

West Suffolk Council Air Quality Action Plan (2024 – 2029)

Great Barton Air Quality Management Area

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

December 2023



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Executive summary

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the action we will take to improve air quality in Great Barton between 2023 and 2028. This action plan replaces the previous action plan which ran from 2018 to 2022.

Projects delivered through the past action plan include:

- Moving location of pedestrian crossing on A143 in Great Barton to reduce queuing through the AQMA.
- Education and engagement with local schools through anti-idling campaigns and anti-idling events.

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas^{1,2}.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³. West Suffolk Council is committed to reducing the exposure of people in Great Barton to poor air quality in order to improve health.

We have developed actions that can be considered under three broad topics:

- Freight and Delivery Management
- Public Information
- Traffic Management

Our priorities are to ensure the air quality objectives continue to be met within the Great Barton AQMA. We will conduct a feasibility assessment of highways and traffic management improvements. This could include, but is not limited to, modelling to assess traffic in Great Barton, possible re-routing of HGVs, and a reduction in the speed limit. All of these measures would be subject to public consultation and securing funding.



In this AQAP we outline how we plan to effectively tackle air quality issues within our control. However, we recognise that there are a large number of air quality policy areas that are outside of our influence (such as vehicle emissions standards agreed in Europe), but for which we may have useful evidence, and so we will continue to work with regional and central government on policies and issues beyond West Suffolk Council's direct influence.

Responsibilities and commitment

This AQAP was prepared by the Environment and Energy Team of West Suffolk Council, with the assistance of Environmental Protection Strategies (EPS) Ltd, and agreement of the following officers and departments:

This AQAP will be signed off by a Director of Environmental Health, following public consultation.

This AQAP will be subject to an annual review, appraisal of progress and reporting to the West Suffolk Environment and Sustainability Reference Group. Progress each year will be reported in the Annual Status Reports (ASRs) produced by West Suffolk Council, as part of our statutory Local Air Quality Management duties.

If you have any comments on this AQAP, please send them to the Environment and **Energy Team at:**

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Introduction

This report outlines the actions that West Suffolk Council will deliver between 2024 and 2029 in order to reduce concentrations of air pollutants and exposure to air pollution; thereby positively impacting on the health and quality of life of residents and visitors to Great Barton.

It has been developed in recognition of the legal requirement on the local authority to work towards Air Quality Strategy (AQS) objectives under Part IV of the Environment Act 1995 and relevant regulations made under that part and to meet the requirements of the Local Air Quality Management (LAQM) statutory process.

This Plan will be reviewed every five years at the latest and progress on measures set out within this Plan will be reported on annually within West Suffolk Council's air quality ASR.



Summary of current air quality in the Great Barton air quality management area

Great Barton is a village approximately 4km northeast of the centre of Bury St Edmunds, West Suffolk's largest town. The A143 cuts through the centre of Great Barton which is the main road linking Bury St Edmunds to a number of rural areas and south Norfolk towns including Diss and Great Yarmouth. The A143 is a designated Strategic Lorry Route in the Suffolk Recommended Lorry Route Network (Recommended Lorry Route Network Map - Suffolk County Council).

Monitoring of nitrogen dioxide (NO₂) using diffusion tubes along the A143 in Great Barton has taken place since 2007. Exceedances have been recorded throughout that time and an AQMA was previously in place from 2009 and later revoked in 2012 on the basis of legal advice received at that time. The AQMA was reinstated after a review following the publication of national guidance in April 2016, with formal redeclaration on 18th April 2017. Current monitoring locations and the extent of the AQMA are shown in figures on the following pages.

The AQMA is limited in size, comprising only numbers 1 to 8 The Street and Gatehouse Cottage in Great Barton. These properties are primarily the only dwellings in Great Barton where the buildings having a roadside frontage, with most other dwellings being generally set back from the road behind medium to large front gardens. Figure 1 and Figure 2 below show the location of the AQMA along with the monitoring points within Great Barton.

Opposite the AQMA, the road is bordered by a flint and brick wall, wooden fence and heavy vegetation which restrict dispersion of pollutants. Two minor roads also join the A143 just to the east of the AQMA, which causes disturbance of traffic flow and acceleration through the sensitive area. The pedestrian crossing and junctions are often especially busy during the school pick-up and drop-off period due to the proximity of the village school. Traffic also queues (during the afternoon peak period) through the village due to congestion at a junction 1.3km to the east of the village, adjacent to the Bunbury Arms. Flow is also disturbed by buses stopping at the nearby bus stops.



