



# **Fighting the heat**

**Strategies and measures to  
secure health and wellbeing in  
the City of Vienna**



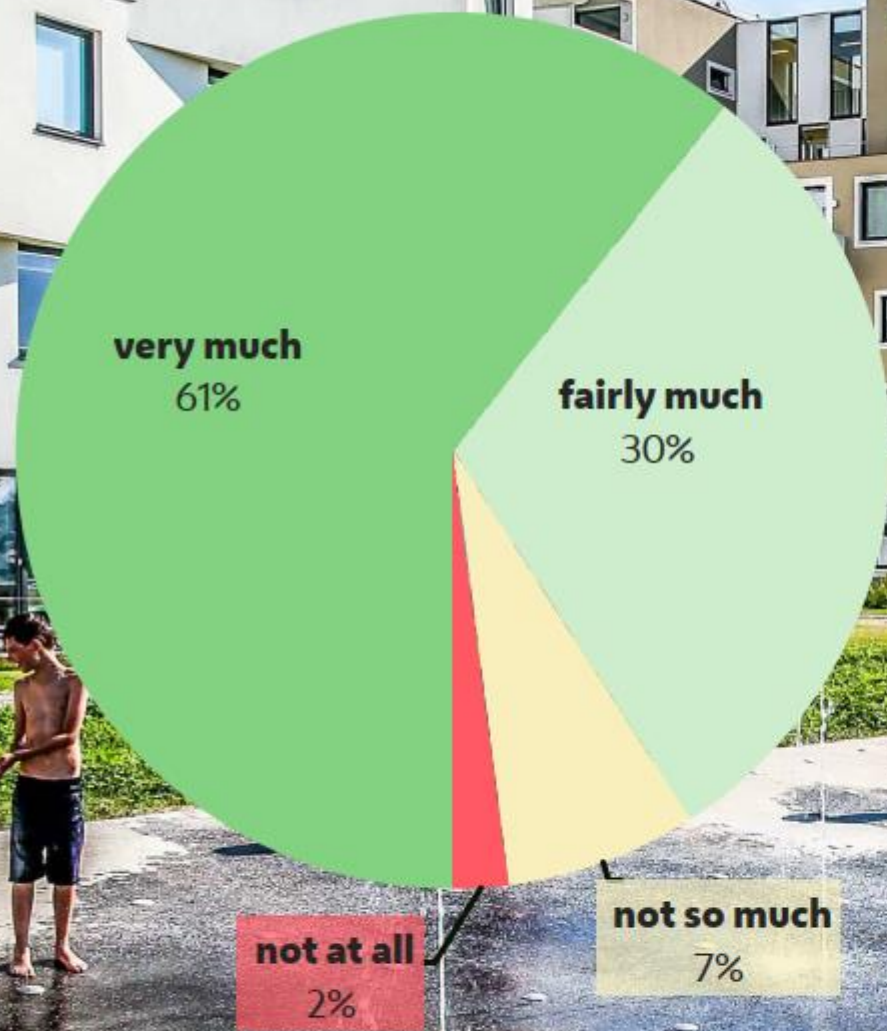
- We are fine. For how much longer?
- Our approach
- Adaptation to climate change
- Many solutions in a city



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**"Do you enjoy living in Vienna?"**





# +2°C

**1991-2020 compared to 1850-1900  
in Austria**



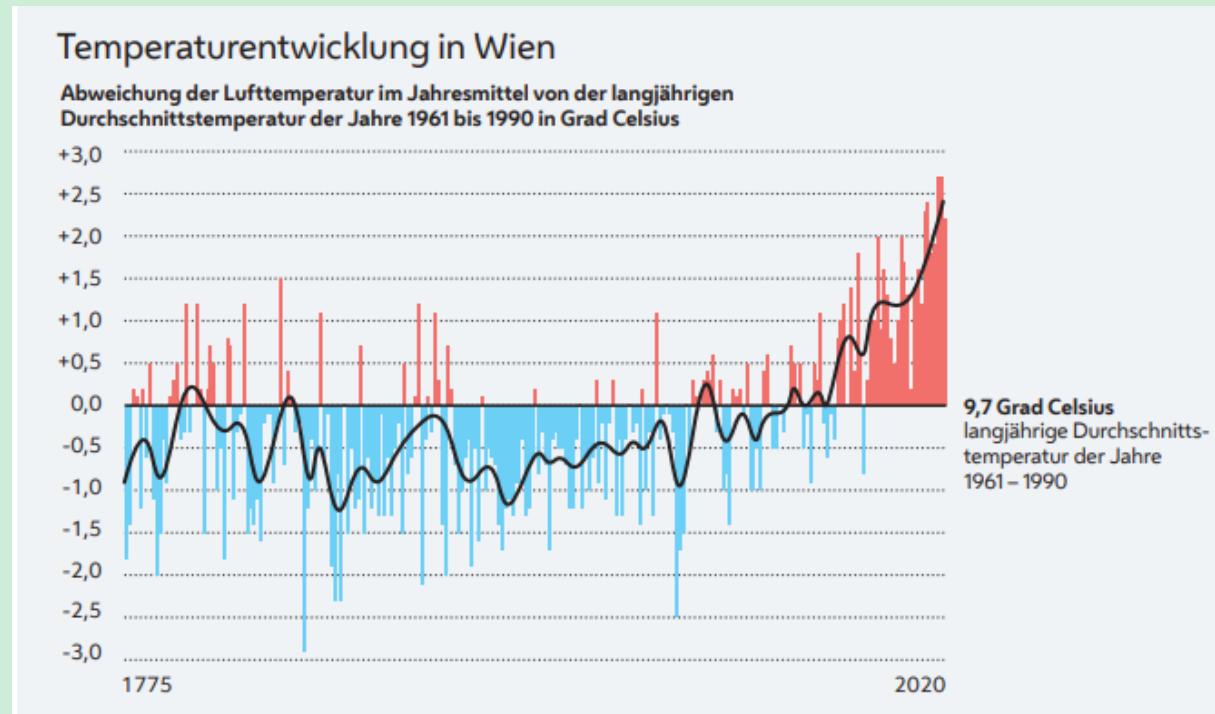
**City of  
Vienna**

**Annual mean temperatures in Vienna starting in 1775**

Visualization: Hawkins, University of Reading (<https://showyourstripes.info/>); Data: ZAMG

