Heat Resilience in Austin

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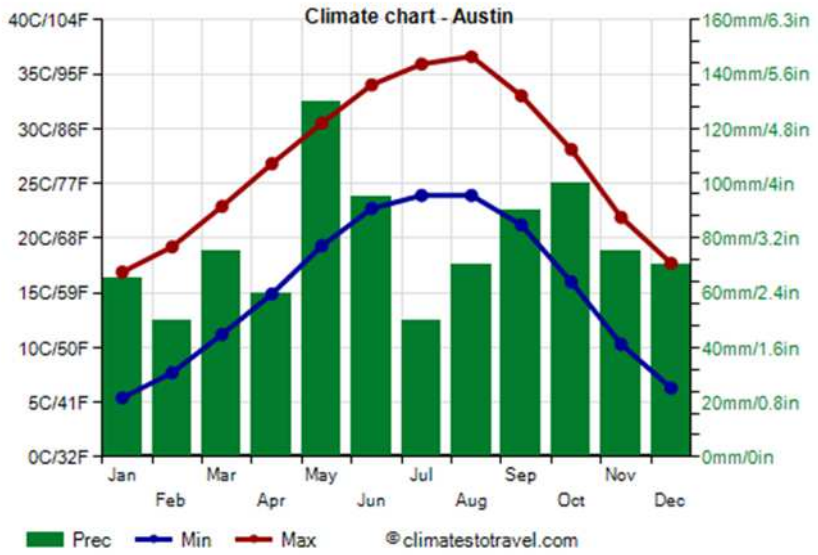
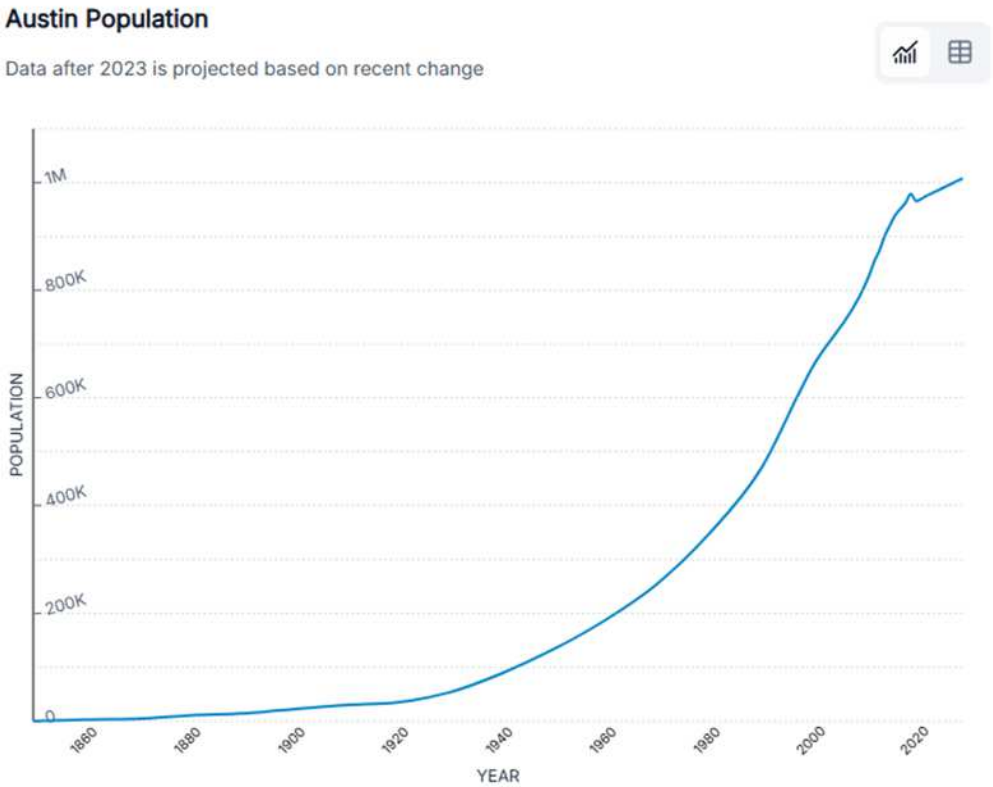
Summary of Austin, Texas



