



Sussex Air Pollution Monitoring Network Annual Report, 2016

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EXECUTIVE SUMMARY

The Sussex Air Quality Monitoring Network provides a central source of information on air pollution issues of a defined and robust quality and can be used with confidence by members of the public, researchers and local authority officers.

Overall the data capture was good across the network during 2016 with most analysers that were in operation for the whole year meeting the minimum requirement of 75% data capture. The reasons for lower capture rate at certain sites are described in Chapter 1.

Exceedances of the 'moderate' nitrogen dioxide (NO₂) banding were recorded only at one site during 2016; Worthing 2 – Grove Lodge, on two days only during June.

As seen each year there were many days of 'moderate' ozone (O₃) recorded at most network sites monitoring for this pollutant during the summer of 2016. The first widespread incident occurred in May, the last during September.

'Moderate' PM₁₀ levels were recorded at all but three sites during 2016; Hastings – Bulverhythe, Lewes – West Street and Rother – De La Warr Road.

'Moderate' PM_{2.5} levels were recorded at both Eastbourne – Holly Place and Horsham – Storrington during January, March and December. Eastbourne – Holly Place also recorded 'high' PM_{2.5} during March.

There were no occurrences of 'moderate' sulphur dioxide (SO₂) recorded during the year.

All network sites, that achieved the necessary data capture, met the PM₁₀ and PM_{2.5} Air Quality Strategy (AQS) objectives. Carbon monoxide (CO) is no longer measured at any network site and the one site measuring SO₂ did not achieve the required data capture required for comparison. The O₃ AQS objective was exceeded at all sites that achieved the necessary data capture, apart from at Brighton and Hove – Stanmer Park.

Worthing 2, Grove Lodge was the only site measuring NO₂ which did not meet the NO₂ objective of 40µgm⁻³ measured as an annual mean.

The running annual mean concentrations for PM₁₀, O₃ and NO_x remained stable at most sites during 2016.

The air quality sustainability indicator for background PM₁₀ in Sussex has decreased in 2016, but for roadside PM₁₀ has remained stable.

The air quality sustainability indicators for the Sussex urban and rural O₃ showed a decrease in 2016.

The progress of each individual Local Authority's Review and Assessment process is reported in Chapter 3.

INTRODUCTION

The Sussex Air Pollution Monitoring Network was formed in 1995 and has developed into a comprehensive regional monitoring network with nineteen continuous monitoring sites in operation in January 2016.

Network sites are placed in a range of locations according to local monitoring requirements and resources. As a network, these individual sites allow an overall view of pollution levels in rural, industrial, urban and roadside parts of Sussex. As all sites are operated to defined network quality standards, each district or borough can augment their own monitoring results with comparable data from other network sites.

This report aims to make the data more accessible by describing the air pollution trends, episodes and standards across Sussex, and providing a freely available source of information for the public, local authorities and those in education.

The network's Internet site contains peak daily readings from each site, updated each day, as well as historical data from the continuous monitoring carried out across the region. There are many other features and data tools to aid interpretation as well as more detailed information about the network and the individual monitoring sites.

A general information section on the health effects of air pollution can also be found.

Network Home page: <http://www.sussex-air.net>

CHAPTER 1: Results of Continuous Monitoring, 2016

This chapter describes the results of continuous monitoring which are presented in comparison to national and international standards and guidelines.

The extent and frequency of pollution episodes recorded during 2016 are also reported with some background information as to the cause of each.

Statistics from three London Air Quality Network sites are included at the base of each table for comparison purposes.

'Marylebone Road' is a kerbside site located on a busy six-lane road in central London. 'Kensington & Chelsea' is a background site in central London and 'Greenwich' is a background site in outer London.

Further information on these sites can be found at:

<http://www.londonair.org.uk>

Network performance

Table 1.1 shows data capture rates for each network analyser during 2016. Low capture rates may be caused by repeated or prolonged analyser or logging system breakdown, on-site communications problems or interruptions in power supply to the monitoring stations.

The majority of analysers that were in operation for the whole year met the minimum requirement of 75% data capture. However, the following sites failed to meet the stricter network target of 90% valid data capture:

- Adur – Shoreham-by-Sea, NO_x and PM₁₀; the analysers were switched off during June as the site was overheating and the air conditioning unit deemed unrepairable.
- Brighton and Hove – Preston Park, NO₂ is a national monitoring network site ratified by a third party. Reasons for the data loss are not known at this time.
- Eastbourne – Devonshire Park, NO₂, O₃ and PM₁₀; this site had no equipment service and maintenance cover during 2016 so faults could not be investigated or repaired.
- Eastbourne – Holly Place, P_{M2.5}; is a national monitoring network site ratified by a third party. Reasons for the data loss are not known at this time.
- Horsham – Park Way, PM₁₀; Periods of excessively noisy data were excluded between February and May, during which time the analyser was attended to and investigated a number of times by both the local site operator and the equipment service and maintenance unit. The fault, thought to be with the PM10 head, was finally repaired towards the end of April.
- Horsham – Storrington, NO_x and PM₁₀; is a national monitoring network site ratified by a third party. Reasons for the data loss are not known at this time.
- Hastings – Bulverhythe, NO_x and PM₁₀; The site experienced problems with the power supply during March and April, then again intermittently from September through to December.

- Wealden – Lullington Heath, SO₂; is a national monitoring network site ratified by a third party. Reasons for the data loss are not known at this time.
- Rother – De La Warr Road, NO_x and PM₁₀; data was lost during January and February due to power problems at site. PM₁₀ data was also excluded between June and August due to a fault with the instrument's flow sensors.

A few analysers also fell below the 75% threshold, however, apart from those sites described above, this was due to commissioning dates part way through the year. For these sites annual statistics are generally considered unrepresentative of the full year and results in the following tables are replaced with 'n.a.' where applicable.

Table 1.1 Analyser capture rates (%) for 2016					
Capture Rate (%)	Nitrogen Dioxide	Ozone	PM ₁₀	PM ₂₅	Sulphur Dioxide
Adur - Shoreham-by-Sea	42	-	44	-	-
Chichester - Lodsworth	-	99	-	-	-
Wealden - Isfield	-	94	-	-	-
Brighton and Hove - Preston Park ¹	89 ¹	98 ¹	-	-	-
Brighton and Hove - Stanmer Park	-	91	-	-	-
Crawley - Gatwick Airport	95	-	-	-	-
Chichester - A27 Chichester Bypass	98	-	99	-	-
Chichester – Orchard Street ²	31 ²	-	-	-	-
Eastbourne - Devonshire Park	0	18	0	-	-
Eastbourne - Holly Place ¹	99 ¹	-	95 ¹	74 ¹	-
Horsham - Park Way	95	-	61	-	-
Horsham - Storrington ¹	85 ¹	-	82 ¹	92 ¹	-
Horsham - Cowfold	100	-	-	-	-
Hastings - Bulverhythe	87	-	86	-	-
Wealden - Lullington Heath ¹	96 ¹	97 ¹	-	-	71 ¹
Lewes - West Street	94	-	94	-	-
Lewes - Denton Community Centre	94	96	98	-	-
Rother - De La Warr Road	89	-	74	-	-
Rother – Rye Harbour ³	-	52 ³	-	-	-
Worthing 2 - Grove Lodge	94	-	-	-	-

¹ AURN

² Site reopened September 2016

³ Site reopened June 2016

A statistical overview of 2016

Annual mean concentrations are shown in Table 1.2. These statistics are calculated from hourly mean concentrations.

Chapter 2 describes trends in running annual mean concentrations in more detail.

Tables 1.3 and 1.4 show the number of days in which 'moderate' and 'high' air pollution were measured at each site.

The air quality banding system has been set by the Government to help describe pollution levels and their associated health effects.

More information on the Air Quality Banding System can be found at:

<http://londonair.org.uk/london/asp/airpollutionindex.asp?IndexDate=2012>

Air pollution banding	Value	Accompanying health messages for at-risk groups and the general population	
		At-risk individuals *	General population
Low	1-3	Enjoy your usual outdoor activities.	Enjoy your usual outdoor activities.
Moderate	4-6	Adults and children with lung problems, and adults with heart problems, who experience symptoms , should consider reducing strenuous physical activity, particularly outdoors.	Enjoy your usual outdoor activities.
High	7-9	Adults and children with lung problems, and adults with heart problems, should reduce strenuous physical exertion, particularly outdoors, and particularly if they experience symptoms. People with asthma may find they need to use their reliever inhaler more often. Older people should also reduce physical exertion.	Anyone experiencing discomfort such as sore eyes, cough or sore throat should consider reducing activity, particularly outdoors.
Very High	10	Adults and children with lung problems, adults with heart problems, and older people, should avoid strenuous physical activity. People with asthma may find they need to use their reliever inhaler more often.	Reduce physical exertion, particularly outdoors, especially if you experience symptoms such as cough or sore throat.

* Adults and children with heart or lung problems are at greater risk of symptoms. Follow your doctor's usual advice about exercising and managing your condition.

Table 1.2 Annual means 2016					
Mean concentration	Nitrogen Dioxide	Ozone	PM₁₀	PM₂₅	Sulphur Dioxide
Adur - Shoreham-by-Sea	(47)	-	(32)	-	-
Chichester - Lodsworth	-	48	-	-	-
Wealden - Isfield	-	46	-	-	-
Brighton and Hove - Preston Park ¹	17 ¹	46 ¹	-	-	-
Brighton and Hove - Stanmer Park	-	49	-	-	-
Crawley - Gatwick Airport	29	-	-	-	-
Chichester - A27 Chichester Bypass	34	-	17	-	-
Chichester – Orchard Street ²	(32) ²	-	-	-	-
Eastbourne - Devonshire Park	(n.a)	(59)	(n.a)	-	-
Eastbourne - Holly Place ¹	12 ¹	-	18 ¹	(13) ¹	-
Horsham - Park Way	29	-	(15)	-	-
Horsham - Storrington ¹	24 ¹	-	19 ¹	13 ¹	-
Horsham - Cowfold	27	-	-	-	-
Hastings - Bulverhythe	18	-	19	-	-
Wealden - Lullington Heath ¹	8 ¹	55 ¹	-	-	(1) ¹
Lewes - West Street	24	-	15	-	-
Lewes - Denton Community Centre	11	53	16	-	-
Rother - De La Warr Road	25	-	(19)	-	-
Rother – Rye Harbour ³	-	(45) ³	-	-	-
Worthing 2 - Grove Lodge	48	-	-	-	-
Greenwich 4	21	38	18	12	5
Kens and Chelsea 1	35	37	16	12	2
Marylebone Road	89	15	29	-	8
Values shown in brackets have less than 75% data capture rate					

¹ AURN

² Site reopened September 2016

³ Site reopened June 2016

Table 1.3 Number of days 'moderate' air pollution during 2016 (Air Quality Index 4-6)					
	Nitrogen Dioxide	Ozone	PM ₁₀	PM ₂₅	Sulphur Dioxide
Adur - Shoreham-by-Sea	(0)	-	(9)	-	-
Chichester - Lodsworth	-	16	-	-	-
Wealden - Isfield	-	14	-	-	-
Brighton and Hove - Preston Park ¹	0 ¹	11 ¹	-	-	-
Brighton and Hove - Stanmer Park	-	8	-	-	-
Crawley - Gatwick Airport	0	-	-	-	-
Chichester - A27 Chichester Bypass	0	-	2	-	-
Chichester – Orchard Street ²	(0) ²	-	-	-	-
Eastbourne - Devonshire Park	(n.a)	(0)	(n.a)	-	-
Eastbourne - Holly Place ¹	0 ¹	-	2 ¹	(4) ¹	-
Horsham - Park Way	0	-	(4)	-	-
Horsham - Storrington ¹	0 ¹	-	3 ¹	10 ¹	-
Horsham - Cowfold	0	-	-	-	-
Hastings - Bulverhythe	0	-	0	-	-
Wealden - Lullington Heath ¹	0 ¹	16 ¹	-	-	(0) ¹
Lewes - West Street	0	-	0	-	-
Lewes - Denton Community Centre	0	17	1	-	-
Rother - De La Warr Road	0	-	(0)	-	-
Rother – Rye Harbour ³	-	(9) ³	-	-	-
Worthing 2 - Grove Lodge	2	-	-	-	-
Greenwich 4	0	8	6	6	0
Kens and Chelsea 1	0	7	3	10	0
Marylebone Road	32	0	12	-	0
Values shown in brackets have less than 75% data capture rate					