# Why? Climate change in Vienna

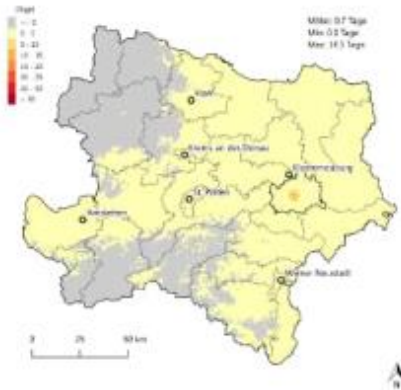
- **Temperatures** are **rising** and **extreme weather events** are becoming more frequent (4x more heat days in Vienna today than in the 1970s)
- In particular, increasing **heat waves** are affecting our **health** and **quality of life** (towards the end of the 21st century, heat waves will last 15-28 days, compared to 5 days in the 1970s)



# Why? Climate change in Vienna

number of **tropical nights** ( $\geq 20^{\circ}\text{C}$ )

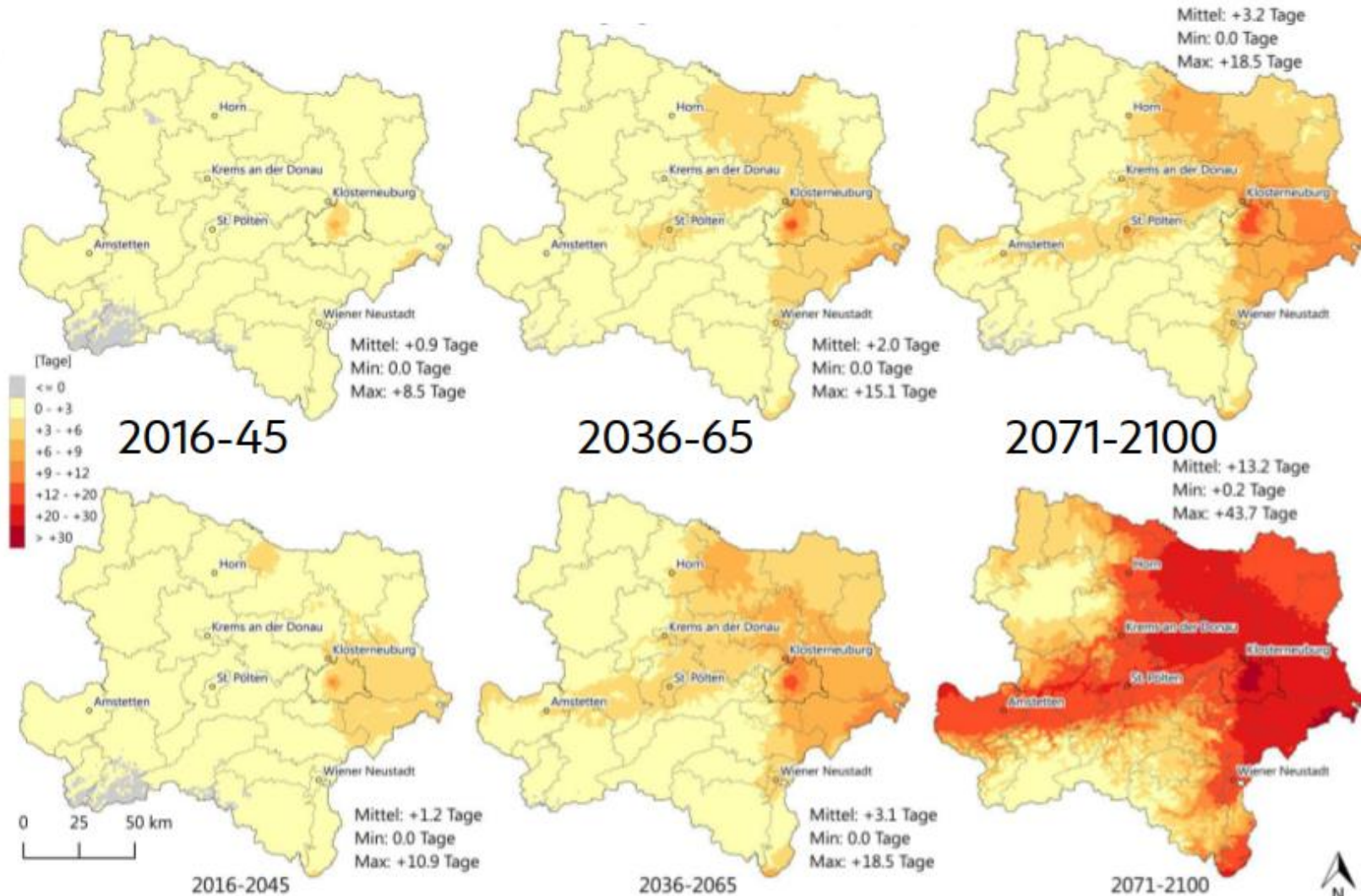
**at present**  
(climate '81-2010)



**in the future**  
(increase)

...assuming  
**great efforts**  
in climate  
protection

...assuming  
**low efforts**



heading for  
**+5°C**

**2100 according to latest IPCC-report**



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# Why? Climate change in Vienna

