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## **Abstract**

The purpose of the study was to find out the socio-economic profitability of the Kotka - Hamina weather controlled road. It was also illustrated how the changes in the cost factors affect profitability. Based on this estimates were made about how similar road weather information systems could be made more profitable in the future.

The socio-economic costs of traffic were estimated based on the changes the road weather information system has on average speeds and the numbers of accidents. Variable speed limits controlled according to weather and road conditions lower speeds during bad conditions when the risk of accident is many times higher than in normal conditions. This makes it possible to save in accident costs without significant increase in time costs. The accident costs at the Kotka - Hamina weather controlled road were estimated to decrease about 1,1 million Finnish marks annually while time costs increase by less than 500 000 Finnish marks. The weather-control system has only small effects on the other evaluated socio-economic costs.

The productivity and profitability of the system was calculated by comparing the total socio-economic impacts with the investment and maintenance costs. The construction of the weather-control system cost some 8,2 million Finnish marks and the annual maintenance costs are 330 000 marks. The benefit-cost ratio of the investment is 0,5 and the remunerative rate of interest is 4 per cent. The socio-economic savings account for only half of the total costs of the system and the return on investment is poor.

The Kotka - Hamina weather controlled road is an experiment and the costs were not the main concern during the construction. If a similar system would be built now it would be 2,2 million marks less expensive. In addition by using the system on a longer road section, when the fixed costs of construction and maintenance would have relatively smaller share, and by trying wireless communication it would be possible to reduce the costs even more. If these preconditions can be met weather-controlled roads can be a profitable investment to the society.

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