« E-VIA » Electric Vehicle noise control by Assessment and optimisation of Tyre/road interaction
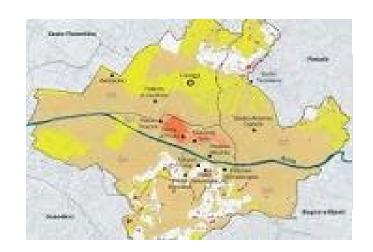

PROJECT LOCATION: Florence Italy

BUDGET INFO:

      Total amount: 1.797,030 €

      55% EC Co-funding: 933,295 €

DURATION: Start: 01/07/2019 - End: 31/01/2023

PROJECT'S IMPLEMENTORS:

    Coordinating Beneficiary: Florence Municipality

    Associated Beneficiary(ies):
    Continental Reifen Deutschland
    Ifsttar
    Ipool S.r.l.
    University of Reggio Calabria
    Vie en.ro.se Ingegneria S.r.l

Arnaldo Melloni
Project Manager

OBJECTIVES & SCOPE

•Tackle noise pollution from road traffic noise focusing on a future perspective in which electric and hybrid vehicles will be a consistent portion of 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;

•Reduce noise for roads inside very populated urban areas through the implementation of a mitigation measure aimed at optimizing road surfaces and tyres of EV (electric vehicle). Two road surfaces, at least 5 different EV (including tyres specifically designed for EVs) will be tested.

•The soundscape holistic approch will be used to evaluate the performance of EV vs ICEV in the newly built scenario.

OBJECTIVES & SCOPE

•**estimate the mitigation efficiency and potential of tyres, pavements and traffic (traffic spectrum, speeds, handling conditions) at a higher and comprehensive level: a Life Cycle Analysis (LCA) and a Life Cycle Cost Analysis (LCCA) will be performed to demonstrate the individual and synergistic efficiency of pavement surfaces, tyres and vehicles (including the comparison between internal combustion vehicles, mixed traffic, and EV traffic)**

•**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), specifically tuned for EVs which are actually in need of data for practitioners, agencies, and departments aiming at developing future scenarios**

EXPECTED IMPACTS

-Awarness raising : 20.000 individuals reached.
The estimation has been based on the experience on previous LIFE Projects and it based on the several initiatives that are planned to be organized during the project.
-Noise level reduction: Reduction of Lden and Lnight noise level -5dB(A). The estimation of noise exposure at receivers living roadside. It is expected to have 5 dB(A) less than without mitigation at the end of the project.
- Soundscape improvement: acoustic perception and comfort of an optimized asphalt and EV respect to standard one. The estimation of the perception's improvement will be verified according of the questionnaires that will be collected.
-Number of people affected by reduction noise: The estimation is based on the evaluation of the number of residents in a buffer of 50m from the street's axis.

Arnaldo Melloni
Project Manager

POLICY IMPLICATIONS

- **Contribute to national and Italian regional policies, issuing guidelines about use and application of the methodology output of the project, which will be adopted, through the Regional Env. Agency (ARPAT), supporting the project, by Tuscany Region, strongly interested in noise issues (partner of LIFE NEREIDE and Leopoldo project, and issued a law about control of road pavements with CPX method). Calabria Region and Città of Reggio Calabria also expressed their interest**

- **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), specifically tuned for EVs which are actually in need of data for practitioners, agencies,and departments aiming at developing future scenarios**

CONTINUATION (REPLICATION, TRANSFER, MARKET UPTAKE)

The Municipality of Florence will continue maintaining and monitoring effects of the optimize pavements in the 3 years after the project's end.

Municipality of Florence commits itself to apply the proposed solution in the ZEZ areas (Zero Emission Zones), where only EVs are admitted and the method will be perfectly applicable in future maintenance operations (wearing course substitution), especially in the areas with high transit percentages of EVs.

The solution proposed and optimized during the project will be easily replicable in other urban areas, also by actors different from project partners.
The guideline for tested and optimized methodology application will be provided as a project output

Thank you for you attention!

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