



# 2019 Air Quality Annual Status Report (ASR)

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

December 2019

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## Executive Summary: Air Quality in Our Area

### Air Quality in Leicester City Council

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

Current efforts to reduce air pollution focus on two key areas:

- nitrogen dioxide (NO<sub>2</sub>) levels; and,
- PM10s – the small particles emitted by diesel engines

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion<sup>3</sup>.

### Air Quality in Leicester: 2019 update

The key points to note are:

- NO<sub>2</sub> pollution levels were the lowest on record since the monitoring began
- Annual average NO<sub>2</sub> levels did, however, still exceed the EU target (40µg/m<sup>3</sup>) which means the city has retained an Air Quality Management Area
- There were no hourly exceedances of NO<sub>2</sub> levels
- PM10 levels did not exceed the EU annual average or 24-hour average limits
- Traffic is the main source of pollution in the city
- No new sources of pollution were identified in 2018
- Work on preparation of the Outline Business Case has commenced

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<sup>1</sup> Environmental equity, air quality, socioeconomic status and respiratory health, 2010

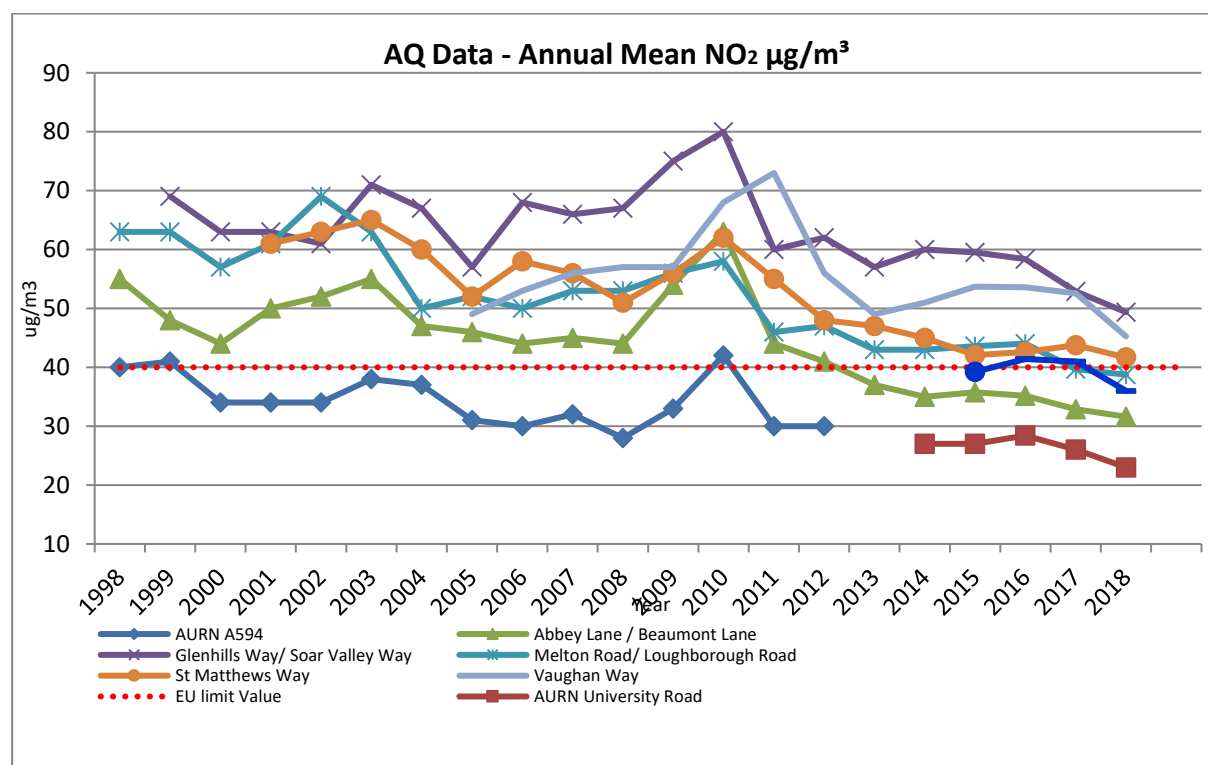
<sup>2</sup> Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

<sup>3</sup> Defra. Abatement cost guidance for valuing changes in air quality, May 2013

Leicester is now one of the UK cities mandated by Defra to take the necessary steps to bring NO<sub>2</sub> levels below EU limits “as soon as possible” and to prepare a Business Case. Defra identified three specific locations to be addressed: Vaughan Way; St Matthews and Glenhills Way. We are currently working with Defra on the associated plans that will form an Outline Business Case and hope additional government funding will be made available to speed delivery of any agreed actions. OBC builds on work undertaken in the first half of 2018 in a Targeted Feasibility Study, in which possible measures were developed to try to bring forward air quality standard compliance on specific links identified by the Government Joint Air Quality Unit’s (JAQU’s) national PCM modelling exercise as having a short-term problem at that time.

### Leicester’s Air Quality Management Area

Leicester’s Air Quality Management Area includes five, City Council owned automatic air quality monitoring stations located at strategic points on the main road network: Abbey Lane, Glenhills Way, Melton Road, St Matthews’s Way and Vaughan Way. The NO<sub>2</sub> results since 1998 are shown in the graph below. NO<sub>2</sub> Pollution levels have fallen consistently since 2010/11.



The map of the Air Quality Management Area and locations of the stations can be found at the following link: <https://www.leicester.gov.uk/your-council/policies-plans-and-strategies/environment-and-waste/air-quality>.

## Actions to Improve Air Quality

In November 2015, Leicester City Council adopted a new Air Quality Action Plan aimed at tackling the problem of traffic emissions. (<https://www.leicester.gov.uk/your-council/policies-plans-and-strategies/environment-and-waste/air-quality>)

Leicester City Council also works closely with local public health bodies, Public Health England and, through the Air Quality Forum, with Leicestershire County Council & District Councils to identify and deliver projects and initiatives that will improve air quality. Recent initiatives and actions are summarised below:

### A. Reducing Transport Emissions

**Clean Air Zone for Buses Agreement** –the City Council & Leicester’s major bus companies signed the “Leicester Clean Air Zone for Buses Partnership Agreement” in 2018, which aims to upgrade the city bus fleet to Euro VI standard vehicles or above by January 2021. As part of this agreement further 165 buses will to be retrofitted by 2020 using Clean Bus Technology Fund grants.

**Clean Bus Technology Fund (CBTF) 2019**– a successful bid has been made to secure further funding to retrofit 53 additional buses to Euro VI standard.

**Breathe I, II, III and CBTF 2019 Retrofitting Schemes** - these four bus retrofitting schemes will further be reduced fleet emissions. In total, 211 buses will be retrofitted and fully operational on the streets of Leicester in 2020.

**E-Bike Pool** - the Walking & Cycling Team has procured 6 electric bikes through a scheme called the Green Bike Pool Initiative. Similar to the electric carpool, the e-bikes have been used by members of Council staff. The e-bikes have been acquired to encourage staff to reconsider how they travel during working hours, for example for meetings, site visits and events. The City Hall based trial has been very successful, the e-bike pool will be expanded to other Council offices and depots. benefits.

**E-Bike Salary Sacrifice Initiative** – in July 2018, the Walking & Cycling Team launched the Council’s second cycle salary sacrifice scheme, enabling a wider range

of bikes, including e-bikes, to be purchased from local retailers. 25 staff have taken up this opportunity to date. As indicated by the DfT's own "Propensity to Cycle Tool", e-bikes have the potential to significantly reduce car-based commuting and offer additional health benefits in a compact city like Leicester.

(Propensity to Cycle link: [www.pct.bike/m/?r=leicestershire](http://www.pct.bike/m/?r=leicestershire) & select Scenario:e-bike)

Photograph 1: One of e-Bikes in Leicester City Council Bike Pool



The Direction from Government to Leicester City Council to prepare a Clean Air Plan covers the whole of its administrative area. The Direction also makes clear that air quality exceedances must not be transferred from this area to areas outside the council's jurisdiction. The area of interest for this study (the area across which transport and air quality modelling was undertaken) was therefore defined at an early stage, in agreement with JAQU, to be the Greater Leicester area. This includes the whole of the city of Leicester plus the surrounding urban area, and is the same area as used within the Local Transport Plan (LTP).

## **B. Promoting Sustainable Transport**

**Connecting Leicester** - vision to create and provide a connected, safe and family friendly city centre. Its aim is to make the city an attractive destination for shoppers,



visitors, businesses and investors and a great place to live. Connecting the different parts of the city centre and reducing the dominance of roads is already creating an attractive, pedestrian-friendly, environment for local people to enjoy their historic city. As part of the wider Connecting Leicester programme, works have been completed to create a safer and more attractive route for cyclists and pedestrians on London Road. This scheme is part funded by the European Regional Development Fund. Photograph 2: London Road cycling lane – artist impression



**National Clean Air Day 20<sup>th</sup> June 2019** - in support of National Clean Air Day, an exciting school-based event promoted sustainable transport whilst raising awareness of air quality issues and the Smoke Control Area.

Photograph 3: National Clean Air Day 20<sup>th</sup> June 2019



### C. Improving Traffic Management

**20 mph zones** – the programme in residential areas has continued, particularly around schools. Sixty-three schemes have been completed so far.

**Anti-idling campaign** – “Switch your engine for cleaner air”, seven campaigns rolled out across schools in the City

**‘Sting’** – action days are taking place to tackle school-run drivers who drive or park dangerously, discard litter or leave their engines running while stationary. Leicester City Council and Leicestershire Police are carrying out the programme of visits to schools across the city, which have highlighted ongoing problems with motorists behaving inconsiderately on roads outside the school gates. In 2019-20, the ‘sting’ operation programme will be ongoing.

### D. Enhancing Planning and the Environment

**“Leicester Local Plan”** - a new plan is being developed for adoption. Improving air quality is a core deliverable and will be a consistent theme throughout the Plan.



“**Local Transport Plan 4**” an updated plan is being developed, air quality plays a pivotal role within the emerging plan

“**Climate Emergency**” – public consultation is being undertaken

## Conclusions and Priorities

The air quality monitoring data obtained in 2018 shows a big improvement in air quality with NO<sub>2</sub> levels generally falling across the Air Quality Management Area. DEFRA national Pollution Climate (**PCM**) Model indicated that Leicester will be fully compliant with the EU annual mean NO<sub>2</sub> objective in 2020.