¹ AURN² Site reopened September 2016³ Site reopened June 2016

Table 1.4 Number of days 'high' air pollution during 2016 (Air Quality Index 7-9)					
	Nitrogen Dioxide	Ozone	PM ₁₀	PM ₂₅	Sulphur Dioxide
Adur - Shoreham-by-Sea	(0)	-	(0)	-	-
Chichester - Lodsworth	-	0	-	-	-
Wealden - Isfield	-	0	-	-	-
Brighton and Hove - Preston Park ¹	0 ¹	0 ¹	-	-	-
Brighton and Hove - Stanmer Park	-	0	-	-	-
Crawley - Gatwick Airport	0	-	-	-	-
Chichester - A27 Chichester Bypass	0	-	0	-	-
Chichester – Orchard Street ²	(0) ²	-	-	-	-
Eastbourne - Devonshire Park	(n.a)	(0)	(n.a)	-	-
Eastbourne - Holly Place ¹	0 ¹	-	0 ¹	(1) ¹	-
Horsham - Park Way	0	-	(0)	-	-
Horsham - Storrington ¹	0 ¹	-	0 ¹	0 ¹	-
Horsham - Cowfold	0	-	-	-	-
Hastings - Bulverhythe	0	-	0	-	-
Wealden - Lullington Heath ¹	0 ¹	0 ¹	-	-	(0) ¹
Lewes - West Street	0	-	0	-	-
Lewes - Denton Community Centre	0	0	0	-	-
Rother - De La Warr Road	0	-	(0)	-	-
Rother – Rye Harbour ³	-	(0) ³	-	-	-
Worthing 2 - Grove Lodge	0	-	-	-	-
Greenwich 4	0	0	0	1	0
Kens and Chelsea 1	0	0	0	3	0
Marylebone Road	0	0	2	-	0
Values shown in brackets have less than 75% data capture rate					

¹ AURN

² Site reopened September 2016

³ Site reopened June 2016

There were no days within the 'very high' bandings recorded at any network site during 2016.

Nitrogen Dioxide (NO₂)

'Moderate' NO₂ was recorded at only one site only during 2016; Worthing2 – Grove Lodge, on two days only during June.

Ozone (O₃)

Widespread 'Moderate' O₃ was recorded on a number of days at all the network sites monitoring for this pollutant apart from Eastbourne – Devonshire Park which had an extremely low data capture rate. These episodes occur during the warmer sunnier months due to the photochemical reaction of nitrogen oxides with hydrocarbons.

The first widespread incident resulting in 'moderate' O₃ occurred at the start of May, and the last occurred during September.

PM₁₀ Particulates

Defra's Air Pollution Index applies to PM₁₀ measured by a reference equivalent method such as the Filter Dynamic Measurement System (FDMS). The TEOM PM₁₀ data has been converted to reference equivalent PM₁₀ using the Volatile Correction Model (VCM) method developed by King's College London. All TEOM PM₁₀ data reported on the Sussex-air website prior to the 1st January 2004 has been corrected using a gravimetric conversion factor of 1.3. All data reported after the 1st January 2004 has been corrected using the Volatile Correction Model (VCM).

Further details about the VCM can be found at:

<http://www.volatile-correction-model.info/>

'Moderate' PM₁₀ levels were recorded at most sites during 2016, apart from at three sites; Hastings – Bulverhythe, Lewes – West Street and Rother – De La Warr Road.

PM_{2.5} Particulates

'Moderate' PM_{2.5} levels were recorded at both Eastbourne – Holly Place and Horsham – Storrington during January, March and December.

Eastbourne – Holly Place also recorded 'high' PM_{2.5} during March

Sulphur Dioxide (SO₂)

There were no occurrences of 'moderate' or above SO₂ pollution during 2016 at network sites.

Significant episodes occurring during 2016

Particulate Episodes

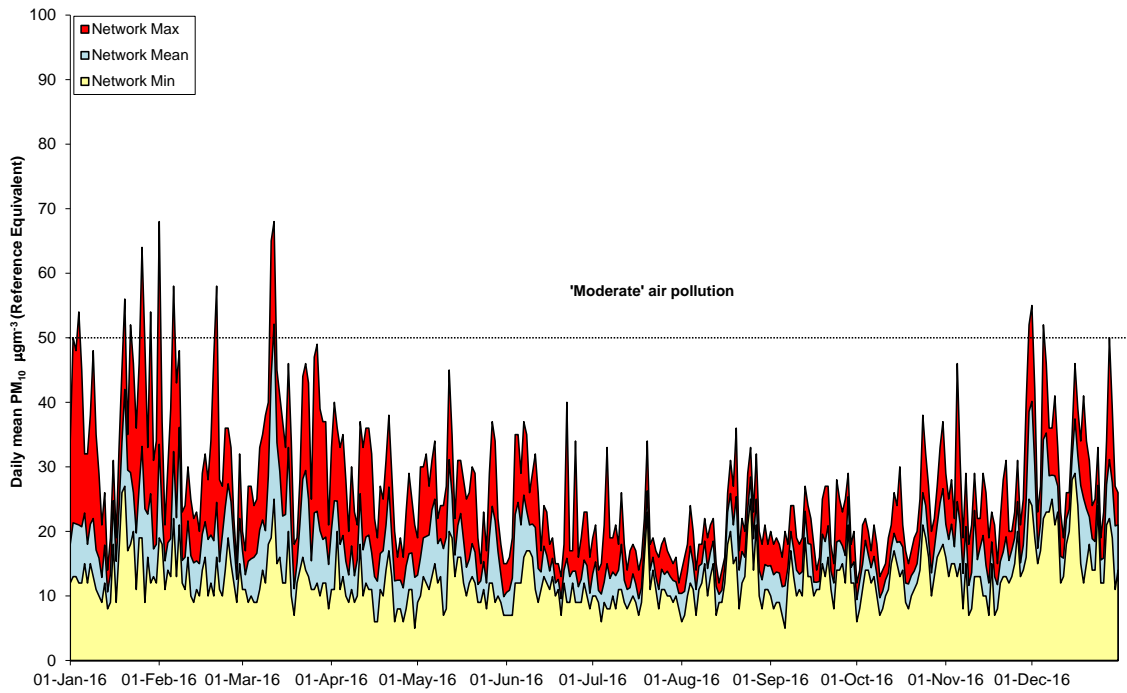
Widespread 'moderate' PM₁₀ and PM_{2.5} episodes occurred in January, March and December 2016. 'High' levels of PM_{2.5} were recorded at Eastbourne – Holly Place in March

Further episodes of 'moderate' PM₁₀ were recorded in February, at the Adur – Shoreham-By-Sea site and there were several days of 'moderate' PM_{2.5} occurring only at the Horsham – Storrington site during December.

These episodes were a result of poor dispersal of local emissions, combined with pollution being imported from the continent. Analysis also shows that solid fuel burning is likely to have contributed to the winter episodes.

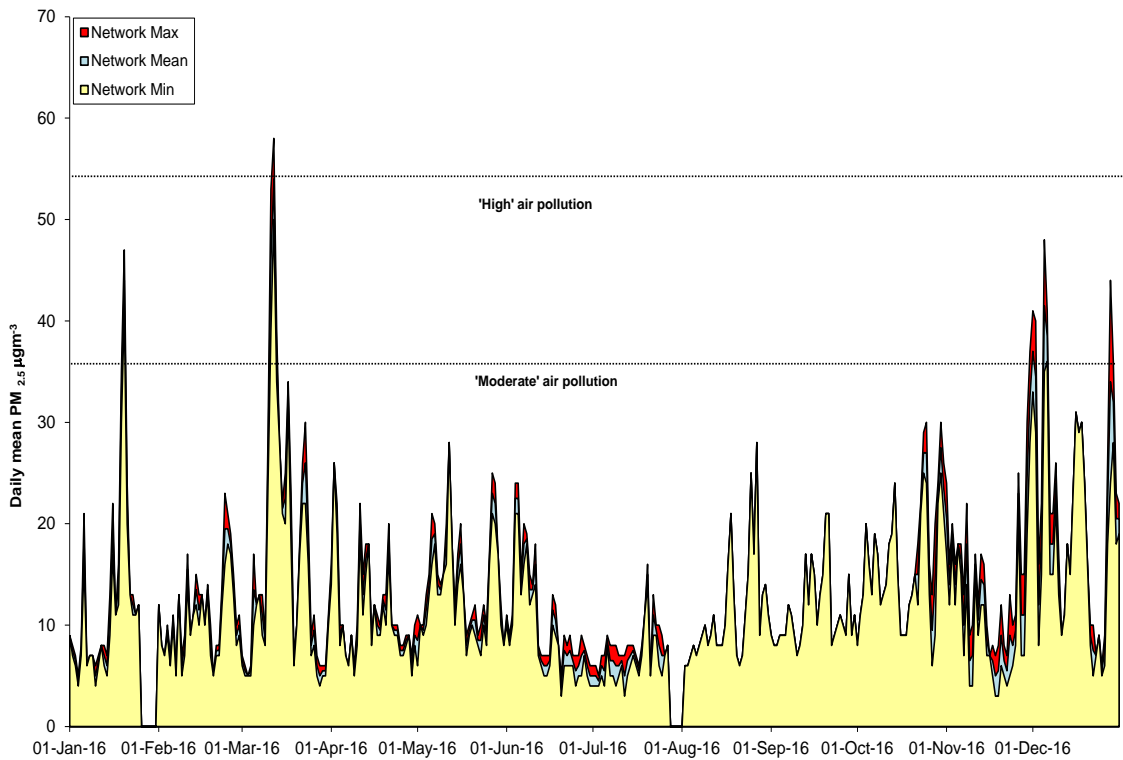
The daily mean PM₁₀ levels for 2016 are illustrated in Figure 1.

Figure 1 Daily mean PM₁₀ levels across the network during 2016



The daily mean PM_{2.5} levels for 2016 are illustrated in Figure 2.

