The City of Aalborg has implemented a low emission zone in the city centre, covering an area of 3.5 km². Diesel trucks and buses above 3.5 tonnes must fulfil EURO IV or have a retrofitted particle filter to access the area. The results have been impressive: emissions in the area have been reduced by approximately 25 percent, and air quality has improved. A key element in the success of the measure was the strong cooperation between the City of Aalborg and local stakeholders, including freight operators, shops and the police, which has laid the ground for a long lasting collaboration in future urban freight and city logistics projects.

**Municipal context**

Aalborg is an industrial and university city in the north of Denmark. It joined CIVITAS ARCHIMEDES to consolidate its role as a leader in local sustainable development with a particular emphasis on cycling mobility.

Aalborg emerged where the Limfjord was narrowest and easiest to cross. This location made Aalborg an important trading post in the Middle Ages and later on an industrial centre, now becoming a knowledge economy. In 2007, the municipality incorporated some neighbouring areas, making Aalborg the third largest municipality in Denmark.
During this period of time, freight operators were informed about the requirements and meetings with freight operators, city associations and others were held with the aim of continuously evaluating the process and the implementation of the zone.

As of July 2010 the requirements were changed and the signs were updated. Information about the new requirements was distributed to freight operators to determine their compliance with Euro norms. The data collected was later compared with another measurement to assess the results of the environmental zone.

The zone was inaugurated on 1 February 2009 by the Alderman for Technical and Environmental Issues, Mariann Nørgaard. It began operation with Euro III or particle filter requirements until 2010, when the requirements were altered.

When Danish legislation in 2007 made establishing a low emission zone possible in Aalborg, the City saw in CIVITAS ARCHIMEDES the perfect opportunity to implement the change. The project gave Aalborg the possibility to enhance the existing work with stakeholders and to gather experiences about low emission zones from other cities in the CIVITAS network.

Taking a closer look

From September 2008 to February 2009 (when the zone was established), a plan for signage was developed and road signs indicating the entrances to the zone were set up in the city. By the end of 2008, a first licence plate registration of lorries and buses was carried out to determine their compliance with Euro norms. The data collected was later compared with another measurement to assess the results of the environmental zone.

The zone was inaugurated on 1 February 2009 by the Alderman for Technical and Environmental Issues, Mariann Nørgaard. It began operation with Euro III or particle filter requirements until 2010, when the requirements were altered.

During this period of time, freight operators were informed about the requirements and meetings with freight operators, city associations and others were held with the aim of continuously evaluating the process and the implementation of the zone.

As of July 2010 the requirements were changed and the signs were updated. Information about the new requirements was distributed to freight
operators in the region. The cities of Odense and Aarhus, where environmental zones were also in place, changed the requirements at the same time as Aalborg.

In October 2010 a second licence plate registration was carried out to assess whether newer and cleaner models of lorries and buses were operating in the city. Data was analysed during the winter of 2010/2011 to quantify emission reductions.

**Results**

In analysing the results, the City of Aalborg used a framework for air quality modelling developed by the National Environmental Research Institute (DMU).

The pollution level was evaluated through air quality indicators such as levels of CO, NOx and particulates. NO2 levels have dropped by approximately 1 µg/m³ compared to a situation with no environmental zone, and particulates by approximately 0.3 µg/m³.

Vehicle emissions were also measured to assess the effects of this measure, by using the licence plate registration data collected before and after the implementation of the environmental zone. Results show a reduction in emissions by approximately 30 percent.

The share of trucks with engine Euro IV or higher increased from 28 percent in 2008 to 54 percent in 2010, while trucks with engine standard Euro II or lower decreased from 26 percent to 15 percent over the same period. The average age of registered trucks in and around the low emission zone is around six years, whereas, according to Statistics Denmark, the average age of all HGVs in Denmark in 2010 is 8.2 years.

Finally, the image of Aalborg as a green city improved, encouraging migration of people, companies and students to the city.

**Lessons learned**

The main lesson learned is that good cooperation with local stakeholders is essential to guarantee a smooth process.

The information and views collected in meetings with operators, retailers and the police made it possible to design a zone that could actually work.

The stakeholder involvement strategy continues in the development of a heavy traffic strategy, which aims to explore solutions that can benefit more people by analysing the situation from more angles.

---

**BACKGROUND INFORMATION**

An important driver for this measure was the strong cooperation between the City of Aalborg and local stakeholders.

Since 2000, the City has had regular meetings with stakeholders from logistics companies, the city commerce organisation, the police and the port authority to find solutions to the challenges identified by each of the stakeholders.

Citizens wanted the city centre to be a nice environment, while shop owners wanted their goods to be delivered when employees are at work, but before customers arrive, and freight operators called for efficiency. Various schemes and solutions were studied to meet all these needs, and stakeholders were involved in the low emission zone process from the start. This process has eased the implementation of the zone and as a result, the zone is currently operational and no major problems have been reported.
The involvement strategy adopted by Aalborg was presented to an international audience at the third CIVITAS results workshop in Rotterdam in autumn 2012, and the City hopes that its lessons learned will be recognised by the European Commission.

**Upscaling and transferability**

Low emission zones are realistic when they are introduced according to national policy, and if the city has the required stakeholder support.

The measure is fairly easy to replicate. No advanced technology was required, and markers such as signs and stickers for HGVs and buses were used.

In order to secure good cooperation with freight operators and federations, these groups should be included in the planning process. The identification of relevant freight stakeholders is central in the preparation phase of a low emission zone, as it guarantees that the right people are involved in the whole process.

There are currently no plans for upscaling the project in Aalborg, as the limits for air quality are not currently being exceeded. However, the Danish Government is working on a concept of “Clean Air Zones” which could replace the low emission zones in the future. The City of Aalborg is looking into this as the concept develops.

As the low emission zone is gradually losing its effect due to newer vehicles, the requirements might be altered in the future.

**Signalling the environmental zone**