



Lewes District Council

2018 Air Quality Annual Status Report (ASR)

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



June 2018

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Executive Summary: Air Quality in Our Area

Air Quality in Lewes District Council

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas^{1,2}.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³. The importance of improving air quality and what local actions we can take can be found on:

[https://laqm.defra.gov.uk/documents/air_quality_note_v7a-\(3\).pdf](https://laqm.defra.gov.uk/documents/air_quality_note_v7a-(3).pdf)

Air pollution can come from many different sources – imported air pollution from the Continent, air emissions from shipping, and domestic wood burning. There are also natural sources of air pollution too, such as dust from soils, ash and sea-spray.

In January 2017 there was a pollution episode (imported from the continent, coupled with very cold and foggy weather) which affected the South East and another in February.

In September the South East received imported industrial air pollution from Northern Scandinavia and in October received dust from the Sahara and from fires in Spain and witnessed strange cloud colouring and winds from Hurricane Ophelia.

Both Lewes and Newhaven have an AQMA. Nitrogen dioxide concentrations were measured above annual objective concentrations and Air Quality Management Areas (AQMAs) were declared in June 2005 and July 2014, respectively. Air Quality Action Plans were put in place (Lewes, May 2009 and Newhaven, June 2016) to manage the reduction in air pollution and air quality monitoring stations established to assess the impact of the measures put forward by the action plans.

¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

² Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

In 2017, nitrogen dioxide monitoring using diffusion tubes took place at forty locations throughout the Lewes District Council area. Concentrations above the $40 \mu\text{g}/\text{m}^3$ annual objective concentration were still observed in both AQMAs. However, when corrected for fall-off of NO_2 concentration away from the kerb⁴ the concentrations drop below the annual objective concentration, except for one site LDC34 – 204 High Street (School Hill) (See Table 4). Nitrogen dioxide concentration measurements should continue within the AQMAs to monitor progress of the respective action plans in reducing air pollution. The Lewes Town Centre AQMA also has a continuous automatic monitoring station situated within it measuring: NO , NO_2 , NO_x and particulate (PM_{10}). concentrations. The continuous monitoring station situated at Denton Community Centre (Newhaven) had to be decommissioned in June 2017 due to vandalism. Over the last 5 years (see Appendix A, Table A.3), NO_2 annual means for Fisher Street and Station Street have shown some reduction in readings.

Figure 1 & 2: Fisher Street and Station Street in the Lewes Town Centre AQMA.

Illustrates the historic narrow roads where vehicle pollutants can often get trapped



⁴ http://laqm.defra.gov.uk/documents/NO_2withDistancefromRoadsCalculatorIssue_4.xls

Figure 3 & 4: A259 Newhaven Ring Road AQMA. This area is frequently clogged with traffic particularly during rush hour and when the swing bridge is in operation.



For both Lewes Town Centre and A259 Newhaven Ring Road AQMA's please click the following link/s:

https://uk-air.defra.gov.uk/aqma/details?aqma_ref=404

https://uk-air.defra.gov.uk/aqma/details?aqma_ref=1576

For a countrywide list of local authority AQMA's please follow this link:

<http://uk-air.defra.gov.uk/aqma/list>

Actions to Improve Air Quality

Lewes District Council has taken forward a number of initiatives during the current reporting year of 2017 in pursuit of improving local air quality. East Sussex County Council (ESCC) managed to secure £1.4 million funding from the Department for Transport to deliver a programme of active travel across East Sussex. The Active Access for Growth Programme will run from 2017 to 2020, focusing on a number of growth areas, one of these being Newhaven (See Section 2.2). Other measures can be found in Section 2.21 and 2.2.2 and Table 2.2

Conclusions and Priorities

In order to fulfil its goal in producing quantifiable outcomes to appropriate timescales, Lewes District Council will work closely and in collaboration with all its delivery partners, such as ESCC. Collaborative working is extremely beneficial in many ways e.g. in reviewing, updating and implementing measures regarding Air Quality Action Plan (AQAP)'s and other projects or initiatives.

The Lewes AQAP requires further reviewing and updating (although some modelling work has been carried out thus far and is included in this report). All AQAP's should be seen as live documents and reviewed as necessary. For example, the Newhaven AQAP has an action for 'use of traffic management to reduce emissions' – ESCC are commissioning work to develop designs in improving the traffic flow around the Ring Road by co-ordination of existing signalised pedestrian crossings plus improvements to the layout of the area.

Lewes District Council is in the process of securing a new continuous air quality monitoring station in Newhaven (preferably in or nearby the current AQMA). However we will need to find a suitable location and planning consent for this.

Anti-idling signs have been deployed in and around both Lewes and Newhaven AQMA's (mentioned as an action in the Lewes 2009 AQAP). This deployment was highlighted in the local press and on social media. Continuation of this initiative – we will be taking the anti-idling message into schools over the next year. The Sussex-air partnership/ESCC won a DEFRA grant to help 25 schools (highlighting anti-idling issues and increase walking/cycling to school) and 25 businesses (helping to pay for e.g. less polluting boilers etc) in and around AQMA's in Sussex. An update of this initiative will be in next year's ASR.

We actively work with our neighbouring authorities via Sussex-air, with our county council and increasingly with our public health colleagues. We recognise the importance of joint working and the successful award of the grant is a good indication that combining forces can work well. We also recognise that joint working provides the public with a greater understanding of how air quality and health are intrinsically linked.

**More exercise – less obesity – less vehicles on the road – improved air quality -
= increased general health**

Local Engagement and How to get Involved

Help improve your own environment:

Can you cut down on the use of your vehicle?

- Use public transport
- Cycle
- Walk
- Use alternative routes to get from A to B. Instead of walking or cycling along a major road, use alternative quieter and less polluted routes.

Not only can you help in improving our environment but it gives you the added benefit of exercise and helps improve general health and well-being.

Idling engines:

Vehicle idling causes air pollution and engines should not be left running unnecessarily. Breathing polluted air is not only extremely unpleasant but is also detrimental to our health.

Why it's good to turn off vehicle engines - Cut Engine Cut pollution

- Exhaust emissions contain a range of air toxic pollutants such as carbon monoxide, benzene, formaldehyde, Polyaromatic hydrocarbons, nitrogen dioxide and particulate matter.
- Every minute your car idles you could fill 150 balloons with harmful chemicals.
- Turning off your car engine and restarting it after one minute causes less pollution and uses less fuel than keeping the engine running.
- Modern batteries need less engine running time to stay charged.
- It takes up to an hour for an engine to cool down which means your car heating fan will work with your engine turned off.
- Idling does not keep a catalytic converter warm. They retain heat for approximately 25 minutes after the engine is switched off.

Air quality is as important as exercise and diet for health. Reducing air pollutants can help reduce respiratory problems, heart disease, lung cancer and asthma attacks.

Changing your vehicle:

- If you are considering buying a new or second hand vehicle/s consider the options of newer cleaner models – e.g. hybrids, electric.
- Have a good look at the vehicles emission credentials before buying.
- Consider alternatives – could you join a Car Club?

There are various organisations and clubs which offer help and advice on getting active, for example: Sustrans: <http://www.sustrans.org.uk/what-you-can-do>

Bikeability: <http://bikeability.org.uk/> - programmes – involving schools and workplaces (cycling and walking activities).

Details, including local air quality monitoring data, annual air quality reports and the impact air quality may have on health can be found on the Sussex-air website. Sussex-air also runs the airAlert service providing warnings to people with respiratory and cardiovascular conditions, health professionals and carers in Sussex. The service is FREE to register/subscribe to and anyone can join. Alerts are sent direct to the airAlert app, email, mobile phone via text message or home phone. Sussex-air also provides a free coldAlert service – providing extreme cold weather warnings and information and also a heatAlert service. The apps, airAlert, coldAlert and heatAlert are provided as a free service by the Sussex Air Quality Partnership and supported by the Public Health Bodies (East Sussex & West Sussex County Council). Further information can be found: www.sussex-air.net or telephone 01273 484337.

Business

Businesses in East Sussex can obtain assistance from energy advisors LoCASE (Low Carbon Across the South East). Your business may be eligible for a free energy audit and funding for energy efficiency solutions identified with a grant. More information can be found on:

<http://locase.co.uk/partners-and-services/>

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1 Local Air Quality Management

This report provides an overview of air quality in Lewes District during 2017. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

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

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMA's declared by Lewes District Council can be found in Table 2.1. Further information related to declared or revoked AQMA's, including maps of AQMA boundaries are available online at:

https://uk-air.defra.gov.uk/aqma/details?aqma_ref=404

https://uk-air.defra.gov.uk/aqma/details?aqma_ref=1576

For a countrywide list of local authority AQMA's please follow this link:

<http://uk-air.defra.gov.uk/aqma/list>

See Appendix D: Map(s) of Monitoring Locations and AQMA's, which provides for a map of air quality monitoring locations in relation to the AQMA(s).

Figures 5 and 6 Lewes Town Centre AQMA and A259 Newhaven Ring Road AQMA

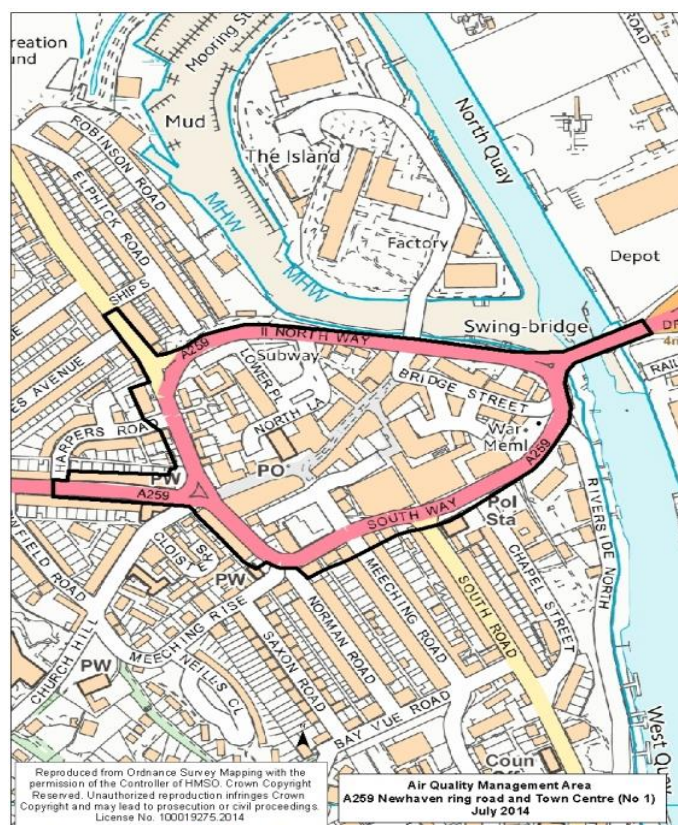
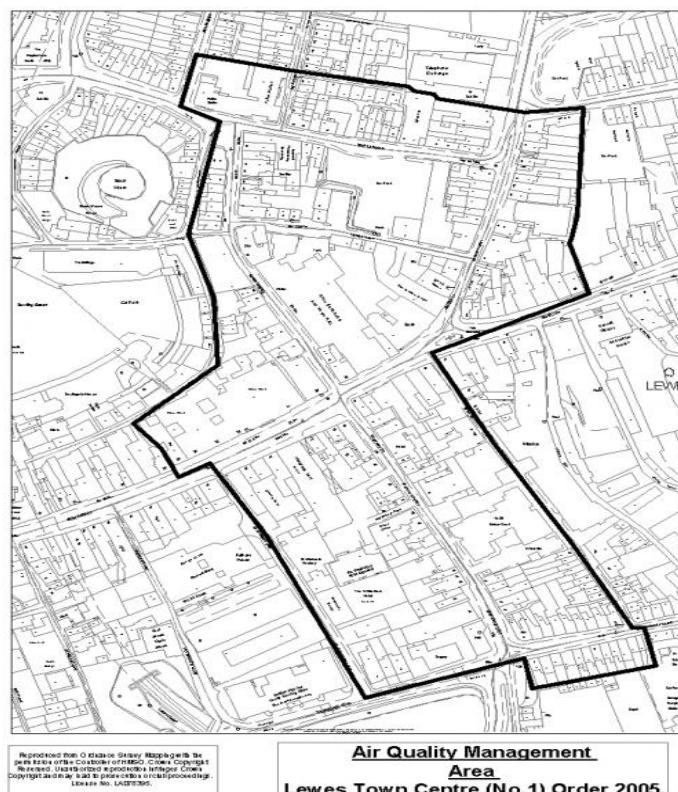


Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)				Action Plan		
						At Declaration		Now		Name	Date of Publication	Link
Lewes Town Centre	30.06.05	NO2 Annual Mean	Lewes	An area encompassing a section of Lewes Town Centre extending north to the old police station, south to St Andrews Place	NO	53	µg/m3	43	µg/m3	Lewes Town Centre	May-09	http://www.sussex-air.net/Reports/LewesAQAP2009.pdf
A259 Newhaven Ring Road	16.07.14	NO2 Annual Mean	Newhaven	Incorporates Newhaven Town Centre, Southway, Northway and sections of the A259 Brighton Road, Lewes Road and the swing bridge	NO	49	µg/m3	48	µg/m3	A259 Newhaven Ring Road	Jun-16	http://www.sussex-air.net/Reports/NewhavenAQAP2016.pdf

☒ Lewes District Council confirm the information on UK-Air regarding their AQMA(s) is up to date

2.2 Progress and Impact of Measures to address Air Quality in Lewes District Council

Defra's appraisal of last year's ASR concluded that both AQMA's should be considered for revocation in the next few years if monitoring consistently shows no exceedances of air quality objectives. It also instructed that any update of the Lewes AQAP should be included in this year's report (2018) – some modelling has been completed so far and is included in this report. The Lewes AQAP is going to have further review and input during 2018/19 and be updated in its entirety.

Lewes District Council has taken forward a number of direct measures during the current reporting year of 2017 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2 and in section 2.2.1.

The Lewes District Local Plan, Part 1 Joint Core Strategy 2010-2030 (May 2016) includes Core Policy 9 – Air Quality: Link below

<https://www.lewes-eastbourne.gov.uk/planning-policy/lewes-local-plan-2003-saved-policies/>

Its key strategic objectives are: *'reducing the need for travel and to promote a sustainable system of transport and land use for people who live, work, study in and visit the district'* and *'to ensure the district reduces locally contributing causes of climate change and is pro-active regarding climate change initiatives'*.

In brief: Local planning must have regard to AQMA areas and AQAP's. Planning must ensure applications for developments: provide mitigation measures where traffic may adversely affect an AQMA, ensure development will not have a negative impact on the surrounding area in terms of its health, promote opportunities for walking, cycling and public transport and congestion management to reduce traffic levels in areas of reduced air quality and secure best methods to reduce levels of dust and other pollutants arising from construction.

A collaborative approach has been taken in order to improve the environment as a whole – for example the East Sussex Strategic Partnership:

<http://www.essp.org.uk/What-we-do/Pride-of-Place/Environment>

The current priority themes in the Lewes District Sustainable Community Strategy are:

- A valued environment
- Decent and affordable housing for all
- Safer and stronger communities
- Access to good local facilities
- Healthier communities
- Vibrant and sustainable economy

More on the link below:

<http://www.essp.org.uk/East-Sussex-Strategic-Partnership-Media/East-Sussex-Strategic-Partnership-Document-Library/PoP%20documents/Lewes.pdf>

One of the key tasks under the Environment and Climate Change theme is to reduce traffic by increasing alternative sustainable travel choices and to improve air quality.

Lewes District Council works in partnership with East Sussex County Council to improve local air quality. One of the main mechanisms to achieve this is through the Local Transport Plan (LTP3). An update on the Local Transport Plan is provided in the Second Implementation Plan (2016/2017 to 2020/2021) which can be

found at:

<https://www.eastsussex.gov.uk/roadsandtransport/localtransportplan/lt3/downloadlt3>

It identifies the importance of various improvements to key walking and cycling corridors (e.g. improving signs for cycle Regional Route 90), focussing on improvements to public transport corridors, better use of technology e.g. Real Time Bus Information and charging points for electric vehicles. Further information can be found on: <https://www.eastsussex.gov.uk/roadsandtransport/localtransportplan>

While air quality is not an explicit objective for the LTP, there will be co-benefits in terms of the measures designed to tackle climate change and improve quality of life.

2.2.1 Lewes Town Centre AQMA

In Table 2.1 the monitoring location of initial exceedance (at declaration) was measured at in Fisher Street (Fisher Street East). Initially measured at 53µg/m³

(annual mean) in 2005/06 this has gradually decreased to a reading of $43\mu\text{g}/\text{m}^3$ (however this is still above the annual air quality objective of $40\mu\text{g}/\text{m}^3$). There is a bus stop on this street and traffic has to wait behind the bus if it stops here. This queuing traffic will add to NO_2 emissions at this end of the street.

However, there has been steady reductions in NO_2 at Fisher Street West and 18 Fisher Street and this is due to the change of traffic priority at the that end of Fisher Street where traffic is more free-flowing. This is a narrow street with high buildings either side, thus enclosing pollutants; a very common problem for old historic towns.

The link to the current Lewes AQAP is:

<http://www.sussexair.net/Reports/LewesAQAP2009.pdf>

Recent schemes such as the Offham Road and A277 Brighton Road pedestrian crossings will hopefully encourage people to walk (particularly children walking to school) as there are now safe places to cross two very busy roads. The 20mph speed limit has been implemented around Lewes including the residential areas, creating safer and hopefully smoother driving!

During November 2017 temporary anti-idling signs were put up around Lewes Town Centre AQMA and along those routes which are heavily congested usually around rush hour. We involved some Councillors with this work and publicised in the local newspaper and on social media.

Many of the actions originally placed into the Lewes AQAP 2009 have been completed: for example, there have been reductions in NO_2 concentrations (e.g. change of traffic priority in Fisher Street), car club is well established, 20mph zones in town centre and beyond, Offham Road pedestrian crossing installed, Ringmer to Lewes cycle route completed, improvements at Lewes Railway Station, many buses coming through Lewes have cleaner engines and installation of anti-idling signs.

The Lewes AQAP is in the process of reviewing and will also have to take into account a major planned development for the town called the *North Street Quarter*. This has the potential to have a major impact on the AQMA and town as a whole.

Some modelling has been completed in preparation for updating the Lewes AQAP – See section 3.1: Summary of monitoring undertaken

2.2.2 A259 Newhaven Ring Road AQMA

In Table 2.1 the monitoring location of initial exceedance (at declaration) was measured at LDC-16 Southway, Newhaven with an annual mean of $49\mu\text{g}/\text{m}^3$ in 2013. This year the annual mean for this location was $43\mu\text{g}/\text{m}^3$ (the same as last year). This location has shown annual means above $40\mu\text{g}/\text{m}^3$ for the last 5 years. It is located on a busy road, near a bus stop and traffic lights and is at the top of a steep incline so these factors will affect NO_2 readings at this location.

Following the declaration of an Air Quality Management Area in July 2014 for the centre of Newhaven, an Air Quality Action Plan was prepared to address the high concentrations of nitrogen dioxide (NO_2) which people are exposed to alongside the busy roads in the centre of Newhaven. Road transport is the main source of emissions relating to NO_2 , and particularly diesel vehicles in stop- start traffic which make the biggest contribution resulting in higher emissions.

The AQAP has seven broad areas of action to help deliver better air quality, with specific measures then identified for each of these actions areas. The categories of action are as follows:

Action 1: Enable the use of sustainable travel choices through the delivery of transport infrastructure and initiatives

Action 2: Actively promote low emission vehicles and supporting infrastructure.

Action 3: Use the planning system to ensure that air quality is fully considered for new development.

Action 4: Use traffic management to reduce emissions within the AQMA.

Action 5: Work with Public Health colleagues to inform the public about health impacts of Air Pollution and how they can change behaviour to reduce emissions and reduce exposure.

Action 6: Continue to monitor and assess air quality in line with Government guidance on Local Air Quality Management (LAQM).

