2020 Air Quality Annual Status Report (ASR)

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

June 2020

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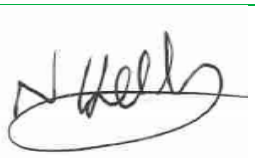
Checked	**Nick Kelly** Environmental Protection Team Leader	
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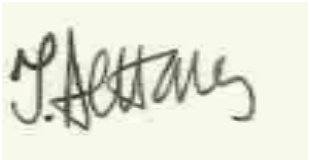
Checked	**Tracey Bettaney** Head of Regulatory Services	
Authorised for Release	**Paul Bayley** Director of Environment and Neighbourhood Services on behalf of the AQSG	

This report has been approved by the Air Quality Steering Group (AQSG) during their meeting on the 29th June 2020.

Consultation with the Executive Leadership Team will take place as part of internal reporting requirements.

Executive Summary

Air Quality in Cheshire East Council

Air pollution has a significant adverse effect on public health. It affects a large number of the population in different ways. Particularly, it has a significant impact and poses an environmental risk factor for the vulnerable groups. These groups include those with underlying respiratory and cardiovascular diseases, children and the elderly. Recently, research commissioned by Public Health England found that the health and social care costs of air pollution (Partticulate Matter ($PM_{2.5}$) and nitrogen dioxide (NO_2)) in England could reach £5.3 billion by 2035. This is a cumulative cost for diseases which have a strong association with air pollution: coronary heart disease; stroke; lung cancer; and childhood asthma[1]. Therefore Cheshire East Council is committed to tackling air pollution through our Air Quality Action Plan (AQAP) in order to improve air quality across the borough.

Monitoring data in Figure 3.1 Air Quality Management Area (AQMAs) and Appendix B (full dataset) generally indicates that pollution trends across Cheshire East continue to show improvement. However, some monitoring sites continue to measure exceedances of the United Kingdom annual mean Air Quality Objective (AQO) for NO_2 (Figure 3.1).

The NO_2 monitoring data trend for AQMA's shows a steady, and in some cases marginal, reduction for the years 2016 to 2019 (Figure 3.1). Exceptions to this are diffusion tubes CE16 (The Crescent, Disley), CE116 (Rood Hill, Congleton), CE224 (Outside Kings Arms Earle Street/Rainbow Street, Crewe), CE230 (Wistaston Road, Crewe), CE266 (Outside Crown Mews Hibel Road, Macclesfield), (CE86 Hibel Road, Macclesfield) and CE277 (9 Market Street, Disley) which showed increases ranging from 0.64% - 34.15% in NO_2 concentration between 2018 and 2019 (Figure 3.2). However the annual mean reported for each of these sites were all less than 60µg/m^3. Therefore, in accordance with guidance and research[2] it indicates that these areas do not have the potential to exceed the short term hourly objective.

[1] Clean Air Strategy, January 2019 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf

[2] Laxen D and Marner B (2003). Analysis of the relationship between 1-hour and annual mean nitrogen dioxide at UK roadside and kerbside monitoring sites –

We also undertook NO_2 real-time monitoring. The Real Time Analyser (RTA), conducts automatic monitoring and is located on Market Street at Disley. The 2019 RTA data recorded an annual mean of 35µg/m^3, meaning the AQO annual mean for NO_2, which is 40µg/m^3, was not exceeded. In addition, the maximum hourly mean recorded by the RTA was 166µg/m^3. This indicates compliance with both the individual NO_2 hourly AQO of 200 µg/m^3 and the annual permitted exceedance of 200 µg/m^3 18 times in a year (Appendix A, Table A.4).

Cheshire East has 19 AQMAs, of which 2 were declared in October 2019: A533 Lewin Street, Middlewich and A537 Chelford Road, Knutsford (Table 2.1).

Some AQMA sites have shown NO_2 concentrations consistently below the 40µg/m^3 AQO for three years or more (Figure 3.1). Therefore these sites have been reviewed and the Council is looking to amend where appropriate, or revoke AQMAs where it is likely that an exceedance will not occur.

Our monitoring strategy is periodically reviewed in order to make sure that monitoring is relevant with regards to sensitive receptors, AQMA boundaries and to make sure that the AQO is not exceeded.

Cheshire East Council does not currently undertake any monitoring for particulate matter (PM_{10} or $PM_{2.5}$), but action plan measures and strategies put forward to reduce NO_2 emissions (Table 2.3), will also help to reduce the levels of particulate matter. We also have some Particulate Matter (PM) specific measures (Table 2.4).

Actions to Improve Air Quality

The Council's Air Quality Action Plan (AQAP) (Table 2.3) includes:

(a) specific measures designed to address AQMAs and local traffic pinch points which are mostly within our AQMAs; and

(b) general measures to benefit the entire borough.

In order to implement the AQAP measures and achieve improved air quality, the Council's Air Quality team works in collaboration with internal and external partners. These include Public Health, Planning, Cheshire East Highways, Transport (both strategic and local sustainable transport), and Parking etc.

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http://uk-air.defra.gov.uk/assets/documents/reports/cat06/1hr_NO2_rpt_Final_b.pdf

The Air Quality Strategy (AQS) is an overarching document that provides an overview of the roles and responsibilities of Council services that can influence air quality. There are clear performance indicators (Table 2.2) within the AQS. These indicators are also linked to the AQAP and the work of the Air Quality team in their work to improve air quality across Cheshire East. This report highlights completed and 'in progress' work against these indicators.

The Council has developed an Air Quality Steering Group (AQSG) which is tasked with the strategic overview of the Council's approach to improving air quality and the direction of services to achieve positive results. The AQSG meet quarterly to discuss progress, bottlenecks, timescales, performance indicators and decisions with regards to the AQAP.

This report highlights the work carried out through the AQAP (Table 2.3) to improve air quality in Cheshire East. Some of the highlights include:

- Various Highway projects aimed at improving traffic flow, and reducing emissions from vehicles queuing:
    - Junction and road markings, modelling works, road remodelling, and weight restriction reviews
        - Yellow box markings on Crewe Arms roundabout, Mill Street Junction and Edleston Road, Crewe
        - Various reviews were completed or are ongoing (Table 2.3)
    - Traffic light repairs, upgrade and reviews
        - Microprocessor Optimised Vehicle Actuation (MOVA) has been validated at the A523/Byrons Lane Junction, Macclesfied
        - Reoccurring fault at Redhouse Lane Junction, Disley has now been repaired
- Through development control processes we require EV infrastructure, Air Quality Assessments, low emission boilers and travel plans all aimed to improve air quality; out of 1677 Planning consultations in 2019, 539 had recommended conditions to mitigate air quality impacts.
- Through the Environmental Permitting regime industrial process are permitted and regulated (2019: CEC has 122 Permitted processes (Part B) and 2 (Part

A2) and during 2019, 70 of the 73 routine inspections scheduled were completed).

- The Air Quality team now offers air quality education awareness workshop to primary schools.
- Congleton Link Road (CLR) construction is ongoing and the completion date is expected to be late 2020/early 2021. The CLR addresses the heavy traffic within Congleton town by providing alternative route for traffic going through the town.
- A review into emission based parking is ongoing.
- Work with the Local Sustainable Transport team to identify how a cycling and walking scheme can be delivered in Congleton and Crewe.

Conclusions and Priorities

This report provides an overview of the air quality across the borough with regards to monitoring, review and assessment of pollution trend. It gives information on the number of AQMAs within Cheshire East and also provides information on the ongoing and completed AQAP measures across the Borough.

This report also details action measures that have not progressed, why they have not progressed and where more focus should be placed as we move forward. We have therefore made some of these areas of work a priority;

- Update the AQAP to include specific measures for the newly declared AQMAs, so that a current and relevant AQAP is in place for each AQMA
- Continued work with Highways to ensure that they consider air quality in all new projects and upgrades
- Continued work with the Public Heath team to progress the planned air quality awareness campaign
- Investigate particulate matter monitoring options
- Continue to deliver the school education awareness package
- Investigate the feasibility of using green infrastructure and its role in air quality management

- Launch an in-house anti-idling campaign, focusing on awareness and education
- Work with Council's transport and fleet team to encourage the provision and accessibility of alternative travel infrastructures. Also ensure low emission vehicles are considered during procurement.

This report has not identified any further areas that need to be considered as potential Air Quality Management Areas. Rather there are seven potential AQMAs that are under consideration for revocation. They are:

1) A50 Knutsford
2) A556 Mere
3) Park Lane, Macclesfield
4) Middlewich Road, Sandbach
5) Nantwich Road, Crewe
6) Wistaston Road, Crewe
7) Earle Street, Crewe

Local Engagement and How to get Involved

Engaging with residents: Cheshire East Air Quality team engaged with Handforth Parish Council to discuss air quality related issues. The team also gave an air quality presentation at Disley Parish Council with regards to the air quality and action plan measures to improve air quality around Disley in relation to the A6 corridor and the South East Manchester Multi Modal Strategy (SEMMMS) project. Air quality presentations have also been delivered to Bollington Town Council and Bollington Civic Society, resulting in informative discussions around air quality within Bollington.

Engaging with Schools: The Air Quality team has so far visited 10 primary schools to deliver Air Quality Education Awareness Workshops. The workshop provides education on general air quality, monitoring techniques, health effects, how to improve air quality, reduce exposure to pollution and hands on activities to visualise how air pollution is generated and dispersed around their schools and the wider environment. Schools can access this resource directly from the AQ team and we have marketed this offer through the Cheshire East schools bulletin. The aim is to

create air quality awareness amongst Years 5 and 6, so that hopefully they can share what they have learnt with their family and wider associations.

Other engagements: We have met with local interest groups such as Active Cheshire with whom we are discussing possible collaboration on some of our action measures such as awareness. We also invited the group to our air quality public awareness planning meeting.

Officers have met with colleagues responsible for the development of the Greater Manchester Clean Air Zone to understand potential impacts of the scheme on individuals and businesses within Cheshire East.

The air quality pages on the Cheshire East Council website are periodically updated to enable the public to obtain relevant information relating to air quality across the borough. In addition, the public are able to send questions, comments or suggestions directly to the Air Quality email (Airquality@cheshireeast.gov.uk).

Table of Contents

List of Tables

List of Figures

1 Local Air Quality Management

This report provides an overview of air quality in the Borough of Cheshire East during the year 2019. 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 (AQO) 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 to improve the air quality. This report is an annual requirement outlining the various strategies and actions employed by Cheshire East to improve air quality and the opportunity to report on progress that has been made.

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

2 Actions to Improve Air Quality

This chapter describes measures and actions the Council has taken or is undertaking in order to improve air quality across Cheshire East.

2.1 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 AQAP within 18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

Following the submission of the 2019 ASR, the Council declared two new AQMAs in October 2019; A533 Lewin Street Middlewich and A537 Chelford Road, Knutsford.

A summary of AQMAs declared by Cheshire East Borough Council can be found in Table 2.1. Further information on AQMAs in Cheshire East , is available online at https://www.cheshireeast.gov.uk/environment/environmental_health/local_air_quality/aqma_area_maps.aspx

In addition Appendix D: Maps of Monitoring Locations and AQMAs, includes a map of the air quality monitoring locations in relation to the AQMAs.

This report has not identified the need to declare any new AQMAs. However, the Council does intend to revoke seven existing AQMAs because the NO_2 concentrations measured at these sites over the past three or more years, is shown to be less than 40µg/m^3 (Figure 3.1 and Appendix A), which is the national Air Quality Objective (AQO) set for NO_2. The seven AQMAs the Council is proposing to revoke are:

- A50 Manchester Road, Knutsford
- A556 Chester Road, Mere
- Park Lane, Macclesfield
- Middlewich Road, Sandbach
- Nantwich Road, Crewe
- Wistaston Road, Crewe
- Earle Street, Crewe

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
AQMA West Road	Declared 01/05/2005	NO_2 Annual Mean	Congleton	Between the Wagon and Horses gyratory and the fire station roundabout	NO	61	µg/m^3	44	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table2.4
AQMA A34/A54 Rood Hill	Declared 01/05/2005	NO_2 Annual Mean	Congleton	A short stretch at the Rood Hill A34/A54 traffic lights.	NO	60	µg/m^3	36	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table2.4

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
AQMA Lower Heath	Declared 01/04/2008	NO_2 Annual Mean	Congleton	A short stretch of the A34 at Lower Heath	NO	47	µg/m^3	47	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table2.4
AQMA A5022/A534	Declared 01/04/2008	NO_2 Annual Mean	Sandbach	A number of properties around the junction of A534 and A5022.	YES	47	µg/m^3	32	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table2.4

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
AQMA Nantwich Road	Declared 14/11/2008 Amended 01/05/2012	NO_2 Annual Mean	Crewe	A stretch of the A534 through Crewe	NO	44	$\mu g/m^3$	33	$\mu g/m^3$	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table2.4
AQMA Earle Street	Declared 31/01/2010 Amended 01/04/2012	NO_2 Annual Mean	Crewe	A length of Earle Street through Crewe	NO	42	$\mu g/m^3$	35	$\mu g/m^3$	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table2.4

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
AQMA Hospital Street	Declared 16/12/2006	NO_2 Annual Mean	Nantwich	A short stretch of the A534 through Nantwich	NO	59	µg/m^3	39	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table 2.4
AQMA A556 Chester Road	Declared 24/04/2008	NO_2 Annual Mean	Mere	An area along the length of the former A556 Chester Road, Mere (now referred to as the B5569) between the roundabout with the A56 Lymm Road to the north and junction 19 of the M6 to the south.	NO	59	µg/m^3	32	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table 2.4

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
AQMA A6 Market Street	Declared 01/04/2010	NO_2 Annual Mean	Disley	A stretch of the A6 running from Market Street/Buxton Old Road crossroads in the west, to the junction with Redhouse Lane in the east.	NO	62	$\mu g/m^3$	47	$\mu g/m^3$	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table 2.4
AQMA A523 London Road	Declared 01/04/2010	NO_2 Annual Mean	Macclesfield	An area from the Mill Lane/Silk Road junction in the north, to a point 65m south of the London Road Terrace junction in the south.	NO	43	$\mu g/m^3$	37	$\mu g/m^3$	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table 2.4

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
AQMA A50 Manchester Road	Declared 01/04/2010	NO_2 Annual Mean	Knutsford	A small number of properties along the A50 at the Windsor Way junction	NO	43	µg/m^3	30	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table 2.4
AQMA Wistaston Road	Declared 01/11/2011	NO_2 Annual Mean	Crewe	A stretch of Wistaston Road through Crewe	NO	44	µg/m^3	31	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table 2.4

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
AQMA Chester Road, Middlewich	Declared 01.10.2017	NO_2 Annual Mean	Middlewich	A stretch of Chester Road in Middlewich	NO	42	µg/m^3	41	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table 2.4
AQMA Middlewich Road, Sandbach	Declared 01.10.2017	NO_2 Annual Mean	Sandbach	A short length of Middlewich Road, Sandbach	NO	49	µg/m^3	35	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table 2.4

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
AQMA Hibel Road, Macclesfield	Declared 01.10.2017	NO_2 Annual Mean	Macclesfield	A short length of Hibel Road, Macclesfield	NO	44	µg/m^3	39	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table 2.4
AQMA Broken Cross, Macclesfield	Declared 01.10.2017	NO_2 Annual Mean	Macclesfield	An area around Broken Cross Roundabout, Macclesfield	NO	44	µg/m^3	32	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table 2.4

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
AQMA Park Lane, Macclesfield	Declared 01.10.2017	NO_2 Annual Mean	Macclesfield	A short stretch of Park Lane, Macclesfield	NO	44	µg/m^3	34	µg/m^3	Local Air Quality Management Final Action Plan	Jan-19	Table 2.3 and Table 2.4
AQMA A533 Lewin Street, Middlewich	Declared 10.10.2019	NO_2 Annual Mean	Middlewich	A section of the A533 Lewin Street, Middlewich	NO	41	µg/m^3	38	µg/m^3	Local Air Quality Management Final Action Plan	TBC	

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
AQMA A537 Chelford Road, Knutsford	Declared 10.10.2019	NO_2 Annual Mean	Knutsford	A section of the A537 Chelford Road, Knutsford	NO	40	µg/m^3	36	µg/m^3	Local Air Quality Management Final Action Plan	TBC	

☒ **Cheshire East Borough 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 Cheshire East Borough Council

Cheshire East Borough Council received positive feedback from Defra for the appraisal of the 2019 ASR. However, there were a few specific comments that needed to be addressed and they are:

1. The declaration of 2 new AQMAs in 2018 is agreed particularly as monitoring results within these proposed AQMAs (CE94 for Chelford Road and CE282 for Lewin Street) have seen exceedances.

    - **Response** – In October 2019, A533 Lewin Street, Middlewich and A537 Chelford Road, Knutsford were declared AQMAs.

2. Due to the construction of a bypass for Mere, traffic within the AQMA has decreased. This is reflected in the monitoring results. The Council proposed to amend the existing AQMA within Mere (AQMA A556 Chester Road) as an exceedance within the AQMA has not been seen since 2016. It has been proposed in this ASR that the site should be amended to exclude the monitoring locations south of the AQMA. However, if monitoring results in the next reporting year show that concentrations remain below the AQOs, there is potential for the entire AQMA to be revoked. The amendment of this AQMA is supported but the Council way wish to consider revoking the AQMA in the future.

    - **Response** – In the 2019 ASR, the Council was looking to amend the A556 Chester Road, Mere AQMA. However our monitoring protocol states that we should look to revoke an AQMA, if monitoring data for three or more consecutive yeasrs is less than the AQOs and does not show the potential to increase. Also in the 2019 ASR defra appraisal, it was suggested that if the monitoring results in the next reporting year show that concentrations remain below the AQOs, there is potential for the entire AQMA to be revoked. The 2019 annual mean NO_2 concentrations measured at the A556 Chester Road, Mere AQMA monitoring sites were below the AQO. (CE64 - 23.21µg/m^3, CE54 – 32.25µg/m^3, CE298 – 26.52µg/m^3, CE300 – 32.17µg/m^3).

Therefore the Council will revoke the A556 Chester Road, Mere AQMA within the next 12 months.

3. The AQMA and diffusion tube mapping is comprehensive and clearly demonstrates the monitoring network.

    - **Response** - Cheshire East Council will continue to maintain a comprehensive monitoring network to ensure that monitoring is robust and relevant to sensitive receptors.

4. Monitoring QA/QC is considered robust. The local bias factor was used as there was no triplicate diffusion tube monitoring locations. The national factor used instead.

    - **Response**: As noted, no triplicate diffusion tubes were collocated with the real-time analyser at Disley. Therefore, a local bias factor was not calculated. The Council used the relevant national bias adjustment factor for the diffusion tube validation.

5. Monitoring sites were annualised where appropriate and working provided.

    - No comment required

6. Links to public health outcomes framework should be included in future ASRs. It would be useful for the Council to compare the PM indicator value for Cheshire East to nearby LAs and National indicator values. See link:

    https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/0/gid/1000043/pat/6/par/E12000005/ati/101/are/E07000194

    - **Response**: Links to Public Health Outcomes Framework (PHOF) with respect to air quality have been addressed in the 2019 ASR, section 2.4. The updated 2019 ASR can be found online. See link: https://www.cheshireeast.gov.uk/pdf/environment/air-quality/2019-air-quality-annual-status-report-asr.pdf This report includes the PHOF with comparison to the neighbouring areas and the UK as a whole.

7. It is made clear that the monitoring strategy and latest AQMAs are on continual review, and is based on latest requirements, which is encouraged. As mentioned previously, further revocations could be considered of AQMA

A556 Chester Road, Mere if monitored compliance continues for two more years, given low reported concentrations in 2017 and 2018.

- **Response**: In addition to AQMA A556 Chester Road-Mere, we are also in the process of revoking 6 more AQMAs that have demonstrated compliant concentrations for three or more consecutive years. These include: A50 Manchester Road, Knutsford; Park Lane, Macclesfield; Middlewich Road, Sandbach; Nantwich Road, Crewe; Wistaston Road, Crewe and Earle Street, Crewe (see monitoring data in the Appendix A and Figure 3.1).

Cheshire East has taken forward a number of AQAP measures to improve local air quality. Details of all measures, completed, in progress or planned are set out in Table 2.3.

Key completed measures are:

- The AQS is aimed at informing policy and direction across a wide range of council services, ensuring that air quality is considered in all relevant decisions to ensure that air quality is improved where possible. Clear performance indicators (Table 2.2) have been set to monitor the effectiveness of the AQS. These indicators are linked to the AQAP. Across this report (notably Table 2.3 and section 2) we have demonstrated that we have met or are in the process of meeting these performance indicators.

Table 2.2 – Performance indicator compliance with the Air Quality Strategy

	Description	Monitoring Frequency	Target
1	Monitoring air quality	Annually within R&A process	Achievement of the UK air quality objectives
2	Number of AQMAs	Annually	Reduction of AQMAs
3	Assessment of Road Schemes	Annually	Undertake air quality assessments for 100% of relevant road schemes
4	Assessment of planning applications	Annually	100% of relevant planning applications accompanied by Environmental Impact Assessments covering air quality

5	Assessment of industrial processes	Annually	100% of Applications for Permits in accordance with the Pollution Prevention & Control Act 1999 and Environmental Permitting (England and Wales) Regulations 2010 are assessed for Air Quality implications
6	Promotion of Air Quality Issues to schools and other relevant groups	Annually	Attend five school education / residents group/ Town or Parish Council meetings

- The Low Emission Strategy (LES) has been approved and it is now live on the Council's website. The LES is a policy document involving a plan of actions that is designed to lower the emissions from transport and encourage developers to implement sustainable planning systems/developments to improve air quality. It will encourage developers to understand the importance of protecting local air quality and their role in mitigating any impact from development.
- The Environment Strategy and Carbon Action Plan have both been completed and are both live on the Cheshire East Borough Council website. The Environment Strategy sets out the Council's priority actions to reduce Cheshire East emissions and become a carbon neutral council by 2025. The Carbon Action Plan focuses on actions that we should consider taking in support of the carbon neutral 2025 target.
- The 2019 Air Quality Annual Status Report was completed and submitted to Defra. We have received Defra's comments and our response to the comments can be found in this 2020 ASR. The 2019 ASR is published on the Cheshire East Borough Council website.
- Continued monitoring, review and assessment of NO_2 concentration across the borough to make sure monitoring is relevant and to check compliance with the AQO.
- The Air Quality team has engaged with Handforth Parish Council to discuss air quality related issues. The team also gave an air quality presentation at Disley Parish Council with regards to the air quality and action measures to improve air quality around Disley in relation to the A6 corridor and SEMMMS project.

Air quality presentations have also been delivered to Bollington Town Council and Bollington Civic Society, resulting in informative discussions around air quality within Bollington. We have also met with Active Cheshire to discuss possible ways we can work together to promote awareness of air quality. Active Cheshire were also invited to attend one of our public awareness planning meetings.

- The Air Quality team has to date visited 10 primary schools to deliver our Air Quality Education Awareness Workshop. The workshop provides education on general air quality, monitoring techniques, health effects, how to reduce air pollution, reduce exposure to air pollution and hands on activities to help visualise how air pollution is generated and dispersed around their school and wider environment. The aim is to create air quality awareness amongst this age group and hopefully they can share the information to family members. We have made sure that the workshop is fun and links in with the Key Stage 2 (Years 5 & 6) curriculums - our target age group. We have also included resources for parents and the school itself, i.e. where they can access further information. The information includes the following: Bikeability, Modeshift-STAR, Cheshire East Council's Sustainable Modes of Travel to Schools (SMOTS) and cycling in Cheshire East. For the schools, some of the information could possibly lead to implementation of engineering measures on the highway network that will encourage more sustainable journeys to their school. The education programme is ongoing and we continue to encourage schools to sign up.
- Various Highway projects were completed. This will help ease traffic flow and therefore reduce the emissions arising from waiting vehicles in traffic:
    - Relevant markings on roads were repainted, for example the yellow markings at Crewe Arms roundabout, Mill Street Junction and Edleston Road, Crewe.
    - Traffic signaling improvements; The traffic lights at the Redhouse Lane junction in Disley had a reoccurring fault but this has now been rectified. Also there has been a review and/or upgrade of MOVA

systems at various locations across the borough e.g. at A523/Byrons Lane Junction, Macclesfield and see Table 2.3.

Cheshire East Council expects the following measures to be completed over the course of the next reporting year:

- The Environmental Protection Supplementary Policy Document (SPD) is now in the final draft stage awaiting approval and then adoption. The target for adoption is 2021. The air quality section of the SPD provides additional guidance on planning issues concerning air quality in Cheshire East.
- The development of the Electric Vehicle Strategy remains ongoing. Once this document is adopted, it will lay down the Council's commitment to creating the necessary infrastructure to support EV take up. This work is being done in collaboration with Strategic Transport.
- Work remains ongoing in relation to the set up and launch of an anti-idling campaign. Various options have been identified and the AQSG has decided to run an in-house education campaign first, before rolling this out across the borough. The purpose of this campaign will be to reduce vehicle idling across the borough and with that reduce associated emissions. In the first instance a number of diffusion tubes have been located on taxi ranks in Macclesfield and Crewe, where local knowledge has shown that vehicle idling occurs, allowing us to measure the impact of anti-idling in the area.

Our priorities for the coming year are:

- Update the AQAP to include measures for the newly declared AQMAs: A537 Chelford Road, Knutsford and A533 Lewin Street, Middlewich. This will help address emission and exposure in order to improve the air quality in those areas.
- Encourage and promote EV technology and infrastructure through the planning application process and the Local Transport Plan.
- To help promote air quality awareness, the Air Quality and Public Health teams, alongside other stakeholders, are in the process of launching an air quality public awareness campaign. The launch is intended to coincide with Clean Air Day in October 2020.

- The Air Quality team has researched and reviewed different indicative PM monitors. We are now in the process of making a final decision as to whether there is a suitable PM monitor for use within the borough.
- To continue to work with Cheshire East Highways to implement and upgrade various traffic management projects, that will help to improve air quality across the Borough by targeting pinch point areas found predominantly within AQMAs.
- Continued monitoring, review and assessment of relevant pollutants.

The principal challenges and barriers to implementation that Cheshire East Council has to acknowledge include:

- Green infrastructure (GI) – GI is the use of a network of plants or vegetation to reduce public exposure to air pollurion. A GI review as to which type of greenery will be suitable for our AQMAs has been completed. However, the challenge is lack of space for planting or screen installation given the locations of our AQMA's. We are currently working with consultants and Cheshire East Highways to find the best way to deliver this project.
- Working with the Local Sustainable Transport team to promote alternative means of transport which has inherent challenges .
    - Instilling behavioural change in people so that their first thought will be to choose alternative or a more sustainable means of travel, for example cycling. We hope that through the planned awareness campaign we can achieve an improved behavioural change.
    - Securing funds to provide infrastructure to promote and encourage alternative travel. We would look to pursue appropriate funds or grants to further this measure.
- The challenge to encourage drivers to switch to Ultra Low Emission Vehicles is beset by high purchase costs, availability of vehicles, range and charging points. There are continued calls for the government to provide additional support to these schemes. Once the Council's EV strategy is completed it will also help to address some of these issues.

- The Air Quality team will continue to promote and encourage greener fleet across Council owned or service providers' fleet.
    - The Council has twelve Euro 6 specially adapted wheelchair accessible minibuses. These are obtained via an open tender five year contract hire arrangement that specifies they must be Euro 5 or Euro 6.
    - ANSA Environmental Services refuse fleet includes twenty-eight Euro 5 and thirty-two Euro 6 HGVs.

  However the challenge we face is mostly with the local transportation buses as they are not Euro 6 compliant. Also some of the taxis are not Euro 5 or 6 compliant but the Licensing Team is waiting for the outcome of national Guidance before implementing any new licence conditions. The Air Quality team in collaboration with Strategic Transport is looking into this area in order to identify ways of improvement.

- More complex projects aimed at tackling air quality e.g. changes to infrastructure will potentially be constrained by the availability of financial support and a reliance on external and specialist agencies.

Progress on the following measures has been slower than expected:

- Use of Congleton cycling fund: Air Quality Grant funding was supplied to the Council in 2014 and unfortunately at that time it was not possible to deliver the project described. Therefore, the Council has contacted Defra to request approval to spend the grant funding on a different cycling project within Congleton and is awaiting feedback on these proposals.
- The lockdown and social distancing measures implemented because of the COVID-19 pandemic has impacted on the progress of a number of measures including further delivery of the schools education programme and the completion of traffic surveys that will ultimately feed into planned scoping exercises.

Table 2.3 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
GN1	Review the Air Quality Strategy	Policy Guidance and Development Control	Other policy	2010	CE Environmental Health	None	Published AQS	LOW	Completed AQS published	Completed Dec-19	
GN1	Implement Low Emission Strategy	Policy Guidance and Development Control	Low Emissions Strategy	2011	CE Environmental Health	None	Published LES	MEDIUM	LES published Feb-20 Implementation ongoing	Completed Feb-20	
GN1	Integration of air quality into all relevant council policies and documents	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2010	CE Environmental Health, CE Development Control	None	Published Supplementary Planning Document (SPD)	LOW	Draft SPD produced and awaiting comments from Strategic Planning. Internal planning consultation response system reviewed and tweaked. Implemented low NOx boiler condition	A published draft SPD for consultation by March 2021	This will be progressed in 2020-2021
GN1	Use the existing development control processes to improve air quality	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2010	CE Environmental Health, CE Development Control	None	Assess all air quality impact assessments in accordance with EPUK Guidance.	MEDIUM	100% applications screened for AQ impact. Mitigation required as necessary.	Ongoing	
GN2	Continue to enforce environmental permits	Environmental Permits	Other measure through permit systems and economic instruments	2010	CE Environmental Health	None	Inspection programme developed each year in accordance with risk assessments	MEDIUM	2019: CEC has 122 Permitted processes (Part B) and 2 (Part A2). During 2019 70/73 routine inspections scheduled were completed	Ongoing	
GN3	Regularly review the website to raise awareness and provide information	Public Information	Via the Internet	2010	CE Environmental Health, CE Public Health, CE Communications	None	Functional website with up to date information	It is difficult to quantify reduction as a result of this measure. MEDIUM	LES, AQS and ASR uploaded. 2 new AQMAs uploaded. In conjunction with Public Health, new group formed to launch AQ awareness campaign	Ongoing review of website. Awareness campaign launched late 2020	Covid-19 has stalled work on awareness campaign - Clean Air Day postponed until later in 2020
GN3	Produce resources on air quality for school children to provide better awareness	Public Information	Via other mechanisms	2018	CE Environmental Health	None	Air quality education campaign	It is difficult to quantify reduction as a result of this measure. MEDIUM	Interactive lesson plan for Years 5 & 6 developed and then delivered to 10 primary schools.	Ongoing	Covid-19 has stalled this work as it has not been possible to attend schools to deliver

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
GN4	Working with schools to produce and implement their travel plan	Promoting Travel Alternatives	School Travel Plans	2010	CE Environmental Health, CE Strategic Transport	CE Strategic Transport	Schools producing travel plans	It is difficult to quantify reduction as a result of this measure. MEDIUM	New web page for schools. Liaising with Sustainable Modes of Transport team to promote travel plans	Ongoing 126 schools have so far signed up to Modeshift STARS to begin producing travel plans	
GN4	Support and encourage establishments and individuals to produce, implement and make available travel plans	Promoting Travel Alternatives	Workplace Travel Planning	2010	CE Environmental Health	None	Travel planning conditions on planning applications	It is difficult to quantify reduction as a result of this measure. MEDIUM	Of 1677 Planning consultation, 539 were recommended for conditions to mitigate air quality impacts.	Ongoing	
GN4	Support a staff travel plan, car share scheme and lift share	Promoting Travel Alternatives	Workplace Travel Planning	2010	CE Environmental Health, CE Strategic Transport	CE Strategic Highways	Staff travel plan	It is difficult to quantify reduction as a result of this measure. MEDIUM	A business case has been put forward to employ an officer to oversee this area	Ongoing	This will be progressed in 2020-2021
GN4, GN7 & CONG5	Active transport	Promoting Travel Alternatives	Promotion of cycling	2010	CE Environmental Health, CE Strategic Transport, CE Public Health	Defra grant, Sustrans, CE Strategic Transport	Additional cycling schemes	It is difficult to quantify reduction as a result of this measure. LOW	Looking to spend grant money on two cycling schemes in Congleton. Crewe cycle and walking route extension on the A530 has been consulted on	Ongoing	This will be progressed in 2020-2021
GN5 & NANT3	Educate and where possible enforce requirement to switch off idling engines	Traffic Management	Anti-idling enforcement	2010	CE Environmental Health, CE Parking Services	None	Anti-idling campaign launched	MEDIUM	Initial research undertaken and review of options produced. Begin with an in-house education campaign, then progress to a borough wide campaign. Diffusion tubes have been put out at 2 taxi ranks to obtain a baseline before any action	March 2021 for in-house campaign	This will be progressed in 2021-2022
GN5	Incentivise parking for low emission vehicles	Traffic Management	Emission based parking or permit charges	2010	CE Environmental Health, CE Parking Services, CE Strategic Transport	None	Incentivised parking scheme implemented	MEDIUM	Parking review being undertaken for the borough.	Ongoing	This will be progressed and completed in 2020-2021
GN5	Manage the highway network	Traffic Management	Strategic highway improvements, Re-prioritising	2015			SMART Motorway completed. Highway improvement	HIGH	SMART Motorway completed and in use	SMART Motorway opened April 2019. Other	

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
			road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane		DfT, CE Highways	DfT	schemes implemented			highway improvements are ongoing	
GN5&CONG1	Provide a Congleton Link Road	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2012	DfT, CE Highways	DfT	Link Road completed and opened	*Approximately 5.6 µg/m^3 across Congleton Town using selected receptor area within Congleton town HIGH	Construction work commenced on Congleton Link Road in March 2019	Expected to complete late 2020	Covid-19 may delay the completion
GN5&MIDD2	Provide a Middlewich Bypass	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2018	DfT, CE Highways	DfT	Bypass to be completed and opened	** Approximately 2.34 µg/m^3 across the selected receptor area in Middlewich Town HIGH	Planning permission obtained in 2019. Work to start in 2021 with a 30 month construction phase	Expected to complete 2023/24	
GN5&NANT1	Weight restrictions in AQMAs	Traffic Management	UTC, Congestion management, traffic reduction	2011	CE Highways	LTP	Weight restrictions reviewed and implemented if applicable	HIGH	A scoping exercise has been commissioned to ascertain the feasibility of a weight restriction in Nantwich	Ongoing	This will be progressed in 2020-2021
GN5	Road markings are maintained	Traffic Management	Other	2011	CE Highways	LTP	Relevant road markings are maintained	LOW	Crewe Arms Roundabout, Edleston Road and Mill Street junctions in Crewe have been completed. A review of the other AQMAs will take place this year	Nantwich Road AQMA completed. Ongoing for other AQMAs	

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
GN6	Encourage taxis licensed by the Council to comply with vehicle emission limits	Promoting Low Emission Transport	Taxi Licensing conditions	2010	CE Licensing	None	Number of taxi's licensed. Number of LEV Taxis in the fleet. All licensed taxis should meet minimum emission standard	It is difficult to quantify reduction as a result of this measure. MEDIUM	Awaiting outcome of national Guidance before implementing new licence conditions. Design survey for taxi drivers to obtain no. of miles, area of work, vehicle details, thoughts on EV, etc.	Ongoing	This will be progressed in 2020-2021
GN6	Continue to promote and increase the installation of EV charging points	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2014	CE Environmental Health, CE Parking Services, CE Facilities Management	None	Increased installation of EV charging points	It is difficult to quantify reduction as a result of this measure. MEDIUM	EV charging points are conditioned through the planning process. Work has started on a CE EV Strategy	EV Strategy to be completed by 2021. Other work ongoing	This will be progressed in 2020-2021
GN7	Support improvement of public transport facilities	Transport Planning and Infrastructure	Other	2010	CE Strategic Transport	LTP	Public transport improved	It is difficult to quantify reduction as a result of this measure. MEDIUM	Continue to work with partners to support infrastructure across the borough. Review of bus emission standards to take place during 2020	Ongoing	This will be progressed in 2020-2021
GN8	Provide driver training to operators to reduce emissions	Vehicle Fleet Efficiency	Driver training and ECO driving aids	2010	CE Environmental Health, CE Carbon Neutral Team	None	Driver training completed	It is difficult to quantify reduction as a result of this measure. MEDIUM	This is an area that the Carbon Neutral Team are keen to look at and we are looking to create a bespoke online training course for drivers	Ongoing	This will be progressed in 2020-2021
GN8	Support the procurement of greener fleet	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	2010	CE Environmental Health, CE Strategic Transport	LTP	Greener fleet	It is difficult to quantify reduction as a result of this measure. MEDIUM	Work has begun with Highways looking at greener fleet and efficiency ideas. Hydrogen refuelling plant to be installed at the Environmental Hub. Review of corporate fleets to identify efficiency savings reduction	Ongoing	This will be progressed in 2020-2021

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
GN8	To work with partners to undertake vehicle testing schemes	Vehicle Fleet Efficiency	Testing Vehicle Emissions	2011	CE Environmental Health, Police, DVSA	None	Vehicle emission testing completed	N/A as this measure will not be pursued at this time	Not feasible to pursue currently due to cost levied by the company who undertake the testing	Consider at a future date	
GN9	NOx-busting paint	Other		2016	CE Environmental Health	None	Reduction in NO2	N/A as this measure will not be pursued at this time	This has been put on hold whilst awaiting the outcome of further research	On hold until outcome of research	
GN9	Support and promote green planting	Other		2014	CE Environmental Health	LTP	More green infrastructure across the borough	LOW	Currently reviewing options with Consultants and Highways for any suitable locations. Will start to review new technologies with Highways in the coming year	Ongoing	This will be progressed in 2020-2021
CONG2	Review the need for traffic signalling and giving more priority to Rood Hill, Congleton	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2011	CE Highways	LTP	Traffic signals reviewed	It is difficult to quantify reduction as a result of this measure but implementing this measure will result in reducing traffic queues and as such reduce emissions LOW	This is on hold pending completion of the Congleton Link Road. System already uses MOVA	On hold	
CONG3	Review the need for the pedestrian crossing and the puffin traffic light within close proximity in Lower Heath	Traffic Management	Other	2011	CE Highways	LTP	Crossings reviewed in Lower Heath area	It is difficult to quantify reduction as a result of this measure but implementing this measure will result in reducing traffic queues and as such reduce emissions due to build up. LOW	Highways have said it is very difficult to remove a pelican crossing. May need to look at a temporary deactivation of the pedestrian crossing. Links to Congleton Link Road opening	On hold	
CONG4	Review west bound bus stop by Tesco Express (West Road, Congleton)	Traffic Management	Other	2018	CE Strategic Transport	Possible LTP	Bus stop reviewed	It is difficult to quantify reduction as a result of this measure but implementing this measure will result in reducing traffic queues and as such reduce emissions	Discussions have taken place and location is being reviewed	Dec-20	This will be progressed in 2020-2021

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
								MEDIUM			
NANT2	Ensure Peter Destapleigh Way, Nantwich is made more attractive to through traffic	Traffic Management	Other	2018	CE Highways	LTP, Section 106 money	Increased use by through traffic	MEDIUM	Junctions are awaiting Section 278 works which involve the provision of MOVA. London Road approach is to have some slight lining amendments and the LH lane from Newcastle Road is to be extended	Dec-20	This will be progressed in 2020-2021
NANT4	Review the 'keep clear' signage on Hospital Street, Nantwich	Traffic Management	Other	2018	CE Highways	LTP	Signage review completed and repainted as necessary	It is difficult to quantify reduction as a result of this measure but implementing this measure will result in reducing traffic queues and as such reduce emissions due to build up. LOW	Completed Road has been repainted with Keep Clear	May-19	
NANT5	Review the railway crossing timings on Wellington Road, Nantwich	Traffic Management	Other	2011	CE Environmental Health	None	Crossing timings reviewed	N/A as this measure will not be pursued at this time	Network Rail has stated that due to H&S reasons, the timings cannot be changed although there is a review process	No further action possible at this time, will keep under review	
SAND1	Review flows and priorities at Ashfield Way, Sandbach	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2018	CE Highways	LTP	Priorities reviewed	MEDIUM	Modelling work of the various options is being undertaken by Highways before a decision can be made	Dec-20	This will be progressed in 2020-2021
SAND2 & MIDD1	Vehicle weight restriction	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	2018	CE Highways	LTP	Weight restriction reviewed	N/A as this measure will not be pursued at this time	No alternative routes currently available	Not currently achievable	

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
DIS1	Ensure the A6 Corridor is managed as part of the SEMMMS scheme	Traffic Management	Other	2011	CE Environmental Health	SEMMMS	Mitigation implemented as part of the schemes	LOW	Completed Planning conditions to require enhanced mitigation	May-19	
DIS2	Support the improvement of rail facilities in Disley	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2011	CE Environmental Health	None	Rail facilities improved	LOW	No progress made	No progress made	
DIS3	Speed limit reduction on A6, Disley	Traffic Management	Reduction of speed limits, 20mph zones	2014	CE Highways	None	Reducing the speed limit to 30mph	N/A as this measure will not be pursued at this time	30 mph limit not supported by the Police - did not meet the requirements of the Council's Speed Limit Policy. The mitigation measures installed as part of SEMMMS were designed to try and achieve better compliance with the existing speed limits.	No further action possible at this time, will keep under review	
DIS4	Investigate the feasibility of implementing a CAZ in Disley	Traffic Management	Other	2015	CE Environmental Health, CE Highways	None	Feasibility of CAZ/LES investigated and implemented if possible	N/A as this measure will not be pursued at this time	No current suitable route however working with Greater Manchester with their proposed CAZ and as such this may be looked at further	Consider at a future date	
DIS5	Investigate the feasibility of implementing RUC and/or weight restriction in Disley	Traffic Management	Road User Charging (RUC)/ Congestion charging	2011	CE Environmental Health, CE Highways	None	Feasibility of RUC investigated and implemented if possible	N/A as this measure will not be pursued at this time	No current suitable route but will review in 2022 if the opportunity arises	No progress made	
DIS6	Review the possibility of a Bypass round Disley	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2011	CE Highways	DfT	Review completed and Bypass implemented if possible	HIGH	Bypass was initial recommendation of SEMMMS refresh. Finalisation of the study delayed but due to publish the SEMMMS refresh in spring 2020. If the bypass remains a priority for SEMMMS it will then be necessary to seek funds to begin design and	On hold until outcome of SEMMMS refresh study	

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
									development stage.		
DIS7	Review lights at Redhouse Lane junction in Disley	Traffic Management	Other	2018	CE Highways	LTP	Review completed and changed implemented	It is difficult to quantify reduction as a result of this measure but implementing this measure will result in reducing traffic queues and as such reduce emissions due to build up. LOW	Completed Lights now turn red when no car is waiting to exit	Completed Dec-19	
CRE1	Review the requirement of the pelican crossings along Nantwich Road, Crewe	Transport Planning and Infrastructure	Other	2018	CE Highways	LTP	Crossing reviewed	LOW	There is ongoing use of smart or zebra crossings but a review of Nantwich Road has yet to be done	No progress made, awaiting Highways to programme works	
CRE2	Traffic flow review study from Manchester Bridge to Vernon Way, Crewe	Traffic Management	Other	2011	CE Highways	LTP	Traffic flow study completed	LOW	This will be reviewed in 2020-2021	No progress made due to working on other highway projects	
CRE3	Review traffic light signalling along Nantwich Road, Crewe	Traffic Management	Other	2011	CE Highways	LTP	Signalling review completed	LOW	Wireless Mesh communications system installed. Review of the linking between the signal junctions to be undertaken this year	Mar-21	This will be progressed in 2020-2021
KNU1	Review the A50 roundabout in Knutsford	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2014	CE Highways	Section 278 money	Junction reviewed	LOW	Highways advised Section 278 works for this junction with the trigger being 100 houses. Nothing started yet but work proposes closing one gantry, moving crossings back, making the island bigger and introducing pedestrian guard rails	2021-22	
KNU2	Review pedestrian crossings on the A50	Other		2014			Crossings reviewed	LOW	Highways advised Section 278 works for this junction with the trigger being	2021-22	

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
	roundabout in Knutsford				CE Highways	Section 278 money			100 houses. Nothing started yet but work proposes moving crossings further down the road		
KNU3	Review the A556 Bypass impact	Other		2017	CE Environmental Health, CE Highways	None	Impact of NO_2 reviewed	HIGH	NO_2 levels significantly reduced and AQMA to be revoked	Dec-20	
MACC1	Explore the potential of redesigning the A523/Byrons Lane junction in Macclesfield	Traffic Management	Other	2018	CE Highways	LTP	Junctions reviewed and any improvements implemented	MEDIUM	MOVA has been validated at this junction and a report produced recommending that the detector on one of the approaches be configured as a queue loop to reduce queuing in the AQMA	Mar-21	This will be progressed in 2020-2021
MACC2	Parking restrictions on Broken Cross, Macclesfield at peak periods	Traffic Management	Other	2018	CE Environmental Health, CE Parking Services	None	Parking restrictions considered and implemented if possible	LOW	Restricting parking would have little impact on emissions as it is the roundabout causing the issue. Roundabout is being reviewed as part of a planning application	On hold awaiting outcome of planning application	
MACC3	Review road parking and parking time on Park Lane, Macclesfield	Traffic Management	Other	2018	CE Environmental Health, CE Parking Services	None	Review completed and any actions implemented	LOW	Completed. Parking is not a problem in the area, pedestrian crossing also reviewed	Completed Dec-19	
MACC4	Review the A523/A527 Roundabout on Hibel Road, Macclesfield	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2018	CE Highways	LTP	Review completed and any actions implemented	MEDIUM	Highways are looking to install MOVA at this junction	2020-2021	This will be progressed in 2020-2021

* Was calculated based on Highways modelling for CLR i.e. the average concentration of annual NO2 mean change DS (Do Something) –DM (Do Minimum) for selected receptors in West Road, Rood Hill and Woodlands using 2017 as baseline (Model Reference: CLR Environmental Statement Vol. 2 - 25/09/2015 (pg. 293 – 294) – planning APP 15/4480C

** Was calculated based on Highways modelling for Middlewich Bypass i.e. the average concentration of annual NO2 mean change DS (Do Something) –DM (Do Minimum) 2020 scenario for selected receptors using 2015 as baseline (Model Reference: Middlewich Eastern Bypass Environmental Statement Vol. 2 – Nov. 2018 (pg. 236 – 237) – planning APP 11/0899C. For Target Pollution Reduction, LOW ≤ 0.2 µg/m3, MEDIUM 0.2 – 1 µg/m3 and HIGH ≥ 1µg/m^3

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.

