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NEWCASTLE-UNDER-LYME BOROUGH COUNCIL

EXECUTIVE MANAGEMENT TEAM'S REPORT TO THE PUBLIC PROTECTION COMMITTEE

Date 20th August 2019

REPORT TITLE	**Environment Act 1995 – Part IV Local Air Quality Management – Annual Status Report 2019**
Submitted by:	**Environmental Protection Team Manager – Darren Walters**
Portfolio:	**Environmental Health**
Ward(s) affected:	**ALL**

Purpose of the Report

To advise Committee of the findings of the statutory Annual Status Report for 2019 which covers the 2018 calendar year in respect of air quality within the Borough.

Recommendations

1. That the report be received.

1. Background

1.1. Local authorities in the UK have statutory duties for managing local air quality under Part IV of the Environment Act 1995. District Council's have been required to review and assess air quality within their areas since 1997 for compliance against a range prescribed Air Quality Objectives

1.2. The Council has been carrying out reviews of air quality since December 1997; these involve measuring air pollution and trying to predict how it will change over the next few years. The review process aims to make sure that the national Air Quality Objectives prescribed in the Air Quality Regulations http://uk-air.defra.gov.uk/assets/documents/National_air_quality_objectives.pdf will be achieved throughout the UK by the relevant deadlines. These objectives have been put in place to protect people's health and the environment. In relation to people, the objectives apply at the facades of relevant receptors, generally dwellings, hospitals, schools. Workplaces are excluded.

1.3. The Council is also undertaking a separate study for a different regulatory purpose in conjunction with Stoke-on-Trent City Council under a 2018 Ministerial Direction to understand and assess compliance with EU Limit Values under the Ambient Air Quality Directive, across the two local authority areas. The study is principally concerned with assessing compliance with nitrogen dioxide annual mean levels at locations within 4 metres of the roadside, locations within 25 metres of a major junction are out of scope. Although there is reference to this work in the 2019 Annual Status Report, the outcomes of the Ministerial Direction work will be the subject of a future report to Cabinet in the 2019/20 calendar year.

1.4. At the most fundamental level, our health and prosperity depend on the health of the planet on which we live. From the air we breathe to the water we drink, the food we eat and the energy that powers our homes and businesses, we need to protect and sustain the health of the natural environment.

1.5. The World Health Organisation, estimates that poor air quality within the UK costs the economy circa £54 billion which is equivalent to 3.7% of British GDP (based on 2010 data). It also accounts for 29,000 premature deaths annually. (Source: WHO Regional Office for Europe, OECD (2015). Economic cost of the health impact of air pollution in Europe: Clean air, health and wealth. Copenhagen: WHO Regional Office for Europe. http://www.euro.who.int/en/media-centre/events/events/2015/04/ehp-mid-term-review/publications/economic-cost-of-the-health-impact-of-air-pollution-in-europe)

1.6. Local authorities therefore have an important role in bringing about improvements in air quality and ensuring compliance with statutory requirements to reduce the impact on health and associated costs to the National Health Service and the wider economy

2. Issues

2.1. Annual Status Report (ASR) 2019

In accordance with its statutory duties, the Borough Council has recently completed its Annual Status Report for 2019 which is concerned with air quality within the Borough during the 2018 calendar year. A copy of the 2019 ASR, along with previous years air quality reports can be found online at https://www.newcastle-staffs.gov.uk/all-services/environment/environmental-protection/air-quality-newcastle-under-lyme

Previous assessments have identified nitrogen dioxide ($N0_2$) as the pollutant of concern, with a number of locations within the Borough exceeding the nitrogen dioxide annual mean objective. Levels of $N0_2$ are heavily influenced by road traffic emissions, topography and distance from the emission source to receptor.

This Annual Status Report considers all new monitoring data and assesses the data against the Air Quality Objectives. It also considers any changes that may have an impact on air quality.

2.2. Overall summary for 2018

An overall summary of results for 2018 for compliance with annual mean nitrogen dioxide UK objective across the Borough is presented in Appendix 1.

The review of new diffusion tube monitoring data has not identified any locations outside of the four existing Air Quality Management Areas (AQMA's), (declared in December 2015) where the annual NO_2 objective was exceeded in 2018.

Monitoring of NO_2 concentration in the AQMAs and at a variety of locations across the Borough during 2018 shows, that there has been a general decrease in NO_2, with the majority of areas now being under the annual mean objective. This indicates that the strategies currently in place are already helping to reduce the NO_2 concentration within these areas of the Borough.
Of the 41 Nitrogen dioxide diffusion tube sites;

- 40 sites displayed a decrease in the an annual mean trend for nitrogen dioxide levels when compared with levels seen in 2017
- 1 site (Newcastle AQMA -Belong Care Home, Lower Street) continued to exceed the annual mean objective limit, and displayed an increasing trend in nitrogen dioxide concentration, with an annual mean of 44.15µg/m³.
- 5 sites remained within 10% of the annual mean objective limit.(Kidsgrove AQMA -106 Liverpool Road / The Avenue); (Newcastle AQMA - London Road, Lower Street, King Street, Brunswick Street)

Work needs to be done to ensure that any further developments, and changes to the road networks across the Borough do not lead to an increase in the annual NO_2 concentration above the annual mean objective of 40µg/m^3.

2.3. The situation in 2018- Kidsgrove AQMA – No. 1

Appendix 2 contains a map of diffusion tube results for Kidsgrove AQMA based on compliance with the annual mean nitrogen dioxide UK objective for 2018.

Air Quality in this location is heavily influenced by traffic using the A50 Liverpool Road and local traffic accessing side roads from Liverpool Road within the centre of Kidsgrove. Relevant receptors are located back of footway and in close proximity to junctions and areas of congestion.

