2017 Air Quality Annual Status Report (ASR)

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

September 2017

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Executive Summary: Air Quality in Our Area

Air Quality in Torridge

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

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

Air quality is generally very good in Torridge and the Council has not needed to declare any Air Quality Management Areas (AQMA) for any pollutant. The area is predominantly rural and largely agricultural and with most of the population living in the towns of Bideford, Northam, Holsworthy and Torrington. Industry is also mainly located within these towns. In the 2011 census the population of Torridge was 63,839.

The district covers an area of 984 sq Km (380sq miles).The northern edge of the district is designated as a coastal area of outstanding natural beauty (AONB) with a significant stretch of the south west coastal footpath running along its length.

The main potential pollutant in the area is nitrogen dioxide (NO_2) arising from vehicular traffic. The Council monitors levels of NO_2 at various locations including near busy roads in Bideford, Torrington and Holsworthy. The monitoring undertaken has shown that there have not been any exceedances of the air quality objectives for NO_2 and over the last 8 years monitoring results have shown a slight decrease in levels.

There has been significant residential and commercial development in the area in recent years and this is set to continue. The draft local plan for North Devon and Torridge 2011 – 2031 has identified areas for up to 7345 houses to be built and around 36 hectares for industrial/commercial use largely in Bideford, Westward Ho!,

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

Holsworthy and Torrington. Some of this development has already been completed. It is important that air quality remains under review – the increase in housing will lead to an increase in population and vehicle usage. Torridge District Council are committed to maintaining and monitoring air quality going forward, and will seek and support improvements where possible.

Actions to Improve Air Quality

There are no measured exceedances of the air quality objectives in Torridge Council's area and therefore no air quality management areas have been declared. As such a formal action plan has not been required however the following illustrate some of ways the Council is ensuring that the good air quality in the district is maintained.

New Development - Air Quality is a material consideration when assessing planning applications and an air quality assessment is required for all major developments. Detailed construction management plans are required from developers to ensure dust is kept to a minimum during the construction phase. The Council will also review its monitoring programme to add more monitoring sites as a result of new developments where appropriate.

Council vehicle fleet - all new vehicles purchased by the local authority comply with the latest emission levels, refuse vehicles are Euro 6 compliant and have electric bin lifts fitted to further reduce emissions. The Council will also work with local businesses to encourage the use of low emission vehicles where possible.

Taxis – Taxi drivers are encouraged to use newer less polluting vehicles and operators can get discounts if their vehicles are using green fuels such as liquid petroleum gas (LPG), biodiesel or are hybrid/electric vehicles. The Council operates a point based system when issuing new taxi licences and operators can obtain more points for low emission vehicles.

Electric vehicle charging points – the Council has plans to install an electric car charging point in the public car park at Riverbank in Bideford and this will be considered in future parking provision provided by the Council.

The Council is part of the cycle scheme therefore helping to encourage its employees to cycle to work. There is also a homeworking policy whereby employees

can request to work from home therefore saving travelling to work. Employees are encouraged to car share through enhanced mileage rates.

Conclusions and Priorities

NO_2 monitoring for 2016 demonstrated that there were no exceedances of the air quality objectives and there has been a slight decrease in levels since 2008.

The priority for Torridge Council will be to ensure that good air quality in the district is maintained and to secure improvements where possible. The Council will continue to monitor NO_2 concentrations at existing locations throughout the district and will also review monitoring sites for NO_2 with consideration given to the draft local plan.

Local Engagement and How to get Involved

Everyone can make a small difference to improve air quality in the area for example

- Walk or cycle instead of taking the car
- Switch off your car engine while stuck in traffic or while stationary to reduce emissions and save you fuel
- Consider car sharing with work colleagues
- Use public transport where possible
- Consider a “greener” vehicle with reduced emissions when replacing your car
- Avoid having garden bonfires, use alternative methods of disposal eg composting green waste, using recycling centres, or the Council’s green waste collection service.
- If you have an open fire consider using smokeless fuels wherever possible
- Layer up - if you get cold put on an extra layer instead of switching on the heating, this will reduce emissions from heating sources and lower emissions from the UKs power stations.
- Reduce energy consumption - turn off lights when you leave the room, turn off TVs and laptops when not in use instead of leaving them on standby, turn off electrical appliances at the wall when not in use. This will reduce the amount of energy you are using therefore saving you money as well as reducing emissions from power stations.

