

Forest Heath District and St Edmundsbury Borough councils

Forest Heath & St Edmundsbury councils



2018 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the
Environment Act 1995
Local Air Quality Management

June 2018

Forest Heath District and St Edmundsbury Borough councils

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Executive Summary: Air Quality in Our Area

Air Quality in West Suffolk

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 is Forest Heath District Council (FHDC) and St Edmundsbury Borough Council (SEBC) working together, although the two existing councils will cease to exist and a new single West Suffolk council will be created in April 2019. The area is a mix of market towns (Brandon, Bury St Edmunds, Haverhill, Mildenhall and Newmarket) and more rural village communities. The regionally important strategic road links of the A11 and A14 also cross the area.

The main source of pollution in the area is road traffic and this is generally worst in the market towns. We monitor for the pollutant Nitrogen Dioxide, which is considered the main pollutant of concern for road vehicles and is particularly linked to Heavy Goods Vehicles (HGVs) and diesels. Consequently, the majority of our monitoring is adjacent to busy roads within our market towns.

Other pollutants, such as particulates, sulphur dioxide and carbon monoxide, have been considered and assessed historically and confirmed as not being at risk of exceeding their respective air quality objectives.

Air quality in West Suffolk is generally good and continuing to show long term improvement at monitored locations throughout the area. However, the importance of continuing to improve the local air quality is at a higher profile than ever before.

¹ Environmental 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

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Each town within the area has its own unique air quality issues and these are summarised below. There is also significant monitoring in the village of Great Barton which is also discussed below:

- **Brandon** continues to show gradual long term improvement in air quality although the levels of traffic travelling through the town on the A1065 are still a concern to the residents and their representatives. None of the monitor locations failed the national set air quality objectives.
- **Bury St Edmunds** is the only town in West Suffolk to show exceedances of the air quality objective for Nitrogen Dioxide. Exceedances were recorded along Sicklesmere Road (A134) to the south of the town. This was the third year running that exceedances were recorded on Sicklesmere Road and, as recommended in our 2017 ASR, an Air Quality Management Area (AQMA) has been declared here. A long term solution is available for Sicklesmere Road in the form of a relief road associated with the South East Bury strategic growth area; however, we still consider it prudent to declare an AQMA to ensure that procedures are in place should the development be delayed or postponed for any reason and short term solutions can be considered.
- **Great Barton** is a village to the north east of Bury St Edmunds with a main road (A143) cutting through it. A row of cottages either side of, and including, the Post Office are situated close to this road. An AQMA was in place between 2009 and 2012 when it was revoked on a technicality. It was re-declared in April 2017 and remains in place. West Suffolk are publishing the action plan for this AQMA in parallel with this report, following three steering group meetings since the declaration. For detailed actions relating to the Great Barton Action plan, please see the main section of the report. Recorded levels of Nitrogen Dioxide pollution in 2016 were slightly below the annual mean objective but new, better positioned, monitoring commenced in January 2018 and indicates that the objective is still being breached.
- **Haverhill** monitoring continues to show compliance with the annual air quality objectives in all locations. The main area of concern is Withersfield Road (A1307) where levels have been close to the objectives in recent years. A north west Haverhill relief road has planning permission linked to a strategic housing site. The relief road must be finished within 5 years of the

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commencement of the strategic housing development, which commenced in March 2018 and will therefore be delivered by March 2023 at the latest.

- **Mildenhall** continues to show concentrations of pollutants within the air quality objective levels, however, the site at Kingsway (MLD3) doesn't fit the long term trend of declining pollution levels, with 2017 monitoring being the highest concentration recorded since 2012.
- **Newmarket** has shown steady air quality improvements since the declaration of an AQMA along the High Street and Old Station Road in 2009. The AQMA was reduced in size to reflect this improvement in April 2017. The AQMA has been retained along Old Station Road due to insufficient confidence in the data along this road; however, further monitoring was added on Old Station Road at the beginning of 2016 and 2017 to rectify this data gap. None of the new locations have shown an exceedance of the air quality objectives. West Suffolk will consider revoking the AQMA if results from 2018 continue to show compliance with the objectives.

There remains local concern around vehicle idling in the taxi rank on the High Street. The West Suffolk Environment Team and the Licensing Team have both taken action to reduce this activity and the monitoring point at this location showed the greatest percentage drop from 2016 to 2017 in the Forest Heath District.

As most of the pollution within West Suffolk originates from road traffic, West Suffolk works closely with local Highway Authority, Suffolk County Council, who have a designated point of contact for air quality matters. We also work closely with the Local Planning Authority to ensure new developments are appropriately controlled and mitigation is provided where required.

Actions to Improve Air Quality

West Suffolk have produced an Air Quality Improvement Plan, which clearly lists the actions that West Suffolk are undertaking, planning to undertake, and aspire to undertake to tackle air quality. This document is included as Appendix F of this report and will be available on our website.

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Zero Emission Vehicles

West Suffolk councils have focused on campaigns to increase the awareness of zero emission electric vehicles throughout 2017, undertaking the following actions:

- **Electric Vehicle Show** – In August 2017 we held our second electric vehicle showcase in the Arc shopping centre in Bury St Edmunds.

The Arc is West Suffolk's most popular shopping centre; with a footfall of approximately 28,000 on the day West Suffolk staged the event. We showcased a variety of zero emission vehicles, including cars and vans, with the aim of changing people's preconceptions about electric vehicles and giving people the chance to discuss air quality with officers from the Council. Following the success of this event, we anticipate organising again for 2018.



- **Charge Point Installation** – We continue to provide EV charge points in our public car parks in Haverhill, Newmarket and Bury St Edmunds. We have also made a bid to OLEV for funding for On Street Charge point provision, as well as working on another funded scheme for rapid charge points in partnership with other Suffolk and Norfolk local authorities. We expect these schemes to be delivered in 2018.
- **Charge Points through Planning** – We continue to request charge points through the planning process on all major planning applications. This has now secured a number of charge points through planning conditions attached to

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residential and commercial applications, as well as publically accessible 'rapid' chargers in three separate applications in Bury St Edmunds and Newmarket.

Taxi Fleet Efficiency Improvements

A number of measures have been taken to improve the efficiency of the taxi fleet throughout West Suffolk including writing to all Hackney Carriage drivers in Forest Heath to remind them to not idle within the taxi ranks, together with an increased on street presence from the Licensing Team and the addition of unnecessary idling as an offence within the taxi drivers handbook. This has resulted in the monitoring point at the Newmarket taxi rank having the largest percentage decrease in concentrations of Nitrogen Dioxide in Forest Heath (9% reduction).

West Suffolk has also assisted in the development of targeted literature for taxi drivers promoting funding for Electric Vehicles. West Suffolk also provide grants for carbon reduction measures which we have promoted to taxi drivers with the added benefit of air quality improvements.



New Infrastructure

The Bury St Edmunds Eastern Relief Road (Rougham Tower Avenue) which will help to aid traffic congestion in the east of the town opened in October 2017.

Major strategic housing development sites, such as North West Haverhill (where development commenced in March 2018) and South East Bury St Edmunds will deliver relief roads which will ease areas of air quality concern in the medium term.

Conclusions and Priorities

Air Quality in West Suffolk remains largely good and the number of exceedances of the annual mean objective for Nitrogen Dioxide remains minimal. The action plan for the Great Barton AQMA is being published in parallel with this report whilst work on the action plan for the recently declared Sicklesmere Road AQMA will be commencing shortly.

The Newmarket AQMA action plan has not progressed, as monitoring continues to show compliance in this area and action is not required to reduce levels in the

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specific AQMA area. However, the Environment Team do, and will continue to, take action to reduce levels of pollution in Newmarket, as well as all other areas, through both general measures and focussed measures where these are available.

The councils will continue to work to improve the provisions for electric vehicles in West Suffolk in partnership with Suffolk County Council and private companies. The number of charge points in domestic, workplace and public settings is increasing due to measures taken by West Suffolk and will continue to significantly increase over the coming years. Further electric vehicle showcase events are planned for the future.

The continued growth in housing and business activity in West Suffolk will be the main challenge when tackling air quality in the area. Construction has begun on a number of strategic housing development sites throughout West Suffolk as well as the Suffolk Business Park. Managing the additional traffic from these developments over the coming years will be essential in ensuring the continued good air quality in West Suffolk.

We are committed to continuing to monitor the local air quality throughout West Suffolk and to identifying schemes that can provide potential improvements either at any of our areas of concern or on an area wide basis.

Local Engagement and How to get Involved

As an individual there are many actions that you can take to improve the air quality and reduce air pollution. This will improve the quality of life for everyone, including you and your family. Below are a few suggestions of how to get involved:

- Consider purchasing an electric vehicle; the costs are reducing and the technology and infrastructure are making this technology more practical for more people.
- Use your car less. Try to walk, cycle, and use the bus or train wherever possible. Conventionally fuelled cars are particularly polluting over short journeys, so aim to cut these out first.
- Reduce emissions from your car by ensuring it is regularly serviced and well maintained, ensure you only carry the weight you need, and you drive in a gentle, steady manner.
- Don't unnecessarily idle your vehicle's engine when parked.

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- When buying a traditionally fuelled vehicle consider the most fuel efficient petrol vehicle rather than buying a diesel vehicle.
- Encourage your employer, school or college to set up a Green Travel Plan.
- Car share, to reduce emissions and save money. See the Suffolk Car Share website for further details: www.SuffolkCarShare.com

There are no specific air quality campaign groups within West Suffolk, however, a number of local community groups have shown an interest in assisting to improve air quality in their areas and we are always happy to work with any organisation where air quality benefits are possible.

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1 Local Air Quality Management

This report provides an overview of air quality in West Suffolk (Forest Heath District Council and St Edmundsbury Borough Council administrative areas) during 2017. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by West Suffolk to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMA) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMA declared by West Suffolk councils can be found in Table 2.1. Further information related to declared or revoked AQMA, including maps of AQMA boundaries are available online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=105 for Forest Heath District Council and https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=255 for St Edmundsbury Borough Council Alternatively, see Appendix D: Map(s) of Monitoring Locations and AQMA, which provides for a map of air quality monitoring locations in relation to the AQMA.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)				Action Plan		
						At Declaration		Now		Name	Date of Publication	Link
Newmarket AQMA (2017 Variation)	Declared 6 April 2009, Amended 18 April 2017	NO2 Annual Mean	Newmarket	Old Station Road from the Clock Tower Roundabout to the Junction with Rous Road, Newmarket, Suffolk	NO	40 (2009 – Not at relevant location for annual mean objective)	µg/m3	29.8 (at Façade)	µg/m3	N/A	N/A	www.westsuffolk/airquality
Great Barton AQMA	Declared 11th May 2011 Revoked 1st January 2013 Declared 18th April 2017	NO2 Annual Mean	Great Barton	An area incorporating Gatehouse Cottage and 1 to 8 The Street (A143), in the Parish of Great Barton.	NO	48.2 (2011)	µg/m3	36 (2017) new locations from 2018 suggest parts of AQMA still much greater than 40	µg/m3	Action Plan for Great Barton AQMA	2018	
Sicklesmere Road, Bury St Edmunds, AQMA	Declared 13th April 2018	NO2 Annual Mean	Bury St Edmunds	2 and 7 Sicklesmere Road and 28 Southgate House, Rougham Road, in the Parish of Bury St Edmunds (Southgate Ward)	NO	44.7	µg/m3	44.7	µg/m3	TBA	TBA - Declaration only occurred in April 2018 - Report to be produced	

☒ West Suffolk councils confirm the information on UK-Air regarding their AQMA(s) is up to date

2.2 Progress and Impact of Measures to address Air Quality in West Suffolk

Defra's appraisal of last year's ASR concluded that the report was acceptable and that West Suffolk councils should continue monitoring and submit the next Annual Status Report in 2018 (this document).

Specific points were raised as follows:

- Defra confirmed that if exceedances of the Annual Mean Objective for Nitrogen Dioxide were recorded on Sicklesmere Road in Bury St Edmunds for a further year, the Council should proceed to declaring an AQMA. A further year of exceedance was recorded in 2017 and the Council subsequently declared the AQMA on the 13th April 2018.
- Given the results of monitoring within the Newmarket AQMA, Defra recommended that *"the Local Authority consider revoking the Newmarket AQMA, if 2017 monitoring results also demonstrate concentrations within the AQMA below 36 µg/m³".* The results for 2017 did demonstrate concentrations below 36 µg/m³, however, we consider that, due to local concerns, a further years data is gathered prior to consulting on the revocation of the AQMA so that robust evidence can be presented.
- Defra recommended that all the values presented in Table A.3 (Annual Mean NO₂ Monitoring Results for the last 5 years) should be distance adjusted to a relevant receptor. However, given that the data has been presented without wholesale distance adjustment since reporting began it would be appropriate to keep the figures as unadjusted when presenting the yearly trends to enable consistency and clarity. The matter is also confused by some monitoring points being in locations that are relevant to both the hourly and annual objective. Distance adjustment will be undertaken in Table B.1 and where it is important in assessing a sites exceedance, or otherwise, of the objective.

West Suffolk has taken forward a number of direct measures during the current reporting year of 2017 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

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More detail on these measures can be found in their respective Action Plans for the Great Barton AQMA and within the Air Quality Improvement Plan, included here as Appendix F. Key completed measures are:

- Continued promotion of zero emission Electric Vehicles (EVs) at an EV showcase event in the centre of Bury St Edmunds together with associated press and radio coverage.
- Securing of EV charge points through conditions on planning approvals for residential and commercial developments, including the securing of publically accessible rapid chargers at locations in both Bury St Edmunds and Newmarket.
- Opening of the Eastern Relief Road to relieve congestion and consequently improve air quality on the eastern side of Bury St Edmunds.
- Engagement with taxi drivers to reduce idling, especially in the Newmarket taxi rank, which has shown a 9% reduction in Nitrogen Dioxide levels from 2016 to 2017.

West Suffolk expects the following measures to be completed over the course of the next reporting year:

- Further promotion and enabling of zero emission EVs, including further EV showcases; the provision of a town centre rapid charger in Bury St Edmunds; as well as on street charging provision in a number of localities.
- Undertake campaigns to raise awareness of air quality issues, including an anti-idling campaign aimed primarily at schools.

West Suffolk's priorities for the coming year are to progress the actions associated with the Great Barton AQAP, develop an action plan for the newly created Sicklesmere Road AQMA and further promote and enable zero emission vehicles.

The principal challenges and barriers to implementation that West Suffolk anticipates facing is the lack of funding for the implementation of actions.

West Suffolk anticipates that many of the measures stated above and in Table 2.2 will help to achieve compliance in the AQMAs. However, West Suffolk anticipates that further additional measures not yet prescribed may be required in subsequent years to achieve compliance in Great Barton and Sicklesmere Road. The Newmarket AQMA

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already demonstrates compliance with the Air Quality Objective and a specific action plan has not therefore been developed, however, a number of the general measures will help to further reduce the levels of pollution in this area.

