

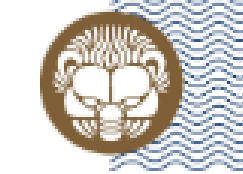


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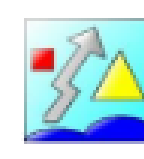
With the contribution of the LIFE programme of the European Union

LIFE E-VIA

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



Università degli Studi
Mediterranea
di Reggio Calabria

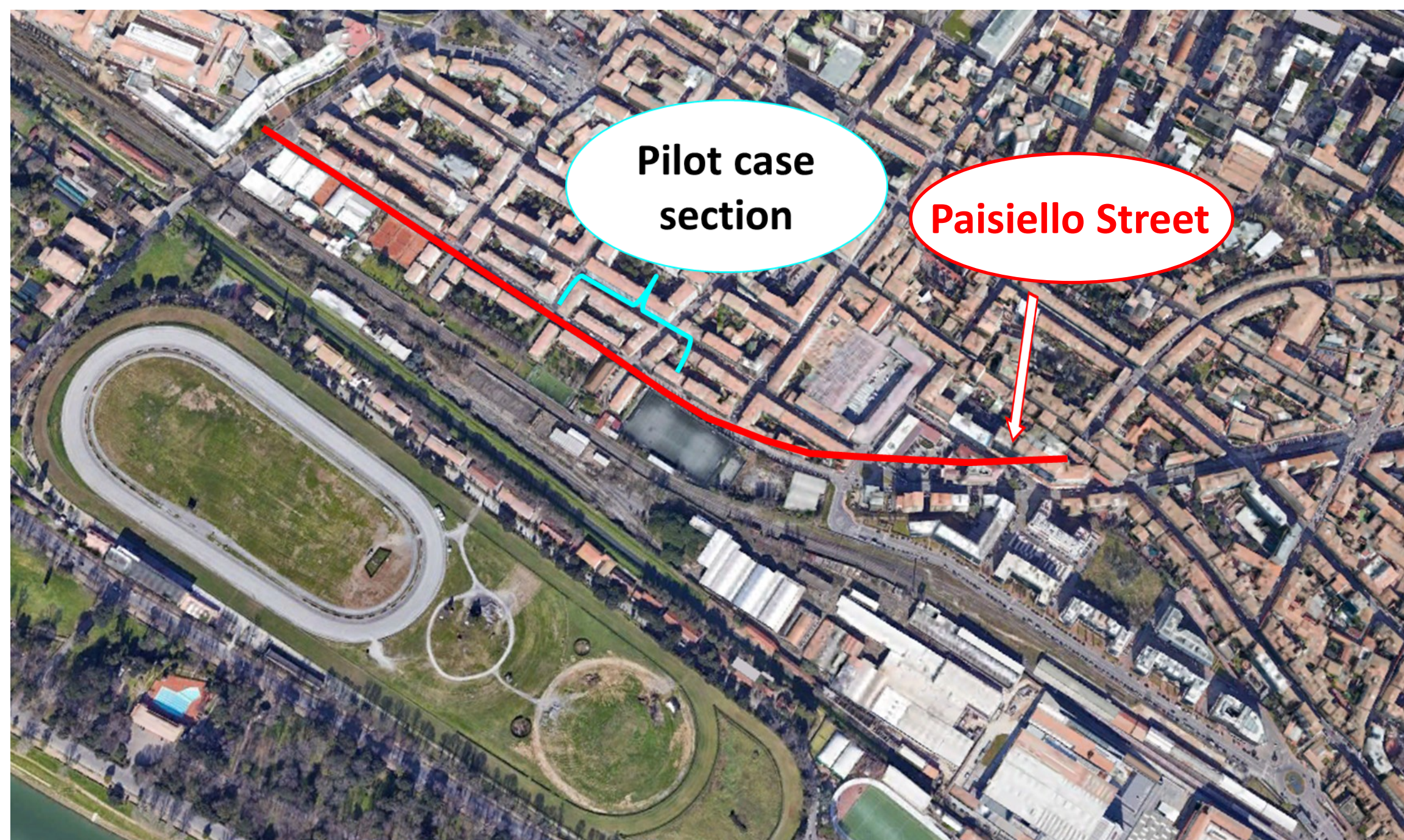


Vie en.ro.se.
Ingegneria

The Pilot case

The interventions in the pilot case located in Paisiello street (Florence) have taken place in mid July 2021: an innovative low-noise asphalt that aims to reduce traffic noise pollution was laid down in a portion of the street. In order to evaluate citizens soundscape perception before and after the pilot intervention realization, ante-operam and post-operam questionnaires were submitted to Paisiello street's residents. In particular, 92 ante-operam questionnaires were delivered, and 56 completed questionnaires were returned. In September, 101 post-operam questionnaires were delivered and 56 returned. The analysis shows a positive subjective impact of the low-noise asphalt implementation. As an illustration, according to 77% of the respondents the re-paving reduced the traffic noise perceived in their home.

