

# Redesigning the Enschede bus square into a future-proof urban space

A research-based design for safer, climate-adaptive and user-friendly public space



## Engage

The challenge originated from the broad theme of city development. After exploring social, environmental and mobility perspectives, the project team formulated several essential questions and translated them into three potential challenges. The final challenge was selected based on feasibility, relevance and stakeholder potential: *Redesign the Enschede bus square into a future-proof urban space*. The desired impact was defined as: Inspiring the Municipality of Enschede with a research-based design that makes the bus square safer, more accessible, and climate-resilient.



## Investigate

The challenge was translated into guiding questions across seven urban planning themes: mobility, safety, water, comfort, identity, climate adaptation, and feasibility. These questions were answered using a mixed-methods approach, which included a literature review, standards, climate modelling, site observations, stakeholder interviews, and a user survey with 114 respondents. The synthesis revealed four main needs: fewer conflict points, improved social safety, climate-adaptive landscaping, and a more comfortable public space with identity and shade. These insights formed the basis for the act phase.



## Act

Three concept designs were developed, each with a different thematic focus: traffic safety, social safety, and climate resilience, which were the main themes emerging from the Investigate phase. Using a structured decision framework, the strongest elements of each concept were combined into one final sketch design. The result is a redesign with 12 sawtooth platforms, one central smart crossing, separated traffic flows, three wadis, integrated underground water storage in the slope of the entrance and exit of the underground parking facility, shaded seating, an open shelter, plenty of lighting, a kiosk for natural social control and local identity elements such as the Enschede pavement logo and central fountain. The open shelter not only enhances visibility and social safety but also directs rainwater through its columns into the drainage system, combining lighting, comfort, and water management in a single structure. The full sketch design and a visual impression of the shelter are shown in Figure 1.

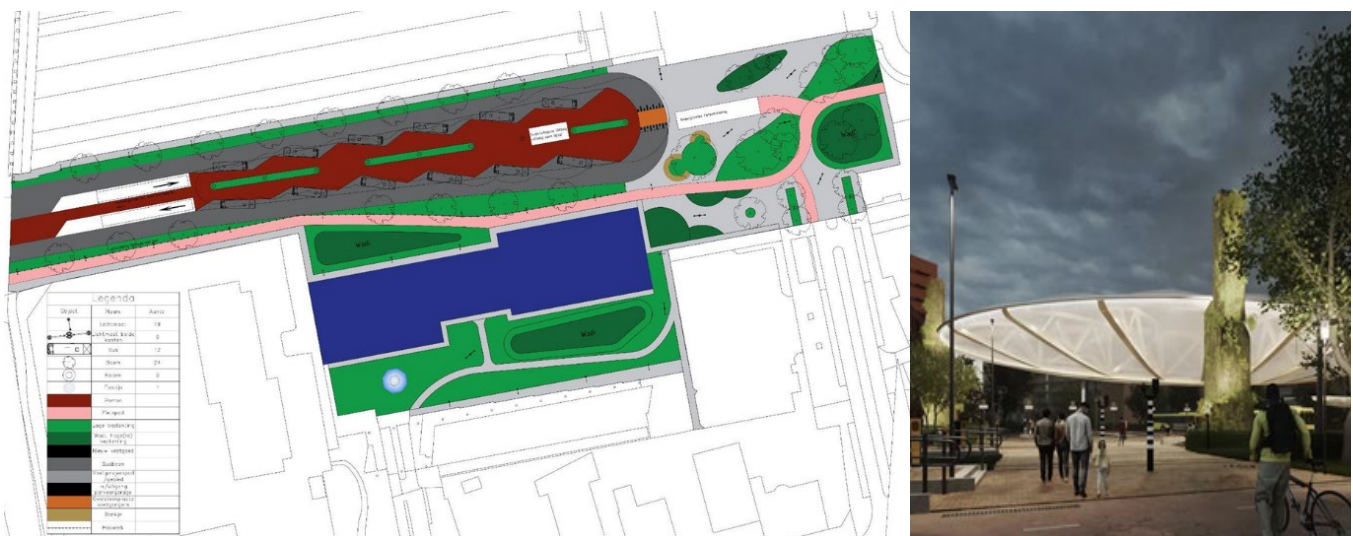


Figure 1: Final sketch design (left) and visual impression of the open shelter (right) (ABT, 2024).



## Impact

The project resulted in both quantitative and qualitative impacts. The quantitative impact was demonstrated through heat-stress modelling, which showed a reduction in average PET temperature from 38.82°C to 36.31°C, shifting the square from strong to moderate heat stress. This improvement is illustrated in Figure 2, which compares the before-and-after heat stress situation. The qualitative impact was achieved during the final presentation, where the Municipality of Enschede described the proposal as realistic and inspiring and requested the full dataset and visual materials for use in future decision-making. In terms of the CBL pathway, the output consisted of the user survey, three concept designs and the final design. The outcome was the knowledge exchange and recognition of relevance by the municipality, and the impact was reached when the municipality confirmed that the results would be useful as input for the future redevelopment process of the station area. This demonstrates that the project transcended an academic exercise and generated value in a real-world planning context.

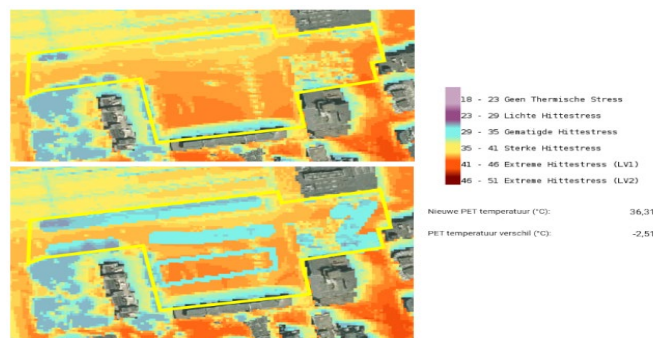


Figure 2: Heat stress comparison before and after redesign based on PET values



## Lessons learned

The project demonstrated that impact increases when stakeholders are involved throughout the process, rather than only at the end. The CBL approach strengthened decision-making, research structure, and communication skills, while also demonstrating that technical designs become meaningful only when they are supported, understood, and usable in practice.



## Contact information

Project members

- Jasper Piek: [j.piek@student.utwente.nl](mailto:j.piek@student.utwente.nl)
- Sergey Shvydenko: [s.s.shvydenko@student.utwente.nl](mailto:s.s.shvydenko@student.utwente.nl)
- Wout Zwienenberg : [w.h.zwienenberg@student.utwente.nl](mailto:w.h.zwienenberg@student.utwente.nl)

Teacher and contact person

- Robin de Graaf: [r.s.degraaf@utwente.nl](mailto:r.s.degraaf@utwente.nl)



## References

ABT. (2024, June 20). *Overkapping als duurzaam baken van City Nieuwegein*. Retrieved October 2025, from <https://abt.eu/nieuws/overkapping-als-duurzaam-baken-van-city-nieuwegein/>