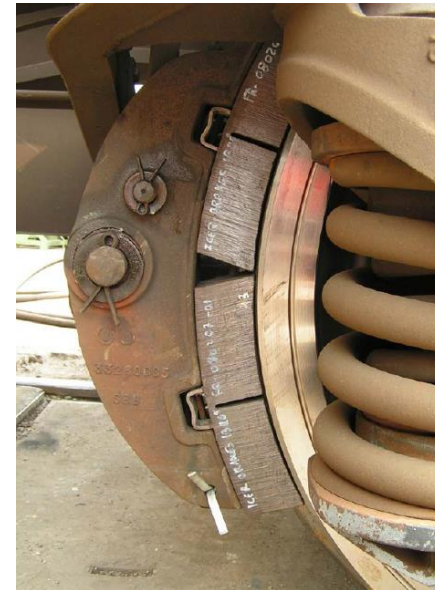


Railway Noise Abatement in Switzerland What next? 19.03.2019

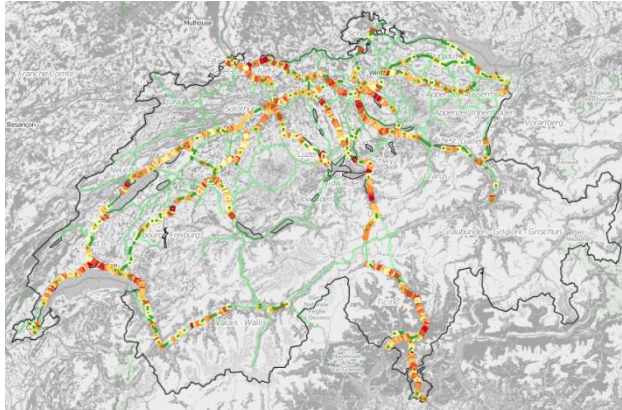
Jakob Oertli
SBB Infrastructure
Noise Abatement

What have we done?

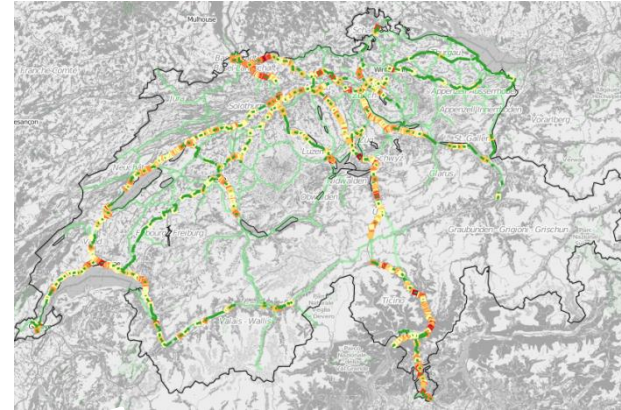
- Noise barriers with cost-benefit constraint: 275 km
- Retrofitting freight rolling stock with composite brake blocks: 9462 Wagons
- Noise insulated windows: 60'000 windows
- Effect:
 - 2000: 240'000 persons above thresholds
 - 2025: 35'000 persons above thresholds



What was the effect?

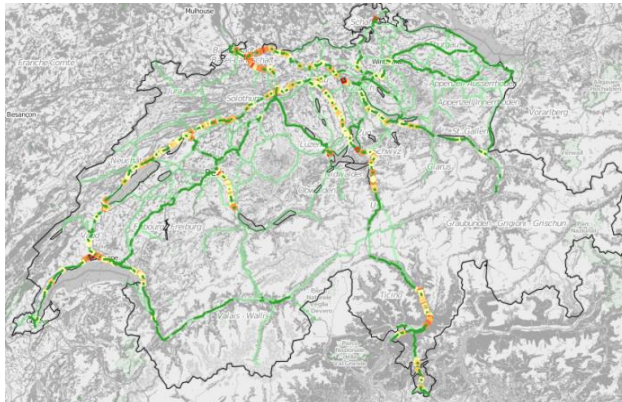


Situation 2000

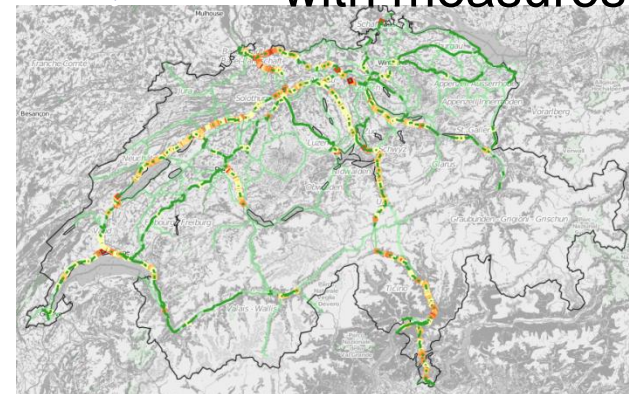


Prognosis 2015
with measures

GNoisES
[Geospatial Noise Evaluation System]



Prognose 2025
With ban of cast-iron brake blocks
without further measures



Actual Situation 2015

What are we doing next?

- Ban of loud freight wagons
 - Consistency with revised TSI noise?
 - Optimize track for noise and asset management
 - Rail Pad
 - USP and Noise
- } Test track
- Perhaps some additional barriers
 - Steel bridges with elastic support
 - Determine rail roughness of track
 - Probably good enough because of increased and improved grinding



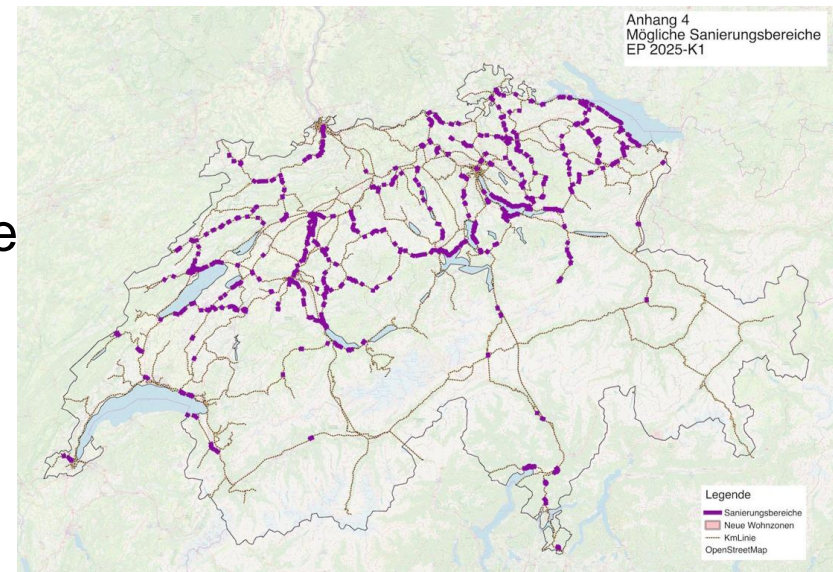
Rail after regular grinding



Rail after acoustic grinding

Risk

- Railway bonus may be put into question
 - Studies show that road and rail are similar in terms of annoyance
- In Switzerland between 5 and 15 dB (higher with less traffic)
- Effect in 2025
 - *With rail bonus:* 35'000 persons above threshold
 - *Without bonus:* 130'000 persons above threshold
 - Lines with little traffic are mostly affected
- But there are hardly any complaints
- **Conclusion:** *Much has been done, but risks remain*



Areas where additional noise abatement will be necessary