Two automatic air quality stations within our Air Quality Management Area (Abbey Lane & Melton Road) have recorded annual mean levels for NO<sub>2</sub> below the annual limit value of 40µg/m<sup>3</sup> again, following the downward trend observed in recent years. The Abbey Lane site has been recording NO<sub>2</sub> levels below the EU limit values for both annual and hourly means. If this trend continues, this area of Leicester could potentially be undeclared as an AQMA, at least in terms of NO<sub>2</sub> levels. Melton Road has recorded annual mean NO<sub>2</sub> levels under the EU limit of 40ug/m<sup>3</sup> for the second time since installation.

Like many other urban areas, Leicester faces a number of air quality challenges which we hope to meet through our Air Quality Action Plan (<https://www.leicester.gov.uk/your-council/policies-plans-and-strategies/environment-and-waste/air-quality>).

Addressing the challenges and setting new goals requires a co-ordinated approach led by the city council but supported by many key stakeholders including academia, private companies and the general public. The headline actions are summarised below:

### ***Reducing Transport Emissions***

- To continue to lobby and work with Government to introduce national measures to reduce polluting emissions from diesel vehicles,

- To deliver a city wide Clean Air Zone for buses in January 2021
- To be pro-active in our response to the Government Air Quality Plan for Nitrogen Dioxide (NO<sub>2</sub>) consultation 2018 and any subsequent guidance or mandates
- To work with the Office for Low Emission Vehicles (OLEV) to help introduce low emission taxis to Leicester
- To continue to bring electric vehicles and bikes into the city council's vehicle fleet

### ***Promoting Sustainable Transport***

- To continue the Connecting Leicester programme and make our city more accessible to sustainable modes of transport such as walking and cycling
- To continue to deliver our programme of walking and cycling initiatives including the Ride Leicester Festival, led rides, led walks, "Wheels to Work" and cycle training for children and adults
- To form an effective partnership with bus operators – exploiting the full potential of the Bus Services Act 2017 to improve the quality and accessibility of bus services, promote modal shift and reduce harmful transport emissions

### ***Improving Traffic Management***

- To keep introducing bus priority schemes such as bus gate cameras
- To continue to improve the city's traffic management system and address "pinch points" on the highway network
- To continue to deliver our programme of introducing 20 mph Zones in residential areas and particularly around schools

### ***Enhancing Planning and the Environment***

- To ensure air quality considerations are embedded in Leicester's new Local Plan which is to be adopted in 2021
- Smart cities - we will work with partners to realise the full potential of smart systems and smart data within the planning and transport arena, delivering service improvements, efficiencies and air quality benefits as a result

## Local Engagement and How to get Involved

We are keen for citizens to play a part in improving air quality in Leicester; the following websites provide information on various types of sustainable transport and also contain information about air quality:

Leicester 's Air Quality Action Plan:

<https://www.leicester.gov.uk/your-council/policies-plans-and-strategies/environment-and-waste/air-quality>

Leicester City Public Health

<http://www.leicester.gov.uk/health-and-social-care/public-health>

Leicester City Environmental Policy

<https://www.leicester.gov.uk/your-council/policies-plans-and-strategies/environment-and-waste/environmental-policy/>

Planning sustainable travel journeys

<http://www.choosehowyoumove.co.uk/>

Leicester Cycle City Action Plan

<https://www.leicester.gov.uk/media/179027/leicester-cycle-city-action-plan.pdf>

Consultation Hub

<https://consultations.leicester.gov.uk/>

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## 1 Local Air Quality Management

This report provides an overview of air quality in Leicester City Council 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 Leicester 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 **Error! Reference source not found.** in Appendix E.

## 2 Actions to Improve Air Quality

### 2.1 Air Quality Management Areas

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

**Amend the following as necessary:**

A summary of AQMA declared by Leicester City Council can be found in Table 2.1. Further information related to declared or revoked AQMA, including maps of AQMA boundaries are available online at <https://www.leicester.gov.uk/your-council/policies-plans-and-strategies/environment-and-sustainability/air-quality/>. Alternatively, see Appendix D: Map(s) of Monitoring Locations and AQMA, which provides for a map of air quality monitoring locations in relation to the AQMA(s).

For reference, a map of Leicester City Council 's monitoring locations is available in Appendix D.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)				Action Plan		
						At Declaration		Now		Name	Date of Publication	Link
AQMA Leicester City	Declared 2000 Amended 2007	NO <sub>2</sub> , annual mean	Leicester	Area encompassing large section of the City Centre and along a number of radial roads and sections of the ring road	NO	Glen hills Way 51.4 µg/m <sup>3</sup>	St Matthews AQ 52.1 µg/m	Glenhills Way 42.2 µg/m <sup>3</sup>	St. Matthews 38.4 µg/m	"Healthier Air for Leicester" Leicester's Air Quality Action Plan (2015-2026)	2015	<a href="http://www.leicester.gov.uk/media/180653/air-quality-action-plan.pdf">http://www.leicester.gov.uk/media/180653/air-quality-action-plan.pdf</a>

**CLICK HERE THEN PASTE COMPLETED DATA ROWS FROM EXCEL TEMPLATE**

☒ Leicester City Council confirm the information on UK-Air regarding their AQMA(s) is up to date (confirm by selecting in box)

## 2.2 Progress and Impact of Measures to address Air Quality in Leicester City Council

Defra's appraisal of last year's ASR concluded:

- The ASR report provides a significant degree of detail on progress with measures in the current action plan and monitoring. It is clearly presented and informative.
- For the first time in 20 years, the AQO is achieved at Melton Road. Compared to 2016, air quality has improved at 4 of the 6 monitoring locations. This may be due to the bus fleet renewal. Hopefully improvements will continue.
- It is clear that the focus needs to remain on the achievement of the air quality objectives. The report has stated that Leicester will be fully compliant with the annual mean NO<sub>2</sub> objective in 2020, while the Action Plan (Table 2.2) does not yet have a target date for compliance.

**Response** – Air Quality Modelling carried out for the OBC is being used to determine the target date

- It is noted that, despite current progress, the Local Authority doubts whether compliance with the EU annual mean objective for nitrogen dioxide will be achieved by 2020 and is working with Defra to develop plans for Vaughan Way, St Matthews and Glenhills Way to bring NO<sub>2</sub> compliance in the shortest time. This is supported.

**Response** – ongoing work with JAQU

- One of the 2017 AQAP measures to improve air quality was the concept of the Low Emission Zone; this has now been replaced by a Clean Air Zone which will be implemented for buses by 2021, and potentially for cars in the future. According to Table 2.2 these two measures are anticipated to provide a 20% improvement in air quality so are a priority for improving air quality within the AQMA. Progress with these measures should be reported in the next ASR.

**Response** - the update has been reported

- The progress and delivery of these measures is particularly significant, and future monitoring and assessment will be important

to determine whether the predicted impact on emissions is delivered in practice.

**Response** – additional monitoring will be installed to monitor the progress

- The small number of monitoring points does not provide a detailed picture of the range of pollution concentrations, or pollution hotspots encountered across the City.

**Response-** additional monitoring has been introduced in form of diffusion tubes, the full data will be available in 2020

- In light of this the council may wish to consider whether its current monitoring strategy is going to be adequate to assess the impact of these measures.

**Response** - new monitoring strategy has been considered and implemented in a form of 50 additional diffusion tubes located in the city area including AQMA

- LAQM TG(16) Feb 2018 states that diffusion tubes are inexpensive and many can be installed over a geographical area. The low cost per tube permits sampling at a number of points in the area of interest; which is useful in highlighting “hotspots” of high concentrations, such as alongside major roads. They are useful both for annual monitoring as well as short term monitoring projects. The Local Authority may wish to consider using diffusion tubes to target further specific measures at hotspots to improve air quality across the AQMA.

Response - new monitoring strategy has been considered and implemented in a form of 50 additional diffusion tubes located in the city area including AQMA

Leicester City Council has taken forward a number of direct measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

More detail on these measures can be found in their respective Action Plans:

“Healthier Air for Leicester” Leicester’s Air Quality Action Plan (2015-2026)..



Key completed measures are:

***Reducing Transport Emissions***

- LCC officers continue to attend the Defra Local Authority Air Quality Advisory Group
- An agreement with bus companies in Leicester was signed “Leicester Clean Air Zone for Buses Partnership Agreement” to introduce the CAZ by January 2021 based on Euro VI standard for buses
- We continue to work with the Office for Low Emission Vehicles (OLEV) to help introduce low emission taxis to Leicester
- Nineteen electric vehicles were bought for the council fleet in total: 18 electric cars and a moped
- To continue to bring electric bikes into the city council’s fleet
- Work has been ongoing to deliver an Business case to Secretary of State

***Promoting Sustainable Transport***

- To continue to deliver the Connecting Leicester walking and cycling projects
- Several programmes of walking and cycling initiatives have been delivered , including the Ride Leicester Festival, led rides, led walks, “Wheels to Work” and cycle training for children. Many of those will continue in future years.
- To continue to introduce more bus lane enforcement sites such as on London Road

***Improving Traffic Management***

- To keep introducing bus priority schemes such as bus gate cameras
- To continue to improve the city’s traffic management system and address “pinch points” on the highway network

- To continue to deliver our programme of introducing 20 mph Zones in residential areas and particularly around schools

### ***Enhancing Planning and the Environment***

- To ensure air quality considerations are embedded in Leicester's new Local Plan which is to be adopted in 2021
- Smart cities - we will work with partners to realise the full potential of smart systems and smart data within the planning and transport arena, delivering service improvements, efficiencies and air quality benefits as a result

Leicester City Council expects the following measures to be completed over the course of the next reporting year:

### ***Reducing Transport Emissions***

- To continue to lobby and work with Government to introduce national measures to reduce polluting emissions from diesel vehicles,
- To complete our feasibility study into a Clean Air Zone for Leicester as required by the Joint Air Quality Unit and to submit the OBC to Secretary of State
- To be pro-active in our response to the Government Air Quality Plan for Nitrogen Dioxide (NO<sub>2</sub>) consultation 2018 and any subsequent guidance or mandates
- To work with the Office for Low Emission Vehicles (OLEV) to help introduce low emission taxis to Leicester
- To continue to bring electric vehicles into the city council's vehicle fleet
- To run a trial of on street electric vehicle charging points
- To introduce a new Ultra-Low Emission Vehicle grant scheme for businesses
- To install solar panels with electric vehicle charging points at strategic areas of the city

- To expand network of public and private provision of electric vehicle chargers

### ***Promoting Sustainable Transport***

- To continue to deliver the Connecting Leicester walking and cycling projects
- To continue to deliver our programme of walking and cycling initiatives including the Ride Leicester Festival, led rides, led walks, and cycle training for children and adults
- To continue to develop the - OneCard smart and integrated bus ticking scheme
- To continue to develop bus priority measures on key bus routes
- To continue to introduce more bus lane enforcement site

### ***Improving Traffic Management***

- To continue to improve the city's traffic management system and address "pinch points" on the highway network
- To continue to deliver our programme of introducing 20 mph Zones in residential areas and particularly around schools

### ***Enhancing Planning and the Environment***

- To ensure air quality considerations are embedded in Leicester's new Local Plan which is to be adopted in 2021
- Smart cities - we will work with partners to realise the full potential of smart systems and smart data within the planning and transport arena, delivering service improvements, efficiencies and air quality benefits as a result

Leicester City Council's priorities for the coming year are:

The principal challenges and barriers to implementation that Leicester City Council anticipates facing are:

- Lack of resources in terms of staff and funding. These are going to be addressed by applying for various government grants including Defra's Air Quality Grant.

