MALDON DISTRICT COUNCIL

2025 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management, as amended by the Environment Act 2021

Date: May, 2025

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Local Responsibilities and Commitment

This ASR was prepared by Public Health and Protection Services of Chelmsford City Council on behalf of Maldon District Council.

This ASR has been approved by: Tracy Farrell – Head of Environmental Health, Waste & Climate Action, Maldon District Council

This ASR has been sent to the Director of Public Health at Essex County Council.

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Executive Summary: Air Quality in Our Area

The 2025 Annual Status Report (ASR) is designed to provide the public with information relating to local air quality in Maldon, to fulfil Maldon 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 2024, Maldon District Council measured **no** exceedances of the Air Quality Objectives.

Air Quality in Maldon

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Low-income communities are also disproportionately impacted by poor air quality, exacerbating health and social inequalities.

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO_2)	Sulphur dioxide (SO_2) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM_{10} refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres.

Traffic emissions are the most significant source of air pollution in Maldon. Congestion dominates Market Hill, the town centre and bypass during the rush hour periods and the A414 is the principle route within the district.

Market Hill Air Quality Management Area (AQMA)

Due to exceedances of the air quality objectives, an AQMA has been declared along the stretch of Market Hill between Anchorage Hill and Bull Lane, Maldon.

Maldon District Council has adopted the Maldon 2020 – 2025 Air Quality Action Plan.

The Council recognises the importance of working with partnering Authorities to develop transport strategies and to make improvements to local transport infrastructure to reduce congestion. Currently, Maldon District Council are working in partnership with Essex County Council to deliver the vision set out in the Maldon Future Transport Strategy.

No exceedances at relevant exposure have been measured in the AQMA.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

Market Hill Clean Air Route

Market Hill has higher concentrations of nitrogen dioxide than the national air quality limits.

Traffic emissions are the most significant source of air pollution in Maldon, with Market Hill particularly affected because of the gradient of the road and the close proximity of nearby properties which reduce the dispersion and dilution of road traffic emissions. Poor air quality can contribute to respiratory problems and other health conditions.

To help reduce vehicle emissions on Market Hill and improve the air quality, Market Hill is a designated Clean Air Route.

The non-charging Clean Air Route is a voluntary scheme whereby vehicle drivers are asked to use the bypass to access the town centre from the West and South instead of using Market Hill. The intention is to reduce emissions on Market Hill to improve air quality.

It is hoped people will choose to avoid Market Hill to help everyone living, working and walking there to breathe cleaner air.

Market Hill Clean Air Route Promotional Poster

Market Hill is a Clean Air Route

Use the bypass instead to help improve local air quality

Every reroute makes a difference

Clean Air Route

MALDON DISTRICT COUNCIL

A community campaign supported by Maldon District Council and funded by DEFRA

Essex Air Quality Strategy

The Draft Essex Air Quality Strategy 2025, developed by the Essex Air Quality Consortium, outlines a comprehensive plan to address air pollution, the largest environmental risk to public health in the UK, linked to approximately 36,000 deaths annually and nearly 900 deaths in Essex in 2021. The strategy, led by Essex County Council in partnership with 12 district, borough, city councils, and two unitary councils, aims to improve air quality across Essex, enhancing public health and environmental sustainability. A public consultation on the draft ran from January 20 to March 2, 2025, inviting feedback via an online survey, printed copies, and email submissions to refine the strategy's vision, aims, and actions.

The strategy's vision is to create a cleaner, healthier Essex by reducing air pollution through collaborative efforts. Its key aims include reducing emissions, protecting vulnerable populations, and raising awareness about air quality's health impacts, such as cardiovascular and respiratory diseases, lung cancer, and dementia.

Proposed actions focus on practical measures like promoting sustainable transport (e.g., cycling, walking, and public transport), enhanced air quality monitoring, and integrating air quality considerations into urban planning and development. The strategy emphasizes community engagement, encouraging residents to adopt low-emission behaviours, such as reducing car idling and using cleaner energy sources.

The strategy aligns with national air quality objectives and complements local efforts, such as the Essex Design Guide's guidance on air quality in planning applications. It addresses local challenges, including high pollution levels in Air Quality Management Areas (AQMAs), by advocating for mitigation measures like green infrastructure and low-emission vehicles. The consultation will shape the final strategy, ensuring it reflects community priorities and scientific evidence.

By fostering partnerships and public participation, the Draft Essex Air Quality Strategy strives for measurable improvements in air quality, supporting healthier lives and a sustainable future.

Essex Air Quality Strategy Introduction Video

Conclusions and Priorities

Maldon District Council have concluded that:

- No air quality exceedances have been identified in 2024.
- There are no new developments that will have a significant impact on air quality.
- As set out in the LAQM Policy guidance, it is necessary for Maldon District Council to develop and adopt an Air Quality Strategy (AQS). Maldon District Council has been involved in developing the draft Essex Air Quality Strategy.
- Maldon District Councils air quality priority is to deliver the work set out in the successful Defra grant.
- It is Maldon District Councils intention to revoke the NO_2 1-hour mean designation in 2025.
- In 2025, Maldon District Council will begin developing a new Air Quality Action Plan.

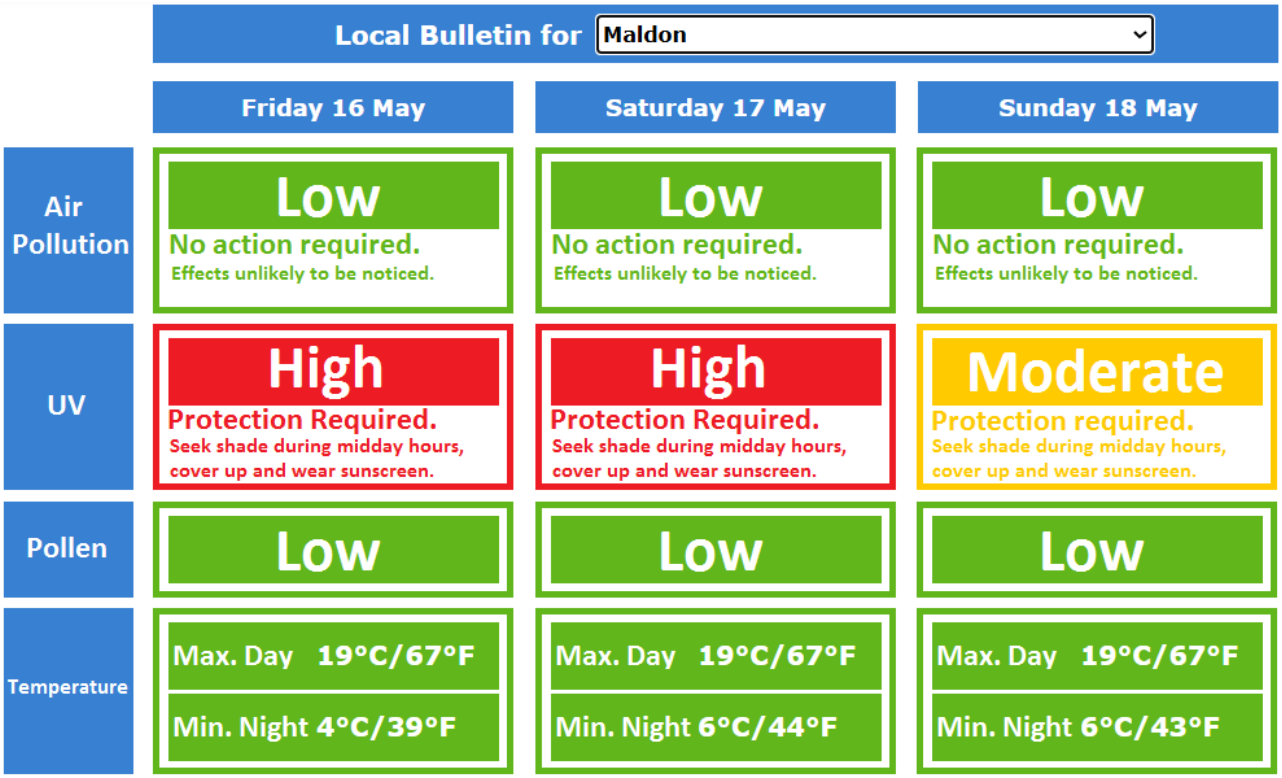
How to get Involved

*air*TEXT

*air*TEXT provides information about local air quality, so that when pollution levels are high people who may be especially affected by poor air quality can be prepared and reduce their exposure. This may include children and adults who have health problems such as asthma, bronchitis, chronic obstructive pulmonary disease and heart conditions.

