Benefits of Transport CO$_2$ Reduction for TIME

Saving time in a low carbon transport system

In moving to a low carbon transport system, people can also save time; time that can be used for other purposes (if it is leisure time) or become productive time (if it is part of business trips). In a low-carbon society, how can trips become shorter in time? And how will people make use of this time – using it for other purposes or extending the distance travelled? There are of course many aspects to developing a low carbon transport system, and this factsheet highlights those which will have added benefits in terms of travel time, especially through decreasing personal motorised vehicle use and increasing the use of other modes.


Taking the USA as a car-friendly country, the average car speed for 13 major cities was 51.1 km/h. Europe has a more balanced system (considering the number of trips by different means) and the average car speed there was 35.9 km/h. But, the average distance travelled per year in the USA by car was 16,045 km and for Europe it was 6601 km. Considering distances by each mode and the average speeds, the average time spent travelling by Americans of nearly 333 hours (13.1 days) is longer than the European average of 240 hours (10 days). So, although the average speed is considerably higher in the USA, they travel much further and end up spending more time travelling.

Source: Oxyman, Wikimedia Commons.

Mixed-used neighbourhoods with high share of walking, cycling and public transport use versus car-oriented areas.

A study from Japan shows that car-oriented areas that have lower population and service density have overall higher average speeds for cars (34 km/h versus 25 km/h). However, the average trip time increases as the density of services (e.g. shops) per neighbourhood decreases, even though people are making more trips by cars. Convenience of close proximity would seem to win over convenience of speed.

A low-carbon transport system will offer plenty of opportunities to save time

In a low-carbon society, the public transport system will be much more efficient. Due to higher frequencies (possible because of higher demand), a more efficient network (better connections, less waiting time), and higher speeds due to separated lanes for bus and trams and priorities at intersections, journeys on public transport will be much faster (for the same distance travelled) than today.

Fewer motorised vehicles will help to reduce congestion, thus increasing the average speed for the (remaining) car trips and freight movements in the city.

In a low-carbon society, more people will use the bike for shorter trips (which can often be faster) and will be able to gain time compared to using private cars or public transport. More people walking and cycling will increase opportunities for retailing particularly in residential and mixed-used neighbourhoods. With more shops at a short distance from places of living and/or working, the need for longer and more time-consuming trips will be reduced.
How will people use the time gained?
Evidence suggests that people do not strive to eliminate travel time and that there is a relatively stable amount of time that people spend travelling: people tend to spend a bit more than one hour a day travelling\(^4\), and commuters usually spend around 30 minutes travelling to work\(^5\). Increasing speed seems to result only in travelling further and more people using cars, and not in reducing travel time\(^6\), and greater distances lead to lower densities, where difficulties arise for non-motorised modes and mass transit options, with higher costs for all users.

Still, there are some clear cases of benefits where time is saved or used differently.

Children’s travel
Parents may feel that an important need for a car is in escorting children, but their time is increasingly occupied by this activity. In particular, mothers sacrifice their leisure time to chauffeur their children\(^7\). In more compact environments which have focused on accessibility and reducing the need to use cars, children are able to independently access destinations so parents spend far less time chauffeuring, and children also spend less time travelling\(^8\). Increases in independent travel have also been found to relate to more physical activity\(^9\) thus better health. Moreover, the fewer children arrive at school by car, the higher the road expenditure for the school for all kids.

Time use
Another consideration is what you actually do with the travel time. In transport project decision making, the time spent travelling is often considered wasted as time. However, on public transit, people can accomplish things that aren’t possible in cars such as reading, working, or just letting their thoughts drift\(^10\) (car drivers should be concentrating). Walking and cycling also give health benefits. Compared to using a car to get to places, more than one activity is possible while travelling by other modes.

How can the CATCH project help?
The CATCH (Carbon Aware Travel Choice) project shows you how your city is performing in terms of carbon emission reduction and how you can help to make a positive change. It also shows how your city is performing in terms of related impacts upon travel time, including:
- Average public transport speed (road and rail mode)
- Average annual distance travelled per private passenger vehicle
- Average speed on the road network

www.carbonaware.eu

References:
\(^2\) This data comes from the Person-Trip Data of the Osaka Metropolitan Area, 2000.

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