Leicester City Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in AQMA Leicester City.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Leicester City Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of AQMA Leicester City.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Meynell's Gorse Park and Ride	Alternatives to private vehicle use	Bus based Park & Ride	Leicester City Council and Leicestershire County Council	1995	1997	203,856	<0.1%	Implemented	1997	Passenger Journeys
2	Enderby Park and Ride	Alternatives to private vehicle use	Bus based Park & Ride	Leicester City Council and Leicestershire County Council	2005	2009	261,961	<0.1%	Implemented	2009	Passenger Journeys
3	Birstall Park and Ride	Alternatives to private vehicle use	Bus based Park & Ride	Leicester City Council and Leicestershire County Council	2009	2010	200,889	<0.1%	Implemented	2011	Passenger Journeys
4	Choose How You Move Car Share	Alternatives to private vehicle use	Car & lift sharing schemes	Leicester City Council and Leicestershire County Council	2007	2007	8,138 total members	<0.1%	8,138 registered since 2007	Ongoing	Website Liftshare.com
5	Alternatives to private vehicle use	Car Clubs	Leicester City Council and Leicestershire County Council	2015	Not set yet	Final decision to be made	<0.1%	One of the 2 established car clubs is dependent on a positive outcome of LCC ERDF for an electric vehicle. Several companies have been approached regarding establishing a city-wide car club in Leicester	Ongoing	Lack of access to electric charge points in some residential areas, currently being addressed by an electric vehicle charging point trial. Partnership working between LCC and the 3 universities,	Car Club



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										UoL, LU and DMU.	
6	A2 installations	Environmental Permits	Introduction/increase of environment charges through permit systems and economic instruments	Leicester City Council	2017	2017/18	2 permits	<0.1%	4666.00 fees	2018	
7	Options and pilot schemes to improve the efficiency in the city	Freight and Delivery Management	Delivery and Service plans	Leicester City Council	2016	2026	Delivery of the successful scheme	<0.1%	Included in AQAP as action to be delivered by 2017	2017	Funding has been secured from the ERDF to trial 2 year Eco Stars scheme for Leicester
8	Questionnaire	Freight and Delivery Management	Freight Consolidation Centre	Leicester City Council	2016	2016	High response	<0.01%	Preparation of questions	2017	The Freight Study (2017) looked at the potential role of a Freight Consolidation Centre for Leicester. It was recommended that Leicester City Council do not contribute financially. The proposal would be suitable for the private sector to take forward
9	Questionnaire	Freight and Delivery Management	Freight Partnerships for city centre deliveries	Leicester City Council	2016	2016	High response	<0.01%	Preparation of questions	2018	A questionnaire has been drafted and we are currently awaiting the cost for the delivery of a questionnaire for the freight industry. Comments have been noted and used to revise the draft.
10	Freight Quality Partnership	Freight and Delivery Management	Freight Partnerships for city centre deliveries	Leicester City Council	2000	2000	Leicester freight businesses engaged	< 0.1%	Active forum, meetings	Ongoing	Comments were sought from the FQP on the Freight Study and possible design of the questionnaire. Comments received were used to help

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											shape the design of the Freight Questionnaire
11	Pedestrian Preference zone	Freight and Delivery Management	Quiet & out of hours delivery	Leicester City Council	2006	2007	Scheme fully delivered	<0.1%	Scheme completed	2007	All deliveries in this zone have to be done before 11, successful scheme
12	Cleige-route map for lorries	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	Leicester City Council	2012	2013	Map delivered	< 0.1%	Map used by drivers	2013	Completed, map used by drivers
13	AQ considerations will be imbedded in the new Local Plan and Land use planning	Policy Guidance and Development	Air Quality Planning and Policy Guidance	Leicester City Council	2016	2016	AQ imbedded in the documents	<0.1 %	Preliminary work carried out	2020	Currently ongoing
14	AQAP	Policy Guidance and Development	Low Emissions Strategy/Clean Air Zone	Leicester City Council	2015	2016/2017	Implementation of the LES	<0.1%	AQAP adopted in 2015	2026	Various schemes to be implemented to reduce pollution, the concept of Low Emission Zone in 2017 was replaced by Clean Air Zone, which will be implemented for buses in January 2021
15	AQAP	Policy Guidance and Development	Low Emissions Strategy/ Clean Air Zone feasibility Study	Leicester City Council	May 2018	July 2018	Report delivered	10%	OBC was delivered in October 2019	OBC delivered in October 2019, further work scheduled for 2020	A set of schemes to bring the NO <sub>2</sub> compliance in a shortest possible time, the impact of the schemes is assessed by using Traffic Model and Airviro Air Quality model

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16	AQAP	Policy Guidance and Development	Low Emissions Strategy/ Freight CAZ	Leicester City Council	2018	Not set yet	Implementation of CAZ for freight vehicles	10%	Initial considerations	Not set yet	Initial considerations
17	AQAP	Policy Guidance and Development	Low Emissions Strategy/ Car based CAZ	Leicester City Council	2018	Not set yet	Implementation of CAZ for cars	10%	Initial considerations	Not set yet	Initial considerations
18	Local development plan	Policy Guidance and Development	Other policy	Leicester City Council	2015	2016	AQ imbedded in the plan	< 0.1%	Draft of the plan ready	2020	Work is being completed
19	Air Quality Forum	Policy Guidance and Development	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	Blaby District Council	N/A	N/A	Exchange of knowledge across the districts in the Leicestershire, development and adoption of best practices	< 0.1 %	Forum meetings	N/A	AQ Forum to discuss issues of pollution across Leicestershire attended by districts ,county and city representatives
20	East Midlands Air Quality network	Policy Guidance and Development	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	Public Health England East Midlands	2015	2015/16 and beyond	Delivery of joint strategies for East Midlands	< 0.1 %	Initial drafts of guidance documents	Not set	A network of air quality specialists and public health officials
21	Procurement strategy	Policy Guidance and Development	Sustainable Procurement Guidance, Social Value Charter	Leicester City Council	2014	2017	AQ included in the procurement strategy	<0.1%	New policy for procurement developed	2018	Leicester City Council
22	Sustainable Procurement Guide	Promoting Low Emission Plant	Low Emission Fuels for stationary and mobile sources in	Leicester City Council	20016	2017	Lowes emission plants	< 0.1 %	Implementation ongoing	Published 2018	Guidance is being prepared

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			Public Procurement								
23	Sustainable Procurement Guide	Promoting Low Emission Plant	Other Policy	Leicester City Council	2010	2010	Adherence to the policy	< 0.1 %	Implementation ongoing	Published 2010	
24	Procurement of 110 ULEV vehicles to replace diesel vans	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	Leicester City Council	2015	2015-2018	19 vehicles already purchased	< 0.1 %	17 EV	2020	Ongoing
25	Clean Air Zone for Buses	Promoting Low Emission Transport	CAZ	Leicester City Council	2017	2018	Agreement signed with major bus companies in Leicester	< 10 %	Agreement reached with bus companies	January 2021	The zone will include all the buses in Leicester belonging to 5 bus companies, which signed the agreement
26	Preferential location for EV at car parks	Promoting Low Emission Transport	Priority parking for LEV's	Leicester City Council	2015/2016	Not agreed yet	Planning stage	< 0.1 %	Planning	Ongoing	
27	Plugged In places - Midlands	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Leicester City Council	2012	2013	24 plugs installed	< 0.1 %	All installed	2017	Scheme completed
28	500 EV charging points	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Leicester City Council	2015/2016	2017-2019	KPI will be a % of the 500 installed plugs	< 0.1 %	Planning stage CHRIS	2020	28 charging points implemented.  Trail for on-street charging points is anticipated in 2020.  ERDF funding bid for £500k submitted in spring 2018.

