

2019 Air Quality Annual Status Report (ASR)

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

August, 2019

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Executive Summary: Air Quality in Our Area

The 2019 Annual Status Report is designed to provide the public with information relating to local air quality in Uttlesford, to fulfil Uttlesford District Council's statutory duty to review and assess air quality within its area, and to determine whether or not the air quality objectives are likely to be achieved.

In 2018, **no** monitoring locations in Uttlesford exceeded the Air Quality Objectives for nitrogen dioxide or particulate matter.

Air Quality in Uttlesford

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.

Uttlesford is considered to be rural in nature and has the principal town of Saffron Walden as its administrative centre. Uttlesford is dissected by the M11 motorway and A120 trunk road which support Stansted International Airport in the south of the district.

Traffic emissions are the most significant source of air pollution within the district and within Saffron Walden, the historic layout of the town results in problems with traffic flow and congestion particularly at peak times.

Uttlesford District Council has one Air Quality Management Area (AQMA) within the Saffron Walden town centre, declared for Nitrogen Dioxide (NO₂) exceedances. However, for the second year running, no exceedances have been measured and the highest concentrations are not even considered to be borderline with the Air Quality Objective.

The highest measured concentrations were not in the Saffron Walden AQMA but at new monitoring locations in Stansted Mountfitchet.

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

Actions to Improve Air Quality

Air Quality and Planning

Air quality issues are routinely considered in response to planning consultations within the existing policy framework. Where appropriate, planning conditions are added to developments to mitigate the potential for increased air pollution. An Air Quality Technical Planning Guidance document to support this process has been developed to inform and support the policies set out by Uttlesford District Council relating to air quality within the existing Local Plan and has been included as part of the consultation process for the new Local Plan. It is designed to take account of National Planning Practice Guidance, National Policy and relevant local information to ensure that good air quality is maintained and where possible improved through the development control process. The guidance determines when air quality assessments are required, sets out measures for on-site mitigation and provide guidance on offsetting the impact of development. In addition to traffic pollution, biomass, CHP and STOR installations are also considered.

Local Plan Submission

The new Regulation 19 Local Plan has been submitted to the Secretary of State for examination. It includes proposals for three new settlements within the district, built on garden community principles.

Policies aimed at improving air quality have been included in the submission. It is proposed to implement the following policies:

<p>Policy EN14: Pollutants</p>	<p>The potential impacts of exposure to pollutants must be taken into account in locating development, during construction and in use.</p> <p>Planning permission will not be granted where the development and uses would cause adverse impact to occupiers of surrounding land uses or the historic and natural environment, unless the need for development is judged to outweigh the effects caused and the development includes mitigation measures to minimise the adverse effects.</p> <p>Developments sensitive to pollutants will be permitted where the occupants would not experience adverse impact, or the impact can be overcome by mitigation measures.</p> <p>The potential impacts of exposure to pollutants must be taken into account in locating development, during construction and in use.</p> <p>Planning permission will not be granted where the development and uses would cause adverse impact to occupiers of surrounding land uses or the historic and natural environment, unless the need for development is</p>
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	<p>judged to outweigh the effects caused and the development includes mitigation measures to minimise the adverse effects.</p> <p>Developments sensitive to pollutants will be permitted where the occupants would not experience adverse impact, or the impact can be overcome by mitigation measures</p>
<p>Policy EN15: Air Quality</p>	<p>Development will be permitted where:</p> <p style="padding-left: 40px;">It can be demonstrated that it does not lead to significant adverse effects on health, the environment or amenity from emissions to air; or</p> <p style="padding-left: 40px;">Where a development is a sensitive end use, that there will not be any significant adverse effects on health, the environment or amenity arising from existing poor air quality.</p> <p>Applicants must demonstrate that:</p> <p style="padding-left: 40px;">There is no adverse effect on air quality in an Air Quality Management Area (AQMA) from the development;</p> <p style="padding-left: 40px;">Pollution levels within the AQMA will not have a significant adverse effect on the proposed use /users;</p> <p style="padding-left: 40px;">Development has regard to relevant Uttlesford District Council Air Quality Technical Guidance.</p> <p style="padding-left: 40px;">Development within or affecting an Air Quality Management Area (AQMA) will also be expected to contribute to a reduction in levels of air pollutants within the AQMA.</p> <p style="padding-left: 40px;">Development will not lead to an increase in emissions, degradation of air quality or increase in exposure to pollutants at or above the health-based air quality objective;</p> <p style="padding-left: 40px;">Any impacts on the proposed use from existing poor air quality, are appropriately mitigated;</p> <p style="padding-left: 40px;">The development promotes sustainable transport measures and use of low emission vehicles in order to reduce air quality impacts of vehicles;</p> <p style="padding-left: 40px;">Applicants shall, where appropriate prepare and submit with their application, a relevant assessment, taking account of guidance current at the time of application.</p> <p style="padding-left: 40px;">Where development proposals would be subject to unacceptable air quality standards or would have an acceptable impact on air quality standards they will be refused.</p> <p style="padding-left: 40px;">Where emissions from the proposed development approach EU Limit values or national objectives the applicant will need to assess the impact on local air quality by undertaking an appropriate air quality assessment and detailed modelling exercise having regard to guidance current at the time of the application to show that the national objectives will still be achieved.</p>

Larger development proposals that require a Travel Plan and Transport Assessments/Statements as set out in Policy TA1 will be required to produce a site based Low Emission Strategy. This will be a condition on any planning permission given for any proposed development which may result in the deterioration of local air quality and will be required to ensure the implementation of suitable mitigation measures.

<p>Policy TA1: Accessible development:</p>	<p>Development and transport planning will be co-ordinated to reduce the need to travel by car, increase public transport use, cycling and walking, and improve accessibility and safety in the district while accepting the rural nature of the district. The overall need to travel (especially by car) to meet day to day service needs will be minimised.</p>
<p>Policy TA2: Sustainable Transport:</p>	<p>Sustainable modes of transport should be facilitated through new developments to promote accessibility and integration into the wider community and existing networks. Priority should be given to cycle and pedestrian movements and access to public transport.</p>
<p>Policy TA4: New Transport Infrastructure or Measures:</p>	<p>The provision of new or enhanced transport infrastructure and initiatives will be pursued and implemented in partnership with the relevant transport providers. Developer funding for or provision of highway and transportation works and measures will be sought as appropriate.</p>

Conclusions and Priorities

Air quality monitoring undertaken by Uttlesford District Council has identified that for the second year running, there were no exceedances of the annual mean objective for Nitrogen Dioxide within the Saffron Walden AQMA.

If the current pollution concentrations stay below 10% of objective levels at positions of relevant exposure, the status of the AQMA can be reviewed.

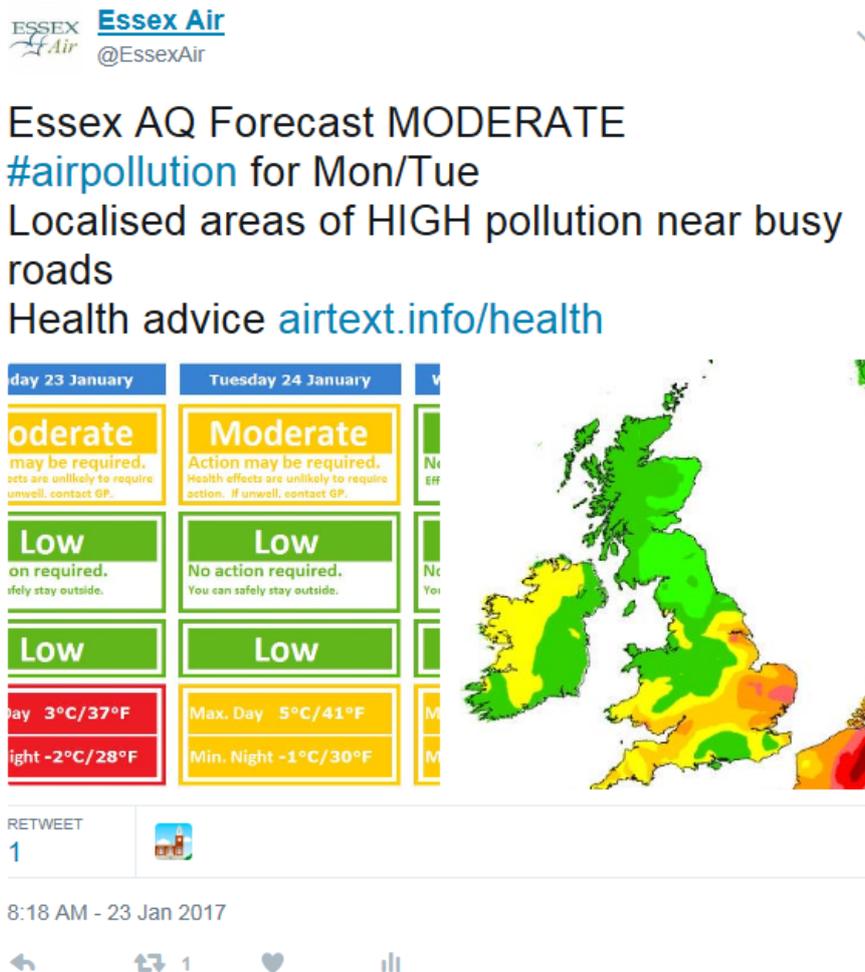
In 2019, Uttlesford District Council will work to deliver measures contained within the Air Quality Action Plan.

Monitoring of NOx and particulates will be extended during 2019, to include further use of diffusion tubes to monitor nitrogen dioxide and sensors to monitor nitrogen dioxide and particulates at locations within the district, to ensure air quality is assessed at pollution hotspots.