Action 7: Target point sources in Newhaven Town Centre

The above actions are evaluated in terms of their impact on:

- Air quality
- Cost & feasibility
- Timescale for implementation

The delivery of the Newhaven Action Plan is dependent on adequate levels of resourcing, both for capital costs and staffing. Currently, increases in traffic around the ring road are likely assuming planned development for Newhaven proceeds. Any improvements made will therefore be challenged by an increase in vehicles due to new developments. The plan can be found on this link:

<http://www.sussex-air.net/Reports/NewhavenAQAP2016.pdf>

During November 2017 temporary anti-idling signs were put up around the Newhaven Ring Road AQMA and along those routes heading into the Ring Road. At some point we would like to install larger permanent signs in key locations. We involved some Councillors with this work and publicised in the local newspaper and on social media.

East Sussex County Council are looking into developing proposals to improve the A259 Newhaven Ring Road by way of improving traffic flow and linking existing signals with crossings and improving road layout.

East Sussex County Council (ESCC) managed to bid successfully from the *Active Access for Growth Programme*, obtaining a £1.4 million grant from the Department for Transport to deliver a programme of active travel across East Sussex. The Growth programme will run from 2017-2020, focusing on particular growth areas, one of them being Newhaven.

The key objectives of this are:

- Improve access to jobs, skills, training and education
- Seek support for local economic growth

- Demonstrate an alignment to health, air quality and reduced carbon emissions and improve air quality
- Increase walking and cycling by 2%/year and increase the proportion of people completing 30 minutes of physical activity/day

The programme is split into 3 strands and covers a wide range of audiences and has many partners to deliver the programmes:

1. Business and Workforce Development
2. Education and Training
3. Healthy Communities

The Community Grant Scheme (AAfG Community Fund) aims to assist community groups, voluntary organisations and educational establishments to actively promote increasing the number of people traveling to work/education/training to walk and cycle and actively promote increased physical activity and AAfG officers have built important links with workplaces and colleges in relation to the first two strands above.

Point 3 works with public health colleagues tackling physical inactivity in the county.

During the 2017/18 period there have been various cycling and walking schemes in the design phase with design and construction planned for 2018/19. For example:

Cycling

Under the Active Access for Growth – ESCC have launched Pedal Power which gives people the opportunity to try cycling by offering bikes for rent for between 1 and 6 months. There are a range of bikes to try – for more information please see this link:

<https://eastsussexpedalpower.com/>

There are further plans to introduce a new cycle route on Avis Road which will tie into the existing NCR2 cycle route on the A259.

Walking

Under the ESCC Active Access for Growth not only is cycling encouraged but also walking opportunities: using active travel maps, journey planning and giving people

walking challenges and pledges. There are also opportunities to explore the South Downs by walking and or cycling.

Further details can be found on this link:

<https://www.eastsussex.gov.uk/roadsandtransport/localtransportplan/funding/active-access-for-growth/active-access-for-growth/>

Many of the above initiatives feed into the Newhaven A259 Ring Road AQAP 7 main actions, with other improvements such as improvements to bus shelters and facilities which should help encourage further use of buses.

More detail on these measures can be found in their respective Action Plans (see above for links)

The principal challenges to implementation of air quality improvements that Lewes District Council face - the future replacement of an automatic air quality monitoring station for Newhaven and consideration will be required for the replacement of automatic analysers at the Lewes automatic monitoring station. Staff resourcing is also an issue for many local authorities. Other challenges range from: changing people's behaviour on their travel choices, getting people to recognise and stop idling their vehicle engines, linking of cycle routes to encourage and make cycling safer (particularly if trying to encourage more children to cycle – the safety aspect of this can make parents very anxious), the increased popularity of domestic wood burning stoves in homes and how quickly can/will company vehicle fleets change to cleaner vehicles?

There are lots of pressures placed upon local authorities – on one hand they must improve air quality but on the other they must find suitable locations for development. In Newhaven, for example, the need for economic regeneration places pressure on air quality and the environment. There is significant investment in the Port area (following approval for a deep water berth at the harbour mouth) – which should grow the ferry service for both freight and passenger travel between Newhaven and Dieppe. There are more business's moving into the area and residential plans in the pipeline. Investment will also entail increased business premises and new homes in the Newhaven area, which in turn will increase traffic loading to the Ring Road. Careful planning measures will be required.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Lewes District Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of Lewes Town Centre and A259 Newhaven Ring Road AQMA's

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	White Hill / Fisher Street / West street scheme (LTP) - Change of priority at Commercial Square to improve flow in Fisher Street; review traffic signals at Station Street; greater priority to pedestrians. Two phases: (a) Experimental change in junction priority (b) Formalise priority working including other works in the area	Traffic Management	UTC, Congestion management, traffic reduction	East Sussex County Council	Completed	Completed	NO2	4-6.5 ug/m3 or 9-12% red in NO2 (Fisher Street) Some air quality benefits will be achieved from the experimental scheme	Completed	Completed	Reductions in NO2
2	Beddingham Crossing (LTP) - Rebuilding the Southerham and Beddingham roundabouts on the A27 outside Lewes and a new railway bridge to avoid queuing at Beddingham rail crossing.	Traffic Management	UTC, Congestion management, traffic reduction	Highways Agency	Completed	Completed	Traffic Count	None	Completed	Completed	Reduced congestion & emissions on A27. Longer term better traffic flow so reduced traffic flow through Lewes.
3	Lewes Town Centre 20mph zone - Provision of 20mph area in addition to the existing 20mph Zone. Will include majority of the AQMA.	Traffic Management	Reduction of speed limits, 20mph zones	East Sussex County Council	Completed	Completed	Traffic Count/NO2/CO2	None	Completed	Completed	Wider Impacts: Safety, walking, cycling, congestion
4	Phoenix roundabout and Eastgate bus priority (LTP) - introduce a roundabout at the Phoenix Causeway and two-way traffic for Eastgate Street; create a bus priority lane and introduce pedestrian and cycle friendly features.	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, inc Access management, Selective vehicle priority, bus priority, high	East Sussex County Council & South Downs National Park	Yes	Long Term S.106 Linked	Traffic Count	None	Scheme funding was reliant on large redevelopment and associated s106 monies. Development proposal shelved. Now in communication with new developer considering	Unknown	Any reduction could be offset by increased traffic generated from Phoenix development. Project is a development lead opportunity.

Lewes District Council

			vehicle occupancy lane						shared space and two way junction for Waitrose site		
5	The Living Cliffe (LTP) - Creation of pedestrian zone in Cliffe High Street with restricted vehicular access. Introduction of 20mph zone to vehicles allowed to enter the zone (e.g. for deliveries)	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, inc Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	East Sussex County Council	Completed	Completed	Traffic Count	None	Completed	Completed	Existing through-traffic in Cliffe High Street will tend to go across Phoenix Causeway via School Hill and Market Street until Phoenix Roundabout scheme is implemented. Improved safety, walking & cycling facilities, reduced impact of car outside the AQMA
6	Offham Road Pedestrian Priority Scheme (LTP) Improvement to pedestrian facilities and vehicle speed management.	Traffic Management	Reduction of speed limits, 20mph zones	East Sussex County Council	Completed	Partially Completed	Traffic Counts	None	Mini roundabout at The Avenue and Offham Road construction completed in August 2010. Pedestrian crossing installed Offham Road early summer	Completed	Improved safety, walking & cycling facilities, reduced impact of car outside the AQMA
7	Ringmer –Lewes cycleway (LTP) - Introduction of off-road cycleway on the Lewes-Ringmer road link – heavily used by commuters from Ringmer to the Town Centre. Scheme split into two, (a) Phase 1 (Eastern section), (b) Phase 2 (Western section)	Transport Planning and Infrastructure	Cycle network	East Sussex County Council	Completed	Partially Completed	Traffic Counts	None	Completed	Completed	Encourage long term modal shift.
8	Lewes Railway Station Forecourt Scheme (LTP) Improved facilities for pedestrian, buses and taxis	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	East Sussex County Council	Completed	Partially Completed	Increased use of sustainable transport modes	None	Completed	Completed	Bridge repairs completed and pedestrian crossing completed. Should encourage modal shift

Lewes District Council

9	Target local freight distribution a) Work with local business & freight operators to collate relevant data (i.e. delivery times, parking issues) b) Encourage deliveries outside congested periods) Provide eco-driving training d) Investigate production of local "delivery maps" e) Increase or reallocate loading bays	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	LDC	No	No	Traffic Counts	None	None	None	Potential redevelopment of large areas of Lewes envisaged in medium term should provide opportunity for engagement of non-statutory stakeholders, use of non-mandatory agreements
10	Better coordination of building and road works in the Lewes town area (LTP+) - Enhance existing LTP scheme to include building works and haulage route management	Policy Guidance and Development Control	Other policy	East Sussex County Council	Completed	Completed	Number of agreements and s.61 agreements	None	Informal partnership working between ESCC and LDC and also through the planning process and s61 agreements.	Ongoing	Improved flow resulting from better management of deliveries to sites. So emissions reduced in Lewes AQMA.
11	Target long-distance freight management & heavy traffic through town (LTP+) a) Intensification of existing LTP programmes b) Review signage on weight restrictions at access road links	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	East Sussex County Council	Yes	No	Traffic Counts	None	ESCC started investigation into freight movement and impacts on town	Unknown	Linkage to M10. Reduction in HGV since Beddingham improvements completed (M2)
12	Reduce emissions from idling vehicles a) Install "cut engine cut pollution" signs (i.e. schools, taxi & bus terminals) b) Raise awareness through eco-driving campaign c) investigate enforcing legislation (issue fines)	Traffic Management	Anti-idling enforcement	LDC	Ongoing	Yes	NO2/Participation/Enforcements	Ongoing	Ongoing - Temporary signs installed around AQMA's	Ongoing	Public engagement work targeting schools to be carried out. Anti-idling signs installed around AQMA areas in Newhaven & Lewes Town Centre. Further plans afoot. Emissions reductions may have to be calculated rather than measured.

Lewes District Council

13	Vehicle Emission Testing in central Lewes to measure vehicles emissions at pollution hotspots, supermarkets, car parks a) Carry out VOSA roadside emission testing (RET) b) Use of remote sensing technology	Traffic Management	Testing Vehicle Emissions	LDC	Yes	No	Test Results	None	No further action unlikely to be taken forward due to the increased deliverability and benefit of LEZ.	Unknown	None
14	Lewes Parking Management (LTP+) - Intensification of existing/planned LTP programmes a) extension of parking controlled area b) re-allocation of parking/loading spaces c) higher charges for long stay parking d) higher charges for residents second parking permits e) discounted permits for low-emission vehicles f) introduce car spaces for low-emission vehicles, car-clubs and car share g) maintain/increase provision of two-wheelers parking	Traffic Management	Other	East Sussex County Council	No	Yes	reduced traffic and congestion at peak time, reduced re-circulation, reduced emissions; and modal shift and sustainable travel behaviour	None	Parking review and consultation undertaken 2013. c) New charges at longer stay car parks d) Residents permits now limited with new build *f) 4 off street car park spaces provided for community car club. 2 EV charging bays now installed at Lewes railway station Investigating the provision of a low emission car park within the AQMA to include preferential parking.	Unknown	None
15	Review of Lewes car parking system (LTP+) - a) Reallocation of existing car parks to reduce create a network of "park & walk" sites outside the AQMA b) Dedicated Short (3) and long stay car parks outside AQMA c) Installation of signage (i.e. with directions to car-parks) at access points to town	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	LDC	Yes	No	Reduction of veh/km & congestion	None	LDC Planning have carried out an off street parking provision study (options for managing future demand and supply for off street parking) this will feed into the Local Development Framework. All off street cars parks have been audited and changes to short and long	Unknown	Will reduce vehicle "churn" in the Lewes AQMA.

Lewes District Council

									term designation. Further feasibility work to be undertaken relating to low emission public P and D.		
16	Partnership work with bus & train operators (LTP+) a) Reduce emissions: calculate emissions from existing bus fleet, route/fleet management (i.e. only cleaner vehicles through AQMA), eco-driving training b) Increase bus and train patronage: through supporting marketing campaign, extend use of subsidised/discounted fares, improve bus connection to key area, bus stop facilities, bus information c) Provision of additional undercover cycle parking at Lewes station	Vehicle Fleet Efficiency	Driver training and ECO driving aids	LDC	No	Yes	accessibility, awareness	None	a) Brighton and Hove bus drivers are now eco trained, preparing scheme to target other operators. New generation of LE buses starting to penetrate smaller fleets. b) LSTF monies invested in real time bus information on key routes through Lewes. In addition a travel choices marketing campaign will be delivered promoting bus and train patronage. c) New 150 space secure cycle hub to be installed at Lewes train station with card entry system. LDC now working and part of the Sussex community rail partnership current projects include route guide.	Unknown	Long term modal shift from car to bus.
17	Lewes Town Travel Plans (LTP+) - a) Review existing County & District Travel Plans b) Accelerate implementation of workplace travel plans c) Accelerating implementation/review of local	Promoting Travel Alternatives	Other	LDC	Completed	Yes	lead by example, change in travel behaviour, education, awareness	None	a) LDC travel plan currently being reprioritised with a number of actions agreed by CMT including reduction in kgCo2/KM	None	Encouragement of modal shift and appropriate use of cars at workplace.

Lewes District Council

	school travel plans (including colleges) d) Link to other actions (i.e. school monitoring projects, cycling and car-sharing promotion) e) Target shorter journeys – investigate personal travel planning marketing								allowance on contract cars to 120. b) LSTF monies have allowed employment of Sustrans officers for both school and workplace. Including support in delivery of revised workplace travel plans. e) Investigated Sustrans campaign model but not progressing at this stage.		
18	Car-sharing (LTP+) - Support LTP car-sharing & "travel-choice" campaign in Lewes town (i.e. through travel plans and ad-hoc events).	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	East Sussex County Council	Completed	Yes	Travel Behaviour	None	LSTF monies being used to enable a rebrand and new focus.	Unknown	Modal shift
19	Car clubs - a) Support existing club in Lewes town (i.e. marketing) b) Accelerate introduction of new clubs c) Provide parking locations for car parks (Require car-clubs for large new developments – M21)	Alternatives to private vehicle use	Car Clubs	LDC	No	Yes	Usage of Carclub	None	2 vehicles launched July 2010. Four Cars in Lewes as of February 2015.	None	Modal shift and appropriate use of lower emission vehicles within and around the AQMA.
20	Walking and cycling (LTP+) - a) Accelerate implementation of LTP actions within Lewes town (i.e. improvement to existing cycle routes, identify new ones, improve signage and facilities) b) Promoting walking and cycling as a healthy and more preferable option to car for local journeys c) Promotion through travel plans, one-off events, "TravelChoice" campaign	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	East Sussex County Council	No	Yes	Delivery of LTP Actions	None	a) Work and school cycle challenge delivered September 2010. 2012 and 2013. Will run again in 2014 Full details at www.lovetoride/lewes . Cycle storage audit undertaken in Lewes and 15 new sites identified for	None	Modal shift and long term habit forming intervention.

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									new storage provision. Installation Summer 2014. LSTF monies being used to improve National cycle route 2 through Lewes town. b) Cycle Lewes Map reprinted and redesign in 2012 continues to be distributed through outlets, now 20,000 copies in circulation. LSTF monies to promote. c) Lewes Hike and Bike festival to be delivered for second year, co funded with ESCC and SDNP.		
21	Better control of impact of new developments - a) Facilitate funding from S106 agreement b) Conditions to require reduced parking allocation, completion of Sustainability Checklist; travel plans for large developments and inclusion of pedestrian & sustainable transport facilities such as car-club dedicated car spaces and bus lanes	Alternatives to private vehicle use	Car Clubs	LDC	No	Yes	Number of s.61 agreements	None	a) Sustainable accessibility s106 agreements secured on numerous applications including increased car club provision. b) Conditions and sustainability checklist completed on all large planning applications including provision of car club by developer for town centre development. Car club policy note drafted to secure	None	Modal shift and integration of new developments into the urban landscape to enable pedestrian access throughout the town.

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									funding from developers for additional car club cars.		
22	Greater planning controls within or near the AQMA for new developments or applications a) Stricter conditions limiting permitted uses and changes of use for new applications b) Request detailed air quality assessment for developments affecting AQMA. c) Encourage the uptake of Low emission strategies by developers d) Investigate production of supplementary guidance notes on air quality for new developments	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	LDC	Yes	Yes	Planning Conditions and Guidance Production	None	a) LDC officers consulted on all planning applications, good awareness of AQMA including training session. b) AQ assessments requested for developments affecting AQMA	None	Sussex-air Guidance enables quantification of air quality impacts (health) and emissions mitigation options for new developments
23	Intensify promotion of national schemes on domestic heating and energy efficiency - Increase promotion of scheme aimed to improve insulation, replace/service boilers, encourage energy efficiency in the Town Centre	Promoting Low Emission Plant	Other	LDC	Completed	Yes	CO2/NO2 Reduction	None	93.80 tonnes of CO2 annual saving from cavity wall and loft insulation based on 178 installs in Lewes Town from Insulation Campaign and My Home 2012.	Unknown	Reduction in point source emission within and around the AQMA from non-transport domestic sources.
24	Continue investing in new technologies and pilot projects through the LDC Waste & Recycling a) Electric vehicles for recycling fleet b) NOx reducing additive for HGV diesels c) Eco-driving training d) Route management (GPRS) e) Monitoring of fuel use & efficiency	Vehicle Fleet Efficiency	Other	LDC	No	Yes	Fuel Usage/Maintenance Records	None	a) Fleet being maintained b) NOx additive still used c) Eco driver training for operatives d) All vehicles GPRS controlled e) All fuel use monitored	Ongoing	Reduction of LDC fleet emissions in the AQMA. LDC is in the top 10 of EV users amongst councils in the UK: http://www.intelligentcarleasing.com/blog/new-study-compares-every-uk-council-electric-vehicles/

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25	Investigate use of innovative NO2 absorbing/reducing technologies a) NO2 absorbing paint/slabs b) Bio-fuels NOx reducing additives	Policy Guidance and Development Control	Other policy	LDC	Yes	No	NOx	None	Data from Congleton Borough and Camden Council trials show some promise though air quality community still on fence in terms of effectiveness. Historic building impact also a concern	None	No hard evidence for using this
26	Raising awareness & engagement of non-statutory stakeholders a) Organise one-off events, talks, workshops and targeted campaigns on public transport marketing and eco-driving, involving the local community b) web-sites improvements to provide better information & allow feedback/participation from members of the public c) Pilot LDC internal pop-up messaging providing air quality/sustainable transport information	Promoting Travel Alternatives	Other	LDC	Completed	Completed	Participation in events	None	Measures in M20 and a) Second year of the Lewes Hike and Bike festival, numerous guided walks and cycle rides, bike training and information stall day.	Ongoing	Informative: potentially significant cumulative impact by modal shift.
27	Strengthen partnership work with ESCC (LTP), LDC Sustainability(Climate Change), Planning & Communities (LDF & LSP), Sussex Air (emissions inventory, air-alert) a) Intensify links to existing strategies b) Accelerate implementation of those schemes which may improve local air quality. c) Joint participation to events, campaigns, grants applications, data collation surveys d) Plan monitoring programme (i.e. traffic) to assess action plan effectiveness	Policy Guidance and Development Control	Regional Groups Coordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	LDC	No	Yes	climate change, transport, social inclusion, communication, effective partnership work	None	a)Working on links to LDF b)LES being promoted through RGI scheme c)Ongoing working with ESCC transport (LSTF), Dev control and environment team and local groups. d)Lewes town monitoring currently assessing M1 effectiveness	Ongoing	Informative: potentially significant cumulative impact due to modal shift and adoption of ULEV.

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28	Address traffic flow & congestion on Newhaven Ring Road	Traffic Management	UTC, Congestion management, traffic reduction	ESCC	ongoing study	ongoing	Traffic flow/NO2	None	Study of potential options to address traffic flow/pedestrian safety	Ongoing	Wider Impacts: Safety, walking, cycling, congestion
29	Improve cycling facilities	Promoting Travel Alternatives	Promotion of cycling	ESCC	completed	completed	Cycling facilities	None	Provision of new cycle stands at key locations in Newhaven town Centre	Completed	Wider Impacts: Safety, walking, cycling, congestion
30	Upgrades and signs for cycling	Promoting Travel Alternatives	Promotion of cycling	ESCC	design phase	ongoing	Traffic counts	None	Upgrades to routes and signage in and through Lewes	Ongoing	Encourage long term modal shift.

