2016 Air Quality Annual Status Report (ASR)

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

June 2016

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Executive Summary: Air Quality in Our Area

Air Quality in Knowsley

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

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

Local monitoring data, the planning system, traffic information and control of industries by Environmental Permits have been utilised so that there is a continuing examination of the local air quality to ensure that all Air Quality Objectives set by the Government are met.

Previous Updating and Screening Assessments have been undertaken and all the pollutants included for the purpose of Local Air Quality Management were reassessed individually and the outcome of these reviews was that none of the Air Quality Objectives were predicted to be exceeded by the due dates and that a Detailed Assessment was not required.

The Council's background urban air quality monitoring site (2008–2015) indicates a stable level of pollutants and based on the findings of the most recent Updating and Screening Assessment, Knowsley Council has found that the levels of nitrogen dioxide and particulates (PM_{10}) do not exceed the specific Air Quality Objectives. No AQMA's have been declared in Knowsley.

The main sources of air pollution in Knowsley, as identified from previous air quality review and assessments and the work carried out in the Merseyside Atmospheric Emissions Inventory are from road traffic vehicle emissions and from industrial sources. Knowsley is home to a wide range of industrial and commercial developments and is an important location for employment in the Liverpool City

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

Region and a major source of workers for the area. The borough has a large industrial base concentrated mainly on Knowsley Business Park in Kirkby, the Huyton, Kings and Prescot Business Parks, as well as the Jaguar Land Rover car plant in Halewood.

Neighbouring Authorities also house large industries that can have an impact on the air quality of Knowsley. For example, Fiddlers Ferry power station in Warrington lies to the south of the borough and the Shell oil refinery and petro-chemical complex in Ellesmere Port lie to the south west of Knowsley as well as major glass manufacturing sites in St Helens.

Traffic movements within the borough also play a significant role when considering air quality. Knowsley has a variety of road communication links. The M57 is the 'backbone' of the Borough, running North West to South East. The M62 and A580 (East Lancashire Road) link with the M57 and cut through the Borough East to West. The southerly extension to the M57 has been given the Route Number A5300. The motorway and main A-roads are connected via a network of smaller roads which link the many towns in Knowsley.

Knowsley Council continues to work with neighbouring authorities, Merseytravel, Environment Agency and other partners to improve air quality within the borough

Actions to Improve Air Quality

Key actions taken to improve Air Quality in Knowsley in 2015 include;

- Public Health funding has been secured for two new automatic monitoring sites in Huyton and Halewood to monitor nitrogen dioxide and particulates ($PM_{2.5}$ & PM_{10}). These were installed in April 2016.
- Construction of a new free flow slip road from the A5300 to A562 Eastbound near Halewood has been completed to improve traffic flow and reduce congestion.
- The use of two fully electric vans (Nissan NV-200) is currently being piloted within the Councils fleet.
- The installation of LED street lighting on key roads in the vicinity of Knowsley Business Park. As LED equipment has less maintenance requirements, this will reduce traffic congestion caused by maintenance activity.

- The varying street lighting output levels, using remote monitoring technology (CMS) and also the de-illumination of a section of the M62 for which the Council is responsible.
- The distribution of pollution alerts via print and online media and issuing advice and guidance to residents regarding potential health risks.

Local Priorities and Challenges

The priority for Knowsley in 2016 will be collecting and assessing the air quality data from the newly installed automatic monitoring stations. As these stations are in new locations, the data from the first year will provide a valuable indicator of air quality in the local area and establish a baseline for future assessments. Knowsley Council faces significant budget cuts from central government and continuing to provide projects and services related to monitoring and improving air quality will be a major challenge.

How to Get Involved

The public can help improve air quality in Knowsley by:

- Reducing the use of cars by, walking, cycling, car-sharing or using public transport instead.
- Considering electric or hybrid vehicles when buying a new car.
- Not leaving vehicles idling. Turn off the engine instead and use the stop start technology in newer vehicles where available.
- Not burning waste on bonfires or wood burners. Dispose of household waste using the waste collection service or compost garden waste instead.
- Use the Energy Savings Trust website (www.energysavingtrust.org.uk) for advice on saving energy in the home and business.