Air pollution is one of the Public Health Indicators. Poor air quality is a significant public health issue because it can impact health negatively and affects overall life expectancy. The $PM_{2.5}$ indicator for the Public Health Outcomes Framework (PHOF) *fraction of mortality attributable to particulate air pollution* was calculated using manmade emissions/sources only. The PHOF value for the period of 2018 shows that the result for Cheshire East is 3.9%, the North West Region is 4.3% and England is 5.2%. The measures in Table 2.3 and 2.4 target emissions generated from manmade sources, in order to improve air quality and consequently protect health and life expectancy. More information can be found at https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/3/gid/1000043/pat/6/par/E12000005/ati/101/are/E07000194/iid/30101/age/230/sex/4/cid/4/page-options/car-do-0_ovw-do-0

Cheshire East Borough Council does not currently monitor $PM_{2.5}$ concentration but instead use Defra's $PM_{2.5}$ modelled background levels to identify $PM_{2.5}$ concentrations across the borough. The estimated concentrations range from 5.58 – 9.46 µg/m^3 https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2017.

These estimated concentrations are significantly below the annual mean Air Quality Strategy objective for $PM_{2.5}$.

It is important to note that the measures listed in the AQAP (Table 2.3) for reduction of NO_2 emission will also help to reduce the levels of $PM_{2.5}$.

Along with the measures listed in Table 2.4, the Council is undertaking the following work to address $PM_{2.5}$ emissions:

- The Air Quality and Public Health teams, alongside other stakeholders are working together to launch a public awareness campaign around air quality issues. The Air Quality team has also launched the Air Quality Education

Awareness Package campaign for children in Year 5 and Year 6 in primary schools across Cheshire East. The aim of this work is to help educate the public and promote behavioural changes that can lead to better practices, which in turn can improve air quality and lead to improved life expectancy.

- During the planning application stage, dust management plans are requested where necessary for certain building developments where demolition, construction and excavation will take place. This is to help reduce emissions of dust during these processes.
- Through planning, low emission boilers are requested and for biomass and combined heat and power (CHP) boilers and plant, there is a requirement to provide an air quality assessment. .
- EV infrastructure is also requested through the planning process where applicable. This is to encourange and support the use of electric vehicles which are low emission vehicles.
- Providing advice on the use of appropriate fuel for wood burning stoves and management of the Smoke Control Areas (SCAs).
- Investigating statutory nuisance complaints associated with bonfires and other burning events.

Table 2.4 - Measures to improve $PM_{2.5}$

Measures Category	Measure Classification	Measures being undertaken	Implementation Date
Traffic Management	Urban Traffic Control systems, Congestion Management, Traffic Reduction	The Council continues to address pick up and drop off parking around schools, and has launched a borough wide initiative to reinvigorate school travel plans and encourage active travel modes to schools.	Ongoing
	Anti-Idling Enforcement	The Air Quality team has produced an anti-idling report and is working towards launching an in-house anti-idling campaign.	2020//21
Promoting Travel Alternatives	Promotion of Walking	Cheshire East Council has joined Mode shift (STARS) Sustainable Modes to encourage schools to increase the levels of sustainable and active travel. https://moderngov.cheshireeast.gov.uk/ecminutes/documents/s61720/SMOTS%20-%20app%201.pdf	Ongoing
	Encourage / Facilitate home working	Home working is encouraged to reduce the need for travel which ultimately leads to a reduction in traffic especially at peak times.	Ongoing
		The Council requires Travel Information Packs to be provided on new development in the borough by means of planning conditions.	Ongoing

Measures Category	Measure Classification	Measures being undertaken	Implementation Date
	Workplace Travel Planning & Personal Travel Planning	Cheshire East has published a business guide to travel planning which is a useful starting point for organisations and businesses looking to produce a travel plan http://www.travelcheshire.co.uk/ and http://www.cheshireeast.gov.uk/public_transport/travel_plans/business_travel_planning/business_travel_planning.aspx	Implemented 2016 and Ongoing
		MyPTP (Personal Travel Plan) is a travel planning tool for all modes of transport (walking, cycling, carshare, bus, train) from Liftshare to help produce bespoke travel plans for individuals. https://business.liftshare.com/products/workplace-travel-planning/	
		New businesses are required to have a travel plan through planning conditions where appropriate.	
	Promotion of cycling and Walking	Learn to Bike and Bikeability courses can be accessed via Cheshire East in collaboration with Everybody Sport and Recreation in Schools.	Ongoing
		Some completed cycle and walking network projects and some proposed and ongoing projects https://www.cheshireeast.gov.uk/highways_and_roads/cycling_in_cheshire_east/cycling_in_cheshire_east.aspx	Started 2016 and ongoing
Policy Guidance and Development Control	Low Emissions Strategy	A Low Emission Strategy has now been adopted by Cheshire East Council	2019

Measures Category	Measure Classification	Measures being undertaken	Implementation Date
Promoting Low Emission Transport	Taxi Licensing conditions	A review of taxi licensing conditions will include requirements around Euro Standards for the licensed fleet.	2020/21
		Provision (via planning condition) of Electric Vehicle Charging Points on all new residential and commercial properties together with travel information packs.	Ongoing
		Supporting the operation of Electric Vehicle Charging Points for public use.	Ongoing
		Consideration of introducing Emission Based Parking Charges in the borough.	2020/21

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

This chapter describes the monitoring carried out and the data trends for the pollutant NO_2.

3.1 Summary of Monitoring Undertaken

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

3.1.1 Automatic Monitoring Sites

Cheshire East Council undertook automatic (continuous) monitoring at Disley (site RTA3) during the year 2019 for the pollutant NO_2. The RTA3 annual data capture was 99.7%.

An annual mean of 35 µg/m^3 was recorded (Appendix A, Table A.3) demonstrating compliance with the 40 µg/m^3 Air Quality Objective. In addition, the maximum hourly mean of 166 µg/m^3 was recorded during the year. This indicates compliance with both the individual NO_2 hourly Air Quality Objective of 200 µg/m^3 and the annual permitted exceedance of (Appendix A, Table A.4) 200 µg/m^3 18 times in a year. Further information on the RTA site at Disley is contained within table A.1 and A.4 of Appendix A.

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

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

3.1.2 Non-Automatic Monitoring Sites

Cheshire East Council undertook non- automatic (passive diffusion tube) monitoring of NO_2 at 133 sites during 2019. The diffusion tubes were analysed by Gradko International Limited, which is a UKAS accredited laboratory, and the data from these tubes was compared against the annual average objective for NO_2.

Table A.2 in Appendix A shows the details of the non automatic monitoring sites.

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

Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustment 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 adjusted for bias[3], and where appropriate “annualisation” (where the data capture falls below 75%), and distance correction[4].

Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A details the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years for each site. Note that the data presented in Table A.3 represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required.

For diffusion tubes, the full 2019 dataset of monthly values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

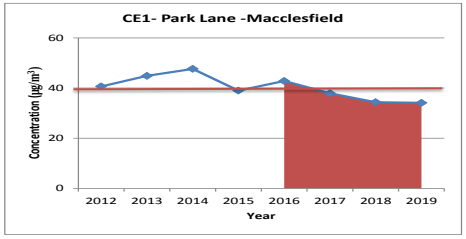
Table A.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

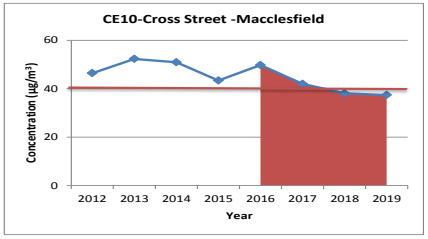
Trends in Air Quality Monitoring Sites

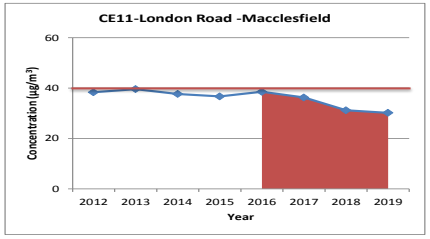
Figure 3.1 shows some randomly selected monitoring points within our AQMAs. Including all the AQMAs or full diffusion monitoring points would not only clutter the chart, but also take up a lot of space that should be used for reporting and updating purposes. Full datasets for all the monitoring sites can be found in Appendix A.

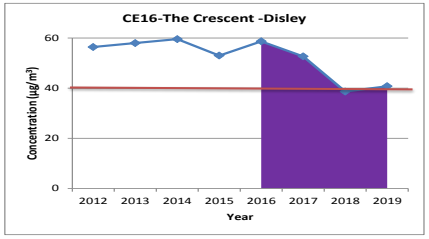
[3] https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html
[4] Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

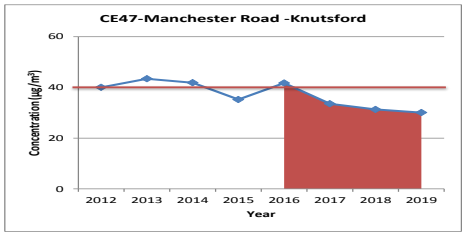
Figure 3.1 - Nitrogen dioxide trend in AQMAs

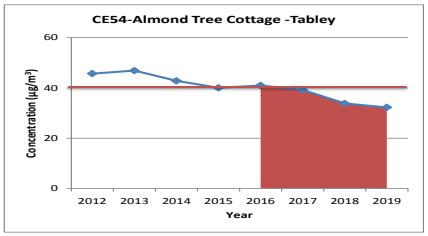


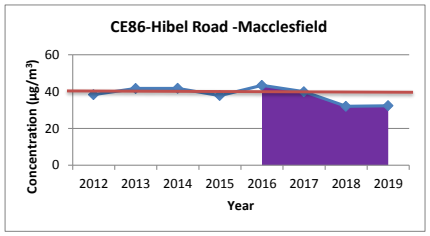


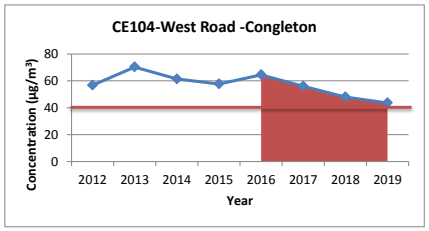


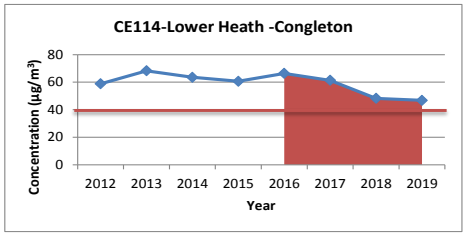


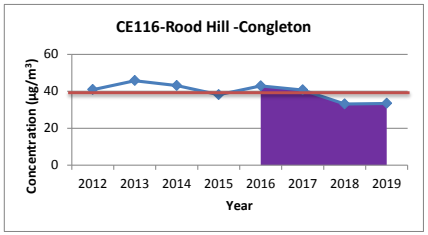


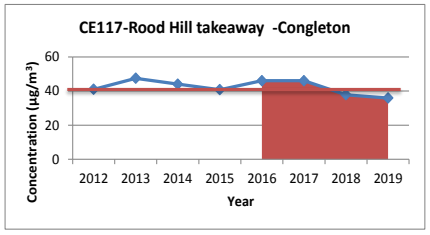


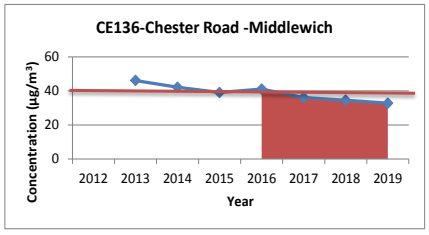


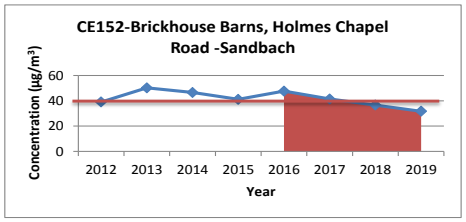


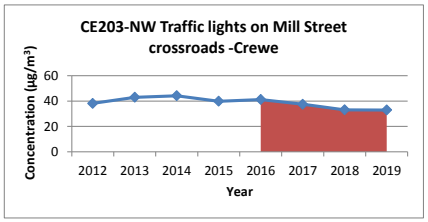


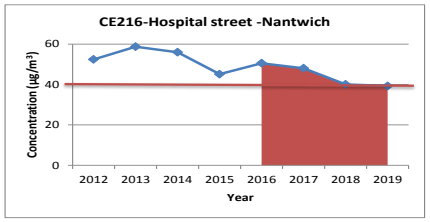


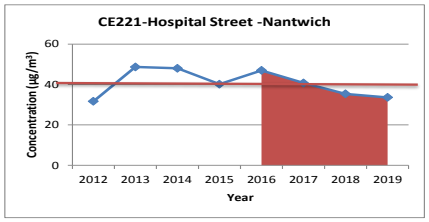


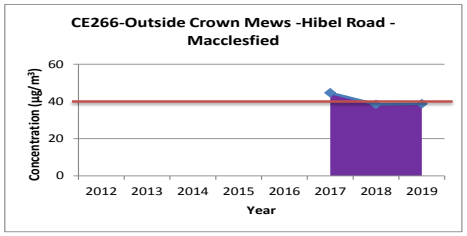


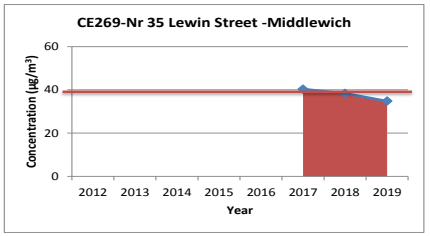


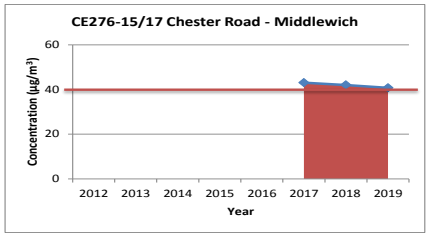


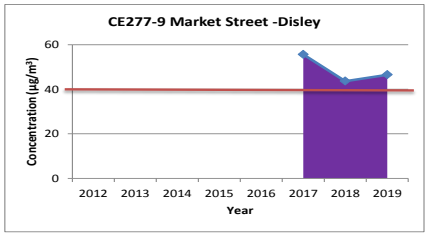


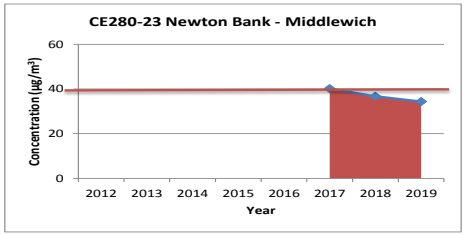


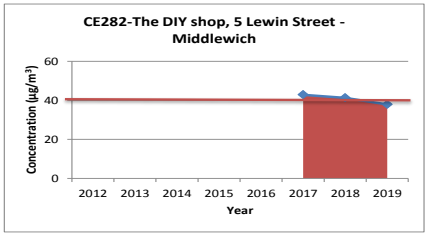


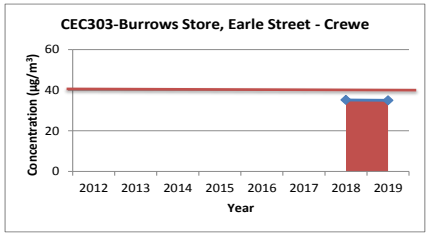


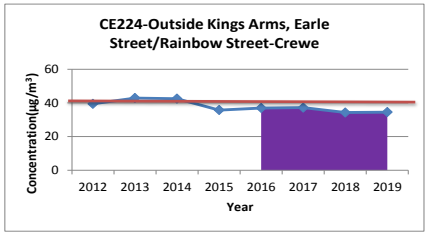


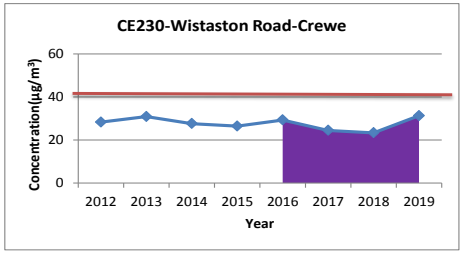


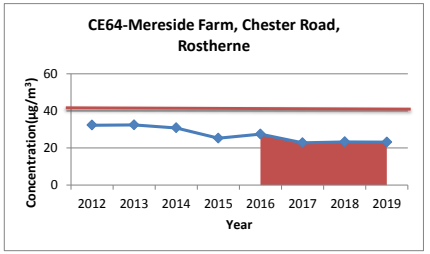


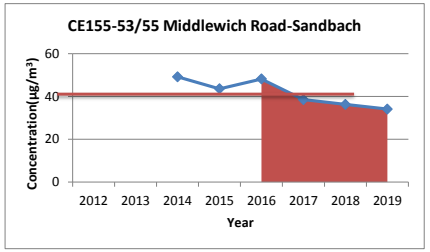


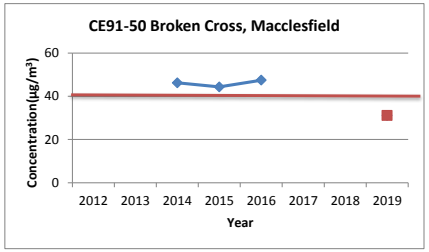












- **Burgundy line at 40µg/m^3 for each of the sites show the AQO for NO_2**
- **Purple highlight within charts shows where there is an increase in NO_2 concentration between 2018 and 2019**
- **Red highlight within charts shows continous downward trend from at least 2016 to 2019**
- **Graphs with less than 5 monitoring points are included to show emerging trends**

Figure 3.1 demonstrates the following;

- There is a general improvement in the concentration of NO_2 across all the monitoring sites and concentration of NO_2 measured across the AQMAs and air quality in the borough as a whole has improved over time (Figure 3.1 and Appendix B).
- Several factors could be responsible for the NO_2 improvement, including improved vehicular technology (reduction of diesel vehicles, EV vehicles and hybrids on the increase), implementation of AQAP measures, behavioural changes gaining pace (increase of alternative travel e.g cycling) and meteorology etc.
- Similarly across the UK, the annual mean data trend between 2007 to 2019 also demonstrates that the NO_2 concentration both in urban and rural monitoring sites has improved:

  https://www.gov.uk/government/publications/air-quality-statistics/ntrogen-dioxide
- From 2016, all charts highlighted burgundy show a downward trend in the NO_2 concentration. The charts highlighted purple CE16, CE116, CE86, CE266, CE224, CE230 and CE277, show increased NO_2 concentrations in the range of 0.64% - 34.15% between 2018 and 2019. This is demonstrated in Figure 3.2 below.

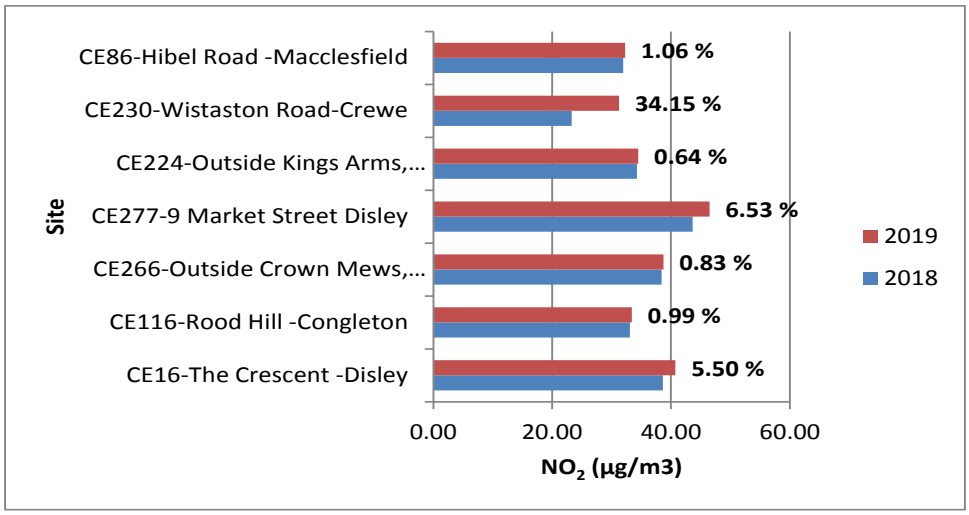


Figure 3.2 - Percentage increase for sites where NO_2 concentration increase was observed between 2018 and 2019

- CE86 shows a huge increase in percentage (34.15%) between the 2018 and the 2019 concentration, purely because the measurement was distance corrected in 2018 and in 2019 no distance correction was applied.
- According to the LAQM Technical Guidance (TG16), distance correction is only required where concentrations are greater than 36 µg/m^3 and not at a location of relevant exposure. In 2018 data was distance corrected at relevant exposure sites. However from 2019 and onwards, we will only apply distance corrections in accordance with TG16.
- 2019 results show that NO_2 concentrations measured across most of the sites were below 40 µg/m^3 with the exception of CE16, CE104, CE114, CE276 and CE277 (Figure 3.1).
- No diffusion tube monitoring data has returned NO_2 concentrations in excess of 60µg/m^3 for the years 2018 and 2019. TG16 states that exceedances of the NO_2 hourly mean are unlikely to occur where the annual mean is below 60µg/m^3. As such, the diffusion tube annual mean measurements at all the monitoring sites for 2018 and 2019 indicate that it is unlikely that any of these diffusion tube sites have exceeded the hourly mean NO_2 AQO. Note that this relationship is based upon observations made mainly at roadside and kerbside monitoring sites where road traffic is the primary source of emissions, as in the case of these sites.
- NO_2 concentrations measured at some sites over the past three or more consecutive years is shown to be less than the AQO which is 40µg/m^3 (Figure 3.1 and Appendix A). These sites have been reviewed and we are looking to revoke AQMAs where we are sure that there will be no reoccurance.
- Monitoring at site CE91 commenced in 2014 and ceased in 2016 (Figure 3.1). Given this gap in data and our policy to work with data from consecutive years data, we currently have insufficient information to revoke site CE91. In line with our procedures, monitoring will therefore continue at CE91 until we have sufficient data to establish a trend and a sustained picture of the air quality at this site.

Appendix A: Monitoring Results

Table A.1 - Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
RTA3	Market Street, Disley	Kerbside	397538	384710	NO_2	YES	Chemiluminescent	1	1	1.5

Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	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)
CE1	Marios, 144 Park Lane	Roadside	391553	372999	NO_2	Y	0.5	1.3	NO	2.8
CE2	129 Park Lane, Macclesfield	Roadside	391583	373025	NO_2	Y	0.4	1.5	NO	2.7
CE4	65 Mill Lane	Roadside	391965	372951	NO_2	Y	0	10	NO	1.95
CE5	80/82 Mill Lane	Roadside	391996	372904	NO_2	Y	0	3	NO	2.2
CE10	78/80 Cross Street	Roadside	392024	372594	NO_2	Y	0	3	NO	2.8
CE11	125 London Road	Roadside	391868	372208	NO_2	Y	0.6	1.4	NO	2.8
CE12	1 Field View Drive	Urban background	392109	372219	NO_2	N	0	10	NO	2
CE16	31 The Crescent	Roadside	397697	384826	NO_2	Y	0.5	3.5	NO	2.65
CE19	58 Buxton Road	Roadside	398014	384705	NO_2	Y	2.3	3.2	NO	2.8
CE23	25 London Road South	Roadside	391921	383440	NO_2	N	3.95	1.9	NO	2.25
CE28	183 London Road South	Roadside	391613	382775	NO_2	N	6.3	2.15	NO	2.6
CE29	34 Altrincham Road	Roadside	384097	381137	NO_2	N	0	4.08	NO	2.3
CE30	7 Altrincham Road	Roadside	384047	381129	NO_2	N	3.3	1.4	NO	2.7

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous	Height (m)
CE39	Old Post Office/Iron Gates Farm, Monks Heath	Roadside	384446	374144	NO_2	N	0	4.6	NO	1.95
CE40	Knutsford Day Nursery	Roadside	375457	378412	NO_2	N	0.2	6.2	NO	2.75
CE42	RTA Manchester Road	Roadside	374973	378784	NO_2	N	6.8	2.55	NO	2.45
CE47	17 Manchester Road	Roadside	374940	378825	NO_2	Y	0.65	2.2	NO	2.2
CE54	Almond Tree Cottage	Roadside	372260	379249	NO_2	Y	10.7	3.5	NO	1.83
CE64	Mereside farm, Chester Road, Rostherne	Roadside	373766	384824	NO_2	Y	0.18	8.8	NO	1.95
CE65	Intack Farm, Intack Lane, High Legh	Other	367000	383414	NO_2	N	0.05	6.9	NO	1.52
CE68	Newlyn, West Lane, High Legh	Other	370333	385246	NO_2	N	4.3	40.3	NO	2.55
CE71	3 Oxford Road	Roadside	390941	373645	NO_2	N	0.15	1.4	NO	2.05
CE73	124 Chester Road	Roadside	390876	373661	NO_2	N	0.65	1.4	NO	2.4
CE74	116 Cumberland Street	Roadside	391332	373920	NO_2	N	0	7.2	NO	1.5
CE76	2 Denfield Cottages	Roadside	372938	383846	NO_2	N	0	56	NO	1.7
CE77	Kenilworth Cottage	Rural Background	372106	381399	NO_2	N	N/A	N/A	NO	1.8
CE82	78 Buxton Road	Roadside	398140	384676	NO_2	Y	0.17	8.15	NO	2.05

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous	Height (m)
CE86	12 - 14 Hibel Road	Roadside	391763	374057	NO_2	Y	0.3	1.9	NO	2.4
CE87	186 Park Lane	Roadside	391455	372957	NO_2	Y	1.5	1.5	NO	2.2
CE91	50 Broken Cross	Roadside	389619	373659	NO_2	Y	0.15	1.85	NO	2.4
CE92	A555 Roundabout, Clay Lane	Roadside	385574	384390	NO_2	N	40	1.65	NO	2.15
CE93	16 Henshall Road	Kerbside	392729	377350	NO_2	N	0.42	0.75	NO	2.1
CE94	15 Chelford Road	Roadside	375858	378106	NO_2	N	0	1.35	NO	1.8
CE104	13 West Road	Roadside	384866	363089	NO_2	Y	0	2.5	NO	2.55
CE105	35 West Road	Roadside	384804	363081	NO_2	Y	0	5.65	NO	1.7
CE110	Lights outside 99 Lower Heath	Kerbside	386195	363959	NO_2	N	5	1.1	NO	2.7
CE114	28 Lower Heath	Roadside	386186	363933	NO_2	Y	0.15	1.75	NO	2.75
CE115	1 Lower Heath	Roadside	386173	363943	NO_2	N	0	13.6	NO	1.65
CE116	68 Rood Hill	Roadside	385713	363484	NO_2	Y	0.1	2.5	NO	2.25
CE117	Rood Hill takeaway 62/64	Roadside	385725	363469	NO_2	Y	0.15	1.9	NO	2.3
CE120	8 Littondale Close	Urban background	387007	364383	NO_2	N	0	9.2	NO	1.6
CE122	108 West Road	Roadside	384935	363075	NO_2	N	0	9.8	NO	1.45
CE125	7 Sandbach Road	Roadside	384593	363026	NO_2	N	0.1	11.55	NO	1.75
CE127	Rose Cottage, Peel Lane	Roadside	384583	361575	NO_2	N	0.18	1.26	NO	1.78
CE128	Brereton Heath	Rural	379521	365453	NO_2	N	0	5	NO	0.7

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous	Height (m)
	Park/Nature Reserve									
CE131	25 Fairacre Drive	Urban background	371011	364574	NO_2	N	0	11.5	NO	1.88
CE134	White Horse, Lewin Street	Roadside	370468	366037	NO_2	N	0	1.2	NO	2.45
CE136	51 Chester Road	Roadside	369855	366422	NO_2	Y	0	2.3	NO	1.75
CE139	Allotment View, Oak Tree Lane	Roadside	374250	369134	NO_2	N	0	99.2	NO	1.8
CE146	221 Heath Road	Roadside	377367	360934	NO_2	N	0	32.5	NO	2.12
CE149	Saxon Cross, Holmes Chapel Road	Roadside	377018	362124	NO_2	Y	16.3	1.75	NO	1.75
CE150	The Spinney	Roadside	376188	360660	NO_2	N	0	16.5	NO	2.05
CE152	Brickhouse Barns, Holmes Chapel Road	Roadside	377045	361989	NO_2	Y	0.15	2.62	NO	1.92
CE154	4/6 London Road	Roadside	373949	361475	NO_2	N	2.85	1.75	NO	2.35
CE155	53/55 Middlewich Road	Roadside	375447	360941	NO_2	Y	0.45	2.78	NO	2.43
CE157	2 Birch Gardens	Roadside	376083	360555	NO_2	N	0	18.5	NO	2.25
CE203	NW Traffic lights on Mill Street crossroads	Kerbside	370731	354731	NO_2	Y	1.25	0.55	NO	2.75
CE204	7 South Street	Roadside	370763	354696	NO_2	Y	0.44	1.6	NO	2.75
CE206	108 Nantwich Road/Edward Street	Roadside	370568	354649	NO_2	Y	0	5.6	NO	2.15

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous	Height (m)
CE212	9 Edleston Road	Roadside	370556	354717	NO_2	N	1.9	1.75	NO	2.64
CE216	146 Hospital street	Roadside	365596	352167	NO_2	Y	0.3	1.33	NO	2.77
CE217	Hospital street side of 6 Rookery Court	Roadside	365569	352182	NO_2	Y	2.1	1.75	NO	2.7
CE221	103/105 Hospital Street	Roadside	365500	352196	NO_2	Y	0.22	1.45	NO	2.5
CE222	7 Pratchetts Row	Roadside	365436	352198	NO_2	N	5.3	3.3	NO	2.68
CE224	Outside Kings Arms, Earle Street/Rainbow Street	Roadside	370845	355745	NO_2	Y	0	1.87	NO	2.72
CE225	53/55 Earle Street	Roadside	370879	355746	NO_2	Y	4	2	NO	2.65
CE230	95/97 Wistaston Road	Kerbside	370118	355432	NO_2	Y	1.62	0.25	NO	2.47
CE232	83 Flag Lane	Roadside	370041	355480	NO_2	N	2	1.75	NO	2.52
CE234	Whitemoss Farm, Nursery Road	Other	377071	354979	NO_2	N	0	10.75	NO	1.85
CE235	Go Green/32 Nantwich Road	Roadside	370803	354728	NO_2	Y	0	9.5	NO	1.97
CE236	5/7 Wellington Road, Nantwich	Roadside	365247	351846	NO_2	N	5.45	1.4	NO	2.7
CE237	53/55 Millstone Lane	Roadside	365692	352421	NO_2	N	6.15	1.55	NO	2.62
CE239	128/130 Wistaston Road	Roadside	369986	355432	NO_2	Y	1.7	1.4	NO	2.6

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous	Height (m)
CE245	105 Crewe Road	Roadside	379054	355400	NO_2	N	5.5	1.75	NO	2.6
CE246	148/150 Gresty Road	Roadside	370871	354315	NO_2	N	4.5	1.5	NO	2.55
CE248	Woodlands Farm, 62 Northwich Road	Roadside	373591	370681	NO_2	N	0	40.5	NO	1.8
CE250	Street sign outside 33a Mill Lane	Roadside	391969	373042	NO_2	Y	6	1.8	NO	2.1
CE251	192 Park Lane	Roadside	391438	372945	NO_2	N	0	6.2	NO	1.5
CE252	Near 17 Fallibroome Road	Roadside	389355	373657	NO_2	Y	0.3	1.7	NO	2.3
CE253	Near 63 Brock Street	Roadside	391634	374021	NO_2	Y	3	8	NO	2.1
CE254	175 Broken Cross	Roadside	389317	373577	NO_2	Y	0	2.4	NO	2
CE255	31 Broken Cross	Roadside	389640	373681	NO_2	Y	0.1	3.9	NO	2.3
CE256	15 Chelford Road	Roadside	389262	373624	NO_2	Y	8.3	1.5	NO	2
CE257	64 Broken Cross	Roadside	389577	373643	NO_2	Y	6.5	1.4	NO	2.17
CE258	92 Chester Road	Roadside	390978	373675	NO_2	N	0.24	3.4	NO	2.3
CE259	103 Chester Road	Roadside	390968	373660	NO_2	N	0.35	1.25	NO	2.3
CE260	199 Park Lane	Roadside	391416	372957	NO_2	Y	0	4.4	NO	2.4
CE261	79 Park lane	Roadside	391709	373070	NO_2	N	3.15	2.6	NO	2.3
CE262	11 Beech Lane	Roadside	391683	374087	NO_2	Y	0.53	2.01	NO	1.73

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous	Height (m)
CE263	37 Beech Lane	Roadside	391646	374163	NO_2	N	0.15	4.1	NO	1.97
CE264	43 Oxford Road	Roadside	390929	373512	NO_2	N	0.51	1.93	NO	2.25
CE265	108 Wilmslow Road	Roadside	385789	383616	NO_2	N	2.57	10.67	NO	1.75
CE266	Outside Crown Mews, Hibel Road	Roadside	391757	374031	NO_2	Y	1.73	1.47	NO	1.8
CE267	238 Booth Lane	Roadside	371176	364733	NO_2	N	2.67	2.39	NO	1.78
CE268	216 Booth Lane	Roadside	371606	364859	NO_2	N	2.79	1.97	NO	2.15
CE269	Nr 35 Lewin Street	Roadside	370496	366010	NO_2	N	0.3	1.4	NO	2.44
CE270	Outside Longcross Court	Roadside	370433	366136	NO_2	Y	1.24	1.85	NO	2.2
CE271	1 Cledford Lane	Roadside	371104	364886	NO_2	N	5.84	1.07	NO	2.34
CE272	Outside Simcox Printers (46), Middlewich Road	Roadside	375449	360449	NO_2	N	2.67	1.68	NO	2.2
CE273	The Ox-Fford Pub, Oxford Road	Roadside	390885	373455	NO_2	N	0.4	1.47	NO	2.2
CE275	10 Nantwich Road	Roadside	369941	366342	NO_2	N	0.25	1.98	NO	2.5
CE276	15/17 Chester Road	Roadside	369936	366394	NO_2	Y	0.41	1.32	NO	2.2
CE277	9 Market Street	Roadside	397531	384704	NO_2	Y	0.59	1.25	NO	2.15
CE278	Smithy House, 108 Adlington Road	Roadside	387367	381532	NO_2	N	4.1	1.45	NO	2.2

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous	Height (m)
CE279	183 Wilmslow Road	Roadside	385671	384137	NO_2	N	0	2.6	NO	2.15
CE280	23 Newton Bank	Roadside	369855	366368	NO_2	N	0.1	2.6	NO	2.05
CE281	The Lindens, 12 - 14 Chester Road	Roadside	369783	366466	NO_2	Y	11.3	2.05	NO	2.1
CE282	The DIY shop, 5 Lewin Street	Roadside	370449	366119	NO_2	Y	0.2	2.02	NO	2.1
CE283	29 Middlewich Road	Roadside	375544	360921	NO_2	Y	0.15	5.45	NO	2.17
CE284	127 Buxton Road	Roadside	398023	384717	NO_2	Y	1.45	2.1	NO	2.25
CE285	63/65 Lawton Street	Roadside	386278	362850	NO_2	N	0.4	1.65	NO	2.2
CE286	The Willows, Chelford Road	Roadside	375934	378010	NO_2	N	0	1.3	NO	1.8
CE288	19/21 Henshall Road	Roadside	392670	377331	NO_2	N	2.2	1.85	NO	2.15
CE289	3/the butchers, Henshall Road	Roadside	392739	377385	NO_2	N	0.15	3.1	NO	2.15
CE290	6/8 Henshall Road	Kerbside	392747	377378	NO_2	N	0.5	0.95	NO	2.12
CE291	Park Cottage, 19 Chelford Road	Roadside	375945	378019	NO_2	N	0.18	4	NO	2.25
CE292	Dairy Farm Cottage, Chester Road	Roadside	372264	379723	NO_2	N	0.15	40	NO	2.04
CE293	1 Mistletoe Cottage	Roadside	377640	358290	NO_2	N	0.2	9.2	NO	2.2
CE294	Egerton Arms, Peel Lane	Roadside	384599	361581	NO_2	N	0	2.7	NO	2.3

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous	Height (m)
CE295	South View Cottage, Peel Lane	Roadside	384562	361576	NO_2	N	0.15	3.3	NO	2.25
CE296	91 London Road	Roadside	376342	366925	NO_2	N	8.8	2.7	NO	2.05
CE297	Bella Casa/1 Williams Row, Middlewich Road	Roadside	376182	367343	NO_2	N	0.5	2.25	NO	2.17
CE298	Mere Corner Cottage	Roadside	372778	381560	NO_2	Y	10	2.55	NO	2.1
CE299	7 & 9 Stanneylands Road	Kerbside	385247	382496	NO_2	N	1.85	0.95	NO	2.15
CE300	The Grove Cottage	Roadside	372237	379257	NO_2	Y	7	5	NO	2.05
CE301	The Windmill pub	Roadside	372255	379334	NO_2	Y	9.5	1.8	NO	2.2
CE302	84 & 86 Lewin Street	Roadside	370535	365910	NO_2	N	3.3	1.15	NO	2.4
CE303	Burrows Store, Earle Street	Roadside	370959	355717	NO_2	Y	0	3.85	NO	2.55
CE304	Rising Sun Vaults, Earle Street	Roadside	371054	355721	NO_2	Y	0	1.85	NO	2.6
CE305	1 London Road	Roadside	365645	352182	NO_2	N	0.35	2.1	NO	2.25
CE306	5 South Crofts	Urban background	365405	352322	NO_2	N	2.9	1.4	NO	2.3
CE307	8 North Street	Roadside	370568	357254	NO_2	N	9.8	2.1	NO	2.35
CE308	8 Holmes	Roadside	384546	363136	NO_2	N	2	1.8	NO	2.5

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous	Height (m)
	Chapel Road									

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.3 – Annual Mean NO_2 Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
RTA1	373004	382626	Roadside	Automatic			34	38	25		
RTA3	397538	384710	Kerbside	Automatic		99.7	39	**49**	**46**	36	35
RTA6	374973	378784	Roadside	Automatic			39				
CE1	391553	372999	Roadside	Diffusion Tube		100	**40.70**	**44.88**	39.00	36.08	34.11
CE2	391583	373025	Roadside	Diffusion Tube		100	29.78	32.97	30.59	27.90	25.71
CE3	391962	373047	Roadside	Diffusion Tube			31.74	32.73			
CE4	391965	372951	Roadside	Diffusion Tube		100	32.91	33.23	31.44	29.58	25.88
CE5	391996	372904	Roadside	Diffusion Tube		100	35.01	39.24	33.43	32.11	29.04
CE10	392024	372594	Roadside	Diffusion Tube		83	**43.36**	**49.74**	**41.06**	38.10	37.38
CE11	391868	372208	Roadside	Diffusion Tube		100	38.42	**40.48**	37.43	32.82	30.15
CE12	392109	372219	Urban background	Diffusion Tube		100	13.93	14.56	12.96	12.33	11.66
CE16	397697	384826	Urban background	Diffusion Tube		100	**55.26**	**61.33**	**53.93**	**40.34**	**41.87**
CE19	398014	384705	Roadside	Diffusion Tube		100	**40.59**	**43.47**	**42.29**	38.80	38.07
CE23	391921	383440	Roadside	Diffusion Tube		100	28.17	30.20	26.19	24.38	23.77
CE28	391613	382775	Roadside	Diffusion Tube		100	25.00	25.53	22.99	21.02	21.57
CE29	384097	381137	Roadside	Diffusion Tube		100	24.51	28.62	24.15	22.99	21.77
CE30	384047	381129	Roadside	Diffusion Tube		100	38.86	**40.99**	36.25	31.30	29.29
CE31	383939	381161	Roadside	Diffusion Tube			26.19	28.99			
CE39	384446	374144	Roadside	Diffusion Tube		100	34.59	39.18	32.42	30.83	28.61

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
CE40	375457	378412	Roadside	Diffusion Tube		100	28.79	30.92	27.58	24.87	25.28
CE42	374973	378784	Roadside	Diffusion Tube		100	35.53	**40.85**	32.84	30.55	28.03
CE47	374940	378825	Roadside	Diffusion Tube		92	36.42	**43.39**	34.03	32.49	30.08
CE48	373152	383345	Roadside	Diffusion Tube			36.80	**50.20**			
CE50	373081	382842	Roadside	Diffusion Tube			23.88	23.81	17.46		
CE51	373002	382631	Roadside	Diffusion Tube			**44.45**	**48.72**			
CE54	372260	379249	Roadside	Diffusion Tube		100	**51.17**	**53.39**	**49.47**	**42.70**	**40.47**
CE55	372269	379717	Roadside	Diffusion Tube			**50.76**	**52.98**	35.37		
CE57	372357	380062	Roadside	Diffusion Tube			39.06	**45.09**	24.06		
CE61	372765	381544	Roadside	Diffusion Tube			**42.52**	**41.84**	21.37		
CE62	372668	381542	Roadside	Diffusion Tube			18.51	20.59	13.54		
CE63	373205	383713	Roadside	Diffusion Tube			29.77	32.92	21.55		
CE64	373766	384824	Roadside	Diffusion Tube		100	25.30	27.52	22.85	23.33	23.21
CE65	367000	383414	Roadside	Diffusion Tube		100	30.87	34.54	32.39	35.65	27.76
CE68	370333	385246	Other	Diffusion Tube		100	29.44	30.76	28.77	25.36	24.76
CE71	390941	373645	Other	Diffusion Tube		100	32.91	37.26	30.54	29.26	26.87
CE73	390876	373661	Roadside	Diffusion Tube		100	36.73	38.17	36.37	28.54	26.40
CE74	391332	373920	Roadside	Diffusion Tube		100	21.23	24.39	21.58	20.25	17.60
CE76	372938	383846	Roadside	Diffusion Tube		100	16.03	17.72	16.68	17.26	16.97
CE77	372106	381399	Roadside	Diffusion Tube		100	13.30	15.46	15.54	14.91	14.22
CE78	374626	385487	Roadside	Diffusion Tube			20.33	22.20	19.91		

