

Key Points from the Air Quality Presentation to Holmes Chapel Parish Council

Key Pollutants

Nitrogen Dioxide (NO₂) – The biggest cause for concern both locally and nationally with the main source being diesel fuelled combustion engines. We currently have 131 tubes sites located around the borough monitoring for NO₂. As it stands we have eighteen Air Quality Management Areas declared due to regular exceedances of the annual average. The objectives for NO₂ are:

- Annual average 40 µg/m³
- No more than eighteen exceedances of the hourly average of 200 µg/m³ in a year

Carbon Monoxide (CO) – The main source is from engines that are poorly tuned, cold, idling and moving slowly, i.e. incomplete combustion where insufficient oxygen is reaching the combustion chamber. Modern day catalytic converters turn the CO into CO₂ so this is not a cause for concern in Cheshire East and we do not monitor for it. The objective for CO is:

- 10 mg/m³ as a maximum daily running eight hour average

Particulate Matter (PM₁₀ & PM_{2.5}) – These are defined as particles that are less than 10 microns and 2.5 microns respectively in size. The source of PM₁₀ and PM_{2.5} varies from vehicles to industry and other natural sources, e.g. brake dust, tyre wear and Sahara dust. We do not currently monitor for these pollutants. The objectives for PM₁₀s and PM_{2.5}s are:

- PM₁₀ - No more than 35 exceedances of the 24 hourly average of 50 µg/m³ in a year
- PM₁₀ - Annual average 40 µg/m³
- PM_{2.5} – Working towards reducing emissions/concentrations

Sulphur Dioxide (SO₂) – The main source of SO₂ is the burning of coal and/or oil which is not an issue in Cheshire East due to the lack of major industries. We, therefore, do not monitor for SO₂. The objectives for SO₂ are:

- No more than 35 exceedances of the 15 minute average of 266 µg/m³ a year
- No more than 24 exceedances of the 1 hour average of 350 µg/m³ a year
- No more than 3 exceedances of the 24 hour average of 125 µg/m³ a year

Benzene (C₆H₆) – The main source of benzene is petrol engines with modern day catalytic converters removing the vast majority of the pollutant, and petrol refining. We, therefore, do not monitor for benzene as historic results have shown concentrations to be low within the borough. The objectives for benzene are:

- 16.25 µg/m³ as a running annual average
- 5 µg/m³ as an annual average

1,3-Butadiene (C₄H₆) – As with benzene, the main source of 1,3-butadiene is petrol engines with catalytic converters removing the pollutant. We, therefore, don't monitor for 1,3-butadiene as it is not considered to be a concern in Cheshire East. The objective is:

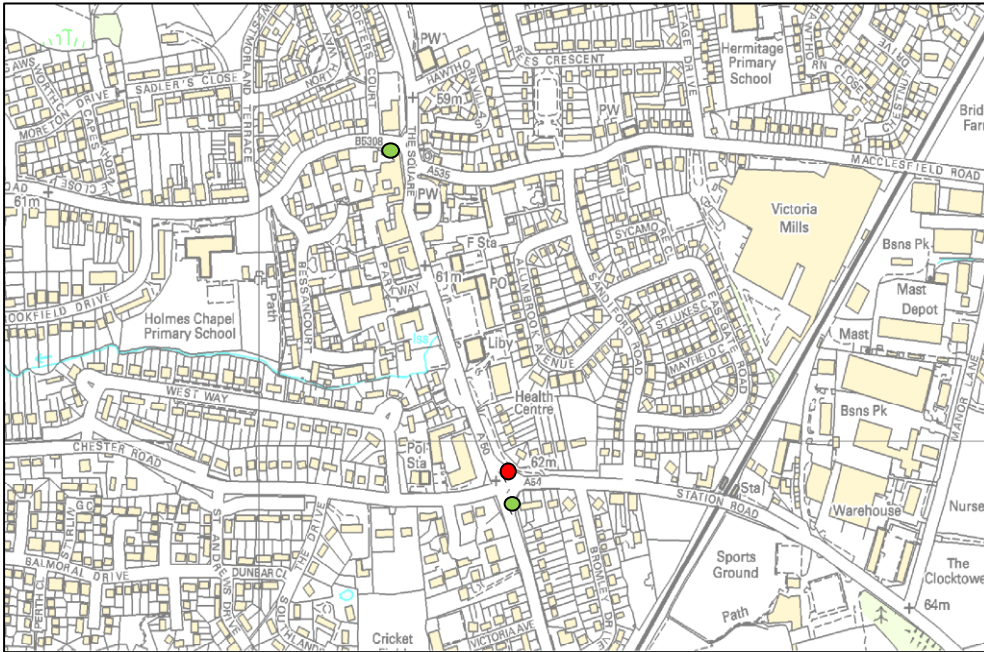
- 2.25 µg/m³ as a running annual average