Context and Methods



The pilot case in Florence

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 Organisation 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 noise control by Assessment and optimisation of tyre/road interaction- www.life-e-via.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 optimisation 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, cofinanziato dall'Unione Europea attraverso il Programma LIFE, ha avuto inizio a luglio 2019 e terminerà a gennaio 2023. Il progetto è coordinato dalla Municipalità di Firenze e coinvolge sei partners: la Mediterranean University of Reggio Calabria, Continental, Vie en.ro.se Ingegneria, Università Gustave Eiffel e i-POOL.

THE SURVEY

The goal of this questionnaire is to collect data on the perception of the soundscape. 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

1. Age: ☐ 18-25 ☐ 26-40 ☐ 41-55 ☐ 56-65 ☐ 66-75 ☐ >75

2. Gender: ☐ Female ☐ Male

3. Education: ☐ Primary school ☐ Middle School ☐ High School ☐ Bachelor's Degree ☐ Ph.D. ☐ Master

4. Occupation: _____

5. City of Residence: _____

6. 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)

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 (cars, motorcycles, tractors...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mechanical/electrical sounds (e.g. music, industrial, street, construction...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anthropogenic sounds (e.g. voices, laughter, children, steps...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nature sounds (e.g. wind, rustling leaves, birds...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D4. How do you assess the quality of the soundscape around you? (Please tick the box that best matches your 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)

	0	1	2	3	4	5	6	7	8	9	10
Absolutely 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
Exposable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chaotic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relaxing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disturbing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monotonous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