Source: Climates to Travel

- Capital city of Texas
- One of the fastest growing cities in the United States



Source: World Population Review

Austin Working to Address Heat

City of Austin Office of Climate Action & Resilience

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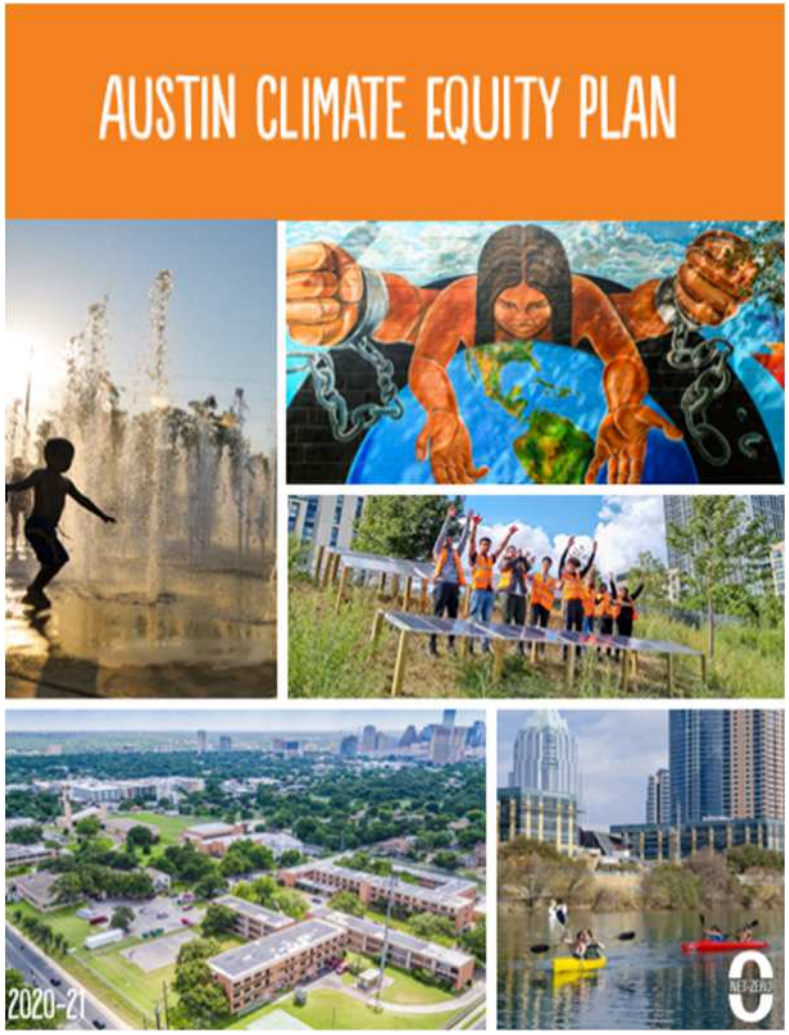
Heat Resilience Playbook (Office of Resilience)

- Public awareness & data collection
- Cooling for high-heat risk areas
- Infrastructure upgrades

Austin Climate Equity Plan

- Building emissions reduction
- Electrictric vehicles
- Use public space for green infrastructure



Research Collaborations Between The City of Austin and The University of Texas at Austin

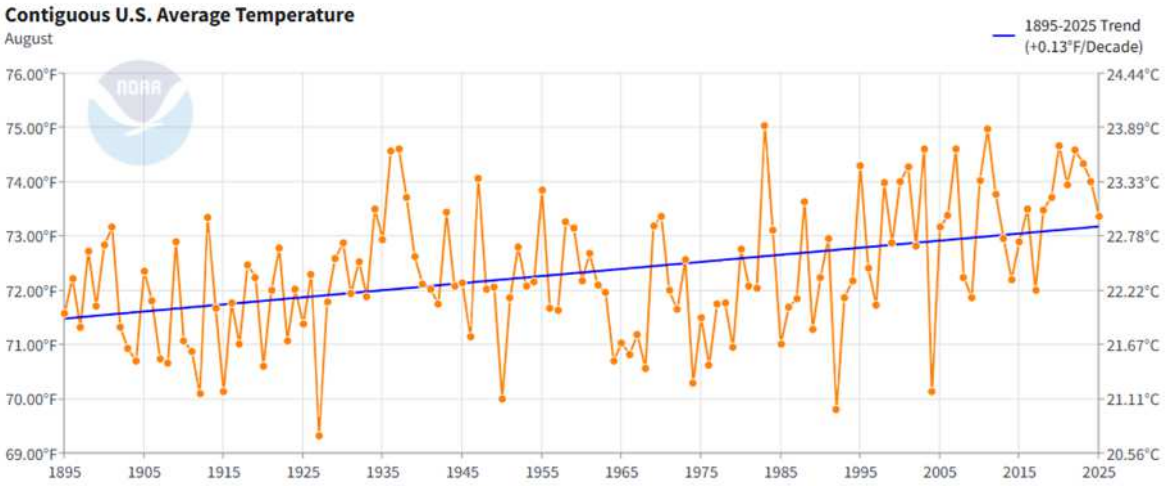
- Various partnerships between the University and the City
- LBJ School of Public Affairs
- Policy Research Project on co-benefits of Austin's Climate Plan (collaboration w/ IGES)
- Leah+Philip: Project working group on urban heat
    - Continued research via internships in Japan

