

# **Reducing the Impact of Disruptions of Urban Road Networks via Traffic Signal Optimisation**

There is increasing interest in enhancing the resilience of road networks, to reduce the impact of disruptions to traffic flow in those networks. For urban road networks, where intersections are commonly controlled by traffic signals, one option is to adjust the signal settings (green times and off-sets) to mitigate the effect of disruption. This presentation will describe recent research into the effect of adjusting green times and off-sets upon travel time and carbon dioxide emissions. The research involved using a bi-level approach, combining an optimisation algorithm (based upon the cross-entropy method) and a network traffic flow model (SATURN), to identify optimal traffic signal settings for disruptions of various durations and severity. The results of applying the approach for the Cambridge (UK) network will be described, and the practicability of using the approach will be discussed.