

## **Effects of Freezing and Thawing Cycles on Durability of Asphalt Concrete Mixtures<sup>1</sup>**

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### **Abstract**

**One of the major reasons flexible pavement distress and the deterioration of highway serviceability is the low durability potential of the wearing and binder asphalt courses. The durability potential of bituminous mixtures may be defined as the resistance of the mixtures to the continuous and combined damaging effects of freezing and thawing cycles and temperatures.**

**This study is devoted to the durability of bituminous mixtures, including the effects of different gradations, compaction temperatures, and multiple cycles of freezing and thawing and freezing time on the durability potential of mixtures.**

**The specific objectives of this study are:**

- 1- To investigate the effects of freezing and thawing cycles on the durability potential of bituminous mixtures.**
- 2- To investigate the effects of compaction temperature on the mechanical properties of asphalt concrete mixtures.**
- 3- To investigate the effects of bitumen content on the durability potential of bituminous mixtures.**
- 4- To investigate the effects of different aggregate gradations on the durability of bituminous mixtures.**
- 5- To include durability considerations in the mix design of asphalt concrete mixtures.**

1 For the paper in Arabic see pages (11-53).

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