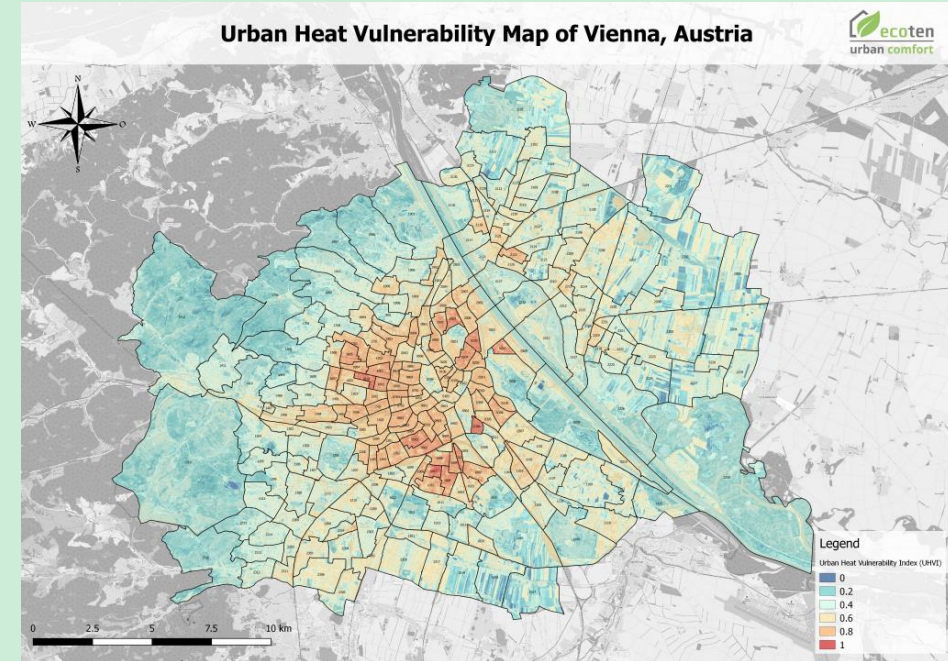
**Heat island effect:** 30 % of Vienna's surface is sealed

**Health challenge:** Heat stress leads to excess mortality rates during heat waves, decreasing air quality, neophytes increase allergies, mosquitos transmit new viral diseases (Dengue fever, West Nile virus)

**Infrastructure and public services:** Increasing cooling demand by air conditioning can overload electricity net, cause heat loss and increased GHG emissions; stormwater events can overload sewer systems

**Costs of inaction** (costs of climate change in Vienna):

- 2030: between 300 million euros to 1 billion euros/a
- 2050: between 490 million euros to 2.7 billion euros/a



<https://www.wien.gv.at/stadtentwicklung/energie/hitzekarte.html>

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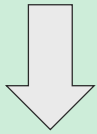


