LANCASTER
CITY COUNCIL

Promoting City, Coast & Countryside

2019 Air Quality Annual Status Report (ASR) for Lancaster City Council

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

January 2020

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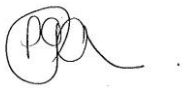
Signature	
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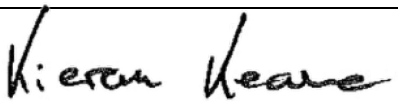
Signature	
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Overview of Air Quality in Our Area

Air quality in Lancaster saw another year of improvement. Overall monitoring showed improvement in air quality at the majority of local monitoring sites. Monitoring also again indicated compliance with the air quality objectives in the Carnforth and Galgate Air Quality Management Areas (AQMAs) for the second year running.

Although monitoring still indicated air quality objective exceedances within the Lancaster AQMA (exceedance of the annual mean objective for nitrogen dioxide), levels overall did show marked improvement on previous years. Also for the first time in recent years, no monitoring site in the centre of Lancaster indicated breach of the hourly nitrogen dioxide objective.

Levels of particulate pollution (PM_{10}) measured at Cable Street Lancaster, also indicated compliance with Objective standards and also a slight improvement on the previous year.

Emissions from road traffic remain the key concern for air quality action however emissions from domestic burning of wood and other solid fuels is a growing concern. A new air quality action plan is under development working closely with the County Council. The new plan is due to be delivered in 2020.

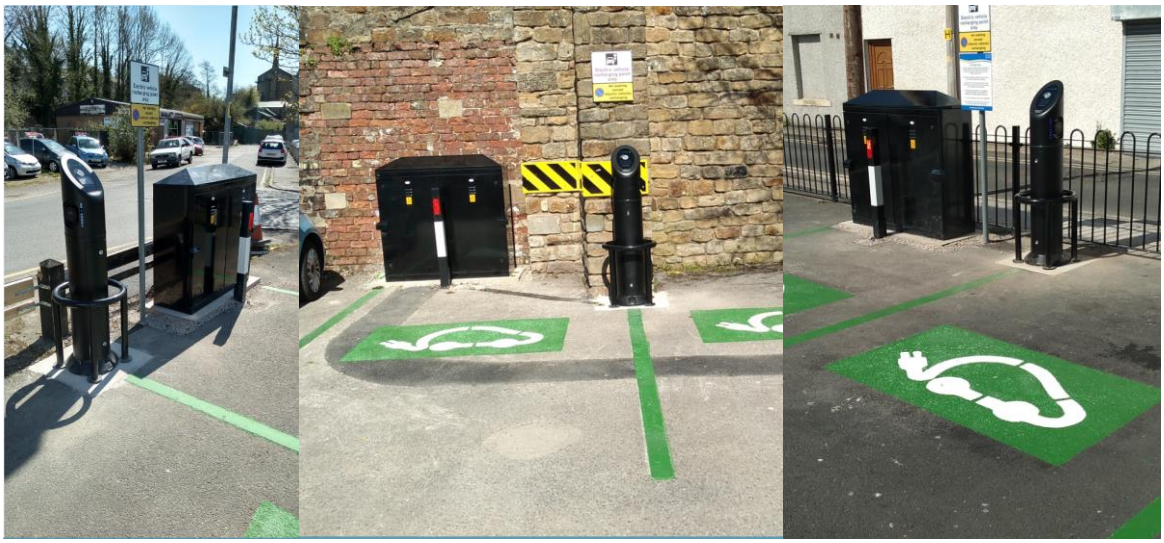
In January 2019 Lancaster City's full council met and declared a climate emergency, and committed to actions to support this position (see https://www.lancaster.gov.uk/sites/climate-emergency). This position provides real support for air quality improvement as the majority of actions responding to climate change have air quality benefits. The council's response to support the uptake of electric vehicles (see below) clearly demonstrates this air quality beneficial approach.

The delivery of actions is ongoing and is not wholly dependent on an air quality plan being in place. Probably the main success of 2018/19 is the growth in provision of electric vehicle charging facilities within the district. Until very recently, public accessible charging facilities were limited to the motorway provision at Forton

services. Over the past year, charging points have become available for use at various points across the district. This is due primarily to a number of interventions by the County Council and City Councils with 'Charge My Street' also provide some points at Dallas Road Lancaster. Further charging points are due to be delivered in 2020 via a successful grant bid led by Lancaster City Council to deliver a total of 24 rapid charging points for taxi use in six Lancashire authorities. Tendering for a supplier to deliver the charging points has been completed and the points are due to be available for use by the end of August 2020. The city council also responded to Department for Transport consultation on the mandatory provision of Chargepoints for new development and some existing locations (see Appendix F).

Public access electric vehicle charging points soon to be opened for use at the Caton Road Park and Ride site Lancaster and at the Dallas Road Boys and Girls Club, run by 'Charge My Street' (see https://www.chargemystreet.co.uk/)

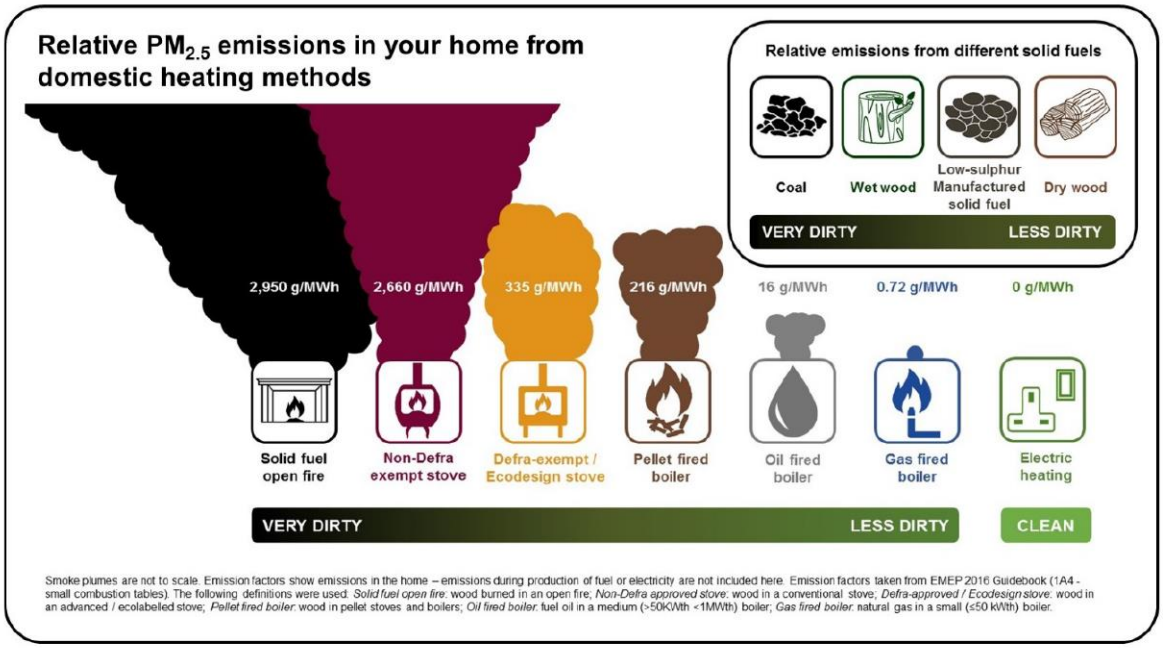
Electric vehicle charging points in Lancaster City Council Car Parks in Lancaster (installed through City Council)



Electric vehicle charging points in Morecambe (Marine Road) installed through County Council

The increasing use of wood/solid fuel burning stoves continues to rise up the national agenda in 2018/19.

Research indicates that in some areas nearly 40% of $PM_{2.5}$ particulate pollution may be attributable to the growth in people using stoves to heat their homes. The impact on outdoor air quality is usually the focus for LAQM, however the impact of choosing a wood burning stove on the air you breathe inside your home is in many cases even more significant. This impact tends to go unconsidered by stove purchasers. Figure A below indicates the difference it can make inside your home. Repeatedly breathing air affected by smoke emissions, either inside or outside your home, is not beneficial to health. Following a consultation in 2018 (See Appendix E), a new national Clean Air Act providing new measures to address this specific air quality impactor is awaited.



Source : Consultation on draft National Clean Air Strategy 2018, available at : https://consult.defra.gov.uk/environmental-quality/clean-air-strategy-consultation/

Despite the recognised growth in solid fuel use and associated air quality impact, currently, the main air quality issues in Lancaster are considered to remain highlighted by the three Air Quality Management Areas. Lancaster City Council continues to monitor air quality in these areas to track changes. The main pollution source in these three areas continues to be road vehicles.

Although the city and county councils are progressing their roles to deliver better air quality, everyone still has a very important part to play in reducing air pollution. Simple things like walking or a bike ride to work or school will benefit air quality as well as have knock-on benefits for your health and the environment.

Electric bikes present a new opportunity to make cycling more accessible to everyone. If you need to travel by car, consider lower emission options, particularly electric vehicles. If you live in an urban, built up area, choose not to use wood or other solid fuel to heat your home or having garden bonfires where garden waste could be composted or collected/taken to a recycling centre. The use of recreational garden wood or solid fuel burning heating appliances (fire bowls, fire pits, chimineas

etc…) are also not helpful in reducing pollution as like bonfires, they emit relatively high levels of pollution which are released at low levels where they can easily affect both you and your neighbours. The choices and actions of individuals are key to improving the air we collectively breathe or making it worse.

Air quality in Lancaster

Currently the main air quality issues in Lancaster remain linked to emissions from road traffic. These emission continue to cause exceedance of air quality objectives for the pollutant nitrogen dioxide (NO_2) and contribute towards elevated levels of particulate (PM_{10} and $PM_{2.5}$).

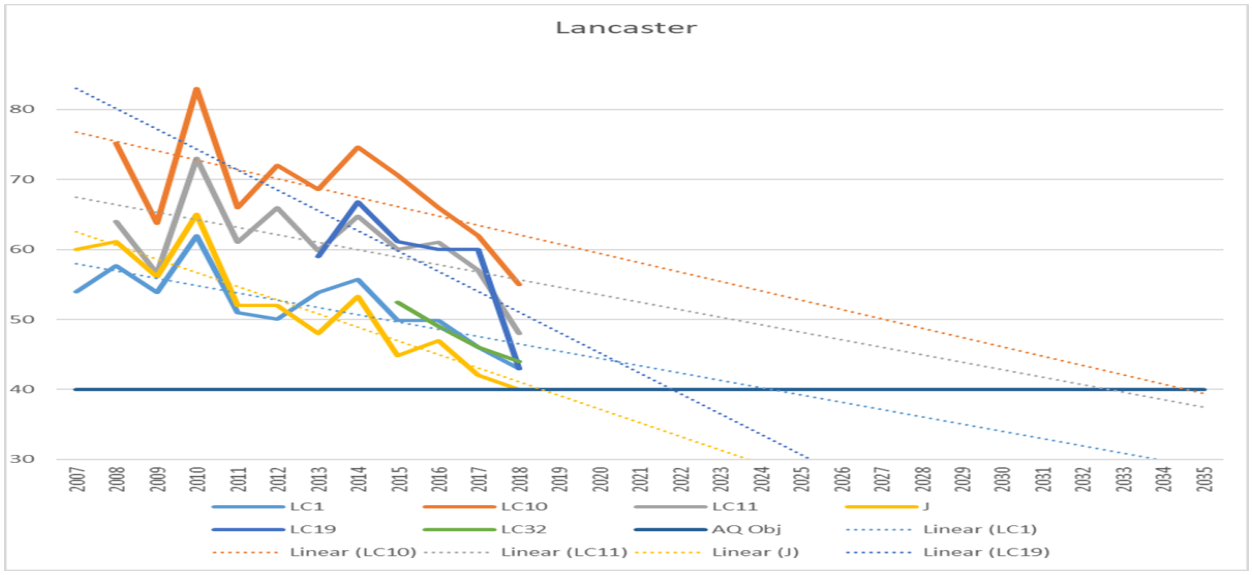
Exceedance of nitrogen dioxide levels has resulted in designation of three Air Quality Management Areas (AQMA's) located around the gyratory system in Lancaster City and at the main cross road junctions in Carnforth and Galgate (see Table 2.1 below for more information).

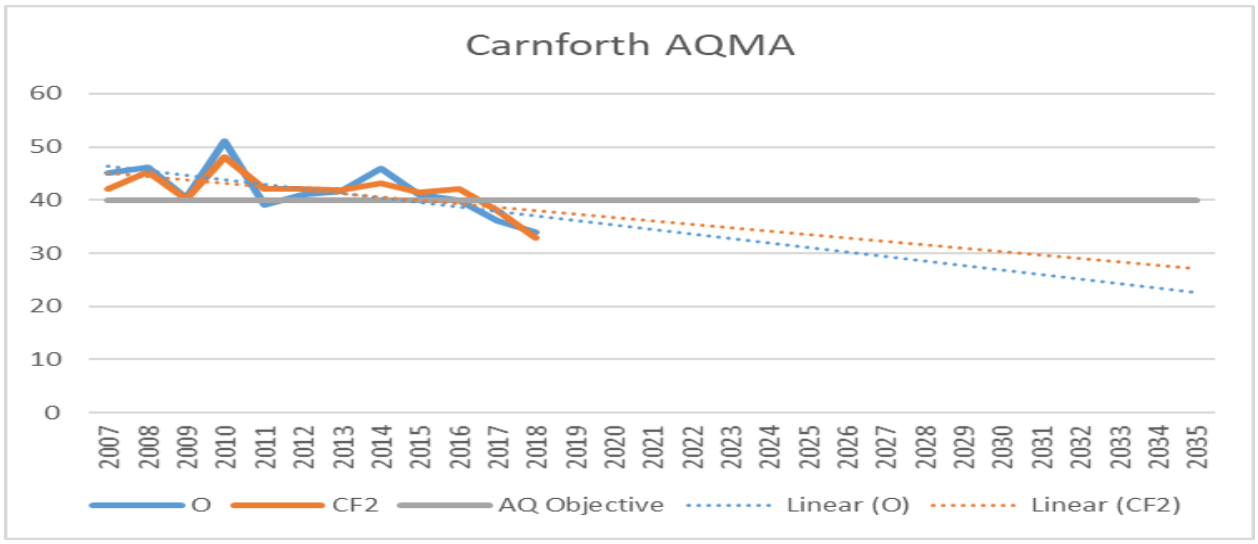
Monitoring results in 2018 for the second year running indicated compliance with air quality objectives in both the Carnforth and Galgate AQMA's. Results in the Lancaster AQMA were mostly lower than previous years, and in some locations substantially lower. Four monitoring locations in the Lancaster AQMA traditionally showing the highest monitored levels saw larger reductions (sites LC10 (Dalton Sq), LC11 (Thurnham Street), Q (King Street) and LC19 (China street)). These sites saw reductions of 7, 9, 7 and 17 ug/m^3 respectively. Despite these marked reductions, some monitored locations still indicated exceedance of the annual mean nitrogen dioxide objective. The site on St Leonards Gate showed an increase in pollution levels although was below objective standards. Overall results in the Lancaster AQMA indicated that progress to compliance with objective standards in this location is more rapid than the previous year's analysis would have suggested.

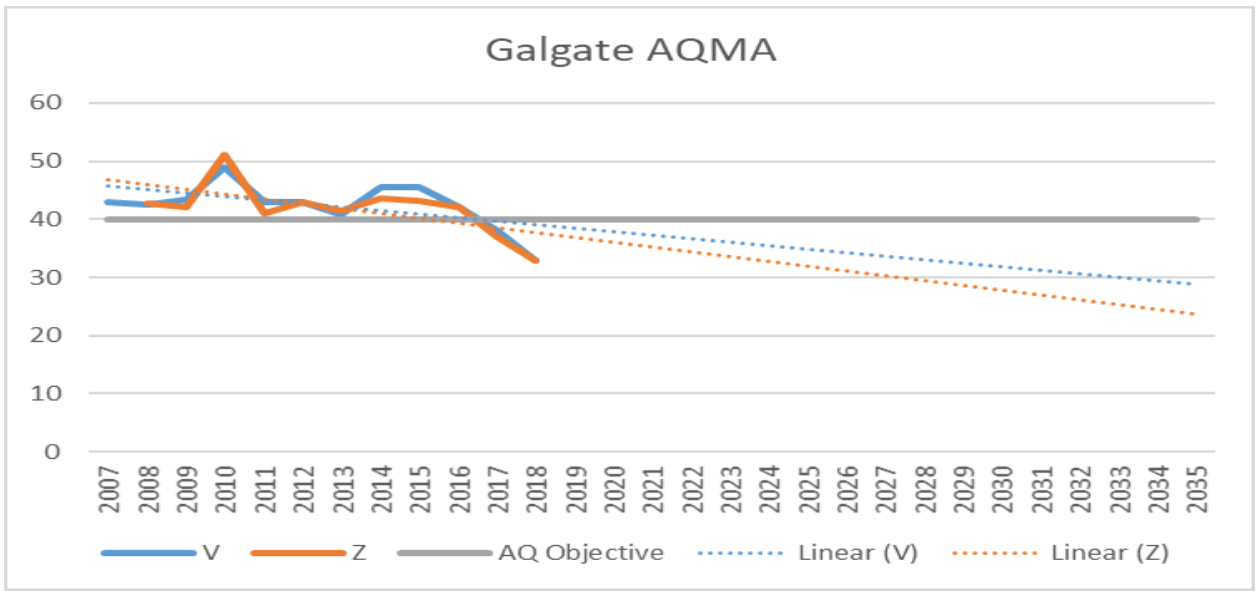
Traffic in Lancaster City Centre

In 2018 monitored roadside annual mean nitrogen dioxide levels at Dalton Square and Thurnham Street, Lancaster exceed the objective by around 25% (levels currently monitored are around 48 and 55 ug/m^3 respectively). In China Street indicative levels monitored are between 39-44ug/m^3. These levels show a marked reduction on levels monitored in 2017. The objective level is 40ug/m^3.)

Figure B – Graphs showing indicated declining roadside NO_2 pollution levels in Lancaster, Carnforth, Galgate AQMA's (annual mean NO_2 ug/m^3)







Local actions to improve air quality

The key action for 2019/20 is the production of a new air quality action plan for the district:

- A Transport Masterplan for Lancaster was adopted in October 2016 (see http://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-masterplans.aspx). Under this plan the County council is currently producing a Movement strategy for Lancaster City Centre. The development control section of Lancaster City Council is also producing an area action plan for south Lancaster and the county council a local cycling and walking infrastructure plan (LCWIP). Consultation on all of these is planned for spring 2020 alongside or shortly followed by a consultation on a new air quality action plan.

  Certain actions continue to be progressed in advance of the new action plan being adopted. These include:-

  - The 2017 Low Emission and Air Quality Planning Advisory Note (PAN) is due transition to a Supplementary Planning Guidance document during 2020.
  - The electric vehicle charging PAN (available at http://www.lancaster.gov.uk/planning/planning-policy/about-the-local-plan) will also transition to be an SPD in 2020 (or combined in the Low Emission and Air Quality SPD). It is anticipated that the requirements will reflect the national consultation on proposed changes to building regulations to mandate the provision of electric vehicle charging facilities - See Appendix F).

  - In November 2015, a bid was made to provide improvements to buses to reduce emissions under the Department of Transport, Clean Bus Technology Fund 2015. This application was successful and a full bid award of £288,180 was granted. Given the significant delays to implementation and unrelated bus replacement improvements to the bus fleet, an amended proposal was submitted to DfT to re-engine a number of buses with Euro 6 compliant engines which was accepted by them. Delivery is now due summer 2020.

There are also a number of other actions that are in progress or are being developed. A full list of actions is contained in Table 2.2 below, however the following are currently priorities:

- An ANPR camera system was installed in Lancaster centre in June 2017. The system was again used in September 2018 and will continue to be used to inform and monitor the transport masterplan/air quality action plan for Lancaster. The system is also planned to be used to provide an additional annual air quality progress indicators in 2020 (indicating presence of electric vehicles). The installation of ANPR cameras was a Defra grant funded project (£30K award from the Air Quality Grant Fund).

- The bid made under the ULEV Taxi Charging Infrastructure grant scheme operated by OLEV (see https://www.gov.uk/government/publications/ultra-low-emission-taxi-infrastructure-scheme-round-2) was successful with a full grant award of £630K being made. Tendering has just been completed (Jan 2020) and charging points are due to be delivered by August 2020.

- The city council has obtained funding from the OLEV On Street residential Chargepoint Scheme (see http://www.energysavingtrust.org.uk/transport/street-residential-chargepoint-scheme) to provided electric vehicle charging at a number of its car parks (located at the Charter House, Auction Mart and Upper Leonards Gate car parks in Lancaster and the Morecambe Library and West View Car Park in Morecambe). The charging points are now available for use. Grant funding for the provision of additional points is currently being sought for car parks at locations in Lancaster and Morecambe.

- The county council has delivered chargepoints in Morecambe and Carnforth with the charging hub (6, 50KW rapid and 12, 7KW chargers) at the Caton Road Park and Ride just opened in January 2020. This is the largest charging hub in the North West of England (see https://www.zap-map.com/polar-rapid-charging-hub-opens-on-m6/).

Air Quality and County Council Public Health

Lancashire County Council has an important role to play in taking action to reduce the health impacts of air pollution. Responsible for transport planning, network management, highway maintenance, public health and procuring local vehicle fleets, there are a number of ways LCC can support local and countywide efforts to improve air quality. In Summary, the following activity is underway or in development:

1. Encourage the use of sustainable forms of travel

- Lancashire's cycling and walking strategy – Actively Moving Forward – sets out an ambitious plan for increasing the number of people walking and cycling in the county by 2028. Through improving and increasing access to cycling and walking infrastructure, alongside training and promotional activities, it aims to significantly increase the amount of cycling and walking people do across the county.

