

London Councils' Transport & Environment Committee Executive

Air Pollution and Smart Mobility Item no: 3

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Date: 15 September 2017

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Summary: Smart Mobility has the potential to address two of the most pressing transport issues of London today – air quality and congestion. However, it needs to be introduced in such a way that no unintended consequences lead to a reduction of sustainable travel overall. The Institute for Public Policy Research (IPPR) has done some research in this area and will present some of their findings to the Committee. The report also discusses some of the most recent available data about the different car club models and their potential contribution to the smart mobility, air quality and congestion agenda.

Recommendations: The Committee is asked to:

- Note and discuss the report.

Air Pollution and Smart Mobility

1. This report gives a brief overview of air pollution and smart mobility in London. It draws on some of the research that the Institute for Public Policy Research (IPPR) has undertaken and is complemented by a presentation from the author of two of their relevant reports, Laurie Laybourn-Langton.

Air Pollution

2. The air pollution problem in London has now been well documented. Research suggests that more than 9,400 people die prematurely due to poor air quality in London. Furthermore, there are significant health effects from short and long-term exposure. This has been estimated to cost the health system for London alone between £1.4 and £3.7bn per year.
3. For example, episodes of particularly bad air pollution often experienced in the winter or summer months, due to exacerbating weather conditions, can lead to people experiencing irritation of the airways causing severe coughing and exacerbation of existing respiratory illnesses. This is uncomfortable at best and could be dangerous for more vulnerable people, such as children and the elderly.
4. Long term exposure contributes to the risk of developing cardiovascular and respiratory diseases, as well as lung cancer.
5. The two pollutants that are of particular concern due to their prevalence and significant health effects are Nitrogen Dioxide (NO₂) and Particulate Matter (PM).
6. Road transport is the one most significant contributor to these two pollutants (see figures 1&2 below) and changes to the way we travel therefore forms part of the solution to dealing with poor air quality in London.

Figure 1 - NO_x sources in Greater London in 2013 (London Atmospheric Emission Inventory (LAEI) 2013)

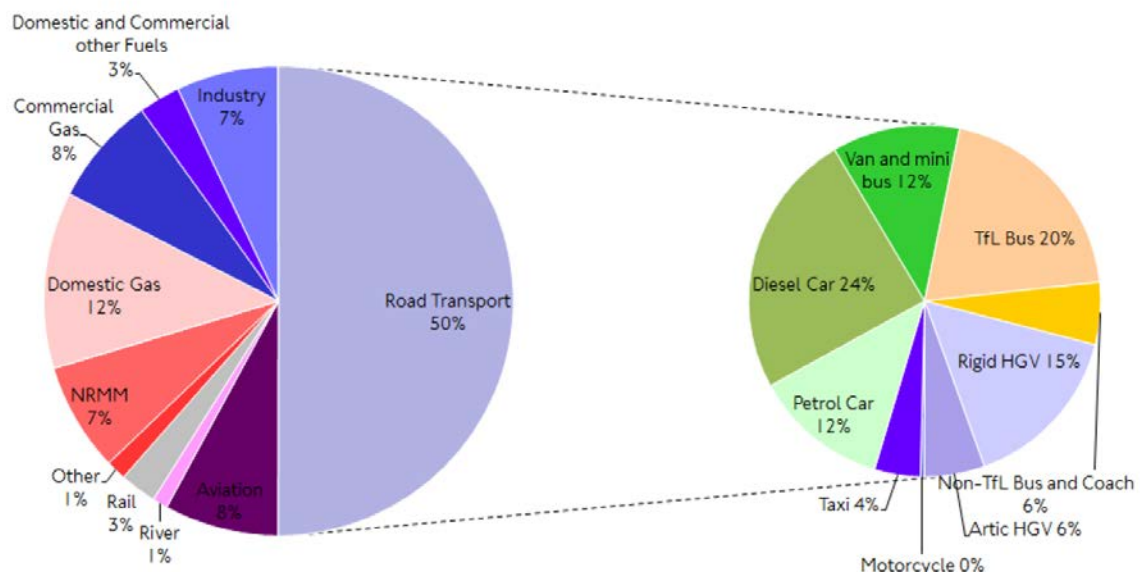
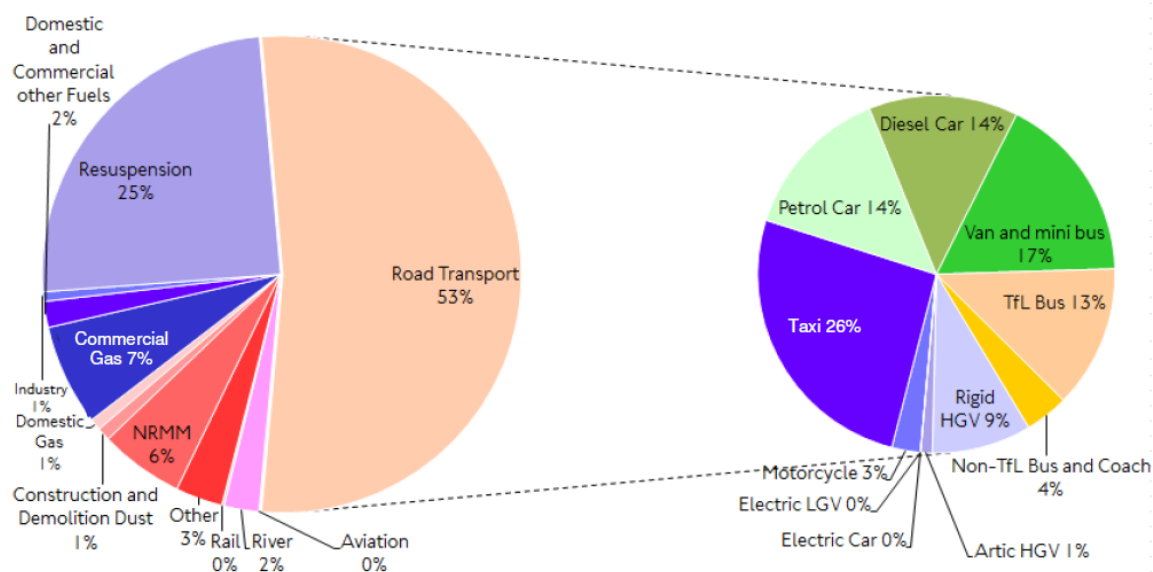


