

# Health Scrutiny Sub-Committee

Tuesday 20 November 2018

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A meeting of the above Sub-Committee will be held at the Town Hall, Royal Leamington Spa on Tuesday 20 November 2018 at 6.00pm.

## Membership:

|                     |                            |
|---------------------|----------------------------|
|                     | Councillor Parkins (Chair) |
| Councillor Bromley  | Councillor Mrs Redford     |
| Councillor Mrs Falp |                            |

## Emergency Procedure

At the commencement of the meeting, the Chairman will announce the emergency procedure for the Town Hall.

## Agenda

### 1. Apologies and Substitutes

- (a) to receive apologies for absence from any Councillor who is unable to attend; and
- (b) to receive the name of any Councillor who is to act as a substitute, notice of which has been given to the Chief Executive, together with the name of the Councillor for whom they are acting.

### 2. Declarations of Interest

Members to declare the existence and nature of interests in items on the agenda in accordance with the adopted Code of Conduct.

Declarations should be entered on the form to be circulated with the attendance sheet and declared during this item. However, the existence and nature of any interest that subsequently becomes apparent during the course of the meeting must be disclosed immediately. If the interest is not registered, Members must notify the Monitoring Officer of the interest within 28 days.

Members are also reminded of the need to declare predetermination on any matter.

If Members are unsure about whether or not they have an interest, or about its nature, they are strongly advised to seek advice from officers prior to the meeting.

### 3. Minutes

To confirm the minutes of the Health Scrutiny Sub-Committee meeting held on 3 July 2018. **(Pages 1 to 4)**

4. **Joint Strategic Needs Assessment Update**

To consider a report from Health & Community Protection. **(Pages 1 to 6)**

5. **Annual Status Report – Air Quality Management**

To consider a report from Health & Community Protection. **(Pages 1 to 87)**

6. **Health & Wellbeing Outside Bodies Updates (Standing Agenda Item)**

To receive updates from Councillor Mrs Redford and Councillor Thompson in respect of the WCC Adult Social Care & Health Overview & Scrutiny Committee and the WCC Health & Wellbeing Board.

7. **Review of the Work Programme & Forward Plan**

To consider a report from Democratic Services **(Pages 1 to 5)**

Published on 12 November 2018

General Enquiries: Please contact Warwick District Council, Riverside House, Milverton Hill, Royal Leamington Spa, Warwickshire, CV32 5HZ.

Telephone: 01926 456114

E-Mail: [committee@warwickdc.gov.uk](mailto:committee@warwickdc.gov.uk)

Enquiries about specific reports: Please contact the officers named in the reports.

You can e-mail the members of the this Sub-Committee at

[HealthScrutinySC@warwickdc.gov.uk](mailto:HealthScrutinySC@warwickdc.gov.uk)

Details of all the Council's committees, councillors and agenda papers are available via our website [www.warwickdc.gov.uk/committees](http://www.warwickdc.gov.uk/committees)

**Please note that the majority of the meetings are held on the first floor at the Town Hall. If you feel that this may restrict you attending this meeting, please call (01926) 456114 prior to this meeting, so that we can assist you and make any necessary arrangements to help you attend the meeting.**

**The agenda is also available in large print, on request, prior to the meeting by calling 01926 456114.**

# Health Scrutiny Sub-Committee

Minutes of the meeting held on Tuesday 3 July 2018 at the Town Hall, Royal Leamington Spa at 6.00 pm.

**Present:** Councillors Bromley, Mrs Falp, Mrs Knight and Parkins.

**Also Present:** Councillor Thompson.

## 1. **Apologies and Substitutes**

An apology for absence was received from Councillor Mrs Redford.

## 2. **Appointment of Chair**

It was moved by Councillor Mrs Falp, and duly seconded, that Councillor Parkins be appointed Chair of Health Scrutiny Sub-Committee.

**Resolved** that Councillor Parkins be elected Chair of Warwick District Council's Health Scrutiny Sub-Committee for the municipal year 2018/19.

## 3. **Declarations of Interest**

There were no declarations of interest.

## 4. **Minutes**

The minutes of the meeting held on 14 March 2018 were taken as read and signed by the Chair as a correct record.

## 5. **Promoting Health & Wellbeing in the Wider District – Focus on Mental Health**

The Sub-Committee received a report from Health & Community Protection which outlined the work being undertaken by the Council and its partners to empower our communities to tackle mental health issues, suicide rates and social isolation.

Appendix 1 to the report detailed what was happening at Warwickshire County Council, in liaison with partners, to ensure local commitment to promoting and protecting the mental health and wellbeing (HWB) of its residents.

Appendix 2 detailed WDC's strategic approach to health and wellbeing for the next two years, with a table of actions for each of the three priorities agreed:

- To embed HWB at a strategic level
- To promote HWB to the wider community
- To address the HWB of our own staff

## **HEALTH SCRUTINY SUB-COMMITTEE MINUTES (Continued)**

Appendix 3 listed what various service areas/departments were doing to support mental health. Appendix 4 listed what the Voluntary Sector was doing to support individuals with mental health issues.

The Sub-Committee discussed what sector of society was most at risk from loneliness and social isolation and which groups were at greatest risk from suicide. The Localities & Partnerships Officer would circulate a copy of the Suicide Strategy to Sub-Committee Members and the Members noted that South Warwickshire County Public Health had successfully made a bid for funding over two years to reduce the suicide rate by 10% by 2021. The Portfolio Holder for Health & Community Protection would be pushing for the District to receive the benefit of some of this funding as the suicide rate was higher here.

The Sub-Committee was also informed that a training programme was being delivered to front-line staff addressing how to cope with residents with mental health issues. Members suggested that training be offered to provide interventions to people affected by suicide.

### **Resolved that**

- (1) the work that the Council and partners are undertaking in empowering communities to tackle mental health issues, suicide rates and social isolation is noted;
- (2) the intention of the Council to sign up as partner of the Warwickshire Health and Wellbeing Board to the Public Health England Prevention Concordat for Better Mental Health (in appendix 1) is noted; and
- (3) an update report will be given to the Sub-Committee in 12 months' time once the figures for suicide are available. The Localities & Partnerships Officer will check when these will be available.

(Councillor Thompson arrived during this item.)

## **6. Improved Housing Conditions**

The Sub-Committee considered a report from Housing Services which provided an update on actions taken during 2017/18 in improving housing conditions in which residents live, this being a key task in the Health & Wellbeing Plan. This work included the Council's own housing stock and private sector housing.

In response to questions from Members, the Strategy & Development Manager replied that:

- He would circulate the figures for response time for housing adaptations (paragraph 8.7 in the report).

## **HEALTH SCRUTINY SUB-COMMITTEE MINUTES (Continued)**

- He did not know for how long officers would keep trying to visit tenants if attempts to do so were unsuccessful (paragraph 8.10 in the report). He did know that numerous attempts would be made.
- At paragraph 8.26 in the report, the 115 households that were not owners or tenants referred to lodgers or children still living at home with their parents.
- The current waiting list for social housing was 2200.

**Resolved** that the report is noted.

### **7. Health & Wellbeing Outside Bodies Updates**

Councillor Thompson, Portfolio Holder for Health & Community Protection provided an update on the work being done by the Health & Wellbeing Board at Warwickshire County Council. Prior to the Sub-Committee meeting, he had circulated to Members presentations that had been made at the last meeting of the Health & Wellbeing Board at the start May. These presentations provided information on:

- NHS England – Direct Commissioning  
Commissioning health services in the West Midlands. These were for dental, general ophthalmic, pharmaceutical and local pharmaceutical services, Section 7a public health services (immunisation, cancer and non-cancer screening, child health immunisation services and sexual assault referral services) and the GP contract team.
- Joint Coventry & Warwickshire Pharmacy Steering Group  
Draft terms of reference to deliver the recommendations from the Pharmaceutical Needs Assessment 2018.

Councillor Thompson informed Members that a steering group had been set up at the County Council to monitor the recommendations of the Pharmaceutical Needs Assessment (PNA) and it was hoped to engage pharmacists in the process. It might be necessary to conduct a supplementary PNA to include new housing from new developments in the area.

He also spoke about the immunisation programme and reported that there was above-average take-up of the flu vaccine in South Warwickshire. However, at national and local level, there was a significant rise in measles cases, with 11 cases this year reported in Warwickshire, three of which were from the Traveler community.

### **8. Review of the Work Programme & Forward Plan**

The Sub-Committee considered a report from Democratic Services which informed it of its work programme for 2018 and the current Forward Plan for July to September 2018.

**Resolved** that:


- (1) the meeting of the Sub-Committee in August 2018 is cancelled because there is no business to discuss; and

**HEALTH SCRUTINY SUB-COMMITTEE MINUTES (Continued)**

- (2) a report giving a 12 months' review on the JSNA be presented to the meeting in November.

(The meeting finished at 6.56 pm)

CHAIR  
20 November 2018

|   |  |                          |
|---|--|--------------------------|
|  <b>Health Overview &amp; Scrutiny Sub Committee – 20<sup>th</sup> November 2018</b>   |  | <b>Agenda Item No. 4</b> |
| <b>Title</b>  | Joint Strategic Needs Assessment Update                  |                          |
| <b>For further information about this report please contact</b>   | Marianne Rolfe, Head of Health and Community Protection. |                          |
| <b>Wards of the District directly affected</b>  | All  |                          |
| <b>Is the report private and confidential and not for publication by virtue of a paragraph of schedule 12A of the Local Government Act 1972, following the Local Government (Access to Information) (Variation) Order 2006?</b> | Yes/No<br>If yes state why                               |                          |
| <b>Date and meeting when issue was last considered and relevant minute number</b>   |  |                          |
| <b>Background Papers</b>  |  |                          |

|  |                                |
|--|--------------------------------|
| <b>Contrary to the policy framework:</b>                                   | Yes/No                         |
| <b>Contrary to the budgetary framework:</b>                                | Yes/No                         |
| <b>Key Decision?</b>   | Yes/No                         |
| <b>Included within the Forward Plan? (If yes include reference number)</b> | Yes/No                         |
| <b>Equality Impact Assessment Undertaken</b>                               | Yes/No (If No state why below) |
|  |                                |

| Officer/Councillor Approval  |          |        |
|--|----------|--------|
| Officer Approval   | Date     | Name   |
| Chief Executive/Deputy Chief Executive   | TBC      |        |
| Head of Service  | 05/11/18 |        |
| CMT  |          |        |
| Section 151 Officer  |          |        |
| Monitoring Officer   |          |        |
| Finance  |          |        |
| Portfolio Holder(s)  | 07/11/18 |        |
| Consultation & Community Engagement  |          |        |
| Insert details of any consultation undertaken or proposed to be undertaken with regard to this report. |          |        |
|  |          |        |
| Final Decision?  |          | Yes/No |
| Suggested next steps (if not final decision please set out below)                                      |          |        |

## 1. **Summary**

- 1.1 This paper provides an update on the first wave of place-based assessments as part of the Warwickshire Joint Strategic Needs Assessment (JSNA) programme. It also highlights actions identified for the next wave to commence from November 2018.

## 2. **Recommendation**

- 2.1 That the committee note the progress to date.

## 3. **Reasons for the Recommendation**

- 3.1 Progress on the first wave is positive, with good local engagement in the needs assessments process to date. Steering group and stakeholder meetings have been held in all areas and needs assessments are being drafted.
- 3.2 **Place Working Group** - The day-to-day coordination and delivery of the programme is managed via the Place Working Group, hosted by Warwickshire County Council. This is helping to ensure a consistent and coordinated approach, sharing of resources, and the effective sharing of lessons learnt as the programme progresses.
- 3.3 **Communications** - A comprehensive communication plan is being delivered including updates in 'Working for Warwickshire' and on the intranet/internet, and presentations to Heads of Service, partner organisations, and at Parish and Town Council meetings. The JSNA section of the Health and Wellbeing web page has been updated and a section formed for each area to provide local information as the rollout progresses. The last presentation within Warwick District was on the 12<sup>th</sup> October 2018 at Sydni Centre
- 3.4 **Engagement** - A JSNA survey has been widely promoted to collect additional intelligence from both residents and health and wellbeing professionals. There have been over 600 responses to date, with nearly 500 from residents and over 100 from professionals.
- 3.5 **Profiling Tool** - The profiling tool is being updated to provide a more interactive web-based tool, to enable users to explore the statistical profiles of the new JSNA areas.
- 3.6 The Phase 1 area for Warwick District was of Leamington (south), Whitnash, Bishops Tachbrook. There were 4 community drop-in events and additional stakeholder interactions held in June/July.
- 3.7 Presentations were given by the JSNA team to Leamington Town Council, Whitnash Town Council and Bishop's Tachbrook Parish Council.
- 3.8 The first wave is due to be completed in October 2018. The outputs, including recommendations and actions plans, will be shared with the JSNA Strategic Group and the Health and Wellbeing Board. The following themes are emerging to date:



- Childhood emergency admissions
- Circulatory diseases
- Diabetes
- Emergency admissions for falls in over 55s

3.9 Appendix 1 provides a summary of the draft results of the wave. Below are the key findings that link to the emerging themes listed in section 3.8:

- The 3 year average rate of 132.6 per 1000 population for emergency admissions for 0-4 year olds is higher than the Warwickshire rate of 103.7
- Mortalities for those aged under 75 for circulatory disease and Coronary Heart Disease are significantly higher than for Warwickshire
- The crude rate of emergency admissions for diabetes is higher at 67.0 per 1000 population compared with a rate of 19.1 for Warwickshire
- The 3 year crude rate of 22.01 per 1000 population for emergency admissions for falls injuries in those aged 55+ is higher than the Warwickshire rate of 20.89

3.10 Lillington and Warwick Rural East will be wave two of the JSNA process starting in November 2018.

## 4. Policy Framework

### 4.1 Fit for the Future (FFF)

The FFF Strategy has 3 strands – People, Services and Money and each has an external and internal element to it. The table below illustrates the impact of this proposal if any in relation to the Council's FFF Strategy.

| FFF Strands   |  |   |
|---|--|---|
| People  | Services   | Money   |
| <b>External</b>   |  |   |
| <b>Health, Homes, Communities</b>   | <b>Green, Clean, Safe</b>  | <b>Infrastructure, Enterprise, Employment</b>   |
| <u>Intended outcomes:</u><br>Improved health for all<br>Housing needs for all met<br>Impressive cultural and sports activities<br>Cohesive and active communities | <u>Intended outcomes:</u><br>Area has well looked after public spaces<br>All communities have access to decent open space<br>Improved air quality<br>Low levels of crime and ASB | <u>Intended outcomes:</u><br>Dynamic and diverse local economy<br>Vibrant town centres<br>Improved performance/ productivity of local economy<br>Increased employment and income levels |
| <b>Impacts of Proposal</b>  |  |   |
| The JSNA will deliver a comprehensive evaluation of a 'place'   | The JSNA will deliver a comprehensive evaluation of a 'place' the health   | Not applicable  |

|   |   |   |
|---|---|---|
| the health issues, determinants and resources available. Allowing the correct prioritisation of resources and commissioning activities  | issues, determinants and resources available. Allowing the correct prioritisation of resources and commissioning activities                       |   |
| <b>Internal</b>   |   |   |
| <b>Effective Staff</b>  | <b>Maintain or Improve Services</b>   | <b>Firm Financial Footing over the Longer Term</b>  |
| <u>Intended outcomes:</u><br>All staff are properly trained<br>All staff have the appropriate tools<br>All staff are engaged, empowered and supported<br>The right people are in the right job with the right skills and right behaviours | <u>Intended outcomes:</u><br>Focusing on our customers' needs<br>Continuously improve our processes<br>Increase the digital provision of services | <u>Intended outcomes:</u><br>Better return/use of our assets<br>Full Cost accounting<br>Continued cost management<br>Maximise income earning opportunities<br>Seek best value for money |
| <b>Impacts of Proposal</b>  |   |   |
| <i>Not applicable</i>   | <i>Not applicable</i>   | <i>Not applicable</i>   |

## 4.2 Supporting Strategies

Each strand of the FFF Strategy has several supporting strategies and the relevant ones for this proposal are explained here the WDC health and Wellbeing approach.

The JSNA will provide an evidence base upon which to base the Health and Wellbeing approach. Once the JSNA areas are evaluated the approach will need to be reviewed to ensure it is correctly positioned.

## 4.3 Changes to Existing Policies

There are no proposed changes to existing policies at this time.

## 4.3 Impact Assessments – not applicable

## 5. Budgetary Framework

### 5.1 No impacts to the budgetary framework

## 6. Risks

There are no risks associated with this update report.

## 7. Alternative Option(s) considered

### 7.1 There are no identified alternative options.

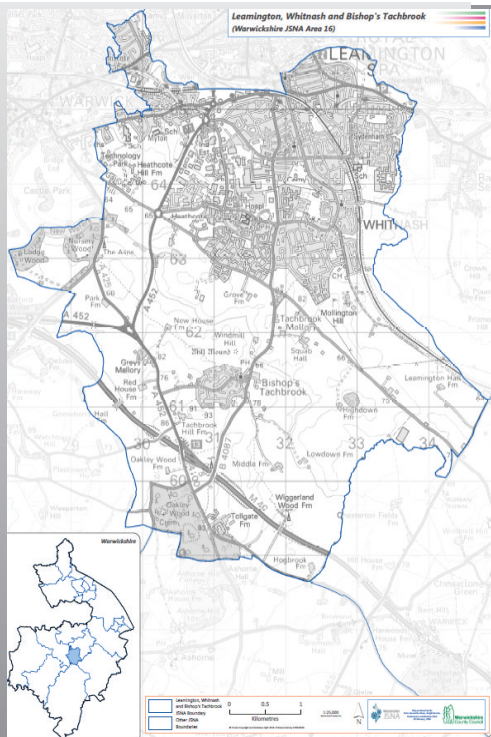
# South Leamington JSNA area

South Leamington, Whitnash and Bishop's Tachbrook  
October 2018

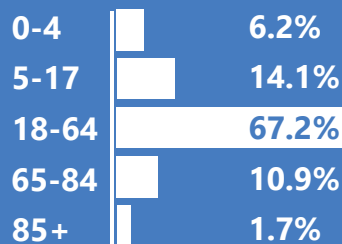


**40,207**  
**Population**

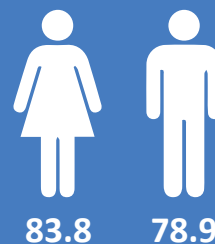
**3.5% increase in**  
**population since**  
**2011**



## Age Profile



## Average life expectancy



**1 in 4**  
residents are from  
minority ethnic groups  
compared to just over 1 in  
10 in Warwickshire



**1 in 5**  
homes are privately  
rented, 17.1% are socially  
rented and home  
ownership levels are  
lower (59.9%) than the  
county (70.0%)



Depression prevalence has  
risen in recent years. The  
prevalence of depression in  
adults (18+) in 7 GP practices  
has remained significantly  
higher than the England rate  
since 2012/13



Deaths for residents under  
75 for circulatory disease  
and coronary heart disease  
are significantly higher than  
Warwickshire

Rates of adult obesity are  
significantly higher than the  
England average at 4 GP  
practices in the JSNA area



Emergency admission rates  
for diabetes are higher than  
for Warwickshire. There has  
been a general increase in the  
diagnosis of diabetes at GP  
practices in the JSNA area

Two GP practices have  
levels of smoking which  
exceed 20% of the practice  
population



The 3 year average rate of

**132.6**

for emergency admissions  
for 0-4 year olds is higher  
than the Warwickshire rate  
of 103.7

**3,400**

residents are recorded  
as providing some  
unpaid care each  
week. Of these, 700  
provide care for 50+  
hours per week



**55**

children in March 18 were  
subject to a Child Protection  
Plan, a higher rate (67.5 per  
10,000 children) than the  
county rate of 46.5

Children in Year 6 are more  
likely to be obese in the  
JSNA area compared to  
children in Warwick District



45.5%

of students achieved the new Key Stage 4 measure of 9-5 (strong pass) in English and Maths, lower than district and county levels



7 LSOAs record levels of 16-24 year olds with 'no qualifications' which are higher than the county average of 10%

8.6%

of pupils are eligible for or claiming a Free School Meal, in line with county rates but higher than the district (6.9%)



6.9%

of adult social care service users are receiving a mental health support package, double the county rate (3.1%)

122

Young people (under 25) are recorded as providing some form of unpaid care each week



88.3

per 10,000 children are in looked after care, higher than the county average (55.7)

According to Experian's socio-demographic classification tool, Mosaic,

22.9%

of all households are classed as 'Rental Hubs'



12.5%

of households are classed as 'fuel poor', higher than district rate of 10.8%

16.4%

of the total population live in LSOAs that are amongst the 30% most deprived LSOAs in England



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cześć

Olá

After English, key languages spoken in the area are Punjabi, Polish and Portuguese

70

applications for homelessness were accepted in 2017/18



citizens advice

56%

of all Citizen Advice Bureau appointments (5,797) focused on benefits/tax credit issues and advice on debt

Mean concentration levels of Nitrogen Dioxide exceeded EU air quality standard objectives at 4 sites in 2016




**Mental Health & Well-being**

was identified as a key priority by residents and professionals following consultation in the local area

**Greenspace**

was most likely to be identified by residents in their top 3 things to support positive health and well-being



|   |  |                          |
|---|--|--------------------------|
|  <b>Health Scrutiny Sub Committee</b><br><b>November 2018</b>  |  | <b>Agenda Item No. 5</b> |
| <b>Title</b>  | Annual Status Report – Air Quality Management  |                          |
| <b>For further information about this report please contact</b>   | Marianne Rolfe, Head of Health and Community Protection<br>Tel: 01926 456700<br>Email: marianne.rolfe@warwickdc.gov.uk |                          |
| <b>Wards of the District directly affected</b>  | All  |                          |
| <b>Is the report private and confidential and not for publication by virtue of a paragraph of schedule 12A of the Local Government Act 1972, following the Local Government (Access to Information) (Variation) Order 2006?</b> | No   |                          |
| <b>Date and meeting when issue was last considered and relevant minute number</b>   | 17th November 2017 – Health Scrutiny Sub-Committee –   |                          |
| <b>Background Papers</b>  |  |                          |

|   |                            |
|---|----------------------------|
| <b>Contrary to the policy framework:</b>  | No                         |
| <b>Contrary to the budgetary framework:</b>   | No                         |
| <b>Key Decision?</b>  | No                         |
| <b>Included within the Forward Plan? (If yes include reference number)</b>  | No                         |
| <b>Equality Impact Assessment Undertaken</b>  | No (If No state why below) |
| The Annual Status Report is a progress report and as such it is not considered that it has any adverse impact in respect of Equalities. |                            |

| Officer/Councillor Approval                                       |          |                      |
|---|----------|----------------------|
| Officer Approval  | Date     | Name                 |
| Chief Executive/Deputy Chief Executive                            | 08/11/18 | Andrew Jones         |
| Head of Service   | 05/11/18 | Marianne Rolfe       |
| CMT   |          |                      |
| Section 151 Officer   |          |                      |
| Monitoring Officer  |          |                      |
| Finance   |          |                      |
| Portfolio Holder(s)   | 08/11/18 | Cllr Andrew Thompson |
| Consultation & Community Engagement                               |          |                      |
| N/A   |          |                      |
| Final Decision?   |          | No                   |
| Suggested next steps (if not final decision please set out below) |          |                      |

## Summary

- 1.1 The Council plays a key role in local air quality management. This report is to update Members on progress.

## 2. Recommendation

- 2.1 That the contents of the Warwick District Council Annual Status 2018 report (appendix 1) are noted.

## 3. Reasons for the Recommendation

- 3.1 To keep the committee advised on progress.

## 4. Policy Framework

### 4.1 Fit for the Future (FFF)

The Council's FFF Strategy is designed to deliver the Vision for the District of making it a Great Place to Live, Work and Visit. To that end amongst other things the FFF Strategy contains several Key projects.

The FFF Strategy has 3 strands – People, Services and Money and each has an external and internal element to it. The table below illustrates the impact of this proposal if any in relation to the Council's FFF Strategy.

| FFF Strands  |  |   |
|--|--|---|
| People   | Services   | Money   |
| <b>External</b>  |  |   |
| <b>Health, Homes, Communities</b>  | <b>Green, Clean, Safe</b>  | <b>Infrastructure, Enterprise, Employment</b>   |
| <u>Intended outcomes:</u><br>Improved health for all<br>Housing needs for all met<br>Impressive cultural and sports activities<br>Cohesive and active communities  | <u>Intended outcomes:</u><br>Area has well looked after public spaces<br>All communities have access to decent open space<br>Improved air quality<br>Low levels of crime and ASB | <u>Intended outcomes:</u><br>Dynamic and diverse local economy<br>Vibrant town centres<br>Improved performance/ productivity of local economy<br>Increased employment and income levels |
| <b>Impacts of Proposal</b>   |  |   |
| The Council's purpose is to improve the quality of life for everyone who lives in, works in or visits Warwick District. With our partners, we aspire to build sustainable, safer, stronger and healthier communities. As traffic congestion is the main source of air pollution, any actions promoting modal shift to reduce car dependency will not only improve air quality but also enhance healthier lifestyles. |  | None  |

|   |   |   |
|---|---|---|
|   |   |   |
| <b>Internal</b>   |   |   |
| <b>Effective Staff</b>  | <b>Maintain or Improve Services</b>   | <b>Firm Financial Footing over the Longer Term</b>  |
| <u>Intended outcomes:</u><br>All staff are properly trained<br>All staff have the appropriate tools<br>All staff are engaged, empowered and supported<br>The right people are in the right job with the right skills and right behaviours | <u>Intended outcomes:</u><br>Focusing on our customers' needs<br>Continuously improve our processes<br>Increase the digital provision of services | <u>Intended outcomes:</u><br>Better return/use of our assets<br>Full Cost accounting<br>Continued cost management<br>Maximise income earning opportunities<br>Seek best value for money |
| <b>Impacts of Proposal</b>  |   |   |
| None  | None  | None  |

## 4.2 Supporting Strategies

The annual status report details Warwick District Council's progress towards achieving national air quality objectives. The council's strategy for delivering air quality improvements in its area are set out within Warwick District Council's Air Quality Action Plan. The Annual Status Report provides an update on progress with the actions identified within this plan.

