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An analysis of two approaches to avalanche risk evaluation: A case study of the Milford Road, New Zealand.

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This paper examines two methods for risk evaluation in a case study for the Milford Road, New Zealand. The Milford Road (State Highway 94) between Te Anau and Milford Sound, is the only public highway with a significant avalanche problem in New Zealand. Significant avalanching occurs on the Milford Road, because of the over-steepened, glacially carved terrain combined with very heavy precipitation that exceeds 8000 mm per year. Milford Sound, at the end of the Milford Road, has been recognized as a world heritage area, and is becoming an increasingly popular tourist destination. Over 400,000 people visit Milford Sound annually and the majority of these arrive by road. Furthermore, the daily traffic flow is strongly bimodal, causing periods of very high traffic concentrations in the mornings and the evenings. The Transit New Zealand Milford Road Avalanche Programme has been responsible for managing the avalanche risk to these travelers, since its inception in 1983.

With continually increasing traffic flow and avalanche risk management we examine the present avalanche risk, as described by the Avalanche Hazard Index (AHI), and the probability of death to individuals (PDI) methods. We also examine the sensitivity of these methods to the various assumptions made in the analysis, and compare the results with other commonly accepted levels of voluntary and involuntary risk, both in New Zealand, and elsewhere around the world.