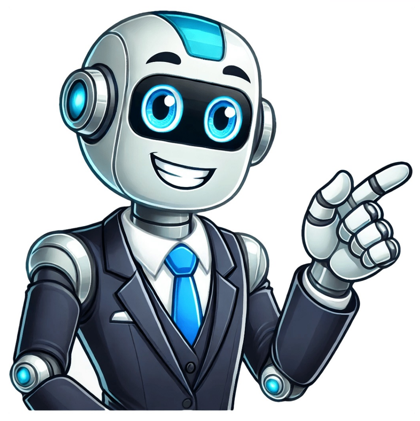

The American Association of State Highway and Transportation Officials (AASHTO) has released a new manual for mechanistic-empirical pavement design, titled "Mechanistic-Empirical Pavement Design Guide: A Manual of Practice, 3rd Edition". This revised guide provides an overview of the M-E methodology, which is based on engineering mechanics validated through extensive road test performance data. The new edition includes several significant updates, including a new fracture mechanics-based model for reflective cracking in asphalt overlays over flexible, semi-rigid, and rigid pavements. One of the key aspects of skid resistance is its importance as a pavement evaluation parameter. Inadequate skid resistance can lead to higher incidences of skid-related accidents, and most agencies have an obligation to provide users with a roadway that is "reasonably" safe. Skid resistance measurements can be used to evaluate various types of materials and construction practices. Skid resistance depends on the pavement surface's microtexture and macrotexture. Microtexture refers to the small-scale texture of the pavement aggregate component, while macrotexture refers to the large-scale texture of the pavement as a whole due to the aggregate particle arrangement. Skid resistance changes over time, typically increasing in the first two years following construction and decreasing over the remaining pavement life. To quantify skid resistance, friction measurements such as friction factors or skid numbers are used. However, it is not correct to say that a pavement has a certain friction factor, as friction involves two bodies - the tires and the pavement - which are extremely variable due to pavement wetness, vehicle speed, temperature, tire wear, and tire type. The guide is available for download from the AASHTO Store. Skid resistance testing in the U.S. may occur through various methods, including the locked wheel tester, spin up tester, surface texture measurement, and others. The spin-up tester differs from its counterpart, which operates in an opposite manner. For a spin-up tester, the vehicle or trailer is brought to the desired testing speed of approximately 64 km/hour, and a locked test wheel is lowered onto the pavement surface. The test wheel's braking system is then released, allowing it to accelerate to normal traveling speeds due to its contact with the pavement. Mathematically, the friction force at the tire/pavement interface at any moment corresponds to that of a locked tire being pulled along the pavement at the testing speed. The spin-up tester offers two advantages over the traditional locked wheel tester: no force measurement is necessary, as the test wheel's moment of inertia and rotational acceleration can be used to calculate the force. This eliminates the need for expensive force-measuring devices. Additionally, the test tire experiences less wear due to its limited contact time with the pavement. Surface texture measurement is crucial in determining pavement skid resistance, which is linked to surface macrotexture. The simplest method involves applying a known quantity of sand onto a dry pavement surface and measuring the diameter of the resulting circle once it cannot be spread further. This can be correlated to an average texture depth, which in turn relates to skid resistance. Laser or advanced image processing equipment can determine surface macrotexture while a vehicle is moving at normal speeds. The Road Surface Analyzer (ROSAN) is a device capable of measuring texture, aggregate segregation, grooves, tining, joints, and faulting. ROSAN systems have been employed in various studies and some integrated analysis units can use surface texture measurements to estimate skid resistance. However, correlation between surface macrotexture and skid resistance is often challenging due to the complex relationships involved. Establishing the level of skid resistance required depends on traffic volume and speed, with special considerations for areas like steep hills, curves, intersections, and other locations demanding unusual maneuvering. Providing a surface that meets or exceeds the pavement's skid resistance needs becomes increasingly critical as traffic volume increases and wet pavement time rises. Each agency should strive to determine the characteristics of mix design, material, and construction that produce the most acceptable skid-resistant surfaces through experience and measurement of physical properties.