## 4.3 Changes to Existing Policies

This report is to update Members on progress in relation to local air quality management and does not propose any changes to the following principle policies:

- Fit for the Future
- Development Plan Documents
- Food Law Enforcement Service Plan
- The plan and strategy which comprise the Housing Investment Programme

## 4.3 Impact Assessments

It is not considered that the annual status report has any adverse impact in respect of Equality.

## 5. Budgetary Framework

- 5.1 The costs associated with local air quality management are contained within current budgets.

## **6. Risks**

- 6.1 No risks have been identified with this update report.

## **7. Alternative Option(s) considered**

- 7.1 No alternatives have been considered because providing an Annual Status Report to Defra is a statutory responsibility. The ASR fulfils a requirement 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.

## **8. Background**

- 8.1 Within Warwick District, air quality is generally good. However there are locations in the town centres where nitrogen dioxide levels regularly exceed the national objective. This has led to the Council declaring five air quality management areas (AQMAs) with on-going monitoring in these areas.
- 8.2 There are currently five AQMAs declared within the Warwick District, these are; Warwick town centre and Coventry Road, Warwick, Leamington Spa and 2 small AQMAs in Kenilworth.
- 8.3 Vehicle emissions are the cause of nitrogen dioxide levels exceeding air quality objectives in all AQMAs. As such, any improvement is largely dependent on the cooperation of Warwickshire County Council to implement schemes aimed at reducing traffic congestion. Warwickshire Public Health also has a key role in promoting modal shift away from the car to encourage healthier lifestyles.
- 8.4 The Action Plan encompassing all these AQMAs was updated in 2015 and progress is reported on through the Annual Status Report. Warwick District Council is actively working to improve air quality in the district, through the implementation of the Action Plan, as well as implementation of the Local Transport Plan in partnership with Planning and Public Health colleagues.
- 8.5 Members have previously queried the Council's focus on nitrogen dioxide and a perceived lack of attention to particulate matter air pollution. Whilst the health impact of particulates (mainly from diesel engines) is recognised, no exceedances of air quality objectives have been identified for particulates. Levels of particulates measured at the two DEFRA real-time monitoring units in Leamington (Rugby Road and Hamilton Terrace) have not shown any exceedances.

## **9. Action to Improve Air Quality**

- 9.1 At the majority of monitoring locations, pollutant concentrations in 2017 were higher than other recent years. There were eighteen monitored annual exceedances of the nitrogen dioxide annual mean objective in 2017, three more than last year.

The majority of the locations above the annual mean objective were within the boundaries of existing Air Quality Management Areas (AQMAs) with the exception of three sites which are just beyond the boundaries of these areas. Given the increase in nitrogen dioxide concentrations seen in 2017, the council will need to continue focussing on implementing measures from its air quality action plan to deliver further improvements.



No exceedances of the annual objectives for particulate matter (PM10 and PM2.5) were measured in 2017. There has been a slight increase in the concentrations of PM2.5 measured. Although the concentrations have remained broadly consistent with the previous 5 years.

- 9.2 WDC has taken forward a number of measures during the current reporting year of 2017 in pursuit of improving local air quality. As the Action Plan is still relatively new, many of the measures are still in the planning phase. Some of these key actions are detailed below. Appendix 2 an infographic for publication highlights the work which has been undertaken in 2017 to address air quality supported will be web content.

### **Traffic Management & Smarter Travel**

- 9.3 One of the key groups of measures relate to those being implemented on the key transport corridors, which have been prioritised by Warwickshire County Council. Good progress is being made in relation to these proposals, with many of the detailed measures having some air quality impact. Detailed proposals are set out for 11 main corridors / areas, many of which align with AQMAs in the district. Each of the 11 areas include specific measures for junction / highway improvements, walking and cycling improvements, park and ride provision, bus priority measures as well as behavioural change measures. Most work has been undertaken on the A452 Europa Way 'Sustainable Spine' corridor which is the key route from the M40 in Leamington Spa and Warwick. Proposals are being worked on and funding being sought from large scale developments currently coming forward.
- 9.4 WDC has in partnership with Stagecoach Midlands, Volvo Group UK and Warwickshire County Council submitted a bid to the Office For Low Emission Vehicles to convert the 67 bus route which runs through Leamington Air Quality Management Area to a full electric bus route. The Outcome of the bid application process is awaited.
- 9.5 A project is underway bring a bike share scheme Warwick District. This is in partnership with Warwickshire County Council. This scheme is similar to those currently operated in many towns across the UK, including London and at the University of Warwick.

### **Development Control**

- 9.6 The measures being implemented through planning are also successfully moving forward. Planning applications are routinely being checked by Environmental Health Officers and air quality assessments requested where relevant. Mitigation based on the Low Emission Strategy Guidance is also routinely requested. In addition, an air quality assessment of the impacts of Local Plan development has been undertaken, which goes some way to assessing the potential cumulative impact of development outlined in the Local Plan.

## **Promote Low Emission Vehicles and Infrastructure**

- 9.7 Environmental Health Officers are using our Low Emission Strategy Guidance to require new developments to provide electric vehicle charging points and ensure a more widespread infrastructure for low emission vehicles.
- 9.8 A recent consultation on a new Supplementary Planning Document (SPD) which converts the existing Low Emission Strategy Guidance into a SPD has concluded and the result of the consultation are being analysed.
- 9.9 WDC are maintaining their electric fleet and as vehicles become due for renewal they are examined to determine if an ultra-low emission vehicle is suitable. This has lead an additional vehicle being replaced with an electric vehicle to date.

## **Local Priorities**

- 9.10 Priorities for the coming year are to continue to support the work on the key transport corridors and continue implementing the planning measures, as well as promoting low emission vehicles and infrastructure.

## **Electric Vehicle Charging Infrastructure Strategy**

- 9.11 Warwick District Council is a stakeholder in Warwickshire County Council's Electric Vehicle Charging Infrastructure Strategy. The strategy is looking at delivering a network of electric vehicle charging points in public car parks throughout the County. The strategy is also looking at options to increase the provision of on-street electric vehicle charging points for residents without off-street drives or garages.



***Warwick District Council***

# ***Annual Status Report 2018***

***Bureau Veritas***

***July 2018***

***Move Forward with Confidence***

Item 5 / Page 7



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VERITAS**

### Document Control Sheet

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|----------------|--|--|
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| Remarks        | Draft  | Final  |
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| Approved by    | Hannah Smith<br>Senior Consultant                          | Hannah Smith<br>Senior Consultant                          |
| Signature      | Signature Redacted   | Signature Redacted   |
| Project number | 6454669  | 6454669  |

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Any questions or matters arising from this Report should be addressed in the first instance to the report author.



## 2018 Air Quality Annual Status Report (ASR)

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

July 2018

## Warwick District Council

|                         |   |
|-------------------------|---|
| Local Authority Officer | Michael Jenkins/ Matthew Shirley  |
| Department              | Health and Community Protection   |
| Address                 | Warwick District Council, Riverside House,<br>Milverton Hill, Royal Leamington Spa,<br>Warwickshire, CV32 5HZ |
| Telephone               | 01926 456725  |
| E-mail                  | ehpollution@warwickdc.gov.uk  |
| Report Reference number | 2018 Annual Status Report   |
| Date                    | July 2018   |

## Executive Summary: Air Quality in Our Area

### Air Quality in Warwick District Council

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

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>.

Warwick District is situated in the West Midlands, within the county of Warwickshire. To the south lies Stratford-on-Avon, to the east, Rugby, and to the north are Coventry and Solihull. The main towns in the district are Warwick, Leamington Spa and Kenilworth, and there are also a number of villages scattered throughout the rural parts of the district. The main air quality issues identified are for Nitrogen Dioxide (NO<sub>2</sub>) emitted from road traffic, particularly at congested town centre locations within Warwick, Leamington Spa and Kenilworth. Notably, the NO<sub>2</sub> concentrations have increased at ~90% of monitoring sites within Warwick District Council.

There are currently 5 AQMAs declared in the district, located in the Warwick town centre and Coventry Road, Leamington Spa and 2 small AQMAs in Kenilworth. A detailed breakdown of the AQMAs, along with maps of the areas, can be found here: [https://uk-air.defra.gov.uk/aqma/local-authorities?la\\_id=296](https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=296). The Action Plan, which encompasses all five AQMAs, was updated in 2015. Air pollution in 2017 has risen slightly as compared to 2016, but Warwick District Council is actively working to improve air quality in the district, through the implementation of the Action Plan, as well as implementation of the Local Transport Plan and in partnership with Planning and Public Health colleagues.

---

<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

## **Actions to Improve Air Quality**

Warwick District Council are in the process of implementing a number of key measures in order to address the air quality issues in the AQMAs and on a higher level across the council jurisdiction. One of these measures is the creation and improvement of key corridors that connect boroughs within Warwick District. Building on progress in 2016; the development of the 'Europa Way', a sustainable 'spine' linking Leamington Spa and Warwick, has been prioritised in 2017 and this will continue throughout 2018. 'Europa Way' has a number of features that will improve local air quality including; park and ride facilities, segregated bicycle lanes, new pedestrian routes as well as general traffic optimisation and junction improvement. Detail around these plans can be found on the Warwick District Council website.<sup>4</sup>

Other measures that have been implemented in 2017 include: 20mph zones in AQMAs which optimise traffic flow, and the on-going support of an Active Travel Campaign which promotes the public to switch to walking, running and cycling. A number of studies are planned to go ahead across the next reporting year which aim to further inform and assess feasibility of measures outlined in the AQAP; examples include, studying the contribution that taxis make to AQMA emissions and a feasibility study into the retrofitting of buses to improve their sustainability and minimise pollution. Warwick District Council are also planning on installing additional non-automatic monitoring sites around the Castle Hill area, located just outside of the existing Warwick AQMA, this will help further analysis of air pollution in this area and inform the decision to expand the AQMA if required.

The measures being implemented through the planning regime are also successfully moving forward. Planning applications are routinely being checked by the Environmental Health team and air quality assessments requested where relevant. Mitigation, based on the Low Emissions Strategy Planning Guidance (SPG) is also routinely requested. In addition, an air quality assessment of the impacts of Local Plan development has been undertaken, which goes some way to assessing the potential cumulative impact of development outlined in the Local Plan.

---

<sup>4</sup>WDC 2017 [https://www.warwickdc.gov.uk/download/downloads/id/2234/in03\\_-\\_draft\\_infrastructure\\_delivery\\_plan\\_appendix\\_a\\_-\\_transport\\_corridor\\_strategies.pdf](https://www.warwickdc.gov.uk/download/downloads/id/2234/in03_-_draft_infrastructure_delivery_plan_appendix_a_-_transport_corridor_strategies.pdf)



## **Conclusions and Priorities**

The majority of monitoring locations within Warwick District Council (~90%) reported higher levels of pollutant concentrations than the previous year. There were 18 monitored exceedances of the NO<sub>2</sub> annual mean objective, three more than last year.

15 of the diffusion tubes that exceeded were located in already established AQMAs, 9 in Warwick, 5 in Leamington Spa and 1 in Kenilworth, New Street. This figure fell to 12 exceedances when distance correction was applied to represent relative exposure.

Three monitoring stations that exceeded the NO<sub>2</sub> limit were not within an AQMA. One was located at Castle Hill (W67), an area that Warwick District Council have already made plans to install more monitoring stations in response to previous exceedances. The second diffusion tube (W14) was located on the boundary of the Leamington Spa AQMA, along Tachbrook Road. This monitoring station has increased year on year since 2015, however this is the first year it has exceeded the AQS Objective for NO<sub>2</sub>. Warwick District Council will remain vigilant of the concentrations reported at this station and in the event of further exceedances the AQMA will be adjusted accordingly. The third exceedance (W59) was at a site not representative of relevant exposure and concentrations dropped below the annual mean AQS objective for NO<sub>2</sub> when adjusted for relevant exposure.

Warwick District Council do not propose any changes to the existing AQMAs for this reporting year. However, depending on the measurements of the soon-to-be installed non-automatic monitoring stations, Castle Hill may be incorporated into the Warwick AQMA. Similarly, if the monitoring station located on Tachbrook Road, Leamington Spa continues to measure exceedances the Leamington Spa AQMA boundary will be adjusted.

There is no intention to revoke either of the Kenilworth AQMAs seeing as one non-automatic monitoring site within each of these areas exceeded the NO<sub>2</sub> annual mean limit and even after adjusting for receptor distance, the monitoring station within Kenilworth, New Street still exceeded the AQS objective.

Whilst a gradual increase in pollutant levels has been seen, Warwick District Council will continue to implement measures outlined in the Air Quality Action Plan and

## **Warwick District Council**

expand their monitoring network in order to identify and tackle this problem. Future ASRs will continue to review the effectiveness of these measures.

## **Local Engagement and How to get involved**

Members of the public can help improve air quality in the borough by travelling using sustainable transport options, such as walking, running, cycling, using public transport or even moving to an electric vehicle. Car sharing is also an easy way to reduce private car use (<https://carsharewarwickshire.liftshare.com/>).

Any further enquiries should be directed to the Council's Environmental Protection Division. To contact us, please ring (01926) 456725, or email us on [ehpollution@warwickdc.gov.uk](mailto:ehpollution@warwickdc.gov.uk).

WDC aim to provide an initial response within 4 working days and to complete your request in no more than 20 working days.

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## **1 Local Air Quality Management**

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

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

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

## 2 Actions to Improve Air Quality

### 2.1 Air Quality Management Areas

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

A summary of AQMA declared by Warwick District Council can be found in Table 2.1, and a copy of the maps submitted with the AQMA declarations are provided below. Further information related to declared or revoked AQMA, including maps of AQMA boundaries are also available online at [https://uk-air.defra.gov.uk/aqma/local-authorities?la\\_id=296](https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=296). Alternatively, see Appendix D: Maps of Monitoring Locations and AQMA, which provides a map of air quality monitoring locations in relation to the AQMA in which they are located.

15 of the 18 exceedances from 2017 were located in the existing AQMA, one in Kenilworth New Street, 9 in Warwick and 5 in Leamington Spa. After distance correction, this figure dropped down to 12 exceedances within the AQMA. Two of the 3 remaining sites that measured exceedances were located very close to the boundary of an existing AQMA; one is located at Castle Hill, near the boundary of the Warwick AQMA and the other is located on the boundary of the Leamington Spa AQMA. The final exceeding site was located along Charles Street (W59) and was situated at a location not representative of relevant exposure. After distance correction to represent concentrations at the nearest site of relevant exposure, the concentration dropped below the AQS objective at this location.

Castle Hill exceedances have been identified in previous reports and as such the council are planning to install more non-automatic monitoring stations in this area before deciding whether a change to the AQMA boundary is necessary.

The appraisal of the 2016 ASR recommended the Council consider proceeding to the revocation of the two Kenilworth AQMA. However, given that concentrations have increased this year and there were exceedances in these AQMA, the Council proposes that these AQMA should remain in place at present, and the situation further monitored in future years.

## Warwick District Council

**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  |
| Warwick Coventry Road          | 01/03/2011          | Nitrogen Dioxide Annual Mean          | Warwick     | The area covers the east side of Coventry Road from the junction with St. Johns / Coten End, incorporating 2-4 Coventry Road and Montgomery Court, properties fronting on to Coventry Road only. | NO   | 50.8  | µg/m <sup>3</sup> | 46.4 | µg/m <sup>3</sup> | Air Quality Action Plan: Warwick District Council | Jun-15              | <a href="http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan">http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan</a> |
| Warwick Road (Kenilworth) AQMA | 01/11/2008          | Nitrogen Dioxide Annual Mean          | Kenilworth  | An area encompassing all properties along Warwick Road, Kenilworth between the junctions with Station Road and Waverley Road.  | NO   | 48.1  | µg/m <sup>3</sup> | 37.1 | µg/m <sup>3</sup> | Air Quality Action Plan: Warwick District Council | Jun-15              | <a href="http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan">http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan</a> |

## Warwick District Council

|                                  |  |   |                   |  |    |      |                   |      |                   |   |        |   |
|----------------------------------|--|---|-------------------|--|----|------|-------------------|------|-------------------|---|--------|---|
| New Street<br>Kenilworth<br>AQMA | 01/11/2008   | Nitrogen<br>Dioxide<br>Annual<br>Mean               | Kenilworth        | An area encompassing all properties fronting New Street, Kenilworth from the junction with Bridge Street/Fieldgate Lane up to and including No. 17 New Street.   | NO | 39.8 | µg/m <sup>3</sup> | 34.4 | µg/m <sup>3</sup> | Air<br>Quality<br>Action<br>Plan:<br>Warwick<br>District<br>Council | Jun-15 | <a href="http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan">http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan</a> |
| Leamington Spa<br>AQMA           | 01/12/2004,<br>Amended<br>2014                         | Nitrogen<br>Dioxide<br>Annual<br>Mean               | Leamington<br>Spa | An area of South Town, Leamington Spa, centred on High Street, Clemens Street and Bath Street.   | NO | 52.9 | µg/m <sup>3</sup> | 55.4 | µg/m <sup>3</sup> | Air<br>Quality<br>Action<br>Plan:<br>Warwick<br>District<br>Council | Jun-15 | <a href="http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan">http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan</a> |
| Warwick<br>AQMA                  | Declared<br>December<br>2004,<br>Amended<br>01/07/2008 | Nitrogen<br>Dioxide<br>Annual and<br>1-Hour<br>Mean | Warwick           | An area in the centre of Warwick, encompassing properties along High Street, Jury Street, Bowling Green Street, Theatre Street, Northgate, The Butts, Smith Street, Church St and part of Saltisford, and also including a number of nearby properties. This AQMA is now declared for both annual and hourly mean nitrogen | NO | 58.3 | µg/m <sup>3</sup> | 50.2 | µg/m <sup>3</sup> | Air<br>Quality<br>Action<br>Plan:<br>Warwick<br>District<br>Council | Jun-15 | <a href="http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan">http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan</a> |



## Warwick District Council

|  |  |  |  |                        |  |  |  |  |  |  |  |  |  |
|--|--|--|--|------------------------|--|--|--|--|--|--|--|--|--|
|  |  |  |  | dioxide<br>objectives. |  |  |  |  |  |  |  |  |  |
|--|--|--|--|------------------------|--|--|--|--|--|--|--|--|--|

☒ **Warwick District Council confirm the information on UK-Air regarding their AQMA is in the process of being updated, due to identified anomalies with the Leamington Spa boundary**