Simple steps that can help lower the risk of negative impact include carrying medication such as inhalers and sprays, taking extra doses (as advised by a doctor), reducing physical activity and avoiding going outside.

Normally air pollution levels in Maldon are low and most people will not notice any effects on their health. The alerts are based on forecasts of expected air quality in Maldon over three days, with air pollution levels numbered one (low) to ten (high), similar to the sun or pollen index.



If you would like to receive forecasts of the air quality in Maldon you can sign-up to the free *air*TEXT email, text message or voicemail alerts here.

Maldon District Council is a member of the Essex Air Quality consortium which along with Essex County Council. The Essex Air website provides a pollution monitoring map and highlights simple actions that people can take to reduce emissions.

The @EssexAir feed provides localised weekly air pollution forecasts.

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1 Local Air Quality Management

This report provides an overview of air quality in Maldon during 2024. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), 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 order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Maldon District Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in Table E.1.

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 should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained, and provide dates by which measures will be carried out.

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained and provide dates by which measures will be carried out.

A summary of the AQMA declared by Maldon District Council can be found in Table 2.1. The table presents a description of the three AQMAs that are currently designated within Maldon. Appendix D: provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- Nitrogen Dioxide (NO_2) annual mean
- Nitrogen Dioxide (NO_2) 1-hour mean

This Annual Status Report identifies that in 2024, nitrogen dioxide concentrations were compliant with the Air Quality Objectives.

The AQMA has been compliant with the nitrogen dioxide 1-hour mean objective for six years. It is Maldon District Councils intention to revoke the NO_2 1-hour mean designation in 2025.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
MDC Air Quality Management Area Number 1	11/12/2018	NO_2 Annual Mean	The stretch of road and properties between Anchorage Hill and Bull Lane, Maldon	No	58.25	No Exceedance	1	Maldon District Council Air Quality Action Plan 2020-2025	http://www.maldon.gov.uk/download/downloads/id/18206/air_quality_action_plan_2_july_2020.pdf
MDC Air Quality Management Area Number 1	11/12/2018	NO_2 1 Hour Mean	The stretch of road and properties between Anchorage Hill and Bull Lane, Maldon	No	Not Measured	No Exceedance (Using Diffusion Tube Results > 60µg/m^3 as proxy for automatic monitoring)	6	Maldon District Council Air Quality Action Plan 2020-2025 (July 2020)	https://uk-air.defra.gov.uk/assets/documents/no2ten/Local_zone29_Maldon_AQActionplan_1.pdf

☒ **Maldon District Council confirms the information on UK-Air regarding their AQMA(s) is up to date**

☒ **Maldon District Council confirms that all current AQAPs have been submitted to Defra**

2.2 Progress and Impact of Measures to address Air Quality in Maldon

Defra's appraisal of last year's ASR concluded that report was well structured, detailed, and provides the information specified in the Technical Guidance.

Maldon District Council have a number of ongoing measures to improve air quality in Maldon. These are detailed in Table 2.1 below.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Development of a Transport Strategy for Maldon	Transport Planning and Infrastructure	Other	2020	2024	Essex County Council / Maldon District Council	Essex County Council / Maldon District Council	NO	Funded	£50k - £100k	Planning	High. Compliance with the Air Quality Objective met in combination with Measure 2	Reduced traffic flow and congestion on Market Hill. Compliance with NO_2 air quality objectives	Complete Maldon District Future Transport Strategy	
2	Voluntary Class D Clean Air Zone	Promoting Low Emission Transport	Low Emission Zone (LEZ)	2020	2025	Maldon District Council	Defra / Maldon District Council	YES	Funded	£20k	Planning	High. Compliance with the Air Quality Objective met in combination with Measure 1	Compliance with NO_2 air quality objectives	Complete. Voluntary clean air route launched in Summer 2024 including widespread public engagement, communication, marketing and road signage	
3	Develop & Adopt a Local Air Quality Strategy (AQS)	Policy Guidance and Development Control	Other policy	2023	2026	Basildon Council Essex Air Essex County Council	Essex County Council	NO	Not Funded	£10k-50k	Planning	Not quantified	Adoption of AQS	Draft Essex Air Quality Strategy	
4	Provision of a public Air Quality forecasting system	Public Information	Via other mechanisms	2022	2024	Maldon District Council	Defra / Maldon District Council	YES	Funded	< £10k	Planning	N/A	Numbers of subscribers	Complete. Service went live in September 2024	
5	Essex Liftshare	Alternatives to private vehicle use	Car & lift sharing schemes	2012	2040	Essex County Council	Essex County Council	NO	Funded	< £10k	Implementation	Not Quantified	Number of Users	Implementation on-going	
6	Member of Essex Air	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to	2012	2040	County Council / District & Borough Councils	Member Organisations	NO	Funded	< £10k	Implementation	N/A	N/A	Implementation on-going	

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
			reduce emissions and improve air quality												
7	Develop a dedicated Air Quality website for Maldon	Public Information	Via the Internet	2022	2024	Maldon District Council	Defra / Maldon District Council	YES	Funded	< £10k	Planning	N/A	Completion of project	Not currently planned following update of Essex Air Website. Some DEFRA grant funding was used to update the Maldon District Council air quality web pages to coincide with the clean air route	
8	Set up working group with bus operators in Maldon	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2020	2020	Essex County Council / Maldon District Council / Commercial Bus Operators	N/A	NO	Funded	< £10k	Implementation	High	Quarterly meeting with bus operators	Initial discussions with Essex County Council and bus operators undertaken but no progress in 2024	
9	Retrofitting of buses travelling on routes along Market Hill	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	2020		Maldon District Council / Commercial Bus Operators / DfT	DfT/Defra Joint AQ unit confirmed no plans to run another round of Clean Bus Technology Fund at present	NO	Not Funded	£500k - £1 million	Planning	High	All buses operating on Market Hill to be of a Euro VI standard or retrofitted to CVRAS standard	No Progress. Clean bus technology fund has not been active since implementation of the AQAP. Alternative funding to be reviewed	Retrofitting buses with Selective Catalytic Reduction Technology (SCRT) approved by Clean Vehicle Retrofit Accreditation Scheme ensures that legacy fleet vehicles comply with CAZ standards
10	Hackney Carriage & PHV Emissions Standards	Promoting Low Emission Transport	Taxi Licensing conditions	2020	2022	Maldon District Council	N/A	NO	Funded	< £10k	Planning	Medium	All newly licensed or replacement vehicles to be of a Euro VI standard or better, from 2022	Complete	

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
11	Council Refuse & Recycling Vehicle Routing	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	2020	2020	Maldon District Council	Maldon District Council	NO	Funded	< £10k	Completed	Medium	Quarterly meeting with Head of Waste	Complete. Reviewed Spring 2024 following district wide re-routing exercise	Maldon District Council Refuse & Recycling Vehicles will not use Market Hill unless undertaking collection on Market Hill
12	MDC Team Talk	Policy Guidance and Development Control	Other policy	2020	2020	Maldon District Council	Maldon District Council	NO	Funded	< £10k	Completed	Low	AQ highlighted in MDC team Talk	A new mandatory staff training module for 2024 on Sustainability and Climate Change includes a section on the Clean Air Route and local air quality.	MDC staff received the Clean Air Day advice going out to residents and asked to support Clean Air Day by making pledges
13	Council Vehicles Upgrade to Electric	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2020		Maldon District Council	Maldon District Council	NO	Not Funded	£100k - £500k	Planning	Low	Compile an inventory of Council owned vehicles. +Review options to include AQ weighting within the Council's procurement strategy	Initial feasibility work carried out on fleet transition as part of the Council's wider road map to net zero. Two hybrid waste vehicles and an electric parks vehicle in operation	
14	Clean Air Walking & Cycling Routes	Public Information	Via leaflets	2020	2020	Maldon District Council	Maldon District Council	NO	Funded	< £10k	Completed	Low	Provide online information to residents and visitors about walking and cycling routes away from pollution hotspots to include social distancing pavement space advice	Complete	
15	Electric Vehicle Charging Points at Supermarkets	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV	2020	2020	Maldon District Council	Supermarkets / Grant funding opportunities	NO	Not Funded	£100k - £500k	Completed	Low	Survey local supermarkets re EV charge points and proposals. Promote mapped EV	Complete	

