Online Networking and Awareness meeting on

Solutions for Low Noise Road Surfaces

6 February 2024

https://ec.europa.eu/eusurvey/runner/LowNoiseRoad

European Commission

Directorate-General for Environment (DG ENV)

CINEA

Overview of low-noise pavements legislation and standards

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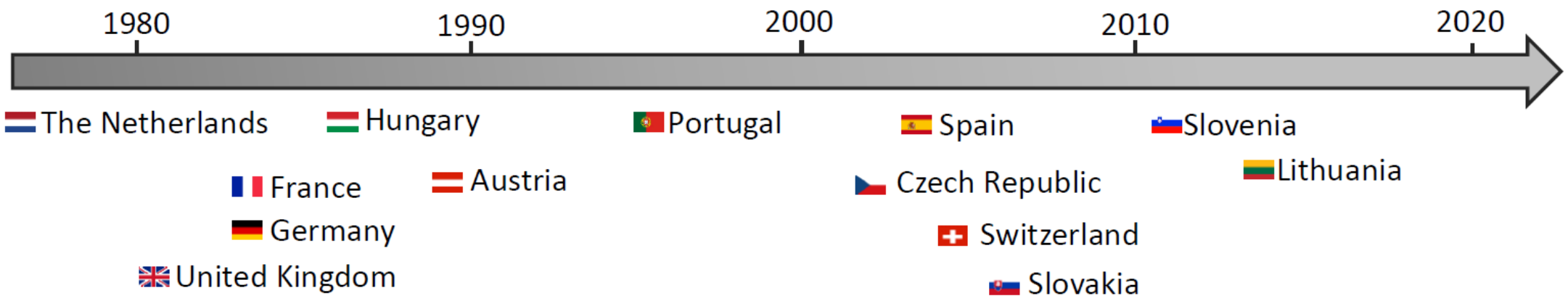
Outline

- Background of low noise pavements
- Legistation: the current situation
- Guidelines for integrating noise in road management
- Standardisation works
- Conclusion

Background of Low noise Pavements

- **Low Noise Pavements were developed and tested a long time ago**



First trial sections with low noise pavements (from J. Škulteckė, FIRM 2023)

Background of Low noise Pavements

- In the last 20 years, **many EU and national successful projects** focused on low noise pavements development

SILVIA
Silenda Via

silence
Quieter Surface Transport in Urban Areas

M+P TRL M-BBM A"
QUESTIM

persuade

COOL & LOW NOISE ASPHALT PROJET LIFE

ROSANNE

TYROSAFE

IPG

defrako

SPENS

NEMO

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Background of Low Noise Pavements

- **Pavement products bringing significant reduction of the noise emitted by road traffic have been developed**

Porous Asphalt

Semi-porous thin layer

Desactivated concrete

2-layer porous asphalt

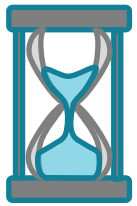
SMA

Background of Low Noise Pavements

- **But LNP are still unsufficiently used in practice in most EU countries**

Why ?

Background of Low noise Pavements



Main issues:

- **Lack durability of performances** (mechanical and acoustical)

- **Additional cost**, in particular regarding **maintenance**

- **Lack of regulatory or normative framework**

*Lack of standard and reference procedure for comparing pavements is an obstacle to the **compilation of experience** and **further development** of low noise pavements*

Legistation: the current situation

- ✓ There is **no specific EU legislation** on low noise pavement
- ✓ **Guidelines exist** at EU level for road planning and maintenance
- ✓ There is **no common definition of a low noise pavement in Europe**
  - Specific ***type*** of design (eg. SMA 8, Porous Asphalt 10 , BBTM 6)
  - Maximum ***noise emission level***
  - Minimum ***noise reduction*** with regard to a ***reference pavement***

Legistation: the current situation

✓ **Reference frameworks** exist in some countries

FORMAL document / regulation

TKP 7
CPX

Manual of Contract Documents for Highway Works
SPB

R TM 18
CPX

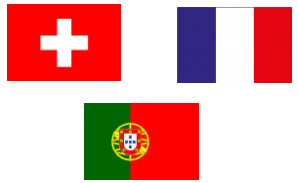
Standaardbestek 250 version 4.1a
(Flemish)