# Climate Strategies of the City of Vienna

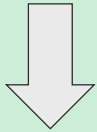


# GHG budgeting process

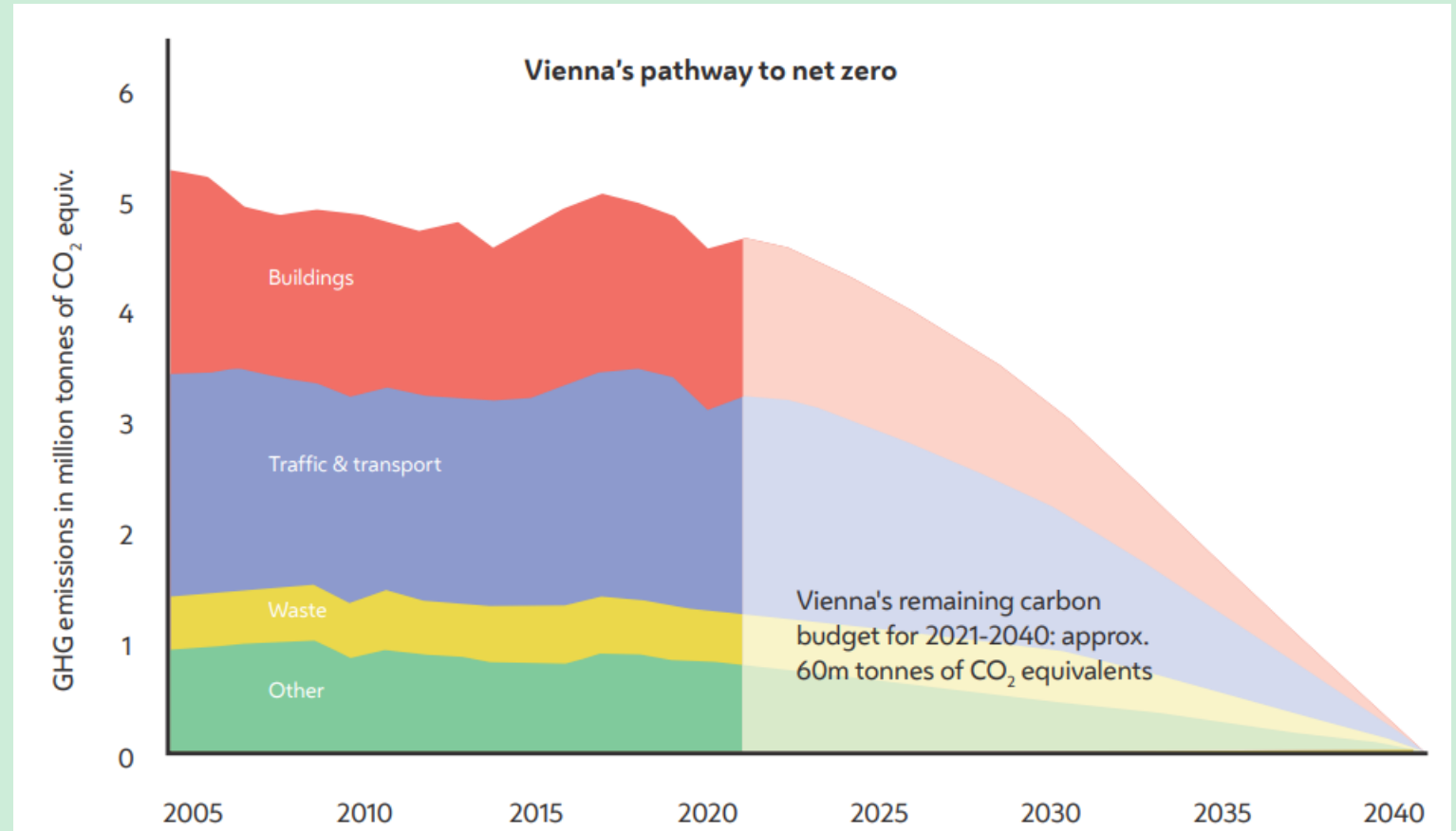
GHG inventory  
City of Vienna



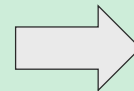
GHG reduction targets



Periodic plan of  
climate measures



GHG  
reduction



Evaluation and re-  
calculation of GHG budget

# Climate Governance in Vienna



Copyright: City of Vienna

- Newly established Director's Office for Climate Affairs
- Coordination of the strategic climate agendas in the City of Vienna
- Development and evaluation of tools, standards and processes for GHG-budgeting
- Knowledge exchange and networking between all organizations and players within the City of Vienna
- Raising awareness for a climate-neutral, resilient and circular city

# Vienna Climate Council

Scientists and experts advise mayor and city administration in climate-related issues



**Advisory Board Science** (eight scientists/experts from Austria and abroad)  
+ **Sounding Board City:** city administration, delegates of government parties  
+ **Sounding Board Society:** federal administration, NGOs, advocacy groups, delegates of opposition parties & citizens



**City of  
Vienna**

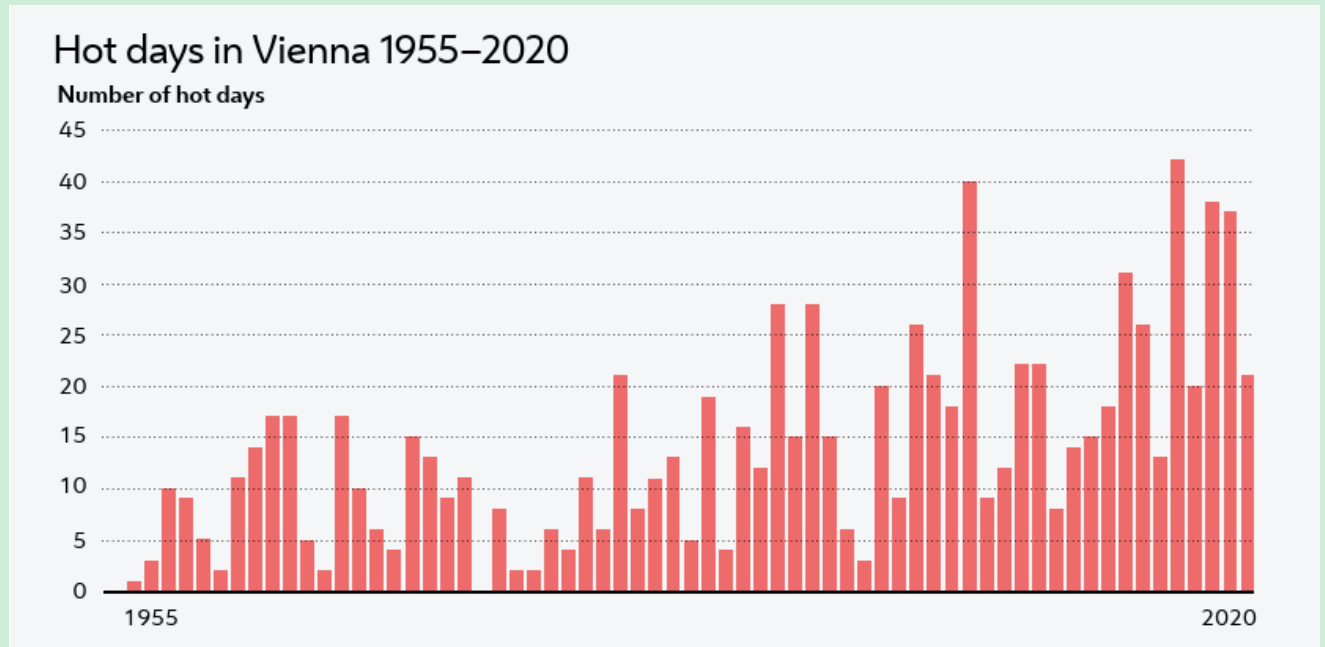
1<sup>st</sup> meeting of the Sound Board Society of the Vienna Climate Council on September 22, 2020  
Photo: Christian Fürthner/UIV

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# It's getting hot

- **Temperatures are rising**  
(4x more heat days in Vienna today than in the 1970s)
- Heat directly affects our **health** and **quality of life**  
(towards the end of the 21st century, heat waves will last 15-28 days, compared to 5 days in the 1970s)