- Check your boiler – old boilers release more pollutants than newer cleaner boilers. Upgrading or simply servicing your existing boiler will help to reduce household emissions and save you money on heating bills.

Further information on local air quality can be found on Defra's air quality Management website https://uk-air.defra.gov.uk

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1 Local Air Quality Management

This report provides an overview of air quality in Torridge District Council during 2016. 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 Torridge 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 (AQMAs) 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.

Previous air quality reports have concluded that none of the air quality objectives were being breached in Torridge district and no AQMAs have been declared for any pollutant.

Torridge Council monitors for nitrogen dioxide (NO_2) within the district, further details of this can be found in section 3.

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

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

Previous air quality assessments have not identified any air quality management areas in Torridge District Council's area.

Defra's appraisal of last year's ASR concluded *The Local Authority monitors for nitrogen dioxide at a number of diffusion tube sites located close to roadsides. There are no measured exceedances of the annual mean objective and therefore no requirement to declare an Air Quality Management Area. Concentrations over the last five years have shown some evidence of declining.*

On the basis of the evidence provided by the local authority the conclusions reached are acceptable for all sources and pollutants.

The next step for Torridge District Council is to submit their next ASR in 2017.

Commentary:

1. *It would be informative if the local authority could include graphs in future reports to clearly illustrate long term trends in concentrations.*

2. *It is noted that there a number of diffusion tubes that are some distance away from relevant receptors. The local authority could review all of their monitoring locations to determine whether they are any other locations that better represent exposure and whether any new locations should be sited at recent housing developments.*

Graphs have been included in this year's ASR to show trends in NO_2 levels from 2008 to 2016. Overall there appears to be a general slight lowering in levels since 2008 with a dip in 2015 followed by an increase in 2016 to return to levels of 2014. The levels in High Street, Bideford appear to fluctuate each year however all sites are well below the air quality objective. All annual results were found to be less than 30µgm3 well below the standard of 40µgm3. The graphs can be found in Figure A1.

NOx diffusion tubes are placed at mainly roadside locations and as far as possible where there is public exposure. "Relevant public exposure" is defined in the local air quality management technical guidance TG (16) as:

"*the quality of air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present."*

The Council has reviewed its monitoring programme and will add new monitoring locations along Clovelly Road in Bideford where there is substantial recent residential and commercial development. The local plan also identifies areas in Northam, Westward Ho!, Holsworthy and Torrington for significant residential and commercial development and therefore the Council will continue to review the monitoring locations.

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

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

Public Health England have compiled a report entitled 'Estimating Local Mortality Burdens Associated with Particulate Air Pollution'[1] which contains an online data tool to show the fraction of mortality attributable to particulate air pollution in different areas in England in 2015. The average adult mortality across England is shown to be 4.7% whilst for the South West it is slightly lower at 4.3% and for Torridge is 3.6%. This is obviously reassuring to note that Torridge has one of the lowest fractions of mortality attributable to $PM_{2.5}$ however the figures demonstrate that this pollutant causes harm and therefore attempts should be made to reduce it further.

Particulate emissions are controlled from certain potentially polluting premises by conditions applied under the LAPC regime. There are currently 20 authorised processes regulated by the Local Authority in the District.

Torridge District Council does not currently carry out monitoring for either PM_{10} or $PM_{2.5}$, however the Council is taking the following measures to address $PM_{2.5}$ and it should be noted that in many cases measures to reduce NO_2 will also reduce $PM_{2.5}$. .

1. As part of the planning process, larger construction sites are required to provide and implement construction management plans to control dust during the construction phase.
2. Produce further information for householders regarding biomass burning to reduce potential emissions
3. Raise awareness with local businesses about air quality and encourage the use of low emission vehicles where possible.

[1] https://www.gov.uk/government/publications/estimating-local-mortality-burdens-associated-with-particulate-air-pollution

4. Consider $PM_{2.5}$ when reviewing the Council's vehicle fleets to move towards ultra low emission vehicles and investigate ECO driving courses for Council staff.
5. An electric car charging point is programmed to be installed the Council's Riverbank car park in Bideford. The possibility to increase the number of charging points throughout the district will be explored.
6. Explore the promotion of sustainable travel within the tourist sector.

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

Torridge District Council does not have any automatic monitoring sites within its area.

3.1.2 Non-Automatic Monitoring Sites

Torridge District Council undertook non - automatic (passive) monitoring of NO_2 at 12 sites during 2016. Table A.1 in Appendix A shows the details of the sites.