Local Engagement and How to get Involved

Uttlesford District Council is a member of the Essex Air Quality consortium. The purpose of the Essex Air is to promote improvements in air quality related issues. The Essex Air [web site](#) provides a daily forecast of air pollution. Also, the [@EssexAir](#) twitter feed provides localised weekly air pollution forecasts.

Figure i.1 - Essex Air Twitter Air Quality Notifications



Links to Defra recommended actions and health advice are provided when air pollution is likely to be moderate or higher. This will enable those with heart or lung conditions, or other breathing problems to make informed judgements about their levels of activity or exposure.

Table of Contents

Executive Summary: Air Quality in Our Area	i
Air Quality in Uttlesford	i
Actions to Improve Air Quality	ii
Conclusions and Priorities	iv
Local Engagement and How to get Involved	v
1 Local Air Quality Management	1
2 Actions to Improve Air Quality	2
2.1 Air Quality Management Areas.....	2
2.2 Progress and Impact of Measures to address Air Quality in Uttlesford	4
2.3 PM _{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations.....	8
3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance	9
3.1 Summary of Monitoring Undertaken	9
3.1.1 Automatic Monitoring Sites	9
3.1.2 Non-Automatic Monitoring Sites.....	9
3.2 Individual Pollutants	10
3.2.1 Nitrogen Dioxide (NO ₂).....	10
3.2.2 Particulate Matter (PM ₁₀).....	10
3.2.3 Particulate Matter (PM _{2.5}).....	10
3.2.4 Monitoring Changes	11
Appendix A: Monitoring Results	12
Appendix B: Full Monthly Diffusion Tube Results for 2018	21
Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC	23
Appendix D: Maps of Monitoring Locations and AQMAs	27
Appendix E: Summary of Air Quality Objectives in England	31
Glossary of Terms	33
References	34

List of Tables

Table 2.1 – Declared Air Quality Management Areas.....	3
Table 2.2 – Progress on Measures to Improve Air Quality	4
Table A.1 – Details of Automatic Monitoring Sites.....	12
Table A.2 – Details of Non-Automatic Monitoring Sites	13
Table A.3 – Annual Mean NO ₂ Monitoring Results.....	15
Table A.4 – 1-Hour Mean NO ₂ Monitoring Results	18
Table A.5 – Annual Mean PM ₁₀ Monitoring Results.....	18
Table A.6 – 24-Hour Mean PM ₁₀ Monitoring Results.....	19
Table A.7 – PM _{2.5} Monitoring Results.....	19
Table B.1 – NO ₂ Monthly Diffusion Tube Results – 2018	21
Table C.1 – AIR PT Results 2018.....	23
Table C.2 – UT040 Data Annualisation	25
Table C.3 – UT041 Data Annualisation	25
Table E.1 – Air Quality Objectives in England	31
Table E.2 – Examples of Where the Air Quality Objectives Should Apply.....	31

List of Figures

Figure i.1 - Essex Air Twitter Air Quality Notifications	v
Figure 2.1 - Public Health Indicator 3.01 - Fraction of mortality attributable to particulate air pollution.....	8
Figure A.1 – Trends in Diffusion Tube Annual Mean NO ₂ Concentrations	17
Figure A.2 - UTT2 Indicative PM ₁ , PM _{2.5} , PM ₁₀ Measurements.....	20
Figure D.1 – Saffron Walden AQMA and Monitoring Locations.....	27
Figure D.2 – Newport Monitoring Locations.....	28
Figure D.3 – Stansted Mountfitchet Monitoring Locations	29
Figure D.4 – Takeley Monitoring Locations	30

1 Local Air Quality Management

This report provides an overview of air quality in Uttlesford during 2018. 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 Uttlesford District Council 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 (AQMAs) 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 the AQMA declared by Uttlesford District Council can be found Table 2.1. Further information related to AQMAs in Uttlesford, including the AQMA order and maps of AQMA boundaries are available online at https://uk-air.defra.gov.uk/aqma/details?aqma_ref=1520.

Alternatively, see Appendix D: Maps of Monitoring Locations and AQMAs, which provides maps 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
Saffron Walden AQMA	Declared 01/08/2007 Amended 12/09/2012	NO ₂ Annual Mean	Saffron Walden	Circle of radius 1400m radius centred on Elm Grove in Saffron Walden Town Centre. Revokes and replaces 3 previous Uttlesford AQMAs	NO	42.9	µg/m ³	31.5	µg/m ³	Air Quality Action Plan 2017-2022	Oct-17	https://www.uttlesford.gov.uk/CHttpHandler.ashx?id=7346&p=0

Uttlesford District Council 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 Uttlesford

In 2017 the Council adopted a new 5-year Air Quality Action Plan which sets out local measures proportionate to the level of previous exceedances at key junctions within Saffron Walden AQMA which Uttlesford will deliver with the aim of maintaining good air quality and preventing further exceedances of the relevant objective at residential properties or other sensitive receptors.

Progress on delivering the measures is set out in Table 2.2 and a priority for the coming year will be to continue to deliver measures set out within the Action Plan.

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	To revise planning policies which will ensure the impact on air quality in the AQMA is given adequate consideration and weight in the decision-making process.	Policy Guidance and Development Control	Air Quality Policies	UDC	2017	Concurrent with adoption of Local Plan	Policies contained in the Local Plan once adopted. Use of sec 106 funds to implement action plan	Low, but potential to mitigate against emission increases associated with future growth.	Policies have been included in the submitted Regulation 19 Local Plan Cost: within existing resources.		
2	To produce a planning Technical Guidance document for air quality, to ensure the impacts of new development on the AQMA, new receptors in the AQMA, and the level of mitigation are fully considered in all applications.	Policy Guidance and Development Control	Air Quality Technical Guidance	UDC	Early 2017	Late 2017	Publicly available by December 2017	Low, but potential to mitigate against emission increases associated with future growth.	Technical Guidance document has been completed and included in the Regulation 19 Local Plan. Cost within existing resources		
3	To work with ECC to facilitate the provision of new cycle/pedestrian routes and cycle storage, and promote the routes available.	Transport Planning and Infrast	Cycle Network	ECC & UDC	2017	2017-2022	Number of new routes provided, increase in no of storage facilities per annum and	Low, dependant on reduction in number of vehicles on road network	UDC has held meetings with ECC to review existing provisions and work with ECC on an on-going basis to achieve outcomes, regular further meetings to be held.		Outcomes dependent on priorities & developer contributions, which the plan cannot timescale.

Uttlesford District Council

		structure					users of facilities year on year				
4	UDC to increase cycle storage on Council owned sites in Saffron Walden where practical to do so.	Transport Planning and Infrastructure	Cycle Network	UDC	2017	2018	Increase in no of storage facilities and users of facilities from baseline	Low, dependant on reduction in number of vehicles on road network	To link in with the Travel plan. Engage with property services & apply for funding where appropriate where need has been identified. Feasibility study by August 2019.		
5	To assist ECC in working with local schools and businesses in the review and upgrading of existing travel plans or to assist individual schools or businesses to develop and promote plans	Promoting Travel Alternatives	School and workplace travel planning	ECC & UDC	Engage with ECC and other stakeholders by mid-2017	2018-2022	Number of new or upgraded TPs. Increase in walking or cycling to school or workplace from baseline	Low, dependant on reduction in number of vehicles on road network	Cost within existing resources		Reliance on joint working with ECC and other stakeholders to develop new travel plans.
6	To support the extension of phone signal coverage and superfast broadband service to all parts of the district.	Promoting Travel Alternatives	Facilitating home working	ECC & UDC	2017	To be confirmed	Number of businesses and homes enabled to access superfast broadband by 2019. Increase in no of people regularly working from home	Low, dependant on reduction in number of vehicles on road network	UDC investment of £500k towards inclusion in Superfast Essex broadband procurement to be implemented by end of 2019.		
7	To work with ECC Highways to develop a scheme of measures aimed at improving junction capacity within the AQMA identified to be necessary as part of the Local Plan once adopted.	Traffic Management	Congestion management	ECC	2019	To be confirmed	Junction capacity improvements at the four key junctions identified in the action plan. Reduction in queue lengths from identified baseline.	Medium, dependant on reduced congestion	UDC has held meetings with ECC to review existing provisions and work with ECC on an on-going basis to achieve outcomes, regular further meetings to be held. Some funding available from sec 106 agreements.		Reliant on ECC work programme following approval of the Local Plan and developer contributions once commenced. Timescale beyond control of UDC.
8	To work with ECC to assess whether changes to junction configurations and signal controls, control of parking measures on main routes through the town and access to the centre by HGVs which will demonstrably reduce congestion can be identified and implemented ahead of adoption of the local plan	Traffic Management	Congestion management	ECC	2017-18	To be confirmed	Improvements to junctions carried out, improved parking on main routes, restrictions to HGVs. Reduction in queue lengths	Medium, dependant on reduced congestion	No progress. To engage with ECC and North Essex Parking Partnership (NEEP) – September 2019		Reliant on ECC and North Essex Parking Partnership (NEEP) to be in agreement with any changes. No realistic target date can be applied
9	To support targeted enforcement of parking restrictions where identified to	Traffic Management	Parking enforcement on highway	UDC	2017	2018	No of parking penalty notices issued on main routes	Low, dependant on reduced congestion	Planned workstream delayed until October 2019. Cost within existing resources.		