RVS 08.16.01 and RVS 08.17.02
« CPX »

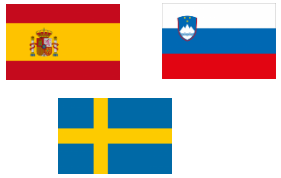
RLS-19 Guidelines for noise protection on roads, incl. TP KoSD-19 Tech. test regulations for correction value of the emissions from road surfaces
SPB

C-wegdek method: road-correction factor for a type of pavement/product
SPB
+ Guidelines for compliance testing
Mixture, thickness, permeability

Informal GUIDELINES



NO specific requirement



From a CEN/TC227/WG5 enquiry, 2022-2023

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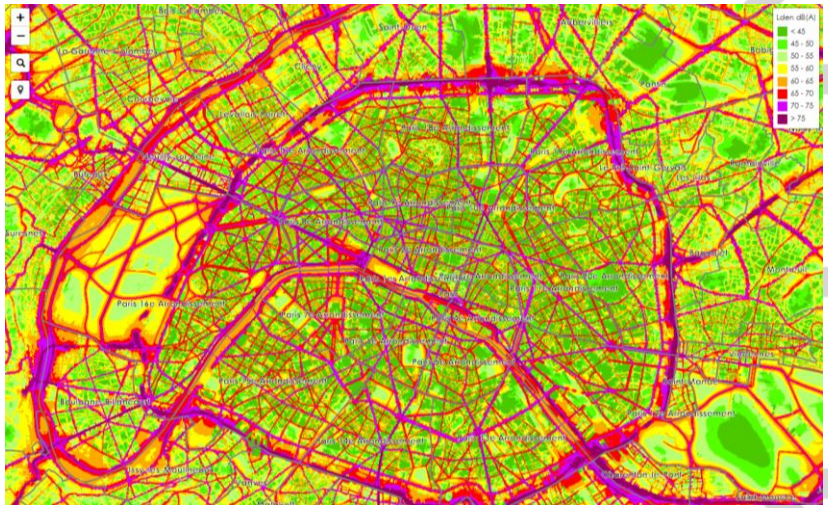
Legistation: current situation

- ✓ The **EU Noise Directive** (2002/49/EC) specifies **pavement correction factor** to calculate road trafic noise emission for strategic noise maps *(CNOSSOS-EU)*
  - Virtual reference pavement : average DAC 11/SMA11
  - Default corrections factors for typical Dutch pavements



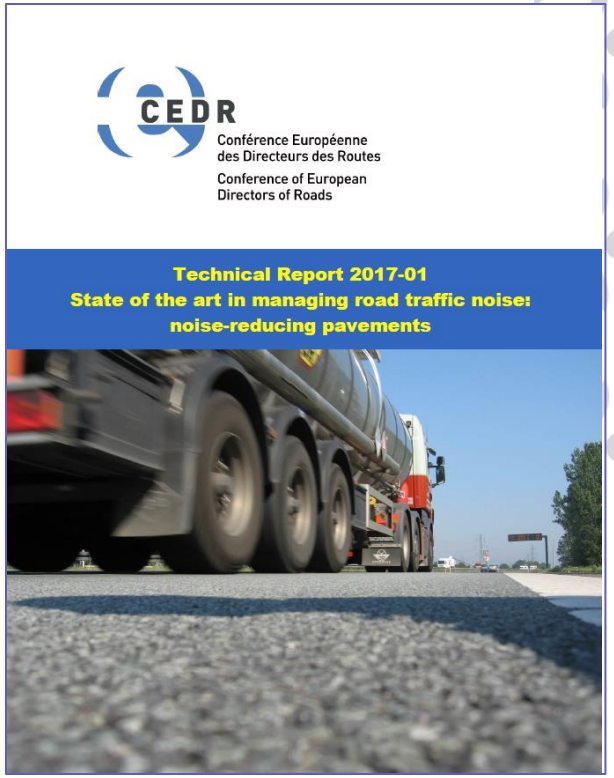
- ✓ Low Noise Pavements are often used as **noise reducing solutions in Noise Action Plans**

