

KEY TAKEAWAYS

- Reading reduced its CO₂ emissions by almost 46%, between 2005 and 2018, largely due to improvements in electricity generation
- Emissions within the transport sector, linked strongly to harmful air pollutants and negative health impacts, have not fallen so rapidly, suggesting that Reading could be missing out on local level, more immediate benefits of reducing carbon emissions

CARBON EMISSIONS

Between 2005 and 2018, Reading reduced its CO₂ emissions by 46%, a larger percentage decrease than England as a whole. The majority of this reduction, however, is associated with electricity generation, whilst transport emissions only reduced by 18%. Transport emissions are more strongly associated with air pollution, air quality, and resulting negative local health impacts. In this way, Reading is likely missing out on important health co-benefits associated with reducing overall carbon emissions, a hypothesis supported by the rise in the fraction of mortality attributed to particulate air pollution observed by RHS between 2015-2018.

AIR POLLUTION

In addition to their role in fuelling climate change, carbon dioxide emissions often come with the release of other particulates that directly cause adverse health effects. Efforts to reduce Reading's carbon emissions to reduce global warming and contribute to the UK's national commitments, thus have critical health co-benefits through the improvement of local air quality.

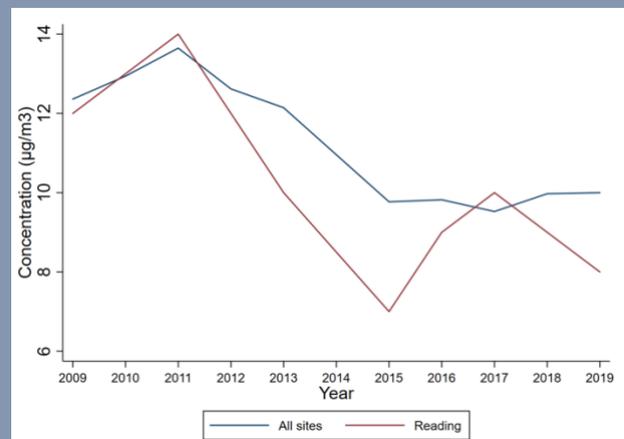
Amongst many pollutants known to cause adverse health effects are large and fine particulate matter (PM₁₀ and PM_{2.5} respectively), nitrogen oxide, and ozone.

PM_{2.5} and PM₁₀ levels in Reading have fallen slightly since local recording began (2009 and 1998 respectively), however in recent years these levels have plateaued, though concentrations in Reading are still lower than the mean across England.

Similarly, annual mean concentrations of nitrogen oxide in Reading fell steadily until 2008 but has since plateaued. Nitrogen oxide is heavily linked to fossil fuel powered vehicles, and these data are perhaps not surprising given the increase in vehicle miles since 2010. Finally, recent data suggest that ozone levels in Reading have barely changed since the late 1990s and increased between 2016 and 2018.

The recent stagnation of pollutant decline in Reading may also explain why although overall emissions have been declining in Reading, the fraction of mortality attributable to particulate air pollution has been increasing since 2015.

PM 2.5 EMISSIONS



While higher than the lowest level reached in 2015, PM 2.5 emissions in Reading remain lower than England as a whole as of 2019. Trends for larger particulate matter (PM 10) were similar in Reading and across the country.

TRANSPORTATION TRENDS

Overall Reading has not managed to lower traffic on its roads since 2009. In regard to vehicle miles, Reading's car dependency has come down from its peak in 2002 but began to rise again in 2010 and has since remained on a steady incline. Light commercial vehicles have seen a similar trend, while heavy goods vehicle travel has remained largely consistent since 1993.

The number of people cycling or walking has seen no change (2015-2018), however, bus journeys have increased by 38% over the past decade, as opposed to a general decline in England as a whole

HEALTHY AND SUSTAINABLE TRANSPORT

Reduction of road travel can be achieved in two main ways:

1. Fewer journeys undertaken by car, and more frequent use of other forms of transport such as walking and cycling
2. Replacement of polluting public and private road transport with non-polluting alternatives such as electric buses and cars

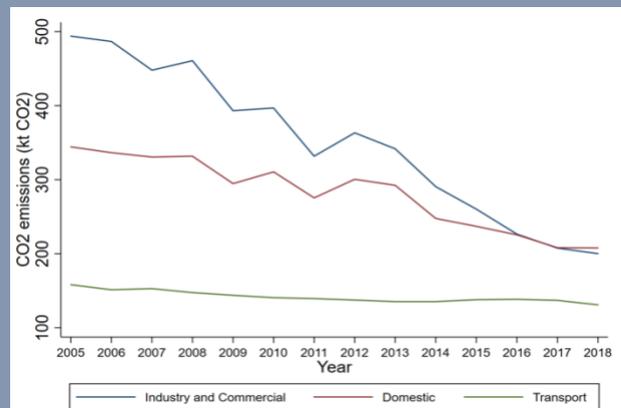
Where Reading has excelled is in the provisioning and use of non-polluting transportation options. Reading has invested in 35 electric vehicle chargers per 100,000 people (as opposed to 31 per 100,000 across England), 62 bio-gas powered buses, and 21 hybrid buses.

NEXT STEPS

Continue reducing Reading's reliance on petrol and diesel by:

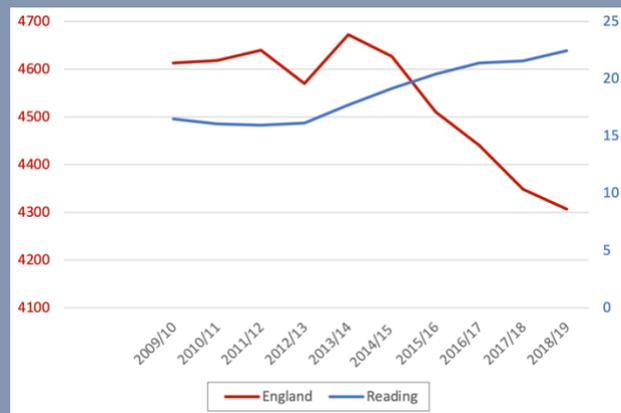
1. Encouraging walking and cycling. This both reduces carbon and particulate emissions, and improves individual health, further reducing pressures on local health services
2. Promoting the use and continued political support for electric vehicles (including buses). Whilst electric vehicles may use electricity from non-renewable sources, they do not pollute the local environment. As such, local air quality should improve.
3. Ensuring that public transport is an affordable, efficient, and reliable alternative to private car use.

CARBON EMISSIONS IN READING BY INDUSTRY



Carbon emissions have fallen in Reading in both the commercial and domestic sector; however, rate of decline has slowed in recent years.

BUS JOURNEYS IN READING



While annual bus journeys have decreased across England, Reading has seen a rise since 2012.