Uttlesford District Council

	be an issue, on main routes through the town										
10	To provide clear informative signage to Swan Meadow car park, new amenities, leisure centre, food stores, Audley End	Transport Planning and Infrastructure	Other	UDC	2017	2018	No of new signs provided	Low, dependant on reduced congestion	Appropriate signage on approaches to facilities provided, to be kept under review as new development is delivered		
11	To review UDC travel plan and review opportunities for a shared travel plan with partner organisations using UDC facilities	Promoting Travel Alternatives	Workplace Travel Plans	UDC	2017	2019	Revised UDC TP by end of 2017. Reduction in car travel to work as measured by survey & occupied car spaces, reduction in business mileage of 5% pa	Low, dependant on reduced congestion	Conduct a UDC workplace travel survey within 2019. Cost within existing resources		
12	To pursue options to install renewable energy technologies at suitable sites within Saffron Walden, to review UDC fleet procurement and implement changes where identified as practicable, and likely emission reductions justify the capital expenditure	Promoting Low Emission Plant and transport	Low emission fuels for stationary sources, company vehicle procurement, prioritising uptake of low emission fuels	UDC	2017	2017-2022	No kW renewable energy within SW, review of fuel usage and type, no of UDC LEVs	Medium	Meetings held with vehicle procurement to consider options for fleet procurement and conversion of existing fleet to low emission fuel, and cost benefit. Further meetings to be held according to procurement timetable. Cost capital investment and staff time		
13	To encourage ECC to procure bus services with integrated timetables, high quality facilities, and a frequent and reliable service linked to the rail service at Audley End. Information on Public Transport services to be readily available in UDC buildings and via the website.	Transport Planning and Infrastructure	Public transport service improvements	ECC & UDC	Mid 2017	2018-19	No of new or improved services available, information available in UDC buildings. Increase in bus usage of 5%	Low	No progress		
14	To identify opportunities to raise public awareness of air quality issues through education initiatives and publicity campaigns	Public Information	Via leaflets Via the internet	UDC	2017-2022	2017-2022	No of campaigns, target one per annum.	Low, dependant on behavioural changes	Targeted campaign delivered to schools & the general public, coincided with National Clean Air Day in June 2018 & June 2019 Cost within existing resources		

Uttlesford District Council

15	To provide advice and raise awareness of car sharing and associated database software available to employers	Alternatives to private vehicle use	Car and lift sharing schemes	UDC	2017	2018	No of new car sharing schemes set up, target one per annum. Reduction of 1-5% of private car commuter journeys	Low dependant on reduced congestion	In house promotion linked to Clean Air Day 2018 & 2019 Cost within existing resources		Scheme uptake outside control of UDC. However, district wide promotion of schemes to take place on an annual basis as part of other awareness linked to measure 14.
16	To consider the provision of preferential charging for UDC controlled parking spaces for vehicles meeting low emission standards	Traffic Management	Emission based parking or permit schemes	UDC	2019	2020	Review of charging policy	Low, dependant on raised uptake of LEVs	To carry out a feasibility study of permit style scheme by March 2020 incorporating capital costs and take up of LEV's		
17	To engage with the Uttlesford licensed operators with the aim of introducing emission controls for licensed taxis operating within the AQMA.	Promoting low emission transport	Taxi licence conditions	UDC	2017	2018	Review of licensing policy	Low	Upgraded licensed vehicle emissions policy.		
18	To encourage ECC to set emission standards for new and existing buses under contract operating within the AQMA	Vehicle fleet efficiency	Promoting low emission public transport	ECC	2017-18	To be confirmed	Review of contractual arrangements	Low	No progress		
19	To work with the operators of fleet vehicles within the town to facilitate the introduction of LEV's	Promoting low emission transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	UDC	2018	To be confirmed	No of LEV fleet vehicles on town road network.	Potentially medium, dependant on uptake of vehicles.	No progress		Reliance on engagement with fleet operators to achieve outcome.
20	Provide electric charging points on UDC owned parking spaces in the town where practical and economically feasible to do so, and encourage the provision of points at suitable privately owned sites	Promoting low emission transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging	UDC	2018	2019-2022	No of points installed per annum, target 4	Potentially medium, dependant on uptake of vehicles.	Existing provision two points on UDC sites. Point due to be delivered at The Common car park in 2019, other UDC car parks under survey.		
21	To work with ECC on introducing delivery time restrictions to High Street SW	Freight and delivery management	Off peak hours deliveries	ECC	2017	To be confirmed	Restrictions in place, reductions in HGV parking	Low	No progress		
22	To carry out additional monitoring of NO2 within Saffron Walden to inform basis for decision making.	Public Information	Other	UDC	2017	2017-2022	Provision of localised data for incorporation into air quality modelling	Low, provides evidence base for actions	Permanent Automatic monitoring station at London Road scheduled for 2019. Extension of diffusion tube sites to include co-location.		

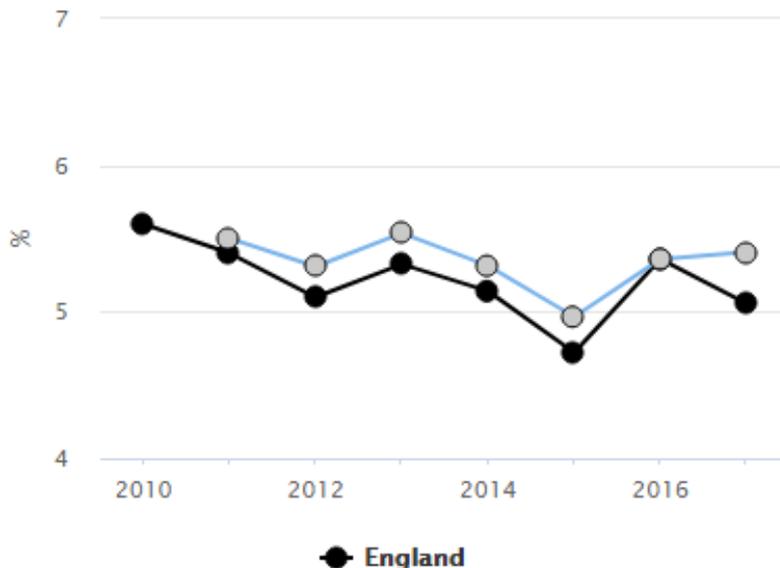
2.3 PM_{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations

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.

Uttlesford District Council monitors PM_{2.5} concentrations within Saffron Walden town centre. Since monitoring started in 2014, monitored concentrations have been below 20µg/m³ and are likely to be representative of the local area.

Uttlesford District Council notes the Public Health Outcomes Framework indicator 3.01 – Fraction of mortality attributable to particulate (PM_{2.5}) air pollution which for 2017 gave a value of 5.4% which is slightly below average for the East of England region (5.5%).

Figure 2.1 - Public Health Framework Indicator 3.01 Fraction of all-cause adult mortality attributable to anthropogenic particulate air pollution



Uttlesford District Council is taking the following measures to address PM_{2.5}:

- Use of Essex Air twitter to encourage the reporting of smoky vehicles through the DVSA reporting service. It is possible to report either heavy goods vehicles or public service vehicles (buses).
- Regular inspections of permitted industry where combustion and non-combustion processes could lead to anthropogenic emissions of PM_{2.5}.

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

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

Uttlesford District Council undertook automatic (continuous) monitoring with reference analysers at three sites during 2018.

- Site UTT1 measuring PM_{2.5}
- Site UTT2 measuring NO₂
- Site UTT3 measuring NO₂ and PM₁₀

In addition to reference analysers, Uttlesford District Council operates a Turnkey Osiris particulate analyser measuring total suspended particles, PM₁, PM_{2.5} and PM₁₀ at site UTT2.

This analyser is being used for taking indicative measurements of pollution peaks and trends. It is not meant to replace continuous ambient air quality monitoring that use reference methods. As such, results are not being formally reported but a chart showing measurements can be seen in Figure A.2.

Table A.1 in Appendix A provides detail of the sites.

Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

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

3.1.2 Non-Automatic Monitoring Sites

Uttlesford District Council undertook non-automatic (passive) monitoring of NO₂ at 29 sites during 31.

Table A.2 in Appendix A shows the details of the sites.

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.

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

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.3 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 2018 dataset of monthly mean values is provided in Appendix B.

Table A.4 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

In 2018, Uttlesford District Council did not measure any exceedances of the annual mean or 1-Hr mean Air Quality Objective for Nitrogen Dioxide (NO₂).

3.2.2 Particulate Matter (PM₁₀)

Table A.5 in Appendix A compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

Table A.6 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past 5 years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

In 2018, Uttlesford District Council did not measure any exceedances of the annual mean or 24-Hr mean Air Quality Objective for Particulate Matter (PM₁₀).

3.2.3 Particulate Matter (PM_{2.5})

Table A.7 in Appendix A presents the ratified and adjusted monitored PM_{2.5} annual mean concentrations for the past 5 years.

Air quality monitoring identified that PM_{2.5} fine particulate matter was below the target values set for the National Air Quality Objectives.

3.2.4 Monitoring Changes

The UTT1 Hill Street automatic monitoring site was set up in 1997 at the start of the Councils Local Air Quality Management obligations under the Environment Act 1995, and the NO_x analyser dates from then. During 2017, a series of faults occurred with the analyser, which resulted in data for year not being of high enough capture rate to report or use to calculate bias adjustment purposes. These faults were not immediately apparent to Uttlesford District Council or the service company.

By the end of 2017, the analyser was functioning, but during early 2018 further faults began to occur and components compatible with the aged analyser were unavailable. The NO_x analyser was decommissioned in 2018.

