

Causes of Deteriorations of Flexible Pavement, Its Condition Rating and Maintenance

Authors : Pooja Kherudkar, Namdeo Hedao

Abstract : There are various causes for asphalt pavement distresses which can develop prematurely or with aging in services. These causes are not limited to aging of bitumen binder but include poor quality materials and construction, inadequate mix design, inadequate pavement structure design considering the traffic and lack of preventive maintenance. There is physical evidence available for each type of pavement distress. Distress in asphalt pavements can be categorized in different distress modes like fracture (cracking and spalling), distortion (permanent deformation and slippage), and disintegration (raveling and potholes). This study shows the importance of severity determination of distresses for the selection of appropriate preventive maintenance treatment. Distress analysis of the deteriorated roads was carried out. Four roads of urban flexible pavements from Pune city was selected as a case study. The roads were surveyed to detect the types, to measure the severity and extent of the distresses. Causes of distresses were investigated. The pavement condition rating values of the roads were calculated. These ranges of ratings were as follows; 1 for poor condition road, 1.1 to 2 for fair condition road and 2.1 to 3 for good condition road. Out of the four roads, two roads were found to be in fair condition and the other two were found in good condition. From the various preventive maintenance treatments like crack seal, fog seal, slurry seal, microsurfacing, surface dressing and thin hot mix/cold mix bituminous overlays, the effective maintenance treatments with respect to the surface condition and severity levels of the existing pavement were recommended.

Keywords : distress analysis, pavement condition rating, preventive maintenance treatments, surface distress measurement

Conference Title : ICPEM 2019 : International Conference on Pavement Engineering and Management

Conference Location : Bali, Indonesia

Conference Dates : January 14-15, 2019