## Leicester City Council

29	TUSKER – ULEV salary sacrifice for city council employees	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	Leicester City Council	2016/2017	2017	36 vehicles purchased up to date	< 0.1 %	36 vehicles delivered	Ongoing	Salary sacrifice for employees for electric cars and for the e- bikes
30	A discount on the licence fee of 40% for Euro 5 vehicles	Promoting Low Emission Transport	Taxi emission incentives	Leicester City Council	2013	2017		< 0.1 %	Discount of 40% is discontinued as Euro 5 from 1 April 2017 as the Euro 5 vehicles are now standard. Standard fee applies		Discount no longer available
31	Euro 6 vehicles the licence fee is reduced	Promoting Low Emission Transport	Taxi emission incentives	Leicester City Council	2015	2015	Increased interest	< 0.1 %	Licence fee discount of 50% for Euro 6 vehicles or ULEV from 1 April 2017. Fee is £108	Implemented	Fee is £108
32	Vehicle age policy for vehicles	Promoting Low Emission Transport	Taxi Licensing conditions	Leicester City Council	2012/2013	2013	Applies to 337 hackney carriages and 1498 private hire vehicles	< 0.1 %	Policy reviewed in 2015	Ongoing	Vehicles over 11 years old are not licenced.
33	Spot check operations on taxis which include emission tests	Promoting Low Emission Transport	Other	Leicester City Council	2000	2000	10 operations per year involving around 30 vehicles	< 0.1%	Ongoing operations	Ongoing	
34	Two vehicle tests per year which include an emission test	Promoting Low Emission Transport	Other	Leicester City Council	2000	2000	All taxis to have 2 tests per year	< 0.1 %	2011 vehicle testing brought in house to ensure consistent application of standards	Ongoing	
35	Flexible working arrangements	Promoting Travel Alternatives	Encourage / Facilitate home-working	Leicester City Council	2014	2014	LCC gives the staff the opportunity to work from home either on a	< 0.1 %	LCC staff engaged	Ongoing	



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							permanent basis or as and when there is a need due to domestic or health reasons.				
36	Business Grants	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	Leicester City Council, but delivered through Go Travel Solutions (Local Social enterprise specialised in business engagement) and also grants from JAQU	2011	2011- 2018	Deliver to at least 3 businesses	< 0.1 %	48 grants issued	Ongoing	Monitoring has shown that in businesses engaged 25% of staff living within 5 miles of their work place and who drove to work are now using sustainable travel
37	Business Travel Plans	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	Leicester City Council, but delivered through Go Travel Solutions (Local Social enterprise specialised in business engagement)	2012	2012-2017	Engaged with 60 + businesses	< 0.1 %	Engaged 553 businesses	Ongoing	Single occupancy car has dropped in the last year by 3% points from 85% to 82%
38	Statutory planning related Travel Plans secured through statutory planning conditions	Promoting Travel Alternatives as required by the NPPF.	Promoting a decrease in single occupancy vehicle usage and promoting behaviour change across organisations in the city, as per statutory planning requirements	Leicester City Council	2002	2002 – ongoing	250 businesses organisations engaged in travel plans and monitoring	< 0.1 %	More than 389 businesses actively engaged as per their planning requirements	Ongoing	On average single occupancy vehicle usage has fallen by 14.6% over a 5 year period under the auspices of a planning related Travel Plan. A total of 75,167 employees are covered by planning related Travel Plans in the city.
39	Travel Portal- Choose How You Move	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	Leicester City Council and Leicestershire County Council	2012	2014	424,574	< 0.1 %	72,798 new users 374,885-page views between March 18 and March 19	Ongoing	Continued work to refresh and update the site is being undertaken along with continued and expanded promotion of the tool to

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											businesses and communities within the Leicester and Leicestershire area.
40	Personalised Travel Planning North – West Leicester + Leicestershire	Promoting Travel Alternatives	Personalised Travel Planning	Leicester City Council and Leicestershire County Council	2016	2018/19	To engage with	< 0.1 %	2600 households participated out of 10500 involved. 23% reduction in single occupancy car journeys.	2019	2600 households participated out of 10500 involved. 23% reduction in single occupancy car journeys.
41	Wheels to work- fleet of pedal and electric bikes, which are available for loan by apprentices and other young people to get to work	Promoting Travel Alternatives	Personalised Travel Planning	Leicester City Council, Melton Borough Council and Leicestershire County Council	2014	2014-2017	60 e-bike users during 2017/18	< 0.1 %	30 users loaned e-bikes	Ongoing	The current operator, Melton Borough Council, gave notice in March to cease delivering the programme in June 2018. The electric bike and scooter element of the scheme will be delivered in house.
42	Car share	Promoting Travel Alternatives	Personalised Travel Planning	Leicester City Council and Leicestershire County Council	2010	2010- 2017	1000 new members per year	< 0.1 %	846 new members in 2017	Ongoing	6355117 car miles saved
43	Employment adviser training	Promoting Travel Alternatives	Promote use of rail and inland waterways	Leicester City Council and Job Centre Plus and another employment agencies	2012	2017-2020	Ensure ongoing training of 200 plus Work Coaches	< 0.1%	Continuous training with 200 plus employment advisors, information passed on to approximately 150 people a day	Ongoing	The training include advice on smart ticketing and sustainable travel ,so it can be passed to people who come to Job Centre Plus, Training Agencies and Employment Agencies for work advice
44	Bike It Schools Programme	Promoting Travel Alternatives	Promotion of cycling	Leicester City Council, delivered through Sustrans	2010	2010 - 2018	32,000 children engaged in 2019	< 0.1 %	Delivered in 70 schools	2017	

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45	Bike It Neighbourhood Programme	Promoting Travel Alternatives	Promotion of cycling	Leicester City Council, delivered through Sustrans	2014	2015-2017	600 adults engaged at 12 events	< 0.1 %	1794 adults engaged	Ongoing	
46	Led Rides and Festival Programme	Promoting Travel Alternatives	Promotion of cycling	Leicester City Council and British Cycling	2010	2010- ongoing	15 000 attendees at Ride Leicester Festival and 8000 plus participants on led rides per annum	< 0.1 %	15 000 attendees at Ride Leicester Festival and 3000 plus participants on led rides per annum	Ongoing	17% of participants only cycle less than 12 times per year before the event
47	Bike Parks	Promoting Travel Alternatives	Promotion of cycling	Leicester City Council	2010	2010-ongoing	Ongoing	< 0.1 %	In 2018 over 14000 cyclists used the bike park	Ongoing	In March 2018, the management of the bike Park was taken in-house. Since then the numbers parking have almost doubled.
48	Bike Maintenance training	Promoting Travel Alternatives	Promotion of cycling	Leicester City Council	2011	2011 - ongoing	Ongoing	< 0.1 %	In 2018 52 people obtained bike maintenance qualifications and 54 people received training from Future Cycles. Sustrans have however been offering 34 additional cycle maintenance training to staff in businesses and 39 to secondary school pupils and 222 primary school pupils.	Ongoing	Future Cycles trained less than in 2016 partly due to the courses being relocated to Pilot House from LAEC. Both Sustrans and Community Cycles have been offering additional cycle maintenance training to community and staff in businesses.
49	Walking programme	Promoting Travel Alternatives	Promotion of walking	Leicester City Council	2015	April 2017 – March 2018	15x walk programmes and 60x walk events	< 0.1 %	446 participants	Ongoing	
50	Walk to school programme	Promoting Travel Alternatives	School Travel Plans	Living Streets	2011	September 2012- March 2020	Engage with 50 plus schools in Leicester	< 0.1 %	76 primary schools engaged (Sept 2012-June 2019)	Funding until March 2020	In the primary schools engaged walking has gone up from 62% to 74%

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51	Sustainable Travel Challenge	Promoting Travel Alternatives	Other	Leicester City Council	2011	2011- January 2016	Total registrants 1296	< 0.1 %	Total registrants 1048 on new scheme.	Jan-16	New scheme was launched March 2018
52	Sustainable Travel Challenge	Promoting Travel Alternatives	Other	Leicester City Council	2016	2020	Total users	< 0.1 %	Workplace Challenge promoted during 2016-17 which is managed by Leicester and Leicestershire Sports Partnership, with walking and cycling added as activities. Currently 786 registered users.	2020	For the financial year 2017/18 we collaborated with the workplace challenge already existing in Leicester and Leicestershire, whilst working to procure a fit for purpose behaviour change app which will reward participants for travelling sustainably and will target 2000 employees within the bid area. The procurement is complete and ready to roll out in 2018/19. The new sustainable travel challenge, powered by Betterpoints, was launched in May 2018
53	Bus routes, cycle routes, bus time tables	Public Information	Via leaflets	Leicester City Council	Annual	Annual		< 0.1 %		January 2018	Bus Map published and available to general public
54	Leaflets promoting walking	Public Information	Via leaflets	The Ramblers Walks	2015	2015	7,500 leaflets distributed	< 0.1 %	Completed	2015/2016	
55	Leaflets promoting walking and cycling	Public Information	Via leaflets	Leicester City Council Get moving this summer	2016	2016	2000	< 0.1%	?	2019	
56	FACE—internal newsletter	Public Information	Via other mechanisms	Leicester City Council	Weekly	Weekly	Delivered to all of employees	< 0.1 %	Delivered weekly		

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57	Air Quality action Plan 2015-2016	Public Information	Via radio	Leicester City Council	2015-AQAP	2015-AQAP		< 0.1 %	Delivered as required		
58	Twitter: Leicester City Council	Public Information	Via the Internet	Leicester City Council	2015 - AQAP	2015-AQAP		< 0.1 %	Messages sent as and when required	Ongoing	Promotion of air quality issues, events and support available from the Council.
59	Facebook : Leicester City Council	Public Information	Via the Internet	Leicester City Council	2015-AQAP	2015-AQAP					
60	Leicester City website	Public Information	Via the Internet	Leicester City Council	2014	2015	Webpage active	< 0.1 %	Webpage active	Ongoing	
61	Leicester	Public Information	Via the Internet	Leicester City Council	1990	1990	Delivered to all of public	< 0.1 %	On Twitter 382 tweets, 11, 397 profile visits and 273, 160 Tweet Impressions - Now 2,977 tweets, 601 Followers as of May 2019. Over the last 28 days: 76 Tweets, 61.2K impressions, 1,538 profile visits		Both social media channels shared with Leicestershire County Council.
62	City Council AV display screen	Public Information	Other	Leicester City Council	2015-AQAP	2015-AQAP		< 0.1 %	Available daily, updated as and when	Ongoing	
63	AQAP	Traffic Management	Anti-idling campaign near schools	Leicester City Council	2015 AQAP	2018		< 0.1 %			Scheme introduced to Leicester schools
64	Bus Fleet	Traffic Management	Euro VI buses with anti-idling engine switch	Leicester City Council	2015	2016 - onwards	193 buses introduced in total	< 0.1 %	74 buses introduced	Ongoing	