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Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Electric Vehicle Charging Points through Planning	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	West Suffolk	2016	Ongoing	Number of relevant planning applications with conditions successfully applied	Increase uptake of zero emission vehicles	Implemented and conditions being successfully imposed	Ongoing	A number of charge points have been secured through planning for residential and commercial developments, including a number of publically accessible rapid charge points
2	Electric Vehicle Charging Infrastructure on council owned land	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	West Suffolk/Babergh Mid Suffolk Highways England providing funding for Rapid chargers	Ongoing	Summer 2018	Number of additional charge points installed	Increase uptake of zero emission vehicles	Site identified for Rapid charger in Bury St Edmunds	2018	Norfolk/Suffolk wide project progressing and expected to be delivered in 2018
3	Electric Vehicle Charging Infrastructure on council owned land	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	West Suffolk	Ongoing	2017	Number of additional charge points installed	Increase uptake of zero emission vehicles	Fast chargers installed in Bury St Edmunds, Haverhill and Newmarket	2017	A number of chargers installed in 2017. Further locations being considered for 2018/2019
4	On Street electric vehicle charging infrastructure	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	West Suffolk	Ongoing	2018	Number of additional charge points installed	Increase uptake of zero emission vehicles	Application submitted to OLEV	2018	

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
5	Electric Vehicle Showcase	Promoting Low Emission Transport	Other	West Suffolk	2016 and Ongoing	2016 to ongoing	Increased uptake in electric vehicles	Increase uptake of zero emission vehicles	Showcase undertaken in 2016 & 2017	Ongoing	2018 event being planned
6	Business Grant Promotions for businesses to move to ULEV	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	West Suffolk and BEE Anglia	2016	ongoing	Increased uptake in electric vehicles	Increase uptake of zero emission vehicles	Specific marketing designed and distributed to taxi drivers - Awaiting first successful applicant	Ongoing	
7	New taxi licensing conditions making idling in a taxi rank or on the highway a penalty within the taxi handbook, with the potential for penalty points to be added to the drivers council licence.	Promoting Low Emission Transport	Taxi Licensing conditions	West Suffolk	2017	2017	Reduction in Nitrogen Dioxide at Taxi rank locations	10% reduction in pollution at taxi rank	9% reduction in taxi rank	Conditions implemented in 2017	
8	Anti idling campaigns	Public Information	Via other mechanisms	West Suffolk	2018	2018	Reduction in idling at key locations		Materials being prepared	Sept-18	

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
9	Eastern Relief Road (Rougham Tower Avenue), Bury St Edmunds	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	West Suffolk and Suffolk County Council	Completed	2016 / 2017	Road completed	Reduction in congestion	Road completed and open	Oct-17	
10	New High School	Traffic Management	Other	SEBC and Suffolk County Council	Completed	Completed	Reduced cross town travel during school drop-off and collection times	Reduction in congestion	Completed	Completed	
11	Eco driving courses for council staff	Vehicle Fleet Efficiency	Driver training and ECO driving aids	West Suffolk	Completed	Ongoing	Number of staff completing course	Reduced vehicle Emissions	Ongoing	Ongoing	
12	Promotion of better domestic solid fuel burning	Public Information	Via the Internet	West Suffolk	Completed	Ongoing	Lower emissions from private fuel burning (not measurable)		Promoted on West Suffolk website and via West Suffolk and Environmental Health Facebook pages	Ongoing	

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
13	South East Bury St Edmunds relief road	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	West Suffolk / Suffolk County Council and Developer	Ongoing	2022	Measured concentration in Nitrogen Dioxide on Sicklesmere Road	TBC closer to opening date	Awaiting planning permission to be granted	2023	Completion of road prior to 400 dwellings completed to be a condition of the planning approval
14	Haverhill north west relief road	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	West Suffolk / Suffolk County Council and Developer	Ongoing	2023	Measured concentration in Nitrogen Dioxide on Withersfield Road	TBC closer to opening date - likely in the region of 20%	Development commenced March 2018	2023	Condition of planning requires completion within 5 years of commencement of development
15	Great Barton AQAP - Moving of the pedestrian crossing	Traffic Management	UTC, Congestion management, traffic reduction	Suffolk County Council	2018	2019	Reductions in Concentrations to below the objective	Greater reduction in concentrations than at other monitoring location in Great Barton. Study to quantify reduction being commissioned.	Broad feasibility study carried out	2019	Planning condition on DC/17/1166/FUL requires the provision of crossing points linking the existing footways of The Street

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Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
16	Great Barton AQAP - Improvement of 'Bunbury Arms' junction to Thurston	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, inc Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	Suffolk County Council	2018-2020	2021	Monitoring of queues through Great Barton	To be confirmed.	Outline design completed	2021	Section 106 funding has been secured from developments in Thurston (within Mid Suffolk District Council). This will be the second scheme delivered through this funding.
17	Great Barton AQAP - Amendments to lorry restrictions on A1088	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	Suffolk County Council	Unknown	Unknown	Reduction in lorries using the A143	Approximately 1µg/m ³ reduction for every 100 HGVs diverted per day.	None	Unknown	HGV restrictions on the A1088 mean more HGV's use the A143. Investigations ongoing into the reasoning for and current applicability of the restrictions on the A1088. It is recognised that this measure would have a potential negative impact outside of West Suffolk jurisdiction and would require very careful consideration and environmental assessment.

2.3 PM_{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of PM_{2.5} (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM_{2.5} has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

West Suffolk is taking the following measures to address PM_{2.5}:

We do not have the facility to measure PM_{2.5}, but given the relatively low recorded levels of Nitrogen Dioxide and DEFRA modelled levels of PM₁₀ we do not expect PM_{2.5} to be above guideline levels. However we believe that many of the measures listed in Table 2.2, above, would contribute to a reduction in exposure to PM_{2.5}, especially the measures promoting the uptake of zero emission vehicles and the promotion of better domestic solid fuel burning. We will continue to consult with Suffolk County Council Public Health colleagues and be advised by them, and national guidance, on any relevant measures that will reduce exposure.

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

3.1 Summary of Monitoring Undertaken

This section sets out what monitoring has taken place and how it compares with objectives.

3.1.1 Automatic Monitoring Sites

West Suffolk does not undertake automatic (continuous) monitoring.

National monitoring results are available at <https://uk-air.defra.gov.uk/>.

3.1.2 Non-Automatic Monitoring Sites

West Suffolk councils undertook non- automatic (passive) monitoring of NO₂ at 58 sites during 2017. Table A.1 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix D.

Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. “annualisation” and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, “annualisation” and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

For diffusion tubes, the full 2017 dataset of monthly mean values is provided in Appendix B. All data on the below graphs is concentrations of Nitrogen Dioxide in µg/m³.

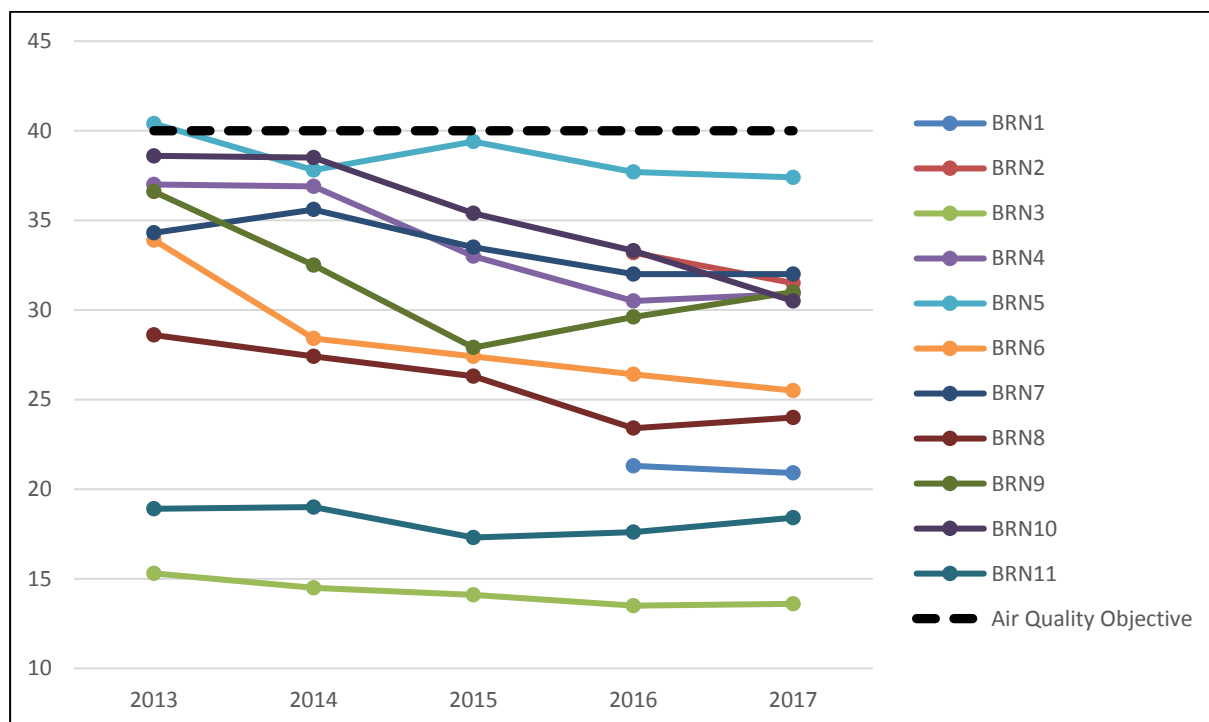
Brandon

Brandon continues to show gradual improvement in air quality as can be seen in Figure 1, below. All sites where monitoring has occurred over the last five years are

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recording lower concentrations of pollutants now than in 2013. This reduction in pollution has been more noticeable in some sites than others; for example BRN10 ('Boots', High Street) has dropped by $8.1\mu\text{g}/\text{m}^3$ or 21% over 5 years whilst BRN5 (52 London Road) has only dropped by $3.0\mu\text{g}/\text{m}^3$ or 7%. None of the monitoring locations have exceeded the annual mean objective since BRN5 (52 London Road) recorded a very slight exceedance of $40.4\mu\text{g}/\text{m}^3$ (compared to an objective of $40.0\mu\text{g}/\text{m}^3$) in 2013, although this is not at a relevant receptor location. BRN5 remains the highest recorded monitoring location in Brandon at $37.4\mu\text{g}/\text{m}^3$, with no other monitoring locations being above $32.0\mu\text{g}/\text{m}^3$. It is therefore not considered necessary to undertake a detailed assessment in Brandon.

Figure 1. Trends in Concentration of Air Pollution in Brandon (not adjusted to façade)



However, we are aware that there the residents of Brandon and their representatives are still concerned by the level of traffic using the A1065 through the town, especially the levels of Heavy Goods Vehicles (HGVs). Residents also have concerns about the air quality given the volume of traffic. Recent Suffolk County Council traffic monitoring has shown that a proportion of traffic has, since the dualling of the A11, shifted from the A1065 London Road to the B1106 Bury Road, but that traffic using the High Street has remained relatively stable. The same monitoring conclude that the majority of the HGV traffic coming to Brandon does so for business uses and is not through traffic. We have continued to engage where possible to further reduce

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the levels of pollution and have put up additional monitoring locations within Brandon following engagement during 2017.

Bury St Edmunds

Bury St Edmunds is the only town in West Suffolk to show exceedances of the annual mean air quality objective for Nitrogen Dioxide. Exceedances were recorded along Sicklesmere Road (A134) to the south of the town ($44.7\mu\text{g}/\text{m}^3$ - BSE1 at 2 Sicklesmere Road) which is within the newly declared AQMA.

All other locations were below the annual mean objective, although another 3 monitoring locations, including a second monitoring point within the Sicklesmere Road AQMA (BSE15) were within 10% of the objective. The other two sites, BSE6 (Kings Road Roundabout) and BSE9 (Fornham Road Tollgate) reduce to $34.4\mu\text{g}/\text{m}^3$ and $31.4\mu\text{g}/\text{m}^3$ respectively when distance adjusted to the nearest relevant receptor.

A number of new monitoring locations were introduced in 2015 and 2016 and a long term trend at these sites remains unclear given that only two or three years of data exists. However, where monitoring has been in place for at least 5 years, the trend does appear to be a slow reduction in concentrations of pollution.

No detailed assessment is considered necessary in Bury St Edmunds based on the 2017 monitoring results, although given the expected growth of Bury St Edmunds we will continue to undertake significant monitoring throughout the town.

Great Barton

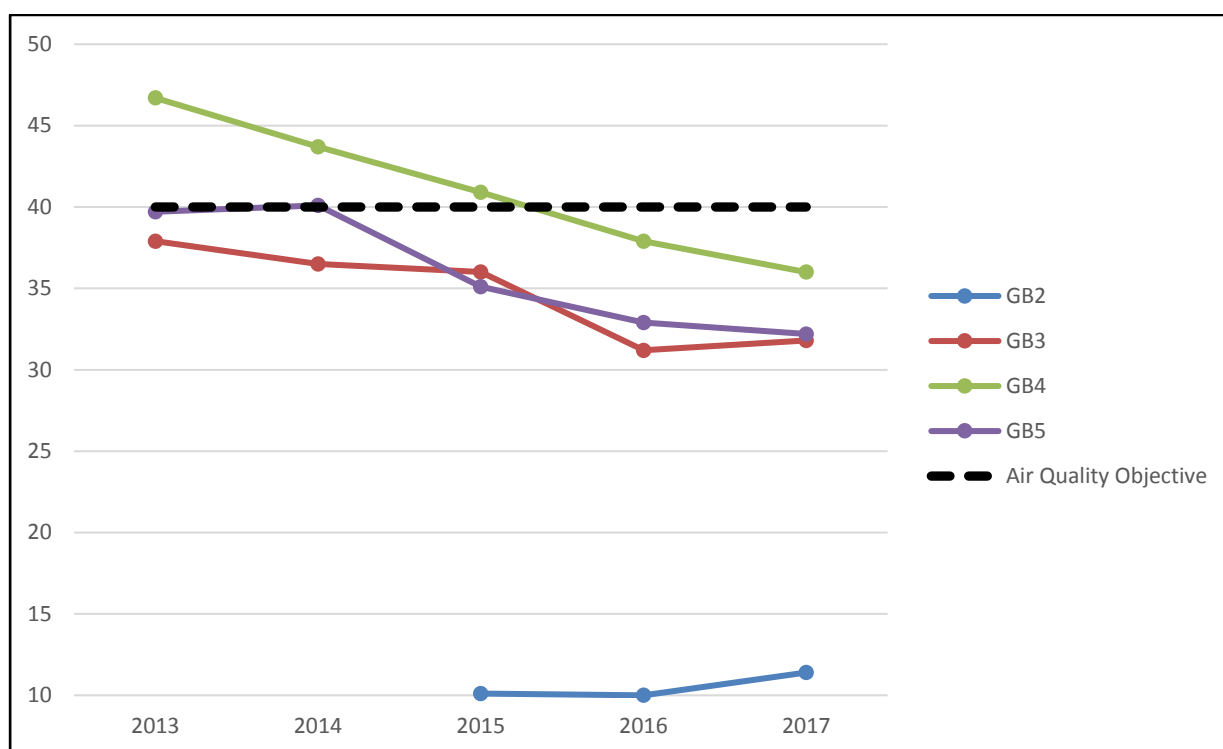
Significant monitoring continues in Great Barton along the main road (A143), which cuts through the village. A row of cottages either side of, and including, the Post Office are situated close to this road, in contrast to the majority of the housing in the village which is situated back from the main road. An AQMA was in place between 2009 and 2012 when it was revoked on a technicality. The AQMA was re-declared on the 18th April 2017 following a full review.

Monitoring in 2017 showed a continued reduction in recorded levels of Nitrogen Dioxide, with the levels at the AQMA (GB4) just below the annual mean objective for the second year, being $36.0\mu\text{g}/\text{m}^3$ in 2017. The reduction in concentrations of Nitrogen Dioxide at the AQMA has been significant and sustained, with a 23% reduction in the last 5 years at GB4.

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However, the monitoring point for the AQMA has always been just beyond the end of the row of cottages that comprise the AQMA and therefore two additional monitoring points have been introduced within the main body of the AQMA at the start of 2018. Preliminary data from these new monitoring points suggests that pollution levels within the main AQMA area are likely to be greater than the AQO of $40\mu\text{g}/\text{m}^3$. The status of the AQMA will be reassessed in 2019 when the data from the two new monitoring points is available.