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
			recharging, Gas fuel recharging										charging points via social media		
16	School Travel Plans for schools in Maldon	Promoting Travel Alternatives	School Travel Plans	2020		Maldon District Council	Maldon District Council	NO	Not Funded	< £10k	Planning	N/A	Development and implementation of travel plans by schools		
17	Information on Domestic Fuel & Woodburning	Public Information	Via leaflets	2020	2020	Maldon District Council	Maldon District Council	NO	Funded	< £10k	Completed	Low	Mail drop addresses on Market Hill advice leaflet. Promote through Council website and social media	Complete	
18	Indoor Air Quality	Public Information	Via leaflets	2020	2020	Maldon District Council	Maldon District Council	NO	Funded	< £10k	Completed	Low	Distribution of indoor air quality leaflet through website and social media	Complete	
19	Staff Climate Induction	Other	Other	2023	2024	Maldon District Council	Maldon District Council	NO	Funded	< £10k	Implementation	Low	A climate induction is under development and will be mandatory training for all staff. It includes information on the Market Hill AQMA	Complete October 2024	
20	Council Refuse Vehicle Upgrade	Vehicle Fleet Efficiency	Other	2023	2024	Maldon District Council	Maldon District Council	NO	Funded		Completed	Low	MDC has taken delivery of a new fleet of refuse collection vehicles. These new Euro VI vehicles replace an old Euro V fleet. The Euro VI NOx emission limits are ~50% lower than EURO V	Complete	

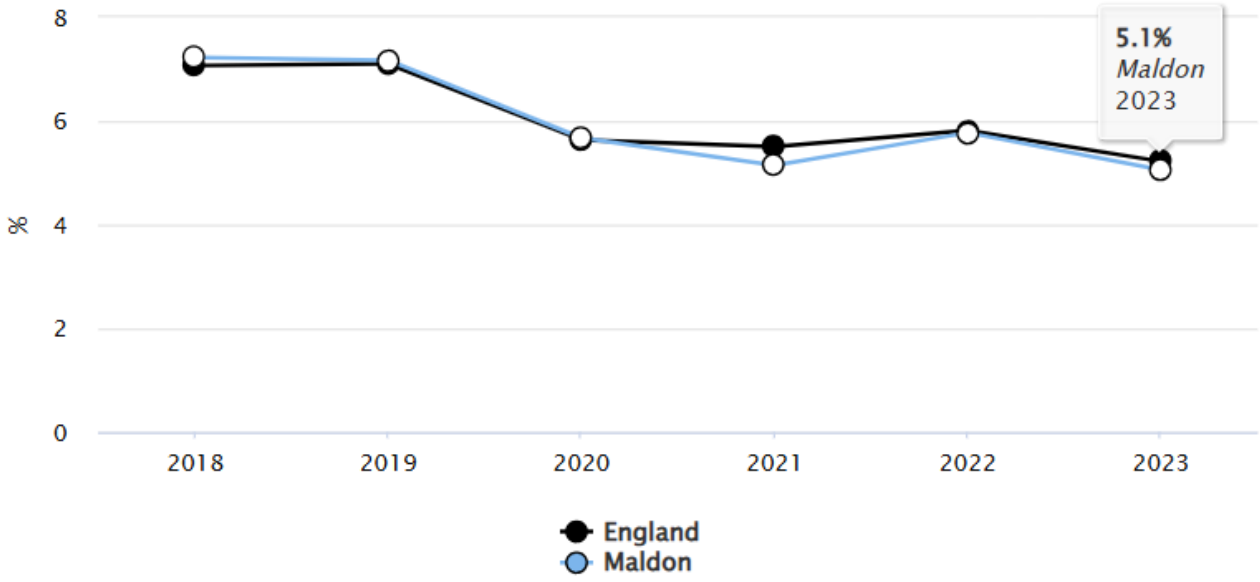
2.3 $PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[1], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter ($PM_{2.5}$)). There is clear evidence that $PM_{2.5}$ (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Maldon District Council does not monitor $PM_{2.5}$ concentrations however notes the Defra background mapping resource which for $PM_{2.5}$ in 2024 models a maximum annual mean concentration of 7.7µg/m^3.

The Public Health Outcomes Framework indicator D01 – Fraction of mortality attributable to particulate ($PM_{2.5}$) air pollution which for 2023 gave a value of 5.4%.

Figure 2.1 – Public Health Framework Indicator D01 Fraction of all-cause adult mortality attributable to anthropogenic particulate air pollution



- Regular inspections of permitted industry where combustion and non-combustion processes could lead to anthropogenic emissions of $PM_{2.5}$
- Working with Essex County Council (highway authority) to deliver Major Transport improvement schemes to alleviate congestion. In addition to reduced exhaust emissions, these schemes will reduce non-exhaust emissions from brake and tyre wear by making traffic flows smoother.

[1] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

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

This section sets out the monitoring undertaken within 2024 by Maldon District Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2020 and 2024 to allow monitoring trends to be identified and discussed.

Compliance with the NO_2 Annual Mean Air Quality Objective

In 2024, Maldon District Council measured **no** exceedances of the Air Quality Objectives.

There is a long-term downwards trend for monitored pollution.

Table 3.1 – Annual Mean NO_2 Exceedances ($\mu g/m^3$)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	2019	2020	2021	2022	2023	2024
MD22A, MD22B, MD22C	585062	207160	Roadside	**55.1**	**42.8**	**41.7**	**44.4**	**40.9**	35.8 No Exceedance
MD27	585073	207132	Roadside	**51.9**	**43.0**	**40.1**	**46.2**	**41.2**	33.2 No Exceedance

Compliance with the NO_2 1-hr Air Quality Objective

No monitoring location has measured in an annual mean in excess of 60$\mu g/m^3$ so it is considered that the 1hr air quality objective has not been exceeded.

As no exceedance of 60$\mu g/m^3$ has taken place within the last six years and for 2024 the maximum annual mean concentration measured was 35.8$\mu g/m^3$, Maldon District Council can proceed to revoke the NO_2 1hr mean designation from the AQMA.

It is Maldon District Councils intention to revoke the NO_2 1-hour mean designation in 2025.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Maldon District Council does not undertake automatic continuous monitoring.

3.1.2 Non-Automatic Monitoring Sites

Maldon District Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 26 sites during 2024. Table A.1 in Appendix A presents the details of the non-automatic 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 (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

For diffusion tubes, the full 2024 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Appendix A: Monitoring Results

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
MD1	Opposite CherryOak A414	Roadside	580645	204820	NO_2	No	15.9	10.7	No	2.3
MD2, MD2b, MD2c	A414 Spital Road/A414 Bypass	Kerbside	583952	205742	NO_2	No	17.0	1.0	No	2.3
MD3	Heybridge Approach	Roadside	584763	208107	NO_2	No	17.9	3.7	No	2.3
MD5	Colchester Rd/Heybridge Street Junction	Roadside	585914	208104	NO_2	No	15.6	3.9	No	2.3
MD6	High Street (Market Hill Junction)	Urban Centre	585072	207080	NO_2	No	0.1	2.1	No	2.3
MD7	Wantz Road/High Street	Urban Centre	585307	206943	NO_2	No	1.9	1.6	No	2.3
MD8	Latchingdon/Burnham Road Junction	Kerbside	588575	200492	NO_2	No	11.6	0.4	No	2.3
MD11	Latchingdon Street	Kerbside	588205	200438	NO_2	No	0.0	1.3	No	2.3
MD12	A414 Spital Roadl/A414 Bypass	Kerbside	583862	205549	NO_2	No	32.4	1.5	No	2.3
MD13	Limebrook Way/A414 Bypass	Kerbside	584165	205532	NO_2	No	31.6	1.5	No	2.3
MD14	The Causeway	Roadside	585221	207682	NO_2	No	0.1	9.0	No	2.3
MD16	8 Narvik Close	Roadside	584309	205776	NO_2	No	3.0	0.5	No	2.3
MD17	2 Creasen Butt Close	Suburban	585078	207924	NO_2	No	5.0	0.5	No	2.3