\* Earliest available concentrations are for 2008

**In Bold;** exceedances of the AQS objectives

Figure 2.1 - Coventry Road AQMA, Warwick

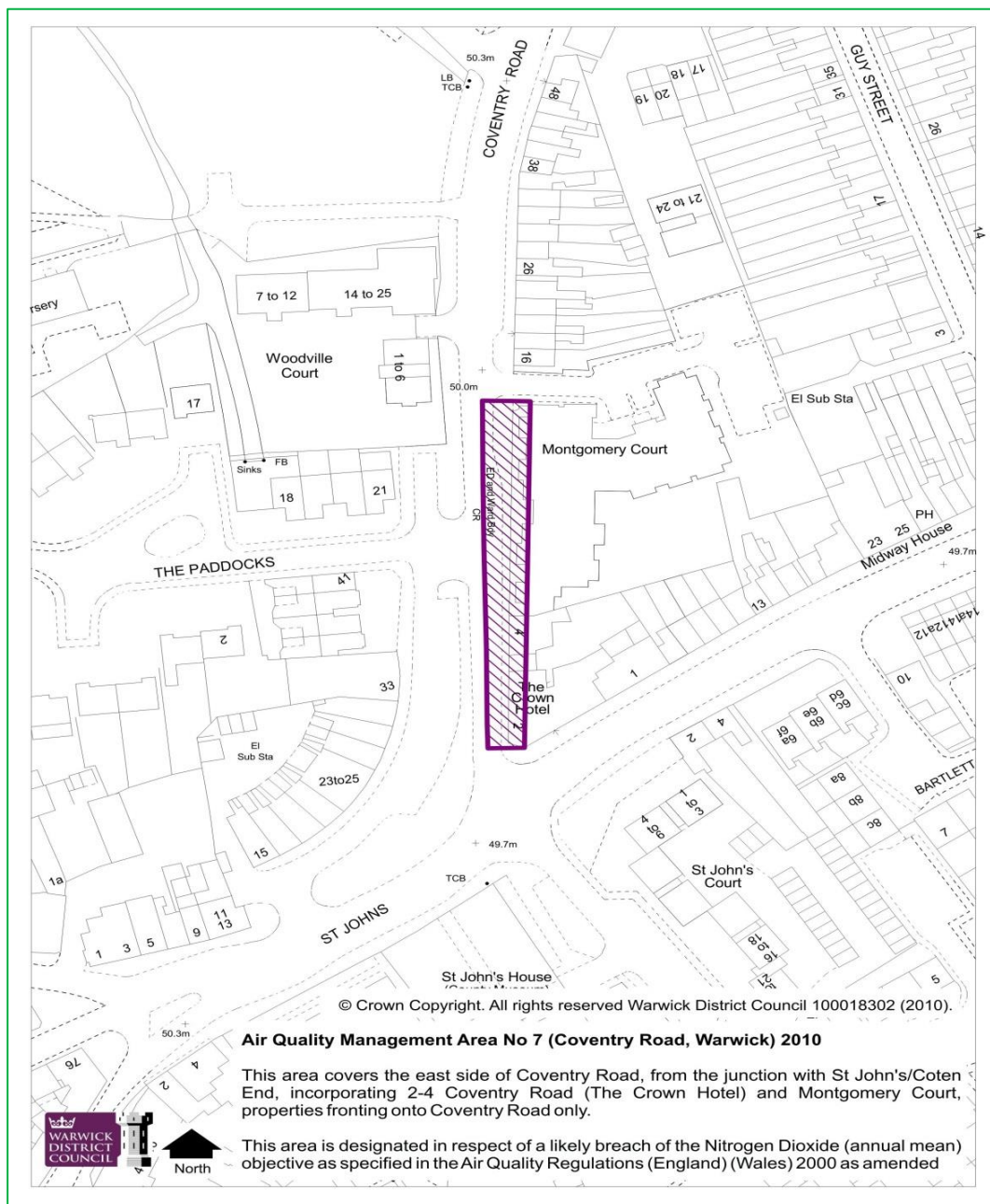


Figure 2.2 - Warwick Road AQMA, Kenilworth

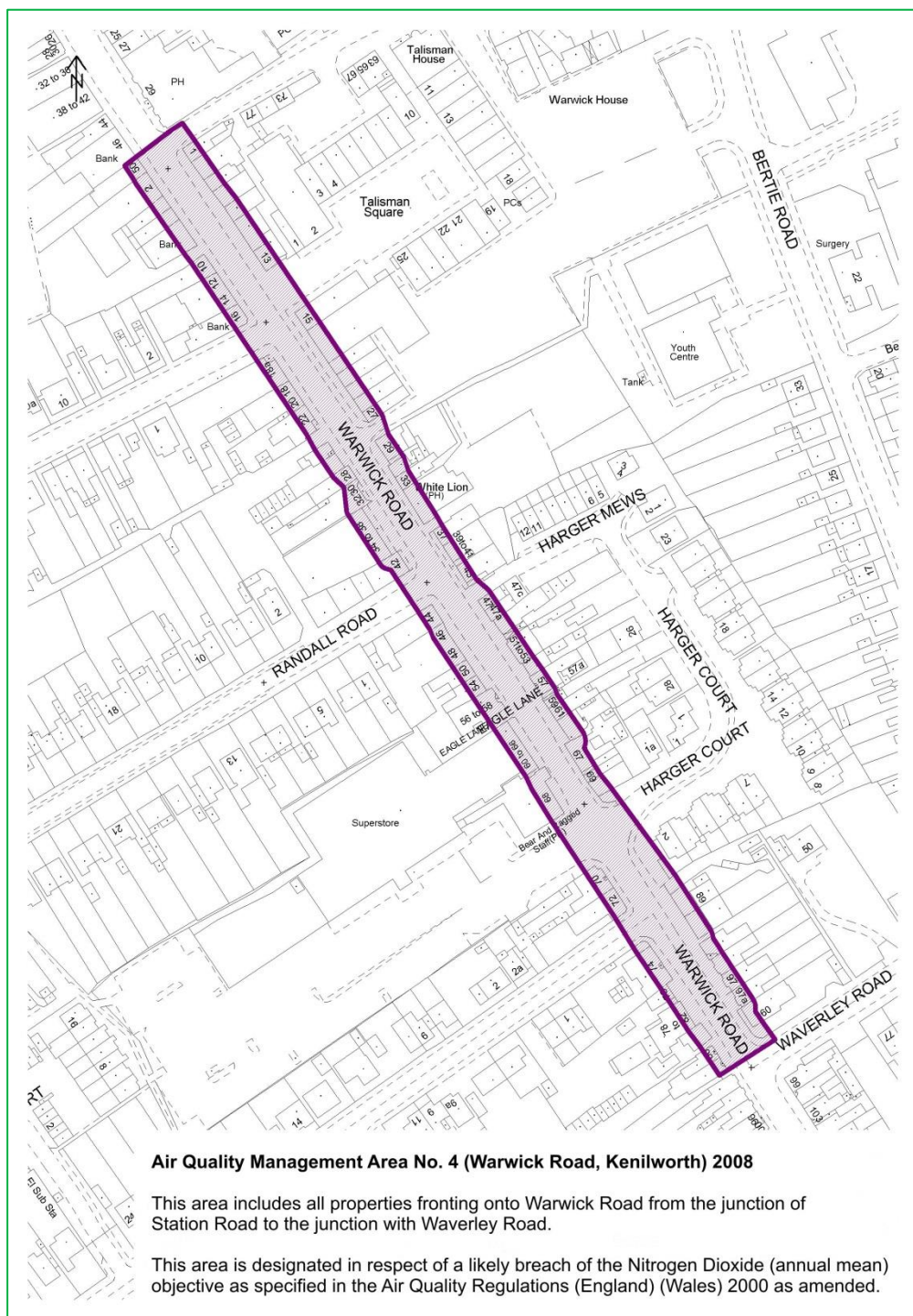


Figure 2.3 - New Street AQMA, Kenilworth

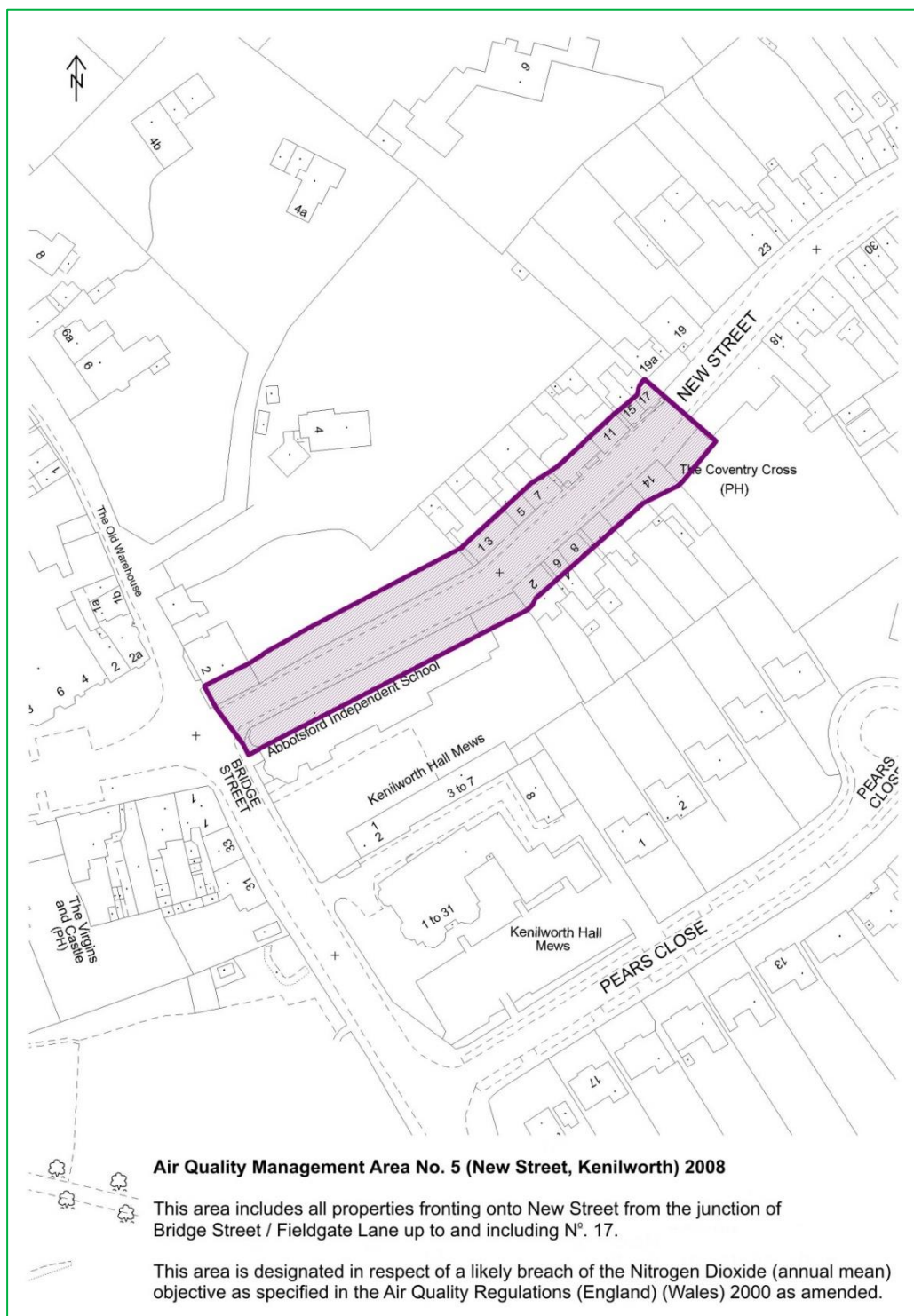




Figure 2.4- Leamington Spa AQMA

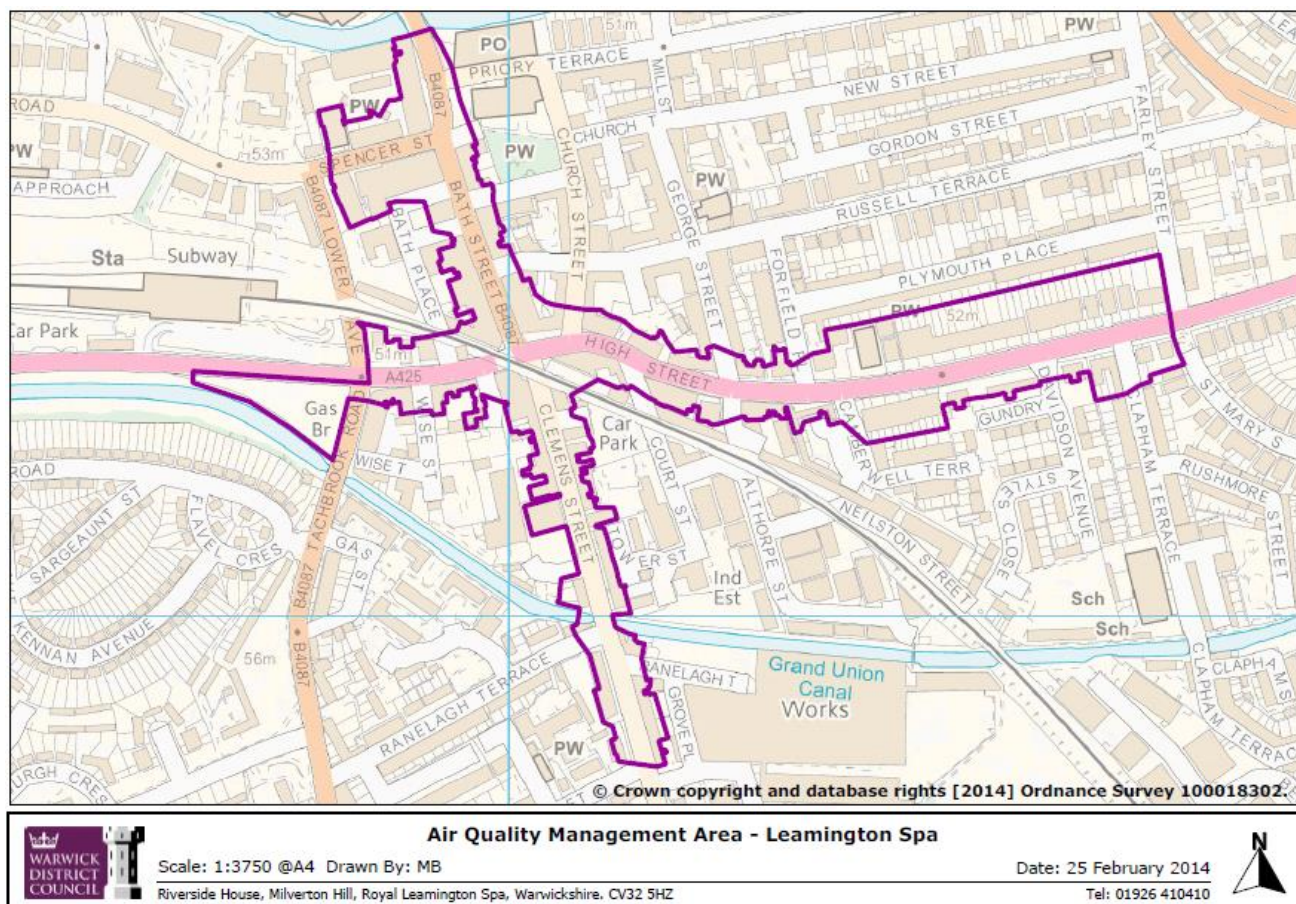
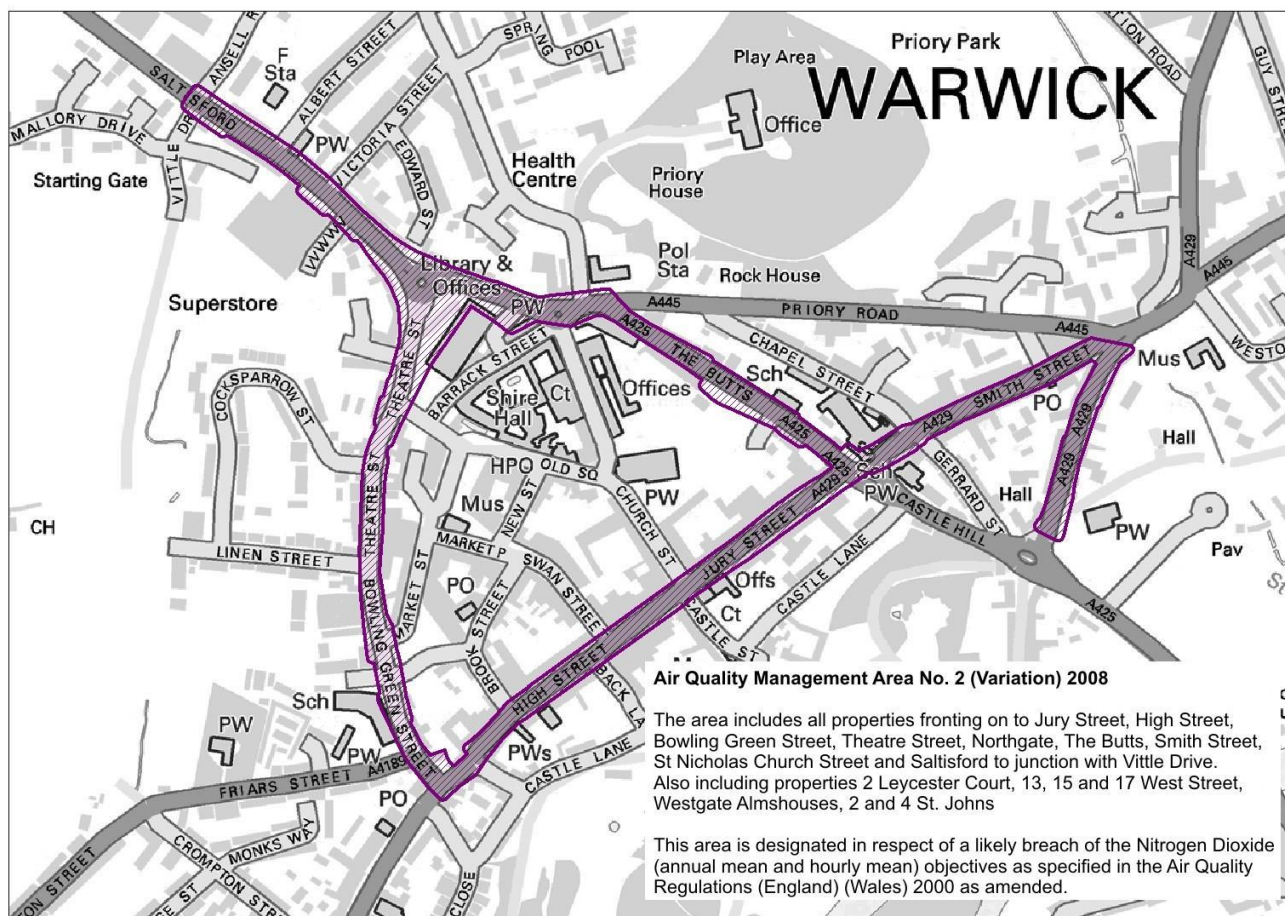


Figure 2.5- Warwick AQMA



## **2.2 Progress and Impact of Measures to address Air Quality in Warwick District Council**

DEFRA's appraisal of WDC's 2017 ASR noted the report was well structured, sufficiently detailed and contained all information specified within the guidance. There were a number of comments which were offered, with regard to the ASR and the actions taken by WDC to further improve Air Quality within Warwick District.

DEFRA stated that few measures implemented by WDC directly addressed specific hotspots of pollution and suggested that future measures should ensure they target hotspots directly. WDC have acted on this suggestion; beginning improvement in junctions within the Leamington Spa and Warwick AQMAs as well as implementing 20mph speed restrictions as a trial within the Warwick AQMA, the success of these zones will be reviewed in future ASRs, with the hope of continuing this rollout across other AQMAs. WDC have begun discussions with bus providers and identified a number of buses that are eligible for retrofitting and hope to submit a bid for this work. The contribution of Taxis to pollution in AQMAs is also being studied later this year to inform the decision to move to a low emission taxi fleet.

DEFRA also flagged the exceedances in NO<sub>2</sub> located by Castle Hill (W67) and suggested the introduction of new monitoring sites in and around this area. WDC have confirmed plans to install a number of new diffusion tube sites across the Castle Hill area in response to this.

There were a number of minor suggestions to improve the ASR data for future reports, all of which have been noted and taken on board for this report. Examples include; the addition of Benzene monitoring and trending data to the report and ensuring data in Table A.3 has been correctly bias adjusted and annualised.

Previously there has been discussion around the revocation of the Kenilworth AQMA however given the exceedances at stations in both these AQMAs, as well as a general increase in NO<sub>2</sub> concentrations, this will not be carried out before the next reporting year.

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

## Warwick District Council

More detail on these measures can be found in their respective Action Plans. Key **completed** measures are:

- 20mph Zones within AQMAs;
- Creation of active travel campaign website and on-going promotion campaign; and
- Electric Vehicle vehicles incorporated into WDC fleet; 5 in use as pool vehicles for staff.

Warwick District Council expects the following measures **to be completed** over the course of the next reporting year:

- Installation of new diffusion tubes in Castle Hill area;
- Creation of sustainable procurement guide, which is to be used by WDC; and
- 'Europa Way' development commencing in 2018.

Warwick District Council's priorities for the coming year are continuing the on-going implementation of the planning measures and the commencement of the Europa Way corridor which includes a high standard, dedicated cycle route on a section of the highway.

The principal challenge facing Warwick District Council in the implementation of measures is predominantly sourcing funding for some of the schemes and measures outlined in Table 2.2. As a result of this, progress on the below measures has been slower than expected:

- Hearts and Mind campaign; encouraging modal shift from private car use;
- Publicising CarShare Coventry and Warwickshire; and
- Moving more of the WDC fleet to Electric Vehicles.



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           | Area wide improvements to walking and cycling infrastructure                | Promoting Travel Alternatives         | Promotion of Cycling and Promotion of Walking     | WCC                                       | Mainly as part of key transport corridor proposals. Also a review of cycling infrastructure across the district underway (and how that fits in with new developments) | On-going             | n/a                       | n/a  | 1. Europa Way Corridor Improvements to commence in May 2018. 2. Shared use cycle path created on Priory Road, Warwick. 3. Traffic model being developed for a two way cycle link proposal between Leamington Spa and Warwick along Emscote Road. 4. Pedestrian and cycle improvements at Northgate, Warwick to improve pedestrian routes between Warwick railway station and town centre. 5. Bicycle hire/share scheme to be explored that could serve Leamington Spa railway station, Warwick Technology Park, and Heathcote Industrial Estate. | On-going implementation of schemes | Detailed information on specific schemes can be found at <a href="http://www.warwickdc.gov.uk/download/downloads/id/2234/in03-draft-infrastructure-delivery-plan-appendix-a-transport-corridor-strategies.pdf">http://www.warwickdc.gov.uk/download/downloads/id/2234/in03-draft-infrastructure-delivery-plan-appendix-a-transport-corridor-strategies.pdf</a> . Currently focusing on the Europa Way corridor to include a high standard, dedicated cycle route on a section of the highway, fully separated from what will be a new dual carriageway layout by a grass verge. |
| 2           | Smarter Choices and Travel Planning programme                               | Promoting Travel Alternatives         | School Travel Plans and Workplace Travel Planning | WCC                                       | Mainly as part of key transport corridor proposals  | On-going             | n/a                       | n/a  | 1. Engaging with large employers at Warwick Technology Park in relation to active travel and changes to working patterns/hours being discussed. 2. Active travel website is operational and being maintained.  | On-going implementation of schemes | <a href="https://www.warwickshire.gov.uk/ltp3">https://www.warwickshire.gov.uk/ltp3</a>   |
| 3           | Targeted bus stop infrastructure upgrades on key public transport corridors | Transport Planning and Infrastructure | Bus Route Improvements                            | WCC                                       | Bus priority measure implemented as part of key transport corridor proposals  | On-going             | n/a                       | n/a  | Feasibility work undertaken on some corridors  | On-going implementation of schemes | None  |
| 4           | Improving infrastructure to improve walking and cycling signage             | Promoting Travel Alternatives         | Promotion of Cycling and Promotion of Walking     | WCC                                       | Walking and cycling implemented part of key transport corridor proposals  | On-going             | n/a                       | n/a  | 1. New signage nodes installed in Leamington Spa town centre and railway station in May 2018 showing walking routes/times. Signage nodes at Warwick and Warwick Parkway railway stations proposed for June 2018. 2. Bike hire/share scheme being explored to serve Leamington  | On-going implementation of schemes | Sustrans currently investigating a signage strategy due to be published in September 2018. Section 106 money has been reserved to install new signage ('node points') at railway stations.  |

## Warwick District Council

|   |  |                                     |                              |           |                             |                                       |     |     |  |                         |   |
|---|--|-------------------------------------|------------------------------|-----------|-----------------------------|---------------------------------------|-----|-----|--|-------------------------|---|
|   |  |                                     |                              |           |                             |                                       |     |     | Railway station and large employment sites such as Warwick Technology Park and Heathcote Industrial Estate.  |                         |   |
| 5 | Hearts and Minds campaign to encourage modal shift away from private car use | Public Information                  | Other                        | WCC       | On-going                    | On-going                              | n/a | n/a | 1. Mini campaigns undertaken such as 'Choose how you move'. 2. Warwickshire Public Health bid for personal air quality monitors to support health campaign in 2017 was unsuccessful. Alternative funding for 50 personal monitors is being sought to run event/campaign on personal exposure to air pollution.   | On-going campaigns      | Funding dependent - currently seeking funding to purchase personal air quality monitors   |
| 6 | Further consideration of Park and Ride                                       | Alternatives to private vehicle use | Bus based Park and Ride      | WCC       | Currently in planning phase | On-going                              | n/a | n/a | 1. Park and Ride facilities outlined in key transport corridor proposals. 2. 500 space park and ride scheme at Europa Way has been committed and is required to be developed prior to occupation of residential development along this corridor. 3. A park and ride at Blackdown (North of Leamington Spa) is included in local plan and on Community Infrastructure Levy (CIL) list. 4. Warwickshire County Council commissioning works to explore park and ride facilities to the North and South of Leamington Spa. | Unknown at this time    | The Asps development site has now been agreed and review planned looking at park and ride options or workplace parking separate from employer sites with transport in for sites such as National Grid.    |
| 7 | Consideration of a car club  | Alternatives to private vehicle use | Car clubs                    | WDC/ WCC  | 2015                        | n/a                                   | n/a | n/a | Decision not to take this forward  | n/a                     | Not being taken forward – population areas not considered large enough to support   |
| 8 | Publicising CarShare Coventry and Warwickshire                               | Alternatives to private vehicle use | Car and lift sharing schemes | WCC       | On-going                    | On-going                              | n/a | n/a | 1. Active Travel website publicising car sharing opportunities. 2. Signage in Leamington Spa and Warwick being explored to further promote scheme.   | On-going                | Plans in place for signage advertising the car share website along the main transport corridors, however there is no funding in place for this yet  |
| 9 | Supporting future opportunities for funding for Low Emission Vehicles, in    | Promoting Low Emission Transport    | n/a                          | WDC / WCC | 2016                        | On-going (depending on opportunities) | n/a | n/a | WCC currently developing an Electric Vehicle Charging Strategy   | On-going implementation | WCC currently looking at suppliers for a Warwickshire network of charging points. Expected that suppliers will supply charging infrastructure at no cost to the County and that maintenance/renewal costs |

## Warwick District Council

|    |   |   |  |     |      |                                 |     |     |   |  |   |
|----|---|---|--|-----|------|---------------------------------|-----|-----|---|--|---|
|    | particular for vehicle charging infrastructure  |   |  |     |      |                                 |     |     |   |  | would all rest with the supplier. Expecting to go out to tender for a supplier at the end of Summer 2018 and to begin installing by the end of the financial year.  |
| 10 | Use of the planning system to ensure a more widespread infrastructure for low emission vehicles   | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | WDC | 2013 | 2014 (for adoption of guidance) | n/a | n/a | Implementation of Low Emission Strategy Guidance to install EV infrastructure. Low emission strategy guidance currently being reviewed/updated and consideration to make this into a Supplementary Planning Guidance document. EV infrastructure is routinely being sought and implemented as part of the planning process.   | On-going implementation  | Useful policy mechanism for improving infrastructure in long term   |
| 11 | Moving the Warwick DC fleet to electric vehicles where practicable  | Promoting Low Emission Transport        | Public Vehicle procurement               | WDC | 2015 | 2016                            | n/a | n/a | 5 vehicles ordered as pool vehicles   | Vehicles in place as of 2016. On-going commitment where feasible | Funding dependent - Business case not strong without additional funding   |
| 12 | Strive to set up an Ecostars scheme in Warwick District Council whereby fleet operators can join for free and strive to reduce their environmental impacts. | Vehicle Fleet Efficiency                | Fleet efficiency and recognition schemes | WDC | 2016 | 2017 onwards                    | n/a | n/a | Not taken forward yet – no grant funding available  | Subject to grant funding   | Dependent on funding being available  |
| 13 | Working with Warwickshire County Council and bus operators to encourage lower emission buses  | Vehicle fleet efficiency                | Promoting Low Emission Public Transport  | WCC | 2016 | 2017 onwards                    | n/a | n/a | 1. Meetings held with bus providers in the Warwick district. Obtained details on composition of vehicle fleet and have identified eight Euro 4 buses that are eligible for retrofitting.<br>2. Initial discussions with local bus providers and bus manufacturers on possibility of trialling an electric bus route through the Leamington Spa AQMA. Expression of interest has | Subject to grant funding   | Dependent on funding being available. Bid to be submitted for trial of electric bus route in 2018. Exploring funding opportunities for grants to retrofit identified Euro 4 buses that travel through declared AQMAs. |

## Warwick District Council

|    |   |                                  |                         |     |      |          |     |     |  |                         |   |
|----|---|----------------------------------|-------------------------|-----|------|----------|-----|-----|--|-------------------------|---|
|    | (either retrofitting existing buses, or use of alternative fuels).  |                                  |                         |     |      |          |     |     | been submitted for funding. Full bid to be submitted in 2018.  |                         |   |
| 14 | Ensuring that the electric taxi within Warwick District Council is utilised to promote Low Emission Vehicles to commercial operators and the public.                                      | Promoting Low Emission Transport | Taxi emission incentive | WDC | n/a  | n/a      | n/a | n/a | Not feasible as taxi is privately owned  | n/a                     | Licensing service has to be provided as cost neutral therefore can't incentivise electric taxis   |
| 15 | Promotion of electric vehicles through the Warwickshire Drive Electric Website. <a href="http://www.warwickshire.gov.uk/drive-electric">http://www.warwickshire.gov.uk/drive-electric</a> | Promoting Low Emission Transport | Other                   | WCC | 2016 | On-going | n/a | n/a | Website is updated and maintained.   | On-going implementation | Investigate including links on Warwick District Council website   |
| 16 | Use the taxi and private hire licensing system to try and reduce emissions from taxis and private hire vehicles.  | Promoting Low Emission Transport | Taxi emission incentive | WDC | n/a  | n/a      | n/a | n/a | Preliminary review of WDC licensed taxi fleet completed in November 2017. Explored possibility of a county-wide taxi euro emission licensing policy through the Coventry and Warwickshire Air Quality Alliance, however, limited interest from neighbouring local authorities. | To be confirmed         | Further information needed on taxi vehicle emissions contribution to air pollution in declared AQMAs before policy can be progressed. Potential for study to be undertaken in 2018 to explore this and inform a taxi emission policy. |