- As part of Lancashire's cycling and walking strategy, work has now commenced on developing Local Cycling and Walking Infrastructure Plans (LCWIPs) for the five Lancashire Highway and Transport Masterplan areas. The Plans will include a network plan for cycling and walking infrastructure and a prioritised list of schemes for delivery over short, medium and long-term timeframes. These plans will be used to support future infrastructure decisions and access new funding schemes as they become available.

- Connecting East Lancashire is a 'smarter travel choices' campaign designed to encourage healthier and greener ways of travelling in East Lancashire. A dedicated team of Business Travel Planners work with individuals and organisations across east Lancashire to support a shift towards more sustainable and active forms of travel.

- The Safe and Healthy Travel team work with schools, workplaces and the community to encourage safe and sustainable modes of travel. Initiatives for schools are promoted though the Safer Travel Moodle and include: a series of cycling and walking safety training programmes; guidance and resources for teachers to encourage safe and active travel; and support for creating travel plans.

2. Support the transition to low emission vehicles

- The County Council is working with BP Chargemaster to deliver 150 electric vehicle charge points across the County. The charging network will be accessible to drivers from all over the country and will support local and national efforts to increase the number of drivers purchasing electric vehicles.
- The County Council is supporting six district councils with a low emission taxi infrastructure scheme. Funded by the Office for Low Emission Vehicles, the scheme will provide taxi drivers with access to 24 new rapid electric vehicle charge points across the six districts. This, alongside a series of promotional activities and suggested regulatory changes, is designed to produce a transition towards more low emission taxi vehicles across Lancashire.

3. Create cleaner, healthier road networks

- Work to develop the next Local Transport Plan (LTP4) for Lancashire, Blackpool and Blackburn with Darwen is now underway. The Public Health team has submitted an evidence base to the process highlighting transport related health challenges affecting the population of Lancashire and making recommendations about how local transport planning policy can make a contribution to addressing these. Air quality is one of the key themes of the evidence base and will be an identified priority in LTP4. Stakeholder engagement and consultation will be carried out during 2019. Approaches to improving air quality could include:
    - Redesigning road networks to reduce congestion and separate vehicle emissions from places where people live, work and congregate;
    - Increasing access to cycling and walking infrastructure, and cleaner public transport;
    - Facilitating the move towards the use of low emission vehicles through upgrading public transport and public sector vehicle fleets and introducing new electric vehicle charge points;

- Targeting areas with high levels of air pollution, including considering the introduction of Clean Air Zones.

The Local Highways and Transport Masterplans will be refreshed to align with the priorities of LTP4, which will provide an opportunity to identify longer-term network solutions that address issues in AQMAs and have a positive impact on air quality generally.

- The Lancaster City Centre Movement Strategy is looking at how vehicular, public transport and pedestrian walking movements can be improved across the city. A key facet of the study is to examine what improvements can be implemented to prioritise public transport, reduce severance, improve air quality and effectively make the city centre a more welcoming environment for people. The intention is for a similar approach to be adopted as part of future transport and highways masterplans.

- The County Council's vehicle fleet will be fitted with a driver behaviour tracking system to monitor and influence driver behaviour. The aim of the tracking system is to improve driver performance, reducing fuel costs, road accidents and vehicle emissions.

4. Embed air quality into policy

- The County Council works with district planners to ensure air quality is a key consideration of Local Plans, alongside wider public health issues. Providing support to districts to develop policies that seek to ensure that new development does not contribute to increasing levels of air pollutants and that requirements for appropriate mitigation are in place.

- The County Council, as part of its highways input into planning applications, actively encourages measures that aim to promote sustainable forms of travel. Working under the direction of the National Planning Policy Framework, the Council seeks measures that facilitate cycling and walking, increase the use of public transport and provide access to electric vehicle charge points. The Council also seeks funding from developers, through section 106 contributions, to support

existing bus services or to provide new bus services suitable to serve development sites once their built.

- The County Council is working with Lancaster and Birmingham Universities to develop evidence based guidance for the use of green infrastructure as an approach to mitigating the health impacts of road transport emissions. The guidance will enable spatial planners, public services and the public to introduce the most effective infrastructure at the most appropriate sites. In time, there may be opportunities for further projects around this work.

5. Raise awareness and increase engagement

- The Lancashire Insight website provides information on the sources and health impacts of air pollution. Webpages include a Summary of Emissions Data, Monitoring of Air Quality and Health Impacts and an Air Quality and Health Dashboard.

- The County Council is the process of developing a clean air programme for schools. The scheme will include: guidance and support for schools on developing a clean air strategy; lesson plans, activities and resources for teachers; provision of LCC's cycling and walking programmes; and resources to deliver a clean air event, campaign and poster competition.

- The County Council's Lead Member for Health and Adult Services has established network for elected members from across Lancashire and Cumbria to come together to gain an understanding of the issues and the key messages to champion and advocate in their communities.

Local Priorities and Challenges for coming year (2020)

Within the three air quality, management areas air pollution levels are still elevated and in the Lancaster AQMA remains above objective levels (see Figure 1 below). Monitoring results do however show that roadside pollution levels are decreasing with a faster rate of improvement indicated by the last two years results. In fact using the rate of decline indicated by changes over the past two years, compliance with objective standards is indicated by 2021 (See Figure 1a(i) below).

Pollution levels at locations away from main roads (see Figure 1b below) continued to indicate gradual improvement.

Figure 1 - Pollution levels (nitrogen dioxide) in Lancaster AQMA for highest six monitoring sites 2007-2018

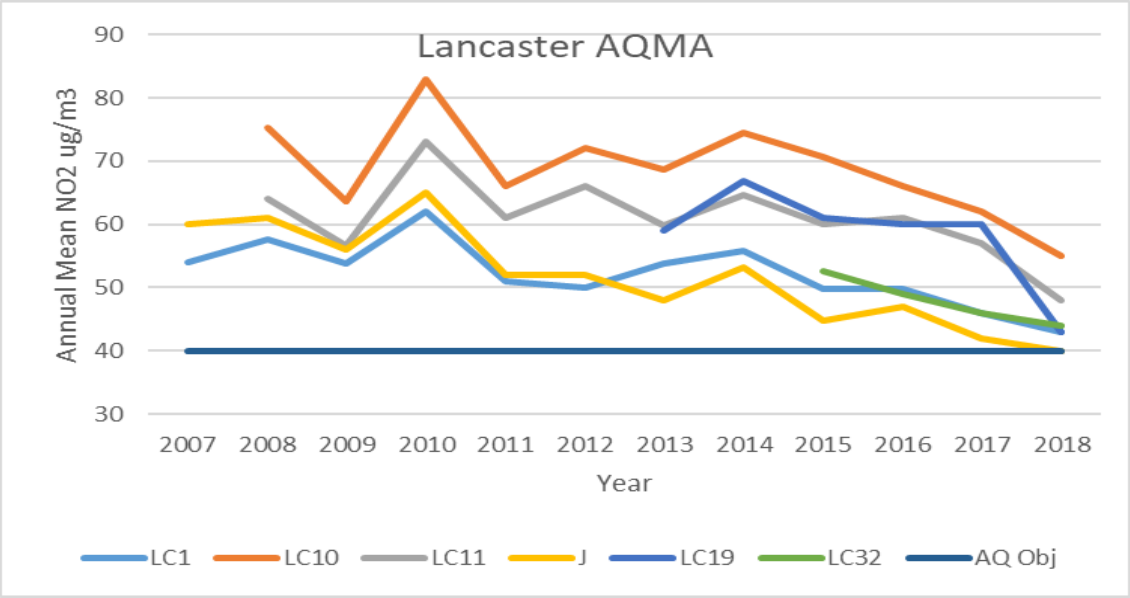


Figure 1a – Pollution levels trends at monitoring sites within the Lancaster AQMA 2007-2035

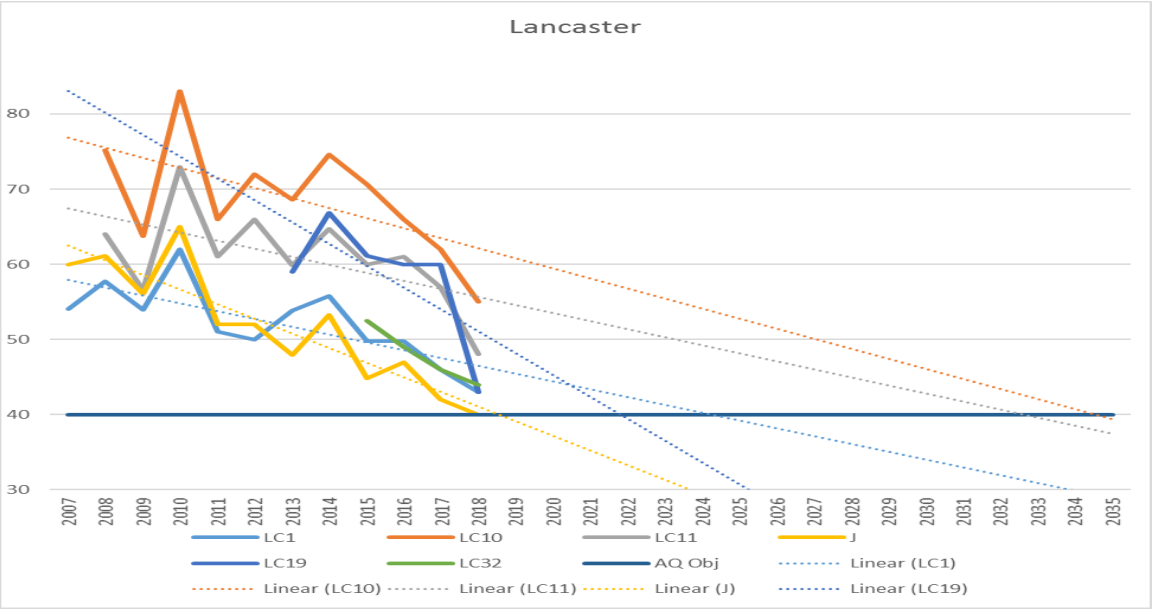


Figure 1a(i)

Recent pollution levels trends at monitoring sites within the Lancaster AQMA 2017-2023

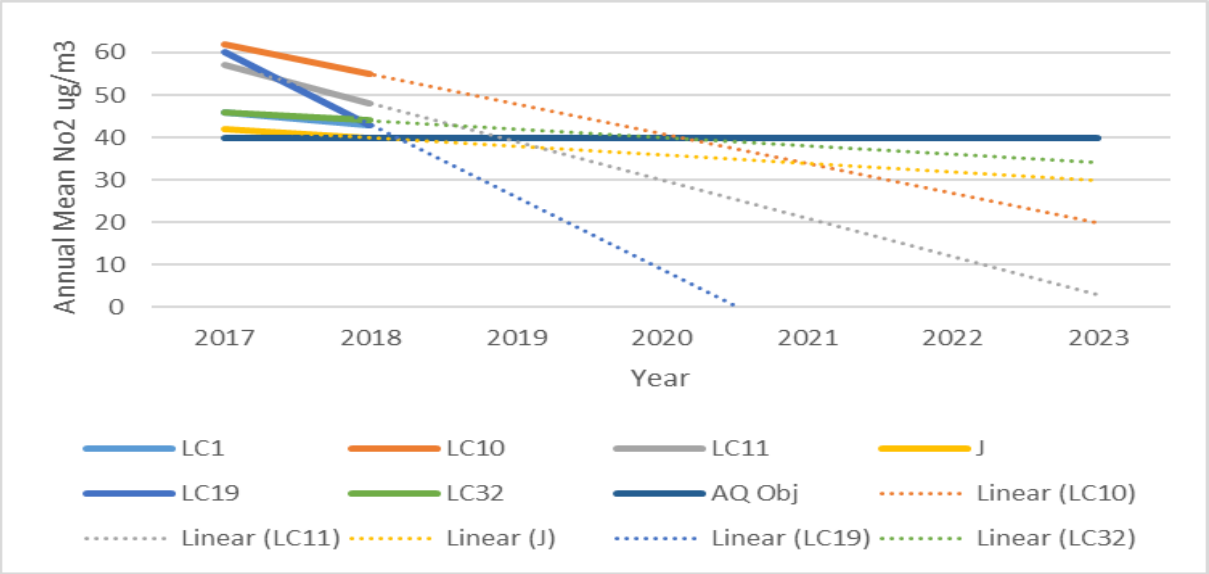
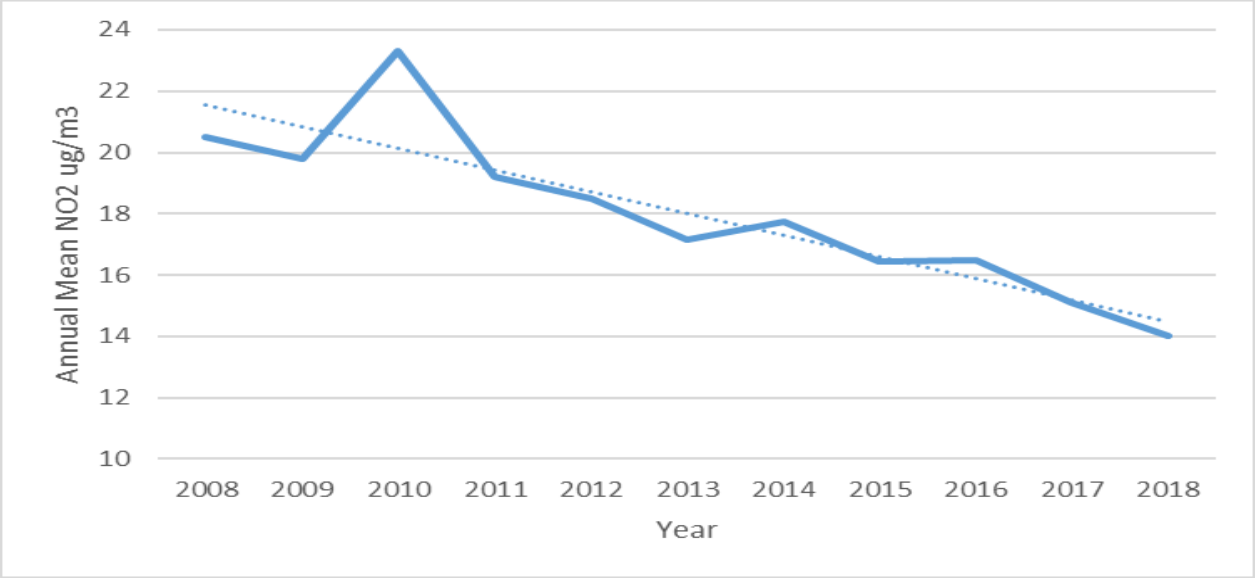


Figure 1b - Pollution levels (nitrogen dioxide) at urban background monitoring site in Lancaster 2008-2018



Although pollution levels are reducing, the delivery of a robust and effective transport masterplan (and accompanying air quality action plan) remains the key priority to ensure future pollution levels continue to reduce and also to reduce emissions to help minimise climate change impacts.

The first stage in the formation of a new air quality action plan took place in the first half of 2019. This produced a list of around 150 measures for consideration. Consultation on measures selected from this list will take place in spring/summer 2020.

At a national level, 2018 again saw increased attention on the impact of wood/solid fuel burning (which is a growing source of local $PM_{2.5}$ emissions). A copy of the Lancashire authorities response to the consultation on domestic solid fuel use is contained in Appendix K to this report. The national response in terms of a new Clean Air Act is awaited.

Air quality planning guidance for new development will transition from planning advice to a supplementary planning document (SPD) for Lancaster in 2020.

How to get involved

Air quality impacts are not generally the result of single source but are as a result of a number of combined impacts. Small contributions to air pollution are therefore more important than they may seem, and need to be addressed if current issues are to be resolved. The principle 'look after the pennies and the pounds will look after themselves' comes to mind. Road traffic is an obvious example of an impact arising from numerous sources with control in the hands of each vehicle owner. The choice to use a wood burning/solid fuel stove to heat your home is another example. The choices individuals (you) make are therefore crucial to improve air quality. The following are therefore some suggested actions which if adopted would significantly contribute to improving air quality in the Lancaster area:-

1) *Internet technology available today allows communication and transactions to take place without the need for personal travel. Wherever possible the use of technology can remove or reduce polluting emissions and also save you valuable time.*

2) *Where a journey is needed, choosing to walk or cycle means that you are not adding to pollution and has the added benefit of keeping you fit and healthy. Some good information and suggestions can be found at the following link*: *http://www.lancashire.gov.uk/roads-parking-and-travel/alternative-ways-to-travel.aspx*

3) *If you need a car, consider using or purchasing a lower emission vehicle such as an electric car. If an electric car does not currently meet your specific needs or is not a possibility, if you can, choose a smaller, more fuel-efficient car. This will usually have significant emission benefits.*

4) *Take the bus or train if this is an option. The Council and its partners are working to improve the emissions from public transport. Information on public transport is available from http://www.traveline-northwest.co.uk/cms/content/lancashire.xhtml ,*

https://www.stagecoachbus.com/about/cumbria-and-north-lancashire and other general information web sites such as http://www.nationalrail.co.uk/ .

In addition to reducing the pollution you create, you can also do things to reduce your exposure to air pollution. These are a few suggestions:-

Get out of your car

Not only will you be reducing pollution if you don't drive, you will reduce how much pollution you breathe as often sitting in traffic surrounded by vehicles exhausts can be the worst place to be.

Choose where you walk

Air pollution along main roads with buildings close to the road can be particularly high. If possible avoid walking along main roads, choose side roads. If you can't avoid them walk as far away from the kerb as possible – pollution levels usually decrease quickly the further you get away from them. If you need to cross the road, do this as quickly as you can, but don't get run over, as this would defeat the objective! Watch out for your young children also. If they are in a pram, don't forget that they can be even closer to vehicles exhaust!

Choose where you exercise

Don't run or cycle along busy roads if you can avoid them. Choose locations where traffic is lower or ideally, where there is no traffic at all.

Get out of town

Not always an option, but if you can go out to places where the air is cleaner (the country or the coastal areas of Lancashire are great). But if you can, use public transport, walk or cycle so you don't add to the problem.

Avoid times when pollution is worst

If you can, don't travel when traffic is busiest as this will usually be when the pollution is at its worst. This will not be a favourite for many, but walking in the rain reduces the pollution we breathe in.

Wear a mask?

You could wear a mask, but if you do it needs to fit tightly or its effect will be small. Also, if you don't change it regularly and it becomes dirty it could even be worse for you.

Air pollution indoors?

Air pollution inside can be an issue as we often produce dust for activities such as DIY, cleaning and also some pollution from cooking and heating out homes. Ventilate you home and minimise obviously dusty or smoky activities. Choose to heat your home using a 'clean' fuel. Obviously if you smoke, this the first thing to stop doing.

Wood burning stoves and garden bonfires

Pollution emissions from wood burning stoves are much higher than from gas or electric heating systems and the combined impact of a number of stoves in urban areas can lead to noticeably poorer air quality. Garden bonfires can also similarly add to local pollution. It is therefore very helpful if these more polluting choices can be avoided.

Tell us what you think!

We will be consulting again on measures to be included in the new air quality action plan, most likely in early 2020. If you would like to be consulted on the plans please provide your contact details (name, organisation (if any) and email address to:

environmentalhealth@lancaster.gov.uk
(Please present the email subject as ' Request to be a Consultee on the new Air Quality Action Plan for Lancaster District')

or send by post to:-

FAO Paul Cartmell,
Senior Environmental Health Officer,
Lancaster City Council,
Morecambe Town Hall,
Marine Road,
Morecambe
LA4 5AF

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1 Local Air Quality Management

This report provides an overview of air quality in the Lancaster City Council area during 2018. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Lancaster City 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 1.1 in Appendix D.

2 Actions to improve air quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective.

A summary of AQMAs declared by Lancaster City Council can be found in Table 2.1 below. Further information related to declared AQMAs, including maps of AQMA boundaries are available online at http://www.lancaster.gov.uk/air-quality/ . A national list of AQMA's is available at: http://uk-air.defra.gov.uk/aqma/list .

Table 2.1 – Declared Air Quality Management Areas in Lancaster

AQMA Name	Pollutants and Air Quality Objectives	City / Town	One Line Description	Max Monitored annual mean Concentration 2008 (ug/m^3)	Max Monitored annual mean Concentration 2018 (ug/m^3)	Action Plan
City of Lancaster AQMA	Annual Mean and hourly mean Objectives NO_2	Lancaster	Covers gyratory system in Lancaster city centre	75	55	New Action Plan to be delivered as part of Transport Masterplan. See :http://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-masterplans.aspx See also https://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/lancaster-air-quality-management-area-aqma
Carnforth AQMA	Annual Mean Objective NO_2	Carnforth	Covers main cross road area in Carnforth	45	34	New Action Plan to be delivered as part of Transport Masterplan. See :http://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-masterplans.aspx See also https://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/carnforth-air-quality-management-area-aqma
Galgate AQMA	Annual Mean Objective NO_2	Galgate	Covers main cross road area in Galgate	43	33	Action Plan to be delivered as part of Transport Masterplan. See :http://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-masterplans.aspx See also https://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/galgate-air-quality-management-area-aqma

NB All air quality action plans are planned are to be superseded by the plan incorporated and arising from the Transport Masterplan for Lancaster adopted in 2016. New district air quality action plan is scheduled to be delivered during 2020.