A new station UTT2 was set up at the start of 2018 at the site of Thaxted Road and Radwinter Road junction. This monitoring site has a reference analyser measuring nitrogen dioxide and an indicative analyser measuring total suspended particles, PM₁, PM_{2.5} and PM₁₀. Diffusion tubes will be colocated from the beginning of 2019.

From the start of 2019, a monitor for PM_{2.5} has been introduced at station UTT3 London Road, to complement the existing NO_x and PM₁₀ analysers. Diffusion tubes will be colocated at the site from 2020 to provide two local bias adjustment figures that can be applied to diffusion tube data.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
UTT1	Hill St, Saffron Walden	Roadside	553825	238409	PM _{2.5}	Y	BAM (with Smart Heater)	25	4.1	2
UTT2	Junction Thaxted Rd & Radwinter Rd, Saffron Walden	Roadside	554358	238444	NO _x , NO, NO ₂	NO	Chemiluminescent	0	2	1
UTT3	London Road, Saffron Walden	Roadside	553570	237908	NO _x , NO, NO ₂ ; PM ₁₀	NO	Chemiluminescent, BAM	6	3	2.8

Notes:

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

(2) N/A if not applicable.

Table A.2 – 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)
UT001	High Street	Urban Centre	553709	238417	NO ₂	Yes	15	1.5	NO	2
UT003	Gibson Gardens	Urban Background	553554	238218	NO ₂	Yes	5.1	1.5	NO	2
UT004	YHA	Kerbside	553598	238595	NO ₂	Yes	0.8	0.4	NO	2
UT005	Thaxted Road	Kerbside	554336	238454	NO ₂	Yes	2.4	0.5	NO	2
UT009	Burton End	Roadside	552403	223965	NO ₂	No	17	27	NO	2
UT010	Newport	Kerbside	551246	233649	NO ₂	No	40	0.1	NO	2
UT011	33 High Street	Urban Centre	553697	238452	NO ₂	Yes	0	2.7	NO	2
UT012	Town Hall	Urban Background	553879	238510	NO ₂	Yes	20	0.1	NO	2
UT013/UTT014/UTT027	Fire Station Co-Located	Roadside	553825	238409	NO ₂	Yes	25	4.1	YES	2
UT015	57 High Street, Saffron Walden	Roadside	553739	238317	NO ₂	Yes	0	4	NO	2
UT016	Radwinter Road, Saffron Walden	Roadside	554413	238474	NO ₂	Yes	8	1.6	NO	2
UT017	Stortford Rd, Lt Canfield	Roadside	560023	221444	NO ₂	No	14	2.5	NO	2
UT018	17 Cambridge Road, Stansted	Roadside	551035	225199	NO ₂	No	3	1.5	NO	2
UT019	Silver Street, Stansted	Roadside	550950	225039	NO ₂	No	3.5	2	NO	2

Uttlesford District Council

UT020	Grove Hill, Stansted	Roadside	551535	225065	NO ₂	No	0	3.3	NO	2
UT021	41 East Street, Saffron Walden	Roadside	554212	238436	NO ₂	Yes	0	2	NO	2
UT024	Takeley Hill	Rural	554671	221010	NO ₂	No	N/A	118	NO	2
UT028	London Rd	Roadside	553755	238092	NO ₂	Yes	0.8	2	NO	2
UT029	Debden Road	Roadside	553770	238076	NO ₂	Yes	0.5	0.5	NO	2
UT030	Friends School	Kerbside	553875	237764	NO ₂	Yes	10	0.5	NO	2
UT031	Mount Pleasant Road	Roadside	554178	237767	NO ₂	Yes	2	1.5	NO	2
UT032	Borough Lane	Roadside	553625	237856	NO ₂	Yes	0	7	NO	2
UT033	Chapel Hill	Roadside	551377	224913	NO ₂	No	0	3	NO	2
UT034	Four Ashes	Roadside	556101	221243	NO ₂	No	8	1.5	NO	2
UT036	Church Street	Urban Centre	553718	238530	NO ₂	Yes	0	1	NO	2
UT037	Castle Street	Kerbside	553923	238770	NO ₂	Yes	1	1	NO	2
UT039	Newport High Street	Roadside	552156	234034	NO ₂	No	0	1.2	NO	2
UT040	Belmont Hill, Newport	Roadside	552113	234505	NO ₂	No	0	6	NO	2
UT041	Rose Cott, Newport	Roadside	552091	233630	NO ₂	No	0	3	NO	2

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.

Table A.3 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2014	2015	2016	2017	2018
UTT2	Roadside	Automatic	85.63	78.05	N/A	N/A	N/A	N/A	35.31
UTT3	Roadside	Automatic	75.56	75.56	N/A	N/A	23.95	18.34	21.17
UT001	Urban Centre	Diffusion Tube	100.00	100.00	33.06	36.35	40.04	33.96	19.16
UT003	Urban Background	Diffusion Tube	100.00	100.00	13.66	12.26	16.22	13.43	11.20
UT004	Kerbside	Diffusion Tube	91.67	91.67	37.34	42.17	46.90	38.00	30.61
UT005	Kerbside	Diffusion Tube	100.00	100.00	38.59	41.17	47.52	37.98	28.46
UT009	Roadside	Diffusion Tube	100.00	100.00	33.61	35.51	43.04	36.82	28.11
UT010	Kerbside	Diffusion Tube	100.00	100.00	23.80	25.10	31.02	25.02	14.78
UT011	Urban Centre	Diffusion Tube	91.67	91.67	30.63	32.90	38.57	30.97	29.02
UT012	Urban Background	Diffusion Tube	100.00	100.00	19.01	18.52	20.48	16.20	11.14
UT013/UT014/UT027	Roadside	Diffusion Tube	100.00	100.00	22.10	21.44	25.84	21.32	18.76
UT015	Roadside	Diffusion Tube	100.00	100.00	N/A	N/A	N/A	N/A	25.76
UT016	Roadside	Diffusion Tube	100.00	100.00	N/A	N/A	N/A	N/A	32.12
UT017	Roadside	Diffusion Tube	50.00	50.00	N/A	N/A	N/A	N/A	14.87
UT018	Roadside	Diffusion Tube	100.00	100.00	N/A	N/A	N/A	N/A	26.72
UT019	Roadside	Diffusion Tube	100.00	100.00	N/A	N/A	N/A	N/A	35.02
UT020	Roadside	Diffusion Tube	83.33	83.33	N/A	N/A	N/A	N/A	35.65

Uttlesford District Council

UT021	Roadside	Diffusion Tube	100.00	100.00	N/A	N/A	N/A	N/A	27.05
UT024	Rural	Diffusion Tube	83.33	83.33	13.49	14.73	17.01	15.49	13.06
UT028	Roadside	Diffusion Tube	100.00	100.00	35.01	37.96	44.76	37.44	33.36
UT029	Roadside	Diffusion Tube	100.00	100.00	25.04	21.58	26.50	21.41	20.46
UT030	Kerbside	Diffusion Tube	100.00	100.00	27.16	29.01	35.27	26.10	27.16
UT031	Roadside	Diffusion Tube	100.00	100.00	22.03	22.00	26.22	21.38	19.83
UT032	Roadside	Diffusion Tube	100.00	100.00	16.92	16.79	19.71	17.36	15.21
UT033	Roadside	Diffusion Tube	100.00	100.00	26.91	27.61	36.18	26.99	26.92
UT034	Roadside	Diffusion Tube	100.00	100.00	26.41	26.08	35.15	29.79	26.23
UT036	Urban Centre	Diffusion Tube	100.00	100.00	22.24	21.63	27.09	20.87	19.16
UT037	Kerbside	Diffusion Tube	100.00	100.00	25.73	24.19	29.08	23.97	22.01
UT039	Roadside	Diffusion Tube	100.00	100.00	N/A	N/A	N/A	31.35	30.11
UT040	Roadside	Diffusion Tube	100.00	50.00	N/A	N/A	N/A	N/A	19.80
UT041	Roadside	Diffusion Tube	100.00	50.00	N/A	N/A	N/A	N/A	18.65

Diffusion tube data has been bias corrected

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.