Figure 2 Daily mean PM_{2.5} levels across the network during 2016



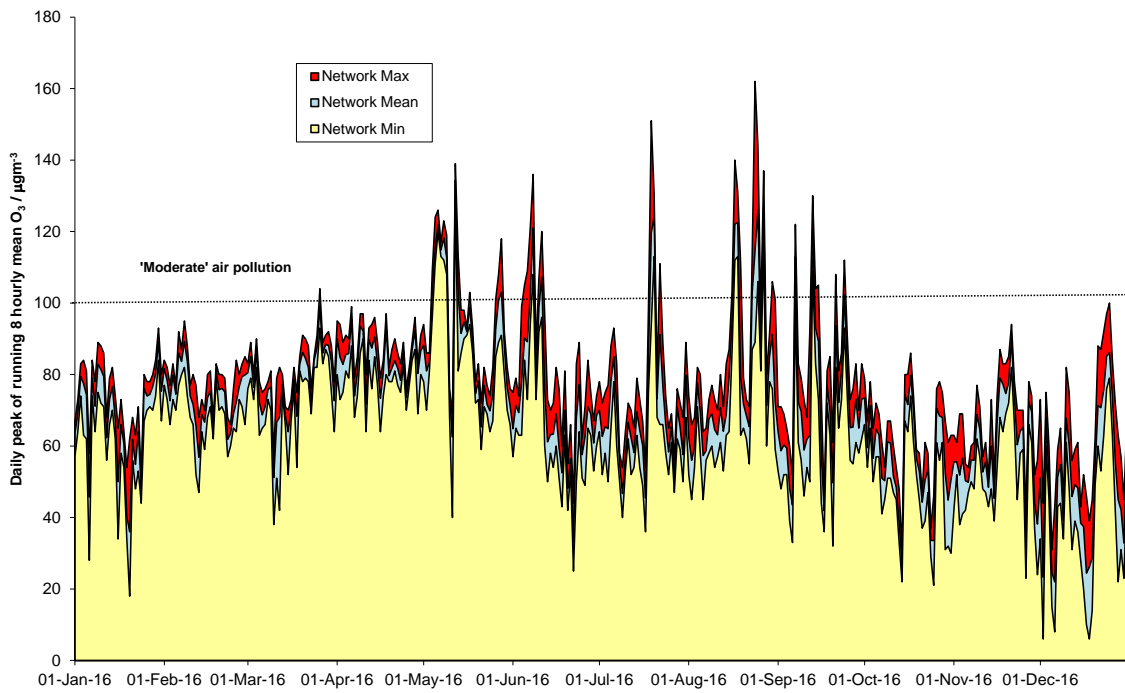
Summer Photochemical Episodes

Figure 3 illustrates the distribution of photochemical episodes O₃ during 2016.

Summer photochemical episodes occur annually in Sussex. Their development is due to a complex set of reactions involving NO_x and hydrocarbons in the presence of sunlight.

The first widespread O₃ episode of the year occurred in May and the last in September.

Figure 3 Daily peak hourly mean ozone levels across the network during 2016



2016 in Comparison with the Air Quality Strategy (AQS) Objectives

Tables 1.5a and 1.5b compare results of monitoring in 2016 to the Government's AQS objectives. There is often more than one objective per pollutant reflecting the differing health effects of short and long term exposure. Each objective had an achievement date between 2004 and 2010 depending on the pollutant. The PM_{2.5} objective has an achievement date of 2020. Where a site did not achieve a minimum of 75% data capture for the year, the measurements cannot be accurately compared to the AQS objectives and are entered as 'not applicable'.

No network sites exceeded either PM₁₀ or PM_{2.5} objectives. The distribution of exceedances of the 50 µg m⁻³ daily mean value of PM₁₀ (equating to the EU Health Threshold) across the network during 2016 is shown in Figure 1.

The O₃ AQS objective was exceeded at all sites that achieved the necessary data capture, apart from at Brighton and Hove – Stanmer Park.

The daily peak hourly mean O₃ levels across the network during 2016 are shown in Figure 3.

Only one site did not meet the NO₂ objective of 40 µg m⁻³ measured as an annual mean: Worthing 2, Grove Lodge.

SO₂, measured at only one site, did not achieve the required data capture required for comparison.

CO is no longer monitored at any of the Sussex stations.

Table 1.5a Comparison with Air Quality Strategy Objectives – Achieved ('yes') or Exceeded ('no')						
	PM ₁₀		PM _{2.5}	SO ₂		
	A	B	C	D	E	F
Adur - Shoreham-by-Sea	n.a	n.a	-	-	-	-
Chichester - Lodsworth	-	-	-	-	-	-
Wealden - Isfield	-	-	-	-	-	-
Brighton and Hove - Preston Park ¹	-	-	-	-	-	-
Brighton and Hove -Stanmer Park	-	-	-	-	-	-
Crawley - Gatwick Airport	-	-	-	-	-	-
Chichester - A27 Chichester Bypass	Yes (2)	Yes (20)	-	-	-	-
Chichester – Orchard Street ²	-	-	-	-	-	-
Eastbourne - Devonshire Park	n.a	n.a	-	-	-	-
Eastbourne - Holly Place ¹	Yes (2) ¹	Yes (18) ¹	n.a	-	-	-
Horsham - Park Way	n.a	n.a	-	-	-	-
Horsham - Storrington ¹	Yes (3) ¹	Yes (19) ¹	Yes (13) ¹	-	-	-
Horsham - Cowfold	-	-	-	-	-	-
Hastings - Bulverhythe	Yes (0)	Yes (19)	-	-	-	-
Wealden - Lullington Heath ¹	-	-	-	n.a	n.a	n.a
Lewes - West Street	Yes (0)	Yes (15)	-	-	-	-
Lewes - Denton Community Centre	Yes (1)	Yes (16)	-	-	-	-
Rother - De La Warr Road	n.a	n.a	-	-	-	-
Rother – Rye Harbour ³	-	-	-	-	-	-
Worthing 2 - Grove Lodge	-	-	-	-	-	-
Greenwich 4	Yes (6)	Yes (18)	Yes (12)	Yes (0)	Yes (0)	Yes (0)
Kens and Chelsea 1	Yes (3)	Yes (16)	Yes (12)	Yes (0)	Yes (0)	Yes (0)
Marylebone Road	Yes (14)	Yes (29)	-	Yes (0)	Yes (0)	Yes (0)

¹ AURN

² Site reopened September 2016

³ Site reopened June 2016

A: 50 µg m⁻³ not to be exceeded more than 35 times a year measured as 24 hr mean. Data is reference equivalent

B: 40 µg m⁻³ measured as annual mean. All data is reference equivalent

C: 25 µg m⁻³ measured as annual mean. All data is reference equivalent

D: 350 µg m⁻³ not to be exceeded more than 24 times a year measured as 1 hour mean.

E: 125 µg m⁻³ not to be exceeded more than 3 times a year measured as 24 hour mean.

F: 266 µg m⁻³ not to be exceeded more than 35 times a year measured as 15 min.

Table 1.5b Comparison with Air Quality Strategy Objectives – Achieved ('yes') or Exceeded ('no')			
	O ₃	NO ₂	
	A	B	C
Adur - Shoreham-by-Sea	-	n.a	n.a
Chichester - Lodsworth	No (16)	-	-
Wealden - Isfield	No (14)	-	-
Brighton and Hove - Preston Park ¹	No (11) ¹	Yes (0) ¹	Yes (17) ¹
Brighton and Hove - Stanmer Park	Yes (8)	-	-
Crawley - Gatwick Airport	-	Yes (0)	Yes (29)
Chichester - A27 Chichester Bypass	-	Yes (0)	Yes (34)
Chichester – Orchard Street ²	-	n.a	n.a
Eastbourne - Devonshire Park	n.a	n.a	n.a
Eastbourne - Holly Place ¹	-	Yes (0) ¹	Yes (12) ¹
Horsham - Park Way	-	Yes (0)	Yes (29)
Horsham - Storrington ¹	-	Yes (0) ¹	Yes (24) ¹
Horsham - Cowfold	-	Yes (0)	Yes (27)
Hastings - Bulverhythe	-	Yes (0)	Yes (18)
Wealden - Lullington Heath ¹	No (16) ¹	Yes (0) ¹	Yes (8) ¹
Lewes - West Street	-	Yes (0)	Yes (24)
Lewes - Denton Community Centre	No (17)	Yes (0)	Yes (11)
Rother - De La Warr Road	-	Yes (0)	Yes (25)
Rother – Rye Harbour ³	n.a	-	-
Worthing 2 - Grove Lodge	-	Yes (10)	No (48)
Greenwich 4	Yes (8)	Yes (0)	Yes (21)
Kens and Chelsea 1	Yes (7)	Yes (0)	Yes (35)
Marylebone Road	Yes (0)	No (64)	No (89)

¹ AURN

² Site reopened September 2016

³ Site reopened June 2016

A: 100 µg m⁻³ not to be exceeded more than 10 times a year measured as the daily max of running 8 hour mean.

B: 200 µg m⁻³ not to be exceeded more than 18 times a year measured as 1 hour mean.

C: 40 µg m⁻³ measured as an annual mean.

Indicators of Sustainable Development

The UK Government is required by European Union law to publish a number of indicators that can be used to assess whether its aims of sustainable development are being met. The UK Sustainable Development Strategy was released in 1999 and one of the Headline Indicators was air quality. The strategy was updated in 2005 and included two new air quality indicators designed to better reflect the effects on health of long term exposure to lower levels of pollution.

The three indicators are:

- i. Annual average urban PM₁₀ concentrations (roadside and background),
- ii. Annual average O₃ concentrations (rural and urban background) measured as the daily maximum 8-hour running mean,
- iii. Total number of days in which one or more of the specified pollutants were recorded as 'moderate' or worse air pollution (the old headline indicator) in urban and rural locations.

The third indicator is the most complex and has a number of site requirements to ensure that monitoring data are representative:

- Rural sites should be included if they at least monitor O₃ (ideally PM₁₀ should also be monitored but this criterion would exclude almost all sites from the Indicator),
- Urban Background and Roadside sites should be included if they monitor at least PM₁₀

Due to the small number of exceedances, it was decided that the absence of monitoring for NO₂ and CO would not result in a significant under-reporting of episodes.

Analysers must record an annual data capture rate of at least 75% to be included in any of the indicator calculations.

Sites demonstrated to be far outliers as a result of local factors in a particular year should be excluded from the analysis.

Air Quality Sustainability Indicator for Sussex

The following sites meet the criteria for inclusion in the Indicator calculation for 2016:

- Rural AQ Indicator: Chichester - Lodsworth, Wealden – Isfield, Brighton and Hove – Stanmer Park, Wealden – Lullington Heath.
- Urban AQ Indicator: (*background*): Eastbourne – Holly Place, Lewes – Denton Community Centre.
- Urban AQ Indicator (*roadside*): Hastings – Bulverhythe, Horsham – Storrington, Horsham – Park Way, Chichester - A27 Chichester Bypass, Lewes – West Street.

Figure 4 plots the first Sustainability Indicator for long-term monitoring sites in Sussex. Figure 5 shows a similar plot for the second indicator. Table 1.6 shows the third indicator.

Figure 4 First Air Quality Indicator for Sussex 2001 to 2016 (annual mean PM₁₀)

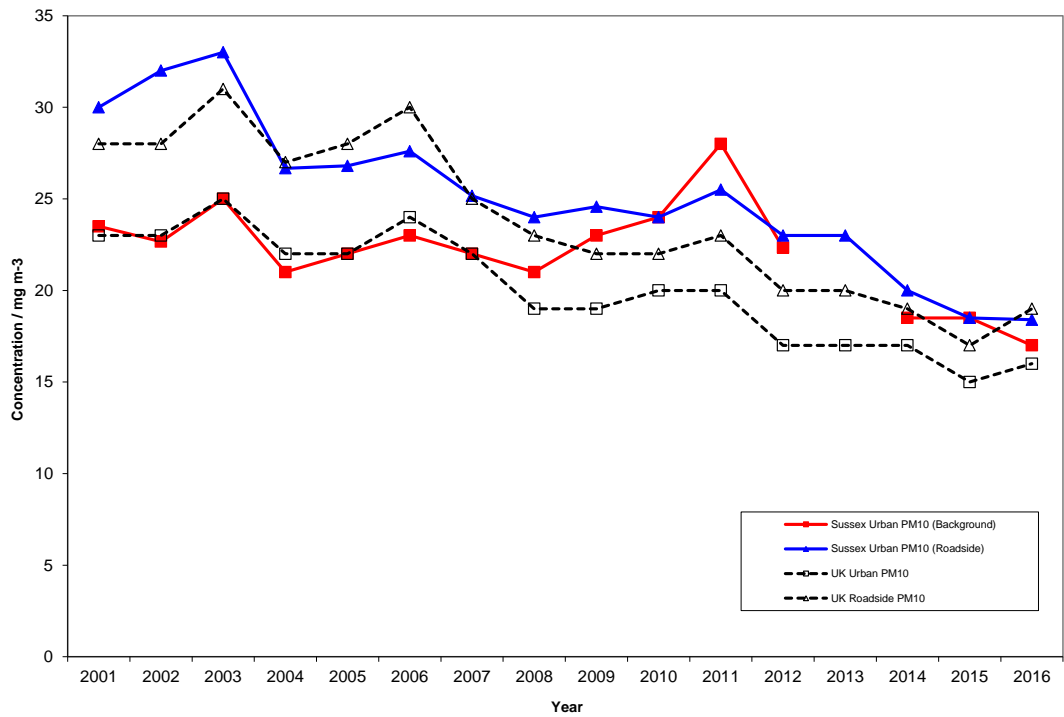


Figure 5 Second Air Quality Indicator for Sussex, 2001 to 2016 (mean daily max running 8hr ozone)

