
Driver Heterogeneity in Rubbernecking Behaviour at an Incident Site

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Incident can reduce roadway capacity due to lanes blockages, and in some cases, also affect the flow in non-incident direction. This paper provides insights into change of driving behaviour while passing an incident site in attempt to assess rubbernecking activity. The empirical trajectory data on each lane of the opposite direction was obtained from a helicopter-mounted video camera. Traffic flow was recorded over a length of approximately 230 metres, starting approximately 125 metres upstream of the incident site. The speeds profiles over distance of individual vehicle passing an incident site of rolled-over van were used to describe behavioural changes. The point of where the deceleration and acceleration line meets was observed to determine rubbernecking activity.

There are two main findings from the study: 1) truck drivers react differently from passenger car drivers, and 2) vehicles in left lane demonstrate sharp deceleration compared to right lane vehicles. It is shown that the acceleration point of truck drivers occupying the right lane fell outside the study area. Most likely the truck drivers tend to decelerate earlier and farther upstream, at a distance more than 125 metres from the incident site, as truck approaching the study area at low speed. As for the left lane, the intersect point between deceleration and acceleration of passenger car can be seen at 50 - 100 metres before incident site. However, some drivers were not affected by the existence of incident and maintain a steady speed, vary less than 5 m/s throughout the incident location. This study emphasizes the difference between passenger car and truck driving behaviour while passing an incident location. The results provide a better understanding of rubbernecking behaviour and can be used to establish determinant factors to measure the rubbernecking effects.