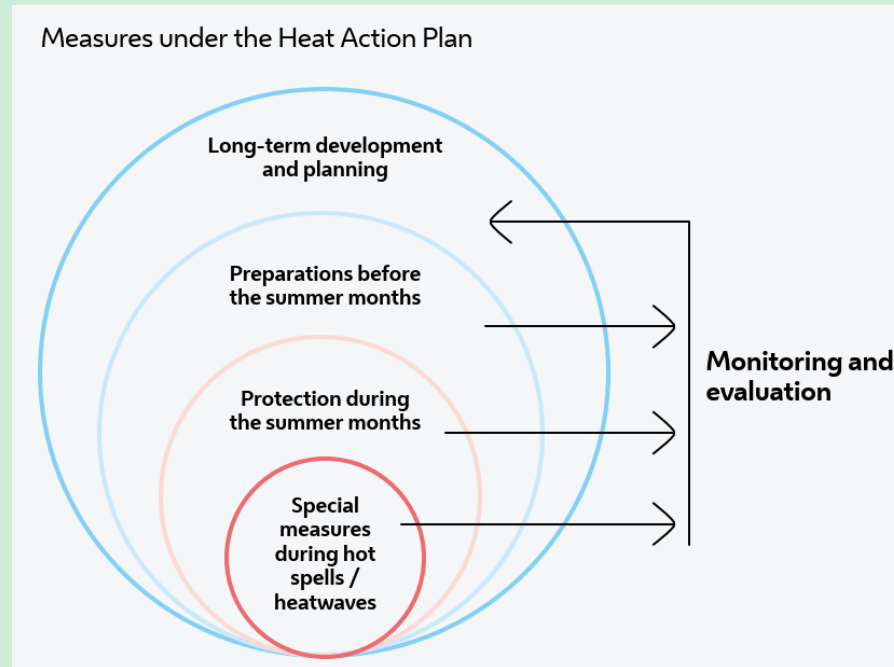


<https://www.wien.gv.at/umwelt/cooleswien/hitzeaktionsplan.html>

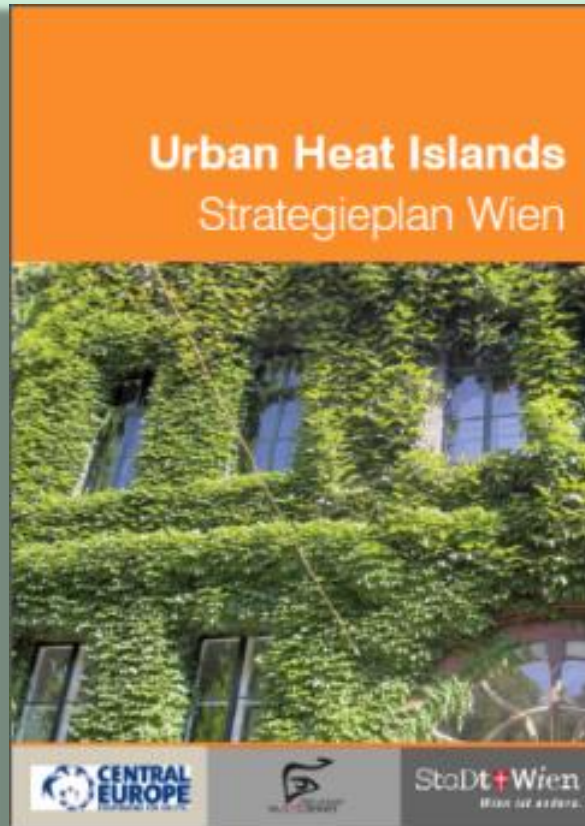
# Vienna Heat Action Plan (2022)

Set of actions ranging from short-term to long-term urban planning measures, with a special focus on **acute and seasonal measures during heat waves**.

- Measures for all people
- Specific measures for **vulnerable groups** (elderly, chronic ill, people living under difficult socioeconomic conditions, small children and infants, pregnant women)



# Urban Heat Island Strategy Vienna (2015)



- Climate-resilient adaptation of existing urban structures, like:
- **Brightening of surfaces** (pavements, streets and buildings)
- Increasing the **proportion of green** in streets and open spaces
- **Greening buildings** for passive cooling
- Increase of **water** retention in the city
- **Shading** of open spaces and paths
- **Conservation of fresh air corridors** and **cold air sources** for optimal **ventilation** and linking of green spaces

<https://www.wien.gv.at/umweltschutz/raum/uhi-strategieplan.html>

# From Strategies to implementation: InKA

Implementation program InKA („Infrastructural adaptation to climate change“)

- ✓ Catalogs of criteria for urban planning, zoning and competitions
- ✓ Implementation instruments: building regulations, fire protection, standards, subsidies, special budgets
- ✓ Evaluation, monitoring and cost-benefit analysis of completed projects

*Implementation examples:*

- Edge of sidewalks remains unsealed for greening of facades
- Greening of building surfaces is binding in development plans and Vienna building regulation
- Financial support from the City of Vienna for green roofs, facades and inner courtyards
- Detailed climatological analysis (microclimate simulation) will become binding

# From Strategies to implementation



<https://www.wien.gv.at/stadtentwicklung/studien/pdf/b008379a.pdf>

## URBAN DEVELOPMENT PLAN (STEP 2025)

- Supports the city in adapting to climate change through **conservation of fresh air corridors** and **cold air source** areas
- **Functional open spaces** for reducing urban heat islands and their recreational value
- Climate **resilient** design (e.g. reducing soil sealing)



