« 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

URBAN HEAT ISLAND AND NOISE: OUR NOT SO INVISIBLE ENEMIES



OBJECTIVES & SCOPE



- 1) 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.
- 2) 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;
- 3) 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.
- 4) The soundscape holistic approch will be used to evaluate the performance of EV vs ICEV in the newly built scenario.

URBAN HEAT ISLAND AND NOISE: OUR NOT SO INVISIBLE ENEMIES





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.

-<u>Noise level reduction</u>: <u>Reduction of Lden and Lnight noise</u> <u>level -5dB(A)</u>. 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.

- <u>Soundscape improvement: acoustic perception and comfort</u> 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.

-<u>Number of people affected by reduction noise:</u> 2000 people. The estimation is based on the evaluation of the number of residents in a buffer of 50m from the street's axis.

URBAN HEAT ISLAND AND NOISE: OUR NOT SO INVISIBLE ENEMIES





EXPECTED IMPACTS

- Reduction of road traffic noise levels from EVs and ICEVs with pavements and tyres having life cycle costs comparable to those of standard road surfaces and tyres. Regarding the reduction of CPX noise levels at 50 km/h a target LCPX below 87 dBA should be achieved for the optimized prototype surface.
- CO2 reduction from an increased use of electric cars in the mitigated area. Expected are 29 tons CO2 reduction per year. For this, specific actions are intended to promote electric mobility and raise awareness for noise and other environmental issues associated with road traffic.

URBAN HEAT ISLAND AND NOISE: OUR NOT SO INVISIBLE ENEMIES





LIFE18 ENV/IT/000201 LIFE E-VIA PROJECT 12 May 2021



	PROJECT		and a second																		
	Action		20)19			20	020			2	021			20)22			20	23	
Action number	Name of the action	I	п	ш	IV	Т	п	ш	ıv	Т	11	ш	ıv	Т	п	ш	ıv	T	Ш	ш	IV
A. Prepar	atory actions										Т										
A.1	Electric vehicles and their noise emission																				
A.2	Quiet pavement technologies and their performance over time																				
A.3	Tyre role in the new context of EV and ICEV																				
B. Implen	nentation actions																				
B.1	Tracks design																				
B.2	Tyre-pavement coupling study and prototype implementation																				
B.3	Pilot area: Implementation																				
B.4	Track efficiency tests in the pilot area																				
B.5	Soundscape analysis																				
B.6	Evaluation of EV noise emissions																				
B.7	Holistic performances of tyres																				
B.8	Replicability and Transferability																				
C. Monito	oring of the impact of the project actions																				
C.1	Monitoring of the impact of the project actions																				
C.2	Life cycle analysis (LCA) and life cycle costing (LCC)																				
D. Public	awareness and dissemination of results																				
D.1	Information and awareness raising activities																				
D.2	Technical dissemination activities to stakeholders																				
E. Project	management																				
E.1	Coordination, Monitoring and Project management																				
E.2	After LIFE Plan																				

4 actions concluded (A1, A2, A3 and B1), all other actions in progress.

Name, Surname, Position





Paisiello street is the case pilot road selected







Paisiello street: characteristics of the road 1)Two-way travel without significative curves

2)Significant population density of the area

3) Busy road due to traffic toward the city center

4)Close to public offices (Regional Agency for Environment Protection and Metropolitan)

5) Close to the most relevant park in Florence (Cascine)

6) Close to one of the most important intervention of urban requalification (ex Manifattura Tabacchi) with new dwellings, primary school, fashion school (university)





Construction related procedures

- Technical documents: September 2020
- New mixture (technical minimum requirements actions B1 e B2). December 2020
- Publish the tender and award notice: March 2021
- Receive the winner legal documents: June 2021
- Implementation summer 2021- July



Technical solutions – tyre



"Within action B7 [..] EV tyres [are developed and build] which are designed to give an optimal holistic relation between low exterior noise and other key performances."

Rolling resistance

- > Affects the energy efficiency of a vehicle.
 - > Contribution to CO₂ emission (depending on vehicle type/energy source).
 - High achievable mileage is crucial for user acceptance of EVs.