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

3.2 Individual Pollutants

Torridge District Council only carries out monitoring for NO2 within its District. 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_2)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

For diffusion tubes, the full 2016 dataset of monthly mean values is provided in Appendix B.

Levels of NO2 have all shown to be significantly below the air qualtity objectives of 40µgm3 at all sites across the district and therefore no AQMAs have been declared in Torridge district.

All monitoring data has been properly ratified and has been bias corrected using spreadsheet version no :03/17 V2 on the LAQM Defra website.

Graphs have been included in this year's ASR to show trends in NO_2 levels from 2008 to 2016. Overall there appears to be a general slight lowering in levels since 2008 with a dip in 2015 followed by an increase in 2016 to return to levels of 2014. The levels in High Street, Bideford appear to fluctuate each year however all sites are well below the air quality objective.

Table A.1 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
B1	Clovelly Road	roadside	244810	126253	NO2	NO	3	2	NO	2
B3	Bideford Hospital	Urban Background	244928	126641	NO_2	NO	0	N/A	NO	2
B4	Clovelly Close	Urban Background	244428	126073	NO_2	NO	N/A	1	NO	2
B5	A39 Heywood roundabout	Roadside	244940	127917	NO_2	NO	40	0.5	NO	3
B6	Torrington Lane	Roadside	245899	126235	NO_2	NO	0	1.0	NO	2.5
B8	High Street	Roadside	245419	126597	NO_2	NO	0	2.0	NO	2.5
T10	Calf Street	Roadside	249707	119315	NO_2	NO	0	1.5	NO	2
T11	Health Centre	Roadside	249792	119156	NO_2	NO	0	1.5	NO	2.5
H12	Holsworthy Square	Roadside	234352	103882	NO_2	NO	0	1.5	NO	2.5
T14	Eskill Place	Urban Background	249346	119549	NO_2	NO	N/A	1.5	NO	2
T15	Torrington Square	Kerbside	249559	119092	NO_2	NO	0	0	NO	2
H16	Chapel Street	Roadside	234361	103532	NO_2	NO	0	1.5	NO	1.5

Notes:

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

(2) N/A if not applicable.

Table A.2 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2016 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)				
					2012	2013	2014	2015	2016
B1	Roadside	Diffusion Tube	100	100	20.3	20.6	20.7	18.2	18.3
B3	Urban Background	Diffusion Tube	92	92	8.9	8.4	7.5	6.9	7.1
B4	Urban Background	Diffusion Tube	92	92	6.4	7.1	5.8	6.6	6.0
B5	Roadside	Diffusion Tube	100	100	23.4	22.6	22	21.6	21.5
B6	Roadside	Diffusion Tube	92	92	28	27.1	25.5	23.1	24.4
B8	Roadside	Diffusion Tube	92	92	29.8	22.3	26.5	23.9	26.3
T10	Roadside	Diffusion Tube	83	83	26.2	24.9	23.6	19.1	23.9
T11	Roadside	Diffusion Tube	100	100	18.5	18.9	17.6	15.1	17.2
H12	Roadside	Diffusion Tube	100	100	19.3	19.5	19.1	17.5	18.9
T14	Urban Background	Diffusion Tube	100	100	7.8	7.5	7.1	7.1	7.0
T15	Kerbside	Diffusion Tube	83	83				16.2	15.5
H16	Roadside	Diffusion Tube	100	100				23.7	26.4

☒Diffusion tube data has been bias corrected

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

☒ **If applicable, all data has been distance corrected for relevant exposure**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