Figure A.1 – Trends in Diffusion Tube Annual Mean NO₂ Concentrations

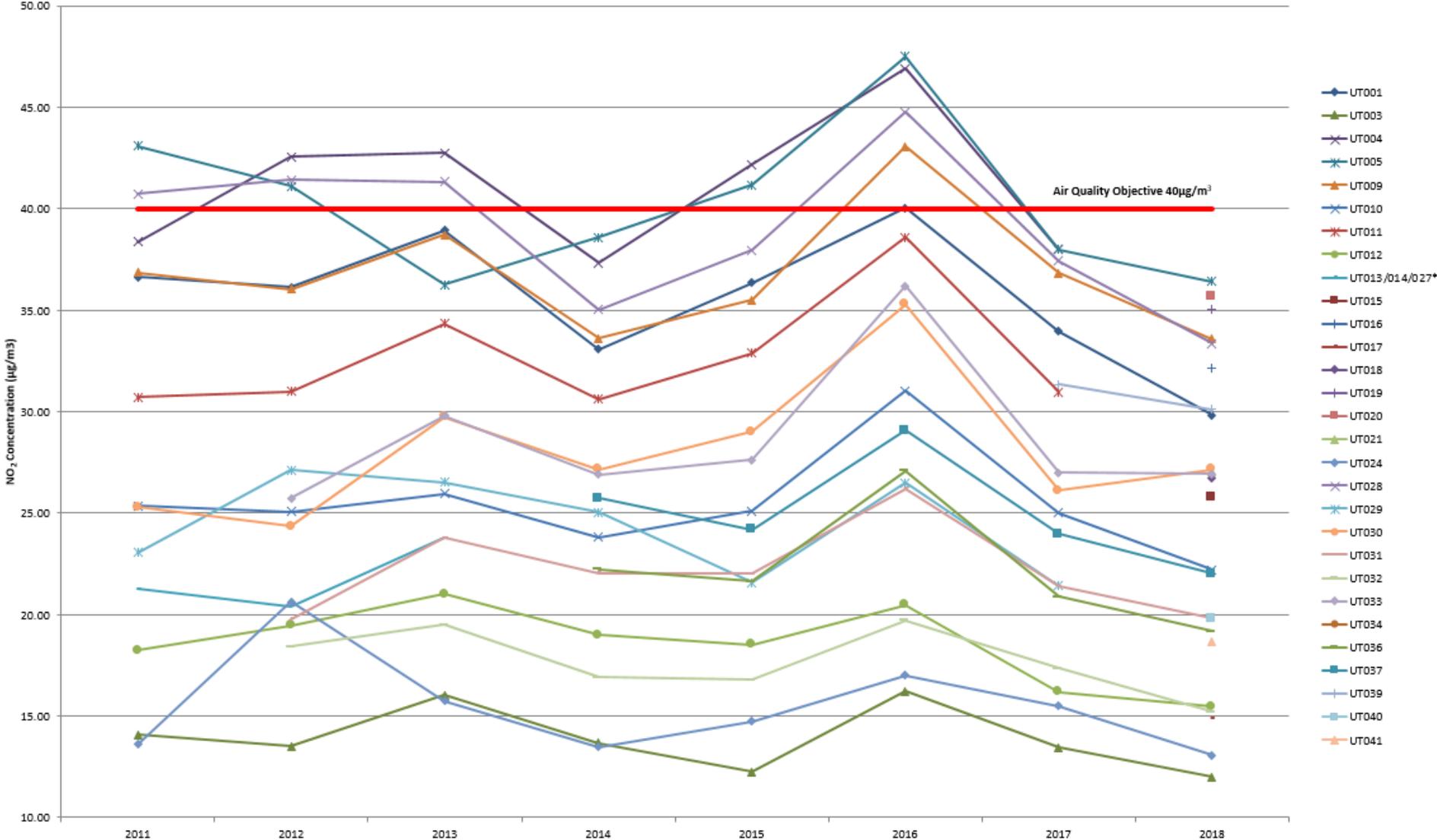


Table A.4 – 1-Hour Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽³⁾				
					2014	2015	2016	2017	2018
UTT2	Roadside	Automatic	85.63	78.05	N/A	N/A	N/A	N/A	0 (139.31)
UTT3	Roadside	Automatic	75.56	75.56	N/A	N/A	0 (133.57)	1	0 (102.71)

Notes:

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

(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) If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

Table A.5 – Annual Mean PM₁₀ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	PM ₁₀ Annual Mean Concentration (µg/m ³) ⁽³⁾				
				2014	2015	2016	2017	2018
UTT3	Roadside	73.15	73.15	N/A	N/A	24.5	24.18	25.52

Notes:

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

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

Table A.6 – 24-Hour Mean PM10 Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	PM ₁₀ 24-Hour Means > 50µg/m ³ ⁽³⁾				
				2014	2015	2016	2017	2018
UTT3	Roadside	73.15	73.15	N/A	N/A	6 (43.47)	19	8 (38.63)

Notes:

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

(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) If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

Table A.7 – PM2.5 Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	PM _{2.5} Annual Mean Concentration (µg/m ³) ⁽³⁾				
				2014	2015	2016	2017	2018
UTT1	Roadside	82.74	82.74	19.6	19.3	17.27	18.45	17.52

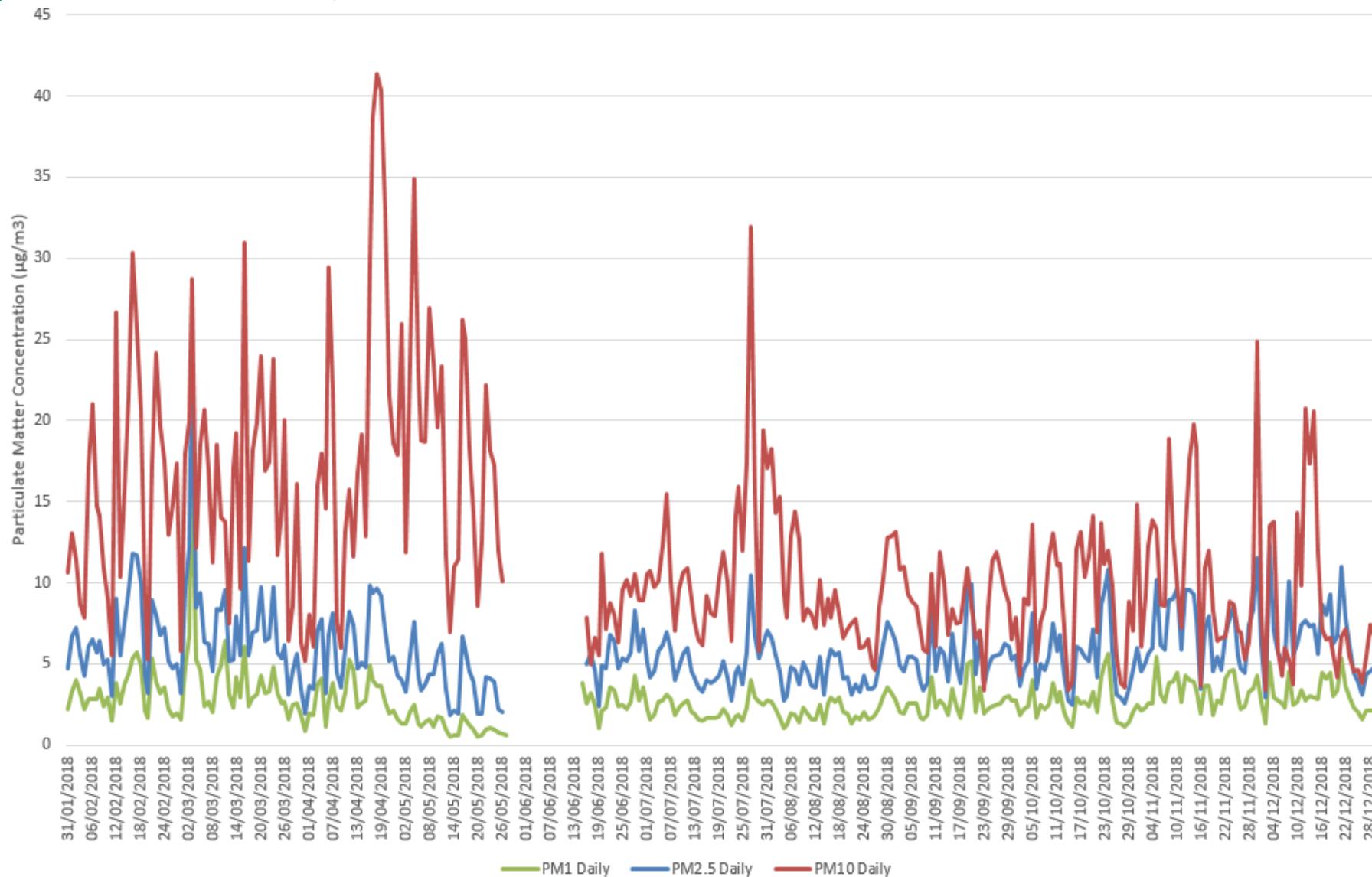
Notes:

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

Figure A.2 UTT2 Indicative PM1, PM2.5 & PM10 Measurements



Appendix B: Full Monthly Diffusion Tube Results for 2018

Table B.1 – NO₂ Monthly Diffusion Tube Results – 2018

Site ID	NO ₂ Mean Concentrations (µg/m ³)												Annual Mean		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.76) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
UT001	30.5	39.0	44.5	42.0	34.5	28.9	46.1	38.3	40.2	42.7	41.7	42.8	39.3	29.8	19.2
UT003	21.4	20.3	21.3	17.1	8.1	8.1	10.8	10.3	13.5	17.8	21.1	19.6	15.8	12.0	11.2
UT004	49.5	43.2	47.3	53.8	40.5	34.1	49.8	Missing	47.5	48.9	51.3	47.2	46.6	35.5	30.6
UT005	50.3	47.7	51.8	49.9	45.7	44.4	56	41.4	49.2	48.7	43.3	46.7	47.9	36.4	28.5
UT009	53.4	40.8	46.2	39.7	42.2	36.1	41.3	39.4	49.6	50.6	41.8	49	44.2	33.6	28.1
UT010	41.3	30.9	36.5	21.9	18.2	17.4	26.2	27.1	32.3	29.2	35.4	34.1	29.2	22.2	14.8
UT011	47.1	34.5	42.1	37.4	34.7	29.6	40.4	Missing	37.4	36.4	36.4	44	38.2	29.0	29.0
UT012	23.8	23.5	25.5	21.1	14.1	12.1	16.4	14.1	18.6	22.8	27.3	24.6	20.3	15.4	11.1
UT013	32.4	27.4	32.3	24	18.8	19.4	21.7	19.1	22.4	25.3	27.4	27.4	24.8	18.8	13.7
UT014	33.2	25.1	33.3	27.3	17.8	17.5	20.2	19.1	22.3	25.6	27	27.9	24.7	18.8	13.7
UT015	42.4	33.6	36	32.8	27.2	25.4	37.2	31.5	38.8	37.7	27.3	36.8	33.9	25.8	25.8
UT016	47.1	42.6	51.5	46.2	32.4	34	45.7	36.7	41.8	38.3	50.4	40.4	42.3	32.1	23.6
UT017	N/A	N/A	N/A	N/A	N/A	N/A	17.1	16	16.9	24.5	21.1	21.8	19.6	14.9	13.1
UT018	41.1	40.3	43.4	38.2	27.1	24.9	35.2	29.3	31.2	36.2	41.4	33.6	35.2	26.7	22.7
UT019	50.1	51.3	55.7	46.2	43.7	40	48	37.4	46.1	48.4	39.3	46.8	46.1	35.0	28.8
UT020	Missing	Missing	51.2	51.4	42.8	36.2	57.4	47.4	46.7	46.3	49.7	40	46.9	35.7	35.7
UT021	36.9	41	45.1	35.9	33.5	30.2	34.4	26.4	30.1	37.1	39	37.5	35.6	27.0	27.0
UT024	21.2	20.1	17.2	18.6	Missing	Missing	11.6	11.4	16.1	19.3	19.2	17.2	17.2	13.1	13.1