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.

Work carried out by Public Health England as part of the Public Health Outcomes Framework (PHOF) shows that the mortality associated with particulate air pollution within Lewes District is 5.1% (2016 data), an increase on the previous year (2015 data) which was 3.9 %. This information is available from the following web link:

<https://fingertips.phe.org.uk/search/particulate%20air%20pollution#page/1/gid/1/pat/6/par/E12000008/ati/101/are/E07000063/iid/30101/age/230/sex/4>

Figure 7: Fraction of mortality attributed to particulate air pollution in Lewes District

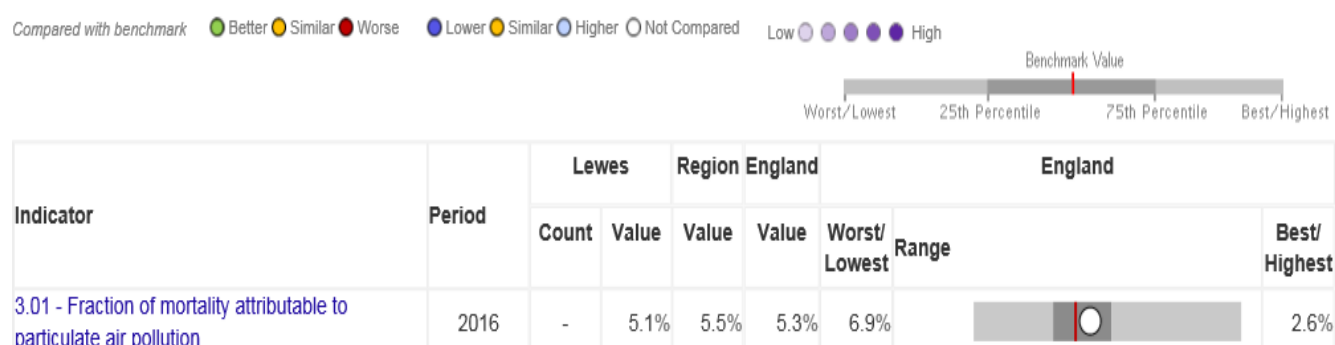


Figure 7 shows that the mortality calculated for Lewes District is slightly less than that calculated for south east England (5.5 %) and England (5.3 %) as a whole.

Lewes District Council is developing its approach to address PM_{2.5} in partnership with public health local authority officers. The automatic analysers in the Lewes District Council area do not measure PM_{2.5}. In DEFRA's recent draft consultation ⁵Clean Air Strategy 2018 (opened 22/5/18) the government want to cut PM_{2.5} levels to those recommended by the World Health Organisation:

'We will progressively cut public exposure to particulate matter pollution as suggested by the World Health Organisation. We will halve the population living in areas with concentrations of fine particulate matter above WHO guideline levels (10 µg/m₃) by 2025.'

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

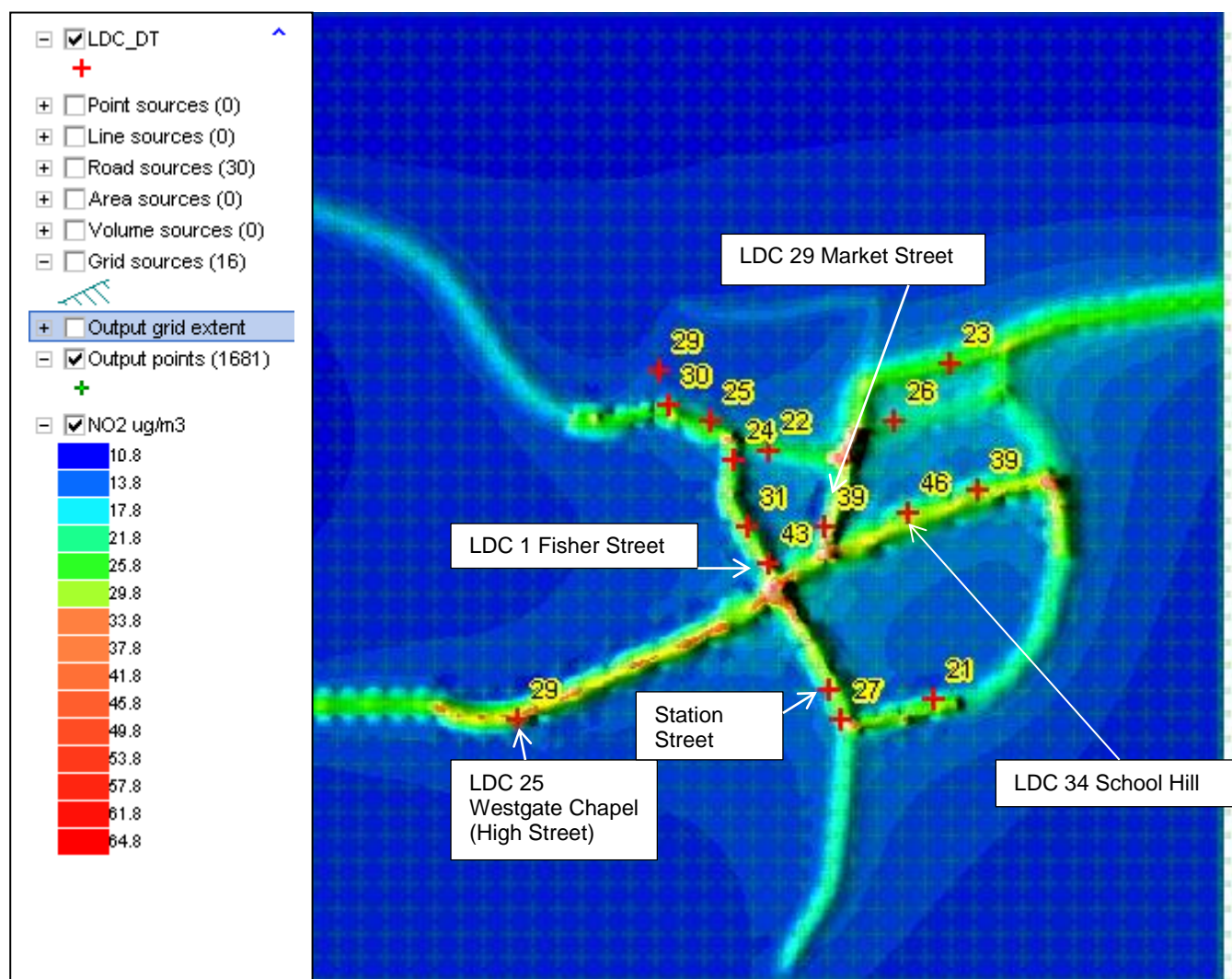
3.1 Summary of Monitoring Undertaken

As mentioned in last year's ASR, the Lewes AQAP requires reviewing and updating. Work has started on this with some initial modelling (source apportionment and contour mapping) which was carried out by Brighton and Hove City Council Air Quality Consultancy. This modelling is included below:

To better understand air quality improvements required at various locations to achieve the Air Quality Standard objectives it is necessary to try and determine the individual source emissions contributing to the overall predicted pollution concentration. Mapping and source apportionment has been completed using air dispersion modelling and using information and data from the DfT and ESCC/Highways traffic data. By carrying out modelling and reviewing the findings, a direction to develop, enhance, and drive improvements forward in the AQAP can be identified.

Figure 8 (next page) demonstrates the Contour mapping - ADMS spatial predictions for NO₂ Lewes AQMA Hotspot Map

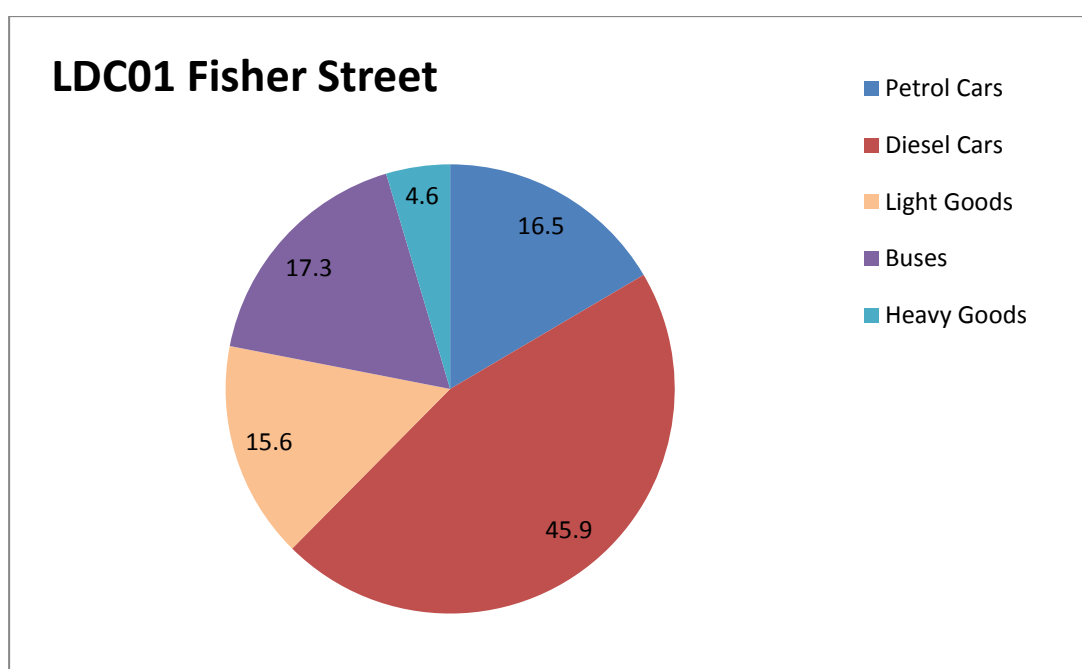
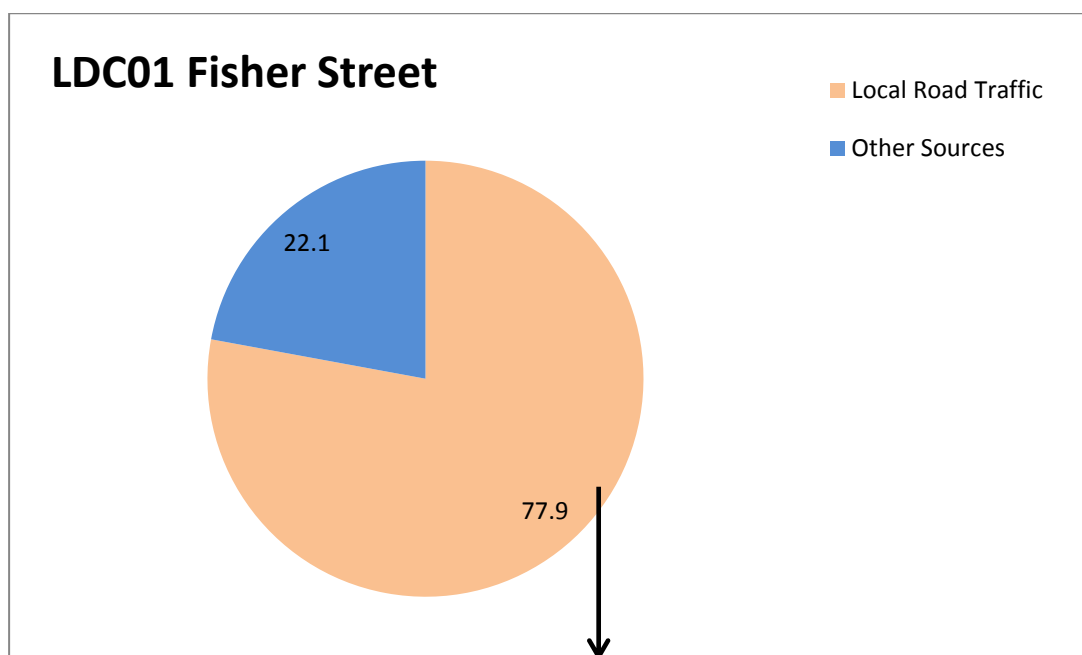
The contour map shows hotspots at the High Street/Fisher Street/Station Street crossroads (busy crossroads with two roads being hills leading into it), Market Lane (very narrow 'slot canyon') and the usual areas on School Hill, High Street and Fisher and Station Street. The model however does appear to under-predict NO₂ for School Hill (High Street). This is a steep incline with vehicles often having to perform hill starts and diffusion tubes tend to demonstrate elevated NO₂ concentration levels. It should be noted that the dispersion model includes commercial, domestic and traffic emissions (commercial and domestic will include combustion sources, boiler units/fixed plant sources). NO_x and NO₂ emissions can also come from industry, agriculture and shipping.



Modelling by BHCC Air Quality Consultancy

Source apportionment was undertaken considering emissions from specific vehicle groupings and based on oxides of nitrogen (NO_x) rather than NO₂ as NO_x is predominantly emitted as the primary pollutant. Source apportionment was mainly undertaken for specific sites in the AQMA, relating to diffusion tube monitoring sites. Results of the source apportionment are shown in Figures 9-13. Local road traffic and other sources have been modelled and differentiated from one another in order to break down the local traffic into a percentage and from this source apportionment for each vehicle type has been estimated.

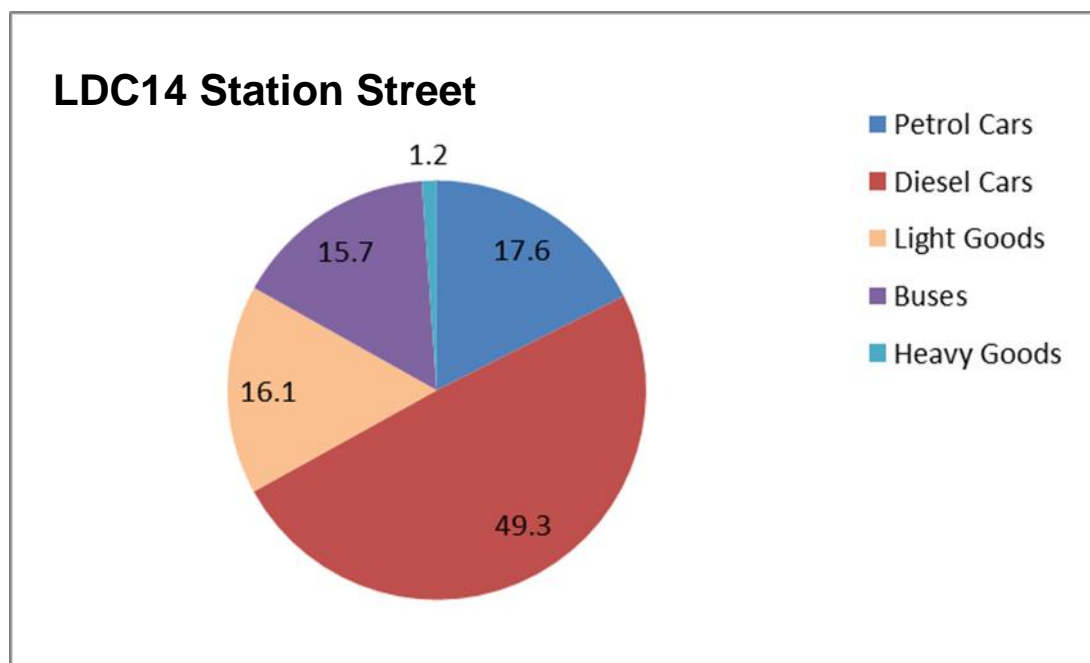
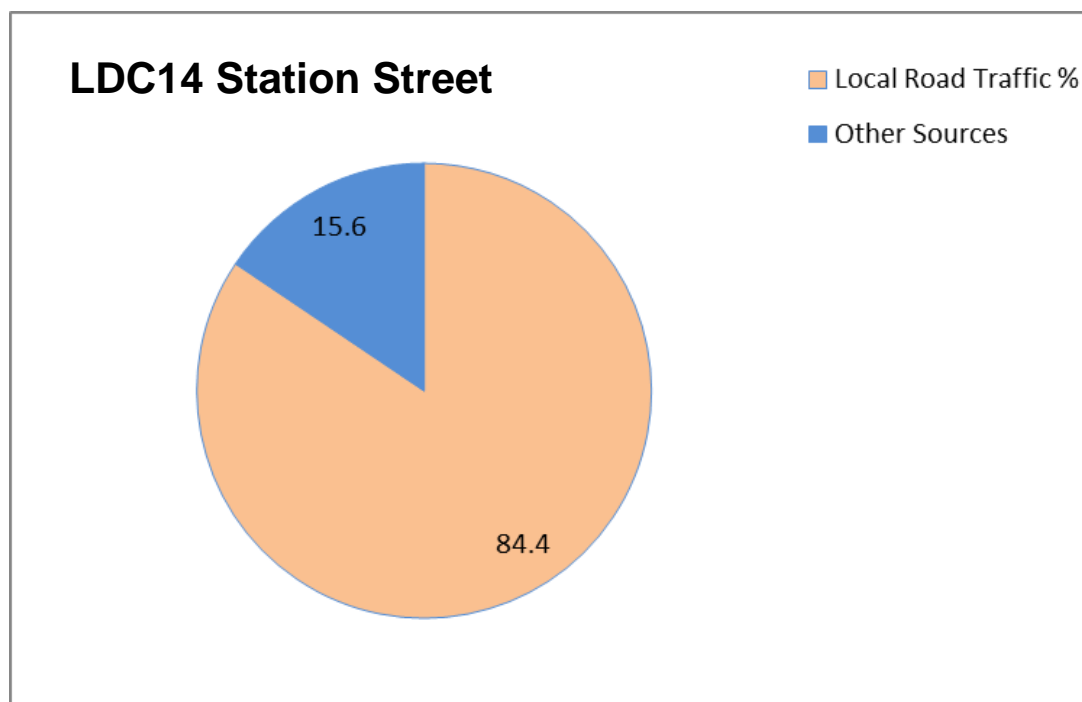
Figure 9 illustrates oxides of nitrogen source apportionment – key monitors in the Lewes AQMA – LDC 1 Fisher Street East



Modelling by BHCC Air Quality Consultancy

From the local road traffic source nearly 45% of NO_x is from diesel cars, followed by buses (also diesel), petrol (16.5%) and the light goods vehicles (further diesel). Fisher Street and Station Street are frequented by local single deck buses rather than double decker 'main line' buses.

