

Walsall Health and Wellbeing Board – 3 December 2018 - Appendix 2

West Midlands Fire Service activity to improve air quality

Background

The Walsall Health and Wellbeing Board asked for members to consider what they might be able to do to contribute to improvements in air quality as this is a significant contributor to ill health in the borough.

This issue is contributed to by West Midlands Fire Service (WMFS) in two distinct areas. We operate a fleet of vehicles, including light vehicles and large goods vehicles, all of which have potential to impact on air quality. In addition, the fires that we attend also have an impact on air quality, so the measures we take to reduce the incidence of fires will have a proportionate impact on air quality.

Our approach in these two areas is explained below.

Fleet operations

WMFS operates a fleet of 60 front line emergency response vehicles, comprising 41 traditional fire engines and 19 smaller fire engines, based on a Toyota HiLux chassis. From our 4 Fire Stations in Walsall, we operate 5 of the large traditional fire engines as well as a hydraulic platform at Walsall and a prime mover specialist vehicle at Willenhall. We therefore have 7 large goods vehicles which consume approximately 1 litre of fuel for every mile, or about 4.5 mpg. As such they could be considered significant polluters.

In addition to the large goods vehicles mentioned above, each station has a small van for routine transport needs, the station managers use their own cars to respond to incidents and our 140 firefighters travel to work using a variety of methods, including cars.

In order to mitigate the environmental impact of these, the following measures are in place:

- **Large goods vehicle fleet** – All our new vehicles meet the Euro 6 standard for emissions, incorporating Add Blue systems as required by legislation. We have complied with the requirements of this legislation throughout and we have extremely high standards of maintenance to ensure safety in emergency response situations and to ensure emissions systems are functioning correctly.

We have a 10 year vehicle replacement programme so there may occasionally be vehicles operating that are of older types but we minimise this where possible.

We have a policy in place not to leave vehicle engines running when stationary because in the past it was the custom and practice to leave engines running. This was because the large battery drain of lighting and communications systems meant that batteries were depleted in a few minutes if the engines were turned off. Modern systems perform far better, so engines do not have to be left running now.

You may however see a fire engine parked at an incident with its engine running. This is because the vehicle engine also powers the water pump so if we are using water at an incident we may need to use the engine.

There is research underway to explore whether electrically powered vehicles can be used as fire engines. This is in its early stages and is unlikely to produce an electric full size fire engine in the short term, but may deliver a smaller vehicle within the next couple of years.

- **Fire station vans** – The vans that we operate are small, well maintained and are replaced based on their mileage. They currently have diesel engines. Our van replacement programme now requires these vehicles to be electrically powered and as a service we are due to put 13 new electric vans into service in the current financial year and an additional 12 electric vans in the next financial year. Two of these from this year's programme will operate from Walsall stations. To support this we have a programme of installing charging points at our stations. It may be possible for these charging points to be made available for use by members of the public or partner organisations. We welcome any early conversation about this as tenders for the installation are soon to be issued.
- **Station managers** – Our 4 Managers use their own cars for business use, including attending incidents. The mileage covered is low and although we have no control over the vehicles these individuals use, they are relatively efficient vehicles. We have also implemented an 'Office 365' system that includes video conferencing facilities. This has a significant impact on reducing travel to meetings. While it is difficult to state exactly how many miles have been saved through the use of video conferencing, it is estimated to be around 200 miles per week in relation to Walsall.
- **Firefighters** – Our 140 station based firefighters travel to work using a variety of methods, including cars. We encourage the use of bicycles by providing cycle parking at all our stations and a cycle to work scheme that enables people to purchase bicycles at reduced rates. Many firefighters also car share.

Our approach to incident mobilising also reduces the emissions that result from vehicle movements. For example, we use a dynamic mobilising procedure that takes account of incident intelligence and live images from 999 callers to inform mobilising decisions. Previously we used predetermined attendance levels that would routinely require three large fire appliances plus a hydraulic platform to attend an alarm actuation at a hospital for example.

Dynamic mobilising now, often results in a single smaller fire appliance being mobilised to the same incident due to advances in the availability of intelligence. This has a significant impact on emissions but is very difficult to quantify.

