



WELCOME

CLIMATE EMERGENCY CONFERENCE 2024

DAY 2

*Councils and communities reclaiming
the climate emergency*



Climate
Emergency
Australia



Maribyrnong
CITY COUNCIL

Proudly supported by



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UNIVERSITY**



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ACKNOWLEDGEMENT OF COUNTRY

Everywhere on this continent, we are all on unceded Aboriginal land. We acknowledge that we are meeting today on the land of the Wurundjeri Woi Wurrung.

We thank and acknowledge the elders of all First Nations for looking after Country since the Dreamtime.

We will do all we can to look after it too, and to restore a safe climate for current and future generations of all species.



AGENDA

13:00 AEST/
11:00 AWST Introducing Day 2 of the Climate Emergency
Conference 2024

13:15/11:15 Adaptation in Action:
Council projects and collaboration across Australia

15:15/13:15 Afternoon tea/Lunch break

15:45/13:45 Climate, health and community resilience

17:00/15:00 Close



REFLECTIONS ON DAY 1





ADAPTATION IN ACTION

council projects and collaboration across Australia

Fran MacDonald

Victorian Climate Resilient Councils (VCRC)



CLIMATE RISK

Charlotte Turner, specialist in climate and sustainability risk governance

(Formerly Senior Associate, Minter Ellison, about to be Senior Associate, Herbert Smith Freehills.)



Climate
Emergency
Australia



Climate risk, legal liability
and financial sustainability



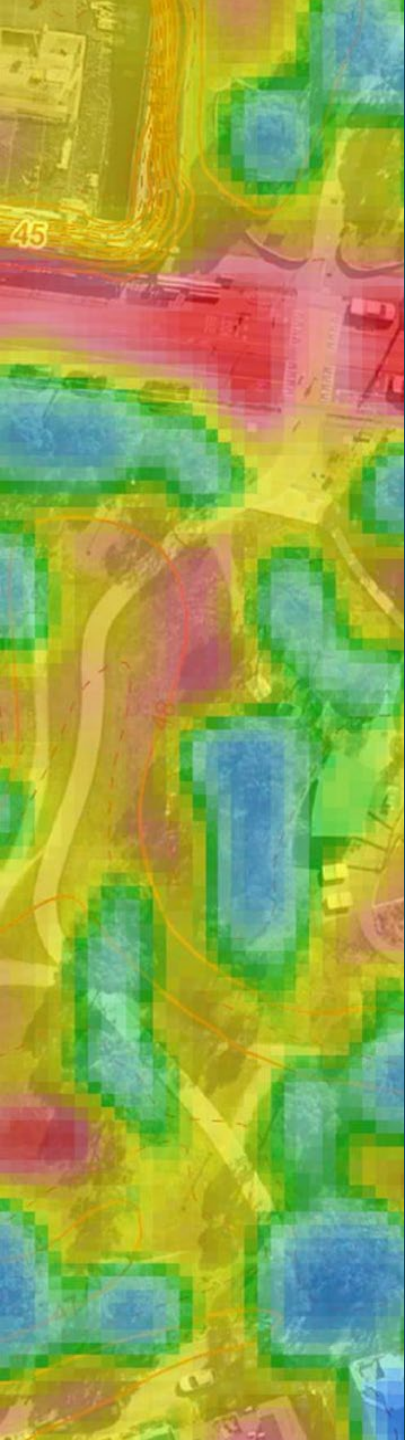
CLIMATE RISK

QUESTIONS AND ANSWERS



COUNCIL CASE STUDIES

- Merri-bek's Climate Risk Strategy and Brunswick Early Years Hub climate risk assessment with Victoria Hart and Shaun Tompkins, Merri-bek City Council
- Dawkins Park Reserve Windmill, Macksville
- Campbelltown's Cool Spaces for Summer Trial with Maria Zotti, Campbelltown City Council
- Cumberland City Council, UV Smart Cool Playground
- Greening Darwin with Emma Smith, Darwin City Council
- Ku-ring-gai Council Simtable Modelling tool



Merri-bek City Council

Climate Risk Strategy & Climate Resilience Assessment case study

Adaptation in Action – April 2024

Acknowledgement of Country



Merri-bek
City Council

We would like to acknowledge the Traditional Owners and Custodians of the lands and waterways on which we are gathered today, the Wurundjeri Woi-wurrung (wu-rund-geri woy-wur-rung people) people, and pay my respects to their Elders, past, present and emerging, as well as to all First Nations communities who significantly contribute to the life of the area.



Agenda



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City Council

Item

Introduction

Climate Risk Strategy

Case Study: Climate Resilience Assessment
at Brunswick Early Years Hub

- Context
- Method
- Implementation
- Next steps..

Q&A



Climate Risk Strategy and Foundational Action Plan



Merri-bek
City Council

Our Vision is that, by 2030



Council competently, accountably, and responsibly manages climate risks.



Merri-bek is climate resilient, leafy, and liveable



Merri-bek has a climate-ready and resilient community with no one left behind.

5 Goals

36 Actions

Involving almost all
Business Units

FY 23/24 and 24/25

\$2.4 billion in assets

Numerous community
services and
operational areas

1. Managing climate risk

By 2025, Council has iterative risk management, reporting and decision-making processes in place to manage climate-related risk to assets, service delivery, finances, and liabilities.

2. Built and natural environments

By 2030, Council has improved the ability of its infrastructure, open spaces and natural environments to avoid, withstand and recover from climate impacts, while continuing to provide for community wellbeing, amenity and ecosystem services.

3. Community Services

By 2030, Council services are resilient to climate impacts such that we can support our community through the shocks and stressors associated with climate change.

4. Community and business

By 2030, Merri-bek residents and businesses have access to relevant and appropriate information and support from Council to take meaningful action to adapt and build resilience to climate change.

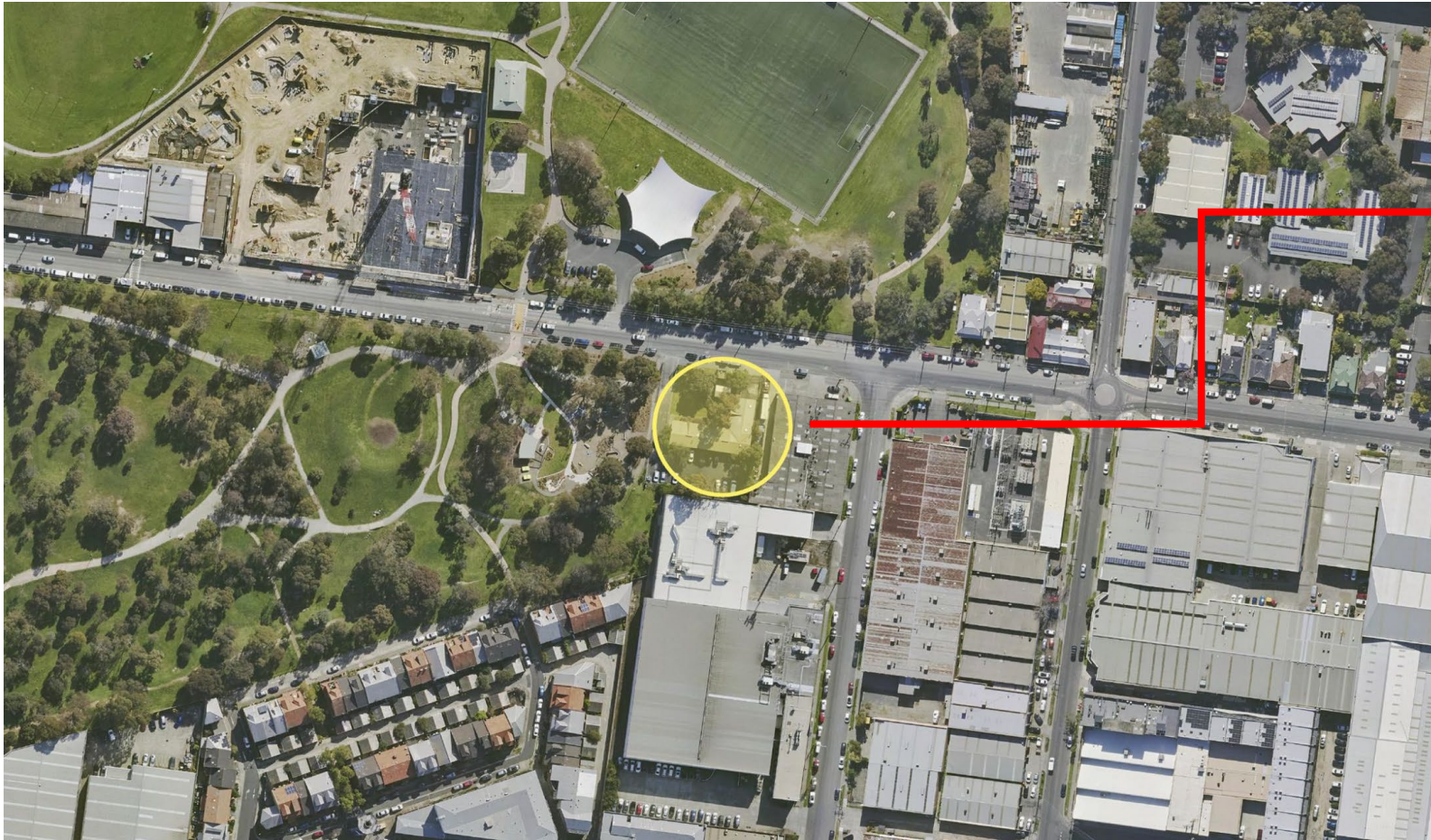
5. Partnership approaches

By 2030, Council collaborates with and influences a range of private, community and public sector partners to drive adaptation and build climate resilience in Merri-bek.

Case Study: Climate Resilience Assessment at Brunswick Early Years Hub



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Context

- Climate Risk Strategy, action 2.1.3
- Sustainable Buildings Policy and ESD Matrix
- Sustainable Buildings Officer

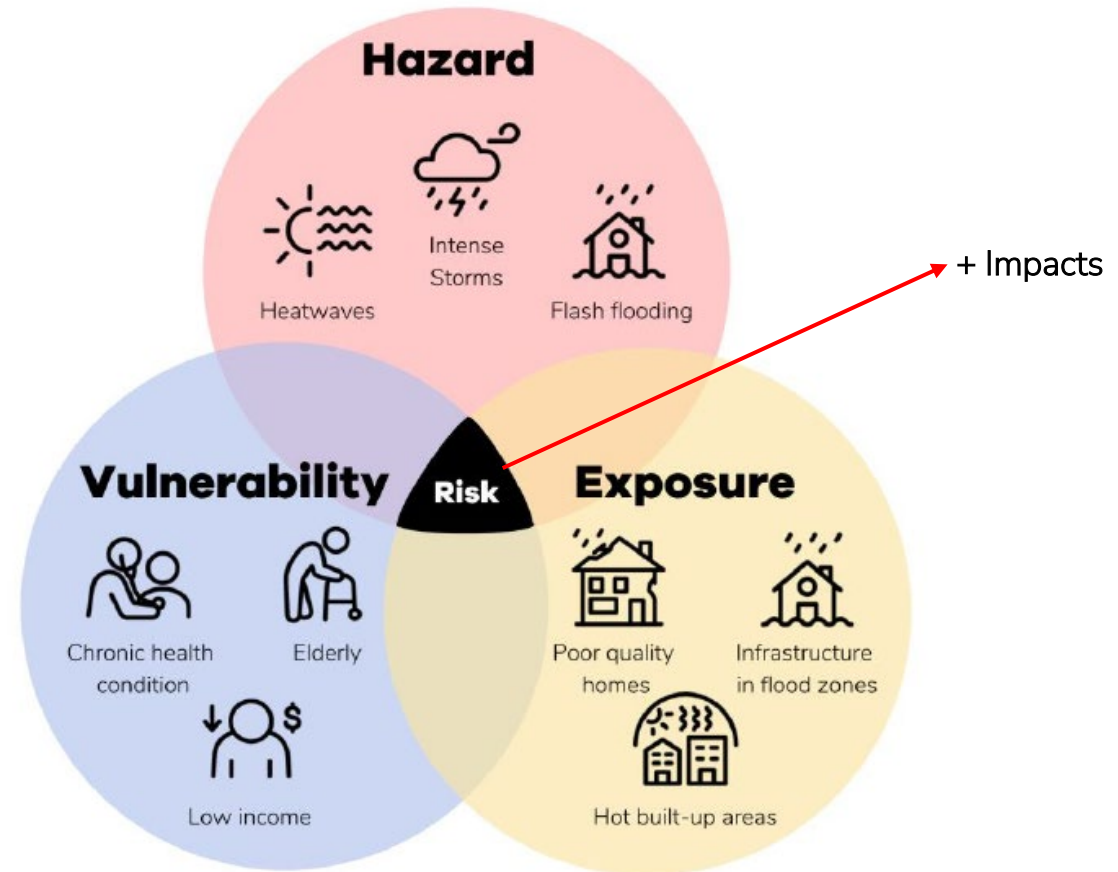
Method



Method

- Step 1 – Historical Data
- Step 2 – Existing Site Conditions
- Step 3 – Anticipated Climate Hazards
- Step 4 – Climate Impacts
- Step 5 – Risk Assessment
- Step 6 – Adaptation Action Plan
- Implement and review!