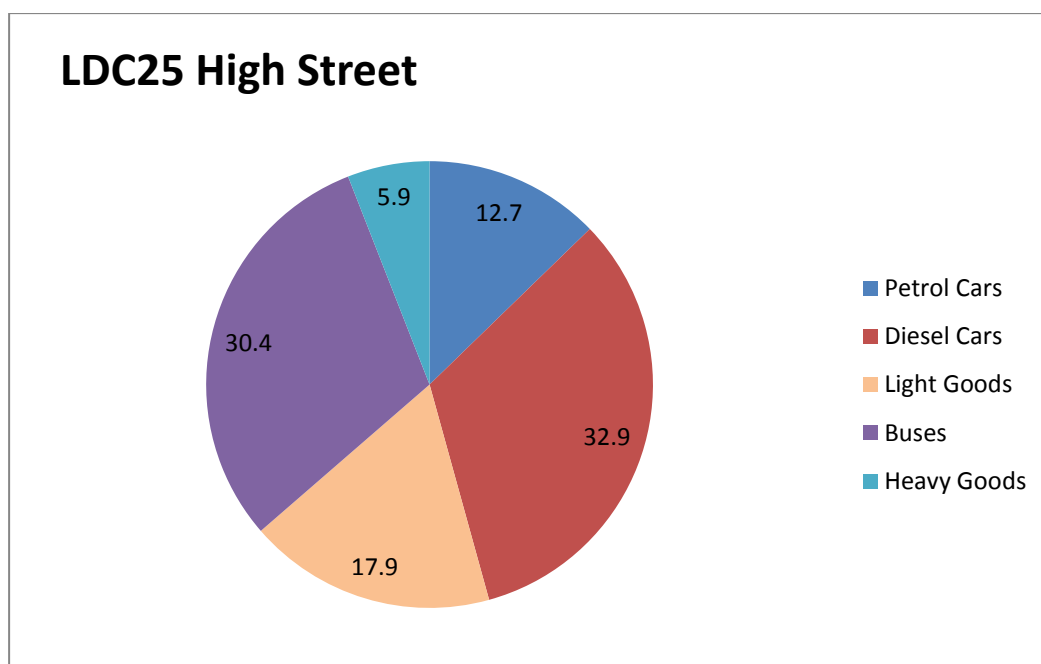
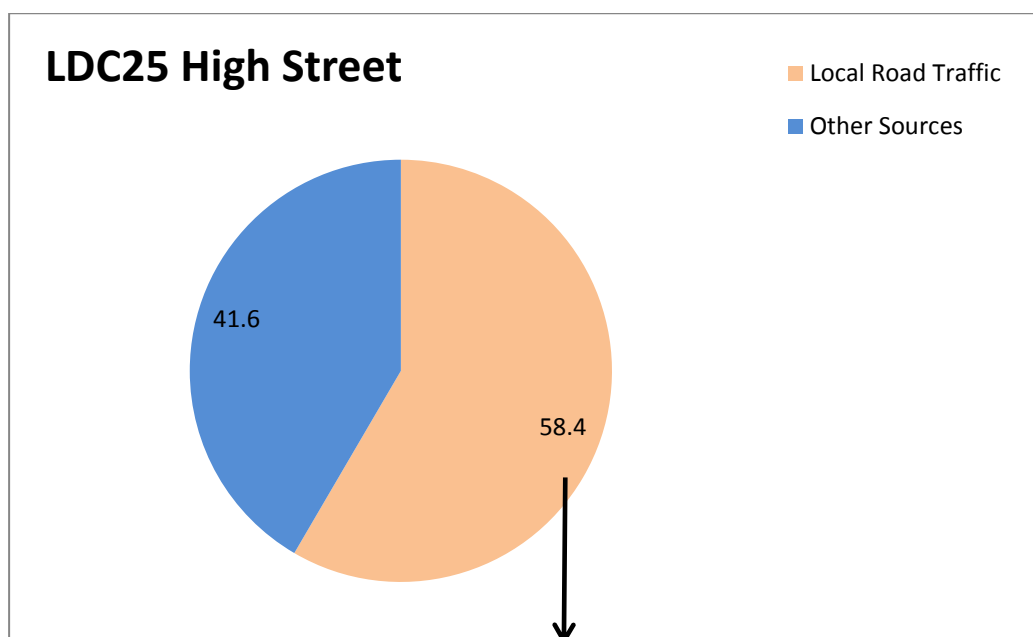
Figure 10 illustrates oxides of nitrogen source apportionment – key monitors in the Lewes AQMA – LDC 14 Station Street



Modelling by BHCC Air Quality Consultancy

Again diesel cars (49.3%) and other diesel vehicles (light goods and buses) are the dominant emitters of NO_x

Figure 11 illustrates oxides of nitrogen source apportionment – key monitors in the Lewes AQMA – LDC 25 High Street (Westgate Chapel)

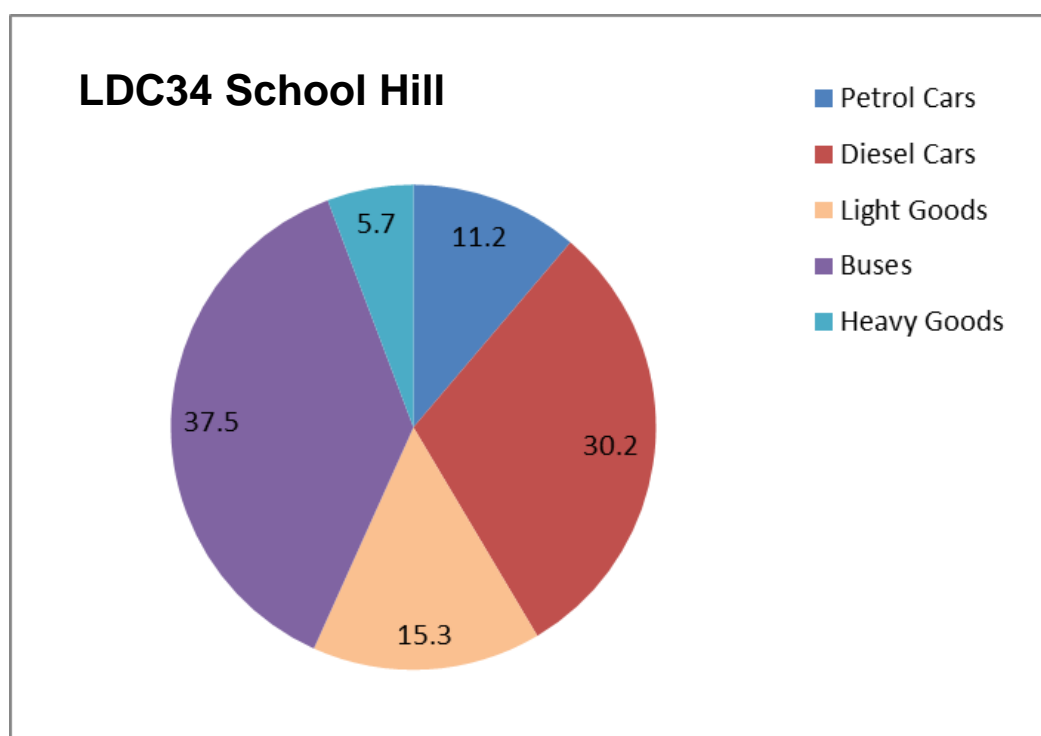
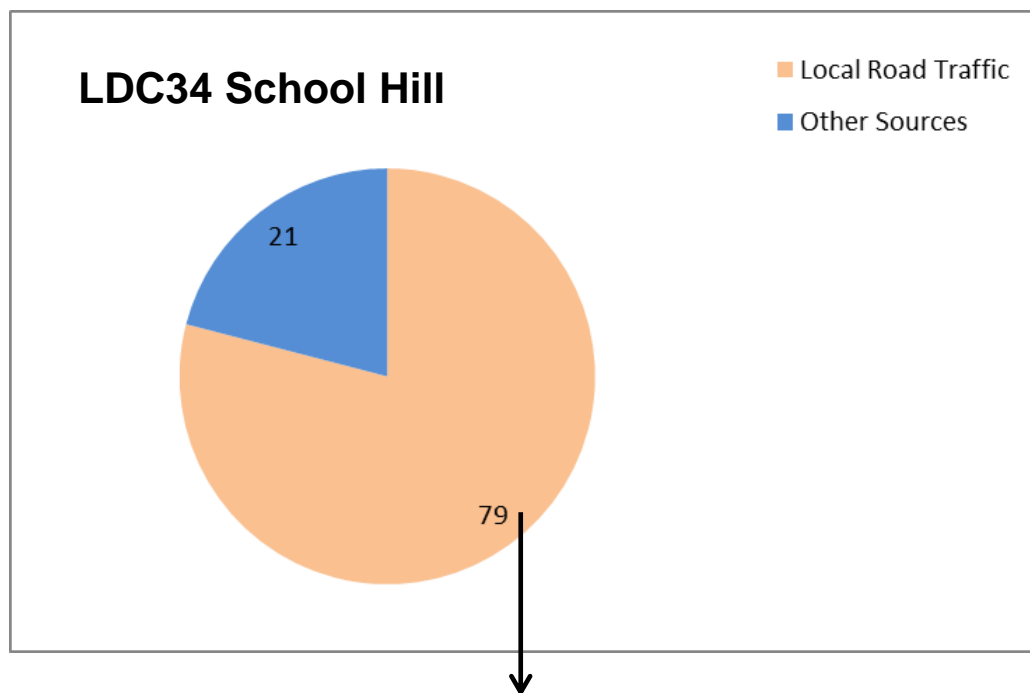


Modelling by BHCC Air Quality Consultancy

This site sits outside the AQMA and is more affected by other sources than the other sites in this source apportionment. However, 58.4% is attributable to traffic and diesel cars (32.9%) and buses (30.4%) make up a large part of this. As this is the High Street, many more 'main line' buses use this route compared to Station Street and

Fisher Street. The High Street has main routes running through it on a regular basis to and from Brighton to Tunbridge Wells.

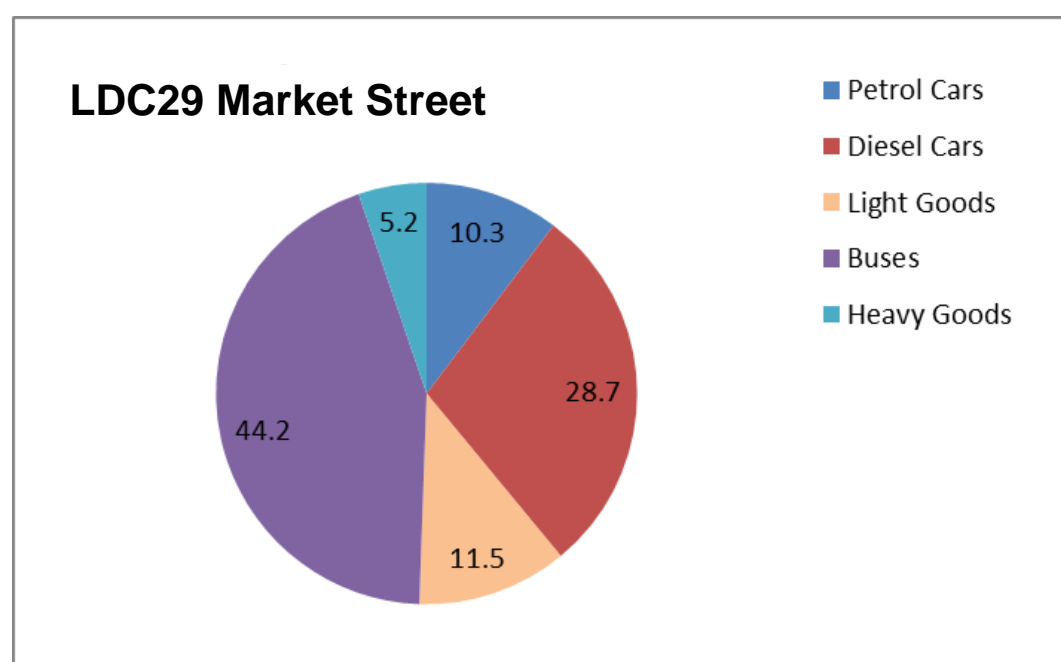
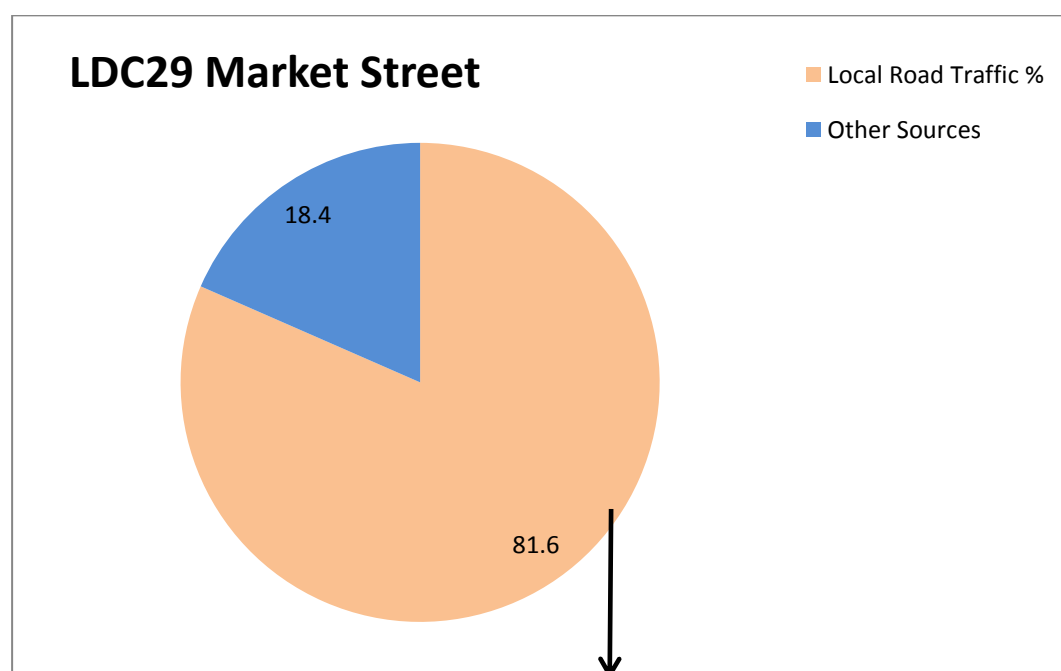
Figure 12 illustrates oxides of nitrogen source apportionment – key monitors in the Lewes AQMA – LDC 34 – 204 High Street (School Hill)



Modelling by BHCC Air Quality Consultancy

This location demonstrates a greater emission source from buses at 37.5%, closely followed by diesel cars (30.2%). Two of the main bus routes actually do a double circuit meaning that they go down Market Street twice and come up this section of School Hill/High Street twice. This will ultimately increase the diesel emissions from this source.

Figure 13 illustrates oxides of nitrogen source apportionment – key monitors in the Lewes AQMA – LDC 29 – Market Street



Modelling by BHCC Air Quality Consultancy

Like LDC34 School Hill, the source apportionment demonstrates a higher proportion of emissions from buses (44.2%); again this street has the double circuiting of two main bus routes. Diesel car emissions follow at 28.7% and then light goods vehicles (11.5%). At all sites heavy goods vehicles made up a small proportion of NO_x emissions.

Source apportionment for School Hill and Market Street indicate NO_x emissions from buses are significant for local air quality. Diesel car emissions also play an important role in local air emissions.

Motorcycles were included in the source apportionment and were found to contribute no more than 0.2% to NO_x levels in the AQMA. The traffic counters suggested that rates of cycling were low. With this modelling in mind and further discussions and perhaps further modelling, suggestions and ideas for advancing the AQAP and improving air quality can be drawn up.

3.1.1 Automatic Monitoring Sites

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

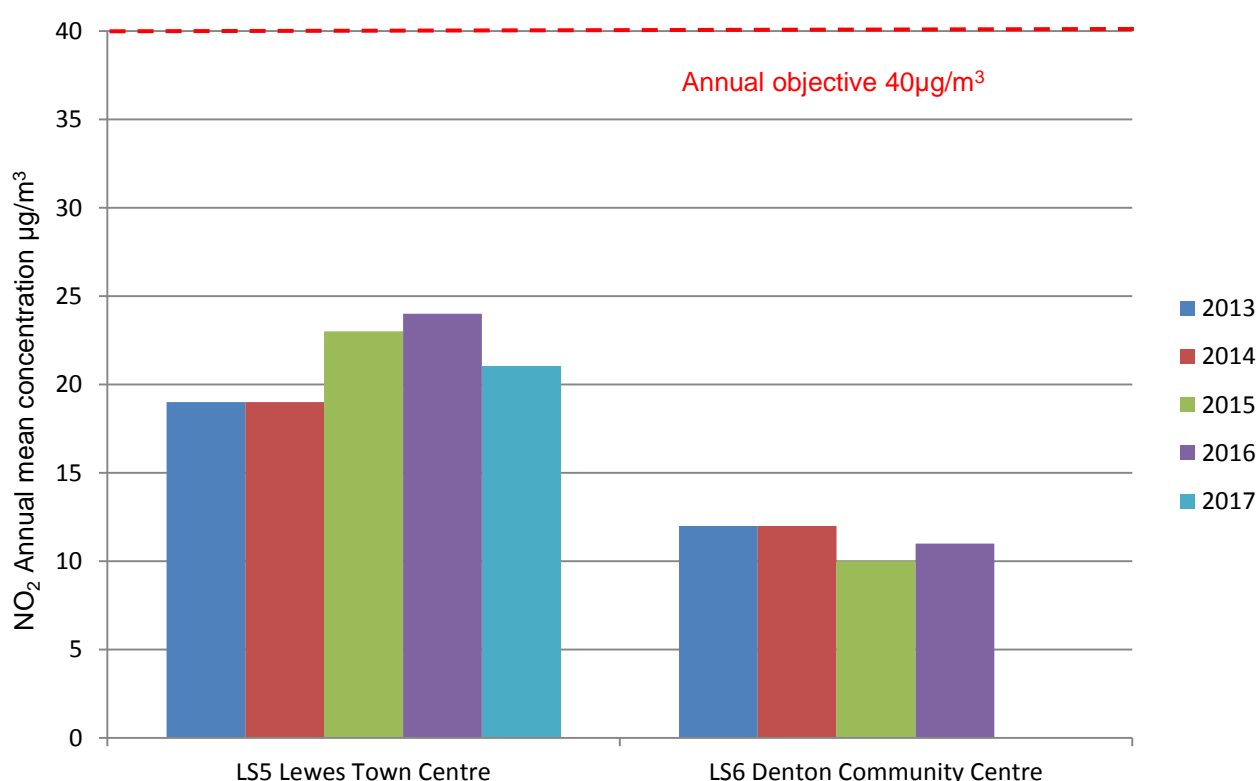
Lewes District Council undertook automatic (continuous) monitoring at two sites during 2017, however LS6 Denton Community Centre was badly vandalised during June 2017 and had to be permanently decommissioned thus providing inadequate data (under 50% data capture for the year). We currently have no replacement station. Due to these facts, annualisation of 2017 data for this site has not been carried out. Although LS6 is mentioned in this section, no 2017 data has been included. Table A.1 in Appendix A shows the detail of the LS5 Lewes Town Centre site.

NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. National monitoring results are available at <http://www.sussex-air.net/> Sulphur dioxide is not monitored as there have been no significant changes to potential sources for many years.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

Figure 14 shows the annual average NO₂ concentrations measured at the automatic monitoring sites from 2013-2017. Both sites demonstrate levels well below the 40µg/m³ annual objective. It is recognised that the site at LS6 Denton Community Centre has consistently demonstrated readings significantly below the annual objective concentration. The LS6 monitoring station was placed at this site in July 2013 specifically to monitor any potential emissions and their possible impact on background concentrations from the Newhaven Energy Recovery Facility on North Quay Road, Newhaven. However, concentrations of NO₂ and PM₁₀ at this site fall well below the air quality objective. The site has since been decommissioned (due to vandalism) and the council are hoping to re-instate a new monitoring station within/or near the Newhaven A259 Ring Road AQMA subject to funding and suitable location identified.

Figure 14: Annual average NO₂ concentration in µg/m³ measured at automatic monitoring sites in the Lewes district 2013-2017



3.1.2 Non-Automatic Monitoring Sites

Lewes District Council undertook non- automatic (passive) monitoring of NO₂ at 40 sites during 2017. Table A.2 in Appendix A shows the details of the sites.