2.2 Progress and Impact of Measures to address Air Quality in the Lancaster City Council area

Lancaster City Council has taken forward a number of measures during the current reporting year of 2018/19 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2 below. More detail on these measures can be found in their respective Action Plans, the Air Quality Strategy for Lancaster, local planning guidance documents and the Transport Master Plan for Lancaster. Key completed/in progress measures during 2018/19 are:

- Progress towards the delivery of the Transport Master Plan for Lancaster leading to the production of a new Air Quality Action Plan for the district/AQMA's in 2020 (Masterplan adopted October 2016)
- Grant funding to reduce emissions from buses in Lancaster (re-engining of buses now due summer 2020).
- Provision of 34 electric vehicle charge points across the Lancaster district part delivered (points at Caton Road park and ride opened January 2020
- Work to review local/regional taxi licensing policies (ongoing Jan 2020).
- Delivery of chargepoints arising from a successful OLEV grant for electric taxi charging infrastructure (due to be operational by end of August 2020).
- Utilisation of automatic vehicle number plate recognition system in central Lancaster to track vehicle composition and growth in electric vehicles.
- Feedback on Defra and DfT consultations on domestic solid fuel use and electric vehicle charging infrastructure (responses contained in Appendices E and F).
- Introduction of electric cars and vans with supporting charging infrastructure to city Council's fleet.
- Delivery of chargepoints utilising OLEV grant funding obtained for residential off street charging scheme, to install electric vehicle charging points in Council car parks and to support local community scheme (Charge my Street) to assist with a charging installation at Dallas Road Boys and Girls Club, Lancaster (See Appendix I).

Progress on the following measures has been slower than expected due to issues beyond the city council's control. The measures, although delayed, are all likely to be progressed or resolved within the period 2018/19:

- Linking air quality stations to traffic management system in Lancaster (potentially to be included as part of wider air quality action plan/transport masterplan measures for central Lancaster).
- Procurement and delivery of emission reduction technology to buses through the Cleaner Bus Fund grant allocation (equipment was initially due to be installed in 2017). Delivery of an amended programme (re-engining buses) is now due in summer 2020.
- Delivery of electric charging points by the county council (completed in January 2020).

The key actions and priorities for the coming year are:-

- Progress the production of a new district wide air quality action plan (as scheduled in the transport masterplan).
- Reduction in bus emissions impacting on roads between Lancaster University and Heysham and particularly the Lancaster AQMA (through DfT Cleaner Bus Technology Grant - to be completed in 2020).
- Transition of local air quality planning guidance from its current status as a Planning Advice Note to a Supplementary Planning Document (due 2020)).
- Working with county public health particularly in relation to taxi policy/electric vehicle infrastructure plans and working with schools.
- Provision of more electric vehicle charging points through city council actions (all due 2020).
- Promote and assist where possible with the uptake of electric vehicles by the local taxi fleet.
- Delivery of more electric vehicles within the Council's fleet.

Longer term actions include the following:-

- Assessment and Implementation of Transport Masterplan for Lancaster and production and delivery of final Air Quality action Plan for Lancaster (2016-2024).

Table 2.2 - Progress on Measures to Improve Air Quality – Lancaster District

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
1	Lancaster Transport Masterplan	Traffic Management	UTC, Congestion management, traffic reduction	Lancashire County Council	2015/16	2016 to 2024	M6/Heysham link Road, Lancaster Caton Road Park and Ride, Renumbering A6, Strategic Multiuser cycle network, Lancaster Reach express Public Transport service, reconfiguration of J33 of M6, Lancaster South Park and Ride, Lancaster Movement Strategy (incorporating Lancaster Centre network review and restraint measures). ULEV Strategy, Morecambe Movement Strategy, Morecambe to Lancaster Rail services, Heysham supporting development, Carnforth Town Centre Improvements, Carnforth Railway Station, Rural connections.	Plan aims to deliver air quality improvements to lead to general air quality improvement and revocation of three AQMA	Work to consider the detailed proposals for the Bus Rapid Transit Route and Cycle Superhighway is progressing. Traffic data for use in impact assessment is due to be gathered in October 2018 following reopening of the Greyhound Bridge. Formal consultation on options for the new plan is due to commence in October 2018 also.	2024	The production of a new air quality action plan for the district is linked and scheduled within Transport Masterplan delivery. Plan available at:- http://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-masterplans.aspx Delivery of a new air quality action plan to cover the Lancaster district (including the three AQMAs) is due is scheduled for delivery in 2020.
2	Speed limits in residential areas	Traffic Management	Reduction of speed limits, 20mph zones	Lancashire County Council	-	2012-2014	-	-	Most residential areas designated 20mph zones	2014	Covers most residential areas in the Lancaster district

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
3	Transport Masterplan for Lancaster	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, inc Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	Lancashire County Council	Transport Masterplan for Lancaster	2015/16	2016 to 2024	Plan aims to deliver air quality improvements to lead to general air quality improvement and revocation of three AQMA	See item 1 above	Plan adopted October 2016	Delivery of a new air quality action plan to cover the Lancaster district (including the three AQMAs) is scheduled for delivery in the plan for 2020 http://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-masterplans.aspx
4	Lancaster Parking Strategy	Traffic Management	Emission based parking or permit charges	Lancaster City Council	2015-18	-	-	-	Production of a parking strategy is to be commissioned in 2018 for delivery for Lancaster by April 2019 and Morecambe shortly after.	2019	More information available at: https://www.lancaster.gov.uk/parking/

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
5	AQ Station traffic management link	Traffic Management	Other	Lancaster City Council and Lancashire County Council	2012/13	2013	-	Assist with traffic management measures in Lancaster AQMA	Works to AQ Stations completed to facilitate link (City Council). Link to management system awaited (County Council). Still outstanding in 2018.	2021	*LCC's traffic* systems database was planned to be upgraded to receive real time information from Lancaster CC air quality monitoring stations to aid traffic management and reduce emissions. Unfortunately, procurement has been delayed. Lancashire County Council are still intending to pursue the procurement of a UTMC common database in 2018. The common database would effectively accept an air quality input from the AQ stations in Lancaster. The government's Digital Market place is now the intended procurement route for the new system.

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
6	M6/Heysham Link Road(the Bay Gateway)	Traffic Management	Other	Lancashire County Council	Pre 2014	2014-16	-	A maximum 10ug/m^3 annual mean NO_2 reduction in Carnforth AQMA. Traffic reduction in range of 3-9% within the Lancaster AQMA and potential of up to 5ug/m^3 (annual mean NO_2) in Galgate AQMA	2018 results indicated similar reductions as reported in 2017.	Road opened October 2016 More information available at: http://heyshamlink.lancashire.gov.uk/	AQ monitoring to assess changes will continue in 2019/20. Further analysis is planned following availability of traffic count data (county council survey due Oct 2018)
7	Travel Plans for new development	Promoting Travel Alternatives	Workplace Travel Planning	Lancashire County Council	-	ongoing	-	-	ongoing	-	Lancaster County Council Sustainability Team was disassembled in 2015 due to County Council budget cuts. Transport planning function in relation to new development transferred to County Council Highways Team
8	Promoting home working	Promoting Travel Alternatives	Encourage / Facilitate home-working	Lancaster City Council and Lancashire County Council	-	ongoing	-	-	ongoing	-	-

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
9	Lancashire Cycle September and other events	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	Lancashire County Council	-	Yearly	-	-	The Cycle September Challenge ran in 2019.	-	Events usually consist of try a bike sessions and fun activities such as mini bikes, penny farthing, provision of maps and other info and options to sign up for a personal journey plan. For more information see: :http://www.lovetoride.net/lancashire https://www.cyclinguk.org/cycle/cycling-lancashire
7a	School Travel Plans	Promoting Travel Alternatives	School Travel Plans	Lancashire County Council	-	2003-2011	-	-	66 Schools with travel plans	-	Most Schools utilized grant funding to provide cycle storage facilities

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
10	Cycling Demonstration Town	Promoting Travel Alternatives	Promotion of cycling	Lancashire County Council	-	2008-11	-	-	Completed	-	4 contra flow cycle lanes, 3 Toucan crossings, 7 on road cycle lanes, cycle links to canal tow path, cycling access to pedestrian areas, 12 crossing upgrades, new path links, 1176 cycle parking spaces, signage, workplace engagement, events (25.000 contacts),cycle training, schools engagement
11	Lancaster Rail Station Park and Ride	Promoting Travel Alternatives	Promote use of rail and inland waterways	-	-	-	-	-	ongoing	-	60 Fee payable spaces
12	Carnforth Rail Station Park and Ride	Promoting Travel Alternatives	Promote use of rail and inland waterways	-	-	-	-	-	ongoing	-	64 Fee charged spaces
13	Bare Lane Rail Station Park and ride	Promoting Travel Alternatives	Promote use of rail and inland waterways	-	-	-	-	-	ongoing	-	12 free spaces
14	Morecambe Rail Station Park and ride	Promoting Travel Alternatives	Promote use of rail and inland waterways	-	-	-	-	-	ongoing	-	100 fee payable spaces but refundable with rail ticket purchase
15	Silverdale Rail Station Park and ride	Promoting Travel Alternatives	Promote use of rail and inland waterways	-	-	-	-	-	ongoing	-	3 free parking spaces

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
16	Wennington Rail Station Park and ride	Promoting Travel Alternatives	Promote use of rail and inland waterways	-	-	-	-	-	ongoing	-	7 free parking spaces
17	Information via web site	Promoting Travel Alternatives	Other	Lancashire County Council	-	-	-	-	ongoing	-	http://www.traveline-northwest.co.uk/cms/content/lancashire.xhtml http://www3.lancashire.gov.uk/corporate/web/index.asp?siteid=4404&pageid=19915 http://www.lancashire.gov.uk/roads-parking-and-travel/alternative-ways-to-travel.aspx http://www.lancashire.gov.uk/roads-parking-and-travel/public-transport.aspx
18	Air Quality information	Public Information	via the Internet	Lancaster City Council	-	-	-	-	Ongoing Web link to continuous air quality monitoring sites provided in 2018/19. http://www.ukairquality.net	-	http://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
19	Burning of waste Fact sheet	Public Information	via leaflets	Lancaster City Council and	-	2014	-	-	ongoing	-	Available at: http://www.lancaster.gov.uk/environmental-health/environmental-protection/smoke-control
20	Direct Communication/Education	Public Information	Other	Lancaster City Council and Lancashire County Council	-	-	-	-	Communication sent to encourage schools to participate in national Clean Air Day (June 2019)	-	General communication through Environmental Health role and through schools education programme via County Council
21	Cycle Hire	Transport Planning and Infrastructure	Public cycle hire scheme	Lancaster City Council	-	-	-	-	ongoing	-	More information available at: http://www.visitlancashire.com/cycling-lancashire/cycle-hire

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
22	M6/Heysham link road (Bay Gateway) conditional complimentary measures	Transport Planning and Infrastructure	Other	Lancashire County Council	Before summer 2016	2016-2024	-	-	Plan adopted October 2016	2024	Plan of measures to be submitted to prevent relief offered by new road being eroded. Plan to be submitted before link road is fully opened (Schedule 2, 10 requirements). See Transport Masterplan at http://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-masterplans.aspx for more information.

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
23	Caton Road Park and Ride	Alternatives to private vehicle use	Bus based Park & Ride	Lancashire County Council	-	2014-16	-	-	Operational December 2016	2016	A daytime bus service is operational every 30 mins 6 days a week. Passenger journeys have increased from approximately 380 in Dec/Jan 2017 to around 2,100 in June 2018. Ticket detail is available at : http://www.lancashire.gov.uk/roads-parking-and-travel/public-transport/park-and-ride/lancaster-park-and-ride.aspx See item '32' below.
24	Shared Wheels Car Sharing	Alternatives to private vehicle use	Car & lift sharing schemes	Lancashire County Council	-	-	Members registered	-	4202 members registered in Lancashire area (Jan 2020)	-	See: https://sharedwheels.liftshare.com/ for further information
25	Lancaster Community Car Club	Alternatives to private vehicle use	Car Clubs	Lancaster Community Car Club –Community Interest Company	-	2010	-	-	-	-	-

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
26	Sustainable Transport Fund Grants	Alternatives to private vehicle use	Other	Lancashire County Council	-	-	-	-	13 further schemes in Lancaster during 2014/15. Over 100 businesses engaged and 50 grants provided over the period of the scheme.	2015	Main transport rout between Lancaster and Preston targeted including Lancaster centre. Grants awarded for cycle storage, changing facilities and for pool bikes. Scheme ended April 2015
27	Local Transport Plan	Policy Guidance and Development Control	Other policy	Lancashire County Council	-	2011-21	-	-	Development of new plan is currently in progress (2017-20). The plan will link to the transport masterplan for the district.	2020	Current plan available at: http://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/local-transport-plan.aspx
28	Local air quality planning guidance	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	Lancaster City Council	2015/16	2016/17	-	-	Guidance produced. - Launch Event took place in October 2016 Guidance adopted as a planning advisory note September 2017. Adoption as SPD anticipated summer 2020.	2017(PAN adoption) and 2020(SPD adoption)	Templates also produced for regional adoption. Survey undertaken in May 2017 indicted 9 of 14 Lancashire authorities are looking to adopt the guidance in one of the three template forms.

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
29	Lancashire Public Health Team AQ Coordination	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	Lancashire County Council	2015/16	2016	-	-	Initial meeting Dec 2015.AQ briefing note produced April 2017	-	Public Heath team at the County council are looking to coordinate roles of stakeholders at County Council to improve air quality (see overview above). In April 2017 an AQ Briefing note was produced with a list of priority actions. See AQ and County Council public health section above (p15) for more detail on action in 2019/20
30	Lancaster Air Quality Strategy	Policy Guidance and Development Control	Other policy	Lancaster City Council	-	2015-24	-	-	Approach detailed in Strategy to be adopted in Transport Masterplan for Lancaster	2024	Available at: http://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/air-quality-reviews-and-assessments

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
31	Planning Policy - Lancaster City Council	Policy Guidance and Development Control	Other policy	Lancaster City Council	-	2014	-	-	New policy introduced for consultation in 2017 (DM28). Plan subject to examination by planning inspectorate 2019 See: http://www.lancaster.gov.uk/planning/planning-policy/examination-stage	2020	To ensure new exposure to poor AQ is prevented and to minimise emissions from new development Available at: http://www.lancaster.gov.uk/planning/local-plan/local-planning-policy/adopted-documents/development-management-dpd/ Policy reviewed to support new air quality planning guidance (item 28 above).
32	Guidance on electric vehicle charging point requirements for new development	Policy Guidance and Development Control	Other policy	Lancaster City Council	2015	2016	-	-	Guidance adopted as Planning Advisory Note 2016 – Updated Sept 2017 Due to be adopted as SPD in 2020	2020	Guidance available at: https://www.lancaster.gov.uk/planning/planning-policy/supplementary-planning-documents-spds

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
33	Planning Policy – Carnforth former TDG site	Policy Guidance and Development Control	Other policy	Lancaster City Council	-	2012	-	-	Site is currently being returned to commercial use. Attempts by the owner to redevelop the site in line with the policy did not prove successful. The policy is therefore no longer active at the site.	2018	Planning Policy to direct use of former TDG Haulage site in Carnforth to reduce impact of site on Carnforth AQMA See 2014 Progress report for more information :Available at: http://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/air-quality-reviews-and-assessments Policy did not achieve objective.

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
34	M6/Heysham Link Road – Traffic Regulation Order	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	Lancashire County Council	-	2016	-	See item 6 above	Order in place 2016	2016	HGV traffic to use J34 Link Road http://heyshamlink.lancashire.gov.uk/ The link road must not be fully opened to vehicular traffic until the undertaker has completed statutory consultation upon a proposal to make a traffic regulation order prohibiting HGVs from roads forming part of the A6 in central Lancaster and along the A589 Morecambe Road east of the link road, except for access
35	Clean bus technology fund grant Phase 1	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	Lancashire County Council with Lancaster City Council and Stagecoach	2015	2016/17	NOx emissions from buses reduced by over 90%	4% reduction in NOx levels in Lancaster AQMA (revised due to recalculation using Defra Emission Factor Toolkit V8/2017	£288,150 grant to tackle (re-engine 8 buses)	2020 (Implementation (due summer 2020)	More information available at: https://www.gov.uk/government/collections/clean-bus-technology-fund

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
35a	Clean bus technology fund grant bid Phase 2	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	Lancaster City Council and Stagecoach	2017	-	NOx emissions from buses reduced by over 90%	Treatment of 57 buses resulting in a Reduction of 11.7% of NOx emissions in the Lancaster AQMA	Grant application was not successful (2017)	-	Response to application indicated that bid was not successful as Defra air quality modelling indicated Lancaster was not exceeding air quality objectives.
36	Modernisation of local bus fleet (Carnforth)	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	Lancaster City Council	2010/17	-	-	-	Bid made in 2017 however was unsuccessful (see item 35a above)	-	Enquiries are ongoing to see if new development generated funding could possibly be used to fund retrofit programme.
37	ULEV Cities/Fleet OLEV Grant applications	Vehicle Fleet Efficiency	Other	Lancashire County Council with Lancaster City Council	2015	-	-	-	Grant bids not successful	-	-
38	Lancaster City Council carbon reduction commitment	Promoting Low Emission Plant	Public Procurement of stationary combustion sources	Lancaster City Council	-	ongoing	34% reduction in carbon emissions by 2020 (3.4% annual target)	-	ongoing	-	Further information at: https://www.lancaster.gov.uk/sustainable-living/climate-change/responding-climate-change/

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
39	Provision of roadside electric charging points for electric vehicles	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Lancashire County Council Highways	2015/16	2017/18	-	-	Grant monies awarded for 150 points across Lancashire	Jan 2020	Project delivered
40	Green barriers	Other	Other	Lancaster City Council	2017/18	2018/19	-	-	LCC working with Lancaster University on deployment of green barriers in poor AQ locations and also to inform more general planting schemes (AQ beneficial plant species)	2019/20	Research project instigated at Cable Street Lancaster in June 2018.
41	Promoting the use of electric vehicles as taxis	Promoting Low Emission Transport	Taxi emission incentives	Lancaster City Council	2017/18	2018/19	-	-	Ongoing through work associated with OLEV grant for charging infrastructure (see 42 below) and through local 'Climate Emergency' initiatives	2020	The Council is consulting local operators and drivers regarding the uptake of EV's.

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
42	Grant Bid for electric taxi vehicle charging infrastructure from OLEV scheme	Promoting Low Emission Transport	Taxi emission incentives	Lancaster City Council or Lancashire County Council	2016/18	2019/20	Installation of charging points	-	Two taxi events at Morecambe, Public Health leading on consultation with Licensing/Chief Officers regarding policy/incentive changes.	2020	6 Lancashire authorities potentially bidding with Lancaster as lead. Bid due Nov 2018
43	Promoting the use of electric vehicles in Council fleet	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Lancaster City Council	2017/18	2018/19	Installation of charging points and purchase of electric vehicles	-	Vehicles pending but charging infrastructure available at White Lund Depot and Lancaster Town Hall	-	Replacement of further fleet vehicles with electric vehicles is up for review in 2019/20. Currently 5 electric pool car vehicles are available for use and 3 Kangoos (electric vans).

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

Local Authorities are expected under Chapter 7 of Policy Guidance LAQM.PG (16) to work towards reducing emissions and/or concentrations of pollutant $PM_{2.5}$. There is clear evidence that particulate matter ($PM_{2.5}$) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases. Requirements relating to PM2.5 feature in the Environment Bill currently being considered in Parliament.

As previously reported Lancaster City Council is working to address $PM_{2.5}$ through existing and proposed actions to reduce emissions. Many of the measures used to reduce emissions impact on nitrogen dioxide emissions also impact on particulate pollution (PM_{10} and $PM_{2.5}$). For example measures that replace vehicle trips with cycling or walking will reduce all these pollutants and traffic alleviation provided by the Bay Gateway road will reduce pollutant emissions for both nitrogen dioxide and particulates in key areas. $PM_{2.5}$ reduction measures are therefore similar to measures contained in the existing action plans and include:-

- Cycling and walking measures
- Traffic alleviation through new link road
- Measures contained in the transport Masterplan for Lancaster.
- Travel Planning
- Car Share/Car Clubs
- Requirements for new developments (policy and guidance driven)
- Promoting use of Ultra Low Emission Vehicles
- Green barriers
- Providing information on the impact of solid fuel use

A review of monitoring provision undertaken in 2016 concluded that the provision of additional local monitoring facilities to assess $PM_{2.5}$ levels would not be feasible at this time. We will review monitoring undertaken in Lancaster annually. The council together with the other Lancashire authorities responded to Defra's consultations on

the national response proposals to the growth in use of solid fuels (see https://consult.defra.gov.uk/airquality/domestic-solid-fuel-regulations/).

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

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

Lancaster City Council undertook automatic (continuous) monitoring at the Dalton Square, Lancaster and Cable Street, Lancaster monitoring sites during 2018. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at http://uk-air.defra.gov.uk/ .

Maps showing the location of the automatic monitoring sites are provided in Appendix A. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C. Local monitoring results can be obtained from the UK Air Quality website (available at: http://www.ukairquality.net).

3.1.2 Non-Automatic Monitoring Sites

Lancaster City Council undertook non- automatic (passive) monitoring of NO_2 at 54 diffusion tube sites during 2018. Table A.2 in Appendix A shows the details of the sites. Two sites (LC7 and LC17) were closed due to building alterations in 2019 and two new sites were introduced at Shrimp Roundabout, Morecambe and later in the year at Derwent Road, Lancaster.

A map showing the location of the monitoring sites and associated monitoring results are provided at: https://lancaster.maps.arcgis.com/home/webmap/viewer.html?webmap=d848c212001e4cb0988d2eedea751107. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

3.2 Individual pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias. Further details on adjustments are provided in Tables C.4, C.5 and C.6 in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified and adjusted continuously monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

For diffusion tubes, the full 2018 dataset of uncorrected monthly mean values is provided in Appendix B.

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

The data as shown in Figure 2 below indicates a declining trend at the Dalton Square and Cable Street monitoring sites. Both sites indicated annual mean levels below the Objective in 2018. There was no monitored exceedance of the hourly NO_2

objective at either continuous automatic monitoring site. A more detailed report for the 2018 results from the Dalton Square and Cable Street sites is available at : https://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/air-pollution-measurement-and-monitoring .