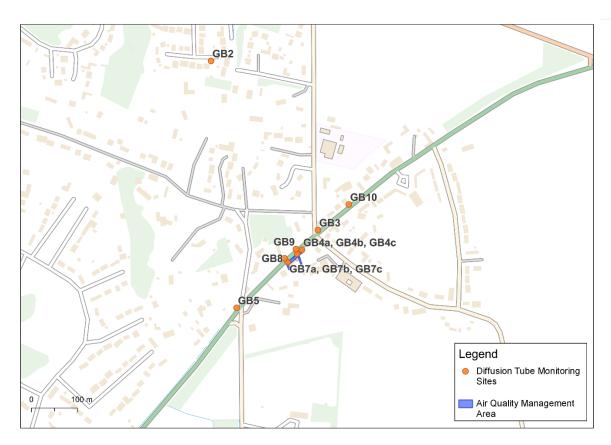


Figure 1 – Great Barton air quality monitoring points





Figure 2 – air quality management area and nearby air quality monitoring points



The most recent annual mean values (bias adjusted) for nitrogen dioxide in 2022 at two key monitoring locations within the Great Barton AQMA are 34.5 micrograms per meters cubed (µg/m³) (at monitoring location GB6) and 33.4µg/m³ which are currently below the Air Quality Objective (AQO) of 40.0µg/m³. Although the current annual means are below the AQO, as detailed within Figure 3 and Table 1 below, the annual mean at both these sites has previously been above the AQO in 2018 and 2019.

As shown within Figure 3 and Table 1, the NO₂ concentration has fallen over the past few years, although this will be mainly caused by the COVID-19 pandemic and associated restrictions on movement, as well as some improvements in engine management and emissions reduction technology.

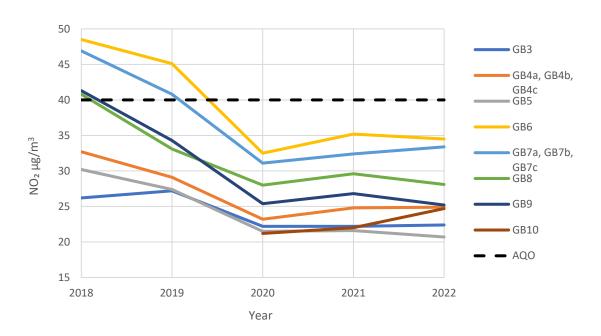


Figure 3 – annual mean nitrogen dioxide concentrations in Great Barton (2018 to 2022)

Table 1 – summary of A143 nitrogen dioxide (NO₂) monitoring between 2018 and 2022 (μ g/m³)

Site No.	Location	2017	2018	2019	2020	2021	2022
GB3	The Forge Bungalows	31.8	26.2	27.2	22.2	22.2	22.4



GB4 (triplicate)	Post Office (lamppost)	36.0	32.7	29.1	23.2	24.8	24.9
GB5	Church Road junction	32.2	30.2	27.4	21.5	21.6	20.7
GB6	Post Office (telegraph pole)	-	48.5	45.1	32.5	35.2	34.5
GB7 (triplicate)	The Drift, 8 The Street	_	46.9	40.8	31.1	32.4	33.4
GB8	Opposite AQMA 1	_	40.8	33.1	28.0	29.6	28.1
GB9	Opposite AQMA 2	_	41.3	34.3	25.4	26.8	25.2
GB10	Between Crossing and Garage	_	-	-	21.2	22.0	24.7

Exceedances of the NO2 annual mean objective of $40\mu g/m^3$ are shown in **bold**.

Traffic data from the Department for Transport, shows a slight increase in overall traffic volumes along the A143 over the last 5 years⁴.