NO_2 concentrations have generally decreased each year from 2012 onwards within this AQMA. DT6 (106 Liverpool Road / junction with The Avenue) continues to have the highest annual NO_2 mean concentration for this AQMA in 2018, with a value of 37.1µg/m^3. All other diffusion tube sites within this AQMA are below the annual mean objective limit.

This AQMA will remain in place until all sites measure an annual mean NO_2 concentration that is consistently, at least 10% below the annual mean legal objective.

Staffordshire County Council are planning a number of works in this area in 2019/20 which are aimed at reducing congestion on Liverpool Road and hopefully this will have a beneficial effect on air quality.

Accordingly, the diffusion tube-monitoring network in this area will remain in place to monitor the success of the highway improvement works.

2.4. The situation in 2018 - Town Centre AQMA – No. 2

Appendix 3 contains a map of diffusion tube results for the Town Centre AQMA based on compliance with the annual mean nitrogen dioxide UK objective for 2018.

Air Quality in this area is influenced by traffic utilising the major arterial routes, which converge on the town centre. There are a number of relevant receptors located at the back of pavement. The network is heavily congested at peak times of the day with high volumes of low speed mixed traffic.

The town centre is experiencing a period of regeneration with provision for developments to provide upto 3000 student bed spaces by 2020. Furthermore, a number of office spaces are able to covert to residential use without Planning Permission or requiring consideration of air quality. This has resulted in significant increases in the numbers of relevant receptors within the area, especially those located at back of pavement in terraced type properties, where the Council is unable to influence development.

The planned mixed retail and accommodation development for the Ryecroft site has not progressed. Any new proposals for this site will need to be supported by an appropriate air quality assessment, which demonstrates that the development will not lead to exceedances of air quality objectives or EU limit values.

In addition, the rural areas of the Borough are facing increased demands for applications for residential development, with people in these areas heavily reliant on cars to access services and employment opportunities within the town centre and wider areas.

NO_2 concentrations have generally decreased each year from 2012 onwards within the Town Centre. In 2018, only site DT102 had annual mean NO_2 concentrations in excess of the annual mean objective, with DT102 (Belong Care Home, Lower Street) producing the highest reading across all of the AQMA's, with an annual mean of 44.15µg/m^3. Four diffusion tube monitoring sites London Road, Lower Street, King Street, Brunswick Street, (K1, DT85, DT98 and DT104) have annual mean NO_2 concentrations within 10% of the annual mean, and so these sites remain at risk of exceedance in future years.

This AQMA will remain in place until all sites measure an annual mean NO_2 concentration that is consistently below the annual mean legal objective.

2.5. The situation in 2018 - Maybank-Wolstanton-Porthill AQMA – No. 3

Appendix 4 contains a map of diffusion tube results for Maybank-Wolstanton-Porthill AQMA based on compliance with the annual mean nitrogen dioxide UK objective for 2018.

Air Quality in this area is influenced by local road traffic and traffic utilising the junctions associated with the A500 dual carriageway. Relevant receptors in this location are mainly located at the back of footway. The main route through the area is single carriageway with traffic lighted junctions, signal controlled crossings, on street bus stops and significant sections of on street parking. Porthill Bank and Grange Lane are on significant gradients.

There has been a decrease in NO_2 concentration at the diffusion tube monitoring sites within this AQMA. DT24 (High Street May Bank) remains the highest, with an annual mean NO_2 concentration for 2018 being 30.4µg/m^3.

The diffusion tube sited at the junction with Grange Lane and Church Lane (DT103) will remain in place as there are a number of works planned which may affect upon this location, this includes the Etruria Valley Development scheme, which sees changes to the junction, the junction near to this site, and a new access from Grange Lane into the City Centre via Etruria Valley.

Highways England have begun improvement works to the A500 between Wolstanton and Porthill, which are planned for delivery by 2020. These works have the potential to increase traffic flow through this AQMA.

Additionally a planning application was received by the Borough Council and Stoke on Trent City Council for the Etruria Valley Link Road development. This scheme if granted planning approval and if implemented will provide an additional cross Etruria Valley route from Newcastle into Stoke on Trent via Grange Lane. Reports submitted with the planning application show that although there is predicted to be an increase in traffic and traffic related emissions as a consequence of this development in the Grange Lane area of this AQMA, there is likely to be a reduction in $N0_2$ emissions on the A53 Etruria Road caused by reduced traffic and reduced congestions as traffic will be able to utilise this new. $N0_2$ levels are not predicted to cause exceedances of the relevant UK objectives or EU Limit Values.

Accordingly, the diffusion tube-monitoring network will remain in place in this AQMA, until the highway schemes have become embedded and there is confidence that $N0_2$ annual mean levels are consistently below the statutory objective.

2.6. The situation in 2018 - Little Madeley AQMA – No. 4

Appendix 5 contains a map of diffusion tube results for Little Madeley AQMA based on compliance with the annual mean nitrogen dioxide UK objective for 2018.

Air Quality in this location is heavily influenced by traffic using M6 motorway which runs within 20 metres of the nearest receptor at Collingwood, 3 Newcastle Road, Little Madeley.

The NO_2 concentration at this location in has steadily decreased over the past 7 years. The NO_2 annual mean result at DT3 (Newcastle Road, Little Madeley) for 2018 was 24.8µg/m^3.

Highways England are introducing smart managed motorways and hard shoulder running up to Junction 15 of the M6 (Stoke on Trent South) and from junction 16 (Stoke on Trent North and Crewe) through to junction 22. The stretch of motorway between junctions 15 and 16, which runs past the receptor experiences congestion at peak periods and may become a candidate for hard shoulder running and smart managed motorways in the future.