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
MD19	Adjacent to 16 Mill Road, Maldon	Kerbside	585565	206723	NO_2	No	3.4	0.2	No	2.3
MD22A, MD22B, MD22C	10 Market Hill, Maldon	Roadside	585062	207160	NO_2	Yes	0.5	1.5	No	2.3
MD23	59-63 Market Hill, Maldon	Roadside	585055	207324	NO_2	Yes	1.5	1.3	No	2.3
MD24	32 Market Hill	Roadside	585045	207272	NO_2	Yes	0.7	1.9	No	2.3
MD25	1 Hillside, Maldon	Roadside	585016	207241	NO_2	Yes	5.0	1.4	No	2.3
MD26	18 Market Hill, Maldon	Roadside	585045	207186	NO_2	Yes	0.1	2.6	No	2.3
MD27	6 Market Hill, Maldon	Roadside	585073	207132	NO_2	Yes	0.1	2.3	No	2.3
MD28	21 Market Hill, Maldon	Roadside	585067	207116	NO_2	Yes	0.1	1.6	No	2.3
MD29	5 The Square, Heybridge	Roadside	585467	208089	NO_2	No	4.0	1.0	No	2.3
MD30	High Street, Maldon	Roadside	584868	207042	NO_2	No	0.1	1.0	No	2.3
MD31	Petchey Court, Fambridge Road	Roadside	584809	206962	NO_2	No	0.1	3.0	No	2.3
MD32	Goings Wharf, Colchester Road	Roadside	585740	208010	NO_2	No	0.1	2.5	No	2.3
MD33	High Street, Maldon	Roadside	584857	207023	NO_2	No	0.1	1.0	No	2.3

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 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
MD1	580645	204820	Roadside	100.0	100.0	20.1	20.1	22.1	21.4	18.9
MD2, MD2b, MD2c	583952	205742	Kerbside	100.0	100.0	22.7	25.8	28.0	24.5	25.1
MD3	584763	208107	Roadside	83.0	83.0	24.1	25.7	27.9	23.2	20.7
MD5	585914	208104	Roadside	100.0	100.0	25.1	25.3	30.5	23.6	23.0
MD6	585072	207080	Urban Centre	100.0	100.0	21.3	21.2	21.9	22.8	20.4
MD7	585307	206943	Urban Centre	90.6	90.6	22.2	22.5	24.2	22.3	19.7
MD8	588575	200492	Kerbside	100.0	100.0	23.5	26.1	32.8	24.3	22.3
MD11	588205	200438	Kerbside	100.0	100.0	20.2	20.3	21.3	18.4	17.9
MD12	583862	205549	Kerbside	100.0	100.0	18.8	19.5	21.1	17.9	17.7
MD13	584165	205532	Kerbside	100.0	100.0	18.3	19.4	21.3	19.1	17.0
MD14	585221	207682	Roadside	100.0	100.0	22.8	22.6	25.7	24.5	21.8
MD16	584309	205776	Roadside	100.0	100.0	12.1	10.7	12.5	10.8	10.3
MD17	585078	207924	Suburban	100.0	100.0	14.6	14.6	13.9	12.9	11.4
MD19	585565	206723	Kerbside	100.0	100.0	18.9	18.1	20.6	17.2	15.6
MD22A, MD22B, MD22C	585062	207160	Roadside	100.0	100.0	**42.8**	**41.7**	**44.4**	**40.9**	35.8
MD23	585055	207324	Roadside	58.5	58.5	31.4	33.7	26.7	28.9	28.4
MD24	585045	207272	Roadside	92.5	92.5	33.6	32.6	33.9	34.0	30.8
MD25	585016	207241	Roadside	100.0	100.0	23.7	25.4	24.8	23.5	22.0
MD26	585045	207186	Roadside	100.0	100.0	27.7	27.8	31.3	27.0	23.2
MD27	585073	207132	Roadside	100.0	100.0	**43.0**	**40.1**	**46.2**	**41.2**	33.2
MD28	585067	207116	Roadside	90.6	90.6	26.3	27.0	27.8	24.2	24.4
MD29	585467	208089	Roadside	100.0	100.0	24.9	23.1	24.0	22.0	20.0
MD30	584868	207042	Roadside	83.0	83.0	25.5	31.5	25.9	26.4	21.5

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
MD31	584809	206962	Roadside	90.6	90.6	19.4	19.6	21.0	18.2	16.9
MD32	585740	208010	Roadside	100.0	100.0	25.6	28.3	29.2	26.1	23.1
MD33	584857	207023	Roadside	90.6	90.6	28.9	27.4	31.2	29.6	25.3

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

☒ **Diffusion tube data has been bias adjusted.**

☒ **Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction.**

Notes:

The annual mean concentrations are presented as µg/m^3.

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(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%).

Figure A.1 – Trends in Annual Mean NO_2 Concentrations 2018 – 2024 on Market Hill