Further information and live air quality information from Knowsley Council's automatic monitoring site is available from our website:

http://www.knowsley.gov.uk/residents/bins-waste-and-environment/air-quality

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1 Local Air Quality Management

This report provides an overview of air quality in Knowsley during 2015. 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 Knowsley MBC 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 D.1 in Appendix D.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMA's) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of the objectives. Knowsley MBC does not currently have any AQMA's.

2.2 Progress and Impact of Measures to address Air Quality in Knowsley

Knowsley Council has taken forward a number of measures during the current reporting year of 2015 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out below. More detail on these measures can be found in the following documents;

- Joint Strategic Needs Assessment (Environment)

This report has been prepared jointly by Knowsley Council and Knowsley Clinical Commissioning Group (CCG) and it is one of a series of reports that contributes to Knowsley's Joint Strategic Needs Assessment (JSNA). Its purpose is to provide an analysis of the environment and related issues in order to address questions such as:

- How much impact do these issues have on local people?
- Can this impact be reduced through local action?
- Can local action reduce health inequalities?
- Will local action on this help address other issues too?

This report, along with others produced as part of the JSNA, will be used to inform strategies and plans produced by the Council and its partners. In particular, the JSNA meets the statutory responsibility that the Council and CCG share to study the needs of local people in order to inform the development of a Joint Health and Wellbeing Strategy. The JSNA is also the main source of intelligence used to develop the Knowsley Partnership's 'Strategy for Knowsley'.

- The Sustainable Transport Enhancements Package

The Sustainable Transport Enhancements Package (STEP) is a package of sustainable transport infrastructure measures integral to the Liverpool City Region (LCR) Growth Plan and Strategic Economic Plan (SEP), Although in its infancy, investment in STEP will be shaped around four

interrelated strategic packages of works, which align with those set out in the SEP Investment Pipeline for the City Region as follows;

- Transport Investment for Growth;
- Sustainable Access to Employment and Opportunity;
- Transport and Low Carbon Opportunities; and
- Travel for the Visitor Economy.

Investment will be directed into seven Growth Zones, which align with the key areas for investment and development across the City Region, based on the growth sites identified in the SEP. The Environmental impact Assessment concludes there will be a likely slight beneficial impact on local and regional air quality as a result of the scheme.

Key completed measures to improve air quality in Knowsley are;

- Public Health funding has been secured for two new automatic monitoring sites in Huyton and Halewood to monitor nitrogen dioxide and particulates ($PM_{2.5}$ & PM_{10}). These were installed in April 2016.
- Construction of a new free flow slip road from the A5300 to A562 Eastbound near Halewood has been completed to improve traffic flow and reduce congestion.
- The use of two fully electric vans (Nissan NV-200) is currently being piloted within the Council's fleet.
- The installation of LED street lighting on key roads in the vicinity of Knowsley Business Park. As LED equipment has less maintenance requirements, this will reduce traffic congestion caused by maintenance activity.
- The varying street lighting output levels, using remote monitoring technology (CMS) and also the de-illumination a section of the M62 for which the Council is responsible.
- The distribution of pollution alerts via print and online media and issuing advice and guidance to residents regarding potential health risks.

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

- Collecting and assessing air quality data from the new automatic monitoring stations. As these stations are in new locations, the data from the first year will provide a valuable indicator of air quality in the local area and establish a baseline for future assessments.
- The production of the Annual Status Report 2017
- Construction of a new free flow slip road from the A562 to the A5300 near Halewood to improve traffic flow and reduce congestion.
- Construction of junction improvements to introduce two previously banned right turn movements at the junction of Moorgate Road and A580 to improve traffic flow and reduce congestion.
- Two electrical charge points will be installed at Stretton Way Depot for the Council's new electric fleet vehicles and three charge points will be installed near to the Huyton Municipal Area for Council pool vehicles.
- The feasibility of installing charge points for electric vehicles for public use will be explored. This is to encourage clean vehicle use and therefore improve air quality.
- Continuation of the programme of installing LED street lighting in the Borough
- Provision of additional shared use facilities to support walking and cycling in Knowsley as part of infrastructure improvements through STEP.

