# Cycling and Climate Change

Transport is one of the most challenging sectors to decarbonise due to its heavy fossil fuel use and reliance on carbon-intensive infrastructure – such as roads, airports and the vehicles themselves - and the way it embeds car-dependent lifestyles.

One way to reduce transport emissions relatively quickly, and potentially globally, is to swap cars for cycling, e-biking and walking or active travel

Cycling is cheaper, healthier, better for the environment, and no slower on congested urban streets than driving your car and trying to find a park.

So how much carbon can it save on a daily basis? And what is its role in reducing emissions from transport overall?

Despite the fact that some walking and cycling happens on top of motorised journeys instead of replacing them, more people switching to active travel would equate to lower carbon emissions from transport on a daily and trip-by-trip basis. Given that half of urban and suburban trips are less than 4.2km it is eminently practical to transition these trips to low emissions mobility options. For longer trips it is essential that bike infrastructure link to public transport services and that end of trip and trip transitions are facilitated.

Recent research observed around 4,000 people living in London, Antwerp, Barcelona, Vienna, Orebro, Rome and Zurich. Over a two-year period, the participants recorded their trips going to work by train, taking the kids to school by car or riding the bus into town. For each trip the carbon footprint was calculated

The results found people who cycled on a daily basis had 84% lower carbon emissions from all their daily travel than those who didn’t.

The research also found that the average person who shifted from car to bike for just one day a week cut their carbon footprint by 3.2kg of CO₂ – equivalent to the emissions from driving a car for 10km.

When the lifecycle of each travel mode was calculated including the carbon generated by making the vehicle, fuelling it and disposing of it, the emissions from cycling:

* can be more than **30 times lower for each trip than driving a fossil fuel car**, and
* **about 10 times lower than driving an electric car**.

It is estimated that urban residents who switch from driving to cycling for just one trip per day reduced their carbon footprint by about half a tonne of CO₂ over a year, and save the equivalent emissions of a one-way flight from London to New York.

If just one in five urban residents permanently changed their travel behaviour in this way over the next few years, it would cut emissions from all car travel in Europe by about 8%.

Cycling has a negligible impact on road infrastructure meaning that road maintenance is significantly reduced. The provision and maintenance of infrastructure has a significant emissions cost. Infrastructure for active transport (and in concert with public transport) can be much more efficient and better placed to absorb increasing volumes than the equivalent private vehicle infrastructure. A study of Melbourne's roads demonstrated that increasing road widths / capacity was minimal at best, with congestion easing being negligible after a few short years, and barely breaking even or worse when the delays caused during its construction were accounted for. Constant road widening, extending, duplicating has a huge emissions cost, it also briefly, incentivises more car use and car dependence, prompting more people to have cars (increasing embodied energy) and make lifestyle choices about where and how they work, live and play that is predicated on car use. It is imperative therefore that active and public transport options be prioritised in investment and seamless service provision.

Reference

Brand, C., Dons, E., Anaya-Boig, E., Avila-Palencia, I., Clark, A., de Nazelle, A., Gascon, M., Gaupp-Berghausen, M., Gerike, R., Götschi, T. and Iacorossi, F., 2021. The climate change mitigation effects of daily active travel in cities. Transportation Research Part D: Transport and Environment, 93, p.102764.