World Academy of Science, Engineering and Technology
International Journal of Civil and Architectural Engineering
Vol:9, No:12, 2015

Operational Characteristics of the Road Surface Improvement

Authors : Iuri Salukvadze

Abstract : Construction takes importance role in the history of mankind, there is not a single thing-product in our lives in which the builder's work was not to be materialized, because to create all of it requires setting up factories, roads, and bridges, etc. The function of the Republic of Georgia, as part of the connecting Europe-Asia transport corridor, is significantly increased. In the context of transit function a large part of the cargo traffic belongs to motor transport, hence the improvement of motor roads transport infrastructure is rather important and rise the new, increased operational demands for existing as well as new motor roads. Construction of the durable road surface is related to rather large values, but because of high transport-operational properties, such as high-speed, less fuel consumption, less depreciation of tires, etc. If the traffic intensity is high, therefore the reimbursement of expenses occurs rapidly and accordingly is increasing income. If the traffic intensity is relatively small, it is recommended to use lightened structures of road carpet in order to pay for capital investments amounted to no more than normative one. The road carpet is divided into the following basic types: asphaltic concrete and cement concrete. Asphaltic concrete is the most perfect type of road carpet. It is arranged in two or three layers on rigid foundation and will be compacted. Asphaltic concrete is artificial building material, which due stratum will be selected and measured from stone skeleton and sand, interconnected by bitumen and a mixture of mineral powder. Less strictly selected similar material is called as bitumen-mineral mixture. Asphaltic concrete is non-rigid building material and well durable on vertical loadings; it is less resistant to the impact of horizontal forces. The cement concrete is monolithic and durable material, it is well durable the horizontal loads and is less resistant related to vertical loads. The cement concrete consists from strictly selected, measured stone material and sand, the binder is cement. The cement concrete road carpet represents separate slabs of sizes from 3 ÷ 5 op to 6 ÷ 8 meters. The slabs are reinforced by a rather complex system. Between the slabs are arranged seams that are designed for avoiding of additional stresses due temperature fluctuations on the length of slabs. For the joint behavior of separate slabs, they are connected by metal rods. Rods provide the changes in the length of slabs and distribute to the slab vertical forces and bending moments. The foundation layers will be extremely durable, for that is required high-quality stone material, cement, and metal. The qualification work aims to: in order for improvement of traffic conditions on motor roads to prolong operational conditions and improving their characteristics. The work consists from three chapters, 80 pages, 5 tables and 5 figures. In the work are stated general concepts as well as carried out by various companies using modern methods tests and their results. In the chapter III are stated carried by us tests related to this issue and specific examples to improving the operational characteristics.

Keywords : asphalt, cement, cylindrikal sample of asphalt, building
Conference Title : ICCEAE 2015 : International Conference on Civil, Environmental and Architectural Engineering
Conference Location : Paris, France
Conference Dates : December 30-31, 2015