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UT027	32.1	27.5	31.5	26.9	17.2	18.4	20.6	18.5	22.7	24.2	26.5	28.5	24.6	18.7	13.6
UT028	51.4	42.1	49.5	45.7	39.2	36.4	39.1	39.7	47.1	48.4	45.3	42.8	43.9	33.4	31.5
UT029	31	27.8	31	25.3	18.5	16.8	27	22.7	28.2	32.1	34.6	28.1	26.9	20.5	19.1
UT030	37.5	39.9	40	34.3	34.8	30.9	36.7	27.3	32.3	37.5	42.1	35.6	35.7	27.2	17.6
UT031	28.1	28.8	31.8	25.6	19.1	19.3	23.3	21.1	25.5	29.4	31.6	29.5	26.1	19.8	17.8
UT032	27.5	21.7	23.8	18.1	14	13.3	15.4	16.2	16.6	23.8	25.9	23.9	20.0	15.2	15.2
UT033	40.8	36	42	36.9	34.1	34.8	35.5	26.9	29.9	37.8	34.1	36.2	35.4	26.9	26.9
UT034	44.6	37.4	43.8	35.7	30.6	28.8	30	26.8	31.7	35.7	35.9	33.1	34.5	26.2	19.8
UT036	30.7	28	32.2	24.4	16.1	14.6	23.5	19.7	25.1	28.4	30	29.9	25.2	19.2	19.2
UT037	31.5	32.2	35.5	29.4	17.5	17.3	24.1	21.5	27	31.8	43.5	36.3	29.0	22.0	20.3
UT039	44.9	42.6	45.1	39.4	38.3	33.5	39.2	30	33.8	48.1	40.5	40	39.6	30.1	30.1
UT040	N/A	N/A	N/A	N/A	N/A	N/A	28.6	25.2	30.2	30.5	27.5	29.8	28.6	19.8	19.8
UT041	N/A	N/A	N/A	N/A	N/A	N/A	22.7	21.2	23.9	31.4	34.6	28	27.0	18.7	18.7

National bias adjustment factor used

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

In 2018, Uttlesford District Council operated three automatic monitoring stations and monitored for NO₂, PM₁₀ and PM_{2.5}.

The following reference analysers are located within the monitoring network

- two API chemiluminescence (NO/NO₂/NO_x) gas analysers
- one Met One BAM PM₁₀ analyser
- one Met One Smart Heated BAM PM_{2.5} analyser

Analysers are serviced in-line with manufacturer guidelines biannually. NO₂ analysers have an LSO calibration fortnightly to check against a certified calibration gas bottle. Data has been ratified according to LAQM TG16 procedures to identify erroneous data and to account for instrument drift.

For nitrogen dioxide, the ratification process corrected the raw dataset for any drift in the zero baseline and upper range of the instrument using zero and span check information measured during calibration visits.

The Met One PM₁₀ measurements are corrected for slope by dividing the data by 1.2. The Met One PM_{2.5} measurements are not adjusted due to the presence of the smart heater.

Diffusion Tubes QA/QC

In 2018, Uttlesford District Council undertook monitoring with 31 nitrogen dioxide diffusion tubes at 29 sites.

The diffusion tubes were supplied by Socotec (UKAS Testing Laboratory number 1015) with a preparation method of 50% triethanolamine (TEA) in Acetone.

The AIR NO₂ proficiency testing scheme found that the laboratory achieved the following percentage of results determined as satisfactory for 2018:

Table C.1 – AIR PT Results 2018

AIR PT Round	AIR PT AR024	AIR PT AR025	AIR PT AR027	AIR PT AR028
Round conducted in the period	January – February 2018	April – May 2018	July – August 2018	September – October 2018
ESG Didcot	100%	100%	100%	100%

Diffusion Tube Bias Adjustment Factors

The Diffusion Tube Bias Adjustment Factors Spreadsheet 03/18 identified that for Socotec 50% TEA in acetone diffusion tubes in 2018, a bias adjustment factor of 0.76 should be used. This was derived from orthogonal regression analysis of 21 studies.

In previous years, UDC has utilised a BA factor from a local co-location study. More recently due to analyser failure, the national BA factor has been used. The local factor calculates that emissions to be slightly higher than from the factor derived from national studies. It is anticipated that a local BA factor will be available for 2019, and for comparison purposes, data with both the local and national figure will be published.

Point Sources

No significant new point sources of emissions have been identified.

NO₂ Fall Off Estimation

Diffusion tube monitoring shown in Table B.1 in Appendix B has been adjusted for NO₂ falloff between the monitoring location and the point of relevant exposure.

Using the equation taken from the NO₂ Fall Off With Distance Calculator, a custom Excel spreadsheet has been developed to derive the NO₂ concentrations at relevant exposure. This calculator uses background concentrations taken from the 2017 NO₂ background maps, measured annual mean concentrations and distances between the kerb, monitor and relevant exposure.

Estimated Annual Mean at Relevant Exposure:

$$C_z = ((C_y - C_b) / (-0.5476 \times \ln(D_y) + 2.7171)) \times (-0.5476 \times \ln(D_z) + 2.7171) + C_b$$

Where:

C_z is the total predicted concentration (µg/m³) at distance D_z;

C_y is the total measured concentration (µg/m³) at distance D_y;

C_b is the background concentration (µg/m³);

D_y is the distance from the kerb at which concentrations were measured;

D_z is the distance from the kerb (m) at which concentrations are to be predicted; and

Ln(D) is the natural log of the number D

Annualisation

A process of annualisation is applied to the monitoring data that has less than 75% data collection across the calendar year to consider the seasonal variation of meteorology such as temperature, pressure and ozone level that influences air pollution.

The process of adjustment is undertaken as described in Box 7.10 of the Defra Technical Guidance TG(16) and used ratified data from the background continuous monitoring station of Chignal St James, Chelmsford. No other nearby background monitoring stations has ratified data available at the time of calculation.

The calculated adjustment factors are presented below:

Table C.2 – UT040 Data Annualisation

UT040				
Start Date	End Date	B1	D1	B1 when D1 is available
17/01/2018	16/02/2018	15.8	N/A	
16/02/2019	19/03/2018	16.4	N/A	
19/03/2018	18/04/2018	11.6	N/A	
18/04/2018	18/05/2018	10.2	N/A	
18/05/2018	19/06/2018	6.9	N/A	
19/06/2018	16/07/2018	5.7	N/A	
16/07/2018	13/08/2018	9.7	28.6	9.7
13/08/2018	10/09/2018	9.0	25.2	9.0
10/09/2018	08/10/2018	13.8	30.2	13.8
08/10/2018	07/11/2018	14.5	30.5	14.5
07/11/2018	05/12/2018	17.1	27.5	17.1
05/12/2018	09/01/2019	16.6	29.8	16.6
Average		12.3	28.6	13.5
Annualisation Ratio			0.91	

Table C.3 – UT041 Data Annualisation

UT041				
Start Date	End Date	B1	D1	B1 when D1 is available
17/01/2018	16/02/2018	15.8	N/A	
16/02/2019	19/03/2018	16.4	N/A	
19/03/2018	18/04/2018	11.6	N/A	
18/04/2018	18/05/2018	10.2	N/A	
18/05/2018	19/06/2018	6.9	N/A	
19/06/2018	16/07/2018	5.7	N/A	
16/07/2018	13/08/2018	9.7	22.7	9.7
13/08/2018	10/09/2018	9.0	21.2	9.0
10/09/2018	08/10/2018	13.8	23.9	13.8
08/10/2018	07/11/2018	14.5	31.4	14.5
07/11/2018	05/12/2018	17.1	34.6	17.1
05/12/2018	09/01/2019	16.6	28	16.6
Average		12.3	27.0	13.5
Annualisation Ratio			0.91	

Planning and Development Control

Details of significant development which required air quality impact assessments to be submitted that was under consideration in 2018 is shown below:

Approved Development

UTT/18/0460/FUL: Approved development at Stansted Airport including throughput of 43 million terminal passengers per annum. Impact on human and ecological receptors predicted to be negligible in 2023 and 2028 opening years as a result of improvement in vehicle emissions. Mitigation and management measures to reduce emissions have been proposed, however the draft S106 Agreement between Stansted Airport Ltd, Uttlesford District Council as the local planning authority, Essex County Council as the local authority for highways and education, has been subject to much scrutiny. Uttlesford District Council will not issue a Planning Decision Notice for the application unless and until the Council's Planning Committee have had a sufficient opportunity to consider in detail the adequacy of the proposed Section 106 Agreement and any new material considerations and/or changes in circumstances since approval was given in November 2018.