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
CE82	398140	384676	Roadside	Diffusion Tube		100	22.73	23.38	22.46	20.17	19.84
CE84	372545	380724	Roadside	Diffusion Tube			**45.79**	**45.81**	24.84		
CE86	391763	374057	Roadside	Diffusion Tube		100	38.54	**44.29**	39.91	32.64	32.30
CE87	391455	372957	Roadside	Diffusion Tube		100	37.43	**40.10**	36.87	33.92	30.66
CE88	397545	384718	Kerbside	Diffusion Tube			**41.38**	**44.49**			
CE91	389619	373659	Roadside	Diffusion Tube		100	**44.85**	**48.04**			31.49
CE92	385574	384390	Roadside	Diffusion Tube		100	26.76	34.73	29.46	25.83	27.98
CE93	392729	377350	Roadside	Diffusion Tube		92		**43.36**	39.23	36.26	33.57
CE94	375858	378106	Roadside	Diffusion Tube		83		**52.66**	**45.06**	39.65	35.88
CE95	383948	381159	Roadside	Diffusion Tube				32.11			
CE104	384866	363089	Roadside	Diffusion Tube		100	**57.66**	**64.50**	**54.72**	**47.99**	**43.59**
CE105	384804	363081	Roadside	Diffusion Tube		100	29.00	34.12	29.93	28.52	25.31
CE110	386195	363959	Roadside	Diffusion Tube		92	32.86	35.53	33.54	29.03	28.05
CE114	386186	363933	Roadside	Diffusion Tube		100	**61.46**	**67.34**	**60.82**	**48.87**	**47.44**
CE115	386173	363943	Roadside	Diffusion Tube		100	22.85	25.84	23.46	23.28	22.33
CE116	385713	363484	Roadside	Diffusion Tube		100	38.12	**42.89**	39.79	33.09	33.42
CE117	385725	363469	Roadside	Diffusion Tube		100	**41.24**	**46.57**	**45.59**	38.28	35.92
CE120	387007	364383	Urban background	Diffusion Tube		100	10.54	11.08	11.10	11.10	10.40
CE122	384935	363075	Urban background	Diffusion Tube		100	22.42	24.77	22.94	22.68	20.39
CE125	384593	363026	Roadside	Diffusion Tube		100	24.21	28.01	25.38	23.63	22.48
CE127	384583	361575	Roadside	Diffusion Tube		92	35.24	**41.20**	36.15	32.54	31.79

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
CE128	379521	365453	Roadside	Diffusion Tube		100	10.23	11.62	9.75	10.59	9.26
CE130	379720	355508	Roadside	Diffusion Tube			16.96	20.88			
CE131	371011	364574	Roadside	Diffusion Tube		100	12.87	14.54	12.06	13.01	11.73
CE133	370524	366000	Roadside	Diffusion Tube			20.99	22.01			
CE134	370468	366037	Roadside	Diffusion Tube		100	35.91	38.94	36.02	34.35	29.85
CE136	369855	366422	Roadside	Diffusion Tube		92	39.04	**41.05**	35.28	34.50	32.79
CE139	374250	369134	Other	Diffusion Tube		100		23.17	23.36	21.33	20.72
CE141	376334	366963	Roadside	Diffusion Tube			37.06	**40.60**	37.64		
CE146	377367	360934	Roadside	Diffusion Tube		100	25.03	31.69	23.12	23.03	24.14
CE149	377018	362124	Roadside	Diffusion Tube		100	32.73	36.75	32.49	29.22	26.53
CE150	376188	360660	Roadside	Diffusion Tube		83	27.00	28.26	26.85	24.06	23.95
CE152	377045	361989	Roadside	Diffusion Tube		92	**41.44**	**48.03**	**40.81**	36.91	31.93
CE154	373949	361475	Roadside	Diffusion Tube		100	33.14	34.07	29.92	26.89	26.49
CE155	375447	360941	Roadside	Diffusion Tube		100	**44.62**	**49.42**	39.52	37.19	34.95
CE156	373831	369016	Other	Diffusion Tube			17.86	19.99			
CE157	376083	360555	Other	Diffusion Tube		100		26.59	23.68	23.82	23.51
CE203	370731	354731	Other	Diffusion Tube		92	**46.19**	**48.11**	**43.03**	38.61	38.63
CE204	370763	354696	Roadside	Diffusion Tube		100	31.99	36.51	31.82	31.46	29.55
CE206	370568	354649	Roadside	Diffusion Tube		100	25.71	30.65	24.52	25.56	23.74
CE212	370556	354717	Roadside	Diffusion Tube		100	32.52	38.59	30.00	32.27	30.16
CE215	365644	352207	Roadside	Diffusion Tube			25.27	29.24	24.02		

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
CE216	365596	352167	Roadside	Diffusion Tube		100	**46.51**	**52.18**	**48.59**	**41.37**	**40.56**
CE217	365569	352182	Roadside	Diffusion Tube		100	30.56	35.68	32.37	30.60	29.02
CE221	365500	352196	Roadside	Diffusion Tube		100	**40.97**	**48.01**	**40.73**	36.12	34.32
CE222	365436	352198	Roadside	Diffusion Tube		100	28.08	30.48	27.73	26.62	25.27
CE224	370845	355745	Roadside	Diffusion Tube		100	35.75	36.97	37.19	34.29	34.51
CE225	370879	355746	Roadside	Diffusion Tube		100	39.56	**41.34**	34.21	32.68	33.46
CE226	371111	355740	Roadside	Diffusion Tube			26.32	31.46			
CE230	370118	355432	Kerbside	Diffusion Tube		92	30.45	34.99	29.17	27.78	31.27
CE232	370041	355480	Kerbside	Diffusion Tube		100	38.23	**40.22**	35.50	33.49	33.41
CE234	377071	354979	Other	Diffusion Tube		100	26.67	31.35	21.71	22.29	20.84
CE235	370803	354728	Other	Diffusion Tube		100	28.04	31.52	27.51	26.67	28.17
CE236	365247	351846	Other	Diffusion Tube		100	28.22	30.84	26.79	27.37	25.00
CE237	365692	352421	Roadside	Diffusion Tube		100	31.64	36.10	31.16	28.83	27.62
CE238	370485	357285	Roadside	Diffusion Tube			29.91	34.34	28.84		
CE239	369986	355432	Roadside	Diffusion Tube		100	35.82	**40.86**	32.86	31.22	31.38
CE245	379054	355400	Roadside	Diffusion Tube		100	27.23	30.25	26.60	24.80	24.65
CE246	370871	354315	Roadside	Diffusion Tube		100	35.99	**41.95**	37.26	34.91	34.71
CE247	367739	352878	Roadside	Diffusion Tube			23.87	23.43	19.44		
CE248	373591	370681	Roadside	Diffusion Tube		100		36.69	31.64	27.42	29.15
CE249	377646	358276	Roadside	Diffusion Tube				21.59	18.53		
CE250	391969	373042	Roadside	Diffusion Tube		100			37.26	33.07	30.68

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
CE251	391438	372945	Roadside	Diffusion Tube		100			28.28	26.58	24.96
CE252	389355	373657	Roadside	Diffusion Tube		92			26.19	23.43	22.56
CE253	391634	374021	Roadside	Diffusion Tube		100			25.83	23.41	23.39
CE254	389317	373577	Roadside	Diffusion Tube		100			32.46	28.95	27.11
CE255	389640	373681	Roadside	Diffusion Tube		100			26.87	23.33	23.30
CE256	389262	373624	Roadside	Diffusion Tube		100			36.32	33.61	30.62
CE257	389577	373643	Roadside	Diffusion Tube		92			39.37	33.40	28.19
CE258	390978	373675	Roadside	Diffusion Tube		100			24.68	23.81	21.30
CE259	390968	373660	Roadside	Diffusion Tube		92			33.63	29.18	25.46
CE260	391416	372957	Roadside	Diffusion Tube		100			22.73	21.60	19.65
CE261	391709	373070	Roadside	Diffusion Tube		83			28.79	27.25	24.70
CE262	391683	374087	Roadside	Diffusion Tube		75			29.69	26.11	25.27
CE263	391646	374163	Roadside	Diffusion Tube		100			25.96	23.52	22.37
CE264	390929	373512	Roadside	Diffusion Tube		100			28.86	26.88	25.67
CE265	385789	383616	Roadside	Diffusion Tube		100			24.90	26.65	25.01
CE266	391757	374031	Roadside	Diffusion Tube		100			**51.00**	**43.66**	**44.22**
CE267	371176	364733	Roadside	Diffusion Tube		100			24.54	23.47	22.62
CE268	371606	364859	Roadside	Diffusion Tube		100			31.95	32.58	30.36
CE269	370496	366010	Roadside	Diffusion Tube		92			**41.50**	39.46	35.80
CE270	370433	366136	Roadside	Diffusion Tube		100			33.76	34.04	31.73
CE271	371104	364886	Roadside	Diffusion Tube		100			24.54	26.55	25.29

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
CE272	375449	360449	Roadside	Diffusion Tube		100			31.29	29.32	26.11
CE273	390885	373455	Roadside	Diffusion Tube		92			33.26	29.44	26.55
CE274	365988	343612	Roadside	Diffusion Tube					19.44		
CE275	369941	366342	Roadside	Diffusion Tube		100			34.05	31.19	29.04
CE276	369936	366394	Roadside	Diffusion Tube		100			**44.99**	**43.92**	**42.57**
CE277	397531	384704	Roadside	Diffusion Tube		100			**59.55**	**46.57**	**49.63**
CE278	387367	381532	Roadside	Diffusion Tube		100			**45.07**	39.59	34.47
CE279	385671	384137	Roadside	Diffusion Tube		100			27.76	27.74	29.02
CE280	369855	366368	Roadside	Diffusion Tube		100			**40.13**	36.71	34.34
CE281	369783	366466	Roadside	Diffusion Tube		92			38.86	36.15	31.91
CE282	370449	366119	Roadside	Diffusion Tube		100			**43.49**	**41.87**	38.42
CE283	375544	360921	Roadside	Diffusion Tube		100			35.35	32.64	31.28
CE284	398023	384717	Roadside	Diffusion Tube		92			35.77	30.98	29.82
CE285	386278	362850	Roadside	Diffusion Tube		100			31.14	25.99	24.90
CE286	375934	378010	Roadside	Diffusion Tube		100			36.47	30.28	29.03
CE287	373212	383727	Roadside	Diffusion Tube					19.97		
CE288	392670	377331	Roadside	Diffusion Tube		92			33.90	27.44	26.23
CE289	392739	377385	Roadside	Diffusion Tube		100			26.93	22.28	20.02
CE290	392747	377378	Kerbside	Diffusion Tube		100			**41.08**	34.86	34.24
CE291	375945	378019	Roadside	Diffusion Tube		100			29.22	22.98	22.34
CE292	372264	379723	Roadside	Diffusion Tube		100			35.17	26.12	26.03

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
CE293	377640	358290	Roadside	Diffusion Tube		100			16.67	15.58	15.40
CE294	384599	361581	Roadside	Diffusion Tube		100			36.88	31.43	30.52
CE295	384562	361576	Roadside	Diffusion Tube		100			22.05	21.80	20.37
CE296	376342	366925	Roadside	Diffusion Tube		100				35.69	32.71
CE297	376182	367343	Roadside	Diffusion Tube		100				34.17	30.70
CE298	372778	381560	Roadside	Diffusion Tube		100				26.38	26.52
CE299	385247	382496	Kerbside	Diffusion Tube		100				38.85	34.98
CE300	372237	379257	Roadside	Diffusion Tube		100				39.65	36.93
CE301	372255	379334	Roadside	Diffusion Tube		100				**42.80**	**40.61**
CE302	370535	365910	Roadside	Diffusion Tube		100				29.88	28.87
CE303	370959	355717	Roadside	Diffusion Tube		100				35.19	35.00
CE304	371054	355721	Roadside	Diffusion Tube		100				35.86	34.30
CE305	365645	352182	Roadside	Diffusion Tube		100				23.93	23.53
CE306	365405	352322	Urban Background	Diffusion Tube		100				14.12	13.10
CE307	370568	357254	Roadside	Diffusion Tube		100				30.50	31.14
CE308	384546	363136	Roadside	Diffusion Tube		100				22.77	24.42
CEC WAG			Roadside	Diffusion Tube			15.60				

☒ **Diffusion tube data has been bias corrected**

☐ **Annualisation has been conducted where data capture is <75%**

☒ **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 adjustment**

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.**

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

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

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

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

Table A.4 – 1-Hour Mean NO_2 Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 1-Hour Means > 200µg/m^3 (3)				
							2015	2016	2017	2018	2019
RTA1 Mere	373004	382626	Roadside	Automatic			**-**	- (117)	- (107)		
RTA3 Disley	397538	384710	Kerbside	Automatic		99.7	- (139)	**9 (193)**	**5 (184)**	**1 (222)**	- (166)

Notes:

Exceedances of the NO_2 1-hour mean objective (200µg/m^3 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.

Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO_2 Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations ($\mu g/m^3$)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
CE1	391553	372999	43.9	38.7	37.7	36.4	32.8	30.1	31.8	31.7	35.0	38.5	49.0	34.5	36.7	34.1	
CE2	391583	373025	39.6	26.4	32.5	22.9	26.2	25.8	24.0	21.8	28.3	25.1	33.9	25.3	27.6	25.7	
CE4	391965	372951	42.0	28.1	32.0	22.2	24.6	23.6	24.3	20.5	28.2	27.1	36.2	25.1	27.8	25.9	
CE5	391996	372904	42.7	33.1	30.8	32.4	23.9	31.0	27.2	21.5	30.4	34.4	42.1	25.1	31.2	29.0	
CE10	392024	372594	51.9	40.2	36.3	39.1	35.4	41.4	30.1	-	-	46.4	49.3	31.8	40.2	37.4	
CE11	391868	372208	47.2	32.4	42.5	24.2	26.4	30.9	29.0	26.6	32.9	30.2	40.0	26.6	32.4	30.2	
CE12	392109	372219	21.5	14.8	11.4	10.2	9.0	10.8	8.2	7.3	9.9	13.6	21.3	12.4	12.5	11.7	
CE16	397697	384826	58.5	37.6	50.8	46.3	44.4	45.0	40.7	40.4	47.9	45.2	48.0	35.6	45.0	**41.9**	40.8
CE19	398014	384705	52.4	41.1	44.8	41.2	39.2	38.5	35.9	38.1	37.7	42.5	48.6	31.3	40.9	38.1	34.1
CE23	391921	383440	36.4	22.3	27.9	25.9	20.3	22.4	21.7	20.4	23.8	28.1	35.6	21.9	25.6	23.8	
CE28	391613	382775	35.9	21.4	23.8	21.4	17.4	17.0	18.0	17.7	21.2	25.6	35.8	23.1	23.2	21.6	
CE29	384097	381137	35.8	27.6	22.0	23.8	18.2	19.1	19.5	15.4	18.8	24.6	36.7	19.3	23.4	21.8	
CE30	384047	381129	45.9	35.5	36.3	29.4	21.8	23.4	24.7	22.2	29.2	32.6	46.1	30.7	31.5	29.3	
CE39	384446	374144	41.0	28.8	25.2	36.1	32.2	29.3	26.8	22.7	28.8	31.4	44.7	22.0	30.8	28.6	
CE40	375457	378412	39.6	29.6	26.5	23.4	24.1	23.5	22.9	20.7	25.2	30.2	35.1	25.4	27.2	25.3	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
CE42	374973	378784	38.6	28.8	24.6	34.9	31.5	29.8	24.4	20.4	29.5	31.8	41.2	26.3	30.1	28.0	
CE47	374940	378825	42.5	35.4	32.5	-	31.2	26.0	27.3	24.4	28.5	35.7	42.4	30.0	32.3	30.1	
CE54	372260	379249	57.3	41.3	44.4	37.2	41.5	46.6	37.4	38.1	42.0	44.9	61.0	30.6	43.5	**40.5**	32.3
CE64	373766	384824	34.0	31.9	20.2	23.8	22.1	22.5	19.6	21.5	21.7	26.8	29.6	25.6	25.0	23.2	
CE65	367000	383414	41.6	25.5	29.4	43.0	28.0	25.6	20.5	14.2	22.0	30.2	52.2	26.1	29.8	27.8	
CE68	370333	385246	33.9	31.7	25.3	25.3	19.4	22.1	22.6	23.7	25.5	28.3	33.6	28.3	26.6	24.8	
CE71	390941	373645	38.5	30.2	28.6	31.1	24.0	27.6	22.2	19.4	27.7	32.7	41.1	23.7	28.9	26.9	
CE73	390876	373661	37.9	28.7	31.7	23.7	23.4	28.8	25.9	23.1	23.2	30.4	38.4	25.3	28.4	26.4	
CE74	391332	373920	30.1	14.9	20.2	21.5	17.2	18.0	13.9	10.0	16.5	19.3	28.6	16.8	18.9	17.6	
CE76	372938	383846	25.5	22.9	17.0	21.0	14.7	13.6	13.1	12.8	14.6	18.4	25.7	19.5	18.2	17.0	
CE77	372106	381399	23.8	19.4	15.2	12.2	11.4	11.8	11.5	11.2	12.5	16.2	21.7	16.7	15.3	14.2	
CE82	398140	384676	30.9	18.4	24.8	20.0	20.7	20.9	18.6	15.5	20.3	21.5	29.0	15.5	21.3	19.8	
CE86	391763	374057	46.9	32.7	36.3	30.0	29.6	31.2	29.1	30.5	35.9	34.8	43.7	36.2	34.7	32.3	
CE87	391455	372957	47.8	38.4	30.7	35.0	26.5	30.7	27.9	29.4	33.9	36.0	44.2	15.0	33.0	30.7	
CE91	389619	373659	39.7	40.3	39.2	33.1	26.9	30.0	30.8	29.3	33.4	39.2	40.4	24.0	33.9	31.5	
CE92	385574	384390	45.5	34.4	34.9	25.4	27.1	20.0	24.8	24.2	27.9	27.3	44.1	25.4	30.1	28.0	
CE93	392729	377350	49.8	-	37.9	33.4	33.5	34.8	34.7	29.7	33.3	40.0	39.7	30.2	36.1	33.6	
CE94	375858	378106	56.2	42.6	40.4	35.1	-	34.5	30.6	-	35.4	41.1	47.7	22.1	38.6	35.9	
CE104	384866	363089	56.9	47.6	54.7	39.9	49.2	45.4	45.3	38.9	43.2	46.9	57.3	37.2	46.9	**43.6**	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations ($\mu g/m^3$)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
CE105	384804	363081	35.6	27.5	28.1	28.2	20.7	26.0	25.4	21.3	26.7	27.0	37.7	22.4	27.2	25.3	
CE110	386195	363959	44.8	39.1	32.5	-	22.6	24.6	26.4	23.0	26.8	28.1	36.7	27.2	30.2	28.1	
CE114	386186	363933	74.3	53.1	61.7	30.1	48.1	45.1	48.8	46.7	51.1	42.7	58.3	52.1	51.0	**47.4**	46.8
CE115	386173	363943	35.3	30.9	25.5	24.9	19.9	19.1	16.5	16.8	19.6	25.6	29.6	24.4	24.0	22.3	
CE116	385713	363484	44.9	40.3	40.7	31.8	32.3	32.6	35.2	32.0	35.2	32.0	43.1	31.1	35.9	33.4	
CE117	385725	363469	50.5	40.9	44.9	32.1	38.9	36.5	39.1	30.4	37.7	34.1	45.5	32.8	38.6	35.9	
CE120	387007	364383	18.9	16.6	10.5	8.2	7.5	7.3	7.0	6.6	7.7	12.6	18.5	13.0	11.2	10.4	
CE122	384935	363075	34.9	25.3	22.0	22.3	20.0	18.0	16.0	13.9	19.4	23.7	28.6	18.9	21.9	20.4	
CE125	384593	363026	32.7	31.2	25.6	23.7	20.3	18.3	18.1	19.1	21.8	26.1	31.7	21.3	24.2	22.5	
CE127	384583	361575	46.0	-	39.0	37.0	35.1	32.7	28.6	26.8	34.3	31.0	40.9	24.6	34.2	31.8	
CE128	379521	365453	15.6	14.5	9.7	7.2	7.5	6.5	7.6	6.9	6.8	10.5	17.1	9.6	10.0	9.3	
CE131	371011	364574	21.8	14.3	10.6	13.9	10.2	10.0	8.9	5.9	8.2	13.9	23.0	10.8	12.6	11.7	
CE134	370468	366037	42.5	37.4	27.0	34.4	26.2	30.2	29.1	27.3	32.6	33.6	39.3	25.7	32.1	29.8	
CE136	369855	366422	39.7	39.9	-	37.9	31.5	33.2	31.2	30.8	32.3	33.5	43.6	34.4	35.3	32.8	
CE139	374250	369134	32.9	27.4	25.4	12.5	20.5	19.2	21.6	22.8	20.1	21.6	26.0	17.4	22.3	20.7	
CE146	377367	360934	32.6	27.4	18.1	38.6	22.5	21.0	19.6	15.8	21.3	29.7	40.7	24.0	26.0	24.1	
CE149	377018	362124	43.1	39.5	31.1	23.5	24.6	23.1	22.2	21.2	24.7	27.5	39.4	22.6	28.5	26.5	
CE150	376188	360660	37.8	33.9	30.2	-	20.7	17.5	-	18.5	20.2	22.2	31.4	25.3	25.8	24.0	
CE152	377045	361989	49.4	42.7	33.7	30.8	27.2	30.1	28.4	-	32.3	31.9	38.1	33.2	34.3	31.9	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
CE154	373949	361475	41.2	34.5	30.6	25.8	23.0	23.4	23.4	20.1	26.7	26.6	39.4	27.2	28.5	26.5	
CE155	375447	360941	52.4	38.3	40.0	42.5	31.9	35.1	30.6	26.2	37.6	36.3	55.5	24.6	37.6	35.0	
CE157	376083	360555	35.0	25.6	28.5	22.0	22.2	23.5	22.4	20.4	24.0	27.1	32.7	20.1	25.3	23.5	
CE203	370731	354731	54.3	54.1	46.8	32.9	28.9	35.0	-	33.9	36.1	46.5	53.2	35.2	41.5	38.6	33.0
CE204	370763	354696	34.6	40.2	28.7	38.8	24.6	28.6	26.1	20.4	30.9	35.2	48.5	24.7	31.8	29.5	
CE206	370568	354649	35.2	20.0	26.1	27.1	24.1	23.1	21.2	16.9	24.6	28.2	40.9	18.8	25.5	23.7	
CE212	370556	354717	41.6	34.2	25.1	45.0	26.6	28.5	25.5	22.0	30.6	34.4	45.5	30.0	32.4	30.2	
CE216	365596	352167	53.9	41.0	43.1	46.0	37.7	32.5	39.3	40.6	43.3	50.6	57.1	38.4	43.6	**40.6**	39.3
CE217	365569	352182	43.7	27.0	32.8	33.7	30.9	27.5	25.0	20.8	30.6	31.2	45.5	25.9	31.2	29.0	
CE221	365500	352196	41.7	26.6	39.6	44.9	36.1	29.7	33.0	25.9	40.9	41.8	52.5	30.0	36.9	34.3	
CE222	365436	352198	35.8	26.9	23.9	32.1	22.6	23.2	22.5	19.3	24.4	31.4	39.5	24.3	27.2	25.3	
CE224	370845	355745	54.1	56.2	38.9	31.8	27.5	29.8	29.8	28.1	30.0	39.2	47.5	32.3	37.1	34.5	
CE225	370879	355746	49.6	48.9	36.6	35.6	25.7	31.2	29.1	25.0	31.1	39.1	46.9	33.0	36.0	33.5	
CE230	370118	355432	40.2	47.2	30.6	30.8	32.5	-	25.2	19.5	31.6	36.7	48.3	27.2	33.6	31.3	
CE232	370041	355480	42.6	35.5	41.0	36.4	32.3	28.2	33.2	32.6	35.6	36.5	47.8	29.4	35.9	33.4	
CE234	377071	354979	25.6	25.3	13.2	35.8	17.7	19.4	16.3	12.1	18.9	26.1	37.0	21.7	22.4	20.8	
CE235	370803	354728	43.9	32.3	29.9	28.4	24.9	27.8	25.4	23.0	26.5	32.3	42.0	27.1	30.3	28.2	
CE236	365247	351846	35.9	28.7	23.6	29.3	27.9	23.3	21.9	17.4	20.5	29.6	37.6	26.7	26.9	25.0	
CE237	365692	352421	41.1	35.7	30.3	24.6	23.9	21.8	22.7	23.8	27.5	35.5	39.9	29.5	29.7	27.6	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations ($\mu g/m^3$)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
CE239	369986	355432	44.9	28.5	29.0	43.4	30.5	29.1	26.4	22.5	31.7	39.4	48.6	30.9	33.7	31.4	
CE245	379054	355400	41.3	32.9	27.2	27.3	17.5	21.6	19.3	18.3	23.0	27.3	38.0	24.5	26.5	24.6	
CE246	370871	354315	54.7	41.4	39.9	39.8	27.4	30.3	29.5	26.4	31.2	41.6	53.7	31.9	37.3	34.7	
CE248	373591	370681	41.9	37.6	37.2	18.1	28.0	27.3	31.1	32.0	29.5	31.5	32.2	29.8	31.3	29.2	
CE250	391969	373042	46.8	35.3	36.5	28.1	21.7	30.3	30.3	28.2	33.0	30.5	42.6	32.6	33.0	30.7	
CE251	391438	372945	38.1	31.7	27.1	29.2	22.2	22.3	21.3	21.4	23.9	25.1	34.8	24.8	26.8	25.0	
CE252	389355	373657	32.2	27.3	23.9	23.2	17.7	-	19.2	20.0	23.6	26.7	35.1	18.1	24.3	22.6	
CE253	391634	374021	38.1	27.9	26.4	24.5	17.7	18.7	19.4	20.2	23.5	24.7	35.0	25.7	25.1	23.4	
CE254	389317	373577	42.4	24.3	33.7	24.1	25.7	28.4	25.5	23.6	29.3	31.8	39.2	21.7	29.2	27.1	
CE255	389640	373681	34.6	24.9	26.6	32.1	24.9	27.5	17.9	16.6	21.4	23.9	29.8	20.5	25.1	23.3	
CE256	389262	373624	44.3	31.7	36.9	35.3	25.4	28.6	26.7	26.2	29.5	36.9	43.9	29.7	32.9	30.6	
CE257	389577	373643	43.3	38.9	-	19.5	18.2	18.0	28.4	28.0	30.4	36.9	44.6	27.2	30.3	28.2	
CE258	390978	373675	33.2	22.6	24.5	22.9	19.5	22.5	18.4	15.5	20.9	24.0	32.6	18.3	22.9	21.3	
CE259	390968	373660	-	30.2	35.0	23.8	23.8	25.4	25.8	23.6	26.5	27.8	35.9	23.2	27.4	25.5	
CE260	391416	372957	31.0	18.6	24.4	17.9	20.0	20.5	17.8	15.0	19.4	21.3	30.9	16.9	21.1	19.7	
CE261	391709	373070	39.9	23.9	29.9	22.2	22.7	21.8	21.4	20.0	-	29.3	34.6	-	26.6	24.7	
CE262	391683	374087	-	27.7	29.7	24.5	22.0	23.6	-	20.7	28.2	-	38.0	30.1	27.2	25.3	
CE263	391646	374163	33.6	25.7	19.7	22.1	19.7	21.0	20.1	17.3	20.6	30.0	33.5	25.3	24.1	22.4	
CE264	390929	373512	41.2	29.4	27.3	28.6	22.1	21.7	21.3	19.1	25.8	30.4	40.5	23.9	27.6	25.7	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations ($\mu g/m^3$)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
CE265	385789	383616	40.1	29.0	24.8	29.3	21.7	21.5	21.4	17.4	24.3	28.5	42.4	22.2	26.9	25.0	
CE266	391757	374031	58.6	50.2	46.5	41.4	37.1	41.9	38.8	46.7	44.4	45.9	61.8	57.4	47.5	**44.2**	38.7
CE267	371176	364733	36.4	27.0	23.4	24.9	22.6	19.6	17.8	13.8	21.3	23.8	38.8	22.5	24.3	22.6	
CE268	371606	364859	43.3	37.6	31.5	34.0	32.1	26.1	27.9	25.5	27.9	34.0	43.6	28.1	32.6	30.4	
CE269	370496	366010	50.5	44.1	-	37.6	38.3	33.8	31.5	29.6	32.0	42.3	57.2	26.5	38.5	35.8	
CE270	370433	366136	46.3	40.3	32.4	32.9	27.2	28.3	28.8	27.7	30.7	37.9	44.3	32.5	34.1	31.7	
CE271	371104	364886	34.6	33.1	27.6	24.1	25.2	22.8	24.2	21.9	25.4	30.5	37.1	19.7	27.2	25.3	
CE272	375449	360449	41.4	36.2	28.2	25.4	22.7	21.8	22.0	22.5	25.3	29.3	39.7	22.4	28.1	26.1	
CE273	390885	373455	-	32.3	36.1	24.5	24.6	27.0	22.6	23.5	29.3	29.1	40.6	24.5	28.5	26.5	
CE275	369941	366342	41.7	33.3	29.8	32.1	28.4	28.2	25.8	25.0	28.9	30.8	41.4	29.1	31.2	29.0	
CE276	369936	366394	62.1	55.6	49.2	37.4	35.2	37.6	40.7	41.6	45.5	49.2	54.2	40.9	45.8	**42.6**	40.7
CE277	397531	384704	72.6	54.8	65.1	35.9	52.1	55.7	47.8	53.9	49.7	55.0	55.9	41.8	53.4	**49.6**	46.5
CE278	387367	381532	51.7	36.1	29.1	46.1	33.6	32.3	35.0	27.0	33.6	36.8	54.2	29.2	37.1	34.5	
CE279	385671	384137	46.2	39.3	33.9	26.8	24.9	24.1	22.5	21.0	26.5	33.7	46.5	29.2	31.2	29.0	
CE280	369855	366368	49.7	38.2	37.4	33.2	35.4	32.6	35.9	36.8	33.9	36.0	42.6	31.4	36.9	34.3	
CE281	369783	366466	-	34.0	38.9	39.8	37.7	31.1	28.8	27.4	35.2	33.4	43.9	27.1	34.3	31.9	
CE282	370449	366119	52.0	48.9	39.6	45.4	35.3	37.0	35.4	32.3	36.9	43.1	56.2	33.8	41.3	38.4	37.9
CE283	375544	360921	48.7	38.2	36.1	32.5	32.1	29.6	28.9	23.0	31.2	35.5	42.4	25.3	33.6	31.3	
CE284	398023	384717	46.1	31.5	-	37.3	31.4	33.5	25.3	20.6	29.7	33.6	39.9	23.9	32.1	29.8	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
CE285	386278	362850	36.8	34.9	26.7	29.1	23.0	21.7	22.0	14.4	20.6	27.5	36.4	28.2	26.8	24.9	
CE286	375934	378010	44.5	39.0	29.7	29.5	26.1	28.0	23.6	22.2	28.2	36.6	41.9	25.2	31.2	29.0	
CE288	392670	377331	-	28.7	32.1	21.9	28.0	24.8	25.3	22.8	27.5	30.0	39.5	29.8	28.2	26.2	
CE289	392739	377385	31.9	10.2	26.2	20.6	19.1	21.4	20.7	17.7	20.9	24.1	32.6	12.8	21.5	20.0	
CE290	392747	377378	48.8	30.1	35.3	40.2	33.4	34.4	31.8	31.1	36.2	43.4	44.6	32.6	36.8	34.2	
CE291	375945	378019	37.2	28.3	21.1	20.1	20.5	20.6	20.0	19.3	19.9	25.6	35.0	20.7	24.0	22.3	
CE292	372264	379723	35.0	35.6	30.7	20.5	26.9	22.1	23.5	27.5	25.7	29.3	33.5	25.4	28.0	26.0	
CE293	377640	358290	21.4	24.1	11.9	14.6	13.8	14.5	12.2	11.9	12.3	19.6	27.0	15.4	16.6	15.4	
CE294	384599	361581	41.4	32.5	37.5	27.3	34.6	30.3	30.8	24.3	32.2	31.9	44.7	26.3	32.8	30.5	
CE295	384562	361576	29.7	21.2	19.9	27.1	23.4	19.8	17.6	12.9	20.9	23.0	31.1	16.2	21.9	20.4	
CE296	376342	366925	45.4	42.1	38.2	27.5	32.2	31.1	33.5	29.9	35.0	33.1	42.2	31.9	35.2	32.7	
CE297	376182	367343	40.4	37.7	34.6	28.7	29.0	29.5	32.1	29.7	30.7	31.1	38.3	34.4	33.0	30.7	
CE298	372778	381560	36.7	32.0	24.1	27.3	22.4	25.9	23.5	23.5	22.1	35.3	43.6	25.9	28.5	26.5	
CE299	385247	382496	52.1	49.5	38.3	36.4	32.8	28.2	35.3	34.6	34.4	38.2	39.2	32.4	37.6	35.0	
CE300	372237	379257	49.8	45.2	32.6	44.8	39.4	33.6	34.3	34.5	36.6	38.8	56.0	31.0	39.7	36.9	32.2
CE301	372255	379334	55.8	54.2	31.8	54.3	44.0	40.5	31.6	32.1	39.6	42.4	62.3	35.4	43.7	**40.6**	31.4
CE302	370535	365910	42.8	38.7	30.7	29.6	28.5	25.1	26.4	20.4	28.0	28.5	47.1	26.7	31.0	28.9	
CE303	370959	355717	52.5	56.4	38.6	37.5	24.7	27.7	26.2	25.9	31.3	39.5	49.0	42.4	37.6	35.0	
CE304	371054	355721	54.0	44.3	38.3	32.8	25.2	30.7	27.4	28.4	30.6	40.9	47.6	42.2	36.9	34.3	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations ($\mu g/m^3$)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
CE305	365645	352182	34.3	23.8	22.3	31.4	22.5	22.4	19.8	15.3	21.8	27.1	42.1	20.8	25.3	23.5	
CE306	365405	352322	22.8	16.3	11.9	13.8	10.5	10.2	8.3	8.3	11.7	18.3	25.5	11.4	14.1	13.1	
CE307	370568	357254	48.5	39.1	31.6	32.7	26.7	23.2	24.9	24.1	29.6	37.3	51.3	32.8	33.5	31.1	
CE308	384546	363136	36.0	29.5	25.3	27.5	21.7	21.9	21.1	18.5	23.9	28.0	40.8	20.9	26.3	24.4	

☐ **Local bias adjustment factor used**

☒ **National bias adjustment factor used**

☐ **Annualisation has been conducted where data capture is <75%**

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

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.**

(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

Factor from Local Co-location Studies

A local diffusion tube bias adjustment factor has not been calculated for the real time site as there are no triplicate diffusion tubes monitoring sites located with the analyser in Disley. Therefore the Council has opted to use the relevant national bias adjustment factor.

Diffusion Tube Bias Correction Factors

Co-location studies undertaken at various locations across the country are available at http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html. The national bias adjustment factors are calculated by the National Physics Laboratory (NPL) and are updated three times during a calendar year. Table C.1 below gives an example of the bias correction factors produced by Gradko International for diffusion tubes based upon the 20% TEA in water methodology.

Table C.1 – Previous Gradko International Bias Adjustment Factors

Year	Month	Bias Correction Factor
2017	March	0.97
2017	March	0.94
2017	June	0.92
2017	September	0.92
2018	March	0.89
2018	July	0.87
2018	September	0.87
2019	March	0.93
2019	June	0.92
2019	September	0.92
2020	April	0.93

Discussion of which factor to use

In considering which bias adjustment factor is the most representative of exposure in the area, the LAQM.TG(16) guidance suggests that where data capture from the co-located automatic analyser is less than 90%, or there have been problems with the data quality, the local factor may be more representative.

For the purposes of review and assessment it is prudent to adopt the precautionary approach and use the worst case result to determine whether there is a need to

proceed to a more detailed assessment in any area. In all instances, the national factors (conservative values) have been deemed worst case and as such have been used for adjusting the 2019 data.

Distance Corrections

Nitrogen dioxide concentrations decrease as the receptor moves away from the source, i.e. away from the kerbside. To take this into account Defra have provided a calculation which accounts for this decrease and can be applied to diffusion tube results at the kerb/road side where the relevant receptor is some distance set back. A worked example of this calculation can be seen below for tube CE16:

Table C.2 – Example Distance Correction Calculation

Tube: CE16	
Concentration at the tube location (ug/m^3)	41.87
Tube location distance from kerb (m)	3.5
Receptor's distance from kerb (m)	4
Local annual mean background concentration (ug/m^3)	11.02
Predicted concentration at the receptor (ug/m^3)	40.76

This calculation is based on the following provided by Air Quality Consultants[1]:

$$Cz = ((Cy-Cb) / (-0.5476 \times Ln(Dy) + 2.7171)) \times (-0.5476*Ln(Dz)+2.7171) + Cb$$

Where:

Cy is the concentration (µg/m^3) at the tube location at distance Dy;

Dy is the tube location distance from the kerb (m);

Cz is the predicted concentration at the receptor (µg/m^3) at distance Dz

Dz is the receptor's distance from the kerb (m) at which concentrations are to be predicted;

Cb is the local annual mean background concentration (µg/m^3); and

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

1 https://laqm.defra.gov.uk/documents/FallOffWithDistanceReptJuly08.pdf

QA/QC of Automatic Monitoring

The chemiluminescent analyser undergoes span and zero calibrations on a regular basis using BOC certified gas. The resultant span and offset (zero) values are used by Air Quality Data Management (AQDM) for the ratification of data. The analyser is fitted with internal permeation tubes to enable daily internal span and zero checks. A maintenance and support contract is held by ESU1 and the units are serviced every 6 months in line with AURN requirements.

QA/QC of Diffusion Tube Monitoring

Diffusion tubes are prepared and analysed by Gradko International Ltd. using the 20% TEA in water method. The laboratory's internal analysis procedures are assessed by UKAS on an annual basis for compliance to ISO 17025:2005. They also follow the guidelines of the Defra Harmonisation document related to the preparation, extraction, analysis and calculation procedures for NO_2 passive diffusion tubes.

Gradko participates in the Air-PT scheme for NO_x tubes, which is operated by LGC Standards and supported by the Health and Safety laboratory, and a field inter comparison. In the AIR-PT results for 2019, (AIR-PT 30, 31, 33 and 34), Gradko scored a satisfactory result on all samples with the exception of one where a questionable result was obtained. The z-score reflects the results deemed to be satisfactory based upon the score of $< \pm 2$. Twenty five out of the twenty seven local Authority co-location studies in 2019 were rated as 'good' (tubes are considered to have "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%), with the remaining two tubes being rated as poor.

The Council also implements its own QA/QC procedures to ensure that all final monitoring results are as accurate as possible. This includes the use of two written procedures, one covering the storage, use and monitoring of the diffusion tubes, and the other covering data management of the results. As part of the data management data is kept on a secure, password protected spreadsheet and only limited officers can acces the data.

