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## ARSRPE Conference Paper Database

### A self-report study of factors influencing decision-making at rail level crossings: Comparing car drivers, motorcyclists, cyclists and pedestrians

[Beanland, V](#), [Lenné, Michael](#), [Salmon, P M](#), [Stanton, N A](#) (Peer reviewed)

[Driver Psychology / Human Factors](#)

#### 2013

Collisions at rail level crossings (RLXs) represent a major challenge for both road safety and rail safety professionals. RLX collisions are typically high-severity and high-cost, often involving multiple injuries and/or fatalities as well as major disruptions to the transportation network. Most research examining road users' behaviour at RLXs has focused exclusively on drivers and consequently there is little existing knowledge on how other road users make decisions at RLXs. We designed a longitudinal survey to prospectively record interactions at RLXs over a two-week period. The sample included 166 adults residing in metropolitan Melbourne (80%) and regional Victoria (20%), with a mix of car drivers, motorcyclists, bicyclists and pedestrians. Respondents completed the survey daily and provided a detailed account of any encounters with trains and/or activated RLX warnings, with the survey prompts based on a cognitive task analysis methodology. The results reveal that both experiences and behaviour at RLXs differ substantially across different road users. Visual information (e.g., flashing lights) emerged as one of the most influential factors for car drivers and motorcyclists, whereas pedestrians and to a lesser extent cyclists relied more on auditory information (e.g., bells) to alert them to the presence of a train. Pedestrians were also more likely than other road users to speed up and cross the tracks ahead of an approaching train. Overall these results emphasise the importance of designing road systems to support cognition and behaviour across a range of road users, in order to ensure a safe system for all.

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- 02/09/2014  
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- 07/09/2014 - 11/09/2014  
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