Due to the works to the M6 motorway, this location will continue to be monitored for the near future.

2.7. The situation in 2018 Across the Borough of Newcastle under Lyme

There has been a general decrease in the annual NO_2 concentrations across the Borough over the past three years. This indicates that the strategies currently in place are already helping to reduce the NO_2 concentration within these areas of the Borough. However, work needs to be done to ensure that any further developments, and changes to the road networks across the Borough do not lead to an increase in the annual NO_2 concentration above the annual mean objective of 40µg/m^3.

2.8. Particulate Matter (PM_{10} and $PM_{2.5}$)

Due to the health risk posed by $PM_{2.5}$, a new requirement has been brought in to assess $PM_{2.5}$ concentrations. As Newcastle-under-Lyme does not currently monitor for this fraction of particulate matter, an estimation of the $PM_{2.5}$ concentration has been made using the national factor for $PM_{2.5}$ and the method set out in TG16. The estimated concentration for $PM_{2.5}$ for 2018 is 16µg/m^3.

Manmade $PM_{2.5}$ is estimated cause some 60 deaths per annum for adults over 30 years of age within the Borough.

The Borough Council, along with the Staffordshire County Air Quality Group and Staffordshire Public Health, is looking at ways in which $PM_{2.5}$ concentrations can be reduced at both a local and regional level.

2.9. Newcastle under Lyme Air Quality and Health Impacts 2017

Data showing the impact of air quality on health in Newcastle under Lyme and Stoke on Trent has been provided by the County Council's Public Health Epidemiologist. The latest available dataset is for 2017/18 and is provided in in Appendix 6 along with comparisons with the district and city authorities in Staffordshire and England as a whole.

In summary.-

2.9.1. Estimated costs

Estimated costs of the health impacts of air pollution is thought to be between £20 - 47 million for Newcastle-under-Lyme and between £39 – 93 million for Stoke-on-Trent.

Costs to the NHS and Social Care are thought to be between £96 – 176 thousand for Newcastle-under-Lyme and between £189 – 349 thousand for Stoke-on-Trent.

2.9.2. Attributable deaths

In Newcastle-under-Lyme around 50 deaths (4.2%) were attributable to air pollution in 2017, whilst in Stoke-on-Trent around 110 (4.4%) were attributable to air pollution. Mortality due to air pollution was lower than the England average.

2.9.3. Hospital admissions for respiratory conditions

Overall for Newcastle-under-Lyme in 2017/18 there were over 2,800 emergency respiratory hospital admissions and for Stoke-on-Trent nearly 6,800 admissions.

Around 14% of Newcastle-under-Lyme emergency respiratory admissions and 17% of Stoke-on Trent emergency respiratory admissions were for Chronic Obstructive Pulmonary Disease (COPD). COPD is usually prevalent in adults over the age of 35. People with COPD have difficulties breathing, primarily due to the narrowing of their airways and destruction of lung tissue.

Around 6% of Newcastle-under-Lyme emergency respiratory admissions and 7% of Stoke-on Trent emergency respiratory admissions were for asthma, many of which (around 40%) were in young people aged 0-18 years. Emergency hospital admissions for asthma in young people were higher than the England average for both Newcastle-under-Lyme and Stoke-on-Trent.

Emergency respiratory admissions are higher than the England average for both Newcastle-under-Lyme and Stoke-on-Trent.

2.10. Proposed actions arising from the 2019 Annual Status Report

These are as follows.

- Continue the current network of NO_2 diffusion tube monitoring in the District to identify future changes in pollutant concentrations;
- Continue to ensure that air quality considerations are properly accounted for in panning application submissions and in recommendations to the LPA
- Continue to enforce air quality and emission related legalisation within the Borough (eg. regulation of industrial processes, smoke control, dust nuisance, smoke nuisance, trade waste burning, dark smoke on trade and industrial premises)
- Consult on and adopt an Air Quality Strategy for the Borough
- Consult on and adopt an Air Quality Developers Guide
- Engage with the Director of Public Health at Staffordshire County Council and Staffordshire Councils to implement measures to reduce exposure to $PM_{2.5}$
- Continue to work with colleagues in the city to ensure that air quality related planning policies are delivered in the Joint Local Plan
- Continue to deliver the Air Quality Action Plan Measures. (Most of the measures identified fall within the remit of the County Council as the Highways Authority)

3. **Reasons for Preferred Solution**

The Council is required to take the action outlined in this report in order to fulfil its statutory duties.

4. **Outcomes Linked to Sustainable Community Strategy and Corporate Priorities**

The action taken achieves the following priorities detailed within the Council Plan

- Local services that work for local people
- A healthy, active and safe borough

5. **Legal and Statutory Implications**

Local authorities in the UK have statutory duties for managing local air quality under Part IV of the Environment Act 1995. District Councils have been required to review and assess air quality within their areas since 1997 for compliance against a range of pollutant objectives.

6. **Equality Impact Assessment**

Not applicable

7. **Financial and Resource Implications**

Existing budgets will be utilised to fund the work identified in this report, where delivery of action plan measures rests with others, such as Staffordshire County Council for highways related schemes, your officers will continue to work with delivery partners to bring forward action plan measures as quickly as possible.