Figure 2 - Annual Mean NO_2 at the two continuous automatic monitoring sites in Lancaster

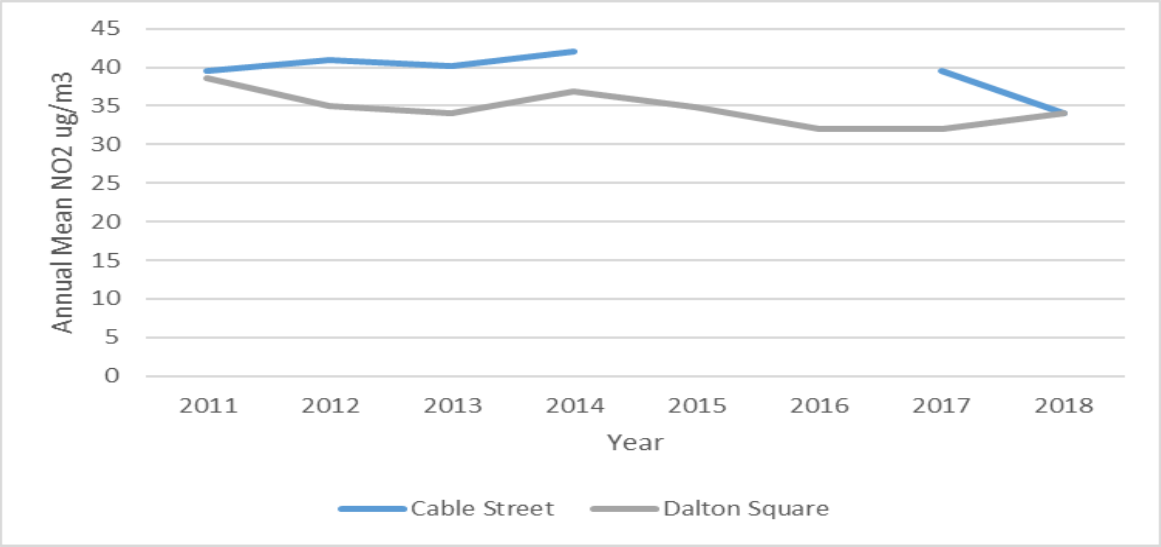


Figure 2a Graph showing trend in Annual Mean NO_2 levels at the two hhighest level monitoring sites located in Galgate

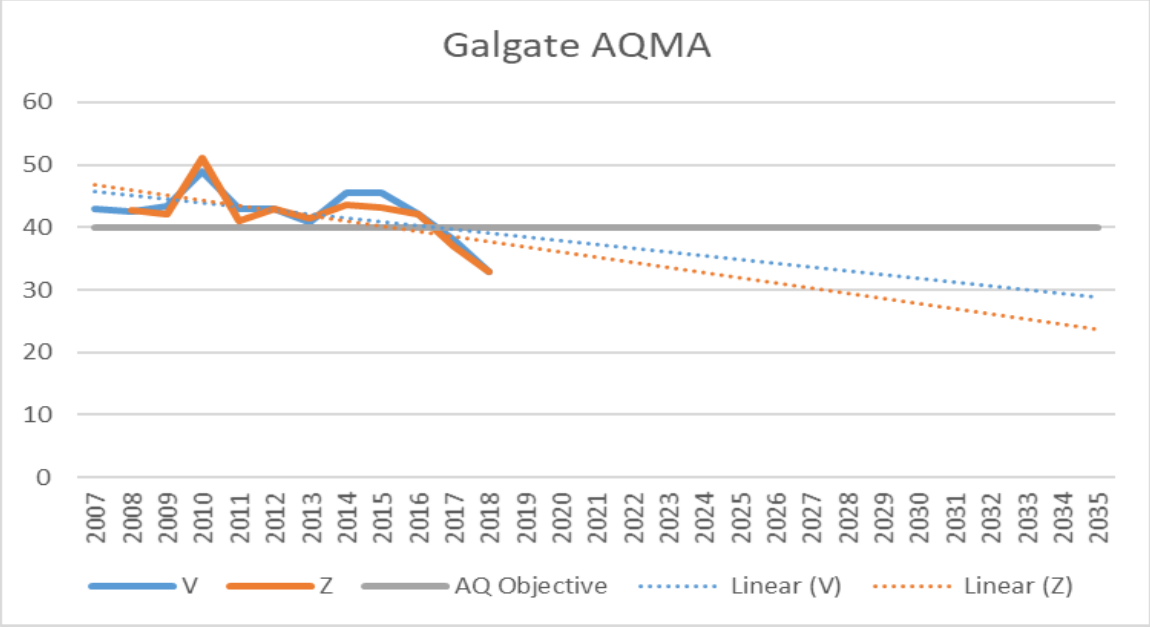
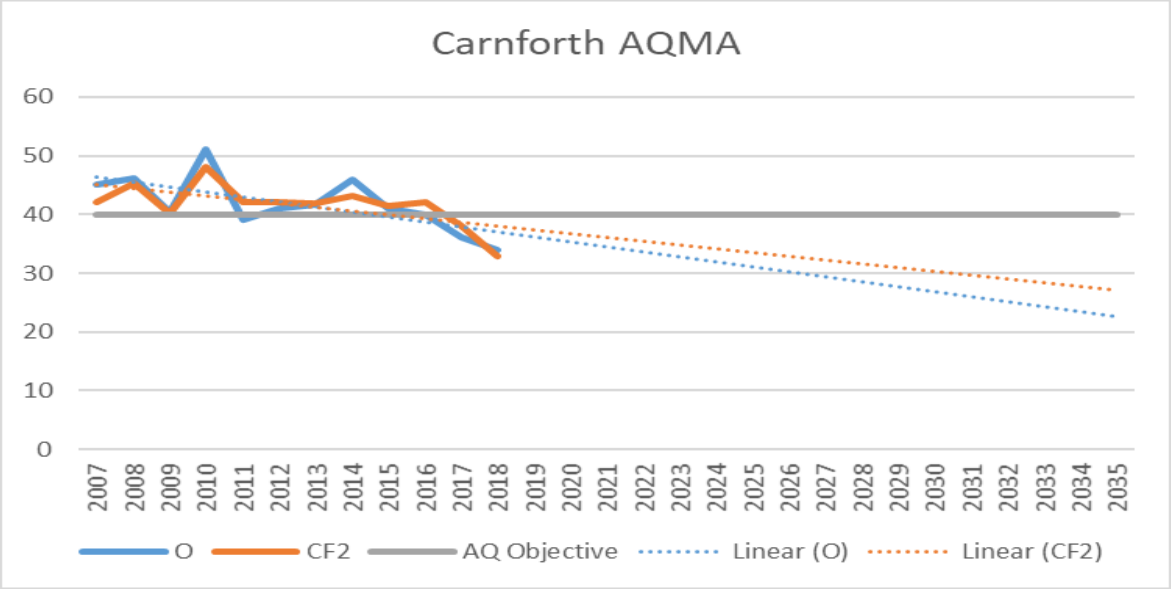


Figure 2b Graph showing trend in Annual Mean NO_2 levels at the two highest level monitoring sites located in Carnforth



Results from nitrogen dioxide diffison tubes in 2018 were generally lower. A general declining trend, particularly over the past 5 years, can be observed in nitrogen dioxide at monitored roadside locations in the Lancaster district. Only tubes located within the Lancaster AQMA continued to indicate exceedance of objective levels, although these sites also indicate a decline in pollution levels. The more recent rate of decline indicates that the Objectives will be met within the Lancaster AQMA possibly within the next few years (if the more recent declining trend continues). Levels in Galgate and Carnforth in 2018 were again below the air quality objective (annual mean nitrogen dioxide) and generally lower than 2017. If the higher local bias adjustment factor was applied to tube results for 2018 (bias correction factor 1.09), the results were elevated to some being close or at/just above the objective level in both Galgate and Carnforth AQMAs.

Review of the AQMA designation for Carnforth and Galagte will most likely be undertaken in 2022/23 if compliance with objective levels /decline in pollution levels continues. Weather and local traffic changes may still potentially result in pollution level changes in these locations and therefore monitoring will continue unchanged in 2019/20.

For the first year, exceedance of the hourly mean objective was not indicated at any monitoring site in the Lancaster AQMA (see Figure 1 above) which would be

indicated by annual mean NO_2 levels still being above 60ug/m^3 (see http://uk-air.defra.gov.uk/reports/cat18/0806261511_TG_NO2relationship_report_draft1.pdf). All locations monitored are generally indicative of relevant exposure (see table A.2 below for more information).

Conclusion

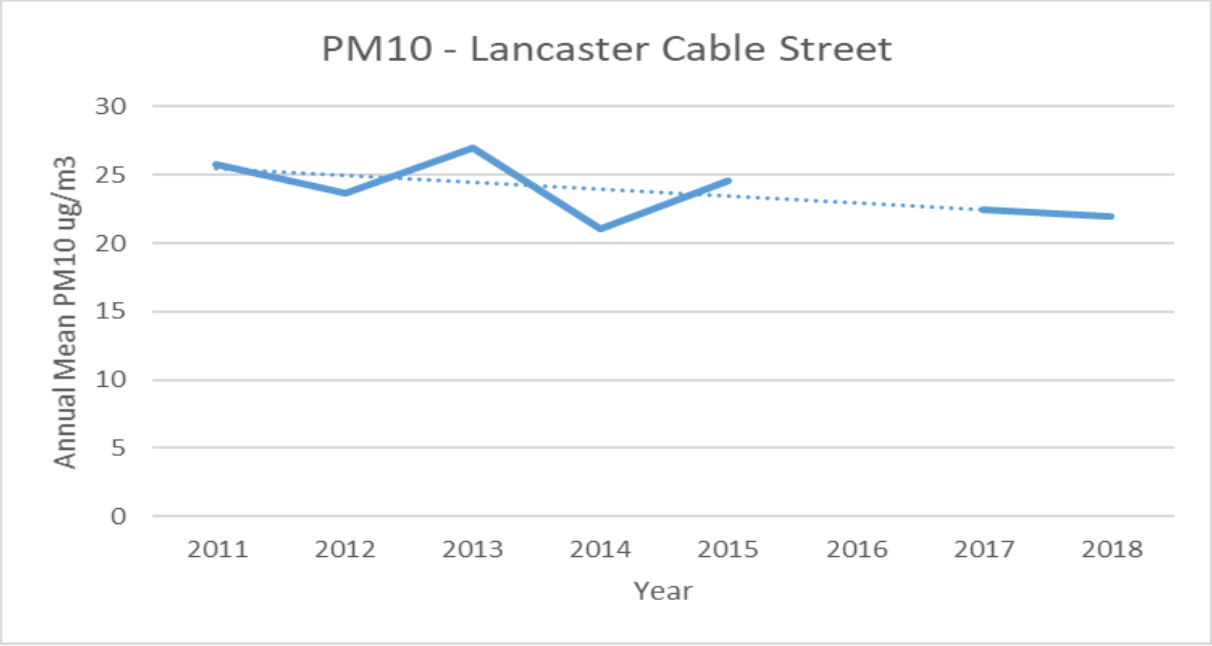
From an assessment of the monitoring results there is no intention to create any new AQMA's or revoke any existing AQMAs at this time within the Lancaster area. The main areas of concern persist to be within the three existing AQMAs. Overall collected results indicate a declining trend in polltion levels at both background and roadside locations. Pollution levels monitored in the Lancaster AQMA indicate that compliance with air quality objective standards make take place far sooner than previously anticipated (recent trends indicate that 2021 is a possibility). Monitoring within the Carnforth and Galgate AQMAs indicated compliance with objectives for the second year in a row since AQMA designation.

3.2.2 Particulate Matter (PM_{10})

Table A.5 in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

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 50µg/m^3, not to be exceeded more than 35 times per year.

Figure 2c – Annual Mean PM_{10} monitoring results - Cable Street, Lancaster



Conclusion

PM_{10} monitoring in 2018 indicated compliance with annual mean and 24hr objectives for PM_{10}. (See tables A.5 and A.6 below for monitoring results over the last 5 years).

Despite PM_{10} objectives being anticipated to be met at all locations within the Lancaster district, particulate pollution is considered to be a none threshold pollutant and needs to be as low as possible to protect health and therefore pollutant level reduction is still an important priority for Lancaster City Council.

List of Appendices

Appendix A: Monitoring Results

Appendix B: Full Monthly NO_2 Diffusion Tube Results

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

Appendix D: Summary of Air Quality Objectives in England

Appendix E Lancashire response to national consultation on cleaner burning of solid fuels and wood – October 2018

Appendix F Response to DfT's consultation on electric vehicle chargepoints in buildings – October 2019

Appendix G Local Air quality Key Performance Indicator results.

Appendix H Map showing position of electric vehicle charging points in the Lancaster district.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
AN1	Cable Street	Roadside	347684	461963	2.0	NO_2	Y	APNA-370 NO_x analyser	Y(0.4m)	4	Y
APM1	Cable Street	Roadside	347684	461963	2.0	PM_{10}	Y	PM_{10} – TEOM 1400a	Y(0.4m)	4	Y
AN2	Dalton Square	Roadside	347852	461611	2.0	NO_2	Y	APNA-360 NO_x analyser	Y – 0m (Dalton Square is a sitting area)	3.5	N

(1) 0 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.

Figure 3 - Map showing location (red marker) of Cable Street, Lancaster air quality monitoring station (monitors AN1 and APM1) and now closed Water Street station (blue marker) - (transparent grey area is the Lancaster AQMA)

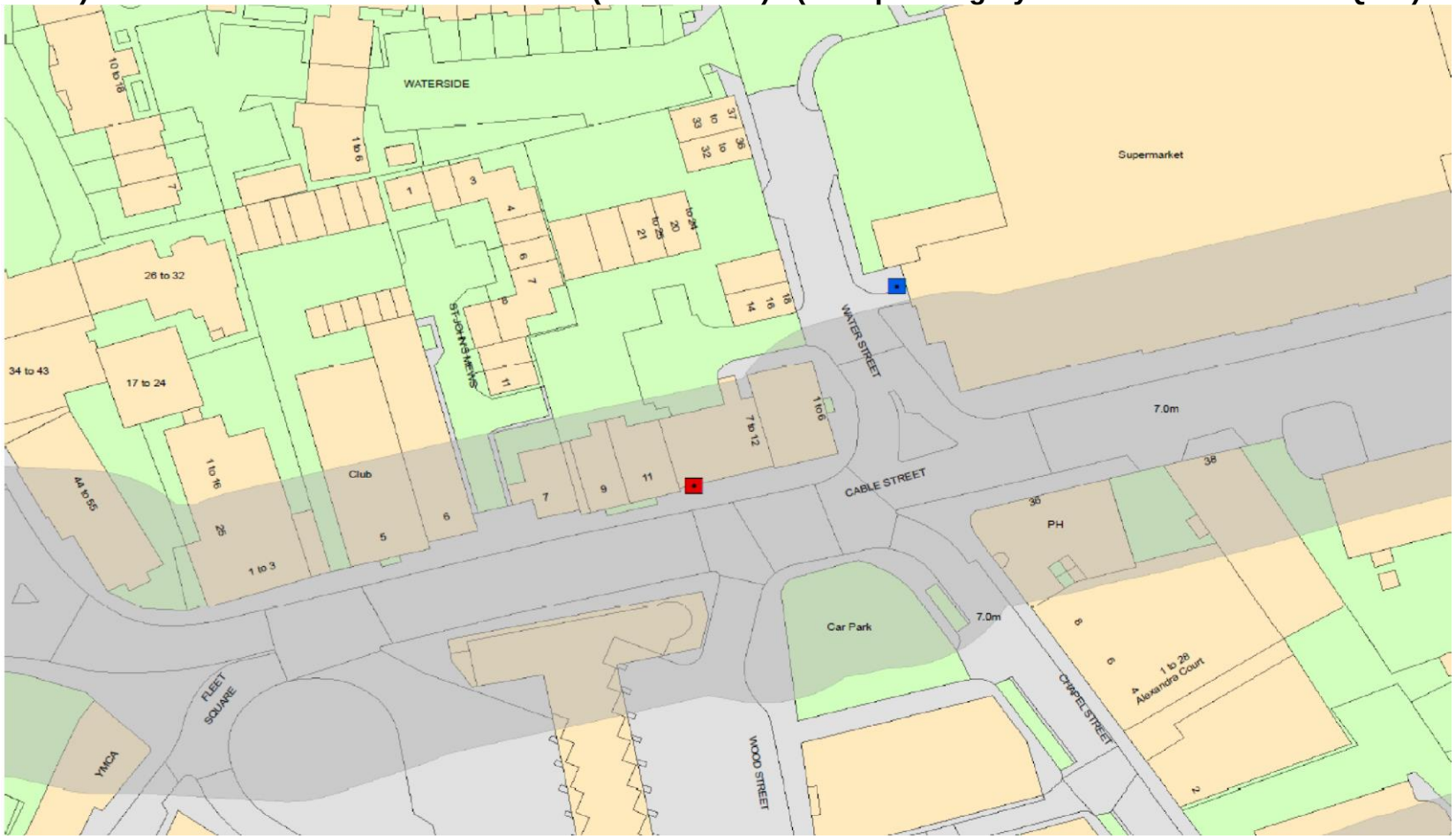


Figure 4 - Map Showing Location (red marker) of Dalton Square Lancaster Air Quality Automatic Monitoring Station (analyser AN2) (transparent grey area is the Lancaster AQMA)

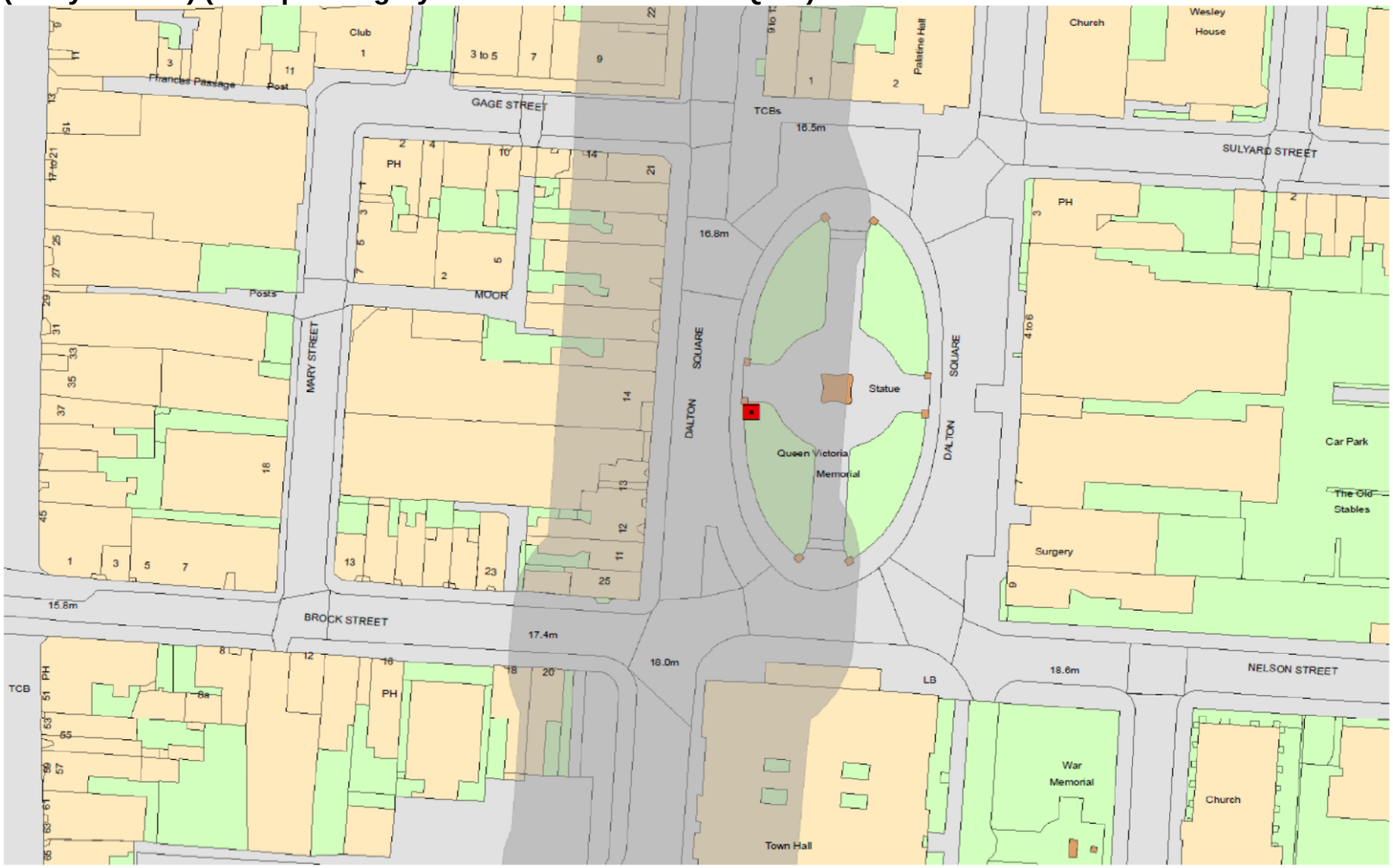


Table A.2 – Details of Non-Automatic Monitoring Sites (sites shown in grey no longer operating)