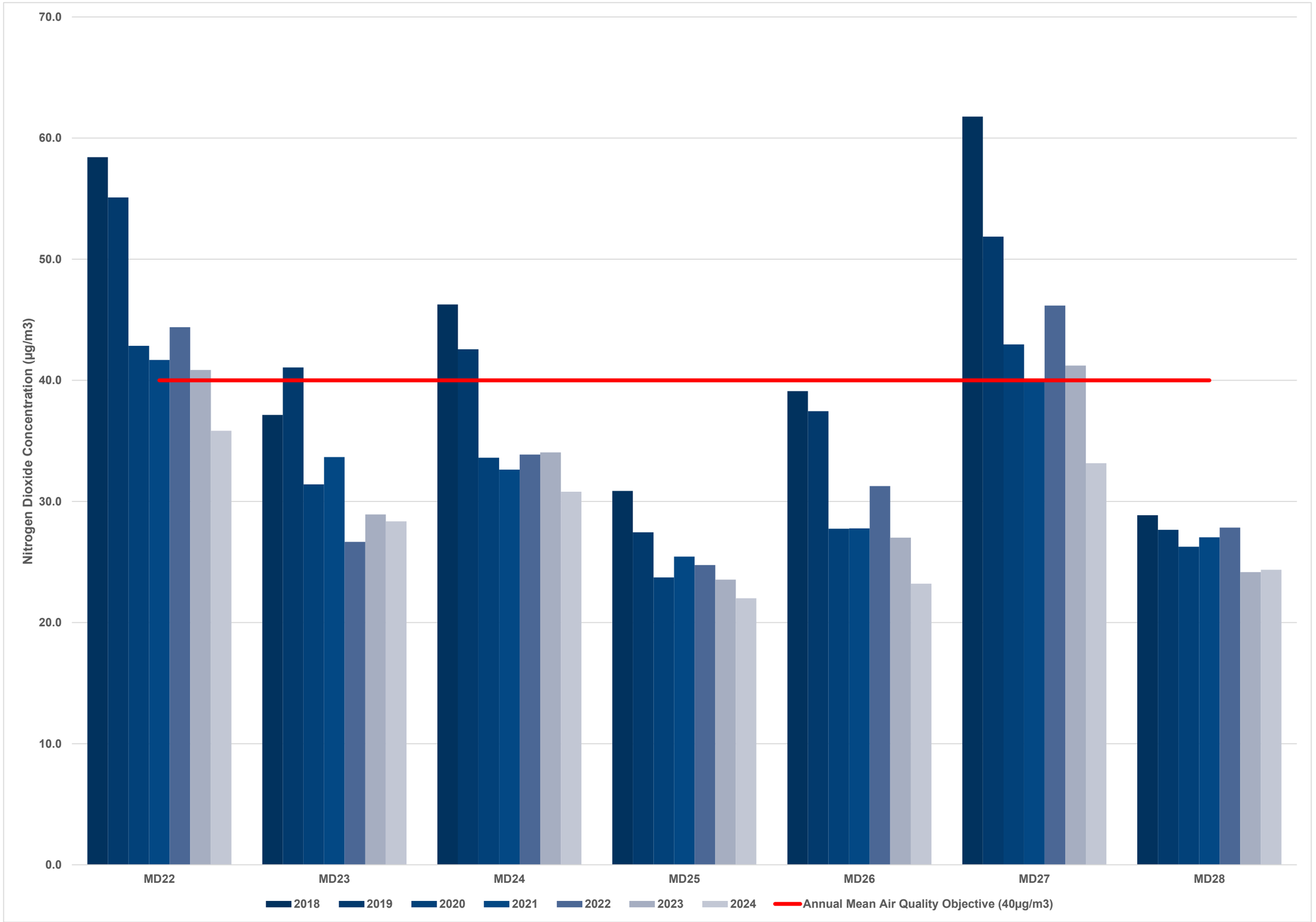
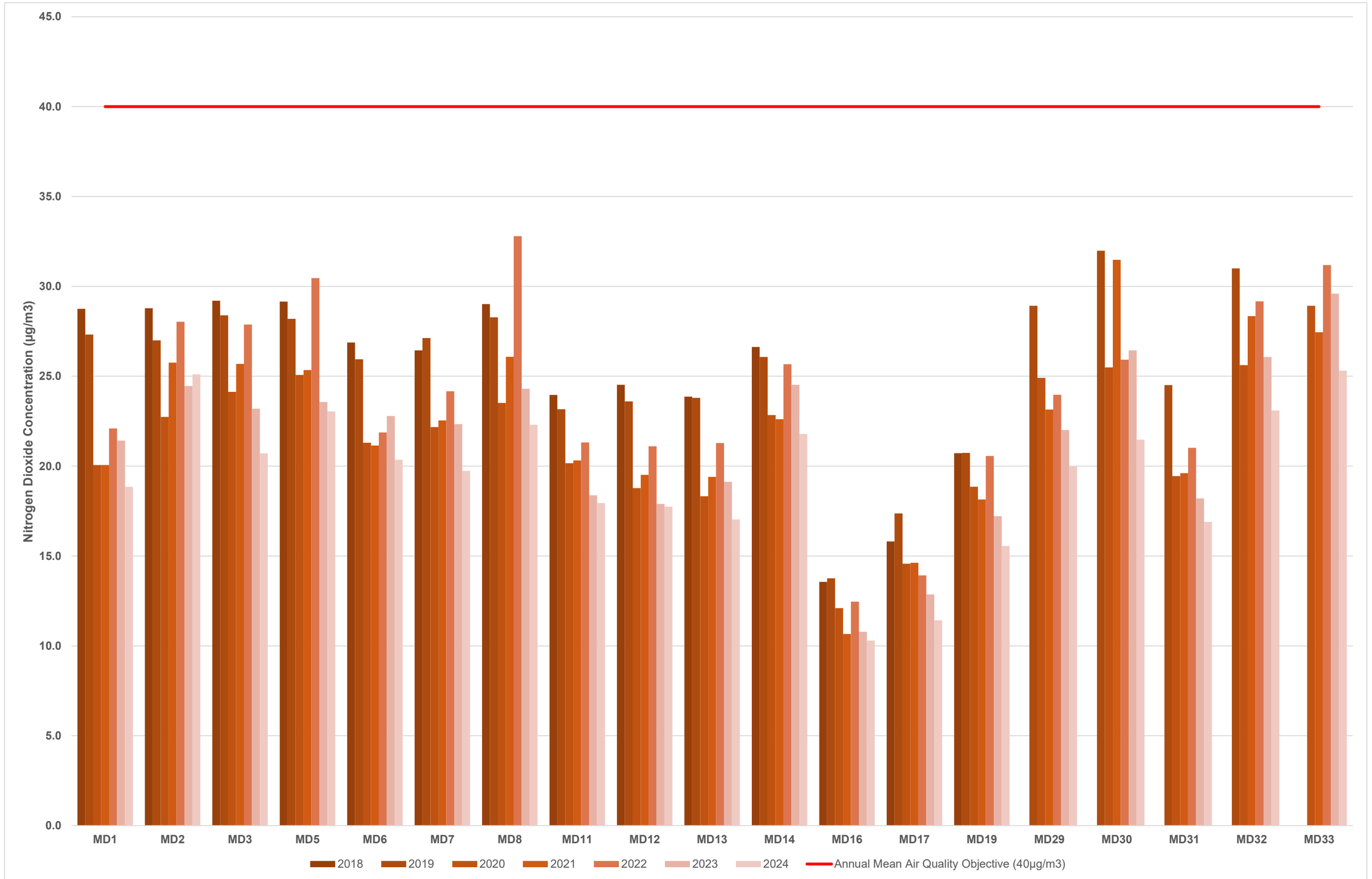


Figure A.2 – Trends in Annual Mean NO_2 Concentrations 2018 – 2024 in Maldon



Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO_2 2024 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.78)	Comments
MD1	580645	204820	25.0	18.0	25.4	22.1	26.0	22.2	24.3	22.1	17.8	31.7	31.7	23.7	24.2	18.9	
MD2	583952	205742	30.5	37.9	42.8	28.6	34.6	29.0	26.6	30.5	32.8	42.3	29.9	30.0	-	-	Triplicate Site with MD2, MD2b and MD2c - Annual data provided for MD2c only
MD2b	583952	205742	32.4	38.8	40.8	28.5	32.0	28.5	28.6	27.9	33.5	33.8	32.1	28.0	-	-	Triplicate Site with MD2, MD2b and MD2c - Annual data provided for MD2c only
MD2c	583952	205742	34.8	31.1	35.8	23.5	34.3	28.2	30.3	28.4	29.7	41.8	30.1	30.3	32.2	25.1	Triplicate Site with MD2, MD2b and MD2c - Annual data provided for MD2c only
MD3	584763	208107	Erroneous Data Point Removed	Erroneous Data Point Removed	31.2	26.0	27.7	27.6	22.7	29.3	22.0	32.5	29.2	17.3	26.6	20.7	
MD5	585914	208104	39.8	33.0	28.1	28.5	22.8	23.9	26.8	28.7	25.9	33.8	36.3	26.9	29.5	23.0	
MD6	585072	207080	34.8	28.3	26.7	24.3	21.2	19.6	22.5	21.4	23.8	31.9	31.1	27.5	26.1	20.4	
MD7	585307	206943	33.1	31.6	27.3	20.8	23.3	21.2	21.9	20.4	21.1	33.1	24.5	Missing	25.3	19.7	
MD8	588575	200492	33.6	34.9	31.0	23.9	20.9	26.2	23.8	25.3	26.5	33.4	33.5	30.1	28.6	22.3	
MD11	588205	200438	27.8	30.2	32.6	19.3	20.3	16.7	20.1	17.4	19.6	27.4	26.0	18.7	23.0	17.9	
MD12	583862	205549	24.1	23.0	26.8	20.0	21.7	19.5	19.0	20.8	24.1	29.1	24.9	20.0	22.8	17.7	
MD13	584165	205532	24.3	25.1	23.2	20.9	21.6	21.3	20.3	18.9	15.0	26.6	27.5	17.3	21.8	17.0	
MD14	585221	207682	31.4	31.5	34.2	23.0	21.0	24.9	29.0	30.4	25.8	34.8	25.8	23.4	27.9	21.8	
MD16	584309	205776	18.9	16.0	15.5	9.8	9.3	7.9	9.2	9.6	9.6	16.3	20.8	15.5	13.2	10.3	
MD17	585078	207924	17.6	18.7	17.0	12.5	10.8	10.2	12.1	13.2	10.0	19.2	18.3	16.1	14.6	11.4	
MD19	585565	206723	24.7	21.1	20.5	18.1	14.8	15.7	17.4	16.2	20.3	23.7	24.6	22.2	19.9	15.6	
MD22A	585062	207160	Erroneous Data Point Removed	48.1	38.3	37.6	49.4	44.2	43.2	47.3	42.1	54.9	49.8	34.3	-	-	Triplicate Site with MD22A, MD22B and MD22C - Annual data provided for MD22C only
MD22B	585062	207160	43.4	54.5	41.7	43.5	52.4	46.0	43.0	43.1	50.6	64.9	49.3	31.9	-	-	
MD22C	585062	207160	44.7	52.3	47.2	40.7	54.3	43.4	40.7	44.2	46.7	61.3	45.3	35.6	45.9	35.8	
MD23	585055	207324	30.7	32.2	Missing	Missing	20.8	23.5	38.5	46.3	41.9	Missing	Missing	Missing	33.4	28.4	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.78)	Comments
MD24	585045	207272	41.6	48.5	41.9	37.8	43.0	39.0	23.3	26.4	Missing	54.1	43.2	35.6	39.5	30.8	
MD25	585016	207241	29.9	34.3	30.7	26.1	22.1	23.9	25.2	24.6	27.4	40.8	29.8	23.7	28.2	22.0	
MD26	585045	207186	31.2	14.6	34.9	27.9	31.7	30.6	28.4	31.3	34.1	32.5	32.0	27.8	29.8	23.2	
MD27	585073	207132	15.3	26.7	32.0	45.6	46.5	50.5	44.2	49.3	45.2	62.7	55.2	36.9	42.5	33.2	
MD28	585067	207116	42.6	56.9	50.4	29.9	21.9	22.8	23.1	26.3	22.1	18.2	29.4	Erroneous Data Point Removed	31.2	24.4	
MD29	585467	208089	36.7	19.0	30.8	21.9	23.2	19.6	21.3	24.0	22.0	34.7	27.4	26.8	25.6	20.0	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1**

