



**NORTH EAST
LOCAL AREA COMMITTEE
POLICY COMMITTEE REFERRAL
RESPONSE**



Public question from Graham Jones, raised at the North East Local Area Committee on 17 January, 2023

Question:

In view of the imminent introduction of a City Centre Clean Air Zone which, through traffic displacement, is forecast to worsen already illegal levels of air pollution along some of our local roads, what measures are being taken in north east Sheffield to minimise this health and life threatening assault on some of the poorest districts in the city? Is the city council giving these areas additional finance to reduce this deliberate threat to our public health? Or does our council accept that our residents are relatively expendable as we live in a sacrifice zone where our life expectancy is already up to ten years less than other some other parts of the city?

Resolution at the North East LAC meeting:

That the North East Local Area Committee refer the issue around the potential impact of the Sheffield Clean Air Zone on air pollution across the rest of the city to the Transport, Regeneration and Climate Policy Committee.

Outcome of referral to the Transport, Regeneration and Climate Policy Committee:

The issue was referred to officers for a response.

Response:

Sheffield City Council has legal duties to monitor and improve air quality across the entirety of the Sheffield district, which is not isolated to the boundaries currently associated with the Clean Air Zone (CAZ). It is for this reason that the development of the CAZ boundary was underpinned with modelling and data to minimise the impact of the measure, whilst not having significant impact on air pollution because of displacement.

Sheffield City Council is currently working to meet two legal air quality regimes, which differ in prescription on how compliance is judged and as such plans/measures to achieve the objectives also vary.

The first regime that the Council are working to comply with is a ministerial direction which instructed the Council to develop a Clean Air Plan to help meet national compliance with the European Union (EU) long-term objective for nitrogen dioxide (NO₂). This regime uses air quality modelling to determine compliance, with the use of monitoring data to validate the

model outputs and as such deployment of some of the monitoring network is designed to meet criteria for model verification purposes. The primary measure contained within the Council's Clean Air Plan is to implement a CAZ. According to the prescribed system used to demonstrate national compliance, concentrations for NO₂ in Burngreave, Firth Park, Shiregreen and Brightside and Southey meet the EU objective without the need of inclusion in the CAZ.

Sheffield also has a separate legal duty passed down through the Environment Act 1995, which is known as Local Air Quality Management (LAQM). Through LAQM, the authority assesses against a legally prescribed set of pollutant objectives, which include NO₂ but also Particulate Matter (PM10 & PM2.5). Under this regime, compliance is predominantly demonstrated using monitoring. Therefore, the Council deploys part of the monitoring network at locations near population exposure to determine if exceedances of the objectives for NO₂ and PM10 are occurring and where. Non-compliance of the objectives results in the declaration of an Air Quality Management Area (AQMA) and the need for a Clean Air Strategy and Action Plan. Under LAQM, Sheffield City Council declared a districtwide AQMA in 2010 for short-term NO₂ and long-term NO₂ and PM10 objectives. In 2015, the Council adopted an Action Plan to achieve compliance, which was reinforced with the adoption of the Council's Clean Air Strategy in 2017. Using the LAQM prescribed system to determine compliance, we have historically monitored within the Firth Park and Southey electoral wards, noting that concentrations were well below prescribed objectives. Burngreave last exceeded the long-term NO₂ objective in 2019, but complied with others, whilst monitoring in Shiregreen & Brightside has complied over the last five years.

With regard to current monitoring sites within the North East Local Area Committee wards, please find below the observed annual concentrations for the last five years for NO₂:

Location	Ward	Monitoring type	2018 ug/m3	2019 ug/m3	2020 ug/m3	2021 ug/m3
Orphanage Road / Barnsley Road	Burngreave	Diffusion Tube	48.0 NR(41.8)	47.0 NR(45.2)	38.0 NR(32.8)	37.4 NR(32.2)
Spital Hill	Burngreave	Diffusion Tube	57.0	63.0	48.3	48.7
Owler Lane / Firth Park Road	Burngreave	Diffusion Tube	45.0 NR(34.6)	48.0 NR(41.9)	39.3	37.4 NR(31.4)
Rutland Road / Pitsmoor Road	Burngreave	Diffusion Tube			37.5 NR(32.8)	38.3
Astrea Academy / Andover Street	Burngreave	Diffusion Tube			19.0	18.1
Herries Road / Barnsley Road	Burngreave	Diffusion Tube			47.5	50.0
Toll House Burn Greave Road	Burngreave	Diffusion Tube				30.5
73 Burngreave Road	Burngreave	Diffusion Tube	40.0	39.0	33.9	37.0
Attercliffe Road (Tesco)	Burngreave	Diffusion Tube	37.0	42.0	33.6	35.4
Savile Street East (Gripple)	Burngreave	Diffusion Tube	31.0	34.0	26.4	26.4
Parkwood Springs Health Viewpoint	Burngreave	Diffusion Tube			17.0	14.0