Table 2 – Summary of traffic data for the A143 (count point 26704) from the department for transportⁱ – average number of vehicles per day

Year	Motor Cycles	Cars	Buses / Coaches	Light Goods Vehicles	Heavy Goods Vehicles	Total Motor Vehicles
2022	129	13567	56	2623	973	17348
2021	91	10188	41	2052	855	13227
2020	88	9316	34	1792	801	12032
2019	119	12757	54	2094	893	15917
2018	110	12729	54	2101	891	15886



West Suffolk Council's 2023 Annual Status Report (ASR) is available at: <u>Air Quality Annual Status Report (ASR) 2023 (westsuffolk.gov.uk)</u>

West Suffolk council's air quality priorities

1.1 Public health context

Local air quality is a clear public health issue and following a reform of public health services, local authorities now have a duty to carry out a public health function in relation to air quality. Local authorities therefore need to promote links with departments including public health, environmental protection, transport, planning and sustainability to raise awareness of the effect of air pollution on public health and to encourage local action to be taken. West Suffolk Council as part of the Suffolk Air Quality Group, is working with the Public Health division within the County Council on ways to better integrate and promote LAQM work across these disciplines as well as working with Suffolk County Council Travel Planners and district Planning Policy teams to ensure that air quality is appropriately considered and integrated into local travel plans and planning policy documents.

The Department for Health's Public Health Outcomes Framework includes an indicator related to air pollution on the "fraction of mortality attributable to Particulate air pollution", broken down by local authority. In West Suffolk this fraction was reported as 5.47% which is slightly lower than the English average of 5.50%⁵. Actions that are considered to reduce road traffic related emissions of NO₂ are also likely to address emissions of particulates thus contributing to an improvement in this indicator.

1.2 Planning and policy context

The West Suffolk Joint Development Management Policy Document was adopted in 2015. Planning Policy documents can be found at: West Suffolk Local Plan

Policy DM14 of the Joint Development Management Policy Document states:



"Proposals for all new developments should minimise all emissions and other forms of pollution (including light and noise pollution) and ensure no deterioration to either air or water quality."

Traffic and therefore air quality in Great Barton is impacted by growth both from within and outside the district, as the A143 is a major through-road. By way of example, there have been multiple recent housing developments in the Thurston and Elmswell area of Mid Suffolk. There is also a development of 1,400 homes with planning permission between Bury St Edmunds and Great Barton, directly adjacent to the A143.

The cumulative impact of approved and proposed development in the area is forecast to adversely impact the air quality in the Great Barton AQMA, to the extent that it will exceed the objective for nitrogen dioxide. These developments also include the approved animal feed mill (DC/22/1294/FUL) and proposed Shepherds Grove industrial estate developments (DC/22/2190/HYB and DC/23/1154/OUT).

1.3 Source apportionment

The AQAP measures presented in this report are intended to be targeted towards the predominant sources of emissions within the Great Barton Air Quality Management Area.

In order to develop appropriate measures to improve air quality along the A143 in Great Barton and inform the Action Plan, it is useful to identify the sources contributing to the AQO exceedances within the area. The source apportionment within this section has been quantified in terms of the amount of pollutants released into the atmosphere from each vehicle source.

A source apportionment exercise was carried out accounting for different proportions of emissions emitted by different vehicle types on the A143 within Great Barton, where the NO₂ objective has previously been exceeded. The emission proportions have been calculated using the Emission Factor Toolkit (EFT Version 12.0.1 available at: Emissions Factors Toolkit | LAQM (defra.gov.uk)). Traffic data from the Department for Transport's Road Traffic Statistics for Count Point 26704 has been used (data within Table 1). The following categories have been included in the source apportionment exercise:



- Motorbikes
- Cars
- Light Goods Vehicles (LGVs)
- Heavy Goods Vehicles (HGVs)
- Buses and Coaches

Table 3 – source apportionment by vehicle type

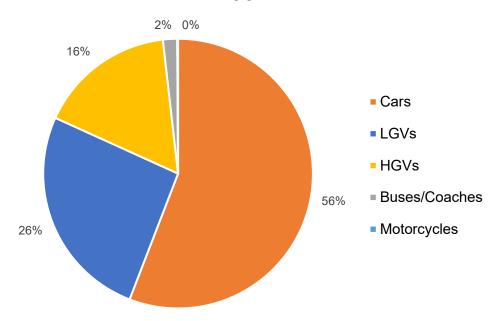
	Motorcycles	Cars	Buses / Coaches	Light Goods Vehicles	Heavy Goods Vehicles
Volume of traffic (%)	0.8	78.2	0.3	15.1	5.6
Roadside NO _x contribution (%)	0.1	55.8	1.7	25.9	16.4

Figure 4 shows the percentage contributions of each vehicle type to total predicted NO_x emissions from the road. The largest proportion is contributed by cars, followed by LGVs and HGVs.

