

HR-281 Effects of Pavment Surface Texture on Noise and Frictional Characteristics

Key Words: Surface texture, Tinning, Frictions, Highway noise

ABSTRACT

An experimental modification of the transverse groove surface texture of a section of an urban interstate highway was performed by the Iowa Department of Transportation. Transverse groove texturing is a design feature required by the Federal Highway Administration to reduce skidding under wet pavement conditions. Adjacent residents claimed the texturing was the cause of especially annoying tonal characteristics within the traffic noise. A research proposal to modify the existing texture pattern by surface grinding and to study the noise and friction effects was approved for funding by the Iowa Highway Research Board. Results in the form of a comparison between traffic noise before modification and traffic noise immediately after and 15 months after modification indicate that the change in surface texture has lowered overall traffic noise levels by reducing a high frequency component of the traffic noise spectrum. Friction testing data show reduced capacity of the roadway to inhibit wet pavement skidding as a result of the surface modification.