

Investigation of The Major Causes of Pavement Distress in Relation to Base, Sub Base, and Sub Grade Material Condition

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ABSTRACT

Weather, a deficiency of appropriate design and quality control, high traffic loads, and inadequate assessment prior to performing maintenance and rehabilitation typically result in different types of road degradation than in temperate regions. Distress on the surface of the pavement can be caused by a variety of factors, all of which must be identified and addressed prior to corrective action being taken. While both causes appear to be identical, the solutions to each may be quite different. Prior to taking any corrective action, it is necessary to identify and address the underlying cause of the problem. The road connecting Dessie and Hayke is in poor condition at the moment. There is a great deal of traffic generated by buses, large trucks, cars, and minibuses. Roads may deteriorate further as a result of increased traffic volume. The purpose of this study is to determine the current condition of asphalt pavements, determine the causes of pavement distress, and propose solutions for the main route connecting Dessie and Hayke in Ethiopia's Amhara Region. This is the busiest route, which makes it more susceptible to serious distress and thus requires frequent maintenance and repair. A variety of laboratory tests were conducted on the road segment to gain a better understanding of it. Traffic, weather, and pavement materials were identified as the primary causes of pavement distress. According to the study, subgrade and base materials have low plasticity indexes and CBR values in comparison to industry standards. This portion's designed traffic load is greater than the actual traffic.

Keywords: *Pavement Distress, Plasticity, CBR value, Road Maintenance.*