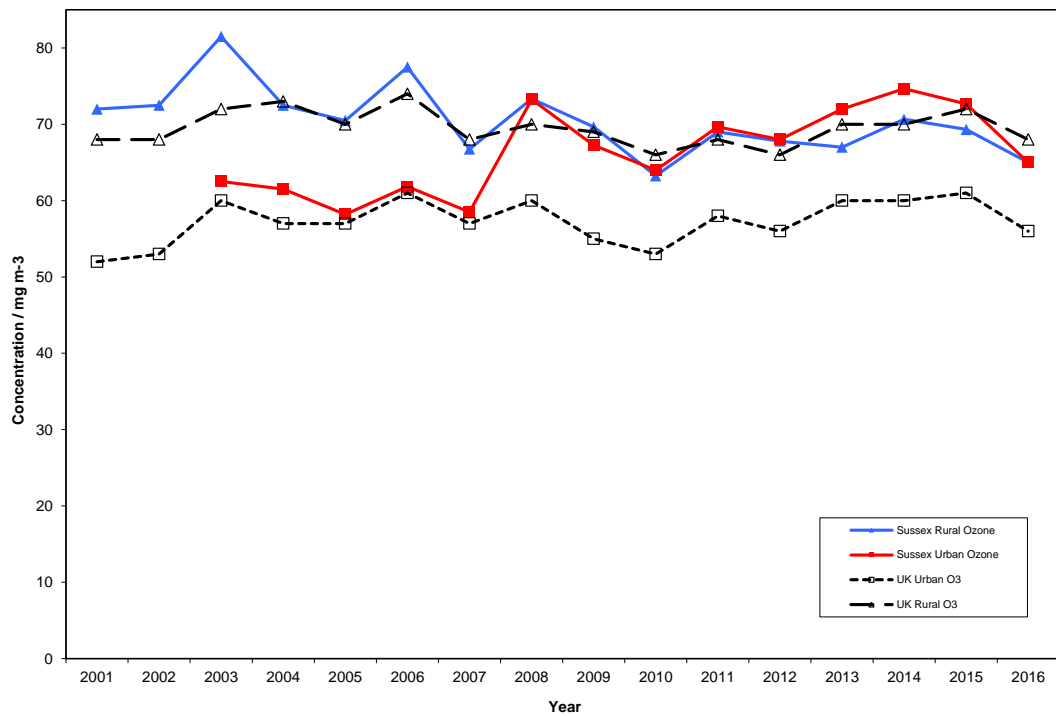


Table 1.5 Third (original) Air Quality Sustainability Indicator for Sussex

Indicator	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Chichester Lodsworth	-	-	-	-	-	71	43	76	39	39	43	13	24	18	7	16
Wealden Isfield	-	-	-	-	-	78	24	-	-	36	76	16	31	12	16	14
Brighton and Hove Stanmer Park	-	-	-	-	-	-	-	-	-	-	38	19	21	-	-	8
Chichester A27 Chichester Bypass	-	1	14	1	-	11	9	5	3	1	5	5	1	3	1	2
Eastbourne Holly Place	-	-	-	-	-	-	-	-	-	-	-	11	-	3	3	2
Horsham Park Way	-	-	-	-	10	4	12	6	3	0	10	3	2	4	-	4
Horsham Storrington	-	-	-	-	-	-	-	-	-	0	10	7	16	-	1	3
Hastings Bulverhythe	-	19	41	3	11	12	8	4	6	0	0	1	-	-	3	0
Hastings Fresh Fields	-	-	-	-	-	-	-	-	17	7	-	-	-	-	-	-
Wealden Lullington Heath	50	40	94	56	64	64	27	51	36	10	25	12	12	6	12	16
Telscombe Cliffs Roadside	6	10	8	-	12	23	28	56	12	-	-	-	-	-	-	-
Lewes Commercial Square	-	-	-	-	20	13	15	5	4	1	0	-	-	-	-	-
Lewes Denton Community Centre	-	-	-	-	-	-	-	-	-	-	-	-	-	30	14	17
Lewes West Street	-	-	-	-	-	-	-	-	-	-	-	2	0	1	-	0
Rother Rye Harbour	-	47	107	37	26	59	24	44	39	10	37	24	-	-	-	-
Rother De La Warr Road	-	-	-	-	-	-	7	-	2	0	8	-	1	-	-	-
Sussex-Rural	50	44	101	47	45	68	30	57	38	24	44	17	22	12	12	14
Sussex-Urban-(Background)	-	-	-	-	-	-	-	-	-	-	-	11	-	17	9	10
Sussex-Urban-(Roadside)	6	10	21	2	13	13	13	15	7	1	6	4	4	3	2	2
<i>UK-Rural-Indicator</i>	<i>34</i>	<i>32</i>	<i>64</i>	<i>45</i>	<i>40</i>	<i>55</i>	<i>30</i>	<i>45</i>	<i>32</i>	<i>22 (10)</i>	<i>30 (17)</i>	<i>14</i>	<i>17</i>	<i>9</i>	<i>11</i>	<i>12</i>
<i>UK-Urban-Indicator</i>	<i>23</i>	<i>19</i>	<i>48</i>	<i>22</i>	<i>21</i>	<i>38</i>	<i>23</i>	<i>26</i>	<i>10</i>	<i>8 (15)</i>	<i>15 (24)</i>	<i>18</i>	<i>14</i>	<i>12</i>	<i>10</i>	<i>8</i>

The 2016 figures in Table 1.6 are based on the revised index. The 2010 and 2011 figures in brackets are also based on the new threshold levels. As can be seen the changes to the thresholds has had a significant effect on the third indicator.

The air quality sustainability indicator for background PM₁₀ in Sussex has decreased in 2016, but for roadside PM₁₀ has remained stable. This is in contrast to the UK roadside and background PM₁₀, which have both increased slightly in 2016. Both roadside and background PM₁₀ has shown an overall improvement since 2001.

The air quality sustainability indicators for the Sussex urban and rural O₃ showed a decrease in 2016 along with the UK urban and rural O₃ indicators.

CHAPTER 2: Trends in Pollution Levels, 2001 – 2016

This chapter uses running annual mean calculations to illustrate trends in pollution levels as recorded by each continuous monitor in the network (see the 'How the charts work' section below for an explanation of running annual means).

Long-term pollution trends may be caused by changes in local emissions, i.e. fewer or cleaner vehicles or industrial processes, or changes in how these emissions are dispersed, i.e. weather patterns. For example, an unusually wet summer can lead to decreased levels of O₃, a cold settled winter can lead to increased levels of NO₂. These effects can obscure actual changes in emissions due to traffic management schemes or increased use of a particular road.

The longer a dataset is, i.e., the longer a site has been monitoring for, the more effective the trend analysis is. The effects of unusual weather conditions are smoothed out and sustained patterns due to changes in local emissions become clearer. Many years of monitoring data are required before firm conclusions can be made as to whether pollution levels are increasing or decreasing. For this reason sites that have been in operation for less than three years are not included in this chapter, but will become integrated into the analysis in the future.

How the Charts Work

The charts appearing in this chapter show running annual mean values (based on monthly mean concentrations) from a specified start date to January 2016. Running annual means are used so that gradual changes can be identified throughout the year, which are not apparent from a single annual figure.

For example, in Figure 2.1 the line for Hastings Bulverhythe is calculated in the following way;

- The first data we have for this site are from June 2001, so the first annual mean concentration can be calculated one year later on the 1st June 2002.
- The first mean is calculated from 1st June 2001 to 1st June 2002. The second is calculated from 1st July 2001 to 1st July 2002 and so on. This is what is meant by a running mean.

A chart showing percentage change is often more informative than simply showing changes in concentrations. In these charts, all sites start at zero, then concentrations are shown as the percentage change since the start date. As a common start date is required for this type of chart, they may show a shorter time period than the concentration charts.

Data from an inner London background site have been included in some charts to provide comparison with the Sussex network data.

PM₁₀ Particulates

Running annual mean PM₁₀ trends at all continuous monitoring sites since 2001 are shown in Figure 2.1.

Sites are shown one year after they joined the network, i.e., when the first annual mean calculation is possible. Sites that have not run for a complete year prior to January 2016 do not appear on the graph.

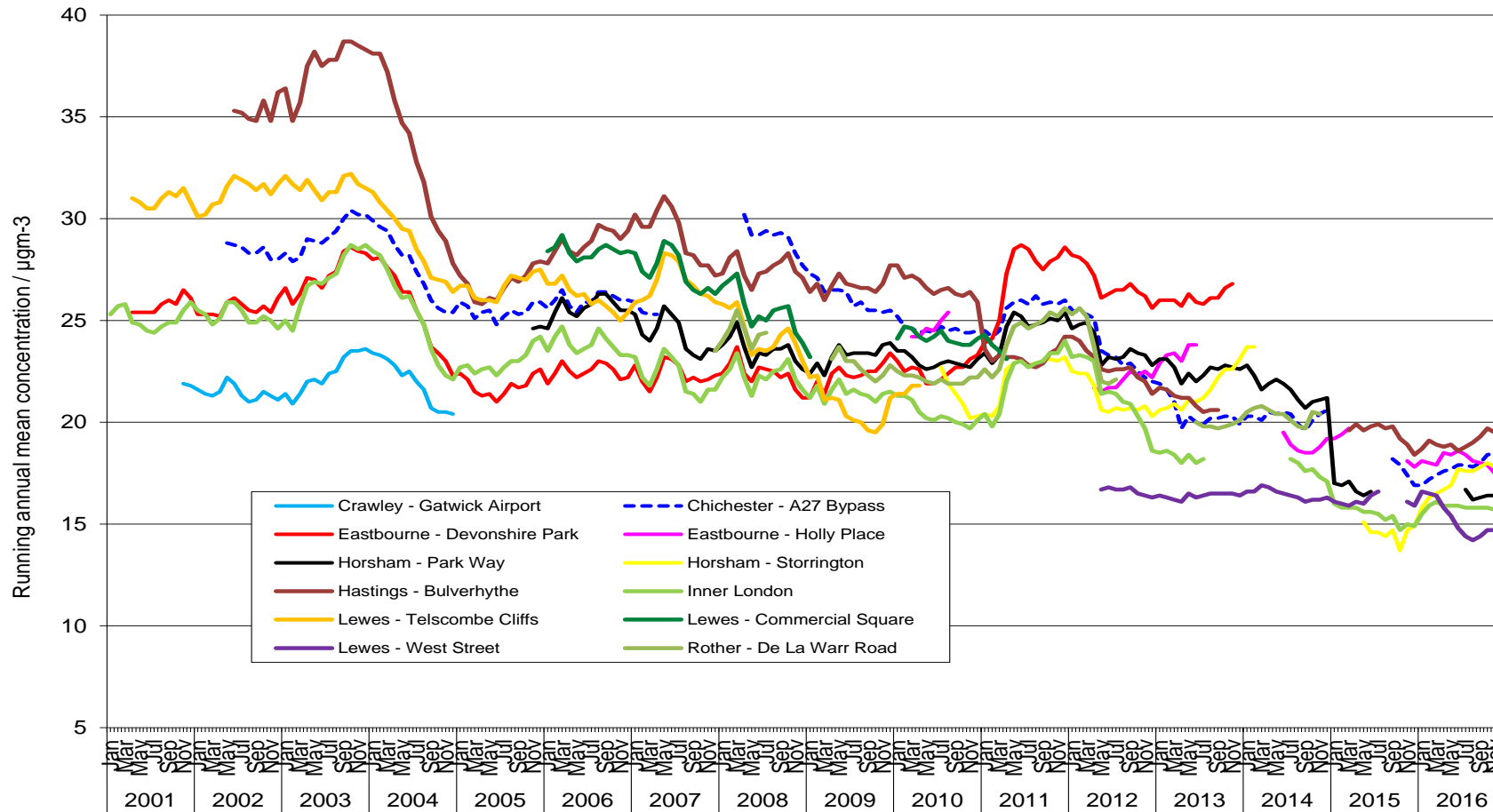
The running annual mean concentration during 2016 generally remained stable, apart from at Lewes West Street which showed a decrease and at Chichester A27 bypass and Horsham Storrington which showed an increase.