UTT/18/0824/OP: Land east of Thaxted Road Saffron Walden 150 dwellings and UTT/17/2832/OP, Land north of Shire Hill Farm Saffron Walden 100 dwellings. Worst case impact on Saffron Walden AQMA predicted to be slightly adverse at one junction. Includes a spine road linking the two developments which will deliver improvement in air quality at some sites within the AQMA.

Under Consideration

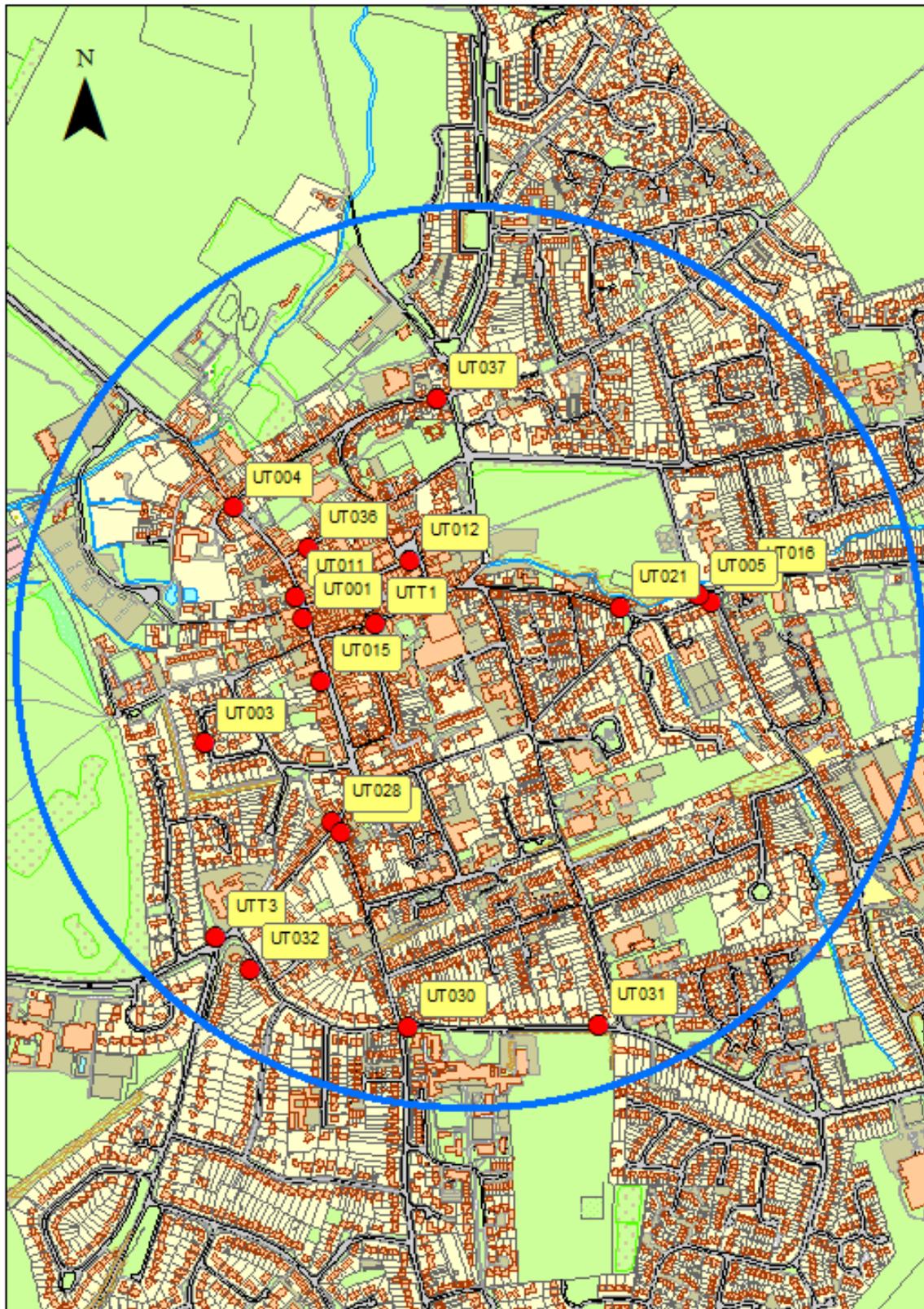
UTT/17/3573/OP: Land north west of Henham Road Elsenham, 350 dwellings & primary school, under consideration, predicted adverse impacts on air quality in Elsenham and Stansted Mountfitchet.

Refused

UTT/17/2868/OP: Refusal Land south of Wicken Road Newport 150 dwellings. Refusal grounds included impact on air quality, appeal pending.

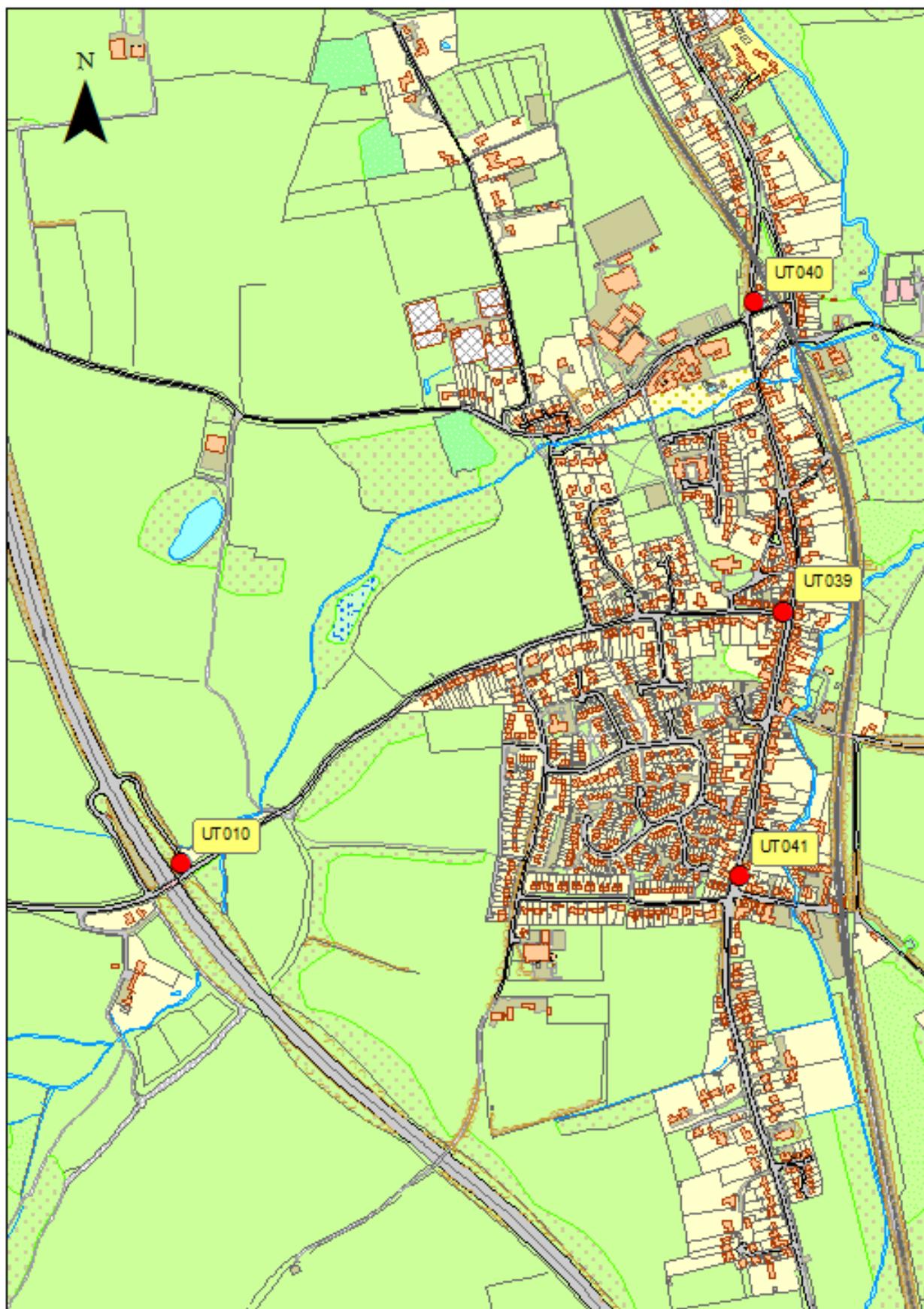
Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 – Saffron Walden AQMA and Monitoring Locations