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

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO₂)

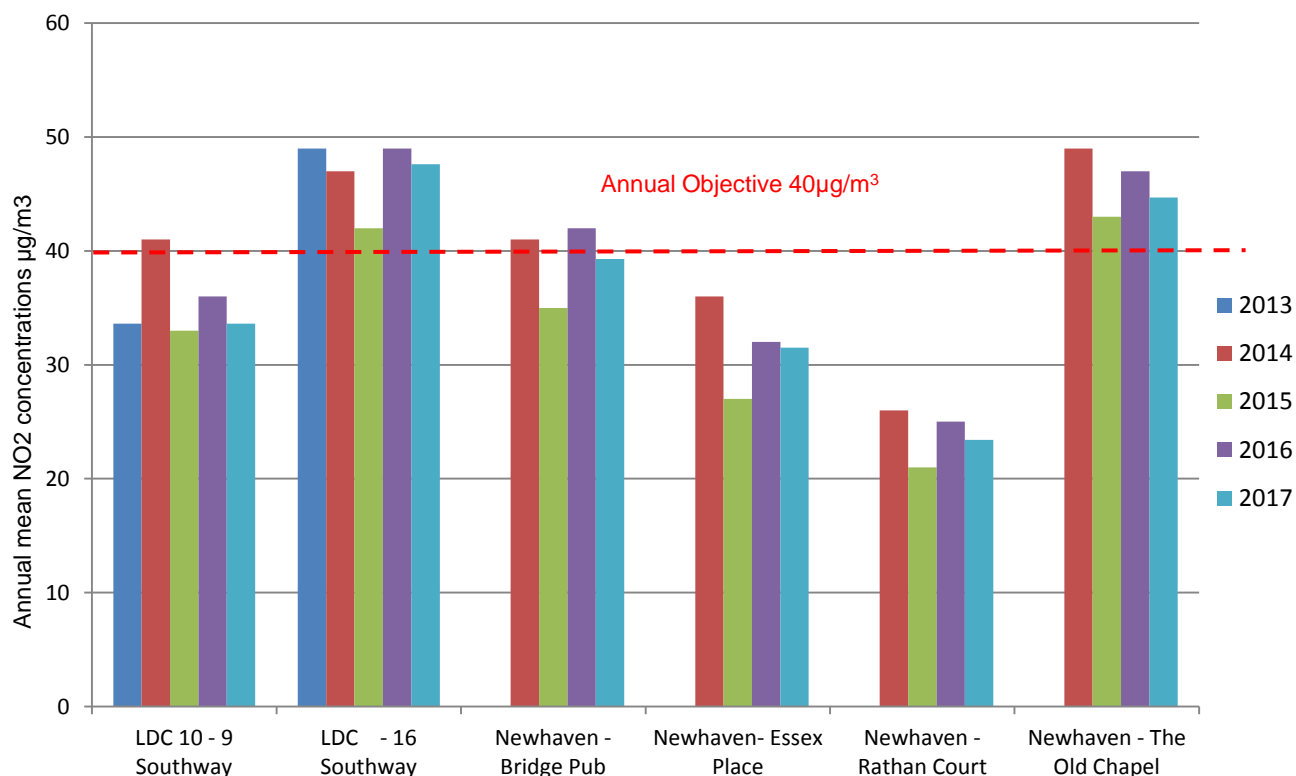
Table A.3 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

For diffusion tubes, the full 2017 dataset of monthly mean values is provided in Appendix B. For the year 2017, there were some diffusion tube changes. Five locations ceased to have diffusion tubes (they showed consistently low NO₂ readings) and instead the tubes were re-deployed to 5 new locations.

Removed:	LDC12 Valley Close Newhaven
	LDC 7 Willow Estate, Avis Way Newhaven
	1 New Road Newhaven
	LDC 28- West Str/Market Str
	Lancaster Street
New Locations:	Seaford- Sutton Park Rd/Warwick Ave
	Telscombe – South Coast Rd/Central Ave
	Peacehaven – O/S 223 South Coast Rd
	Peacehaven – South Coast Rd/Steyping Ave
	Peacehaven – O/S 53 South Coast Rd

Figures 15-20 show trends in nitrogen dioxide measured by diffusion tube from 2013 to 2017. Each figure illustrates the concentration for groups of sites with data readings.

Figure 15: Annual average NO₂ concentration (diffusion tubes) located within the A259 Newhaven Ring Road AQMA from 2012-2016:



The above figure shows the diffusion tubes within the Newhaven AQMA – it is clear that two sites, LDC- 16 Southway and The Old Chapel have had NO₂ annual mean concentrations above the annual objective for the last 5 years. The Old Chapel is located on a hill, near a junction and will receive ‘launch’ exhaust from vehicles that have stopped and then started on the hill at the nearby pedestrian crossing. 16 Southway is at the apex of the hill, where vehicles queue and there is a nearby bus stop. However, NO₂ concentrations appear to have fallen against last year’s figures on all tubes within the AQMA.

Figure 16: Annual average NO₂ concentration (diffusion tubes) located within the Lewes Town Centre AQMA from 2013-2017

X axis= NO₂ annual mean concentration µg/m³

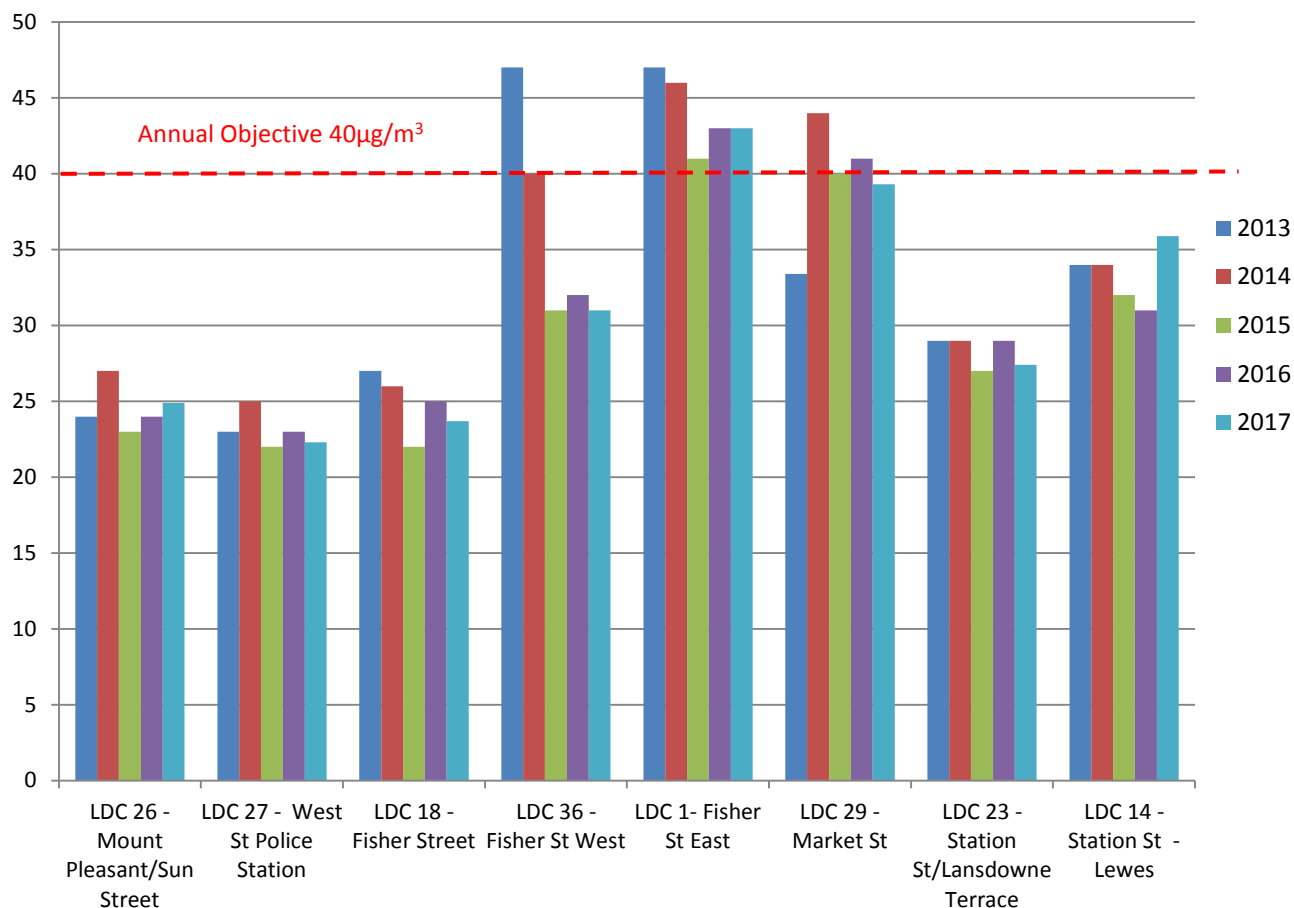
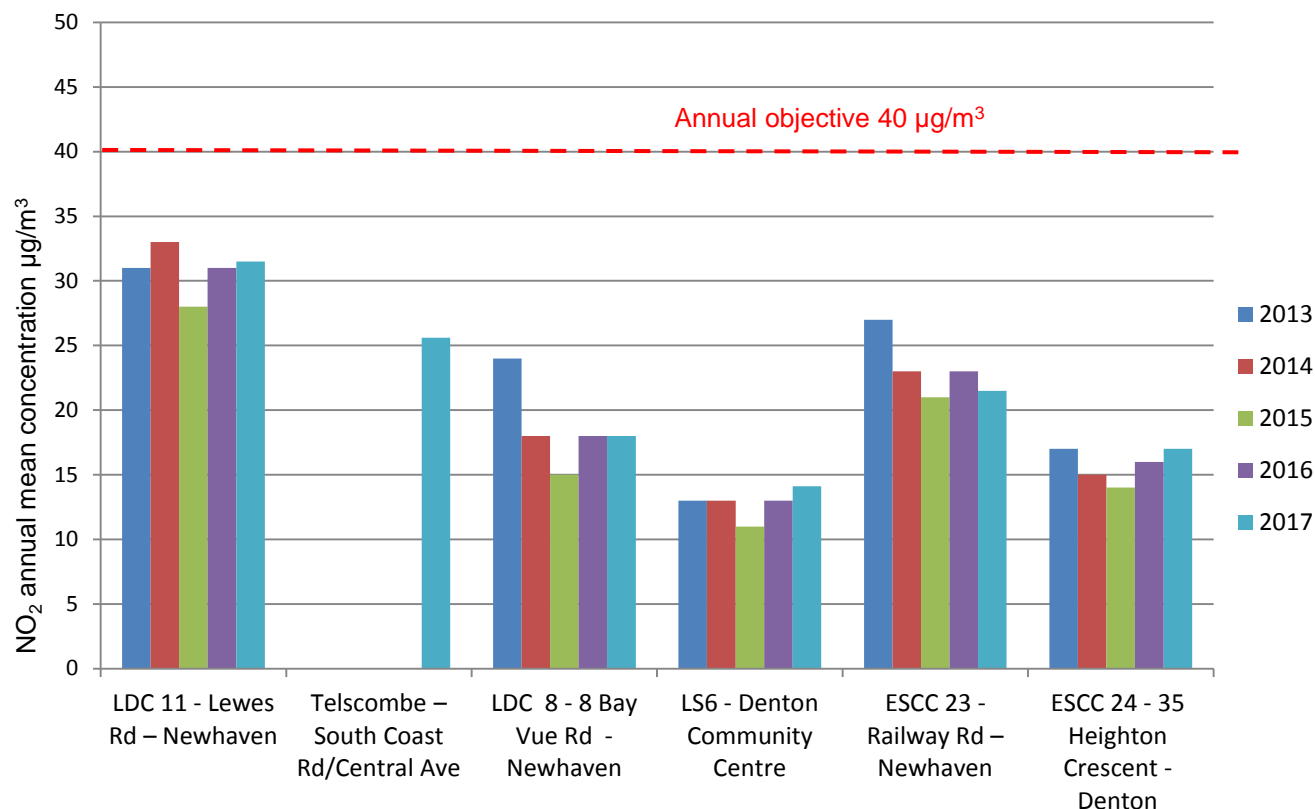


Figure 16 shows the diffusion tubes which are located within the Lewes AQMA.

LDC 1 – Fisher Str East has consistently shown above annual objective concentrations over the last 5 years, albeit those concentrations are gradually reducing. LDC 18 and LDC 36 Fisher Street have shown reductions towards the middle and other end of this street where a change of priority in traffic was implemented as part of recommendations made in the Lewes AQAP 2009. Again most sites have shown a drop in concentration compared to 2016. The site that stands out with an increase is LDC14- Station Str. Again this is a steep hill with a lot of engine ‘launch’ as vehicles wait on the hill for the traffic lights at the top to change. It should be noted that in 2016 Station Street was closed for a period of months due to a major sewer burst and this may have made concentrations appear lower than they might have been.

Figure 17: Annual average NO₂ concentration (diffusion tubes) located within the Newhaven area but not in the AQMA and one tube in Telscombe from 2013-2017.



From Figure 17 it is clear to see that these sites are considerably lower than those in the Newhaven AQMA, except for the LDC 11 Lewes Rd location which shows readings around the early 30µg/m³. It should be noted that this tube location sits on the edge of the Newhaven AQMA, therefore readings are higher. However all tubes demonstrate concentrations have not gone over the annual objective for the last 5 years. Telscombe-SouthCoast Rd/Central Ave is a new tube installed in January 2017, the concentration comfortably sits well below the annual objective.

Figure 18: Annual average NO₂ concentration (diffusion tubes) located within the Lewes area but not in the AQMA from 2013-2017

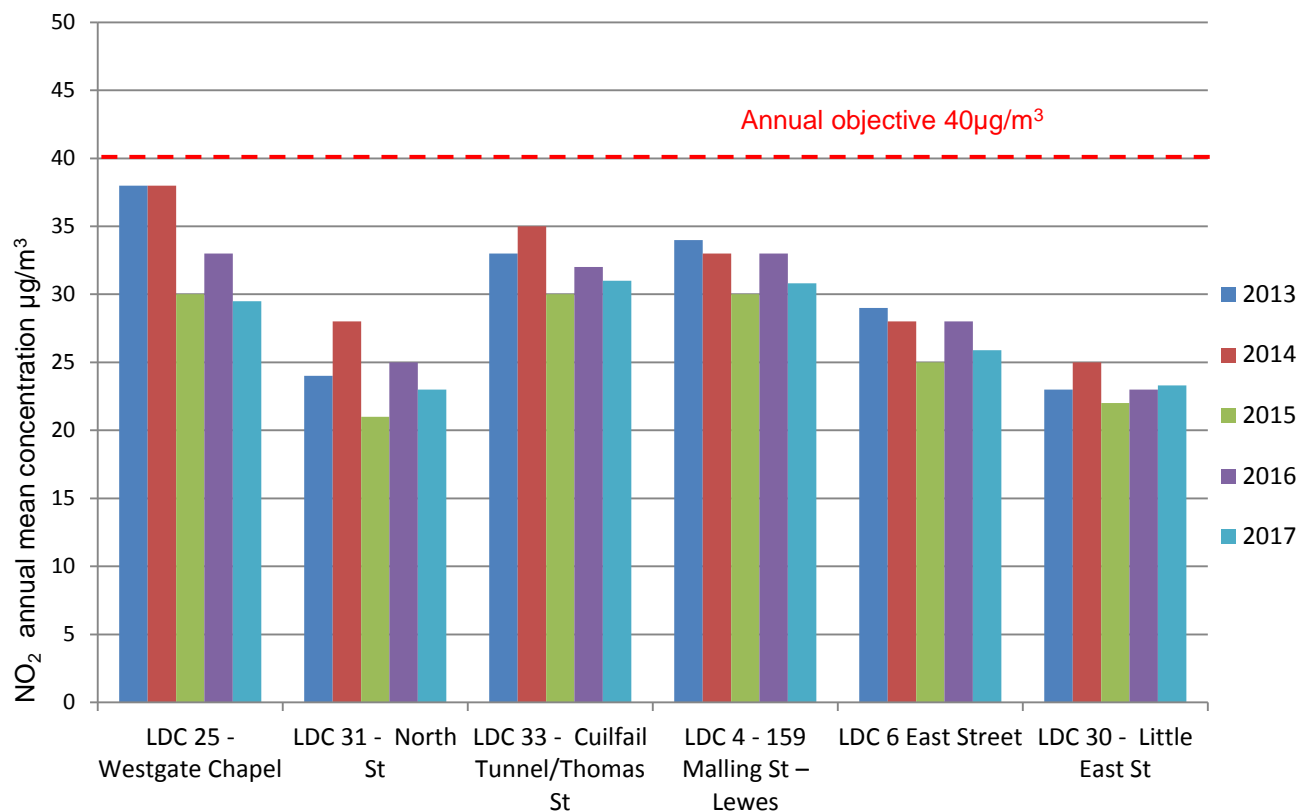


Figure 18 demonstrates all these sites are below the annual objective and have remained so for over 5 years. 2017 concentrations are showing a decrease from 2016 concentrations.

Figure 19: Annual average NO₂ concentration (diffusion tubes) located within the Lewes area but not in the AQMA from 2013-2017

X axis= NO₂ annual mean concentration µg/m³

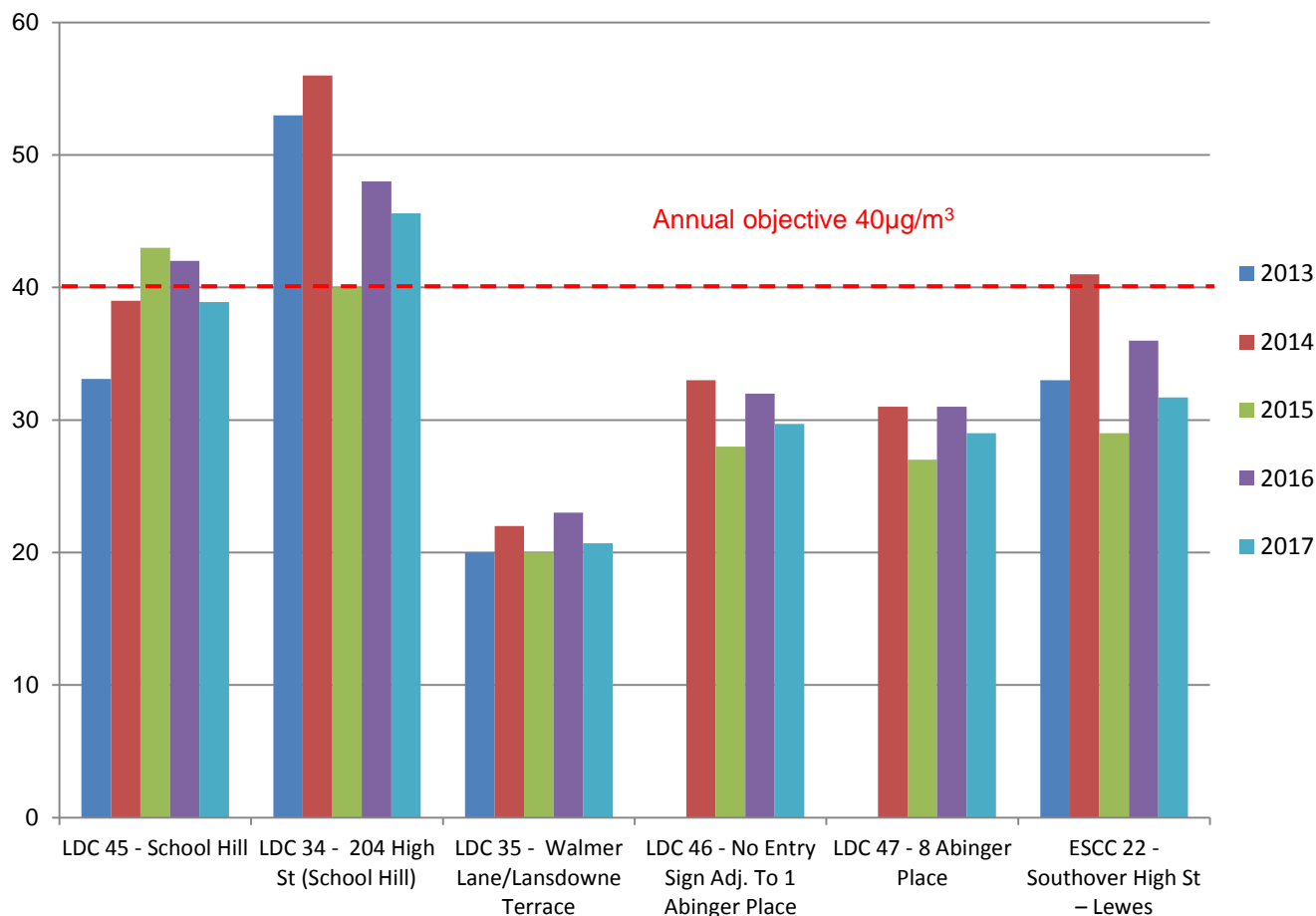


Figure 19 demonstrates that although all of these sites may be out of the Lewes AQMA not all are meeting the annual objective. School Hill is a steep incline with a bus stop nearby and above the area of site LDC 34- 204 High Str. This particular site was examined in the modelling for source apportionment (See Figure 12). When this road is busy, there is fume from vehicle ‘launch’ and often idling when waiting in traffic. However it is encouraging to see that data for 2017 shows a slight decrease on 2016 concentrations and that the high readings seen in 2013 and 2014 have not been reached again.