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65	20mph zones	Traffic Management	Reduction of speed limits, 20mph zones	Leicester City Council	1999	1999-ONGOING	Continue to implement schemes where residents request them	< 0.1 %	63 schemes completed	Ongoing	1021 street as part of 20 mph, 214.22 km covered in Leicester
66	Bus lanes	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	Leicester City Council	First bus lane was introduced in 1973 , since then many bus lanes were implemented and the work is ongoing	Steve Warwick	Continue to implement bus lanes where there is a need	< 0.1 %	75 bus lanes implemented	Ongoing	
67	SCOOT sites	Traffic Management	UTC, Congestion management, traffic reduction	Leicester City Council	1970	1970	277 sites	< 0.1 %	277 sites	Ongoing	
68	Mova UTC System	Traffic Management	UTC, Congestion management, traffic reduction	Leicester City Council	1980	1980-ongoing	70 sites	< 0.1 %	70 sites	Ongoing	24 sites are dual, both SCOOT and Mova
69	Traffic sensitive streets	Traffic Management	Other	Leicester City Council	1991	1991- ongoing	Quarterly Network Management Scorecard reports	< 0.1 %	Regulation in place	Ongoing	Any work carried out on the city highways has to be agreed as not to impede the traffic i.e. avoidance of rush hour. Permit scheme in place.
70	Coordination of street works	Traffic Management	Other	Leicester City Council	1991	1991-ongoing	Regulations in place	<0.1 %	Regulation in place	Ongoing	
71	A46 better bus scheme to improve bus lane	Transport Planning and Infrastructure	Bus route improvements	Leicestershire County Council	2012	2013	Scheme implemented., bus journey time significantly reduced	< 0.1 %	Scheme successful, reported 15% increase in bus patronage	Completed	

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72	Cycle Lanes	Transport Planning and Infrastructure	Cycle network	Leicester City Council		Ongoing		< 0.1 %	50.1km of Off-road Path 98.4km of Cycle Lane & quiet streets (or 116.25km if you include Bus Lanes) 61.5km of Cycle Track & traffic-free streets	Ongoing	On-going implementation subject to funding
73	Bike Share Cycle hire	Transport Planning and Infrastructure	Public bike share cycle hire scheme	Leicester City Council	2016	TBC	Recommendation report	0.1%	Procurement Planning is underway for a Pilot Project in 2018	TBC	Planning is underway with stakeholders
74	New Haymarket Bus station	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	Leicester City Council	2015	2016	Opened	< 5%	Implemented	Completed	
75	Leicester North-West major transport project	Transport Planning and Infrastructure	Other	Leicester City Council and Leicestershire County Council	2014	2015-2019	Scheme being implemented in stages, stage 1 completed in June 2016	< 0.1 %	Stage 1 completed in June 2016	Stage 2 in designed, scheme to be completed in 2019	
76	Bus pinch points project	Transport Planning and Infrastructure	Other	Leicester City Council	2015	2016-2019	Reduced delays to buses at junctions and other nodes	< 0.1 %	Planning and initial design work carried out	2019	Won National Productivity Investment Fund and LEP funding for 6 pinch points to be addressed to be addressed.
77	Smart ticketing	Transport Planning and Infrastructure	Other	Leicester City Council	2011	2015	Onecard Scheme implemented	< 0.1 %	Onecard monthly ticket Weekly multi-operator smart ticketing	Ongoing	It is a part of DfT Smart Cities programme
78	Real Time Bus Passenger Information	Transport Planning and Infrastructure	Other	Leicester City Council	2012	2015	Leicester and Leicestershire included in the scheme	< 0.1 %	Scheme implemented	Implemented	It provides also details for bus operators, so they can have information about bus performance. It allows to help them plan better and for us to have more information about bus pinch points.

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79	Motorcycl e rider education	Vehicle Fleet Efficiency	Driver training and ECO driving aids	Leicester & Leicestershire Rutland road safety partnership	2016	Preliminary work, 2016	Reduction in KSI figures	< 0.1 %	Funding secured	Ongoing	Low capacity motorcycle accident reduction, training for Enhanced Rider Scheme and for CBT= novice riders or commuters scheme
80	PEMS test carried out for the Breathe I, bus retrofit project to determine NO2 reduction in tailpipe emissions	Vehicle Fleet Efficiency	Testing Vehicle Emissions	Leicester City Council	2015/2016 /2017	2015/2017	PM 10, NOx reductions and NO <sub>2</sub> reductions	< 0.1 %	All PEMS tests completed	2018	I
81	Retrofitting of buses Breathe I	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	Leicester City Council	2013	2014-2015	32 buses retrofitted	< 0.1 %	All buses retrofitted	2019	
82	Retrofitting of buses Breathe II	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	Leicester City Council	2014	2015	5 buses retrofitted	< 0.1%	All buses retrofitted	2020	
83	Retrofitting of buses Breathe III	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	Leicester City Council	2015	2016	6 buses to be retrofitted	< 0.1 %	All buses retrofitted	2021	
84	Clean Bus Technology Fund 2018	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	Leicester City Council	2017	2020	169 buses to be retrofitted	< 0.1 %	169 buses to be retrofitted	2020	

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## 2.3 PM<sub>2.5</sub> – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of PM<sub>2.5</sub> (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM<sub>2.5</sub> has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Leicester City Council is taking the following measures to address PM<sub>2.5</sub>:

- Smoke Control Area was declared for the whole of Leicester City on the 1<sup>st</sup> of June 2018
- Leicester is set to be the first UK city to study and model locally based fine particulate pollution (PM<sub>2.5</sub>). An air quality grant has been awarded to to monitor, map and make the public more aware of PM<sub>2.5</sub> and how it affects our city and our health

### ***Reducing Transport Emissions***

- To continue to lobby and work with Government to introduce national measures to reduce polluting emissions from diesel vehicles,
- To complete our feasibility study into a Clean Air Zone for Leicester as required by the Joint Air Quality Unit and to submit the OBC to Secretary of State
- To be pro-active in our response to the Government Air Quality Plan for Nitrogen Dioxide (NO<sub>2</sub>) consultation 2018 and any subsequent guidance or mandates
- To work with the Office for Low Emission Vehicles (OLEV) to help introduce low emission taxis to Leicester
- To continue to bring electric vehicles into the city council's vehicle fleet
- To run a trial of on street electric vehicle charging points
- To introduce a new Ultra-Low Emission Vehicle grant scheme for businesses
- To install solar panels with electric vehicle charging points at strategic areas of the city

- To expand network of public and private provision of electric vehicle chargers

***Promoting Sustainable Transport***

- To continue to deliver the Connecting Leicester walking and cycling projects
- To continue to deliver our programme of walking and cycling initiatives including the Ride Leicester Festival, led rides, led walks, and cycle training for children and adults
- To continue to develop the - OneCard smart and integrated bus ticking scheme
- To continue to develop bus priority measures on key bus routes
- To continue to introduce more bus lane enforcement site

***Improving Traffic Management***

- To continue to improve the city's traffic management system and address "pinch points" on the highway network
- To continue to deliver our programme of introducing 20 mph Zones in residential areas and particularly around schools

***Enhancing Planning and the Environment***

- To ensure air quality considerations are embedded in Leicester's new Local Plan which is to be adopted in 2021
- Smart cities - we will work with partners to realise the full potential of smart systems and smart data within the planning and transport arena, delivering service improvements, efficiencies and air quality benefits as a result

## 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.

Leicester City Council undertook automatic (continuous) monitoring at **five** sites during **2018**. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at <https://uk-air.defra.gov.uk/data/>

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

#### 3.1.2 Non-Automatic Monitoring Sites

**Leicester City Council** undertook non- automatic (passive) monitoring of NO<sub>2</sub> at **five** sites during **2018**. Table A.2 in Appendix A shows the details of the sites.

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

### 3.2 Individual Pollutants

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

#### 3.2.1 Nitrogen Dioxide (NO<sub>2</sub>)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO<sub>2</sub> annual mean concentrations for the past 5 years with the air quality objective of 40µg/m<sup>3</sup>.

No diffusion tubes were deployed in Leicester for monitoring of pollution levels in 2018.

Table A.4 in Appendix A compares the ratified continuous monitored NO<sub>2</sub> hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m<sup>3</sup>, not to be exceeded more than 18 times per year.

Annual mean values for NO<sub>2</sub> for 2018 at Leicester air quality automatic monitoring stations when compared with 2017 data reported in 2018 ASR show an overall decline in NO<sub>2</sub> concentrations at Glenhills Way (GW), Abbey Lane (AL), Melton Road (GW) and Vaughan Way (VW) and slight increase at St Matthews (SM) air quality monitoring station. For the second time in 20 years an air quality monitoring station at Melton Road showed annual mean NO<sub>2</sub> levels below 40µg/m<sup>3</sup>. None of the stations recorded annual mean for NO<sub>2</sub> over the 60µg/m<sup>3</sup>, there were no hourly exceedences of 200 µg/m<sup>3</sup>.

A large decrease of 7 ug/m<sup>3</sup> in annual NO<sub>2</sub> mean levels has been observed at Vaughan Way air quality station.

There was no increase in the annual mean concentration of NO<sub>2</sub> recorded at any of the automatic air quality stations of NO<sub>2</sub> levels.

The Glenhills Way Air Quality station is in the vicinity of a very busy Junction 21 of M1, which means high volumes of freight traffic contribute to high pollution levels as delivery vehicles travel from the motorway to Leicester and vice versa. The annual average daily total for junction 21 in terms of number of vehicles is around fifty thousand; three percent of those vehicles are heavy goods vehicles.

Unusually mild winters of late have been in terms of pollution a driving factor in improving the air quality. Leicester did experience some cold snaps with heavy traffic, but despite such conditions the annual average NO<sub>2</sub> levels have fallen compared to year 2017.

When compared to recorded data from 2010, where all air quality stations recorded a significant increase in pollution, the 2018 data shows a big improvement in air quality.

Fleet renewal with higher class of Euro engines and therefore less polluting, introduction of Ultra Low Emission vehicles into the fleet could be a possible explanation to such a downward trend in NO<sub>2</sub> levels in Leicester.

### 3.2.2 Particulate Matter (PM<sub>10</sub>)

#### Table A.5 – Annual Mean PM<sub>10</sub> Monitoring Results

in Appendix A compares the ratified and adjusted monitored PM<sub>10</sub> annual mean concentrations for the past 5 years with the air quality objective of 40µg/m<sup>3</sup>.

Table A.6 in Appendix A compares the ratified continuous monitored PM<sub>10</sub> daily mean concentrations for the past 5 years with the air quality objective of 50µg/m<sup>3</sup>, not to be exceeded more than 35 times per year.

PM<sub>10</sub> is monitored within Leicester but is not currently subject to an AQMA. PM<sub>10</sub> annual mean data for all sites has consistently been within objective limits for air quality. All stations are also within objectives set for the 24-hour mean.