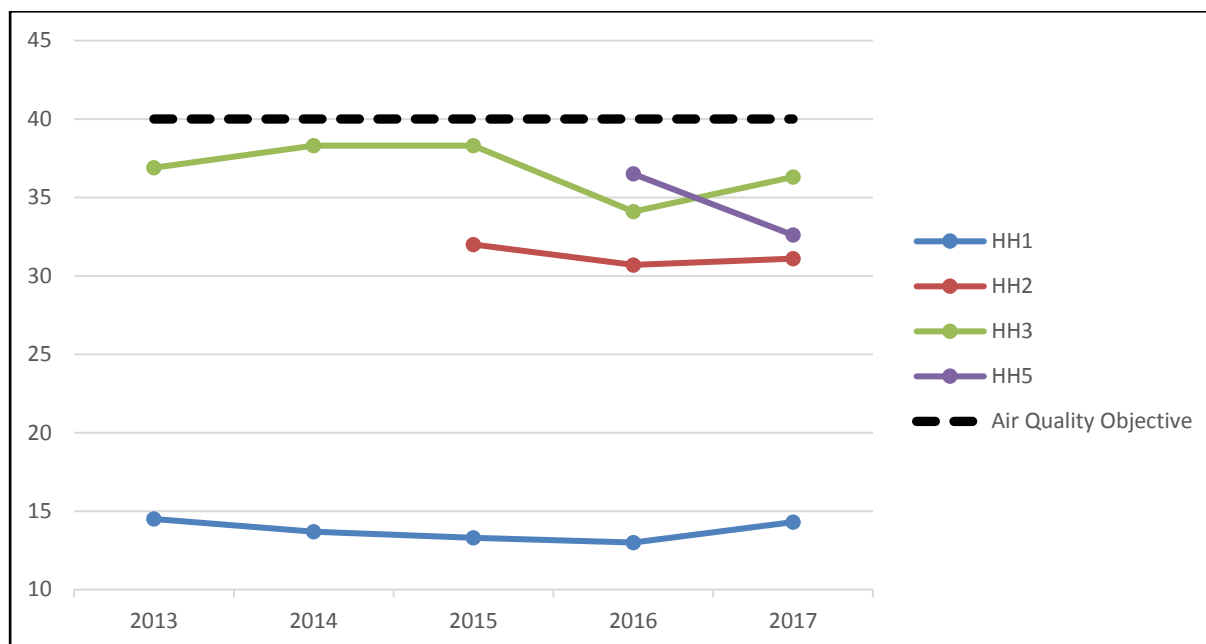
Figure 2 Trends in Concentration of Air Pollution in Great Barton (not adjusted to façade of buildings)



Haverhill

Monitoring in Haverhill continues to show compliance with the annual air quality objectives in all locations. The main area of concern is Withersfield Road (A1307) where levels have been close to the objectives in recent years with the highest recorded value of Nitrogen Dioxide being $36.3\mu\text{g}/\text{m}^3$ (HH3, 29 Withersfield Road). The long term monitoring at this location does not indicate a particular trend with levels fluctuating over the last 5 years.

Figure 3. Trends in Concentration of Air Pollution in Haverhill (not adjusted to façade of buildings).



A north west Haverhill relief road has planning permission linked to a strategic housing site. The relief road must be finished within 5 years of the commencement of the strategic housing development, which commenced in March 2018. The completion of the relief road is anticipated to significantly reduce the traffic, and therefore pollution levels on Withersfield Road.

As concentrations are below the objective and medium term improvements are expected, there is not considered the need for a detailed assessment in Haverhill.

Icklingham and Lakenheath

Monitoring in the villages of Icklingham and Lakenheath has recorded levels of nitrogen dioxide well within the objective levels. The concentrations recorded in Icklingham ($23.2\mu\text{g}/\text{m}^3$) were significantly below the AQO to confirm that no statutory problems exist and therefore monitoring will not be undertaken moving forward. Although monitoring in Lakenheath is also significantly below the AQO, monitoring will continue due to the potential for significant growth in the locality.

Mildenhall

Mildenhall continues to show concentrations of pollutants within the air quality objective levels, however, the site at Kingsway (MLD3) doesn't fit the long term trend of declining pollution levels that is apparent at many of the other locations throughout

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West Suffolk, with 2017 monitoring ($36.4\mu\text{g}/\text{m}^3$) being the highest concentration recorded since 2012. The other two monitoring locations in Mildenhall were both new in 2016 and both show a slight increase in 2017 when compared to 2016, although it is difficult to make any conclusions regarding the long term trend for these sites based on two years worth of data.

We will continue to monitor Mildenhall carefully and any further increase in concentrations of Nitrogen Dioxide may prompt the need for a detailed assessment.

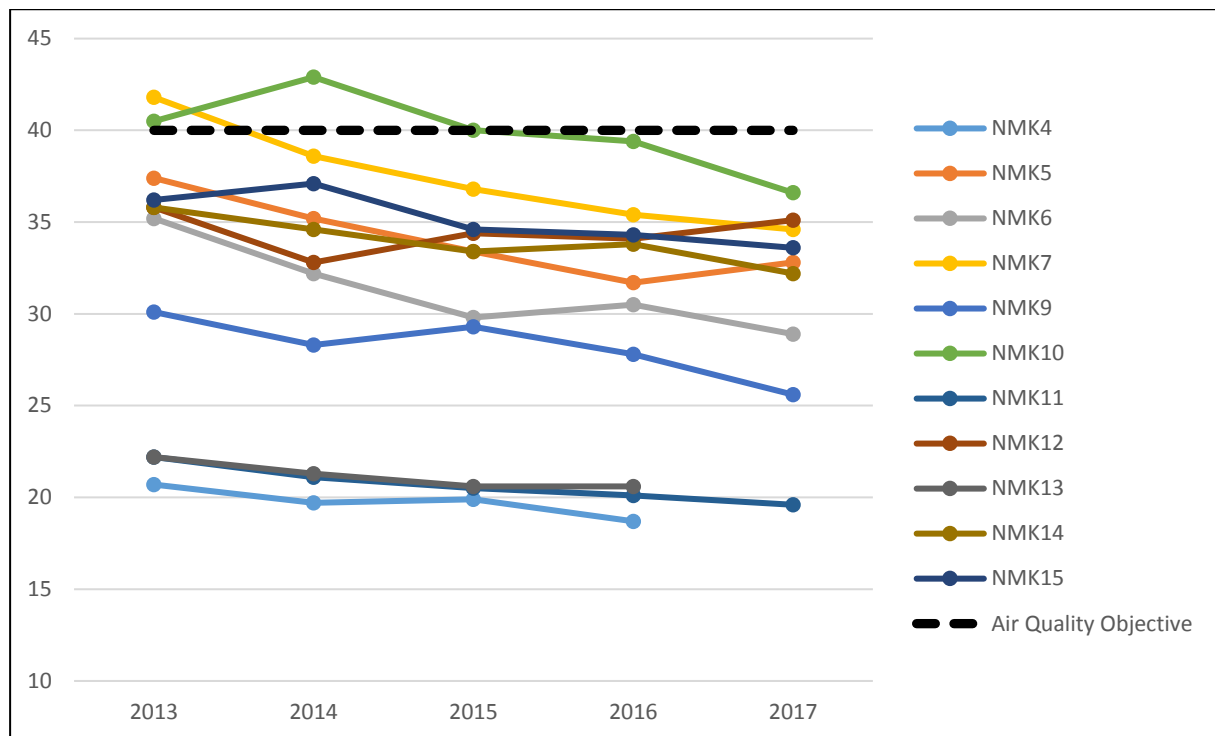
Newmarket Town Centre

Newmarket town centre has shown steady air quality improvements since the declaration of an AQMA along the High Street and Old Station Road in 2009 and the AQMA was reduced in size in April 2017 to reflect this improvement.

Following the changes to the AQMA, the High Street is no longer included within the boundaries of the AQMA. The steady reduction in pollution levels along the High Street can be seen in Figure 4 below. It should also be noted that many of these readings are taken at kerbside and would be relevant to the hourly objective, which is only considered when the annual mean is greater than $60\mu\text{g}/\text{m}^3$, whilst the annual mean of $40\mu\text{g}/\text{m}^3$ should only apply at the façade of residential properties. The recorded values have been 'distance adjusted' to the nearest façade and are provided in Appendix B for information. It should be noted that two of the monitoring locations with the lowest concentrations were relocated away from the High Street at the end of 2016.

NMK10, The Taxi Rank, has recorded a drop from $39.4\mu\text{g}/\text{m}^3$ to $36.6\mu\text{g}/\text{m}^3$ from 2016 to 2017, which represents a 9% reduction in Nitrogen Dioxide concentrations in one year. This is the greatest drop in concentrations within Forest Heath and may in part be attributable to the actions detailed in the previous sections.

Figure 4. Trends in Concentration of Air Pollution on Newmarket High Street (not adjusted to façade of buildings)

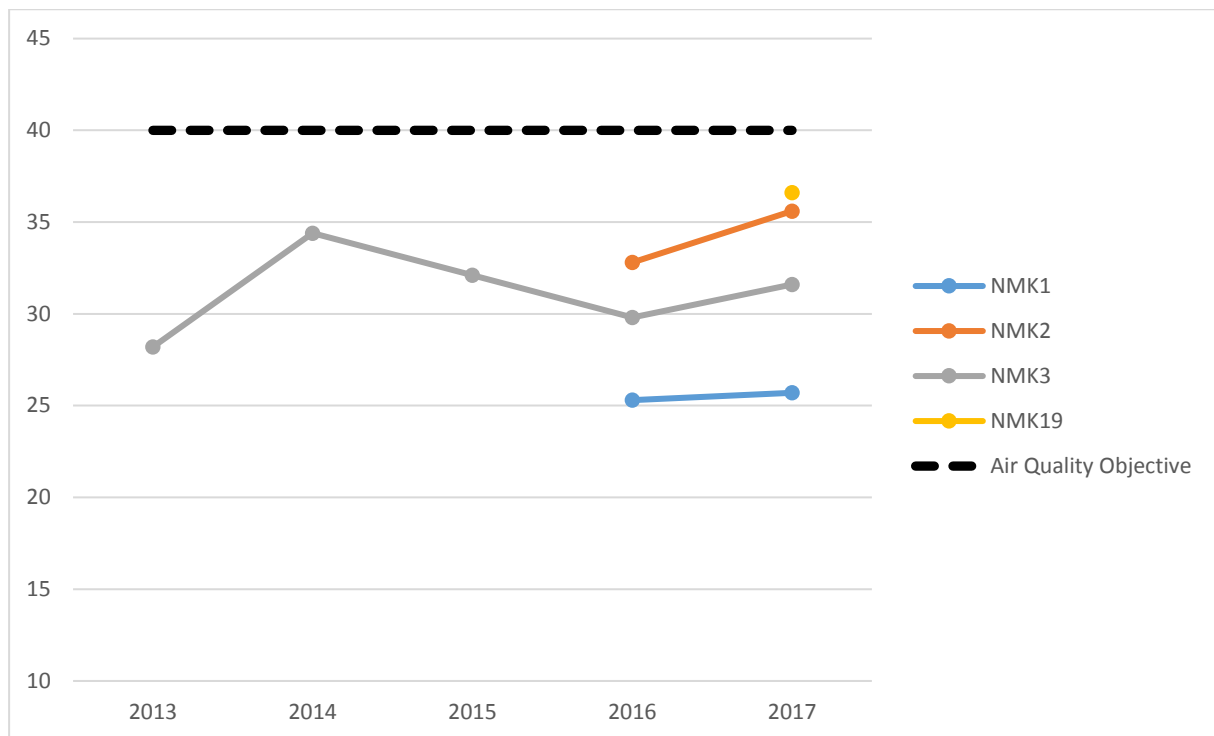


The AQMA has been retained along Old Station Road due to insufficient confidence in the data along this road. Prior to 2016 there was only a single monitoring location on Old Station Road, but this location suffered from poor recovery rates and therefore required annualisation on several occasions. Although this location was below (compliant with) the air quality objective, it may not have been located to represent the worst case scenerio for Old Station Road. Therefore two further locations were added on Old Station Road at the beginning of 2016 and a third new location at the beginning of 2017. None of the four monitoring points within the remaining AQMA have recorded an exceedance and the need for retaining the AQMA will be reassessed once 2018 data is available and all monitoring locations have at least two years of data.

Whilst the monitoring indicates there are no concentrations of Nitrogen Dioxide above or close to the AQO, there is not considered a need to progress the action plan.

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Figure 5. Trends in Concentration of Air Pollution on Newmarket Old Station Road (not adjusted to façade of buildings)



Appendix A: Monitoring Results

Table A.1 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
BRN1	Brandon – 6 Church Road	Roadside	578044	286249	NO ₂	NO	1.1	1.7	NO	2.1
BRN2	Brandon – 104 London Road	Roadside	577993	286163	NO ₂	NO	3.3	1.7	NO	2.2
BRN3	Brandon - Town Hall	Urban centre	578406	286460	NO ₂	NO	0 - hourly N/A -annual	N/A	NO	2.4
BRN4	Brandon – London Road / Stores St	Roadside	578351	286503	NO ₂	NO	2.7 ⁽³⁾	1.6	NO	2.2
BRN5	Brandon - 52 London Road	Roadside	578206	286407	NO ₂	NO	7	1.1	NO	2.2
BRN6	Brandon - London Rd/Coulson Lane	Roadside	578270	286467	NO ₂	NO	7.6	1.5	NO	2.1
BRN7	Brandon - London Rd/Church Road	Kerbside	578073	286254	NO ₂	NO	8	<1.0	NO	2.1
BRN8	Brandon - Hellesdon House, High Street	Roadside	578372	286774	NO ₂	NO	0	1.5	NO	2.3

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Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
BRN9	Brandon - Riverside Lodge, High Street	Kerbside	578372	286867	NO ₂	NO	3.3	<1.0	NO	2.4
BRN10	Brandon - 'Boots', High Street	Roadside	578395	286633	NO ₂	NO	0 - hourly 0.5 -annual	2.5	NO	2.3
BRN11	Brandon - 175 Thetford Rd	Roadside	579160	286357	NO ₂	NO	8.5	1.7	NO	2.1
LAK1	Lakenheath - Zebra Crossing	Kerbside	571378	282855	NO ₂	NO	3.5	<1.0	NO	2.1
LAK2	Lakenheath - Albert Rolph Drive	Suburban	572071	281607	NO ₂	NO	20	1	NO	2.2
MLD1	Mildenhall – 8 North Terrace	Roadside	571136	274878	NO ₂	NO	1.5	1.9	NO	2.1
MLD2	Mildenhall – 2 Queensway	Roadside	571092	274785	NO ₂	NO	0	1.8	NO	2.1
MLD3	Mildenhall - 14 Kingsway	Roadside	571326	274780	NO ₂	NO	0.5	2	NO	2.1
ICK1	Icklingham	Roadside	577266	272907	NO ₂	NO	0.3	1	NO	2.1
NMK1	Newmarket – 23 Old Station Road	Roadside	564716	263502	NO ₂	YES	0	2	NO	2.2
NMK2	Newmarket – 36 Old Station Road	kerbside	564689	263500	NO ₂	YES	2.2	0.3	NO	2.2

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Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
NMK3	Newmarket - Old Station Rd / Rous Road	Roadside	564707	263493	NO ₂	YES	2	1.7	NO	2.2
NMK4 ⁽⁶⁾	Newmarket - Sun Lane	Urban Centre	564347	263340	NO ₂	NO	0 – hourly 12 - annual	10	NO	2.4
NMK5	Newmarket - 'Café Nero' crossing	Kerbside	564337	263343	NO ₂	NO	0 – hourly N/A -annual	<1.0	NO	2.4
NMK6	Newmarket - 'KFC' downpipe	Roadside	564307	263338	NO ₂	NO	0 – hourly 0 - annual	6.5	NO	2.3
NMK7	Newmarket - 'White Hart' crossing	Kerbside	564233	263274	NO ₂	NO	0 – hourly 5.9 - annual	<1.0	NO	2.4
NMK8	Newmarket - Park area	Urban Background	564138	263301	NO ₂	NO	0 – hourly N/A - annual	N/A	NO	2.5
NMK9	Newmarket - Blackbear lane/High St	Kerbside	564043	263159	NO ₂	NO	3	<1.0	NO	2.2
NMK10	Newmarket - Taxi rank	Roadside ⁽⁴⁾	564362	263381	NO ₂	NO	0 – hourly N/A -annual	<1.0	NO	2.5
NMK11	Newmarket - Market St 'EE'	Urban Centre	564380	263407	NO ₂	NO	0 – hourly N/A - annual	11	NO	2
NMK12	Newmarket - Clock tower crossing	Roadside	564550	263544	NO ₂	NO	0 – hourly 0.3 - annual	2.5	NO	2.4