8. **Major Risks**

Not applicable

9. **Sustainability and Climate Change Implications**

Not applicable

10. **Key Decision Information**

Not applicable

11. **Earlier Cabinet/Committee Resolutions**

Not applicable

12. **List of Appendices**

Appendix 1 Map of $N0_2$ Diffusion Tube results 2018 Borough Wide – UK N02 annual mean objective

Appendix 2 Map of $N0_2$ Diffusion Tube results 2018 Kidsgrove AQMA – UK N02 Annual Mean objective

Appendix 3 Map of $N0_2$ Diffusion Tube results 2018 Town Centre AQMA – UK N02 Annual Mean objective

Appendix 4 Map of $N0_2$ Diffusion Tube results 2018 Porthill, Wolstanton, Maybank AQMA – UK N02 Annual Mean objective

Appendix 5 Map of $N0_2$ Diffusion Tube results 2018 Little Madeley AQMA – UK N02 Annual Mean objective

Appendix 6 Newcastle-under-Lyme and Stoke-on-Trent Air Quality and Health 2017/18 data

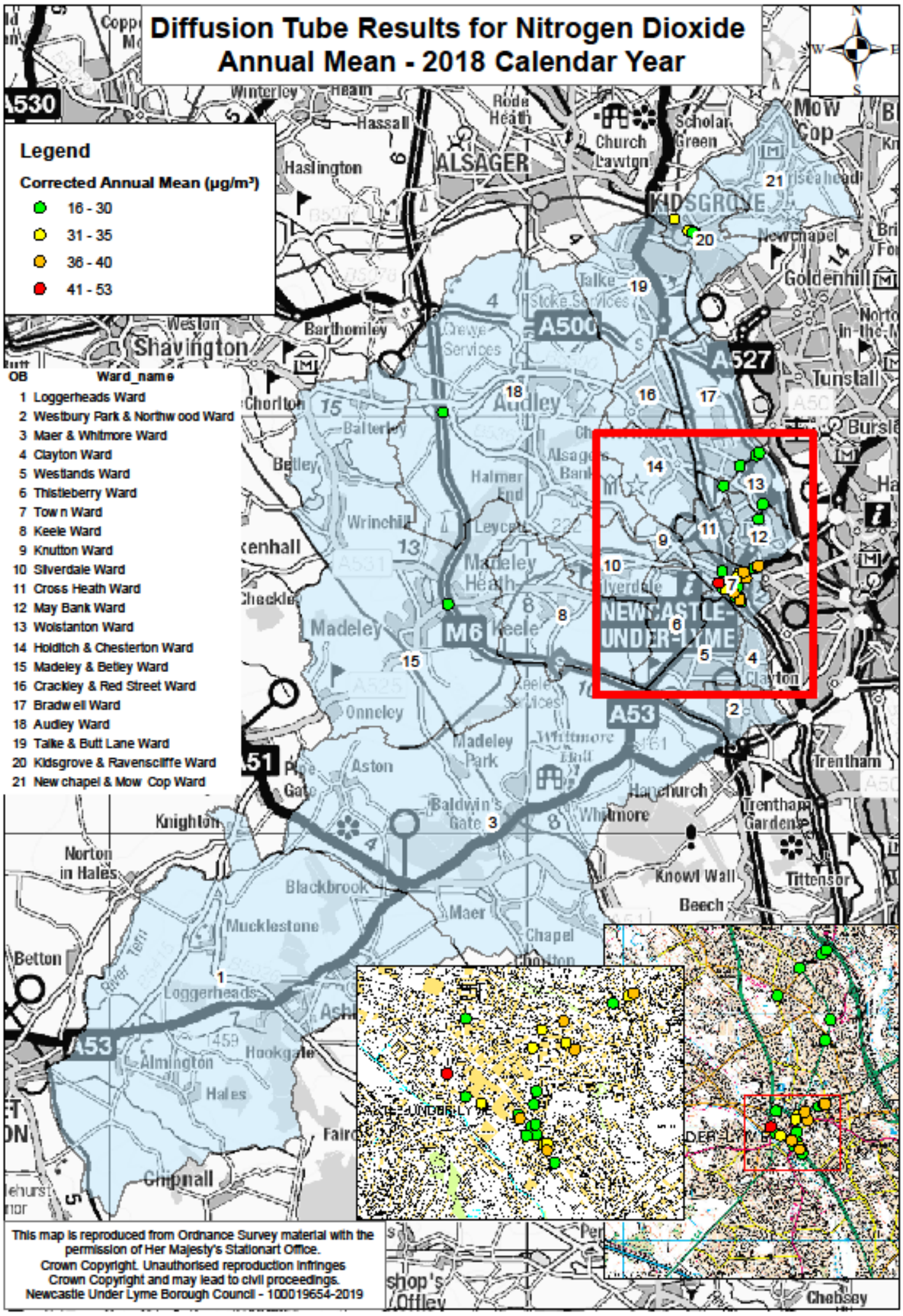
13. **Background Papers**

- Environment Act 1995 – Part IV

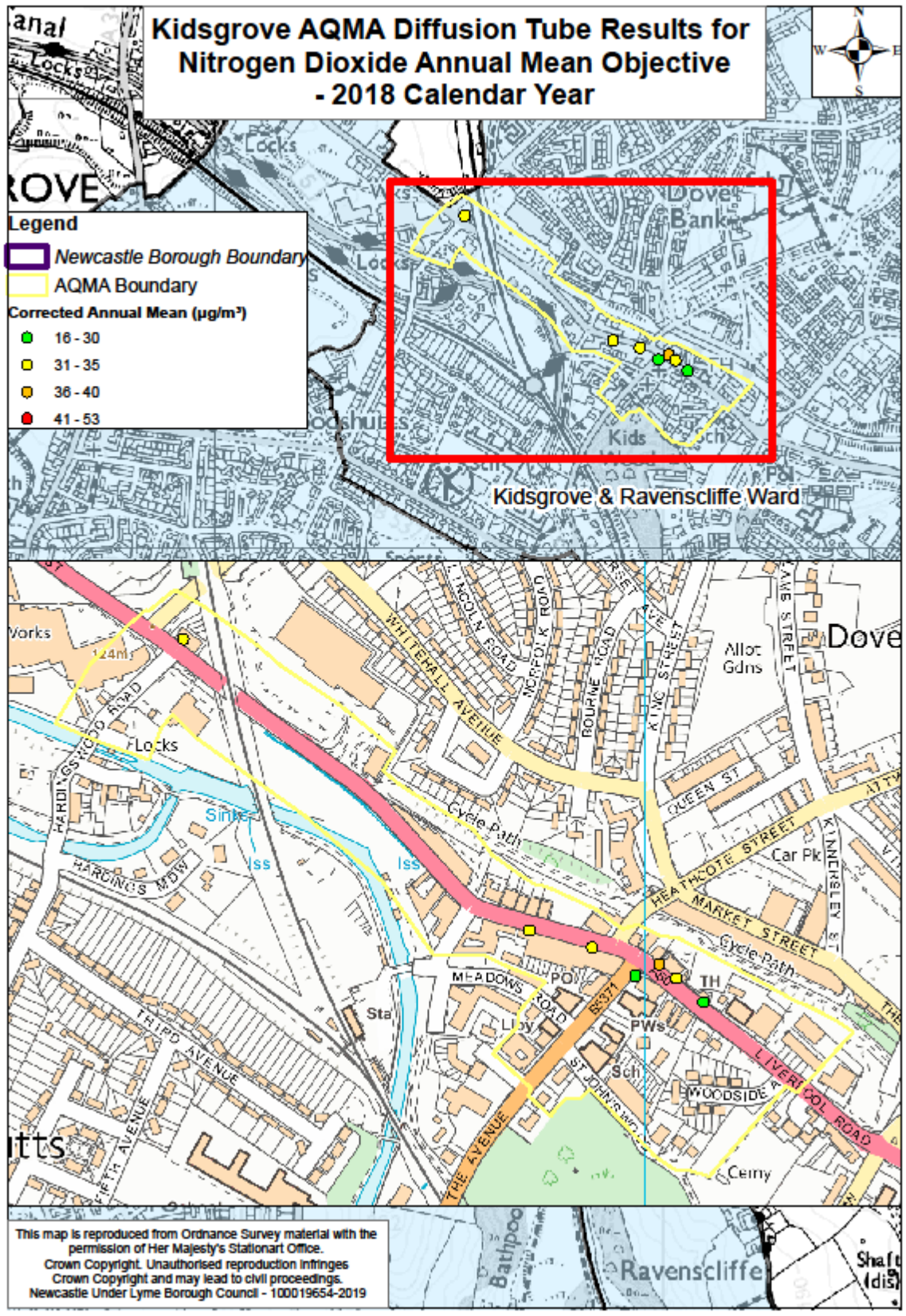
- Local Air Quality Management Technical Guidance (LAQM.TG.16) (available at http://laqm.defra.gov.uk/documents/LAQM-TG16-April-16-v1.pdf0
- Air Quality Reports completed since 1997 available from https://www.newcastle-staffs.gov.uk/all-services/environment/environmental-protection/air-quality-newcastle-under-lyme

Appendix 1

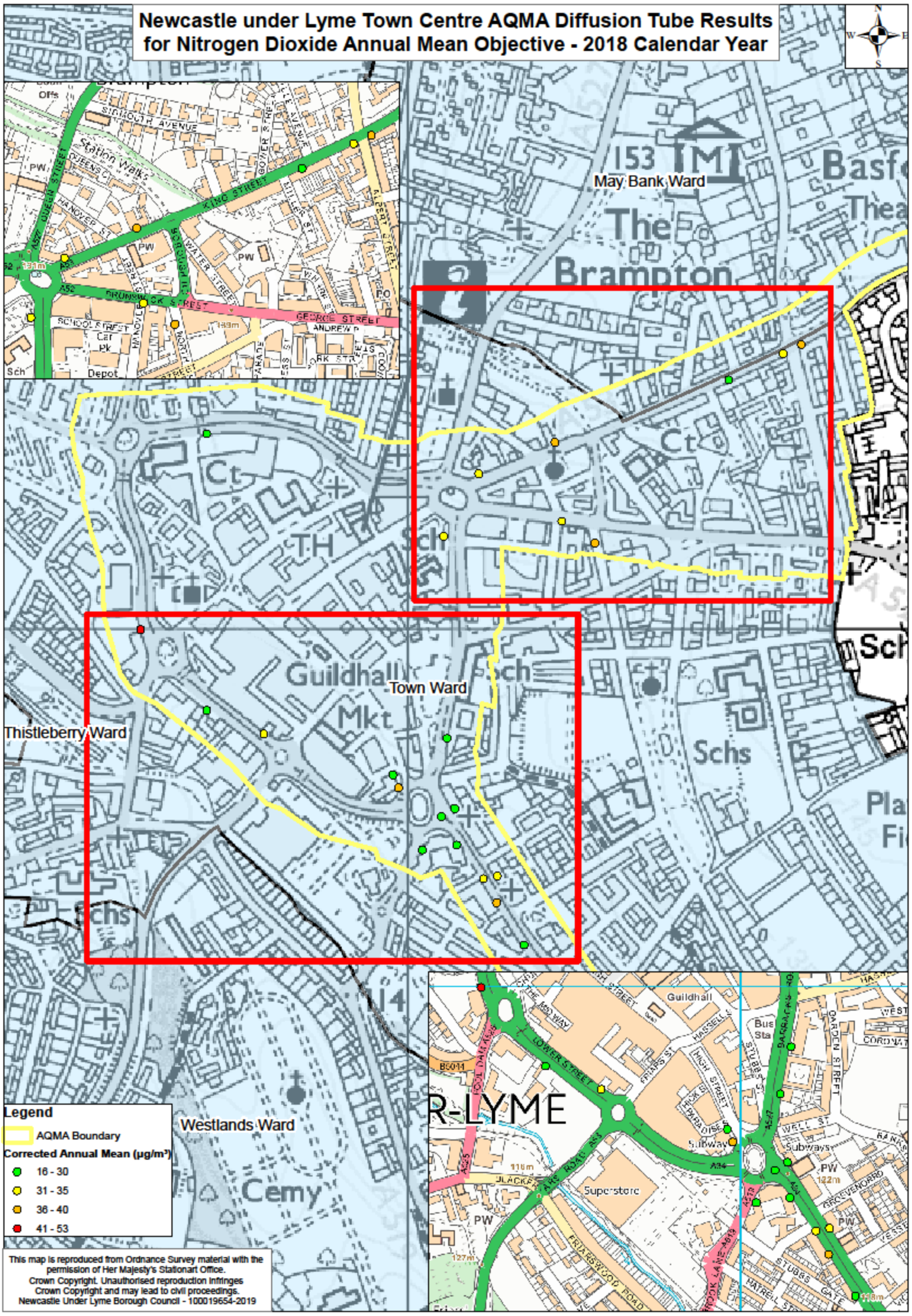
Map of $N0_2$ Diffusion Tube results 2018 Borough Wide – UK N02 annual mean objective