In line with *AS-5534:2013 Climate Change Adaptation for Settlements and Infrastructure*



Step 1 – Historical Data



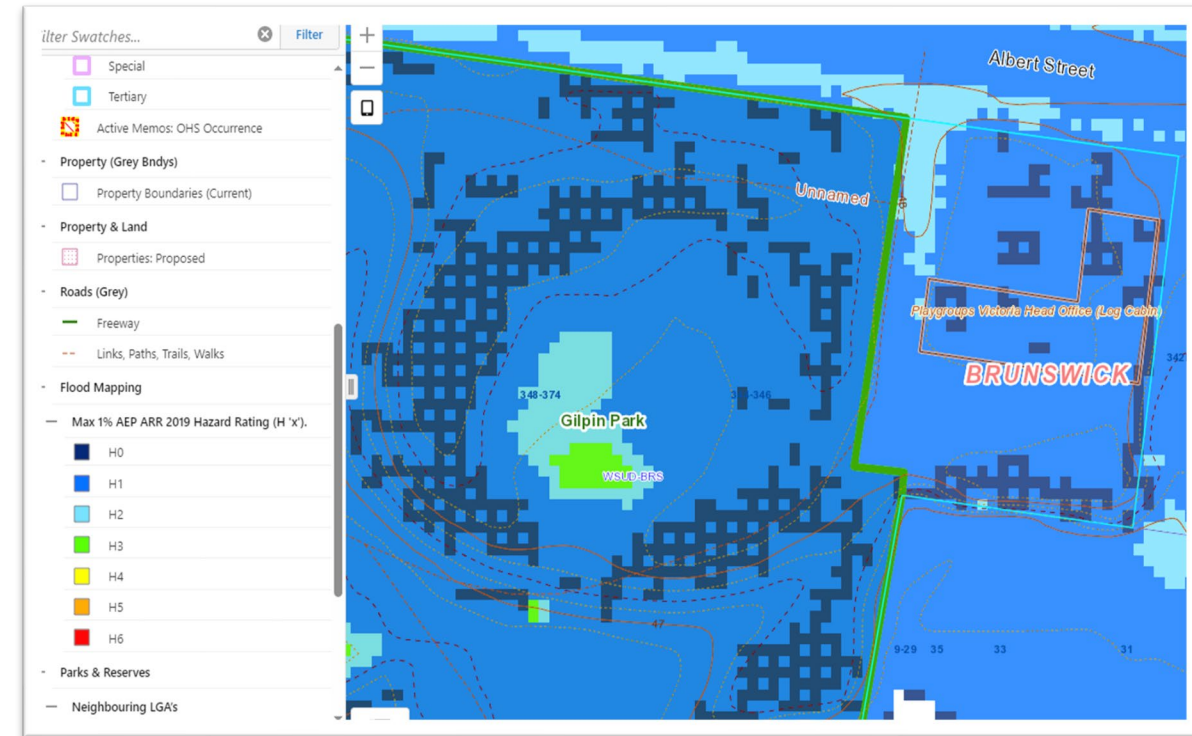
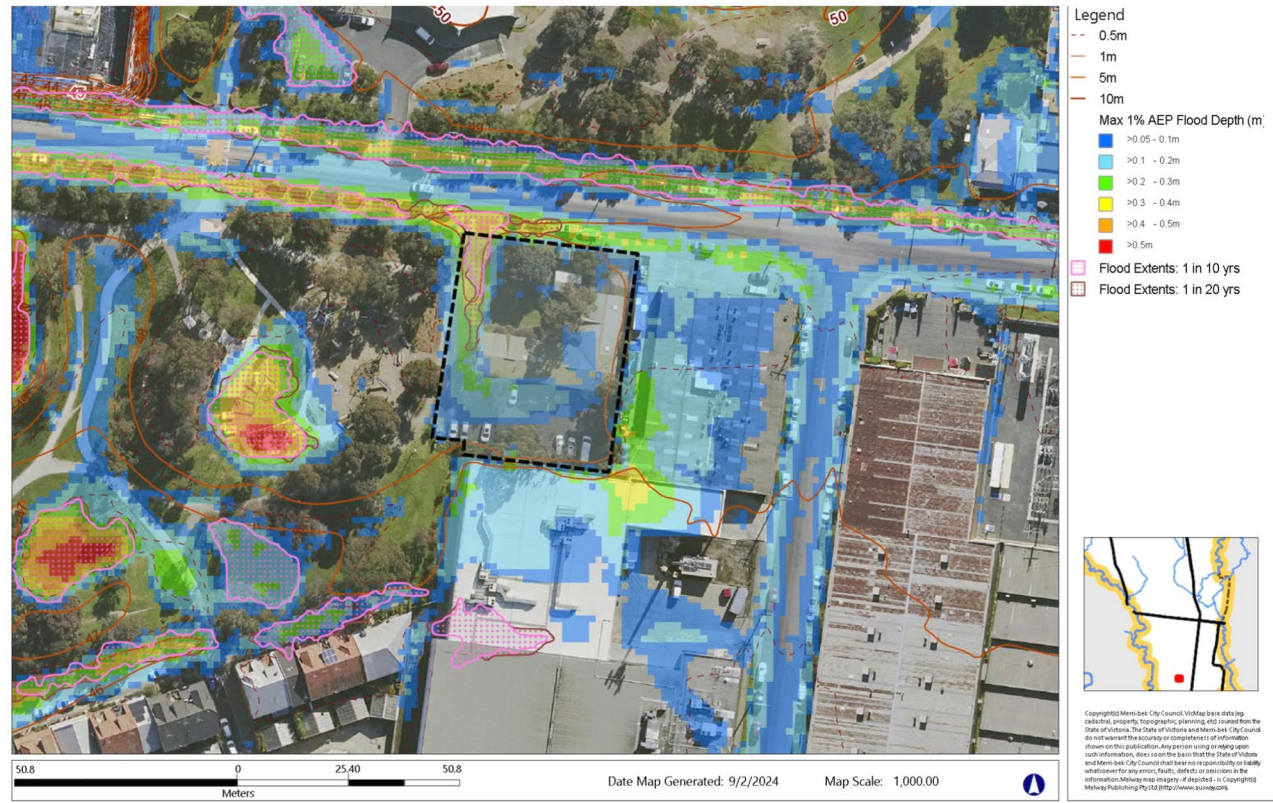
Statistic Element		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Noc	Dec	Annual
Temperature	Mean maximum temperature (Degrees C) for years 1939 to 2023	26.7	25.9	24.1	20.2	16.4	13.8	13.2	14.4	16.9	19.5	21.9	24.6	19.8
	Highest temperature (Degrees C) for years 1939 to 2023	45.8	47.3	40.7	35.2	26.7	22.6	21.9	24.4	30.3	36.4	41.5	44.4	34.8
	Date of Highest temperature for years 1939 to 2023	19-Mar-05	7-Feb-09	4-Mar-42	10-Apr-05	4-May-67	8-Jun-05	18-Jul-13	27-Aug-07	12-Sep-09	12-Oct-06	21-Nov-19	20-Dec-19	7-Feb-09
	Mean number of days >= 35 Degrees C for years 1939 to 2023	4	2.3	1	0	0	0	0	0	0	0.1	0.5	2.3	10.2
	Mean number of days >= 40 Degrees C for years 1939 to 2023	0.9	0.3	0.1	0	0	0	0	0	0	0	0	0.4	1.7
	Mean minimum temperature (Degrees C) for years 1939 to 2023	13.8	14.1	12.7	10.1	7.9	6.1	5.4	5.8	6.9	8.4	10.2	12	9.5
	Lowest temperature (Degrees C) for years 1939 to 2023	5.7	5.3	3.7	0.6	0.1	-3.3	-2.6	-2.4	-1.6	-0.3	2.2	4	-3.3
	Date of Lowest temperature for years 1939 to 2023	22-Jan-40	20-Feb-63	26-Mar-05	30-Apr-09	24-May-08	17-Jun-69	4-Jul-63	29-Aug-18	17-Sep-49	9-Oct-39	4-Nov-70	3-Dec-55	17-Jun-69
Rainfall	Mean rainfall (mm) for years 1929 to 2023	43.7	43.6	39.5	54.6	48.7	40.4	42.7	48.4	50.9	60.4	58.8	51.5	583.2
	Highest Daily Rainfall (mm)	112.8	118	67.6	100	58.4	68.6	42.7	34.4	54	89.4	89.4	52.6	118
	Date of Highest rainfall for years 1929 to 2023	1963	1973	1970	1935	1974	2013	1936	1975	1960	1934	1954	1933	1974
	Lowest rainfall (mm) for years 1929 to 2023	0.4	0.5	1.9	6.6	3.3	8	12.8	14.8	11	6.8	7	1.3	350.4
	Date of Lowest rainfall for years 1929 to 2023	2009	1965	1948	2019	1934	1974	1979	2011	2008	2006	1937	1972	1938
Other	Mean 3PM wind speed (km/h)	23.6	21.6	20.4	20.1	19.8	19.9	22	23.1	23.8	23.3	23.1	23.5	22
	Mean daily solar exposure (MJ/(m*m)) for years 1990 to 2023	24.1	20.9	16.3	11.2	7.7	6.3	7.1	9.9	13.4	17.8	21.2	23.9	15

Step 2 – Existing Site Conditions



Merri-bek
City Council

Flood modelling



A separate meeting between key stakeholders (including capital works and drainage) was held to discuss flooding solutions (Gilpin Park, Drainage, or building-scale solution).

Step 2 – Existing Site Conditions



Merri-bek
City Council

Urban Heat modelling



Step 3 – Anticipated Climate Hazards



Data source:		https://www.climatechangeinaustralia.gov.au/en/projects/victorian-climate-projections-2019/vcp19-accessing-data									Notes
		Historic Baseline	2050				2070				
			RCP 4.5		RCP 8.5		RCP 4.5		RCP 8.5		
Temperature	Annual Mean Maximum (c)	19.8	1.56	21.4	1.93	21.73	1.97	21.77	2.94	22.74	<i>Projections are degrees celcius</i>
	Annual Mean Minimum (c)	9.5	1.11	10.6	1.37	10.87	1.4	10.9	2.19	11.69	<i>Projections are degrees celcius</i>
	Days over 35c	10.2	14	N/A	16.4	N/A				<i>No clear data for 2070 period</i>	
	1-in-20 year hottest day (c)	N/A	2.11	N/A	2.71	N/A	1.83	N/A	3.47	N/A	<i>Projections are degrees celcius</i>
Rainfall	Annual Mean (mm)	583.2	-6.48%	545.4	-7.71%	538.2	-9.20%	529.5	-11.08%	518.5814	<i>Projections are %</i>
	Summer Mean (mm)	138.8	1.42%	140.8	-2.44%	135.4	4.07%	144.4	-0.52%	138.0782	<i>Projections are %</i>
	Autumn Mean (mm)	142.8	-6.03%	134.2	-4.17%	136.8	-8.18%	131.1	-14.78%	121.6942	<i>Projections are %</i>
	Winter Mean (mm)	131.5	-8.16%	120.8	-7.48%	121.7	-10.64%	117.5	-14.24%	112.7744	<i>Projections are %</i>
	Spring Mean (mm)	170.1	-14.39%	145.6	-19.55%	136.8	-15.29%	144.1	-17.94%	139.5841	<i>Projections are %</i>
	1-in-20 year wettest day	N/A	1.35%	N/A	-5.87%	N/A	9.76%	N/A	6.88%	N/A	<i>Projections are %</i>
Other	Mean daily Solar Radiation (MJ/sqm)	15	2.66%	15.4	3.71%	15.56	3.30%	15.5	4.51%	15.68	<i>Projections are %</i>
	Wind Speed (km)	22	-1.59%	21.7	-2.44%	21.46	-1.47%	21.7	-2.18%	21.52	<i>Projections are %</i>

Step 4 – Climate Impacts



Capital / Hazard	Increased Temp	Heatwaves	Decreased Rainfall	Extreme Weather
Physical	Damage to building and landscaping elements from excessive dry periods	Stress, reduced performance, and potential failure of HVAC equipment	Reduced ability to re-use stormwater for toilet flushing	Storm damage to cladding, glazing and landscaping and associated maintenance costs
Social	Decreased outdoor play and socialization	Increased reliance on building as 'safe space' or refuge during heatwaves	Reduced socialisation due to outdoor areas becoming less habitable	Reduced access of service due to flooding or damage to asset
Financial	Increased OPEX to mitigate climate impacts (e.g., insurance and repairs)	Increased OPEX to maintain thermal comfort	Reduced non-potable water and associated water bills	Loss of business due to extreme storm events
Human	Danger to clients and staff from malfunctioning equipment	Increase respiratory health issues associated with regional bushfires and air pollution.	Risk of injury from playing on hard surfaces (with dieback of grass)	Disruption to education or reduced access due to damage to the asset and service delivery.
Natural	Stress to flora and fauna	Vegetation dieback from extreme heat events	Thinning of canopy cover due to drought conditions	Uprooting of trees and associated safety and damage risks

Step 5 – Risk Assessment



CONSEQUENCE RATING					
	Insignificant	Minor	Moderate	Major	Catastrophic
Physical	Negligible damage to physical infrastructure, services and building elements.	Minor damage to physical infrastructure, services and building elements with no disruptions to service and operations.	Moderate damage and stress to physical infrastructure, services and building elements with potential disruptions to service and operations.	Major damage to physical infrastructure, services and building elements with major disruptions to service and operations.	Catastrophic damage and failure of key physical infrastructure, services and building elements with further impacts on social, human and financial capital.
Social	No impact on service delivery or social networks.	Minor disruptions to service and operations.	Moderate short-term disruptions to service and operations.	Major stress and reduced capacity to deliver key services and operations.	Catastrophic, long-term impacts in delivering services and supporting social networks.
Financial	Negligible costs or financial impacts.	Minor costs for building repairs or maintenance of 10%	Moderate financial burden and increased operational costs of 10-50%.	Major financial stress and operating costs of 50-90%.	Catastrophic financial losses and impact to operating costs >90%.
Human	Negligible impacts on humans / building users.	Minor stress and reduced capacity of humans / building users.	Moderate short-term stress on the health and wellbeing of humans / building users.	Major and prolonged stress and impacts on health and wellbeing of humans / building users.	Catastrophic impacts on the health and wellbeing, leading to illness or loss of skills, for humans / building users.
Natural	Negligible environmental damage.	Minor impacts to environmental assets.	Moderate short-term stress and impacts on environmental assets and ecosystem services.	Major impacts and damage to environmental assets and ecosystem services.	Catastrophic and long-term damage to environmental assets and ecosystem services.