Figure 4 – percentage contributions of different sources to total predicted NO_x Road Emissions in 2022 on the A143



Source Apportionment



1.4 Required reduction in emissions

The improvement in road NO_x emissions in order to meet the national air quality objective at monitoring sites GB6 and triplicate monitoring site GB7a, GB7b, and GB7c, where measured concentrations exceeded the objective in 2019, is shown in Table 3.

The LAQM Technical Guidance TG22 (Chapter 7) outlines that any required percentage reductions of local emissions should be expressed in terms of NO_x as the primary emission from vehicles is NO_x and there is a non-linear relationship between NO_x concentrations and NO₂ concentrations.

Table 3 demonstrates that a 15.9% decrease in road NO_x is required to meet the objective at monitoring site GB6 and a 3.0% decrease in road NO_x is required at monitoring sites GB7a, GB7b and GB7c to meet the objective.



Table 4 – percentage decrease in road NOx required to meet Annual mean NO₂ objective at local monitoring sites (μg/m³) in 2019

	Annı	ıal Mean Contı	ribution (µg/m³	·)	%
Receptor	Measured NO ₂	Background NO _x	Background NO ₂	Road NO _x	in Road NO _x to Meet Objective
GB6	45.1	23.6	8.35	76.5	15.9
GB7a, GB7b, GB7c	40.8	23.6	8.35	66.2	3.0
Concentration required to meet the AQO	40.0	-	-	64.3	_

Although no exceedances of the NO₂ objective occurred in 2022, detailed dispersion modelling has indicated the potential for future exceedances of the AQO following the construction of nearby developments.

1.5 Key priorities

The only significant source of air pollution within this AQMA is the traffic travelling along the A143, with cars contributing 55% of this pollution and HGVs contributing 16% whilst making up 5% of the overall traffic flow. Moreover, LGVs are contributing almost 26% of total predicted NO_x emissions in this area while making up 15% of the traffic volume.

Priority 1: Reducing the number of HGVs and LGVs travelling through the Great Barton AQMA appears to be the most effective solution to reduce the pollution concentrations, as these are more easily targetable through planning conditions and changes to road infrastructure.



It is apparent that the local circumstances of the AQMA contribute significantly to the increased pollution, as monitoring locations on the A143 outside the AQMA are noticeably lower as indicated within Table 1.

- **Priority 2:** Measures to improve the flow of traffic through Great Barton, to reduce idling, braking, and accelerating within the AQMA.
- **Priority 3:** Ensure new developments contribute to air quality actions with measures to improve efficiency and minimise emissions as much as possible.

The provision of a Great Barton bypass would potentially improve the air quality issues within the village. However, it is recognised that this would constitute a multi-million-pound investment and that the funding is not currently available and is unlikely to become available as a result of inclusion within this Air Quality Action Plan. West Suffolk Council recognise that action on more achievable measures is considered appropriate.

Development and implementation of West Suffolk council's air quality action plan

1.6 Consultation and stakeholder engagement

In developing/updating this AQAP, we have worked with other local authorities, agencies, businesses and the local community to improve local air quality. Schedule 11 of the Environment Act 1995 requires local authorities to consult the bodies listed in Table 5. In addition, we have undertaken the following stakeholder engagement:

- Website
- Mailed letters distributed directly to households along the AQMA road including a copy of the draft AQAP.
- Social media announcements.

Following the consultation, the response will be in Appendix a: response to consultation.



Table 5 - Planned consultation

Consultation	Consultee
Yes	The Secretary of State
Yes	The Environment Agency
Yes	The highways authority
Yes	All neighbouring local authorities
Yes	Public Health officials
Yes	Bodies representing local business interests and other organisations as appropriate

1.7 Steering group

A Steering Group was formed in order to develop and deliver the Air Quality Action Plan update for Great Barton. The Steering Group is composed of West Suffolk Council and Suffolk County Council officers from key service areas that can influence and impact air quality improvements. The Steering Group is led by West Suffolk Council's Director of HR, Governance and Regulatory to ensure engagement at political and senior management levels across the Council and with external partners continues.

Up to the publication of the public consultation draft, one Steering Group meeting has been held on 12th December 2023. In addition, a separate meeting was held on 11th December 2023 with Suffolk County Council Highways, who were unable to attend the first Steering Group meeting. A second Steering Group meeting is planned to be held on 24th January 2024 following the public consultation.

