**BACKGROUND**

Most of the damage in road-flexible pavements occur where stiffness of the asphalt and loadbearing layers is low. To this extent, an effective assessment of the strength and deformation properties of these layers can help to identify the most critical sections [1].

Bearing capacity of subgrades can be evaluated by on-site, and laboratory tests.

**Pro:**
- Reliability of the results
- Wide-spread and acknowledged methods

**Cons:**
- Time-consuming and costly
- Partial information achieved
- Closure of road or lane for surveys

Within this context, applications of non-destructive testing (NDT) methods for the assessment of the mechanical properties of pavements have increased over the last decades. This paper aims at providing a faster and robust GPR-based model for the estimation of the mechanical properties of road flexible pavements.

**REFERENCES**


**RESULTS & DISCUSSIONS**

Discussed results refer to the application of the method described in Section III to the structural data for the Road Stretch 2.

According to the information gathered from cores and after a preliminary analysis of the GPR data, the road stretch was divided into two subsections, homogenous in terms of pavement structure and main configuration.

Calibration of the model parameters for these two sub-sections was performed on a randomly-selected percentage of 5% of the overall data.

The final optimised modelled value of bearing capacity $\tau_s$ was eventually compared with the measured value of bearing obtained from the Curviameter measurements. Comparison shows a very limited mismatching between predicted and measured bearing capacity values. To support this evidence, an average NMRSD value of 7% was observed, with a corresponding standard deviation of 3.7%.

Peak values of both the EM signal and deflections from the Curviameter were considered as outliers and excluded from the analyses.

It was observed that these values were mainly due to the presence of small bridges and water drainage systems along the scanning direction.