Appendix D: Maps of Monitoring Locations and AQMAs

The AQMA maps for Cheshire East are detailed at

https://www.cheshireeast.gov.uk/environment/environmental_health/local_air_quality/aqma_area_maps.aspx

The map of all the air quality monitoring locations in Cheshire East can be found at

https://opendata-cheshireeast.opendata.arcgis.com/datasets/9551009f998845218e8a304717ae57c7_0/data?selectedAttribute=F2020RawAnnualRunningMeanData

Automatic Monitoring Sites

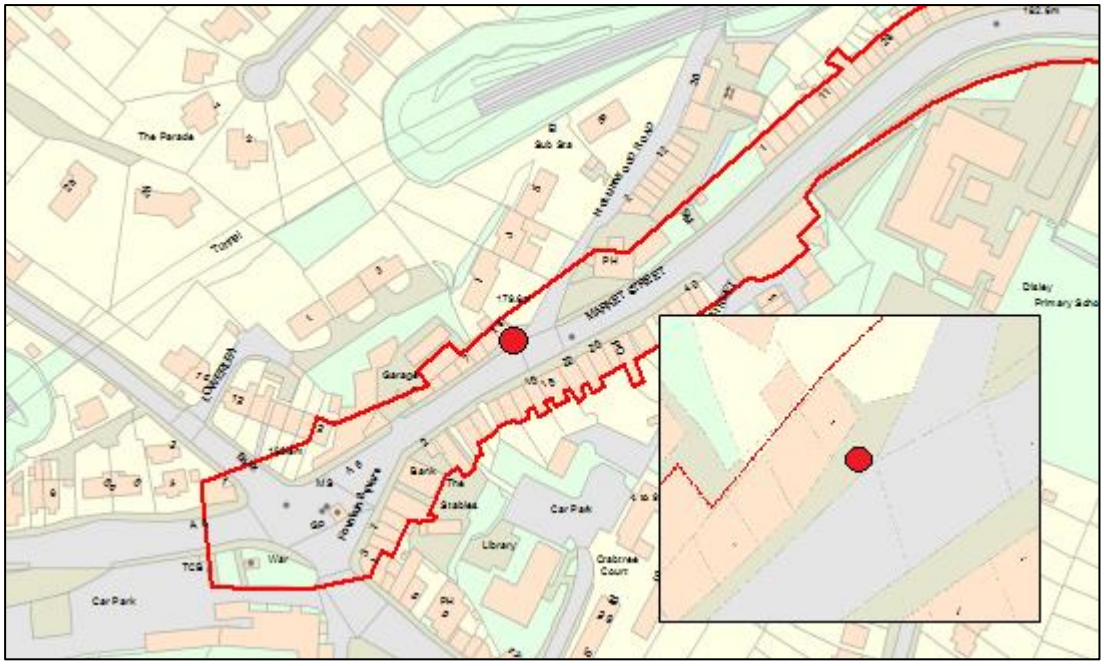


Figure D.1 - Location of RTA3, A6 Market Street, Disley

Passive Monitoring NO_2 Diffusion Tubes Locations

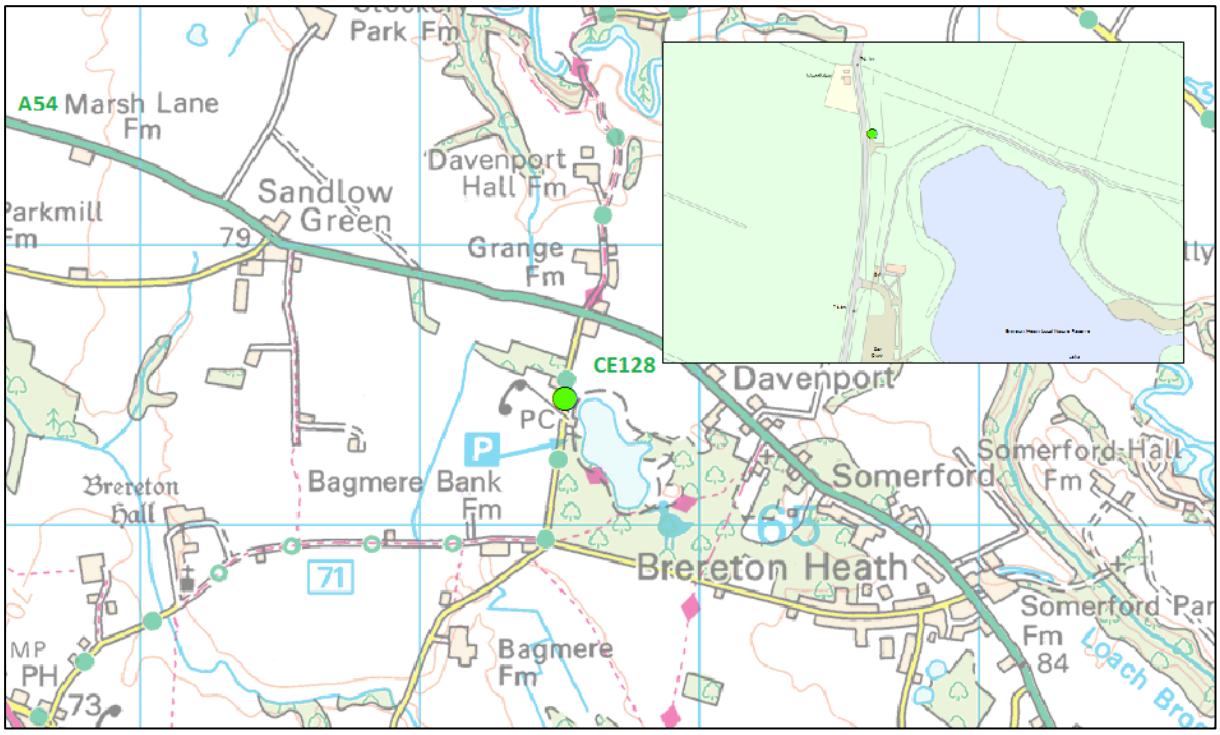


Figure D.2 - Rural Background Site - Brereton Heath Park/Nature Reserve

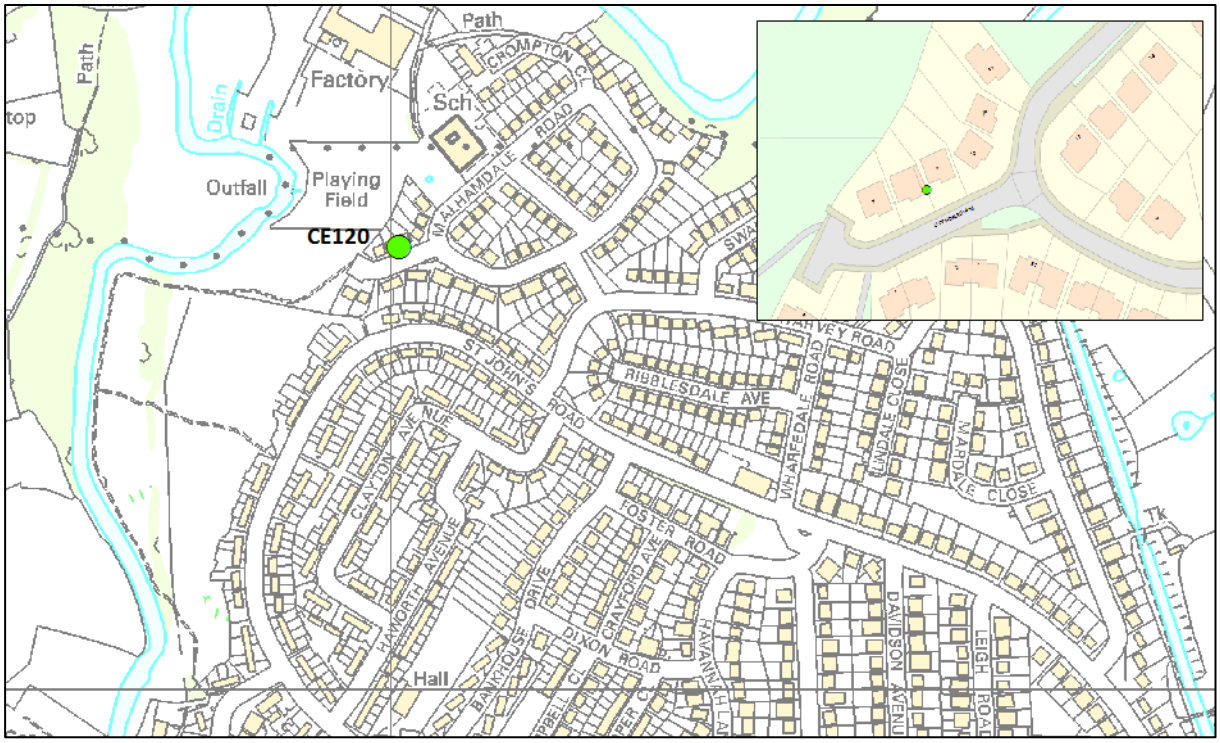


Figure D.3 - Urban Background Site – 8 Littondale Close, Congleton

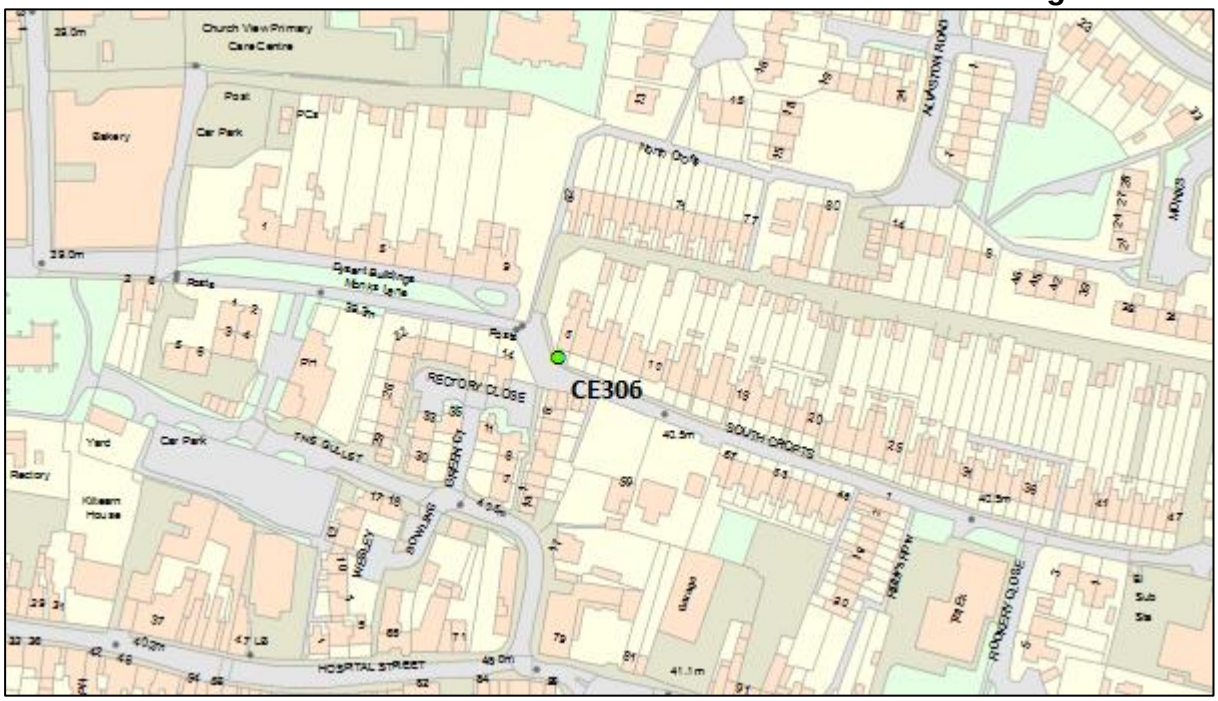


Figure D.4 - Urban Background Site – 5 South Crofts, Nantwich

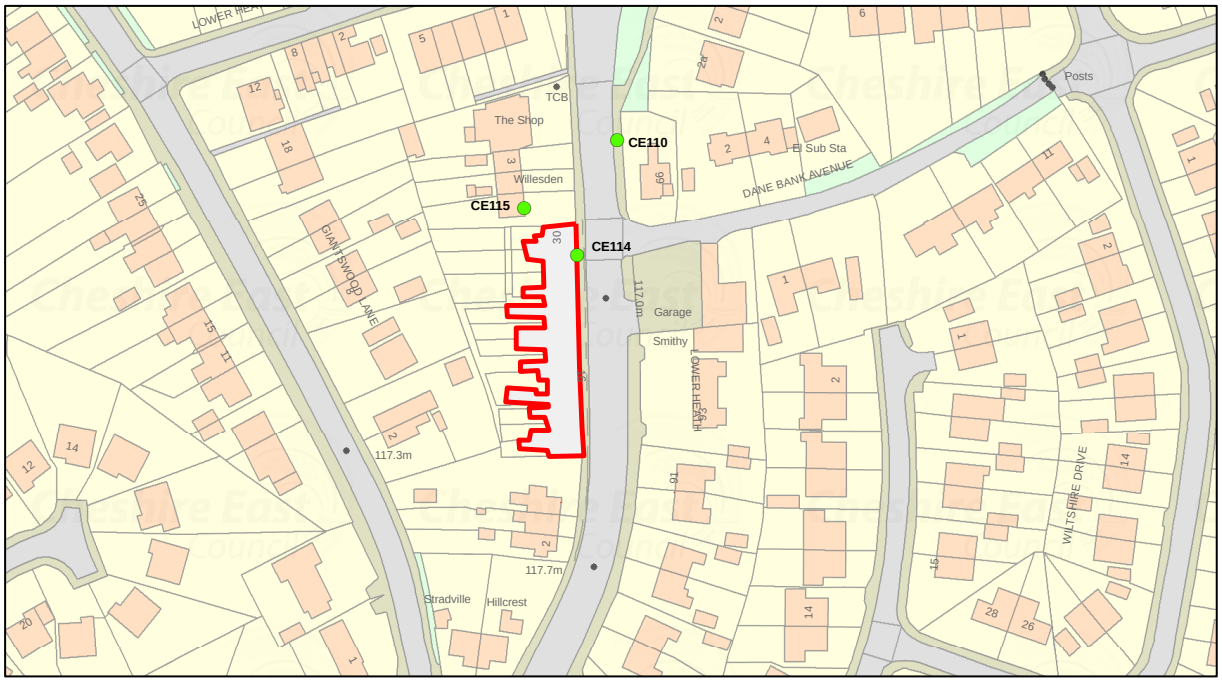


Figure D.5 – Lower Heath AQMA, Congleton

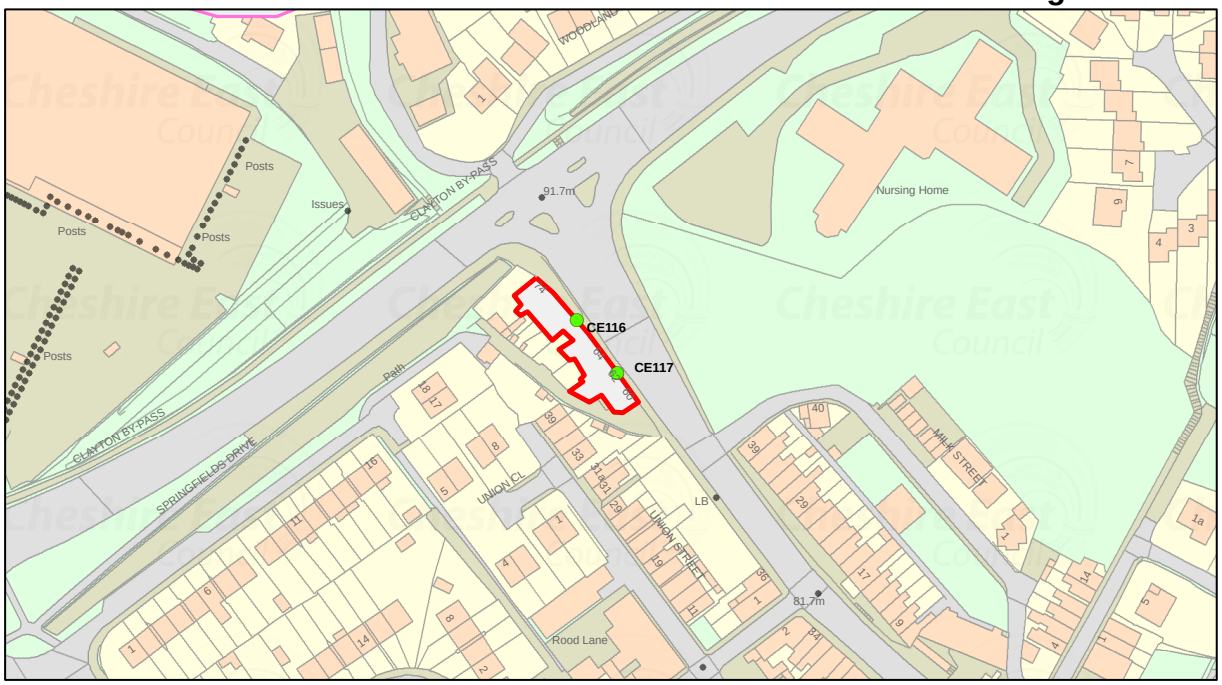


Figure D.6 – Rood Hill AQMA, Congleton

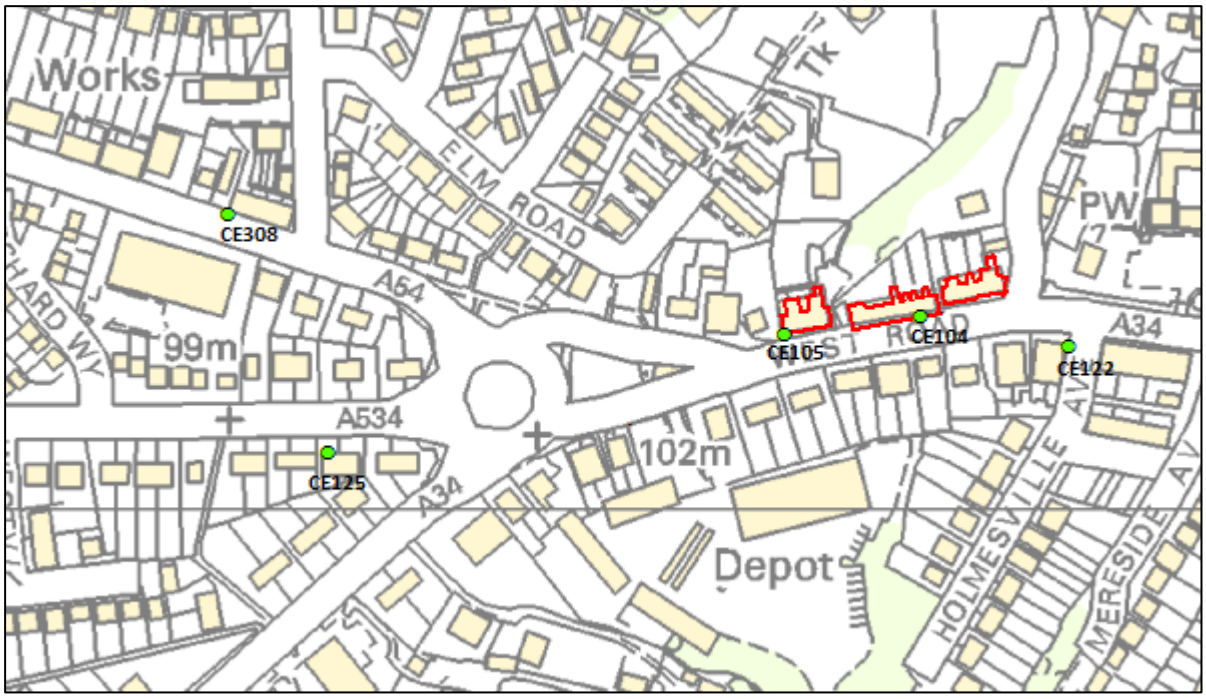


Figure D.7 – West Road AQMA, Congleton

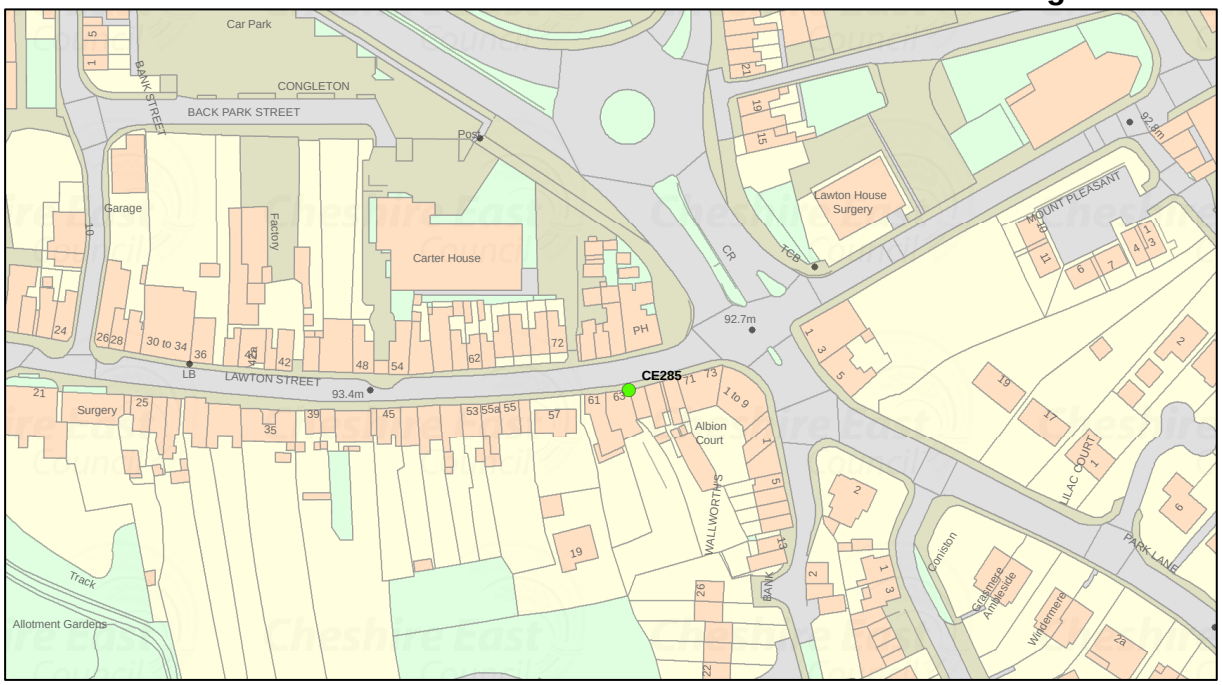


Figure D.8 – Lawton Street, Congleton

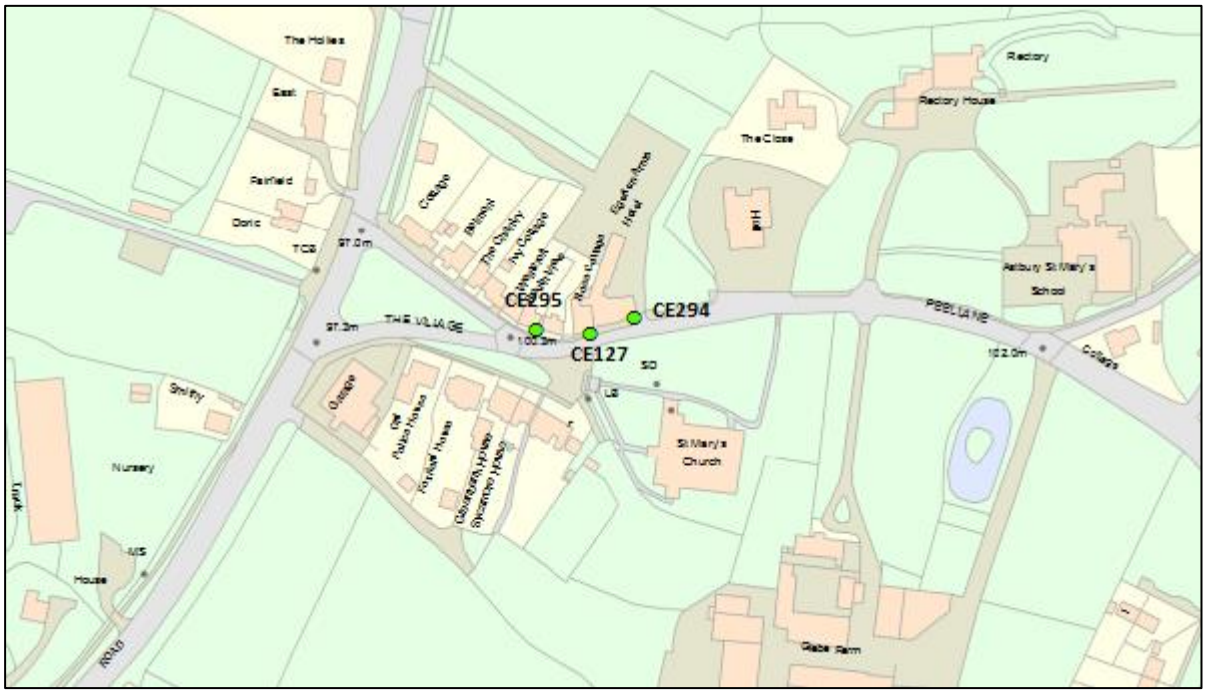


Figure D.9 – Astbury, Nr Congleton

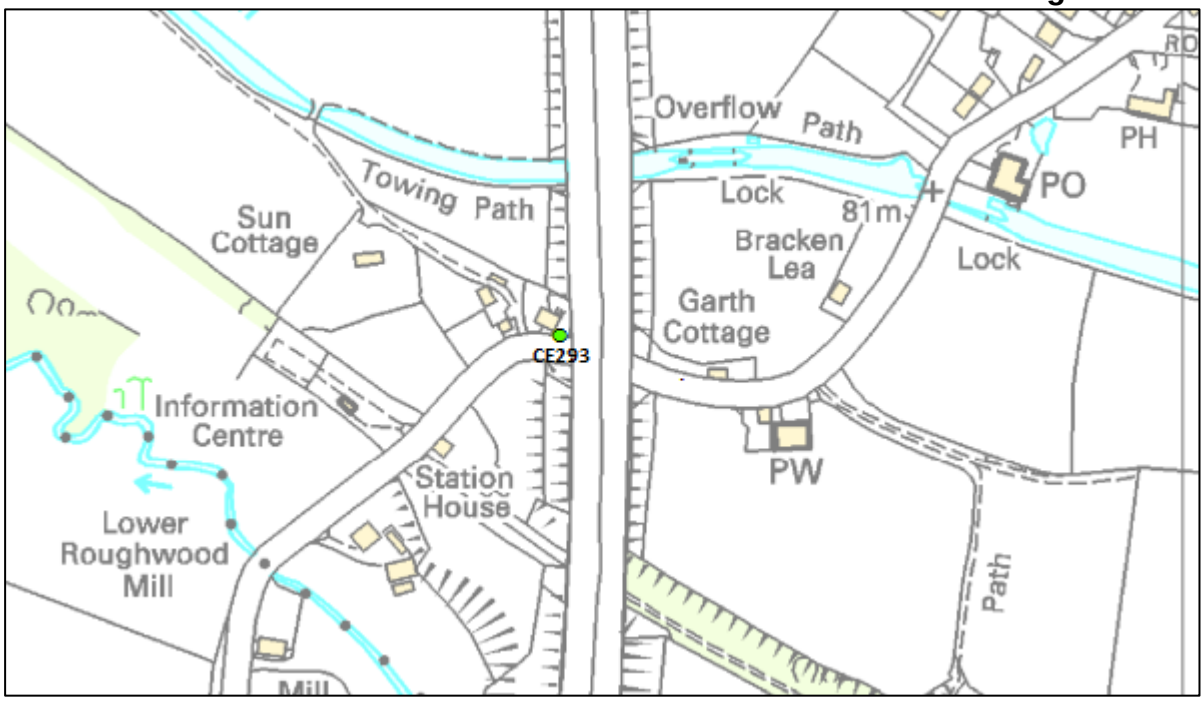


Figure D.10 – Hassall Green

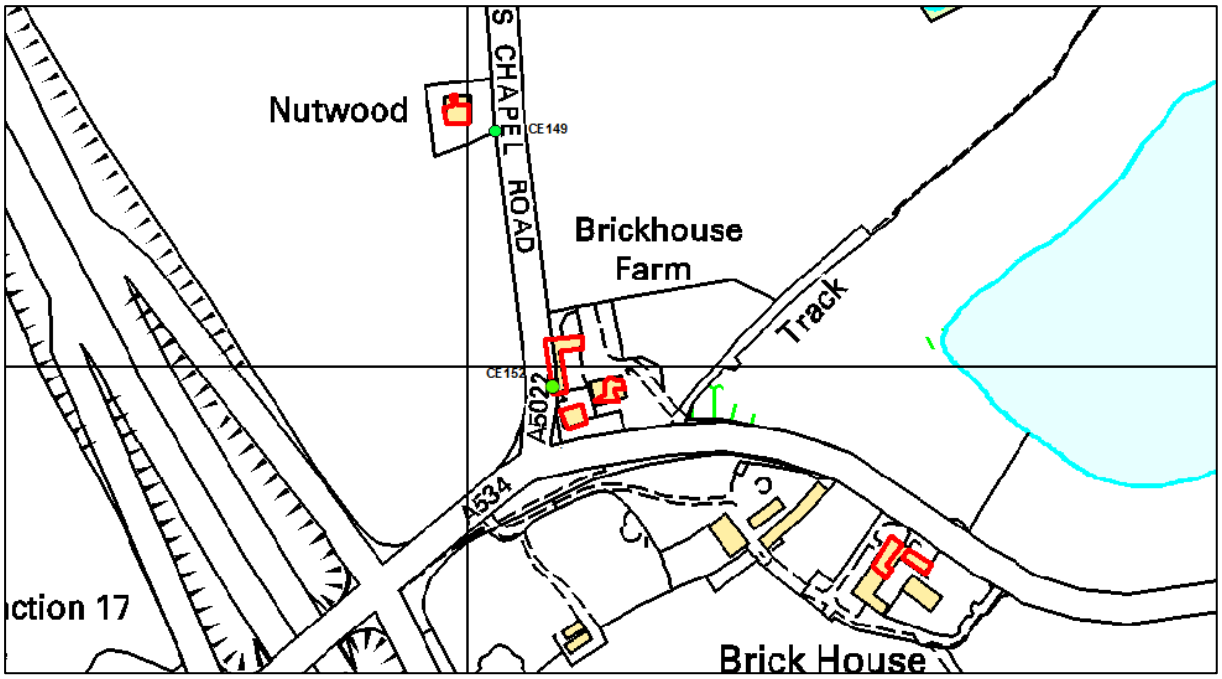


Figure D.11 – Junction 17 Sandbach AQMA

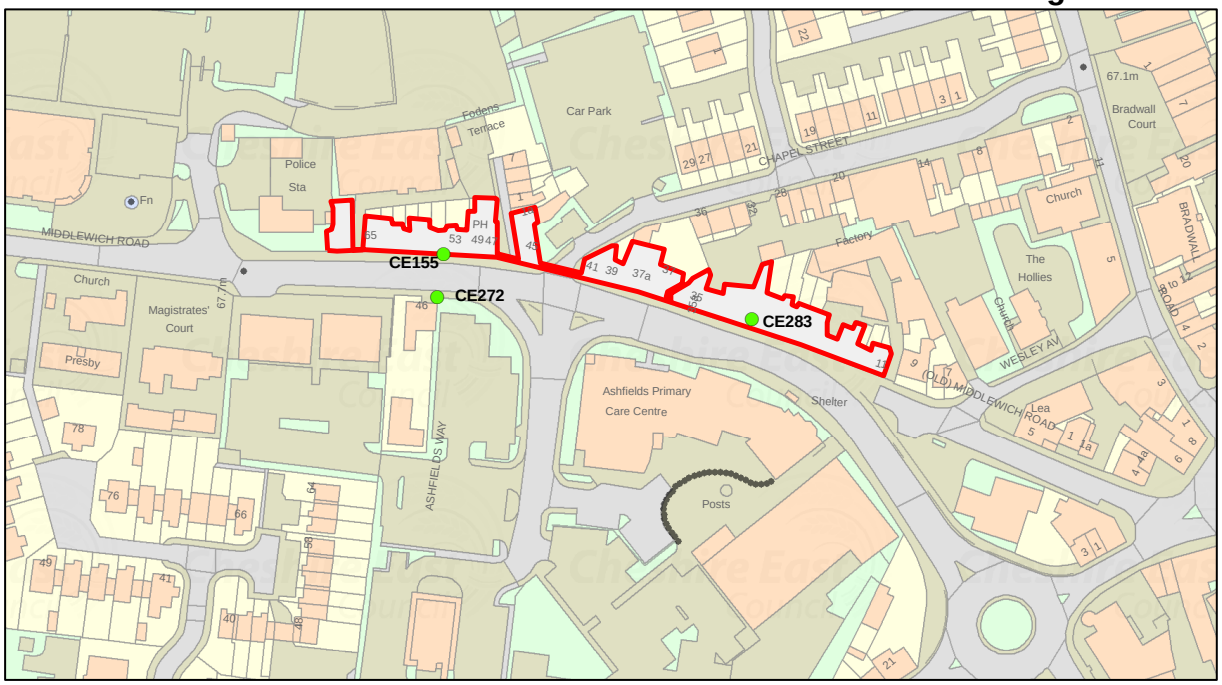


Figure D.12 – Middlewich Road, Sandbach AQMA

Figure D.13 – Sandbach

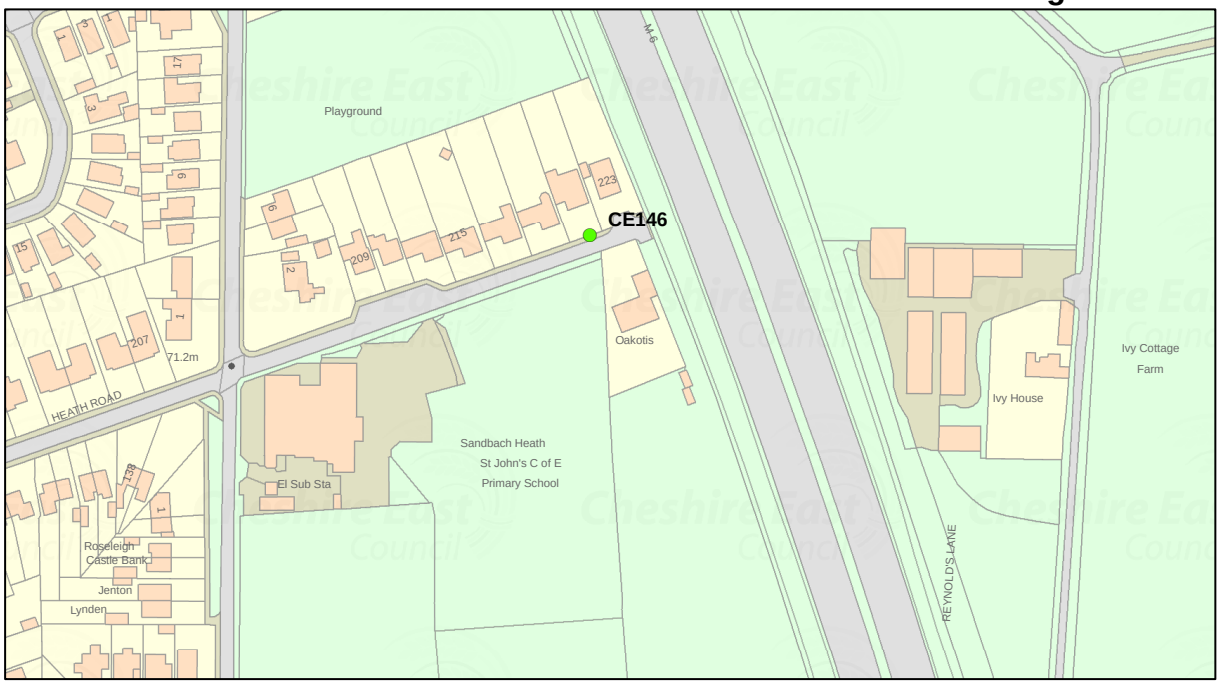


Figure D.14 – Sandbach M6

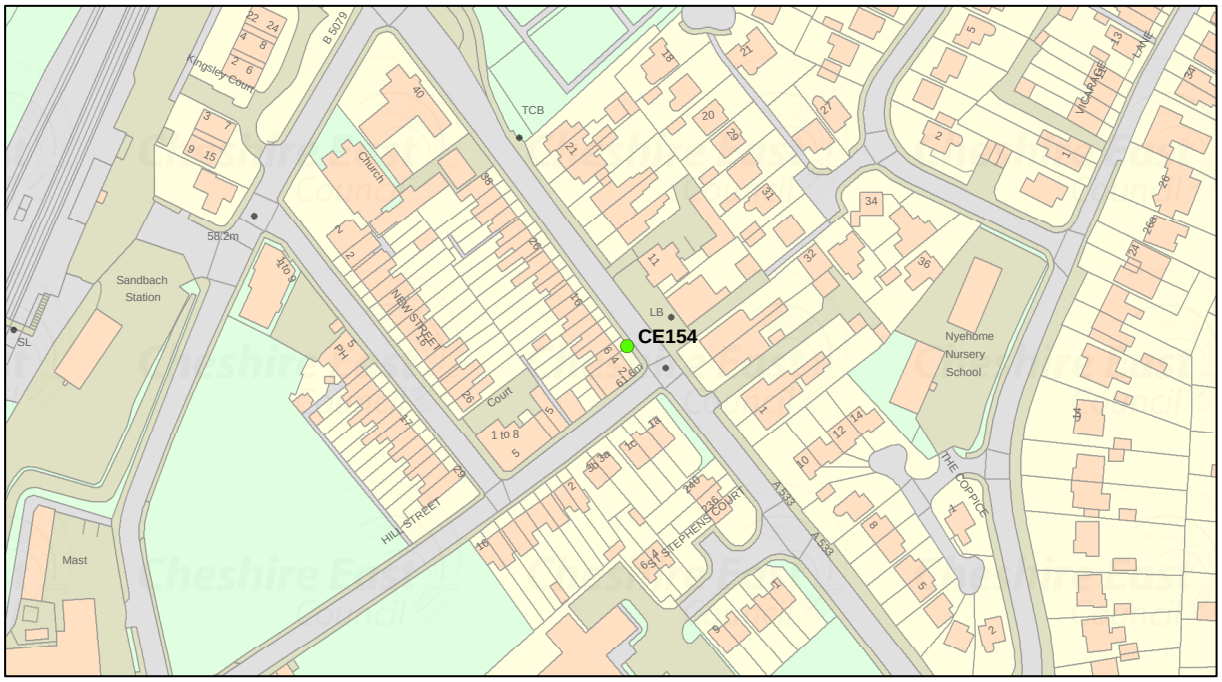


Figure D.15 - Elworth

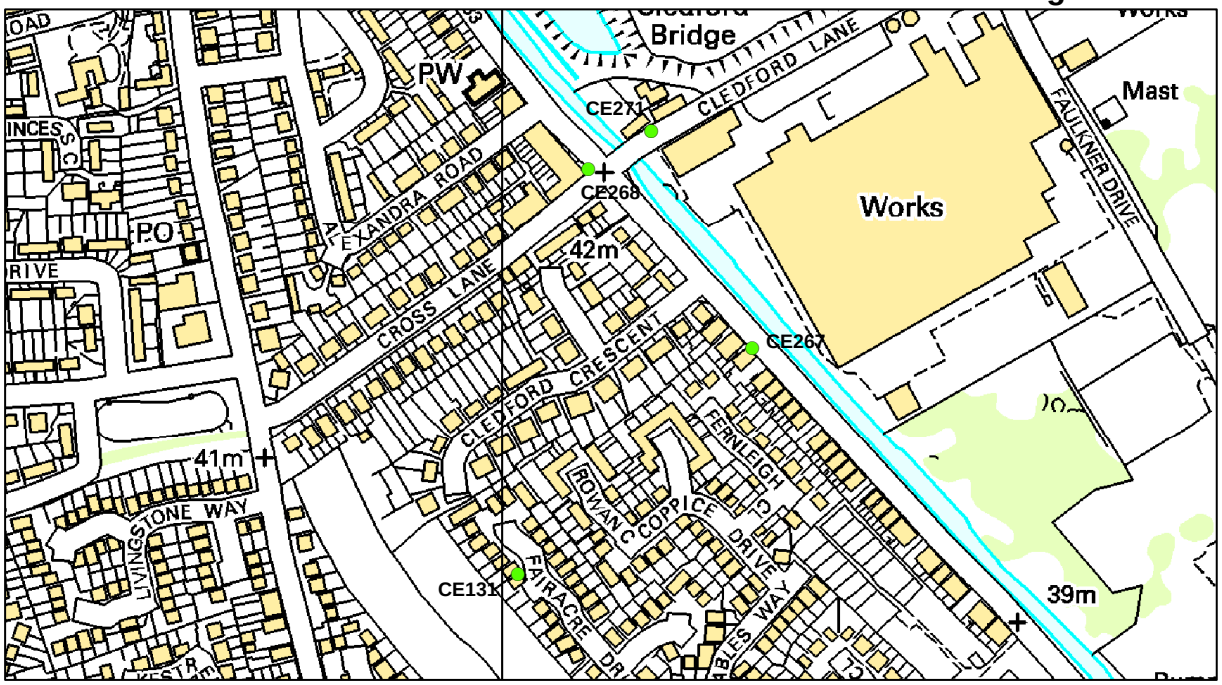


Figure D.16 – Middlewich (Cledford Area)

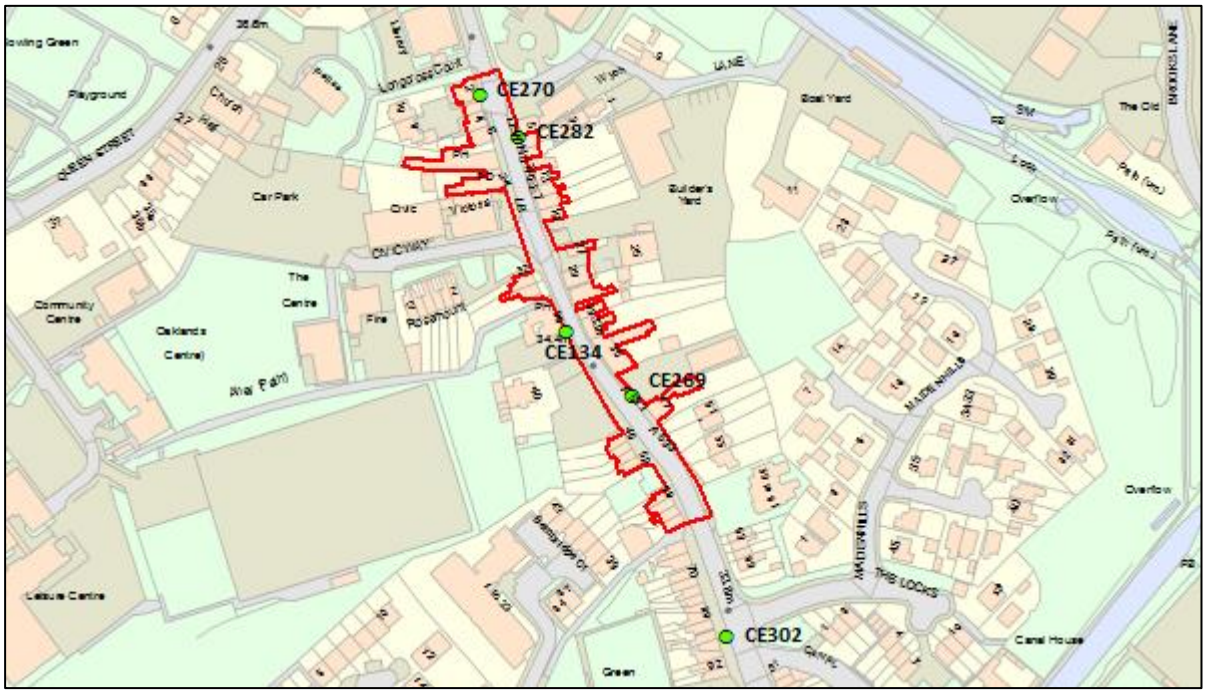


Figure D.17 – Middlewich, A533 Lewin Street AQMA

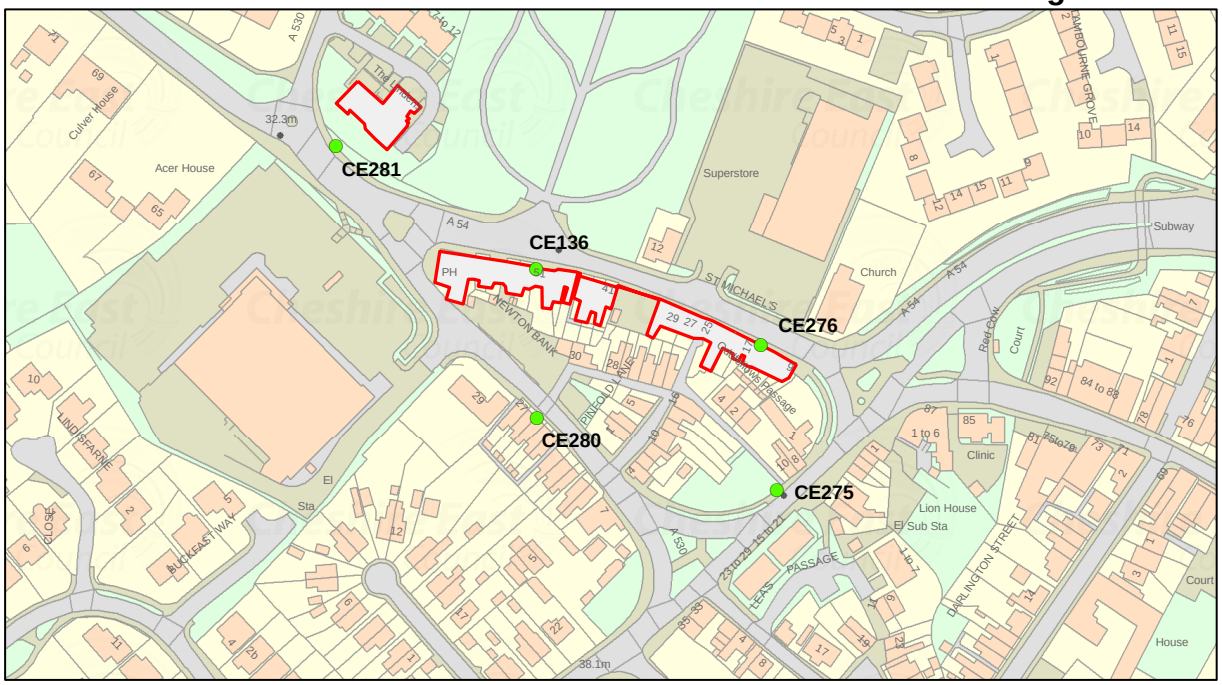


Figure D.18 – Chester Road Middlewich AQMA

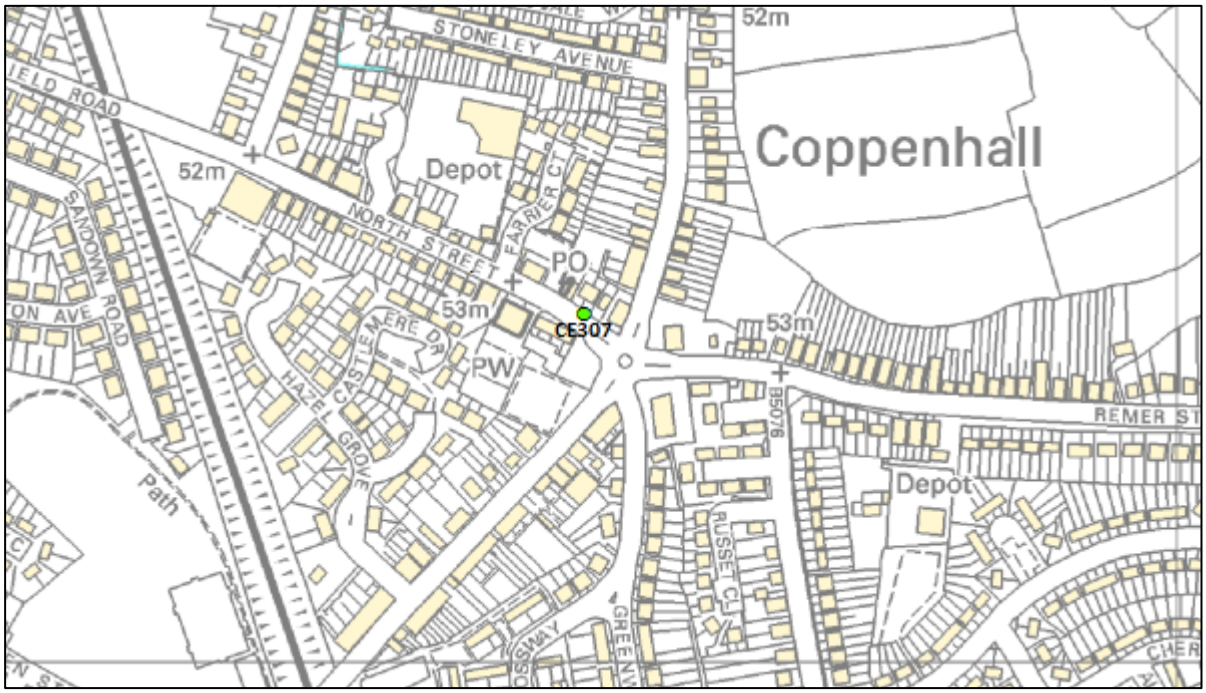


Figure D.19 – Crewe (North Street)