Map of $N0_2$ Diffusion Tube results 2018 Kidsgrove AQMA – UK N02 Annual Mean objective

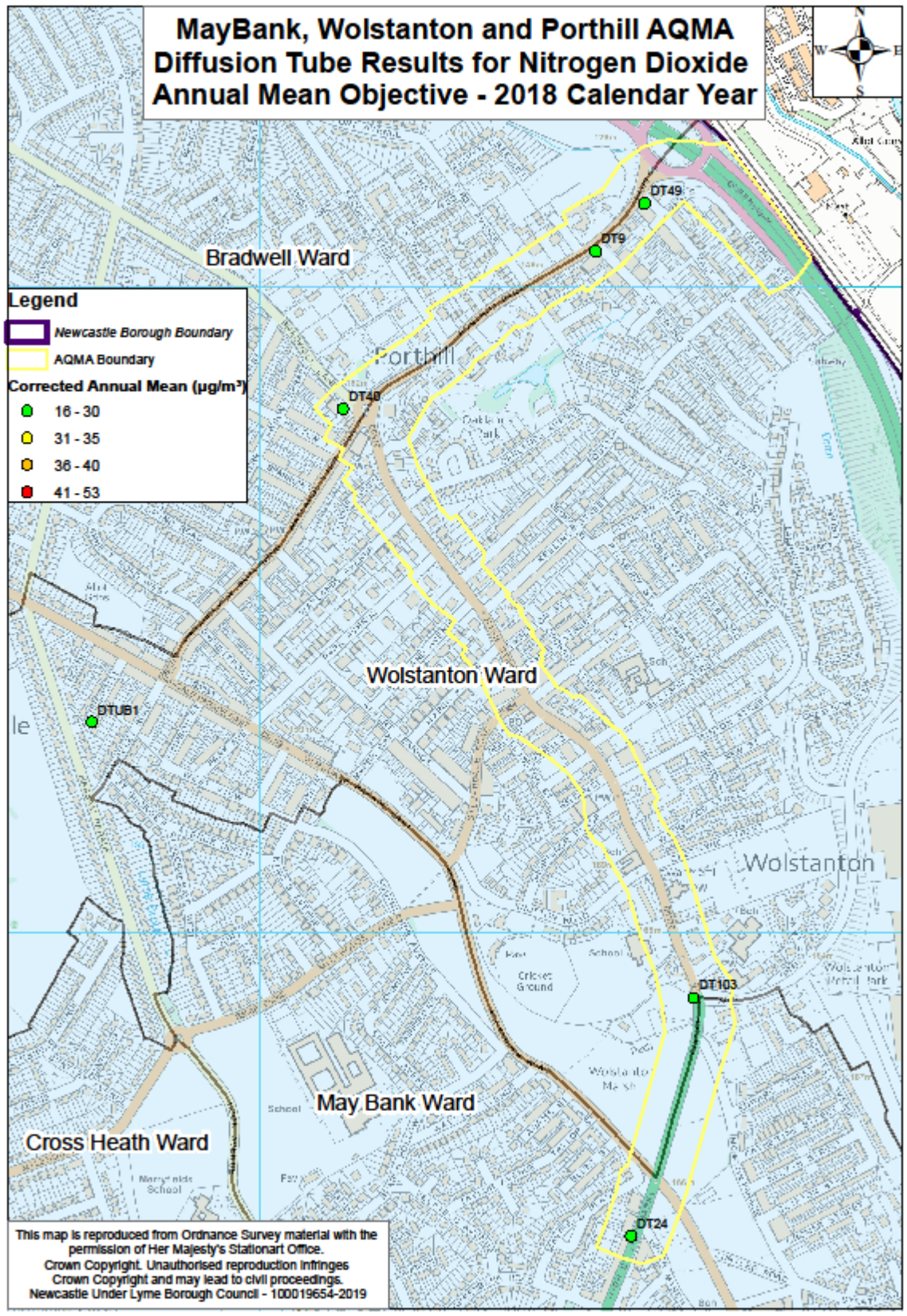


Map of $N0_2$ Diffusion Tube results 2018 Town Centre AQMA – UK N02 Annual Mean objective