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

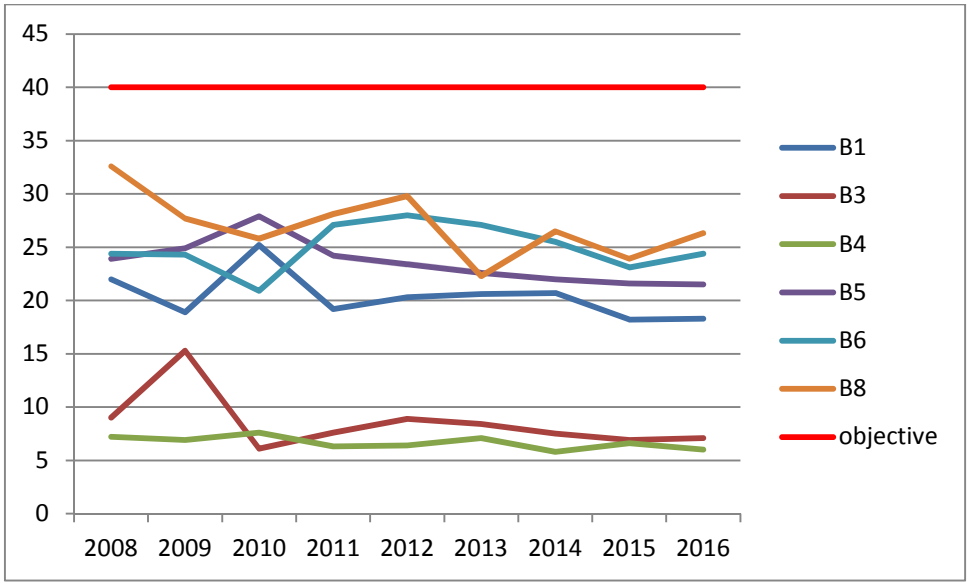
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

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

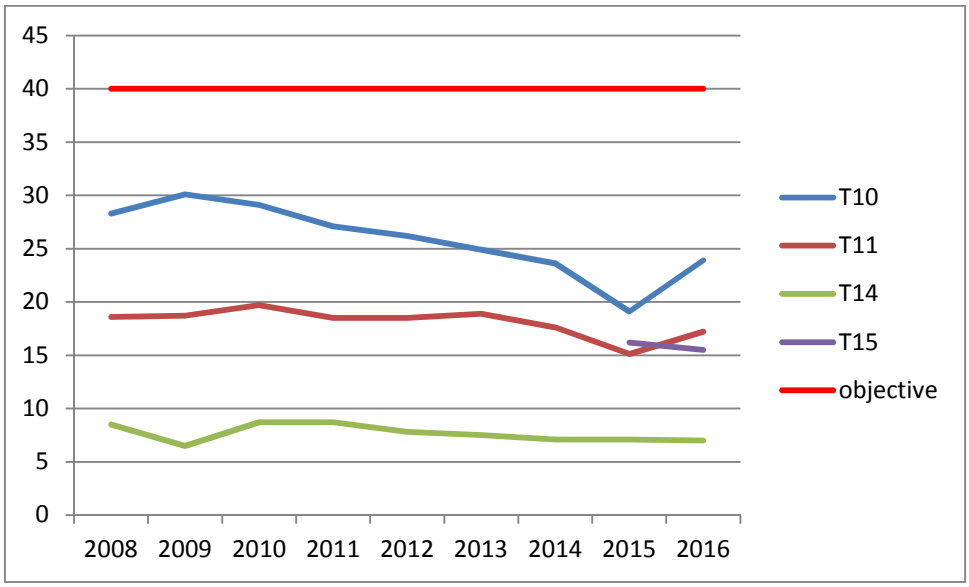
(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Figure A.1 – Trends in Annual Mean NO_2 Concentrations