Figure 2 - PM₁₀ sources in central London in 2013 (LAEI 2013)



Smart Mobility

7. The term 'Smart Mobility' encompasses the use of technology to plan the most effective and efficient way to manage the transport system and to travel, whilst reducing its negative effects, such as congestion and air pollution. Flexibility, convenience, communication technology and the availability of many different modes - such as walking, cycling, public transport, car clubs - are crucial elements for a successful transition to a smart mobility system.
8. An example of using technology to better manage the transport system is installing smart sensors at traffic lights that are able to distinguish between cars, Lorries and buses, and therefore enable priority to be given to buses.
9. An example of using technology to make the way we travel more efficient, are the now widely available and used journey planners.

Smart Mobility in London

10. In London, two of the main drivers for smart mobility solutions are to reduce congestion and improve air quality. This means that London needs to reduce the number of cars that are travelling on its road infrastructure and smart mobility is able to help with this, as the IPPR's most recent report "Crossroads – Choosing a future for London's transport in the digital age" discusses.

IPPR report – Crossroads – Choosing a future for London'

11. Digital technology has enabled the development of new transport services, including journey planners, car clubs and on-demand private hire. These new mobility services could interact within London's transport system to complementing efforts to enable more public and active transport, and so allow for an unprecedented opportunity to overcome negative outcomes, such as air pollution and congestion.
12. Evidence suggests that some of these services are already having a tangible positive effect, as, for example, in the case of car clubs, which are unlocking more sustainable travelling behaviours. Conversely, concerns exist over the potential for negative network outcomes that undermine the ongoing move toward more sustainable behaviour.

13. The IPPR suggests that the pace of technological change is such that now is the time in which action should be taken by London's government to ensure the positive potential of these services is realised. They recommend that the mayor should incorporate a vision for new transport technologies into the Mayor's Transport Strategy and that this vision should include clear objectives for London's overall transport network and include a framework through which this vision can be achieved.

Car Clubs

14. Car clubs have been used in London for almost 15 years now and the back to base model is well established. However, the recent surge and popularity of ride hailing smartphone applications for example, suggests, that people require different ways of moving around the city. The Car Club Strategy, put together by the Car Club Coalition in 2014 and published in 2015, suggested that new models are required to deliver the step change and increase of car club membership London would like to see.
15. The car club industry is responding to this challenge and is exploring different models, such as the floating and point to point models, using technology to communicate real time information to the user. There is some evidence now available through the last two annual Carplus Surveys. The 2015/16 survey was previously reported to full TEC in October 2016, the 2016/17 survey data was released in April 2017. Full details of the survey in London can be viewed at the link below¹ but headline figures indicate the following positive information;
- The 2016/17 survey was completed by over 2,900 round-trip car club members and over 1,100 flexible car club members in London from a membership of 193,500 overall.
 - Each car club car resulted in members selling or disposing of 10.5 private cars for the roundtrip model and 13.4 cars for the flexible model.
 - Across London, car club members sold or disposed around 26,400 cars.
 - Round-trip members reported an average reduction in miles driven of 570 miles a year and flexible members reported a lower level of reduction of 239 miles a year.
 - 80% of car club cars are in the lowest three emission bands and 99% of car club cars meet the anticipated Ultra Low Emission Zone (ULEZ) standards.
 - 18 per cent of the car club fleet are electric or hybrid.
16. The research undertaken by Imperial College in 2016 supports this and found that 37 per cent of users of the floating model indicated that their membership has impacted on their ownership of private cars. Of this 37 per cent, a large majority (83 per cent) indicated that they decided not to buy a car that they otherwise would have purchased, 11 per cent reported that they had disposed of a car in the past three months, and 6 per cent stated that they will sell a private car within the next three months².
17. Smart mobility therefore has the potential to address two of the most pressing transport problems London faces today – air pollution and congestion, but it needs to be carefully managed to ensure any unintended consequences are mitigated and the more sustainable forms of transport, such as walking and cycling, continue to be encouraged.

¹ <https://www.carplusbikeplus.org.uk/wp-content/uploads/2017/04/Carplus-Annual-Survey-of-Car-Clubs-2016-17-London.pdf>

² Le Vine, S., Polak, J. (2017) The impact of free-floating carsharing on car ownership: Early stage findings from London. Transport Policy. <http://dx.doi.org/10.1016/j.tranpol.2017.02.004>

Recommendations

The Committee is asked to:

- Note and discuss the report.

Financial Implications

There are no financial implications to London Councils arising from this report.

Legal Implications

There are no legal implications to London Councils arising from this report.

Equalities Implications

There are no equalities implications to London Councils arising from this report.