Guidelines for integrating noise in road management

CEDR Technical Report 2017-01

4 possible approaches for integrating noise in road planning and discusses pros and cons

1. **specify a pavement type**, no control after application;
2. **set a national system of noise labelling of pavements**, no control after application;
3. **noise reduction criteria** in tendering for the initial noise, control measurement of noise after application;
4. **noise reduction criteria** in tendering for the initial as well as long-time noise, control measurements



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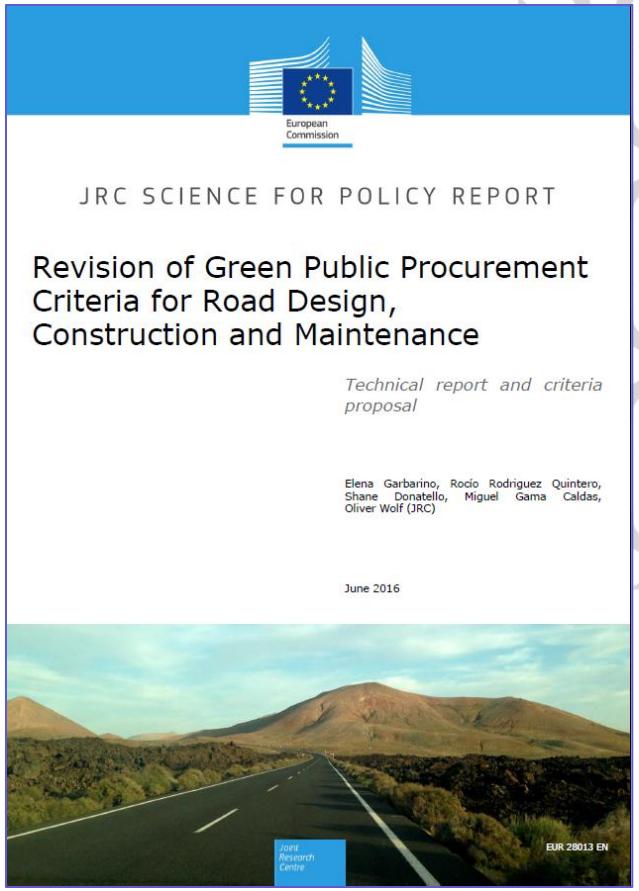
Guidelines for integrating noise in road management

EU Green Public Procurement Criteria for Road Design, Construction and Maintenance (2016)

- **Sets minimum requirement** for low-noise pavement design
  [*Max CPX noise levels at 50, 70 and 90 km/h*]
- **Specifies criteria for durability of performance** of low-noise pavements
  [*Max +3 dB(A) noise increase after 5 years*]
- **2 level criteria:**
  - Core criteria
  - Comprehensive criteria [*-3 dB(A) requirements*]



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What about standards?

Two standardised methods (EN ISO) for ***measuring*** **tyre-road noise** :

Statistical Pass-By method (SPB)

CloseProXimity method (CPX)

Both have pros and cons, they can be **complementary**,
but they are **not directly comparable**

Current standardisation work

CEN TC227/WG5 drafted a standard to specify how to use measurement standards **to characterize acoustic performance of pavements**

- **How to compare / classify pavements** → « labelling » of products
- **How to check performances after application** → Tenders with performance requirements
- **How to monitor acoustic performance over time** → pavement management systems
- **Derivation of road pavement corrections for strategic noise maps** → EC Directive on noise

Current standardisation work

- The method was derived and tested in EU project
- It is based on measurements with CPX method only
- Now submitted for CEN ballot

Conclusions

- A successful development of Low Noise Pavements needs a **holistic approach** (technical and regulatory/standardised)
- Some **technical issues** still need to be solved but **efficient solutions exist**
- A **standardisation and guidance system** for road managers is in progress
- It needs **to be finalized and further tested**, and **experience to be shared**

Thank you for your attention

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