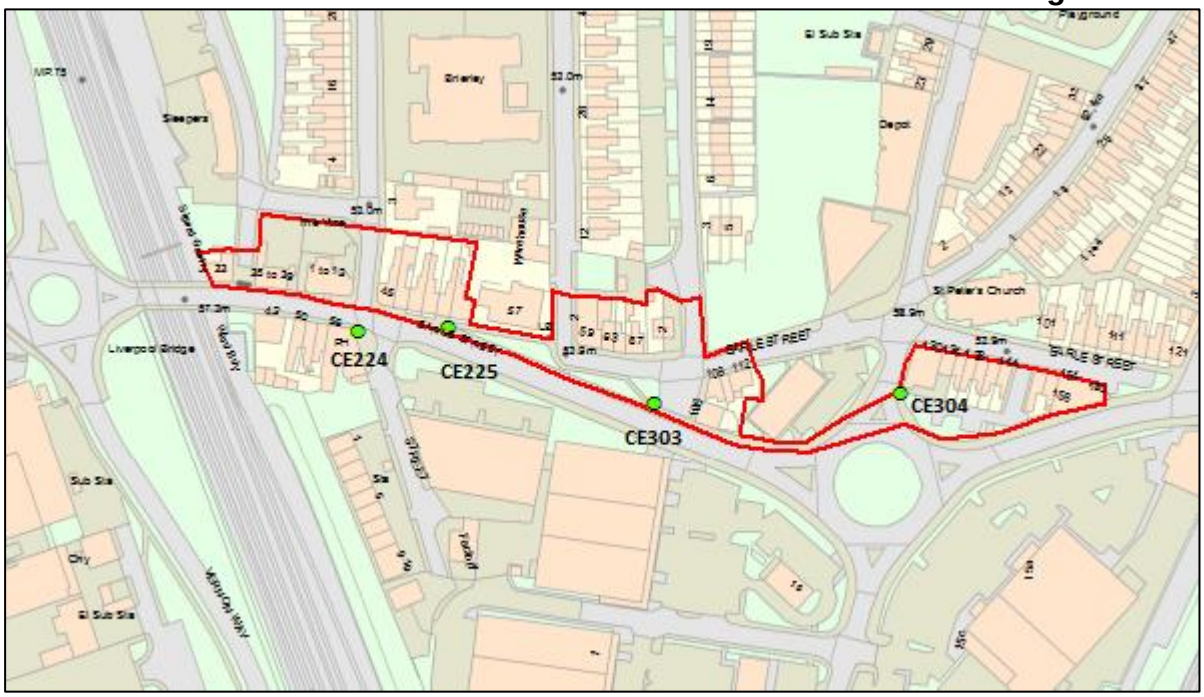


Figure D.20 – Earle Street, Crewe AQMA

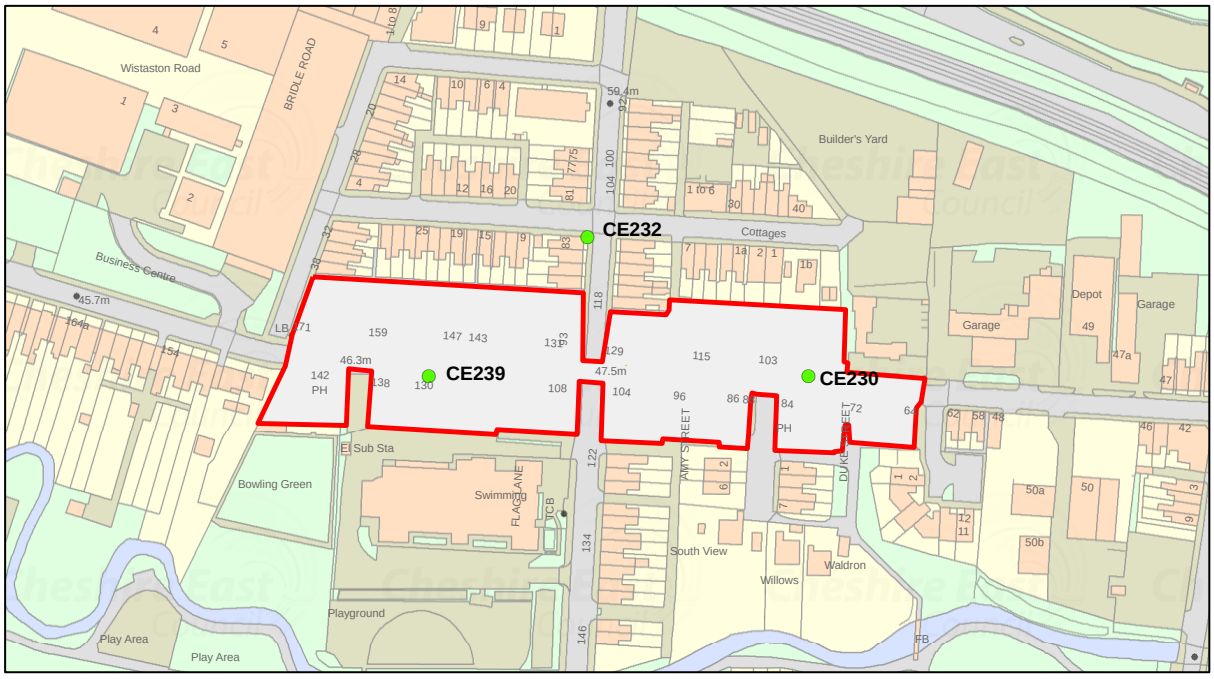


Figure D.21 – Wistaston Road, Crewe AQMA

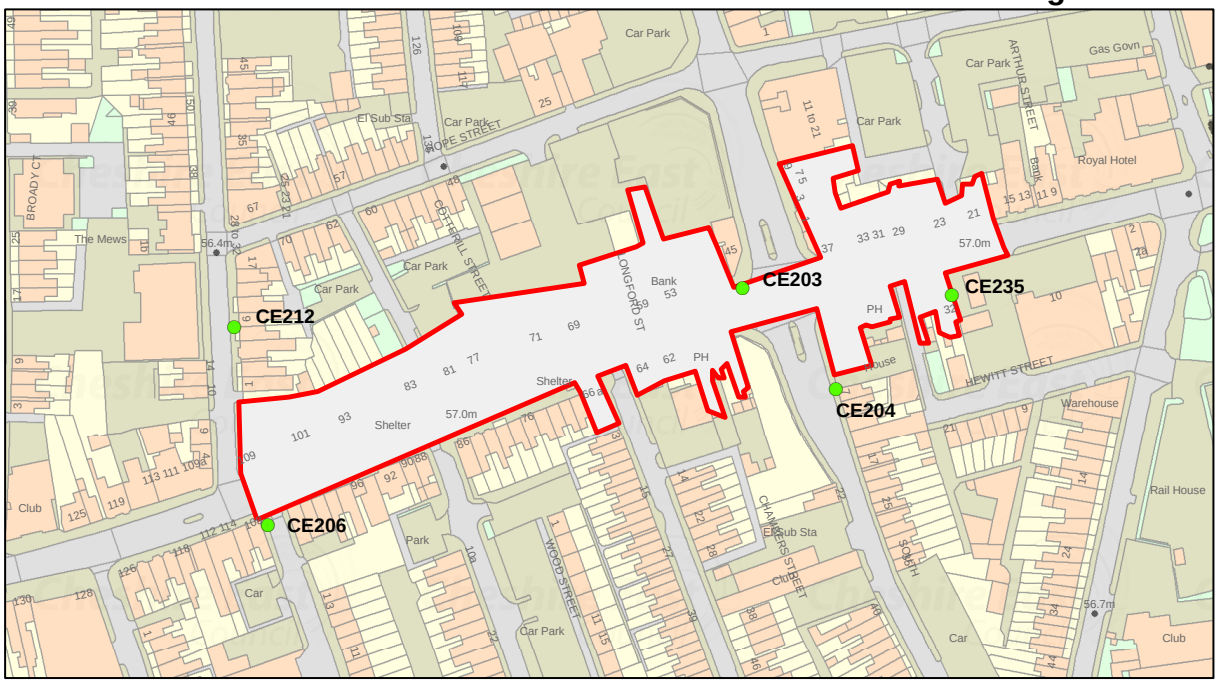


Figure D.22 – Nantwich Road, Crewe AQMA

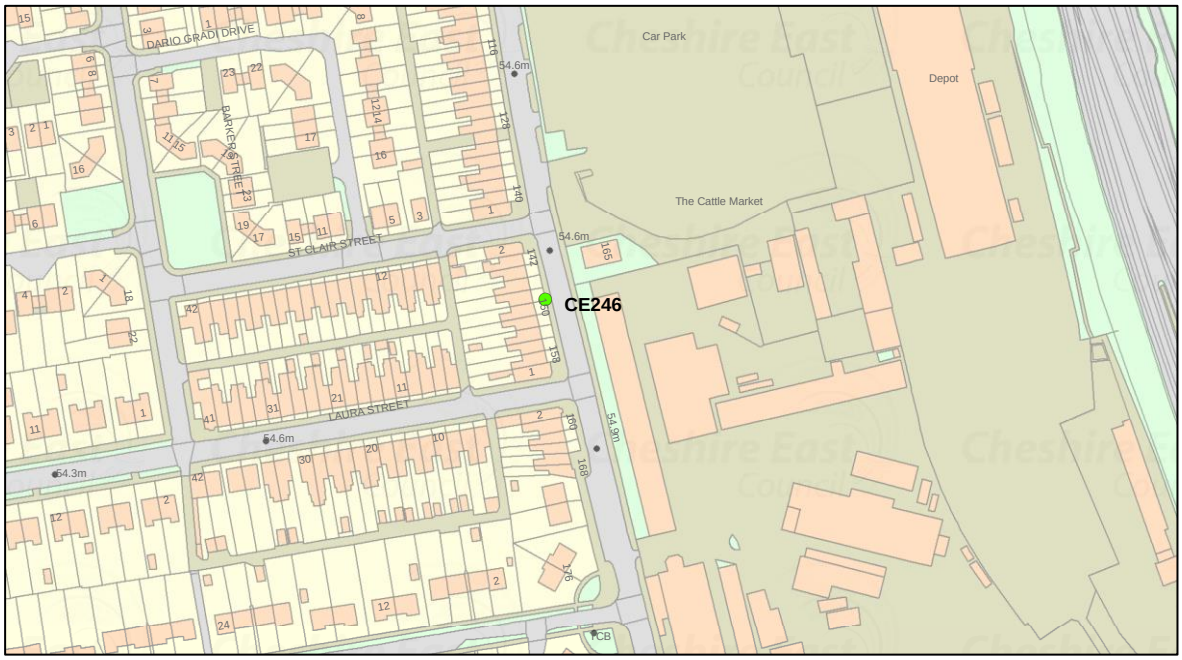


Figure D.23 – Crewe (Gresty Road)

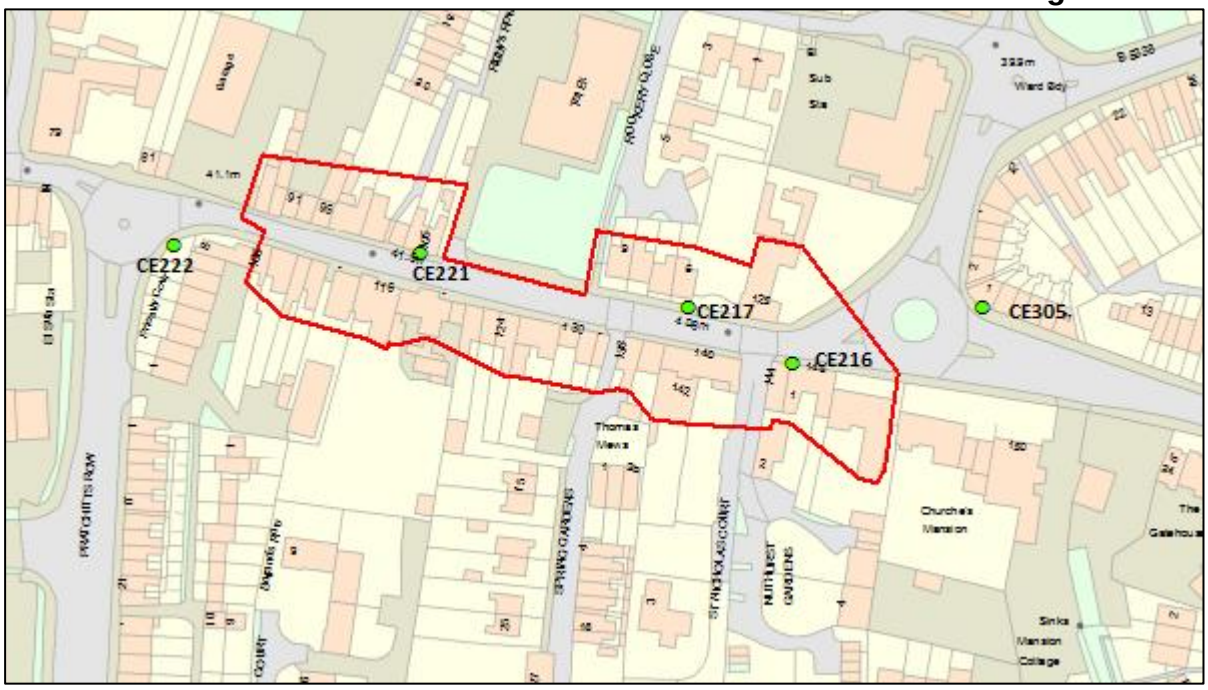


Figure D.24 – Hospital Street, Nantwich AQMA

Figure D.25 – Nantwich (Wellington Road)

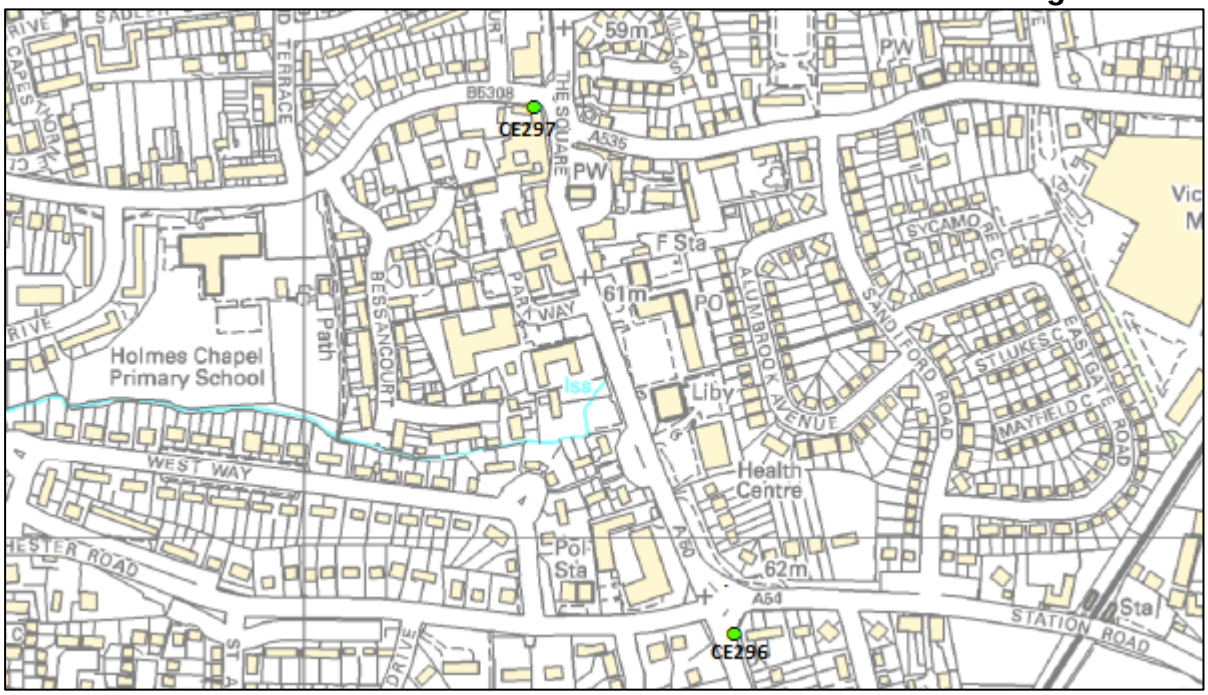


Figure D.26 – Holmes Chapel

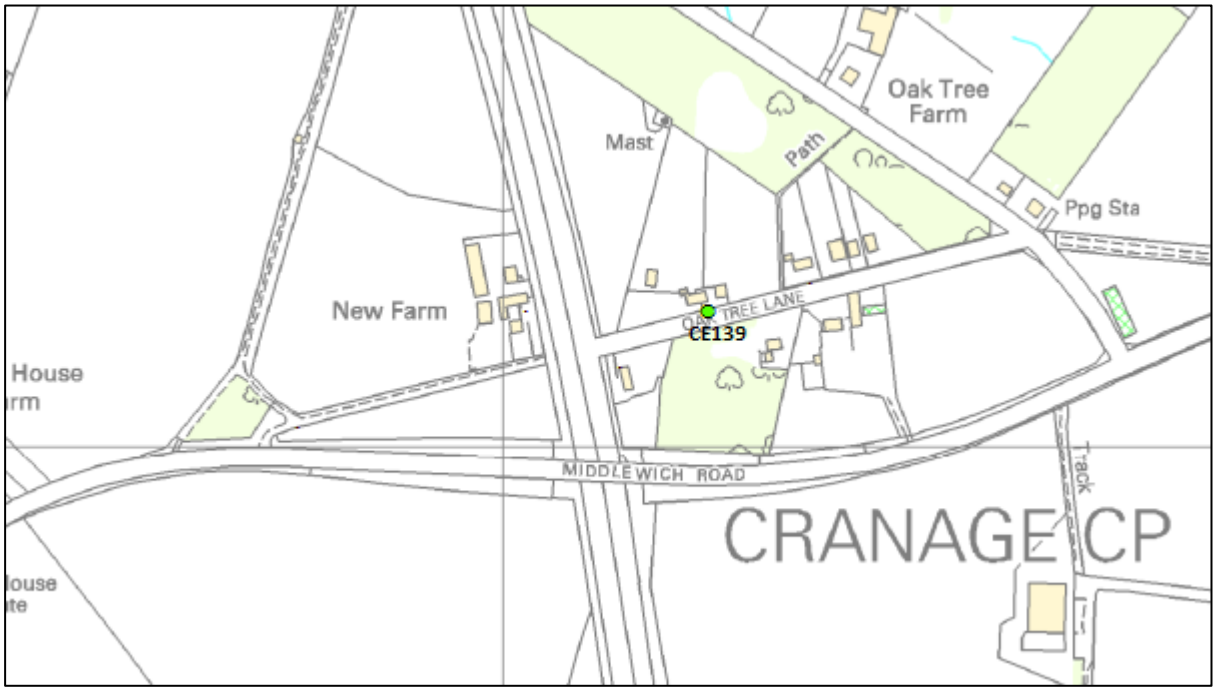


Figure D.27 – Cranage (M6) 1

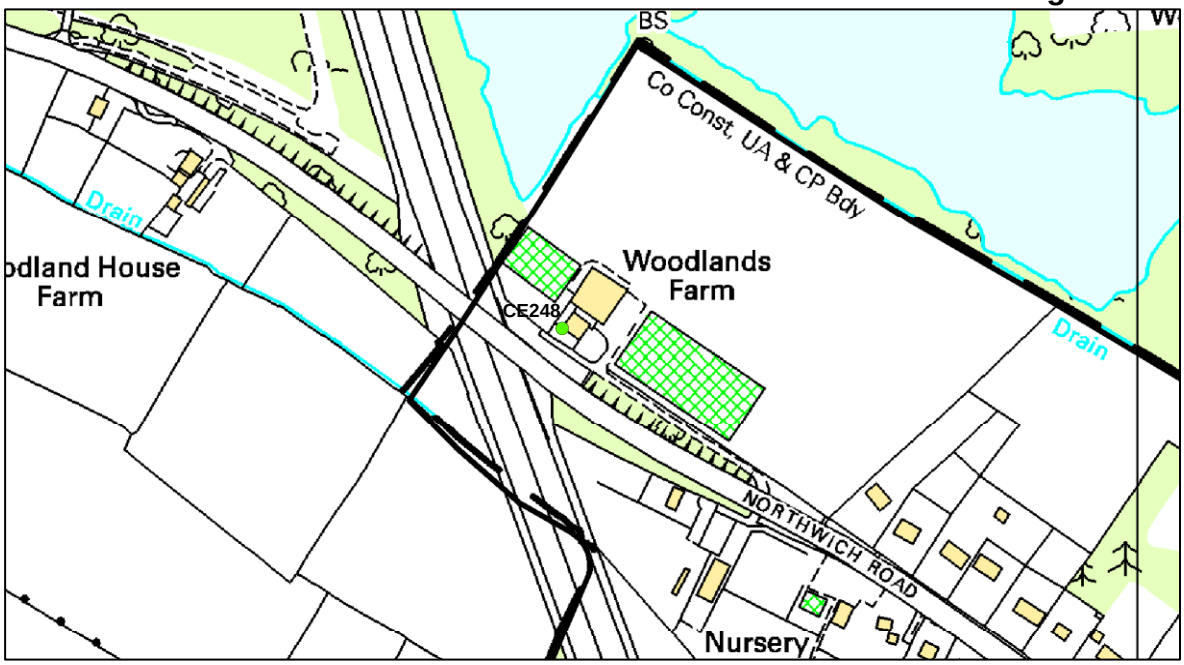


Figure D.28 – Cranage (M6) 2

Figure D.29 – Knutsford, A50 Manchester Road AQMA

Figure D.30 – Knutsford, A537 Chelford Road AQMA

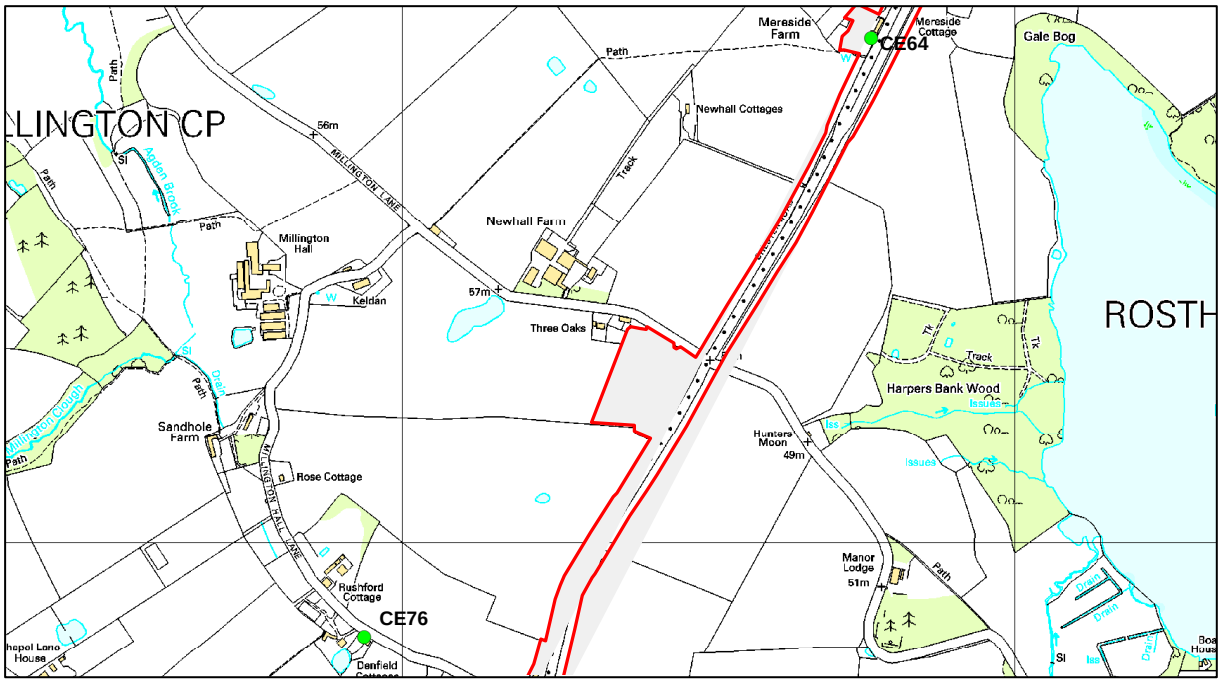


Figure D.31 – Mere Area 1

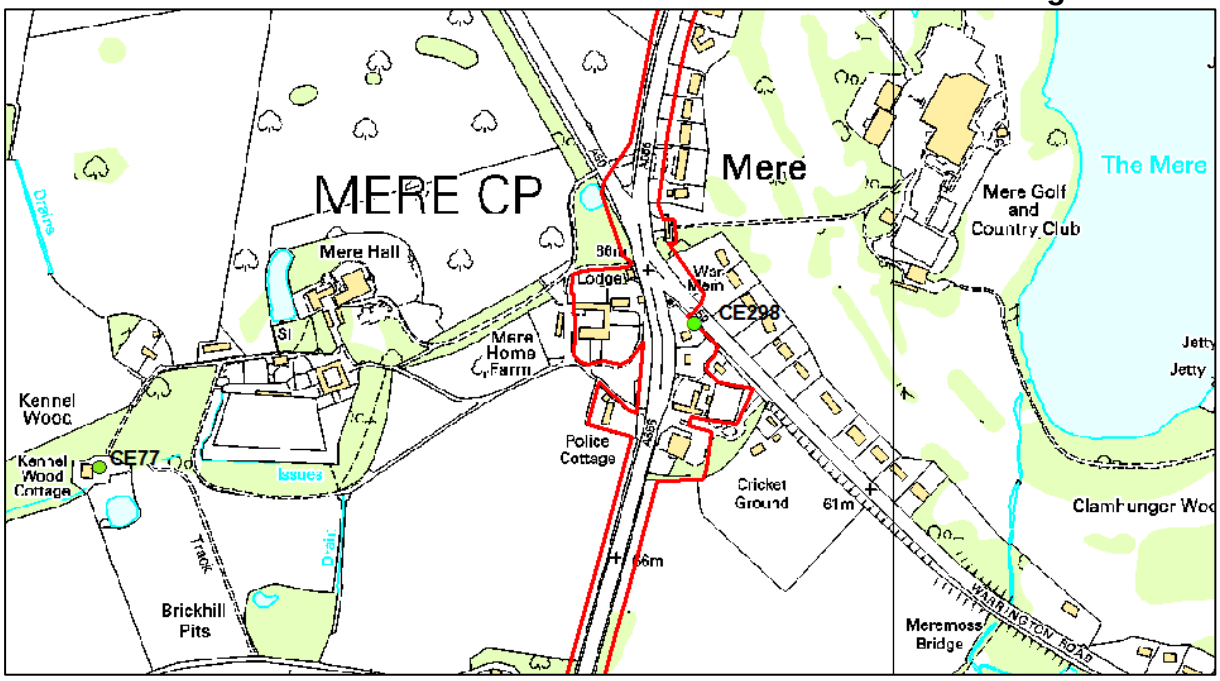


Figure D.32 – Mere Area 2

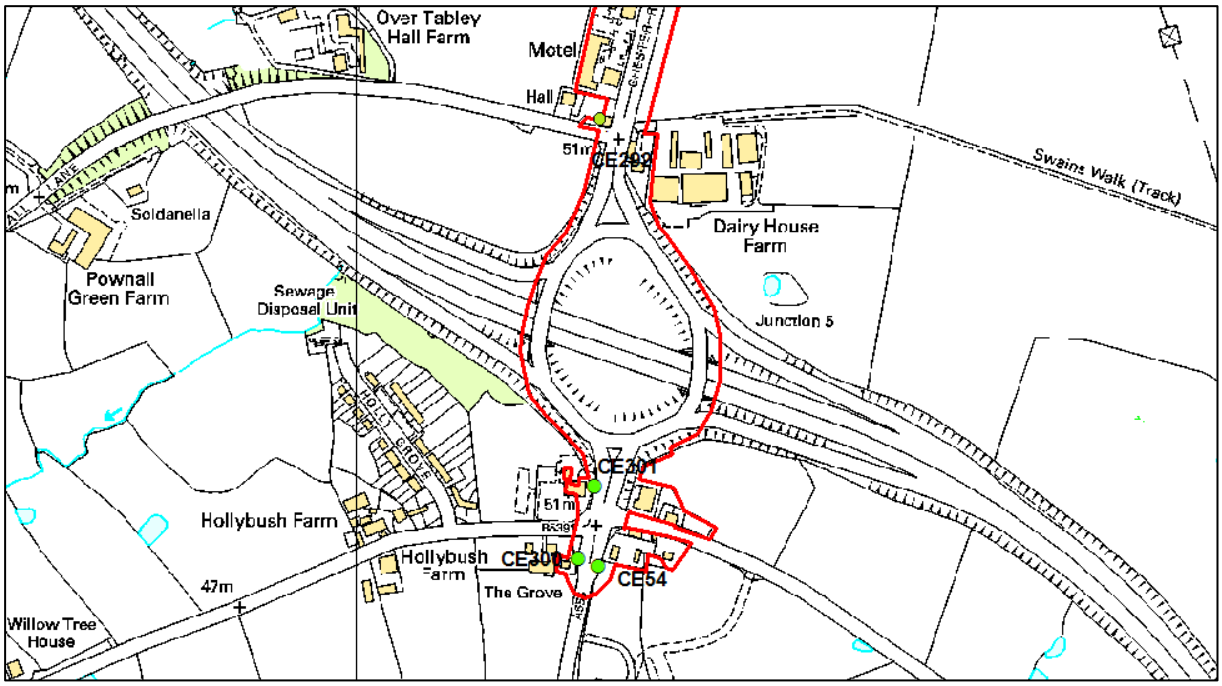


Figure D.33 – A556 Chester Road-Mere AQMA

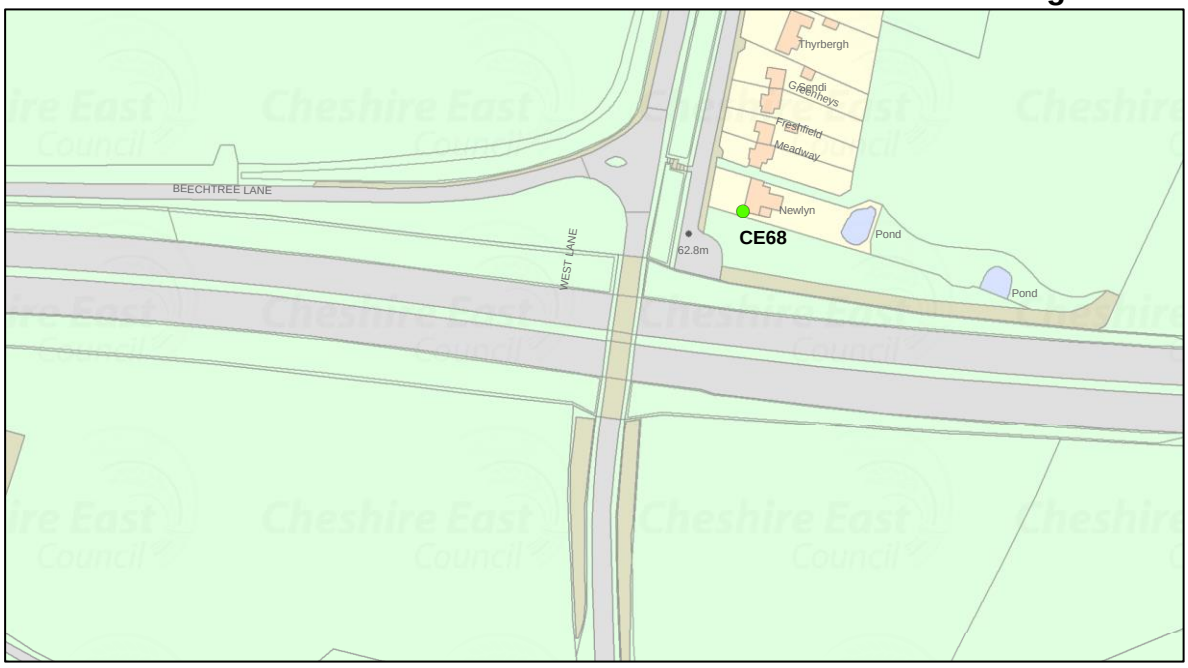


Figure D.34 – High Legh M56

Figure D.35 – High Legh (M6)

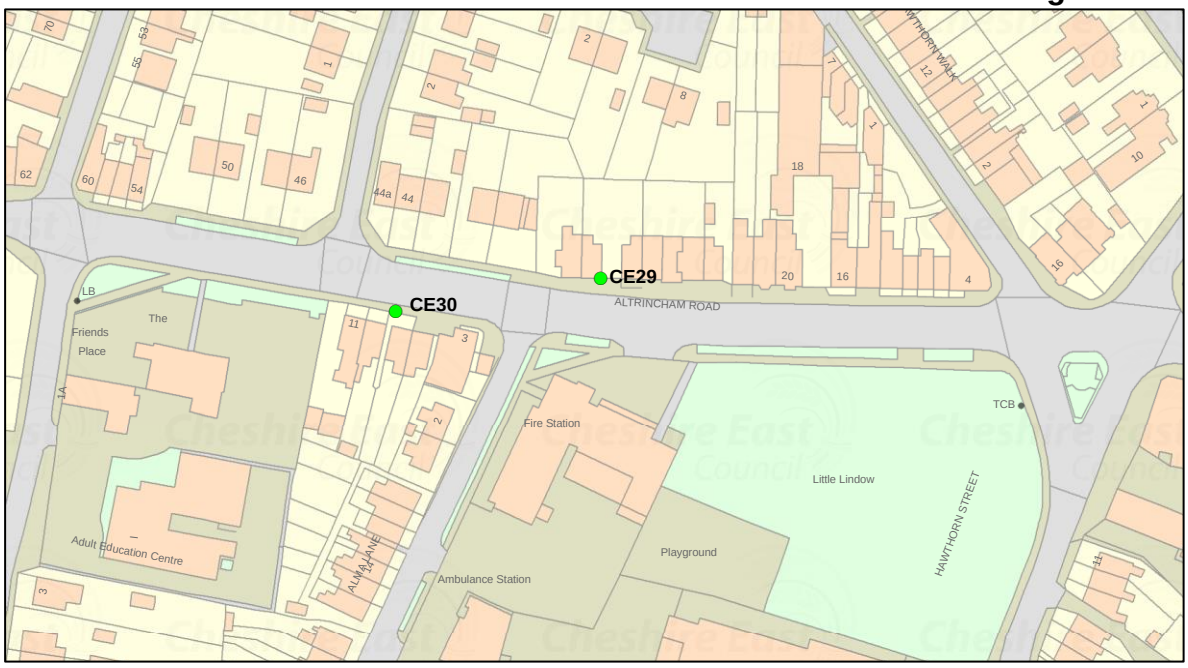


Figure D.36 - Wilmslow

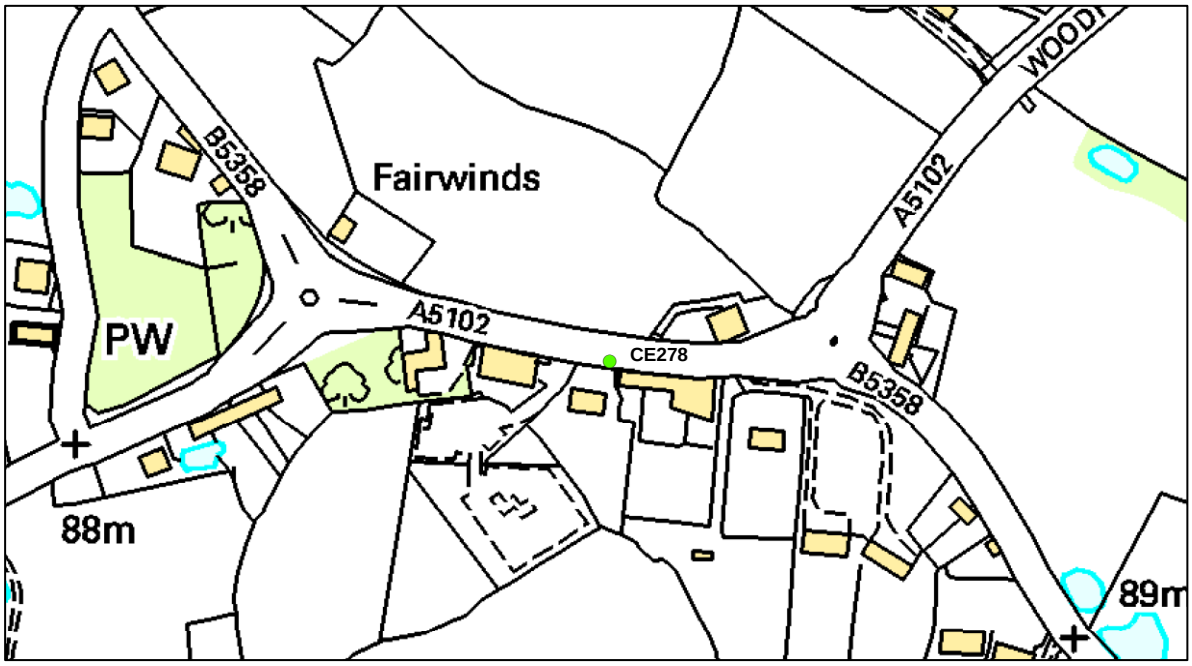


Figure D.37 – Wilmslow (Dean Row)