## Warwick District Council

|    |   |   |  |                                |      |          |     |     |  |   |  |
|----|---|---|--|--------------------------------|------|----------|-----|-----|--|---|--|
| 17 | Investigation with procurement colleagues to produce a sustainable procurement guide to ensure transport emissions are as low as possible   | Policy Guidance and Development Control | Sustainable Procurement Guidance         | WDC (Procurement)              | 2016 | 2016-17  | n/a | n/a | No progress made to date   | 2018                                    | Steering group meeting involved procurement manager. This action still to be taken forward   |
| 18 | Ensuring that the Warwick Low Emission Strategy Guidance for Developers is kept up to date, and implemented                                 | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | WDC E,S, H and CP and Planning | n/a  | On-going | n/a | n/a | 1. Good progress in implementing mitigation through development control. 2. Existing Low Emission Strategy currently being revised and exploring possibility of making the strategy a Supplementary Planning Document. | On-going                                |  |
| 19 | Working with planning policy colleagues to ensure that the Local Plan fully addresses air quality issues with appropriate policies included | Policy Guidance and Development Control | Other policy                             | WDC E,S, H and CP and Planning | n/a  | On-going | n/a | n/a | Planning policy relevant to air quality included in new Local Plan   | n/a                                     | Local Plan adopted in September 2017 and will be reviewed every five years.  |
| 20 | Working with planning colleagues and developers to ensure that new developments are based around the  | Policy Guidance and Development Control | Other policy                             | WCC Public Health              | n/a  | On-going | n/a | n/a | 5 minute walkable neighbourhoods have been investigated within work undertaken by WYG on how developments should look  | On-going encouragement of active travel | Warwickshire County Council Public Health continues to recommend the inclusion of five minute walkable neighbourhoods within their planning guidance however for many developments it can be a difficult target to implement due to existing infrastructure. This is an easier target for larger |

## Warwick District Council

|    |  |   |  |                                |     |          |     |     |  |          |                  |
|----|--|---|--|--------------------------------|-----|----------|-----|-----|--|----------|------------------|
|    | 'five-minute walkable neighbourhood', thereby encouraging active travel as the preferred methods of transport to access local facilities                           |   |  |                                |     |          |     |     |  |          | strategic sites. |
| 21 | Ensure that green infrastructure is integrated into all residential and commercial developments, in line with the National Planning Policy Framework (NPPF)        | Policy Guidance and Development Control | Other policy                             | WDC E,S, H and CP and Planning | n/a | On-going | n/a | n/a | NPPF followed for new development. Green infrastructure included where relevant            | On-going |                  |
| 22 | Ensuring that planning applications with potential air quality impacts are fully assessed for their impacts, at relevant locations using appropriate methodologies | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | WDC E,S, H and CP and Planning | n/a | On-going | n/a | n/a | Air quality assessments asked for on a regular basis and mitigation sought where necessary | On-going |                  |

## Warwick District Council

|    |   |   |  |                                 |           |  |     |     |   |   |   |
|----|---|---|--|---------------------------------|-----------|--|-----|-----|---|---|---|
| 23 | Ensuring that where possible, cumulative impacts are taken into account. Any committed developments should be included within a given air quality assessment  | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | WDC E, S, H and CP and Planning | n/a       | On-going                                 | n/a | n/a | On-going work required where large areas of development are allocated in Local Plan. Potential cumulative impacts raised at pre-application and outline planning application stages as necessary. | On-going  | To some extent, work undertaken on air quality impacts of the Local Plan takes cumulative impacts into account at a strategic level.  |
| 24 | Ensuring that appropriate mitigation is implemented where any relevant impacts are identified   | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | WDC E, S, H and CP and Planning | n/a       | On-going                                 | n/a | n/a | Mitigation asked for on a regular basis as part of the Low Emission Strategy  | On-going  |   |
| 25 | Junction improvements on key travel corridors in Warwick and Leamington Spa AQMAs are proposed which include junction/highway modifications, improvements for walking and cycling and bus priority measures | Traffic Management                      | Strategic Highway Improvements           | WCC (Transport)                 | 2014-2016 | Possible first corridor in place by 2020 | n/a | n/a | Good progress on planning and starting to implement corridor proposals  | On-going for different corridors, Europa Way to commence in May 2018. | 1. Europa Way likely to be first improvement implemented to ensure that vehicles use the strategic road networks rather than roads travelling through local AQMAs. 2. 20 MPH restrictions introduced in Warwick town centre to align with Warwick AQMA. 3. Further improvements to be explored for Leamington Spa AQMA. |

## Warwick District Council

|    |   |                    |   |                 |           |                                    |     |     |  |  |   |
|----|---|--------------------|---|-----------------|-----------|------------------------------------|-----|-----|--|--|---|
| 26 | An investigation of 20 mph zones as part of the wider transport strategy, where this will smooth traffic flow                             | Traffic Management | Reduction of Speed Limits, 20 mph zones | WCC (Transport) | 2015      | n/a                                | n/a | n/a | Good progress  | 2022   | 20mph zone has been implemented in Warwick town centre. WCC transport colleagues to review its implementation in Autumn 2018. |
| 27 | Targeted re-allocation of road space to prioritise and facilitate movement of pedestrians, cyclists, public transport and car share users | Traffic Management | Strategic Highway Improvements          | WCC (Transport) | 2014-2016 | On-going                           | n/a | n/a | Good progress on planning and starting to implement corridor proposals | On-going for different corridors, Europa Way to commence in May 2018 but dependent on development funding. Shared use cycle link completed on Priory Road, Warwick which is to be expanded to Northgate, Eastgate, Westgate, St. Johns, and Emscote Road |   |
| 28 | Manage deliveries across Warwick District   | Traffic Management | Congestion Management                   | WCC (Transport) | 2016      | Not being taken forward at present | n/a | n/a | Will review at future Steering Group meetings                          | n/a  |   |



## Warwick District Council

|    |  |   |                  |                   |         |          |     |     |   |                         |   |
|----|--|---|------------------|-------------------|---------|----------|-----|-----|---|-------------------------|---|
|    | Council to ensure that no additional congestion is caused by stationary delivery vehicles in busy locations  |   |                  |                   |         |          |     |     |   |                         |   |
| 29 | Re-investigate funding for a website to engage with the public on air quality, the health impacts of poor air quality, sustainable transport and strategies to improve air quality | Public Information                      | Via the internet | WCC Public Health | 2016/17 | On-going | n/a | n/a | Air quality information incorporated into Active Travel website. Further information about air quality and local AQMAs to be included.<br><a href="https://www.warwickshire.gov.uk/active-travel">https://www.warwickshire.gov.uk/active-travel</a> | On-going implementation | Active Travel Campaign social media presence continues to grow and there have been 2,241 website visits to date, increased from 1,323 visits in December 2017. More than 12,500 people have also been reached through a targeted digital radio advertisement. Currently exploring further ways to advertise / promote it. |
| 30 | Working with planners and developers to embed Public Health's Evidence for Planning guidance, thereby encouraging any new developments to support access to active travel          | Policy Guidance and Development Control | Other policy     | WCC Public Health | n/a     | On-going | n/a | n/a | The guidance document is used when responding to planning applications, pre-planning applications and local plan consultations on an ad-hoc basis.  | On-going                | The responses always support the inclusion of active travel and make recommendations for any further opportunities for encouraging active travel in design such as the inclusion of way finding signage / measured miles and cycle parking.   |

## Warwick District Council

|    |   |                    |                  |                    |         |   |     |     |   |          |   |
|----|---|--------------------|------------------|--------------------|---------|---|-----|-----|---|----------|---|
| 31 | Investigate implementing a campaign aimed at vulnerable members of the public (i.e. those with existing respiratory or cardiovascular conditions) in order that they could change behaviour to reduce exposure when pollution levels are high | Public Information | Via the internet | WCC Public Health  | 2015/16 | Unlikely to implement a campaign aimed at vulnerable member of population | n/a | n/a | Instead will embed active travel in everything we do, aimed at whole population | On-going | Warwickshire Public Health bid for personal air quality monitor campaign in 2017 was unsuccessful. Alternative funding for 50 personal monitors has been sought to run an event/campaign on personal exposure to air pollution.   |
| 32 | Continuation of monitoring within Warwick District Council, focussed on AQMAs, but also in other strategic locations  | n/a                | n/a              | WDC E,S, H and CP. | n/a     | On-going  | n/a | n/a | Monitoring reported in this report  | On-going | Three additional diffusion tube monitoring points to be installed as of June 2018 around Castle Hill, Warwick following feedback from DEFRA on ASR 2017. Two additional diffusion tube monitors to be routinely deployed to investigate any temporary air quality concerns. |
| 33 | Regular assessment of air quality against air quality objectives as specified by the LAQM process with reports to defra and   | n/a                | n/a              | WDC E,S, H and CP. | n/a     | On-going  | n/a | n/a | Undertaken in this report   | On-going |   |

## Warwick District Council

|    |   |     |     |                   |     |          |     |     |                           |          |  |
|----|---|-----|-----|-------------------|-----|----------|-----|-----|---------------------------|----------|--|
|    | the public  |     |     |                   |     |          |     |     |                           |          |  |
| 34 | Review of measures set out in this Air Quality Action Plan on a regular basis to ensure they are up to date and being implemented | n/a | n/a | WDC E,S, H and CP | n/a | On-going | n/a | n/a | Undertaken in this report | On-going |  |

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

As detailed in Policy Guidance LAQM.PG16<sup>5</sup> (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.

Warwick District Council anticipates that the measures within the Action Plan, whilst primarily targeted at NO<sub>2</sub>, will also contribute toward a reduction in PM<sub>2.5</sub>. Proposals focussing on the key transport corridors will also help to reduce overall vehicle trips, reducing PM<sub>2.5</sub> emissions both through reductions in fuel usage and brake and tyre wear. However, sources of PM<sub>2.5</sub> extend beyond transport. WDC continues to enforce statutory controls on combustion emissions from both industrial and domestic sources, which both contribute to PM<sub>2.5</sub> concentrations.

Warwick District Council's Environmental and Public Health departments are collaborating to take action on air quality in the local area to help reduce the health burden from air pollution.

The Public Health Outcomes Framework is a Department of Health data tool, intended to focus public health action on increasing healthy life expectancy and reducing differences in life expectancy between communities. The PHOF includes an indicator, based on the effect of particulate matter (PM<sub>2.5</sub>) on mortality. According to the public health outcomes framework<sup>6</sup>, the fraction of mortality attributable to particulate air pollution (measured as PM<sub>2.5</sub>) in 2016 in Warwick is 5.5%, just above the average for England (5.3%), and equivalent to that of the West Midlands region (4.8%). This would suggest that PM<sub>2.5</sub> concentrations in Warwick are comparable to other areas in the UK.

The approach used in partnership with Public Health colleagues utilises this tool further, and includes the encouragement of active travel, which will also have wider public health benefits captured in other indicators such as increased physical activity (indicator 2.13) and reducing excess weight at various ages (indicators 2.6 & 2.12).

<sup>5</sup> <https://laqm.defra.gov.uk/supporting-guidance.html>

<sup>6</sup> <http://www.phoutcomes.info/public-health-outcomes-framework#page/0/gid/1000043/pat/6/par/E12000005/ati/101/are/E07000222>

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Warwick District Council also uses the two monitoring stations in the Automatic Urban and Rural Network (AURN) measuring PM<sub>2.5</sub> to monitor progress against this pollutant. The trend in the last 5 years is broadly consistent; whilst 2016 saw a marginal reduction in concentrations at both sites (~10µg/m<sup>3</sup>), the 2017 levels have risen to ~11µg/m<sup>3</sup>. However, there is little difference in concentrations between the background site, AURN1 (Hamilton Terrace), and the roadside site, AURN2 (Rugby Road, Leamington), thus illustrating that sources of PM<sub>2.5</sub> can be trans-boundary and regionally influenced, and the sources go beyond just transport.

## 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 relevant objectives.

Warwick District Council undertook automatic (continuous) monitoring at three sites during 2017. Two of which are part of the Automatic Urban and Rural Network (AURN), the remainder is a council run Automatic Monitoring site. Table A.1 shows the details of the sites. National monitoring results are available online at <https://uk-air.defra.gov.uk/data/>.

Maps showing the location of the monitoring sites are provided in Appendix D: Maps of Monitoring Locations and AQMAs. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC.

#### 3.1.2 Non-Automatic Monitoring Sites

Warwick District Council undertook non- automatic (passive) monitoring of NO<sub>2</sub> at 53 sites during 2017, two of which were triplicate co-located sites. Appendix A: Monitoring Results shows the details of all of these locations.

Maps showing the location of the monitoring sites are provided in Appendix D: Maps of Monitoring Locations and AQMAs. 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: Supporting Technical Information / Air Quality Monitoring Data QA/QC.

### 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>.

For non-automatic monitoring or diffusion tubes, the full 2017 dataset of monthly mean values is provided in Appendix B: Full Monthly Diffusion Tube Results for 2017.

Figure A.6 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.

The majority of sites, both automatic and non-automatic, have increased in their mean annual NO<sub>2</sub> concentrations from 2016.

Concentrations exceeding the 40µg/m<sup>3</sup> limit were seen at 18 sites; after having distance corrected to nearest exposure, 14 sites still exceeded the NO<sub>2</sub> annual mean objective. Of the 14 sites in exceedance, 12 were situated within existing AQMAs. Of the 12 exceedances within AQMAs;

- 6 located in the Warwick AQMA;
- 5 located in the Leamington Spa AQMA; and
- 1 located in the New Street, Kenilworth AQMA

Figure A.2 to Figure A.5 show the changes in concentrations over a 5 year period for the monitoring sites located in AQMAs.

It can be seen that the Leamington Spa annual mean concentrations are rising at a greater rate, when compared to the Warwick. Monitoring sites in the Leamington Spa AQMA measured similar changes in NO<sub>2</sub> concentrations since last year; the sites within this AQMA increased by 10% on average. The highest increase was at W2, which rose from 40.4µg/m<sup>3</sup> in 2016 to 48.8µg/m<sup>3</sup> in 2017. The DFT have estimated traffic increases year on year since 2012 for Old Warwick Road, and W2 is located on a key junction from this road. This station will be monitored closely in the next reporting year.

The remaining 2 non-AQMA sites still exceeding the  $40\mu\text{g}/\text{m}^3$  after distance correction are:

- W14 - located on Tachbrook Road, near the border of the Leamington Spa AQMA; and
- W67 - located on Castle Hill, on boundary of Warwick AQMA.

Both these sites have reported  $\text{NO}_2$  levels  $>35\mu\text{g}/\text{m}^3$  since 2013, however only W67 has exceeded  $40\mu\text{g}/\text{m}^3$  prior to this year. Castle Hill has been identified as a potential problem area by both the council and DEFRA. Plans are in place to install more monitoring sites around this location in response, this will inform the response to the exceedances in  $\text{NO}_2$  concentration. If future  $\text{NO}_2$  concentrations, from W67 and also the new diffusion tubes, remain high at this site the AQMA boundary will be amended to incorporate this area.

W14's concentration of  $\text{NO}_2$  has steadily increased since 2014 however this is the first year measured values have exceeded  $40\mu\text{g}/\text{m}^3$ ; W14 is located on the border of the Leamington Spa AQMA, meaning measures implemented to improve Air Quality in this area will likely also improve this location. In the event W14 continues to exceed the AQS Objective for  $\text{NO}_2$  next year, the AQMA will be adjusted to incorporate this area. This is an area WDC will remain vigilant of in future ASRs.

### 3.2.2 Particulate Matter ( $\text{PM}_{10}$ )

Table A.5 in Appendix A compares the ratified, continuously monitored,  $\text{PM}_{10}$  annual mean concentrations for the past 5 years with the air quality objective of  $40\mu\text{g}/\text{m}^3$ .

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

Shown in Figure A.8, no exceedances of either the annual or daily  $\text{PM}_{10}$  objectives were measured in 2017.  $\text{PM}_{10}$  concentrations have remained relatively stable over the last 5 years; however since 2016,  $\text{PM}_{10}$  concentrations have decreased marginally at AURN1 and increased marginally at AURN2. Whilst both monitoring stations are still measuring considerably below the limit for  $\text{PM}_{10}$  ( $13.9\mu\text{g}/\text{m}^3$  and



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17.3 $\mu\text{g}/\text{m}^3$  respectively in 2017), AURN2 PM<sub>10</sub> concentrations have marginally increased year on year since 2014.

Also shown in Figure A.8, in line with the minor changes in annual mean concentrations at the two monitoring sites, daily exceedances of 50 $\mu\text{g}/\text{m}^3$  have changed accordingly. AURN1 measured 2 exceedances, falling from 4 last year, and AURN2 measured 4 exceedances, rising from 2 last year.

### 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 from the two automatic stations.

No exceedances of the UK PM<sub>2.5</sub> annual mean target value were measured in 2017.

Concentrations measured at both stations have increased marginally since 2016, however the concentration of PM<sub>2.5</sub> has been broadly consistent over the last 5 years and remains well below the target value (25  $\mu\text{g}/\text{m}^3$ ) at ~11  $\mu\text{g}/\text{m}^3$  across both sites.

### 3.2.4 Benzene (C<sub>6</sub>H<sub>6</sub>)

Table A.8 in Appendix A presents the ratified and adjusted monitored Benzene annual mean concentrations for the past 5 years measured at AURN1, Figure A.10 graphically shows this data.

No exceedances of the UK annual mean objective for Benzene (5 $\mu\text{g}/\text{m}^3$ ) were measured in 2017 and over the 5 year period Benzene has been decreasing in concentration.

## 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) |
|---------|----------------------------------|------------------|---------------|---------------|---|----------|--|--|---|------------------|
| AURN1   | Hamilton Terrace, Leamington Spa | Urban Background | 431943        | 265730        | NO <sub>2</sub> , O <sub>3</sub> , C <sub>6</sub> H <sub>6</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> | NO       | Chemiluminescence, Ultra-violet fluorescence (UVF), FDMS | 9  | 50  | 4                |
| CM1     | Pageant House, Warwick           | Roadside         | 428263        | 264877        | NO <sub>2</sub>   | YES      | Chemiluminescence  | 13   | 2.8   | N/a              |
| AURN2   | Rugby Road, Leamington Spa       | Roadside         | 431271        | 266404        | NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub>  | NO       | Chemiluminescence, FDMS                                  | 23   | 8   | 3.5              |

**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) |
|---------|-----------------------------------|-----------|---------------|---------------|----------------------|----------|--|---|---|------------|
| W5      | Hampton Street (3)                | Roadside  | 427615        | 264563        | NO <sub>2</sub>      | N        | Y  | 2   | N   | 1.5        |
| W17     | Coventry Road (Woodville Road)    | Kerbside  | 428704        | 265236        | NO <sub>2</sub>      | N        | N  | 1   | N   | 1.5        |
| W18     | Coventry Road (Coachouse Mews)    | Roadside  | 428735        | 265362        | NO <sub>2</sub>      | N        | N  | 1.5   | N   | 1.5        |
| W19     | West Street Torry's               | Roadside  | 427937        | 264586        | NO <sub>2</sub>      | N        | N  | 3.2   | N   | 1.5        |
| W33-35  | Pageant House                     | Roadside  | 428263        | 264877        | NO <sub>2</sub>      | Y        | Y  | 2.8   | Y   | 1.5        |
| W36     | Jury Street                       | Roadside  | 428391        | 264966        | NO <sub>2</sub>      | Y        | N (1)  | 2.1   | N   | 1.5        |
| W37     | High Street                       | Roadside  | 428132        | 264799        | NO <sub>2</sub>      | Y        | Y  | 2.9   | N   | 1.5        |
| W38     | West Street                       | Kerbside  | 427959        | 264624        | NO <sub>2</sub>      | N        | N(3.6)   | 0.6   | N   | 1.5        |
| W39     | Crompton Street/ West Street      | Roadside  | 427910        | 264541        | NO <sub>2</sub>      | N        | Y  | 4.1   | N   | 1.5        |
| W40     | Bowling Green Street              | Kerbside  | 427992        | 264695        | NO <sub>2</sub>      | Y        | Y  | 0.9   | N   | 1.5        |
| W41     | Friars Street                     | Roadside  | 427905        | 264682        | NO <sub>2</sub>      | N        | N  | 1   | N   | 1.5        |
| W42     | Theatre Street                    | Roadside  | 427938        | 264947        | NO <sub>2</sub>      | Y        | Y  | 2.3   | N   | 4.5        |
| W43     | Saltisford/Northgate              | Roadside  | 428026        | 265158        | NO <sub>2</sub>      | Y        | Y  | 1.5   | N   | 2.5        |
| W44     | West Rock                         | Roadside  | 427930        | 265200        | NO <sub>2</sub>      | Y        | N  | 2.3   | N   | 2.6        |
| W45     | Albert Street/Saltisford Junction | Roadside  | 427867        | 265275        | NO <sub>2</sub>      | Y        | Y  | 2.7   | N   | 2.5        |
| W46     | The Butts                         | Roadside  | 428240        | 265088        | NO <sub>2</sub>      | Y        | N(1.4)   | 1.6   | N   | 2.5        |
| W48     | Smith Street                      | Roadside  | 428522        | 265039        | NO <sub>2</sub>      | Y        | Y  | 2   | N   | 3          |

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|      |   |                  |        |        |                 |   |          |     |   |     |
|------|---|------------------|--------|--------|-----------------|---|----------|-----|---|-----|
| W49  | Gerrard Street                          | Roadside         | 428501 | 264967 | NO <sub>2</sub> | N | Y        | 1.8 | N | 2.6 |
| W50  | St Nicholas' Church St 1.               | Roadside         | 428600 | 264983 | NO <sub>2</sub> | N | Y        | 1.7 | N | 2.6 |
| W51  | St Mary's Churchyard                    | Urban Background | 428270 | 264982 | NO <sub>2</sub> | N | N        | n/a | N | n/a |
| W52  | Coventry Road/crown Hotel               | Kerbside         | 428710 | 265165 | NO <sub>2</sub> | Y | N (2m)   | 1   | N | 2.5 |
| W53  | Coventry Road No 1 (Mongomery Court )   | Roadside         | 428715 | 265202 | NO <sub>2</sub> | Y | Y        | 1.8 | N | 2.4 |
| W54  | Coventry Road No 2 (28 Coventry Road)   | Roadside         | 428715 | 265285 | NO <sub>2</sub> | N | Y        | 1.9 | N | 2.4 |
| W55  | Coventry Road No 3 (Great Western Arms) | Roadside         | 428710 | 265341 | NO <sub>2</sub> | N | N        | 1.2 | N | 2.5 |
| W56  | St Johns                                | Roadside         | 428619 | 265113 | NO <sub>2</sub> | N | N        | 1.1 | N | 2.5 |
| W57  | Coten End                               | Roadside         | 428748 | 265166 | NO <sub>2</sub> | N | Y        | 3   | N | 2.5 |
| W58  | Emscote Road                            | Roadside         | 429514 | 265469 | NO <sub>2</sub> | N | N        | 3.8 | N | n/a |
| W59  | Charles Street                          | Roadside         | 429501 | 265494 | NO <sub>2</sub> | N | N(1.5)   | 2   | N | n/a |
| W60  | Bridge Street                           | Roadside         | 430015 | 265718 | NO <sub>2</sub> | N | N        | 2.4 | N | n/a |
| W61  | Greville Road                           | Roadside         | 429974 | 265733 | NO <sub>2</sub> | N | N        | 5.4 | N | n/a |
| W62  | St Nicholas' Church St. 2               | Roadside         | 428608 | 265042 | NO <sub>2</sub> | Y | Y        | 2.1 | N | 3   |
| W65  | Hampton Street (2)                      | Roadside         | 427680 | 264607 | NO <sub>2</sub> | N | Y        | 4.3 | N | n/a |
| W67  | Castle Hill                             | Roadside         | 428477 | 264939 | NO <sub>2</sub> | N | N (1.2m) | 3.2 | N | 2.5 |
| W1   | Bath Street                             | Kerbside         | 431978 | 265280 | NO <sub>2</sub> | Y | N (1m)   | 0.7 | N | 1.5 |
| W2   | High Street                             | Roadside         | 432075 | 265234 | NO <sub>2</sub> | Y | Y        | 2.2 | N | 1.5 |
| W6-8 | Hamilton Terrace                        | Urban Background | 431943 | 285730 | NO <sub>2</sub> | N | N        | n/a | N | 1.5 |
| W10  | Farley Street                           | Roadside         | 432560 | 265254 | NO <sub>2</sub> | N | N        | 0.1 | N | 4.5 |