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

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

Knowsley Council is taking the following measures to address $PM_{2.5}$:

- Monitoring of $PM_{2.5}$ at two new air quality monitoring stations has begun and we will continue to monitor $PM_{2.5}$ at our existing station. The data will first be reported in the Annual Status Report 2017 and will form a baseline for any future targets and identify any problem areas.

- Identify developments that could increase $PM_{2.5}$ levels though the planning regime and Environmental Permitting and where necessary use conditions or enforcement to secure improvements. $PM_{2.5}$ will be a key focus for new planning applications and Environmental Permitting.

- Identify existing measures already in place that can help with reducing levels of $PM_{2.5}$

- The Public Health Outcome Framework for $PM_{2.5}$ is considered as part of Knowsley's JSNA Report. This outcome indicator is the percentage of all-cause death in adults over 30 attributed to small (<2.5 µm) particulate, man-made air pollution. It is a modelled estimate based on the relative risk incurred per 10 $\mu g/m^3$ increase above local average background levels. The attributable fraction in England is 5.4%, whilst for the North West as a whole this is lower, at 4.6%. In Knowsley the attributable fraction is 4.8%.

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

3.1 Summary of Monitoring Undertaken

In 2015 monitoring has been carried out at Knowsley Council's automatic monitoring site on Briery Hey Avenue in Kirkby. Nitrogen dioxide, PM_{10} and $PM_{2.5}$ have been monitored and assessed and there have been no exceedances of National or EU Limit Values.

In April 2016, monitoring commenced at two additional sites in Huyton and Halewood in order to make provision for Knowsley Council to carry out a more detailed evaluation of the effect of Air Quality on the health of residents. The results will reported in the Annual Status Report 2017

Table 3.1 - Details of New Automatic Monitoring Sites

Site Name	Type	Location	X and Y OS Grid Ref	Pollutants Monitored	In AQMA?
Huyton	Roadside	Jct of Cronton Road and Whitefield Lane	X345552 Y389413	NO_x PM10 (TEOM) PM2.5 (TEOM)	Not in AQMA
Halewood	Roadside	Jct of Higher Road and Old Hutte Lane	X345213 Y384691	NO_x PM10 (TEOM) PM2.5 (TEOM)	Not in AQMA

3.1.1 Automatic Monitoring Sites

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

Knowsley Council undertook automatic (continuous) monitoring at one site during 2015. Table A.1 in Appendix A shows the details of the site.

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

3.1.2 Non-Automatic Monitoring Sites

Knowsley Council has not undertaken non-automatic (passive) monitoring of NO_2 2015.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for "annualisation" and bias. Further details on adjustments are provided in Appendix B.

3.2.1 Nitrogen Dioxide (NO_2)

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

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. No exceedances of air quality objective were recorded.

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.

No exceedances of the air quality objectives were recorded

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.7 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past year.

The recorded annual mean concentration of $PM_{2.5}$ is 6.8 µg/m^3. Although there is no air quality objective for the England, it is noted that this level is low compared to the Scottish Air Quality Objective (10 µg/m^3) and EU Air Quality standards (25 µg/m^3). This data will be used alongside data from the new automatic monitoring sites to provide a baseline for future Annual Status Reports.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
Site 1	Briery Hey Northwood	Urban background	X 341774	Y 398802	NO_x PM10 PM2.5	N	Chemiluminescent; BAM.	Y (35m)	16m	2.5m

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

(2) N/A if not applicable.

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

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

(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_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2015 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)				
					2011	2012	2013	2014	2015
Site 1	Urban background	Automatic	99.6	99.6	18	20.3	21	26.9	18.7

Notes: Exceedances of the NO_2 annual mean objective of 40$\mu g/m^3$ are shown in **bold**.

NO_2 annual means exceeding 60$\mu g/m^3$, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

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

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

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

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

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2015 (%) (2)	NO_2 1-Hour Means > 200µg/m^3 (3)				
					2011	2012	2013	2014	2015
Site 1	Urban background	Automatic	99.6	99.6	0	0	0	0 (112.2 µg/m^3)	0

Notes: Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold.**

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

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

(3) If the period of valid data is less than 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	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2015 (%) (2)	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3)				
				2011	2012	2013	2014	2015
Site 1	Urban background	74.2	74.2	24	23	25	18	16.5

Notes: Exceedances of the PM_{10} annual mean objective of 40$\mu g/m^3$ 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 Technical Guidance LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix B for details.