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Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
NMK13 ⁽⁶⁾	Newmarket - 'Cancer Research' downpipe	Urban Centre	564516	263474	NO ₂	NO	0 – hourly N/A - annual	13	NO	2.4
NMK14	Newmarket - 'Rutland Arms' crossing	Kerbside	564480	263464	NO ₂	NO	0 – hourly N/A - annual	<1.0	NO	2.4
NMK15	Newmarket - 'Savers' lamppost	Roadside ⁽⁴⁾	564383	263381	NO ₂	NO	0 – hourly 5.5 -annual	2.5	NO	2.3
NMK16	Newmarket - Station Approach	Kerbside	564375	262849	NO ₂	NO	N/A	<1.0	NO	2.4
NMK17	Newmarket – Exning Road/Depot Road	Roadside	563397	264498	NO ₂	NO	6.1	1.8	NO	2.1
NMK18	Newmarket - Nimbus Way	Other (A14 Back-ground)	563205	265853	NO ₂	NO	16	<1.0 (Nimbus Way)	NO	2.3
NMK19	Newmarket - Old Station Road, Nancy's Tearoom	Kerbside	564626	263525	NO ₂	YES	1.9	0.5	NO	2.1
BSE1	2 Sicklesmere Road	Roadside	586253	263147	NO ₂	YES	0	1.7	NO	2.1
BSE2	14 Sicklesmere Road	Roadside	586320	263053	NO ₂	NO	0	4	NO	2

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Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
BSE3	Cullum Road roundabout	Roadside	585236	263746	NO ₂	NO	0	3.4	NO	2
BSE4 ⁽⁶⁾	Vinery Road	Roadside	584776	263440	NO ₂	NO	1.5	2	NO	2.1
BSE5	Horringer Road lights	Roadside	584703	263483	NO ₂	NO	2	1.5	NO	2.2
BSE6	Kings Road roundabout	Roadside	584905	264171	NO ₂	NO	2.4	2.4	NO	2.1
BSE7	Northgate Lodge Roundabout	Roadside	585446	264956	NO ₂	NO	0 ⁽³⁾	1.8	NO	2
BSE8	Fornham Road (Northgate roundabout)	Roadside	585461	265050	NO ₂	NO	6	1.5	NO	2
BSE9	Fornham Road (Tollgate)	Roadside	585085	265924	NO ₂	NO	2.8	1.5	NO	2.2
BSE10	Samson Close	Suburban	584498	266084	NO ₂	NO	9.5	1.4	NO	2.2
BSE11	Eastgate Street (Vinefields junction)	Roadside	585940	264618	NO ₂	NO	0	2.7	NO	2.1
BSE12	8 Mustow Street	Roadside	585728	264371	NO ₂	NO	1.8	2.6	NO	2.2
BSE14	19F Mustow Street	Roadside	585624	264334	NO ₂	NO	0.2	2.3	NO	2.2
BSE15	7 Sicklesmere Road	Roadside	586273	263135	NO ₂	YES	0	1.2	NO	1.8

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Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
BSE16	Northgate Lodge Roundabout	Roadside	585424	264977	NO ₂	NO	0.4	1.2	NO	1.9
BSE17	Tayfen Road	Roadside	585264	264921	NO ₂	NO	N/A	2.1	NO	1.9
BSE18	Southgate Street	Roadside	586126	263328	NO ₂	NO	0.2	1.6	NO	1.9
GB2	Downing Drive	Suburban	588917	267370	NO ₂	NO	16	1.5	NO	1.9
GB3	The Forge Bungalows ⁽⁵⁾	Roadside	589163	267013	NO ₂	NO	4	1.4	NO	2.2
GB4	Post Office ⁽⁵⁾	Roadside	589130	266969	NO ₂	YES	0	1.4	NO	2.2
GB5	Church Road junction ⁽⁵⁾	Roadside	588993	266838	NO ₂	NO	22	1.3	NO	2.2
HH1	Shetland Road	Suburban	568609	245575	NO ₂	NO	8.7	1.7	NO	2.1
HH2	Wratting Road	Roadside	567270	245981	NO ₂	NO	3	1.8	NO	2.1
HH3	29 Withersfield Road	Roadside	566891	245892	NO ₂	NO	2.4	1.7	NO	2.2
HH5	22 Withersfield Road	Roadside	566941	245850	NO ₂	NO	0.3	1.4	NO	2.1

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

(3) Receptor not adjacent to tube, but distances correct if monitoring location transposed along road to receptor location

(4) Where tubes are located adjacent to indented parking bays along Newmarket High Street, the distance to the kerb has been taken as the distance from the edge of the carriageway with flowing traffic rather from the physical kerb.

(5) Locations are triplicates

(6) Locations no longer monitored, but information provided as historic monitoring data included.

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Table A.2 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
BRN1	Roadside	Diffusion Tube	100	100	-	-	-	21.3	20.9
BRN2	Roadside	Diffusion Tube	100	100	-	-	-	33.2	31.5
BRN3	Urban centre	Diffusion Tube	100	100	15.3	14.5	14.1	13.5	13.6
BRN4	Roadside	Diffusion Tube	66	66	37	36.9	33	30.5	30.9
BRN5	Roadside	Diffusion Tube	83	83	40.4	37.8	39.4	37.7	37.4
BRN6	Roadside	Diffusion Tube	100	100	33.9	28.4	27.4	26.4	25.5
BRN7	Kerbside	Diffusion Tube	92	92	34.3	35.6	33.5	32	32
BRN8	Roadside	Diffusion Tube	75	75	28.6	27.4	26.3	23.4	24
BRN9	Kerbside	Diffusion Tube	50	50	36.6	32.5	27.9	29.6	31
BRN10	Roadside	Diffusion Tube	100	100	38.6	38.5	35.4	33.3	30.5
BRN11	Roadside	Diffusion Tube	83	83	18.9	19	17.3	17.6	18.4
LAK1	Kerbside	Diffusion Tube	100	100	21.4	19.2	18.7	20	19
LAK2	Suburban	Diffusion Tube	100	100	12.2	14.3	12.7	12	12
MLD1	Roadside	Diffusion Tube	92	92	-	-	-	23.3	23.7

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Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
MLD2	Roadside	Diffusion Tube	100	100	-	-	-	26.8	28.6
MLD3	Roadside	Diffusion Tube	100	100	35.6	33.5	35.5	34.3	36.4
ICK1	Roadside	Diffusion Tube	100	100	-	-	-	20.7	23.2
NMK1	Roadside	Diffusion Tube	100	100	-	-	-	25.3	25.7
NMK2	Kerbside	Diffusion Tube	75	75	-	-	-	32.8	35.6
NMK3	Roadside	Diffusion Tube	92	92	28.2	34.4	32.1	29.8	31.6
NMK4	Urban Centre	Diffusion Tube	0	0	20.7	19.7	19.9	18.7	- ⁽⁴⁾
NMK5	Kerbside	Diffusion Tube	100	100	37.4	35.2	33.4	31.7	32.8
NMK6	Roadside	Diffusion Tube	100	100	35.2	32.2	29.8	30.5	28.9
NMK7	Kerbside	Diffusion Tube	100	100	41.8	38.6	36.8	35.4	34.6
NMK8	Urban Background	Diffusion Tube	100	100	17	14.3	14	14.6	14.4
NMK9	Kerbside	Diffusion Tube	92	92	30.1	28.3	29.3	27.8	25.6
NMK10	Roadside	Diffusion Tube	100	100	40.5	42.9	40	39.4	36.6
NMK11	Urban Centre	Diffusion Tube	83	83	22.2	21.1	20.5	20.1	19.6
NMK12	Roadside	Diffusion Tube	83	83	35.8	32.8	34.4	34.1	35.1

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Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
NMK13	Urban Centre	Diffusion Tube	0	0	22.2	21.3	20.6	20.6	- ⁽⁴⁾
NMK14	Kerbside	Diffusion Tube	100	100	35.8	34.6	33.4	33.8	32.2
NMK15	Roadside	Diffusion Tube	92	92	36.2	37.1	34.6	34.3	33.6
NMK16	Kerbside	Diffusion Tube	92	92	15.9	13.1	13.9	12.5	13.7
NMK17	Roadside	Diffusion Tube	100	100	-	-	-	24.3	25.1
NMK18	Other (A14 Back-ground)	Diffusion Tube	100	100	33	22.7	25.4	22.2	21
NMK19	Kerbside	Diffusion Tube	100	100	-	-	-	-	36.6
BSE1	Roadside	Diffusion Tube	100	100	-	-	45.3	42.1	44.7
BSE2	Roadside	Diffusion Tube	100	100	-	-	31.2	30.0	29.5
BSE3	Roadside	Diffusion Tube	100	100	32.9	31.7	32.5	29.5	28.5
BSE4	Roadside	Diffusion Tube	0	0	-	-	25.8	23.6	- ⁽⁴⁾
BSE5	Roadside	Diffusion Tube	92	92	-	-	26.4	28.6	26.2
BSE6	Roadside	Diffusion Tube	100	100	-	-	37.5	41.5	38.7
BSE7	Roadside	Diffusion Tube	92	92	28.3	26.5	29.4	28.2	29.3
BSE8	Roadside	Diffusion Tube	92	92	-	-	29.1	30.3	29.9

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Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
BSE9	Roadside	Diffusion Tube	100	100	-	-	38.0	36.5	36.8
BSE10	Suburban	Diffusion Tube	83	83	14.6	14.1	13.4	12.9	13.5
BSE11	Roadside	Diffusion Tube	92	92	-	-	24.2	23.2	21.3
BSE12	Roadside	Diffusion Tube	83	83	-	-	24.2	23.5	22.4
BSE14	Roadside	Diffusion Tube	83	83	-	-	-	32.1	33.0
BSE15	Roadside	Diffusion Tube	100	100	-	-	-	41.5	37.6
BSE16	Roadside	Diffusion Tube	66	66	-	-	-	36.4	35.8
BSE17	Roadside	Diffusion Tube	83	83	-	-	-	33.0	35.6
BSE18	Roadside	Diffusion Tube	83	83	-	-	-	35.3	30.0
GB2	Suburban	Diffusion Tube	100	100	-	-	10.1	10.0	11.4
GB3	Roadside	Diffusion Tube	100	100	37.9	36.5	36	31.2	31.8
GB4	Roadside	Diffusion Tube	94	94	46.7	43.7	40.9	37.9	36.0
GB5	Roadside	Diffusion Tube	100	100	39.7	40.1	35.1	32.9	32.2
HH1	Suburban	Diffusion Tube	100	100	14.5	13.7	13.3	13.0	14.3
HH2	Roadside	Diffusion Tube	92	92	-	-	32.0	30.7	31.1

Forest Heath District and St Edmundsbury Borough councils

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
HH3	Roadside	Diffusion Tube	92	92	36.9	38.3	38.3	34.1	36.3
HH5	Roadside	Diffusion Tube	92	92	-	-	-	36.5	32.6

☒ Diffusion tube data has been bias corrected

☒ Annualisation has been conducted where data capture is <75%

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(4) Sites removed at end of 2016, but data retained for information.

Appendix B: Full Monthly Diffusion Tube Results for 2017

Table B.1 – NO₂ Monthly Diffusion Tube Results - 2017

Site ID	NO ₂ Mean Concentrations (µg/m³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.77) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
BRN1	41.1	32.3	29.8	23.9	22.1	21.8	21.1	18	26.7	27	36.6	25	27.1	20.9	19.9
BRN2	53.9	47.5	43.5	41.5	33.1	35.2	32.6	29.9	40.9	40.0	47.2	45.4	40.9	31.5	26.8
BRN3	20.5	20.5	18	16.3	13.2	12.5	11	13	16.5	21.2	27.1	21.8	17.6	13.6	13.6
BRN4	50.5	36.6	37	-	36.6	29.7	33.6	35.2	39.1	-	-	-	37.3	30.9	26.7
BRN5	53.6	52.6	45.3	46.8	34.7	42.6	-	42	49.5	-	64.6	54.1	48.6	37.4	27.0
BRN6	48.4	34.4	34.6	29.1	25.1	25.8	24.5	26.3	34.1	36.2	39.2	39.8	33.1	25.5	20.2
BRN7	61.6	49.1	43.6	39.1	-	39.8	35.2	35	42.9	40.1	38.3	31.8	41.5	32.0	23.1
BRN8	44.4	36.8	-	-	28.1	11	-	27.9	31.8	31.4	31.6	38.1	31.2	24.0	24.0
BRN9	51.9	-	30.6	34.8	-	29.6	35.2	32.7	-	-	-	-	35.8	31.0	25.4
BRN10	52.3	51.1	40.4	36.1	42.5	37.5	35.1	31.3	39.9	32.1	44	32.4	39.6	30.5	29.7
BRN11	40	28.7	23.5	17.8	-	-	14.6	15.8	19.7	21.2	27.8	30.5	24.0	18.4	15.8
LAK1	45.3	27.5	25.4	23.4	22.2	15.2	17.6	19.1	25.5	21.6	27.3	26.7	24.7	19.0	16.9
LAK2	27.7	18.5	16.5	12.4	11.2	8.5	9.4	9.8	14.3	16.6	22	20.7	15.6	12.0	12.0
MLD1	48.3	34.6	29.1	-	25.2	23.7	22.8	21.4	30.8	29.5	38.3	34.9	30.8	23.7	22.1
MLD2	49.1	44.7	42.5	30.6	34.9	32	27.8	30	37.4	36.3	40.5	40.2	37.2	28.6	28.6
MLD3	74.2	50.5	55.1	39.9	42.8	42.9	36.6	40	46.2	44.6	53.1	41.1	47.3	36.4	35.1

Forest Heath District and St Edmundsbury Borough councils

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.77) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
ICK1	47	31.4	27.1	25.3	22	25.2	20.3	23.8	30.7	32.4	42.2	34.5	30.2	23.2	22.6
NMK1	48.6	34.8	33.7	33.3	30.6	23.7	27.6	25.8	30.3	32.3	47.5	32.7	33.4	25.7	25.7
NMK2	64	47.2	45.8	56.3	35.5	39.6	-	39	-	43.7	-	45.4	46.3	35.6	27.5
NMK3	61.5	42.6	41.6	37.8	34.1	38.2	34.2	35.1	42.1	40.3	-	44.5	41.1	31.6	28.2
NMK5	58.2	50.5	43.7	37.6	38.7	34.1	33.4	33.7	41.4	45.7	56.3	38	42.6	32.8	24.0
NMK6	51.1	38.7	37.1	38	32.9	32	29.5	32	32.1	37.6	54.9	33.8	37.5	28.9	28.9
NMK7	51.8	48.1	46.7	45	35.6	41.3	32.2	40.4	43.2	42.1	64.8	47.7	44.9	34.6	25.8
NMK8	33.3	24.5	21.1	16.6	14	11.7	11.9	11.6	17.6	19.1	27.6	15.5	18.7	14.4	14.4
NMK9	48.2	35.9	32.2	28.4	-	25	26.5	27.6	30	32.6	46.7	32.6	33.2	25.6	21.8
NMK10	63.1	47.5	46.6	56.1	34.3	41.3	38.7	39.6	41.1	49.6	71.3	40.9	47.5	36.6	31.3
NMK11	42.5	27.6	27.3	19.9	-	15	18.6	16.5	-	27.5	33.4	25.8	25.4	19.6	19.6
NMK12	63	47.6	49.2	45.4	39.2	-	38.3	38.9	37.3	-	43.6	53.5	45.6	35.1	34.5
NMK14	59.1	44.6	42.9	39.6	34.2	30.3	33.9	34.1	42	45.7	56.2	39.3	41.8	32.2	25.1
NMK15	59.7	49.7	45.7	34.3	36.1	-	33.1	31.3	41	44.7	57.7	46	43.6	33.6	27.4
NMK16	33.6	23.1	16.5	12.4	12.7	9.4	11.6	-	15.8	16.7	24.3	19.6	17.8	13.7	
NMK17	49	37.9	34.5	28.2	24.2	26.1	25.7	23	28.3	34.5	47.4	32.7	32.6	25.1	20.7
NMK18	39.6	27.9	31.1	30.4	23.9	18.5	19.8	21.6	25	22.3	38.1	29.3	27.3	21.0	15.9
NMK19	65.1	51.2	47.5	43.6	41.5	42	40.3	41.6	49.9	44	59.7	44.3	47.6	36.6	29.8
BSE1	76.7	59.9	60.5	62.1	47	50.3	48.2	52.5	57.3	54.1	72.8	56	58.1	44.7	44.7
BSE2	51.8	44.4	36	36.9	27.8	32.5	30.8	32	38.7	39.6	49.4	39.8	38.3	29.5	29.5