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|     |                    |          |        |        |                 |   |        |      |   |     |
|-----|--------------------|----------|--------|--------|-----------------|---|--------|------|---|-----|
| W11 | Clemens Street     | Roadside | 432051 | 265060 | NO <sub>2</sub> | Y | N      | 3.2  | N | 1.5 |
| W12 | Spencer Street     | Roadside | 426836 | 260855 | NO <sub>2</sub> | Y | N(0.2) | 5    | N | 1.5 |
| W13 | Wise Street        | Roadside | 431900 | 265189 | NO <sub>2</sub> | Y | Y      | 1    | N | 1.5 |
| W14 | Tachbrook Road     | Roadside | 431862 | 265169 | NO <sub>2</sub> | N | N(0.6) | 5.22 | N | 1.5 |
| W15 | Old Warwick Road   | Roadside | 431849 | 265193 | NO <sub>2</sub> | Y | Y      | 2    | N | 1.5 |
| W16 | Parade             | Roadside | 431951 | 265397 | NO <sub>2</sub> | N | N(6.3) | 7.5  | N | 1.5 |
| W23 | Moorlands Road Jcn | Roadside | 429078 | 271207 | NO <sub>2</sub> | N | N      | 4.2  | N | 1.5 |
| W24 | Waverley Road      | Roadside | 428974 | 271402 | NO <sub>2</sub> | Y | N      | 2.8  | N | 4.5 |
| W25 | New Street No 1    | Roadside | 428707 | 272556 | NO <sub>2</sub> | Y | Y      | 0.4  | N | 1.5 |
| W26 | New Street No 2    | Roadside | 428733 | 272578 | NO <sub>2</sub> | Y | Y      | 1.7  | N | 1.5 |
| W27 | New Street No 3    | Kerbside | 428750 | 272612 | NO <sub>2</sub> | N | N      | 1.1  | N | 4.5 |
| W28 | Fieldgate Lane Jcn | Roadside | 428652 | 272524 | NO <sub>2</sub> | Y | Y      | 0.7  | N | 4.5 |
| W30 | The Square         | Roadside | 428714 | 271769 | NO <sub>2</sub> | N | Y      | 3.4  | N | 4.5 |
| W31 | Barrow Road        | Kerbside | 428816 | 271618 | NO <sub>2</sub> | Y | N(1.3) | 1.4  | N | 4.5 |
| W32 | Warwick Road       | Roadside | 428906 | 271497 | NO <sub>2</sub> | Y | Y      | 1.3  | N | 1.5 |
| W68 | Birmingham Road    | Roadside | 432931 | 272790 | NO <sub>2</sub> | N | Y      | 3.2  | N | n/a |

### 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 2017 (%) <sup>(2)</sup> | NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup> |             |             |             |             |
|---------|--------------|-----------------|---|--|---|-------------|-------------|-------------|-------------|
|         |              |                 |   |  | 2013  | 2014        | 2015        | 2016        | 2017        |
| CM1     | Roadside     | Automatic       | 93.1  | 93.1                                       | 39.7  | <b>40.1</b> | 37.2        | 31.7        | 37.1        |
| AURN1   | Urban Centre | Automatic       | 98.5  | 98.5                                       | 20.7  | 19.6        | 19.3        | 21.4        | 23.5        |
| AURN2   | Roadside     | Automatic       | 99.3  | 99.3                                       | 21.2  | 21.1        | 20.2        | 20.4        | 17.3        |
| W5      | Roadside     | DT              | 83.3  | 83.3                                       | 32.7  | 33.8        | 34.5        | <b>40.4</b> | 35.3        |
| W17     | Kerbside     | DT              | 91.7  | 91.7                                       | 29.1  | 29.1        | 27.7        | 29.4        | 31.2        |
| W18     | Roadside     | DT              | 91.7  | 91.7                                       | 25  | 24.7        | 24.7        | 27.2        | 28.5        |
| W19     | Roadside     | DT              | 100   | 100  | 31.4  | 31          | 28.4        | 33.3        | 35.0        |
| W33-35  | Roadside     | DT              | 66.7  | 66.7                                       | <b>40.8</b>   | <b>41.3</b> | <b>41.2</b> | <b>44.2</b> | <b>44.3</b> |
| W36     | Roadside     | DT              | 100   | 100  | <b>41.1</b>   | <b>43.6</b> | <b>42.2</b> | <b>46.3</b> | <b>49.5</b> |
| W37     | Roadside     | DT              | 100   | 100  | 38.3  | 34.6        | 37.5        | <b>41</b>   | <b>42.7</b> |
| W38     | Kerbside     | DT              | 91.7  | 91.7                                       | 32.6  | 34.5        | 34          | 37.4        | 39.6        |
| W39     | Roadside     | DT              | 100   | 100  | 26.8  | 27.3        | 27.6        | 30.7        | 31.5        |
| W40     | Kerbside     | DT              | 100   | 100  | 39.8  | <b>40</b>   | <b>40.7</b> | <b>42.9</b> | <b>47.6</b> |
| W41     | Roadside     | DT              | 91.7  | 91.7                                       | 24.8  | 25.4        | 22.6        | 26.7        | 27.6        |
| W42     | Roadside     | DT              | 100   | 100  | 32  | 29.4        | 26.4        | 33.4        | 32.1        |
| W43     | Roadside     | DT              | 100   | 100  | <b>44.3</b>   | <b>45.4</b> | <b>43.4</b> | <b>46.6</b> | <b>50.2</b> |
| W44     | Roadside     | DT              | 100   | 100  | 29.9  | 31.9        | 28.6        | 32.5        | 34.8        |
| W45     | Roadside     | DT              | 100   | 100  | 26.4  | 27.8        | 27.2        | 29.6        | 31.2        |
| W46     | Roadside     | DT              | 100   | 100  | 35.4  | 34.3        | 34.2        | 39.2        | <b>40.0</b> |
| W48     | Roadside     | DT              | 91.7  | 91.7                                       | 33.5  | 33.8        | 32.7        | 36          | 39.7        |
| W49     | Roadside     | DT              | 100.0   | 100.0                                      | 22.9  | 23.3        | 22.1        | 25.3        | 26.1        |

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|      |                  |    |       |       |             |           |              |             |             |
|------|------------------|----|-------|-------|-------------|-----------|--------------|-------------|-------------|
| W50  | Roadside         | DT | 100.0 | 100.0 | 29.4        | 28.7      | 27.9         | 30.5        | 32.5        |
| W51  | Urban Background | DT | 91.7  | 91.7  | 19.3        | 18.2      | 17.4         | 20.2        | 21.4        |
| W52  | Kerbside         | DT | 100.0 | 100.0 | <b>41.4</b> | 39.4      | 38.1         | <b>41.4</b> | <b>44.3</b> |
| W53  | Roadside         | DT | 100.0 | 100.0 | <b>42.7</b> | <b>41</b> | 38.5         | <b>44</b>   | <b>46.4</b> |
| W54  | Roadside         | DT | 83.3  | 83.3  | 34          | 32.9      | 31           | 34.8        | 37.3        |
| W55  | Roadside         | DT | 91.7  | 91.7  | 29.9        | 28.5      | 27.3         | 31          | 32.4        |
| W56  | Roadside         | DT | 100.0 | 100.0 | 22.5        | 22.7      | 21.3         | 23.7        | 26.3        |
| W57  | Roadside         | DT | 100.0 | 100.0 | 31.4        | 31.3      | 30           | 31.8        | 33.5        |
| W58  | Roadside         | DT | 91.7  | 91.7  | 35          | 31.3      | 29.9         | 31          | 34.4        |
| W59  | Roadside         | DT | 100   | 100   | 36.3        | 36.7      | 34           | 38.1        | <b>41.6</b> |
| W60  | Roadside         | DT | 100   | 100   | 31.2        | 28.9      | 27.8         | 31.6        | 32.3        |
| W61  | Roadside         | DT | 100   | 100   | 27.8        | 26.4      | 26.2         | 29.5        | 31.2        |
| W62  | Roadside         | DT | 100   | 100   | <b>43.8</b> | <b>44</b> | <b>42.5</b>  | <b>41.5</b> | <b>47.9</b> |
| W65  | Roadside         | DT | 91.7  | 91.7  | 24.3        | 23.2      | <b>23.0*</b> | 26.4        | 27.5        |
| W67  | Roadside         | DT | 83.3  | 83.3  | -           | <b>41</b> | <b>41.8</b>  | <b>48</b>   | <b>50.0</b> |
| W1   | Kerbside         | DT | 58.3  | 58.3  | 36.3        | <b>40</b> | <b>43.4</b>  | <b>47.3</b> | <b>52.4</b> |
| W2   | Roadside         | DT | 75    | 75    | 33.5        | 32.6      | 38.2         | <b>40.4</b> | <b>48.8</b> |
| W6-8 | Urban Background | DT | 100   | 100   | 19.8        | 19.2      | 19.7         | 21.8        | 22.9        |
| W10  | Roadside         | DT | 100   | 100   | 24.1        | 24        | 24.3         | 26.5        | 28.9        |
| W11  | Roadside         | DT | 83.3  | 83.3  | 32.9        | 23.7      | 23.2         | 25.6        | 23.8        |
| W12  | Roadside         | DT | 100   | 100   | 38          | 33.7      | 33.3         | 36.6        | <b>41.3</b> |
| W13  | Roadside         | DT | 100   | 100   | <b>42.8</b> | <b>47</b> | <b>48.6</b>  | <b>50.4</b> | <b>55.4</b> |
| W14  | Roadside         | DT | 100   | 100   | 39.6        | 34.5      | 38.1         | 39.6        | <b>45.4</b> |
| W15  | Roadside         | DT | 100   | 100   | 35.9        | <b>41</b> | <b>43.9</b>  | <b>45</b>   | <b>52.0</b> |
| W16  | Roadside         | DT | 91.7  | 91.7  | 30.6        | 28.5      | 30.7         | 32.6        | 37.6        |

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|     |          |    |       |       |      |      |      |           |             |
|-----|----------|----|-------|-------|------|------|------|-----------|-------------|
| W23 | Roadside | DT | 100   | 100   | 30.7 | 31.1 | 30.6 | 33.6      | 35.8        |
| W24 | Roadside | DT | 100   | 100   | 30.2 | 29.7 | 28.2 | 30.4      | 30.7        |
| W25 | Roadside | DT | 75    | 75    | 34.6 | 34.5 | 31.3 | 34.6      | 30.7        |
| W26 | Roadside | DT | 100.0 | 100.0 | 27.1 | 25.7 | 24.4 | 29        | 30.3        |
| W27 | Kerbside | DT | 91.7  | 91.7  | 23.1 | 22.5 | 21.6 | 26.1      | 26.5        |
| W28 | Roadside | DT | 66.7  | 66.7  | 37.7 | 37.8 | 33.2 | <b>40</b> | 37.1        |
| W30 | Roadside | DT | 100   | 100   | 25   | 26.1 | 24   | 27.3      | 29.0        |
| W31 | Kerbside | DT | 100   | 100   | 37.4 | 37.6 | 35.2 | 37.1      | <b>41.4</b> |
| W32 | Roadside | DT | 100   | 100   | 36   | 35.8 | 34   | 37.5      | 37.2        |
| W68 | Roadside | DT | 100   | 100   | -    | 23.3 | 23.6 | 24.7      | 25.1        |

☒ Diffusion tube data has been bias corrected

☒ Annualisation has been conducted where data capture is <75%

### 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 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.

\*Differs from 2016 submitted data, as error identified in reported figure



Figure A.1 –Trends in Annual Mean NO<sub>2</sub> Concentrations located in Warwick AQMA – Automatic Stations

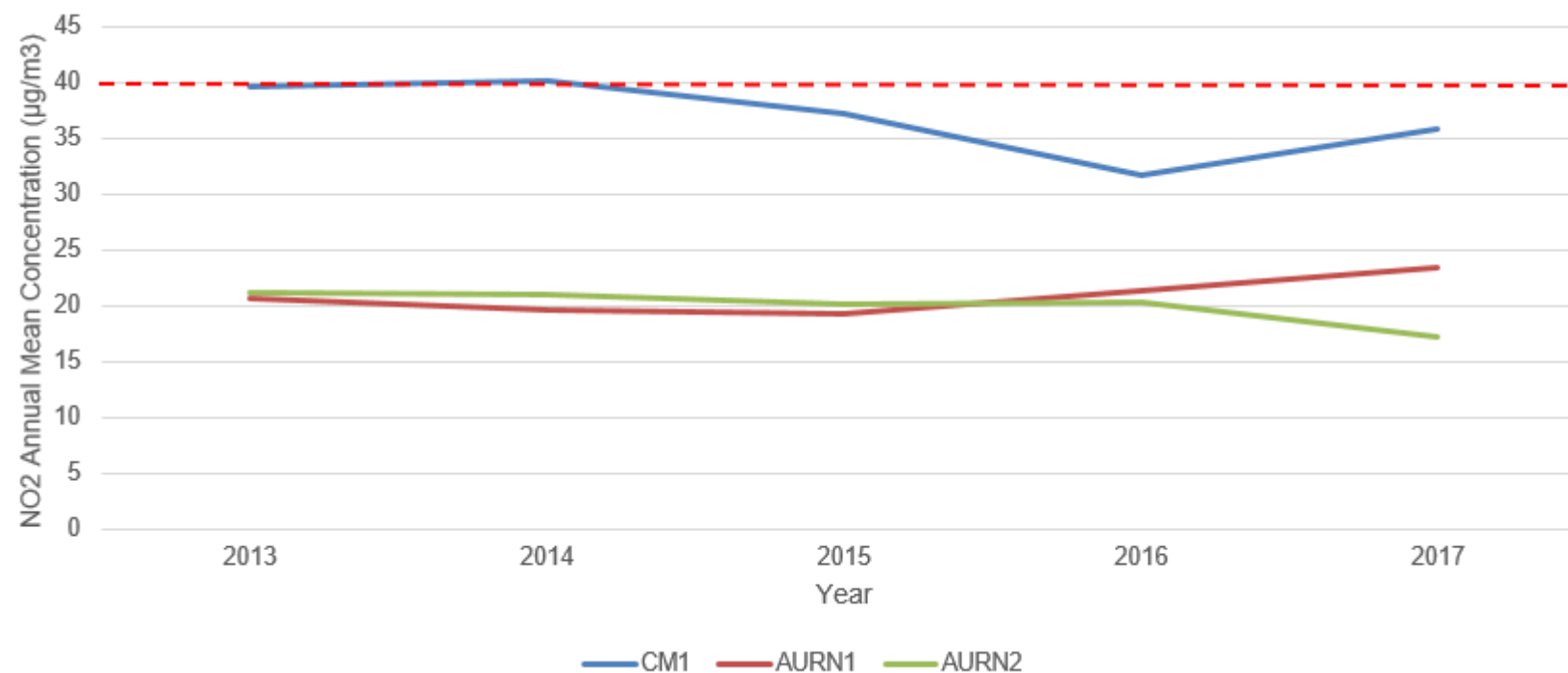


Figure A.2 –Trends in Annual Mean NO<sub>2</sub> Concentrations located in Warwick AQMA – Non Automatic Sites

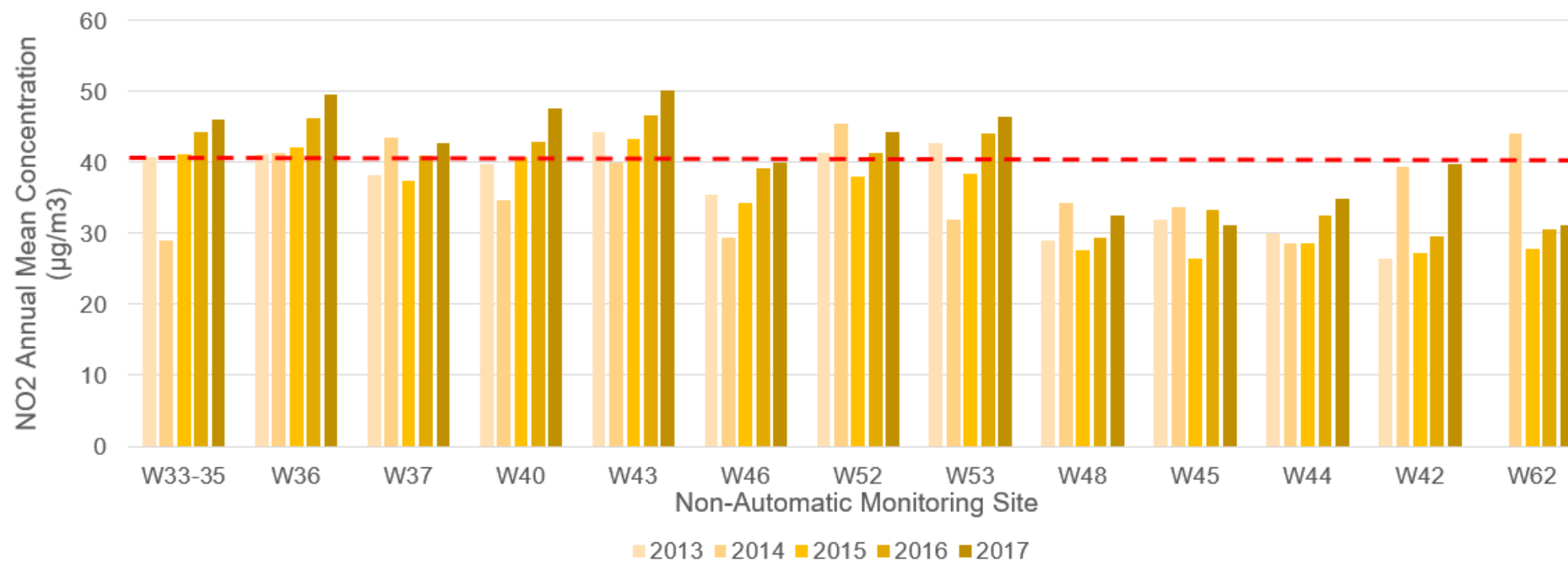


Figure A.3 –Trends in Annual Mean NO<sub>2</sub> Concentrations located in Leamington Spa AQMA – Non Automatic Sites

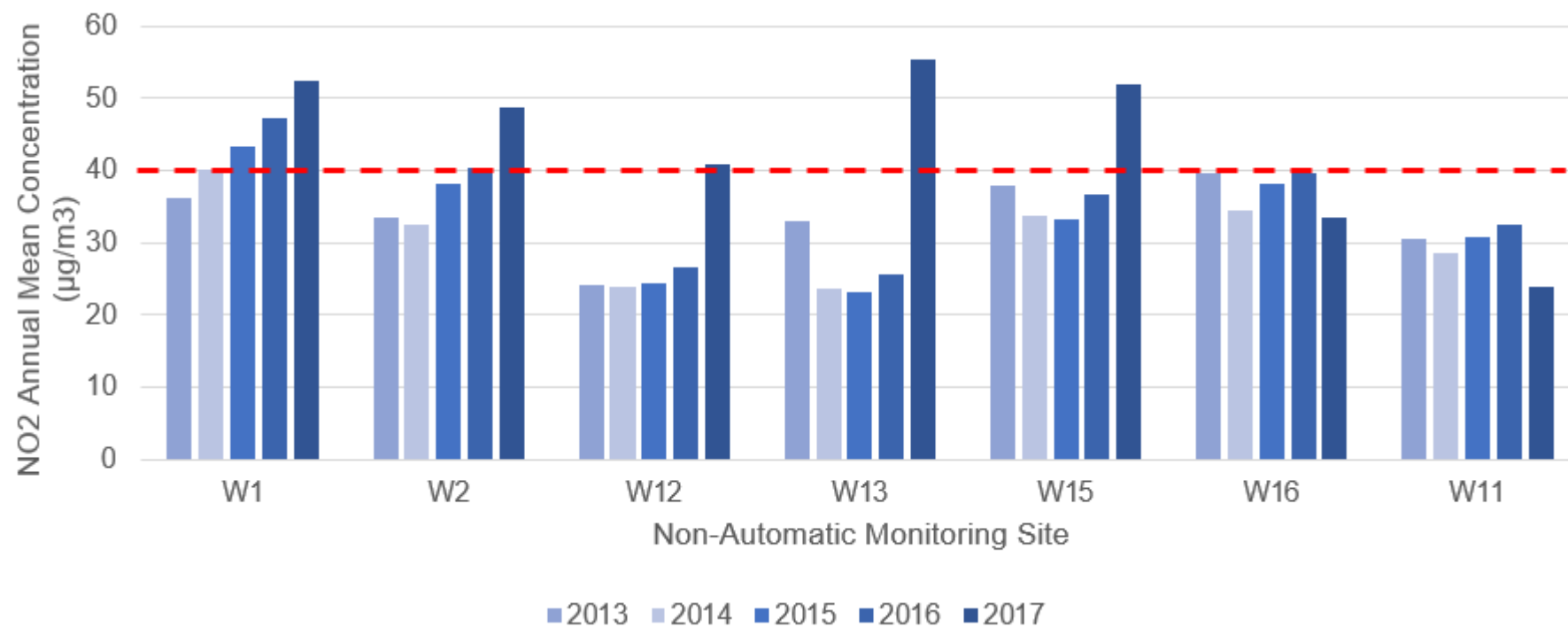


Figure A.4 –Trends in Annual Mean NO<sub>2</sub> Concentrations located in Kenilworth, New Street – Non Automatic Sites

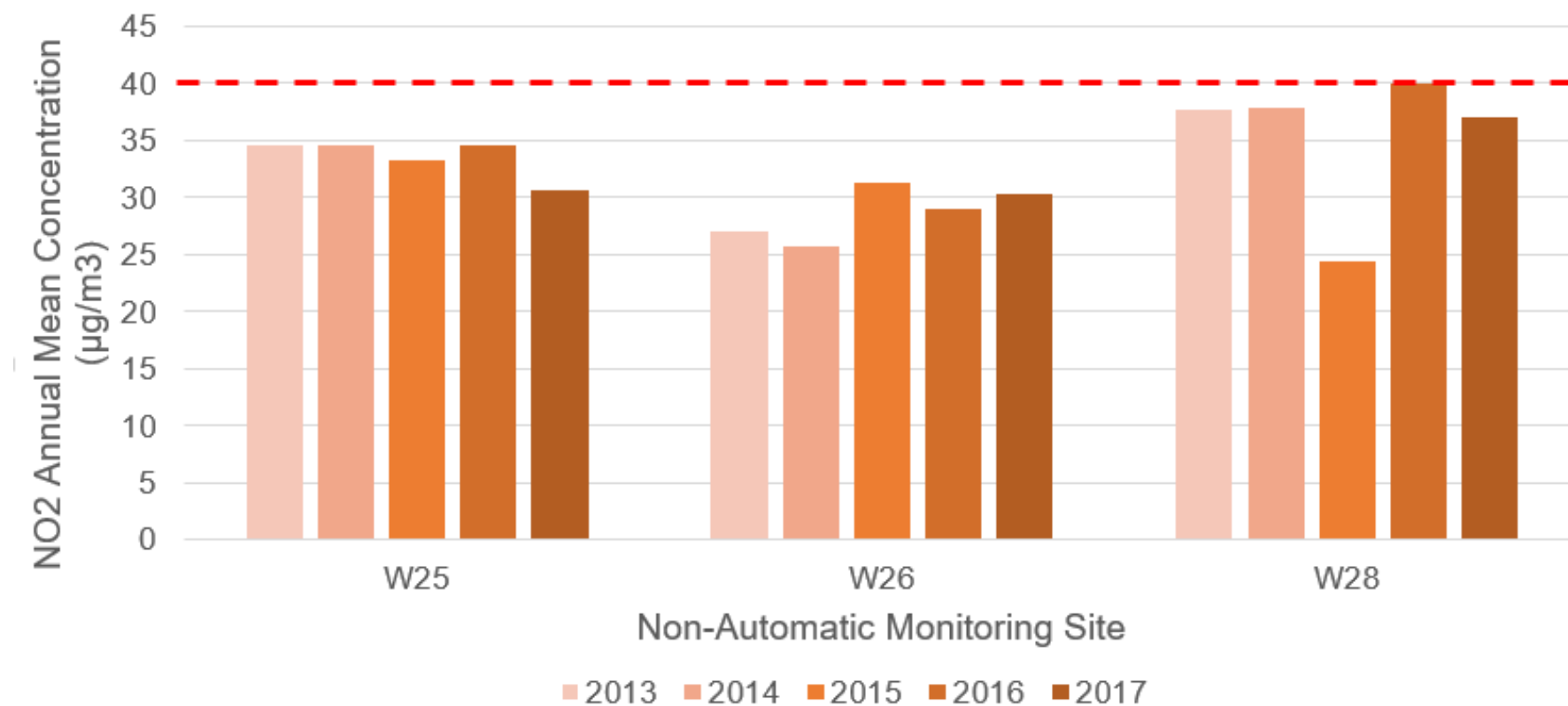


Figure A.5 – Trends in Annual Mean NO<sub>2</sub> Concentrations located in Kenilworth, Warwick Rd – Non Automatic Sites