IGES Institute for Global Environmental Strategies

Austin is Very Hot and Becoming Hotter

	1979-2020	2021-2040		2041-2070		2071-2100	
Emission Pathway	**Historical**	**Middle**	**High**	**Middle**	**High**	**Middle**	**High**
Avg Daily High Temp (°F)	95.5	98.5	97.9	99.6	101.2	101.3	105.5
Days w/ Max Temp >100°F	0	0	1	1	3	3	18

Based on Data by UT Climate CoLab

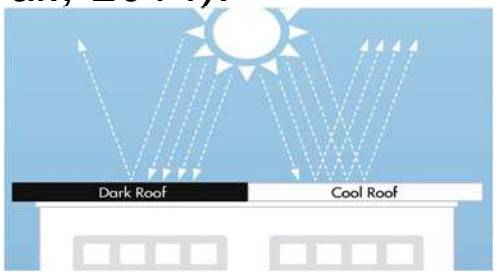


Source: NOAA Climate at a Glance

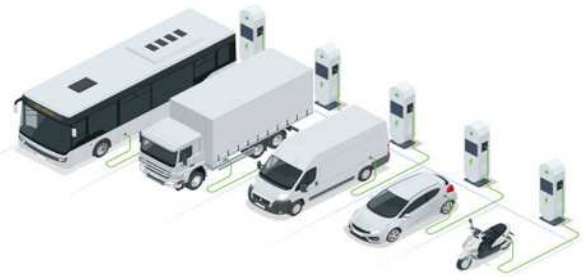
Solutions Explored by City of Austin

Green Space - cools up to **9–12.6°F** *(Venter et al. 2019)*

Parks - cools **12°F** up to 240m *(Feyisa et al., 2014).*



Cool Roofs - lower peak temperatures by **4.1°F** *(Santamouris & Niyogi, 2024).*



EVs - reduce near-surface temperatures by **1.1°F** *(Mussetti et al., 2022).*

All cooling estimates come from individual studies. Real temperature drops may differ depending on how they're applied.

Other Possible Solutions

Solution	Expected Effect
Permeable Pavements	Lowers air temperature by **1°F** *(Wang et al., 2018)*
Water Feature Access	Lowers temperature by up to **3.4°F** *(Jacobs et al., 2020)*
Green Roofs & Walls	Lowers temperature up to **6.8°F** (roofs) (*Assaf & Assaad, 2023)* and **4 to 7°F** (walls), depending on location *(Gouws & Gouws 2022).*

All cooling estimates come from individual studies. Real temperature drops may differ depending on how they're applied.

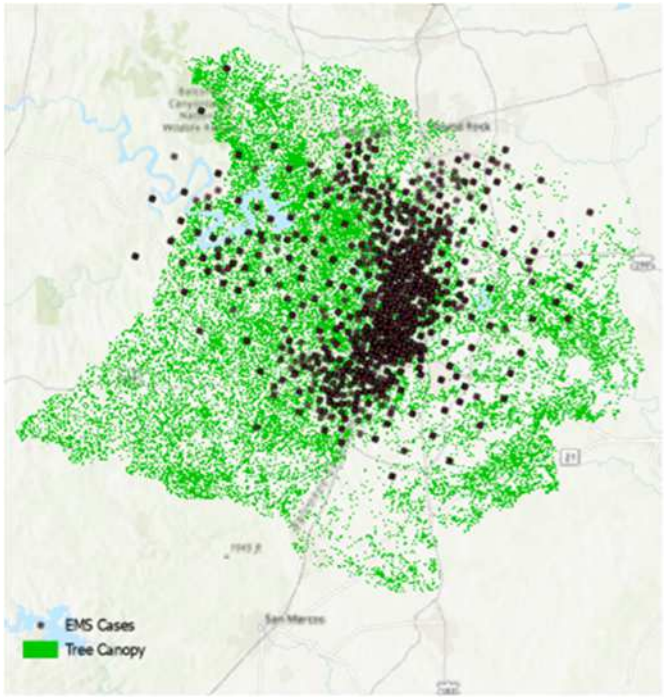
Report to the City:
Heat Risks and Health Benefits