Rating	Rare	Unlikely	Possible	Likely	Almost Certain
Insignificant	1	2	3	4	5
Minor	2	4	6	8	10
Moderate	3	6	9	12	15
Major	4	8	12	16	20
Catastrophic	5	10	15	20	25

MEASURE OF LIKELIHOOD			
Rating	Descriptor	Recurrent Risk	Long-term Risks
Almost Certain	Could occur several times a year	Has happened several times in the past year and in each of the previous 5 years OR Could occur several times per year	Has a greater than 90% chance of occurring in the identified time period if the risk is not mitigated
Likely	May arise about once per year	Has happened at least once in the past year and in each of the previous 5 years OR May arise once per year	Has 60-90% chance of occurring in the identified time period if the risk is not mitigated
Possible	May occur a couple of times a generation	Has happened at least once in the past year and in each of the previous 5 years OR May arise once in 25 years	Has a 40-60% chance of occurring in the identified time period if the risk is not mitigated
Unlikely	May occur once in a generation	May have occurred once in the last 5 years OR May arise once in 25-50 years	Has 10-30% chance of occurring in the future if the risk is not mitigated
Rare	May occur once in a lifetime	Has not occurred in the past 5 years OR Unlikely during the next 50 years	May occur in exceptional circumstances (i.e. less than 10% chance in the identified period if risk not mitigated)

Step 5 – Risk Assessment



RISK ASSESSMENT MATRIX																	
Risk area	Risks	Consequence	Current - 2024		2050 - RCP 4.5		2050 - RCP 8.5		2070 - RCP 4.5		2070 - RCP 8.5		2070 - RCP 8.5		2070 - RCP 8.5		
			Likelihood	Risk Rating	Likelihood	Risk Rating	Likelihood	Risk Rating	Likelihood	Risk Rating	Likelihood	Risk Rating	Likelihood	Risk Rating	Likelihood	Risk Rating	
Physical [capital] Risks (transport, infrastructure, energy, communication)	Increased energy demand associated with higher AC usage.	Minor	Possible	6	Low	Rare	2	Low	Possible	6	Low	Possible	6	Low	Likely	8	Medium
	Decreased durability of certain building elements (i.e. renders, soft timber products, and window seals) due to increased heat and radiation.	Moderate	Unlikely	6	Low	Unlikely	6	Low	Possible	9	Medium	Possible	9	Medium	Likely	12	High
	Damage to building and landscaping elements from excessive dry periods (such as concrete footpaths)	Minor	Rare	2	Low	Unlikely	4	Low	Possible	6	Low	Likely	8	Medium	Likely	8	Medium
	Increased risk of black-outs during peak heat events.	Moderate	Unlikely	6	Low	Possible	9	Medium	Possible	9	Medium	Possible	9	Medium	Likely	12	High
	Stress, reduced performance and potential failure of HVAC equipment during peak heat events.	Major	Unlikely	8	Medium	Possible	12	High	Possible	12	High	Likely	16	High	Likely	16	High
	Reduced usability of outdoor play spaces.	Moderate	Unlikely	6	Low	Possible	9	Medium	Likely	12	High	Likely	12	High	Almost Certain	15	High
	Potential failure of other electrical elements impacting function of building/service	Moderate	Rare	3	Low	Rare	3	Low	Unlikely	6	Low	Unlikely	6	Low	Possible	9	Medium
	Reduced ability to re-use stormwater for toilet flushing.	Moderate	Unlikely	6	Low	Unlikely	6	Low	Possible	9	Medium	Possible	9	Medium	Likely	12	High
	Increased maintenance of rainwater tanks and pump infrastructure during particularly dry periods.	Minor	Possible	6	Low	Possible	6	Low	Likely	8	Medium	Likely	8	Medium	Almost Certain	10	Medium
	Drying soil erosion and reduced structural support (for footings and footpaths).	Moderate	Unlikely	6	Low	Possible	9	Medium	Possible	9	Medium	Likely	12	High	Likely	12	High
	Storm damage (cladding, glazing, landscaping) and maintenance requirements and costs.	Moderate	Unlikely	6	Low	Possible	9	Medium	Possible	9	Medium	Likely	12	High	Likely	12	High
	Building inundation and damage due to stormwater flooding.	Major	Rare	4	Low	Rare	4	Low	Unlikely	8	Medium	Possible	12	High	Likely	16	High
	Reduced access and usability of asset due to damage and/or inundation.	Moderate	Rare	3	Low	Rare	3	Low	Unlikely	6	Low	Possible	9	Medium	Likely	12	High
	Stormwater overflow and drain blockages.	Minor	Rare	2	Low	Unlikely	4	Low	Unlikely	4	Low	Possible	6	Low	Likely	8	Medium
	Damage to shade sails from strong winds.	Minor	Possible	6	Low	Unlikely	4	Low	Possible	6	Low	Possible	6	Low	Likely	8	Medium
Reduced performance / capacity of gutters to cope with additional rainfall. Damage to roof and ceiling, resulting in leaks and associated damage.	Moderate	Unlikely	6	Low	Possible	9	Medium	Possible	9	Medium	Possible	9	Medium	Likely	12	High	
Increased humidity during and immediately after storm events leading to failure of electrical equipment, and damage to building elements such as timber or formation of mould.	Moderate	Rare	3	Low	Unlikely	6	Low	Unlikely	6	Low	Possible	9	Medium	Possible	9	Medium	
Increased asset maintenance requirements / costs.	Minor	Possible	6	Low	Likely	8	Medium	Likely	8	Medium	Almost Certain	10	Medium	Almost Certain	10	Medium	

Step 6 – Adaptation Action Plan



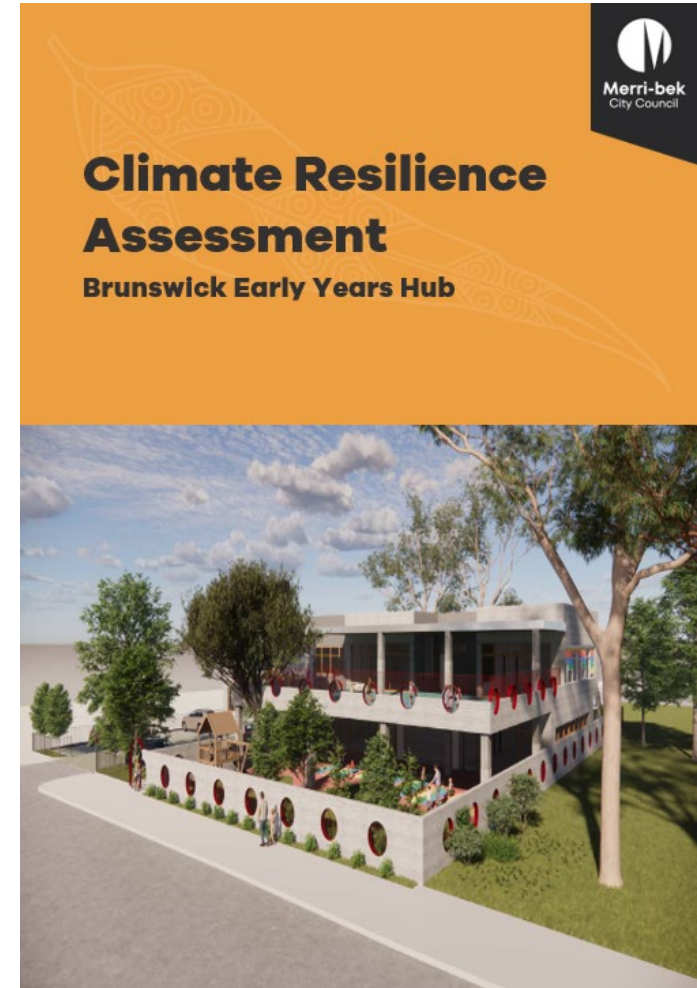
Risk area	Risks	Consequence	2024		2050 - RCP 8.5		Description	Co-benefits	Cost Implications	Key Stakeholders	Delivery Mechanism	Timeline for Delivery	Delivery Risk	Expected Risk Likelihood (following adaptation)		
			Unlikely	Low	Almost Certain	High								Possible	9	Medium
Natural [capital] Risks (Land, water, wildlife, biodiversity and ecosystems)	12 - Vegetation dieback from extreme heat events.	Moderate	Unlikely	Low	Almost Certain	High	> See H59 > See H60 > See H63	Water efficiency, ecological and cultural benefits	\$\$\$	PM, SBO, Landscape Architect and maintenance contractor	landscape Plan / strategy and landscape maintenance specifications	Include in design brief to the landscape architect	N/A	Possible	9	Medium
	Increased risk of plant loss and canopy thinning due to extreme heat and/or water restrictions.	Moderate	Rare	Low	Likely	High	> See H60 > See H63 > Include requirement in maintenance schedule to check on plants following heatwave events (multiple days over 35 degrees)	Water efficiency, cultural, amenity benefits	\$\$\$	PM, SBO, Landscape Architect and maintenance contractor	landscape Plan / strategy and landscape maintenance specifications	Include in design brief to the landscape architect	N/A	Possible	9	Medium
	Increased risk of plants dying during establishment.	Moderate	Possible	Medium	Likely	High	> See H60 (for soil preparation actions) > Include significant establishment period to ensure plant health into maturity > Time plant establishment period for Autumn or Spring to avoid periods of additional stress	Water efficiency, ecology, amenity, and cost savings	\$\$	PM, SBO, Landscape Architect and maintenance contractor	landscape Plan / strategy and landscape maintenance specifications	Include in design brief to the landscape architect	Implications to timeline if construction and landscaping fall outside Spring and Autumn	Possible	9	Medium
	Plant and vegetation damage from strong wind and storm events.	Moderate	Possible	Medium	Almost Certain	High	> Species selection to prioritise large trunk / robust species > Protect trees from storms by: regularly pruning dead or high-risk branches, installing lightening protection system on large canopy trees, potential cabling and bracing > Stake and secure plants and shrubs during establishment to avoid damage from storms	Urban cooling, biodiversity, cultural and amenity benefits	\$\$	PM, SBO, Landscape Architect and maintenance contractor	landscape Plan / strategy and landscape maintenance specifications	Include in design brief to the landscape architect	Need to balance locally native species selection with those that are robust	Possible	9	Medium

Implementation



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City Council

- Following the assessment, a summary report (right) was drafted
- It included 15 up front actions, and 4 operational actions (for tenant to deliver), including:
 - *Ground level and accessway 100mm freeboard above 1% AEP*
 - *Increased rainwater tank storage to minimize discharge and survive toilets and irrigation*
 - *Maximised site permeability (via landscaping and permeable pavement)*
 - *Dual-aspect play spaces and adequate canopy and man-made shading to provide cool outdoor areas*
- It was presented to the project sponsor (Early years and childcare) for comment
- It was then provided to the project manager to include with project specifications to be sent to the appointed architect



Next Steps..