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

☒ **National bias adjustment factor used**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column**

☒ **Maldon District Council confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Maldon During 2024

Maldon District Council has not identified any significant new sources relating to air quality within the reporting year of 2024.

Additional Air Quality Works Undertaken by Maldon District Council During 2024

Maldon District Council has not completed any additional air quality works within the reporting year of 2024.

QA/QC of Diffusion Tube Monitoring

- Maldon District Council undertook monitoring at 26 sites in 2024.
- Maldon District Council adheres with the Diffusion Tube Monitoring Calendar
- The diffusion tubes were supplied by Socotec Didcot (UKAS Testing Laboratory number 1015) with a preparation method of 50% triethanolamine (TEA) in Acetone.
- The AIR NO_2 proficiency testing scheme found that for 2024, 100% of the results submitted were subsequently determined as satisfactory

Diffusion Tube Annualisation

Annualisation is required for any site with data capture less than 75% but greater than 25%. The diffusion tube processing tool is used to complete the annualisation process using background data sourced from regional AURN sites. One site required annualisation.

Table C.1 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor St Osyth	Annualisation Factor Rochester Stoke	Annualisation Factor Wicken Fen	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
MD23	1.0820	1.0586	1.1234	1.0880	33.4	36.4

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within this ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides

guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring.

Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Maldon District Council have applied a national bias adjustment factor of 0.78 to the 2024 monitoring data. A summary of bias adjustment factors used by Maldon District Council over the past five years is presented in Table C.2.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	Socotec Didcot 50% TEA in Acetone	0.78
2023	National	Socotec Didcot 50% TEA in Acetone	0.77
2022	National	Socotec Didcot 50% TEA in Acetone	0.78
2021	National	Socotec Didcot 50% TEA in Acetone	0.77
2020	National	Socotec Didcot 50% TEA in Acetone	0.77

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO_2 monitoring locations within Maldon required distance correction during 2024.

Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 – Map of Diffusion Tube Monitoring Sites: Market Hill AQMA & Town Centre

