



RAPTOR

Raptor - The future of structural pavement evaluation

Raptor can measure 150-400 kilometres per day in normal traffic speed, making it feasible to scan an entire highway network in weeks. Raptor is also scalable to be used at project level, with great winnings on lane closure and traffic safety.

An awaited method

The Ramboll Raptor (Rapid Pavement Tester) consists of a towing truck and a semi-trailer containing the measuring equipment. A heavy load on the axle of the trailer causes the pavement surface to deflect. The deflection is measured using linelaser sensors. In combination with advanced image recognition methods this is a completely new approach to obtaining bearing capacity information on pavements in traffic speed. Instead of just getting spot checks which is the normal situation when using the Falling Weight Deflectometer (FWD) for bearing capacity measurement, the Raptor provides a continuous stream of data describing the structural condition of pavements. The advantage of continuous data as opposed to measurements taken in discrete points, is that the entire length of pavement is scanned thus weak spots and discontinuities can be detected in a better way. Another advantage with the Raptor is there is no need for traffic management, which making the opera-

tion safer, more efficient and more useable than for example measurement with the FWD. The vehicle is sufficiently small and manoeuvrable which makes it easy to use even in urban areas.

Acquiring Raptor data

Survey data can be divided into two types, functional and structural. Functional data describes distresses such as rutting, friction resistance, roughness, cross slope and relates to characteristics that can be observed on the surface of the road. Structural condition data describes the pavement's ability to accommodate the loads it is carrying and has to do with sub-surface conditions. The structural data determines the remaining lifetime of the pavement and is significant in determining the timing of preventive maintenance efforts. Often sub-surface distresses will result in cracking, rutting and roughness at a later point in time. Structural data has so far been difficult to collect on network level.

The Raptor is collecting structural data at network level!

Functional data can be collected either by using other conventional vehicles or using onboard equipment. Raptor has a sensor-based software that easily makes it possible to connect more sensors, for example, GPR and/or LCMS to get additional information about the current stretch of road and that makes decisions about actions much easier. This provides the best possible basis for data-driven decision making. Raptor facilitates the proper selection of the right pavement sections at the right time for preventive maintenance efforts.

The load can be adjusted in the range 6-10 tons. the results when measuring the same section of road with different loads.

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