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- Architect has just been appointed
- Following an inception meeting, a workshop will be held with the architect, PM, SBE and project sponsor to discuss the 15 actions to be included into the building and landscape design
- We are now looking to run a similar assessment for a precinct we are working on, and for infrastructure in the future (a much smaller version)



Q&A



Merri-bek
City Council



Contact



Merri-bek
City Council

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Shaun Tompkins, Sustainable Buildings Officer

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Dawkins Park Reserve Windmill, Macksville





LOCAL
GOVERNMENT
NSW

Dawkins Park Reserve Windmill

LEARNING ABOUT CLIMATE CHANGE AT DAWKINS PARK RESERVE

Campbelltown Cool Spaces for Summer 2023/2024 Trial

with funding support from
SAFECOM

Maria Zotti

Manager Environment and Sustainability Services

Presentation Outline



Explain what a cool space is and why they are important



Summarise the process and learnings of the Campbelltown City Council:

1. Cool Refuge Investigation Project
2. Cool Spaces Activation Trial



Answer any questions you have about running cool spaces

Why this project?

The death toll from heatwaves in Australia has exceeded that for any other environmental disaster, including floods, bushfires and cyclones, and the same is true for Europe and the USA.

To support the health and wellbeing of our Community we need to think about how we can help people keep cool on hot days and during heatwaves.

What is a Cool Space?

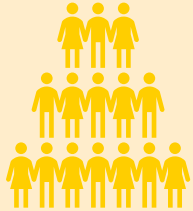


A cool space is an indoor airconditioned space that has been designated as a site to provide respite to people during extreme heat



They are intended to reduce the risks of extreme heat to vulnerable people, especially those who do not have access to air conditioning

Phase 1 – The Action Plan



Co-design approach - develop/design something of value to the Community, with the Community

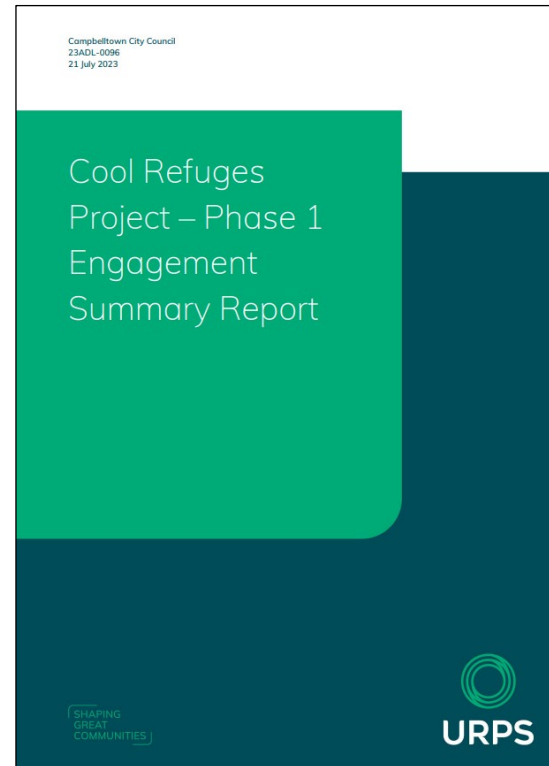
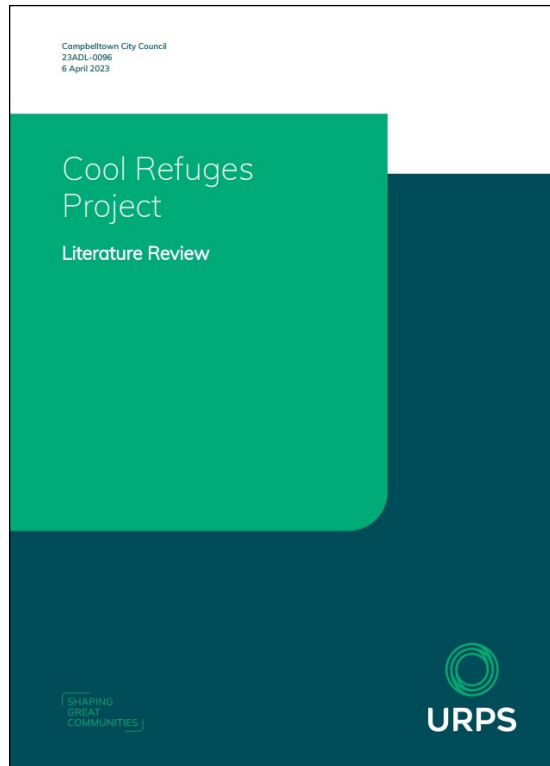



Focused on more vulnerable members of the Community



Iterative process - check point early on in project to reflect on initial findings and to decide on direction of project

Phase 1 – Outputs

Cool Spaces Pilot Project – Details

The following details will need to be determined in order to run a successful cool spaces pilot project. This information will inform many of the actions in the Action Plan and Pilot Project Plan.

Venues

A range of council venues were identified as possible locations for cool spaces. Advantages and disadvantages of each venue are summarised below. This table should be used to select at which venues the pilot project will be held in.

Council have identified that the Campbelltown Library, the ARC and the Function Centre will be the venues for the 2024 pilot project, dependent on grant funding.

Trigger type	Description	Advantages	Disadvantages
Campbelltown Library	Public library run by Council	<ul style="list-style-type: none"> Already used as a cool space. Meets most cool space criteria already including regular staffing, entertainment options and seating. Always has areas available to the public. Has solar panels. Additional staff can be rostered if required with several days notice. 	<ul style="list-style-type: none"> Already used as a cool space – formalising this may be of limited benefit. May reach capacity on hot days. Short regular opening hours on the weekends. No battery or backup generator.
The ARC Campbelltown	Modern recreation facility offering a wide range of fitness amenities, aquatic activities, and recreational programs for the community.	<ul style="list-style-type: none"> Already used as a cool space. Staffed full time, with staff trained in responding to heat stress. Long regular opening hours. Always has areas available to the public. Has solar panels. Community creche area is always free after 12pm and is well set up for use as a community space. Some activities for older people are cancelled on hot days and these spaces could be used as cool spaces. 	<ul style="list-style-type: none"> Already used as a cool space – formalising this may be of limited benefit. May reach capacity. Some changes/arrangements would be required to make this suitable as a cool space, including more public seating areas, entertainment options etc. Access to pool and courts requires payment. Air conditioning not highly effective in pool and café areas. Some areas are prebooked. Car parking is limited.

We acknowledge the Kaurna People as the Traditional Custodians of the land on which we work and pay respect to Elders past, present and emerging.

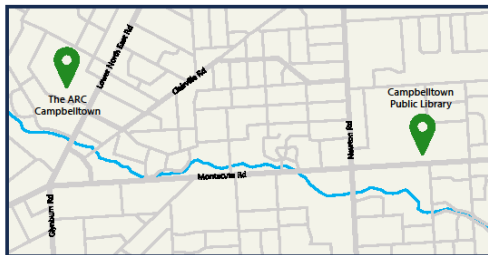
SHAPING GREAT COMMUNITIES

Phase 2 – The Trial

Aim	Activation	Preparation
<ul style="list-style-type: none">• Test effectiveness of cool spaces.• Improve future cool space delivery.	<ul style="list-style-type: none">• Ran trial at Library and Recreation Centre.• Activated cool spaces during extreme/severe heatwaves.• Spaces operational for up to 3 days per activation	<ul style="list-style-type: none">• Tools: Checklist, observation sheet, feedback form.• Staff training: Heat illness recognition, first aid.• Risk management plan.• Staff roster for extended hours.

Phase 2 – Communications Plan

Let's beat the heat together!
Cool Spaces Locations



Where to find us:

[The ARC Campbelltown](#)
531 Lower North East Rd,
Campbelltown

[Campbelltown Public Library](#)
171 Montacute Rd,
Newton

Find out more at:
www.campbelltown.sa.gov.au/services/health-and-safety/cool-spaces-for-summer

Register for updates here:



Did you know?



**WE'RE PART OF THE
COOL SPACES FOR
SUMMER PROJECT!**

Come cool down with us and beat the heat!

REGISTER HERE FOR
UPDATES



SCAN HERE FOR MORE
INFORMATION



*Need a lift? No sweat! For transport related
enquiries, please call 8366 9214.*

**Let's beat the heat!
Cool down with us**



Council will be trialling the activation of dedicated cool spaces for the community during heatwaves, between 26 February and 30 March 2024. Spaces include **Campbelltown Library** and **The ARC Campbelltown** where air conditioning, water and activities will be available.



**Register for notifications to stay
updated about when they will be
activated.**

www.campbelltown.sa.gov.au/coolspaces

If you require transport assistance or wheelchair access, please let us know during the registration process.



A safe, sustainable, vibrant Community



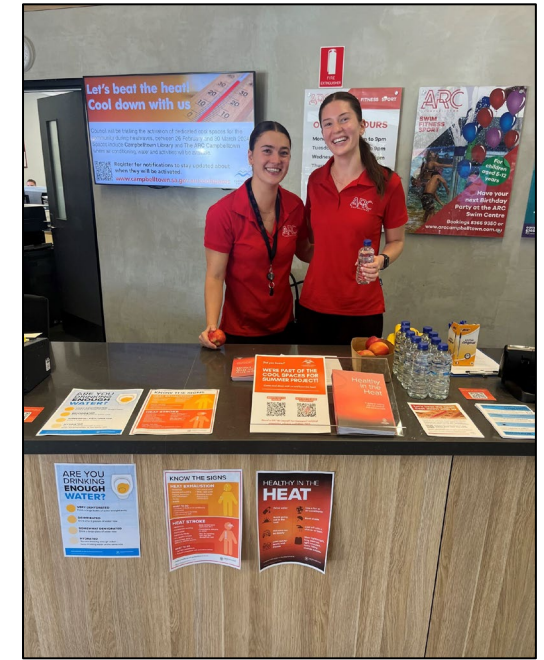
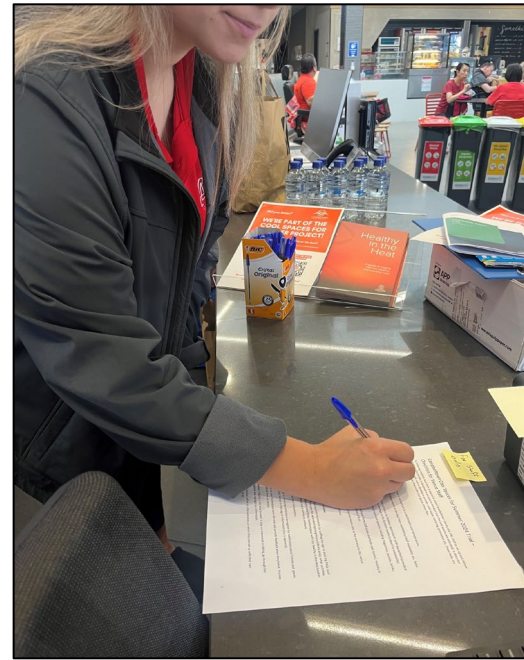
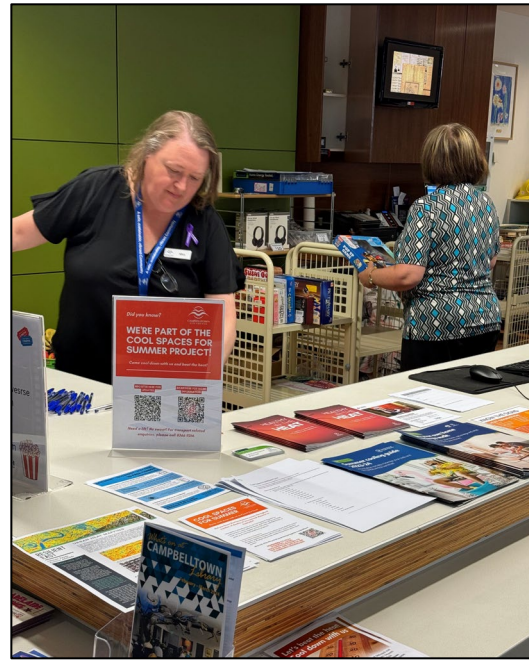
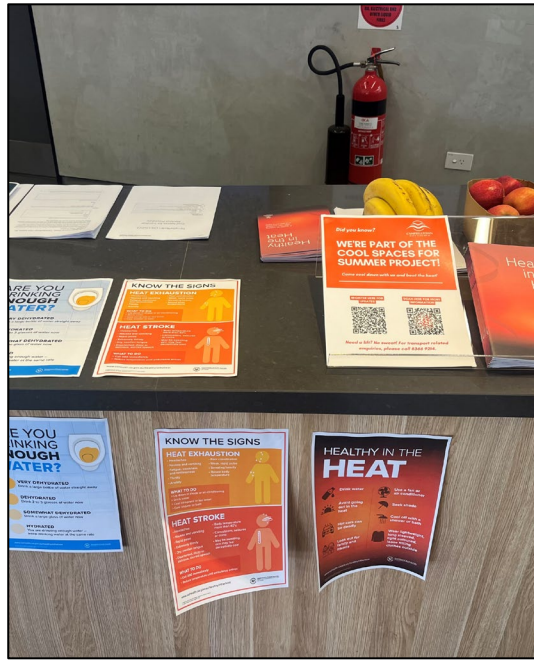
**COOL SPACES FOR
SUMMER**

Come cool down with us and beat the heat!

OPEN LONGER HOURS!