The overall trend is highlighted further when the percentage change rather than actual change in concentration is traced, as shown in Figure 2.2.

There are a number of sites that are not included in the percentage change plot as it is necessary for all included sites to have a common start date, in this case January 2006, the analysers that have been introduced into the network after this start date are not included.

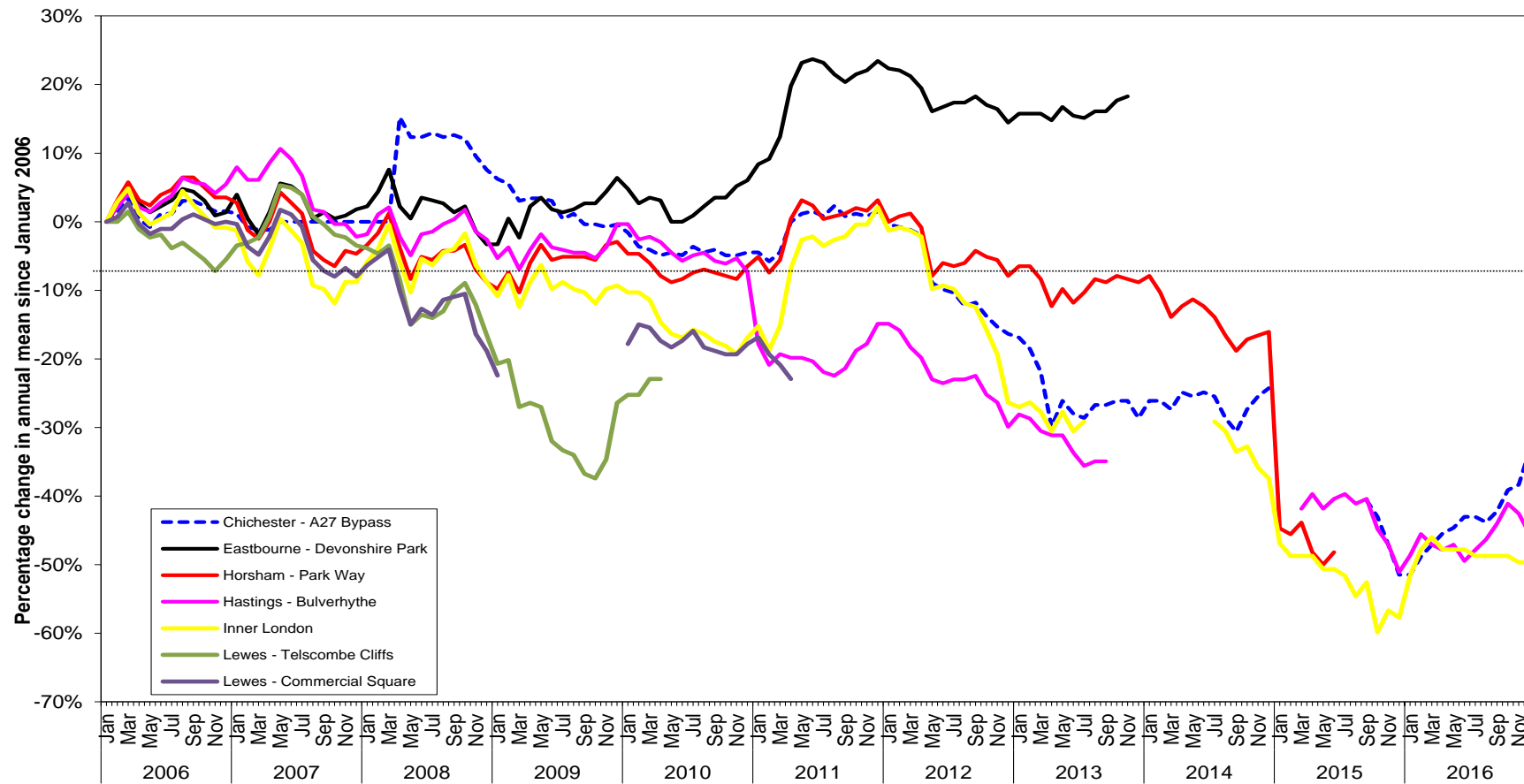
Roadside sites are generally expected to record higher levels than those monitoring at background locations due to their proximity to the local emission source that is mainly traffic related.

Figure 2.1 Trends in running annual mean PM₁₀ concentrations, 2001 to 2016



N.B. The reduction in PM₁₀ concentrations in 2004 can be attributed to TEOM data being corrected using VCM since 1st January 2004

Figure 2.2 Percentage change in running annual mean PM₁₀ since January 2006



Sulphur Dioxide (SO₂)

There has been a national downward trend in SO₂ concentrations for several years.

Currently only the Lullington Heath site monitors for SO₂.

Nitrogen Dioxide (NO₂)

NO₂ is the most commonly monitored pollutant in the network. Charts of running annual mean concentrations are shown in Figure 2.3. Percentage change over a shorter period at longer-running sites is shown in Figure 2.4. Trends from the inner London background site are included in each chart for comparison.

The Air Quality Standard for annual mean NO₂ is 40 µgm⁻³ (21 ppb).

Most sites remained relatively stable during 2016 apart from Worthing grove Lodge, which having decreased during 2015 to previous levels showed an increase again during 2016.

The levels recorded at the roadside sites are generally higher than those seen at background sites due to their proximity to the traffic which is the primary source of nitrogen dioxide.

Annual mean NO_x concentrations shown as percentage change since February 2006 show the concentrations were relatively stable during 2016 (Figure 2.5), although Hastings Bulverhythe continued to show a decrease as in 2015.

Figure 2.3 Running annual mean NO₂ concentrations, 1999 to 2016

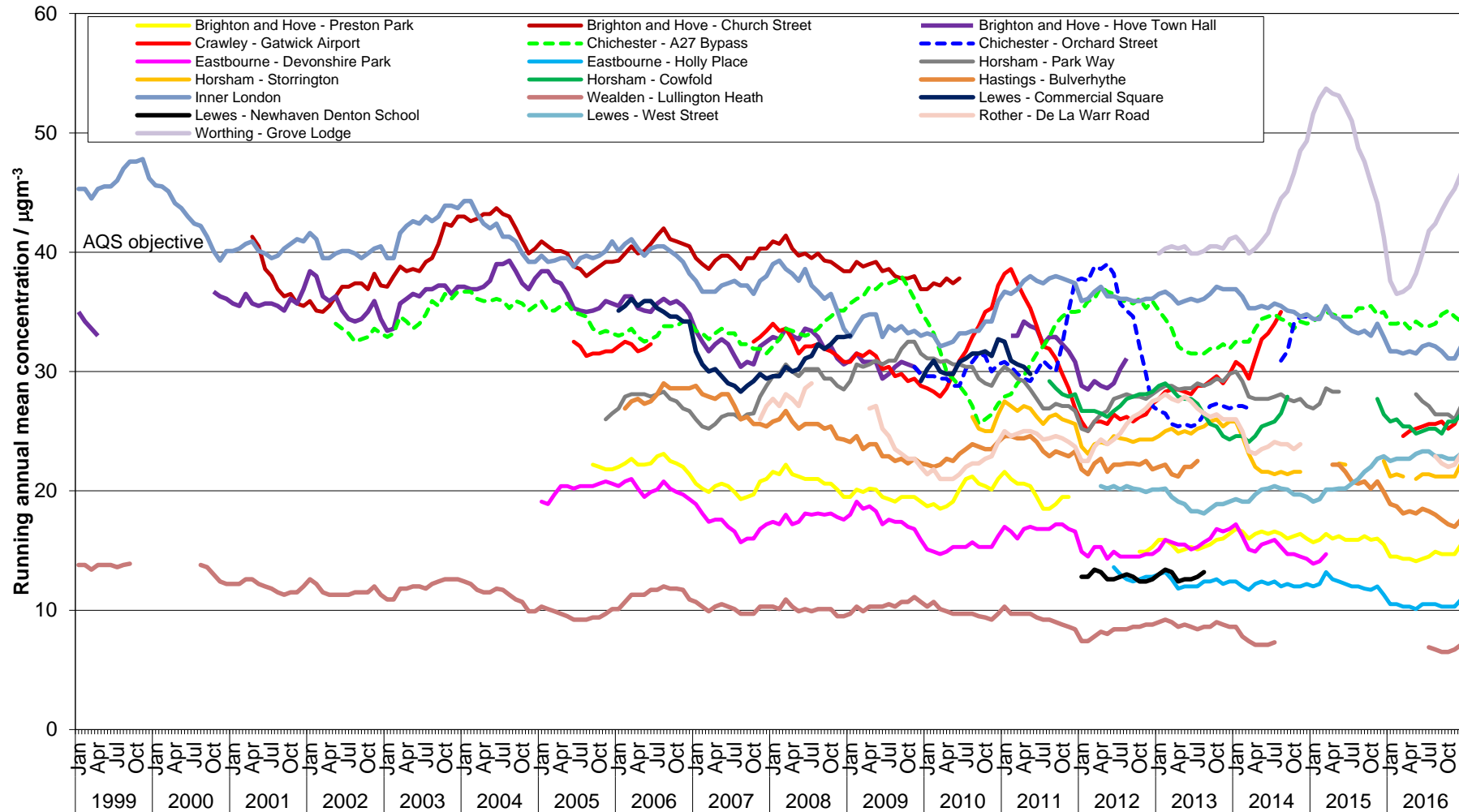


Figure 2.4 Percentage change in running annual mean NO₂ concentrations since February 2006