> Safe driving is a paramount requirement a tyre has to fulfill.

Safety



Wear

- > High achievable mileage is crucial for user acceptance of a tyre.
- > Long tyre lifespan reduces particle emission and waste.

The sustainability of a low noise tyre is only given when a holistic performance is assured.

Name, Surname, Position

Logo(s)

LIFE18 ENV/IT/000201

Technical solutions – road surface



- Very thin asphalt concrete (VTAC) with max. aggregate size 6mm.
- With/without crumb rubber (PCR/P).
- MPD: ~0.3mm (PCR) / ~0.4 mm (P)
- Effective absorption 1.5 kHz to 5 kHz.



→ Based on prototype noise measurements:
 3.5 dBA to 4.5 dBA with respect to reference DAC 0/10.





LIFE18 ENV/IT/000201



Name, Surname, Position





Construction related procedures

To verify the noise reduction compared to a traditional asphalt, in the pilot case two stretches of asphalt were laid:

- One traditional (150 m)
- The low-emissivity one developed as part of the project (150 m).

Against an improvement of a standard resurfacing of about 0.5 / 1.5dB (the variability depends on the deterioration level of the replaced asphalt), in the Nantes test area the new low-emissivity asphalt studied in the context of the project demonstrated reduction levels of approximately 4 dB.

Name, Surname, Position





Post operam











B5.3 Ante- and post-operam interviews with residents



DIREZIONE AMBIENTE SERVIZIO Rifuti, Igiene Pubblica, Ambientale e del Territorio P.O. Igiene Pubblica, Ambientale e Vivibilità Urbana

Firenze, 2 luglio 2021

Oggetto: Avviso somministrazione questionario ai residenti di via Paisiello

Gentile cittadina/o,

il comune di Firenze è il capofila del progetto LIFE E-VIA (Electric Vehicle nolse control by Assessment and optimization of tyre/road interaction/Controllo del rumore dei veicoli elettrici mediante valutazione e ottimizzazione dell'interazione pneumatico/strada – <u>www.life-evia.eu</u>) co-finanziato dall'Unione Europea. Il progetto è iniziato nel 2019 e si concluderà ad inizio 2023.

Fra le azioni che verranno realizzate nel progetto, vi è la stesa di un asfalto ottimizzato per la riduzione del numore in un'area pilota, individuata dal Comune in un tratto di Via Paisiello, compreso tra via Rinuccini e via Vivaldi. Tra i vari obiettivi del progetto vi è anche quello di sensibilizzare i cittadini sui temi dell'inquinamento acustico e sugli effetti sulla salute, spiegando le opportunità offerte dai veicoli elettrici attraverso eventi specifici di divulgazione e promozione e indagando anche sulla la percezione del rumore da parte delle persone, mediante l'utilizzo della metodologia di analisi del paesaggio sonoro.

A tal fine, un incaricato dal comune di Firenze e da Vie en ro.se Ingegneria si presenterà presso il suo domicilio, nei giorni 6 e 7 luglio 2021 e le consegnerà un breve questionario da compilare al momento, formendole qualche semplice istruzione. Per la compilazione saranno necessari al massimo 5 minuti. Il questionario sarà poi ritirato dallo stesso incaricato. Si precisa che l'incaricato non accederà alla sua abitazione, ma sosterà all'esterno e sarà dotato di tesserino di riconoscimento.

Il trattamento dei dati personali avverrà in modo riservato e la successiva pubblicazione dei risultati sarà realizzata con modalità tali da non consentire la riconducibilità delle risposte espresse alla persona intervistata.

La ringraziamo anticipatamente per la cortese e preziosa collaborazione.

Per ulteriori informazioni

Ing. Chiara Bartalucci - 055 4379140

Dott.ssa Gessica Pecchioni - 055 2625360

Il Responsabile

Dr. Arnaldo Melloni – Direzione Ambiente comune di Firenze

So the

A couple of days before the questionnaires' delivering, an informative letter has been provided to residents.