*Friday 8 March - 9:30am - 8:00pm
Saturday 9 March - 9:30am - 7:00pm
Sunday 10 March - 11:00am - 7:00pm*

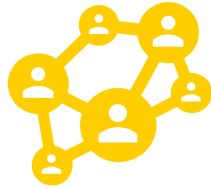
Phase 2 – What Happened During the Trial?



Key Learnings



Activation of cool spaces showed they are a great way to support the Community and help people stay cool



Being at places that are known and already visited by the community work well

Mix of people who attended for the Cool Spaces for Summer activation and people who attended who were not necessarily there due to awareness of the activation but were seeking somewhere known and cool to go.

Reinforces role of existing spaces that are set up well and can cater to increased numbers and extended opening hours on hot days is important.



Preparation and promotion is key

○○○ Cumberland City Council, UV Smart Cool Playground



Greening Darwin Research Collaboration

Adaptation in Action

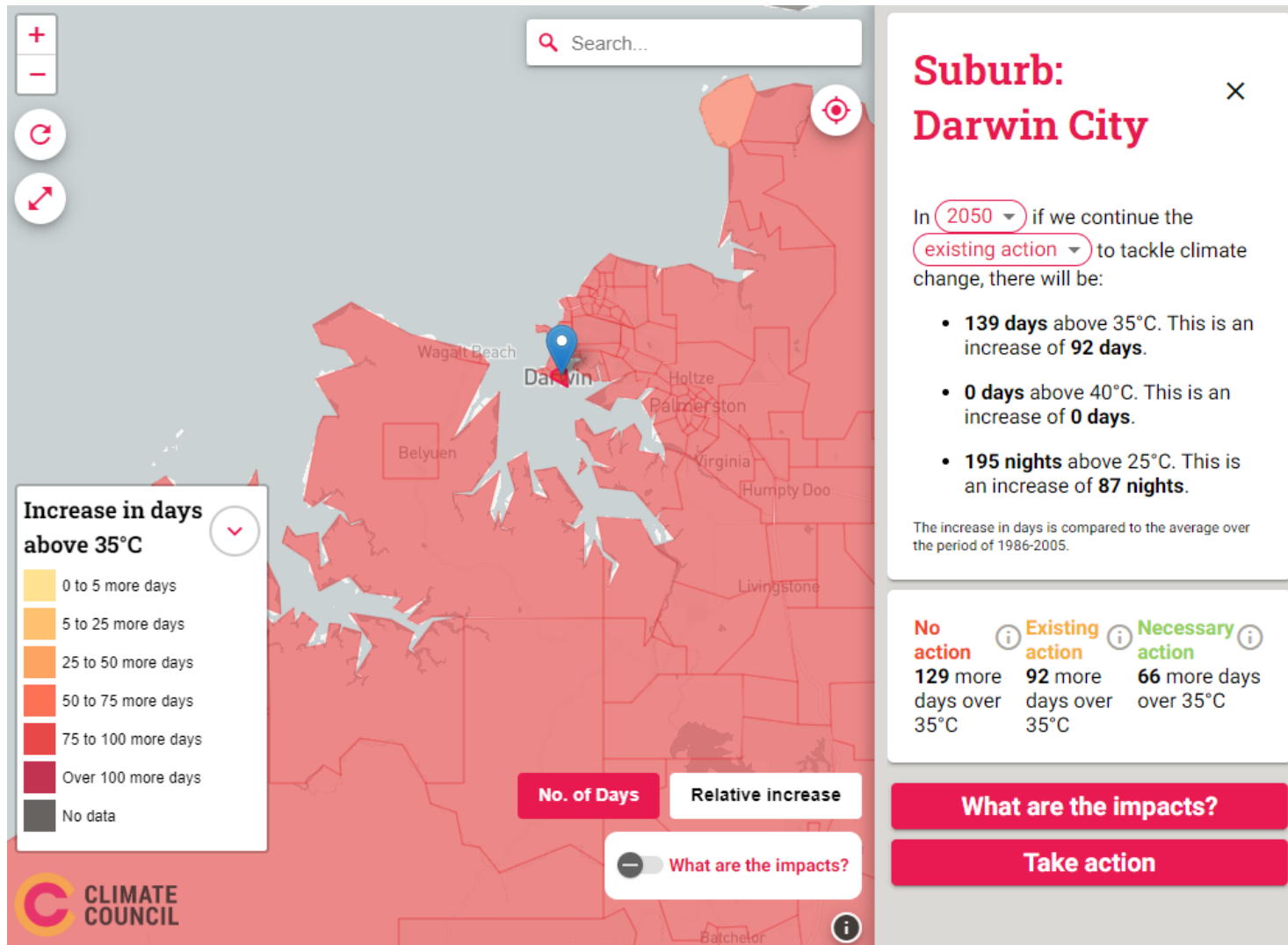
Emma Smith

Coordinator Environment & Climate Change



23 April 2024

Darwin is hot and getting hotter



- Maintaining liveability - Darwin's biggest climate adaptation challenge!
- How do we adapt in a way that is strategic, equitable and evidence-based?
- Collaboration across key stakeholders is crucial in tackling this issue
- Darwin City Deal - 10-year partnership between City of Darwin, NT Govt, and Australian Govt for a more vibrant and liveable City

Darwin Living Lab – working together

- Brings together local knowledge and resources (NT Govt, City of Darwin and our community) with trusted scientific expertise (CSIRO)
- 10-years! time enough to build strong relationships and test and evaluate heat mitigation measures – includes indoors (cool, energy-efficient buildings) and outdoors (cool, shady, breezy and green)



Darwin Living Lab – working together



FEELING COOLER IN DARWIN

Darwin Heat Mitigation and Adaptation Strategy

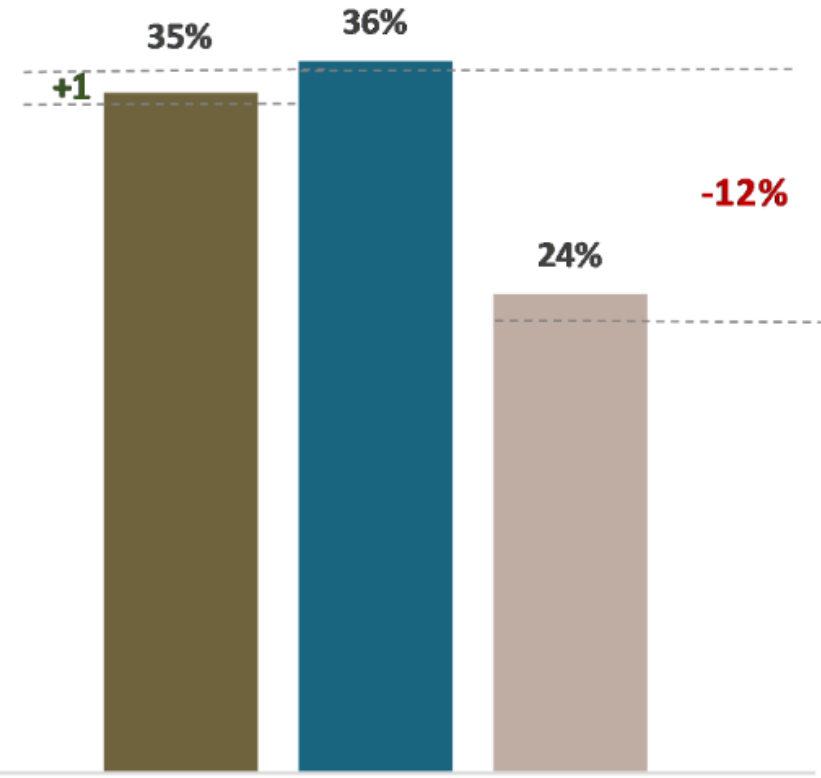


Canopy cover - past and present

Urban Monitor canopy cover analysis

Cyclone Marcus 2018

Lost over 30% of canopy



% Tree cover in the Local Government Area

2011 2016 2021

Canopy cover - future

Modelling of tree numbers required to be planted on City of Darwin streets and parks – data input a collaborative effort

To maintain canopy cover, 36,000 trees to be planted between now and 2030

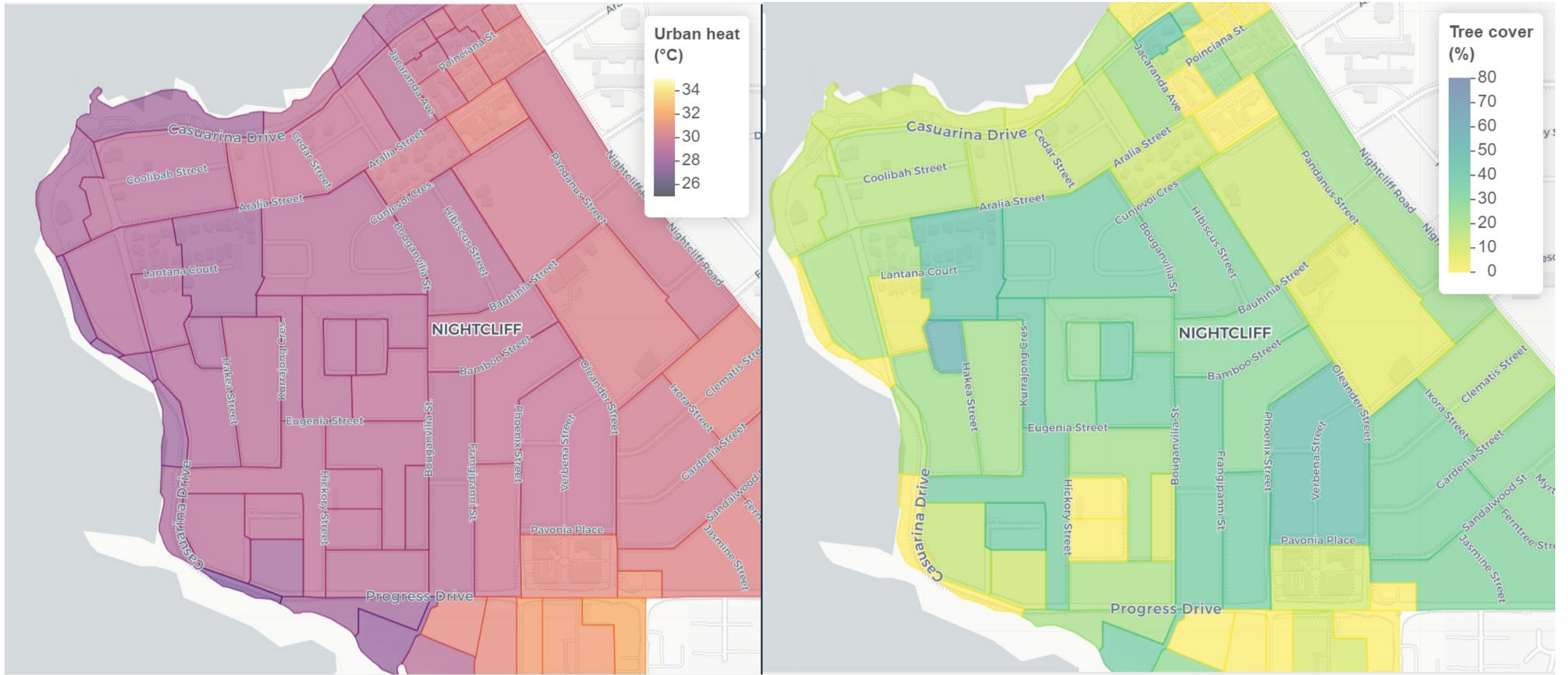


Canopy cover – 2024 Darwin Report Card climate change resilience indicator



- A** Very good 80–100% of results meet objectives
- B** Good 60–80% of results meet objectives
- C** Moderate 40–60% of results meet objectives
- D** Poor 20–40% of results meet objectives
- E** Very poor 0–20% of results meet objectives

