

NOTE TO WARRINGTON LOCAL PLAN EIP INSPECTORS

13/10/22

Matter 13: Council to provide a note confirming the basis for the conclusion that PM2.5 has decreased recently and will decrease over the plan period.

Current trend of PM_{2.5} levels in Warrington

We have assessed air quality for a number of years across the borough originally using a mix of computer modelling and targeted monitoring as part of our statutory duties. Our work has given us a good understanding of our local air quality and the sources of pollution. All our monitoring and assessment work is carried out in accordance to national guidance and reported annually, as Annual Status Reports (ASR), for review to Defra.

Our latest ASR 2022 has now been accepted by Defra and is available to view at

www.warrington.gov.uk/airquality

The Council monitors for PM_{2.5} concentrations at two sites: Selby Street site, set up in 1998, which measures typical urban levels where the majority of people live; and Sankey Way, a major roadside for worse case was set up for 2021. A third site is being set up on Liverpool Road which is due on-line this October. Concentrations are measured by certified analysers to EU and UK specification to be used for local assessment work. These are classed as recording quantitative levels. These are more accurate than “sensors”, such as the one in Stockton Heath, which are considered to be indicative and have a greater degree of uncertainty.

All concentrations are compared to national objectives to consider any exceedances.

The national set objective limit for PM_{2.5} is currently 25 µg/m³ as an annual average. This has never been exceeded in Warrington.

There was a WHO guideline value of 10 µg/m³ (mean annual average) which has been superseded by a value of 5 µg/m³. The new value though is recommended to be set as a target to be reached over a period of time, that period to be determined by national bodies as being most appropriate. Whilst the WHO values have no strict legal base in the UK, the

Council does take the 10 µg/m³ into account so that any development does not make existing levels measurable worse. The Government has consulted on proposals to make the 10 µg/m³ an objective limit to meet by 2040. The Council has made a consultation response that this should be met sooner by 2030.

Table 1: Summary of PM_{2.5} measured at the Warrington sites since 2012 (as an annual average µg/m³):

PM _{2.5}	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Urban background	13	14	14	11	11	10	9	11	9	8
Roadside			-	-	-	-	-	-	-	10

The full data for 2022 is yet to be captured so care needs to be taken for interpretation, but as an indication, to the end of September the average PM_{2.5} level for 2022 at the urban background site is 7 µg/m³ and at the roadside site it is 9 µg/m³.

There is a trend of improvement over time, but there are fluctuations in specific years due to weather influences (for example in 2019, due to transboundary effects). It should be noted that traffic significantly reduced in 2020 due to lockdowns during the pandemic which saw a significant improvement in pollution levels, specifically for nitrogen dioxide. Traffic then increased in 2021 but PM_{2.5} still reduced. This demonstrates that traffic has less of an influence on PM_{2.5} compared to nitrogen dioxide.

There are other significant other sources, for example agriculture and domestic burning/heating. There are also transboundary influences outside of Council control and can be affected by specific weather conditions, for example grass fires in Manchester and pollution from northern Europe that drifts across the UK and that we have measured in Warrington.

The Council has developed an Air Quality Action Plan which sets out measures to improve air quality, including PM_{2.5} and health across Warrington.

Local Plan Air Quality assessment

For the Proposed Submission Version Local Plan (PSVLP 2019), an air quality assessment was produced to consider any potential impacts on air quality. Since this was produced, the PSVLP has been revised with reduced housing numbers and a reduced amount of employment land. This has resulted in an Updated Proposed Submission Version Local Plan (2021). As the air quality assessment was carried out on the higher numbers, this was considered to still be relevant to present a worse-case scenario.

The assessment has been carried out in accordance with Government technical guidance and uses traffic data produced from the Council's multi-modal traffic model.

The assessment considers concentrations of PM_{2.5} from the predicted development growth in 2026 and in 2036, using 2016 as a baseline. The types of sensitive receptors which are relevant for the national standards to be assessed against, have been split to consider residential locations, hospitals, care homes, children's nurseries and schools.

A two stage process have been used for the assessment; a screening stage to identify areas most at risk; and a detailed phase that take those areas and looks at them in more detail. Due to the public concern in the South of Warrington of air quality impacts, this area has been included for the detailed assessment.

All modelling contains uncertainties. These have been considered and mitigated by using worse case assumptions and by highlighting areas that might be below the national limits but still have a potential low risk of exceedance, based on being within 20% of the objective limit.

There are also uncertainties in the predictions in the rate of uptake of low emission vehicles provided by Defra. To consider that this might be over optimistic, the predictions have been reduced by 5 years as a worse case. For example, for the 2026 modelling, the 2021 predicted low emission fleet has been used. In addition, particulate emissions from brake and tyre wear have been calculated using current tyres and traditional brakes. There is growing evidence that low emission vehicles are using lower friction tyres and regenerative

braking that reduces particulate emissions, but as this is still being researched nationally this assumption was not be made for the modelling.

Assessment results

The assessment considers all sensitive receptors within 50m of the modelled roads. Over 11,000 receptors have been modelled. Traffic data has been used as per the scoping stage, but includes detailed data on congestion to take into account any increased queueing and stop start traffic where emissions would be higher.

The detailed assessment has been carried out for the years 2016, 2026 and 2036.

The assessment considers concentrations against the World Health Organization guideline value. For 2016, this predicts a number of locations, mainly within current AQMAs, that would exceed the guideline. By 2026, there will be a slight fall in concentrations of about 5%, but the number of receptors affected that exceed the value will significantly drop. Concentrations will further improve by 2036 but there will still remain a small number of locations that may have marginal exceedances in the guideline value.

Conclusions

Air quality is expected to improve for all pollutants between now and 2036, even with increased traffic predicted under the draft local plan. Fine particulates PM_{2.5} will see a slight improvement, but there is expected to still be some small areas in Warrington that may marginally exceed the WHO guideline value in 2036.

These improvements in air quality are predicted despite the housing and employment growth and subsequent increase in traffic. . Despite the increase in traffic, the type of vehicles are expected to significantly change over to low and zero emission vehicles reducing the emissions significantly per vehicle in the next 20 years. This is supported by national plans for all new vehicles to be electric by 2030.

It is also important to note that there are other sources of local pollution that are not traffic related for example industrial, agricultural and domestic (heating and bonfires/wood burning stoves).

It should be noted that a cautious approach to the assessment has been taken to present the worse-case impacts. The predictions in the uptake in low emissions vehicles used for the modelling have been taken to be 5 years behind the improvements recommended by Defra. If the uptake of electric vehicles is more in line with Government predictions, then the air quality improvements will be seen earlier. Worse case assumptions have been made about the particulate emissions from brake and tyre wear. These emissions have been acknowledged nationally and research is being undertaken to assess use of low friction tyres and regenerative braking systems that would reduce this emissions.

The modelling does not take into any initiatives to improve air quality through the Air Quality Action Plan or within the new Local Transport Plan.

It should also be noted that individual planning applications are screened for air quality impacts including PM2.5. If these are assessed as having an adverse impact then mitigation will be considered as appropriate.

The assessment has been carried out in accordance with current best practice and guidance. The Council accepts that guidance, legislation along with pollution and health knowledge will change over the next 20 years that may affect conclusions. Under the Council's statutory duty to assess air quality, monitoring of air quality in the borough will continue to assess the trend and proactively take into account changes in legislation and evidence to improve health from poor air quality.

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