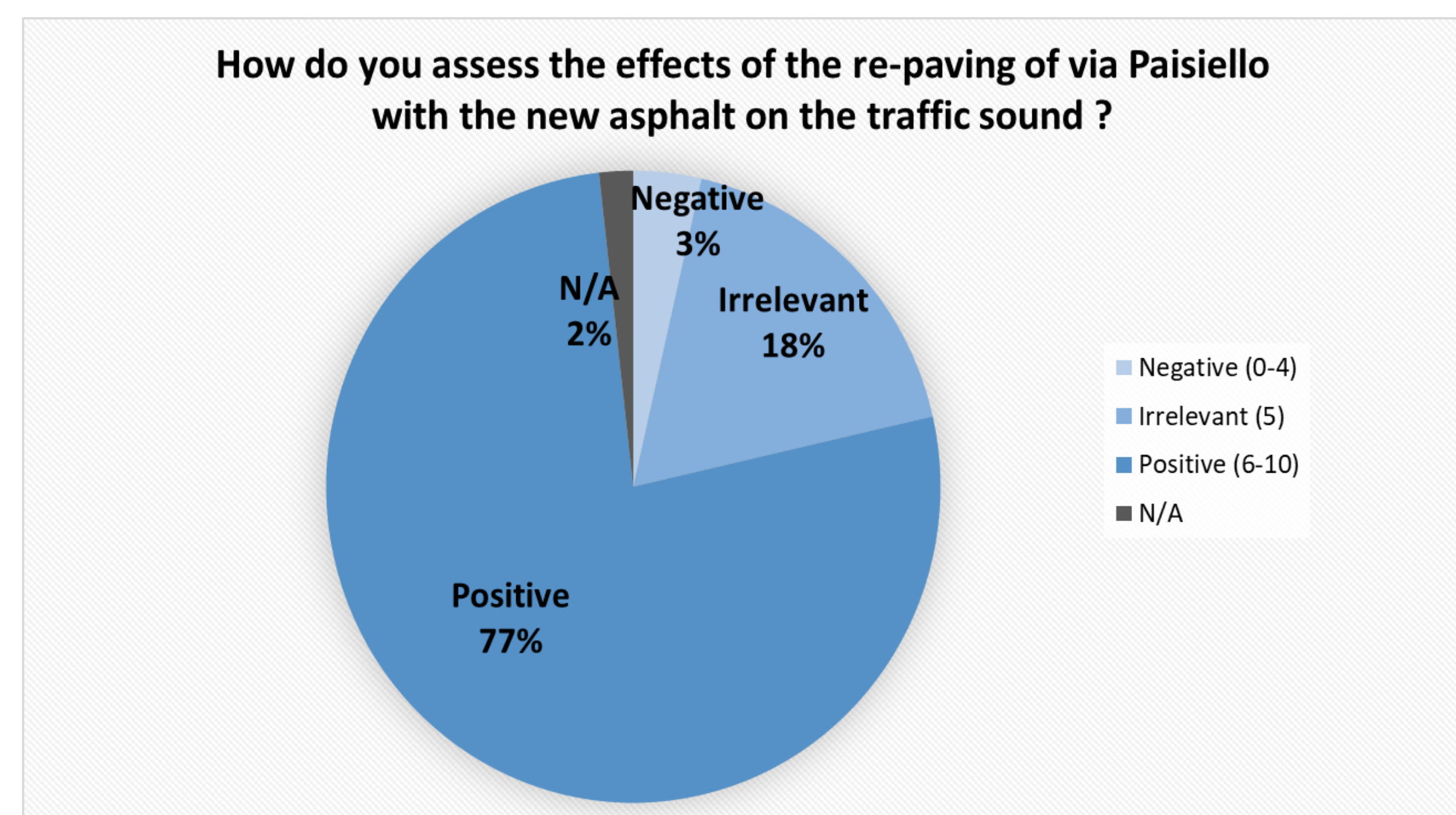
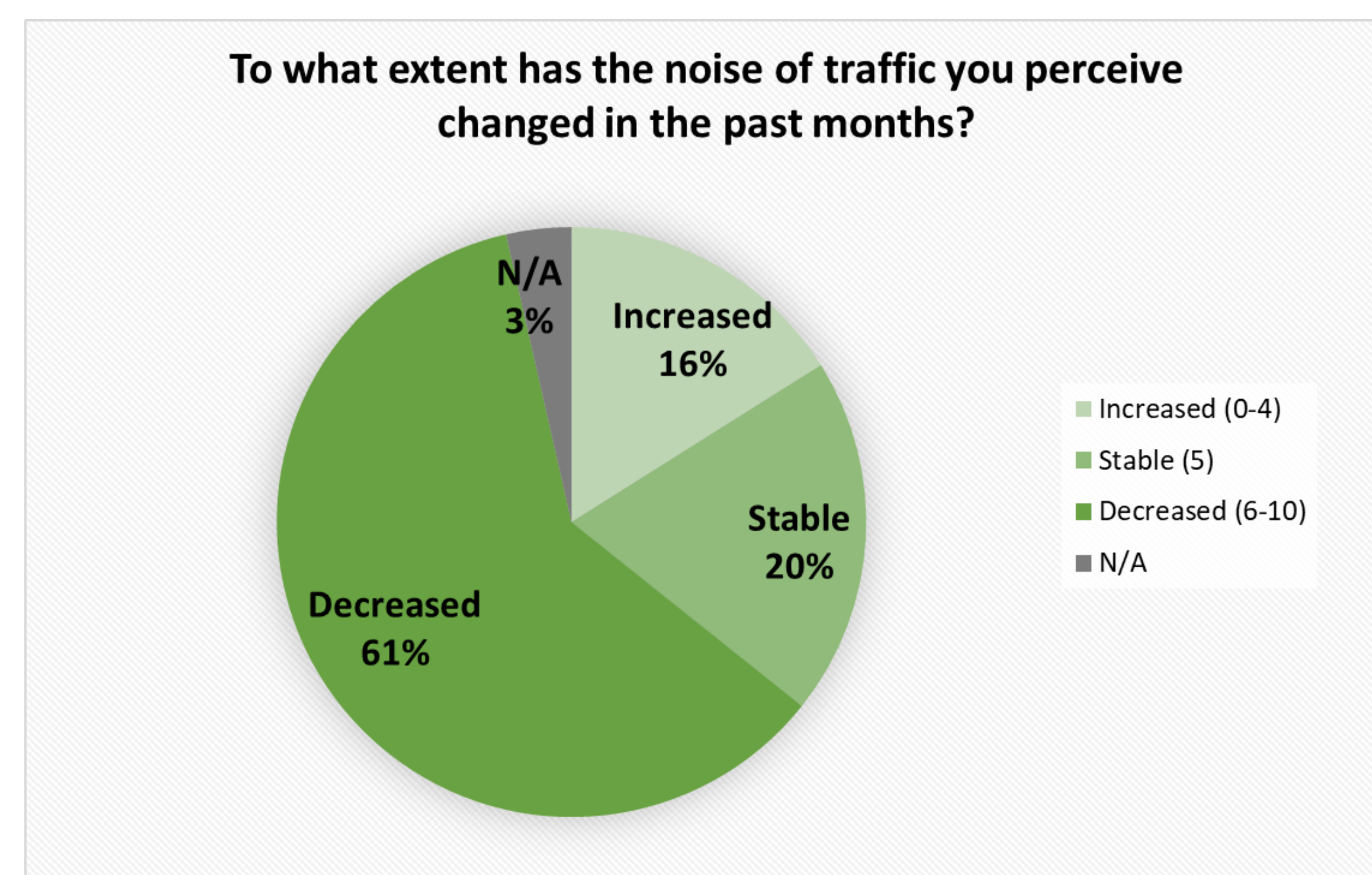
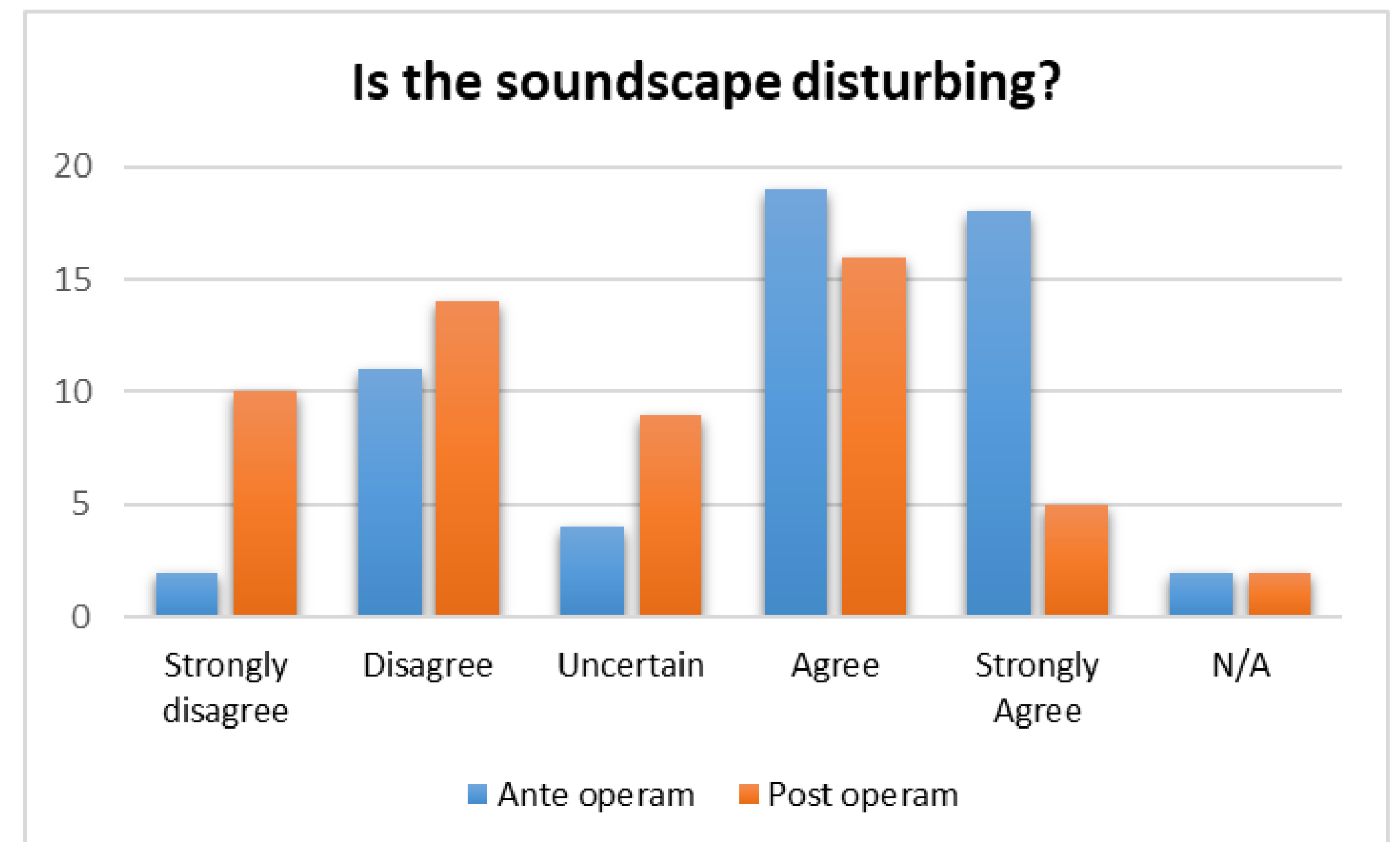
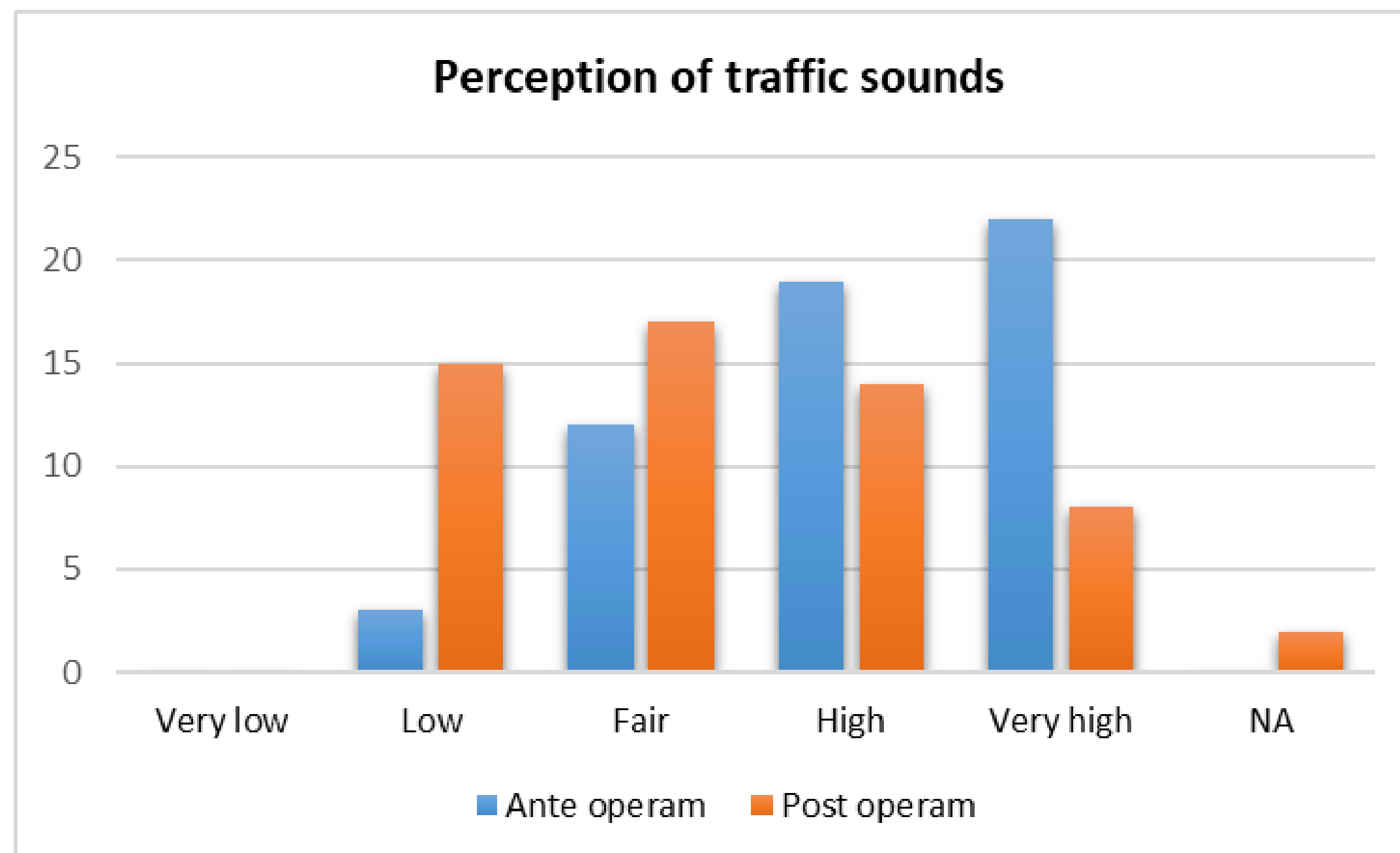
	0	1	2	3	4	5	6	7	8	9	10
Very Bad											Excellent

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)

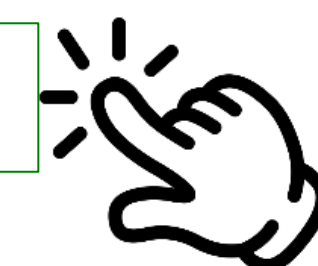
	0	1	2	3	4	5	6	7	8	9	10
Not at all											Surely

Delivered Questionnaires

Survey' Analysis



Website: <https://life-e-via.eu/>



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