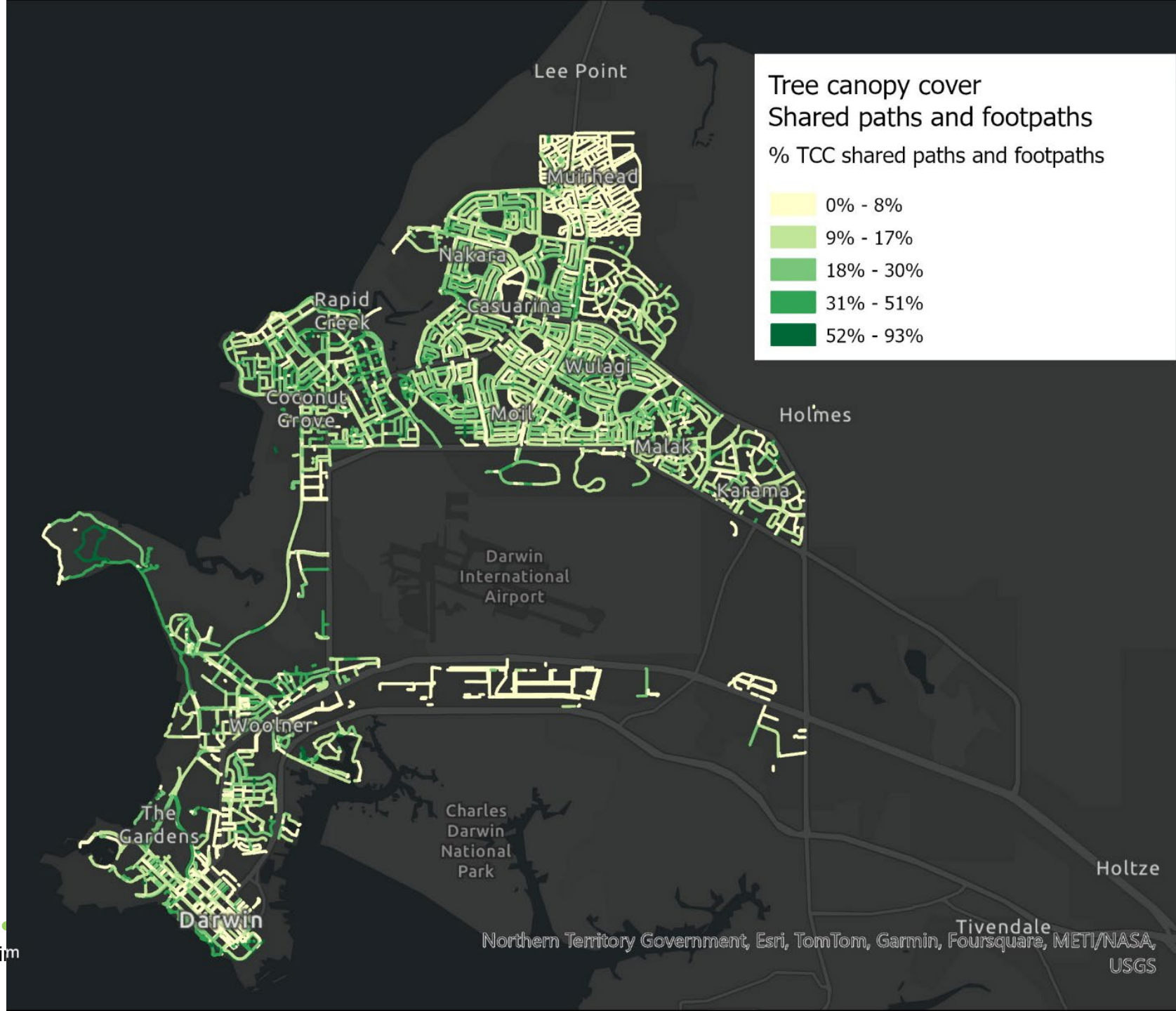
Canopy cover – 2024 Darwin Report Card climate change resilience indicator



Canopy cover planning & priorities

Input into planting and funding
priorities

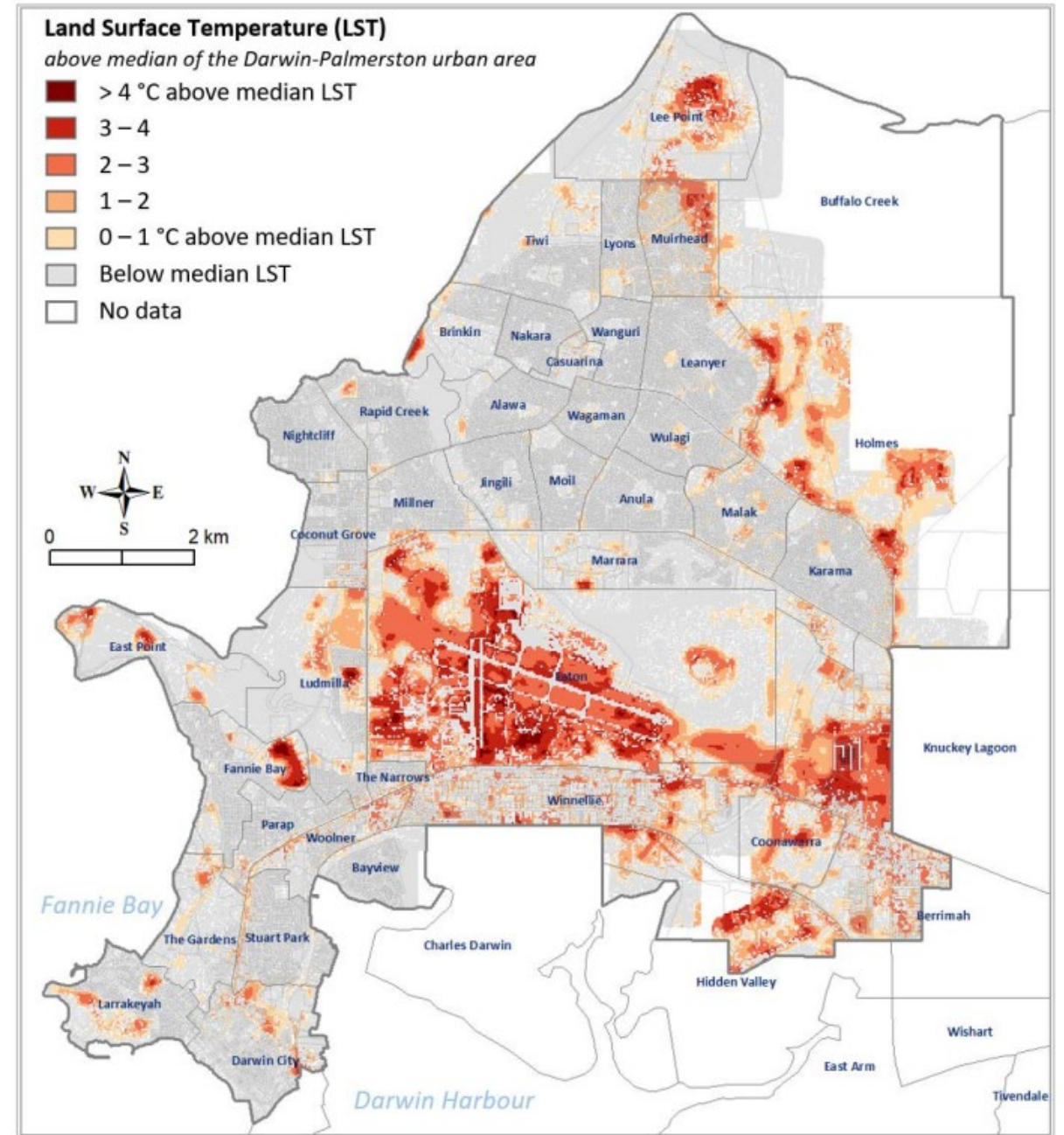
Shading along micro-mobility
routes



Potential planting sites to reduce land surface temperatures

A preliminary assessment of 'potential' planting locations is presented for an area within the City of Darwin, with land surface temperatures being used to address 'where it is hot', and 'bare ground or grass' being used to address 'where green vegetation/trees could potentially be planted'.

Meyers J, Langston A, Devereux D and Lin BB (2020) Mapping land surface temperatures and heat-health vulnerability in Darwin. CSIRO, Australia.



Ingredients for a successful research collaboration

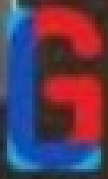
1. Long term extremely beneficial
2. Co-design of the research ensures a collaboration that benefits all parties – e.g. CSIRO considering how research findings and approaches could be used elsewhere – not just routine monitoring
3. Everyone contributes to the input of data and information- extending beyond research findings, but also leveraging the collective expertise and experience of the team
4. Research is aligned with Strategy actions, while monitoring and evaluation allows for ongoing feedback to refine approaches and track progress
5. Communication – regular, open, and clear communication ensures mutual understanding and progress tracking