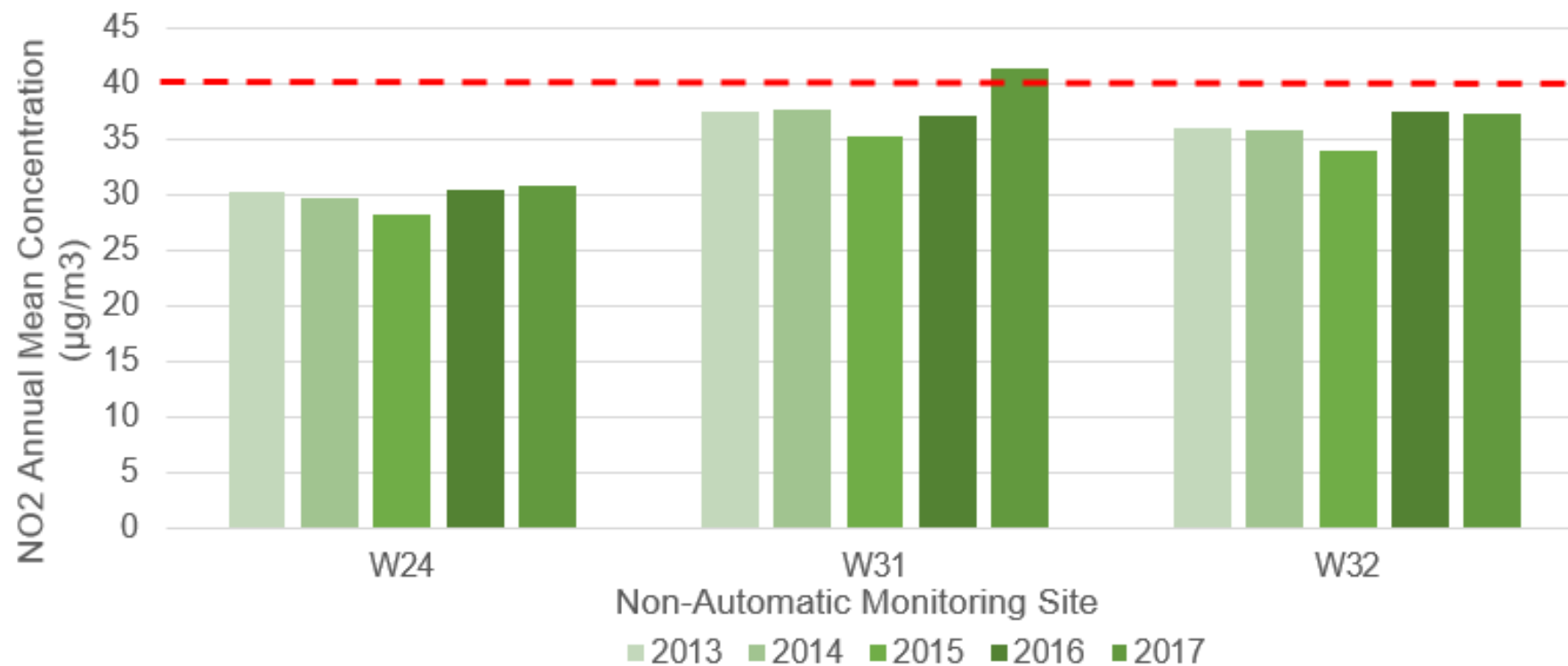
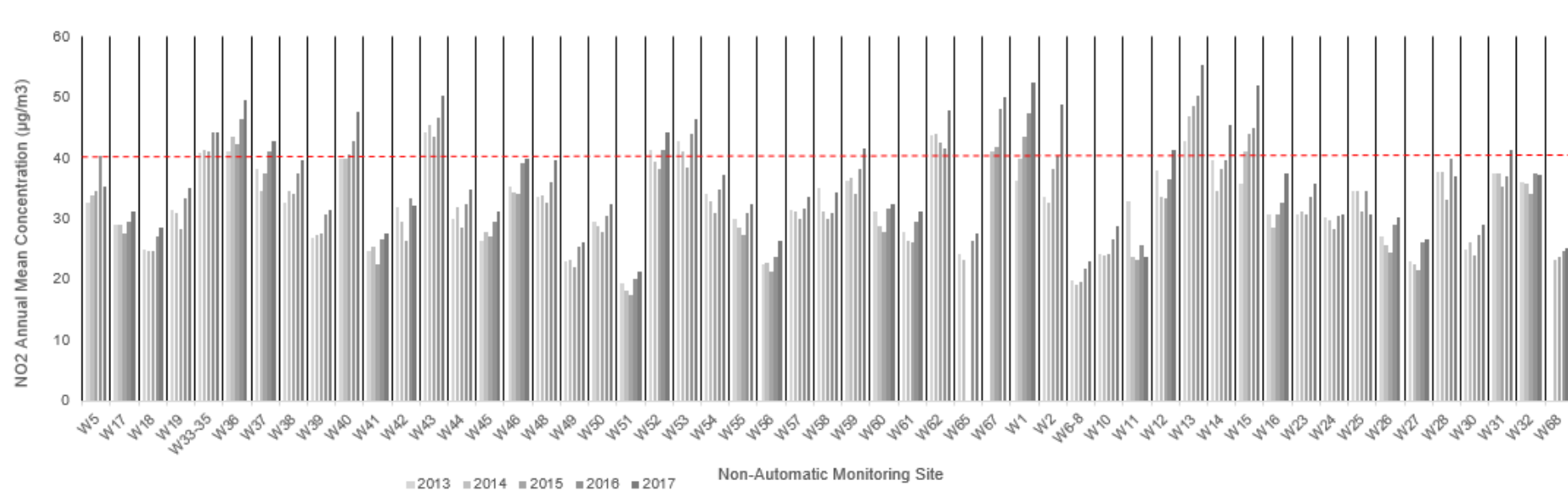


Figure A.6 –Trends in Annual Mean NO<sub>2</sub> Concentrations located outside of AQMAs



**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 2017 (%) <sup>(2)</sup> | NO <sub>2</sub> 1-Hour Means > 200 µg/m <sup>3</sup> <sup>(3)</sup> |       |      |      |      |
|---------|-----------|-----------------|---|--|---|-------|------|------|------|
|         |           |                 |   |  | 2013  | 2014  | 2015 | 2016 | 2017 |
| AURN1   | UB        | Automatic       | 98.5  | 98.5                                       | 0 (77)  | 0(74) | 0    | 0    | 0    |
| CM1     | RS        | Automatic       | 93.1  | 93.1                                       | 4   | 0     | 0    | 0    | 0    |
| AURN2   | RS        | Automatic       | 99.3  | 99.3                                       | 1   | 0     | 0    | 0    | 0    |

**Notes:**

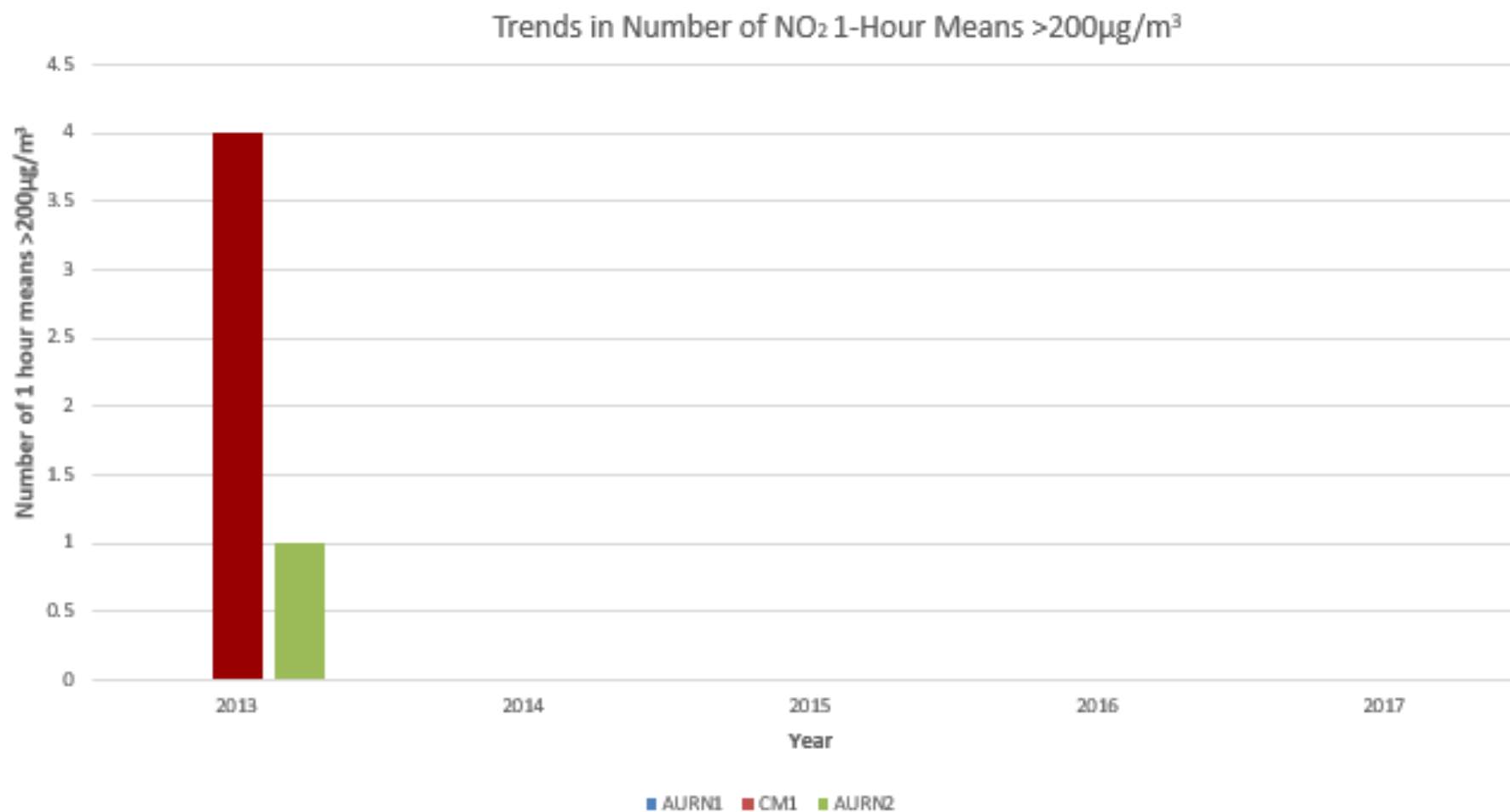
Exceedances of the NO<sub>2</sub> 1-hour mean objective (200µg/m<sup>3</sup> not to be exceeded more than 18 times/year) are shown in **bold**.

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





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

| Site ID | Site Type | Valid Data Capture for Monitoring Period (%) <sup>(1)</sup> | Valid Data Capture 2017 (%) <sup>(2)</sup> | PM <sub>10</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup> |      |      |      |      |
|---------|-----------|---|--|--|------|------|------|------|
|         |           |   |  | 2013   | 2014 | 2015 | 2016 | 2017 |
| AURN1   | UB        | 96.7  | 96.7                                       | 17.9   | 15.9 | 15.3 | 15.4 | 13.9 |
| AURN2   | RS        | 96.3  | 96.3                                       | 15.8   | 14.7 | 15.3 | 15.7 | 17.3 |

☒ **Annualisation has been conducted where data capture is <75%**

**Notes:**

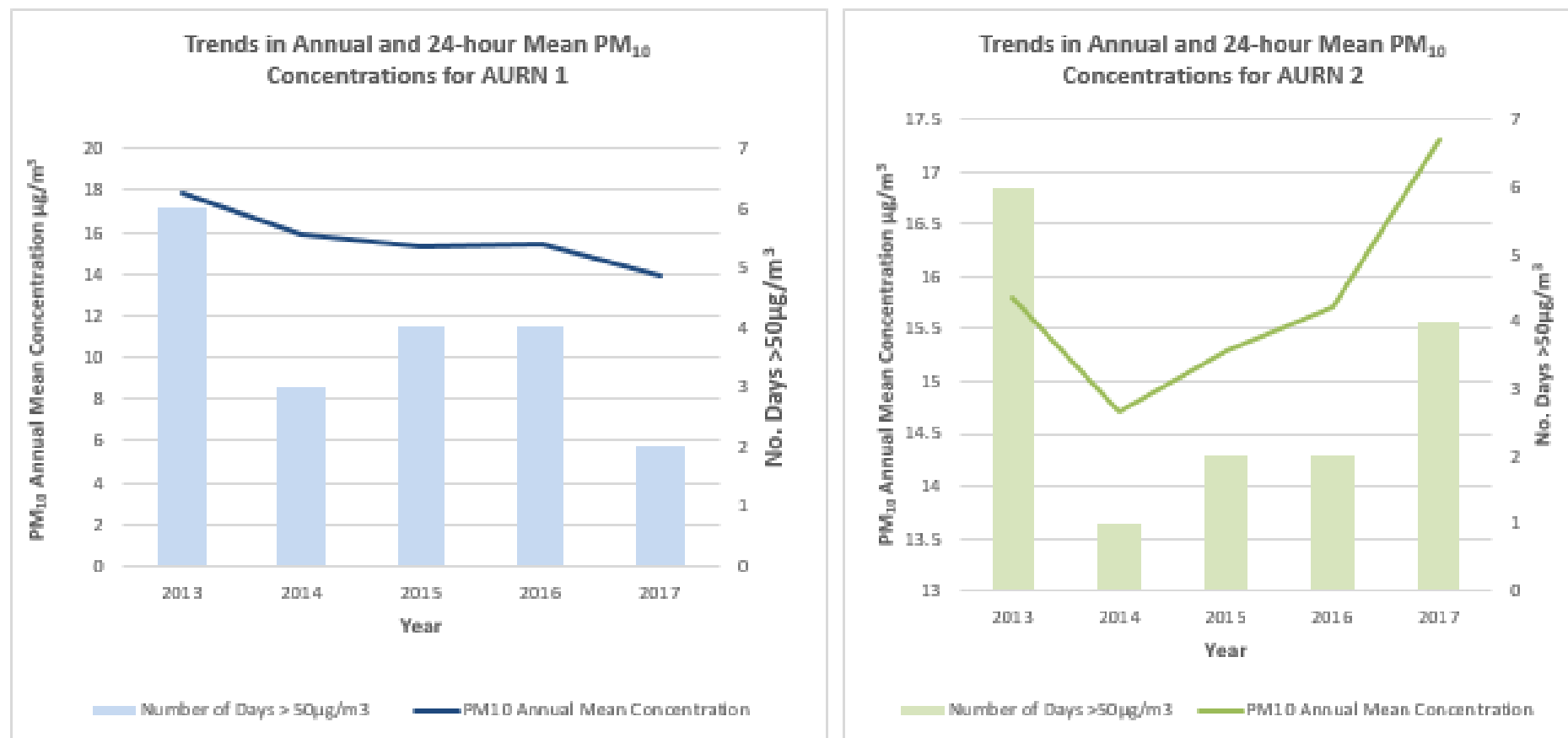
Exceedances of the PM<sub>10</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

(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.8 – Trends in Annual Mean PM<sub>10</sub> Concentrations



**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 2017 (%) <sup>(2)</sup> | PM <sub>10</sub> 24-Hour Means > 50µg/m <sup>3</sup> <sup>(3)</sup> |               |      |      |      |
|---------|-----------|---|--|---|---------------|------|------|------|
|         |           |   |  | 2013  | 2014          | 2015 | 2016 | 2017 |
| AURN1   | UB        | 96.7  | 96.7                                       | <b>6 (39)</b>   | 3             | 4    | 4    | 2    |
| AURN2   | RS        | 96.3  | 96.3                                       | <b>6 (29)</b>   | <b>1 (30)</b> | 2    | 2    | 4    |

**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.

**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 2017 (%) <sup>(2)</sup> | PM <sub>2.5</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup> |      |      |      |      |
|---------|-----------|---|--|---|------|------|------|------|
|         |           |   |  | 2013  | 2014 | 2015 | 2016 | 2017 |
| AURN1   | UB        | 95.5  | 95.5                                       | 13  | 12.9 | 12.3 | 10.5 | 10.7 |
| AURN2   | RS        | 97.5  | 97.5                                       | 12.1  | 11.2 | 12.9 | 9.7  | 11   |

☒ Annualisation has been conducted where data capture is <75%

**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.9 – Trends in Annual Mean PM<sub>2.5</sub> Concentrations

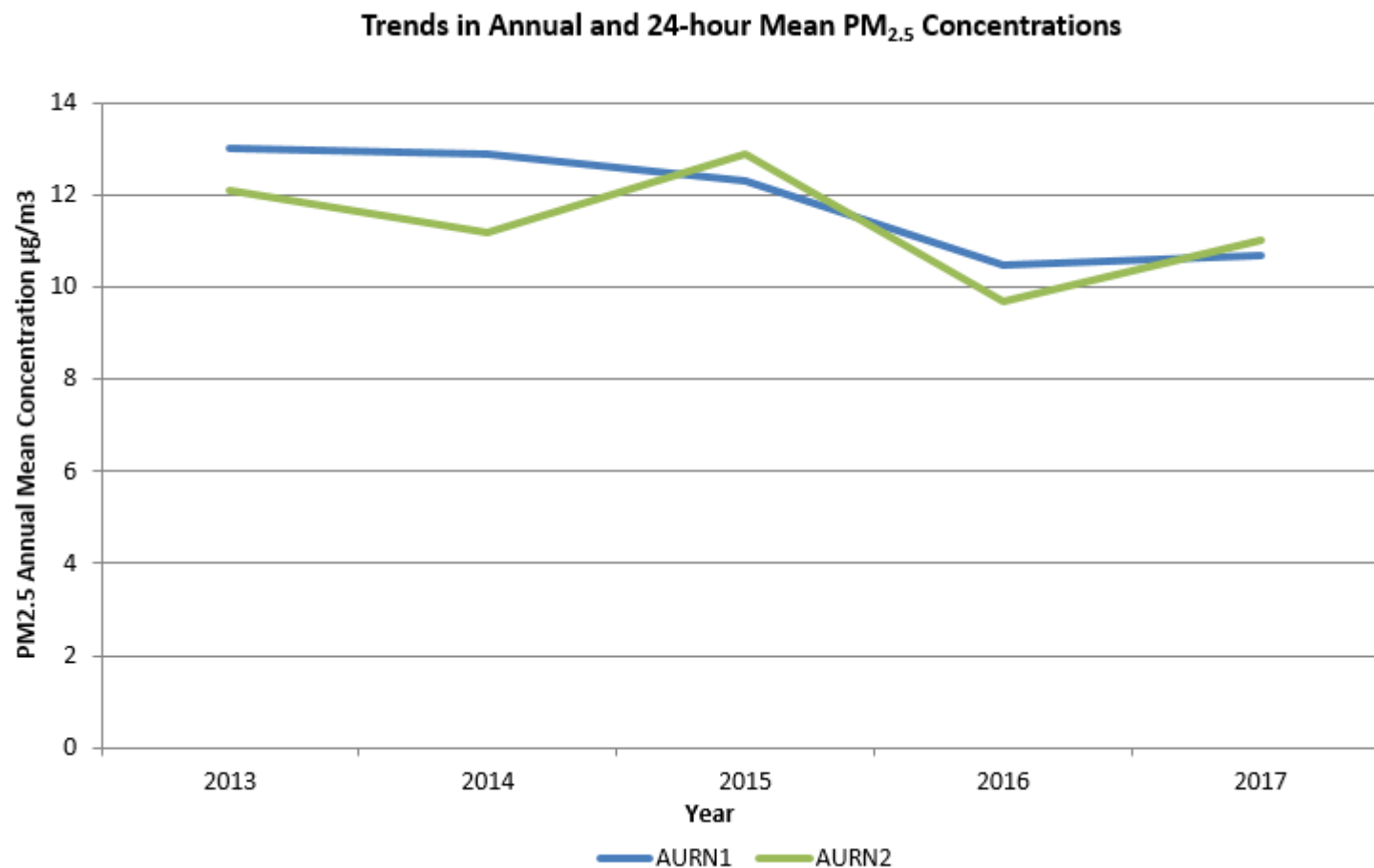


Table A.8 – Benzene (C<sub>6</sub>H<sub>6</sub>) Monitoring Results

| Site ID | Site Type | Valid Data Capture for Monitoring Period (%) <sup>(1)</sup> | Valid Data Capture 2017 (%) <sup>(2)</sup> | C <sub>6</sub> H <sub>6</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) |      |      |      |      |
|---------|-----------|---|--|--|------|------|------|------|
|         |           |   |  | 2013   | 2014 | 2015 | 2016 | 2017 |
| AURN1   | UB        | 100   | 100  | 0.68   | 0.67 | 0.60 | 0.53 | 0.52 |

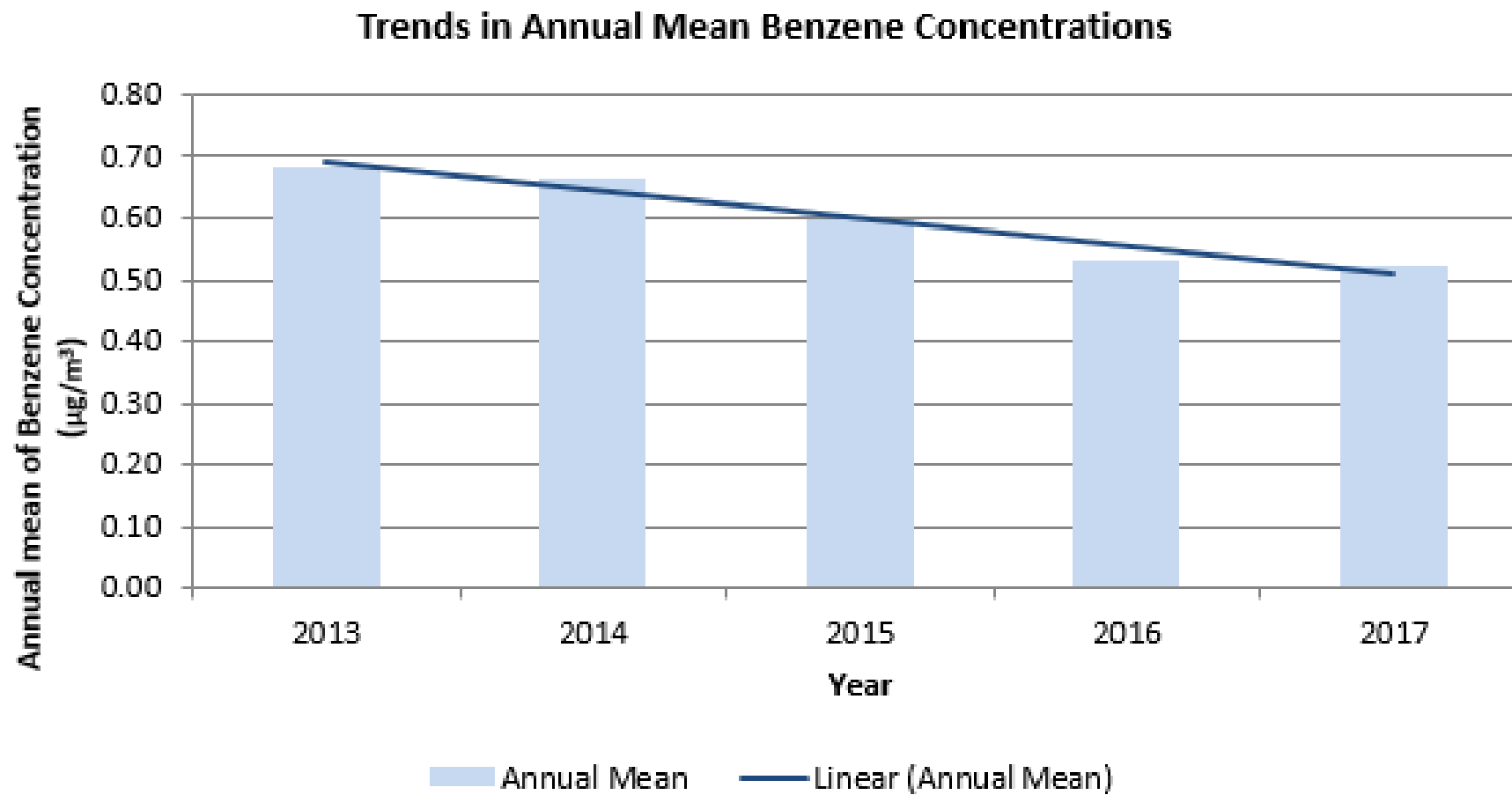
☒ Annualisation has been conducted where data capture is <75%

