reasonably significant effect in terms of reducing the likelihood and/or consequence of the risk)
<b>Effective</b>	100%	Fully effective at all times (will significantly reduce the likelihood and/or consequence of the risk at all times)

## Likelihood criteria

Rating	Descriptors
<b>Almost Certain</b>	<p>Expected to occur in normal circumstances. There has been frequent past history.            Guide: Is expected to occur multiple times within a year or incident is clearly imminent.            Less than 10% of the critical controls associated with the risk are rated as either Effective or Mostly Effective. Without control improvement, it is almost certain that the risk will eventuate at some point in time.</p>
<b>Likely</b>	<p>Probably occur in most circumstances. Some recurring past event history.            Guide: Is expected to occur approximately once per year. (Or for strategic risks – currently the issue is being discussed, under review and/or has become a Federal or State election issue.)            10-30% of the critical controls associated with the risk are rated as either Effective or Mostly Effective. Without control improvement, it is more likely than not that the risk will eventuate.</p>
<b>Possible</b>	<p>Could occur sometime. Some past warning signs or previous event history.            Guide: Likely to occur approximately once every 5 years. (Or for strategic risks – there is intermittent media coverage, policy advocacy changes or proposal for review.)            30-70% of the critical controls associated with the risk are rated as either Effective or Mostly Effective and, if there is no improvement the risk may eventuate.</p>
<b>Unlikely</b>	<p>Not expected to occur.            Guide: Likely to occur once every 10-20 years. (Or for strategic risks – not currently being discussed as a mainstream issue, may be some fringe media but low influence or not a current policy issue.)            70-90% of the critical controls associated with the risk are rated as either Effective or Mostly Effective. The strength of this control environment means that it is more than likely that the risk eventuating would be caused by external factors not known to Council.</p>
<b>Rare</b>	<p>May occur but only in exceptional circumstances.            Guide: Likely to occur with less frequency than once every 20 years.            90% or more of the critical controls associated with the risk are rated as either Effective or Mostly Effective. The strength of this control environment means that, if this risk eventuates, it is most likely as a result of external circumstances outside of the control of Council. Table 2: Likelihood Rating Matrix</p>

## Consequence criteria

Consequence type	Negligible	Minor	Moderate	Major	Catastrophic
<b>Environmental</b>	Negligible impact on natural or built environment, or can be immediately reversed Perception of damage	Short term negative impact on natural environment that is easily containable/reversed Minor loss or damage of built assets Localised impact on amenity	Medium term impact on natural environment from single incident requiring intensive efforts to contain Temporary impact on amenity of large number of residents Serious damage to built assets	Long term or permanent damage to natural environment Severe loss of environmental amenity Major loss of built asset	Widespread severe impairment or loss of ecosystem functions across species and landscapes, irrecoverable environmental damage Long term major negative impact on amenity Complete loss of significant built asset
<b>Financial</b>	The lessor of: • <2% over service/project budget, OR • Up to \$100K one off loss or reduction in recurrent budget	The lessor of: • 2-5% over service/project budget, OR • \$100K-\$1M one off loss or reduction in recurrent budget One off minor variation to service budget	The lessor of: • 5-10% over service/project budget, OR • \$1-2M recurrent reduction in budget One off loss of \$3-5M Loss may impact beyond current FY	The lessor of: • 10-20% over service/project budget, OR • \$2-3M recurrent reduction in budget One off loss of \$5-10M Multiple FYs impact	The lessor of: • >20% over service/project budget, OR • >3M recurrent reduction in budget One off loss of \$10M or more
<b>People</b>	No injuries Negligible effect on peoples' wellbeing /personal safety Localised complaints by staff/no impact on morale	First aid treatment Minor negative impact on wellbeing and personal safety of members of the public Complaints requiring internal investigation and resolution only	Medical treatment, some lost time of workers Medium term negative impact on wellbeing and personal safety of large number of the public Short term impact on morale of staff	Injuries requiring hospitalisation of <3 days Ongoing negative impact on wellbeing and personal safety of large number of the public Widespread impact on morale	Fatality or permanent major disability Long term, major negative impact on the wellbeing and personal safety of significant number of people

Consequence type	Negligible	Minor	Moderate	Major	Catastrophic
<b>Legal and compliance</b>	Breach of standards/ guidelines Opportunistic fraud/ corruption incident involving a single person	Minor legal issues or non- compliances Breach of Policy One off claims or legal matters resolved through routine procedures, technical breach of regulations Opportunistic fraud/ corruption incident involving more than a single person	Serious breach with investigation Ongoing legal issue that Council has not or cannot adequately address Premediated fraud/ corrupt activities	Breaches of legislation resulting in fines, major legal action over extended period Successful prosecution of senior executive Multiple insurance claims	Significant prosecution and fines; very serious litigation Repeated major breaches Successful class action Penalties imposed resulting in the imprisonment of senior management
<b>Operational service delivery</b>	Usual scheduled interruptions Unscheduled interruptions <4hrs Little to no impact to service	Some Council service activities disrupted for up to 2 days Minor interruption to service with localised inconvenience Strategic Risk – Minor adjustment to extent or timing of current CSP	Key service activities disrupted for between 2 and 20 days Customer impact up to 48 hrs Strategic Risk – Amendment to CSP, consideration of organisational restructure and/or moderate reduction in staff levels (5-25%).	Key service activities disrupted for between 20 and 60 days Customer impact 7 to 14 days Strategic Risk – Complete change to CSP, significant organisational restructure and/or significant reduction in staff levels (>25%)	Key service activities disrupted for over 60 days Major interruption to delivery of all or most services for >14 days
<b>Image and reputation</b>	One off insignificant adverse local media or public complaints	Heightened concerns from narrow group of residents Some media* concern	Concern from broad section of residents Major local media* coverage though short duration	Significant adverse media at State level Significant & well publicised outcry from residents, long life story	Significant public outcry involving large numbers of non-residents as well as residents Sustained negative State media* coverage Damage to reputation and trust that takes many years to repair

Notes: \*Media: Inclusive of social media

## Risk Scoring Matrix

Likelihood	Consequence				
	Negligible	Minor	Moderate	Major	Catastrophic
Almost Certain	LOW	MEDIUM	VERY HIGH	EXTREME	EXTREME
Likely	LOW	MEDIUM	HIGH	VERY HIGH	EXTREME
Possible	LOW	MEDIUM	MEDIUM	HIGH	VERY HIGH
Unlikely	LOW	LOW	MEDIUM	MEDIUM	HIGH
Rare	LOW	LOW	LOW	MEDIUM	MEDIUM





*Contact and connect*

**02 6670 2400**

[tweed.nsw.gov.au](http://tweed.nsw.gov.au)

[tsc@tweed.nsw.gov.au](mailto:tsc@tweed.nsw.gov.au)

PO Box 816 Murwillumbah NSW 2484