Site ID	Site Name	Site Type	OS Grid Ref		Site Height (m)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m)[2]	Distance (m) to kerb of nearest road *(N/A if not applicable)*	Worst-case Location (exposure)?
			X	Y						
LC1	Lancaster 1	Roadside	347853	461682	3.5	NO_2	Y	2.5	2.5	Y
LC2	Lancaster 2	Urban Background	347906	461202	*3.5*	NO_2	N	N/A	N/A	N/A
LC3	Lancaster 3	Intermediate	347791	461498	*3*	NO_2	N	N/A	0	N/A
LC4	Lancaster 4	Urban Background	347517	461714	3.5	NO_2	N	N/A	1.5	N/A
LC5	Lancaster 5	Roadside	347847	462448	3	NO_2	Y	0.2	2.5	Y
LC6	Lancaster 6	Roadside	348075	462037	*4*	NO_2	N	0.2	2.7	Y
LC7	Lancaster 7	Roadside	347824	461906	3.5	NO_2	Y	0.2	2.3	Y
LC8	Lancaster 8	Roadside	347792	461858	3.5	NO_2	Y	0.2	1.7	Y
LC9	Lancaster 9	Roadside	347808	461563	3	NO_2	Y	0.2	2.7	Y
LC10	Lancaster 10	Roadside	347834	461594	3	NO_2	Y	0.2	3.3	Y
LC11	Lancaster 11	Roadside	347823	461406	3	NO_2	Y	0.2	3.1	Y
LC12	Lancaster 12	Roadside	347619	461508	*3*	NO_2	Y	0.2	1.8	N
LC13	Lancaster 13	Roadside	347582	461593	3	NO_2	Y	0.2	2.4	Y
LC14	Lancaster 14	Roadside	347684	461389	3	NO_2	Y	0.2	2.2	Y
MC1	Morecambe 1	Roadside	345258	463674	*2*	NO_2	N	N/A	2.2	N/A
MC2	Morecambe 2	Urban Background	345237	463483	*3*	NO_2	N	N/A	2.5	N/A
MC3	Morecambe 3	Roadside	343570	464326	*3.5*	NO_2	N	0.2	5.5	Y
A	Lancaster A	Kerbside	347579	462450	3	NO_2	Y	N/A	0.3	Y
B1*	Lancaster B1	Roadside	347852	461610	2	NO_2	Y	N/A	3.3	N
B2*	Lancaster B2	Roadside	347852	461610	2	NO_2	Y	N/A	3.3	N
B3*	Lancaster B3	Roadside	347852	461610	2	NO_2	Y	N/A	3.3	N
B*	Lancaster B	Roadside	*347601*	*462200*	*3*	NO_2	*Y*	0.2	*15*	*N*
C*	Lancaster C	*Urban Centre*	*347715*	*461997*	*3*	NO_2	*N*	*N/A*	*26*	*N*
C1*	Lancaster C1	Roadside	347684	461963	2	NO_2	Y	0.4	3.7	Y
D*	Lancaster D	Urban Centre	347715	461997	*3*	NO_2	N	N/A	26	N

Site ID	Site Name	Site Type	OS Grid Ref		Site Height (m)	Pollutants Monitored	In AQMA ?	Distance to Relevant Exposure (m)	Distance (m) to kerb of nearest road *(N/A if not applicable)*	Worst-case Location?
			X	Y						
D1*	Lancaster D1	Roadside	347684	461963	2	NO_2	Y	0.4	3.7	Y
E*	Lancaster E	Urban Centre	347715	461997	*3*	NO_2	N	N/A	26	N
E1*	Lancaster E1	Roadside	347684	461963	2	NO_2	Y	0.4	3.7	Y
F	Lancaster F	Suburban	349600	464222	*2*	NO_2	N	0.2	20	N
G	Lancaster G	Roadside	348199	462353	*3.5*	NO_2	Y	0.2	9.2	N
H	Lancaster H	Roadside	347860	461127	3	NO_2	N	0.2	9	Y
I	Lancaster I	Roadside	347909	462015	3	NO_2	Y	0.2	3.5	Y
J	Lancaster J	Roadside	347852	461909	3	NO_2	Y	0.2	1.9	Y
K	Lancaster K	Roadside	347852	461791	3	NO_2	Y	0.2	4.4	Y
L	Lancaster L	Roadside	347612	461523	2.5	NO_2	Y	0.2	1.5	Y
M	Lancaster M	Roadside	347517	461714	*2.5*	NO_2	Y	0.3	2.4	Y
N	Lancaster N	Roadside	347686	461960	*3*	NO_2	Y	0.2	3.5	Y
O	Carnforth O	Roadside	349906	470624	3	NO_2	Y	0.2	1.4	Y
P	Lancaster P	Roadside	345759	463163	*2.5*	NO_2	N	0.2	22	N
Q	Lancaster Q	Roadside	347665	461447	3	NO_2	Y	0.2	2	Y
R	Lancaster R	Suburban	349694	464299	*2*	NO_2	N	0.2	48	Y
S	Lancaster S	Roadside	349835	470463	*2*	NO_2	Y	0.2	3.9	Y
T	Lancaster T	Roadside	347588	461958	*3*	NO_2	Y	0.2	3	Y
U	Carnforth U	Roadside	349899	470613	*3.0*	NO_2	Y	0.2	2.6	Y
V	Galgate V	Roadside	348359	455352	3.0	NO_2	Y	0.2	1.6	Y
W	Galgate W	Roadside	348372	455381	*3.0*	NO_2	Y	0.2	2.5	Y
X	Galgate X	Roadside	348388	455564	*2.5*	NO_2	N	0.2	5.5	Y
Y	Galgate Y	Roadside	348352	455249	*3.0*	NO_2	Y	0.2	3.0	N
Z	Galgate Z	Roadside	348345	455273	2.5	NO_2	Y	0.2	2.3	Y
ZA	Galgate ZA	Roadside	348351	455381	3.5	NO_2	Y	0.2	1.0	Y
ZB	Galgate ZB	Roadside	348386	455471	2.0	NO_2	N	0.2	2.0	N
ZC	Galgate ZC	Roadside	348375	455391	3.0	NO_2	Y	0.4	2.3	Y
CF1	Carnforth CF1	Roadside	349871	470525	2.0	NO_2	Y	0.2	5.9	N
CF2	Carnforth CF2	Roadside	349934	470605	3.5	NO_2	Y	0.2	2.3	Y

CF3	Carnforth CF3	Roadside	349853	470615	3.5	NO_2	Y	0.2	2.0	N
CF4	Carnforth CF4	Roadside	349890	470628	3.0	NO_2	Y	0.4	2.5	Y
CF5	Carnforth CF5	Roadside	349963	470618	3.0	NO_2	Y	0.2	1.8	Y
CF6	Carnforth CF6	Roadside	350000	470667	3.5	NO_2	Y	0.2	2.6	Y
CF7	Carnforth CF7	Roadside	349613	470225	2.5	NO_2	N	0.2	5.9	N
T1	Torrisholme T1	Roadside	345631	463693	3.5	NO_2	N	0.2	2.4	N
T2	Torrisholme T2	Roadside	345598	463685	*3.5*	NO_2	N	0.2	2.4	N
T3	Torrisholme T3	Roadside	345586	463698	*3.0*	NO_2	N	0.2	4.3	Y
T4	Torrisholme T4	Roadside	345613	463705	*4.0*	NO_2	N	0.2	5.3	Y
T5	Torrisholme T5	Roadside	345642	463715	*3.0*	NO_2	N	0.2	6.7	N
T6	Torrisholme T6	Roadside	345688	463715	*3.0*	NO_2	N	0.2	2.8	Y
T7	Torrisholme T7	Roadside	345522	463676	*3.0*	NO_2	N	0.2	11.1	N
LC15	Lancaster 15	Roadside	348199	462361	5	NO_2	Y	0.2	4.9	Y
LC16	Lancaster 16	Roadside	348269	462222	2	NO_2	N	0	4.6	Y
LC17	Lancaster 17	Roadside	347792	461577	3.5	NO_2	N	0.2	2.3	N
LC18	Lancaster 18	Roadside	347784	461565	3.5	NO_2	N	0.2	2.4	N
LC19	Lancaster 19	Roadside	347502	461841	3	NO_2	Y	0.5	1.6	Y
LC20	Lancaster 20	Roadside	347515	461835	3	NO_2	Y	0.4	1.6	N
LC21	Lancaster 21	Roadside	347627	461895	3	NO_2	N	0.3	1.5	N
LC22	Lancaster 22	Roadside	347928	461025	3	NO_2	N	0.2	7.2	Y
LC23	Lancaster 23	Roadside	347948	460893	3	NO_2	N	0.2	5	Y
LC24	Lancaster 24	Roadside	347974	460514	3	NO_2	N	0.2	2.8	Y
LC25	Lancaster 25	Roadside	348084	459844	3	NO_2	N	0.2	5.3	Y
LC26	Lancaster 26	Roadside	347990	459418	3	NO_2	N	0.2	5.5	Y
LC27	Lancaster 27	Roadside	347989	459396	3	NO_2	N	0.2	6.5	Y
BLS 1	Bolton-le-Sands 1	Roadside	348594	468500	3	NO_2	N	0.2	4	Y
H1	Heysham 1	Roadside	341964	463273	2.5	NO_2	N	0.5	2.5	Y
CF8	Carnforth CF8	Roadside	349568	470044	3	NO_2	N	0.2	4.5	Y
LC28	Lancaster 28	Roadside	348517	463243	2.5	NO_2	N	0.2	6	Y
W1	Warton 1	Roadside	349420	472092	3	NO_2	N	0.2	1.4	Y
W2	Warton 2	Roadside	349843	472218	3	NO_2	N	0.2	1.0	Y
W3	Warton 3	Roadside	349897	472490	3	NO_2	N	0.2	3.7	Y
LC29	Lancaster 29	Roadside	348527	463270	2.5	NO_2	N	0.2	5.3	Y
LC30	Lancaster 30	Roadside	348511	462226	2.5	NO_2	N	0.2	6.5	Y
LC31	Lancaster 31	Roadside	348114	462071	3	NO_2	N	0.4	3	Y
LC32	Lancaster 32	Roadside	347511	461744	3.5	NO_2	Y	0.3	2	N
LC33	Lancaster 33	Roadside	348043	462118	3.5	NO_2	Y	-	2	N
M6	Lancaster M6	Roadside	349271	460208	2	NO_2	N	0.2	-	Y

MC4	Morecambe 4	Roadside	345240	463663	3	NO_2	N	20	1	N
LC34	Lancaster 34	Roadside	348623	461870	2.2	NO_2	N	0.2	5	N

(1) * - Monitoring co-located with a continuous analyser

(2) 0 if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(3) N/A if not applicable. - A map showing the location and monitoring results of all diffusion tube monitoring sites (past and present) is available at: : https://lancaster.maps.arcgis.com/home/webmap/viewer.html?webmap=d848c212001e4cb0988d2eedea751107

Table A.3 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2018 % [b]	Annual Mean Concentration μg/m³				
					2014	2015	2016	2017	2018
AN1 - Cable St	Roadside	Y	-	97.8	**42.0[c] (39.7)[d]**	**-**	**-**	39.6[c]	34
AN2 - Dalton Sq	Roadside	Y	-	93.1	36.9	34.9	32	32	34

Notes: Exceedences of the NO_2 annual mean objective of 40μg/m³ are shown in **bold and shaded boxes**.

NO_2 annual means exceeding 60μg/m³, indicating a potential exceedence of the NO_2 1-hour mean objective are shown in **bold and underlined.**

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

(b) 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%).

(c) Means should be "annualised" as in Box 3.2 of TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if valid data capture is less than 75%. Results were annualised using data from Preston, Wigan and Blackpool monitoring sites for 2017.The calculation was checked by the LAQM helpdesk.

(d) Period mean value

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

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2018 %[b]	Number of Exceedences of Hourly Mean (200 μg/m³)				
					2014[c]	2015	2016	2017[c]	2018
AN1 - Cable St	Roadside	Y	-	97.8	0 (119.5ug/m³)	-	-	0(98ug/m³)	0
AN2 - Dalton Sq	Roadside	Y	-	93.1	0	0	0	0	0

Notes: Exceedences of the NO_2 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold and shaded boxes.**

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

(b) 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%).

(c) If the period of valid data is less than 90%, the 99.8th percentile of 1-hour means is provided in brackets.

Table A.5 - Annual Mean PM_{10} Monitoring Results

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2018 %[b]	Annual Mean Concentration μg/m^3 [c]				
					2014	2015	2016	2017	2018
APM1 - Cable Street	Roadside	Y	-	99.6	21.1	24.6	-	22.5[c]	22

Notes: Exceedences of the PM_{10} annual mean objective of 40μg/m^3 are shown in **bold and shaded boxes.**

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

(b) 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%).

(c) All means have been "annualised" as per Technical Guidance LAQM.TG (16), valid data capture for the full calendar year is less than 75%. Data from sites at Salford and Liverpool were used to annualise the data. The calculation was checked by the LAQM helpdesk.

(d) Adjustments to reference method carried out using the Volatile Correction Model (VCM) tool. .

Table A.6 – 24-Hour Mean PM_{10} Monitoring Results

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2018 %[b]	Number of Exceedences of 24-Hour Mean (50 μg/m^3)[c]				
					2014	2015	2016	2017	2018
APM1 - Cable Street	Roadside	Y	-	99.6	9(35.2)[c]	9(38.9)[c]	- (16)[c]	0(34)[c]	1

Notes: Exceedences of the PM_{10} 24-hour mean objective (50μg/m^3 not to be exceeded more than 35 times/year) are shown in **bold and shaded boxes.**

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

(b) 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%).

(c) If the period of valid data is less than 90%, the 90.4th percentile of 24-hour means is provided in brackets.

Table A.7 Results of Nitrogen Dioxide Diffusion Tubes - 2012 to 2018 (sites showing an exceedance of the annual mean objective are shown in bold and shaded boxes. Sites indicating the potential for exceedance of the 1 hour objective for nitrogen dioxide are shown in bold and underlined)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3						
			2012 (Bias Adjustment Factor = 0.926)	2013 (Bias Adjustment Factor = 0.918)	2014 (Bias Adjustment Factor = 1.034)	2015 (Bias Adjustment Factor = 1.030)	2016 (Bias Adjustment Factor = 0.97)	2017 (Bias Adjustment Factor = 0.91)	2018 (Bias Adjustment Factor = 0.92)
LC1	Roadside	Y	**50**	**54**	**56**	**50**	**50**	**46**	**43**
LC2	Urban Background	N	23	-	-	-	-	-	-
LC4	Urban Background	N	19	17	18	16	17	15	14
LC5	Roadside	Y	39	39	**47**	**42**	**40**	31	30
LC6	Roadside	N	32	32	-	-	-	-	-
LC7	Roadside	Y	37	35	37	35	33	32	27
LC8	Roadside	Y	36	35	37	34	33	30	25
LC9	Roadside	Y	**42**	**40**	**41**	39	39	37	32
LC10	Roadside	Y	**72**	**69**	**75**	**71**	**66**	**62**	**55**
LC11	Roadside	Y	**66**	**60**	**65**	**60**	**61**	**57**	**48**
LC12	Roadside	Y	38	-	-	-	-	-	-
LC13	Roadside	Y	**43**	**42**	**43**	**41**	34	34	34
LC14	Roadside	Y	35	33	38	35	32	32	28
MC3	Roadside	N	26	24	-	-	-		-
A	Kerbside	Y	**40**	36	39	35	36	25	26
B1	Roadside	Y	33	33	36	35	31	32	28
B2	Roadside	Y	34	33	37	36	33	32	28
B3	Roadside	Y	35	34	37	37	33	32	28
C1	Roadside	Y	**43**	**42**	**44**	39	**41**	39	35
D1	Roadside	Y	**42**	**40**	**45**	**41**	**41**	37	36
E1	Roadside	Y	**42**	**41**	**46**	**41**	**43**	38	38
G	Roadside	Y	35	-	-	-	-	-	-

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m³						
			2012 (Bias Adjustment Factor = 0.926)	2013 (Bias Adjustment Factor = 0.918)	2014 (Bias Adjustment Factor = 1.034)	2015 (Bias Adjustment Factor = 1.030)	2016 (Bias Adjustment Factor = 0.97)	2017 (Bias Adjustment Factor = 0.91)	2018 (Bias Adjustment Factor = 0.92)
H	Roadside	N	33	34	34	32	32	28	27
I	Roadside	Y	37	38	**42**	37	38	36	33
J	Roadside	Y	**52**	**48**	**53**	**45**	**47**	**42**	**40**
K	Roadside	Y	**43**	**43**	**47**	**42**	**42**	38	35
L	Roadside	Y	**42**	**43**	**48**	**43**	38	**40**	37
M	Roadside	Y	38	-	-	-	-	-	-
O	Roadside	Y	**41**	**42**	**46**	**41**	**40**	36	34
Q	Roadside	Y	34	39	**45**	39	37	35	28
S	Roadside	Y	30	31	-	-	-	-	-
T	Roadside	Y	25	-	-	-	-	-	-
U	Roadside	Y	36	37		-	-	-	-
V	Roadside	Y	**43**	**41**	**45**	**46**	**42**	38	33
Y	Roadside	Y	38	-	-	-	-	-	-
Z	Roadside	Y	**43**	**41**	**44**	**43**	**42**	37	33
ZA	Roadside	Y	29	29	34	30	31	27	26
ZB	Roadside	N	28	29	32	27	29	24	24
ZC	Roadside	Y	**40**	39	**44**	39	37	34	31

CF1	Roadside	Y	32	32	36	34	33	27	27
CF2	Roadside	Y	**42**	**42**	**43**	**41**	**42**	38	33
CF3	Roadside	Y	31	31	40	38	30	30	28
CF4	Roadside	Y	34	38	**42**	39	36	34	33
CF5	Roadside	Y	33	39	**45**	39	39	33	32
CF6	Roadside	Y	30	32	38	36	35	35	28
CF7	Roadside	N	30	30	34	33	30	27	25
T1	Roadside	N	37	33	38	34	32	29	28
T2	Roadside	N	34	-	-	-	-	-	-
T3	Roadside	N	30	28	-	-	-	-	-
T4	Roadside	N	26	-	-	-	-	-	-
T5	Roadside	N	26	-	-	-	-	-	-
T6	Roadside	N	28	24	-	-	-	-	-
T7	Roadside	N	24	27	-	-	-	-	-
LC15	Roadside	Y	-	35	**43**	38	35	29	27
LC16	Roadside	N	-	20	24	27	-	-	
LC17	Roadside	N	-	30	39	36	34	30	26
LC18	Roadside	N	-	35	35	32	30	31	29
LC19	Roadside	Y	-	**59**	**67**	**61**	**60**	**60**	**43**
LC20	Roadside	Y	-	**45**	**55**	45	48	**44**	39
LC21	Roadside	N		-	39	33	33	**42**	**-**
LC22	Roadside	N	-	28	31	27	28	26	25
LC23	Roadside	N	-	31	39	35	35	31	27
LC24	Roadside	N	-	30	32	33	32	29	25
LC25	Roadside	N	-	29	27	24	24	22	21
LC26	Roadside	N	-	36	**41**	38	36	32	29
LC27	Roadside	N	-	29	35	31	31	28	26
BLS 1	Roadside	N	-	31	37	34	32	27	26
H1	Roadside	N	-	24	28	25	25	21	22
CF8	Roadside	N	-	33	38	36	33	29	27
LC28	Roadside	N	-	-	**45**	39	36	28	23
W1	Roadside	N	-	-	20	18	-	-	-
W2	Roadside	N	-	-	22	16	-	-	-
W3	Roadside	N	-	-	23	21	-	-	-
LC29	Roadside	N	-	-	-	38	35	27	26
LC30	Roadside	N	-	-	-	32	31	24	28
LC31	Roadside	N	-	-	-	36	33	30	33

LC32	Roadside	Y	-	-	-	**53**	**49**	**46**	**44**
LC33	Roadside	Y	-	-	-	**-**	**-**	35	35
M6	Roadside	N	-	-	-	**-**	**-**	20	24
MC4	Roadside	N	-	-	-	**-**	**-**	-	-
LC34	Roadside	N	--	-	-	**-**	**-**	-	-

Results shown in red have data capture less than 75%

Appendix B: Full Monthly Diffusion Tube Results for 2018

Null Result | suspect | possible suspect | tube gone

NITROGEN DIOXIDE MONTHLY RESULTS 2018(ugm3)

SITE						GRADKO TUBES							AV
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Raw
L/C1	44.32	49.62	43.95	48.79	47.46	43.47	45.86	35.94	35.39	48.12	54.93	57.28	46
L/C4	18.46	19.81	15.09	14.47	12.28	10.28	11.08	9.88	11.01	16.84	20.54	19.92	15
L/C5	31.55	37.64	34.43	33.93	40.54	35.32	37.48	24.47	26.71	30.30	29.54	34.57	33
L/C7	34.54	29.92	24.04	32.14	27.28	27.26	27.97	23.04	28.44	30.53	30.96	37.14	29
L/C8	32.54	31.40	26.78	26.56	31.24	25.65	27.22	21.12		29.77	36.03	8.54	27
L/C9	38.15	34.39	32.60	28.83	32.94	30.09	31.73	24.24	30.85	38.73	46.44	44.42	34
L/C10	62.12	55.56	39.05	57.76	63.10	65.42	68.00	56.98	65.19	66.35	58.57	64.54	60
L/C11	47.25	48.44	41.45	48.45	55.13	60.94	62.41	51.09	55.04	58.93	46.92	47.34	52
L/C13	40.35	36.63	31.18	32.33	34.48	36.49	41.16	30.96	36.95	36.23	43.08	42.19	37
L/C14	33.93	33.09	29.42	28.83	30.85	26.65	30.78	24.98	26.47	31.93	27.5	34.98	30
A		38.55	30.63	22.41	27.81	27.76	32.24	20.27	27.25	27.80		32.17	29
B1	35.35	30.36	24.42	28.01	25.96	26.54	28.47	26.73	28.53	34.99	36.56	38.23	30
B2	39.22	32.94	27.82	25.93	25.58	25.80	27.64	24.14	29.91	34.97	38.46	37.63	31
B3	35.24	35.16	28.05	26.04	26.44	24.48	31.06	16.36	30.31	34.38	37.29	39.99	30
C1	34.70		35.63	37.82	51.69	42.81	37.80	27.71	35.34	42.15	37.60	40.97	39
D1	43.66	35.56	37.68	35.57	47.41	41.64	39.38	32.15	35.18	43.91	39.17	38.22	39
E1	35.52	33.59	40.36	40.43	49.08	43.97	42.88	30.20	34.51		67.99	38.84	42
H	31.36	33.91	31.42	26.46	33.30	28.13	22.18	20.40	23.27	34.48	34.84	34.39	30
I	39.86	46.97		33.06	37.40	33.37	32.20	26.21	28.60	39.96	40.92	41.77	36