Forest Heath District and St Edmundsbury Borough councils

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.77) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
BSE3	49.7	45.7	47.1	41.5	31.4	32.3	25.3	26.6	27.2	33.8	42.2	41	37.0	28.5	28.5
BSE5	42.8	40.7	37.8	39	27.9	26.1	21.9	24.3	27.7	-	48.8	36.8	34.0	26.2	23.8
BSE6	69.5	57.9	55.6	53.9	43	38.9	32.4	42.8	50.8	49.7	59.7	48.8	50.3	38.7	34.4
BSE7	51.9	39.2	44.2	38.7	29.9	34.5	-	31.4	36.2	33.5	41.6	37.4	38.0	29.3	29.3
BSE8	54.8	-	44.8	38.6	35.4	34.7	30.3	31.1	35.9	37.6	46.2	38.2	38.9	29.9	24.1
BSE9	55.6	56.6	56	44.5	49.7	43.1	33.5	42.9	46.7	43.3	54.6	47.3	47.8	36.8	31.4
BSE10	26.4	22.3	18.6	14.8	-	-	9.3	9.8	14.4	17	24	19.1	17.6	13.5	13.5
BSE11	-	37.7	36.1	26.1	26.4	22.8	18.4	22.2	27.1	26.4	33.7	28	27.7	21.3	21.3
BSE12	28.8	35.3	24.1	33.4	29	27.3	20.6	-	30.8	27.6	-	33.4	29.0	22.4	21.2
BSE14	59.6	52.9	49.5	40.6	-	41.6	32.6	36.1	44	36	-	35.2	42.8	33.0	32.6
BSE15	70.3	54.5	54.7	47.5	44.5	44.5	27.7	39.4	46.3	48.5	60.8	47.4	48.8	37.6	37.6
BSE16	71.1	58.1	57.6	-	-	43	37.9	35.4	-	-	48.3	44.1	49.4	35.8	34.5
BSE17	59.7	51.4	55.8	-	43.6	42.8	-	40.6	43.9	39.5	47.5	38.1	46.3	35.6	
BSE18	-	48	46.4	40.1	33.4	39	35.4	37	37.4	33.9	-	39.1	39.0	30.0	29.6
GB2	24.2	16.7	15.7	11.1	14.9	8.9	7.4	10.6	13.1	15.5	21.1	17.9	14.8	11.4	11.4
GB3a	52.9	42.4	42.5	38.8	30.8	36.5	31.5	32.9	38.2	45.3	51.6	46.8	40.9	31.8	25.8
GB3b	44.8	45.6	45.6	42.1	33	36.3	31.1	33.6	40.3	49.2	51.1	50.1	41.9		
GB3c	52.6	44.6	41.5	36.9	32.2	37	30.8	30.8	40.8	46.2	54.8	46.6	41.2		

Forest Heath District and St Edmundsbury Borough councils

Site ID	NO ₂ Mean Concentrations (µg/m³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.77) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
GB4a	66.7	49.9	48.3	49.5	42.9	38.1	38.2	35.7	45.9	49.6	59.9	44.7	47.5	36.0	36.0
GB4b	48.6	50.7	53.8	48	42.7	45.2	34.6	41.7	42.5	45.8	59.6	53	47.2		
GB4c	59.1	51.5	45.8	49.8	41	44.8	39.6	37.3	45	-	-	44.2	45.8		
GB5a	55.5	46.5	38.9	39.8	45.1	40.5	34.7	35.6	42.9	43.6	47.7	39.8	42.6	32.2	19.4
GB5b	53.2	39.8	43.7	38.6	41.8	40.8	34.7	36.4	41.8	43.3	51.5	34.7	41.7		
GB5c	60.4	47.4	40.4	38.4	42.1	39.9	34.9	29.6	40.8	43.5	41	37.4	41.3		
HH1	32.8	22.7	21.2	13	13.2	11.3	10.1	10.2	14.7	20	26.9	26.5	18.6	14.3	14.3
HH2	58.7	49.7	45	32.4	-	36.8	30.5	31.2	38.9	40.1	44.1	36.8	40.4	31.1	27.3
HH3	71	-	52.8	45.8	39.2	37.1	36.2	35.3	47	44.5	57.2	52	47.1	36.3	31.9
HH5	69.9	46.7	44.5	38.7	41.8	34.5	27.9	34.1	-	37.6	50.3	39.6	42.3	32.6	31.8

☒ National bias adjustment factor used

☒ Annualisation has been conducted where data capture is <75%

☒ Where applicable, data has been distance corrected for relevant exposure

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

Bias Adjustment

Bias adjustment was calculated from the national Bias adjustment spreadsheet as published by Defra. A local Bias adjustment factor was not considered as there was no local continuous monitoring. A screenshot of the bias adjustment spreadsheet is provided below for information.

National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 03/18				
Follow the steps below in the correct order to show the results of relevant co-location studies								This spreadsheet will be updated at the end of June 2018 LAQM Helpdesk Website		
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods										
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet										
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.										
The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.						Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.				
Step 1:		Step 2:	Step 3:	Step 4:						
Select the Laboratory that Analyses Your Tubes from the Drop-Down List		Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor ² shown in blue at the foot of the final column.						
If a laboratory is not shown, we have no data for this laboratory.		If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data ³	If you have your own co-location study then see footnote ⁴ . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953						
Analysed By ¹	Method ² In order of selection, choose (All) from the pop-up list	Year ³ In order of selection, choose (All)	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m ³)	Automatic Monitor Mean Conc. (Cm) (µg/m ³)	Bias (B)	Tube Precision ⁵	Bias Adjustment Factor (A) (Cm/Dm)
ESG Didcot	50% TEA in acetone	2017	R	Suffolk Coastal DC	12	45	37	21.7%	G	0.82
ESG Didcot	50% TEA in acetone	2017	R	Dumfries and Galloway Council	12	36	29	23.3%	G	0.81
ESG Didcot	50% TEA in acetone	2017	KS	Marglebone Road Intercomparison	12	106	79	34.3%	G	0.74
ESG Didcot	50% TEA in acetone	2017	R	Vale of White Horse District Council	11	31	25	26.0%	G	0.79
ESG Didcot	50% TEA in acetone	2017	UB	Cardiff City Council	10	29	21	35.1%	G	0.74
ESG Didcot	50% TEA in acetone	2017	R	Cambridge City Council	12	45	33	37.7%	G	0.73
ESG Didcot	50% TEA in acetone	2017	R	Wrexham County Borough Council	12	20	17	14.5%	G	0.87
ESG Didcot	50% TEA in acetone	2017	UI	North Lincolnshire Council	12	22	16	40.7%	G	0.71
ESG Didcot	50% TEA in acetone	2017	KS	Caerphilly CBC	12	37	32	15.8%	G	0.86
ESG Didcot	50% TEA in acetone	2017	R	Caerphilly CBC	11	44	29	51.2%	G	0.66
ESG Didcot	50% TEA in acetone	2017	UB	City of York Council	12	23	15	53.4%	G	0.65
ESG Didcot	50% TEA in acetone	2017	R	City of York Council	10	37	28	30.8%	G	0.76
ESG Didcot	50% TEA in acetone	2017	R	City of York Council	11	32	23	41.0%	G	0.71
ESG Didcot	50% TEA in acetone	2017	R	City of York Council	12	40	25	58.6%	G	0.63
ESG Didcot	50% TEA in acetone	2017	R	Hambleton District Council	10	21	20	4.0%	G	0.96
ESG Didcot	50% TEA in acetone	2017	R	Horsham District Council	11	35	29	18.1%	G	0.85
ESG Didcot	50% TEA in acetone	2017	R	Horsham District Council	12	31	26	21.3%	G	0.82
ESG Didcot	50% TEA in acetone	2017	R	Horsham District Council	11	33	23	41.1%	G	0.71
ESG Didcot	50% TEA in acetone	2017	UC	Leeds City Council 1	12	41	32	28.5%	G	0.78
ESG Didcot	50% TEA in acetone	2017	R	Leeds City Council 10	11	48	38	25.1%	S	0.80
ESG Didcot	50% TEA in acetone	2017	R	Leeds City Council 2	12	47	35	34.4%	S	0.74
ESG Didcot	50% TEA in acetone	2017	R	Leeds City Council 4	11	56	43	29.1%	S	0.77
ESG Didcot	50% TEA in acetone	2017	R	Leeds City Council 7	11	38	27	39.8%	S	0.72
ESG Didcot	50% TEA in acetone	2017	R	Slough Borough Council	12	45	35	26.4%	G	0.79
ESG Didcot	50% TEA in acetone	2017	UB	Slough Borough Council	12	32	25	28.6%	G	0.78
ESG Didcot	50% TEA in acetone	2017	UB	Slough Borough Council	11	39	33	19.2%	G	0.84
ESG Didcot	50% TEA in acetone	2017	R	Tunbridge Wells	12	56	40	38.2%	G	0.72
ESG Didcot	50% TEA in acetone	2017	Overall Factor ² (27 studies)					Use		0.77

Annualisation

Three sites were annualised due to data collection being lower than 75%. These were Northgate Lodge in Bury St Edmunds (BSE16) and London Road/Stores Street and Riverside Lodge, both Brandon (BRN4 and BRN9).

Given no continuous monitoring is located in West Suffolk, three background diffusion tube sites with 100% data collection were selected to act as a comparison. These sites are Downing Drive in Great Barton (GB2), Shetland Road in Haverhill (HH1) and Albert Rolph Drive in Lakenheath (LAK2).

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The calculations for working out the annualisation factor are given below. The period mean is the mean for the background sites in the months where data was collected for the annualised site.

Northgate Lodge (BSE16):

Background Site	Annual Mean	Period Mean	Ratio
GB2	14.8	15.3	0.96
HH1	18.6	20.2	0.92
LAK2	15.6	16.6	0.94
Average Ratio (annualisation factor applied)			0.94

Brandon, London Road/Stores Street (BRN4):

Background Site	Annual Mean	Period Mean	Ratio
GB2	14.8	13.9	1.06
HH1	18.6	17.0	1.09
LAK2	15.6	14.5	1.08
Average Ratio (annualisation factor applied)			1.076

Brandon, Riverside Lodge (BRN9):

Background Site	Annual Mean	Period Mean	Ratio
GB2	14.8	13.0	1.14
HH1	18.6	16.4	1.13
LAK2	15.6	14.1	1.11
Average Ratio (annualisation factor applied)			1.126

Distance Correction

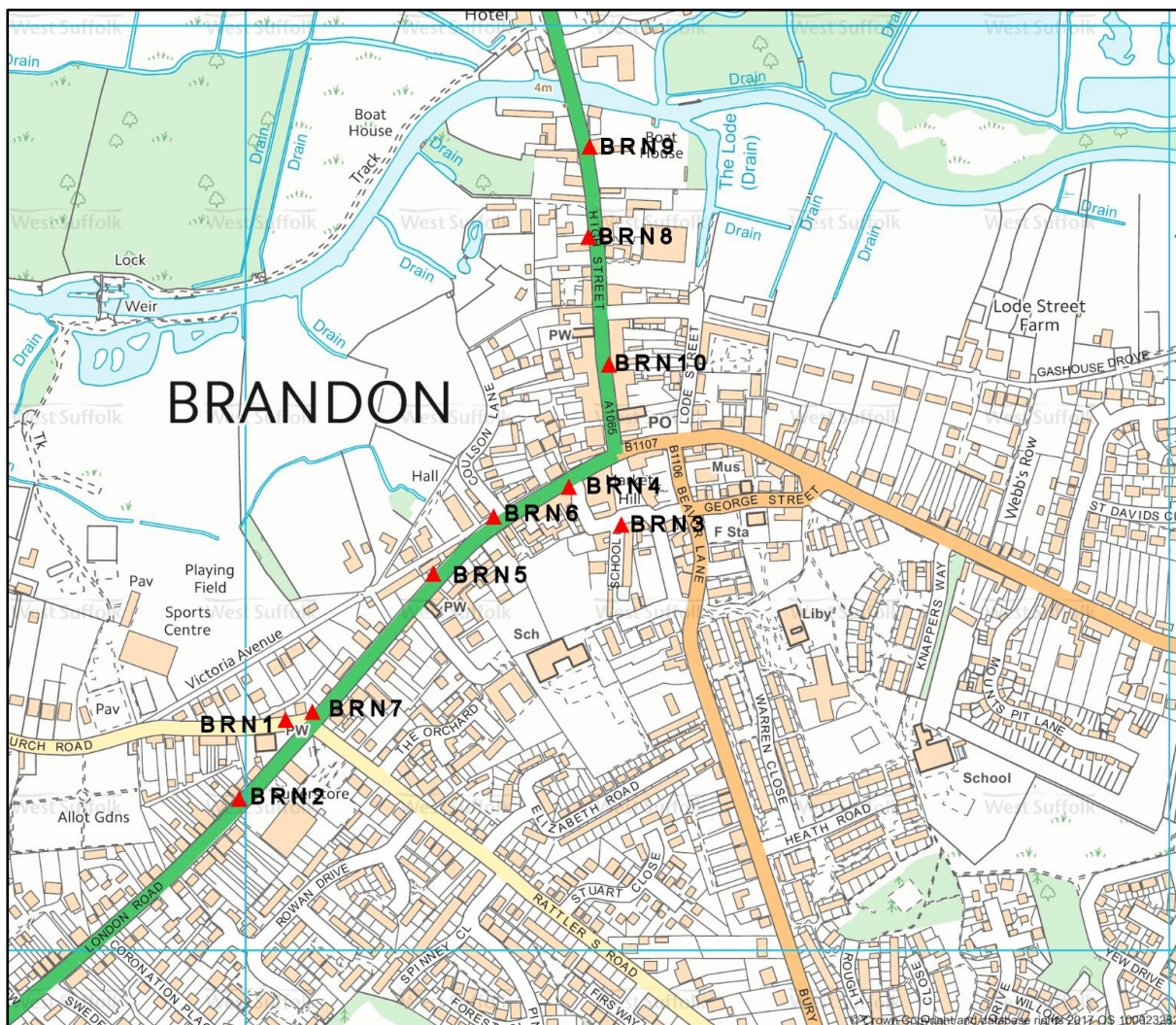
Distance correction was carried out on all sites where the monitoring was not carried out at a relevant receptor location. For Newmarket High Street, the hourly objective applies at the monitored sites, but the sites were adjusted to the façade of the nearest property so that the annual objective could also be assessed.