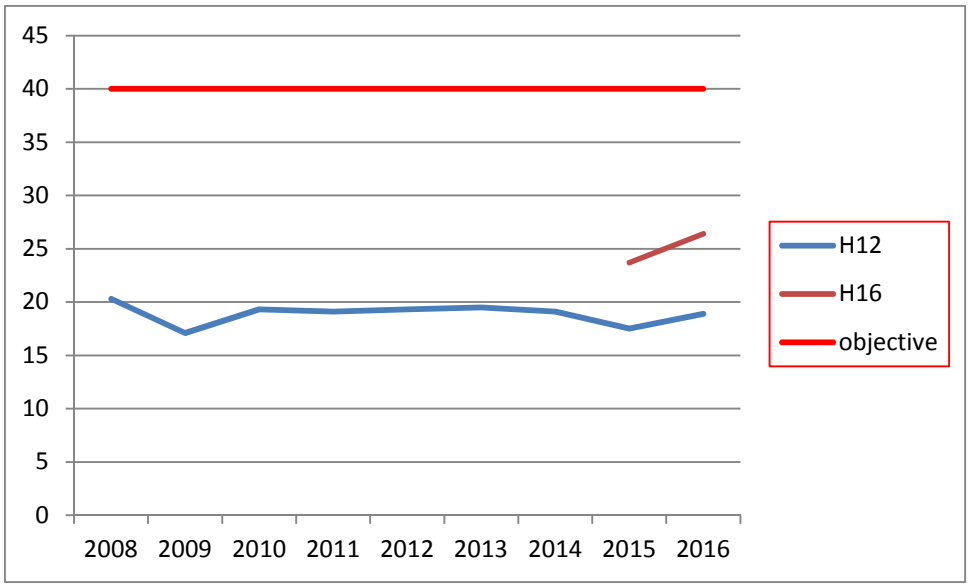
Bideford NO_2 data (µgm3)2008-2106



Torrington NO_2 data (µgm3)2008-2016



Holsworthy NO_2 data (µgm3)2008 - 2016



Appendix B: Full Monthly Diffusion Tube Results for 2016

Table B.1 – NO_2 Monthly Diffusion Tube Results - 2016

Site ID	NO_2 Mean Concentrations (µg/m^3)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.92) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
Clovelly road	16.7	22.0	22.3	19.4	21.1	16.8	14.9	16.2	19.3	20.3	28.0	16.4	19.5	18.0	0
Bideford Hospital	7.9	9.3	9.7	7.8	6.9	4.2	4.1	4.5	..	9.5	12.6	7.3	7.6	7.0	0
Clovelly Close	5.1	8.5	..	5.5	5.6	4.2	3.9	4.4	4.4	11.8	12.1	4.3	6.3	5.8	0
A39 Heywood Roundabout	16	24.6	25.7	24.5	23.7	24.7	20.2	22.1	25.5	21.1	29.9	16.7	22.9	21.1	0
ETW	18.5	31.9	..	29.5	27.7	24.9	21.1	26	25.3	29	36.5	15.2	26.0	24	0
High Street	22	31.5	33.4	29	29.7	25.9	19.2	24.7	..	28	37.7	25.3	27.9	25.7	0
Calf Street	19.1	27	27.5	25.1	..	27.7	24	26.5	24.8	..	32.2	19.9	25.4	23.4	0
Health Centre	11.9	20.6	23.2	16.7	20.1	17.4	13.6	17.3	18.9	23.8	22.7	10.7	18.1	16.7	0
Holsworthy Square	16.7	23.1	21.3	16.5	18.6	20.8	20.5	21.1	21.7	17.8	24.5	18.5	20.1	18.5	0
Eskill Place	7.2	8.9	8.6	6.3	5.7	5	5.7	5.7	6.2	10.8	11.9	7	7.4	6.8	0
Torrington Square	16.2	18.9	..	13.1	..	13.1	11.2	13.6	16.3	21.5	22.1	18.7	16.5	15.2	0
Chapel St, Holsworthy	28.6	33.4	26.8	24.1	24.4	27.7	27.2	30.3	32.6	23.8	28.8	29.5	28.1	25.9	0

☐ **Local bias adjustment factor used**

☒ **National bias adjustment factor used**

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

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 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

