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| **MAIN MESSAGES FROM THE PRESENTATION(S)** |
|   | * Road traffic is the most important source of noise and is caused mainly by the rolling sound.
* Means used to control the propagation path of noise (e.g. barriers) only have an impact in a limited area, especially in urban areas.
* As reminder, +/-3 dB can just be perceived by human ear, while +/-10dB are perceived by humans as a doubling / halving of the noise level.
* -3 dB corresponds to halving of the traffic volume
* A low-noise road surface has an immediate impact on noise emissions up to 6dB and that for any vehicles (type, age, tyres, …) 🡪 road maintenance has also to be considered to keep benefits brought by a low-noise road surface.

With low-noise road surfaces, an initial noise reduction of -3 dB can be achieved. Nevertheless, a shortened service life on average -10 years must be accepted. * Work on road surfaces brings a win-win deal with the community and promote the acceptance by citizens. In the future, the aim is to increase the initial noise reduction linked to the new layer.
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**(CH) LOW-NOISE ROAD SURFACES IN SWITZERLAND**

**ROAD SURFACE « itself”**

**Measurements**

**& Tests**

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| **SUMMARY** |
|   | From the study in Switzerland led by FEDRO (FEDeral Roads Office) related to the low-noise road surfaces, have been considered:* Current noise situation in Switzerland
* Basic approaches to noise abatement: oppose the noise at the source (reduce the noise emissions, control the propagation path and the immission point)
* Traffic noise and noise perception
* Low-noise Road surfaces challenges
* Research & development on low-noise road surfaces in urban areas (2009-2017) through 3 subprojects (research, test tracks and monitoring test tracks)
* 8 research projects including test methods, operation & maintenance of roads, variability of surface production, innovations
* 15 test sections with innovative asphalt mixtures
* Long-term monitoring

Knowledge gained and initiated developments * + Origin of rolling sound (vibrations, contact points, surface structure, cavities)
	+ Semi-dense Road surface (SDA) for noise reduction on urban roads
	+ Symposium in September 2017 🡪 see document TFVS-04-04
* Low-noise surface 2021
* Principles and service life of roads
* International evaluation of StL86 surface in the Netherlands, Germany, France, USA, Japan, Sweden, Denmark
* Practices & experiences through application of SDA surfaces with initial noise reduction -3dB(A) – up to -6dB(A) for SDA 4 and its evolution during service life

🡪 Challenge: optimization of acoustic and surface durability* Additional research needed regarding the low-noise road surfaces
* Summary: with low-noise road surfaces an initial noise reduction of -3 dB can be achieved
* a shortened service life on average -10 years must be accepted
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| **ADDITIONAL POINTS FROM DISCUSSIONS IN THE TF-VS** |
|   | This study shows a very holistic approach regarding what can be done through the roads vs. noise. * Cost for new low-noise road surfaces and their maintenance (durability of the surface vs. noise) has to be considered.
* The cost can be reduced with a process to renew the road from the top layer and not fully from the ground.
* Stl86/SMA 11 used according to Swiss calculation model (not a special surface) to compare roads worldwide with a gap up to 4dB(A) can be due to the potential different interpretations linked to the reference system definition of each country,
* Low-noise mastic asphalt developed by FEDRO (dense pavement) has a good potential and started last year. Results from the Research project expected within 5-7 years.
* For the time being, this project was looking for noise reduction in general, and not the type/source of noise.
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* Reports are available in German language (except EP1 in French) under the following link: [RESEARCH+DATA-Shop  - Mobilityplatform](https://www.mobilityplatform.ch/de/research-data-shop?vssmobilityshop_filter_startdate=1900&vssmobilityshop_filter_enddate=2021&vssmobilityshop_filter_active=1&q=1620&vssmobilityshop_filter_sorting=), or

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