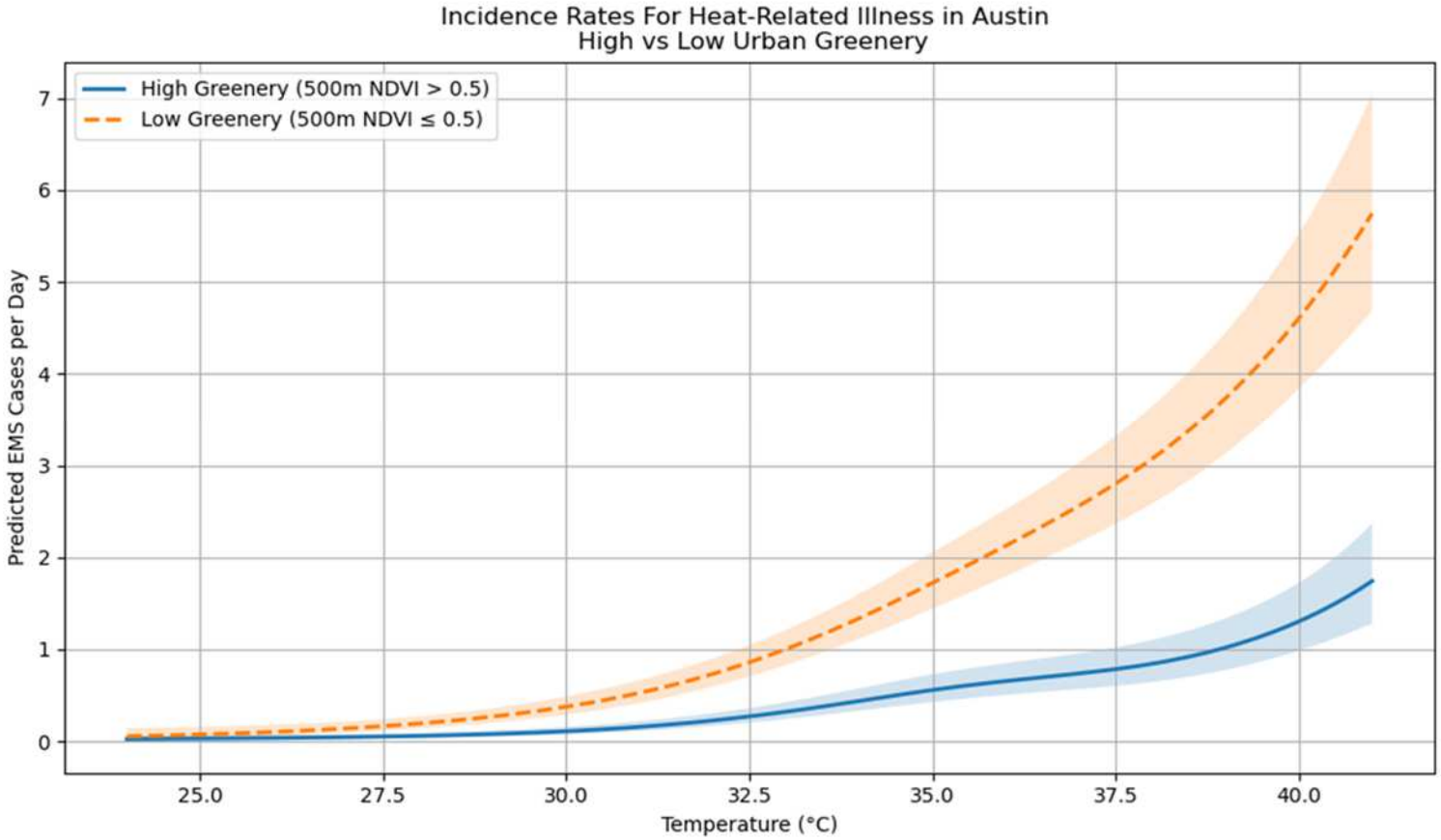
- Heat risks via health outcomes
- Emergency Management Services (EMS) dispatches for heat-related illness as metric
- Regressed EMS data against temperature data to predict future risks
- Estimated possible reductions in EMS cases if solutions were implemented

Period	Predicted EMS cases/Day	
	Control	Green Space
Current (Pre-2020)	2.8	2.8
Late (2071-2100)	18.58	14.8

Improving regressions to understand benefit of urban greenery

HOKKAIDO UNIVERSITY





Indigenous and Local Knowledge (ILK) for Heat

Cultural Burns (N. America)

Agroforestry (Global)

Windcatchers (Iran)

Zaï Pits (W. Africa)

Cooling Diet (India/China)