Figure 20: Annual average NO₂ concentration (diffusion tubes) located within the Lewes District area as a whole and not in the AQMA's from 2013-2017

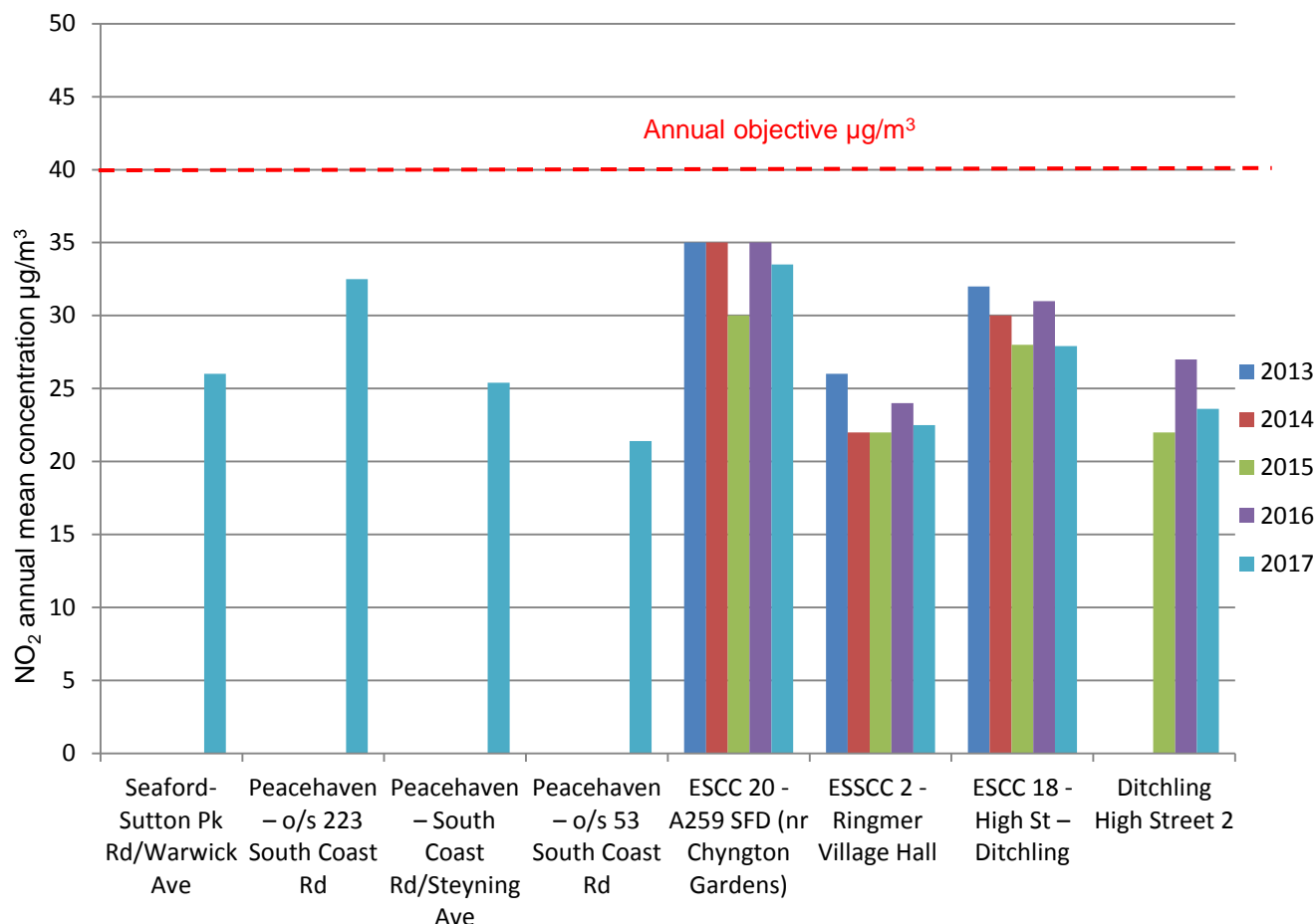


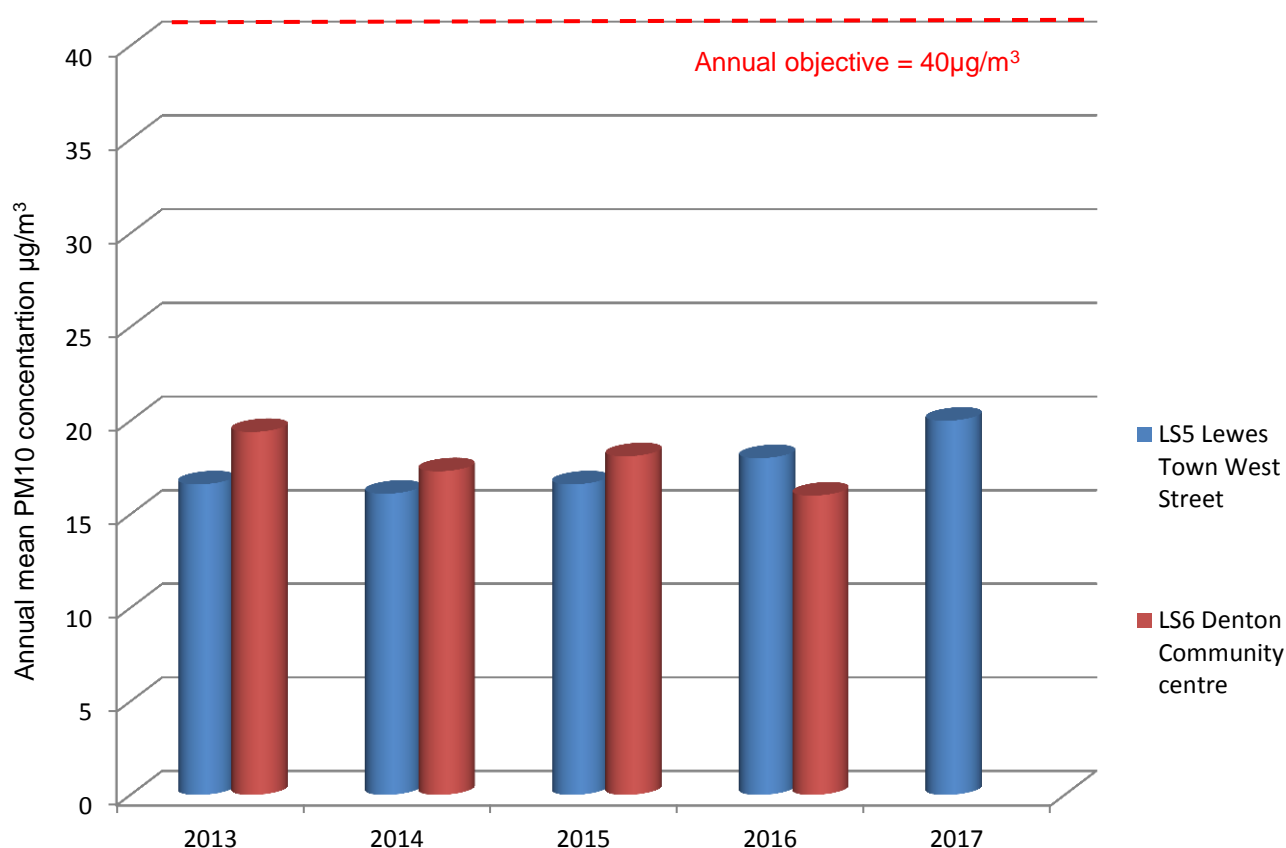
Figure 20 shows all sites that are in the more outlying Lewes District areas. All indicate concentrations within the annual objective, including the four new sites for 2017. Those sites showing 3-5 years' worth of data illustrate a decrease in concentrations for 2017 data.

Table A.4 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year. There have been no exceedances of the hourly objective of 200µg/m³ since monitoring began.

3.2.2 Particulate Matter (PM₁₀)

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

Figure 21: Annual average PM₁₀ concentration measured at LS5 Lewes Town West Street and LS6 Denton Community Centre (Automatic Monitoring sites) 2013-2017

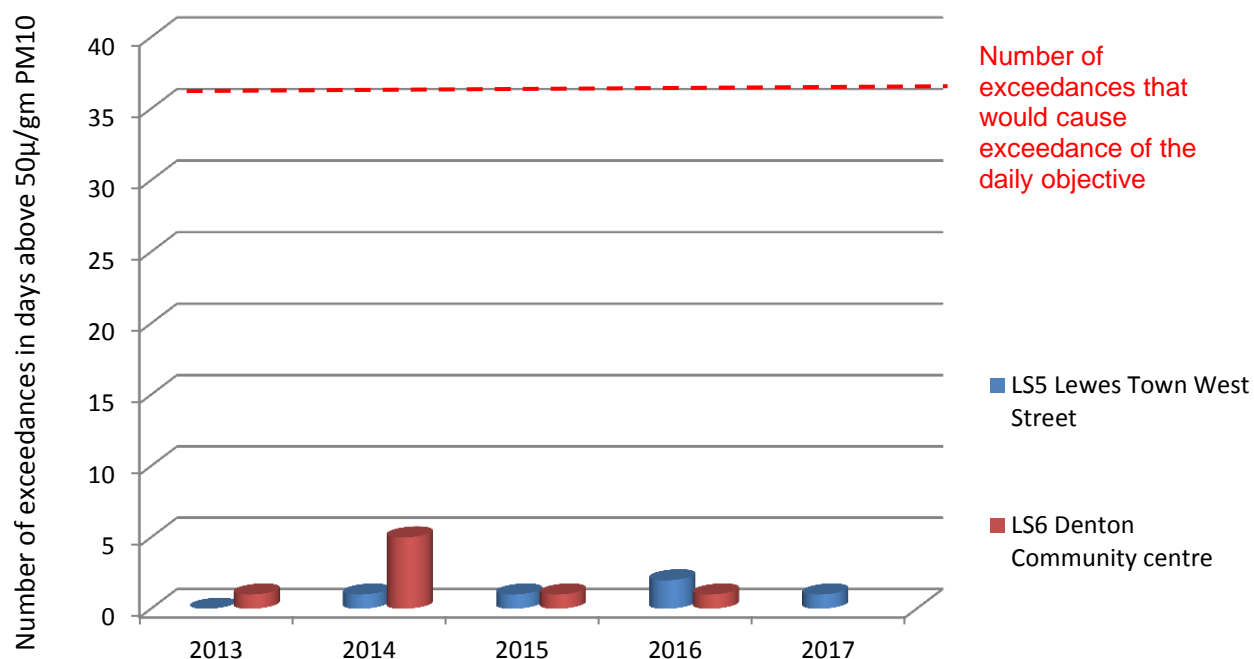


Please note – no valid data for LS6 for 2017 and the site has now been decommissioned
All data ratified

NB: Newhaven background site moved from Denton School to Denton Community Centre mid-way through 2013. The daily mean PM₁₀ concentrations for Denton School (Jan 2013-Jun 2013) were combined with daily mean PM₁₀ concentrations for Denton Community College (Jul 2013-Dec 2013) to calculate the annual average

Although LS6 Denton Community Centre is no longer up and running, it is clear that neither site have had concentrations near the annual objective of 40µg/m³ for the last few years.

Figure 22: Number of exceedances of the $50\mu\text{g}/\text{m}^3$ daily average at LS5 Lewes Town West Street and LS6 Denton Community Centre (Automatic Monitoring sites) 2013-2017



Please note – no valid data for LS6 for 2017 and the site has now been decommissioned
All data ratified

The above figure shows that neither monitoring station has indicated any exceedances over the last 5 years.

Table A.6 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past 5 years with the air quality objective of $50\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times per year.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
LS5	Lewes Town West Street	Roadside	541541	110246	NO2 PM10	Y	Chemiluminescence and TEOM	2m	Yes	2

Data for LS5 has been ratified

Notes:

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

(2) N/A if not applicable.

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

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
1	Seaford-Sutton Pk Rd/Warwick Ave	Roadside	548420	99223	NO2	N	Y(4.5m)	R (2.8)	No	2.8
2	LDC 10 - 9 Southway – Newhaven	Kerbside	544354	101388	NO2	Y	Y(5m)	K (1)	No	2.5
3	LDC - 16 Southway – Newhaven	Kerbside	544414	101273	NO2	Y	Y(5m)	K(1)	No	2.5
4	LDC 11 - Lewes Rd – Newhaven	Roadside	544273	101532	NO2	N	Y(5m)	R (2)	No	2.5
5	Telscombe – South Coast Rd/Central Ave	Roadside	540063	101263	NO2	N	Y(6m)	R(1.8)	No	2.6
6	LDC 8 - 8 Bay Vue Rd - Newhaven	Background	544521	101089	NO2	N	Y(3m)	SB	No	2.5
7	LDC 25 - Westgate Chapel	Roadside	541285	109969	NO2	N	Y(2.2m)	R (1.9)	No	2.3
8	LDC 26 - Mount Pleasant/Sun Street	Roadside	541481	110277	NO2	Y	Y(0.5m)	R (2)	No	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
9	LDC 27 - West St Police Station	Roadside	541541	110246	NO2	Y	Y(5m)	R (2.6)	Yes	2.3
10	LDC 18 - Fisher Street	Kerbside	541505	110236	NO2	Y	Y(0m)	K (1.4)	No	2.5
11	LDC 36 - Fisher St West	Kerbside	541519	110167	NO2	Y	N	K (1)	No	2.2
12	LDC 1- Fisher St East	Kerbside	541540	110130	NO2	Y	N	K (1)	No	3.5
13	LDC 29 - Market St	Kerbside	541598	110169	NO2	Y	Y(5m)	K (1)	No	2.5
14	Peacehaven – o/s 223 South Coast Rd	Kerbside	540969	100974	NO2	N	Y(2.9m)	K(1.4)	No	2.7
15	LDC 31 - North St	Kerbside	541646	110370	NO2	N	Y(5m)	K (1)	No	3
16	LDC 33 - Cuilfail Tunnel/Thomas St	Roadside	542178	110454	NO2	N	Y (8m)	R (5)	No	3
17	LDC 4 - 159 Malling St – Lewes	Roadside	542315	110733	NO2	N	Y(3m)	R (2)	No	3.5
18	LDC 6 East Street	Roadside	541669	110278	NO2	N	Y (0m)	R (3.5)	No	2.5
19	LDC 30 - Little East St	Roadside	541726	110335	NO2	N	Y (1m)	R(2.7)	No	2.5
20	LDC 45 - School Hill	Kerbside	541755	110206	NO2	N	Y (2.5)	K(1)	No	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
21	LDC 34 - 204 High St (School Hill)	Roadside	541684	110181	NO2	N	Y(2m)	R (2.7)	No	2.6
22	LDC 35 - Walmer Lane/Lansdowne Terrace	Roadside	541709	109990	NO2	N	Y(1.8m)	R (3)	No	2.4
23	LDC 23 - Station St/Lansdowne Terrace	Roadside	541615	109968	NO2	Y	N	R (1.8)	No	2.5
24	LDC 14 - Station St - Lewes	Roadside	541603	110001	NO2	Y	Y(2)	R (1.9)	No	3
25	LS6 - Denton Community Centre	Urban background	545142	102433	NO2	N	N	SB	No	2
26	Peacehaven – South Coast Rd/Steyning Ave	Roadside	541231	100957	NO2	N	Y(10m)	R (3)	No	2.7
27	LDC 46 - No Entry Sign Adj. To 1 Abinger Place	Roadside	541438	110293	NO2	N	Y (4m)	R (1.5)	No	2
28	LDC 47 - 8 Abinger Place	Roadside	541430	110328	NO2	N	Y (1.2)	R (1.5)	No	2.5
29	Peacehaven – o/s 53 South Coast Rd	Roadside	542168	100675	NO2	N	Y (10)	R (3)	No	2.7

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
30	ESCC 20 - A259 SFD (nr Chyngton Gardens)	Roadside	550077	99291	NO2	N	Y(10m)	R (1.5)	No	3
31	ESCC 23 - Railway Rd – Newhaven	Kerbside	544996	101264	NO2	N	Y(5m)	K (1)	No	3
32	ESCC 24 - 35 Heighton Crescent - Denton	Background	544908	102704	NO2	N	Y(10m)	SB	No	1.8
33	ESSCC 2 - Ringmer Village Hall	Roadside	544681	112441	NO2	N	N	R (1.8)	No	2
34	ESCC 18 - High St – Ditchling	Roadside	532605	115203	NO2	N	Y(5m)	R (2)	No	2.5
35	Ditchling High Street 2	Kerbside	532587	115410	NO2	N	Y (1m)	K (1)	No	1.8
36	ESCC 22 - Southover High St – Lewes	Roadside	541032	109613	NO2	N	Y (1m)	R (2)	No	2.1
37	Newhaven - Bridge Pub	kerbside	544603	101485	NO2	Y	N	K (0.5)	No	2
38	Newhaven- Essex Place	Roadside	544497	101499	NO2	Y	Y (5m)	R (1.2)	No	2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
39	Newhaven - Rathan Court	Roadside	544330	101423	NO2	Y	Y (10)	R (1.5)	No	2
40	Newhaven - The Old Chapel	Roadside	544497	101285	NO2	Y	Y(10m)	R (1.5)	No	2.5

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
LS5 Lewes Town West Street	Roadside	Automatic	92	92	<u>19</u>	19	23	24	21
LS6 Denton Community Centre	Urban background	Automatic	47	47	<u>12</u>	12	10	11	No valid data
Seaford-Sutton Pk Rd/Warwick Ave	Roadside	Diffusion Tube	100	100	<u>0</u>	0	0	0	26
LDC 10 - 9 Southway – Newhaven	Kerbside	Diffusion Tube	100	100	<u>40.8(33.6)</u>	41	33	36	33.6
LDC - 16 Southway – Newhaven	Kerbside	Diffusion Tube	92	92	<u>49</u>	47	42	49	47.6
LDC 11 - Lewes Rd – Newhaven	Roadside	Diffusion Tube	92	92	<u>31.0*</u>	33	28	31	31.5
Telscombe – South Coast Rd/Central Ave	Roadside	Diffusion Tube	100	100	0	0	0	0	25.6
LDC 8 - 8 Bay Vue Rd - Newhaven	Urban Background	Diffusion Tube	100	100	24	18	15	18	18
LDC 25 - Westgate Chapel	Roadside	Diffusion Tube	100	100	<u>38</u>	38	30	33	29.5

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
LDC 26 - Mount Pleasant/Sun Street	Roadside	Diffusion Tube	100	100	<u>24</u>	27	23	24	24.9
LDC 27 - West St Police Station	Roadside	Diffusion Tube	100	100	<u>23</u>	25	22	23	22.3
LDC 18 - Fisher Street	Kerbside	Diffusion Tube	100	100	<u>27</u>	26	22	25	23.7
LDC 36 - Fisher St West	Kerbside	Diffusion Tube	100	100	<u>47</u>	40	31	32	31
LDC 1- Fisher St East	Kerbside	Diffusion Tube	92	92	<u>47</u>	46	41	43	43
LDC 29 - Market St	Kerbside	Diffusion Tube	100	100	<u>43.6(33.4)</u>	44	40	41	39.3
Peacehaven – o/s 223 South Coast Rd	Kerbside	Diffusion Tube	100	100	<u>0</u>	0	0	0	32.5
LDC 31 - North St	Kerbside	Diffusion Tube	100	100	<u>24</u>	28	21	25	23
LDC 33 - Cuilfail Tunnel/Thomas St	Roadside	Diffusion Tube	100	100	<u>33</u>	35	30	32	31
LDC 4 - 159 Mallong St – Lewes	Roadside	Diffusion Tube	100	100	<u>34</u>	33	30	33	30.8
LDC 6 East Street	Roadside	Diffusion Tube	100	100	<u>29</u>	28	25	28	25.9