J	51.72	37.60		37.34	48.46	37.02	39.14	33.14	32.71	49.97	50.16	58.35	43
K	37.22	41.09	40.23	39.16	47.37	36.50	37.34	28.96	31.14	31.02	44.06	42.84	38
L	47.04	43.94	34.87	34.11	41.04	39.96	41.40	31.40	39.56	38.07	43.17	47.60	40
O	31.87	38.01	41.29	36.62	39.26	36.73	36.58	32.03	33.29	34.06	44.95	44.46	37
Q	29.86	40.07	31.18	29.63	32.25	28.03	26.85	21.22	22.70	29.58	35.89	39.17	31
V	41.86	43.38	27.25	34.89	39.57	34.90	46.45	34.11	34.17	25.54	32.53	41.75	36
Z	37.20	39.83	33.35	33.66	37.63	35.08	38.86	32.40	38.30	27.79	34.45	38.57	36
ZA	30.17	34.35		30.67	26.26	24.73	26.11	19.72	23.52	33.40	32.64	30.73	28
ZB	27.71	32.87	29.15	24.10	24.70	23.05	22.61	18.18	16.66	33.66	31.56	28.70	26
ZC	38.18	39.50	34.98	33.34	32.67	30.45	32.87	24.90	25.73	31.77	39.74	41.88	34
cf1	29.87	29.37	24.72	26.07	28.11	24.09	27.11	18.93	25.20	59.28	27.72	32.04	29
cf2	36.24	35.20	34.17	31.65	34.33	36.36	36.78	29.95	38.75	40.96	32.85	43.60	36
cf3	31.94	35.94	30.22	28.68	28.30	27.20	28.37	21.77	27.38	40.79	35.07	32.79	31
cf4	39.96	36.10	32.49	37.32	35.33	32.30	34.31	27.21	29.70	44.70	39.67	39.49	36
cf5	36.08	37.41	30.99	34.39	37.32	31.97			25.30	35.78	38.6	40.32	35
cf6	32.15	33.92	31.37	26.44	29.92	29.17	28.96	22.74	21.20	36.87	34.85	32.74	30
cf7	29.15	30.68	24.13	24.83	26.72	24.82	26.48	18.77	23.92	39.03	23.97	27.74	27
T1	31.80	33.03	28.36	26.31		25.38	30.03	26.95	27.00	39.26	34.60	35.88	31
LC15	33.48	35.93	30.33	29.47	29.25	20.15	26.37	22.45	30.24	30.36	32.55	35.48	30
LC17		52.73	27.15	25.70	29.64	24.61	21.73	19.05	22.05	26.52		37.89	29
LC18	35.02	39.19	29.48	29.29	32.64	31.38	27.24	22.14	29.88	34.59	31.49	34.86	31
LC19	44.53	49.88	42.25	41.41	50.56		55.71	46.04	56.54	24.67	51.89	48.73	47
LC20	48.46	48.54		45.10	41.23	39.87	45.47	34.55	39.02	34.99	49.64	44.29	43
LC22	34.84	32.44	26.40	27.80	24.90	22.62	21.15	17.53	21.54	28.90	31.24	33.51	27
LC23	34.86	30.04	30.41	29.05	31.24	27.24	28.26	22.22	27.55	30.00	27.70	37.87	30
LC24	32.64	32.59	24.47	23.17	25.32	24.89	25.94	21.28	25.89	28.07	28.63	29.65	27
LC25	28.21	26.34	23.94	21.94	20.51	17.26	17.59	15.20	16.80	24.52	28.61	30.54	23
LC26	35.78	36.64	27.05	29.78	32.12	30.69	29.32	23.32	31.03	33.97	30.89	35.27	31
LC27	33.90	37.34	28.52	26.59	26.61	24.84	19.84	18.73	23.85	32.81	33.46	36.01	29
BLS1	30.54	31.53	26.82	26.68	28.40	27.14	30.33	21.60	27.10	26.24	28.36	27.90	28
H1	30.00	29.33	28.72	20.44	25.01	19.37	17.47	15.95	15.45	21.53	31.62	30.89	24
CF8	32.19	32.58		30.11	30.34	25.55	24.78	21.55	22.67	30.89	35.28	39.94	30
LC28	28.60	33.21	17.05	25.48	26.44	23.99	23.14	19.69	20.75	25.48	26.99	31.72	25

LC29	33.49	34.06	29.83	25.73	29.81	25.74	30.21	22.28	27.47	25.48	27.80	31.69	29
LC30	32.17	37.86	28.93	28.97	32.21	28.53	32.41	23.83	28.20	34.27	28.06	35.70	31
LC31	39.26	36.46	34.67	33.27	33.00	36.22	38.94	35.04	37.15	33.06	33.17	46.58	36
LC32	45.60	51.24	51.58		55.48	53.19	48.06	36.99	42.56	44.27	49.90		48
LC33	41.56	44.25	41.79	36.95	40.46	37.43	39.90	30.46	32.74	34.42	38.89	42.60	38
M6	29.82	27.79	28.37	28.14	28.22	27.06	23.36	16.75	16.77	26.48	33.62	28.57	26

(1) See Appendix C for details on bias adjustment

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

Automatic Monitoring Sites

The Council currently has two operational automatic air monitoring stations, one located at Cable Street, Lancaster, the other at Dalton Square, Lancaster. The Cable Street station monitors both nitrogen dioxide (NO_2) and particulate matter (PM_{10}). The Dalton Square site monitors nitrogen dioxide only. The two stations commenced monitoring in 2011 and both currently (2019/20) remain operational.

Equipment at the two sites is (2 No. APNA 360/370 NO_2 analysers and 1No. TEOM PM_{10} particulate monitor) are maintained and serviced by Horiba Instruments Limited, servicing being undertaken twice a year. Routine calibration is undertaken by Lancaster City Council on a monthly basis. The sites are not independently audited, however, data monitoring, validation and ratification for the two sites is undertaken by Air Quality Data Management.

Figure 5 - Gradko Accreditation Certificate and Schedule (for provision and analysis of NO_2 diffusion tubes used in Lancaster)

United Kingdom Accreditation Service

ACCREDITATION CERTIFICATE

UKAS
UNITED KINGDOM ACCREDITATION SERVICE

TESTING LABORATORY
No. 2187

Gradko International Ltd

is accredited in accordance with the recognised International Standard ISO/IEC 17025:2005 - General Requirements for the competence of testing and calibration laboratories.

This accreditation demonstrates technical competence for a defined scope as detailed in and at the locations specified in the schedule to this certificate, and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué dated January 2009).

The schedule to this certificate is an essential accreditation document and from time to time may be revised and reissued by the United Kingdom Accreditation Service. The most recent issue of the schedule of accreditation, which bears the same accreditation number as this certificate, is available from the UKAS website www.ukas.com.

This accreditation is subject to continuing conformity with United Kingdom Accreditation Service requirements. The absence of a schedule on the UKAS website indicates that the accreditation is no longer in force.

Accreditation Manager, United Kingdom Accreditation Service

Initial Accreditation date
31 January 2001

This certificate issued on
04 November 2014

UKAS is appointed as the sole national accreditation body for the UK by The Accreditation Regulations 2009 (SI No 3155/2009) and operates under a Memorandum of Understanding (MoU) with the Department for Business, Innovation and Skills (BIS).

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

UKAS TESTING

2187

Accredited to ISO/IEC 17025:2005

Gradko International Ltd (Trading as Gradko Environmental)

Issue No: 019 **Issue date:** 04 September 2015

St Martins House
77 Wales Street
Winchester
Hampshire
SO23 0RH

Contact: Mr A Poole
Tel: +44 (0)1962 860331
Fax: +44 (0)1962 841339
E-Mail: diffusion@gradko.co.uk
Website: www.gradko.co.uk

Testing performed at the above address only

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
ATMOSPHERIC POLLUTANTS Collected on diffusion (sorbent) tubes and monitors	Chemical Tests	Documented In-House Methods
	Ammonia	GLM 8 by Ion Chromatography
	Benzene Toluene Ethyl benzene Xylene	GLM 4 by Thermal Desorption/ FID Gas Chromatography
	Hydrogen chloride Nitrogen dioxide Sulphur dioxide Hydrogen fluoride	GLM 3 by Ion Chromatography
	Hydrogen sulphide	GLM 5 by Colorimetric determination (UV Spectrophotometry)
	Ozone	GLM 2 by Ion Chromatography
	Nitrogen Dioxide	GLM 7 by Colorimetric determination (UV Spectrophotometry)
	Nitrogen Dioxide (as Nitrite)	GLM 9 by continuous flow colorimetric analyser
	Sulphur dioxide	GLM 1 by Ion Chromatography
	Formaldehyde	GLM 18 by HPLC

UKAS TESTING 2187 Accredited to ISO/IEC 17025:2005	**Schedule of Accreditation** issued by **United Kingdom Accreditation Service** 2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK **Gradko International Ltd** **(Trading as Gradko Environmental)** **Issue No:** 019 **Issue date:** 04 September 2015
Testing performed at main address only	

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
ATMOSPHERIC POLLUTANTS Collected on diffusion (sorbent) tubes and monitors (cont'd)	Chemical Tests (cont'd)	
Flexible Scope encompassing Volatile Organic Compounds to in-house validation criteria	Volatile Organic Compounds including: Benzene 1,3-Butadiene 1,2-Dichloro(Z)ethene, Ethylbenzene Indane Naphthalene Styrene Tetrachloroethylene Toluene Trichloroethylene 1,2,3-Trimethylbenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene p-Xylene o-Xylene **The laboratory holds a flexible scope of accreditation for these tests.** **Please contact the laboratory for details of the individual compounds they can analyse using this method.**	GLM 13 by Thermal Desorption GC-Mass Spectrometry
END		

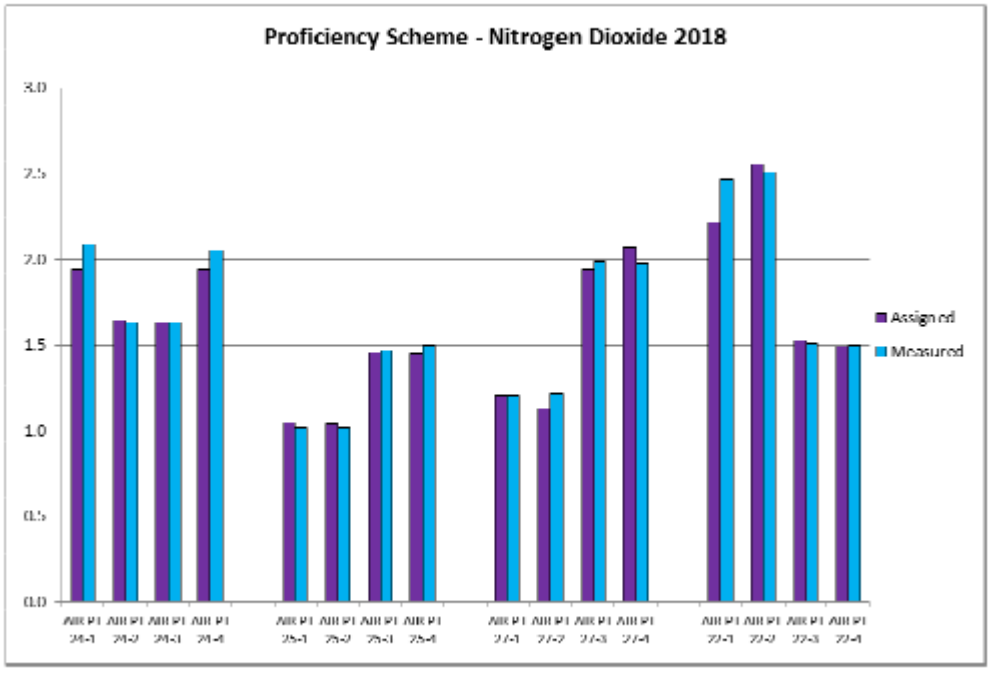
Table C.2 - Gradko NO_2 proficiency scheme results 2018

gradko environmental
(A division of Gradko International Ltd.)
St. Martins House, 77 Wales Street Winchester, Hampshire SO23 0RH
tel.: 01962 860331 fax: 01962 841339 email:diffusion@gradko.com

AIR PT Nitrogen Dioxide Proficiency Scheme Results 2018

Methods: GLM 7 – CARY 60 Spectrophotometer

AIR PT Proficiency Scheme - Nitrogen Dioxide 2018					
Date	Round	Assigned value	Procedure GLM 7		
			Measured concentration	z-Score	% Bias
Feb-18	AIR PT 24-1	2.09	1.94	-0.91	-7.2%
Feb-18	AIR PT 24-2	1.63	1.64	0.08	0.6%
Feb-18	AIR PT 24-3	1.63	1.63	0	0.0%
Feb-18	AIR PT 24-4	2.05	1.94	-0.72	-5.4%
May-18	AIR PT 25-1	1.02	1.05	0.39	2.9%
May-18	AIR PT 25-2	1.02	1.04	0.26	2.0%
May-18	AIR PT 25-3	1.47	1.46	-0.09	-0.7%
May-18	AIR PT 25-4	1.5	1.45	-0.44	-3.3%
Aug-18	AIR PT 27-1	1.21	1.21	0.00	0.0%
Aug-18	AIR PT 27-2	1.22	1.13	-0.99	-7.4%
Aug-18	AIR PT 27-3	1.99	1.94	-0.34	-2.5%
Aug-18	AIR PT 27-4	1.98	2.07	0.60	4.5%
Oct-18	AIR PT 22-1	2.47	2.22	-1.35	-10.1%
Oct-18	AIR PT 22-2	2.51	2.56	0.27	2.0%
Oct-18	AIR PT 22-3	1.51	1.53	0.18	1.3%
Oct-18	AIR PT 22-4	1.5	1.49	-0.1	-0.7%



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Tables C.3 and C.4 Data submitted for national diffusion tube bias correction database (2018)

Diffusion Tube Collocation Data Questionnaire For Local Authorities

Please Read the "Notes" sheet and then fill in the white boxes of this questionnaire
Should you require assistance, email nick.martin@npl.co.uk or phone 020 8943 7088

	Date form filled in	Name of Local Authority	Your name	Phone number	Contact email
Your Details	15/04/2019	Lancaster City Council	Paul Cartmell	01524 582728	pcartmell@lancaster.gov.uk

	Distance from kerb (m)	Site type (e.g. roadside, background). Definitions of site types are given on the "Notes" sheet	Distance from diffusion tube(s) to continuous analyser inlet (m) (this should be less than 1m from the analyser inlet)	Location (site name or a brief description)	Grid Reference of Site (if available)
Site Details	**3.7**	Roadside	0.15	Cable Street	347685,461963

	Prepared by	Analysed by	Example results sheet attached? (please attach a results sheet provided by the analysis laboratory)	Preparation method (e.g. 50% TEA in acetone; 50% TEA in water)	How are diffusion tubes deployed? (e.g. with a clip, spacer, shelter box, just tape)
Diffusion Tube Details	Gradko International Ltd.	Gradko International Ltd.		20% TEA in water	clip inside head/inlet cage

	Analyser type	QA/QC (e.g. local or network)
Continuous Analyser Details	Horiba APNA-360 chemiluminescence	Local

Data from the Automatic Analyser (Matching Individual Diffusion Tube Periods)

Period	Start Date (dd/mm/yy)	End Date (dd/mm/yy)	% Data Capture	Ratified / Provisional	NOx (if available) (ug/m^3)	Nitrogen Dioxide (ug/m^3)
1	04/01/2018	30/01/2018	70.4	ratified	127.6	35.7
2	30/01/2018	28/02/2018	99.9	ratified	131.4	42
3	28/02/2018	28/03/2018	99.7	ratified	115.8	39.1
4	28/03/2018	01/05/2018	99.9	ratified	103.5	43.5
5	01/05/2018	06/06/2018	99.7	ratified	117.6	43.1
6	06/06/2018	03/07/2018	99.7	ratified	103.9	32.4
7	03/07/2018	01/08/2018	99.7	ratified	99.5	29.2
8	01/08/2018	05/09/2018	99.8	ratified	84.7	22.2
9	05/09/2018	04/10/2018	99.6	ratified	94.5	26.9
10	04/10/2018	31/10/2018	99.4	ratified	125.1	33
11	31/10/2018	04/12/2018	99.9	ratified	110.2	33.4
12	04/12/2018	09/01/2019	99.9	provisonal from 01/01/2019	111.8	36.2
13						

Please express NOx as NO_2 (e.g. ppb x 1.913) or alternatively note the approach / units here:

When you are identifying the automatic monitoring periods that match your diffusion tube exposure periods, please be as precise as possible. It is not, however, necessary to match start times to the exact hour that you put out your tubes.

Individual Period (monthly) Mean Nitrogen Dioxide Data from the Diffusion Tubes (ug/m^3)

Period		Tube 1	Tube 2 (if available)	Tube 3 (if available)	Tube 4 (if available)
1		34.70	43.66	35.52	
2			35.56	33.59	
3		35.63	37.68	40.36	
4		37.82	35.57	40.43	
5		51.69	47.41	49.08	
6		42.81	41.64	43.97	
7		37.80	39.38	42.88	
8		27.71	32.15	30.20	
9		35.34	35.18	34.51	
10		42.15	43.91		
11		37.60	39.17		
12		40.97	38.22	38.84	
13					

	Are the concentrations stated in ug/m^3?	Did the diffusion tube supply or analysis method change during the monitoring period? When, from what, to what?	Were there any significant problems with the continuous analyser during the monitoring period?	Are there any other relevant issues with your data?
Other Information	Yes	No	No	No

Diffusion Tube Collocation Data Questionnaire For Local Authorities

Please Read the "Notes" sheet and then fill in the white boxes of this questionnaire
Should you require assistance, email nick.martin@npl.co.uk or phone 020 8943 7088

	Date form filled in	Name of Local Authority	Your name	Phone number	Contact email
Your Details	15/04/2019	Lancaster City Council	Paul Cartmell	01524 582728	pcartmell@lancaster.gov.uk

	Distance from kerb (m)	Site type (e.g. roadside, background). Definitions of site types are given on the "Notes" sheet	Distance from diffusion tube(s) to continuous analyser inlet (m) (this should be less than 1m from the analyser inlet)	Location (site name or a brief description)	Grid Reference of Site (if available)
Site Details	**3.3**	Roadside	0.15	Dalton Square	347852, 461611

	Prepared by	Analysed by	Example results sheet attached? (please attach a results sheet provided by the analysis laboratory)	Preparation method (e.g. 50% TEA in acetone; 50% TEA in water)	How are diffusion tubes deployed? (e.g. with a clip, spacer, shelter box, just tape)
Diffusion Tube Details	Gradko International Ltd.	Gradko International Ltd.		20% TEA in water	clip inside head/inlet cage

	Analyser type	QA/QC (e.g. local or network)
Continuous Analyser Details	Horiba APNA-370 chemiluminescence	Local

Data from the Automatic Analyser (Matching Individual Diffusion Tube Periods)

Period	Start Date (dd/mm/yy)	End Date (dd/mm/yy)	% Data Capture	Ratified / Provisional	NOx (if available) (ug/m^3)	Nitrogen Dioxide (ug/m^3)
1	04/01/2018	30/01/2018	99.7	Ratified	76.2	38.7
2	30/01/2018	28/02/2018	99.4	Ratified	72.7	40.1
3	28/02/2018	28/03/2018	99.7	Ratified	63.2	36.1
4	28/03/2018	01/05/2018	99.9	Ratified	51.7	31.4
5	01/05/2018	06/06/2018	58.6	Ratified	53.1	32.4
6	06/06/2018	03/07/2018	77.8	Ratified	43	25
7	03/07/2018	01/08/2018	99.6	Ratified	50.7	28.3
8	01/08/2018	05/09/2018	99.8	Ratified	49.3	24.6
9	05/09/2018	04/10/2018	99.9	Ratified	56.9	28.2
10	04/10/2018	31/10/2018	92.6	Ratified	66.8	36.7
11	31/10/2018	04/12/2018	93.4	Ratified	78.1	35.3
12	04/12/2018	09/01/2019	99.9	Provisional from 1/1/2019	112.4	47.7
13						

Please express NOx as NO_2 (e.g. ppb x 1.913) or alternatively note the approach / units here:

When you are identifying the automatic monitoring periods that match your diffusion tube exposure periods, please be as precise as possible. It is not, however, necessary to match start times to the exact hour that you put out your tubes.

Individual Period (monthly) Mean Nitrogen Dioxide Data from the Diffusion Tubes (ug/m^3)

Period		Tube 1	Tube 2 (if available)	Tube 3 (if available)	Tube 4 (if available)
1		35.35	39.22	35.24	
2		30.36	32.94	35.16	
3		24.42	27.82	28.05	
4		28.01	25.93	26.04	
5		25.96	25.58	26.44	
6		26.54	25.80	24.48	
7		28.47	27.64	31.06	
8		26.73	24.14	16.36	
9		28.53	29.91	30.31	
10		34.99	34.97	34.38	
11		36.56	38.46	37.29	
12		38.23	37.63	39.99	
13					

	Are the concentrations stated in ug/m^3?	Did the diffusion tube supply or analysis method change during the monitoring period? When, from what, to what?	Were there any significant problems with the continuous analyser during the monitoring period?	Are there any other relevant issues with your data?
Other Information	Yes	No	No	No

Table C.5 Collected NO_2 diffusion tube bias adjustment factors for 2013-2018

Tube/Supplier Analyst	Method	2013	2013	2014	2014	2015	2016	2017	2018	2018
Local Factors		*Cable St*	*Dalton Sq*	*Cable St*	*Dalton Sq*	*Dalton Sq*	*Dalton Sq*	*Dalton Sq*	*Dalton Sq*	*Cable St*
Gradko 2013 - 2018	20% TEA in water	0.907	0.941	0.936	1.034	1.030	0.97	0.91	1.09	0.89
National Factors										
Gradko (national factors) 2013 – 2018 (2018 factor from sheet 09/19)*	20% TEA in water	0.95		0.92		0.91	0.92	0.87	0.92	

* National bias adjustment factors available at : http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html

NB The National Bias Correction factor was used to bias correct Lancaster diffusion tube results in 2018 (this report). Using the highest local bias factor (Dalton Sq. - 1.09) results in tube results being slightly higher, and a few more exceedances, but all exceedances lying within the AQMAs. The bias correction factor selected in this report (0.92) represents accepted good practice. The National Bias Correction factor will be the default choice of factor for future reports.