Rutland Road	Burngreave	Diffusion Tube			38.0	37.6
Longley Avenue West	Burngreave	Diffusion Tube			13.8	13.7
Shirecliffe Road	Burngreave	Diffusion Tube			21.1	22.7
Upwell Street	Shiregreen & Brightside	Diffusion Tube	35.0	38.0	32.9	33.6
Meadowhall Road	Shiregreen & Brightside	Diffusion Tube	28.0	27.0	20.6	21.8
Brightside Lane (Jenkin Road)	Shiregreen & Brightside	Diffusion Tube	49.0	56.0	44.0*1 NR(36.1)	45.7* 1 NR(37.4)
Meadowhall Road (M1 34N)	Shiregreen & Brightside	Diffusion Tube	53.0	54.0	40.0	42.1
UKA00622 (Barnsley Road) (AURN)	Burngreave	Real-time Monitor	37.0	38.0	32.0	35.0

**1 Relevant Population exposure introduced at this location in 2020*

For the purposes of the LAQM regime, where concentrations are close to/exceed long-term health related objectives (40ug/m³ annual mean), the exposure at the nearest relevant population exposure is calculated, in accordance with guidance for long term objectives in residential properties. Locations within the table without nearest receptor figures have not been corrected because these monitoring sites do not meet the requirements for demonstrating long-term population exposure for LAQM. Prior to and including 2019, all but two sites were compliant with long-term objectives. These sites were Orphanage Road and Owler Lane, though these have fallen into compliance since the pandemic. Therefore, all sites have been compliant since 2019.

All monitoring sites are used to indicate whether the short-term objectives (60ug/m³ annual mean) are exceeded, which shows total compliance at all but one site over the last five years. The one site that showed exceedance was at Spital Hill, which occurred in 2019, though pre and post 2019 concentrations have been compliant, which indicates that this year was an outlier.

Within the boundaries of the North East Local Areas Committee, there is also a real-time monitor on Barnsley Road (A6137), at which PM_{2.5} concentrations are monitored. The monitored concentrations over the last 5 years were:

Location	Monitoring type	2018 ug/m ³	2019 ug/m ³	2020 ug/m ³	2021 ug/m ³
UKA00622 (Barnsley Road) (AURN)	Real-time Monitor		14.5	9.0	8.0

For the purposes of PM2.5, the current limit is 25ug/m3 for the annual average, though there is a review of this current limit value, with consultations in 2022 suggesting alignment with the pre 2021 World Health Organisation limit of 10ug/m3. As such, concentrations in 2019, 2020 and 2021 were compliant with the current objective, and over the last two years concentrations have been below 10ug/m3.

According to the data, all sites currently comply with long-term and short-term objectives and have done for the last three years. Concentration trends were showing a steady fall prior to 2019, with concentration increases observed citywide in 2019 as a result of outlying weather that year. Large concentration reductions occurred in 2020 due to pandemic measures, followed by a steady increase in 2021 as pandemic measures were removed.

The increases for concentration within the boundaries of the North East Local Area Committee monitoring sites over 2021 are reflective of the citywide picture as well of those nationally.

Concentrations in 2021 at these locations comply with health-related objectives and it is noted that concentrations remain below pre-pandemic levels, which aligns with the pre-pandemic trend of continued improvement.

With regard to the National Compliance regime, which includes the Clean Air Zone work, modelling was carried out for the entirety of the city to determine appropriate measures to meet EU compliance. In order to achieve EU compliance, modelled concentrations of NO₂ had to be 40ug/m3 or below at a four-metre distance from the roadside. This modelling exercise determined the boundary of the CAZ, taking into account the consideration of displacement impact. A 2017 base model was created and verified against 2017 monitoring data across the district to give the Council confidence in future predicted outputs. From the North East Local Areas Committee monitoring sites that are presented above, three locations met EU prescribed monitoring criteria for validating the model, which were Orphanage Road, Upwell Street and Attercliffe Road (Tesco) monitoring sites. Once the base model validation was complete, future scenario modelling was conducted to determine predicted concentrations at 4m along this link. According to the modelling exercise, even though the areas of Burngreave, Firth Park, Shiregreen and Brighside and Southey are not included in the CAZ, the model shows that the proposed type and boundary of CAZ is estimated to have a positive impact in the areas with concentrations improving along main A-roads above that of what would be expected from a “business as usual” scenario. The concentration difference between the 2022 modelled outputs and those observed by our 2022 monitor occur because concentrations for EU compliance are taken at 4m from the road, whereas the monitoring location is in closer proximity to the roadside.

Location	Census_ID	X at 4m	Y at 4m	Nr 1517 2022 Buisness as Usual NO2	Nr 1548 2023 Preferred Option NO2
Orphanage Road / Barnsley Road	n/a	435789	389592	37.2	33.2
Upwell Street	7817	437701	390085	25.7	24.1
Attercliffe Road (Tesco)	56863	436322	388232	27.7	23.9

The impact of the CAZ will be closely monitored by Sheffield City Council and national Government to determine the real-world impact of the CAZ.

Notwithstanding the above, the Council accepts that whilst the Clean Air Zone meets the minimum legal requirements outlined in the ministerial direction to meet compliance with the national regime, as part of our LAQM regime function, further works are needed to continue to improve air quality across the city including the areas of Burngreave, Firth Park, Shiregreen and Brightside and Southey, not just for NO₂ but for also for particulate matter. Given that there is no 'safe' level of air pollution, we are beginning a review of the Clean Air Strategy and Council Action Plan to ensure they meet local needs and future demands. As part of this process, we will be seeking input from stakeholders, to ensure that the policies have local support and are fit for purpose.

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