

**USING NDT METHODS TO INVESTIGATE THE ROAD  
STRUCTURE CONDITIONS TO DESIGN  
REHABILITATION ALTERNATIVES  
A CASE STUDY: AZADEGAN FREEWAY, TEHRAN**

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*ABSTRACT*

Pavement management activities require accurate, fast and cost effective pavement test techniques to inspect the pavement structure condition. Non Destructive Testing (NDT) techniques provide powerful tools to test and evaluate pavement structures in a rapid manner with very little traffic interruptions.

Evaluation of 36 kilometers section of one of the main freeways consisting 3-lane in each directions is presented in this report. NDT methods were used to assess the structural capacity efficiency. Falling Weight Deflectometer (FWD), Ground Penetrating Radar (GPR), have been used along the highway. Traffic studies were also conducted to estimate the number and combination of axle loads passing through the pavement during the design period.

The conventional AASHTO 1993 pavement design guide and also the mechanistic-empirical approach to pavement design was implemented to design of HMA and SMA overlay thickness in 150 meters sections. Jointed Reinforced Concrete Pavement (JRCP) and Roller Compacted Concrete Pavement (RCCP), based on Portland Cement Association (PCA) 1987 design guide method are also designed and considered as the rehabilitation alternatives.

*KEY WORDS:* Non destructive testing, Pavement Evaluation and rehabilitation.