For all calculations, the Defra NO₂ fall off with distance tool (March 2018) was used. For the mean annual background concentration the following sites were used:

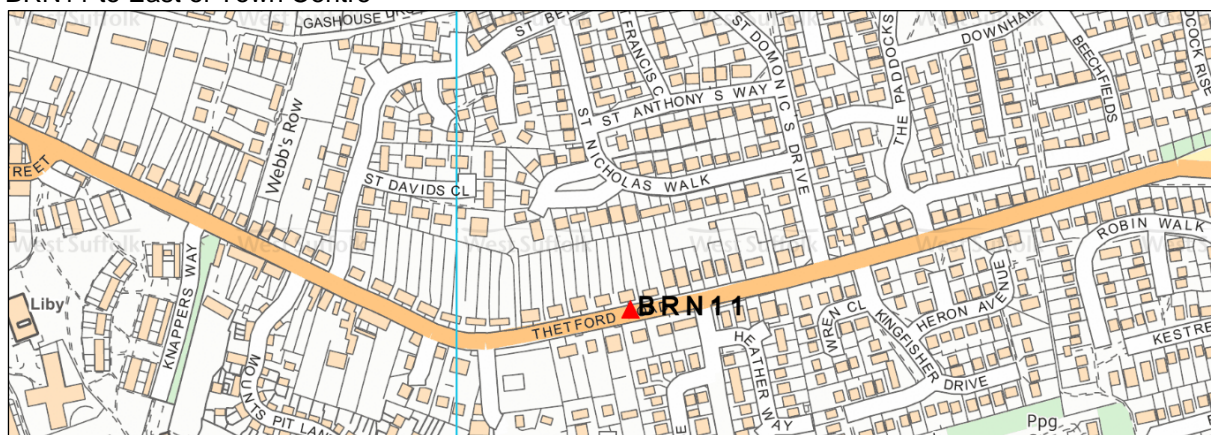
- Brandon, Lakenheath, Icklingham and Mildenhall – LAK2
- Newmarket – NMK8
- Bury St Edmunds – BSE10
- Great Barton – GB2
- Haverhill – HH1

Appendix D: Map(s) of Monitoring Locations and AQMAs

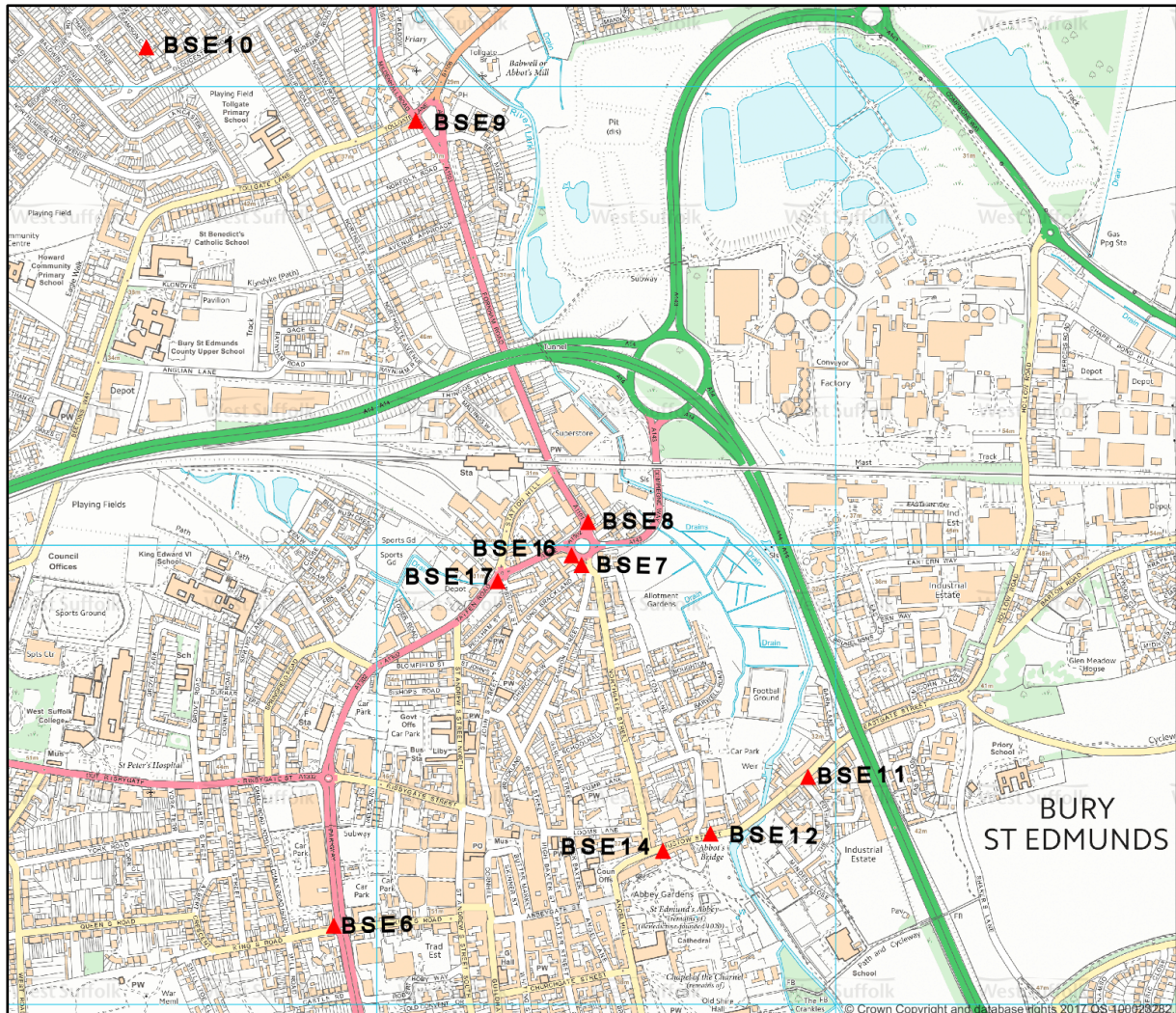
Brandon Diffusion Tube Locations



BRN11 to East of Town Centre

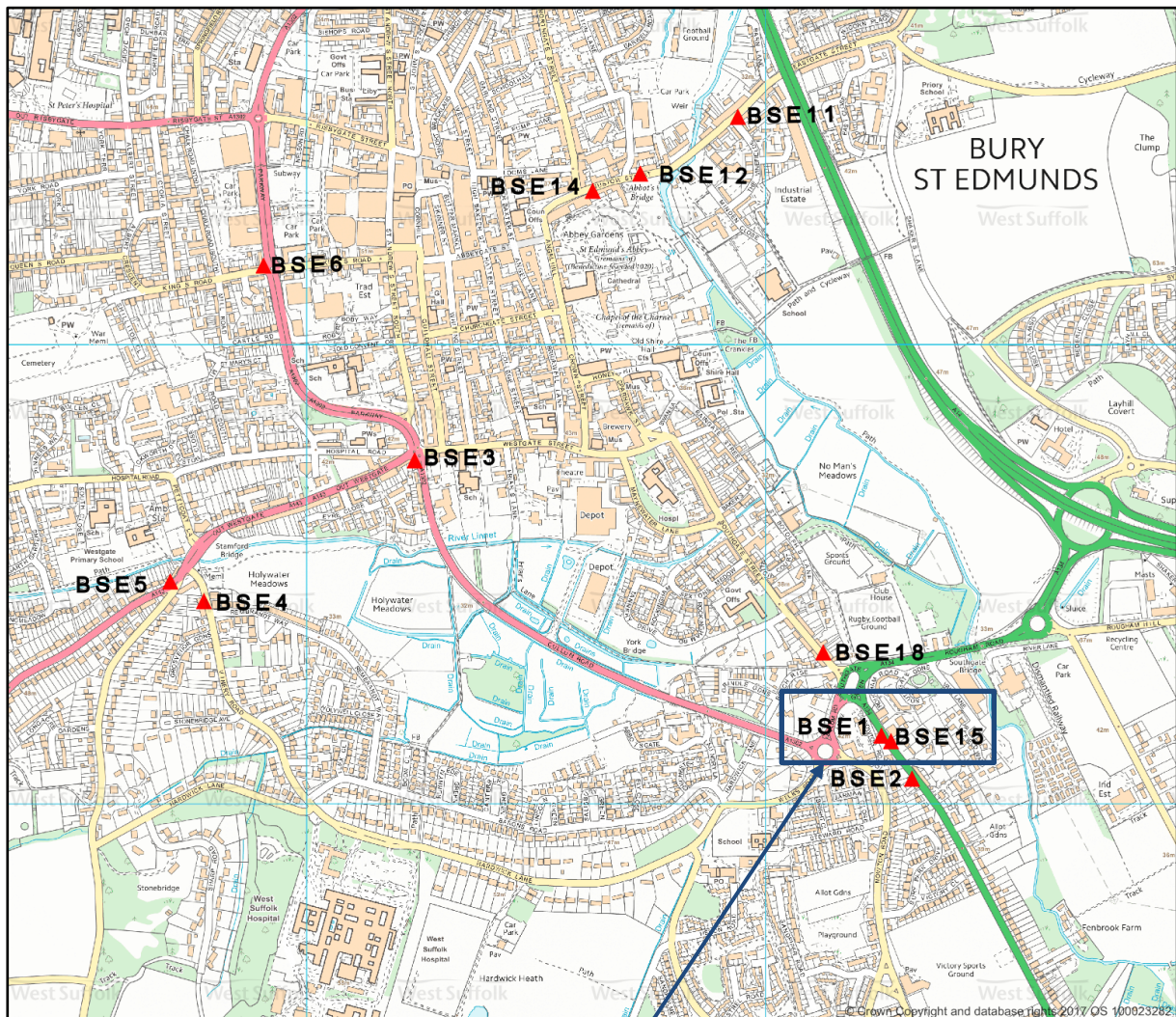


Bury St Edmunds (north) Diffusion Tube Locations



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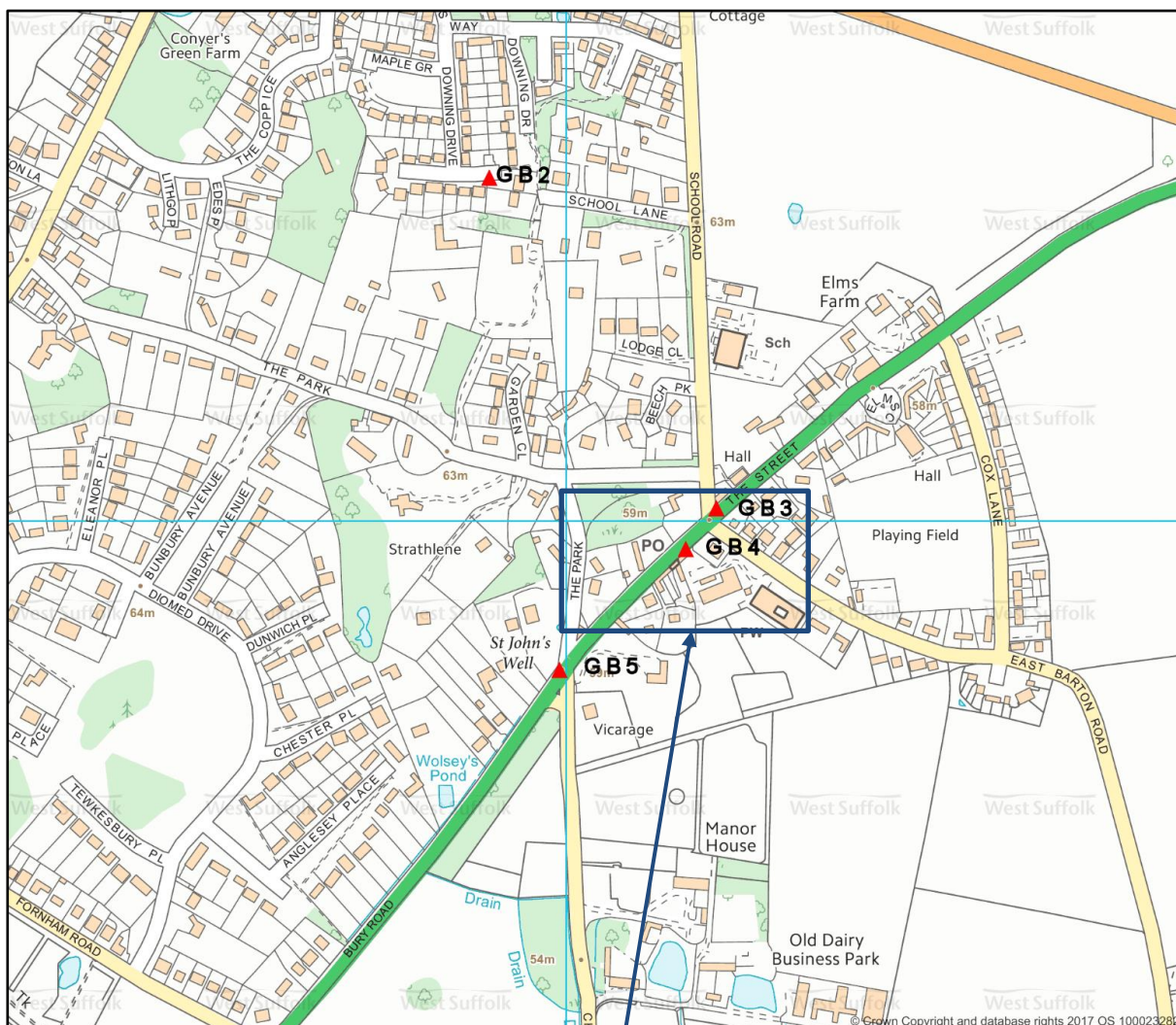
Bury St Edmunds (south) Diffusion Tube Locations



