

**To:** Transport & Health Policy Makers, & Practitioners  
**From:** Prof Adrian Davis, TRI, Edinburgh Napier University  
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**Subject:** Essential Evidence 4 Scotland No. 9 Perceptions of traffic conditions & impacts on walking & wellbeing

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Top line: The use of volume and/or speed is insufficient to capture the full negative impacts of motorised traffic on walking and on the wellbeing of residents living close to busy roads. Moreover, groups most likely to perceive the speed of traffic on the busiest road as being 'fast' differ to those perceiving the traffic volume and speed as being both 'heavy' and 'fast'.

Evidence suggests that living close to busy roads is associated with lower levels of walking and with lower wellbeing. However, few studies have integrated these two separate research strands in such a way that sets out the potential pathways through which living close to busy roads may undermine wellbeing through the intermediate link of walking. For example, a study in Glasgow found that the M74 motorway construction led to lower levels of wellbeing among local residents<sup>1</sup> but not through any change in their active travel behaviour.<sup>2</sup> These potential pathways linking busy roads, walking, and wellbeing have been identified under the theme of "community severance". The hypothesis is that high levels of motorised traffic, and/or traffic moving at high speed, can represent physical and psychological barriers to the movement of pedestrians. These barriers can become a major source of stress for residents in the surrounding areas. The negative impact of motorised traffic on pedestrian movement may also manifest through suppressed walking trips. This is confirmed in literature reviews with a consistent association between high traffic volumes and speeds of traffic and low levels of walking.

In a UK study of urban severance, a main finding was that survey participants who perceived the traffic volume as 'heavy' and the traffic speed as 'fast', and who reported these as a factor affecting their ability to walk locally and avoided using the busiest road due to those conditions, had a significantly lower wellbeing score than those who did not report these perceptions.<sup>3</sup> Furthermore, researchers found a significant association between the subjective perceptions of road traffic conditions and the reported negative impacts of these on walking. More specifically, the joint perception of the traffic volume as 'heavy' and the traffic speed as 'fast' was associated with the reported impacts of these as being a barrier to walking locally and as a specific reason to avoid the busiest road.

Findings also showed that the associations between traffic conditions and walking extended beyond these combinations. For example, perceiving the speed of traffic as 'fast' but the volume as not heavy (i.e. 'light/average') was associated with reporting one of the negative impacts of road traffic on walking, but not both. Likewise, perceiving the traffic volume as 'heavy' but the speed of traffic as not fast (i.e. 'slow/ average') was associated with one of the negative impacts of traffic on walking—as a reported barrier to walking locally— but was not associated with avoidance of the busiest road. Moreover, the distance that participants lived from the busiest road was not significantly associated with their perceptions about the traffic conditions. Living closer to the busiest road was associated, however, with reporting that the traffic was a barrier to being able to walk to local places independently of perceptions of traffic volume & speed.

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<sup>1</sup> Foley, L., et al 2017a. Effects of living near an urban motorway on the wellbeing of local residents in deprived areas: natural experimental study. *PLoSOne* 12(4), e0174882.

<sup>2</sup> Foley, L., et al, 2017b. Effects of living near a new urban motorway on the travel behaviour of local residents in deprived areas: evidence from a natural experimental study. *Health & Place*, 43,57–65.

<sup>3</sup> Ancaes, P. et al, 2019. Perceptions of road traffic conditions along with their reported impacts on walking are associated with wellbeing, *Travel Behaviour and Society*, 15: 88-101.