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
LDC 30 - Little East St	Roadside	Diffusion Tube	100	100	<u>23</u>	25	22	23	23.3
LDC 45 - School Hill	Kerbside	Diffusion Tube	100	100	<u>41.2(33.1)</u>	39	43	42	38.9
LDC 34 - 204 High St (School Hill)	Roadside	Diffusion Tube	100	100	<u>53</u>	56	40	48	45.6
LDC 35 - Walmer Lane/Lansdowne Terrace	Roadside	Diffusion Tube	100	100	<u>20</u>	22	20	23	20.7
LDC 23 - Station St/Lansdowne Terrace	Roadside	Diffusion Tube	100	100	<u>29</u>	29	27	29	27.4
LDC 14 - Station St - Lewes	Roadside	Diffusion Tube	100	100	<u>34</u>	34	32	31	35.9
LS6 - Denton Community Centre	Urban Background	Diffusion Tube	75	75	<u>13</u>	13	11	13	14.1
Peacehaven – South Coast Rd/Steyning Ave	Roadside	Diffusion Tube	100	100	<u>0</u>	0	0	0	25.4
LDC 46 - No Entry Sign Adj. To 1 Abinger Place	Roadside	Diffusion Tube	100	100	-	33	28	32	29.7
LDC 47 - 8 Abinger Place	Roadside	Diffusion Tube	100	100	-	31	27	31	29
Peacehaven – o/s 53 South Coast Rd	Roadside	Diffusion Tube	100	100	<u>0</u>	0	0	0	21.4

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2013	2014	2015	2016	2017
ESCC 20 - A259 SFD (nr Chyngton Gardens)	Roadside	Diffusion Tube	100	100	<u>35</u>	35	30	35	33.5
ESCC 23 - Railway Rd – Newhaven	Kerbside	Diffusion Tube	100	100	<u>27</u>	23	21	23	21.5
ESCC 24 - 35 Heighton Crescent - Denton	Urban Background	Diffusion Tube	100	100	<u>17</u>	15	14	16	17
ESSCC 2 - Ringmer Village Hall	Roadside	Diffusion Tube	100	100	<u>26</u>	22	22	24	22.5
ESCC 18 - High St – Ditchling	Roadside	Diffusion Tube	100	100	<u>32</u>	30	28	31	27.9
Ditchling High Street 2	Kerbside	Diffusion Tube	100	100	-		22	27	23.6
ESCC 22 - Southover High St – Lewes	Roadside	Diffusion Tube	100	100	<u>33</u>	41	29	36	31.7
Newhaven - Bridge Pub	Kerbside	Diffusion Tube	100	100	-	41	35	42	39.3
Newhaven- Essex Place	Roadside	Diffusion Tube	100	100	-	36	27	32	31.5
Newhaven - Rathan Court	Roadside	Diffusion Tube	83	83	-	26	21	25	23.4
Newhaven - The Old Chapel	Roadside	Diffusion Tube	100	100	-	49	43	47	44.7

- ☒ Diffusion tube data has been bias corrected
- ☐ Annualisation has been conducted where data capture is <75%

Data for LS5 Lewes Town Centre automatic monitoring station has been ratified

Notes:

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

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

- (1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
- (2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).
- (3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.
- (4) Concentration for Denton Community Centre is the annualised value obtained from the 2014 Progress report

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

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽³⁾				
					2013	2014	2015	2016	2017
LS5 Lewes Town West Street	Roadside	Automatic	92	92	0	0	0	0	0
LS6 Denton Community Centre	Urban Background	Automatic	47	47	0	0	0	0	Data capture too low

Data has been ratified for LS5. Data capture at LS6 was below 50% and the site has been de-commissioned so no annualisation has been carried out

Notes:

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

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

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

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

Table A.5 – Annual Mean PM₁₀ Monitoring Results over the last 5 years

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	PM ₁₀ Annual Mean Concentration (µg/m ³) ⁽³⁾				
				2013	2014	2015	2016	2017
LS5 Lewes Town West Street	Roadside	89	89	16.6 (93%)	16.1 (84%)	16.6 (73%)	18 (94%)	20
LS6 Denton School until June 2013 then Denton Community Centre from July 2013	Background	45	45	⁴ 19.4 (85%)	⁵ 17.3 (80%)	⁵ 18.1 (98%)	16 (98%)	Data capture too low

☐ Annualisation has been conducted where data capture is <75% - Please note: annualisation NOT carried out for LS6, data below 50% and site has been decommissioned

Data ratified for LS5

Notes:

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

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

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

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

(4) 2013 concentrations for Denton school and Denton Community Centre combined to generate 2013 average

(5) PM₁₀ data downloaded from the Sussex-air website were provisional for 2014 and 2015

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

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2017 (%) ⁽²⁾	PM ₁₀ 24-Hour Means > 50µg/m ³ ⁽³⁾				
				2013	2014	2015	2016	2017
LS5 Lewes Town West Street	Roadside	89	89	0	1	1	2	1
LS6 Denton Community Centre	Urban Background	45	45	1	5 ⁴	1 ⁴	1	Data capture too low

Notes:

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

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

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

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

(4) PM₁₀ data download from the Sussex-air website (2nd November 2016) was provisional for 2014 and 2015

Data for LS5 is ratified

Appendix B: Full Monthly Diffusion Tube Results for 2017

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

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.89) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
Seaford - Sutton Pk Rd/Warwick Ave	41.37	32.23	30.45	31.97	29.04	26.18	25.67	28.33	27.41	25.84	26.91	24.74	29.2	26.0	
LDC 10 - 9 Southway - Newhaven	57.39	43.58	42.59	41.70	35.51	32.19	29.89	35.05	30.68	33.03	39.18	32.70	37.8	33.6	
LDC - 16 Southway - Newhaven	75.61	55.79		56.95	48.63	50.72	47.20	47.68	43.48	51.18	62.71	47.97	53.4	47.6	34.9
LDC 11 - Lewes Rd - Newhaven	46.92	38.10		39.94	29.26	31.33	29.20	31.84	33.5	32.52	41.29	35.26	35.4	31.5	
Telscombe - South Coast Rd/Central Ave	41.17	34.43	32.90	29.31	26.57	26.28	22.26	28.16	23.35	23.92	29.06	27.16	28.7	25.6	

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.89) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
LDC 8 - 8 Bay Vue Rd - Newhaven	35.35	22.99	21.62	21.17	19.03	15.63	13.99	14.79	15.82	15.48	26.23	21.32	20.3	18.1	
LDC 25 - Westgate Chapel	51.78	38.27	32.05	34.2	31.93	26.88	27.85	29.59	31.79	29.57	33.89	29.52	33.1	29.5	
LDC 26 - Mount Pleasant/Sun Street	39.76	32.32	32.16	28.41	23.12	23.32	21.68	22.06	25.53	28.32	31.68	26.81	27.9	24.9	
LDC 27 - West St Police Station	35.23	30.73	27.72	26.59	18.36	20.51	17.95	20.26	22.18	23.68	28.61	29.19	25.1	22.3	
LDC - 18 Fisher Street	31.25	32.07	27.79	27.73	24.18	21.28	22.21	23.83	26.08	26.33	30.09	26.13	26.6	23.7	
LDC 36 - Fisher St West	43.47	41.39*	38.28	38.43	36.72	31.94	28.88	29.84	34.52	31.69	38.48	30.33	34.8	31.0	
LDC 1- Fisher St East	61.06	53.33	48.35	55.34	47.37	44.23	39.56	41.76	45.62	42.10	53.29	missing	48.4	43.0	N/A
LDC 29 - Market St	55.01	49.86	46.48	48.10	37.28	41.41	40.33	39.59	40.16	44.11	42.24	45.94	44.2	39.3	

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.89) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
Peacehaven - outside 223 South Coast Rd	53.23	38.67	37.08	42.59	35.19	31.19	29.55	28.87	32.36	32.15	40.34	36.34	36.5	32.5	
LDC 31 - North St	40.77	31.99	30.12	26.93	23.16	21.38	19.69	18.65	21.16	24.79	28.57	23.63	25.9	23.1	
LDC 33 - Cuilfail Tunnel/Thomas St	47.45	45.31	34.63	35.55	32.08	27.17	27.94	31.29	33.00	31.67	36.77	35.20	34.8	31.0	
LDC 4 - 159 Malling St - Lewes	48.14	42.02	30.55	39.70	35.60	30.25	30.19	31.86	30.12	31.48	35.13	30.76	34.7	30.8	
LDC 6 - East Street	42.67	31.47	32.46	28.44	24.32	22.13	21.71	23.96	27.67	26.48	36.41	31.64	29.1	25.9	
LDC 30 - Little East St	34.68	28.04	29.27	24.33	25.04	22.78	21.50	23.04	22.85	26.94	27.47	28.50	26.2	23.3	
LDC 45 - School Hill	56.03	45.28	46.92	51.96	38.88	40.24	38.10	41.39	42.74	35.17	47.19	40.73	43.7	38.9	
LDC 34 - 204 High St (School Hill)	58.31	56.15	54.26	53.64	49.38	49.55	49.62	49.07	46.44	44.66	57.08	46.18	51.2	45.6	41.1
LDC 35 - Walwers Lane/Lansdowne Terrace	34.73	25.48	25.27	24.97	20.70	16.65	16.83	14.79	22.05	20.83	29.74	26.66	23.2	20.7	

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.89) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
LDC 23 - Station St/Lansdowne Terrace	46.39	31.89	32.28	31.68	26.45	22.52	23.50	25.66	29.92	30.31	36.58	32.63	30.8	27.4	
LDC 14 - Station St - Lewes	48.07	42.14	44.64	40.82	36.71	35.95	33.41	35.70	41.16	40.65	40.52	43.67	40.3	35.9	
LS6 - Denton Community Centre	21.67	17.52	16.39	13.16		missing	To find suitable location	Location found & tube put on	11.37	12.76	17.58	16.0	15.8	14.1	
Peacehaven - South Coast Rd/Steyping Ave	40.26	33.55	30.96	26.92	24.95	26.95	21.89	24.27	23.28	24.74	31.62	33.67	28.6	25.4	
LDC 46-No Entry Sign Adj. To 1 Abinger Place	45.28	38.57	36.21	34.43	30.6	30.06	27.05	26.75	30.18	30.32	34.44	36.25	33.3	29.7	
LDC 47-8 Abinger Place	40.72	37.38	36.38	36.52	29.32	27.09	24.23	29.99	29.18	30.04	36.37	33.82	32.6	29.0	
Peacehaven - Outside 53 South Coast Rd	44.57	27.91	23.22	21.65	21.77	18.57	15.03	18.93	19.85	18.83	31.81	26.10	24.0	21.4	
ESCC 20 - A259 SFD (nr Chyngton Gardens)	45.95	40.46	39.30	35.15	33.97	39.15	34.58	35.19	36.67	33.01	39.77	37.84	37.6	33.5	

Site ID	NO ₂ Mean Concentrations (µg/m ³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.89) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
ESCC 23 - Railway Rd - Newhaven	32.59	26.08	25.86	27.37	19.32	14.83	17.3	21.94	20.87	22.67	31.54	28.88	24.1	21.5	
ESCC 24 - 35 Highton Crescent - Denton	26.31	23.39	21.10	19.63	14.84	14.83	14.61	15.39	13.91	18.30	24.87	21.80	19.1	17.0	
ESSCC 2 - Ringmer Village Hall	36.03	29.15	26.30	24.77	21.07	20.70	20.38	21.71	23.44	23.2	30.14	26.3	25.3	22.5	
ESCC 18 - High St - Ditchling	45.92	32.01	34.46	33.00	34.70	24.28	25.39	26.48	25.75	26.79	38.06	29.90	31.4	27.9	
Ditchling High Street 2	43.18	29.80	28.41	28.54	26.43	21.79	20.62	22.89	23.76	24.16	25.85	22.64	26.5	23.6	
ESCC 22 - Southover High St - Lewes	50.69	38.17	38.91	38.90	32.68	29.64	17.98	30.25	35.24	34.7	39.21	40.96	35.6	31.7	
Newhaven - Bridge Pub	56.76	44.84	39.89	45.83	43.07	39.36	34.34	40.77	43.43	41.72	55.97	44.42	44.2	39.3	
Newhaven - Essex Place	47.45	36.23	37.41	38.66	35.0	34.15	27.93	34.67	33.09	32.44	35.72	32.22	35.4	31.5	
Newhaven - Rathen Court		32.31		33.50	25.29	22.38	19.41	23.36	21.35	24.91	33.69	27.27	26.3	23.4	
Newhaven - The Old Chapel	58.19	46.81	52.36	46.79	46.94	43.89	46.76	52.39	47.90	50.09	58.72	52.30	50.3	44.7	30.3

- ☐ 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 – see Appendix C

Notes:

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

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

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

(2) Distance corrected to nearest relevant public exposure.

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

QC/QC of automatic monitoring

The continuous monitoring station in Lewes District Council is managed by the Sussex Air Quality Partnership (<https://www.sussex-air.net>). All continuous monitoring activities are subject to the same quality assurance/quality control objectives set out in the AURN local site operator's manual. These procedures are:

- Overnight 24 hour IZS calibration checks (NO_x analyser);
- Fortnightly manual zero/span calibration using certified cylinders (carried out by Council employees fully trained in LSO duties);
- Full data analysis and ratification by the Environmental Research Group at King's College London;

Six monthly service visits and site audits

QA/QC of diffusion tube monitoring

The Ambient, Indoor, Workplace Air and Stack Emissions Proficiency Testing Scheme (AIR PT) is an independent analytical proficiency-testing scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). Defra and the Devolved Administrations advise that diffusion tubes used for LAQM should be obtained from laboratories that have demonstrated satisfactory performance in the AIR PT scheme. AIR NO₂ PT forms an integral part of the UK NO₂ Network's QA/QC, and is a useful tool in assessing the analytical performance of those laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM).

During 2017 Gradko participated in the AIR PT programme, and obtained a 100% rating for the whole year (AIR PT rounds AR018, AR019, AR021 and AR022).

Further information can be found on this link:

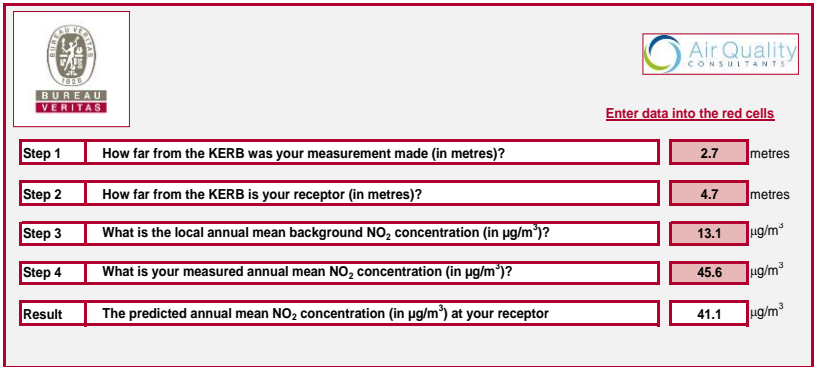
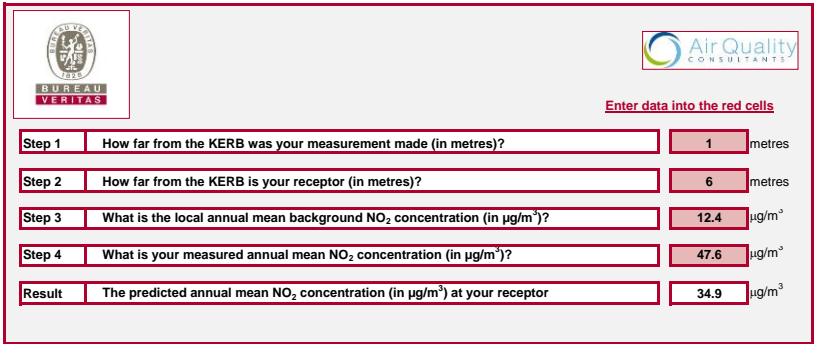
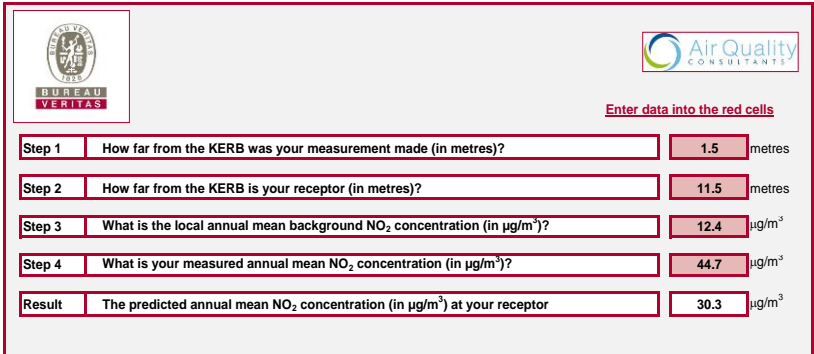
<https://laqm.defra.gov.uk/assets/AIR-PT-Rounds-13-to-24-Apr-2016-Feb-2018.pdf>

National bias adjustment factor spreadsheet.

The diffusion tubes are supplied and analysed by Gradko utilising the 20 % triethanolamine (TEA) in water preparation method. A bias adjustment of 0.89 for the year 2017 (based on 34 studies) has been derived from the national bias adjustment calculator. The spreadsheet is shown below in [Table 3: National Bias Adjustment Factor Spreadsheet](#)

Microsoft Excel - Copy of Database_Diffusion_Tube_Bias_Factors_v03_18 FINAL.xls [Compatibility Mode]												
	B	C	D	E	F	H	I	J	K	L	M	
2	National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 03/18					
3	Follow the steps below in the correct order to show the results of relevant co-location studies									This spreadsheet will be updated at the end of June 2018 LAQM Helpdesk Website		
4	Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods											
5	Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet											
6	This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.											
7	The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.						Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.					
8	Step 1:		Step 2:	Step 3:	Step 4:							
9	Select the Laboratory that Analyses Your Tubes from the Drop-Down List		Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor ⁵ shown in blue at the foot of the final column.							
10	If a laboratory is not shown, we have no data for this laboratory.		If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data	If you have your own co-location study then see footnote ⁴ . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMhelpdesk@uk.bureauveritas.com or 0800 0327953							
11	Analysed By ¹		Method ² <small>To make your selection, choose (All) from the pop-up list</small>	Year ³ <small>To make your selection, choose (All)</small>	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m ³)	Automatic Monitor Mean Conc. (Cm) (µg/m ³)	Bias (B)	Tube Precision ⁴	Bias Adjustment Factor (A) (Cm/Dm)
2218	Gradko		20% TEA in water	2017	UB	Bracknell Forest Borough Council	11	19	16	23.0%	G	0.81
2219	Gradko		20% TEA in water	2017	R	Bracknell Forest Borough Council	12	47	39	21.7%	G	0.82
2220	Gradko		20% TEA in water	2017	R	Brighton & Hove City Council	11	51	50	1.6%	G	0.98
2230	Gradko		20% TEA in water	2017	R	Wokingham Borough Council	11	39	37	4.6%	G	0.96
2231	Gradko		20% TEA in water	2017	UC	Southampton City Council	11	31	29	5.3%	G	0.95
2232	Gradko		20% TEA in water	2017	R	Preston City Council	12	31	26	23.3%	G	0.81
2233	Gradko		20% TEA in water	2017	R	Monmouthshire County Council	9	42	33	26.6%	G	0.79
2234	Gradko		20% TEA in water	2017	R	Cheshire West and Chester	11	36	36	1.4%	G	0.99
2235	Gradko		20% TEA in water	2017	UI	Crawley Borough Council	12	28	28	-1.2%	G	1.01
2236	Gradko		20% TEA in water	2017	R	Borough Council of King's Lynn & West Norfolk	12	29	25	16.0%	G	0.86
2237	Gradko		20% TEA in water	2017	R	Bath & North East Somerset	12	45	45	-0.2%	G	1.00
2238	Gradko		20% TEA in water	2017	R	NOTTINGHAM CITY COUNCIL	12	38	41	-6.6%	G	1.07
2239	Gradko		20% TEA in water	2017	R	Lancaster City Council	12	35	32	9.7%	G	0.91
2252	Gradko		20% TEA in water	2017	R	Thurrock Borough Council	12	54	52	3.3%	S	0.97
2253	Gradko		20% TEA in water	2017	R	Thurrock Borough Council	11	35	33	7.0%	G	0.93
2254	Gradko		20% TEA in water	2017	R	Thurrock Borough Council	9	33	29	14.3%	G	0.87
2255	Gradko		20% TEA in water	2017	UB	Thurrock Borough Council	11	30	28	8.0%	S	0.93
2256	Gradko		20% TEA in water	2017	R	Dudley MBC	12	50	50	0.8%	G	0.99
2257	Gradko		20% TEA in water	2017	UB	Dudley MBC	12	24	19	26.6%	G	0.79
2258	Gradko		20% TEA in water	2017	R	City of Lincoln Council	12	42	31	33.2%	G	0.75
2259	Gradko		20% TEA in water	2017	R	Gedling Borough Council	12	35	31	10.1%	G	0.91
2302	Gradko		20% TEA in water	2017	R	Gateshead Council	12	36	37	-2.7%	G	1.03
2303	Gradko		20% TEA in water	2017	R	Gateshead Council	12	29	25	17.5%	G	0.85
2304	Gradko		20% TEA in water	2017	R	Gateshead Council	12	34	35	-5.3%	G	1.06
2309	Gradko		20% TEA in water	2017	R	LB Hounslow	12	65	54	22.2%	G	0.82
2310	Gradko		20% TEA in water	2017	R	LB Hounslow	12	59	53	10.6%	G	0.90
2311	Gradko		20% TEA in water	2017	B	LB Hounslow	11	28	30	-6.0%	G	1.06
2312	Gradko		20% TEA in water	2017	R	LB Hounslow	11	43	34	28.8%	G	0.78
2313	Gradko		20% TEA in water	2017	B	LB Hounslow	9	38	33	14.9%	G	0.87
2314	Gradko		20% TEA in water	2017	R	LB Hounslow	11	52	42	24.4%	G	0.80
2320	Gradko		20% TEA in water	2017	UB	Liverpool	11	20	17	15.2%	G	0.87
2326	Gradko		20% TEA in water	2017	R	North Ayrshire Council	12	26	21	23.2%	G	0.81
2335	Gradko		20% TEA in water	2017	R	South Gloucestershire Council	12	25	23	10.3%	G	0.91
2342	Gradko		20% TEA in water	2017	KS	Marylebone Road Intercomparison	12	101	79	28.6%	G	0.78
2637	Gradko		20% TEA in water	2017	Overall Factor ⁵ (34 studies)						Use	0.89
2646												