Ku-ring-gai Council Simtable Modelling tool





GOVERNMENT





QUESTIONS AND ANSWERS



BREAK

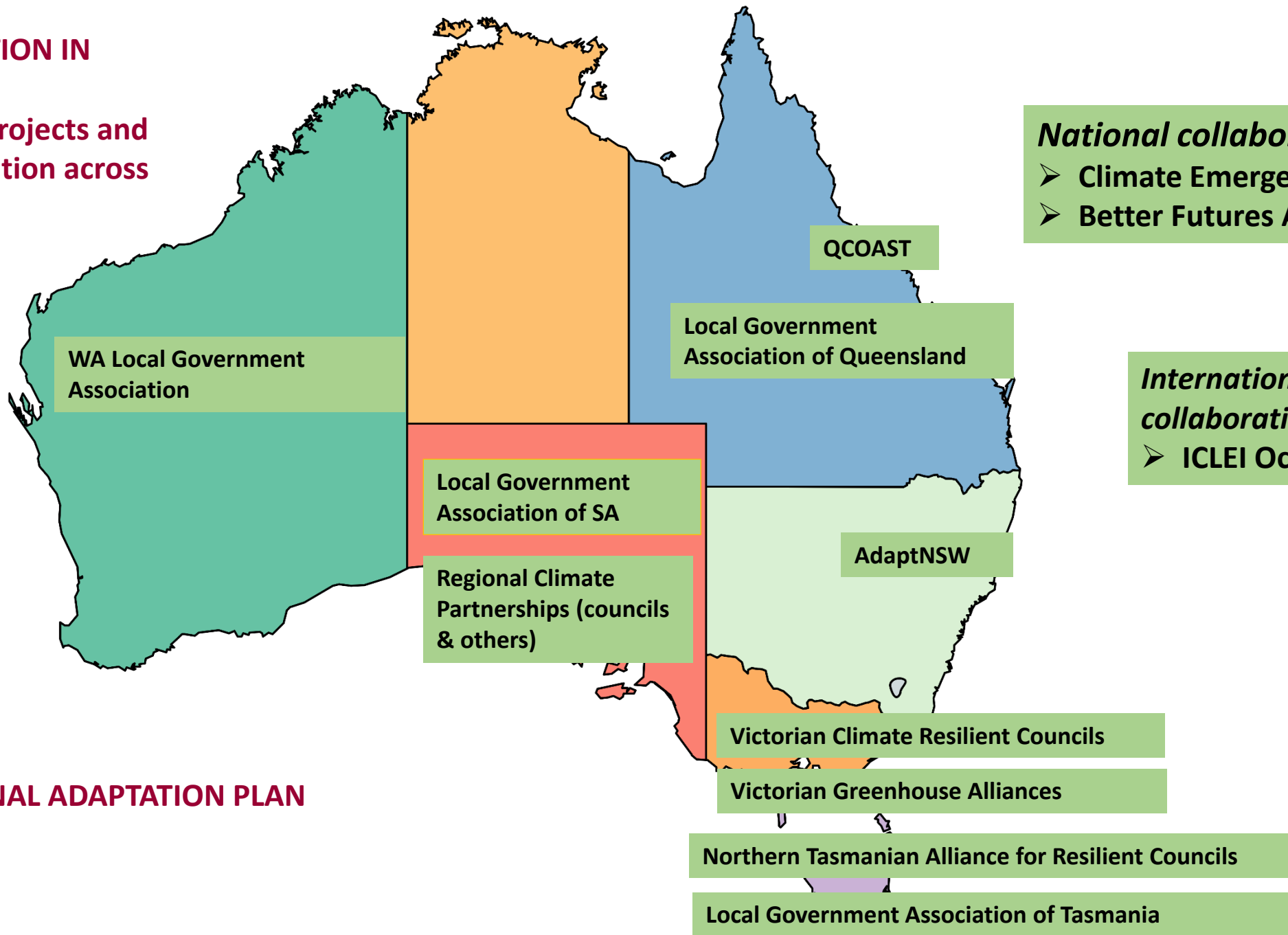
see you at 2:35/12:35



AROUND AUSTRALIA

**Adaptation networks and
initiatives to know about**

ADAPTATION IN ACTION
council projects and collaboration across Australia



National collaboration

- Climate Emergency Australia
- Better Futures Australia

International collaboration

- ICLEI Oceania

NATIONAL ADAPTATION PLAN



**Climate Emergency
Australia**

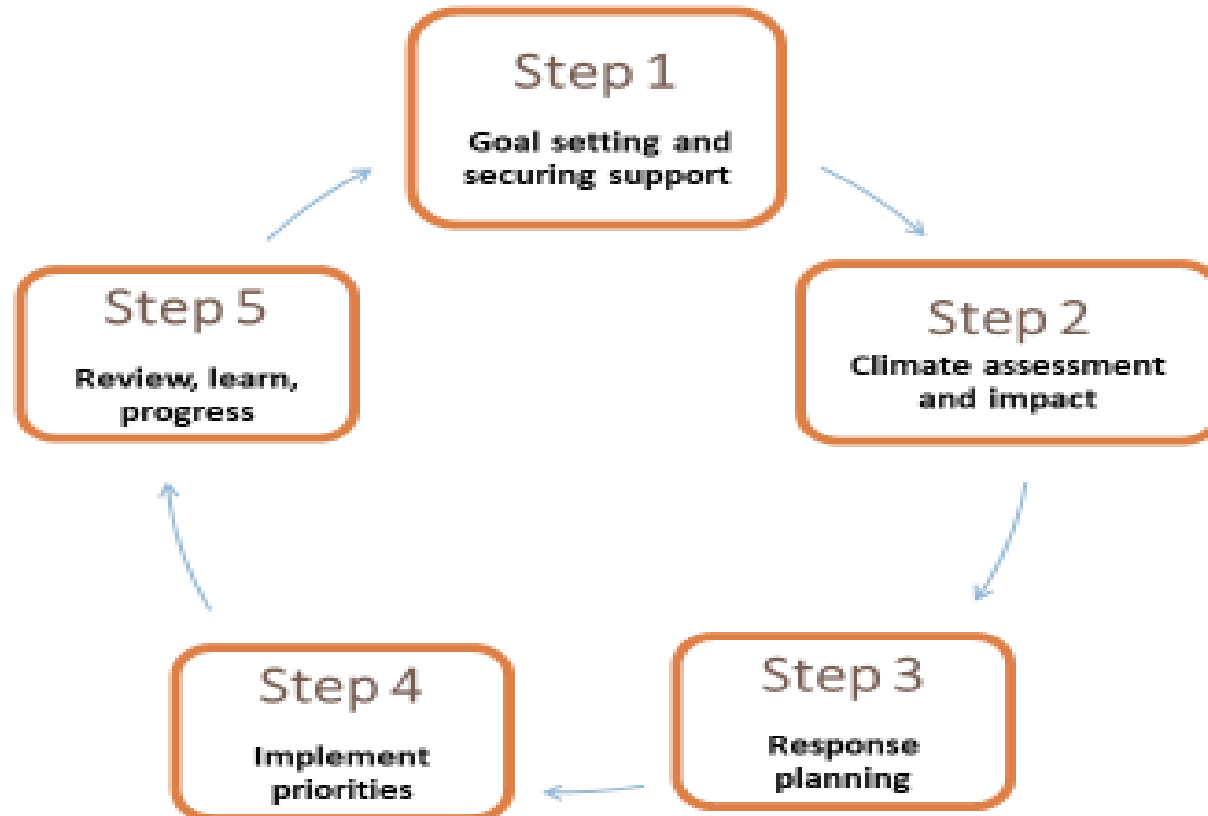
VICTORIAN CLIMATE RESILIENT COUNCILS

Victorian Climate Resilient Councils' (VCRC) will be a coordinated, state-wide program of support for Victorian local governments to strengthen their knowledge, skills and capacity to prepare, manage and reduce increased disaster risk of heatwaves/ extreme heat, storms and other hazards due to climate change. The aim of VCRC is to accelerate best-practice climate change adaptation for the direct benefit of Victorian communities.





VCRC PROGRAM



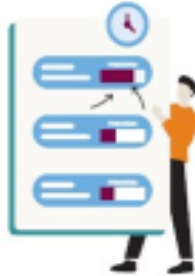


**Climate Emergency
Australia**

VCRC PLATFORM



Adaptive capacity
assessments, training,
collaborative projects



Specialist assistance for council
officers to progress through
the VCRC program



Digital platform
housing the VCRC
program and curated
resources and links
resources



Communities of practice
for council officers

Further information and
contact: <https://adapt.waga.com.au/VictorianClimateResilientCouncils>

Adaptation in Action - South Australia

Andrew Nesbitt

Central Coordinator, Climate Partnerships

Acknowledgement of Country

KAURNA LAND

The Local Government Association (LGA) acknowledges the Traditional Owners of country throughout South Australia and pays its respects to Elders past, present and emerging.

We acknowledge the unique cultural and spiritual relationships to the land, waters and seas and the rich contribution that First Nations people continue to make to our society.

The LGA operates on Kurna land and our work extends across many First Nations communities within South Australia.

We acknowledge that local government can learn from the deep feelings of attachment that First Nations people have to country and respect this relationship in the delivery of services to communities.

The LGA is committed to strengthening connections between First Nations people, councils and the broader community as the peak body for local government in South Australia.

Artwork by Kira and Codi Buckskin from Ngadli Art.

Climate Change Projects - Statewide

Proposed *Climate Change and Greenhouse Emissions Reduction Act 2007* amendments
Amendments to update greenhouse gas emissions targets and strengthen climate action.

State-wide Climate Change Risk Assessment

- Identify priority climate change risks and opportunities
- Identify where further action may be required

Climate Ready Government Policy

Requirements for public sector agencies to manage climate-related risks, opportunities and greenhouse gas emissions in their own operations.

State Net Zero Pathways Strategy

- Emissions reduction strategies and actions
- Cross-cutting & sectors
- Achieve targets

Current Programs – Local Government

Project 1

LGA Climate
Change Support
Plan

Project 2

Climate Ready
Coasts SA

Project 3

Accelerate Net
Zero

Project 4

Climate Risk
Awareness
Training

Project 5

Climate Ready
Regions (SA)
Business Case

Regional Climate Partnerships Central Coordination Function



Local Government Association
of South Australia

The voice of local government.



WALGA

Adaptation in Action

Western Australia

Niki Curtis, Senior Policy Advisor, WALGA





Acknowledgement of Traditional Owners

WALGA acknowledges the continuing connection of Aboriginal people to Country, culture and community. We embrace the vast Aboriginal cultural diversity throughout Western Australia, including Boorloo (Perth), on the land of the Whadjuk Nyoongar People, where WALGA is located and we acknowledge and pay respect to Elders past and present. WALGA is committed to supporting the efforts of WA Local Governments to foster respectful partnerships and strengthen relationships with local Aboriginal communities.

Pictured left: Artwork by Jade Dolman, a young Whadjuk/Ballardong Nyoongar, Eastern Arrernte, Irish woman from Perth.

Urban Greening Grant Program

Perth has the lowest canopy cover of any major Australian city.

Current grants provide \$3.75 million to support additional tree and understorey planting

Funded by DWER and delivered with WALGA

- Aims to:
 - Accelerate tree canopy and vegetative cover
 - Reduce the impacts of the urban heat island
 - Provide positive outcomes for biodiversity
 - Improve human health and well being
 - Improve urban hydrological functions
 - Improve social and visual amenity

Hope to extend across WA next financial year (\$20M)



Regional Climate Alliance

- Supporting WA Local Governments in regional partnerships to build capacity
- 18-month \$500,000 Pilot Program in 2022-23 (State Government funded)
- Hoping to extend program across WA next FY (\$5m)
- Employ Coordinators in each Alliance
- WALGA to support with state-wide Manager of program to provide:
 - Governance support
 - Training, templates and tools
 - Project funding



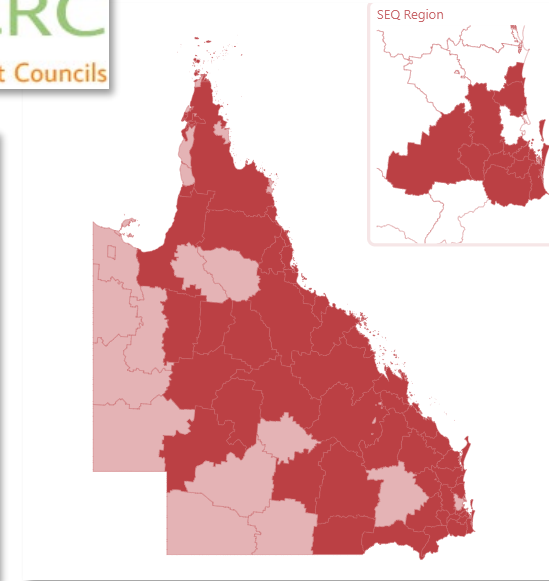
Regional Climate Alliance

Thank you!

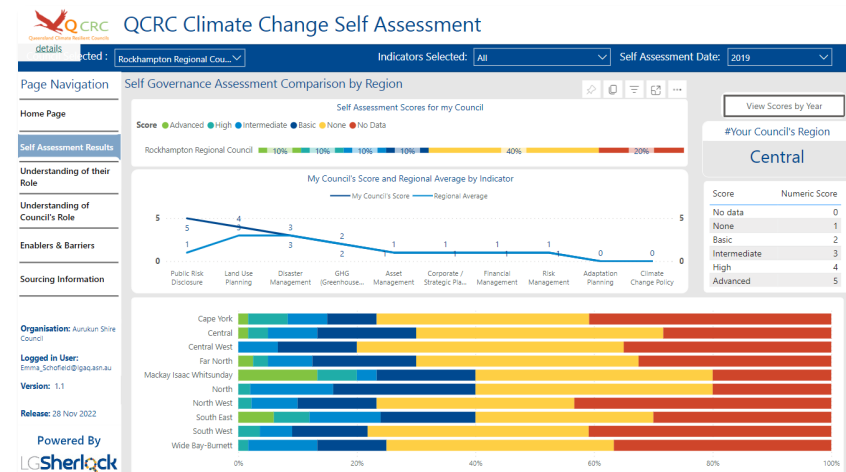
Climate Adaptation in Queensland Councils

- Queensland Climate Resilient Councils
 - Far North Queensland Climate Resilience Technical Committee
 - South East Queensland Climate Resilience Alliance
 - Climate Risk Management Framework for Queensland Local Governments
 - Governance Self-Assessment Tool: Policy Maturity and Staff Perception

+ advocacy to support council initiatives



Every Queensland community deserves to be a liveable one.



QCoast₂₁₀₀ Program: CHAS

- \$20.234M
- 37 out of 41 eligible councils
- Bespoke First Nations support
- Targeted engagement
- Implementation:

\$1.8M

\$3.3M

17 projects

12 councils

10 projects

9 councils

Coastal & Foreshore Management

Nature based Solutions

Monitoring & Engagement

Every Queensland community deserves to be a liveable one.



Further information:
Emma Schofield
 Program Manager
 E: Emma_Schofield@lgaq.asn.au
QCoast2100@lgaq.asn.au
 P: 07 3000 2255 M: 0427 660 481
 W: qcoast2100.com.au

Becoming Climate Ready

Enabling local government to identify and manage climate risk better

Climate Ready Initiative | Micro-Credential Course



- **10-week online** and interactive course (2hrs a week)
- **Local government audience** (leadership/managerial level staff)
- Purpose is to **build organisational capability** for doing climate risk management
- **2024 cohorts:** April, August, September, October



CLIMATE READY
INITIATIVE
Shaping a climate ready future

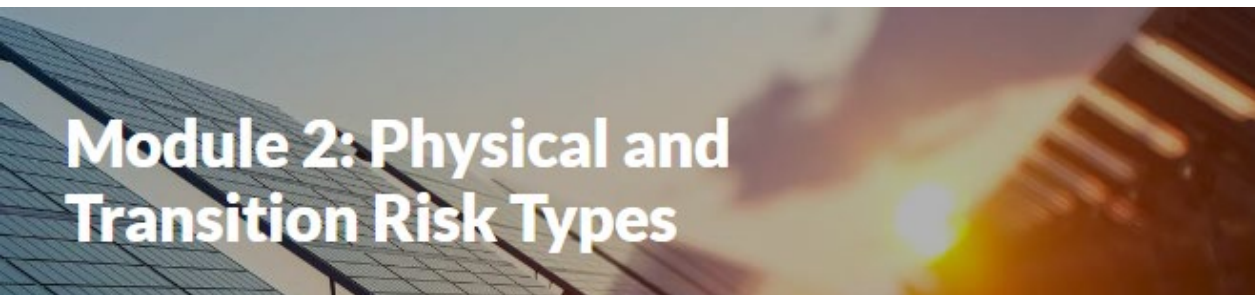
 **Griffith** UNIVERSITY
Queensland, Australia
Climate Action Beacon



Module 1: Climate change and the science for decision making



Module 5: Integrate climate risk into corporate risk management



Module 2: Physical and Transition Risk Types



Module 6: Identify and prioritise climate risks

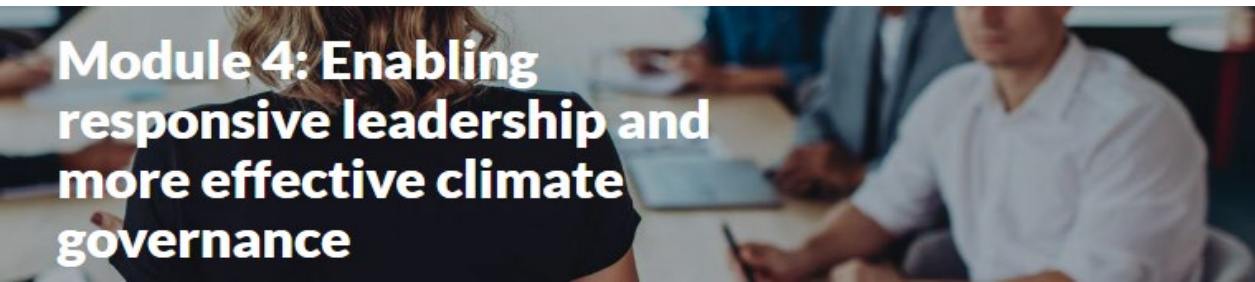


Module 3: Communicate for Engagement in Climate Risk Management

[START COURSE](#)



Module 7: Building capacity and capability and strategic action planning



Module 4: Enabling responsive leadership and more effective climate governance



Module 8: Monitoring, evaluating, and reporting progress on climate risk management



Hannah Snape, LGAT

**Program Manager – Tasmanian Local
Government Climate Capability Program**

hannah.snape@lgat.tas.gov.au

Collaboration in place: Adaptation in action!

