

User costs as one of main advantages of precast concrete application in highway construction

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Abstract. Road user cost primarily refer to the monetized components of road (re)construction impacts, such as the user delay costs, vehicle operating costs, crash costs and emission costs. Objective of this paper is to analyze and appraise the advantages and benefits of the innovative prefabrication approach in contrast to traditional cast-in-place construction method. The goal is to reduce these additional costs borne by motorists and the community at-large as a result of road construction activity to their minimum through application of the prefabrication. Assessing two basic possible approaches to highway infrastructure construction - casting the road pavements and structures either in place or precast off the site - it can be concluded that the initial capital investment costs do not vary much. Substantial differences can be recognized when comparing their life-cycle costs and an extent to which their construction process affects the public, environment and the local economy. Prefabrication of any structure component off-site offers major construction time and user cost savings in comparison with the traditional cast-in-place methods of construction. Precast prestressed road pavements' technology and precasting bridges' parts and elements offers dramatic increase in durability, while it also substantially decreases construction time and resulting user costs.