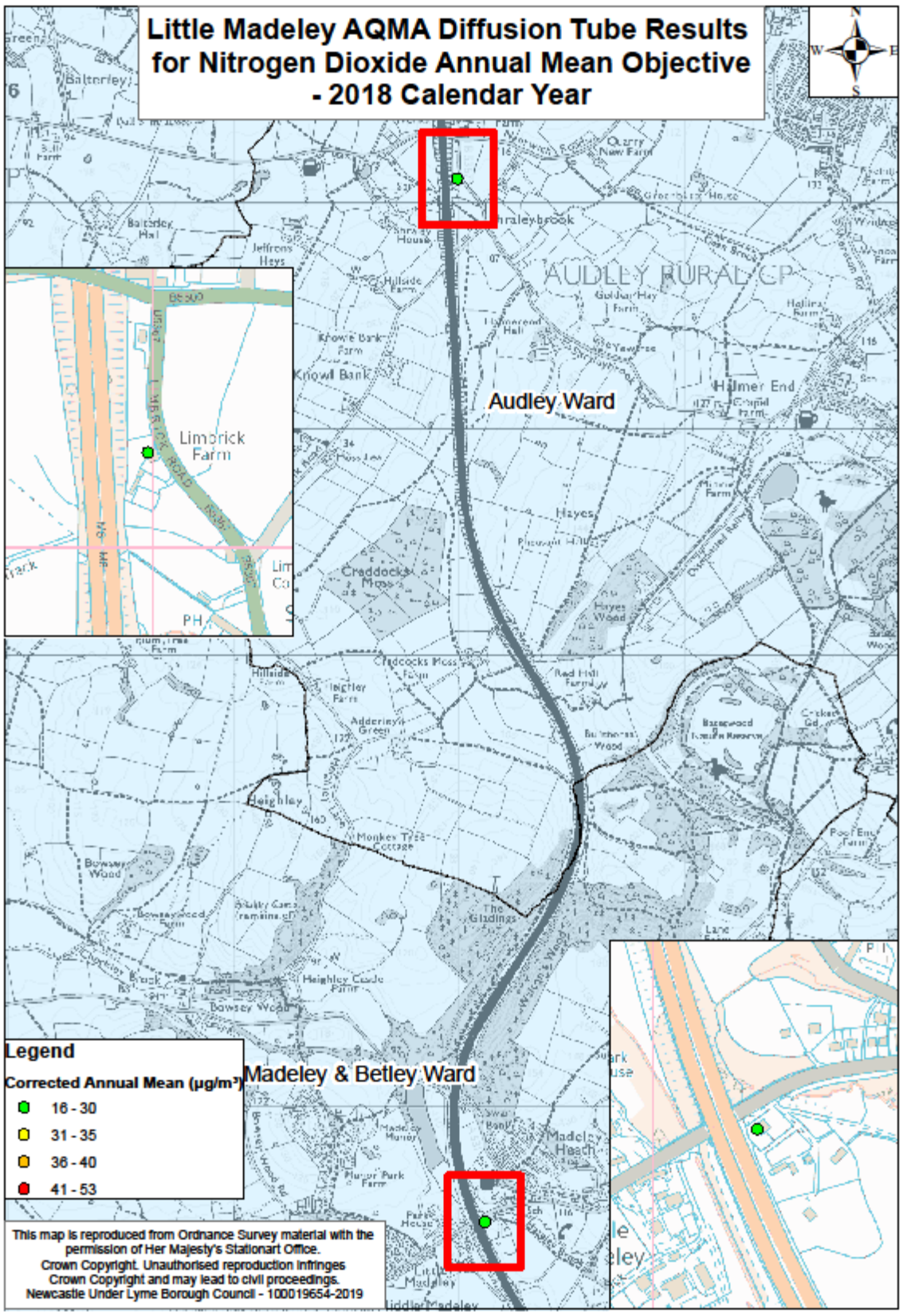


Appendix 4 –

Map of $N0_2$ Diffusion Tube results 2018 Porthill, Wolstanton, Maybank AQMA – UK N02 Annual Mean objective



Appendix 5 –Map of $N0_2$ Diffusion Tube results 2018 Little Madeley AQMA – UK N02 Annual Mean objective



Appendix 6.

Newcastle-under-Lyme and Stoke-on-Trent Air Quality and Health 2017/18 data
(Source Staffordshire County Council, Public Health Epidemiologist July 2019)

Estimated costs

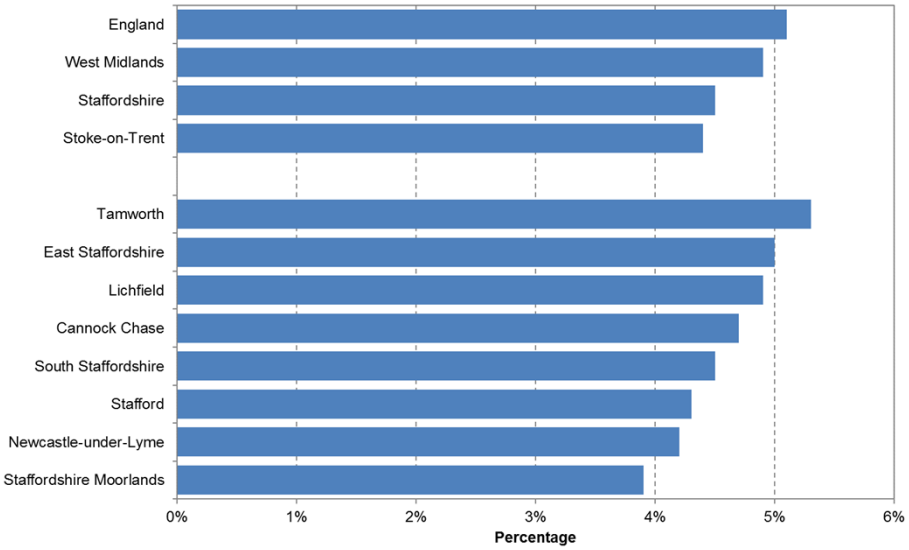
Estimated costs of the health impacts of air pollution is thought to be between £20 - 47 million for Newcastle-under-Lyme and between £39 – 93 million for Stoke-on-Trent.