NSW Office of Energy and Climate Change



Ciska White
Project Officer
Information Knowledge Delivery
NSW Treasury



Overview

NSW Government Increasing Resilience to Climate Change (IRCC) community grants



Overview

NSW Government Increasing Resilience to Climate Change (IRCC) community grants



Credit: Sarah Hicks

The IRCC community grants aimed to support local communities across NSW with community-led, place based projects.

The IRCC community grants helped communities to:

- Identify and support practical projects.
- Foster partnerships; and
- Generate and share lessons.

Case Studies

NSW Government Increasing Resilience to Climate Change (IRCC) community grants



Head, heart and hands project

Tips and Lessons Learnt

Tips:

- Community connectivity has been the most powerful impact of the project.
- Restoring people's sense of hope and optimism is really important.
- Role model what resilience and adaptation look like in action.
- Developing mental health resilience empowers people to take action.
- Helping small groups of individuals to have conversations about how they will respond to climate change impacts has flow-on effects - through their networks - to the wider community.



Healing Country & community with good fire practices

Tips and Lessons Learnt

- Small scale actions can have large impacts.
- Show, rather than tell.
- Community groups are key, as is diversity
- Enable First Nations leadership on community activities
- Skills training can provide a context for community connection



Land Studio in the Capertee Valley 2021

Tips and Lessons Learnt




Tips:

- Provide a range of activities and formats to keep people interested and engaged.
- Turn manual work into a fun and inspirational experience.
- Work with engaged landholders.
- Accelerate learning by bringing people with diverse skillsets together.
- Use art practices to bring people together in creative ways around routine tasks.

environmental learning isn't restricted to the scientific and technical... we need many perspectives to restore land and build resilience.


AdaptNSW website

A NSW Government website



Search icon

About AdaptNSW ▾ Why adapt ▾ My region ▾ How to adapt ▾ Resources ▾







Resources on adaptation

AdaptNSW is committed to sharing climate adaptation information with our varied audiences. Our [stories and case studies library](#) has a wide range of inspiring stories of how climate change adaptation can be achieved on the ground. This is where you will find:


- Stories of innovation from recipients of the [Increasing Resilience to Climate Change grant projects](#) from both our community and local government grant rounds.
- [Case studies highlighting the application of NSW and Australian Regional Climate Modelling \(NARCIIM\) climate data](#) from various sectors ranging from local government to higher education.

In addition, teachers will find information on how to use the AdaptNSW website for high school subject areas such as Geography, Science, Business Studies and Economics on our [teacher resources](#) page.

	Stories and case studies →		Teacher resources →
	Resources and research →		NARCIIM case studies →


AdaptNSW website

A NSW Government website

 **AdaptNSW** 🔍

About AdaptNSW ▾ Why adapt ▾ My region ▾ How to adapt ▾ Resources ▾

[Home](#) > [Resources](#) > [Teacher resources](#)



Teacher resources on climate change in NSW

Climate change education

Scientific knowledge on climate change, as well as how to reduce greenhouse emissions and adapt across all sectors of society, is key to the future of NSW. Students must have access to high-quality educational resources that allow them to understand the basics and impacts of climate change, and empower them to be part of creating a more climate-resilient future.

This page outlines how the AdaptNSW site can be used in the classroom and links to other relevant content material and NSW Government educational resources. It's important to note that while climate change has generally been taught through the subject areas of Science and Geography, this knowledge is becoming increasingly important for Business Studies and Economics. AdaptNSW provides the following information.

- The [Impacts of climate change](#) can be investigated across eight major areas including [bushfires](#), [cultural values](#), [water resources](#), [agriculture](#), [sea level rise](#), [health and wellbeing](#) and the [economy](#).
- [Interactive climate projection maps](#) for 10 different regions of NSW and the ACT. Information available includes temperature, rainfall, fire, heat and cold nights across two projected scenarios - to 2030 and to 2070
- How climate change is affecting [households](#), [business](#), [community groups](#), [state](#) and [local government](#), and what these sectors can do to adapt to climate change and reduce their impact on the environment.
- [Case studies and stories](#) of how NSW community groups and local councils are adapting to climate change.

With over 100 pages of content, each with related information - it's important to take the time to explore the site and see what you can use for your teaching practice.

NSW Syllabus Links

Quick links

- [Basics of climate change](#) →
- [Why adapt](#) →
- [How to adapt](#) →
- [Case study: How on earth](#) →
- [Case study: StreetConnect](#) →

Downloadable resources

- [Coastal Management Teacher Resource Guide STEM](#) →
- [MyCoast NSW Teachers Guide](#) →

Making the most of the AdaptNSW website

Find the AdaptNSW website here:

www.climatechange.environment.nsw.gov.au

Teacher resources:

www.climatechange.environment.nsw.gov.au/teacher-resources

More information on the IRCC grants:

www.climatechange.environment.nsw.gov.au/community-grants

We would love to hear from you about any useful resources you'd like to share, as well as the kinds of tools or resources we could develop to help you.

adapt.NSW@environment.nsw.gov.au

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Image credits:

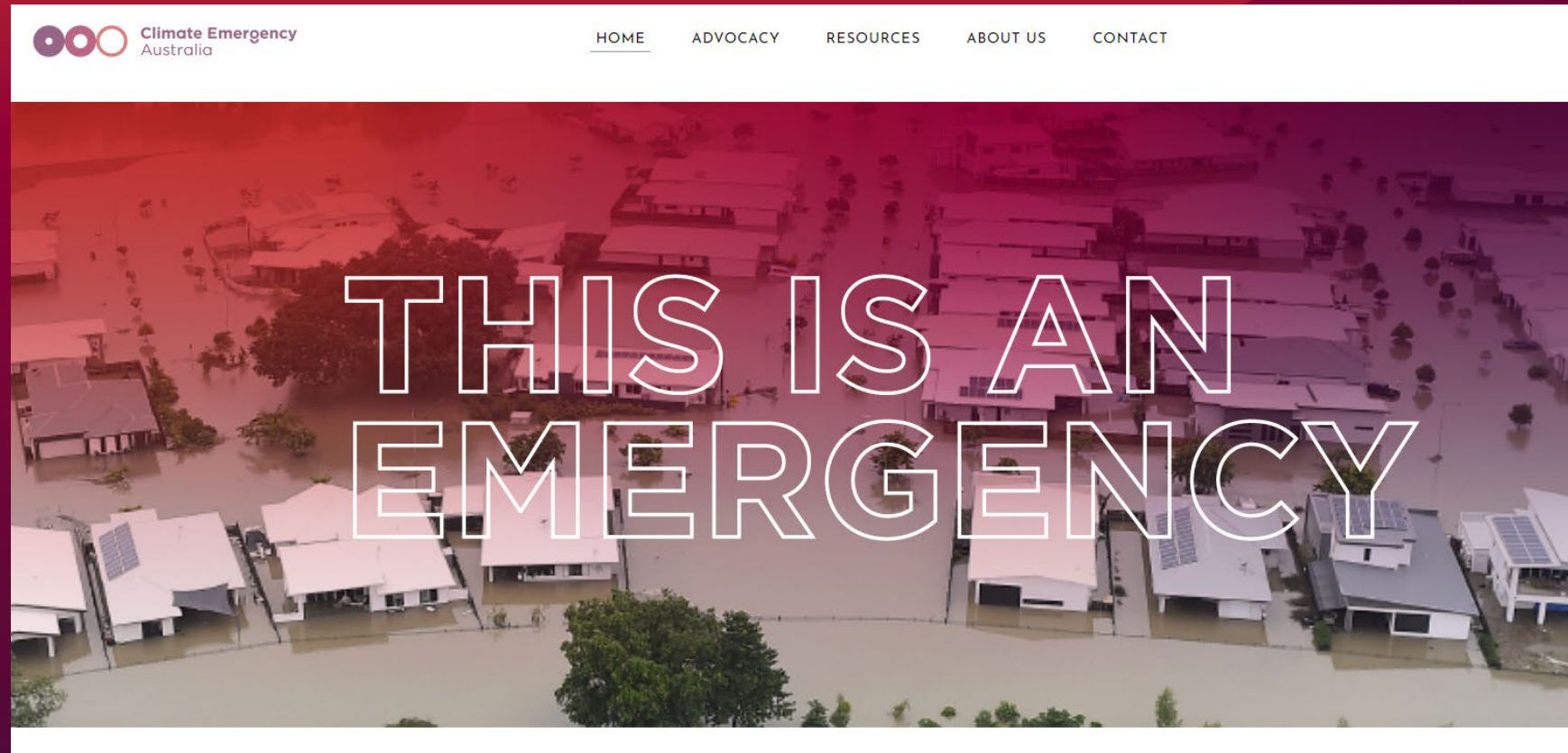
Upper Shoalhaven Landcare photos: Asha Kidd

Slide 4 Joyality Project Youth led workshop. Credit: Sarah Hicks.



**Climate Emergency
Australia**

Climate
Emergency
Australia
is a network of
Australian
councils that
have declared
a climate
emergency.





**Sharin Govender,
ICLEI Oceania**

**and Better Futures Australia
local government
working group**



Australian Government

Department of Climate Change, Energy,
the Environment and Water

National Adaptation Plan Issues Paper

Adaptation in Action
Climate Emergency Conference 2024

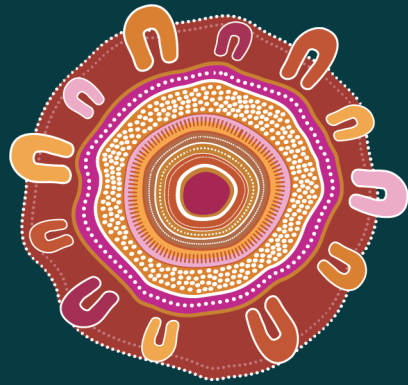
Lucy Brazier-Hollins

Assistant Director, Climate Adaptation Policy

National Adaptation Policy Office

23 April 2024





We acknowledge the Traditional Owners of Country throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past and present.



Climate adaptation in Australia: where are we at?

- Action is already underway across governments, households, industry, business and community organisations to help Australia adapt.
- The Australian Government is investing \$28 million over 2 years to deliver the National Climate Adaptation and Risk Program, including Australia's first National Climate Risk Assessment and National Adaptation Plan
- Once finalised, the National Adaptation Plan will supersede the *National Climate Resilience and Adaptation Strategy 2021-25*



About the National Adaptation Plan

- The National Adaptation Plan will establish a framework for adaptation and outline an approach to addressing the **priority nationally significant, physical climate risks** faced by Australia.
- We expect the Plan would be used by:
 - Australian Government agencies to undertake adaptation action
 - other levels of government, business and community groups, to understand the national context and framework for adaptation planning in which their own plans are made.



National Adaptation Plan Issues Paper



The Issues Paper includes:

- Context for the adaptation plan, including the roles of different levels of government and the private sector in adaptation
 - Proposed foundations for the plan
 - A look at climate risk and adaptation across 8 key systems, including a summary of action already underway and possible future directions for mainstreaming adaptation
 - Questions for consultation
-

What's next?

- Consultation on the issues paper has closed.
- Targeted follow-up consultation based on issues paper submissions.
- This consultation will inform the draft national adaptation plan to be released **Q3 2024** for public comment.



<https://consult.dcceew.gov.au/climate-adaptation-in-australia-national-adaptation-plan-issues-paper>

Thank you! Questions?

- **Learn more and stay updated:**
 - Visit <https://consult.dcceew.gov.au/climate-adaptation-in-australia-national-adaptation-plan-issues-paper> to read the National Adaptation Plan Issues Paper and to Have Your Say
 - Visit the dedicated National Climate Risk Assessment and National Adaptation Plan webpage: <https://www.dcceew.gov.au/climate-change/policy/adaptation/ncra>
- **Connect with us:**
 - For questions or suggestions on the National Adaptation Plan, please contact the National Adaptation Policy Office at climate.adaptation@dcceew.gov.au
 - For questions or suggestions on the National Climate Risk Assessment, please contact: NCRA@dcceew.gov.au



QUESTIONS AND ANSWERS



WRAPPING UP



Climate Emergency Councils

Climate Emergency Councils (Officers)

This is a discussion group for officers from councils who have declared / acknowledged a climate emergency or approaching that stage. If you would like to add anyone, please contact Sally at CEA (sallym@hume.vic.gov.au)

Set up people

Client

Ideas sharing & discussion

- Australian Local Government Climate Review: survey open now**
- Thermal Camera**
Hi everyone. I am trying to find out 9
- Regen Streets - online forums**
Regen Melbourne are running online
- Time is running out to get in-person tickets!**
- Climate risk training with Griffith Uni - last chance to book for this**

Resources

- Discussion Forums**
- Webinars**
- Guides and checklists**
- Training Materials**

Calendar

- FRI, APR 19**
Climate Emergency Conference 2024
- TUE, APR 23**
Climate Emergency Conference - Day 2 - all online
1:00pm - 5:00pm

To join CEA's basecamp, go to www.climateemergencyaustralia.org.au or email sallym@hume.vic.gov.au



BREAK

See you at 3:45/1:45PM