

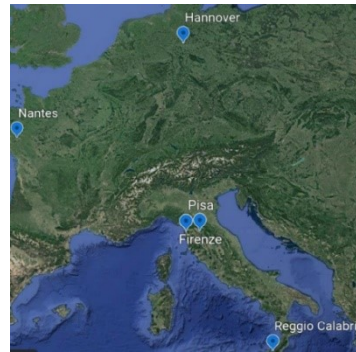
Background

Which are the solutions to reduce noise in our cities? Are electric vehicles totally silent? How citizens can be involved in proactive good practices for noise reduction? These are some of the questions that the European LIFE E-VIA project aimed to answer in depth.

Exposure data from the European Environment Agency demonstrate that more than 100 million EU citizens are affected by high noise levels negatively impacting human health. Traffic noise alone is harmful to the health of almost every third person in the World Health Organization European Region. 20% of Europeans are regularly exposed during the night to noise levels that could significantly damage health, especially in urban areas. The introduction of electric mobility is widely viewed as having the potential to reduce noise in urban areas, but the noise generated by tyres rolling on the road nevertheless needs careful study and further reduction.

Whitin this context, the project intends to:

- tackle noise pollution from road traffic noise focusing on a future perspective in which electric and hybrid vehicles will be a consistent portion of the flow;
- combine knowledge of road optimization and tyre development in order to test an optimized solution for reducing noise in urban areas and Life Cycle Cost with respect to actual best practices.



Actions

LIFE E-VIA started in July 2019 and will end in January 2023. The project is coordinated by the Municipality of Firenze and involves as partners the Mediterranean University of Reggio Calabria, Continental, Vie en.ro.se Ingegneria, University Gustave Eiffel and I-POOL. Specifically, the project has:

- built in Nantes a test road surface designed for the specific context of electric vehicles (EVs) and their tyres. Different pavement mixtures and EV types have been tested on this surface, to identify the optimal combination for noise reduction. An internal combustion engine vehicle has been used as reference;
- implemented the pilot case in Florence (Via Paisiello), with the construction of two road surfaces, an optimised and a reference one, carrying out further testing both in the ante-operam and in the post-operam scenario;
- estimated the noise mitigation efficiency and potential of tyres, road surfaces and traffic through a life-cycle and a life-cycle cost analysis;
- calculated the rolling noise coefficients according to the EU CNOSSOS model for the EV fleet in order to define guidelines on the application of the project's results;
- involved citizens through targeted information initiatives on electric and sustainable mobility and through surveys.

Objectives of the LIFE E-VIA project

- 1 To reduce noise for roads inside very populated urban areas through the implementation of a mitigation measure aimed at optimizing road surfaces and tyres of EVs.
- 2 To estimate the mitigation efficiency and potential of tyres, pavements and traffic (traffic spectrum, speeds, handling conditions) at a higher and comprehensive level.
- 3 To contribute to EU legislation effective implementation (EU Directives 2002/49/EC and 2015/996/EC), providing rolling noise coefficients within the Common Noise Assessment Method (CNOSSOS-EU).
- 4 To contribute to national and Italian regional policies, issuing guidelines about use and application of the methodology output of the project.
- 5 To raise people's awareness of noise pollution and health effects.
- 6 To demonstrate and promote sustainable road transport mobility (electric), reducing noise emission by 5 dB(A) at receivers' roadside and achieving also CO₂ emissions reduction.
- 7 To encourage low-noise surfaces implementation in further EU and extra-EU scenarios.



LIFE18 ENV/IT/000201

www.life-evia.eu
life18.evia@gmail.com



With the contribution
of the LIFE programme
of the European Union



LIFE E-VIA

Electric Vehicle noise control by Assessment and optimisation of tyre/road interaction



With the contribution of the LIFE programme
of the European Union

Project Final Event

7th October 2022
Fortezza da Basso, Firenze
ExpoMove exposition