Figure D.2 – Map of Diffusion Tube Monitoring Sites: East of Maldon Town Centre

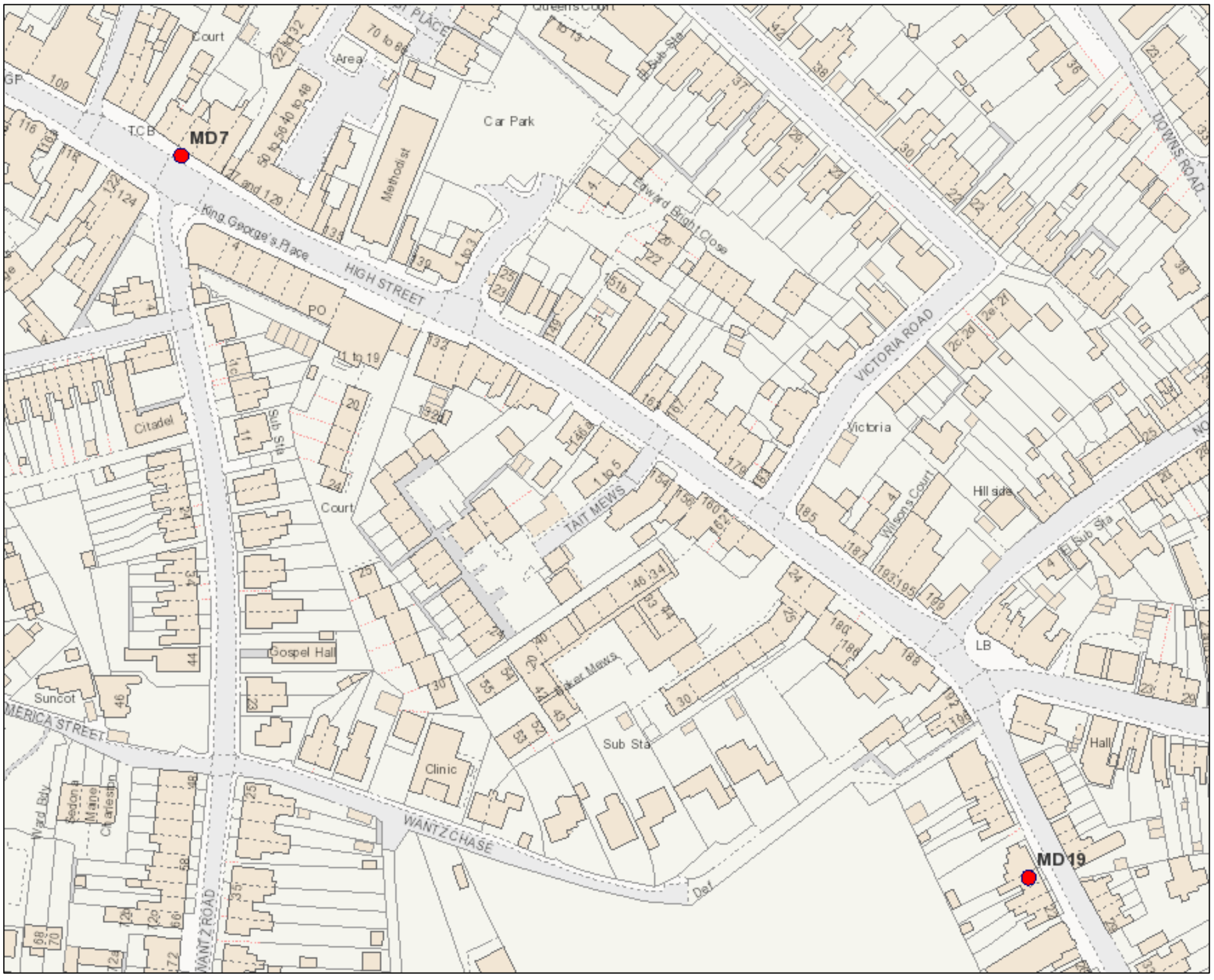


Figure D.3 – Map of Diffusion Tube Monitoring Sites: Heybridge

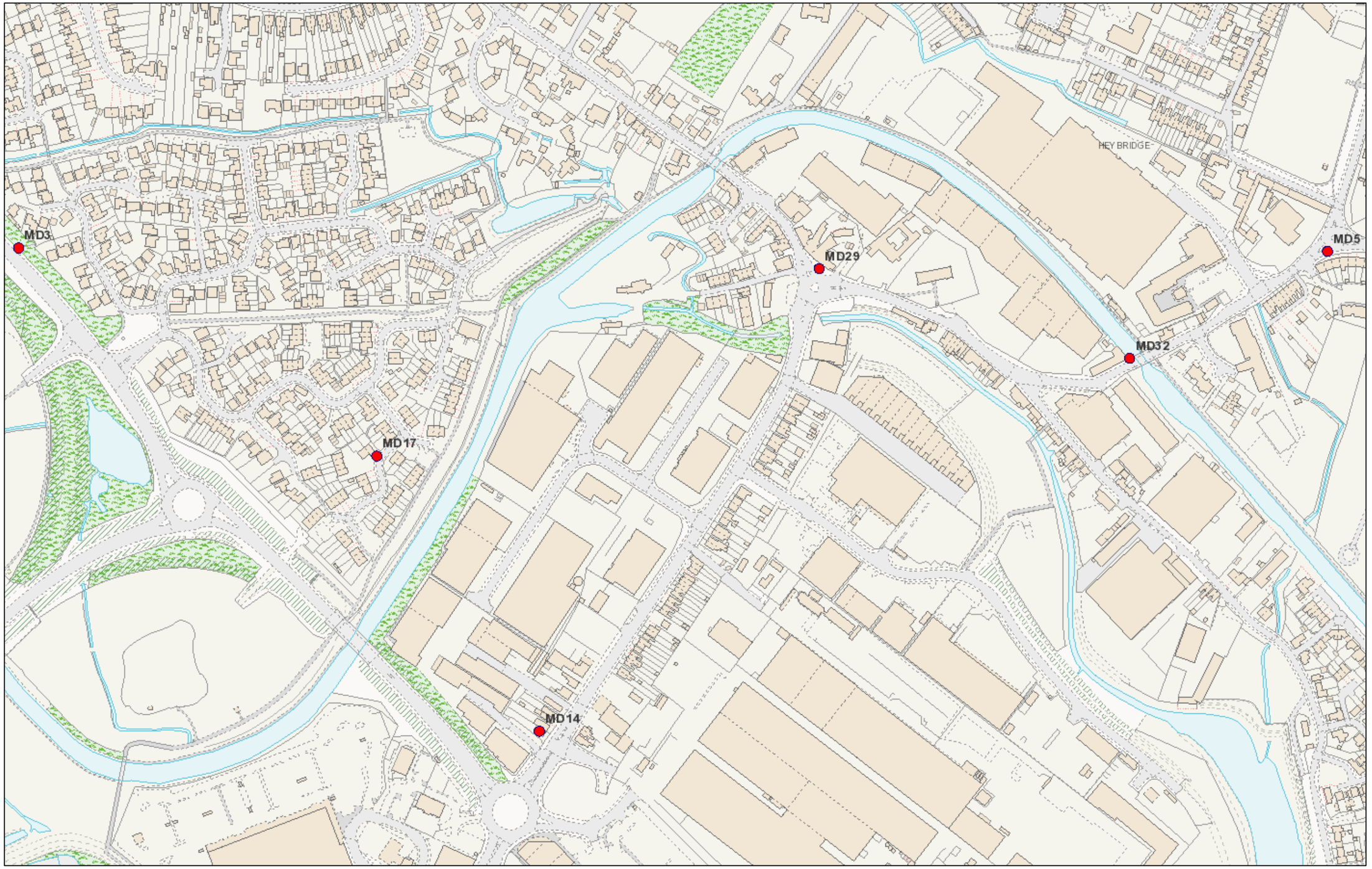


Figure D.4 – Map of Diffusion Tube Monitoring Sites: A414 Wycke Hill / Limebrook Way Roundabout

