

AUCKLAND'S URBAN HEAT ASSESSMENT: FUTURE CLIMATE



Auckland's temperate climate means Aucklanders get outdoors nearly all year round. We enjoy a liveable environment – not too hot, not too dry, and we have lots of lush green spaces.

Auckland Council wants to understand how a warming climate in the future may impact Aucklanders across the region. A better understanding of a warming climate now, makes sure we are future ready.

Heat will increasingly need to be considered as we plan urban spaces, build our homes, or decide where to plant trees.

We have time to plan for more extreme heat

Auckland is already experiencing warmer summers, and temperatures are expected to continue rising as the climate changes. This increases the risk of extreme heat, including more frequent hot days, longer heatwaves, and warmer nights. These changes can affect people's health and wellbeing, disrupt infrastructure and services and place additional pressure on homes, buildings, and the natural environment.

In cities, these risks are intensified by the Urban Heat Island (UHI) effect. Urban areas tend to be warmer than surrounding rural areas because buildings, roads and other hard surfaces absorb and retain heat, vegetation is reduced, and human activities generate additional heat. As Auckland grows and the climate warms, the combined effect of climate change and urbanisation is expected to increase heat exposure across the region.

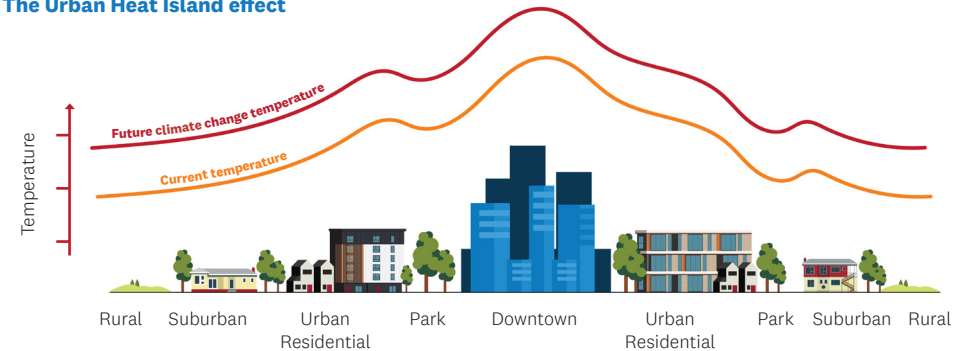
This assessment helps Auckland Council and communities understand where heat risk is greater now, how it may change in the future, and what that could mean for people and place.

What do we mean by heatwave risk?

Heatwave risk refers to periods of unusually high temperatures that persist over several days or nights and place stress on people, buildings, infrastructure and ecosystems. Heat risk is described using a range of measures, including:

- Hot days (above 25°C)
- Very hot days (above 30°C)
- Heatwaves, which are periods of several consecutive unusually hot days and nights
- Hot nights, when temperatures remain high overnight

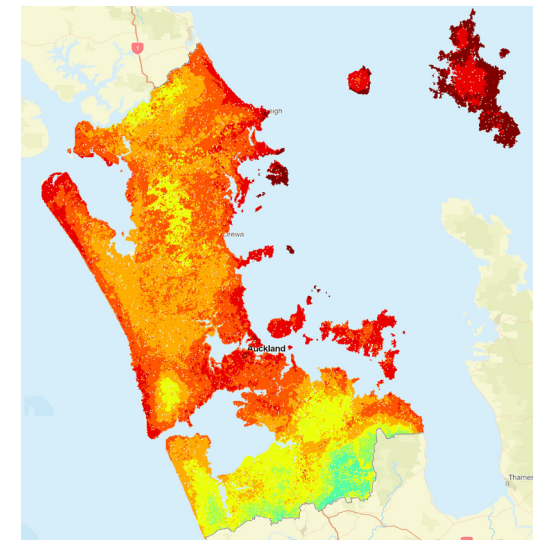
The Urban Heat Island effect



Heatwaves are particularly important because their impacts build over time. Longer and more frequent heatwaves increase health risks, especially for vulnerable groups, and reduce the ability of people and buildings to recover between hot periods.

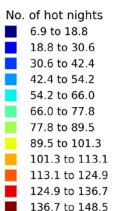
The Urban Heat Island effect plays an important role in shaping where these risks are felt most strongly. While climate change increases temperatures across the whole region, urban areas tend to experience higher overall temperatures, more frequent hot days and longer and more intense heatwaves.

This means that urban form, land cover, and access to green and blue spaces strongly influence future heat exposure, alongside global climate change.



Number of hot nights projected for 2090 in Auckland in a high emissions future

The above map shows how the temperature at night time is warmer in areas with higher urban density. This is due to the urban heat island effect. Island and coastal areas tend to be warmer than inland areas.



Why night-time temperatures matter

Hot nights are a critical but often overlooked aspect of heat risk. When overnight temperatures remain high, people and buildings have less opportunity to cool down, increasing cumulative stress over consecutive days.

- Hot nights are already common in Auckland, particularly in urban areas
- The number of hot nights is projected to increase substantially in the future
- Night-time heatwaves become longer and more frequent, especially in dense urban areas such as the city centre.

Persistent warm nights are strongly linked to increased health risks, particularly for older people, those with existing health conditions and people living in housing that is difficult to cool.

Understanding climate impacts

This urban heat assessment forms part of a wider programme of climate risk work being developed and delivered by Auckland Council. Council is taking multiple approaches to understand climate hazards, exposure and risk across the region, with this assessment providing insight into heat as one component of a broader, integrated picture.

	Now	2050	2090	2050	2090
	Baseline (hot period)	Moderate emissions future	Moderate emissions future	High emissions future	High emissions future
Average summer temperature	20°C	21°C	22°C	21°C	23°C
Hot days	16 days	31 days	56 days	40 days	88 days
Daytime heatwaves	12 days	30 days	59 days	36 days	103 days
Hot nights	36 nights	69 nights	88 nights	71 nights	112 nights



To find out more about how you and your whānau can beat the heat, visit [Auckland Climate Action](#)

How Auckland Council is turning down the heat in our community



Lay the foundations for an Auckland response

Auckland Council is developing knowledge on heat impacts across the city and on vulnerable communities to help plan for a warming climate.

Auckland Climate Action website shares knowledge with communities on the urban heat island effect and how they can cope with heat impacts.



Let nature provide the solution

The Urban Ngahere programme aims to increase the city’s urban tree canopy to 30% overall and at least 15% in every local board.

Tree planting combats urban heat and improves stormwater management, while also providing habitat for native wildlife.



Turn down the heat

Local and regional parks, libraries, pools and splashpads across Auckland provide a cost-free way to keep children cool and entertained.



Design for a hotter future

The Auckland Design Manual provides advice to developers to help create buildings that stay cool over summer.

Auckland Central Library’s living roof shows how retrofit of existing buildings can reduce heat and stormwater impacts while increasing natural habitat in urban environments.