Name, Surname, Position





Logo(s

B5.3 Ante-operam interviews with residents



DIREZIONE AMBIENTE SERVIZIO Rifiuti, Igiene Pubblica, Ambientale e del Territorio P.O. Igiene Pubblica, Ambientale e Vivibilità Urbana

Firenze, 7 luglio 2021

Oggetto: Compilazione e ritiro questionario progetto LIFE E-VIA

Gentile cittadina/o,

come da comunicazione scritta ricevuta lo scorso 5 luglio, nell'ambito del progetto europeo LIFE E-VIA – <u>www.life-evia.eu</u>) coordinato dal comune di Firenze, è in corso un'indagine sulla percezione del rumore rivolta ai residenti di via Paisiello.

Alleghiamo alla presente il questionario che le chiediamo gentilmente di compilare. Le chiediamo, inoltre, di contattare l'incaricato dal comune di Firenze e da Vie en ro.se Ingegneria (Ing. Chiara Bartalucci – Dott.ssa Giulia Iannuzzi, tel. 055 4379140, e-mail <u>chiara bartalucci@vienrose.it</u>) per concordare il ritiro del questionario.

Nel caso in cui abbia già ricevuto il questionario nei giorni 6 e 7 luglio 2021 e lo abbia già compilato, le chiediamo, analogamente, di contattare l'incaricato dal comune di Firenze e da Vie en ro.se Ingegneria (Ing. Chiara Bartalucci - Dott.ssa Giulia Iannuzzi, tel. 055 4379140, e-mail <u>chiara bartalucci@vienrose.it</u>) per concordare il ritiro.

Ricordiamo che il trattamento dei dati personali avverrà in modo riservato e la successiva pubblicazione dei risultati sarà realizzata con modalità tali da non consentire la riconducibilità delle risposte espresse alla persona intervistata.

La ringraziamo anticipatamente per la cortese e preziosa collaborazione.

Per ulteriori informazioni:

Ing. Chiara Bartalucci - 055 4379140

Dott.ssa Gessica Pecchioni - 055 2625360

Il Responsabile

Dr. Arnaldo Melloni – Direzione Ambiente comune di Firenze

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THE PROJECT

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 to night sound 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. As emerged in Noise in Europe Conference (April 2017) and in the WHO guidelines published in October 2018, the increased stringency of EU at source standards needs to be balanced against other effective measures such as road surface and/or tyre improvements and urban planning measures as well. One of the solutions universally recognized as the best to reduce noise in urban areas, from both the point of view of noise and air quality, is the introduction of electric mobility. Therefore, the project LIFE F-VIA (Electric Vehicle polse control by Assessment and optimization of tyre/road interactionwww.life-evia.eu) 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 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 . The Project LIFE E-VIA, co-financed by the European Union through the Life programme, started in July 2019 and will end in January 2023. Il Progetto, co-finanziato dall'Unione Europea attraverso il Programma LIFE, ha avuto inizio a luglio 2019 e terminerà a gennaio 2023. The project is coordinated by the Municipality of Florence and involves as partners the Mediterranean University of Reggio Calabria, Continental, Vie en.ro.se Ingegneria, University Gustave Eiffel and I-POOL.

THE SURVEY

The goal of this questionnaire is to collect data on the perception of the soudscape. In addition to some initial general questions, we kindly ask you to answer 10 questions related to the perception of the soundscape clase to your home. Your personal data will be treated as strictly confidential and the publication of the survey results will ensure the non-recognition of the responses. Please answer all questions in order, following the instructions provided.

PERSONAL INFORMATION

- I1. Age: 18-25 26-40 41-55 56-65 66-75 >75
- 12. Gender: 🗆 Female 🗆 Male
- I3. Education: □ Primary school □ Middle School □ High School □ Bachelor's Degree □ Ph.D. □ Master
- I4. Occupation:
- City of Residence: _____
- I6. Nationality:

D1. Does your home have windows overlooking via Paisiello?
No Yes

D2. If so, which are the rooms that overlook via Paisiello? (Make an X mark in the box for each room overlooking via Paisiello)

Name, Surname, Position





B5.3 Ante-operam interviews with residents

Room	Overlooking via Paisiello
Bedroom	
Single Bedroom	
Livingroom	
Kitchen	
Bathroom	
Other: (Please specify)	

D3. How do you assess the intensity of the following four types of sound in the soundscape around you? (make an X mark for each type of sound in the box that best matches your opinion)

Type of sound	Very Low	Low	Fair	High	Very High
Traffic (eg. Cars, motorcycles, clacson)					
Mechanical/electrical sounds (es. music, industries, sirens, constructions)					
Anthropic sounds (es. voices, laughter, children, steps)					
Nature sounds (es. wind, rustling leaves, birds)					

D4. How do you assess the quality of the soundscape around you?