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

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2015 (%) (2)	PM_{10} 24-Hour Means > 50µg/m^3 (3)				
				2011	2012	2013	2014	2015
Site 1	Urban background	74.2	74.2	18	14	8	4 (30.8 µg/m^3)	0 (26)

Notes: Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 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 90%, the 90.4th percentile of 24-hour means is provided in brackets.

Table A.7 – $PM_{2.5}$ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2015 (%) (2)	$PM_{2.5}$ Annual Mean Concentration ($\mu g/m^3$) (3)				
				2011	2012	2013	2014	2015
Site 1	Urban background	78.4	78.4	N/A	N/A	N/A	N/A	6.8

(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 Technical Guidance LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix B for details.

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

B.1 Significant changes to sources

The following sources have been identified as part of the planning regime as being new sources of pollution in 2015.

Planning Reference: 15/00156/FUL

Address: Land opposite 33 – 53, Delph Lane, Prescot, Knowsley

Proposal: Change of use of existing area of hardstanding to provide additional temporary parking facility (231 spaces) for hospital together with reinstatement of vehicular access point from Delph Lane together with installation of 2 metre high gate and fencing to entrance

Note: A condition has been placed on the planning permission requiring the production of a report of the impact on air quality and any mitigation measures. To date this condition has not been discharged.

Planning Reference: 15/00417/OUT

Address: Knowsley 700, Former Sonae Site, Moss Lane, Kirkby, Knowsley, L33 7XQ

Proposal: Outline application for the erection of up to 74,322 Sq. M of B1/B2/B8 floor space - approval sought for Access only at this stage, (appearance, landscaping, layout and scale to be reserved for future Approval).

Note: A condition has been placed on the planning permission requiring the production of a report of the impact on air quality and any mitigation measures. To date this condition has not been discharged.

Planning Reference: 15/00595/FUL

Address: Land at Marl Road, Knowsley Industrial Park, Kirkby, Knowsley

Proposal: Construction of an electricity generation plant comprising of a maximum of 14no generators sited within individual sound proof containers together with associated development.

Note: An air quality report was submitted with the application and reviewed prior to determination of the planning application. The report used a detailed AERMOD dispersion model and worst case scenarios and concluded that the development is highly unlikely to lead to a breach in DEFRA Air Quality objections. The report was approved by the Local Planning Authority and planning permission was granted with a condition requiring the plant is run in accordance with the assumptions made in the report.

Knowsley Metropolitan Borough Council has identified no new significant 'Road Traffic Sources" or other transportation sources in 2015.

B.2 QA/QC of monitoring data

The Kirkby station uses Beta Attenuation Monitors (BAM) to monitor particles matter.. As per TG16 the BAM meets the equivalence criteria for monitoring providing the results are corrected for slope. The data in this report has had the correction factor applied so it can be compared to the National Air Quality Objectives.

Conversion factors for ppb to µg/m3

Conversion rates at 20°C and 101.3kPa:

