

## PARTNERS



# AVENUE

Autonomous  
Vehicles to  
Evolve to a  
New Urban  
Experience

**Copenhagen  
Demonstration**

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# Copenhagen Demonstration

## Operation phase and Results



This site, operated by Amobility (trademark LetsHolo) is situated in Nordhavn and created a better connection between selected areas of Copenhagen and existing public transport solutions. Unfortunately, the complex and extensive homologation process

delayed the project 2 years and it only became operational mid-2020. Finally, with roadworks on the site and an impossibility to modify the approved routes, it was decided to replace it early 2021 to focus on the Slagelse hospital site.

The Nordhavn experience showed that Danish regulatory framework needs to be drastically changed in order to deploy commercial services with automated minibuses. The regulatory constraints have made impossible to achieve the AVENUE goals. The entire multiple approval process in Denmark is expensive and requires much work from Amobility.

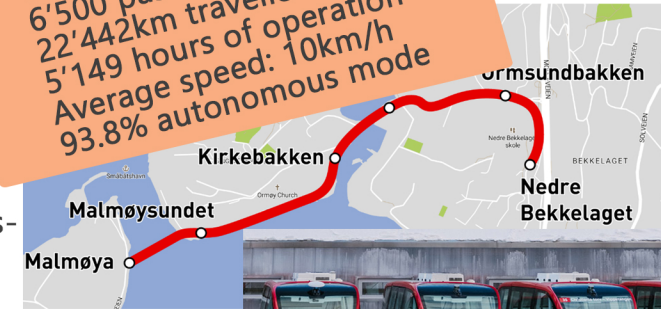
1'579 passengers  
2'417km travelled  
992 hours of operation  
Average speed: 7km/h+  
82.6% autonomous mode



Slagelse site is a 770m route in 5 parking areas at the Hospital. The project is already approved and is on preparation for operation (debuting in 2021).

The Ormøya-Oslo site is a 1,6 km route with 6 bus stops. Thanks to it, users had the opportunity to commute between Malmøya and Moss-eveien, where express buses are going to and from Oslo, with departures each 10min from 6:30 to 20:30. It provided convenient access to a school and a marina.

One-year pilot !  
6'500 passengers  
22'442km travelled  
5'149 hours of operation  
Average speed: 10km/h  
93.8% autonomous mode



The challenge there were environmental: both vegetation and snowfall were interpreted as obstacles and were obstructions to GSS signals (foliage trim and stopover when snowing). This led to harsh braking causing safety concerns (falls), impacting the operations and causing cyclists, pedestrians and following cars to proceed to evasive actions. Other road users behaved dangerously around the automated minibuses due to its low speed and other tested its behavior.

The team observed that the Norwegian legal framework is more agile and ready to adjust to the rapid development of self-driving technologies. The necessity of reaching higher speeds and to improve the perception and interpretation capacities of the automated buses has also been identified.

This demonstration provided an opportunity to learn more about the public's perception and to understand its needs; a survey of 107 interviews showed that the population had positive opinions and felt safe but the service was not providing a valuable mobility solution. Actually, 82% of passengers took the bus out of curiosity while 12% used the service for daily commutes due to low speeds, reliability and the route not going where needed, showing us the necessity of a on-demand service.

