



**To:** Management of Place

**From:** Adrian Davis

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**Subject:** Essential Evidence on a page: No. 183 Assessing the potential for carbon emissions savings from replacing short car trips with walking and cycling

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Top line: In an urban area, 41% of short car trips (up to 69% when including escort, large-retail shopping and 'as passenger' car trips) could realistically be shifted to active travel.

There is a growing recognition of the role that walking and cycling can make in reducing greenhouse gas (GHG) emissions by substituting motorised travel, particularly on short trips. However, there is a lack of evidence at the micro level on the realistic potential of walking and cycling to displace motorised travel and thus reduce GHG emissions. A UK study investigated the potential for GHG emissions savings from replacing short car trips with walking and cycling and the extent to which high quality infrastructure for walking and cycling may influence day-to-day travel decisions, change the spatial and temporal nature of local journeys and impact on overall GHG emissions from motorised travel.<sup>1</sup>

To achieve this aim the UK study conducted an in-depth observational study of a purposively selected cohort of 50 residents in Cardiff, Wales. Quantitative and qualitative data were collected for each participant using personal Global Position System (GPS) devices, 7-day travel diaries and contextual interviews over two seasonally matching 7-day time periods in 2011 and 2012. GHG emissions for motorised travel modes were derived using journey distance, vehicle technology details and average speeds obtained from the GPS data. The spatial and contextual data provided new insights into the complexities of walking behaviour and factors influencing cycling for everyday travel or recreation, including route choice decisions, activity destinations and the role of new infrastructure.

The researchers found significant potential of active travel to substitute short car trips, with sizeable impacts on carbon emissions from personal travel. Half of all car trips were less than 3 miles long. Taking into account individual travel patterns and constraints, walking or cycling could realistically substitute for 41% of short car trips, saving nearly 5% of CO<sub>2</sub> equivalent emissions from car travel. This was on top of 5% of 'avoided' emissions from cars due to existing active travel. However the researchers concluded that the evolving high quality active travel infrastructure in the case study area was unlikely to promote a significant reduction in carbon emissions from (displaced) car journeys on its own.

Mitigating climate change is clearly only one argument for investing in measures for supporting modal shifts towards walking and cycling. Other, and often more significant, 'co-benefits' on traffic congestion, transport poverty, air pollution and improved health and wellbeing should be considered in a more comprehensive appraisal of active travel policies and measures. Although the reductions assessed here not insignificant, a comprehensive approach of more ambitious active travel promotion, policies and investments targeted at mode shift away from private motorized transport (e.g. car pricing at point of use, further car restraint and parking pricing in urban areas, commuter car sharing, Park-and-Bike, awareness raising of the relatively larger impact of short car trips) may be required to achieve the combined goals of climate change mitigation and its multiple 'co-benefits' in urban areas.

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<sup>1</sup> Neves, A., Brand, C. 2018. Assessing the potential for carbon emissions savings from replacing short car trips with walking and cycling using a mixed GPS-travel diary approach, *Transportation Research Part A*, In Press.