

# CO2 neutral cycle path lighting in Aarhus

by Per Schorling

*We meet him at the Skoedstrup exit outside of Aarhus in Denmark, just before twilight on a November day in 2010. Considering the high speed and the 9 km he has just cycled, he arrives in rather a relaxed mode, but this is quite characteristic for a fireball thrilled about his mission. We are talking about lighting of cycle paths with Pablo Celis, project manager for Aarhus Cycle City.*

The city of Aarhus has decided to make an effort for the cyclists in the city, and have created the Aarhus Cycle City, headline and name of a project headed up by Pablo Celis, project manager and M.Sc. Engineering.

## **A better solution at lower costs**

The project, which is due to run over a 5 year period, has a budget of more than 10 million Euros and aims at transferring some of the transport need from cars to bicycles.

- It has both an environmental and a health effect if we are able to make the citizens of Aarhus choose the cycle over the car, says Pablo Celis.

- The project is not based on religious views about making everybody in Aarhus cycle to work every day. We know this is not possible. But if we improve the conditions for cyclists, it will become easier to choose the bike. On top of this, we hear from cyclists that dark cycle paths is an obstacle to cycling to work, and this is how we found out that we had to do something about it. Within the city limits, it is possible for the city council to establish lighting of cycle paths and this will typically be done with threaded technologies. Outside city limits, on the other hand, this is not possible, primarily because the financial implications are extensive. Normally, lighting with traditional technologies costs more than 40 Euro per meter, so we were really happy to learn that it is possible to solve our problem with LED-Mark at 1/10 of the cost of threaded technologies.

- I first heard about the solar-cell-based technology 3 years ago, but at that time the concept was not ripe for our purpose. My colleague, Michael Bloksgaard, met Geveko ITS on Vejforum 2009 (a major Danish conference on road safety), and he brought with him a sample of the technology that was very convincing. The dialogue with Geveko ITS that followed lead to further development of the product, and now the life-time of the LED-Mark is minimum 5 years, which makes us believe in the technology, and this is why we have placed the LEDs as light on two cycle paths outside of Aarhus, says Pablo Celis.

Each LED-Mark consists of an LED (light emitting diode), solar cells, and rechargeable batteries. Over the day, the batteries are recharged, and after dark the unit turns itself on via simple built-in controls. It may also be used for pointing out particular risks, e.g. sub-zero temperatures. LED-Mark was developed by the Danish company Geveko ITS, which is part of Geveko, who has developed road marking over the past 50 years.

- The technologies, which we have developed over the past 9 years, are now in serial production and the application areas are infinite, says Bruno Hansen, General Manager for Geveko ITS, and continues:

- They may be used for stretches of road with dangerous curves, along dark highways, unlighted cycle paths and unlighted roundabouts – in other words, wherever there is a risk of accidents.



### **Why light cycle paths in the first place?**

- When cycle paths are not lighted, the cyclists are very tense, whereas the light makes them feel safe. Due to the varying quality of cycle lights this type of lighting is considerably better than reflective road marking, which may be another solution, says Pablo Celis.

Dialogue with the public has been a key concern for Pablo Celis in connection with the implementation of LED-Mark and what needed to be done, when and where.

- We started at Oddervej from Hoejbjerg to Beder. And on Grenaaavej, which has just been finished at Skoedstrup, it was actually a contact from a citizen that lead to the prioritization of this particular road, because our dialogue showed an obvious need for lighting, says the project manager, and points to the relevance of an open dialogue with the public when the subject of cycling in a city is to be highlighted

Further to LED-Mark and road marking at the border of the cycling paths, Pablo Celis knows of no other technologies that can be used at present, but he can very well imagine that in the future further demands will be made to new possibilities.

- It may become possible to make a green wave so that cyclists will not have to stop at red lights at all, or you could record the number of cyclists or their speed on a given stretch of road – which would give us more knowledge about what it takes to increase the number of cyclists in Aarhus, says Pablo Celis and plays a trump by saying:

- Actually, we just want to give cyclists the same status as motorists!

To the question about the co-operation with Geveko ITS, Pablo Celis answers:

- Professional! Far from all suppliers respect time schedules, but we have experienced a high level of competence and an attention to finishing the projects within the time schedule. The last stretch only allowed 1 week from order to finish. This was achieved which made me very happy. They're a really professional partner for us, concludes the Project Manager for Aarhus Cycle City.

In Aarhus, the cycle paths that are applicable to lighting with LED-Mark have now been mapped.

- Having a budget assigned to lighting cycle paths outside the city limits actually makes it possible to do this. The citizens have given us a very positive feedback, and that supports us in our idea that it was the right decision, says Pablo Celis, who himself uses his bicycle as a means of transport on most days.

### **Self-sufficient and CO<sub>2</sub> neutral**

The interview is coming towards its end, and it has turned completely dark. The cycle path is clearly illuminated and before Pablo Celis gets back on his bike, he has a final remark:

- Don't forget to write that LED-Mark is completely self-sufficient, and hence fits 100% in our goal of becoming CO<sub>2</sub> neutral by 2030!

This message is hereby passed on to all the mayors and city officials working on becoming CO<sub>2</sub> neutral.