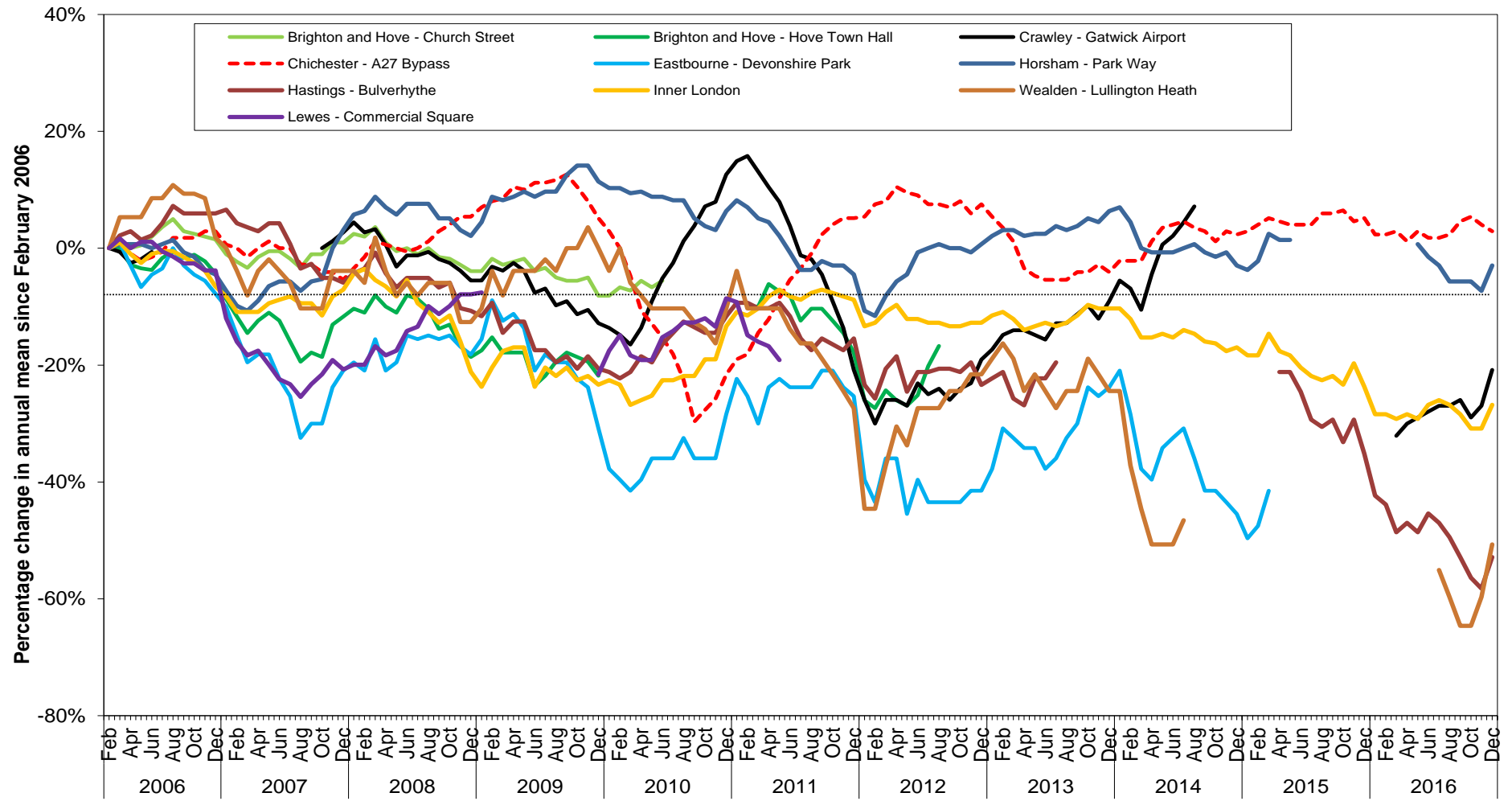
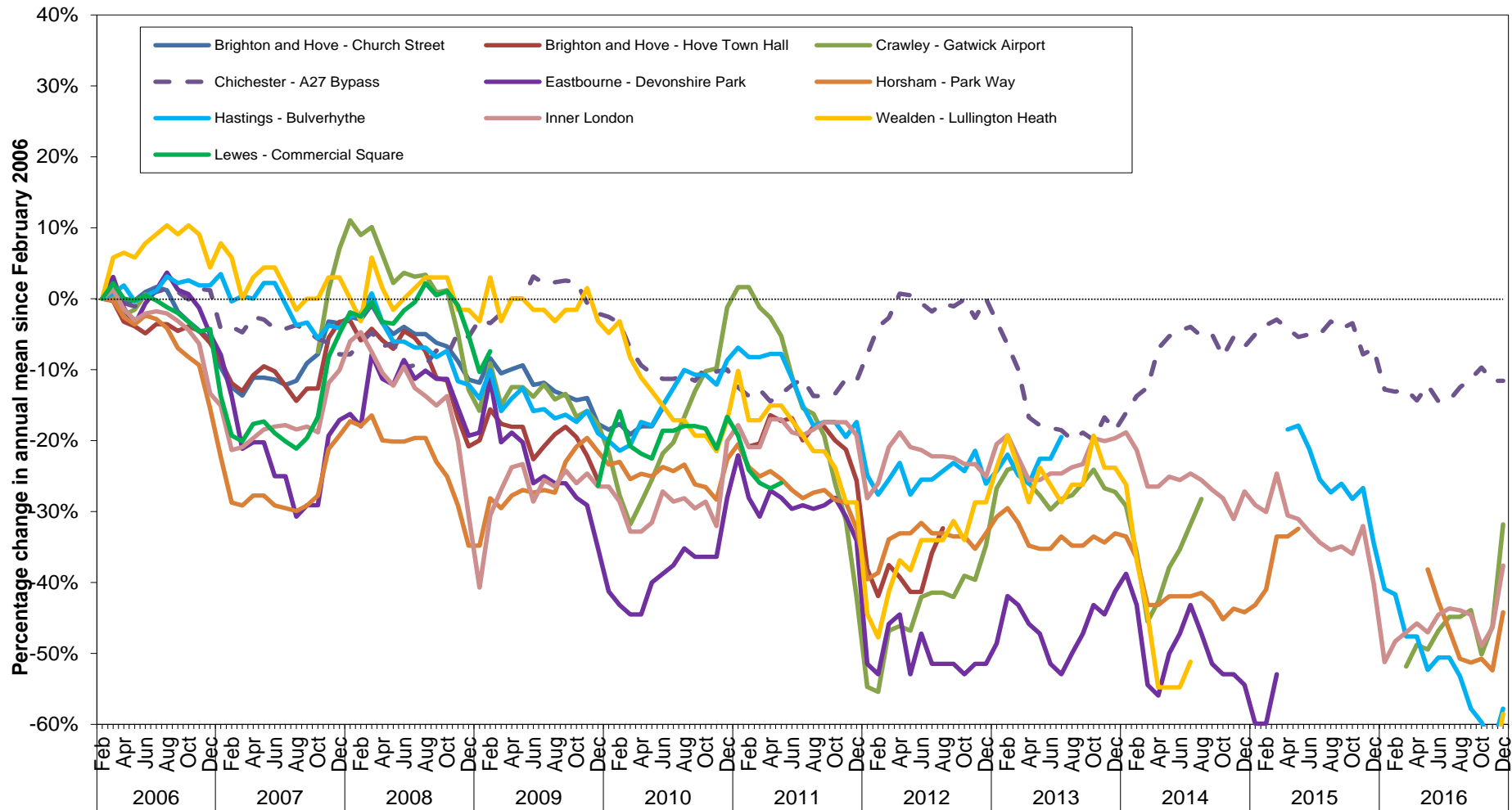


Figure 2.5 Percentage change in running annual mean NOx concentrations since February 2006



Ozone (O₃)

O₃ concentrations across most network sites have generally remained stable or shown a slight long term decrease since 1999. The levels decreased at Wealden Isfield and Brighton and Hove Preston Park during 2016.

O₃ levels are highly dependent on the weather and the warm sunny summer periods can cause a sharp increase in mean levels. It is also known that a proportion of the O₃ experienced in Sussex is transported from continental Europe under certain meteorological conditions.

The slight changes in O₃ levels throughout the year are also seen in the percentage change plot (figure 2.7).

Figure 2.6 Running annual mean O₃ concentrations, 1999 to 2016

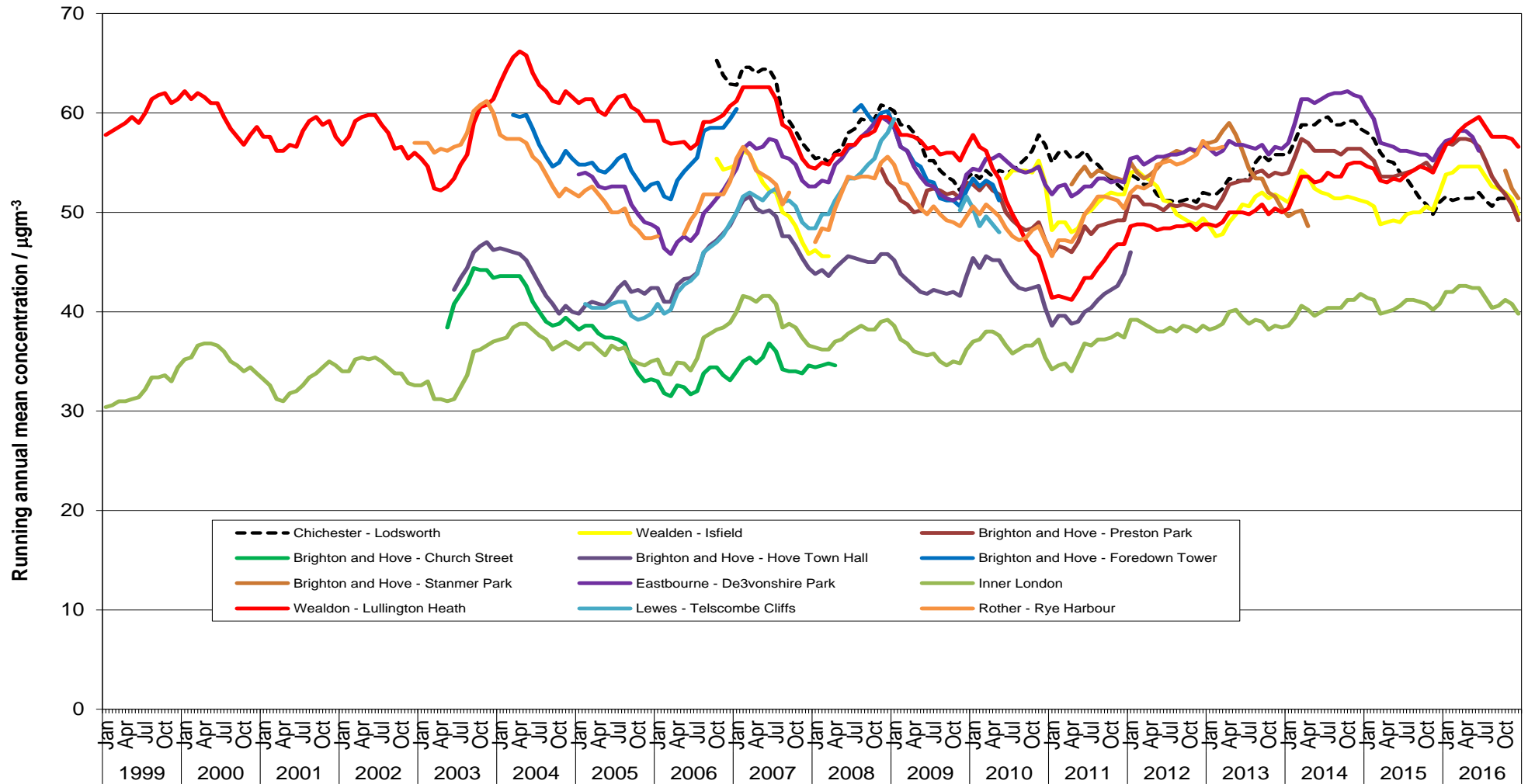
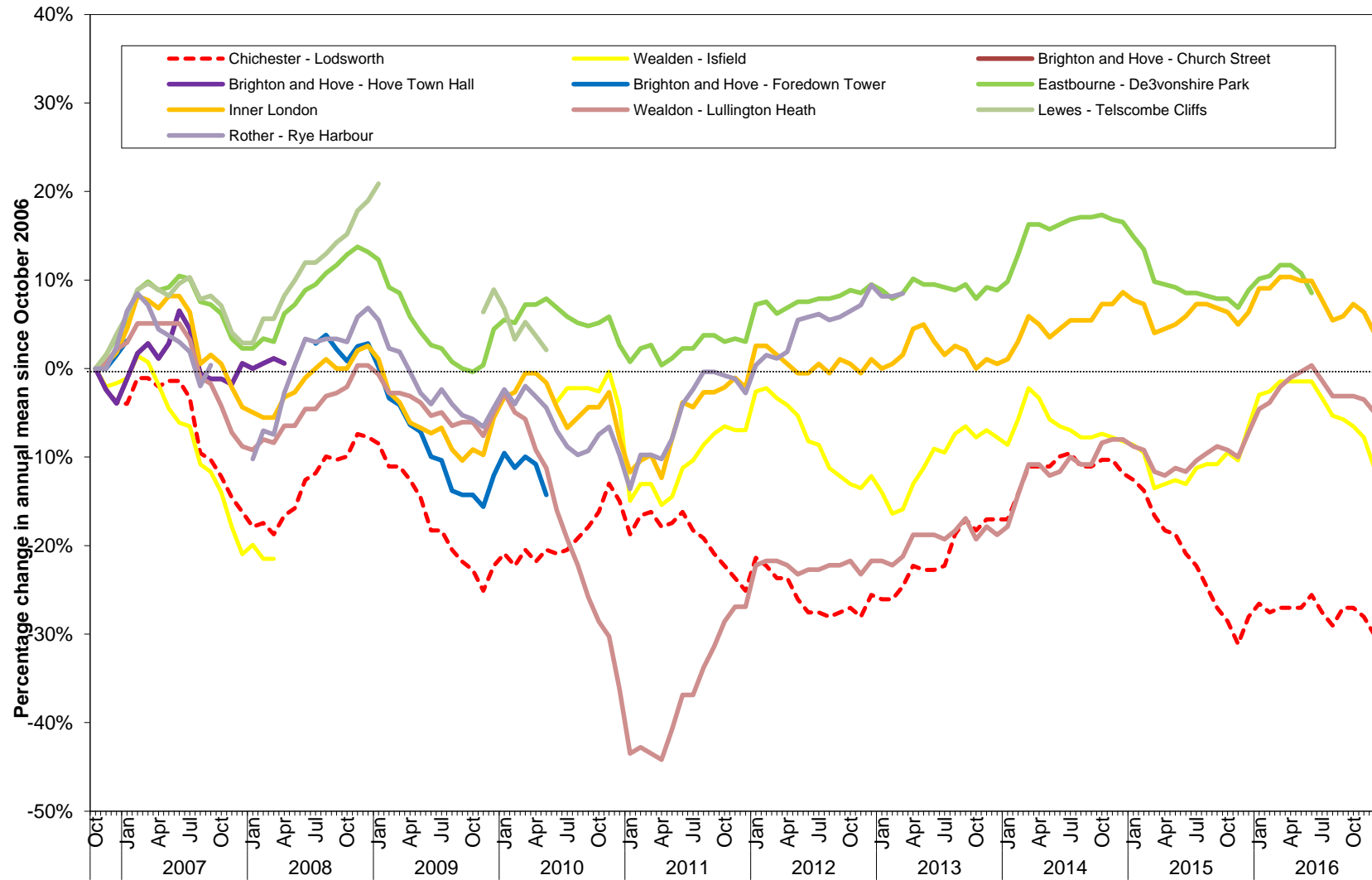