### 3.2.3 Particulate Matter (PM<sub>2.5</sub>)

Table A.7 in Appendix A presents the ratified and adjusted monitored PM<sub>2.5</sub> annual mean concentrations for the past 5 years.

Leicester City Council does not carry out monitoring for the PM<sub>2.5</sub>. The PM<sub>2.5</sub> data has been collected by the urban background AURN located at University of Leicester on University Road since 2013. The annual mean concentrations for PM<sub>2.5</sub> have not breached the EU limit values of 25 µg/m<sup>3</sup> in the past five years. The main source of pollution in Leicester is traffic; there are no large factories or power stations situated within the city boundary or in close vicinity.

### 3.2.4 Sulphur Dioxide (SO<sub>2</sub>)

Table A.8 in Appendix A compares the ratified continuous monitored SO<sub>2</sub> concentrations for 2018 with the air quality objectives for SO<sub>2</sub>.

No monitoring of SO<sub>2</sub> has been carried out in Leicester.

## Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Inlet Height (m)
AURN University Road	University Road	Urban background	459178	302808	NO <sub>2</sub> ; PM <sub>2.5</sub>	N	Chemiluminescent; FDMS	N/A	30	3
AURN A594	AURN A 594 St Matthews way	Roadside	459361	304908	NO <sub>2</sub> ; PM <sub>10</sub>	Y	Chemiluminescent, FDMS	0	3	3
AL	Abbey Lane	Roadside	458574	306885	NO <sub>2</sub> ; PM <sub>10</sub>	Y	Chemiluminescent, BAM	0	7	2
GW	Glenhills Way	Roadside	457083	300156	NO <sub>2</sub> ; PM <sub>10</sub>	Y	Chemiluminescent, BAM	14	3	2
MR	Melton Road	Roadside	459528	306316	NO <sub>2</sub> ; PM <sub>10</sub>	Y	Chemiluminescent, BAM	0	3	2
SM	St Matthews Way	Roadside	459221	305036	NO <sub>2</sub>	Y	Chemiluminescent,	10	2	2
VW	Vaughan Way	Roadside	458507	304904	NO <sub>2</sub> ; PM <sub>10</sub>	Y	Chemiluminescent, BAM	0	3	2

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**Notes:**

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

(2) N/A if not applicable.

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

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube collocated with a Continuous Analyser?	Height (m)
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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**Notes:**

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO<sub>2</sub> Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2018 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup>				
					2014	2015	2016	2017	2018
AURN University of Leicester	Urban Background	Automatic	N/A	99	27	27	28	26	23.2
AURN A594	Roadside	Automatic	N/A	99	-	40	<b>41</b>	41	36
AL	Roadside	Automatic	N/A	98	35	36	35	33	31
GW	Roadside	Automatic	N/A	96	<b>60</b>	<b>60</b>	<b>58</b>	<b>53</b>	<b>49</b>
MR	Roadside	Automatic	N/A	99	<b>43</b>	<b>44</b>	<b>44</b>	39.66	38.7
SM	Roadside	Automatic	N/A	99	<b>45</b>	<b>42</b>	<b>43</b>	<b>43</b>	<b>41</b>
VW	Roadside	Automatic	N/A	94	<b>51</b>	<b>54</b>	<b>54</b>	<b>53</b>	<b>45</b>

**CLICK HERE THEN PASTE COMPLETED DATA ROWS FROM EXCEL TEMPLATE**

- ☐ Diffusion tube data has been bias corrected (**confirm by selecting in box**)
- ☐ Annualisation has been conducted where data capture is <75% (**confirm by selecting in box**)

**Notes:**

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

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

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

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



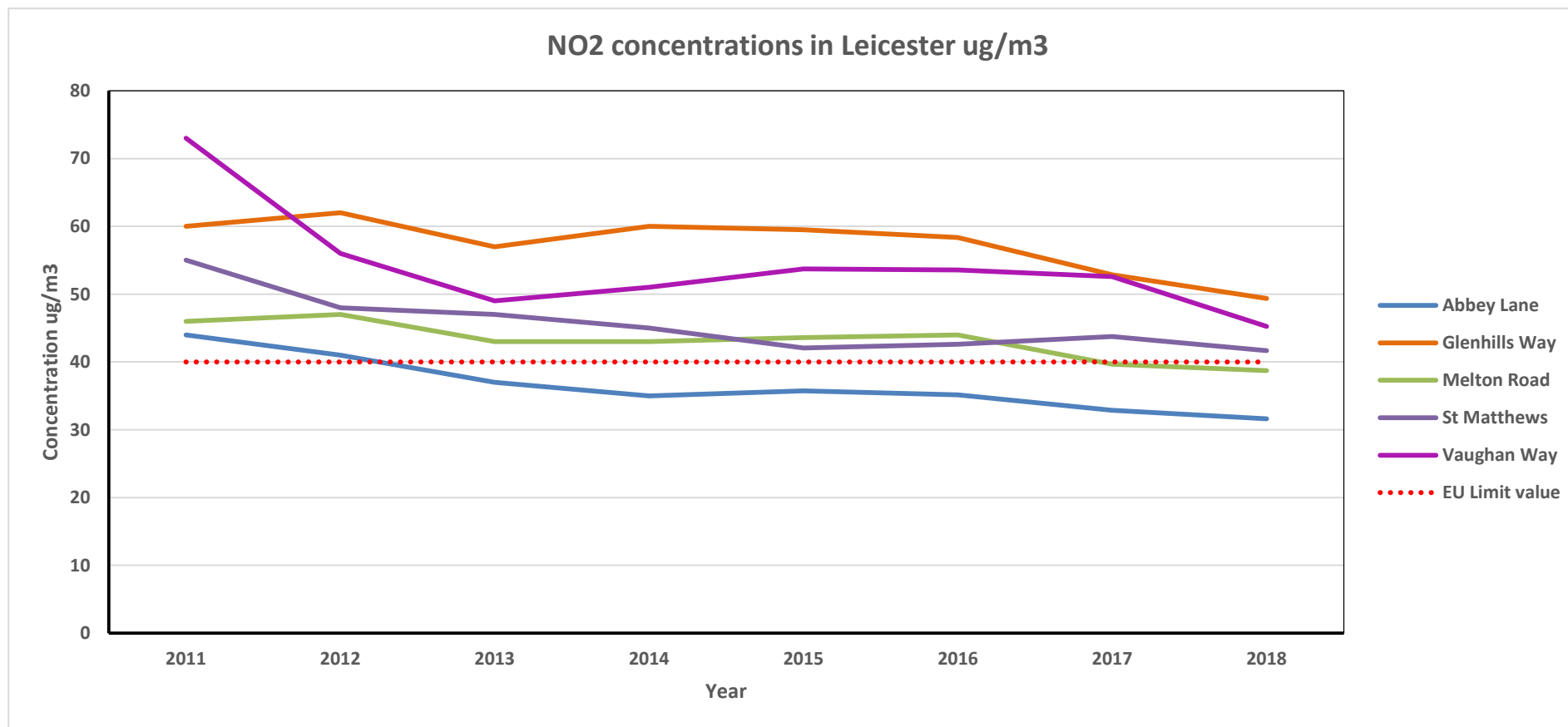
Figure A.1 – Trends in Annual Mean NO<sub>2</sub> Concentrations

Table A.4 – 1-Hour Mean NO<sub>2</sub> Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2018 (%) <sup>(2)</sup>	NO <sub>2</sub> 1-Hour Means > 200µg/m <sup>3</sup> <sup>(3)</sup>				
					2014	2015	2016	2017	2018
AURN University of Leicester	Urban Background	Automatic	N/A	99	0	0	0	0	0
AURN A594	Roadside	Automatic	N/A	99	-	0	0	0	0
AL	Roadside	Automatic	N/A	99	0	0	0	0	0
GW	Roadside	Automatic	N/A	96	0 (1 in total)	0	0	0 (1 in total)	0
MR	Roadside	Automatic	N/A	99	0	0	0	0	0
SM	Roadside	Automatic	N/A	99	0	0	0	0	0
VW	Roadside	Automatic	N/A	94	0	0	0 (1 in total)	0	0

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**Notes:**

Exceedances of the NO<sub>2</sub> 1-hour mean objective (200µg/m<sup>3</sup> not to be exceeded more than 18 times/year) are shown in **bold**.

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

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

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

**Figure A.2 – Trends in Number of NO<sub>2</sub> 1-Hour Means > 200µg/m<sup>3</sup>**

There were no instances of breaching the 200µg/m<sup>3</sup> limit value for 1 – Hour NO<sub>2</sub> means in 2018.

Table A.5 – Annual Mean PM10 Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2018 (%) <sup>(2)</sup>	PM <sub>10</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup>				
				2014	2015	2016	2017	2018
AL	Roadside	Automatic	99	21	21	13	19	21
GW	Roadside	Automatic	97	27	28	20	20	20
MR	Roadside	Automatic	97	23	22	17	20	19
VW	Roadside	Automatic	99	23	22	20	20	22

**Notes:**

Exceedances of the PM<sub>10</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

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

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

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

### Figure A.3 – Trends in Annual Mean PM<sub>10</sub> Concentrations

In 2018 the air quality network of monitoring stations in Leicester has recorded the lowest pollution levels on record in twenty years of monitoring of pollution in Leicester.