			(Please, ti	ck the box 1	that best ma	atches you	r opinion)			
0	1	2	3	4	5	6	7	8	9	10
Very Bad										Excellent

D5. Do you think the soundscape around you is appropriate for this place?

Absolutely 0 1 2 3 4 5 6 7 8 9 10 inappropriate	Completely appropriate

D6. To what extent does it agree with the following statements about the sound environment around it?? (Please tick the box that best matches your opinion for each row)

The soundscape is:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Enjoyable					
Chaotic					
Interesting					
Boring					
Relaxing					
Disturbing					
Lively					
Monotonous					

D7. How do you assess the quality of the urban landscape around you?

	(Flease tick the box that best matches your opinion)														
Very Bad	0	1	2	3	4	5	6	7	8	9	10	Excellent			

D8. Do you think that implementation of interventions for the reduction of noise could increase the value of your home?
(Please tick the box that best matches your opinion)

Not at all 0 1 2 3 4 5 6 7 8 9 10 Surely

Not at all	0 1	2	3	4	5	6	7	8	9	10	Surely	
									_			
		D10. Ho (Please t	w doyo ick the b	u assess oox that	best n	sensiti natche	vity to s vour	sounds	5.° 1)			
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B5.3 Post-operam interviews with residents



DIREZIONE AMBIENTE SERVIZIO Rifiuti, Igiene Pubblica, Ambientale e del Territorio P.O. Igiene Pubblica, Ambientale e Vivibilità Urbana

Firenze, 20 settembre 2021

Oggetto: Compilazione e ritiro questionario post-operam progetto LIFE E-VIA

Gentile cittadina/o

come da comunicazione scritta ricevuta lo scorso 5 luglio, nell'ambito del progetto europeo LIFE E-VIA – <u>www.life-evia.eu</u>) coordinato dal comune di Firenze, è in corso un'indagine sulla percezione del rumore rivolta ai residenti di via Paisiello.

In aggiunta al questionario da lei gentilmente compilato a luglio prima che venisse realizzata la stesa di un asfalto ottimizzato per la riduzione del rumore in un tratto di Via Paisiello, le chiediamo cortesemente di compilare un muovo breve questionario che alleghiamo alla presente.

Per qualsiasi dubbio riguardo alla compilazione può contattare l'incaricato dal comune di Firenze e da Vie en ro se Ingegneria (Ing. Chiara Bartalucci e-mail chiara bartalucci@vienrose.it – Dott.ssa Giulia Iannuzzi e-mail giulia iannuzzi@vienrose.it.el. 055 4379140).

Una volta compilato da lei ed eventualmente dai suoi familiari, le chiediamo gentilmente di lasciare i/il questionari/o nella cassetta delle lettere dell'impianto sportivo M. Pacini dell'A.S.D.L.F. Firenze Calcio, in via Paisiello 15r, entro il 28/09/2021.

Ricordiamo che il trattamento dei dati personali avverrà in modo riservato e la successiva pubblicazione dei risultati sarà realizzata con modalità tali da non consentire la riconducibilità delle risposte espresse alla persona intervistat.

La ringraziamo anticipatamente per la cortese e preziosa collaborazione.

