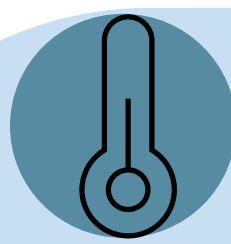




STAYING COOL IN A WARMING CITY – STRATEGIES FOR HEATWAVE RESILIENCE



Extreme heat is deadly!

Heatwaves put significant stress on the human body and are responsible for thousands of preventable deaths each year [1].



Heatwave: A period where local excess heat accumulates over a sequence of unusually hot days and nights [1].

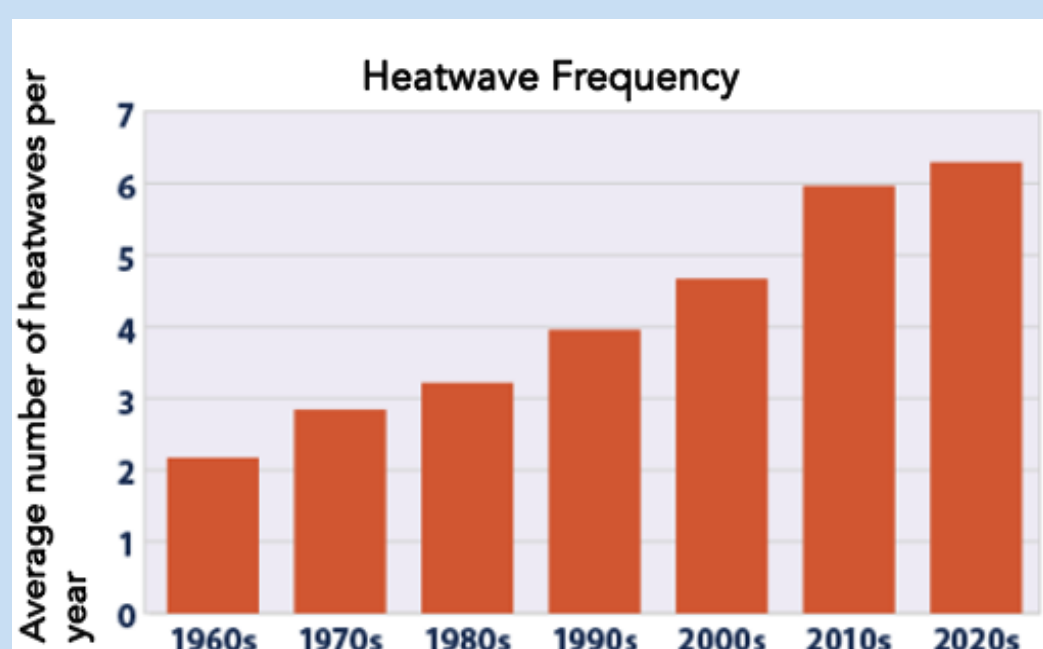


Figure 1: Bar graph showing the increase in the average number of heatwaves per year in U.S. cities from the 1960s to the 2020s, rising from about 2 to over 6 events annually [1].