- NO_2

1.91 x ppb = µg/m_3

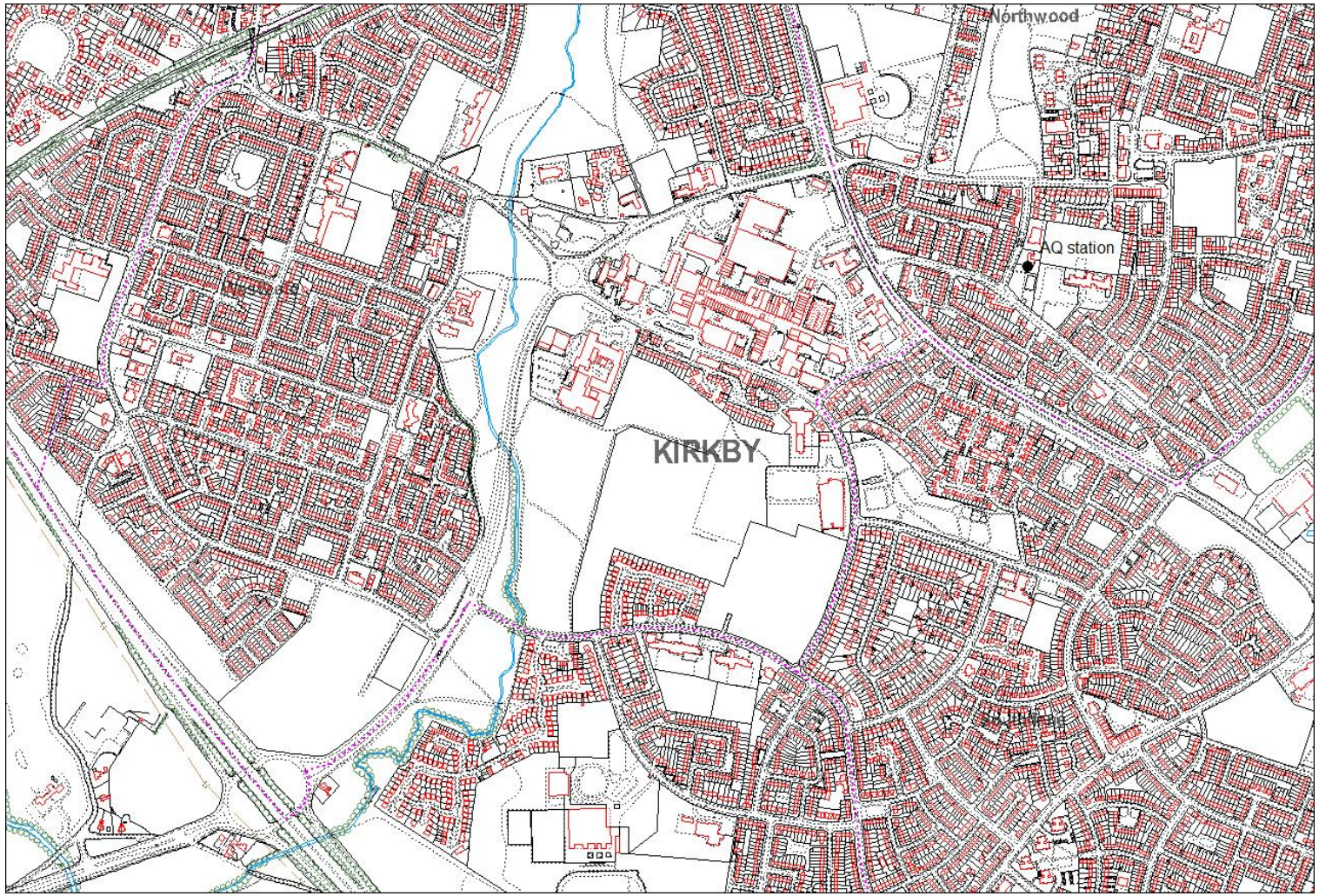
Annualisation of data for Particulate Matter <10 µm

Site	Site Type	Annual Mean (µg/m^3)	Period Mean (µg/m^3)	Ratio
Speke	AURN	13.94	14.06	0.991
Warrington	AURN	15.39	15.32	1.004
Salford Eccles	AURN	17.68	17.67	1.001
			Average	0.999

Kirkby Site period mean = 16.5 µg/m^3

Kirkby Site Annual Mean= 16.5 x 0.999 = 16.48 µg/m^3

Appendix C: Map(s) of Monitoring Locations



Appendix D: Summary of Air Quality Objectives in England

Table D.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[4]	
	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

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
BAM	Beta Attenuation Monitoring
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
JSNA	Joint Strategic Needs Assessment
LAQM	Local Air Quality Management
LCR	Liverpool City Region
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

- DEFRA (2016) *Local Air Quality Management, Technical Guidance LAQM. TG(16)*
- Knowsley Council (2016) *Joint Strategic Needs Assessment Report (Environment)*
- Liverpool City Region Combined Authority (2015) *Sustainable Transport Enhancements Package*. http://www.merseytravel.gov.uk/about-us/local-transport-delivery/Pages/STEP.aspx
- We Care for Air (2016) *Air Quality Monitoring Station Report for Knowsley Council, Air Quality Monitoring Station at Kirkby 2015 Annual Report*