



# Pilot action

# Stuttgart

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For the pilot action in Stuttgart a part of the district Stuttgart-West was selected.

The area is located in a valley surrounded by hills closed to the city centre.

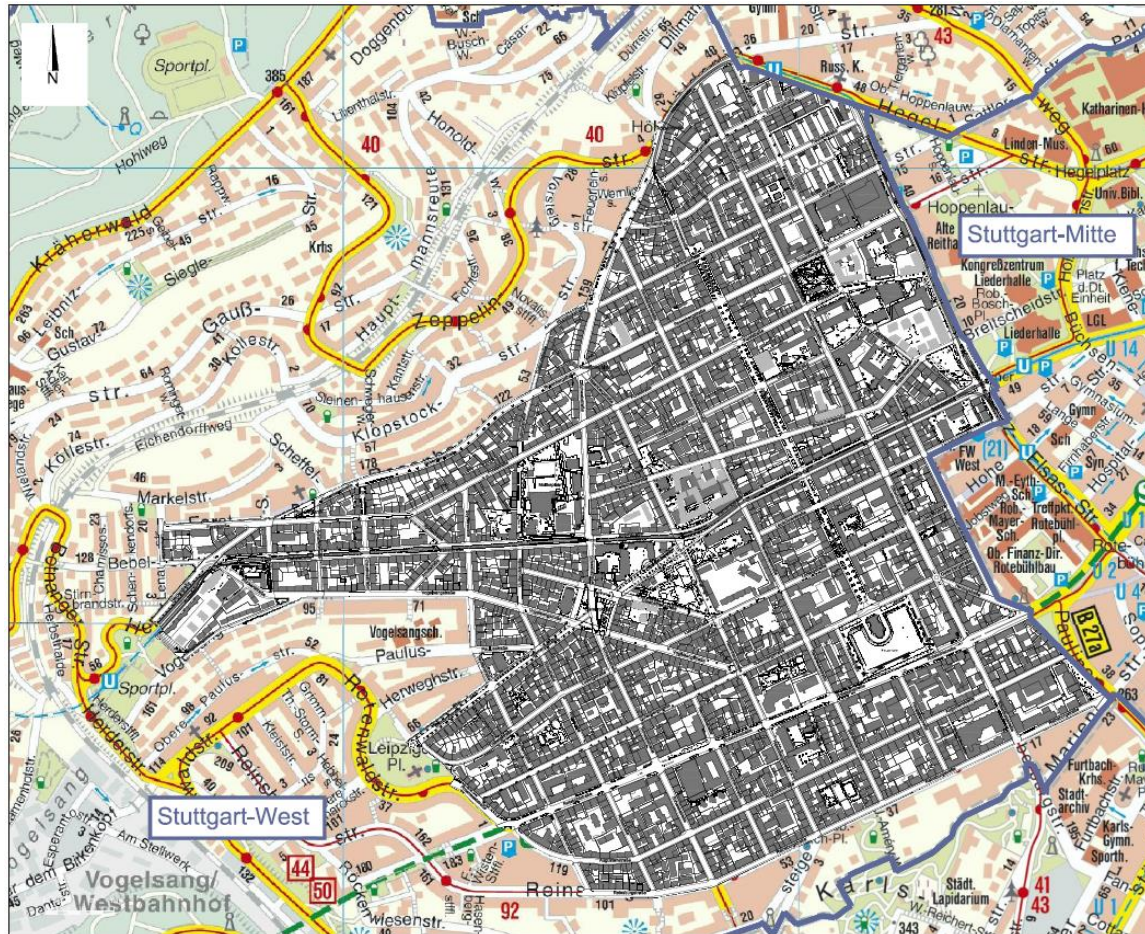
Characteristic trait is a high building density with predominantly residential buildings (one of the highest building density in Germany).

Green and recreation areas are sparse available.

The thermal stress especially in the centre of the area is very high.

The climatic situation and also measures to reduce the thermal stress should be investigated with large scale (KIT) and micro scale (Univ. Freiburg) simulations.

The results of the research are used for the compilation of a new framework plan for the future development and also for the development of existing brownfields.



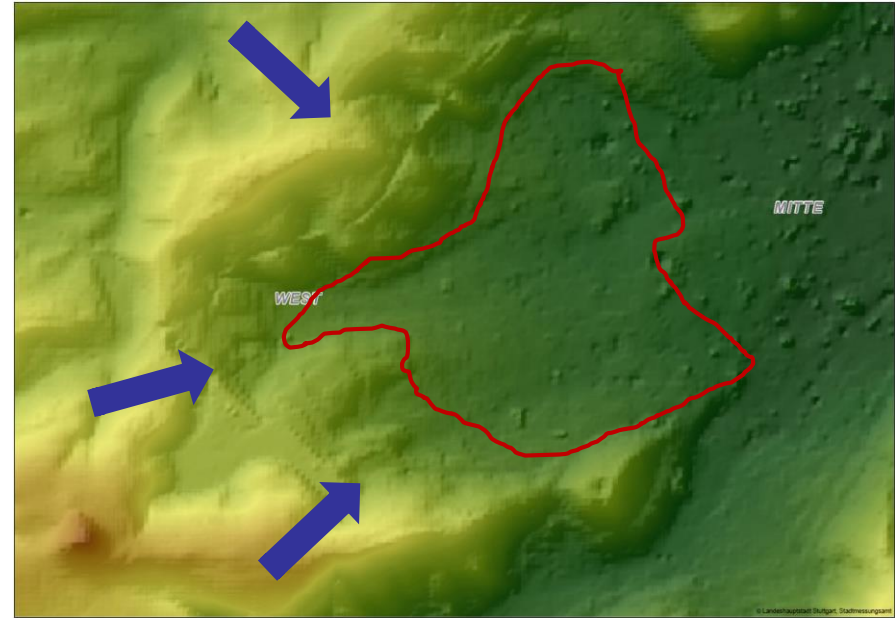
50.000 inhabitants in S-West (70-80% in the pilot action area)