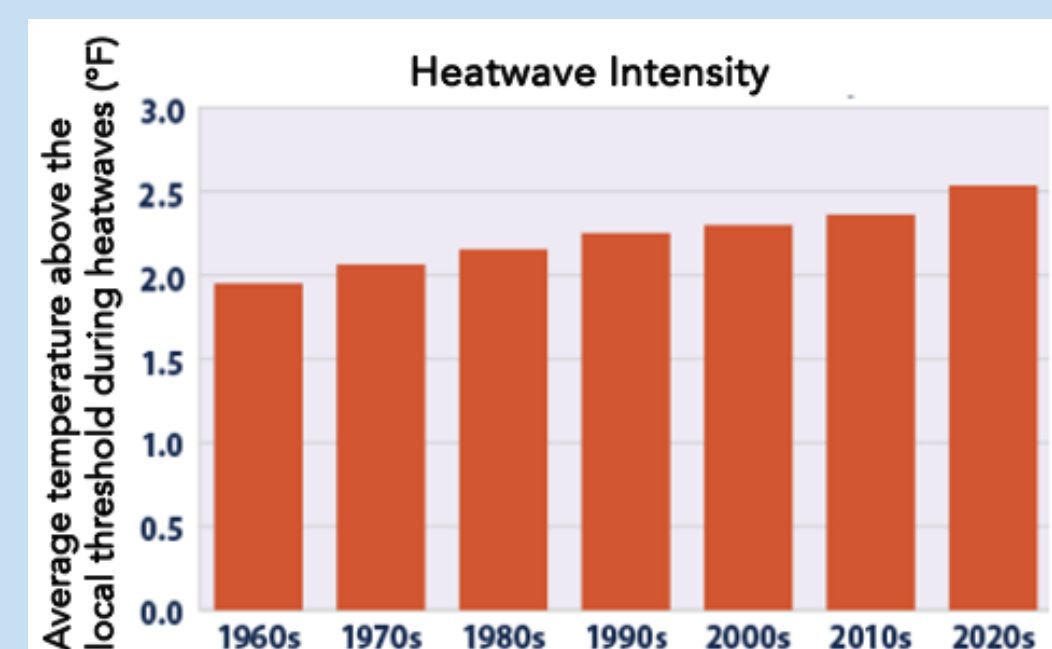


Figure 2: Bar graph illustrating the rise in heatwave intensity since the 1960s, measured as the average temperature above local threshold in °F, increasing from ~2.0 °F to ~2.6 °F (1.1 °C to 1.4 °C) by the 2020s [1].



Impacts on Humans and Economy!

People in vulnerable groups (e.g. children, elderly, people with chronic diseases, pregnant people), as well as those living in poorly insulated homes or in neighbourhoods lacking green or blue infrastructure, are the most exposed to heatwaves [2].

Extreme heat also affects infrastructure, reduces productivity, and causes significant economic losses, particularly in overheated public spaces [2, 3].



Why Cities suffer most?

Cities trap heat and amplify the **Urban Heat Island Effect**, often leading to surface temperatures 1-4 °C higher than in surrounding areas [4].