Sicklesmere Road AQMA Location



Great Barton Diffusion Tube Locations



Great Barton AQMA Location

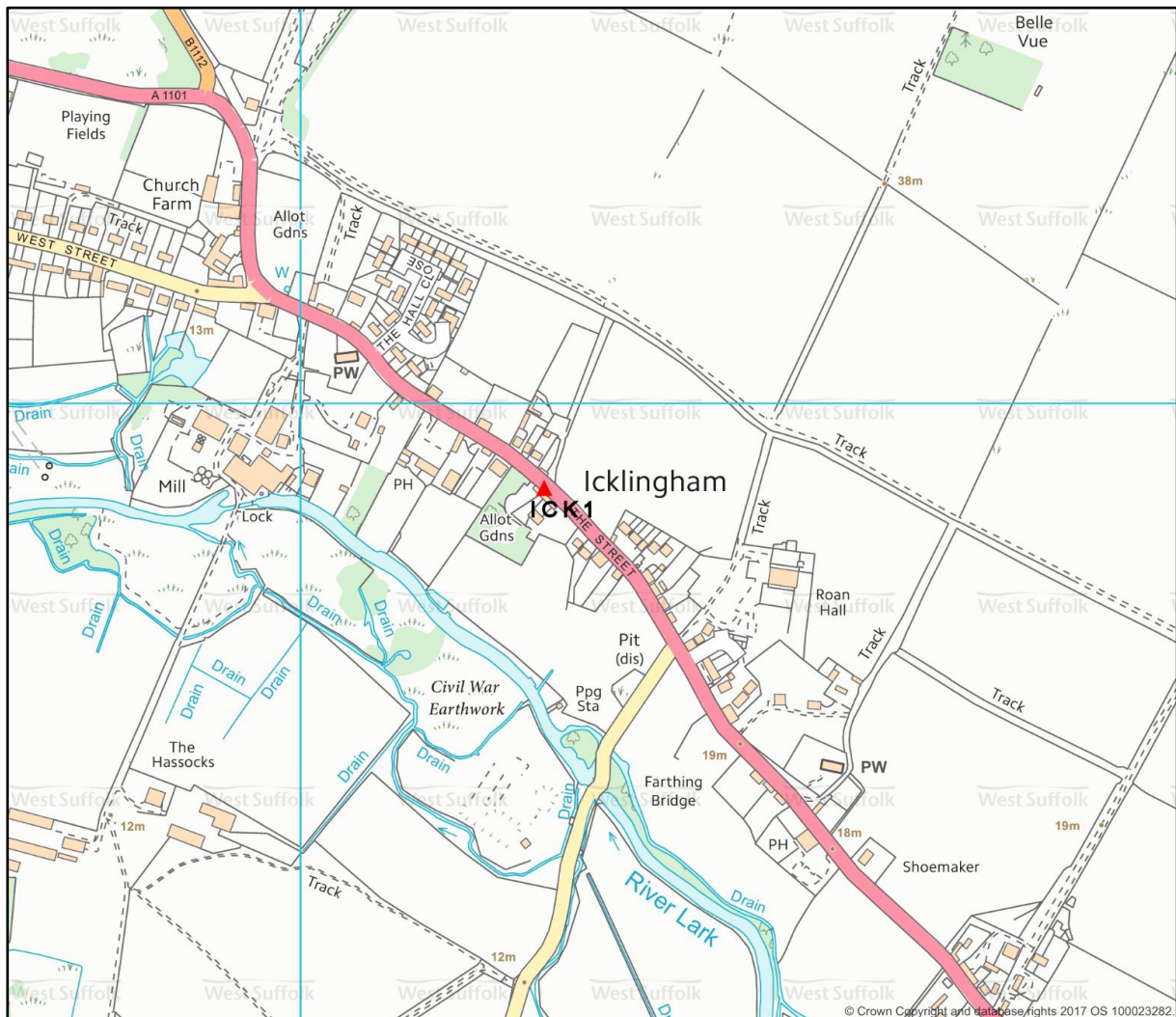


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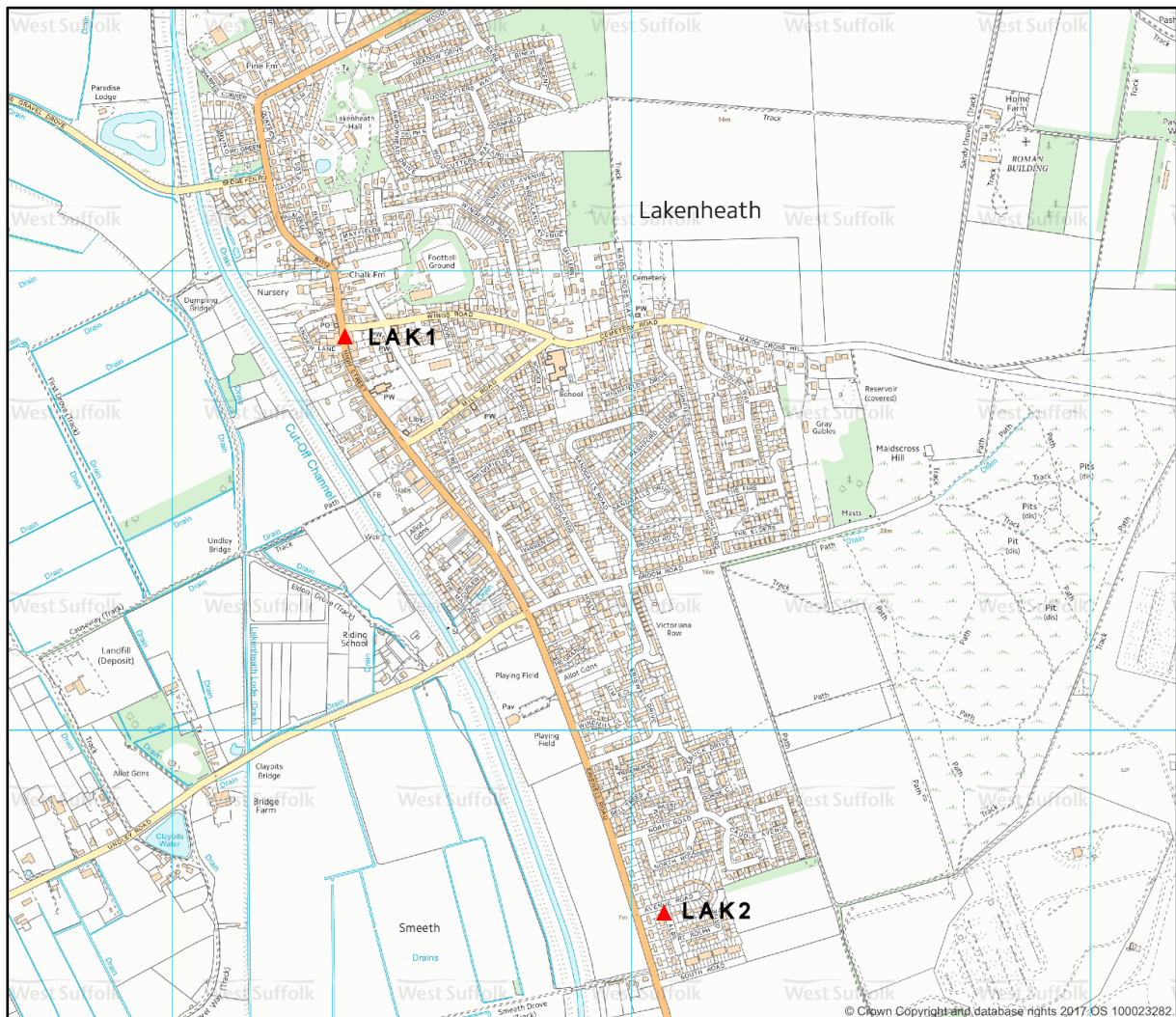
Haverhill Diffusion Tube Locations



Icklingham Diffusion Tube Location

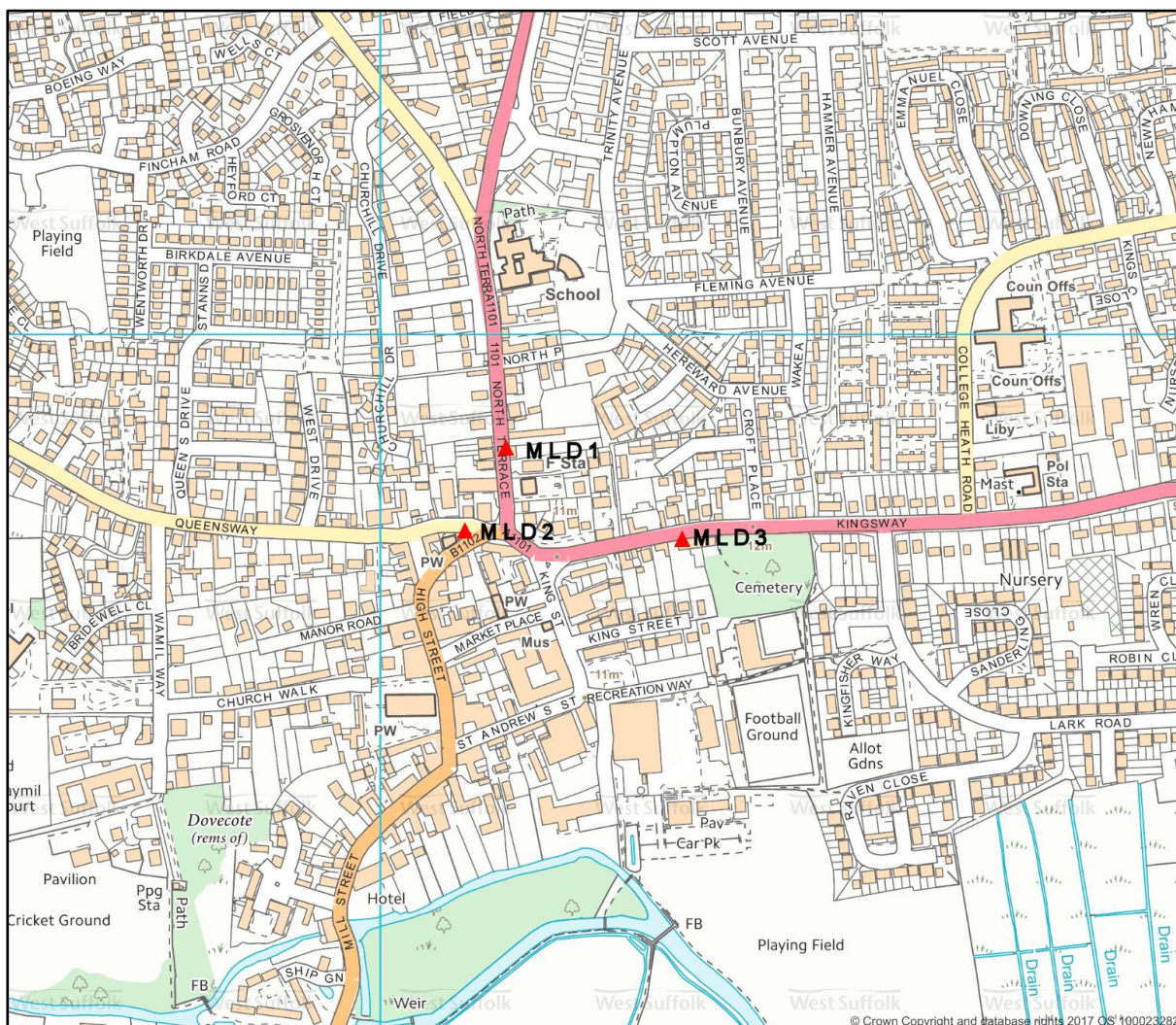


Lakenheath Diffusion Tube Locations



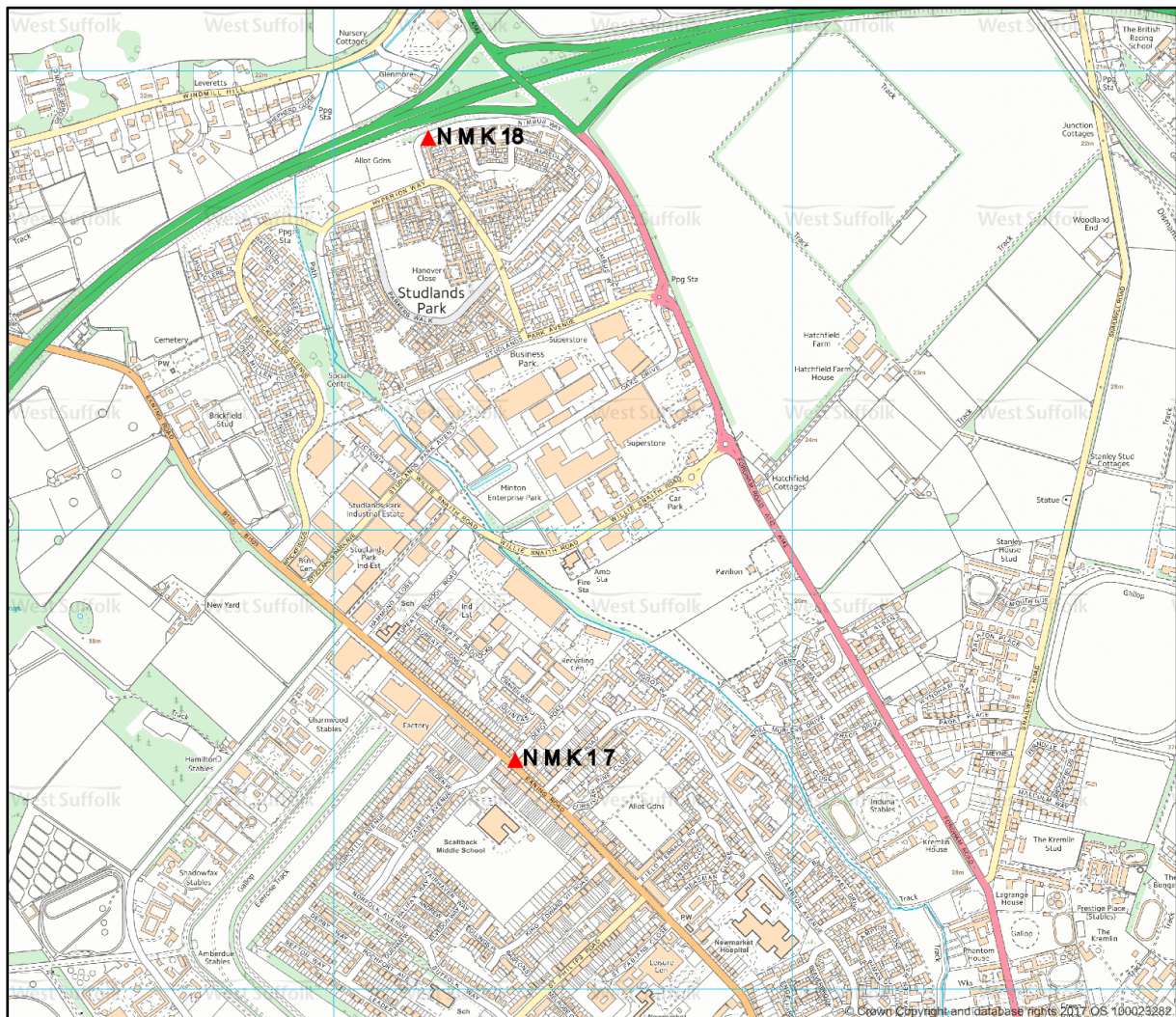
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Mildenhall Diffusion Tube Locations



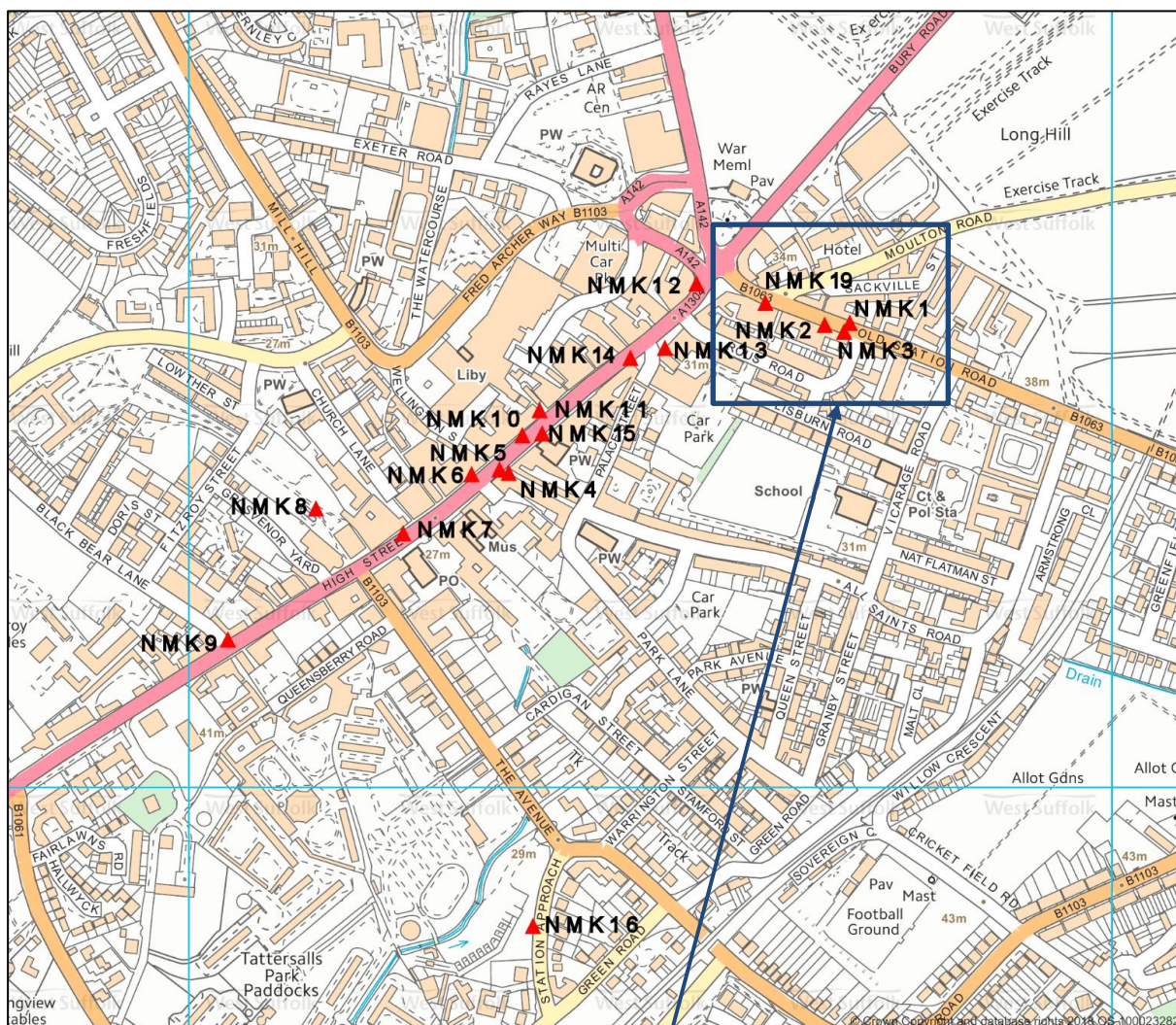
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Newmarket (north) Diffusion Tube Locations

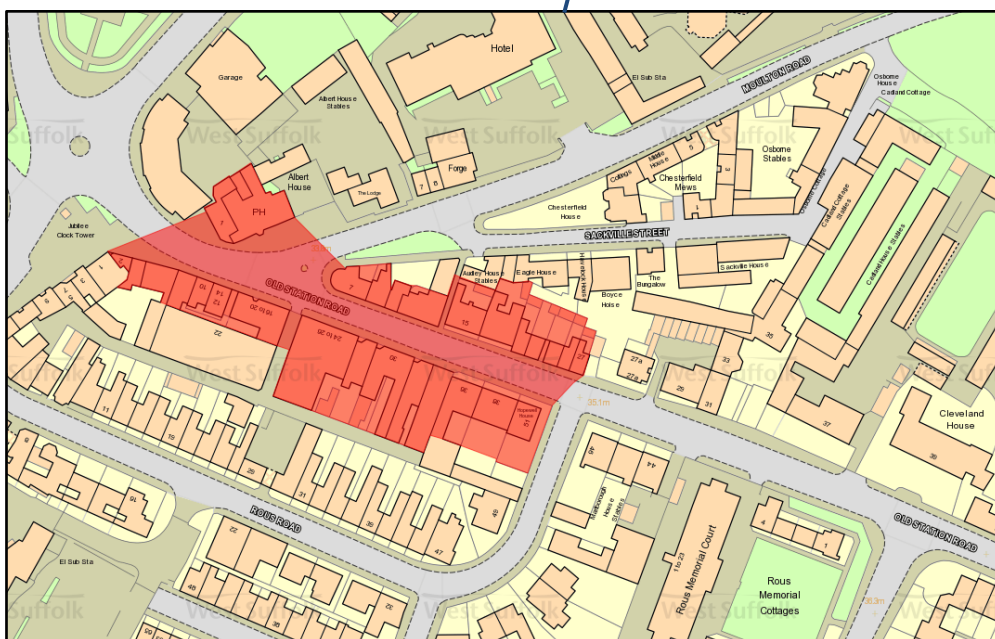


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Newmarket (centre) Diffusion Tube Locations



Newmarket AQMA Location



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective ⁴	
	Concentration	Measured as
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

⁴ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Appendix F: Air Quality Improvement Plan

Air Quality Improvement Plan

1. Introduction:

1.1 This plan outlines a variety of actions that West Suffolk councils (St Edmundsbury Borough Council and Forest Heath District Council) are delivering 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 the West Suffolk area.