Figure 2.7 Percentage change in running annual mean O₃ concentrations since October 2006



CHAPTER 3: Air Quality Review and Annual Status Updates

This chapter details each Local Authority's progress in the air quality review process. Since 2016 each council is required to produce an Annual Status Report on air quality and any developments which may affect it. For more information concerning the responsibilities of Local Authorities with regard to local air quality management contact the council direct or visit Defra's web site at: <https://uk-air.defra.gov.uk/aqma/>

A number of acronyms are often used in relation to the Review and Assessment process:

Defra	Department of the Environment, Food and Rural Affairs
APR	Annual Progress Report
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
HA	Highways Agency
LTP	Local Transport Plan
USA	Updating and Screening Assessment
DA	Detailed Assessment

Air Quality in Adur and Worthing

There is one air quality management area within the Worthing Borough: the Worthing Borough Council AQMA No. 2. This was enlarged in 2014 to take in a larger area along the Upper Brighton Road and Warren Road (A27) and encompass Lyons Farm. This was declared for exceedances of the annual mean objective for Nitrogen Dioxide (NO₂).

In 2016 NO₂ concentrations exceeded the annual objective at three locations, all along the A27 and within the AQMA. Elsewhere there was a general increase in measured NO₂ concentrations at most locations. This is a concern, particularly the exceedances within the AQMA.

Worthing Borough Council has an air quality action plan which aims to reduce emissions from traffic. The Council works closely with neighbouring councils, West Sussex County Council (WSSCC) and Highways England (HE) to deliver the plan. The action plan was published in late 2015 following consultation. Work progressed on a number of measures during 2016, particularly with respect to staff travel, electric vehicle charging infrastructure planning and work with developers to achieve improvements to infrastructure and traffic flow as and when developments came forward. This achieved mixed results.

There are two Air Quality Management Areas within the Adur District: AQMA 1 – High Street, Shoreham-by-Sea and AQMA 2 – Old Shoreham Road, Southwick. Nitrogen Dioxide (NO₂) concentrations within AQMA 1 exceed the annual objective at the continuous monitoring site, but concentrations decrease rapidly away from the road. Within AQMA 2 concentrations have decreased and stabilised over recent years. Elsewhere within the District measured NO₂ concentrations increased over 2015 levels, but remained below the annual objective.

Adur District Council has an air quality action plan in place which aims to reduce emissions from traffic and works closely with neighbouring councils and West Sussex County Council. The action plan was revised in 2015 in order to report an update to Defra. The aim is for the action plan to be revised thoroughly in 2017 as many of the listed measures are duplicated or outdated.

See:

<http://www.adur-worthing.gov.uk/environmental-health/pollution/air-quality-and-pollution/local-air-quality-management/>

Air Quality in Arun District

Between 2003 and 2015 Arun District Council undertook an Update and Screening Assessment (USA) of local air quality every third year to account for changes to air quality objectives, monitoring data and pollutant sources etc., since the Review and Assessment. The USAs did not identify any changes to local air quality which would lead to a risk of any of the air quality objectives being exceeded, and it was therefore not necessary to proceed with Detailed Assessments. In other years progress reports detail any monitoring data collected in the previous year, and summarise any new or potential local developments that are likely to have an impact on air quality. They are also useful for identifying potential areas of poor air quality at an early stage.

You can view or download the reports from:

<http://www.arun.gov.uk/air-quality-including-bonfires>

Air Quality in Brighton and Hove City

Continuous analysis of outdoor air shows a long term improvement in nitrogen dioxide outside of the AQMA. Improvements are recorded in lower density areas outer roadside locations and suburban neighbourhoods where prevailing air quality is good. In combination with source reductions in lead, benzene and carbon monoxide it is likely that where many people live the air inhaled is more healthy than 10 or 20 years ago.

Monitoring at some city centre roadside sites in the AQMA suggests that current nitrogen dioxide concentrations are similar to 2002 with improvements since 2010. At a number of roadside locations nitrogen dioxide concentrations have not changed on those recorded fourteen years ago. Concentrations continue are recorded above the nitrogen dioxide legal limit within nine metres (30 feet) of confined roads in parts of Brighton, Portslade. Recent monitoring suggests compliance with the limit in Rottingdean but this needs to be confirmed with 2016 and 2017 monitoring results.

The Air Quality Action Plan relates to the Local Transport Plan and has joint interest to initiate a low emission strategy (LEZ). The 2015 bus LEZ covers North Street, Churchill Square and Western Road. We have won funding from department of transport and are investing over one million pounds in the retrofit of older buses in order to target emissions of oxides of nitrogen.

The air quality action plan will promote alternatives to diesel in the new management area for example methane and electric vehicle use and influence local planning policies regarding the massing and position and use of buildings. The Environmental Protection Team consults on planning applications and air quality is a material consideration for the planning process.

There has been impressive progress in providing travel choice in the city including a doubling in bus patronage in the past twenty years and increase in active travel such as cycling and walking. However a number of other measures require implementation if the EU and English limits for nitrogen dioxide are to be met. The use of electrical vehicles in Brighton & Hove has increased in recent years, but this category remains a tiny contribution to local transport. The local bus company has secured funds for electrical hybrid buses. Retrofits and regenerative braking are now in daily operation. It is recommended that the city join with partners in West Sussex in order to utilise anaerobic digestion of organic waste to produce biogas (methane) fuel for local transport use.

Local Air Quality Management (LAQM) reports for the Department of the Environment (DEFRA) must be produced on regular basis. This is one of the council's statutory duties required under part IV of the Environment Act 1995.

Where specific airborne pollutant standards are exceeded local authorities have to designate these geographical areas as Air Quality Management Areas (AQMAs).

Particulates in the city

PM10s are fine airborne particles (less than ten microns). When inhaled the microscopic particles can penetrate deep into the lungs. Fine particles in the air can travel long distances between regions. That said emissions from local diesel engines are significant in influencing concentrations of fine particles close to roads.

Compared with an annual mean target of 40 µg/m³ (micrograms per metre cubed) in 2012 concentrations of PM10 were monitored on Beaconsfield Road (A23), Brighton at just under 28 µg/m³. There were fifteen days (24-hour average) that had concentrations > 50 µg/m³ compared to a target of 35. These monitoring results are based on 99.3% data capture through the calendar year.

In 2013 concentration on North Street close to the Ship Street junction were monitored close to 26 µg/m³. Three days (24-hour average) had concentrations > 50 µg/m³. These monitoring results are based on 90.8% data capture through the calendar year. From 2014/15 particulate matter less than 2.5 microns is monitored at North Street and Lewes Road in Brighton and results will be valuable to assess the health impacts of local air pollution.

Nitrogen dioxide in the city

During recent years up to 2015 concentrations remain above the legal limit at some certain roadside locations: in Brighton, parts of Portslade and Rottingdean High Street.

The problem of nitrogen dioxide is similar to other small cities with historical centres such as York, Oxford and Cambridge. It is also comparable with Portsmouth, Reading, Nottingham and Sheffield. With a population approaching half a million the Brighton-Worthing conurbation is one of the least industrialised in Europe (in terms of large combustion processes and factories). It has been certain for more than a decade that poorer air quality in Brighton is dominated by near ground level emissions and local transport sources. Due to economy and transport policies some local road counters show a decline in total traffic tallies between 2008 and 2012. Levels of nitrogen dioxide have not improved in some places near roads due to the following contributory factors:

- A higher proportion of diesel vehicles that show no real-world performance improvement in emissions of nitrogen dioxide
- Diesel particulate filters that can become clogged with soot following repetitive urban driving
- Exhaust traps designed to mitigate particles that can produce and emit additional nitrogen dioxide from the tail pipe
- Older petrol vehicles with catalytic converters that perform less well with time
- Internal combustion engine and emission abatement technologies that are not suited to; stop-start mileage, congested intersections, intermittent acceleration and sharp hill climbs
- Narrow street ways that are less favourable for dispersion of emissions and entrainment of fresher ventilation from open spaces such as parks and the sea
- Eddie and wake effects sometimes resulting in slower flow of wind one or two city blocks inland from the sea front
- A seasonal pattern in ambient nitrogen dioxide points to a lack of vertical dispersion above the street in the wintertime

- A recorded decline in regional background pollutant levels emphasis the importance of local road traffic emissions

The most concentrated pollution is not always found adjacent to the highest volumes of traffic. Road intersections and enclosed streets have a limited spatial capacity before air quality is likely to become an issue. Relatively few vehicles with modest emissions totals can cause long term ambient nitrogen dioxide concentrations to exceed legal target levels in confined spaces. Most of these urban street environments have very high population density with considerable retail activity and associated frequent pedestrian foot fall.

