

BUSTAINABLE

F.A. Bohnes¹ and C. Deuse²

¹DTU Environmental Engineering, Technical University of Denmark

²DTU Architecture Engineering, Technical University of Denmark

INTRODUCTION

A key aspect of sustainable development is the mobility: everywhere we are moving towards public transportation, and Lyngby is no exception. Even though the municipality is well deserved by busses, commuting is too often considered as an unpleasant activity, and the experience should be improved for people to give up their car. In particular, the waiting time is something that discourage people from taking the bus, especially in Denmark where it is raining in average every second day.

We need to change “waiting for the bus” from a necessary activity to an enjoyable and sustainable one. To this end, we propose a revamp of bus stops answering the three aspects of sustainable development, while creating a better user experience.

THEORY & METHODS

To determine what could be improved and how, a large **survey** has been handled among bus users in Lyngby: an investigation directly at the bus stops and an online survey have been conducted. In parallel, an **on field study** was realized to identify where bus stops were missing in Lyngby to prove the need for our project. **Researches in the literature** have been done: cost of a bus stop, how to finance it, feasibility of the proposed features, how to make them sustainable, etc. The last step was to **design** the revamp of the bus stops.

RESULTS

Among others, the survey showed that majority of commuters do not find the bus stops accommodating. Half of them asked for better shelters, the most important features being protection against the weather and benches.

From the propositions emitted by the users, our researches, but also our own experience and ideas, we designed a new bus stop which would be:

- Eco-friendly: made with recycle materials and solar panel on the roof.
- Comfortable: protection from the wind and rain.
- Informative & interactive: clear indications and informative/interactive screens.
- Instructive: advertisements about sustainability.
- Social-inclusive & appropriate: benches and large space inside for disabled.
- Adaptable: size of bus stop and type of screen adapted to the location.

To finance the project, a sponsorship program is proposed: local companies can provide materials or create a design in exchange for permanent advertisement.

CONCLUSION

The new bus stop design addresses **social sustainability** by increasing ridership, making the user experience better and more comfortable, and educating riders about environmental sustainability. The bus shelters themselves will be **environmentally sustainable** as they will be energy-positive thanks to the solar-panels and constructed out of recycled materials. Finally it will be **economically sustainable** because each bus shelter will seek the sponsorship of an external company.