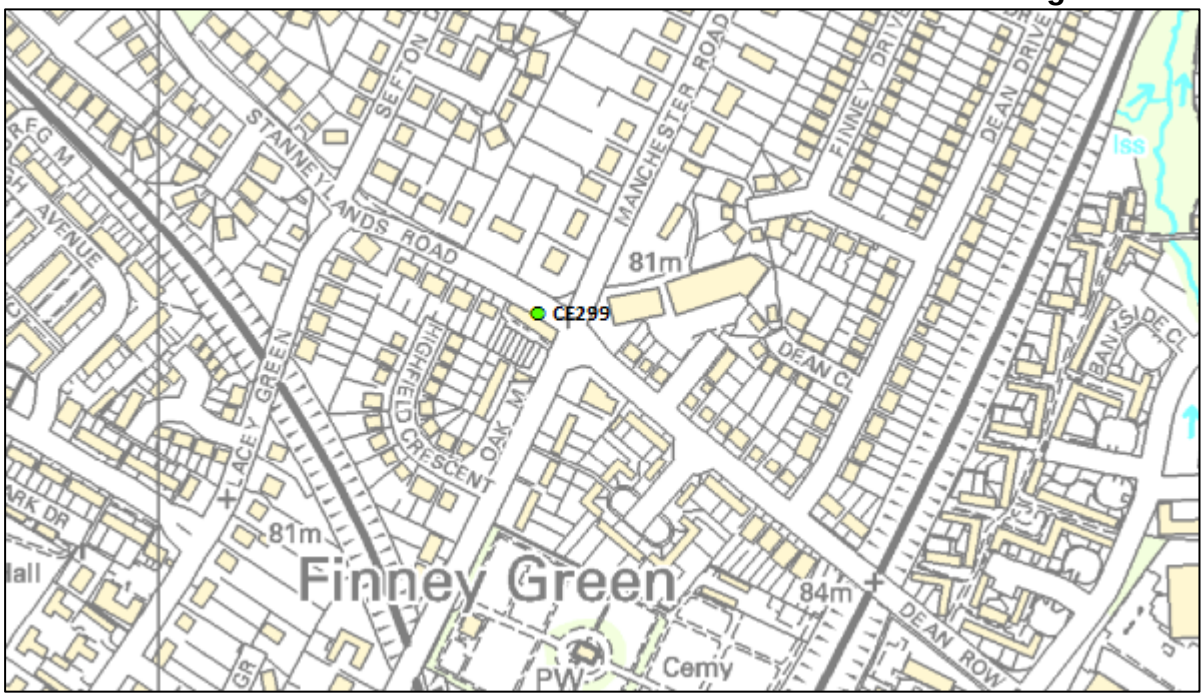


Figure D.38 – Handforth, Stanneylands Road

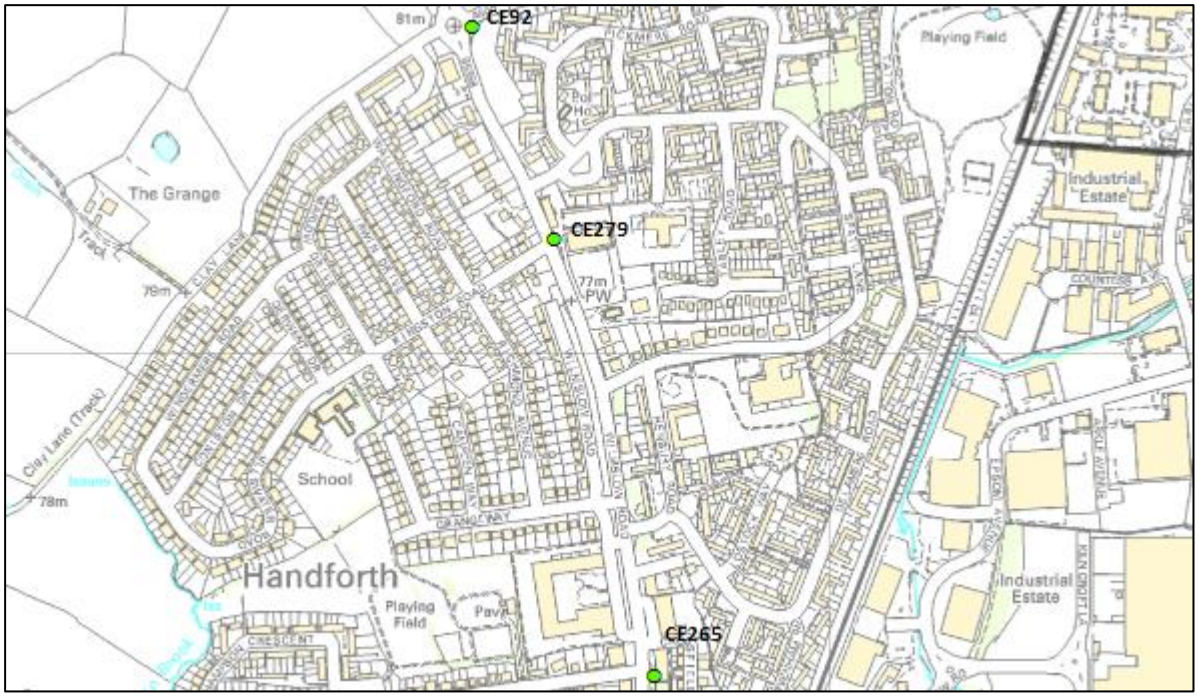


Figure D.39 – Handforth, Wilmslow Road

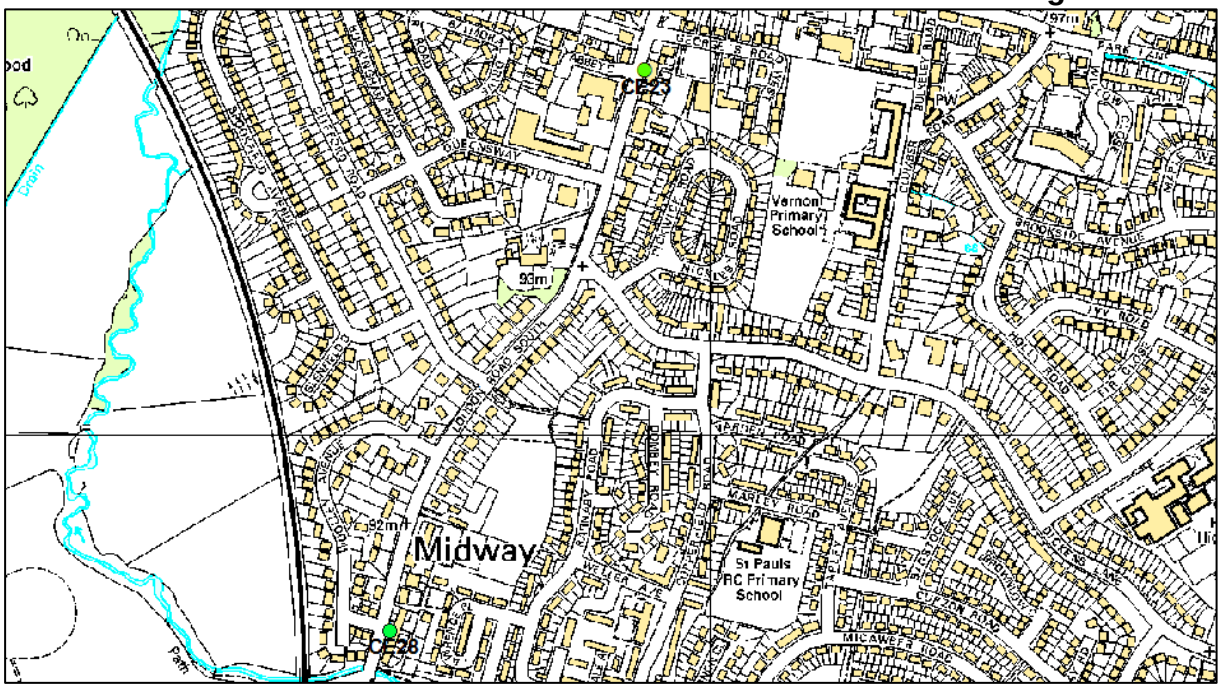


Figure D.40 – Poynton

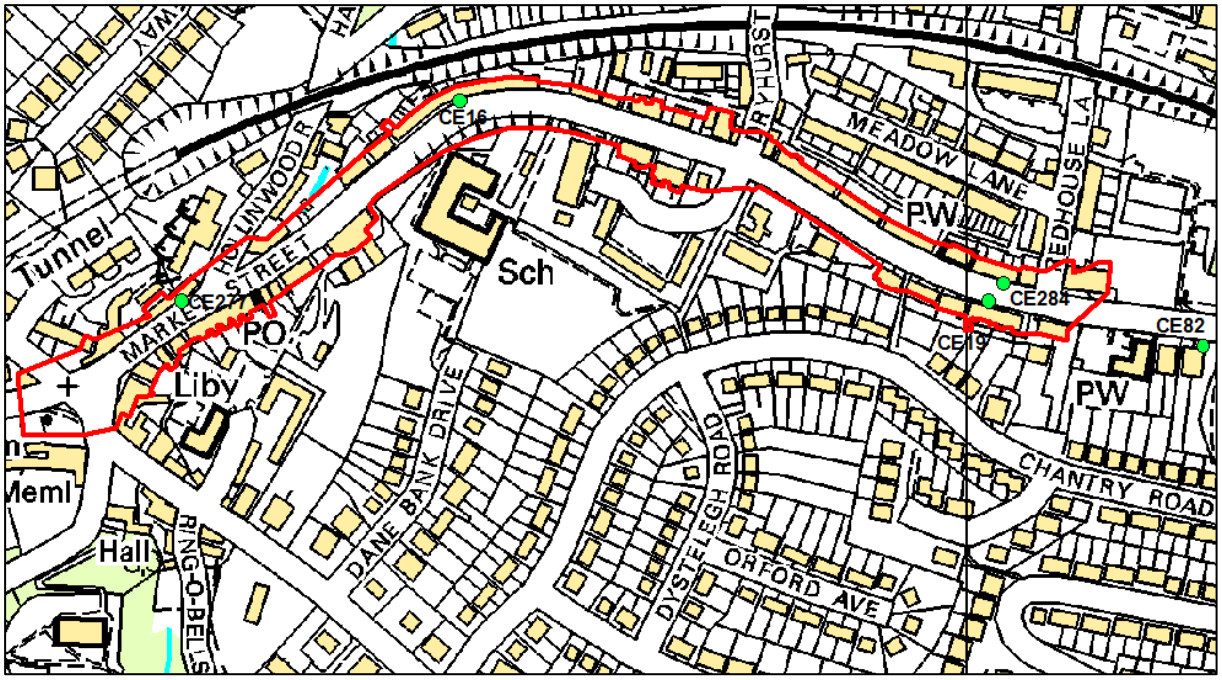


Figure D.41 – Disley AQMA

Figure D.42 - Bollington

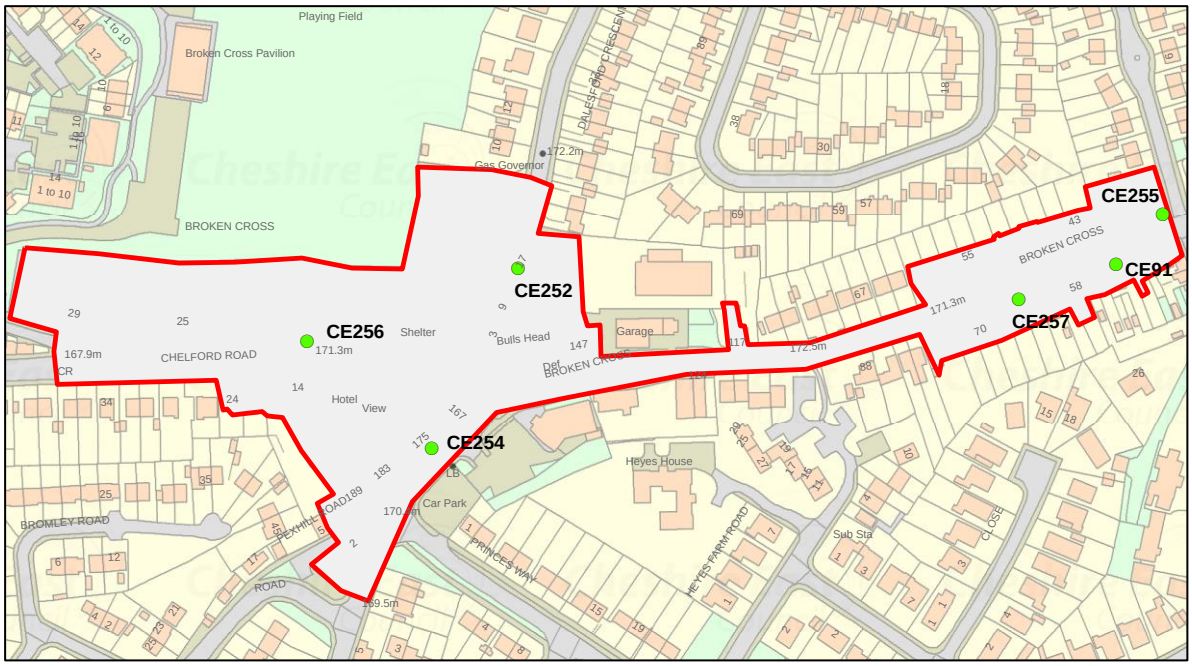


Figure D.43 – Broken Cross, Macclesfield AQMA

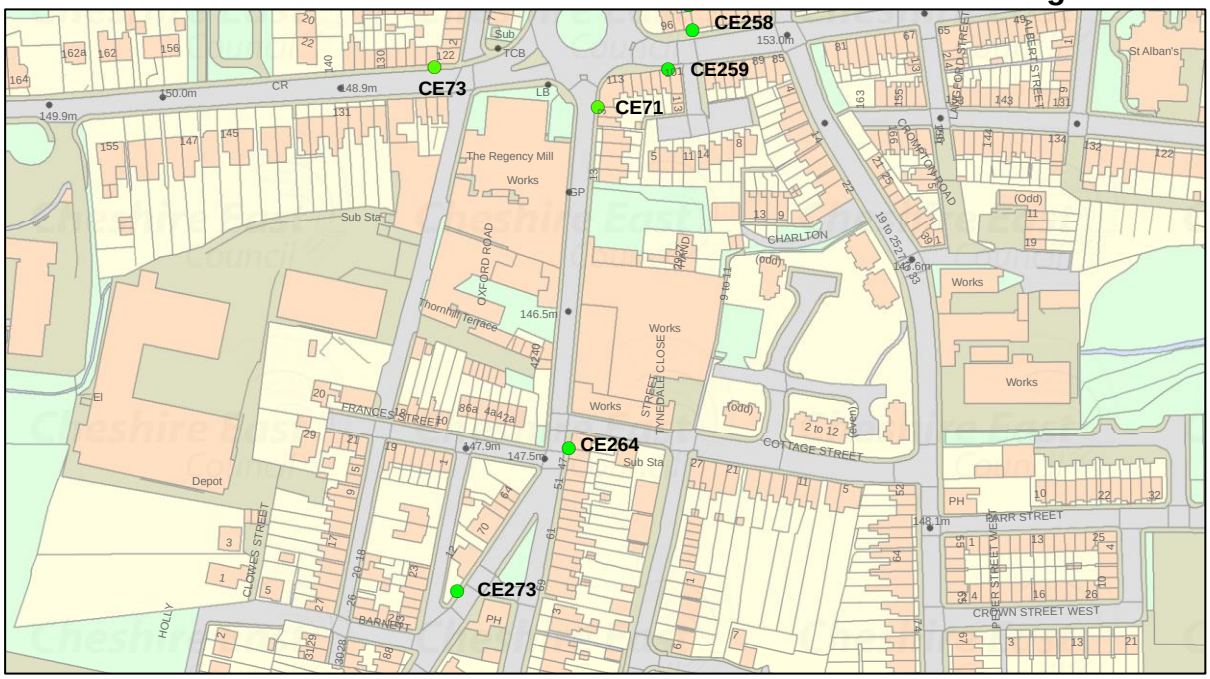


Figure D.44 – Chester Road Macclesfield

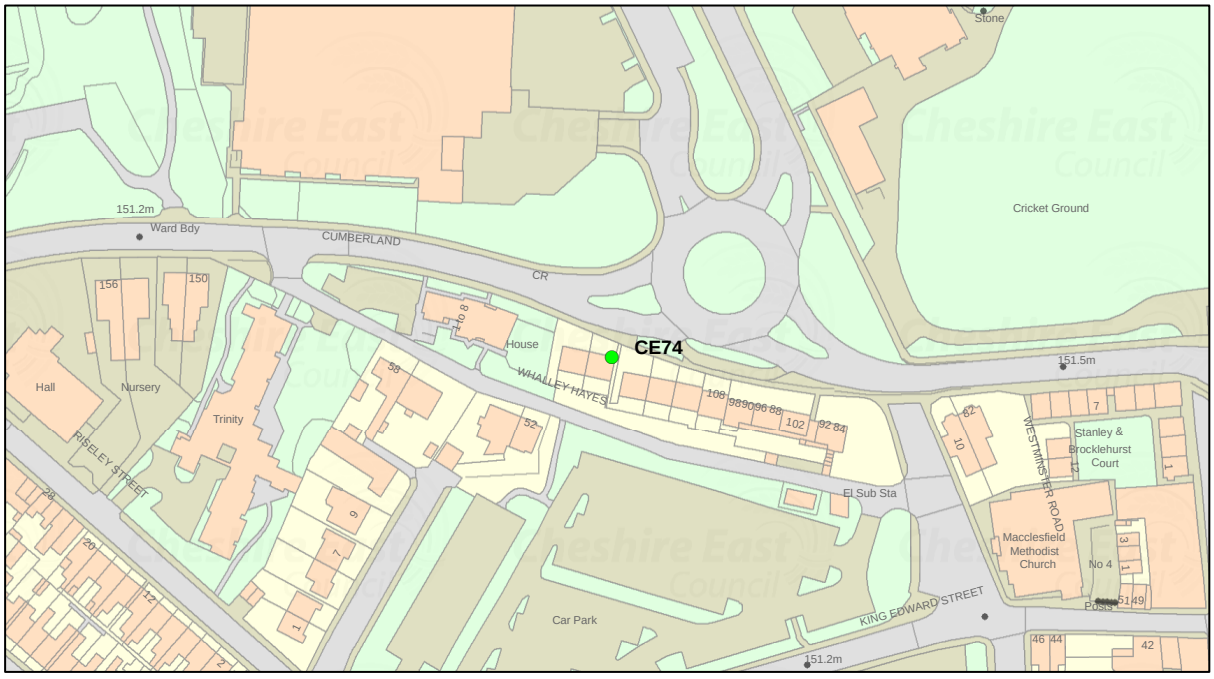


Figure D.45 – Cumberland Street, Macclesfield

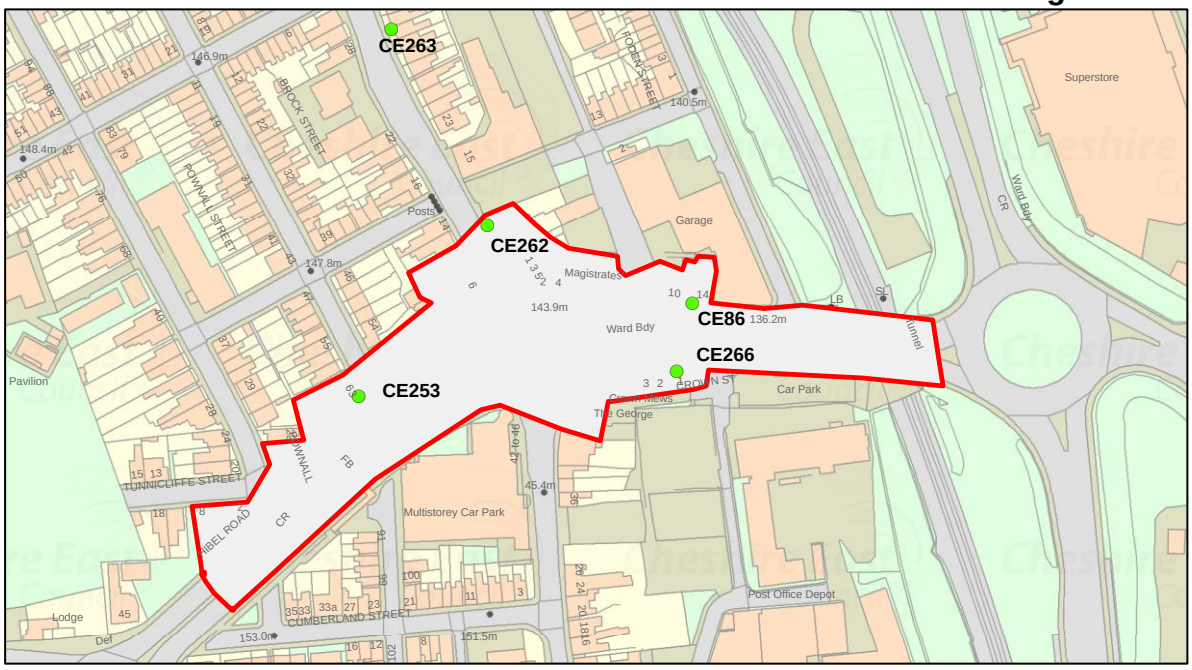


Figure D.46 – Hibel Road, Macclesfield AQMA

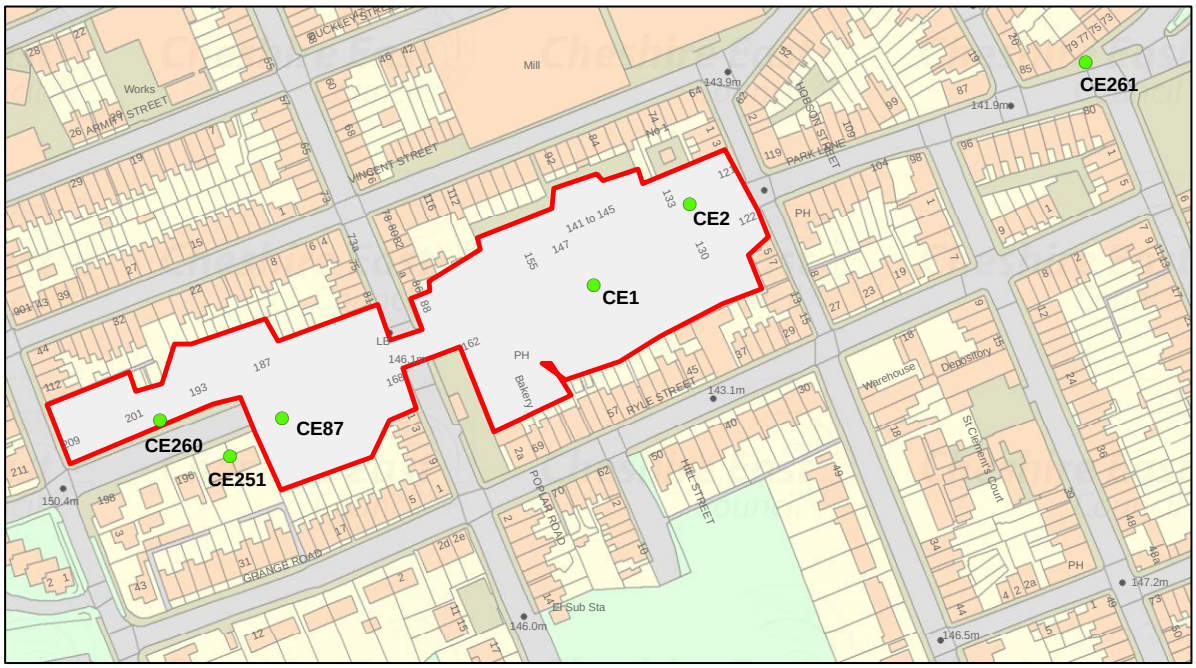


Figure D.47 – Park Lane, Macclesfield AQMA

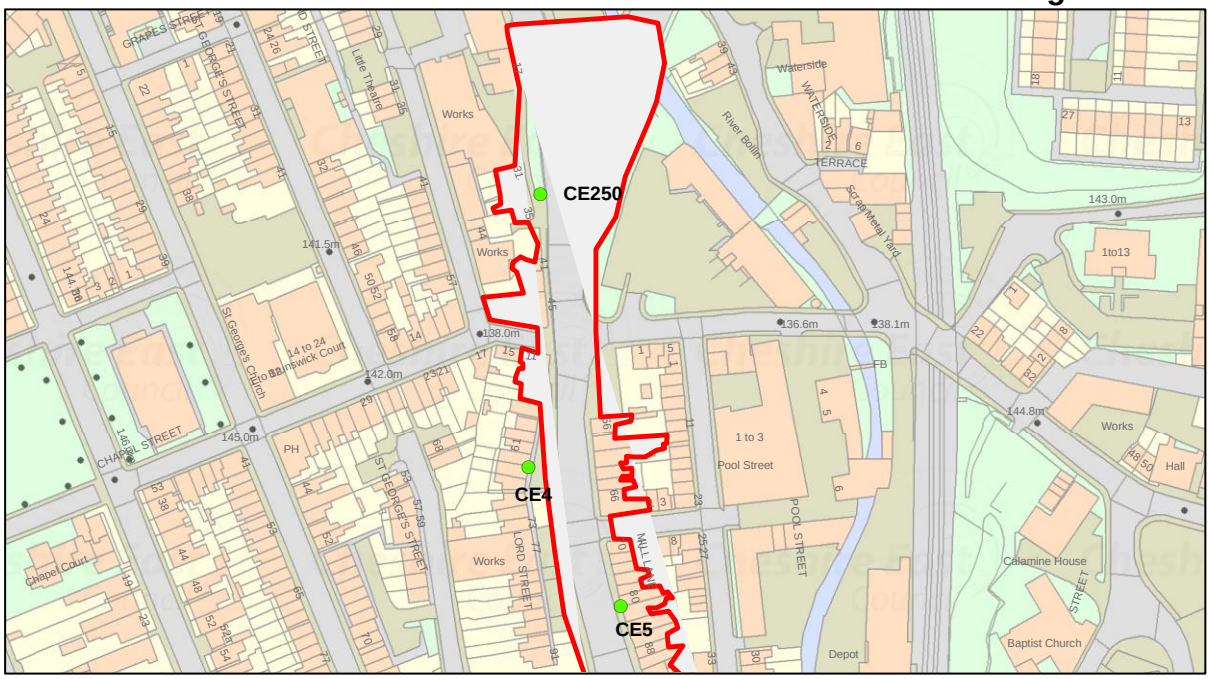


Figure D.48 – London Road Macclesfield AQMA (North)

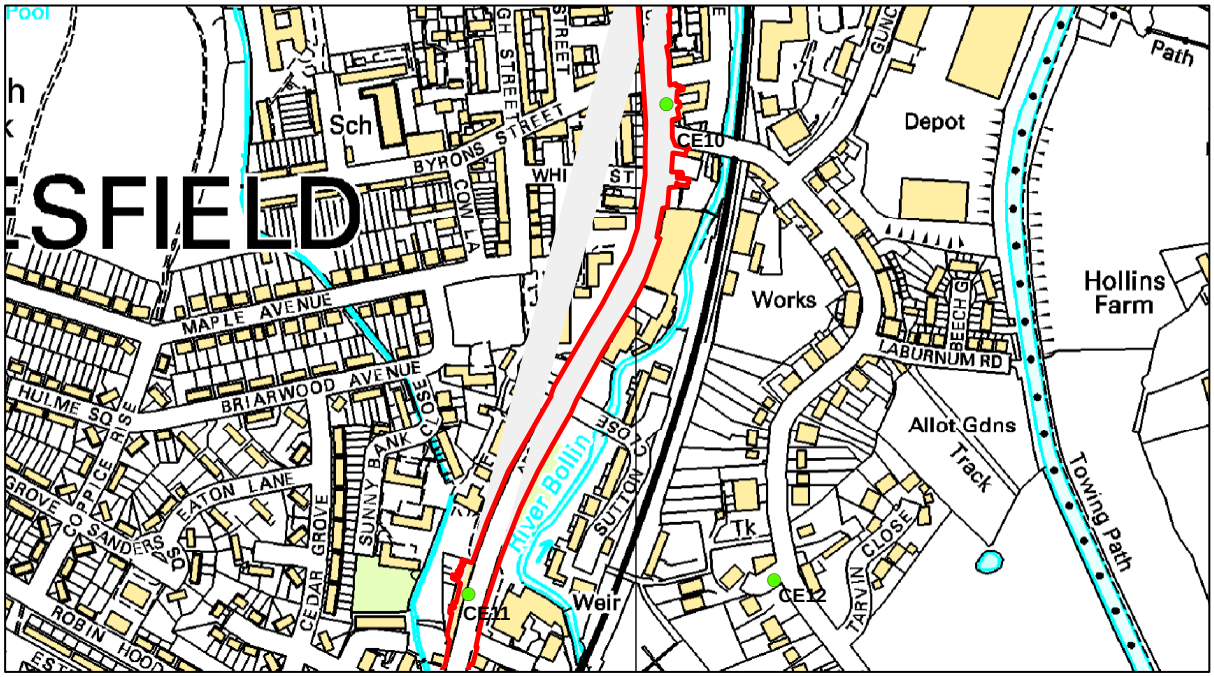


Figure D.49 – London Road Macclesfield AQMA (South)

Appendix E: AQMA Revocation Detailed Assessments

E1 Detailed Assessment A50 Manchester Road, Knutsford AQMA

1.0 Introduction

1.1 The A50 Manchester Road Air Quality Management Area (AQMA) was declared in 2017 along a section of the A50 Manchester Road, Knutsford. The AQMA was declared for an exceedance of the nitrogen dioxide (NO_2) annual mean objective of 40µg/m^3. Figure E1.1 below shows the extent of the AQMA.

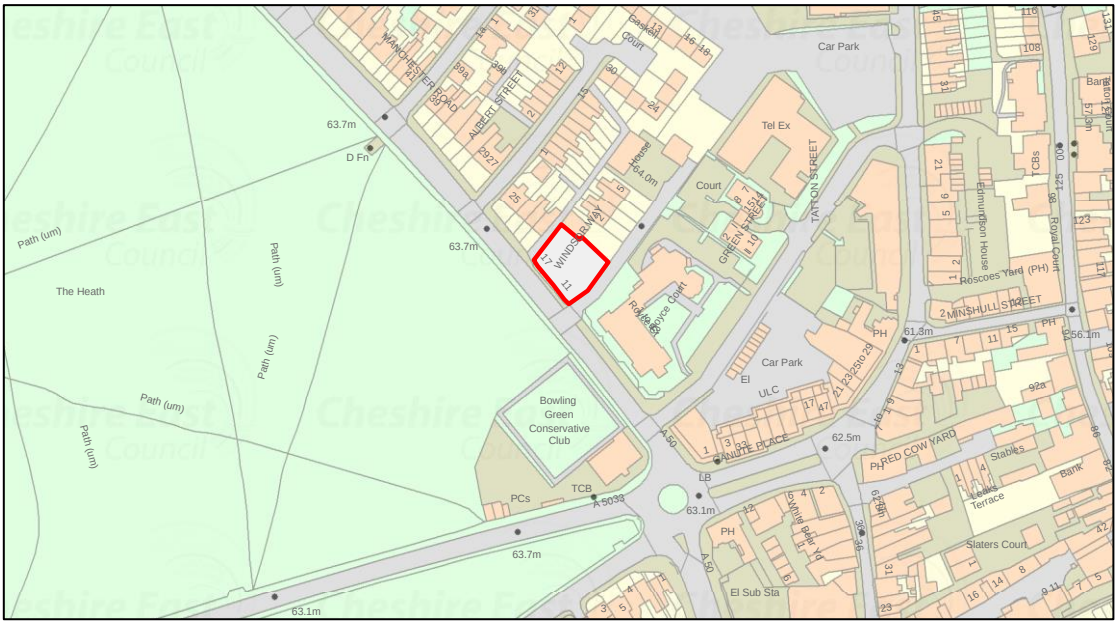


Figure E1.1 – A50 Manchester Road, Knutsford Air Quality Management Area

1.2 Since the declaration of the AQMA, NO_2 monitoring in the area has shown a gradual decrease in concentration and has now been consistently below the annual mean objective for three years. In line with our procedure and Defra Policy Guidance PG(16), Cheshire East Council will seek to revoke an AQMA when there has been at least three consecutive years of monitoring results below the relevant air quality objective.

2.0 Monitoring Data

2.1 Diffusion tube monitoring has been undertaken along Manchester Road since the formation of Cheshire East Borough Council at roadside locations CE42, CE43, CE44, CE45, CE46 and CE47.

Sites CE43, CE44, CE45 and CE46 were removed at the end of 2014 either due to consistently low results or, in the case of CE46, due to there being no relevant receptors in the vicinity.

Figure E1.2 shows the location of the monitoring sites.

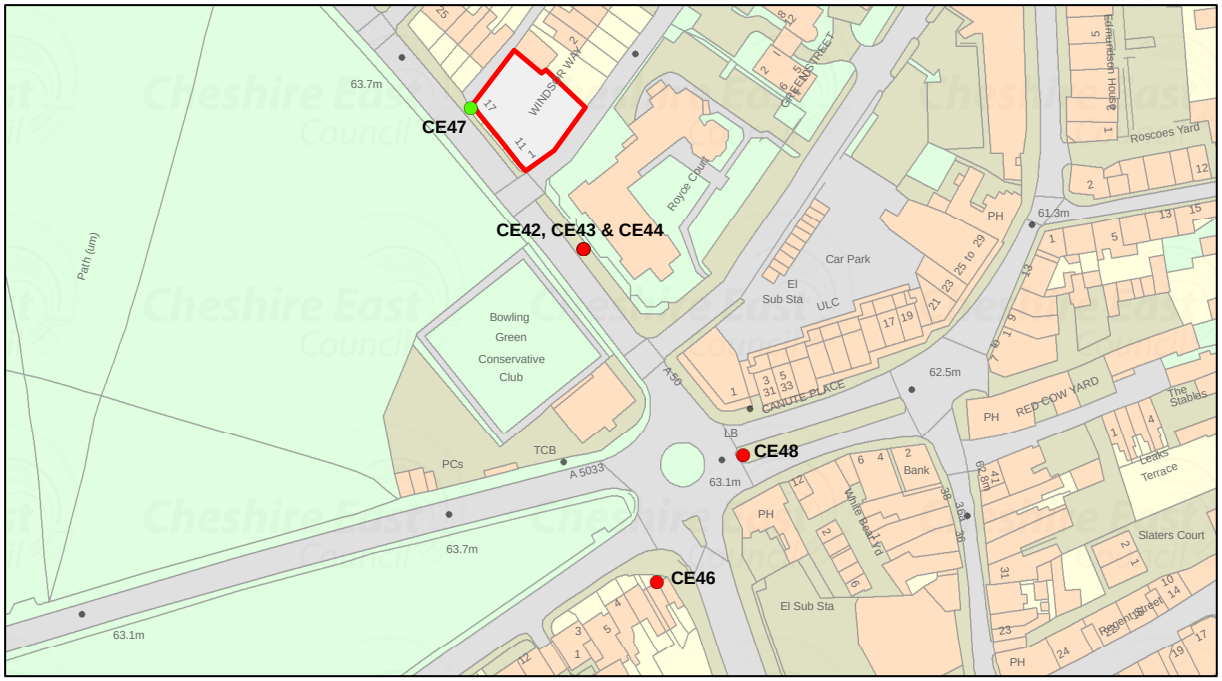


Figure E1.2 – Monitoring Sites on Manchester Road, Knutsford

2.2 Table E1.1 shows the NO_2 monitoring data for 2015 to 2019 for CE42 and CE47.

Site ID	Site Name	In AQMA?	2015 (µg/m^3) (0.87 Bias Factor)	2016 (µg/m^3) (0.92 Bias Factor)	2017 (µg/m^3) (0.87 Bias Factor)	2018 (µg/m^3) (0.92 Bias Factor)	2019 (µg/m^3) (0.93 Bias Factor)
CE42	RTA Manchester Road	N	29.55	32.89	26.84	25.05	28.03
CE47	17 Manchester Road	Y	35.21	**41.70**	32.80	31.31	30.08

Table E1.1 – Monitoring Data 2015 to 2019 A50 Manchester Road, Knutsford AQMA

3.0 Discussion

3.1 The data as presented in Table E1.1 demonstrates that NO_2 levels in 2017 were below the air quality objective of 40 µg/m^3 (as an annual mean) at the properties within the AQMA boundary and have been in subsequent years.

The national concentrations for nitrogen dioxide have also seen a downward trend, as can be seen in Figure E1.3. The monitoring results across Cheshire East also show a similar trend.

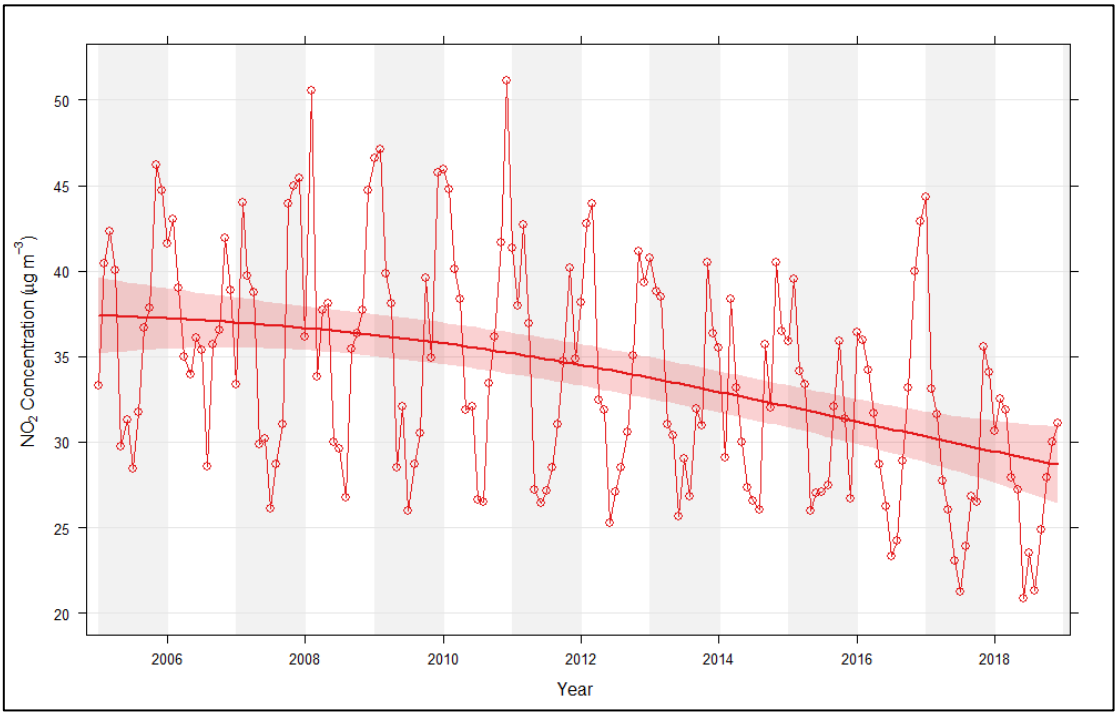


Figure E1.3 – Overall NO_2 Trend across All UK Sites and Smooth Trend Fit, 2005-2018[1]

3.2 Given that atmospheric conditions can influence nitrogen dioxide concentrations it is worth reviewing recent annual averages to ensure the decrease in concentrations have not been adversely affected by meteorogy.

Having reviewed the average monthly temperatures (see Figures E1.4 and E1.5) for 2017, 2018 and 2019 it is evident that 2018 could potentially be considered as an anomalous year. Taking the months of February and July as examples, it can be seen that the average temperature was colder during February in 2018 than in the other years and higher during July. Whilst 2018

stands out as an anomalous year for mean daily temperatures, the concentrations of nitrogen dioxide within the A50 Manchester Road AQMA continued to decrease which would lead to the conclusion that the decrease is not due to temperature changes.

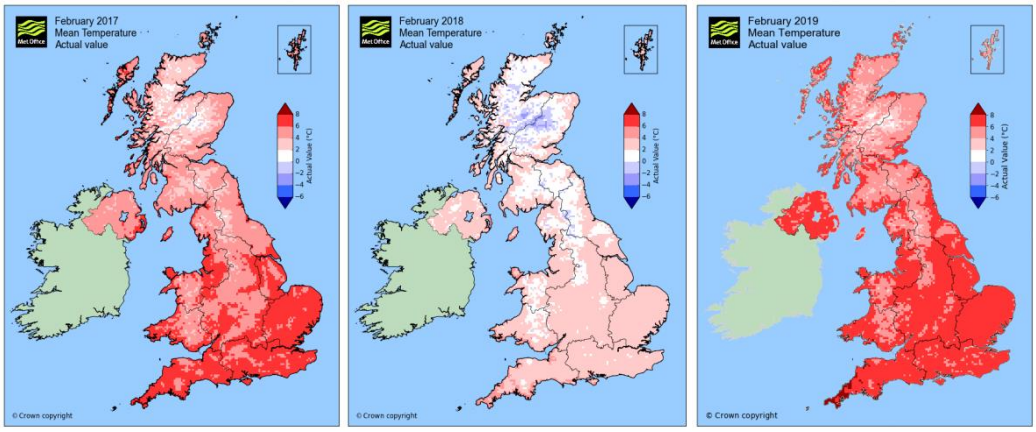


Figure E1.4 – Monthly Average Temperatures – February 2017 - 2019[2]

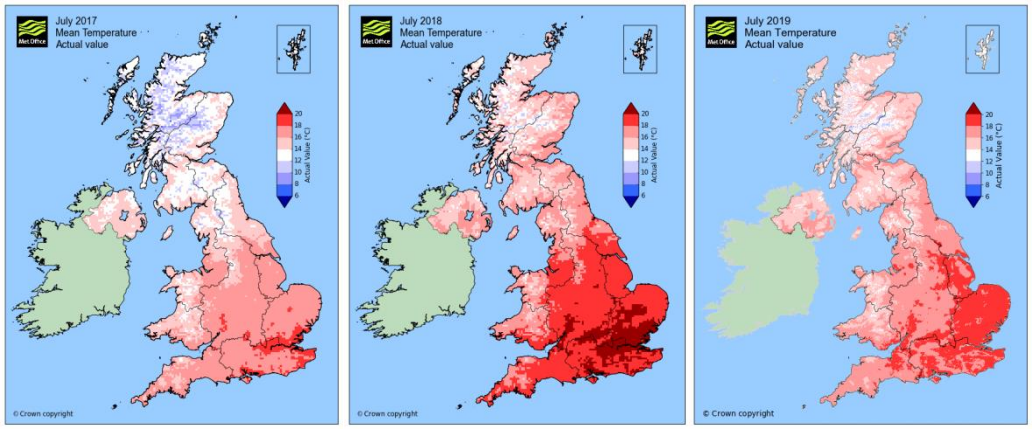


Figure E1.5 – Monthly Average Temperatures – July 2017 - 2019[2]

3.3 Having reviewed the traffic data for the A50 from a location adjacent to the junction with Green Lane to the North of the AQMA, it can also be noted that the Annual Average Daily Traffic (AADT) counts have gradually increased over recent years (see Figure E1.6). This would lead to the conclusion that the actual numbers of vehicular movements have not influenced the decrease in NO_2 concentrations.

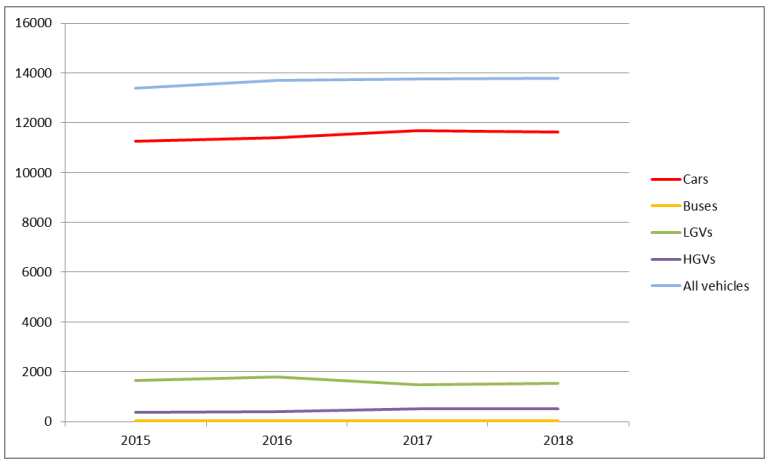


Figure E1.6 – Annual Average Daily Traffic Counts – 2015 – 2018[3]

3.4 The decrease in concentrations could be as a result of improvements made in vehicular emissions over recent years. As older, more polluting vehicles are withdrawn from the road and replaced with less polluting ones, this leads to a decrease in concentrations. It is for this reason that Cheshire East are confident that the NO_2 concentrations within the A50 Manchester Road AQMA will remain below the annual mean objective moving forwards.

3.5 Whilst the Council are seeking to revoke the AQMA it should be noted that some monitoring will continue within the area, to provide an ongoing picture. Furthermore, actions from within the 2018 – 2023 Air Quality Action Plan will continue to be implemented to try to help influence the reduction in concentrations.

4.0 Recommendation

4.1 Section 83(2) of the Environment Act 1995 makes provision for a local authority to revoke an existing Air Quality Management Area Order, as a result of a subsequent air quality review.

4.2 A review of the monitoring data has led to the conclusion that there is no longer a requirement for the Air Quality Management Area. Therefore, the Council will commence the process of revoking the AQMA.

5.0 References

1. Air Quality Consultants – “Nitrogen Dioxide and Nitrogen Oxides Trends in the UK 2005 to 2018”, October 2019
2. Met Office - https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-actual-and-anomaly-maps
3. Department for Transport - https://roadtraffic.dft.gov.uk/#16/53.3161/-2.3905/basemap-countpoints

E2 Detailed Assessment A556 Chester Road, Mere AQMA

1.0 Introduction

1.1 The A556 Chester Road Air Quality Management Area (AQMA) was declared in 2008 along a section of the former A556 Chester Road, Mere. The AQMA was declared for an exceedance of the nitrogen dioxide (NO_2) annual mean objective of 40µg/m^3. Figure E2.1 below shows the extent of the AQMA.

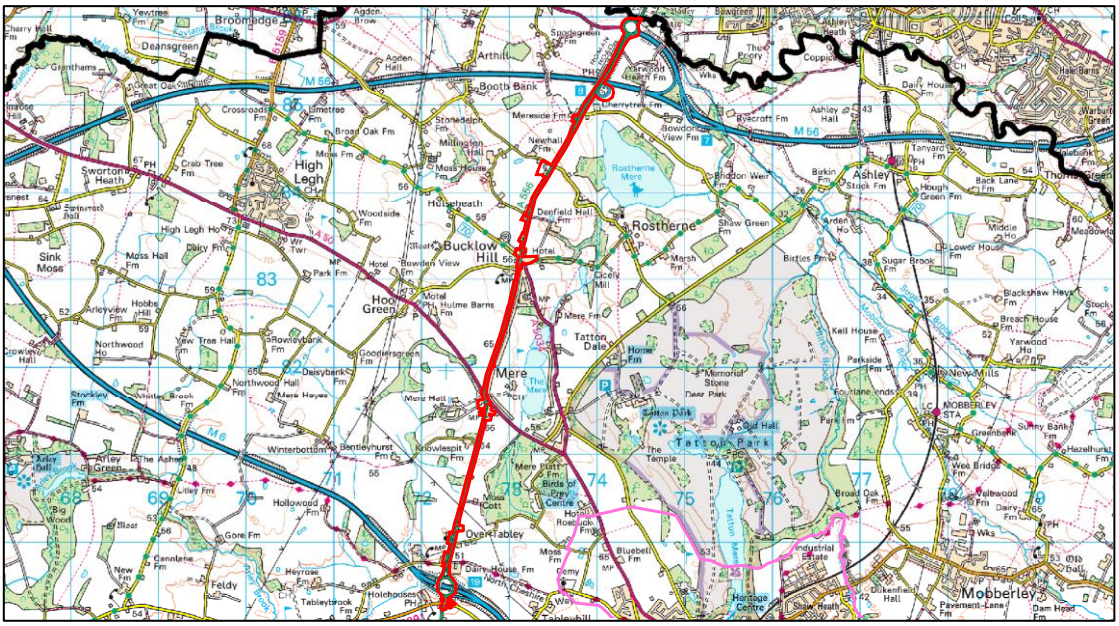


Figure E2.1 – A556 Chester Road, Mere Air Quality Management Area

1.2 Since the declaration of the AQMA, a new bypass has been constructed (now referred to as the A556) and completed in March 2017. Consequently, the levels of traffic through the AQMA have decreased significantly. NO_2 monitoring in the area has reflected this decrease and has now been consistently below the annual mean objective for three years. Further improvement works are also planned for the area around junction 19 of the M6 to reduce the queuing at the traffic lights. In line with our procedure and Defra Policy Guidance PG(16), Cheshire East Borough Council will seek to revoke an AQMA when there has been at least three consecutive years of monitoring results below the relevant air quality objective.

2.0 Monitoring Data

2.1 Diffusion tube monitoring has been undertaken along Chester Road since 2008 at a mixture of roadside and rural sites CE48, CE49, CE50, CE54, CE55, CE56, CE57, CE60, CE61, CE62, CE63, CE64, CE77, CE78, CE84, CE287, CE292, CE300 and CE301.

Sites CE49, CE56 and CE60 were removed at the end of 2014 due to there being other tubes in the vicinity providing equivalent data.

Figure E2.2 shows the location of the monitoring sites.

