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KATENDIKONSTRUKTSIOONI TÖÖRESSURSI ARVUTUS
ETAPIVIISILISEL EHTAMISEL

PAVEMENT LIFE RESOURCE CALCULATION
AT STAGED CONSTRUCTION
ETT 60 LT

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6 KOKKUVÕTE

Etapiviisilisel ehitamisel kulumiskiht paigaldatakse 2-7 aastal. I etapil katend konstrueeritakse kulumiskihita, II etapil paigaldatakse kulumiskiht.

Käesolevas töös on võrreldud kahte meetodit (kahanev elastsusmoodul ja ressursi ammendumine katendi tööea lõpuks). Kahaneva elastsusmooduli rakendamine eeldab alusuuringuid, et mõista protsessi ajalist kulgu. Ressursi ammendumise meetod on rakendatav. Hinnatakse kahe erineva konstruktsiooni ressursi kasutust (enne kulumiskihi paigaldamist ja pärast), ning saadud kahe suhtarvu summa kirjeldab katendi ressursi summaarset kasutust. Erineva kulumiskihi paigaldamise aasta mõju investeeringu maksumusele on hinnatud vastavalt EL juhendile 4% diskontomääraga.

Optimaalseks on kujunenud kulumiskihi paigaldamine 5. aastal, mis tuleneb negatiivsete varutegurite kasutamise võimalusest.

Töös on analüüsitud erinevaid katendite dimensioneerimise programme (KAP, MMOPP, PMS), toodud välja tänase süsteemi olulisemad puudused ja tehtud ettepanekud edasiseks arendustööks.

7 SUMMARY

The purpose of this thesis is to find methods to calculate pavement life resource at staged construction in order to optimize pavement structure with lowest cost.

In this thesis staged construction is viewed in two stages. I stage – pavement without wearing course, II stage – paving of the wearing course. Wearing course is paved 2-7 years after pavement is complete.

Two methods to calculate pavement life resource were described. First method is based on hypothesis that materials modulus of elasticity is decreasing over pavements lifetime. Fundamental study is required in order to use this method in practice. Second method is based on actual cumulative standard axles and maximum cumulative standard axles ratio. Calculation is done for both stages and results are summarized, which indicates total percent of used pavement life resource. Price for different options of staged construction was calculated considering discount rate of 4%.

Optimum staged construction variant is to pave wearing course 5 years after main construction. This results from possibility to use negative strength reserve factors at I stage.

In this thesis different pavement design softwares (KAP, MMOPP, PMS), deficiencies of Estonian KAP are analysed. Methods to improve current Estonian pavement design program and steps towards creating new system are proposed.