# From Strategies to implementation

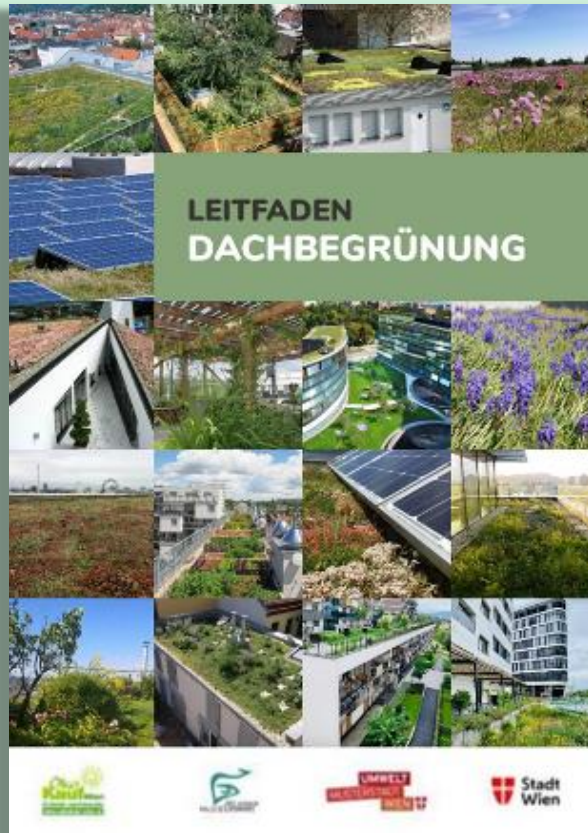


## GREEN FACADE GUIDE (2018)

- Physical characteristics of buildings suitable for green facades
- Financial costs
- FAQs
- Vegetational, technical and fire safety information
- Best practise examples

<https://www.wien.gv.at/umweltschutz/raum/fassadenbegruenung.html>

# From Strategies to implementation



## GREEN ROOF GUIDE (2021)

- Potentials of green roofs in Vienna
- Physical characteristics of buildings suitable for green roofs
- Cost-benefit analysis
- Biodiversity assets
- Technical information
- Best practise examples (green roof & solar energy combinations)

<https://www.wien.gv.at/umweltschutz/raum/pdf/gruendaecher-leitfaden.pdf>

# From Strategies to implementation



## SOLAR GUIDE (2018)

- Optimal use of areas in densely built urban landscapes
- Focus on combining solar energy and greening
- State of the art and innovative solutions for solar energy and plants on buildings

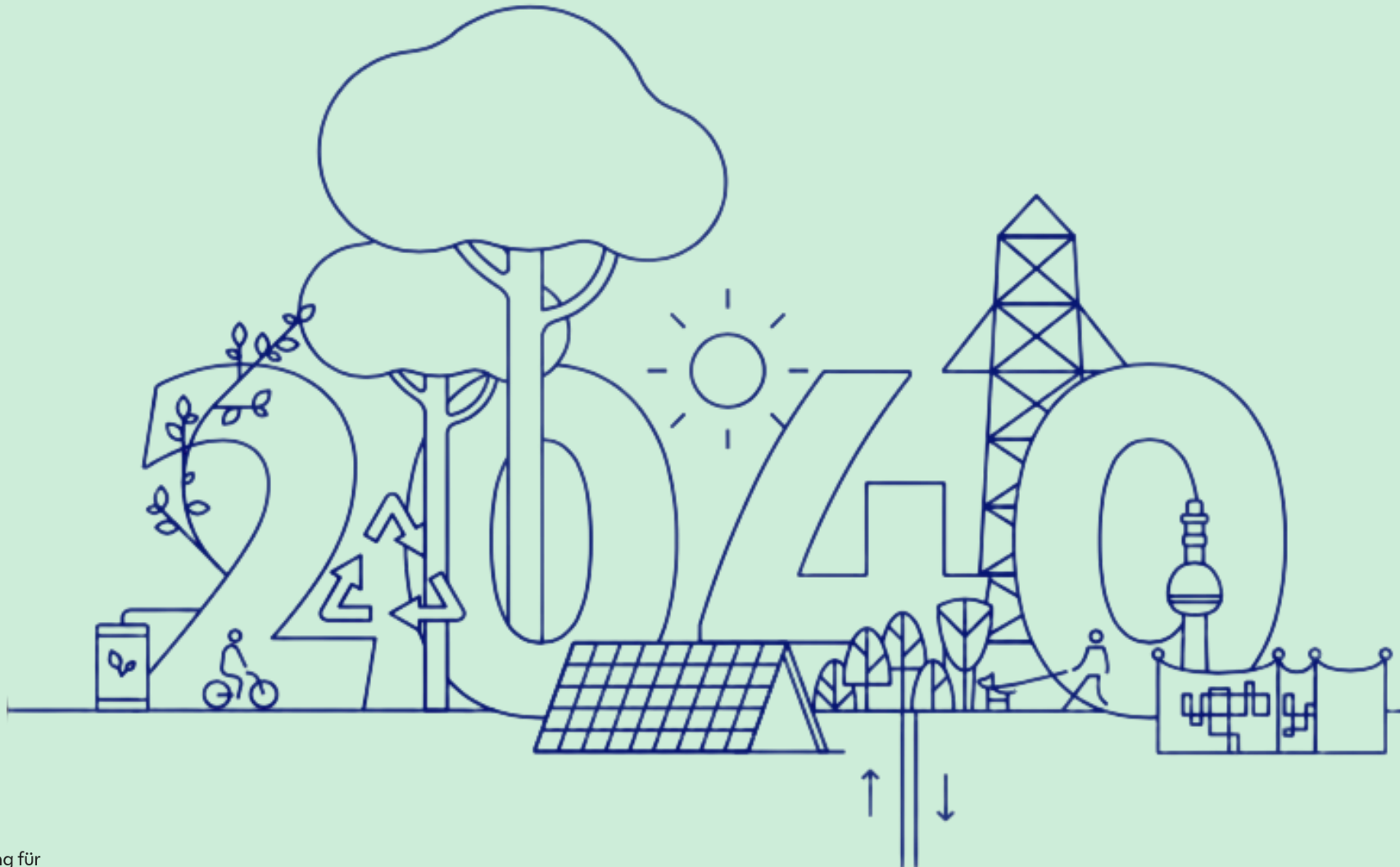


<https://www.wien.gv.at/stadtentwicklung/energie/pdf/solarleitfaden.pdf>

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# Use-Cases & Best Practise



# Examples of green facades



Office Building (MA48, Einsiedlergasse 2, 1050 Wien)  
Building Renovation 2010, 850 m<sup>2</sup> Façade greening



Office Building (Rathausstraße 8, 1010 Wien)

- 50 % less heatflux (W/m<sup>2</sup>) during summer.
- 20 % less heatflux in winter
- Protection of the building against overheating in summer.



