

Value Engineering Change Proposal Application in Construction of Road-Building Projects

Authors : Mohammad Mahdi Hajiali

Abstract : Many of construction projects estimated in Iran have been influenced by the limitations of financial resources. As for Iran, a country that is developing, and to follow this development-oriented approach which many numbers of projects each year run in, if we can reduce the cost of projects by applying a method we will help greatly to minimize the cost of major construction projects and therefore projects will finish faster and more efficiently. One of the components of transportation infrastructure are roads that are considered to have a considerable share of the country budget. In addition, major budget of the related ministry is spending to repair, improve and maintain roads. Value Engineering is a simple and powerful methodology over the past six decades that has been successful in reducing the cost of many projects. Specific solution for using value engineering in the stage of project implementation is called value engineering change proposal (VECP). It was tried in this research to apply VECP in one of the road-building projects in Iran in order to enhance the value of this kind of projects and reduce their cost. In this case study after applying VECP, an idea was raised. It was about use of concrete pavement instead of hot mixed asphalt (HMA) and also using fiber in order to improve concrete pavement performance. VE group team made a decision that for choosing the best alternatives, get expert's opinions in pavement systems and use Fuzzy TOPSIS (Technique for Order of Preference by Similarity to Ideal Solution) for ranking opinions of the experts. Finally, Jointed Plain Concrete Pavement (JPCP) was selected. Group also experimented concrete samples with available fibers in Iran and the results of experiments showed a significant increment in concrete specifications such as flexural strength. In the end, it was shown that by using of fiber-reinforced concrete pavement instead of asphalt pavement, we can achieve a significant saving in cost, time and also increment in quality, durability, and longevity.

Keywords : road-building projects, value engineering change proposal (VECP), Jointed Plain Concrete Pavement (JPCP), Fuzzy TOPSIS, fiber-reinforced concrete

Conference Title : ICCEPM 2018 : International Conference on Construction Engineering and Project Management

Conference Location : Paris, France

Conference Dates : June 25-26, 2018