Appendix D: Summary of Air Quality Objectives in England

Table 1.1

Pollutant	Air Quality Objective[1]	
	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

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

Appendix E – Lancashire response to national consultation on cleaner burning of solid fuels and wood – October 2018

Response ID ANON-1WWD-ZWVW-1

Submitted to **Consultation on cleaner domestic burning of solid fuels and wood**
Submitted on **2018-10-09 13:22:30**

Introduction

1 What is your name?

Name:
Paul Cartmell - on behalf of Environmental Health Lancashire (Lancashire LAs)

2 What is your email address?

Email:
pcartmell@lancaster.gov.uk

3 What is your organisation?

Organisation:
Local authority

If you answered "Other", please include details here::
Environmental Health Lancashire - Lancashire local authorities (NB No 'Lancashire/Lancaster' option in 5 below)

4 Would you like your response to be confidential?

No

If you answered Yes to this question please give your reason::

5 What is your location?

County:
Other

Wood

6 Volume restriction

Please provide reasons or evidence to support your answer:
We would recommend that all wood (any volume) sold for domestic use should be dried.

7 Do you think that suppliers and retailers should be given a transition period to use up existing stocks of wet wood or allow time for it to air-dry?

Transition period of 1 year

Please provide reasons or evidence to support your answer:

8 Do you think that smaller suppliers and retailers should be given a longer transition period?

No

9 Seasoning instructions

Agree

10 Do you agree or disagree that wood fuel suppliers should be required to be members of a certification scheme that provides assurance (via testing and auditing) that the wood is of a moisture content of 20% or less?

Agree

11 Do you agree or disagree that retailers selling wood should be legally required to store the wood in such a way that it will not become wet?

Yes

12 In order to comply with the proposal to require all businesses selling wood in volumes under 2m3 to ensure that it is dried to below 20% moisture, what adjustments, if any, would your business need to make?

Not Answered

Other::
N/A

13 Would you like to provide any further comments or evidence on our proposals or the questions in this section?

Further comments or evidence on our proposals:
We are uncertain what regulation priority would be given to 'dry wood' issues as it is assumed that no additional resources would be allocated to carrying out checking/enforcement functions?
We would also advise that from our knowledge /experience, many people 'self procure' the wood they burn i.e. they do not buy the wood from normal commercial sellers, and therefore this 'dry wood' action would have little or no bearing on the wood they often use/emissions arising.

Coal

14 Do you agree or disagree that government should phase out the use of traditional house coal for domestic combustion?

Agree

15 If you agree, what would be the most appropriate end date for phasing out the use of traditional house coal for domestic combustion?

2021

Please provide reasons or evidence to support your answer:
For air quality reasons to end use as soon as possible would be the best approach. However businesses and users will probably need to adjust their operations and therefore a transition period (as suggested by '2021') would seem appropriate.

16 In phasing out the use of traditional house coal as a domestic fuel, what do you consider is a reasonable transition period to allow industry and householders to use up existing stocks?

Transition period of 2 years

17 Do you agree or disagree that this policy should apply to all businesses?

Agree

18 If you disagree, which of the following should apply?

Please provide details of which businesses should be exempt and your reasoning.:

19 In phasing out traditional house coal as a domestic fuel, government is minded to apply the phase-out nationwide across England. Do you agree or disagree?

Agree

Not Answered

20 Would you like to provide any further comments or evidence on our proposals or the questions in this section?

Extra comments coal:

Manufactured solid fuels

21 Do you agree or disagree that government should introduce a standard for all manufactured solid fuels which confirms they are below 2% sulphur and meet a smoke emission limit of 5g /hr?

Agree

22 In introducing a sulphur and smoke emission standard, do you consider that there should be a transition period for suppliers and retailers?

Transition period of 1 year

Please provide reasons or evidence to support your answer:

23 Do you agree or disagree that, over time, the 2% sulphur limit should be further reduced to 1% sulphur?

Agree – 1%

Other::

2 years

24 Do you agree or disagree that government should introduce a clear labelling requirement to demonstrate that fuels meet the standard?

Agree

25 In order to comply with the proposal to phase out traditional house coal and apply sulphur and smoke emissions standards to all solid fuels, what adjustment, if any, would your business need to make?

Other (please specify)

Other::
N/A

26 Would you like to provide any further comments or evidence on our proposals or the questions in this section?

Extra comments MSF:
Are there any other environmental consequences resulting from a reduction in sulphur content that have not been presented and should be considered ?

Carbon reductions

27 Do you agree or disagree that government should, over the longer term, introduce a requirement that all manufactured solid fuels have a minimum 30% biomass content?

Neither agree nor disagree

Suggested percentage:

28 For businesses: If government mandated a biomass content how long would it take you to adjust?

Not Answered

29 Would you like to provide any further comments or evidence on our proposals or the questions in this section?

Extra comments biomass:
From and air perspective, policies/regulation that potentially promote the burning of any biomass/solid fuels containing biomass would not be helpful towards improving air quality (diesel and RHI come to mind). Wind , tidal, geothermal and solar sources provide a much better opportunity to address carbon reduction requirements.

Exemptions

30 We are interested in your views on how government should support those in fuel poverty with this transition away from high-carbon fossil fuels

Fuel poverty:
Means tested grant assistance could be offered to transition from higher carbon fossil fuels to more sustainable heating methods. The grant could be linked to the best environmental technologies available for domestic use e.g. solar, heat pumps, insulation, heat recovery

31 Would you like to provide any further comments or evidence on this section?

Extra comments exemptions:

Implementation

32 What do you think would be an appropriate level of fixed penalty related to the sale of domestic burning products?

£500

Other::

33 Do you think that local authorities should be required to use any funds from this for a specific purpose?

Yes – please specify below

Please specify::
For either either air quality improvement purposes and/or to fund the enforcement role

34 Do you agree or disagree that this will deliver our objective of establishing a clear and straightforward enforcement policy, minimising burdens for Local Authorities?

Yes

Please suggest any alternative proposal that you consider to be more effective in delivering our objectives:
A fixed penalty notice for burning wet wood may be an option to consider, although offence evidence gathering practicalities may make this a difficult option?
A fixed penalty notice system for those burning/disposing of waste material (on a fire/appliance or on open land) would be of great assistance for dealing with such common occurrences and would obviously contribute to improving air quality.
Building regulation amendment to better control the siting/height of chimneys and the use of cowls (to aid better dispersion) would also assist in your air quality based objectives.

35 Government will provide advice and guidance to retailers selling domestic burning products. What format should this take?

Other (please specify)

Other::
All of the above and more . TV campaigns could also be to inform users what to look for and why. It is important that both retailers and users are aware of the changes.

Information

36 What information do you think would be helpful to enable householders to reduce their impact from domestic burning?

Impact reduction information:
Given that burning wood/solid fuel is generally more polluting than other heating sources available, issued information/advice should in the first place discourage its use. Messages that particularly inform the potential harmful impact to the users themselves inside their own home may be the most effective. The potential negative impact on their neighbours (both in terms of pollution and odour) should also be presented to indicate the often antisocial aspect of choosing to burn solid fuels in urban locations.

37 What do you think would be the most effective way of communicating information to householders?

All of the above

Other::
TV

38 For householders: Where do you buy your fuel?

Other::
N/A

Additional suggestions

39 Do you have any additional comments/views that you wish to provide on the content of this consultation?

Consultation feedback:
Although the information provided indicates that nationally around 40% of PM2.5 may arise from domestic combustion, there is no information to indicate whether regionally or locally this is the case, or whether there are specific local difference in what fuels are being burnt or how they are resourced/procured (particularly for wood). Local authorities do not have access to good information on how many households are using solid fuels, whether they use them frequently or just occasionally and what growth in use there is in the local authority area. This information would be key to directing policy/action and therefore should be obtained e.g. by register of appliance sales/ register of users / survey of users/national census question/local survey/local technology based survey (resourced).

The consultation also does seem to address or acknowledge that a considerable amount of wood/other material that is burnt does not arise from a commercial supplier, and therefore the actual impact that may arise from policies targeted at commercial supply chains may be limited in affect. Policies/actions proposed also need to consider that wood may not be obtained from commercial sources and provide proposals to address this .

The consultation does not detail what measures exactly are proposed in relation to burning appliances (although presented as coming forward) and how effective they will be. Standards set for emissions are obviously important to cleaner domestic burning. Also there are no proposals to promote and facilitate the replacement of existing more polluting appliances. This could be a proposal to provide cleaner domestic burning.

Where burning takes place, the best dispersal of smoke/emissions can be key to reducing pollution impacts. As already mentioned, building regulations (in terms of the siting and height of chimneys and the use of cowls) are not prescriptive enough. Building regulations could be amended to ensure new solid fuel burning installations meet more stringent requirements in terms of siting and height of the chimney and regarding the use of cowls (which are commonly used but impede the upward draught of smoke/emissions).

Appendix F - Response to DfT's consultation on electric vehicle chargepoints in buildings – October 2019

Electric vehicle chargepoints in buildings

Introduction

Thank you for responding to the Electric vehicle chargepoints in buildings consultation. Your responses will define the:

- **proposal of introducing a requirement for electric vehicle (EV) chargepoints to be installed in new homes with an associated car parking space**
- **manner we transpose 3 new requirements of the European Union's (EU) Energy Performance of Buildings Directive (EPBD)**

The consultation will run until the 7 October 2019.

Print or save a copy of your response

When you get to the end of this questionnaire, you will be offered the chance to either print or save a copy of your response for your records. This option appears after you press 'Submit your response'.

You have an option to 'save and continue' your response at any time. If you do you will be sent a link via email to allow you to continue your response where you left off.

It's very important that you enter your correct email address if you choose to save and continue. If you make a mistake in the email address you won't receive the link.

Confidentiality and data protection

The Office for Low Emissions is carrying out this consultation to decide whether to introduce a requirement for EV chargepoints to be installed in new homes with an associated car parking space and will define the way we transpose 3 new requirements of the EU's EPBD. This consultation and the processing of personal data that it entails is necessary for the exercise of our functions as a government department. If your answers contain any information that allows you to be identified, the Department for Transport will, under data protection law, be the controller for this information.

As part of this consultation we're asking for your name and email address. This is in case we need to ask you follow-up questions about any of your responses. You do not have to give us this personal information. If you do provide it, we will use it only for the purpose of asking follow-up questions.

DfT's privacy policy has more information about your rights in relation to your personal data, how to complain and how to contact the Data Protection Officer.

Your information will be kept securely and destroyed within 12 months after the consultation has been completed. Any information provided through the online questionnaire will be moved to our internal systems within 2 months of the consultation end date.

Personal details

1. Your name and email address (only used if we need to contact you).

Your name Paul Cartmell

Your email pcartmell@lancaster.gov.uk

2. Are you responding as: *

☐ an individual? (Go to question 4)

X on behalf of an organisation?

Organisation details

3. Your organisation's name is?

Lancashire Air Quality Group (Lancashire Local Authorities)

Building regulation changes: new residential and residential buildings undergoing major renovation

We want every:

- new dwelling

- buildings undergoing material change of use to create a new dwelling

with an associated dedicated car parking space to have a chargepoint, where the space is 'within the site boundary' of the building.

And for every residential building undergoing major renovations with more than 10 car parking spaces physically adjacent to the building to have cable routes for electric vehicle chargepoints in every space.

New dwellings

4. Do you agree with our proposed policy position to require a chargepoint in new dwellings?

- [X] Yes for all dwellings (Go to question 6)
- [ ] Yes for single-dwelling buildings only
- [ ] Yes for multi-dwelling buildings only
- [ ] No
- [ ] Don't know? (Go to question 6)

Against new dwellings proposal

5. Why not, including what requirement you think would be suitable (include any evidence you may have)? [Attach your evidence to your return]

Comments:

Material change of use

6. Should we require the installation of an electric vehicle chargepoint in the car park of buildings converted into a new dwelling?

- [X] Yes (Go to question 8)
- [ ] No
- [ ] Don't know? (Go to question 8)

Against material change of use proposal

7. Why not (including any evidence you have)? [Attach your evidence to your return]

Comments:

Major renovation

For residential buildings undergoing major renovation we:

- do not propose requiring the installation of an electric vehicle chargepoint
- do propose requiring cable routes for electric vehicle chargepoints when the building has more than 10 parking spaces as per the minimum EPBD requirement

The reason we are not proposing to apply the chargepoint requirement is that we are mindful that this requirement would increase the capital cost of major renovations, and that this capital cost might ultimately fall on existing leaseholders. We also do not wish to discourage major renovations taking place by adding unacceptable additional costs to works. In a single-dwelling setting, there are more potential problems where a renovation of a separate part of the dwelling could result in the requirements being triggered.

8. Do you agree not to apply the chargepoint requirement to residential buildings undergoing major renovations?

- ☐ Yes (Go to question 10)
- ☐ No
- X Don't know? (Go to question 10)

Against major renovation proposal

9. Why, including any evidence you have, and to which types of residential buildings you wish to apply the regulation to (such as residential buildings with more than 10 car parking spaces only)? [Attach your evidence to your return]

Comments:

Scope of requirement

We propose that the requirement should be for one chargepoint per dwelling rather than every parking space associated with the building.

Therefore if a building has more car parking spaces than dwellings, there will be a single chargepoint per dwelling rather a chargepoint per parking space.

10. Do you agree the requirement should be for one chargepoint per dwelling rather than every parking space associated with the building?

X Yes (Go to question 12)

☐ No

☐ Don't know? (Go to question 12)

Against scope of requirement proposal

11. Why not (including any evidence you may have)? [Attach your evidence to your return]

Comments:

Optional building regulations

12. Do you agree we should set the requirement as mandatory rather than optional in the building regulations?

X Yes (Go to question 14)

☐ No

☐ Don't know? (Go to question 14)

Against optional building regulations

13. Why?

Other issue to consider

14. What other issues do you think, relevant to using building regulations to set standards for the provision and safety of electric vehicle chargepoint, we should consider?

We think there is a real need to mandate the delivery of electric vehicle charging points (EV charger) at a national level as leaving delivery to local planning requirements can be hit and miss even where good local policies and guidance are in place (as delivery can be lost when balancing all planning matters to be considered or through subsequent appeal on whether EV charging requirements are 'necessary' to allow the development to proceed). From an air quality improvement perspective (which is our remit) it is generally our view that provision should be mandated and any exemptions are very limited.

It is also important that the type of charging provision is specified clearly to avoid any confusion on exactly what is required e.g. 7KW/Type 2 Connectors/Mode 3/untethered for residential development. We would also recommend that where a dwelling has parking for more than 1 car, the position/design of an EV charger should be such as to allow access to the charger by the other parked cars without the need to reposition vehicles.

We are however concerned to ensure that the mandate is clear and practical to deliver through the planning/building regulation process and that any exemptions from delivery should be very limited and difficult (if not impossible) to circumnavigate. For this reason, we are concerned that the suggested financial limit of £3600 per charging point/dwelling may in some cases be presented as undeliverable through the submission of suitable costings. A local authority is ill equipt/resourced to properly assess or challenge such submissions and therefore may be forced to accept an exemption where they should not.

To address this issue provision must have built in checks by suitably qualified and independent bodies/authorities (a national assessment point could be provided for this purpose?) to allow proper assessment of applications where exemptions from the mandated requirements are sought by a developer. We would recommend that submissions for exemption assessment should be directed from and to a local authority but are funded by the applicant/developer where such exemptions are sought. We would also recommend that where the cost for provision of EV charging is agreed to exceed the £3600 per dwelling figure, the amount (£3600 X number of dwellings) should be used to deliver the best charging arrangement feasible within that budget rather than the development being exempted in totality. This could for example comprise of the use of electricity demand 'balancing' chargers or the provision of shared 22kw/rapid/ultra rapid charging units within close proximity to new dwellings. Where submissions are received to exempt a development from mandated EV provision this should therefore also be accompanied by a proposal to deliver an alternative arrangement for consideration by the independent assessor.

It is considered that EV charging provision for medium size developments (10-100 dwellings) are probably most at risk of being exempted, as where electricity network reinforcements are required to deliver EV charging e.g. a sub-station and associated cabling, funding collected may not support such modifications. As a suggestion, perhaps there should be a national grant funding arrangement to supplement cost of EV provision where costs are assessed and agreed to exceed £3600 per dwelling and therefore remove the need to have any finance related exemption.

It is also considered that flat developments should deliver one charging point per flat dwelling (if one or more parking spaces are provided per flat) or provision to every car parking space in circumstances where car parking spaces are limited (as we think is proposed).

A lead in time for the regulations to come into force is not considered needed if requirements are clear. We therefore would recommend that requirements become mandated as soon as possible after the regulations come into force and not be delayed until 2021. A delay until 2021 could result in a glut/disproportionate number of development applications being submitted to local authorities prior to the implementation deadline to avoid the requirement and the associated financial outlay.

Building regulation changes: new non-residential and non-residential buildings undergoing major renovation

We propose to transpose the EPBD requirement for new non-residential buildings and non-residential buildings undergoing major renovation directly.

This means that we want every new non-residential building, and every non-residential building undergoing a major renovation, with more than 10 car parking spaces to have:

1. one chargepoint
2. cable routes for electric vehicle chargepoint cabling for one in 5 spaces

15. Do you agree with our proposed policy position?

X Yes (but see response to Q16 below)

☐ No

☐ Don't know? (Go to question 17)

Against new non-residential policy position

16. Why, including what alternative requirement you think would be suitable (note we are obliged under the EPBD to transpose the proposed requirements as a minimum)? [Attach your evidence to your return]

Comments:

We would recommend that the minimum type of charger to be installed at non-residential development should be specified as a minimum provision dependant on proposed use of :-

(1) 7kW/Type2/Mode3/untethered for office or other locations with occupancy/visitors in the main are staying a standard working day (around 7 hours)

(2) 22KW/Type2/Mode 3/untethered for non- residential developments where stays by occupying/visiting persons are in the main short term (less than 4 hours)

All chargers should be located and designed to allow access from as many parked positions as possible.

If any exemptions are to be allowed for this provision, similar checks and requirements should be in place as with residential sites (as detailed in response to Q14 above).

It should be noted that provision of cable routes does not address electricity network capacity issues i.e. network capacity issues may mean that the delivery of more chargepoints using the cable routes provided is subsequently found to be cost prohibited.

Existing non-residential buildings

The EPBD includes a requirement for the government to lay down requirements for the installation of a minimum number of chargepoints in all existing non-residential buildings with more than 20 parking spaces. This requirement must be set by March 2020 and will come into force by 1st January 2025.

We propose to set the minimum requirement at one chargepoint per existing non-residential building with more than 20 parking spaces.

17. Do you agree that one chargepoint per existing building with more than 20 car parking spaces is a suitable minimum requirement to transpose the EPBD?

X Yes (Go to question 19)

☐ No

☐ Don't know? (Go to question 19)

Against existing non-residential building proposal

18. Why, noting this is the minimum we must do under the EPBD?

Existing non-residential buildings: application

19. How can the government apply these regulations in a way which balances the benefit to EV drivers and the requirements of the EPBD, with the burden on landowners?

The required EPBD provision should be mandated. Consideration should be given to whether some provision should also mandated in buildings with smaller car parks e.g. buildings with 5 or more car parking spaces , to support the 'Road to Zero' strategy. It could also be argued that the provision of 1 charger is insufficient to promote the 'Road to Zero' strategy and that a higher minimum standard should be set.

Existing non-residential buildings: enforcement

20. Do you agree that the appropriate enforcement regime for this power should see a sliding scale of penalties for non-compliance?

X Yes (Go to question 22)
☐ No
☐ Don't know? (Go to question 22)

Against sliding scale

21. Why, including what alternative enforcement regime you think is suitable?

Whoever enforces this needs to be suitably resourced for the task.

Existing non-residential buildings: enforcement

22. In your opinion the enforcement body should be:

☐ Local Weights and Measures Authorities
☐ Local Authority Building Control
X I dont know?
☐ another body:

Mitigations

23. What steps do you think we should take to mitigate against any potential negative impact of the implementation of these regulations?

As suggested in response to Q14 above, grant funding could be used to help deliver infrastructure (and the supporting electricity network) where financial limits are exceeded. This could also be used to remove the need for exemptions for financial reasons.

Another alternative could be that the government could operate a set grant offer payment to pay for chargepoint provision, with the developer required to pay for any additional delivery cost above the grant amount (again removing the exemption for financial reasons).

Technical specifications for building regulation requirements

Approved Documents (ADs) are provided alongside the building regulations to provide guidance about how to comply with the regulations. We have published our draft version of the AD text.

Definitions

24. Are the definitions in the draft Approved Document accurate and provide their intended meaning?

- [ ] Yes (Go to question 26)
- [ ] No
- X Don't know? (Go to question 26)

Against definitions

25. How, in your opinion, could the definitions be improved?

Definitions

26. Do you agree with using the concept "within the site boundary" to define which parking spaces are in scope of the regulations?