For further information on air quality in Brighton and Hove and the review and assessment reports go to:

<http://www.brighton-hove.gov.uk/content/environment/air-quality-and-pollution/air-quality-management-city>

Air Quality in Chichester District

The main source of air pollution in the district is from road transport, particularly on roads in and adjacent to Chichester City. The principal pollutant of concern is nitrogen dioxide (NO₂). Concentrations of NO₂ show a slight decrease over the last five years but there are hotspots within Chichester where exceedances of the national air quality Objective for NO₂ occur. Air Quality Management Areas (AQMAs) have been declared at three locations as follows:

- Stockbridge roundabout at the junction with the A27 and A286
- Orchard Street, Chichester
- St Pancras, Chichester

An Air Quality Action Plan (AQAP) was adopted by CDC in 2008 and revised in 2015, see web link above. Air quality is seen by the Council as an important public health issue but it is not something we can improve on our own. We are actively working with other services within the Council, partners at West Sussex County Council (WSSCC) and the Sussex Air Quality Partnership (SAQP) to tackle this issue.

Since our first AQAP dated 2008, we have won in excess of £290k of grant monies from a variety of sources. We have delivered a number of initiatives including Chichester's first car club, enabled the installation of two electric vehicle charging points, provided 140 additional bike parking spaces in the city centre, trained 150 cyclists to ride more confidently, maintain their bikes and explore Chichester on led rides and contributed data to the air-Alert forecasting service.

During 2016 we replaced the NO₂ analyser at our Orchard Street monitoring station and have been monitoring at this location since September.

West Sussex County Council (WSSCC) has produced a Walking and Cycling Strategy 2016 – 2026 which sets out the County Council's aims and objectives for walking and cycling together with its priorities for investment in infrastructure improvements. Chichester District Council will be updating its own Infrastructure Development Plan (IDP) in line with WSSCC's strategy in order to prioritise infrastructure provision across the district.

Actions to Improve Air Quality

We have worked with partners on a number of projects over the last year including:

- Setting up a programme of cycling initiatives such as guided rides, cycle confidence training and bike maintenance courses to encourage people to cycle, particularly for commuting to work. During 2016 over 50 people accessed these initiatives and some tried more than one activity. We have also provided funding to two schools to enable them to hold Bike It breakfasts to continue the legacy of this work.
- We secured a Cabinet Resolution in 2015 to install up to ten electric vehicle (EV) charging points across the District. Additional funding opportunities are also being investigated in order

- that additional 'rapid' charge points (50kW) can be delivered. Delivery of the EV charging points is anticipated by the end of March 2018.
- We have received consultancy advice from the Energy Savings Trust regarding replacement of fleet vehicles with electric vehicles and have a Cabinet resolution in place that where there is a business case this will be supported. We are working with a number of Council services to ascertain a business case for relevant vehicles.
 - Our project to upgrade a path to dual use within one of the City's parks (Jubilee Gardens) is progressing and construction work is intended to commence during summer 2017.

Conclusions and Priorities

This year's NO₂ monitoring has not identified exceedances at either of the monitoring stations. There are five diffusion tube locations where the air quality objective of 40µg/m³ was exceeded, namely:

- St Pancras, within the St Pancras AQMA
- The Hornet, close to the St Pancras AQMA
- Claremont Court, within the Stockbridge Roundabout AQMA
- Stockbridge Road south, adjacent to the Stockbridge Roundabout AQMA however this tube is not located at a location where the Objective applies. The calculated concentration at the nearest receptor is 28µg/m³ which is below the air quality objective.
- Rumbold's Hill, Midhurst - not within an AQMA. This tube has been in place for 18 months.

Further monitoring is planned for this location in order to determine the trend at this location.

The above diffusion tube locations showed similar trends last year with the exception of The Hornet (which was slightly lower last year at 40µg/m³). At the other diffusion tube locations not within AQMAs there were no exceedances of the air quality objective of 40µg/m³. There are no proposed changes to the AQMAs at the current time.

The Air Quality Action Plan (AQAP) was updated in 2015 and we are currently working on a number of actions to improve air quality across the district.

Our priorities for the coming year to address air quality include:

- Getting a policy agreed by our planning policy team for inclusion within the revised Local Plan to enable air quality to be given greater importance within the land use planning process.
- Ensuring that modal-shift is part of the Southern Gateway proposals for the redevelopment of this area of Chichester.

The key challenges in delivering our actions are obtaining funding and obtaining political support given that the Council is delivering many complex projects and air quality is one of a number of issues to be considered.

Local Engagement and How to get Involved

The Council made comments on the Highways England proposals for the A27 Chichester Bypass Improvement Scheme in March 2016. A final decision has not been made on a preferred route and Government funding has been put on hold. Additional community consultation is currently taking place in order to put forward an alternative scheme that may attract funding. It is hoped that a decision can be made within the next 12 months.

The public can get involved by supporting our campaigns for behavioural change (e.g. joining the Car Club or car sharing and walking, cycling or using public transport wherever possible. Further information can be obtained by emailing: airquality@chichester.gov.uk

The Chichester and District Cycle Forum provides information on local cycling opportunities and campaigns on behalf of cyclists. The Forum is open to the public and further information can be obtained by emailing cycle@chichester.gov.uk

See link: <http://www.chichester.gov.uk/pollutioncontrolairquality>

Air Quality in Crawley Borough

The Council has a legal duty to monitor air quality in the town. The monitoring has shown that the average nitrogen dioxide concentration at a number of points along Crawley Avenue and around the Hazelwick roundabout exceeds the annual average Air Quality Objective for nitrogen dioxide. Following consultation that was undertaken in 2015 an Air Quality Management Area (AQMA) has now been formally declared in the affected area.

More detailed information is included in an annual technical report that is provided to Government, which can be obtained in the links below.

http://www.crawley.gov.uk/pw/Environment_and_Health/Environmental_Health/Pollution/index.htm

Air Quality in Eastbourne Borough

The council completed Air Quality USAs for Eastbourne in 2003 and 2004, following an initial Review and Assessment completed in June 2000.

The initial work in 2000 identified that the National AQS objectives were likely to be met in the required timescales and that no further work was required at that stage.

The reports can be downloaded from:

<http://archive.eastbourne.gov.uk/environment/pollution/air/review/>

Air Quality in Hastings Borough

The quality of air across the majority of Hastings & St Leonards reaches the national standard. However, on a small part of the Bexhill road, levels of Particulate Matter (PM) were historically above the required standard and as a result, an Air Quality Management Area (AQMA) was declared and an Air Quality Action Plan (AQAP) prepared.

PM is a very fine dust and comes from industry, various road traffic debris, sea salt and biological particles.

However, since 2011 PM concentrations have reduced and have remained below annual air quality limit values. Additionally the Bexhill to Hastings Link road opened in 2015, as detailed in our AQAP, has helped improve air quality in this area further. Therefore the AQMA was revoked earlier this year.

For further information go to:

http://www.hastings.gov.uk/environment_planning/pollution_noise_drainage/air/air_management/

Air Quality in Horsham District

The area covered by Horsham District Council is primarily agricultural in character and does not incorporate a significant heavy industrial base or major transport hubs. Locally, the most significant contributions to poor air quality come from road transport and the air pollutants of most concern are particulate matter (PM₁₀) and nitrogen dioxide (NO₂).

The main source of air pollution in the district are road traffic emissions from major roads, notably the A24, which intersects the district north - south, A264 to the north of Horsham, A272 and A281 at Cowfold; and A283 at Storrington. Two Air Quality Management Areas (AQMAs) have been declared in the district, in the town centres of Cowfold and Storrington; both for the exceedances of the annual mean objective for NO₂. A draft Air Quality Action Plan (AQAP) was prepared for both AQMAs; the Storrington AQAP was submitted to Defra in 2012 and the Cowfold AQAP in 2013.

Although the work under the Local Air Quality Management (LAQM) is the legal obligation of district councils, actions aimed at improving air quality most of the time require the cooperation of various departments and organisations. Horsham District Council works in cooperation with other

stakeholders, such as planning, Public Health England, West Sussex County Council (WSCC) highways, neighbouring districts, Sussex-Air Partnership and the Environment Agency. The assessment and implementation of the identified traffic management schemes is done in cooperation with WSCC as they are the authority responsible for roads and transport management. Steering groups were set up in the community for each of the AQMAs. The work of the steering groups contributed largely to the development of draft Action Plans for the AQMAs. The Council is consulted by the Environment Agency upon the granting of environmental permits for 'PartA1' processes and liaises with the Agency regarding any issues concerning those permits.

The diffusion tube monitoring data for 2015 confirms that measured levels of NO₂ in the AQMAs at Cowfold and Storrington are exceeding, or are close to exceeding, the air quality objective for this pollutant. One diffusion tube site in the monitoring survey exceeded the annual mean objective for NO₂; this was Cowfold 7n, located on the A272 in the Cowfold AQMA. Four other monitoring sites measured concentrations within 10% of the annual mean objective (i.e. 36µg/m³ or more); three of these sites are within the Storrington AQMA (Storrington 1,2; Storrington 4 and Storrington 11n) and one within the Cowfold AQMA (Cowfold 1,2). The diffusion tube results indicate a general reduction in NO₂ concentrations in the past two years 2014-2015 when compared with previous years. An overall decreasing trend has been observed for the majority of diffusion tube monitoring sites in the district in the eight years since the first monitoring sites were established. This can be attributed to decreasing background concentrations and is also indicative of a gradual improvement in fleet emissions.

On the basis of the 2015 monitoring data for NO₂, the boundaries of the Storrington and Cowfold AQMAs can remain unchanged, and there is no need to proceed to a detailed assessment for any other location or pollutant.

Regarding particulate matter (PM₁₀), there were no exceedances of the PM₁₀ air quality objectives at the two monitoring sites in the district in 2015. Data from the Horsham Park Way analyser shows an overall gradual reduction in measured concentrations since monitoring at this location began in 2007. A decreasing trend has also been observed in the recent years at the Storrington AURN site.

The PM_{2.5} results for 2015 indicate that concentrations at the monitoring site in Horsham Park Way are well below the target value of 25µg/m³ in 2015.

Further information can be found at:

<http://www.horsham.gov.uk/environmentalhealth/environmental-health/air-quality/air-quality-assessment>

Air Quality in Lewes District

Lewes historic Town Centre comprises many narrow streets, including single lane streets on steep hills that are bounded by tall buildings on both sides of the road. Such conditions can limit the dispersion of air pollutants and can lead to locally high concentrations. As a result of these conditions, the average speed of vehicles is very low during busy congested periods. A combination of these factors leads to higher emissions and consequently higher pollution.

In 2005 an Air Quality Management Area (AQMA) was declared in Lewes town centre for nitrogen dioxide.

Due to the traffic levels on the Newhaven gyratory (A259) locally high concentrations of air pollution have been measured.

In 2014 an Air Quality Management Area (AQMA) was declared for the Newhaven gyratory (A259) for nitrogen dioxide.

Reports can be downloaded from:

<http://www.lewes.gov.uk/environment/824.asp>

Air Quality in Rother District

Rother District currently does not have any AQMAs, because previous monitoring and modelling studies have not indicated any likelihood of the UK air quality objectives being exceeded. Since Rother District Council has no AQMAs, no formal Air Quality Action Plan has been implemented for the District.

Further information can be found at:

<http://www.rother.gov.uk/article/193/Air-quality>

Air Quality in Wealden District

Wealden District currently does not have any AQMAs, because previous studies have not indicated any likelihood of the UK air quality objectives being exceeded. Therefore, no formal Air Quality Action Plan has been set up and implemented for the District.

Further information can be found at:

http://www.wealden.gov.uk/Wealden/Environment/Pollution/Air/PHCS_Air_Pollution.aspx