# Examples of green facades



Office Building (MA 31, Grabnergasse, 1060 Wien)  
1000 m<sup>2</sup> Façade greening, Building Renovation 2016



U4 Station Spittelau

# BeRTA Green facade module

**B**egrünung (greening), **R**ankhilfe (climbing aid), **T**rog (trough): **All-in-one**

Development of a cost-effective green facade: „50 green buildings“

The 50 Green Houses R&D project created an **integrated solution for street-side green facades** on existing buildings.

Project partners:

- tatwort
- Stadt Wien Umweltschutz
- DIE UMWELTBERATUNG
- GrünStattGrau
- BOKU Vienna, IBLB

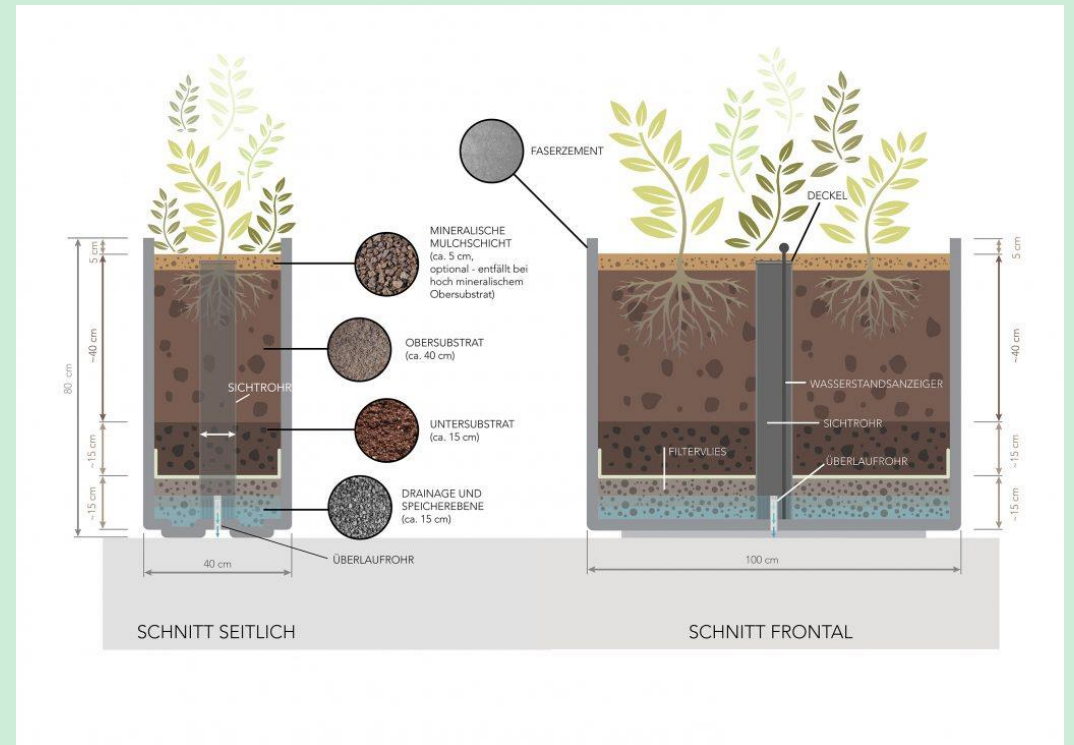


# BeRTA Green facade module

## Why greening the city with planters?

- Quick installation
- Removeable in case of construction work
- Do-it-yourself construction (DIY)
- No permission by the street owner
- Traffic planning permission only (MA 46)
- All-in-one solution

<https://50gh.at/>



## BeRTA specifics:

- 300-litre planter
- Fibre cement
- Climber support structure optional
- 3 layers of substrate
- Water level indicator
- 8 m<sup>2</sup> coverage of the facade
- Support by experts
- Eco balance: no toxics, low CO<sub>2</sub>, energy balance

