ARISTOTLE UNIVERSITY OF THESSALONIKI
SCHOOL OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING
POSTGRADUATE PROGRAMME OF CONSTRUCTION MANAGEMENT

ACADEMIC YEAR 2010 – 2011

TITLE OF DIPLOMA THESIS:

Life cycle cost analysis of rigid pavements

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ABSTRACT

Pavement construction is a very high capital investment. This investment can reach huge dimensions depending on the project-size, and is usually derived from public funds. Therefore, it is essential that the project planner or/and decision maker has to conduct an economic analysis in order to compare different scenarios. Bearing in mind the amount of investment and the origin of capital, he chooses the most appropriate scenario for the case.
This study is an effort on economic evaluation of alternatives, which differ in the type of pavement. Specifically, the purpose of this study is to examine and compare the cost between flexible and rigid pavement, which are designed for roads with high traffic, and in particular heavy vehicles. Furthermore, it examines alternatives for the composition of concrete for rigid pavement (use only traditional cement and use of industrial by-products as a partial replacement of cement), and also for anti-skidding layer materials.
The methodology for analyzing pavement costs takes into account, not only the initial construction cost, but also the maintenance and reconstruction cost, the user cost and the salvage value of the materials, during a standard analysis period. The method for conducting this economic analysis is known as Life Cycle Cost Analysis (LCCA) and uses basic concepts of engineering economics.
The analysis comes to very useful conclusions about the cost of rigid pavements. In combination with other factors and results of other studies, they will lead the decision maker to the final choice of the appropriate solution for the particular case.

KEYWORDS

Concrete, Rigid pavement, Economic analysis, Life cycle cost, Life cycle cost analysis