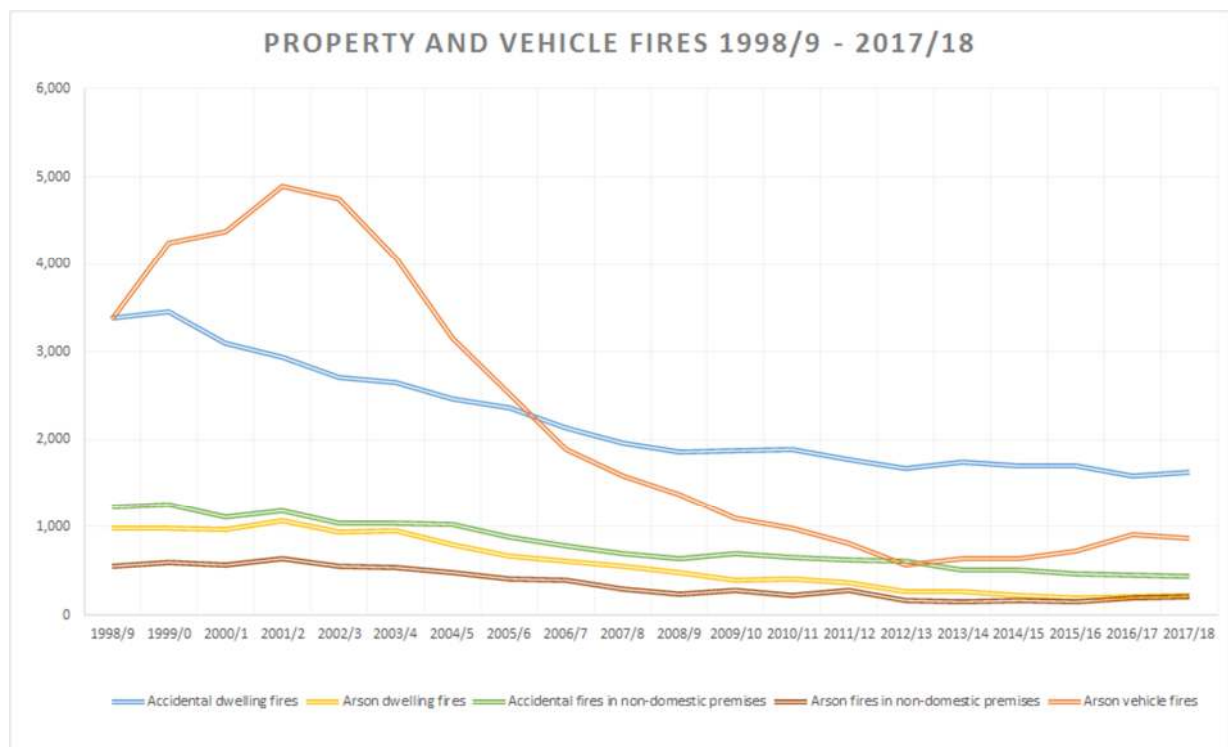
Fires

The fires that we attend produce pollution, so our prevention activities that reduce fires also reduce the pollution that they cause.

As part of our requirements to report on our carbon footprint, we have made an analysis of the amount of CO2 emissions that originate from fires. This work is required periodically and was last produced in 2009 to cover the previous 10 years. This will be produced again at the end of 2019 so we do not have current data on this. I have however included the last report as an appendix showing indicative figures.

This report focusses on CO2 emissions as a key climate change gas, but as emissions from fires are consistent in terms of their constituent gasses in each incident type, the relative reductions in CO2 are representative of emissions of other gasses that cause pollution.

I have also attached a document as an appendix that explains much more detail on the impact of fire on the environment and on the hazards of smoke inhalation. In order to mitigate the impact of fires on our communities, the Fire Service has undertaken a wide range of prevention activity for many years. The resulting reduction in a range of fire related incidents over recent years can be seen in the following graph.



The fires involving property and vehicles that are represented in this graph are the most polluting because of the materials involved in these fires.

This shows that from a peak of 12881 fires in 1999/2000, this reduced to 4187 in 2017/18. This is a 67% reduction in the numbers of these fires.

While it is very difficult to quantify the emissions of poisonous gasses from these fires, advances in combustion modified materials, firefighting techniques and early detection all mean that the fires that occur today are of a smaller scale than those occurring 20 years ago. It is therefore reasonable to say that in the 20 years since 1999, we have been able to reduce the emission of poisonous gasses from fires by at least 67%. These figures relate to the whole West Midlands but they are indicative of the same proportionate reduction in Walsall.

Summary

We operate a modern fleet of vehicles and minimise their use and the emissions that they create as much as we reasonably can at the moment. We are always looking for more efficient ways of using our resources and of reducing the numbers and severity of incidents that we attend.

A key component of this is the 5 minute attendance standard that we achieve when responding to the most serious fires. This has a considerable impact on the survivability of people who experience fires and a similar impact on the financial losses that fires cause. While this reduces the financial burden on businesses that experience fires, it also reduces the emission of poisonous gasses from fires that develop to a less serious scale before they are dealt with by us in contrast to a fire that burns for longer before it is extinguished.

Ben Diamond
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West Midlands Fire Service.

Background papers

CO2 emissions from fires
Impact of fire on the environment
Hazards of smoke inhalation