# Examples of cooling water

260 „Sommerspritzer“, 1.100 drinking fountains, 50 mobile drinking fountains

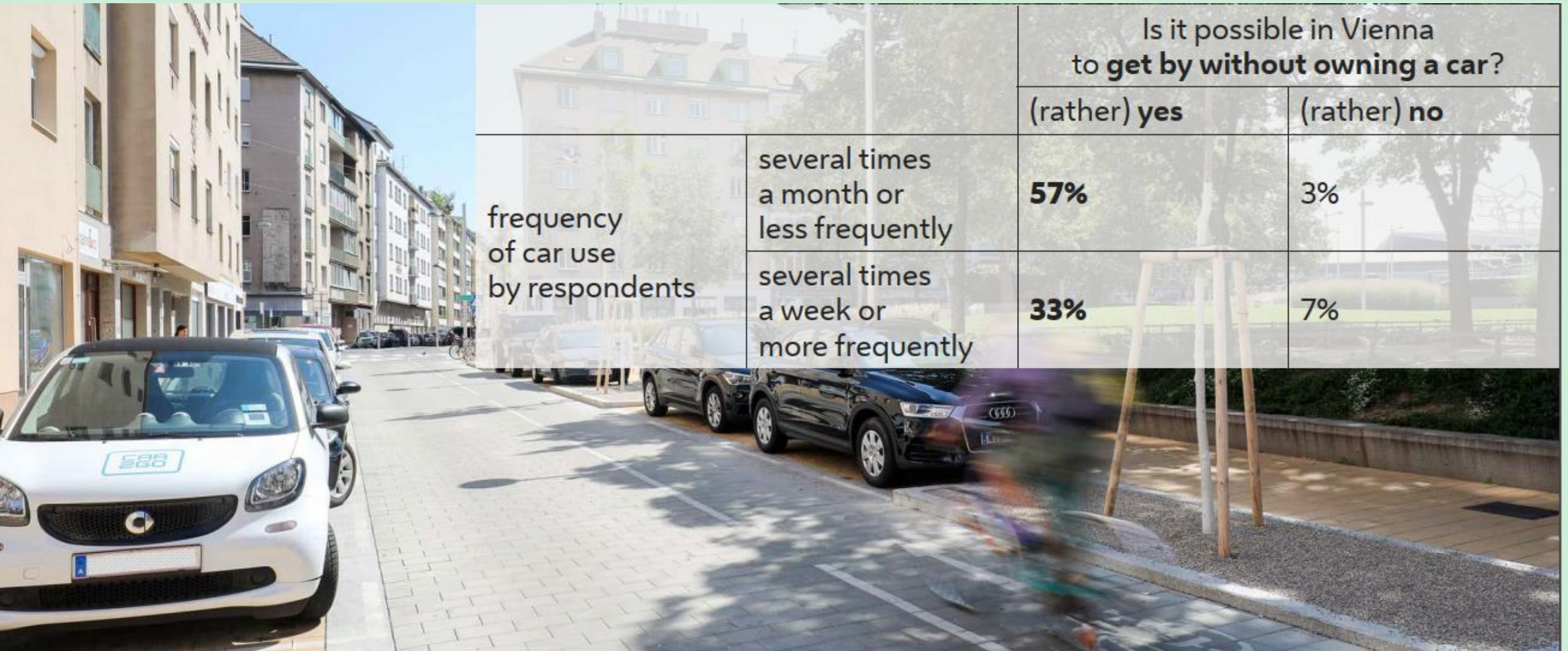


# Examples of cooling streets



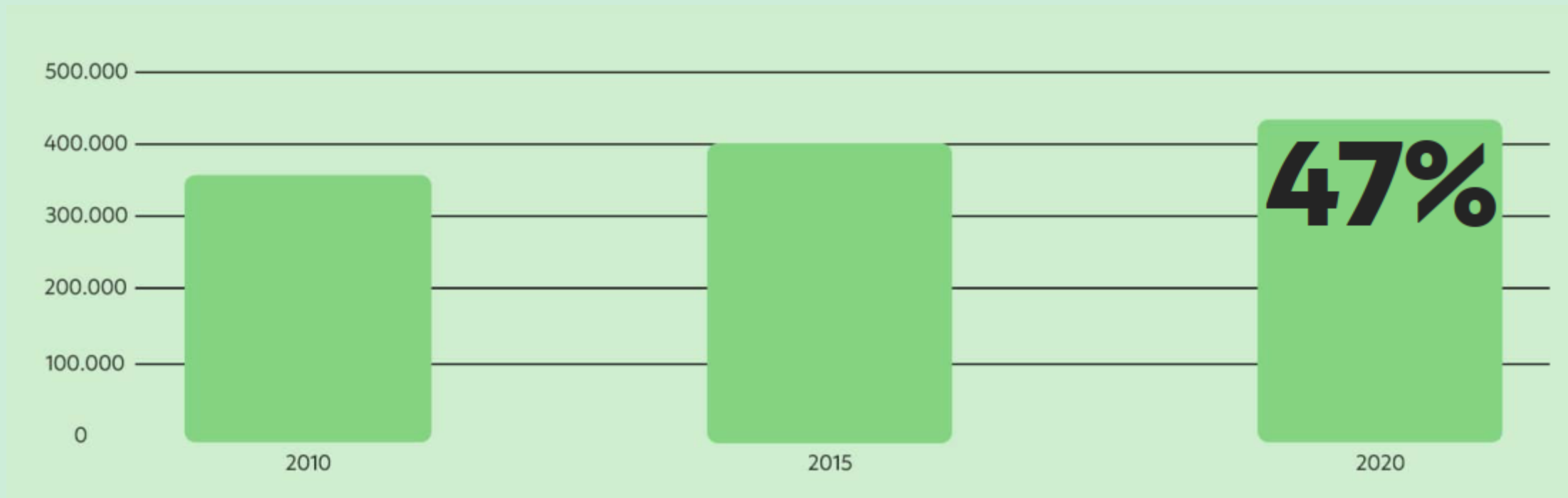
Zollergasse in 1070, Vienna

# Big challenges ahead in our mobility behavior



# Big challenges ahead in our mobility behavior

Share of Viennese households without a privately owned car (2010-2020)



Statistik Austria, VCÖ

# Examples of redesigned streets



City of  
Vienna

**Mariahilfer Straße** (Vienna 6/7) **since 2015**  
Photo: Mobilitätsagentur/Christian Fürthner



**Mariahilfer Straße** (Vienna 6/7) **until 2015**  
Photo: Mobilitätsagentur/Christian Fürthner

# Supergrätzl in Vienna



Copyright: City of Vienna / LAUT

- Pilot project in the 10<sup>th</sup> district of Vienna (Favoriten)
- Traffic and a public space concept
- Start of pilot phase in June 2022
- Bringing the "Superblock" concept from Barcelona to Vienna: more green, more open spaces and **less motorized traffic**

# Thank you for your attention!

Director's Office for Climate Affairs  
(Bereichsleitung Klima)

post@klima2040.wien.gv.at

Liisa Andersen  
liisa.andersen@wien.gv.at