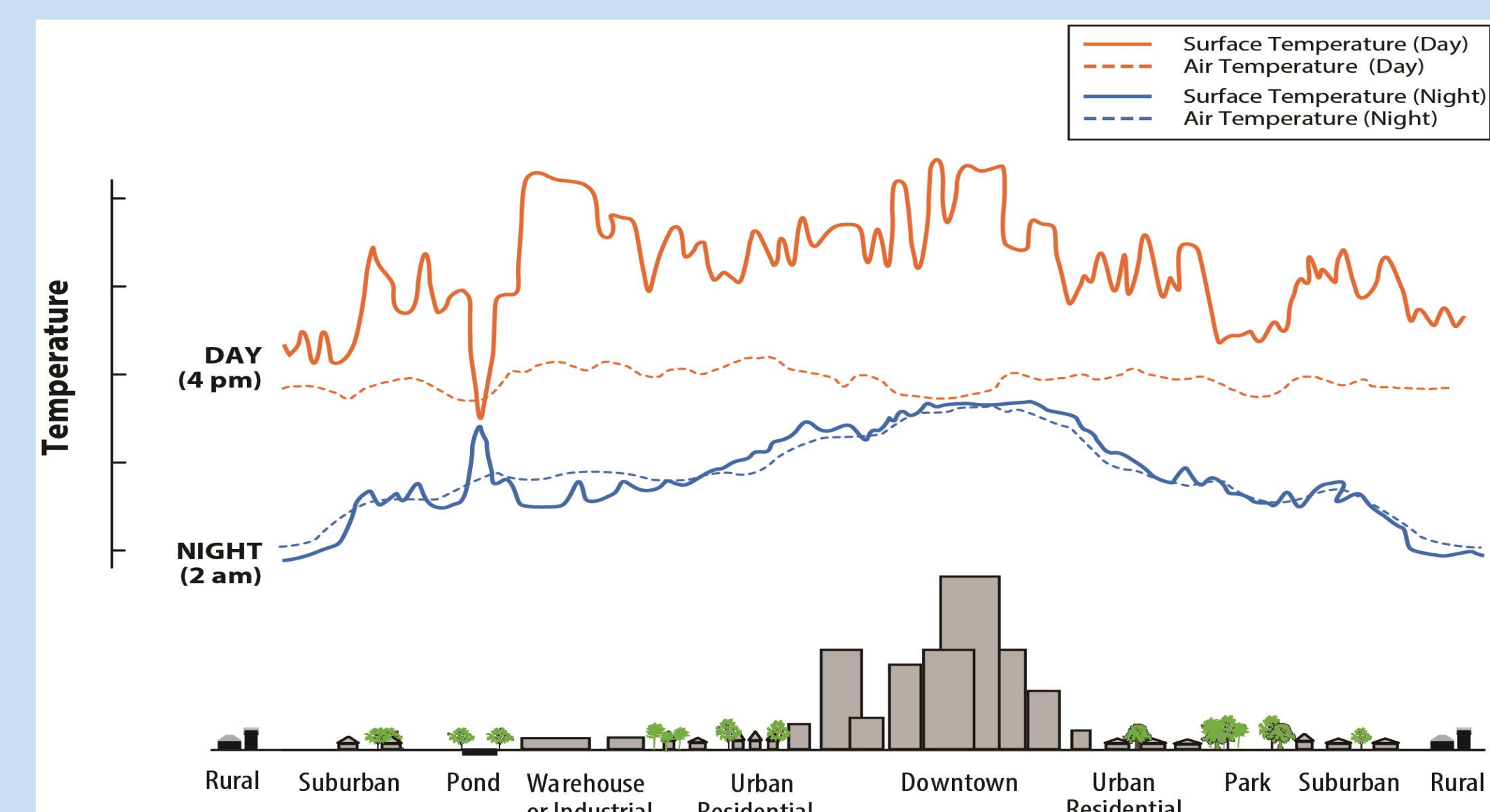


Figure 3: Temperature variations across land uses showing higher surface and air temperatures in urban areas, especially downtown, during both day and night—illustrating the Urban Heat Island Effect [4].



Strategies for staying cool



Digital Warning Systems [5]

- heat alerts via SMS, apps, and public displays
- enable preventative action to reduce health risks

Cooling Centre [6]

- repurposed public space used as cool refuge
- provide shade, water, seating, and medical support

White Roofs and Light-Coloured Pavements

- bright surfaces reflect sunlight and keep surface temperatures cool (5-9 °C cooler than conventional asphalt) [7]

Alternative Shading Structures [10]

- simple ways to reduce heat exposure
- including pergolas, textile canopies and shaded walkways

Blue and Green Infrastructure

- works via evapotranspiration, shading and thermal buffering [8]
- provides co-benefits such as biodiversity, water retention, well-being [9]



Urban heat risks are increasing – but adaptation is possible, scalable, and life-saving!

By 2050, 68 % of the world's population will live in urban areas, where heatwaves will become more intense and frequent [11]. Several strategies can be implemented in every city to reduce heat stress, comfort residents and maintain economic productivity [12].

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Figure 1 & 2: Agency, U. E. (2025, April 3). What Are Heat Islands? Retrieved from <https://www.epa.gov/heatislands/what-are-heat-islands#ref2>
 Figure 3: NOAA (National Oceanic and Atmospheric Administration). (2024). Heat stress datasets and documentation (provided to EPA by NOAA in April 2024) [Data set]
 Figure 4: Image generated using Canva AI.