Significant changes in Torridge

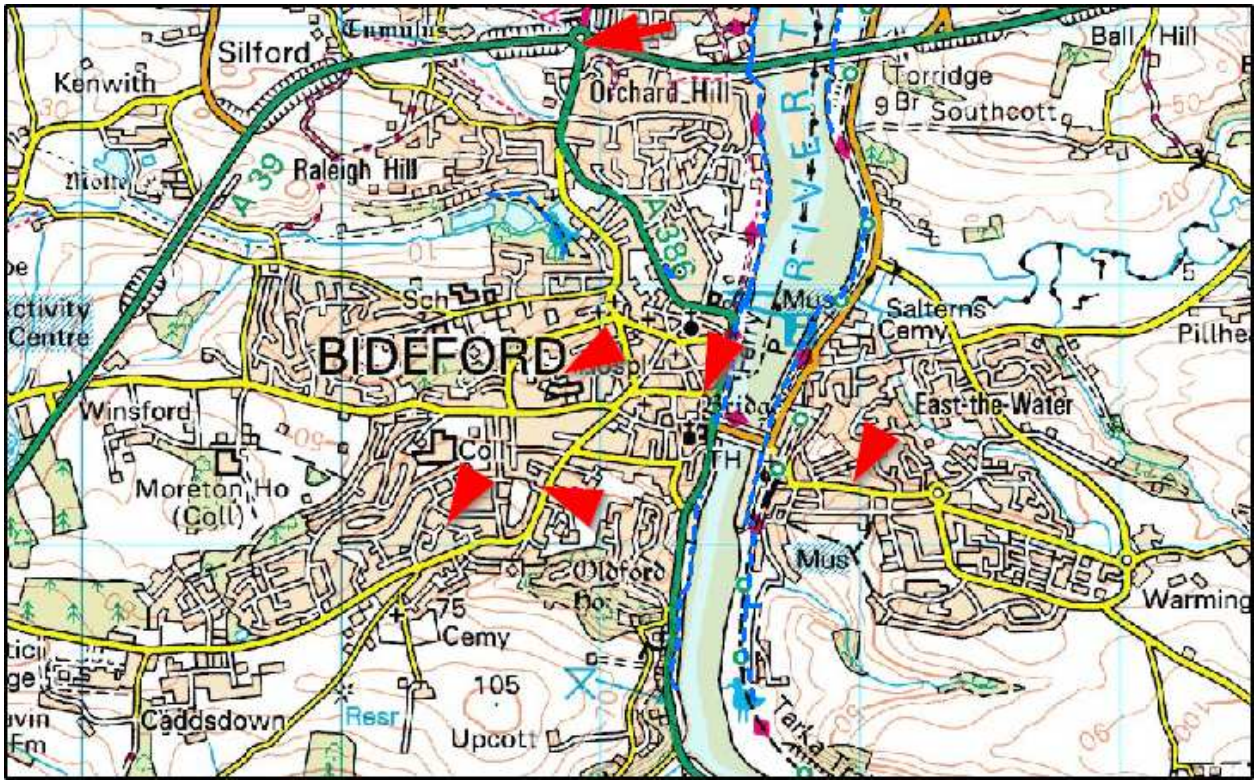
There has been some significant housing and commercial developments in Bideford since the 2016 report, mainly in the Clovelly Road area. The Council will therefore be arranging to install an extra NOx tube in this area and any other area where it considers there may be an impact upon air quality due to new developments.

QA/QC data

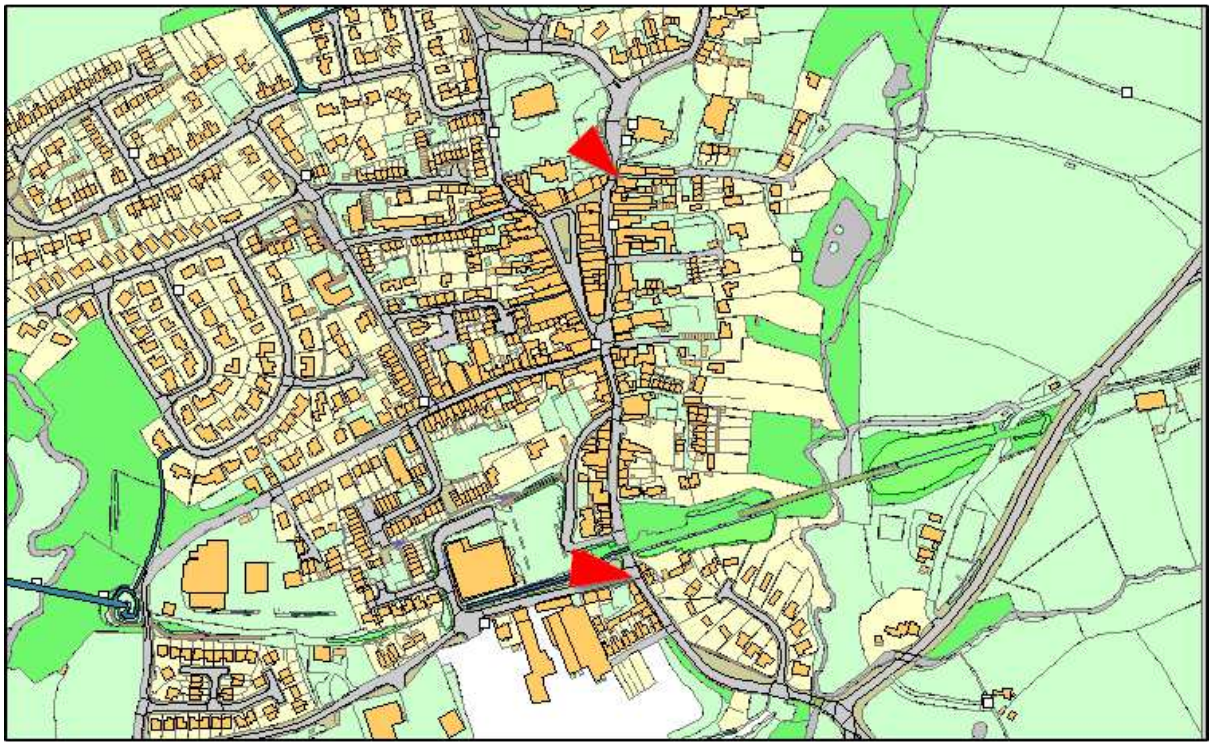
Torridge Council monitor for NO_2 only using passive diffusion tubes supplied and analysed by Gradko International Ltd. They are prepared using 20% TEA in water. The bias adjustment factor of 0.92 has been applied to the annual mean which was taken from the National Bias Adjustment Spreadsheet version no 03/17 V2 issued June 2017 on the Defra local air quality management website.
There was more than 75% data capture therefore it was not necessary to carry out the annualisation process.