Lead (Pb) – As well as being used in the manufacture of batteries, pigments alloys and plastics, the main source of lead used to be from lead based petrol. As this type of petrol is no longer used, this is not considered a concern in Cheshire East and is not monitored for. The objectives for lead are:

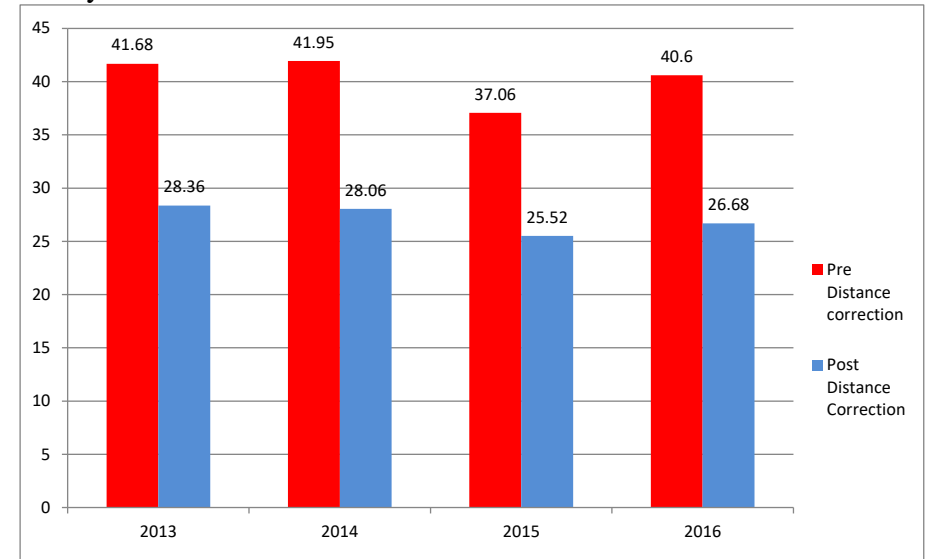
- 0.5 µg/m³ annual average
- 0.25 µg/m³ annual average

Current & Historic Monitoring in Holmes Chapel

Up until the end of 2017, Cheshire East only monitored in one location in Holmes Chapel. As a result of the continuing roadworks on the M6 and the impacts it can have on the village when the motorway is experiencing issues, the original site (CE141) was relocated as well as a new site being set up to further assess the NO₂ concentrations. The sites can be seen below with the red dot showing the location of the now decommissioned site and the green dots showing the current sites:



The graph below shows the results of tube CE141 in Holmes Chapel for the last four years:



Drop Off of NO₂ Concentrations Over Distance

A vast majority of our annual tube results undergo what is called distance correction which is required where a tube is located more than 10cm from a property. This is to account for the decrease in NO₂ over distance so the results are indicative of the concentrations experienced at the façade of a property. See the adjacent graph for an example of how quickly NO₂ concentrations decrease over distance.