Per ulteriori informazioni:

Ing. Chiara Bartalucci (Vie en.ro.se Ingegneria) - 055 4379140

Dott.ssa Gessica Pecchioni (Comune di Firenze) - 055 2625360

Il Responsabile

Dr. Arnaldo Melloni – Direzione Ambiente comune di Firenze

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LIFE/ENV/IT000201 LIFE E-VIA Progetto co-finanziato dalla Commissione Europea nell'ambito del Programma LIFE+2018



THE PROJECT

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 to night sound 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. As emerged in Noise in Europe Conference (April 2017) and in the WHO guidelines published in October 2018, the increased stringency of EU at source standards needs to be balanced against other effective measures such as road surface and/or tyre improvements and urban planning measures as well. One of the solutions universally recognized as the best to reduce noise in urban areas, from both the point of view of noise and air quality, is the introduction of electric mobility. Therefore, the project LIFE E-VIA (Electric Vehicle nolse control by Assessment and optimization of tyre/road interactionwww.life-evia.eu) 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 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 . The Project LIFE E-VIA, co-financed by the European Union through the Life programme, started in July 2019 and will end in January 2023. Il Progetto, co-finanziato dall'Unione Europea attraverso il Programma LIFE, ha avuto inizio a luglio 2019 e terminerà a gennaio 2023. The project is coordinated by the Municipality of Florence and involves as partners the Mediterranean University of Reggio Calabria, Continental, Vie en ro.se Ingegneria, University Gustave Eiffel and I-POOL.

THE SURVEY

The goal of this questionnaire is to collect data on the perception of the soudscape. In addition to some initial general questions, we kindly ask you to answer 10 questions related to the perception of the soundscape close to your home. Your personal data will be treated as strictly confidential and the publication of the survey results will ensure the non-recognition of the responses. Please answer all questions in order, following the instructions provided.

PERSONAL INFORMATION

nelor's Degree 🗆 Ph.D. 🗆 Master

Logo(s)

1.	Age:	18-25	26-40	41-55	56-65	66-75	□>75
2.	Gender:	Female	🗆 Male				
3.	Education:	Primary	school 🗆 N	/iddle Scho	ol 🗆 Higi	h School 🛛	Bachelo
4.	Occupation	n:					
5.	City of Resi	dence:					

lationality:

D1. Does your home have windows overlooking via Paisiello?
No Yes

D2. If so, which are the rooms that overlook via Paisiello? (Make an X mark in the box for each room overlooking via Paisiello)

Name, Surname, Position





B5.3 Post-operam interviews with residents

Room	Overlooking via Paisiello
Bedroom	
Single Bedroom	
Livingroom	
Kitchen	
Bathroom	
Other: (Please specify)	

D3. How do you assess the intensity of the following four types of sound in the soundscape around you? (make an X mark for each type of sound in the box that best matches your opinion)

Type of sound	Very Low	Low	Fair	High	Very High
Traffic (eg. Cars, motorcycles, clacson)					
Mechanical/electrical sounds (es. music, industries, sirens, constructions)					
Anthropic sounds (es. voices, laughter, children, steps)					
Nature sounds (es. wind, rustling leaves, birds)					

D4. How do you assess the quality of the soundscape around you?

			(Please, tio	ck the box t	that best ma	atches you	r opinion)			
0	1	2	3	4	5	6	7	8	9	10
Very Bad										Excellent

D5. Do you think the soundscape around you is appropriate for this place?

(Please, tick the box that best matches your opinion)												
Absolutely	0	1	2	3	4	5	6	7	8	9	10	Completely
inappropriate												appropriate

D6. To what extent does it agree with the following statements about the sound environment around it?? (Please tick the box that best matches your opinion for each row)

The soundscape is:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Enjoyable					
Chaotic					
Interesting					
Boring					
Relaxing					
Disturbing					
Lively					
Monotonous					

 D7. How do you assess the quality of the urban landscape around you? (Please tick the box that best matches your opinion)