Appendix D: Map(s) of Monitoring Locations

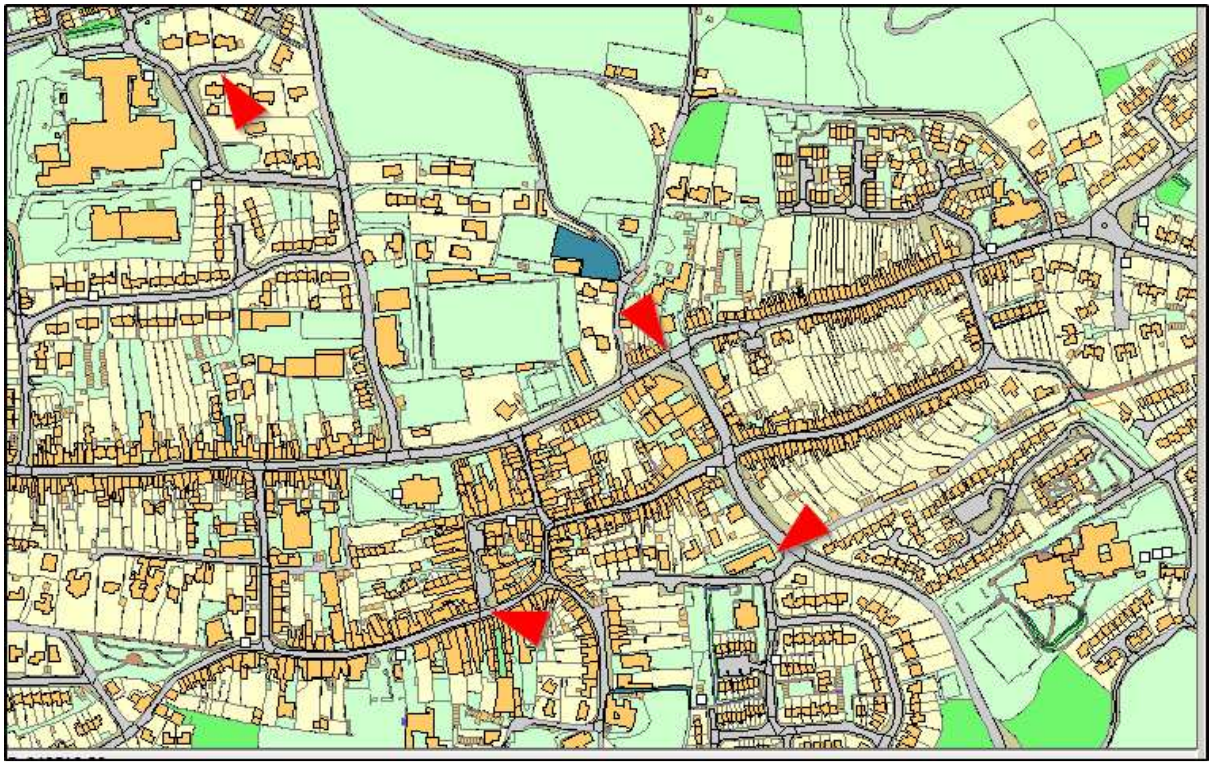
Bideford



Holsworthy



Torrington



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[4]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide
…	…

References

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Defra Local Air Quality Management Technical Guidance (TG16)

Defra Local Air Quality Management Policy Guidance PG(16)

Torridge District Council 2016 Air Quality Annual Status Report August 2016.

Torridge District Council Air Quality Progress Report 2013