

## PROPERTIES OF BITUMINOUS MIXES CONTAINING RECYCLED GLASS FROM WASTES IN TEHRAN

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### *ABSTRACT*

Waste materials in Tehran exceed 2.7 Million tons per year. Among these, some %3 are glass materials. The aim of this research was to investigate the use of recycled glass materials from these wastes into bituminous mixes.

A dense graded mix from commonly used gradings for pavement surfacing and a 85/100 pen bitumen and a polymer modified binder was used. Mixes with three glass contents, ranging from 5 to %15 were prepared. Part of passing 0.075 mm materials of the mix was substituted with hydrated lime.

In order to investigate the field performance of glass mixes, two field test sections were constructed in Tehran, using mixes at optimum binder content and glass composition. Retro-reflection properties of pavement surfaces were determined in terms of mcd/ m<sup>2</sup>lx units. Core samples were taken from the field and Marshall Stability, density and permeability testing were performed. It was found that glass content mixes had permeability and density properties similar to the conventional HMA mix. Enhanced properties were achieved in the cases of binder polymer modification and the addition of hydrated lime to glass mixes.

*KEY WORDS:* Glass waste, mix design, permeability, Retro-reflection