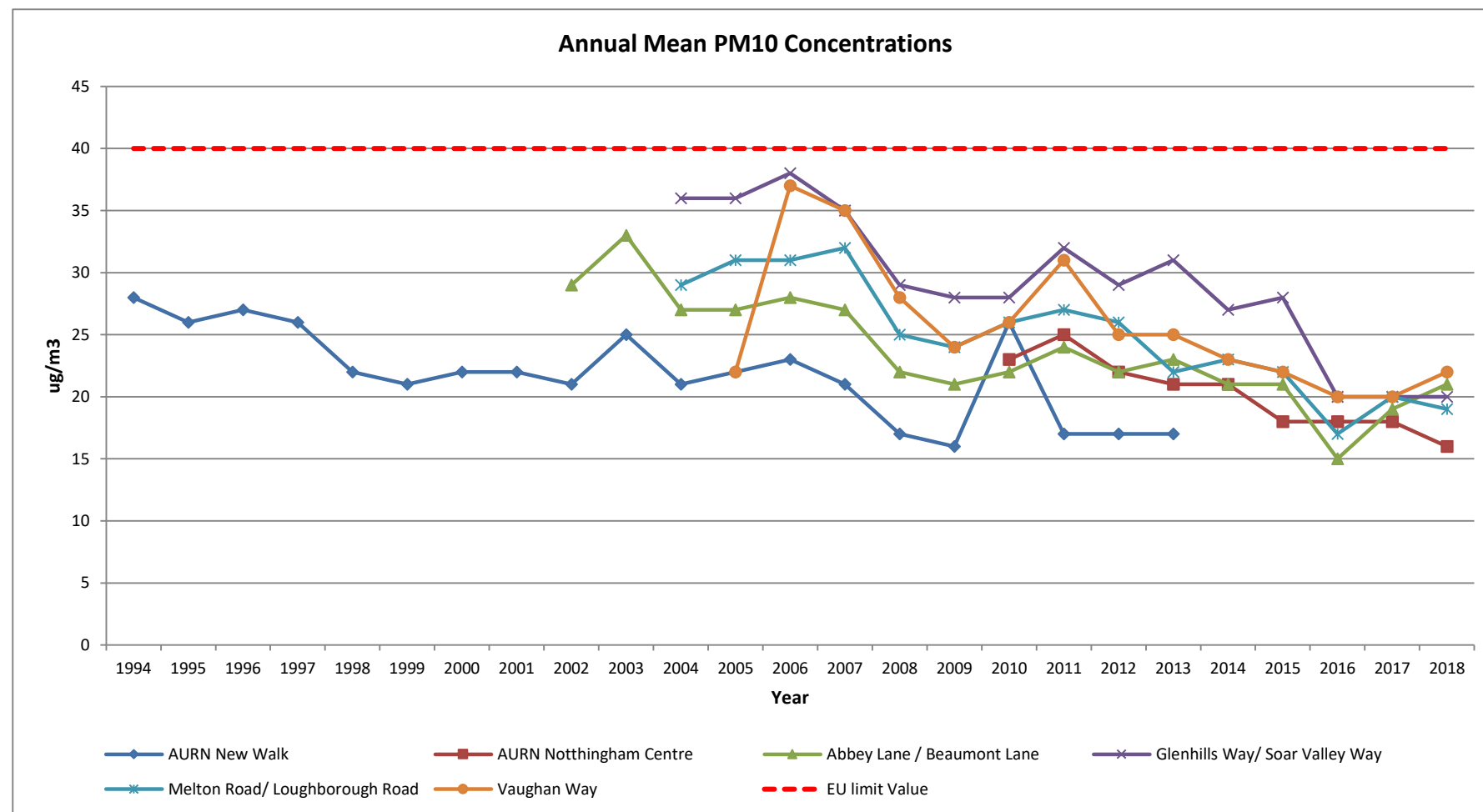


Table A.6 – 24-Hour Mean PM<sub>10</sub> Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2018 (%) <sup>(2)</sup>	PM <sub>10</sub> 24-Hour Means > 50µg/m <sup>3</sup> <sup>(3)</sup>				
				2014	2015	2016	2017	2018
AL	Roadside	N/A	99	0 (8 in total)	0 (8 in total)	0	0 (5 in total)	0 (3 in total)
GW	Roadside	N/A	97	0 (17 in total)	0 (9 in total)	0 (4 in total)	0 (2 in total)	0 (1 in total)
MR	Roadside	N/A	97	0 (4 in total)	0 (10 in total)	0	0 (2 in total)	0 (3 in total)
VW	Roadside	N/A	99	0 (7 in total)	0 (8 in total)	0 (1 in total)	0 (1 in total)	0 (3 in total)

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**Notes:**

Exceedances of the PM<sub>10</sub> 24-hour mean objective (50µg/m<sup>3</sup> not to be exceeded more than 35 times/year) are shown in **bold**.

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

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

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

**Figure A.4 – Trends in Number of 24-Hour Mean PM<sub>10</sub> Results >50µg/m<sup>3</sup>**

All stations are within objectives set for the 24-hour mean.

Table A.7 – PM<sub>2.5</sub> Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	PM <sub>2.5</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup>					
				2014	2015	2016	2017	2018	2019
AURN University of Leicester	Urban Background	N/A	98	12	13	12	11.5	11	10.4

**CLICK HERE THEN PASTE COMPLETED DATA ROWS FROM EXCEL TEMPLATE**

☐ **Annualisation has been conducted where data capture is <75% (confirm by selecting in box)**

**Notes:**

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

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

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



**Figure A.5 – Trends in Annual Mean PM<sub>2.5</sub> Concentrations**

No exceedances were recorded of annual mean.

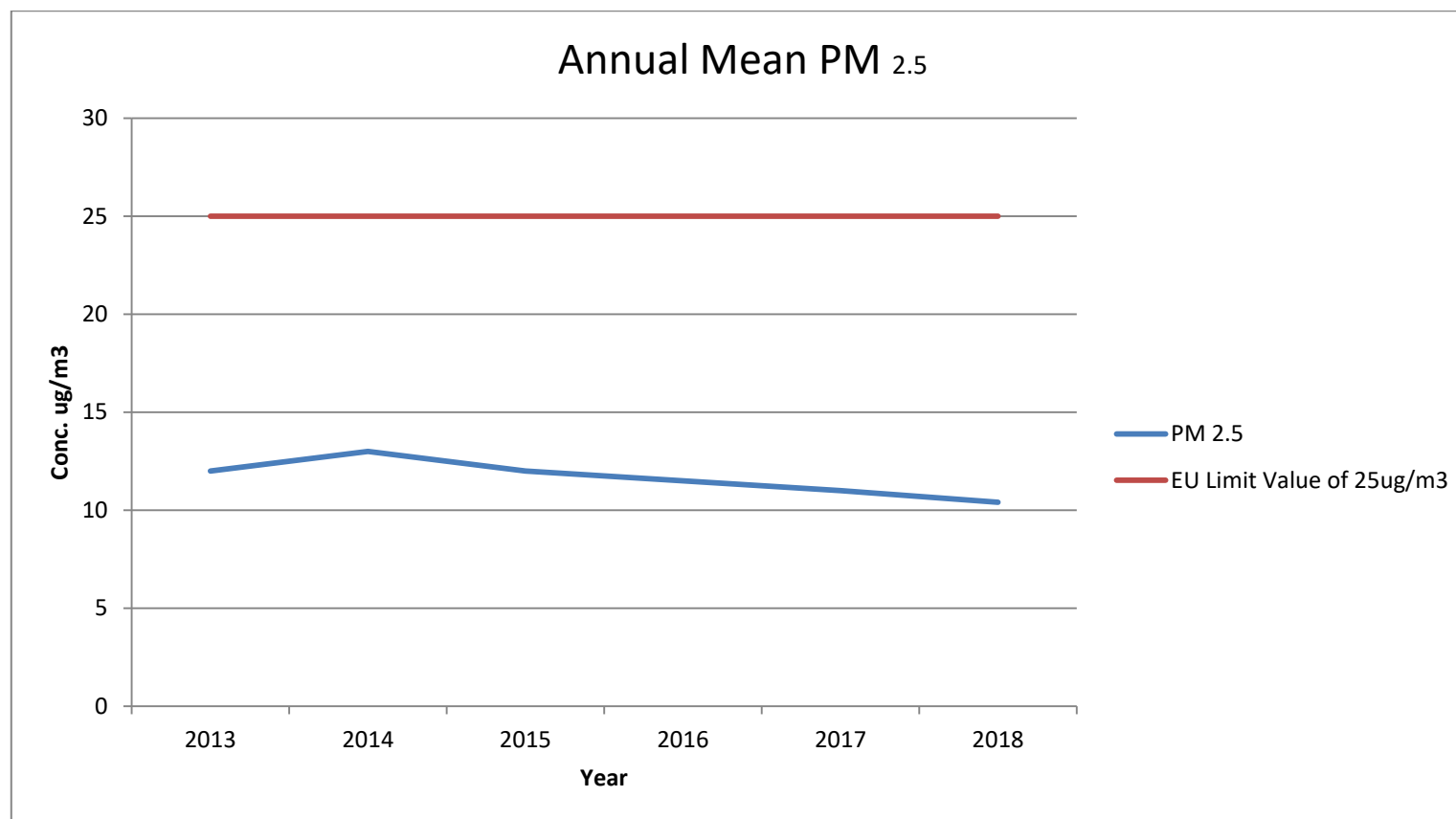


Table A.8 – SO<sub>2</sub> Monitoring Results

Site ID	Site Type	Valid Data Capture for monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2018 (%) <sup>(2)</sup>	Number of Exceedances 2018 (percentile in bracket) <sup>(3)</sup>		
				15-minute Objective (266 µg/m <sup>3</sup> )	1-hour Objective (350 µg/m <sup>3</sup> )	24-hour Objective (125 µg/m <sup>3</sup> )
N/A	N/A	N/A	N/A	N/A	N/A	N/A

**CLICK HERE THEN PASTE COMPLETED DATA ROWS FROM EXCEL TEMPLATE**

**Notes:**

Exceedances of the SO<sub>2</sub> objectives are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed a year)

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

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

(3) If the period of valid data is less than 85%, the relevant percentiles are provided in brackets.

**Figure A.6 – Trends in SO<sub>2</sub> Concentrations**

N/A

## Appendix B: Full Monthly Diffusion Tube Results for 2018

Table B.1 – NO<sub>2</sub> Monthly Diffusion Tube Results - 2018

Site ID	NO <sub>2</sub> Mean Concentrations (µg/m³)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (factor) and Annualised <sup>(1)</sup>	Distance Corrected to Nearest Exposure <sup>(2)</sup>
N/A	N/A	42.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**CLICK HERE THEN PASTE COMPLETED DATA ROWS FROM EXCEL TEMPLATE**

- ☐ Local bias adjustment factor used (confirm by selecting in box)
- ☐ National bias adjustment factor used (confirm by selecting in box)
- ☐ Annualisation has been conducted where data capture is <75% (confirm by selecting in box)
- ☐ Where applicable, data has been distance corrected for relevant exposure (confirm by selecting in box)

### Notes:

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

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

(2) Distance corrected to nearest relevant public exposure.