**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%).

Figure A.10 – Trends in Benzene (C<sub>6</sub>H<sub>6</sub>) Concentrations



## Appendix B: Full Monthly Diffusion Tube Results for 2017

Table B.1 – NO<sub>2</sub> Monthly Diffusion Tube Results - 2017

| Site ID | NO <sub>2</sub> Mean Concentrations (µg/m <sup>3</sup> ) |      |      |      |      |      |      |      |      |      |      |      | Annual Mean |  |   |
|---------|--|------|------|------|------|------|------|------|------|------|------|------|-------------|--|---|
|         | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Raw Data    | Bias Adjusted (factor) and Annualised <sup>(1)</sup> | Distance Corrected to Nearest Exposure <sup>(2)</sup> |
|         |  |      |      |      |      |      |      |      |      |      |      |      |             |  |   |
| W1      | -  | -    | 55   | -    | -    | -    | 45.4 | 50.3 | 57.8 | 59.7 | 68.8 | 59.3 | 56.6        | <b>52.4</b>  |   |
| W10     | 47.2   | 32.8 | 30.1 | 14.3 | 22.7 | 22   | 18.9 | 21.7 | 24.9 | 27.9 | 36.4 | 34.8 | 27.8        | 28.9   |   |
| W11     | 37.8   | 28   | 24.5 | 15.2 | 20.8 | 17.2 | 18.6 | 20.3 | 25   | 21.3 | -    | -    | 22.9        | 23.8   |   |
| W12     | 62.1   | 46.6 | 41   | 22.1 | 38   | 38.4 | 29.3 | 33.6 | 37.3 | 42.6 | 43   | 43.1 | 39.8        | <b>41.3</b>  | <b>40.9</b>   |
| W13     | 73.8   | 60.1 | 65.1 | 44.6 | 51.4 | 55.1 | 5.2  | 48.5 | 60.9 | 56.8 | 60.7 | 56.7 | 53.2        | <b>55.4</b>  |   |
| W14     | 51.9   | 43.8 | 47.4 | 26.6 | 37.7 | 40.5 | 47   | 42   | 44.1 | 44.3 | 51.9 | 47.1 | 43.7        | <b>45.4</b>  | <b>44.5</b>   |
| W15     | 63.3   | 48.5 | 58.4 | 34.2 | 43.8 | 49.2 | 41.2 | 44   | 49.1 | 52.2 | 58.6 | 57.1 | 50.0        | <b>52.0</b>  |   |
| W16     | 49.8   | 42.4 | 38   | 20   | -    | 30.6 | 28.6 | 30.1 | 36.4 | 37.1 | 44   | 40.6 | 36.1        | 37.6   | 33.5  |
| W17     | 43.8   | 36.1 | 31.8 | 19.1 | 26.8 | 22.5 | 22.9 | 24.9 | -    | 27.8 | 38.2 | 36.5 | 30.0        | 31.2   |   |
| W18     | 43.3   | 30.3 | -    | 16   | 26.1 | 23.5 | 21.5 | 24.1 | 28.3 | 25   | 33.8 | 29.4 | 27.4        | 28.5   |   |
| W19     | 44.8   | 37.1 | 32.3 | 20.4 | 28.5 | 29.2 | 29   | 30   | 34.2 | 34.7 | 43.2 | 40.1 | 33.6        | 35.0   |   |
| W2      | 59   | 45.3 | 47.5 | -    | -    | -    | 40.8 | 40.3 | 49.5 | 36.2 | 54.8 | 49.3 | 47.0        | <b>48.8</b>  |   |
| W23     | 51   | 40   | 38.3 | 23.3 | 29.6 | 29.9 | 27.2 | 28   | 34.9 | 33.4 | 39.7 | 37.3 | 34.4        | 35.8   |   |
| W24     | 51.1   | 35.5 | 29.4 | 22   | 25.2 | 21.2 | 23.8 | 21.6 | 28.5 | 27.6 | 38.2 | 30.6 | 29.6        | 30.7   |   |
| W25     | 53.2   | 33.6 | 31.7 | 21   | 26.9 | 24.3 | 25.5 | 20.5 | 28.6 | -    | -    | -    | 29.5        | 30.7   |   |



## Warwick District Council

|        |      |      |      |      |      |      |      |      |      |      |      |      |      |             |             |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------|-------------|
| W26    | 45.3 | 35   | 33.1 | 18.2 | 21.9 | 24.9 | 23.7 | 24   | 28.1 | 26.3 | 33.7 | 35.4 | 29.1 | 30.3        |             |
| W27    | 42.5 | 30.3 | 26.9 | -    | 19.9 | 18.4 | 19.5 | 19.1 | 22.5 | 19.6 | 31.2 | 30.1 | 25.5 | 26.5        |             |
| W28    | 61.4 | -    | 48.1 | 23.2 | 43   | 40.6 | 33.7 | 31.9 | -    | -    | -    | 38.8 | 40.1 | 37.1        |             |
| W30    | 44.8 | 33.6 | 25.8 | 19.9 | 20.7 | 23.4 | 22.8 | 23.1 | 28.2 | 28   | 34.1 | 30.1 | 27.9 | 29.0        |             |
| W31    | 53.4 | 46.2 | 39.3 | 26.1 | 34.3 | 35   | 35.2 | 34.4 | 42.9 | 40.7 | 45.4 | 45.2 | 39.8 | <b>41.4</b> | 37.3        |
| W32    | 53   | 40.5 | 37.3 | 23.9 | 36.8 | 28.9 | 32.4 | 30.6 | 36.1 | 32.2 | 41.8 | 36.3 | 35.8 | 37.2        |             |
| W33-35 | 60.8 | 54.4 | -    | -    | -    | -    | 39.1 | 39.1 | 42.2 | 46.4 | 50.6 | 50.2 | 47.8 | <b>44.3</b> |             |
| W36    | 72.4 | 52.2 | 55.8 | 26.8 | 42.9 | 44.2 | 38.3 | 36.7 | 43.3 | 48.8 | 58.2 | 51.4 | 47.6 | <b>49.5</b> | <b>46.0</b> |
| W37    | 53   | 47.2 | 44.1 | 35.3 | 36.3 | 36.2 | 35.9 | 32.7 | 39.2 | 38.8 | 50.8 | 43.1 | 41.1 | <b>42.7</b> |             |
| W38    | 51.2 | 44.2 | 39.2 | 30.8 | 29.4 | 32.1 | 33.6 | 36   | 39.8 | 37.1 | 45.4 | -    | 38.1 | 39.6        | 29.7        |
| W39    | 46.1 | 35.2 | 30.7 | 19.4 | 25.8 | 23.4 | 25.2 | 26.2 | 31.4 | 28.1 | 36.8 | 35.1 | 30.3 | 31.5        |             |
| W40    | 58.3 | 49.9 | 47.6 | 34.9 | 36.6 | 41   | 40.3 | 43.4 | 47.5 | 48.3 | 55.4 | 46.5 | 45.8 | <b>47.6</b> |             |
| W41    | 45.5 | 30.5 | 28.8 | 18.1 | -    | 16.6 | 20.7 | 19.5 | 25.6 | 24.2 | 33.2 | 29.3 | 26.5 | 27.6        |             |
| W42    | 49.6 | 34.9 | 29.5 | 17.8 | 27.1 | 22.8 | 26.8 | 27.7 | 33.2 | 29.7 | 37.6 | 33.5 | 30.9 | 32.1        |             |
| W43    | 65.9 | 49.2 | 45.3 | 34   | 45.7 | 44.8 | 45.8 | 47.2 | 50.1 | 47.3 | 54.9 | 48.6 | 48.2 | <b>50.2</b> |             |
| W44    | 61.1 | 38.7 | 33.2 | 16.3 | 27.6 | 28.6 | 28.9 | 29.1 | 34   | 32   | 36.9 | 35.7 | 33.5 | 34.8        |             |
| W45    | 48   | 32   | 30.4 | 18.8 | 28   | 24.9 | 24.8 | 24.3 | 27.5 | 31.1 | 37.3 | 32.8 | 30.0 | 31.2        |             |
| W46    | 61.5 | 43.7 | 37.9 | 27.1 | 36.4 | 32.2 | 33.6 | 30.1 | 40.5 | 37.9 | 45.4 | 34.9 | 38.4 | <b>40.0</b> | 36.5        |
| W48    | 61.1 | 42.9 | 39.4 | 19   | 30.9 | -    | 29.4 | 32.5 | 36.9 | 38.6 | 49.2 | 40.5 | 38.2 | 39.7        |             |
| W49    | 42.6 | 29.9 | 26.8 | 13.7 | 18.5 | 19.4 | 18.3 | 18.4 | 23.1 | 25.3 | 34.2 | 30.9 | 25.1 | 26.1        |             |
| W5     | 50.6 | 42   | -    | 21.7 | 27.4 | 27.5 | 29   | 30.6 | 35.5 | 33   | 41.8 | -    | 33.9 | 35.3        |             |
| W50    | 55.4 | 35.4 | 35.3 | 21.8 | 28.9 | 25.7 | 24   | 23.8 | 28.4 | 28.7 | 35.4 | 32.6 | 31.3 | 32.5        |             |
| W51    | 34.8 | 35.2 | 20.2 | 13.1 | 16.6 | 11.7 | 14.5 | 14.7 | 19.2 | 19.9 | 26.7 | -    | 20.6 | 21.4        |             |
| W52    | 56.9 | 49.1 | 43.3 | 28.2 | 45.5 | 41.7 | 37.9 | 37.5 | 41.3 | 39.8 | 47.5 | 42   | 42.6 | <b>44.3</b> | 37.8        |
| W53    | 63.4 | 49.7 | 47.1 | 33.5 | 48.5 | 42.5 | 37.8 | 37   | 42.3 | 43.2 | 47.7 | 43.2 | 44.7 | <b>46.4</b> |             |
| W54    | 48.2 | 40.4 | 40.2 | 20.5 | 34.4 | 30.1 | -    | -    | 34.7 | 31.6 | 39.4 | 39.5 | 35.9 | 37.3        |             |
| W55    | 49.8 | 36.5 | 29.8 | 22.6 | 30.6 | 27.8 | 28.4 | -    | 32.2 | 17.2 | 33.9 | 34   | 31.2 | 32.4        |             |

## Warwick District Council

|     |      |      |      |      |      |      |      |      |      |      |      |      |      |             |             |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------|-------------|
| W56 | 41.4 | 31.6 | 25.2 | 16   | 19.2 | 17.1 | 18.4 | 19.9 | 24.4 | 24.5 | 33.6 | 31.6 | 25.2 | 26.3        |             |
| W57 | 48.5 | 38.3 | 33.5 | 19.4 | 31   | 25.2 | 27.4 | 29.4 | 33.1 | 28.7 | 37.8 | 34.6 | 32.2 | 33.5        |             |
| W58 | 47   | 40   | 36.4 | 24.3 | 26.7 | 28.8 | 26.9 | 26.2 | -    | 31.5 | 38.7 | 37.2 | 33.1 | 34.4        |             |
| W59 | 52   | 43.8 | 39.9 | 26.9 | 31   | 36.5 | 33.1 | 37.2 | 40.8 | 40.9 | 50.5 | 47.4 | 40.0 | <b>41.6</b> | 36.7        |
| W60 | 45.3 | 35.8 | 31.8 | 21.5 | 28.9 | 26.1 | 28.9 | 26.4 | 30.2 | 27.9 | 36.7 | 32.7 | 31.0 | 32.3        |             |
| W61 | 44   | 36.1 | 30.2 | 20.7 | 27.1 | 22.8 | 24.8 | 24.7 | 31.1 | 28.9 | 35.8 | 33.8 | 30.0 | 31.2        |             |
| W62 | 60.8 | 51   | 47   | 29.4 | 39.2 | 43   | 41.5 | 44.9 | 46.6 | 44.2 | 52.4 | 52.6 | 46.1 | <b>47.9</b> |             |
| W65 | 42   | 31.7 | 29.1 | 16.8 | 22.3 | 19.2 | -    | 20.4 | 24   | 24.8 | 30.1 | 30   | 26.4 | 27.5        |             |
| W67 | 48.3 | 50.3 | 53   | -    | 53.4 | 43.6 | 44.5 | 43.6 | 45.1 | 46.4 | 52.9 | -    | 48.1 | <b>50.0</b> | <b>46.8</b> |
| W68 | 35.8 | 27.1 | 25.3 | 15.5 | 19.7 | 18.5 | 19.1 | 20.1 | 24.2 | 24.8 | 33   | 26.6 | 24.1 | 25.1        |             |
| W6  | 36.3 | 26.1 | 24   | 9.3  | 14.8 | 14.6 | 14.4 | 15.9 | 21.8 | 23.7 | 31.6 | 32.9 | 22.1 | 23.0        |             |
| W7  | 36   | 26.9 | 20.1 | 14.3 | 13.4 | 14.4 | 13.9 | 16.2 | 21.8 | 22.5 | 31.3 | 31   | 21.8 | 22.7        |             |
| W8  | 36.6 | 27.5 | 22.9 | 14.1 | 15.4 | 14.6 | 13.9 | 16.3 | 22.1 | 22.1 | 30.3 | 31.3 | 22.3 | 23.1        |             |

☒ Local bias adjustment factor used

☐ National bias adjustment factor used

☒ Annualisation has been conducted where data capture is <75%

☒ Where applicable, data has been distance corrected for relevant exposure

### 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

### QA/QC of automatic monitoring

All automatic monitoring sites in Warwick, other than Rugby Road, are calibrated by the Council's Local Site Operator (LSO). The QA/QC of the two Leamington Spa sites is undertaken through its status as part of the AURN and therefore conforms to AURN standards (undertaken by Ricardo-Energy and Environment). WeCare4Air is responsible for the servicing and call out contract for Hamilton Terrace and Jury Street and provides data management for Jury Street. The service contract for Rugby Road is arranged by Bureau Veritas and Defra and is provided by Enviro Technology Services.

### QA/QC of diffusion tube monitoring

Warwick District Council uses Staffordshire Scientific Services (SSS) for its diffusion tube analysis. These tubes are prepared using the 20% TEA in water method.

Staffordshire Scientific Services was assessed as part of the AIR scheme. AIR is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT is a new scheme, started in April 2014, which combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL WASP PT scheme.

Defra and the Devolved Administrations advise that diffusion tubes used for Local Air Quality Management should be obtained from laboratories that have demonstrated satisfactory performance in the AIR PT scheme. Laboratory performance in AIR PT is also assessed, by the National Physical Laboratory (NPL), alongside laboratory data from the monthly NPL Field Intercomparison Exercise carried out at Marylebone Road, central London. A laboratory is assessed and given a 'z' score. A score of 2 or less indicates satisfactory laboratory performance.

SSS's performance for 2017 is covered by rounds 18-22 of AIR PT. In all five of these rounds SSS scored 100%, this means the round rolling average is 100%, higher than the 95% recommended. This means the laboratory has no systematic bias that we are aware of.

## Diffusion Tube Bias Adjustment

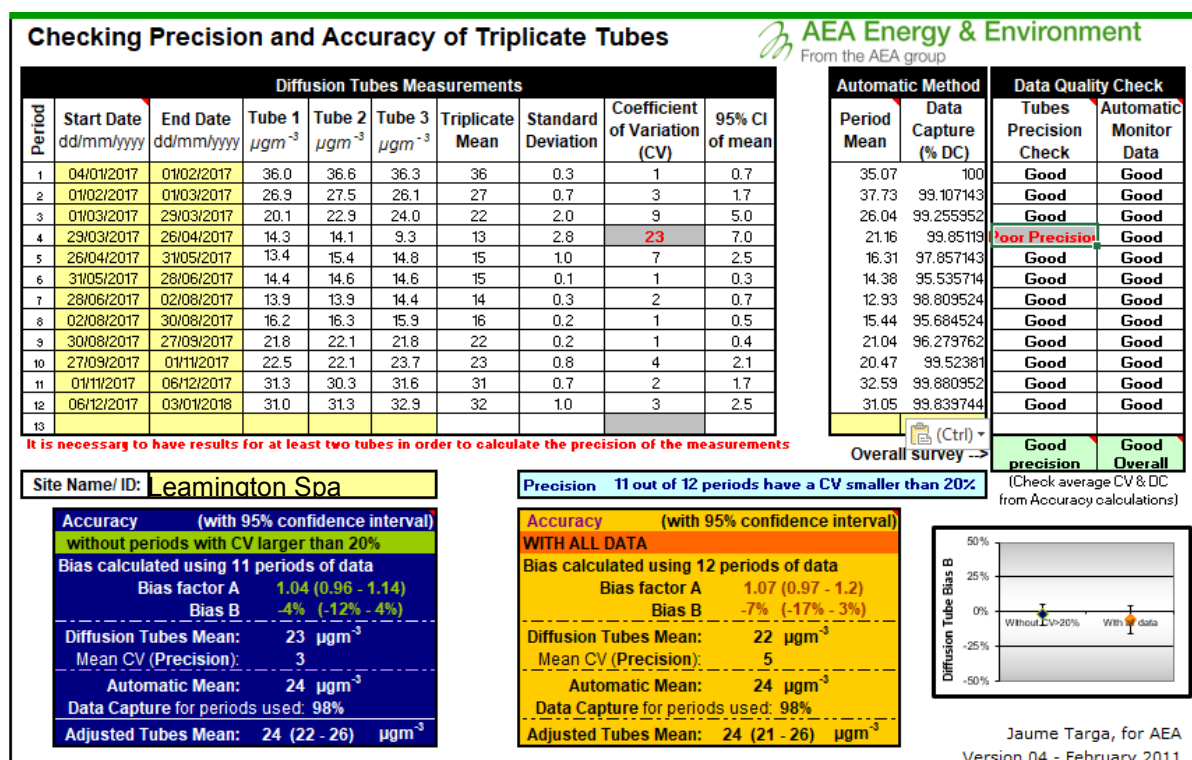
The bias adjustment factor for SSS in 2017, obtained from the national bias adjustment spreadsheet (v03/18) is 0.89 (based on 12 studies).

Bias adjustment factors are also available for two co-location studies at the automatic monitoring sites Hamilton Terrace in Leamington Spa and Pageant House in Warwick, as shown in Figure C.1 and C.2.

The Jury Street/Pageant House Warwick Local Bias Adjustment factor has not been used due to low data capture for the 3 co-located diffusion tubes; this leads to a high level of uncertainty and poor overall precision.

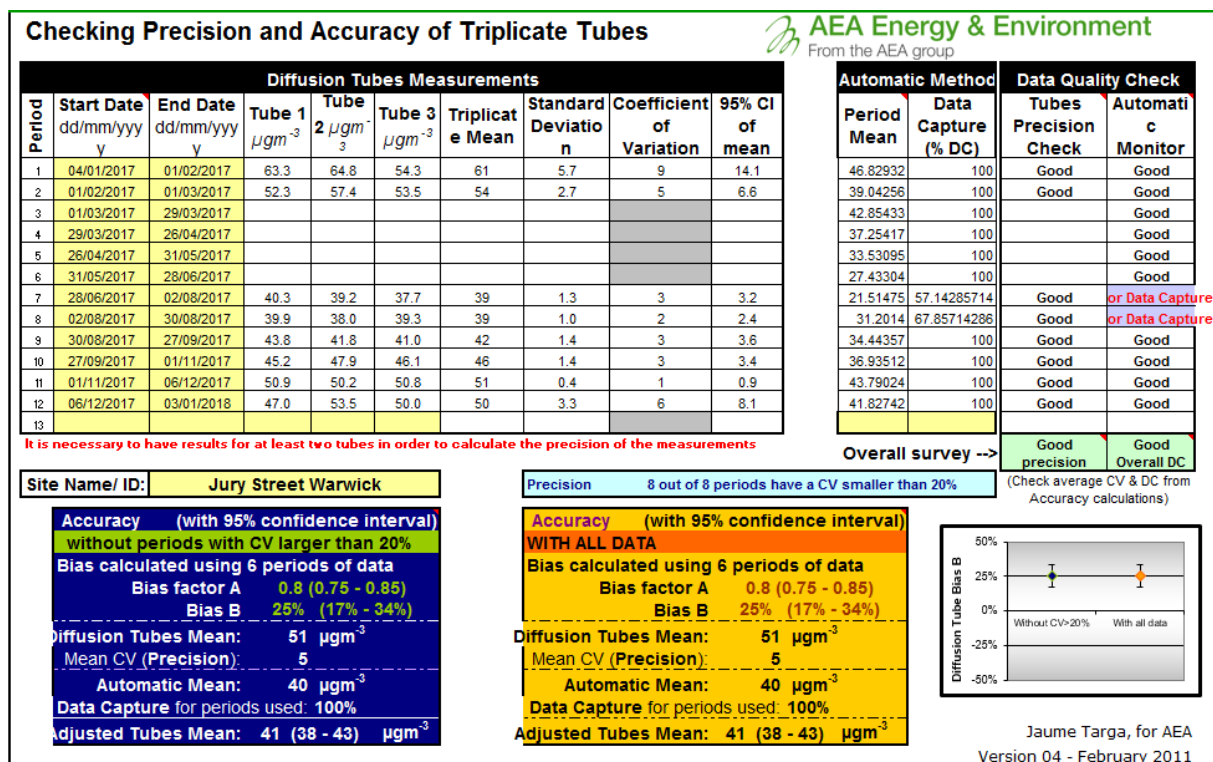
The local bias adjustment factor (1.04) calculated from Leamington Spa Hamilton Terrace has been used to adjust the data accordingly because it is a far more conservative figure than the national adjustment figure (0.89) in this instance.

**Figure C.1 - Leamington Spa Hamilton Terrace Local Bias Adjustment**



If you have any enquiries about this spreadsheet please contact the LAQM Helpdesk at: [LAQMHelpdesk@uk.bureauveritas.com](mailto:LAQMHelpdesk@uk.bureauveritas.com)

Figure C.2- Jury St/Pageant House Warwick Local Bias Adjustment



### Short to Long term data adjustment; Annualisation

In 2017, three monitoring locations, W1, W28 and W33-35, fell below 75% data capture. In accordance with the methodology in Box 7.10 of LAQM.TG (16) the sites have therefore been annualised for comparison with the NO<sub>2</sub> annual mean AQS objective.

The data have been adjusted to an annual mean, based on the ratio of concentrations during the monitoring period for that site to those over the 2017 calendar year at the nearest background automatic monitoring sites. Four AURN urban background monitoring sites were considered for annualisation; Leamington Spa, Birmingham Acocks Green, Coventry Allesley and Northampton Kingsthorpe. However Northampton Kingsthorpe did not have sufficient data capture to provide an annualisation factor and therefore was not included. The annualisation calculations are summarised below in Table C.1

Table C.1- Annualisation Factor Calculation for W1, W28 and W33-35

| W1                      |                  |  |  |                                 |
|-------------------------|------------------|--|--|---------------------------------|
| Site                    | Site Type        | Annual Mean ( $\mu\text{g}/\text{m}^3$ ) | Period Mean ( $\mu\text{g}/\text{m}^3$ ) | Ratio Annual Mean / Period Mean |
| Leamington Spa Hamilton | Urban Background | 21.5                                     | 24.6                                     | 1.033                           |
| Birmingham Acocks Green | Urban Background | 21.3                                     | 24.7                                     | 1.057                           |
| Coventry Allesley       | Urban Background | 22.5                                     | 25.6                                     | 1.027                           |
| Average Ratio           |                  |  |  | 1.039                           |
| W28                     |                  |  |  |                                 |
| Site                    | Site Type        | Annual Mean ( $\mu\text{g}/\text{m}^3$ ) | Period Mean ( $\mu\text{g}/\text{m}^3$ ) | Ratio Annual Mean / Period Mean |
| Leamington Spa Hamilton | Urban Background | 21.5                                     | 24.6                                     | 1.109                           |
| Birmingham Acocks Green | Urban Background | 21.3                                     | 24.7                                     | 1.011                           |
| Coventry Allesley       | Urban Background | 22.5                                     | 25.6                                     | 1.045                           |
| Average Ratio           |                  |  |  | 1.055                           |
| W33-35                  |                  |  |  |                                 |
| Site                    | Site Type        | Annual Mean ( $\mu\text{g}/\text{m}^3$ ) | Period Mean ( $\mu\text{g}/\text{m}^3$ ) | Ratio Annual Mean / Period Mean |
| Leamington Spa Hamilton | Urban Background | 21.5                                     | 24.6                                     | 0.919                           |
| Birmingham Acocks Green | Urban Background | 21.3                                     | 24.7                                     | 0.925                           |
| Coventry Allesley       | Urban Background | 22.5                                     | 25.6                                     | 0.932                           |
| Average Ratio           |                  |  |  | 0.925                           |

### NO<sub>2</sub> Fall-off with distance from the road

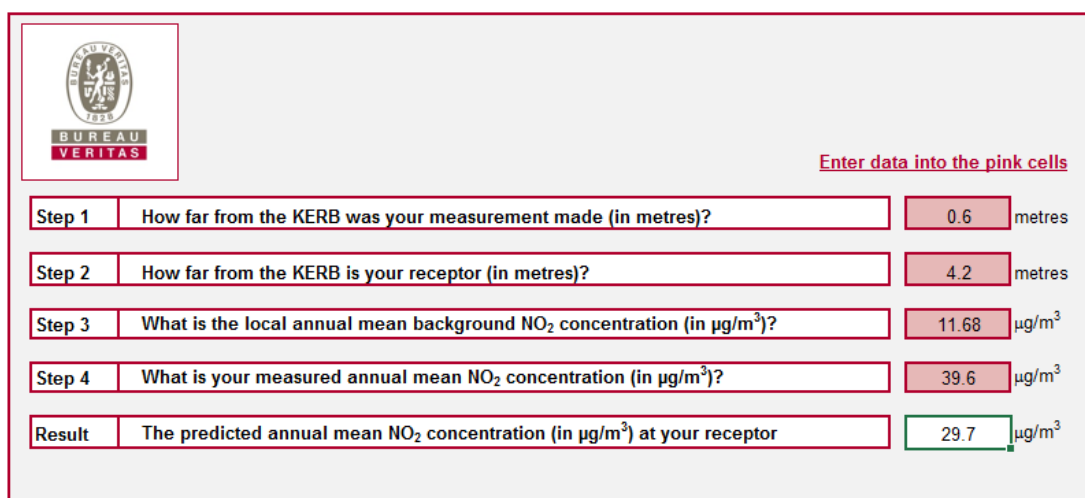
Wherever possible, local authorities should ensure that monitoring locations are representative of exposure. However, where this is not possible, the NO<sub>2</sub> concentration at the nearest location relevant for exposure should be estimated, using the NO<sub>2</sub> fall-off with distance calculator available on the LAQM Support website.<sup>7</sup>

<sup>7</sup> DEFRA 2017- Nitrogen Dioxide fall off with distance. <https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>

## Warwick District Council

This has been done for ten locations where the monitoring site is not strictly representative of exposure, and the concentrations are greater than  $36\mu\text{g}/\text{m}^3$ , to identify whether elevated monitored concentrations constitute an exceedance of the annual mean  $\text{NO}_2$  AQS objective. The summaries of the adjustments undertaken using the tool are presented below. Background concentrations are taken from the Defra 2013-based background maps, also available on the LAQM website.