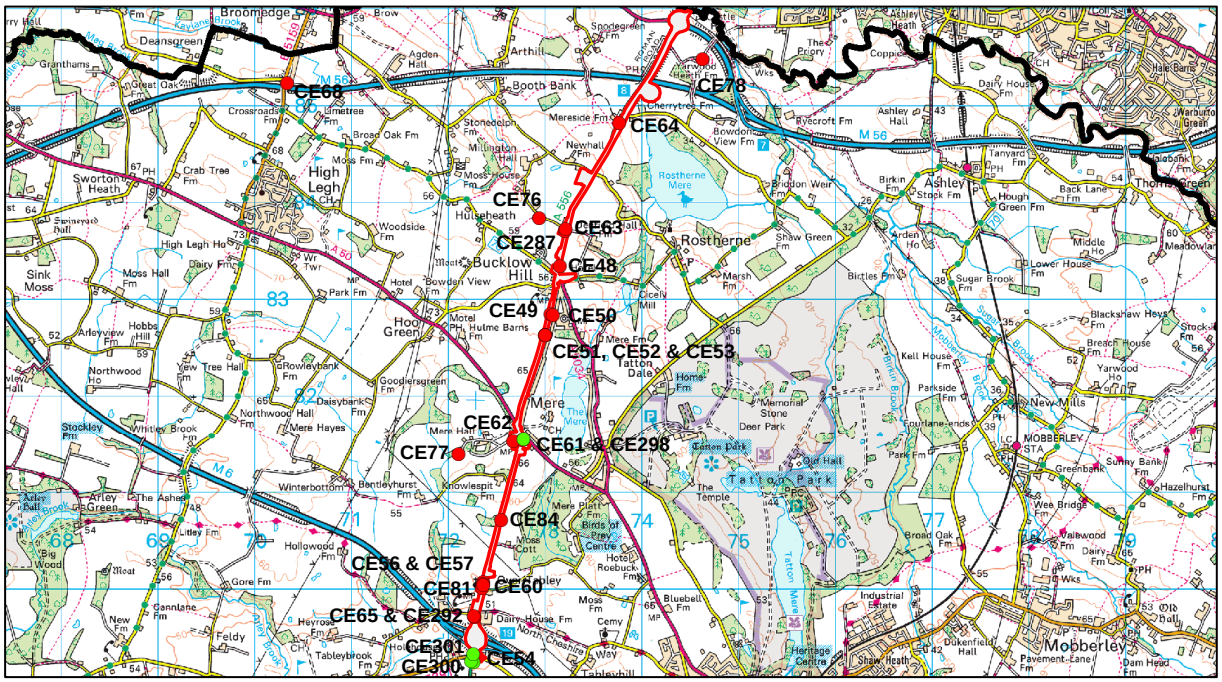


Figure E2.2 – Monitoring Sites on A556 Chester Road, Mere

2.2 Table E2.1 shows the NO_2 monitoring data for 2015 to 2019.

Site ID	Site Name	In AQMA?	2015 (µg/m^3) (0.87 Bias Factor)	2016 (µg/m^3) (0.92 Bias Factor)	2017 (µg/m^3) (0.87 Bias Factor)	2018 (µg/m^3) (0.92 Bias Factor)	2019 (µg/m^3) (0.93 Bias Factor)
CE48	Holly Tree Cottage	Y	36.80	**50.20**	-	-	-
CE50	Westholme, Mere	Y	23.88	23.81	17.46	-	-
CE54	Almond Tree Cottage	Y	**40.01**	**40.94**	38.45	33.79	32.25
CE55	Old Hall Lane, Over Tabley	Y	**50.76**	**52.98**	39.87	-	-

Site ID	Site Name	In AQMA?	2015 (µg/m^3) (0.87 Bias Factor)	2016 (µg/m^3) (0.92 Bias Factor)	2017 (µg/m^3) (0.87 Bias Factor)	2018 (µg/m^3) (0.92 Bias Factor)	2019 (µg/m^3) (0.93 Bias Factor)
CE57	Cobblestones	Y	**50.76**	**52.98**	35.37	-	-
CE61	Mere Corner Cottage	Y	**42.52**	**41.84**	21.37	-	-
CE62	Mere Home Farm	N	18.50	20.57	13.54	-	-
CE63	Old Smithy Cottage	Y	29.77	32.92	21.55	-	-
CE64	Mereside Farm, Chester Road	Y	25.24	27.44	22.79	23.26	23.21
CE77	Kenilworth Cottage	N	13.30	15.46	15.54	14.91	14.22
CE78	Yarwood Heath Farm, Yarwood Heath Lane	N	20.33	22.20	19.91	-	-
CE84	Tollbar Cottage	Y	**45.79**	**45.81**	24.84	-	-
CE287	Old Smithy Cottage, Millington Hall Lane (replaced CE63 in 2017)	Y	-	-	19.93	-	-
CE292	Dairy Farm Cottage, off Old Hall Lane (replaced CE55 in 2017)	Y	-	-	35.13	26.10	26.03
CE300	The Grove Cottage, Tabley	Y	-	-	-	34.29	32.17
CE301	The Windmill pub, Tabley	Y	-	-	-	32.85	31.41

Table E2.1 – Monitoring Data 2015 to 2019 A556 Chester Road, Mere AQMA

3.0 Discussion

3.1 The data as presented in Table E2.1 demonstrates that NO_2 levels in 2017 were below the air quality objective of 40 µg/m^3 (as an annual mean) at the properties within the AQMA boundary. This is primarily due to the new bypass being opened and the vast majority of the traffic now using this road rather than the former A556 Chester Road. These concentrations have remained below the objective in subsequent years. Some sites such as CE55 were stopped due to the street furniture being removed as part of the de-trunking work around the former A556. These were replaced, where possible, at the nearest receptor to the original location, again taking CE55 as an example,

which was replaced with CE292. This was to further monitor the effects of the new bypass on the AQMA for comparison purposes at the same receptors.

The new A556 bypass being in place is the main reason that Cheshire East are confident that the NO_2 concentrations within the A556 Chester Road AQMA will remain below the annual mean objective moving forward.

3.2 The national concentrations for nitrogen dioxide have also seen a downward trend, as can be seen in Figure E2.3. The monitoring results across Cheshire East also show a similar trend. This trend further reinforces the belief that the concentrations within the A556 Chester Road AQMA will remain below the objective. The continual decrease in concentrations could be as a result of improvements made in vehicular emissions over recent years. As older, more polluting vehicles are withdrawn from the road and replaced with less polluting ones, leading to a decrease in concentrations.

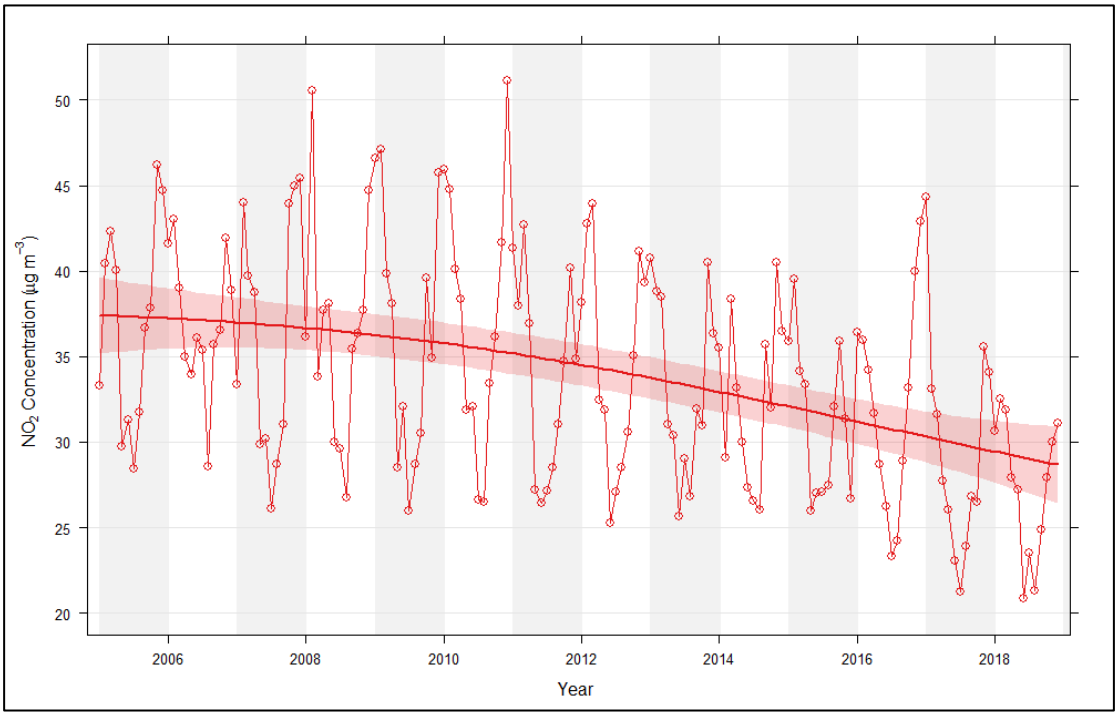


Figure E2.3 – Overall NO_2 Trend across All UK Sites and Smooth Trend Fit, 2005-2018[1]

3.3 Whilst the Council are seeking to revoke the AQMA it should be noted that some monitoring will continue within the area, to provide an ongoing picture. Furthermore, actions from within the 2018 – 2023 Air Quality Action Plan will

continue to be implemented to try to help influence the reduction in concentrations.

4.0 Recommendation

4.1 Section 83(2) of the Environment Act 1995 makes provision for a local authority to revoke an existing Air Quality Management Area Order, as a result of a subsequent air quality review.

4.2 A review of the monitoring data has led to the conclusion that there is no longer a requirement for the Air Quality Management Area. Therefore, the Council will commence the process of revoking the AQMA.

5.0 References

1. Air Quality Consultants – “Nitrogen Dioxide and Nitrogen Oxides Trends in the UK 2005 to 2018”, October 2019

E3 Detailed Assessment Earle Street, Crewe AQMA

1.0 Introduction

1.1 The Earle Street Air Quality Management Area (AQMA) was declared in 2010 (amended in 2012) along a section of the A532 Earle Street, Crewe. The AQMA was declared for an exceedance of the nitrogen dioxide (NO_2) annual mean objective of 40µg/m^3. Figure E3.1 below shows the extent of the AQMA.

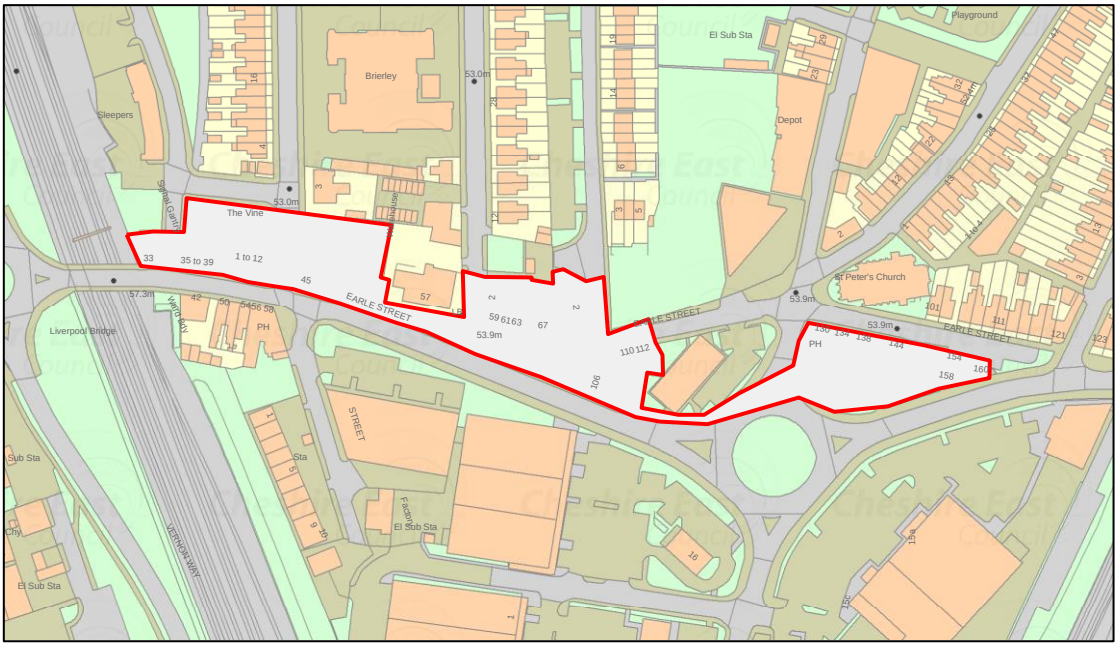


Figure E3.1 – Earle Street, Crewe Air Quality Management Area

1.2 Since the declaration of the AQMA, NO_2 monitoring in the area has shown a gradual decrease in concentration and has now been consistently below the annual mean objective for five years. In line with our procedure and Defra Policy Guidance PG(16), Cheshire East Borough Council will seek to revoke an AQMA when there has been at least three consecutive years of monitoring results below the relevant air quality objective.

2.0 Monitoring Data

2.1 Diffusion tube monitoring has been undertaken along Earle Street since the formation of Cheshire East Borough Council at sites CE224, CE225 and CE226.

Site CE226 was removed at the end of 2016 due to there being other tubes in the vicinity providing equivalent data. Locations CE303 and CE304 were added in 2018 to provide supplementary data points.

Figure E3.2 shows the location of the monitoring sites.

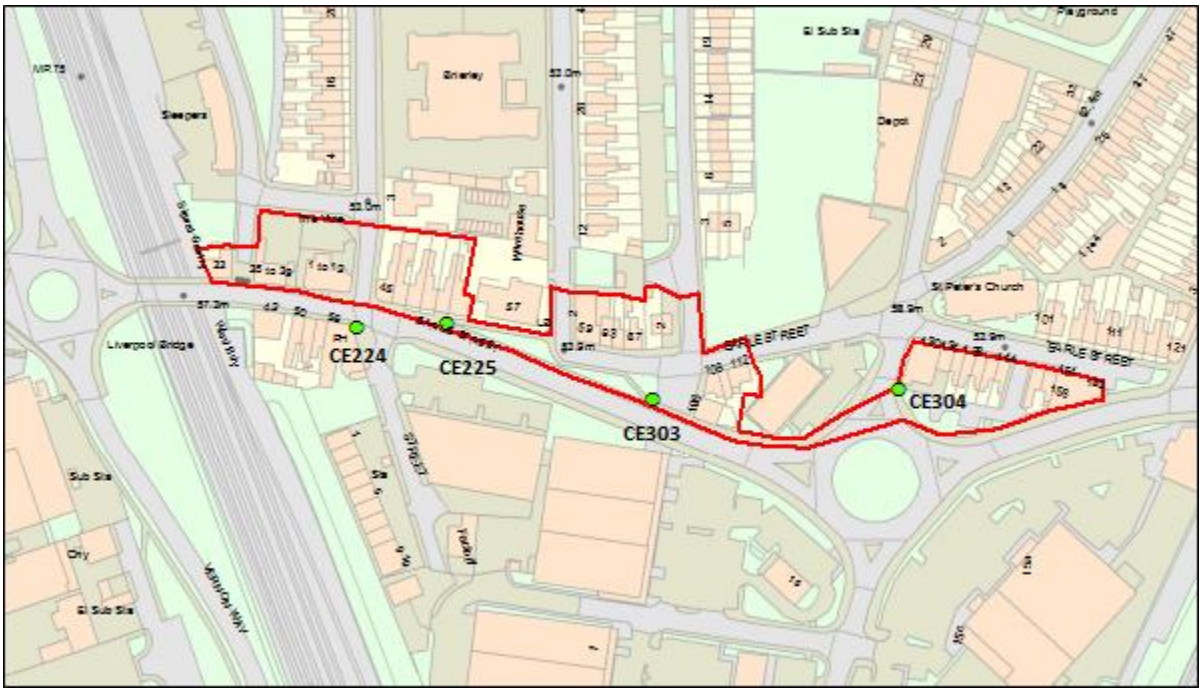


Figure E3.2 – Monitoring Sites on Earle Street, Crewe

2.2 Table E3.1 shows the NO_2 monitoring data for 2015 to 2019 for each of the monitoring sites above.

Site ID	Site Name	In AQMA?	2015 (µg/m^3) (0.87 Bias Factor)	2016 (µg/m^3) (0.92 Bias Factor)	2017 (µg/m^3) (0.87 Bias Factor)	2018 (µg/m^3) (0.92 Bias Factor)	2019 (µg/m^3) (0.93 Bias Factor)
CE224	Outside King's Arms, Earle Street/Rainbow Street	Y	35.75	36.97	37.19	34.29	34.51
CE225	53/55 Earle Street	Y	33.92	35.08	29.07	27.79	33.46
CE226	101/103 Earle Street	Y	25.7	30.48	-	-	-
CE303	Burrows Store, Earle Street	Y	-	-	-	35.19	35.00
CE304	Rising Sun Vaults	Y	-	-	-	35.86	34.30

Table E3.1 – Monitoring Data 2015 to 2019 Earle Street, Crewe AQMA

3.0 Discussion

3.1 The data as presented in Table E3.1 demonstrates that NO_2 levels over the past five years have been below the air quality objective of 40 µg/m^3 (as an annual mean) at the properties within the AQMA boundary. The national concentrations for nitrogen dioxide have also seen a downward trend, as can be seen in Figure E3.3. The monitoring results across Cheshire East also show a similar trend.

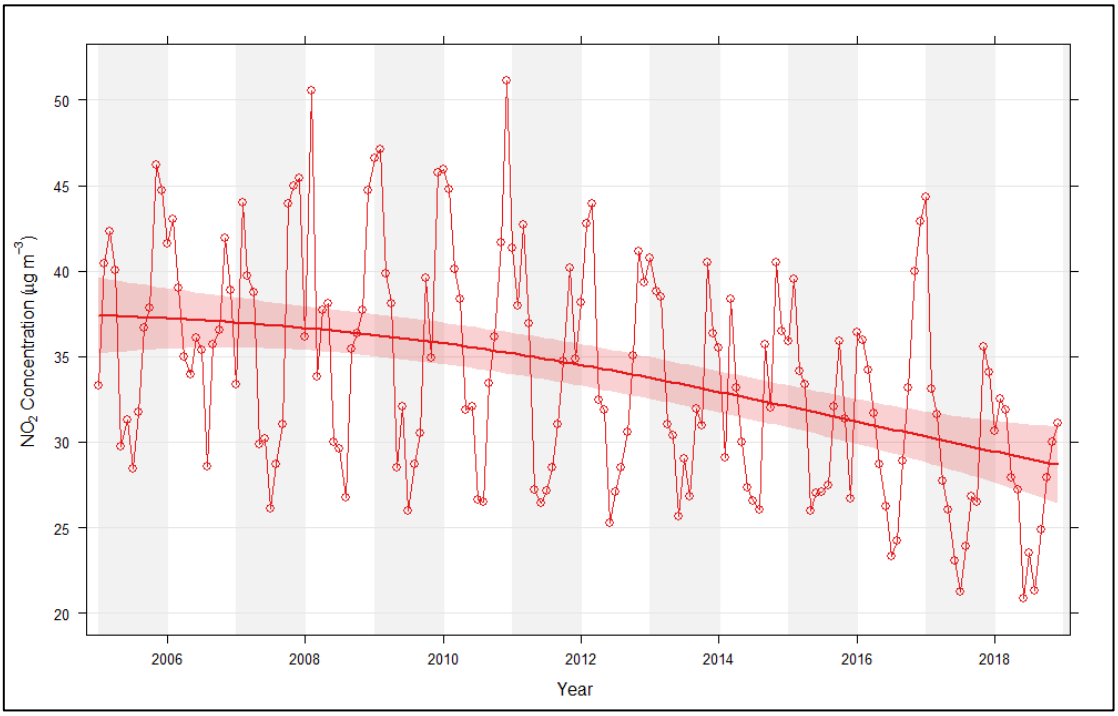


Figure E3.3 – Overall NO_2 Trend across All UK Sites and Smooth Trend Fit, 2005-2018[1]

3.2 Given that atmospheric conditions can influence nitrogen dioxide concentrations it is worth reviewing recent annual averages to ensure the decrease in concentrations have not been adversely affected.

Having reviewed the average monthly temperatures (see Figures E3.4 and E3.5) for 2017, 2018 and 2019 it is evident that 2018 could potentially be considered as an anomalous year. Taking the months of February and July as examples, it can be seen that the average temperature was colder during February in 2018 than in the other years and higher during July. Whilst 2018 stands out as an anomalous year for mean daily temperatures, the

concentrations of nitrogen dioxide within the Earle Street AQMA continued to decrease which would lead to the conclusion that the decrease is not due to temperature changes.

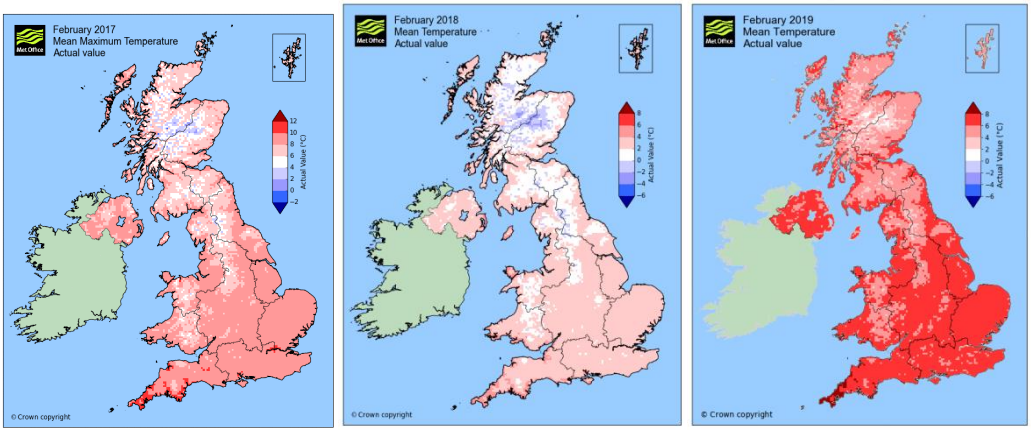


Figure E3.4 – Monthly Average Temperatures – February 2017 - 2019[2]

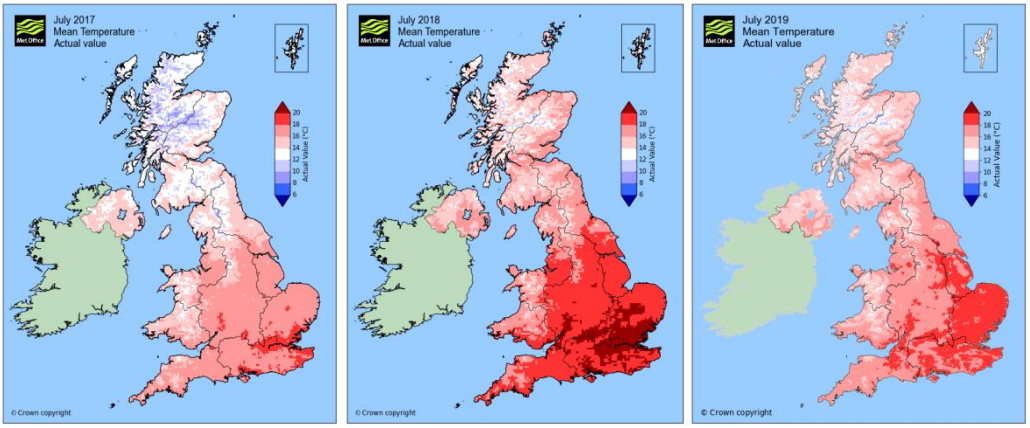


Figure E3.5 – Monthly Average Temperatures – July 2017 - 2019[2]

3.3 A review has been conducted of available traffic data (average annual daily flow data issued by the Department for Transport). The monitoring point is at the A532 between Vernon Way and Hungerford Road. The data, presented in Figure E3.6 below, shows that the decrease in nitrogen dioxide concentrations is not attributable to changes in traffic volumes, as no significant alterations to traffic volumes are shown.

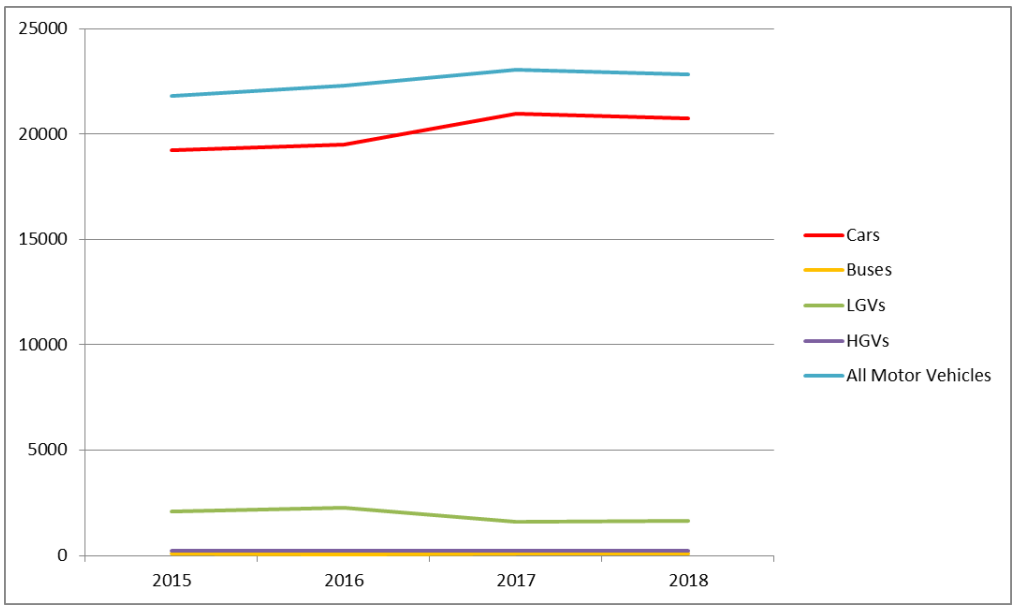


Figure E3.6 – Traffic Data 2015 to 2018 - Annual Average Daily Flow[3]

3.4 The decrease in concentrations could be as a result of improvements made in vehicular emissions over recent years. As older, more polluting vehicles are withdrawn from the road and replaced with less polluting ones, this leads to a decrease in concentrations. It is for this reason that Cheshire East are confident that the NO_2 concentrations within the Earle Street AQMA will remain below the annual mean objective moving forward.

3.5 Whilst the Council are seeking to revoke the AQMA it should be noted that some monitoring will continue within the area, to provide an ongoing picture. Furthermore, actions from within the 2018 – 2023 Air Quality Action Plan will continue to be implemented to try to help influence the reduction in concentrations.

4.0 Recommendation

4.1 Section 83(2) of the Environment Act 1995 makes provision for a local authority to revoke an existing Air Quality Management Area Order, as a result of a subsequent air quality review.

4.2 A review of the monitoring data has led to the conclusion that there is no longer a requirement for the Air Quality Management Area. Therefore, the Council will commence the process of revoking the AQMA.

5.0 References

1. Air Quality Consultants – “Nitrogen Dioxide and Nitrogen Oxides Trends in the UK 2005 to 2018”, October 2019
2. Met Office - https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-actual-and-anomaly-maps
3. DfT - https://roadtraffic.dft.gov.uk/manualcountpoints/80213

E4 Detailed Assessment Nantwich Road, Crewe AQMA

1.0 Introduction

1.1 The Nantwich Road Air Quality Management Area (AQMA) was declared in 2008 (amended in 2012) along a section of the A534 Nantwich Road, Crewe. The AQMA was declared for an exceedance of the nitrogen dioxide (NO_2) annual mean objective of 40µg/m^3. Figure E4.1 below shows the extent of the AQMA.

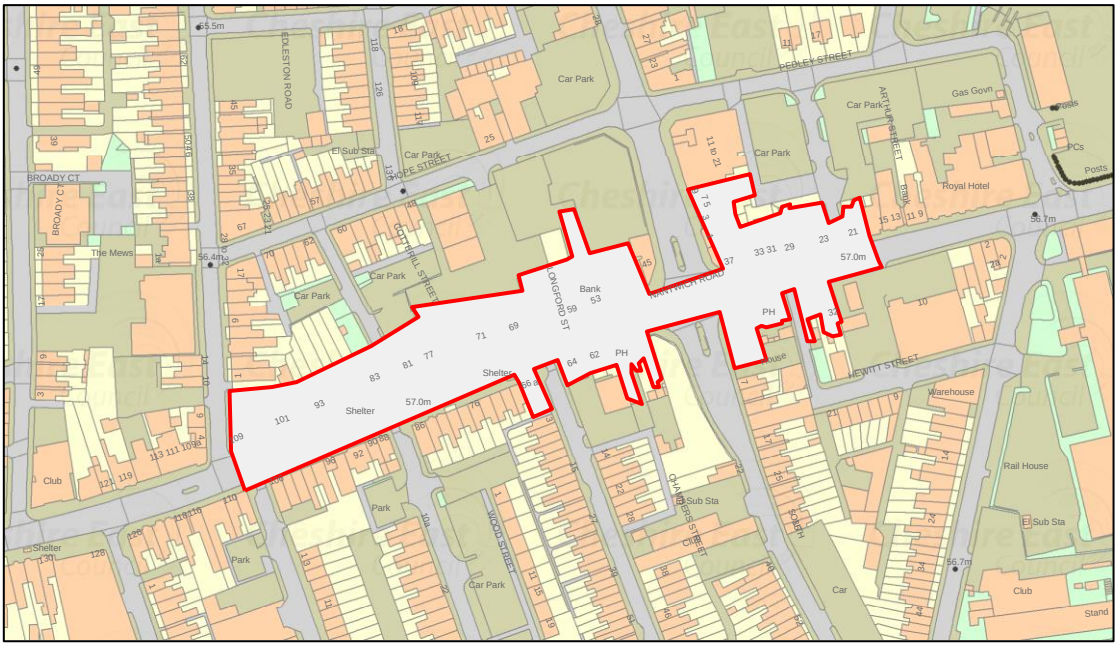


Figure E4.1 – Nantwich Road, Crewe Air Quality Management Area

1.2 Since the declaration of the AQMA, NO_2 monitoring in the area has shown a gradual decrease in concentration and has now been consistently below the annual mean objective for three years. The exception is location CE203 that exceeded the mean objective in 2016, however this location has since shown a steady decrease in NO_2 levels and the results from 2017 to 2019 have all been below the mean objective. In line with our procedure and Defra Policy Guidance PG(16), Cheshire East Borough Council will seek to revoke an AQMA when there has been at least three consecutive years of monitoring results below the relevant air quality objective.

2.0 Monitoring Data

2.1 Diffusion tube monitoring has been undertaken along and adjacent to Nantwich

Road since the formation of Cheshire East Borough Council at kerb and roadside locations CE203, CE204, CE206, CE207, CE208, CE212, CE235. Sites CE207 and CE208 were removed during 2014 due to no longer needing to co-locate tubes at this location.

Figure E4.2 shows the location of the monitoring sites.

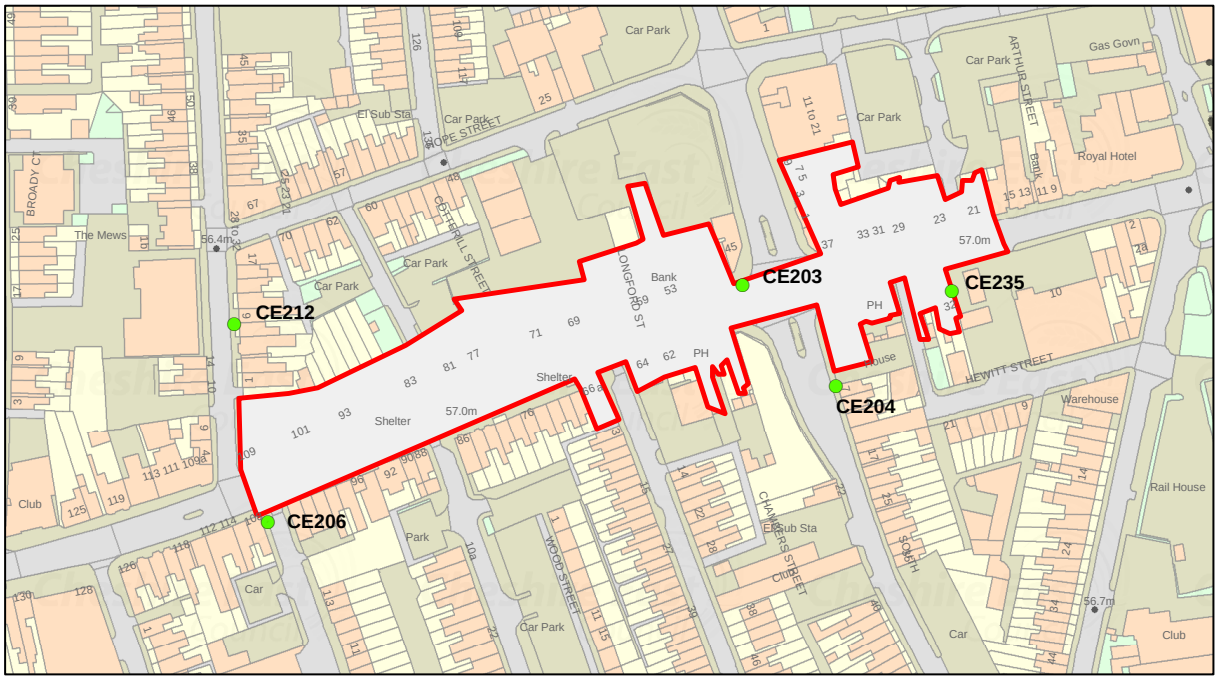


Figure E4.2 – Monitoring Sites on and adjacent to Nantwich Road, Crewe

2.2 Table E4.1 shows the NO_2 monitoring data for 2015 to 2019 for each of the monitoring sites above.

Site ID	Site Name	In AQMA?	2015 (µg/m^3) (0.87 Bias Factor)	2016 (µg/m^3) (0.92 Bias Factor)	2017 (µg/m^3) (0.87 Bias Factor)	2018 (µg/m^3) (0.92 Bias Factor)	2019 (µg/m^3) (0.93 Bias Factor)
CE203	NW Traffic Lights on Mill Street crossroads	Y	39.84	**41.21**	36.68	33.10	32.96
CE204	7 South Street	N	31.15	35.39	30.82	30.45	29.55
CE206	108 Nantwich Road/Edward Street	N	25.71	30.65	24.52	25.56	23.74
CE212	9 Edlestone Road	N	29.83	34.78	27.21	29.01	30.16
CE235	Go Green/32 Nantwich Road	Y	28.04	31.52	27.51	26.67	28.17

Table E4.1 – Monitoring Data 2015 to 2019 Nantwich Road AQMA

3.0 Discussion

3.1 The data as presented in Table E4.1 demonstrates that NO_2 levels were below the air quality objective of 40 µg/m^3 (as an annual mean) at the properties within the AQMA boundary for the last five years. The exception is location CE203 that recorded an exceedance in 2016, however a notable decrease in NO_2 levels over the last three years have since been recorded at this location and it is unlikely that the objective will be breached again. The national concentrations for nitrogen dioxide have also seen a downward trend, as can be seen in Figure E4.3. The monitoring results across Cheshire East also show a similar trend.

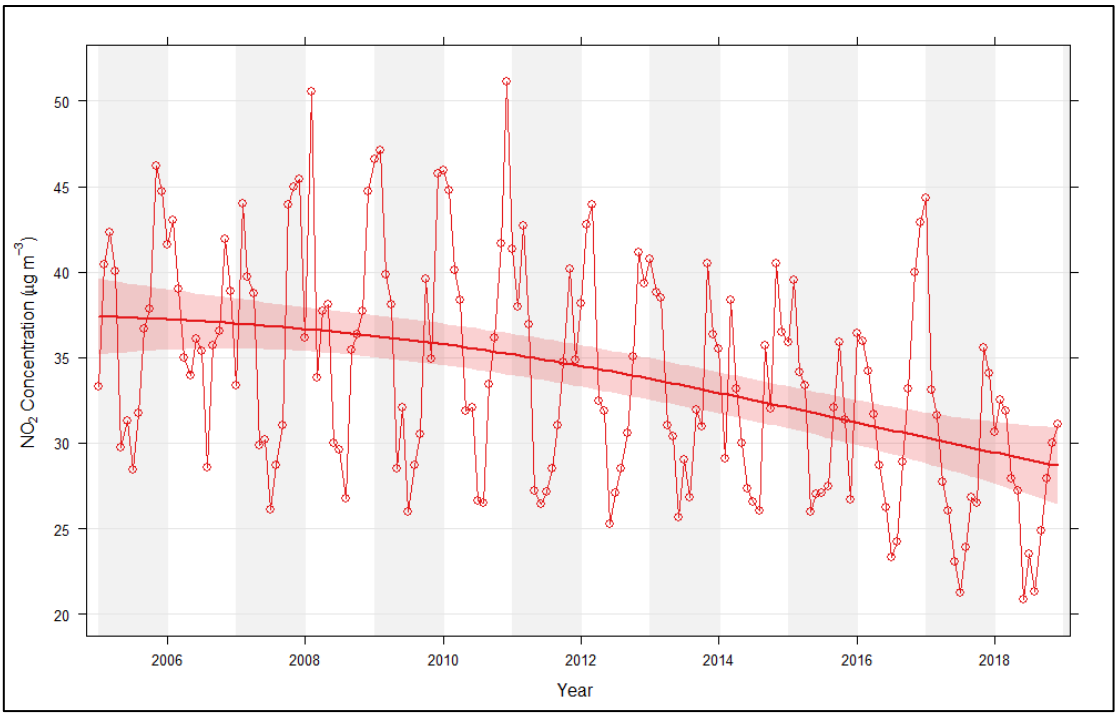


Figure E4.3 – Overall NO_2 Trend across All UK Sites and Smooth Trend Fit, 2005-2018[1]

3.2 Given that atmospheric conditions can influence nitrogen dioxide concentrations it is worth reviewing recent annual averages to ensure the decrease in concentrations have not been adversely affected.

Having reviewed the average monthly temperatures for 2017, 2018 and 2019 it is evident that 2018 could potentially be considered as an anomalous year. Taking the months of February and July as examples, it can be seen that the

average temperature was colder during February in 2018 than in the other years and higher during July. Whilst 2018 stands out as an anomalous year for mean daily temperatures, the concentrations of nitrogen dioxide within Nantwich Road AQMA broadly decreased which would lead to the conclusion that the decrease is not due to temperature changes.

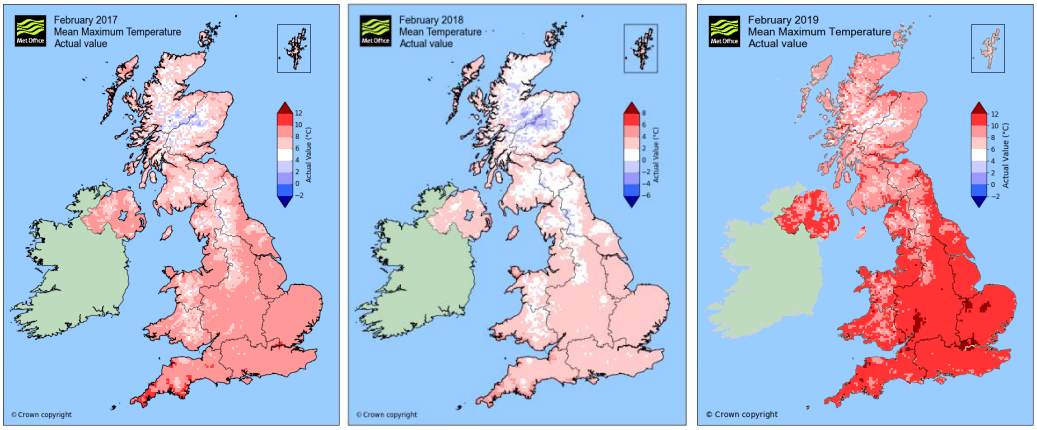


Figure E4.4 – Monthly Average Temperatures – February 2017 - 2019[2]

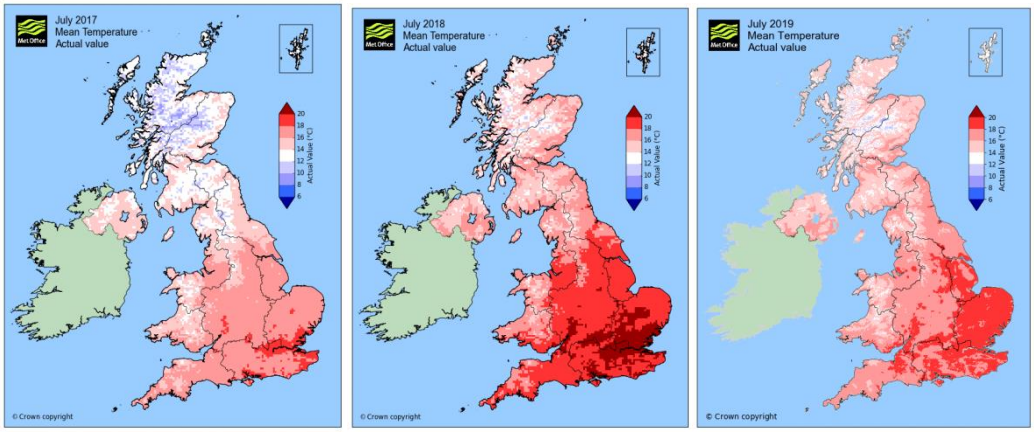


Figure E4.5 – Monthly Average Temperatures – July 2017 - 2019[2]

3.3 A review has been conducted of available traffic data (average annual daily flow data issued by the Department for Transport). The monitoring point is on Nantwich Road between the A5078 and the A5109. The data, presented in Figure E4.6 below, shows that the decrease in nitrogen dioxide concentrations is not attributable to changes in traffic volumes as no significant alterations to traffic volumes are shown.

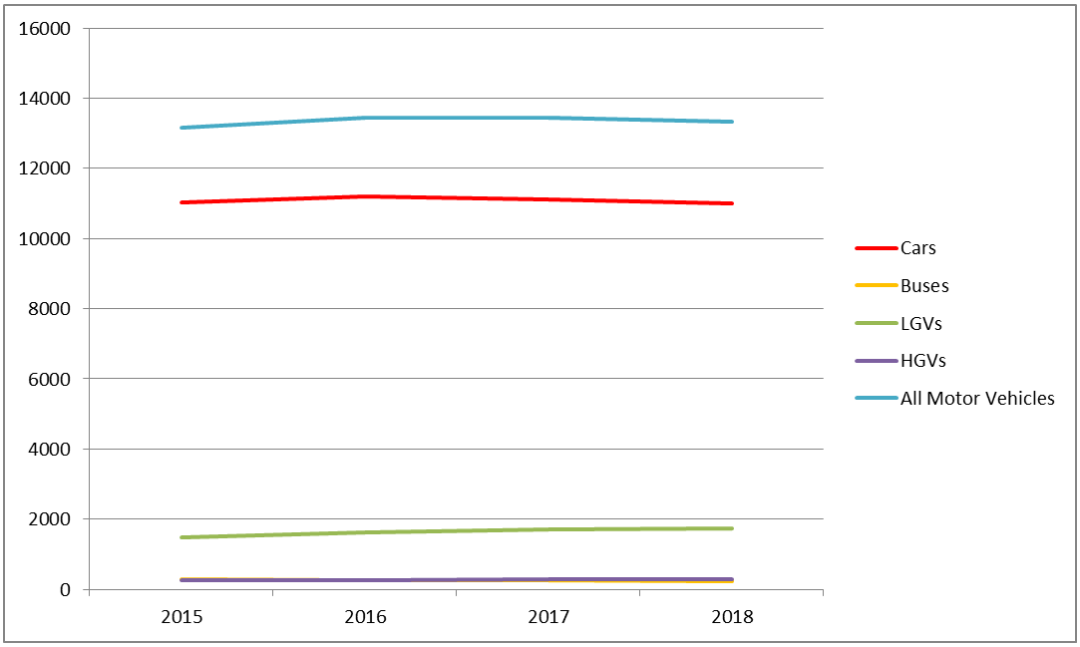


Figure E4.6 – Traffic Data 2015 to 2018 - Annual Average Daily Flow[3]

3.4 The decrease in concentrations could be as a result of improvements made in vehicular emissions over recent years. As older, more polluting vehicles are withdrawn from the road and replaced with less polluting ones, this leads to a decrease in concentrations. It is for this reason that Cheshire East are confident that the NO_2 concentrations within the Nantwich Road AQMA will remain below the annual mean objective moving forward.

3.5 Whilst the Council are seeking to revoke the AQMA it should be noted that some monitoring will continue within the area, to provide an ongoing picture. Furthermore, actions from within the 2018 – 2023 Air Quality Action Plan will continue to be implemented to try to help influence the reduction in concentrations.

4.0 Recommendation

4.1 Section 83(2) of the Environment Act 1995 makes provision for a local authority to revoke an existing Air Quality Management Area Order, as a result of a subsequent air quality review.

4.2 A review of the monitoring data has led to the conclusion that there is no longer a requirement for the Air Quality Management Area. Therefore, the Council will commence the process of revoking the AQMA.

5.0 References

1. Air Quality Consultants – “Nitrogen Dioxide and Nitrogen Oxides Trends in the UK 2005 to 2018”, October 2019
2. Met Office - https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-actual-and-anomaly-maps
3. DfT - https://roadtraffic.dft.gov.uk/manualcountpoints/75176

E5 Detailed Assessment Wistaston Road, Crewe AQMA

1.0 Introduction

1.1 The Wistaston Road Air Quality Management Area (AQMA) was declared in 2011 along a section of Wistaston Road, Crewe. The AQMA was declared for an exceedance of the nitrogen dioxide (NO_2) annual mean objective of 40µg/m^3. Figure E5.1 below shows the extent of the AQMA.