Costs to the NHS and Social Care are thought to be between £96 – 176 thousand for Newcastle-under-Lyme and between £189 – 349 thousand for Stoke-on-Trent.

Attributable deaths

In Newcastle-under-Lyme around 50 deaths (4.2%) were attributable to air pollution in 2017, whilst in Stoke-on-Trent around 110 (4.4%) were attributable to air pollution. Mortality due to air pollution was lower than the England average.

Figure 1 - Fraction of mortality attributable to particulate air pollution, persons aged 30 and over, 2017



Source: DEFRA/Air Pollution and Climate Change Group Public Health England

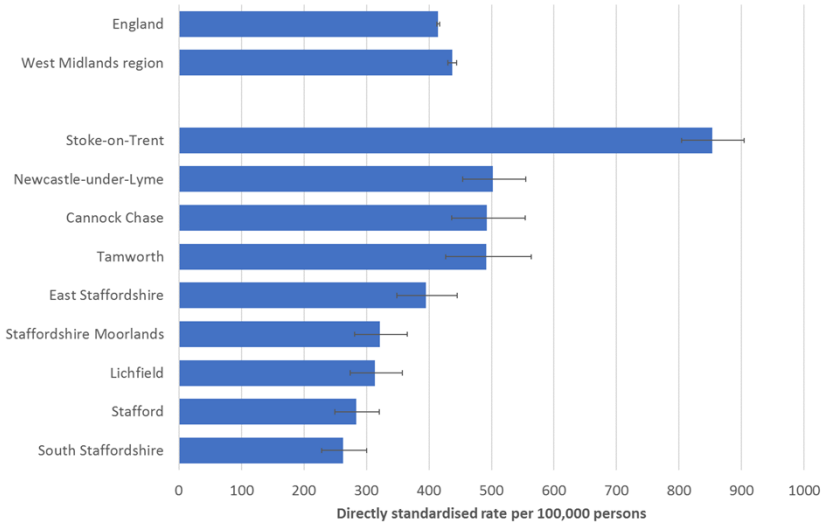
Hospital admissions for respiratory conditions

Overall for Newcastle-under-Lyme in 2017/18 there were over 2,800 emergency respiratory hospital admissions and for Stoke-on-Trent nearly 6,800 admissions.

Around 14% of Newcastle-under-Lyme emergency respiratory admissions and 17% of Stoke-on Trent emergency respiratory admissions were for Chronic Obstructive Pulmonary Disease (COPD). COPD is usually prevalent in adults over the age of 35. People with COPD have difficulties breathing, primarily due to the narrowing of their airways and destruction of lung tissue.

Emergency respiratory admissions are higher than the England average for both Newcastle-under-Lyme and Stoke-on-Trent.

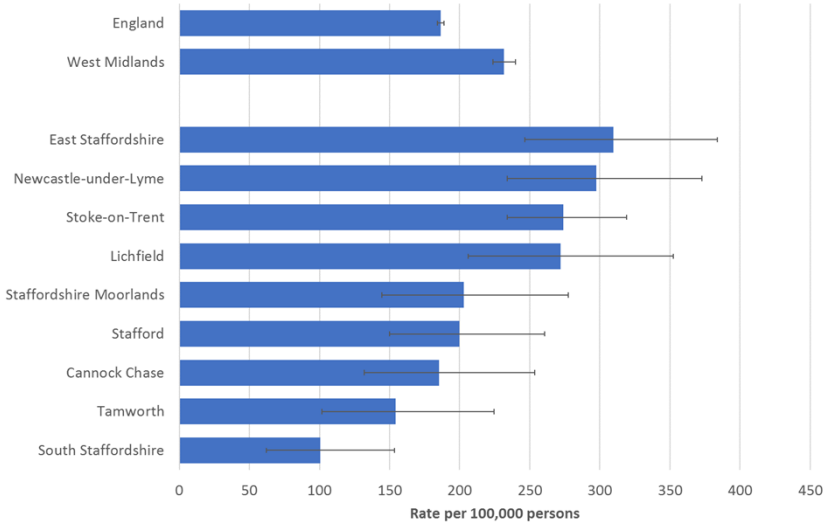
Figure 2 - Emergency hospital admissions for COPD, 2017/18



Source: Public Health England – Health Profiles

Around 6% of Newcastle-under-Lyme emergency respiratory admissions and 7% of Stoke-on Trent emergency respiratory admissions were for asthma, many of which (around 40%) were in young people aged 0-18 years. Emergency hospital admissions for asthma in young people were higher than the England average for both Newcastle-under-Lyme and Stoke-on-Trent.

Figure 3 – Emergency hospital admissions for asthma (under 19 years), 2017/18



Source: Hospital episode statistics (HES) via HES Data Interrogation System (HDIS)

Disease prevalence

GP recorded prevalence of both asthma and COPD in both local authorities was higher than the England average in 2017/18 (Table 1).

Table 1 – Recorded prevalence of respiratory related diseases, 2017/18

	Asthma	SD to England	COPD	SD to England
Newcastle-under-Lyme	6.1%	Higher	2.5%	Higher
Stoke-on-Trent	6.3%	Higher	2.6%	Higher
England	5.9%		1.9%	

Source: Quality and Outcomes Framework (QOF) 2017/18, Health and Social Care Information Centre. All rights reserved