1.2 The plan is not the same as the Air Quality Action Plan identified as required where there is an Air Quality Management Area (such as in Great Barton), but rather an overview of what we are doing across West Suffolk to improve air quality. The improvement plan sets out what we have already achieved and how improving air quality links with other council plans and strategies.

1.3 The key pollutants in West Suffolk are Nitrogen Dioxide (NO₂) and Particulate Matter. In West Suffolk, the majority of the air pollution comes from road transport, but there is a small contribution from industry, conventional heating and domestic solid fuel burning. As the West Suffolk population continues to grow, it is important that there is a plan in place to ensure a coordinated and focused approach to improving air quality.

1.4 Due to continued improvements in vehicle engines, there is a general long term decrease in pollution levels in West Suffolk and there are limited areas where a statutory air quality problem exists. However, improving air quality further will continue to benefit both the health of residents and visitors as well as making our towns and villages more attractive places.

1.5 Progress on measures set out within this Plan will be reported on annually within West Suffolk's Air Quality Annual Status Report.

2. Health effects of poor air quality

2.1 Air quality is one of the most important environmental issues of the present day. In the UK, around 40,000 early deaths annually are attributable to exposure to outdoor air pollution⁵. Air pollution is associated with a number of

⁵ Royal College of Physicians and Royal College of Paediatrics and Child Health, Every Breath we take – The lifelong impact of air pollution, Report of a working party, 2016

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adverse health impacts, for instance, it is recognised as a contributing factor in the onset of heart disease and cancer and has also been linked to stroke and heart disease, diabetes, obesity and changes linked to dementia¹. Air pollution particularly affects the most vulnerable in society; children and older people, and those with heart and lung conditions. There is also a strong correlation with equalities issues, indicating that areas with poor air quality often occur in less affluent areas^{6 7}.

2.2 Public Health England estimate that for the West Suffolk area, the proportion of adult deaths attributable to particulate air pollution in 2015 is slightly above the English average of 4.7%⁸.

3. Supporting plans and strategies

3.1 A number of West Suffolk Councils plans and strategies support the Air Quality Improvement Plan:

- The **West Suffolk Sustainability Strategy 2013-2018** specifies West Suffolk councils' commitment to reducing CO₂ emissions and other environmental impacts.
- The **Bury St Edmunds Town Centre Masterplan**, which sets where growth will happen and the design of streets and spaces in the town centre, all of which can impact air quality.
- The **St Edmundsbury Local Plan** and **Forest Heath Local Plan** play a key role in shaping future development which enables people and goods to move around efficiently and safely to the benefit of the economy and community, with minimum harm to the environment.
- The **West Suffolk Strategic Framework 2018-20** includes our commitment to maximising energy efficiency for our key growth sectors as well as improving the health and wellbeing of families and communities.
- The **Suffolk Health and Wellbeing Board** aims to narrow health inequalities in our affluent and poorer areas across Suffolk.

⁶Environmental equity, air quality, socioeconomic status and respiratory health, 2010

⁷ Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

⁸ www.phoutcomes.info/

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- The **Suffolk County Council Local Transport Plan 2011-2031** outlines how the county council will work with partners to achieve environmental objectives focussed around reducing air pollution and carbon dioxide emissions. This includes improving travel options such as walking and cycling to reduce congestion and improve air quality across Suffolk.
- The **Emerging West Suffolk Energy Framework** aims to identify the future energy infrastructure demand and supply in relation to a number of factors, including electric vehicles.

The plan is also in line with the **Air Quality Strategy for England, Scotland, Wales and Northern Ireland** which sets out in detail the legislative controls which local government can implement to improve air quality.

4. Partnership working

4.1 We will continue to work with central government and other Suffolk councils to maintain and improve air quality.

4.2 The responsibilities of the two tiers of UK government (central government and local government) are:

- **Central Government** - The Department for Environment Food and Rural Affairs (Defra) manages air quality nationally. It is responsible for the UK Air Quality Standards and for reporting to EU on progress with meeting the European limit values. The Department of Transport are responsible for a number of factors that influence air quality, such as setting the rates for vehicle taxation and funding major transport schemes and infrastructure projects. The Office of Low Emission Vehicles (OLEV) is responsible for promoting and funding electric and other low emission vehicles.
- **Local Government** – Local councils are responsible for Local Air Quality Management, which involves monitoring and reporting on air pollution, and delivering on an Action Plan, if an Air Quality Management Area is identified.
 - **Lower tier** authorities have responsibility for reporting on air quality in an annual status report and preparing Air Quality Action Plans under Local Air Quality Management where necessary.

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- **Upper tier** authorities have control over many aspects responsible for poor air quality, notably transport⁹, but also public health and highways¹⁰.

5. Air Quality Improvement Plan

5.1 As well as performing statutory duties to monitor air quality, reporting the findings and declaring management areas where exceedances of nationally set objectives occur, West Suffolk councils will continue to undertake non-statutory work by promoting cleaner forms of transport and working with Suffolk County Council to promote other sustainable modes of travel such as walking, cycling and public transport. West Suffolk councils will also run campaigns to positively influence the behaviour of the public in areas where air quality benefits will be seen, such as with driving style, vehicle idling and domestic fuel burning.

5.2 The actions set out below are grouped under the following themes:

- 1) Monitoring and reporting air quality in West Suffolk.
- 2) Encourage and enable cleaner and more sustainable travel throughout West Suffolk.
- 3) Limit emissions from existing and new domestic, industrial and traffic sources.

The actions identify initiatives and projects to be implemented by the councils to reduce air pollution from road transport, industry and conventional heating and domestic solid fuel burning, with an overall aim of improving air quality across West Suffolk.

⁹ Review of Local Air Quality Management (LAQM), Defra, 2015

https://consult.defra.gov.uk/communications/laqm_changes/supporting_documents/Consultation%20Impact%20Assessment.pdf

¹⁰ Local Air Quality Management, Policy Guidance, Defra, 2016

Theme 1 - Monitoring and reporting air quality in West Suffolk			
Current position	Action (Planned/Aspirational/Review)	Time-frame	Opportunity to improve air quality (HML)
<p>Monitor air quality throughout West Suffolk</p> <p>Monitoring for the pollutant Nitrogen Dioxide (NO₂) via a network of diffusion tubes. NO₂ is considered the main pollutant of concern and is a known proxy for other pollutants. The majority of pollution in West Suffolk is from road traffic and the majority of the monitoring occurs adjacent to busy roads.</p> <p>Monitoring occurs in approximately 65 locations within the towns and villages of:</p> <ul style="list-style-type: none"> • Brandon • Bury St Edmunds • Great Barton • Haverhill • Lakenheath • Mildenhall • Newmarket <p>Monitoring has historically been carried out in Icklingham, Red Lodge, Elveden, Beck Row and Kentford although monitoring in these locations was discontinued following sustained compliance with the annual objectives.</p>	<p>Review the applicability of NO₂ as a proxy for other pollutants and consider monitoring for other pollutants (e.g. particulates - PM₁₀ or PM_{2.5}) where appropriate.</p> <p>Review locations of monitoring and react to any new information or concerns that may alter the monitoring locations.</p> <p>Review the need for continuous monitoring of NO₂.</p>	<p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p>	<p>Medium</p> <p>Low</p> <p>Low</p>

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<p>Reporting of air quality levels</p> <p>Monitoring results are published on a yearly basis and compared to the Annual Mean Objective for NO₂ in an Annual Status Report, in a template as specified by the Department for Environment, Food & Rural Affairs (DEFRA).</p> <p>Our annual reports are published on our website (www.westsuffolk.gov.uk/airquality) and, as well as containing the results of our monitoring regime, will also contain details of any specific actions, campaigns or material considerations undertaken in the previous year.</p>	<p>Review statutory reporting requirements and react accordingly.</p> <p>Review the need for publishing clearer or specific data where requested.</p>	<p>Ongoing</p> <p>Ongoing</p>	<p>Low</p> <p>Low</p>
<p>Declare Air Quality Management Areas and maintain Action Plans as necessary</p> <p>Air Quality Management Areas (AQMA) are declared where the annual mean objective is consistently exceeded at relevant receptors.</p> <p>AQMAs currently exist in Great Barton, Newmarket, and on Sicklesmere Road in Bury St Edmunds. Action Plans specifically to address the issues within these AQMAs are being produced.</p>	<p>Planned to publish Air Quality Action Plans for the AQMAs in Great Barton and Sicklesmere Road.</p> <p>Review the need for the Newmarket AQMA following the completion of 2018 annual monitoring.</p> <p>Review the need for further AQMAs where monitoring results indicate this is necessary.</p>	<p>2018</p> <p>2019</p> <p>Ongoing</p>	<p>High</p> <p>Low</p> <p>Low</p>

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Theme 2 – Encourage and enable cleaner and more sustainable travel throughout West Suffolk			
Current position	Action (Planned/Aspirational/Review)	Time-frame	Opportunity to improve air quality (HML)
<p>Promote zero Emission Electric Vehicles (EVs) to the general public and businesses</p> <p>In both 2016 and 2017, West Suffolk councils held EV Showcases in the Arc shopping centre in Bury St Edmunds. These events have promoted the range of vehicles available and their air quality benefits, with a focus on providing information on the abilities of these vehicles and challenging preconceptions.</p> <p>These events have been used to help gather information on the current opinions of members of the public with regards to EVs, such as barriers to EV uptake for West Suffolk residents.</p>	<p>Planned to run further EV promotional events aimed at members of the public in partnership with local (West Suffolk) dealerships.</p> <p>Review the venue and timing of events to ensure maximum exposure to the widest audience.</p> <p>Planned to run EV promotional events aimed specifically at businesses, in tandem with the wider business events such as the West Suffolk Business Festival.</p>	<p>Yearly (Summer)</p> <p>Yearly</p> <p>Yearly (Autumn)</p>	<p>Medium</p> <p>Low</p> <p>Medium</p>
<p>Invest in Electric Vehicle charging infrastructure</p> <p>Standard 7kWh charging infrastructure is available to the public in the following West Suffolk owned car parks:</p> <ul style="list-style-type: none"> • Ram Meadow, Bury St Edmunds • Parkway Multi-Storey Car Park, Bury St Edmunds 	<p>Aspire to install on street charging in areas where residents have no off street charging options (i.e. no driveways) to enable these residents to be able to purchase EVs. This will be achieved through the OLEV On-Street Residential Chargepoint Scheme.</p>	<p>2018</p>	<p>Medium</p>

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<ul style="list-style-type: none"> • The Guineas, Newmarket • Ehringshausen Way, Haverhill <p>Lack of charging infrastructure was the main barrier to EV uptake identified through the survey at the 2017 West Suffolk EV showcase and therefore West Suffolk councils need to invest in additional charging infrastructure.</p>	<p>Planned to install a rapid chargepoint in the centre of Bury St Edmunds with funding assistance from Highways England.</p> <p>Aspire to install rapid charging infrastructure in Newmarket public car parks.</p> <p>Aspire to install standard charging in public car parks in towns with no current provision (Mildenhall, Brandon and Clare)</p>	<p>Summer 2018</p> <p>2018 / 2019</p> <p>2018 / 2019</p>	<p>Medium</p> <p>Low</p> <p>Low</p>
<p><i>Work with Suffolk County Council Highways</i></p> <p>We regularly work with Suffolk County Council Highways, who have a designated contact for air quality.</p>	<p>Planned to continue working with Suffolk County Council in a proactive and positive manner, responding to consultations and requests where appropriate.</p>	<p>Ongoing</p>	<p>Low</p>
<p><i>Promote and provide grants for Electric Vehicles to West Suffolk businesses</i></p> <p>West Suffolk Greener Business Grant, (up to £1,000 funding) and the regional BEE Anglia Grant (up to £50,000 funding) are promoted to local businesses.</p> <p>A targeted campaign to local taxi firms has already been undertaken.</p>	<p>Review grants that are applicable to electric vehicles and promote new grants to businesses as and when they become available.</p>	<p>Ongoing</p>	<p>Low</p>

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We have also undertaken cost / benefit analysis for local organisations who are looking to move to Electric Vehicles.			
Theme 3 - Limit emissions from existing and new domestic, industrial and traffic sources			
Current position	Action (Planned/Aspirational/Review)	Time-frame	Impact on air quality (HML)
<p><i>Environmental Permitting Regulations</i></p> <p>Environmental Permits are issued by West Suffolk councils under Part B of the Environmental Permitting Regulations for businesses that could impact on the local air quality Pollutants from these facilities are controlled and monitored in line with the permit and action is taken where these permits are not followed to ensure that any air quality impacts are limited.</p>	<p>Review the area periodically to identify any new businesses that may require Environmental permitting and issue where necessary.</p> <p>Planned to continue inspection duties at all permitted sites.</p>	<p>Ongoing</p> <p>Yearly</p>	<p>Low</p> <p>Low</p>
<p><i>Assess impact on air quality from new developments</i></p> <p>West Suffolk councils assess all planning applications to determine whether they require an air quality assessment, using the criteria within the EPUK document "<i>Land-Use Planning & Development Control: Planning For Air Quality</i>" to determine appropriate action.</p> <p>Bespoke actions are taken where an Air Quality Assessment identifies a potentially significant impact from or to developments.</p>	<p>Planned to continue reviewing all planning applications to assess their impact on air quality and take action where necessary.</p>	<p>Ongoing</p>	<p>Medium</p>

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<p><i>Request Electric Vehicle charging points for new developments through the planning regime</i></p> <p>All major applications (in terms of planning – i.e. 10 or more dwellings or greater than 1000m² of commercial floorspace) are subject to measures to help reduce the impact on Local Air Quality. All major developments are targeted as there are very few developments which will show a direct impact on local air quality, but all developments will have a cumulative effect. This is justified by a combination of local and national guidance such as the NPPF, Suffolk parking standards and the West Suffolk Core Strategy.</p> <p>Currently we request:</p> <ul style="list-style-type: none"> • All dwellings with off street parking should be provided with an operational electric vehicle charge point, with an electric supply to the charge point capable of providing a 7kW charge. • 5% of spaces within commercial developments shall be equipped with electric vehicle charging points. • Charging points at 'destinations' (such as hotels) or publically available facilities (such as out of town fast food restaurants) requested on a bespoke basis 	<p>Planned to strengthen the need for EV charging points within new developments by incorporating this within updated local strategies. High level work on this has begun and a coordinated approach throughout Suffolk has been discussed.</p>	<p>2018</p>	<p>Medium</p>
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depending on the exact nature of the facility and the intended uses.			
Undertake behavioural change campaigns We are working on and promoting a number of behavioural change campaigns including: <ul style="list-style-type: none"> • Anti-Idling Campaign aimed at reducing vehicle idling, especially outside schools. • Eco Driving courses provided free by the Energy Savings Trust were promoted at the EV promotional event and have been offered to West Suffolk Staff. 	Planned to launch the anti-idling campaign, initial targeting schools. Planned to continue promoting eco driving courses both to West Suffolk staff as well as to external individuals and companies.	2018 2018	Low Low
Promote better domestic fuel burning We provide useful information on efficient fuel burning on our website and distribute on social media or by other means where possible and appropriate. The information materials are produced by Defra.	Review guidance and promotional materials and update website as and when necessary.	Ongoing	Medium

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
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
FHDC	Forest Heath District Council
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
QA/QC	Quality Assurance and Quality Control
SEBC	St Edmundsbury Borough Council
SO ₂	Sulphur Dioxide
...	...