Table 4: Sites where the annual mean of $40\mu\text{g}/\text{m}^3$ for NO_2 has been exceeded and has been corrected for distance to receptor

Site	Concentration before distance correction $\mu\text{g}/\text{m}^3$	Concentration after distance correction $\mu\text{g}/\text{m}^3$	Screen capture for fall off with distance calculator. Background NO_2 taken from UK-Air Background mapping for local authorities 2015																								
LDC 34-204 High Str (School Hill)	45.6	41.1	 <p>Enter data into the red cells</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Question</th> <th>Value</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Step 1</td> <td>How far from the KERB was your measurement made (in metres)?</td> <td>2.7</td> <td>metres</td> </tr> <tr> <td>Step 2</td> <td>How far from the KERB is your receptor (in metres)?</td> <td>4.7</td> <td>metres</td> </tr> <tr> <td>Step 3</td> <td>What is the local annual mean background NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?</td> <td>13.1</td> <td>$\mu\text{g}/\text{m}^3$</td> </tr> <tr> <td>Step 4</td> <td>What is your measured annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?</td> <td>45.6</td> <td>$\mu\text{g}/\text{m}^3$</td> </tr> <tr> <td>Result</td> <td>The predicted annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$) at your receptor</td> <td>41.1</td> <td>$\mu\text{g}/\text{m}^3$</td> </tr> </tbody> </table>	Step	Question	Value	Unit	Step 1	How far from the KERB was your measurement made (in metres)?	2.7	metres	Step 2	How far from the KERB is your receptor (in metres)?	4.7	metres	Step 3	What is the local annual mean background NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?	13.1	$\mu\text{g}/\text{m}^3$	Step 4	What is your measured annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?	45.6	$\mu\text{g}/\text{m}^3$	Result	The predicted annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$) at your receptor	41.1	$\mu\text{g}/\text{m}^3$
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LDC 16 Southway Newhaven	47.6	34.9	 <p>Enter data into the red cells</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Question</th> <th>Value</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Step 1</td> <td>How far from the KERB was your measurement made (in metres)?</td> <td>1</td> <td>metres</td> </tr> <tr> <td>Step 2</td> <td>How far from the KERB is your receptor (in metres)?</td> <td>6</td> <td>metres</td> </tr> <tr> <td>Step 3</td> <td>What is the local annual mean background NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?</td> <td>12.4</td> <td>$\mu\text{g}/\text{m}^3$</td> </tr> <tr> <td>Step 4</td> <td>What is your measured annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?</td> <td>47.6</td> <td>$\mu\text{g}/\text{m}^3$</td> </tr> <tr> <td>Result</td> <td>The predicted annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$) at your receptor</td> <td>34.9</td> <td>$\mu\text{g}/\text{m}^3$</td> </tr> </tbody> </table>	Step	Question	Value	Unit	Step 1	How far from the KERB was your measurement made (in metres)?	1	metres	Step 2	How far from the KERB is your receptor (in metres)?	6	metres	Step 3	What is the local annual mean background NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?	12.4	$\mu\text{g}/\text{m}^3$	Step 4	What is your measured annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?	47.6	$\mu\text{g}/\text{m}^3$	Result	The predicted annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$) at your receptor	34.9	$\mu\text{g}/\text{m}^3$
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The Old Chapel Newhaven	44.7	30.3	 <p>Enter data into the red cells</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Question</th> <th>Value</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Step 1</td> <td>How far from the KERB was your measurement made (in metres)?</td> <td>1.5</td> <td>metres</td> </tr> <tr> <td>Step 2</td> <td>How far from the KERB is your receptor (in metres)?</td> <td>11.5</td> <td>metres</td> </tr> <tr> <td>Step 3</td> <td>What is the local annual mean background NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?</td> <td>12.4</td> <td>$\mu\text{g}/\text{m}^3$</td> </tr> <tr> <td>Step 4</td> <td>What is your measured annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?</td> <td>44.7</td> <td>$\mu\text{g}/\text{m}^3$</td> </tr> <tr> <td>Result</td> <td>The predicted annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$) at your receptor</td> <td>30.3</td> <td>$\mu\text{g}/\text{m}^3$</td> </tr> </tbody> </table>	Step	Question	Value	Unit	Step 1	How far from the KERB was your measurement made (in metres)?	1.5	metres	Step 2	How far from the KERB is your receptor (in metres)?	11.5	metres	Step 3	What is the local annual mean background NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?	12.4	$\mu\text{g}/\text{m}^3$	Step 4	What is your measured annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?	44.7	$\mu\text{g}/\text{m}^3$	Result	The predicted annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$) at your receptor	30.3	$\mu\text{g}/\text{m}^3$
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Step 3	What is the local annual mean background NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?	12.4	$\mu\text{g}/\text{m}^3$																								
Step 4	What is your measured annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$)?	44.7	$\mu\text{g}/\text{m}^3$																								
Result	The predicted annual mean NO_2 concentration (in $\mu\text{g}/\text{m}^3$) at your receptor	30.3	$\mu\text{g}/\text{m}^3$																								

Step 3 and 4 - The measurement and the background must be for the same year.

The background concentration could come from the national maps published at www.airquality.co.uk or alternatively from a nearby monitor in a background location.

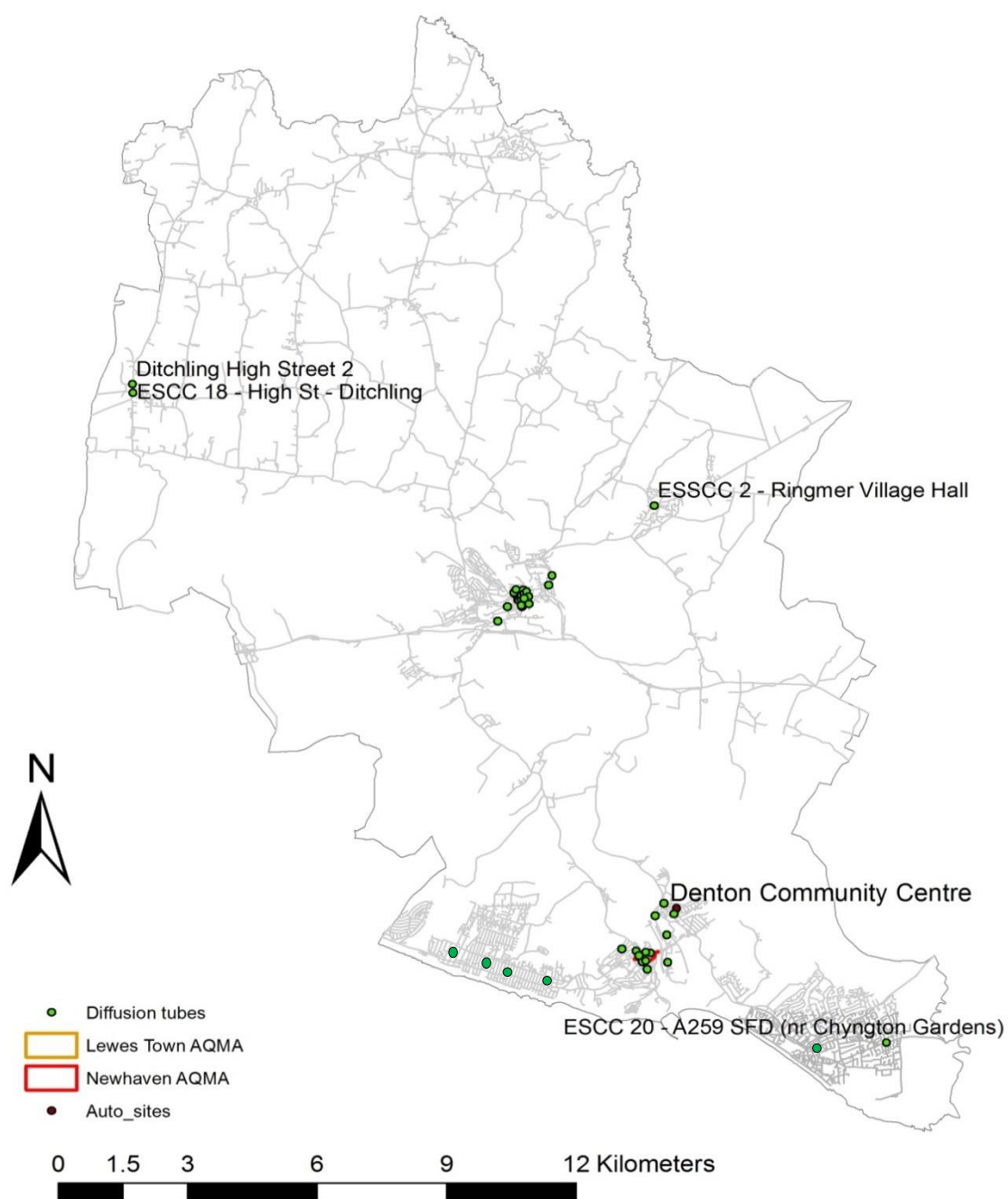
In this instance UK air background maps were used for step 3.

Result – The results will have a greater uncertainty than the measured data. More confidence can be placed in results where the distance between the monitor and the receptor is small than where it is large.

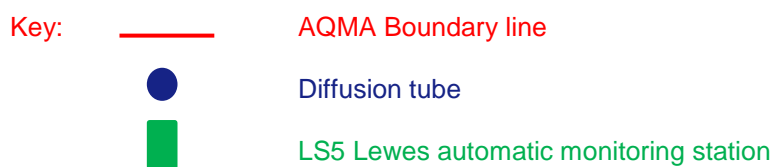
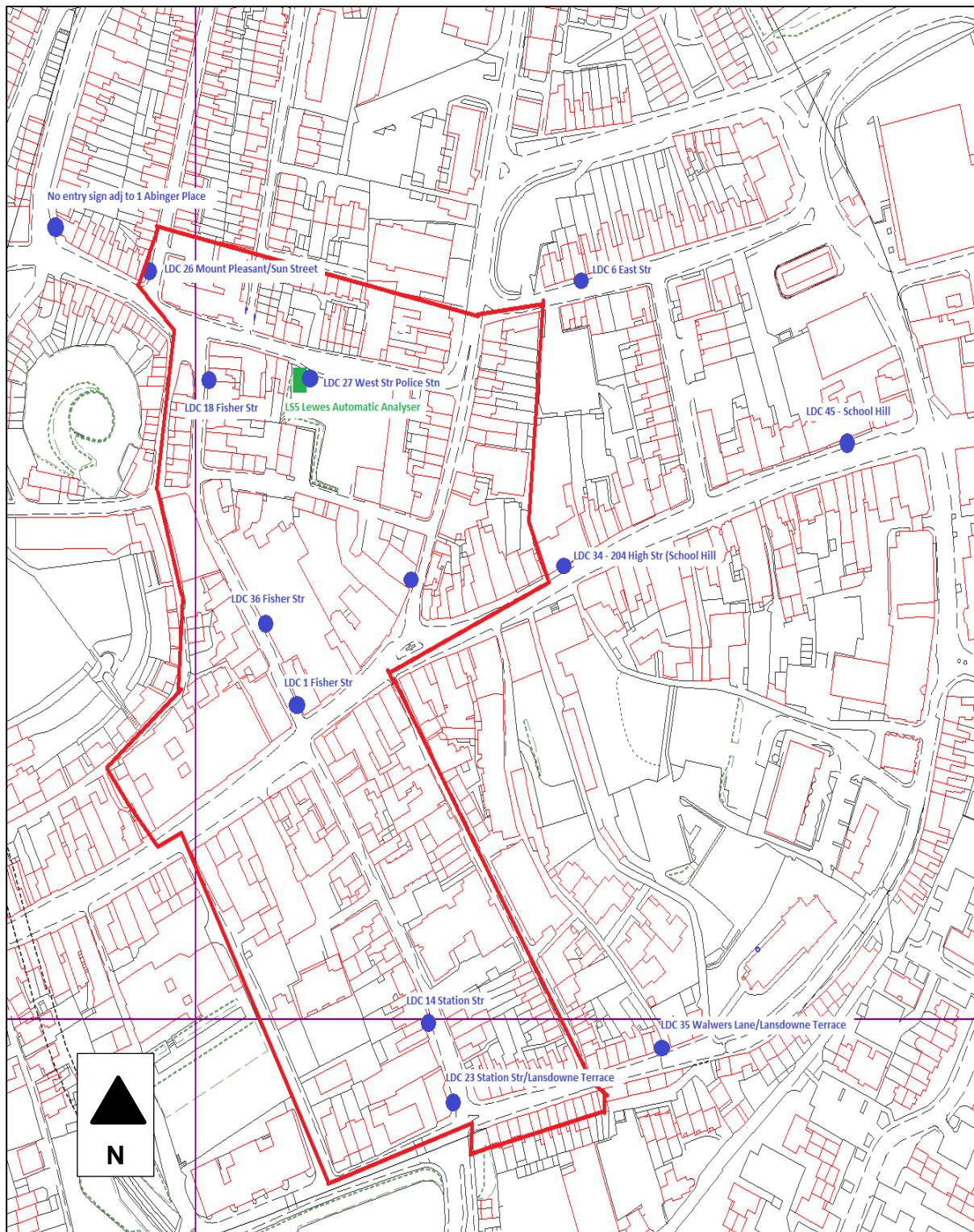
After distance correction the two sites in Newhaven fall below $40\mu\text{g}/\text{m}^3$, however the site LDC34-204 High Str (School Hill) shows an annual mean concentration over $40\mu\text{g}/\text{m}^3$. This location is just outside the AQMA. Due to this fact and that it is so intrinsically linked into the one way system of the town centre it is deemed unnecessary to extend the AQMA boundary to include it, as any actions that we take to reduce NO_2 concentrations would encompass this road anyway. This site is outside a shop but above there is residential property.

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

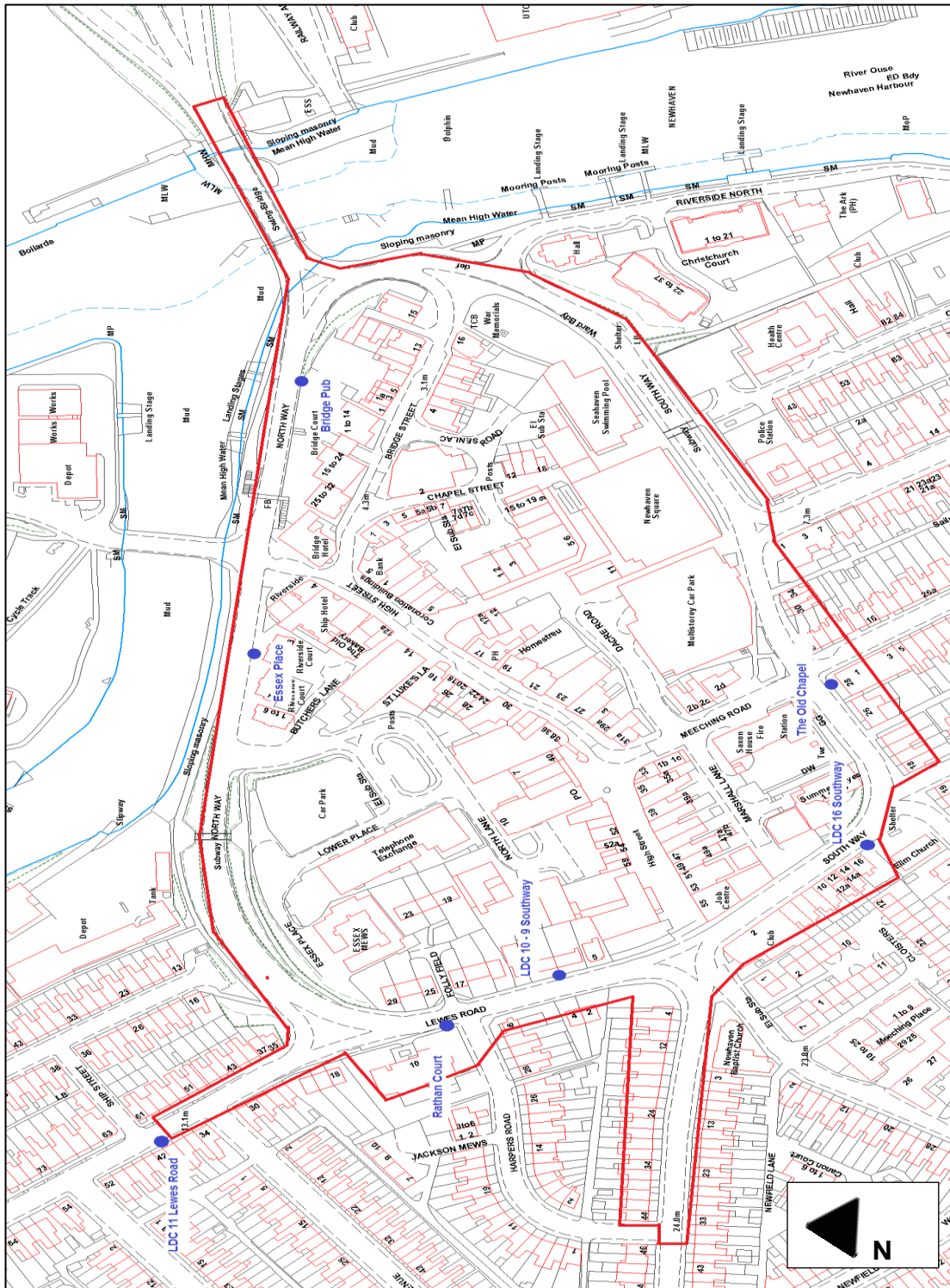
Map 1: Monitoring locations of Lewes District diffusion tubes and automatic monitoring stations



Map 2: The Lewes Town Centre AQMA and diffusion tubes within or adjacent to the AQMA



Map 3: The A259 Newhaven Ring Road AQMA and diffusion tubes within or adjacent to the AQMA



Key: — AQMA Boundary line
● Diffusion tube

Appendix E: Summary of Air Quality Objectives in England

Table E.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
Sulphur Dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide
DfT	Department for Transport

References

- ¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010
- ² Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
- ³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013
- ⁴ [http://lagm.defra.gov.uk/documents/NO 2withDistancefromRoadsCalculatorIssue 4.xls](http://lagm.defra.gov.uk/documents/NO_2withDistancefromRoadsCalculatorIssue4.xls)
- ⁵ <https://consult.defra.gov.uk/environmental-quality/clean-air-strategy-consultation/>

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