The Steering Group was attended with representatives from:

Local Councillors



- o Regulatory Services Portfolio Holder
- Two ward members for the Fornhams and Great Barton
- Environment Agency
- WSC Regulatory Services
- WSC Communications
- WSC Policy, Projects and Performance
- WSC Planning

Representatives from the Great Barton Church of England Primary Academy, Great Barton parish council leader, National Highways, Suffolk County Council public health, and Suffolk County Council planning were also invited to the steering group, but could not attend.

The meeting involved setting out the background to the air quality issue in Great Barton, the process of drafting the Action Plan, and assessed the proposed action measures within Great Barton and how different Council departments may assist in the implementation of measures within this Action Plan.

The Steering Group will continue to be fully involved, and consulted on as the process continues, through comment on this draft report following a wider consultation. Once the Action Plan has been adopted, the steering group will meet once a year (with 6-monthly email updates) to discuss progress on actions, set out actions for the coming year and review the Annual Status Report.



Air quality action plan measures

Table 6 shows the West Suffolk Council AQAP measures. It contains:

- a list of the actions that form part of the plan
- the responsible individual and departments/organisations who will deliver this action
- estimated cost of implementing each action (overall cost and cost to the local authority)
- expected benefit in terms of pollutant emission and/or concentration reduction
- the timescale for implementation
- · how progress will be monitored

NB: Please see future ASRs for regular annual updates on implementation of these measures



Table 6 – air quality action plan measures

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
1	Traffic management feasibility assessment	Traffic Management	Strategic highway improvements, reduction of speed limits	2024	December 2024	WSC Regulatory Services, Suffolk County Council Highways	West Suffolk Council Regulatory Services	No	Fully funded	£5k - £10k	Planning	Lower NO _x emissions in AQMA and public health benefits	Report finalised and been through public consultation by December 2024	Currently in planning phase with measures including traffic modelling, the possibility of re-routing HGVs and speed limit reduction.	
2	Implement Traffic management improvements	Traffic Management	Strategic highway improvements, reduction of speed limits	2025	2029	WSC Regulatory Services, Suffolk County Council Highways	May include developer contributions and Defra AQ Grant	Yes	Not Funded	£50k-£100k	Planning	Lower NO _x emissions in AQMA	Reduced readings of NO _x at the Great Barton AQMA	Planning stage- this requires the feasibility report to be completed, then assessed and consulted on before any potential traffic management changes are considered.	Not yet funded
3	Engage commercial vehicle drivers about local air quality	Public Information	Via other mechanisms	2024	Ongoing	WSC Regulatory Services, WSC Planning	West Suffolk Council Regulatory Services	No	Not Funded	£3k-£5k	Planning	Lower NO _x emissions in AQMA	Reduced readings of NO _x at the Great Barton AQMA	In planning phase - engagement with commercial drivers operating in the district. Particularly around the importance of allowing engines to 'warm-up' prior to leaving industrial estates.	Can be difficult to engage companies and commercial drivers.
4	Reducing emissions from new commercial developments	Freight and Delivery Management	Other	2024	Ongoing	WSC Regulatory Services, WSC Planning	Individual Developer funded	No	Not Funded	£0	Implemen tation	Lower NO _x emissions in AQMA	Reduced readings of NO _x at the Great Barton AQMA	Low emission strategies to be submitted with all commercial development planning applications that could impact on the AQMA. To include measures	



Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
														such as: HGVs/LGVs	
														not leaving new	
														developments within	
														peak period, and	
														developing workforce	
														travel plans.	
														Implementation of this	
														is already underway	
														with low emission	
														strategies being	
														requested for two	
														developments with	
														planning references:	
														DC/22/2190/HYB and	
														DC/23/1154/OUT.	



Appendix a: response to consultation (this will be updated after the public consultation)

Table a.1 – summary of responses to consultation and stakeholder engagement on the air quality action plan

Consultee	Category	Response



Appendix b: reasons for not pursuing action plan measures (this will be updated after the public consultation)

Table b.1 – action plan measures not pursued and the reasons for that decision

Action category	Action description	Reason action is not being pursued (including Stakeholder views)



Glossary of terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values.
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQS	Air Quality Strategy
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
EPS	Environmental Protection Strategies Ltd
EU	European Union
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less.
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5μm or less.



SCC	Suffolk County Council
WSC	West Suffolk Council



References

- ¹Environmental equity, air quality, socioeconomic status and respiratory health, 2010
- ² Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
- ³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013
- ⁴ www.dft.gov.uk/traffic-counts/
- ⁵ <u>Public health outcomes framework summary</u>

West Suffolk Council Air Quality Action Plan - 2023