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

### Links to air quality data and AQAP:

- 1) "Healthier Air for Leicester" Leicester's Air Quality Action Plan (2015-2026)

<https://www.leicester.gov.uk/media/180653/air-quality-action-plan.pdf>

- 2) Nitrogen dioxide hourly mean summary table 1994-2017

<https://www.leicester.gov.uk/media/179304/nitrogen-dioxide-hourly-mean-summary-table-1994-2017.pdf>

- 3) Nitrogen dioxide annual mean summary table 1994-2017

<https://www.leicester.gov.uk/media/179307/nitrogen-dioxide-annual-mean-summary-table-1994-2017.pdf>

- 4) PM<sub>10</sub> 24hr mean summary table 1994-2017

<https://www.leicester.gov.uk/media/179305/pm10-24-hour-mean-summary-table-1994-2017.pdf>

- 5) PM<sub>10</sub> annual mean summary table 1994-2017

<https://www.leicester.gov.uk/media/179306/pm10-annual-mean-summary-table-1994-2017.pdf>

### Predicted NO<sub>2</sub> annual mean concentrations at nearest relevant public exposure

#### A) Glenhills Way

Site	Annual NO <sub>2</sub> mean concentrations (µg/m <sup>3</sup> )		
	2016	2017	2018
AURN (urban background) University Road	28	26	23
Glenhills Way	<b>58</b>	<b>53</b>	<b>49</b>
Nearest relevant public exposure	<b>46.0</b>	<b>42.2</b>	38.6

## A) Matthews Way

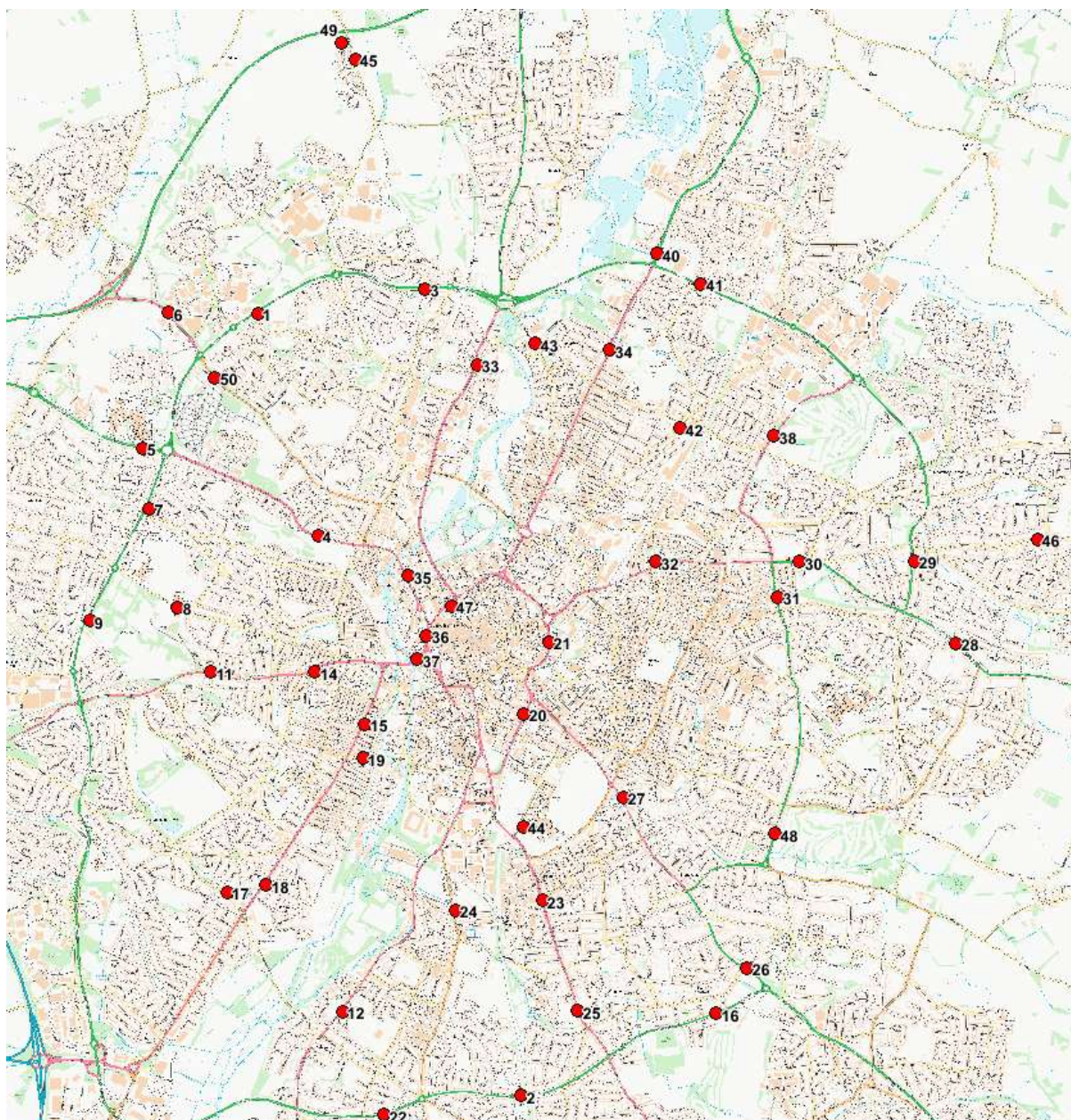
Site	Annual NO <sub>2</sub> mean concentrations (µg/m <sup>3</sup> )		
	2016	2017	2018
AURN (urban background)University Road	28	26	23
St. Matthews Way	<b>43</b>	<b>44</b>	<b>41</b>
Nearest relevant public exposure	<b>37.3</b>	<b>38.4</b>	<b>34.2</b>

**Data Capture of air quality stations**

The data capture for all of the automatic air quality stations have been recorded as over 90% at all of the stations. It is within the limits set out by the Defra's Technical Guidance 2016 TG16. There were no major breakdowns of any of the stations recorded. Data capture and calibration has been carried out according to the Technical Guidance TG 16.

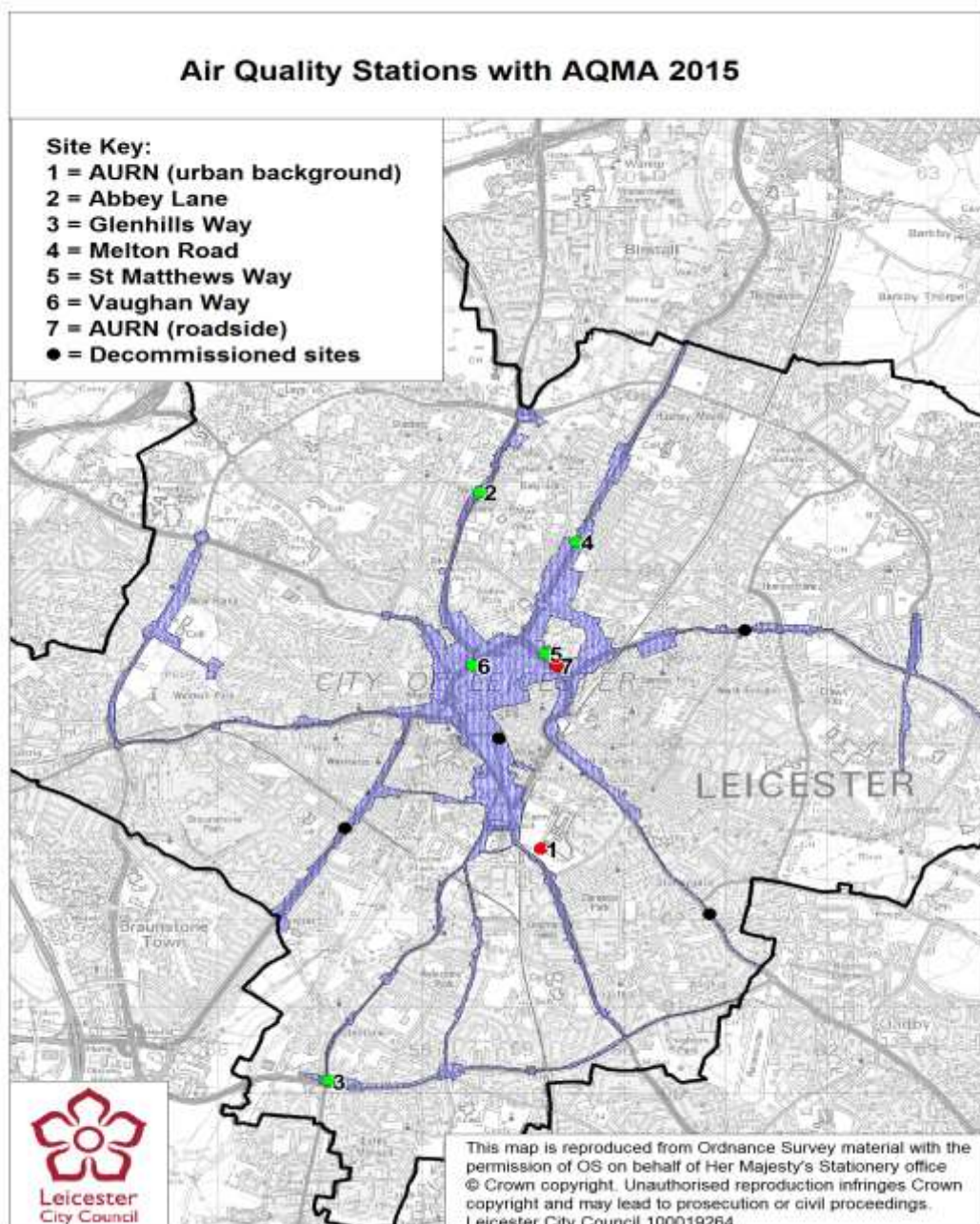


Sites for diffusion tubes in Leicester to expand an air quality monitoring network, data will be available in 2020 ASR.





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





## Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective <sup>4</sup>	
	Concentration	Measured as
Nitrogen Dioxide (NO <sub>2</sub> )	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m <sup>3</sup>	Annual mean
Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m <sup>3</sup>	Annual mean
Sulphur Dioxide (SO <sub>2</sub> )	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean

<sup>4</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).

## Glossary of Terms

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

## References

- 1) <http://www.leicester.gov.uk/health-and-social-care/public-health>
- 2) <https://www.leicester.gov.uk/your-council/policies-plans-and-strategies/environment-and-waste/environmental-policy/>
- 3) <https://www.leicester.gov.uk/media/180653/air-quality-action-plan.pdf>