**Figure C.3- W38  $\text{NO}_2$  fall-off with distance from the road**

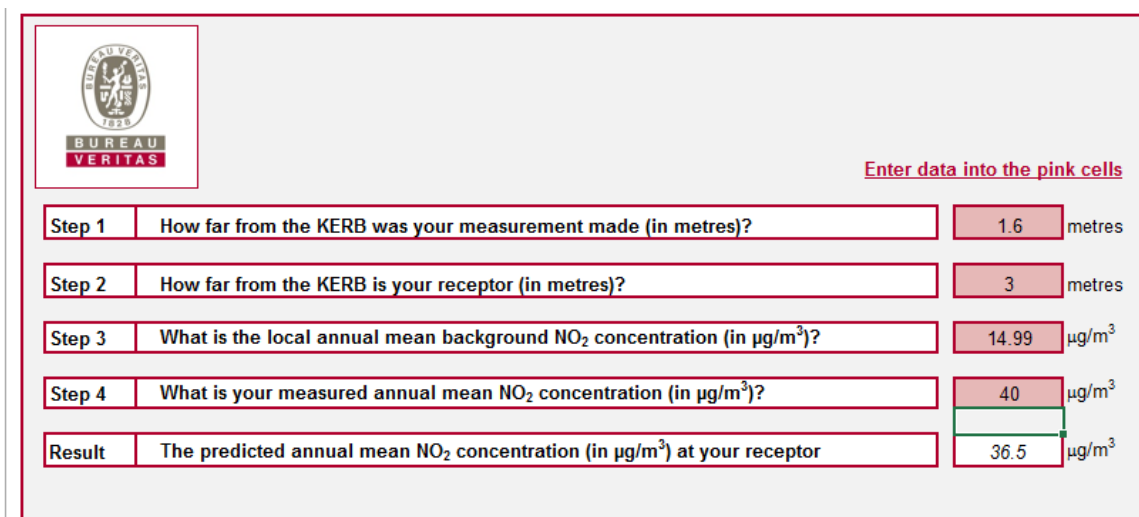


**BUREAU VERITAS**

Enter data into the pink cells

|        |   |       |                          |
|--------|---|-------|--------------------------|
| Step 1 | How far from the KERB was your measurement made (in metres)?  | 0.6   | metres                   |
| Step 2 | How far from the KERB is your receptor (in metres)?   | 4.2   | metres                   |
| Step 3 | What is the local annual mean background $\text{NO}_2$ concentration (in $\mu\text{g}/\text{m}^3$ )?  | 11.68 | $\mu\text{g}/\text{m}^3$ |
| Step 4 | What is your measured annual mean $\text{NO}_2$ concentration (in $\mu\text{g}/\text{m}^3$ )?         | 39.6  | $\mu\text{g}/\text{m}^3$ |
| Result | The predicted annual mean $\text{NO}_2$ concentration (in $\mu\text{g}/\text{m}^3$ ) at your receptor | 29.7  | $\mu\text{g}/\text{m}^3$ |

**Figure C.4– W46  $\text{NO}_2$  fall-off with distance from the road**




**BUREAU VERITAS**

Enter data into the pink cells

|        |   |       |                          |
|--------|---|-------|--------------------------|
| Step 1 | How far from the KERB was your measurement made (in metres)?  | 1.6   | metres                   |
| Step 2 | How far from the KERB is your receptor (in metres)?   | 3     | metres                   |
| Step 3 | What is the local annual mean background $\text{NO}_2$ concentration (in $\mu\text{g}/\text{m}^3$ )?  | 14.99 | $\mu\text{g}/\text{m}^3$ |
| Step 4 | What is your measured annual mean $\text{NO}_2$ concentration (in $\mu\text{g}/\text{m}^3$ )?         | 40    | $\mu\text{g}/\text{m}^3$ |
| Result | The predicted annual mean $\text{NO}_2$ concentration (in $\mu\text{g}/\text{m}^3$ ) at your receptor | 36.5  | $\mu\text{g}/\text{m}^3$ |


Figure C.5– W59 NO<sub>2</sub> fall-off with distance from the road



Enter data into the pink cells

|               |  |      |                   |
|---------------|--|------|-------------------|
| <b>Step 1</b> | How far from the KERB was your measurement made (in metres)?                                     | 1.5  | metres            |
| <b>Step 2</b> | How far from the KERB is your receptor (in metres)?  | 3.5  | metres            |
| <b>Step 3</b> | What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?  | 15.1 | µg/m <sup>3</sup> |
| <b>Step 4</b> | What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?         | 41.6 | µg/m <sup>3</sup> |
| <b>Result</b> | The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor | 36.7 | µg/m <sup>3</sup> |

Figure C.6- W36 NO<sub>2</sub> fall-off with distance from the road




Enter data into the pink cells

|               |  |      |                   |
|---------------|--|------|-------------------|
| <b>Step 1</b> | How far from the KERB was your measurement made (in metres)?                                     | 5    | metres            |
| <b>Step 2</b> | How far from the KERB is your receptor (in metres)?  | 5.2  | metres            |
| <b>Step 3</b> | What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?  | 7.98 | µg/m <sup>3</sup> |
| <b>Step 4</b> | What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?         | 41.3 | µg/m <sup>3</sup> |
| <b>Result</b> | The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor | 40.9 | µg/m <sup>3</sup> |




Figure C.7 – W14 NO<sub>2</sub> fall-off with distance from the road



Enter data into the pink cells

|        |  |        |                   |
|--------|--|--------|-------------------|
| Step 1 | How far from the KERB was your measurement made (in metres)?                                     | 5.22   | metres            |
| Step 2 | How far from the KERB is your receptor (in metres)?  | 5.82   | metres            |
| Step 3 | What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?  | 17.517 | µg/m <sup>3</sup> |
| Step 4 | What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?         | 45.4   | µg/m <sup>3</sup> |
| Result | The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor | 44.5   | µg/m <sup>3</sup> |


Figure C.8- W16 NO<sub>2</sub> fall-off with distance from the road



Enter data into the pink cells

|        |  |       |                   |
|--------|--|-------|-------------------|
| Step 1 | How far from the KERB was your measurement made (in metres)?                                     | 7.5   | metres            |
| Step 2 | How far from the KERB is your receptor (in metres)?  | 13.78 | metres            |
| Step 3 | What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?  | 17.51 | µg/m <sup>3</sup> |
| Step 4 | What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?         | 37.6  | µg/m <sup>3</sup> |
| Result | The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor | 33.5  | µg/m <sup>3</sup> |


Figure C.9- W31 NO<sub>2</sub> fall-off with distance from the road



Enter data into the pink cells

|        |  |       |                   |
|--------|--|-------|-------------------|
| Step 1 | How far from the KERB was your measurement made (in metres)?                                     | 1.4   | metres            |
| Step 2 | How far from the KERB is your receptor (in metres)?  | 2.7   | metres            |
| Step 3 | What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?  | 12.63 | µg/m <sup>3</sup> |
| Step 4 | What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?         | 41.4  | µg/m <sup>3</sup> |
| Result | The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor | 37.3  | µg/m <sup>3</sup> |


Figure C.10- W36 NO<sub>2</sub> fall-off with distance from the road



Enter data into the pink cells

|               |  |          |                   |
|---------------|--|----------|-------------------|
| <b>Step 1</b> | How far from the KERB was your measurement made (in metres)?                                     | 2.1      | metres            |
| <b>Step 2</b> | How far from the KERB is your receptor (in metres)?  | 3.1      | metres            |
| <b>Step 3</b> | What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?  | 12.10776 | µg/m <sup>3</sup> |
| <b>Step 4</b> | What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?         | 49.5     | µg/m <sup>3</sup> |
| <b>Result</b> | The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor | 46.0     | µg/m <sup>3</sup> |


Figure C.11– W52 NO<sub>2</sub> fall-off with distance from the road



Enter data into the pink cells

|               |  |       |                   |
|---------------|--|-------|-------------------|
| <b>Step 1</b> | How far from the KERB was your measurement made (in metres)?                                     | 1     | metres            |
| <b>Step 2</b> | How far from the KERB is your receptor (in metres)?  | 3     | metres            |
| <b>Step 3</b> | What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?  | 14.99 | µg/m <sup>3</sup> |
| <b>Step 4</b> | What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?         | 44.3  | µg/m <sup>3</sup> |
| <b>Result</b> | The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor | 37.8  | µg/m <sup>3</sup> |

Figure C.12- W67 NO<sub>2</sub> fall-off with distance from the road



Enter data into the pink cells

|               |  |       |                   |
|---------------|--|-------|-------------------|
| <b>Step 1</b> | How far from the KERB was your measurement made (in metres)?                                     | 3.2   | metres            |
| <b>Step 2</b> | How far from the KERB is your receptor (in metres)?  | 4.4   | metres            |
| <b>Step 3</b> | What is the local annual mean background NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?  | 12.11 | µg/m <sup>3</sup> |
| <b>Step 4</b> | What is your measured annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> )?         | 50    | µg/m <sup>3</sup> |
| <b>Result</b> | The predicted annual mean NO <sub>2</sub> concentration (in µg/m <sup>3</sup> ) at your receptor | 46.8  | µg/m <sup>3</sup> |

## **Warwick District Council**

### **PM Monitoring Adjustment**

PM<sub>10</sub> and PM<sub>2.5</sub> have been measured using an FDMS monitor and therefore no adjustment is required.

Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 - Air Quality Monitoring Locations - Leamington Spa Centre

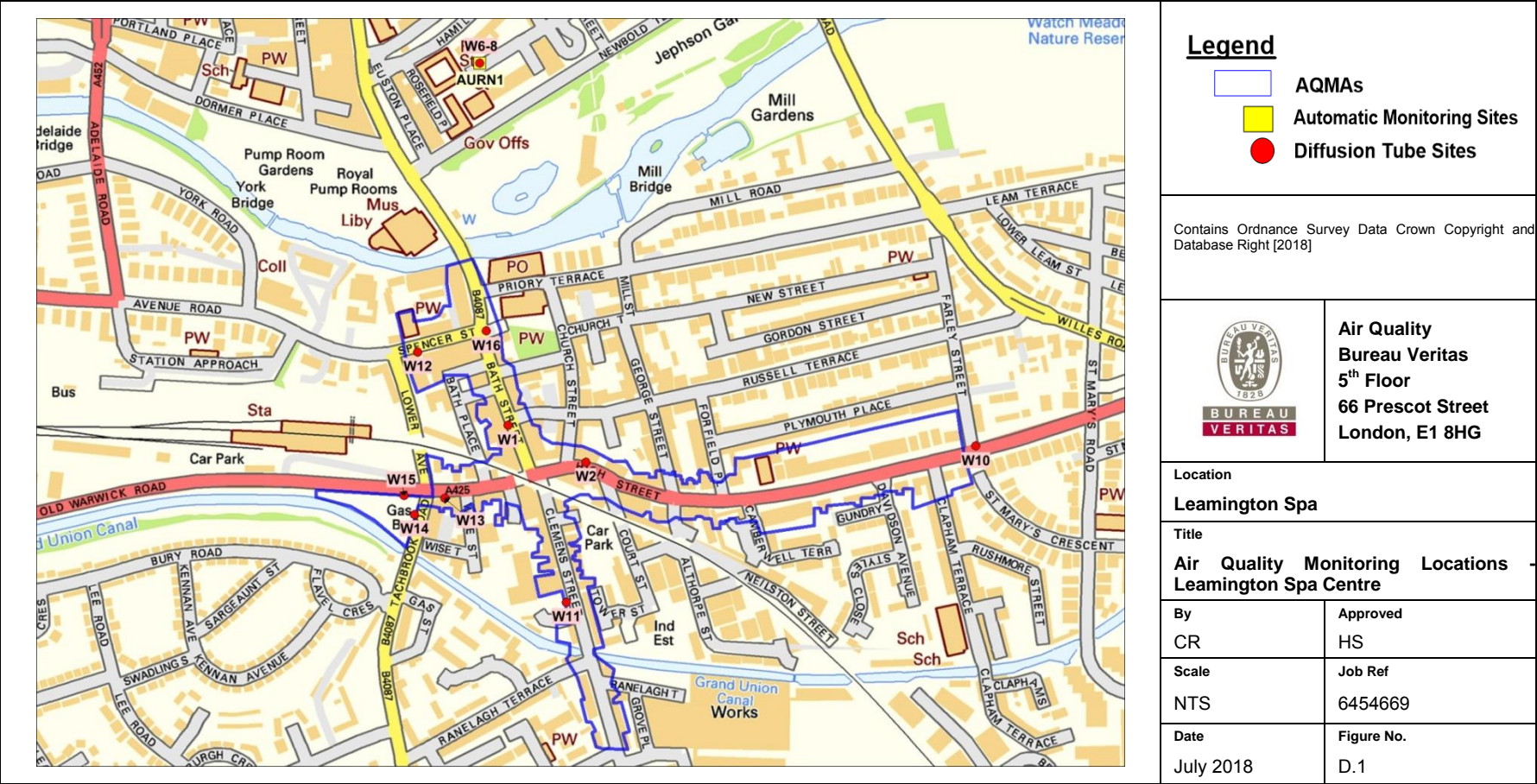




Figure D.2 - Air Quality Monitoring Locations - Leamington Spa Rugby Road



Warwick District Council

Figure D.1 - Air Quality Monitoring Locations - Warwick

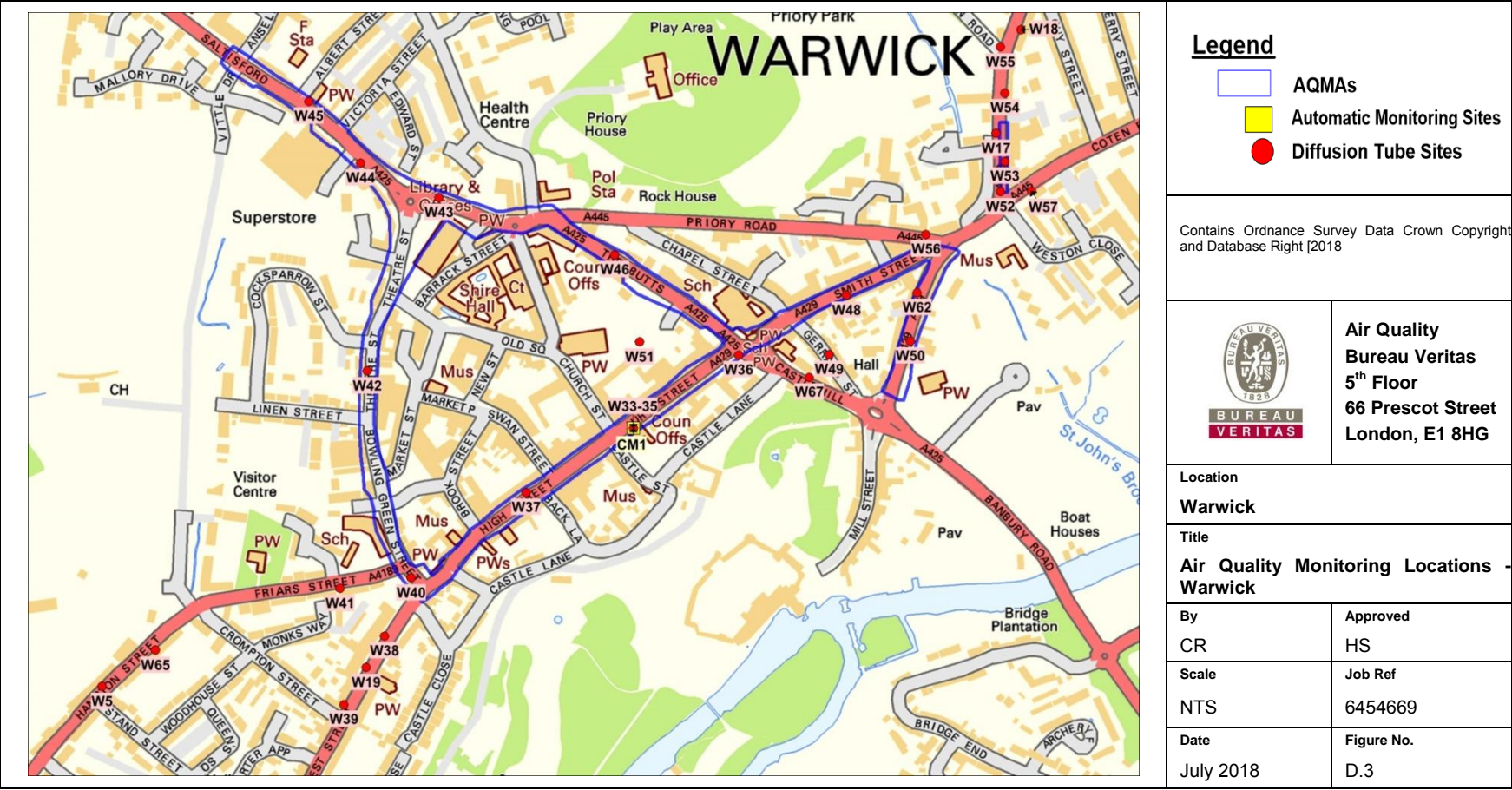




Figure D.2 - Air Quality Monitoring Locations - Kenilworth



Figure D.3 Air Quality Monitoring Locations - Stoneleigh





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

Table E.1 – Air Quality Objectives in England

| Pollutant                              | Air Quality Objective <sup>8</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>8</sup> The units are in micrograms 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  |
| 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   |
| WDC               | Warwick District Council  |

# IMPROVING AIR QUALITY IN WARWICK DISTRICT

These are just some of the ways we are working to improve air quality in Warwick district.

## IMPROVING CYCLE LANES

to provide dedicated cycle routes.



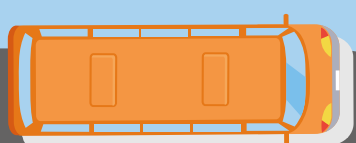
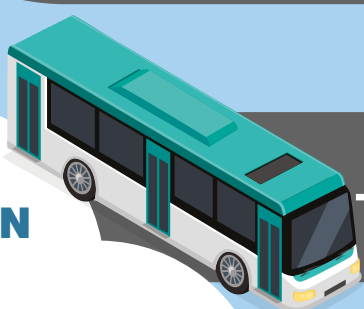
## 20MPH ZONES

to improve traffic flow



## LOW EMISSION BUSES

We've applied to the government to make the 67 bus route fully electric

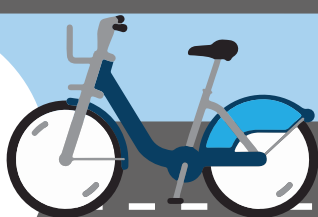


## PARK & RIDE

A 500 space park and ride will soon be available at Europa Way

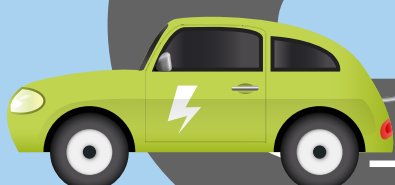
## WARWICK WHEELS

Exploring bike hire schemes in the district



## GREEN STREET FURNITURE

is being explored in some of our hotspot areas



## ELECTRIC VEHICLES

We have 5 electric vehicles and we have plans to install EV charging points in our car parks

## IMPROVING NEW DEVELOPMENTS


to ensure they reduce their impact on the local area



## TACKLING AIR QUALITY IS EVERYONE'S RESPONSIBILITY

A full range of options for more active travel are available on the Choose How You Move website

[www.warwickshire.gov.uk/activetravel](http://www.warwickshire.gov.uk/activetravel)

|   |   |                          |
|---|---|--------------------------|
|    | <b>Health Scrutiny Sub Committee – 20<br/>November 2018</b>   | <b>Agenda Item No. 7</b> |
| <b>Title</b>  | Review of the Work Programme & Forward Plan   |                          |
| <b>For further information about this report please contact</b>   | Lesley Dury, Committee Services Officer,<br>01926 456114 or<br><a href="mailto:committee@warwickdc.gov.uk">committee@warwickdc.gov.uk</a> |                          |
| <b>Wards of the District directly affected</b>  | N/A   |                          |
| <b>Is the report private and confidential and not for publication by virtue of a paragraph of schedule 12A of the Local Government Act 1972, following the Local Government (Access to Information) (Variation) Order 2006?</b> | No  |                          |
| <b>Date and meeting when issue was last considered and relevant minute number</b>   | 3 July 2018   |                          |
| <b>Background Papers</b>  | N/A   |                          |
| This report is produced for Scrutiny meetings for governance purposes. It is part of the process for ensuring that the Council is held to account for the decisions it makes or may make.                                       |   |                          |

## 1. Summary

- 1.1 This report informs the Sub-Committee of its work programme for 2018/2019 (Appendix 1) and of the current [Forward Plan November 2018 to January 2019](#)

## 2. Recommendation

- 2.1 Members consider the work programme and agree any changes as appropriate.
- 2.2 The Committee to; identify any Executive items on the Forward Plan which it wishes to have an input before the Executive makes its decision; and to nominate a Member to investigate that future decision and report back to the Committee.

## 3. Reasons for the Recommendation

- 3.1 The work programme should be updated at each meeting to accurately reflect the workload of the Sub-Committee.

## 4. Background

- 4.1 At each meeting, the Sub-Committee will consider its work programme and the Council's published Forward Plan and make amendments where necessary to its work programme.
- 4.2 Overview & Scrutiny Committee may request that the Sub-Committee undertakes areas of health Scrutiny.
- 4.3 Officers may present reports to the Sub-Committee to seek direction on their content.

- 4.4 Warwickshire County Council, as the lead authority for Health Scrutiny, can ask the District Council to undertake areas of health scrutiny.

**Health Scrutiny Sub-Committee**  
**Work Programme 2018/19**

**15 January 2019**

| <b>Title</b> | <b>Where did item originate from</b> | <b>Format</b> | <b>Lead Officer</b> | <b>Membership of Task &amp; Finish</b> | <b>Next report date if applicable</b> | <b>Completion date</b> |
|--------------|--------------------------------------|---------------|---------------------|--|---------------------------------------|------------------------|
|              |                                      |               |                     |  |                                       |                        |

**13 March 2019**

| <b>Title</b>                            | <b>Where did item originate from</b> | <b>Format</b>  | <b>Lead Officer</b>  | <b>Membership of Task &amp; Finish</b> | <b>Next report date if applicable</b> | <b>Completion date</b> |
|---|--------------------------------------|----------------|--|--|---------------------------------------|------------------------|
| Health & Wellbeing Annual Update Report |                                      | Written Report | Marianne Rolfe / Elizabeth Young/ Bernie Allen/ Portfolio Holder |  | March 2019                            | Annual report          |

## July 2019

| Title  | Where did item originate from | Format         | Lead Officer     | Membership of Task & Finish | Next report date if applicable | Completion date |
|--|-------------------------------|----------------|------------------|-----------------------------|--------------------------------|-----------------|
| Promoting Health & Wellbeing in the wider District – Focus on Mental Health – 12 month update (with figures on suicide rates included) | Health Scrutiny<br>July 2018  | Written report | Bernadette Allen |                             |                                |                 |

**Items where a date is to be set**

- Care Quality Commission – external speaker
- Policy on Regulating the Private Rented Sector – Health & Wellbeing Aspects (Forward Plan 880) Pre-scrutiny work – 28/11/17 - *Response from Ken Bruno on a delivery date – the Council is awaiting the Government to commence various provisions in the Housing & Planning Act 2016 and publish the regulations.*
- Cultural Services – Physical Activity promotion and development – agreed 21 November 2017