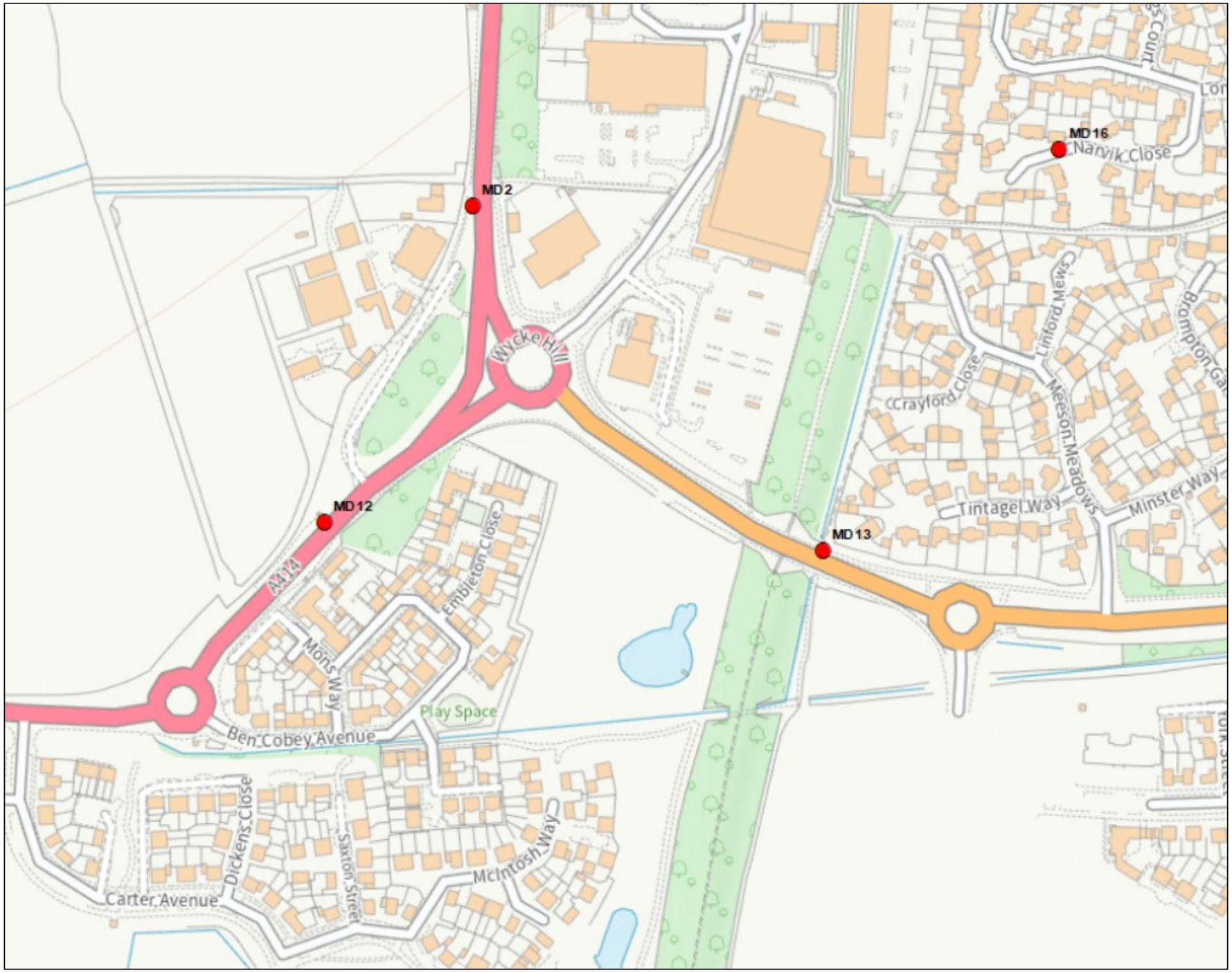


Figure D.5 – Map of Diffusion Tube Monitoring Sites: Latchingdon

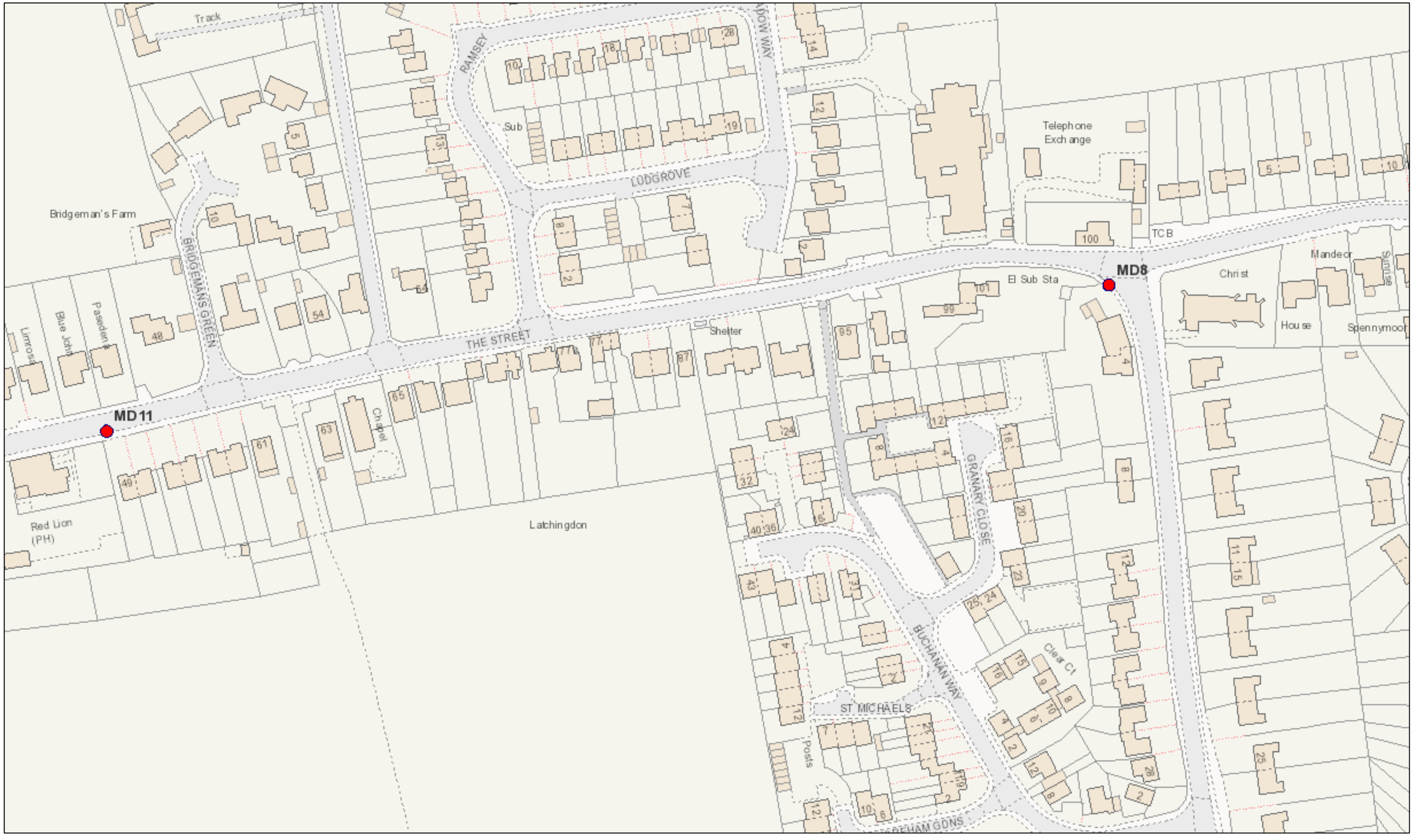
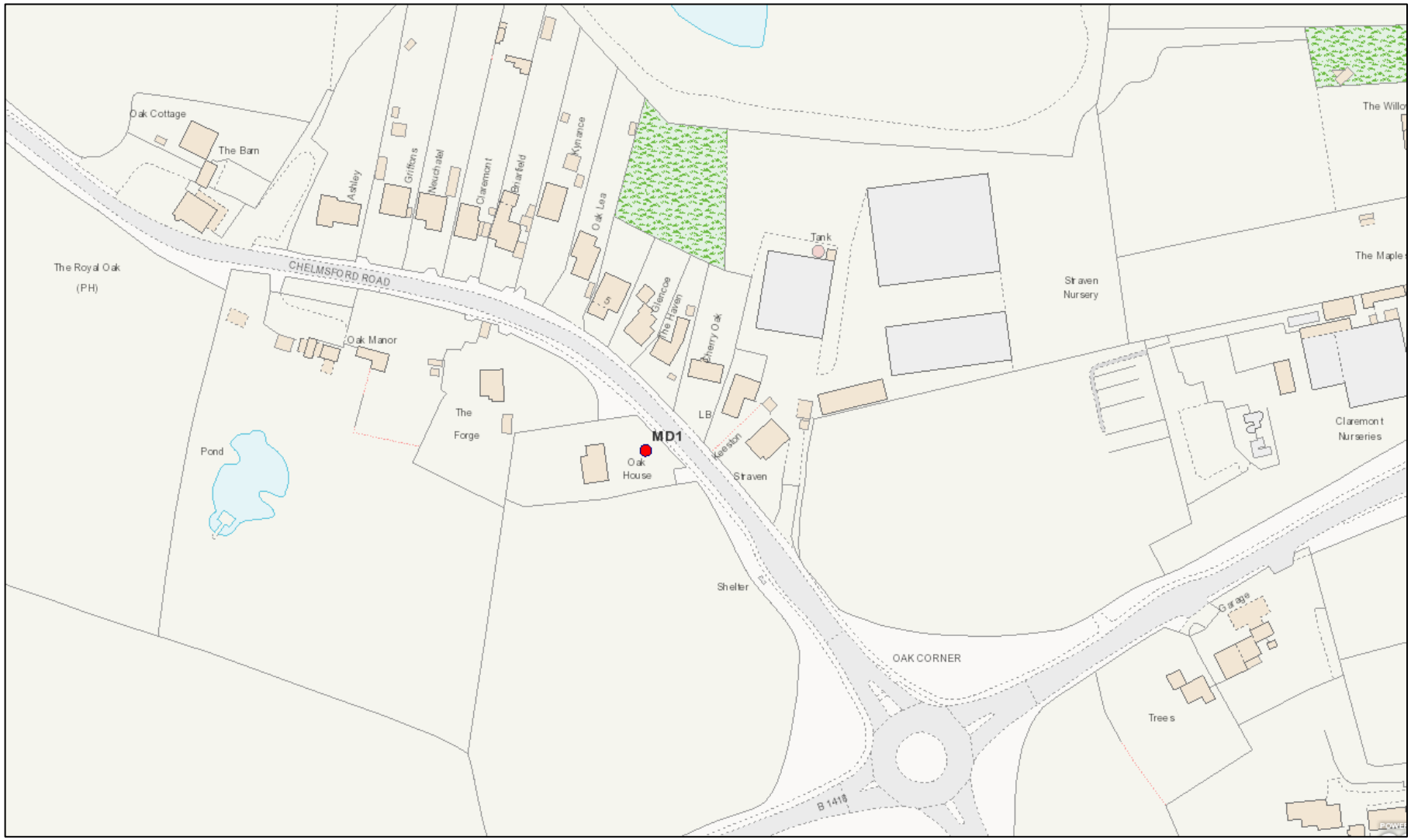


Figure D.6 – Map of Diffusion Tube Monitoring Sites: A414 Chelmsford Road



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[2]

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

[2] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

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	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra available at; https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery
- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency available at; https://www.gov.uk/government/publications/chemical-hazards-and-poisons-report-issue-28
- Essex Air website available at; https://essexair.org.uk/
- Essex Air Quality Draft Strategy available at; https://essexair.org.uk/strategy
- Essex Air social media feed available at; https://x.com/EssexAir
- Maldon District Council 2024 Air Quality Annual Status Report available at; https://cdn.cms42.com/essexair/maldon/Maldon_2024_ASR.pdf
- Maldon District Council Clean Air Route available at; https://www.maldon.gov.uk/info/20099/pollution/9148/air_quality/3
- Local Air Quality Management Background Maps available at; https://laqm.defra.gov.uk/air-quality/air-quality-assessment/background-maps/
- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland available at; https://laqm.defra.gov.uk/air-quality/featured/uk-regions-exc-london-technical-guidance/
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland available at; https://laqm.defra.gov.uk/air-quality/featured/england-exc-london-policy-guidance/
- Local Air Quality Management NO_2 Proficiency Scheme available at; https://laqm.defra.gov.uk/wp-content/uploads/2023/11/LAQM-NO2-Performance-data_Up-to-Oct-2023_V1_Final.pdf
- Public Health Framework available at; https://fingertips.phe.org.uk/profile/public-health-outcomes-framework
- UK Air Quality Limits available at; https://uk-air.defra.gov.uk/air-pollution/uk-limits