10% younger than 15 years

15% older than 65 years



25% especially in early danger  
by thermal stress



→ cold air flows



By means of the model simulations following interests will be analysed:

## Large scale simulations (KIT, WRF chem)

- modification of the UHI effect in succession of the expected future increase in building density (assumption: 10%-50% increase and 0%-25% decrease)
- modification of the UHI effect in succession of the expected global climate change
- impact of the UHI Stuttgart on the surrounding area
- thermal stress reduction by extensive roof greening (assumption: 25%, 50%, 75% of the available roofs are revegetated)
- reducing potential of green areas (parks, forests),  
What is the best strategy in the view of the spatial distribution of green areas ?  
(big central park vs. spreading small green areas over the urban area)  
How many green areas are needed for a significant reduction of the UHI effect ?  
(table: urban green area rate – percentage reduction of the UHI effect)



## Small scale simulations (Uni. Freiburg, RayMan, ENVIMET)

- identification of local hotspots, impact on human health (PET values)
- local reduction of the UHI-effect by roof greening and green areas
- local adaptation strategies
- optimised redesign of brownfields

best design only in view of the UHI effect reduction

optimisation of planned new buildings/use

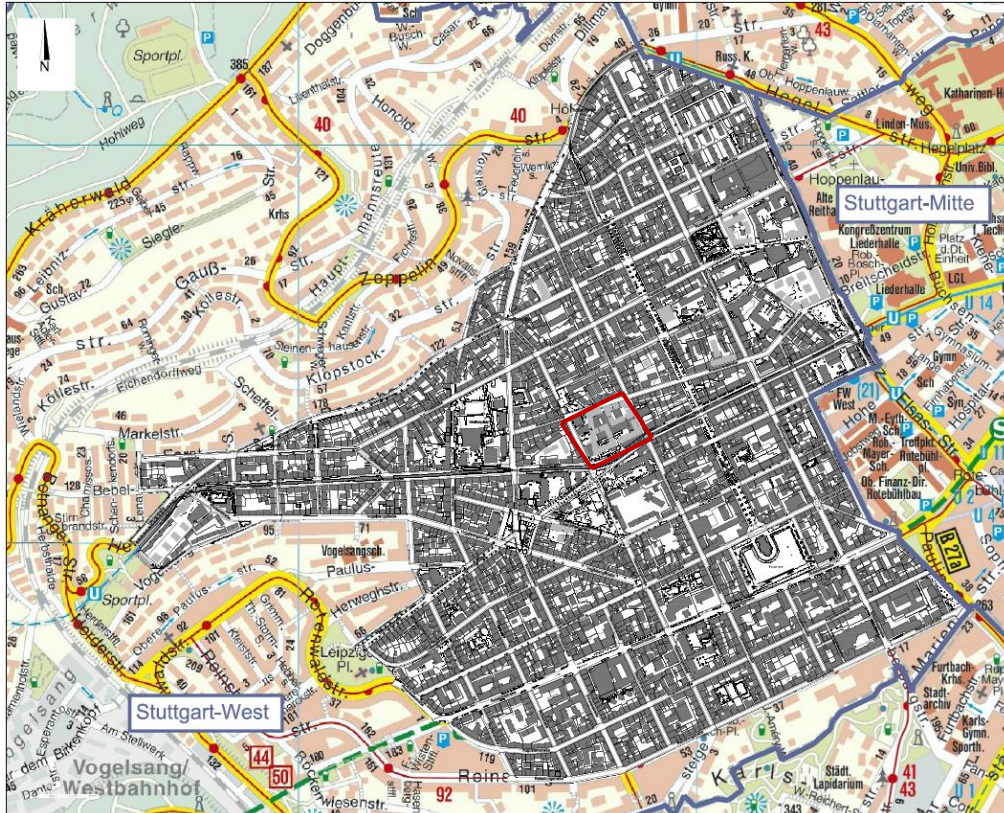


Case study: optimisation of the brownfield Olga hospital  
(bachelor thesis Isa Ghasemi)



The Olga Hospital is an old hospital in the centre of the pilot action area, which is not longer in use.

The area will be redesigned in a residential area in the next years.





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**Thank you for your attention !**