Abstract

A large portion of asphalt technologies has been driven by a desire to reduce the consumption of virgin oil products and improve the sustainability of vital ingredients required to produce pavement. Developing strategies to incorporate more recycled binder reduces cost of production and, if used properly, can improve the performance of pavement. One primary problem for using recycled material to replace the binder consumption is the rate of quality loss in the pavement. The goal of this research is to develop a strategy to select the type of recycled material, quantity of recycled material and PG grade for the virgin binder of an asphalt mix to provide optimum performance in a given environment.

This studied measured the performance of five different mix designs with various quantities and combinations of recycled asphalt pavement (RAP) and recycled asphalt shingles (RAS) and then compared the results. To properly measure the benefits gained when changing the binder grade, each mix design was replicated using a binder with a different binder grade.