



Utrecht
The Netherlands

Recycled asphalt for the Cremerstraat cycle lane

Utrecht, one of the four biggest cities in the Netherlands, aims to be climate neutral in 2030 and to reach a fully circular economy by 2050. In the shorter term, Utrecht is committed to increasing its share of circular procurement from 4% of the annual spend in 2016 to 10% by 2020. Utrecht's sustainable vision is also reflected in its aspiration to become the most bike-friendly city in the world.



• **Yvonne Hofman**
y.hofman@utrecht.nl



• <http://bit.ly/2fMYWlh>
• <http://bit.ly/2khU88S>

Approach

The sustainable goals of the Dutch city are all reflected in the Cremerstraat cycle lane, which was finalised in September 2017. This project involved the transformation of an existing brick road into a 900-metre cycle lane. This case clearly shows the challenges the city has to face in its transition to a climate neutral and circular city. As the fastest growing city in the Netherlands, Utrecht has high procurement volumes in the building and civil engineering sector. The Cremerstraat

cycle lane project aims at developing a cycle lane to be part of a longer cycling highway between the centre of Utrecht and its suburbs. Utrecht challenged the contractors to submit a circular solution for the asphalt that was to be used in building the road. The selected contractor (KWS) submitted a bid that contained two innovative elements:

- less asphalt: two instead of three layers of asphalt
- 100% recycled asphalt for the lower layer

Challenges

The main challenge in this project was to convince the internal decision makers to depart from the standard procurement procedures and from the standard specifications as defined in Utrecht's public space manual. In order to stimulate innovation, the procurement team wanted to include functional specifications instead of technical specifications in the tender documents. The team also asked the potential contractors to provide a life cycle analysis to prove that their proposed solution was the most sustainable.

A second challenge was to get the approval of the road administrator, the municipal employee in charge of the maintenance of the Cremerstraat, for the new solution. His concern was that divergence from the manual standards would lead to uncertainty in the future maintenance costs. Therefore, only the lower layer could be made of 100% recycled asphalt. The top layer was still made with new asphalt as required by the manual standards.

Impact

Cycle roads typically consist of 3 layers of asphalt. The solution of the contractor was to increase the thickness of the foundation enabling them to reduce the amount of asphalt to 2 layers. Regular asphalt has a high environmental impact and carbon dioxide footprint as it consists

primarily of raw materials, extracted from a quarry and delivered by ship. Reducing the total amount of asphalt minimises the environmental impact.

The second sustainable solution in this project is the use of 100% recycled asphalt in the lower asphalt layer. Utrecht's standard approach for the lower layer is to apply up to 50% of recycled asphalt. The overall project required 69% less new asphalt than for standard construction.

Utrecht applied the environmental cost indicator (ECI) to calculate the environmental impact of the project. The ECI value is determined by using a life cycle assessment (LCA) database. Regular asphalt has an ECI of €10.16 per ton and recycled asphalt has an ECI of €3.37 per ton. The overall ECI value of the cycle lane is 68% lower than in a design with regular asphalt.

Lessons

- Apply functional specifications instead of technical specifications in the tender document. This prompts the supplier to deliver new solutions.
- A political decision can be an important incentive to convince internal decision makers to go ahead with circular solutions. In 2015 a motion was passed by the city council to experiment with low carbon dioxide asphalt. This motion was essential to bringing internal stakeholders onboard.
- Assess what solutions have been applied in the market for similar projects. The experiences and lessons learned from these projects may facilitate the internal decision making process.
- The environmental cost indicator (ECI) has proven to be a useful tool in the procurement process for assessing the sustainability of materials.



"Utrecht wants to be completely circular in 2050. One of the ways we want to achieve this is through Utrecht's own procurement, as is done with sustainable asphalt in the Cremerstraat."

• **Lot van Hooijdonk**, deputy mayor