

HARMONIZATION OF PROJECT-LEVEL AND NETWORK-LEVEL PAVEMENT MANAGEMENT SYSTEMS

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SUMMARY

Long-term road-network improvement planning must be based on detailed section projects, chosen as an optimal alternative between several propositions. The criteria for ranking individual projects are most often expressed in economic terms, while the overall network criteria for ranking the rehabilitation strategies are expressed as quality indicators, recognisable only to the road engineering experts. An attempt to make the two types of the criteria closer is presented in the paper. A model for the long-term network-level planning of rehabilitation works MODUP was established. The network deterioration and repair is described by controlled inhomogeneous Markov chains combined with the dynamic programming. The effects considered were (a) funds needed to improve the whole network to excellent condition, (b) users' costs calculated by means of VOC module from HDM-III and (c) routine maintenance costs. The results show that, according to these criteria, the greatest influence on the overall network condition improvement rate in the frame of the given budget has the amount invested into prevention of deterioration of the better part of the network considered. The same logic exists at the HDM-III standard procedure when the resources are unconstrained, but for the restricted budget the Expenditure Budgeting Model (EBM) choice is not close to the optimal one. Strategies defined in MODUP were scheduled for HDM-III. The effects obtained in such a way for restricted budget are proportional to the effects of the best choice.