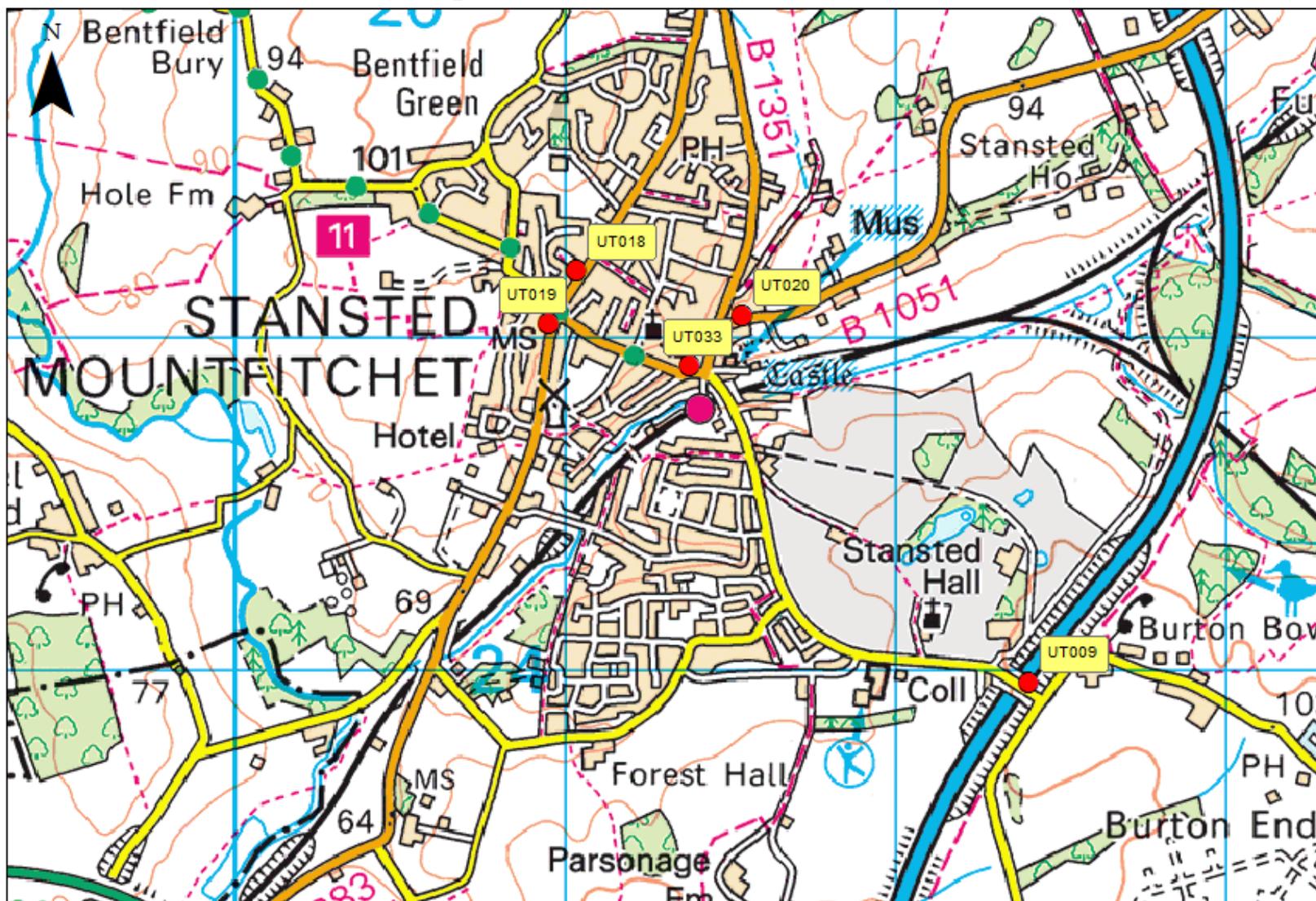
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Figure D.2 – Newport Monitoring Locations



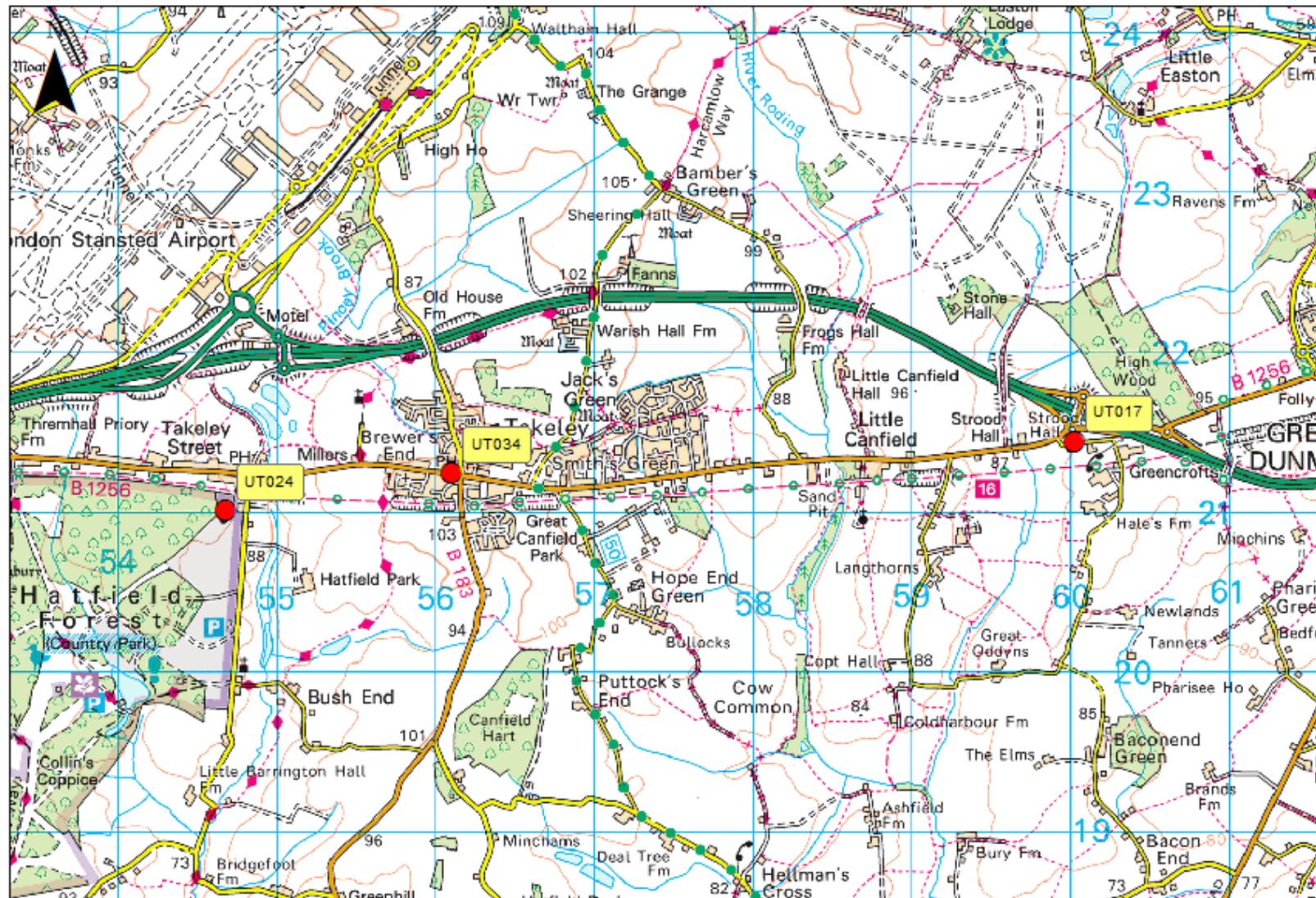
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Figure D.3 – Stansted Mountfitchet Monitoring Locations



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Figure D.4 – Takeley Monitoring Locations



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Appendix E: Summary of Air Quality Objectives in England

Table E.2 – 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

Table E.2 – Examples of Where the Air Quality Objectives Should Apply

Averaging Period	Nitrogen Dioxide (NO ₂) Air Quality Objective ⁵	
	Objectives should apply at:	Objectives should not generally apply at:
Annual Mean (40 µg/m ³)	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.

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

⁵ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Averaging Period	Nitrogen Dioxide (NO ₂) Air Quality Objective ⁵	
	Objectives should apply at:	Objectives should not generally apply at:
<p>1-hour Mean (200 µg/m³ not to be exceeded more than 18 times a year)</p> <p>It can be considered that exceedances of the NO₂ 1-hour objective may occur at roadside sites if the annual mean is above 60µg/m³</p>	<p>All locations where the annual mean and: 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably expected to spend one hour or longer.</p>	<p>Kerbside sites where the public would not be expected to have regular access.</p>

Glossary of Terms

Abbreviation	Description
$\mu\text{g}/\text{m}^3$	Micrograms per cubic metre
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
BAM	Beta Attenuation Monitors
Biomass	Biomass is an industry term for getting energy by burning wood, and other organic matter
CHP	Combined Heat and Power
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of $10\mu\text{m}$ (micrometres or microns) or less
$\text{PM}_{2.5}$	Airborne particulate matter with an aerodynamic diameter of $2.5\mu\text{m}$ or less
STOR	Short Term Operating Reserve
QA/QC	Quality Assurance and Quality Control

References

Defra Diffusion Tube Bias Adjustment Factors Spreadsheet available at;

<https://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>

Defra LAQM Summary of Laboratory Performance in AIR NO₂ PT Scheme available

at; <https://laqm.defra.gov.uk/assets/tubeprecision2019version0319finalfull.pdf>

Defra Nitrogen Dioxide Fall-Off with Distance Calculator available at;

<http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>

DVSA Smoky Vehicle Reporting Service available at; [https://www.gov.uk/report-](https://www.gov.uk/report-smoky-vehicle)

[smoky-vehicle](https://www.gov.uk/report-smoky-vehicle)

Defra PG.16 Air Quality Policy Guidance available at;

<https://laqm.defra.gov.uk/documents/LAQM-PG16-April-16-v1.pdf>

Essex Air Twitter Feed available at; <https://twitter.com/essexair>

EssexCarShare.com available at; <https://essex.liftshare.com/>

Essex County Council Local Transport Plan available at;

<http://www.essexhighways.org/Transport-and-Roads/Highway-Schemes-and-Developments/Local-Transport-Plan.aspx>

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Uttlesford District Council Air Quality Technical Planning Guidance available at;

<http://www.uttlesford.gov.uk/CHttpHandler.ashx?id=8250&p=0>

Uttlesford District Council Regulation 19 Local Plan available at;

<https://www.uttlesford.gov.uk/CHttpHandler.ashx?id=8248&p=0>