Transportation Research Record 814
MLR 80-01

Economic Analyses and Dynamic Programming in Resurfacing Project Selection

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The objective of this paper was to develop a dynamic-programming procedure by using economic analyses to assist in optimizing expenditures in pavement resurfacing programs. Benefit relationships were determined from expected accident reduction, improved comfort, and savings in time, fuel, and maintenance.

The only cost input to the program was the resurfacing cost of each project. Dynamic programming was adapted to the selection of projects for resurfacing in Kentucky. More than $8.4 million of additional user benefits would have been realized in 1976 if dynamic programming had been used in selecting projects. The benefit/cost ratio of sections selected for resurfacing by the current procedures was 3.21 compared with one of 4.22 if dynamic programming had been used.