- [ ] Yes (Go to question 28)
- [ ] No
- [X] Don't know? (Go to question 28)

Against "in the site boundary" definition

27. Why not and what do you think an appropriate definition would be?

Technical specifications for EV cable routes and chargepoints

The Approved Document includes some minimum technical specifications for the EV cable routes and ~~chargepoint~~. The government proposes specifying that the chargepoints must have a minimum charging power of 7kW, be at least Mode 3 or equivalent and be untethered.

28. Do you agree that the government should specify a minimum charging power of 7 kW?

- [X] Yes (but see also response to Q16 above)
- [ ] No
- [ ] Don't know? (Go to question 30)

Against 7 kW

29. Why, including any evidence you have, and specify what specification would be suitable? [Attach your evidence to your return]

Comments:

See response to Q 16 above.

Technical specifications for EV cable routes and chargepoints

30. Do you agree that we should specify that chargepoints installed under the building regulations should be at least Mode 3 or equivalent?

X Yes (Go to question 32)

☐ No

☐ Don't know? (Go to question 32)

Against Mode 3 or equivalent

31. Why, including any evidence you have, and specify what specification would be suitable? [Attach your evidence to your return]

Comments:

Technical specifications for EV cable routes and chargepoints

32. Do you agree that we should specify that chargepoints installed under the building regulations must be untethered?

☐ Yes (Go to question 34)

☐ No

X Don't know? (Go to question 34)

Against untethered chargepoints

33. Why, including any evidence you have, and specify what specification would be suitable? [Attach your evidence to your return]

Comments:

Technical specifications for EV cable routes and chargepoints

34. In your opinion do the draft Approved Document specifications adequately consider accessibility requirements with regards to location of the:

	Yes	No	Don't know?
cabling routes?	☐	☐	X
chargepoints?	☐	☐	X

Why including alternatives?

35. In your opinion what, if any, other accessibility requirements should we include in the Approved Document?

Technical specifications for EV cable routes and chargepoints

36. Are the specifications with regards to safety standards outlined in the draft Approved Document appropriate?

☐ Yes (Go to question 38)

☐ No

X Don't know? (Go to question 38)

Safety specification insufficient

37. Why including what further safety specifications do you think we need to include? [Attach your evidence to your return]

Comments:

Notifiable building work

We propose that the installation, addition or alteration of dedicated circuits and earthing and bonding arrangements for electric vehicle chargepoints to be notifiable work under the building regulations.

38. Do you agree with our proposal?

- [ ] Yes (Go to question 40)
- [ ] No
- X Don't know? (Go to question 40)

Against notifiable building work

39. Why?

Approved Document scope

40. Does the proposed guidance in the draft Approved Document provide sufficient detail to comply with the requirements?

- [ ] Yes (Go to question 42)
- [ ] No
- X Don't know? (Go to question 42)

Against approved document scope

41. Why including any suggestions for how to improve the guidance? [Attach your evidence to your return]

Comments:

Approved Document scope

42. The diagrams in the draft Approved Document are illustrative only but do you think they provide sufficient detail for compliance?

- ☐ Yes (Go to question 44)
- ☐ No
- X Don't know? (Go to question 44)

Against approved document scope

43. Why? [Attach your evidence to your return]

Comments:

Approved Document scope

44. Does the draft Approved Document meet our overall proposed policy intent?

- ☐ Yes (Go to question 46)
- ☐ No
- X Don't know? (Go to question 46)

Does not meet policy intent

45. What information do you think is missing from the draft Approved Document to meet the intended policy intent?

Approved Document: additional information

46. What additional information, if any do you think needs to be added to the Approved Document? [Attach your evidence to your return]

Comments:

Exemption to EV installation

We can include some exemptions both to:

- the EPBD requirements (defined in Article 8 of the EPBD)
- our domestic requirement of a chargepoint in every home

The intention is for the regulations to only apply to buildings where it is appropriate to install EV chargepoints.

Lead in times

The EPBD allows for an exemption for buildings that have submitted their initial building notice or full plans applications by 10 March 2021.

This implies a period of one year between the implementation of the requirements in national building codes and the regulations coming into force.

We would like to hear opinions on a reasonable lead-in time between introducing the new regulations and the regulations coming into force, for the:

- EPBD requirements for new non-residential buildings
- chargepoint requirements for new residential buildings

47. What do you believe is a reasonable transition period between publishing the new regulations plus guidance and the requirements coming into force?

See comments to Q14 above

Proposed exemptions for residential buildings

48. Do you think we should apply an exemption to our proposal to require a chargepoint in every new home when the grid connection cost is high?

- [ ] Yes (Go to question 50)
- [x] No
- [ ] Don't know? (Go to question 50)

Against grid connection cost exemption

49. Why not, including any potential exemption you think is suitable?

It is considered that exemptions remove clarity and add complexity to the position. Exemptions should be limited to exceptional circumstances only. Ideally exemptions on the grounds of cost should be removed, but can be mitigated by government grant assistance where costs are considered excessive and would make delivery of the development unviable. This provides a shared approach to infrastructure (including network reinforcements) delivery between the government and the developer. Check arrangement should of course be both simple and robust to prevent unnecessary use of public funds and allow enhanced profits for developers. The use of a national exemption assessor, as previously suggested, to consider request for exemptions may be a good route to take as they could also be the gatekeeper to grant assistance.

Proposed exemptions for residential buildings

Our quoted technical feasibility criteria for new dwellings is:

"the installation of an electric vehicle chargepoint should be considered technically feasible if the additional costs of reinforcement and upgrades to the local electrical distribution network would not exceed [£3,600] per dwelling. This cost should be calculated as the additional capital cost for electrical infrastructure, as compared to that which would be required without the chargepoints. This cost may be calculated either:

a. for a development containing multiple new dwellings; or
b. for an individual dwelling

Note for new dwellings where the installation of an electric vehicle chargepoint is not technically feasible, enabling infrastructure might be required."

50. Does this text capture the intended exemption?

- [ ] Yes (Go to question 52)
- [ ] No
- X Don't know? (Go to question 52)

Not capturing intended exemption

51. Suggest an alternative drafting.

See relevant comments to Q14 and Q49 above.

Proposed exemptions for residential buildings

We propose setting a threshold of three times the high scenario cost of the average electrical capacity connection needed for a chargepoint in a multi-dwelling building.

According to the costs we have collated for the associated impact assessment this would be £3,600 per chargepoint.

52. Do you agree with our suggested threshold?

- [ ] Yes (Go to question 54)
- [ ] No
- X Don't know? (Go to question 54)

Against threshold

53. What do you think is a reasonable threshold including any evidence? [Attach your evidence to your return]

Comments:

Mitigation

54. Does this exemption sufficiently mitigate any negative impact on housing supply?

- ☐ Yes (Go to question 56)
- ☐ No
- X Don't know? (Go to question 56)

Against mitigation

55. Why? [Attach your evidence to your return]

Comments:

Other technical feasibility considerations to include

56. What other technical considerations do you think should be included? [Attach your evidence to your return]

Comments:

Proposed exemptions for residential buildings

57. For our a chargepoint in every new home created from a material change of use requirement do you agree that we should apply an exemption for:

	Yes	No	Don't know?
listed buildings?	☐	X	☐
buildings in conservation areas?	☐	X	☐

Explain your reasoning if you disagree.

Listed or conservation status should not prevent EV provision where parking is provided. It is

considered that such buildings may be perhaps the most in need of EV provision for the reason that future residents are more likely to want and more likely to be able to own electric vehicles.

58. For our a chargepoint in every new home created from a material change of use requirement should we apply an exemption in cases where there is adequate spare capacity in the incoming electrical supply to the car park?

- [ ] Yes (Go to question 60)
- X No
- [ ] Don't know? (Go to question 60)

Against exemption for adequate spare capacity

59. Why not?

If there is adequate spare capacity in the supply, EV charging can be provided?

Proposed exemptions for residential buildings

60. If we apply the chargepoint requirement to residential buildings undergoing major renovations should we allow an exemption in cases where there is adequate spare capacity in the incoming electrical supply to the car park?

- [ ] Yes (Go to question 62)
- X No
- [ ] Don't know? (Go to question 62)

Against adequate spare capacity in the incoming electrical supply to the car park exemption

61. Why not?

As response to Q59 above,

Cable routes exceeds 7%

62. Should we apply an exemption where the cost of installing the cable routes exceeds 7% of the total cost of a major renovations within:

	Yes	No	Don't know?
residential buildings?	☐	☐	X
non-residential buildings?	☐	☐	X

Why?

It is considered unlikely that installing cable routes alone will incur a very high cost.

Small medium enterprise exemptions

63. Should we apply an exemption for the requirement for existing non-residential buildings to small and medium enterprises?

☐ Yes (Go to question 65)

☐ No

X Don't know? (Go to question 65)

Against small medium enterprise exemptions

64. Why not including any evidence you think is relevant? [Attach your evidence to your return]

Comments:

Evidence and analysis

We have published 2 consultation stage Impact Assessments alongside this consultation, to capture the residential and non-residential building requirements. The Impact Assessments includes information about the costs of the proposed policies and are based on some key assumptions around the development of the EV and the EV chargepoint markets. We are, through this consultation, seeking further evidence to inform the final stage impact assessments. In particular, we welcome views on the costings we are relying on and the robustness of our main assumptions. We also welcome views on any impacts or benefits not reflected in the impact assessment.

65. Do you agree with the:

	Yes	No	Don't know?
assumptions set out in the Impact Assessment?	☐	☐	X
costs set out in the Impact Assessment?	☐	☐	X
impacts set out in the Impact Assessment?	☐	☐	X

Explain your reasons if you disagree.

66. Provide any evidence you think relevant to the impact assessment. [Attach your evidence to your return]

Comments:

67. How do you think these costs are likely to change over time? [Attach your evidence to your return]

Comments:

68. What do you think are the likely cost reductions from economies of scale specifying whether the cost reductions will be relevant for both installation and hardware costs? [Attach your evidence to your return]

Comments:

69. Do you think there are groups who would be impacted by these regulations that have not been captured by this assessment?

- ☐ Yes
- ☐ No (Go to question 71)
- X Don't know? (Go to question 71)

Additional groups

70. What additional groups and why? [Attach your evidence to your return]

Comments:

Evidence and analysis

71. Do you think multiple single-occupancy developments (such as housing estates) will be able to take advantage of economies of scale savings for chargepoint installation?

- ☐ Yes
- ☐ No
- X Don't know? (See also response to Q72)

Multiple single-occupancy developments

72. Why? [Attach your evidence to your return]

Comments:

Yes in terms of hardware/labour bulk purchase, but may incur higher costs for reinforcing the electricity network supply.

Evidence and analysis

73. What are the likely technological learning rates that chargepoint hardware would experience and why? [Attach your evidence to your return]

Comments:

74. Do you think our methodology for capturing grid connection cost variation is suitable?

- [ ] Yes (Go to question 76)
- [ ] No
- X Don't know? (Go to question 76)

Better methodology

75. What do you think is a more suitable methodology for capturing the variation in grid connection costs? [Attach your evidence to your return]

Comments:

Evidence and analysis

76. Does the assessment of cost incidence seem accurate?

- [ ] Yes (Go to question 78)
- [ ] No
- X Don't know? (Go to question 78)

Against cost assessment

77. Why not, including any evidence you have? [Attach your evidence to your return]

Comments:

Evidence and analysis

78. Do you think there are likely to be disruption costs in a retrofit scenario, and if so how large do you think these will be? [Attach your evidence to your return]

Comments:

79. In your opinion have we captured all of the benefits?

- [ ] Yes (Go to question 81)
- [ ] No
- X Don't know? (Go to question 81)

Other benefits in impact assessment

80. What additional benefits do you suggest including and why? [Attach your evidence to your return]

Comments:

Evidence and analysis

81. What do you think will be the impact on housing supply of introducing a requirement for chargepoint infrastructure on new dwellings? [Attach your evidence to your return]

Comments:

Final comments

82. Any other comments?

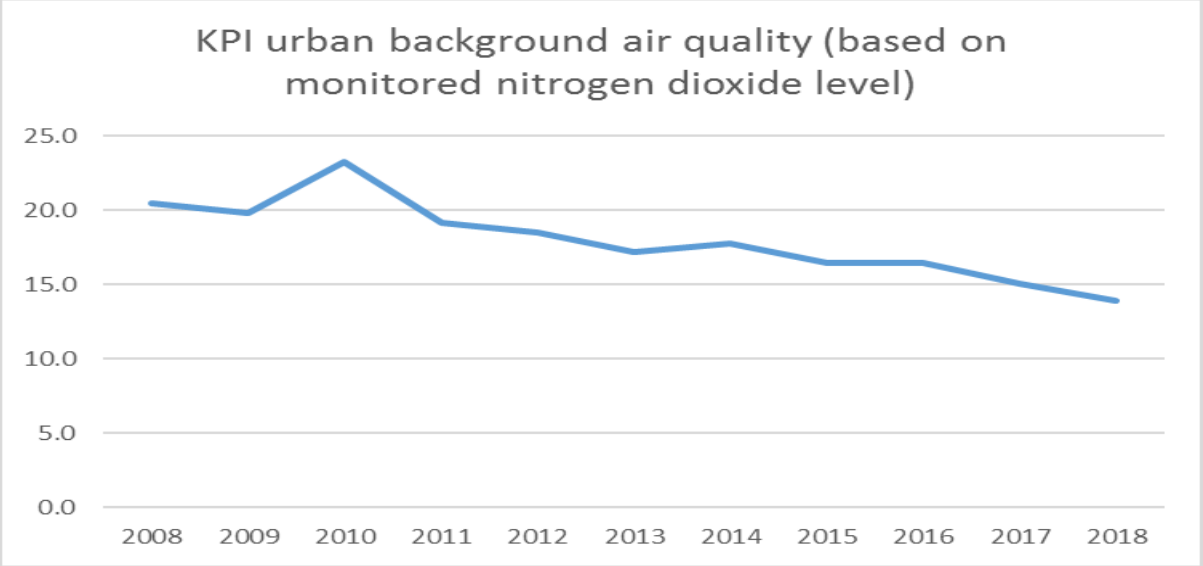
We think there is a real need to mandate the delivery of electric vehicle charging points (EV charger) at a national level as leaving delivery to local planning requirements can be hit and miss even where good local policies and guidance are in place (as delivery can be lost when balancing all planning matters to be considered or through subsequent appeal on whether EV charging requirements are 'necessary' to allow the development to proceed). From an air quality improvement perspective (which is our remit) it is generally our view that provision should be mandated and any exemptions are very limited.

It is also important that the type of charging provision is specified clearly to avoid any confusion on exactly what is required e.g. 7KW/Type 2 Connectors/Mode 3/untethered for residential development. We would also recommend that where a dwelling has parking for more than 1 car, the position/design of an EV charger should be such as to allow access to the charger by the other parked cars without the need to reposition vehicles.

Appendix G – Local Air Quality Key Performance Indicators

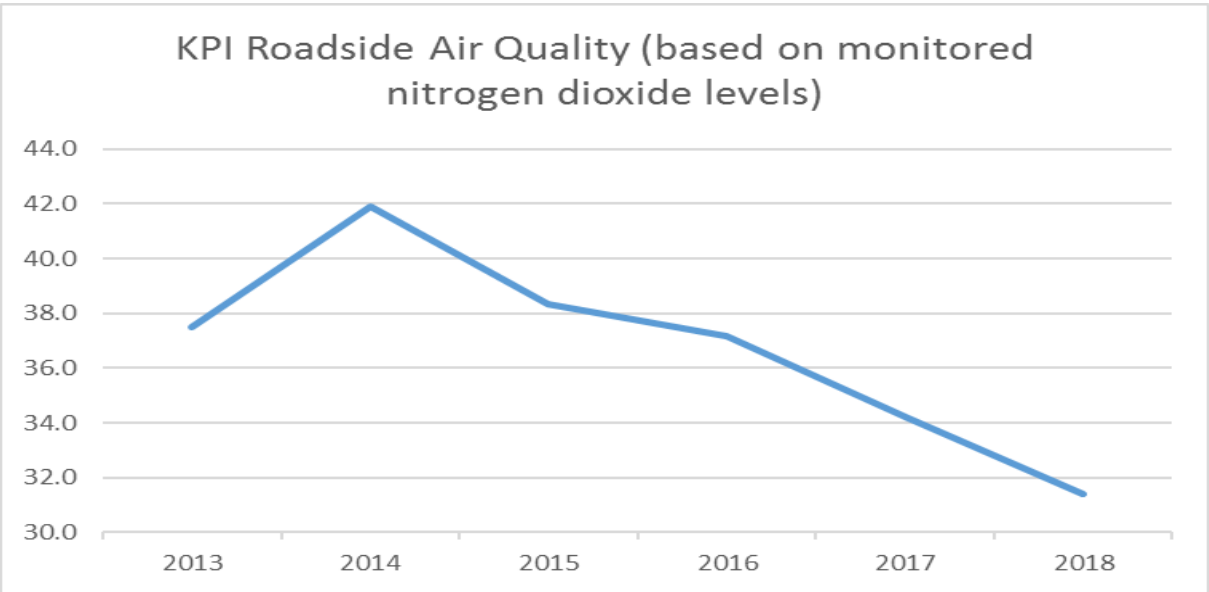
1. Key Performance Indicator for background air quality is based on local monitoring site LC4

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
20.5	19.8	23.3	19.2	18.5	17.2	17.7	16.4	16.5	15.1	13.9



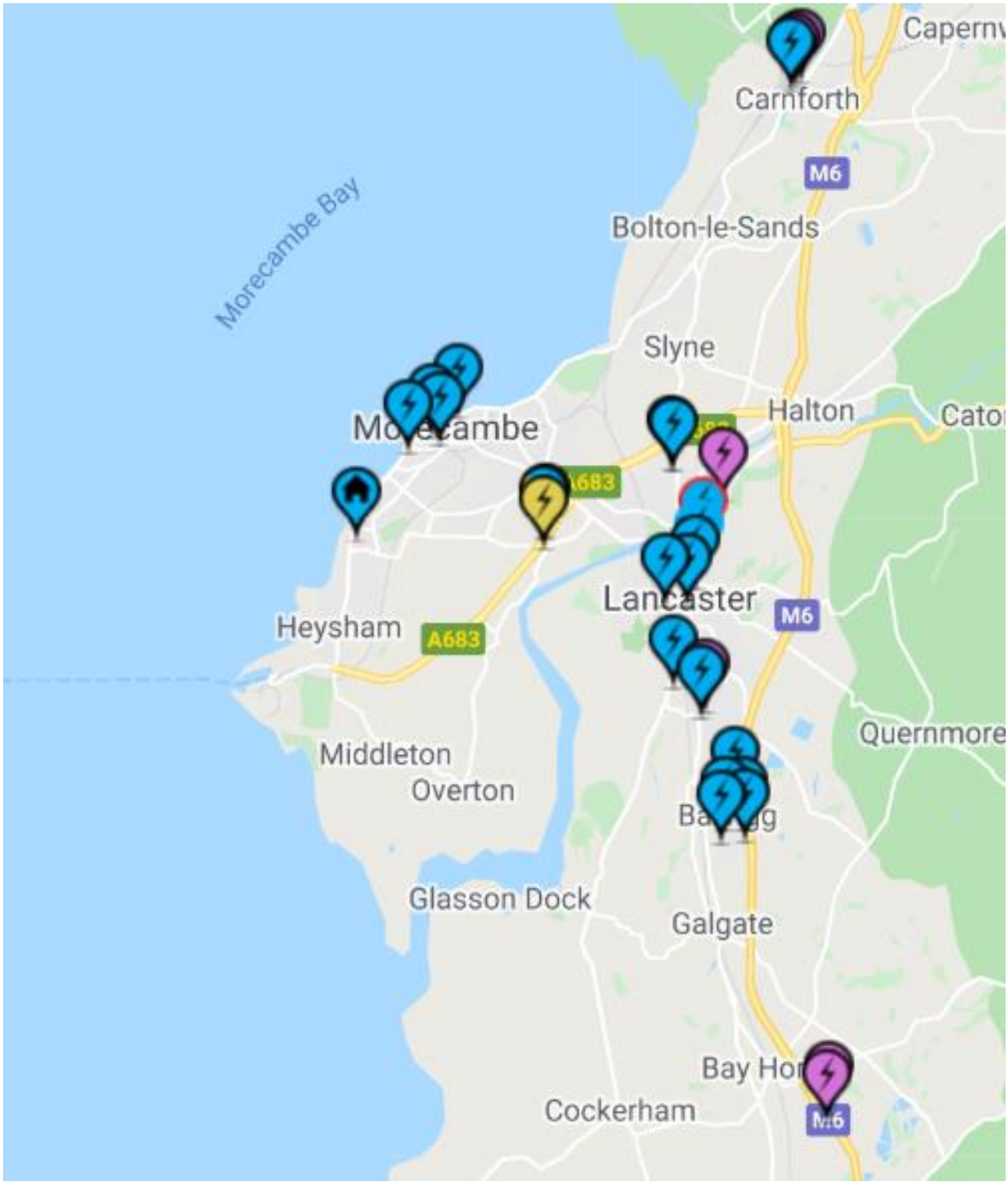
2. Key Performance Indicator Roadside Air Quality

2013	2014	2015	2016	2017	2018
37.5	41.9	38.3	37.2	34.2	31.4



Appendix H

Map showing the position of active electric vehicle charging points within the Lancaster district (live map available at https://www.zap-map.com/live/) NB An additional 18 points are now also available at the Caton Road Park and Ride site, Lancaster



Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA 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
ANPR	Automatic Number Plate Recognition
ASR	Air quality Annual Status Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
LEP	Low Emission Partnership
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
OLEV	Office for Low Emission Vehicles
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
ULEV	Ultra Low Emission Vehicle

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http://laqm.defra.gov.uk/review-and-assessment/review-and-assessment.html

http://www.environment-agency.gov.uk

https://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality

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https://www.lancaster.gov.uk/environmental-health/environmental-protection/air-quality/air-quality-reviews-and-assessments

* Access to the Council's air quality reports is provided on the Council's website (link provided above).