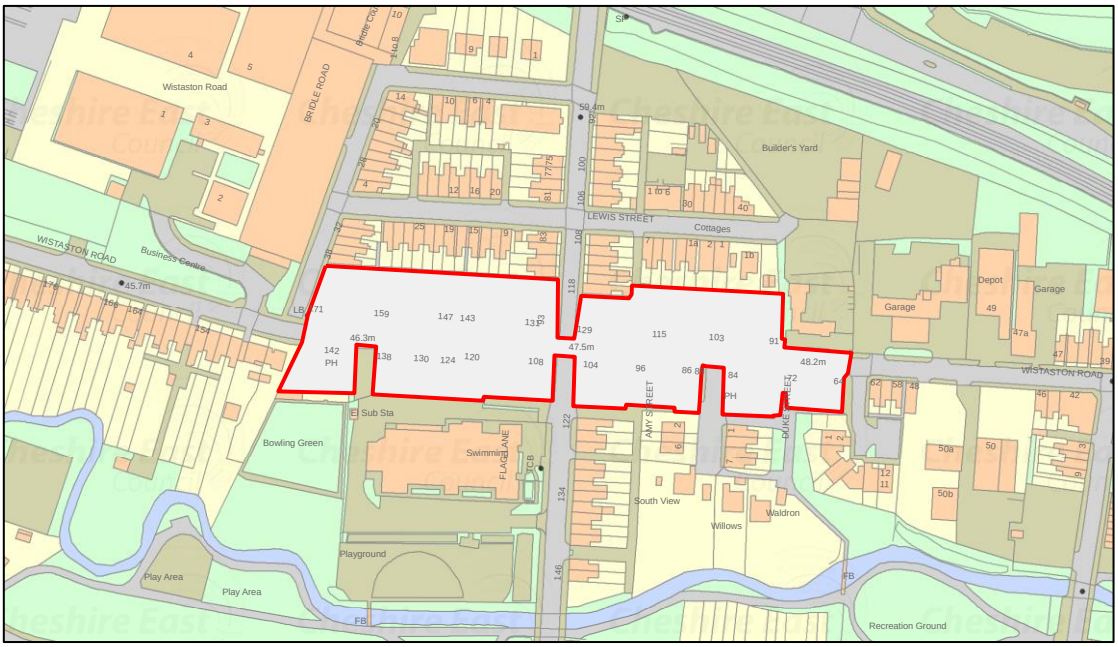


Figure E5.1 – Wistaston Road, Crewe Air Quality Management Area

1.2 Since the declaration of the AQMA, NO_2 monitoring in the area has shown a gradual decrease in concentration and has now been consistently below the annual mean objective for five years. In line with our procedure and Defra Policy Guidance PG(16), Cheshire East Borough Council will seek to revoke an AQMA when there has been at least three consecutive years of monitoring results below the relevant air quality objective.

2.0 Monitoring Data

2.1 Diffusion tube monitoring has been undertaken along and adjacent to Wistaston Road since the formation of Cheshire East Borough Council at kerb and roadside locations CE229, CE230, CE232 and CE239.

Site CE229 was removed during 2013 due to the street furniture it was located on being removed.

Figure E5.2 shows the location of the monitoring sites.

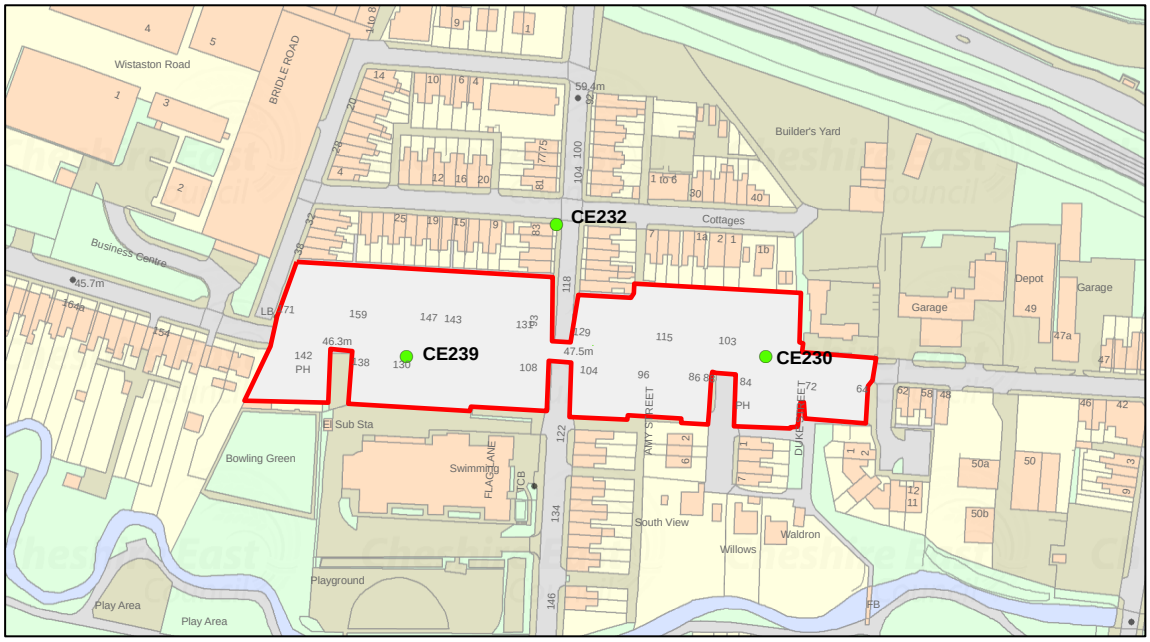


Figure E5.2 – Monitoring Sites on and adjacent to Wistaston Road, Crewe

2.2 Table E5.1 shows the NO_2 monitoring data for 2015 to 2019 for those tubes active during that period.

Site ID	Site Name	In AQMA?	2015 (µg/m^3) (0.87 Bias Factor)	2016 (µg/m^3) (0.92 Bias Factor)	2017 (µg/m^3) (0.87 Bias Factor)	2018 (µg/m^3) (0.92 Bias Factor)	2019 (µg/m^3) (0.93 Bias Factor)
CE230	95/97 Wistaston Road	Y	26.40	29.30	24.44	23.31	31.27
CE232	83 Flag Lane	N	34.67	36.21	31.82	30.06	33.41
CE239	128/130 Wistaston Road	Y	32.17	36.26	29.16	27.73	31.38

Table E5.1 – Monitoring Data 2015 to 2019 Wistaston Road, Crewe AQMA

3.0 Discussion

3.1 The data as presented in Table E5.1 demonstrates that NO_2 levels over the past five years were below the air quality objective of 40 µg/m^3 (as an annual mean) at the properties within the AQMA boundary.

The national concentrations for nitrogen dioxide have also seen a downward trend, as can be seen in Figure E5.3. The monitoring results across Cheshire East also show a similar trend.

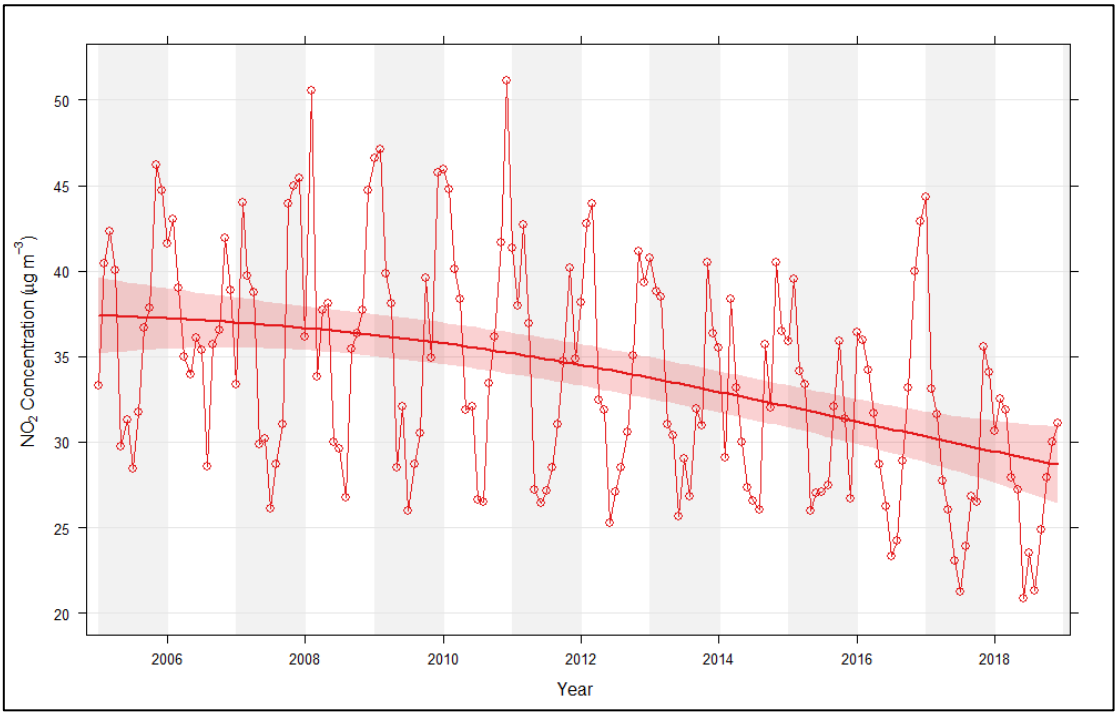


Figure E5.3 – Overall NO_2 Trend across All UK Sites and Smooth Trend Fit, 2005-2018[1]

3.2 Given that atmospheric conditions can influence nitrogen dioxide concentrations it is worth reviewing recent annual averages to ensure the decrease in concentrations have not been adversely affected.

Having reviewed the average monthly temperatures (see Figures E5.4 and E5.5) for 2017, 2018 and 2019 it is evident that 2018 could potentially be considered as an anomalous year. Taking the months of February and July as examples, it can be seen that the average temperature was colder during February in 2018 than in the other years and higher during July. Whilst 2018 stands out as an anomalous year for mean daily temperatures, the concentrations of nitrogen dioxide within the Wistaston Road AQMA continued to decrease which would lead to the conclusion that the decrease is not due to temperature changes.

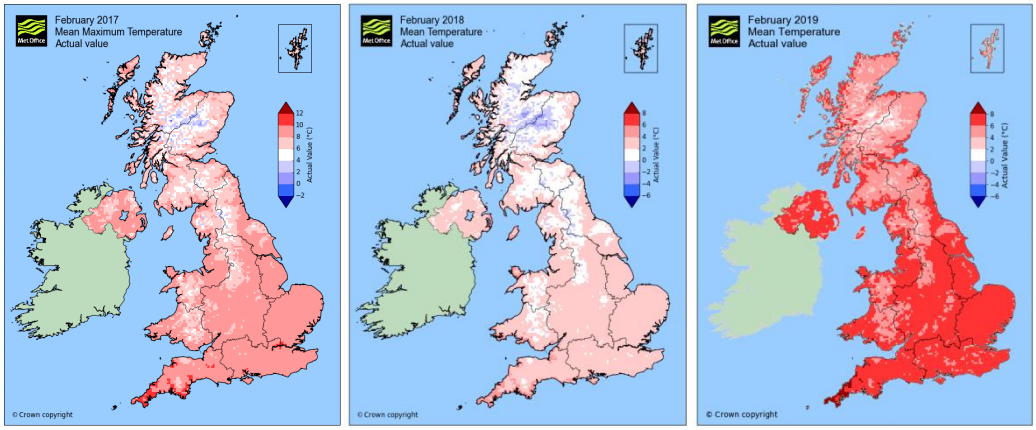


Figure E5.4 – Monthly Average Temperatures – February 2017 - 2019[2]

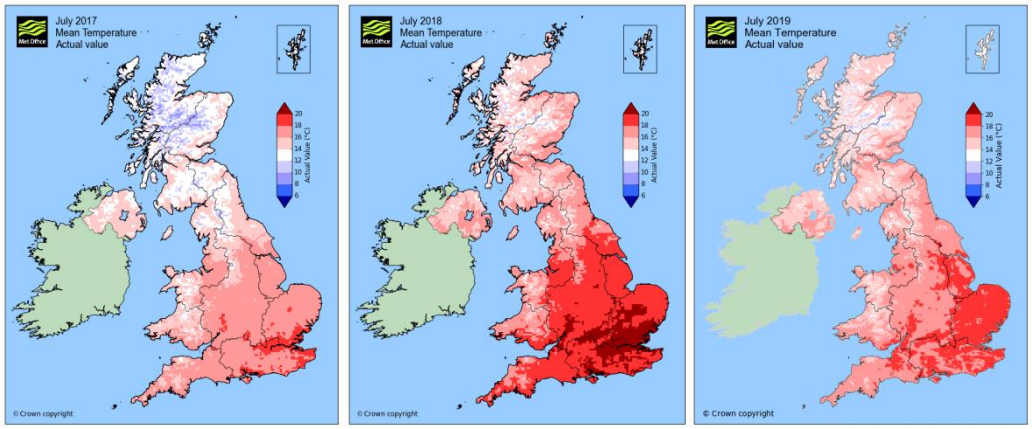


Figure E5.5 – Monthly Average Temperatures – July 2017 - 2019[2]

3.3 The decrease in concentrations could be as a result of improvements made in vehicular emissions over recent years. As older, more polluting vehicles are withdrawn from the road and replaced with less polluting ones, this leads to a decrease in concentrations. It is for this reason that Cheshire East are confident that the NO_2 concentrations within the Wistaston Road AQMA will remain below the annual mean objective moving forward

3.4 Whilst the Council are seeking to revoke the AQMA it should be noted that some monitoring will continue within the area, to provide an ongoing picture. Furthermore, actions from within the 2018 – 2023 Air Quality Action Plan will continue to be implemented to try to help influence the reduction in concentrations.

3.5 Recent monitored traffic data is not available for the AQMA so has not been considered for this assessment.

4.0 Recommendation

4.1 Section 83(2) of the Environment Act 1995 makes provision for a local authority to revoke an existing Air Quality Management Area Order, as a result of a subsequent air quality review.

4.2 A review of the monitoring data has led to the conclusion that there is no longer a requirement for the Air Quality Management Area. Therefore, the Council will commence the process of revoking the AQMA.

5.0 References

1. Air Quality Consultants – “Nitrogen Dioxide and Nitrogen Oxides Trends in the UK 2005 to 2018”, October 2019
2. Met Office - https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-actual-and-anomaly-maps

E6 Detailed Assessment Middlewich Road, Sandbach AQMA

1.0 Introduction

1.1 The Middlewich Road, Sandbach Air Quality Management Area (AQMA) was declared in 2017 along a section of the A533 Middlewich Road, Sandbach. The AQMA was declared for an exceedance of the nitrogen dioxide (NO_2) annual mean objective of 40µg/m^3. Figure E6.1 below shows the extent of the AQMA.

Figure E6.1 – Middlewich Road, Sandbach Air Quality Management Area

1.2 Since the declaration of the AQMA, NO_2 monitoring in the area has shown a gradual decrease in concentration and has now been consistently below the annual mean objective for three years. In line with our procedure and Defra Policy Guidance PG(16), Cheshire East Borough Council will seek to revoke an AQMA when there has been at least three consecutive years of monitoring results below the relevant air quality objective.

2.0 Monitoring Data

2.1 Diffusion tube monitoring has been undertaken along Middlewich Road since 2014 at roadside locations CE155, CE272 and CE283. Locations CE272 and CE283 were added in 2017, as a result of the need to declare the AQMA, and

to further examine the geographical extent of the breaches in the annual mean objective.

Figure E6.2 shows the location of the monitoring sites.

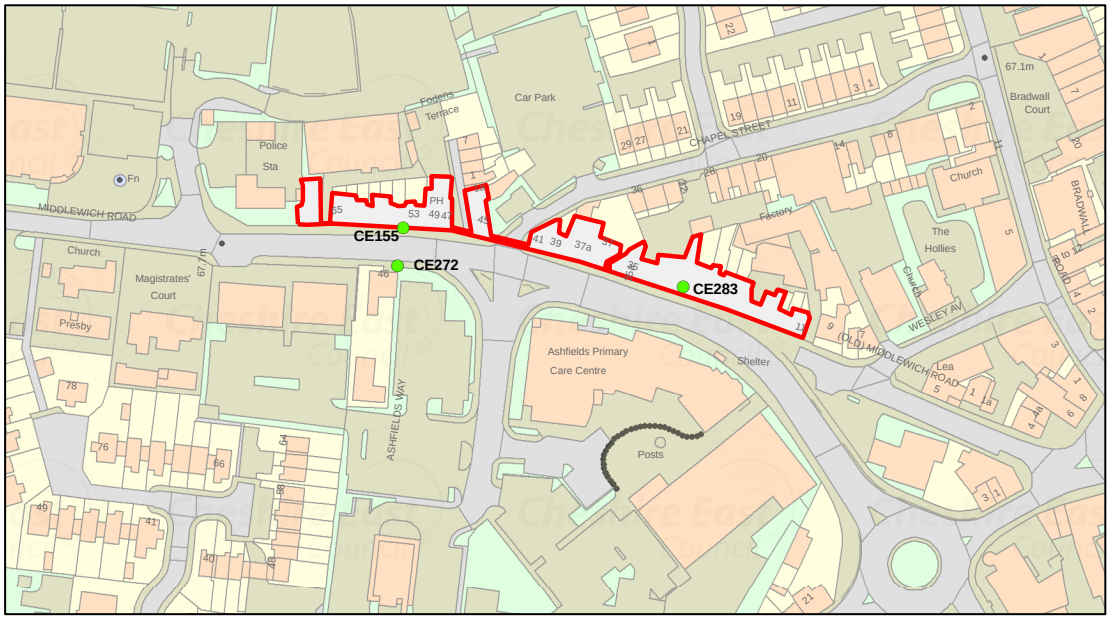


Figure E6.2 – Monitoring Sites on Middlewich Road, Sandbach

2.2 Table E6.1 shows the NO_2 monitoring data for 2015 to 2019 for each of the monitoring sites above.

Site ID	Site Name	In AQMA?	2015 (µg/m^3) (0.87 Bias Factor)	2016 (µg/m^3) (0.92 Bias Factor)	2017 (µg/m^3) (0.87 Bias Factor)	2018 (µg/m^3) (0.92 Bias Factor)	2019 (µg/m^3) (0.93 Bias Factor)
CE155	53/55 Middlewich Road	Y	**43.54**	**48.14**	38.50	36.24	34.95
CE272	Outside Simcox Printers (46), Middlewich Road	N	-	-	27.32	25.66	26.11
CE283	29 Middlewich Road	Y	-	-	35.17	32.47	31.28

Table E6.1 – Monitoring Data 2015 to 2019 Middlewich Road, Sandbach AQMA

3.0 Discussion

3.1 The data as presented in Table E6.1 demonstrates that NO_2 levels in 2017 were below the air quality objective of 40 µg/m^3 (as an annual mean) at the properties within the AQMA boundary and have been in subsequent years.

The national concentrations for nitrogen dioxide have also seen a downward trend, as can be seen in Figure E6.3. The monitoring results across Cheshire East also show a similar trend.

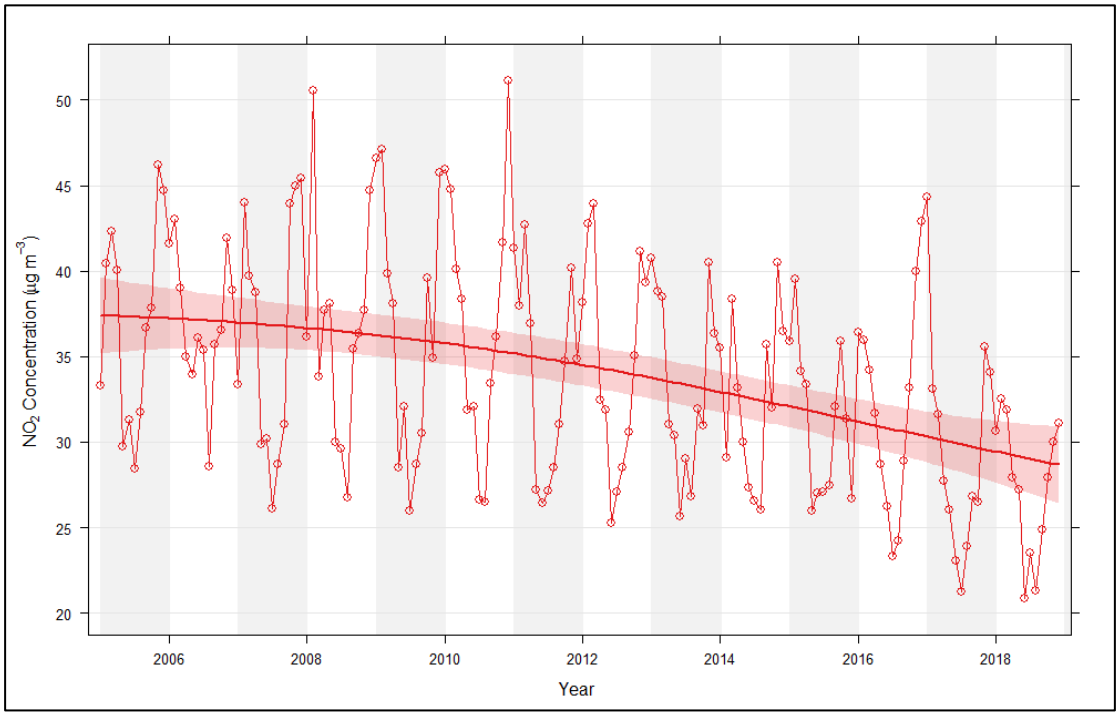


Figure E6.3 – Overall NO_2 Trend across All UK Sites and Smooth Trend Fit, 2005-2018[1]

3.2 Given that atmospheric conditions can influence nitrogen dioxide concentrations it is worth reviewing recent annual averages to ensure the decrease in concentrations have not been adversely affected.

Having reviewed the average monthly temperatures (see Figures E6.4 and E6.5) for 2017, 2018 and 2019 it is evident that 2018 could potentially be considered as an anomalous year. Taking the months of February and July as examples, it can be seen that the average temperature was colder during February in 2018 than in the other years and higher during July. Whilst 2018

stands out as an anomalous year for mean daily temperatures, the concentrations of nitrogen dioxide within Middlewich Road, Sandbach AQMA continued to decrease which would lead to the conclusion that the decrease is not due to temperature changes.

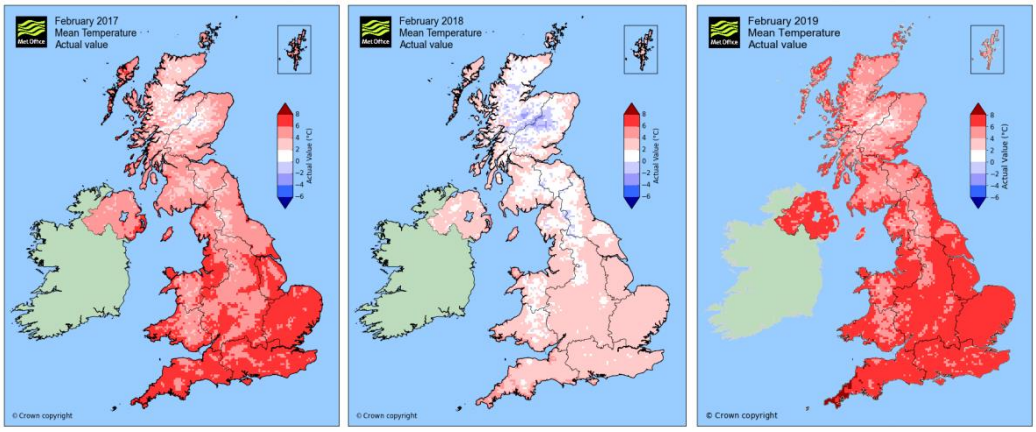


Figure E6.4 – Monthly Average Temperatures – February 2017 - 2019[2]

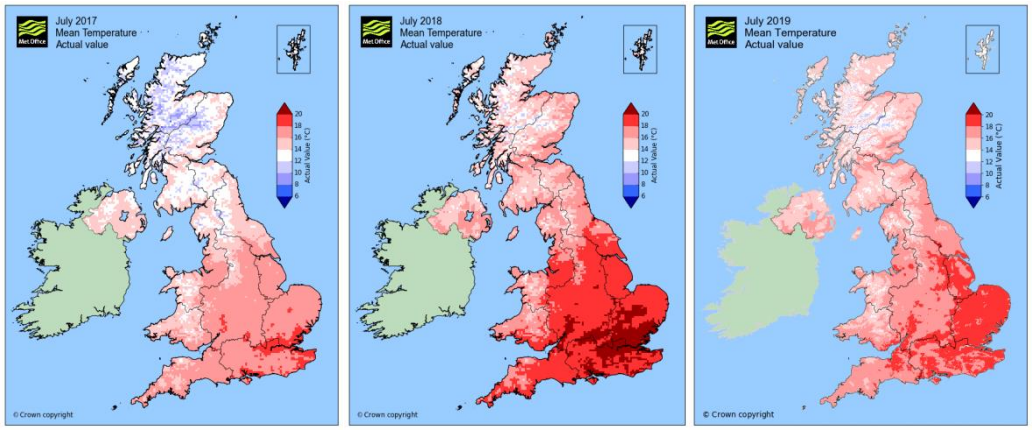


Figure E6.5 – Monthly Average Temperatures – July 2017 - 2019[2]

3.3 Having also reviewed the traffic data for the A533 from a location adjacent to the junction with Park Lane to the West of the AQMA, it can also be noted that the Annual Average Daily Traffic (AADT) counts have gradually decreased over recent years (see Figure E6.6). The decrease in vehicular movements could have had a positive influence on the NO_2 concentrations.

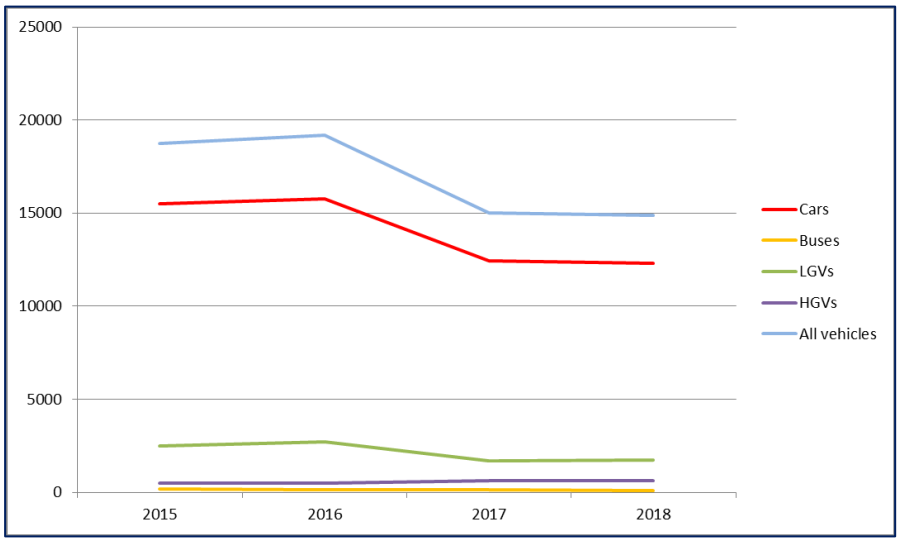


Figure E6.6 – Annual Average Daily Traffic Counts – 2015 – 2018[3]

3.4 The decrease in concentrations could also be as a result of improvements made in vehicular emissions over recent years. As older, more polluting vehicles are withdrawn from the road and replaced with less polluting ones, this leads to a decrease in concentrations. It is for this reason that Cheshire East are confident that the NO_2 concentrations within the Middlewich Road, Sandbach AQMA will remain below the annual mean objective moving forward.

3.5 Whilst the Council are seeking to revoke the AQMA it should be noted that some monitoring will continue within the area, to provide an ongoing picture. Furthermore, actions from within the 2018 – 2023 Air Quality Action Plan will continue to be implemented to try to help influence the reduction in concentrations.

4.0 Recommendation

4.1 Section 83(2) of the Environment Act 1995 makes provision for a local authority to revoke an existing Air Quality Management Area Order, as a result of a subsequent air quality review.

4.2 A review of the monitoring data has led to the conclusion that there is no longer a requirement for the Air Quality Management Area. Therefore, the Council will commence the process of revoking the AQMA.

5.0 References

1. Air Quality Consultants – “Nitrogen Dioxide and Nitrogen Oxides Trends in the UK 2005 to 2018”, October 2019
2. Met Office - https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-actual-and-anomaly-maps
3. Department for Transport - https://roadtraffic.dft.gov.uk/#14/53.1300/-2.3963/basemap-countpoints

E7 Detailed Assessment Park Lane, Macclesfield AQMA

1.0 Introduction

1.1 The Park Lane Air Quality Management Area (AQMA) was declared in 2017 along a section of the A536 Park Lane, Macclesfield. The AQMA was declared for an exceedance of the nitrogen dioxide (NO_2) annual mean objective of 40µg/m^3. Figure E7.1 below shows the extent of the AQMA.

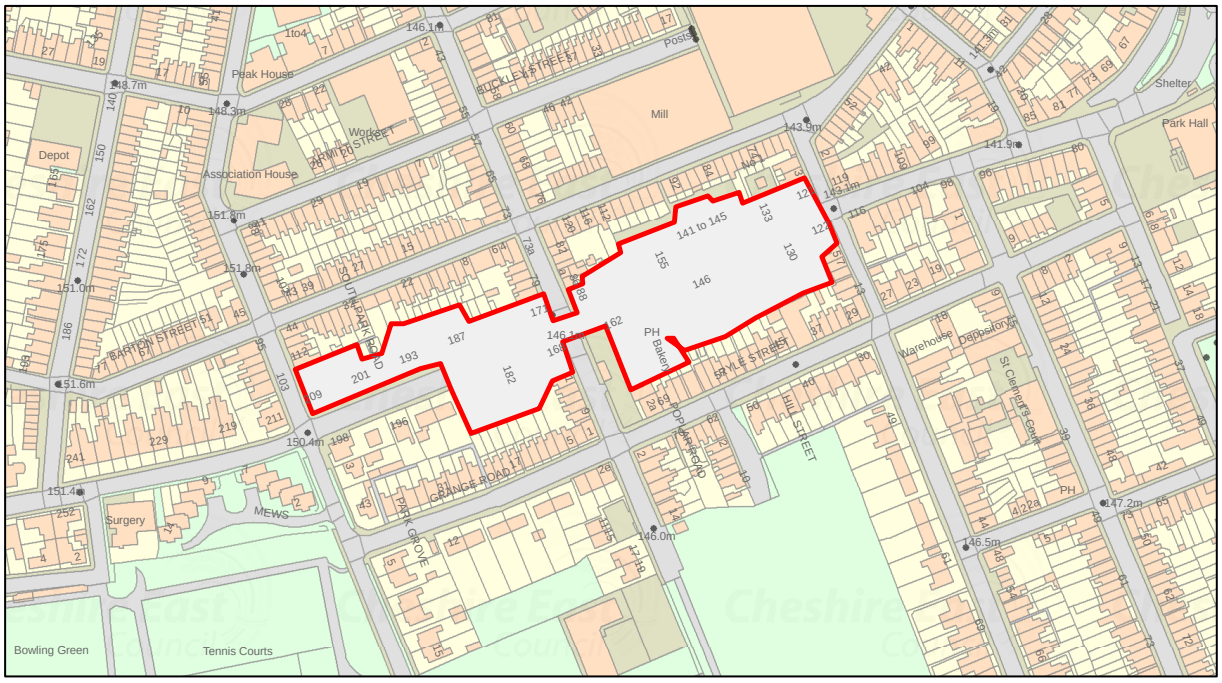


Figure E7.1 – Park Lane, Macclesfield Air Quality Management Area

1.2 Since the declaration of the AQMA, NO_2 monitoring in the area has shown a gradual decrease in concentration and has now been consistently below the annual mean objective for three years. In line with our procedure and Defra Policy Guidance PG(16), Cheshire East Borough Council will seek to revoke an AQMA when there has been at least three consecutive years of monitoring results below the relevant air quality objective.

2.0 Monitoring Data

2.1 Diffusion tube monitoring has been undertaken along Park Lane since the formation of Cheshire East Borough Council at roadside locations CE1, CE2 and CE87.

Additional roadside locations CE251, CE260 and CE261 were added in 2017, as a result of the need to declare the AQMA, and to further examine the geographical extent of the breaches in the annual mean objective.

Figure E7.2 shows the location of the monitoring sites.

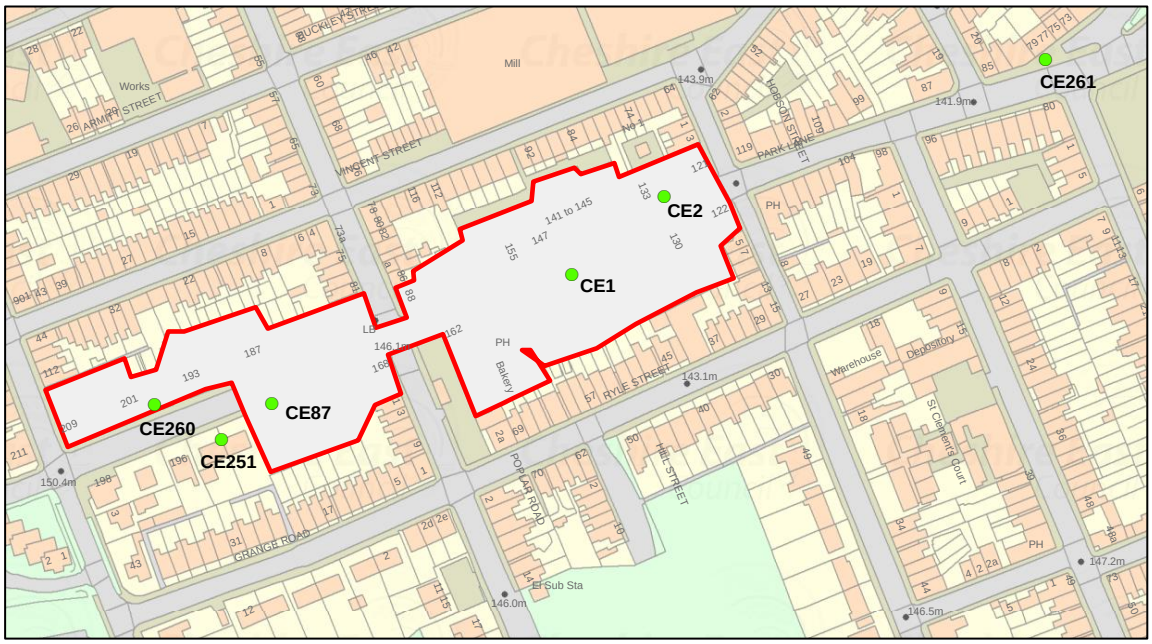


Figure E7.2 – Monitoring Sites on Park Lane, Macclesfield

2.2 E7.1 shows the NO_2 monitoring data for 2015 to 2019 for each of the monitoring sites above.

Site ID	Site Name	In AQMA?	2015 (µg/m^3) (0.87 Bias Factor)	2016 (µg/m^3) (0.92 Bias Factor)	2017 (µg/m^3) (0.87 Bias Factor)	2018 (µg/m^3) (0.92 Bias Factor)	2019 (µg/m^3) (0.93 Bias Factor)
CE1	Marios, 144 Park Lane	Y	38.98	**42.82**	37.12	34.38	34.11
CE2	129 Park Lane, Macclesfield	Y	29.26	32.24	29.85	27.27	25.71
CE87	186 Park Lane	Y	34.14	36.30	33.07	30.49	30.66
CE251	192 Park Lane	N	N/A	N/A	28.28	26.58	24.96
CE260	199 Park Lane	Y	N/A	N/A	22.73	21.60	19.65
CE261	79 Park Lane	N	N/A	N/A	26.33	24.98	24.70

Table E7.1 – Monitoring Data 2015 to 2019 Park Lane, Macclesfield AQMA

3.0 Discussion

3.1 The data as presented in Table E7.1 demonstrates that NO_2 levels in 2017 were below the air quality objective of 40 µg/m^3 (as an annual mean) at the properties within the AQMA boundary and have been in subsequent years.

The national concentrations for nitrogen dioxide have also seen a downward trend, as can be seen in Figure E7.3. The monitoring results across Cheshire East also show a similar trend.

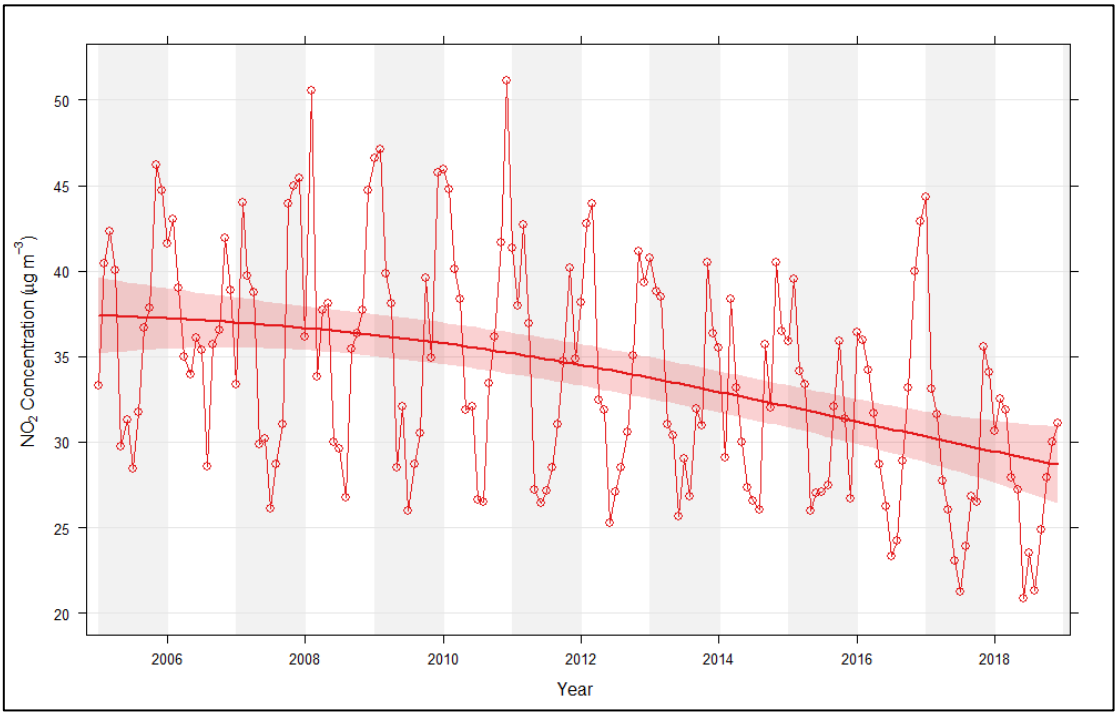


Figure E7.3 – Overall NO_2 Trend across All UK Sites and Smooth Trend Fit, 2005-2018[1]

3.2 Given that atmospheric conditions can influence nitrogen dioxide concentrations, it is worth reviewing recent annual averages to ensure the decrease in concentrations have not been adversely affected.

Having reviewed the average monthly temperatures (see Figures E7.4 and E7.5) for 2017, 2018 and 2019 it is evident that 2018 could potentially be considered as an anomalous year. Taking the months of February and July as examples, it can be seen that the average temperature was colder during February in 2018 than in the other years and higher during July. Whilst 2018

stands out as an anomalous year for mean daily temperatures, the concentrations of nitrogen dioxide within Park Lane AQMA continued to decrease which would lead to the conclusion that the decrease is not due to temperature changes.

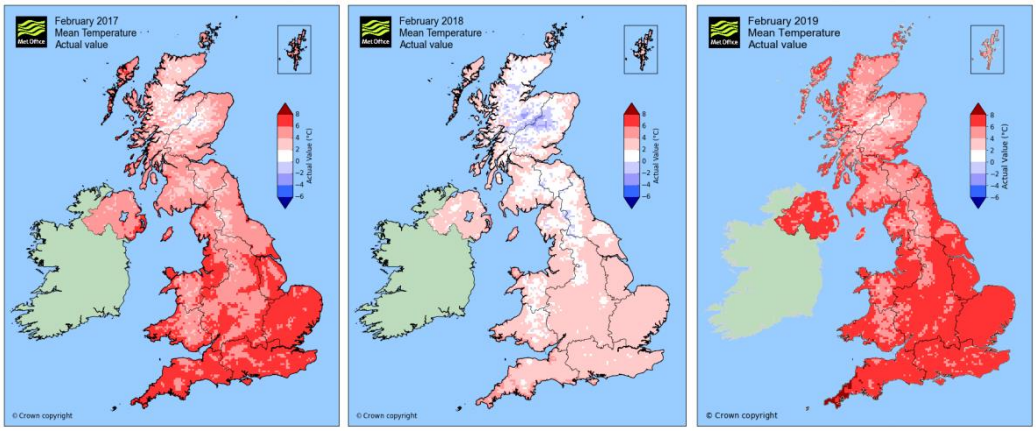


Figure E7.4 – Monthly Average Temperatures – February 2017 - 2019[2]

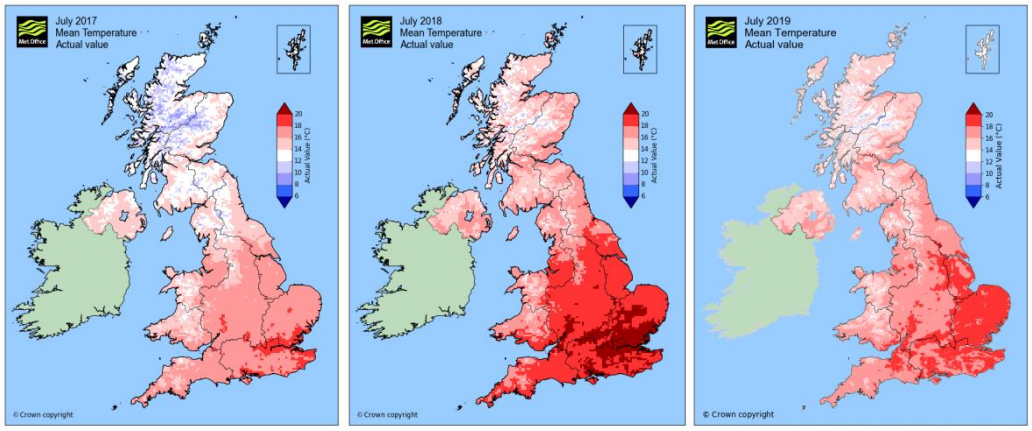


Figure E7.5 – Monthly Average Temperatures – July 2017 - 2019[2]

3.3 The decrease in concentrations could be as a result of improvements made in vehicular emissions over recent years. As older, more polluting vehicles are withdrawn from the road and replaced with less polluting ones, this leads to a decrease in concentrations. It is for this reason that Cheshire East are confident that the NO_2 concentrations within the Park Lane AQMA will remain below the annual mean objective moving forward.

3.4 Whilst the Council are seeking to revoke the AQMA it should be noted that some monitoring will continue within the area, to provide an ongoing picture. Furthermore, actions from within the 2018 – 2023 Air Quality Action Plan will

continue to be implemented to try to help influence the reduction in concentrations.

3.5 Recent monitored traffic data is not available for the AQMA so has not been considered for this assessment.

4.0 Recommendation

4.1 Section 83(2) of the Environment Act 1995 makes provision for a local authority to revoke an existing Air Quality Management Area Order, as a result of a subsequent air quality review.

4.2 A review of the monitoring data has led to the conclusion that there is no longer a requirement for the Air Quality Management Area. Therefore, the Council will commence the process of revoking the AQMA.

5.0 References

1. Air Quality Consultants – “Nitrogen Dioxide and Nitrogen Oxides Trends in the UK 2005 to 2018”, October 2019
2. Met Office - https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-actual-and-anomaly-maps

Appendix F: Summary of Air Quality Objectives in England

We have included only the objectives for the two pollutants relevant to this report.

Table F.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[5]	
	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

[5] 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
AQS	Air Quality Strategy
AQSG	Air Quality Steering Group
ASR	Air Quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
LAQM	Local Air Quality Management
LES	Low Emission Strategy
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
SCAs	Smoke Control Areas
QA/QC	Quality Assurance and Quality Control
UKAS	United Kingdom Accreditation Service

End of Document