 Very Bad
 0
 1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 Excellent

and the local division of the local division	the state of												1.000			
D8. To what extent has the noise of traffic you perceived changed in the past months?																
(Please tick the box th								t best n	natche	es your o	pinion)	croace	d		
Verv	much	Inc	reus	fairly	_	1	lightly	Stubi	e (Slightly Eairly Ve				Ven	much	
,	0	1	+	2	-		4	5	-	6 7 8 9					10	
			+										-			
D9. How	do you asse	ess the	effe	acts of t	he re-	pavin	g of via i	Paisiello	o with	the new	/ aspha	ilt on t	he traff	ic soun	d you	perceive
				(Ple	aasa ti	ck the	thore the	your no at best n	me: natch		ninion	1				
				6.0	ase a	an tree	DOX GIO	it beach	Inducing	es your o	pinion	,				
-		Ne	egati	ive				Irrele	vant	1			Positiv	e		
Very	/ much		T	fairly		3	slightly		Poco Abbastanza					Molto		
	0	1	1	2		3	4	5		6	7	8		9		10
	10.0-															
)10. Do you	think	that	the imp (Pla	plemer asso tir	Atatio	h of a ic	W-hoise thest n	e aspr natch	hait has i	ncreas	ed me	value o	of your	nome	
	Not at al			1	2	3	4	5	6	7	8	9	10	Sure	dv.	
						-	<u> </u>	_	-	<u> </u>					.,	
D11. Do you think that your health can be improved by the recent reduction of noise levels close to your home?																
				(Ple	ease ti	ck the	box tha	it best n	natche	es your o	pinion)				
				-	_	_	—	-	-	T - T		~	40			
	Not at al	1	U	1	2	5	4	5	ь	/	8	9	10	Sure	eny –	
D12. How do you assess your sensitivity to sounds?																
			_	(Ple	ase ti	ck the	box tha	it best n	natche	es your o	pinion					
l	Very low	/	0	1	2	3	4	5	6	7	8	9	10	Very	High	1

Name, Surname, Position



Collected questionnaires

Ante-c	operam	Post-operam						
Delivered	Filled	Delivered	Filled	Expected to be filled				
92	56	101	38	~ 18				



Name, Surname, Position







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Preliminary post-operam analysis

HOW DO YOU ASSESS THE EFFECTS OF THE RE-PAVING OF VIA PAISIELLO WITH THE NEW ASPHALT ON THE TRAFFIC SOUND ?



The overall analysis should be completed by mid-November.

DO YOU THINK THAT YOUR HEALTH CAN BE IMPROVED BY THE RECENT REDUCTION OF NOISE LEVELS CLOSE TO YOUR HOME?



Name, Surname, Position



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

URBAN HEAT ISLAND AND NOISE: OUR NOT SO INVISIBLE ENEMIES





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

URBAN HEAT ISLAND AND NOISE: OUR NOT SO INVISIBLE ENEMIES





CONTINUATION (REPLICATION, TRANSFER, MARKET UPTAKE)

Further tangible outputs of the LIFE EVIA project will be:

1. A new emission model for electric cars with the aim of supporting the implementation of EU legislation. Rolling noise coefficients for the CNOSSOS-EU prediction model will be provided in order to evaluate their contribution within strategic noise mapping according to Directive 2002/49/EC.

2. The development of a new testing framework to design road surfaces for mixed fleets with increasing participation of electric and hybrid vehicles.

3. An annual electric car festival in Florence to promote and support electric and sustainable mobility.

URBAN HEAT ISLAND AND NOISE: OUR NOT SO INVISIBLE ENEMIES



Conclusion



LIFE18 ENV/IT/000201

In Europe, the acoustic scenario in urban environments is mainly characterized by road traffic noise.

In this framework, the LIFE E-VIA project proposes prototypal solutions in form of optimized road surfaces and tyres for the specific context of EV fleets. These are developed in order to give an optimal holistic relation between low exterior noise and other key performances.

These solutions are accompanied by soundscape analysis activities, estimation of EV rolling noise coefficients for the local fleet in order to support implementation of EU legislation, Life Cycle and Life Cycle Cost Analysis to evaluate the track efficiency from a comprehensive point of *Logo(s)* view.



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Website







110 dE

100 dB

80 dB

60 dB 50 dB 40 dB

LIFE Electric Vehicle

noise control by Assesment and optimisation of tyre/road interaction

Name, Surname, Position

LIFE E-VIA

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

www.life-evia.eu



LIFE E-VIA PROJECT 17 November 2021

Arnaldo Melloni













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With the contribution of the LIFE programme of the European Union



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